EXPERIMENTAL ROTORDYNAMIC COEFFICIENT RESULTS FOR HONEYCOMB SEALS

prepared by

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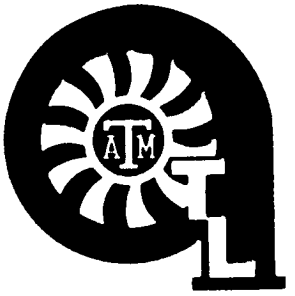

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NOMENCLATURE

C, c	Direct and cross-coupled damping coefficients (FT/L)
$\overline{C}, \overline{c}$	Normalized direct and cross-coupled damping coefficients (T)
Cr	Radial clearance (L)
D	Diameter (L)
F	Seal reaction-force magnitude (F)
$f = k/C\omega$	Whirl frequency ratio (dimensionless)
K, k	Direct and cross-coupled stiffness coefficients (F/L)
$\overline{K}, \overline{k}$	Normalized direct and cross-coupled stiffness coefficients (dimensionless)
L	Seal length (L)
P	Fluid pressure (F/L^2)
R	Seal radius (L)
R_c	Gas constant for air
T	Fluid temperature (K)
$u_{\theta o} = U_{\theta o}/R\omega$	Nondimensionalized seal inlet tangential velocity
$U_{\theta o}$	Seal inlet tangential velocity (L/T)
X, Y	Rotor to stator relative displacement components (L)
ω	Shaft angular velocity $(1/T)$

Subscripts

$u_{\theta o} = U_{\theta o}/R\omega$	Normalized direct and cross-coupled stiffness coefficients (dimensionless)
b	Sump value
r	Reservoir value, radial component

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Abstract

Test results (leakage and rotordynamic coefficients) are presented for seven honeycomb-stator/smooth-rotor seals. Tests were carried out with air at rotor speeds up to 16000 cpm and supply pressures up to 8.2 bars. Test results for the seven seals are compared, and the most stable configuration is identified based on the whirl frequency ratio. Results from tests of a smooth-rotor/smooth-stator seal, a teeth-on-stator labyrinth seal, and the most stable honeycomb seal are compared.

The test results support the following conclusions:

(a) The most stable honeycomb seal tested had the largest cell size (1.57 mm) and the deepest cell depth (1.91 mm).

(b) The most stable honeycomb seal tested leaks less than the smooth-rotor/smooth-stator and smooth-rotor/labyrinth-stator seals.

(c) All honeycomb seals tested are more stable than the smooth-rotor/smooth-stator and labyrinth seals for fluid prerotation in the direction of rotor rotation.

(d) At high rotor speeds, the labyrinth seal is the most stable seal for no fluid prerotation and for prerotation opposed to the direction of rotor rotation.

(e) Additional tests of honeycomb seals are required at larger cell depths and at additional clearances.

Introduction

The model used to define the reaction-force/motion relationship for a centered gas seal is

$$-\begin{Bmatrix} F_X \\ F_Y \end{Bmatrix} = \begin{bmatrix} K & k \\ -k & K \end{bmatrix} \begin{Bmatrix} X \\ Y \end{Bmatrix} + \begin{bmatrix} C & c \\ -c & C \end{bmatrix} \begin{Bmatrix} \dot{X} \\ \dot{Y} \end{Bmatrix}. \tag{1}$$

Figure 1 illustrates the reaction forces on a whirling rotor. Positive direct stiffness, K, and cross-coupled damping, c, act to center the rotor. Positive direct damping, C, acts opposite to the velocity direction (opposing the whirling motion). However, a positive cross-coupled stiffness, k, acts to support the whirling motion–a destabilizing effect. The cross-coupled coefficients depend on the magnitude and direction (with respect to the direction of rotor rotation) of the circumferential component of the fluid velocity in the seal. The results from tests of seven smooth-rotor/rough-stator seals are presented here, with an emphasis on seal stability.

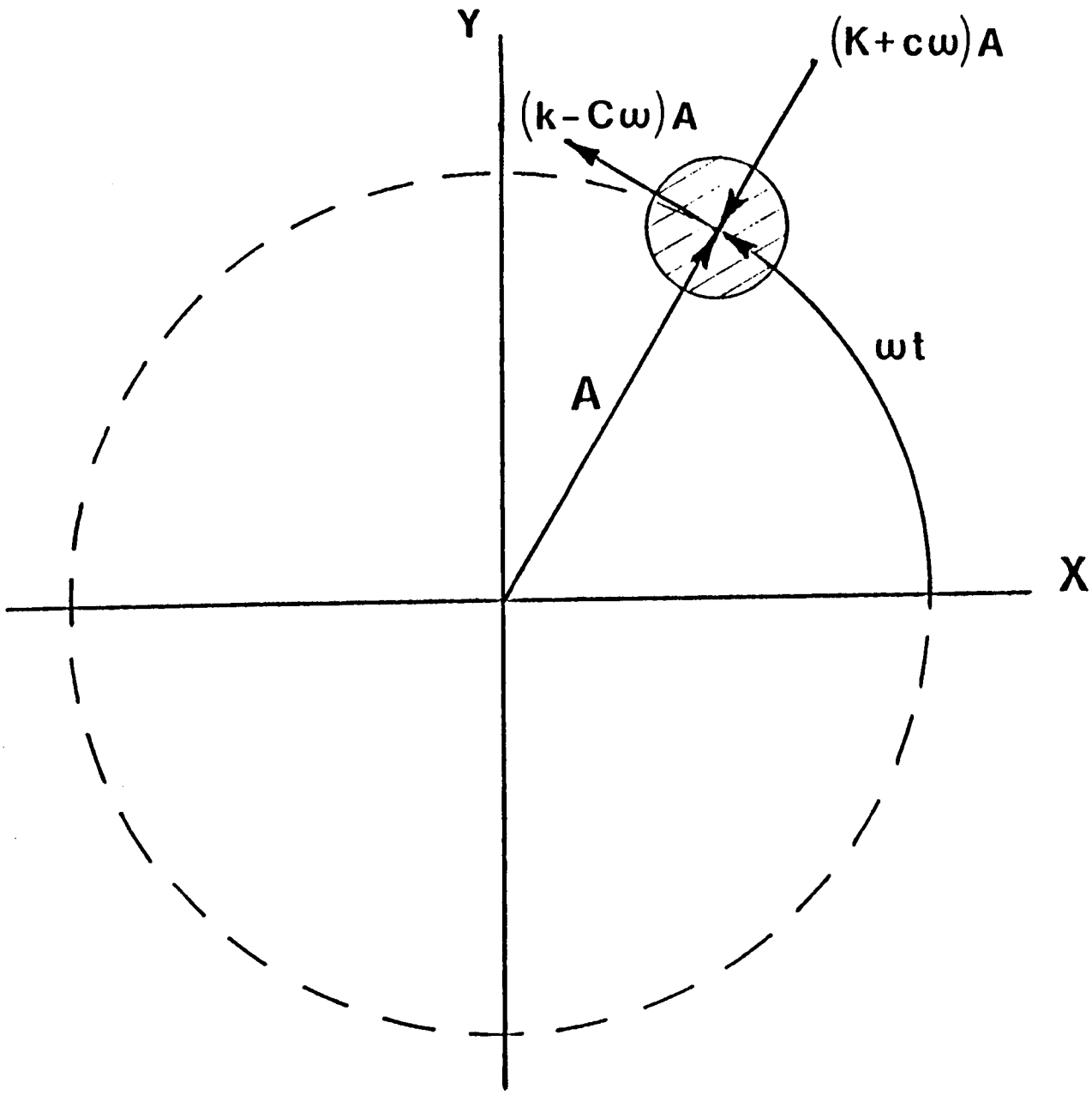


Figure 1. Forces on a precessing seal rotor.

Test Apparatus

A complete description of the test apparatus is provided by Childs et al. [1]. The rotor shaft is suspended, pendulum fashion, from an upper, rigidly-mounted, pivot shaft, as illustrated in figure 2. This arrangement allows for a horizontal (harmonic) motion of the rotor. A cam within the pivot shaft allows vertical (static) positioning of the rotor. The rotor is excited, horizontally, by a hydraulic-shaker head which acts on the rotor-shaft housing. The design of the test rig, illustrated in figure 3, permits the installation of various rotor/stator combinations. The stator is supported in the test-section housing by three piezo-electric, quartz, load cells in a trihedral configuration.

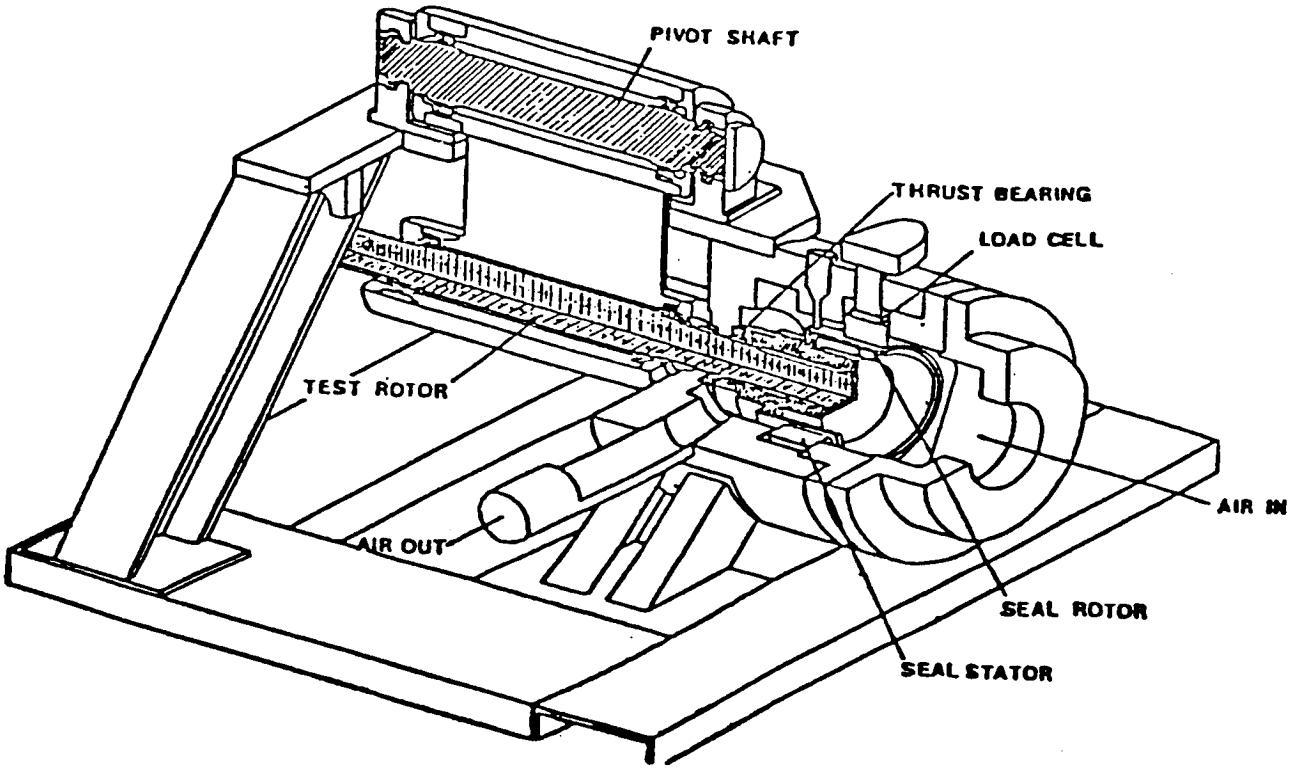


Figure 2. Test apparatus.

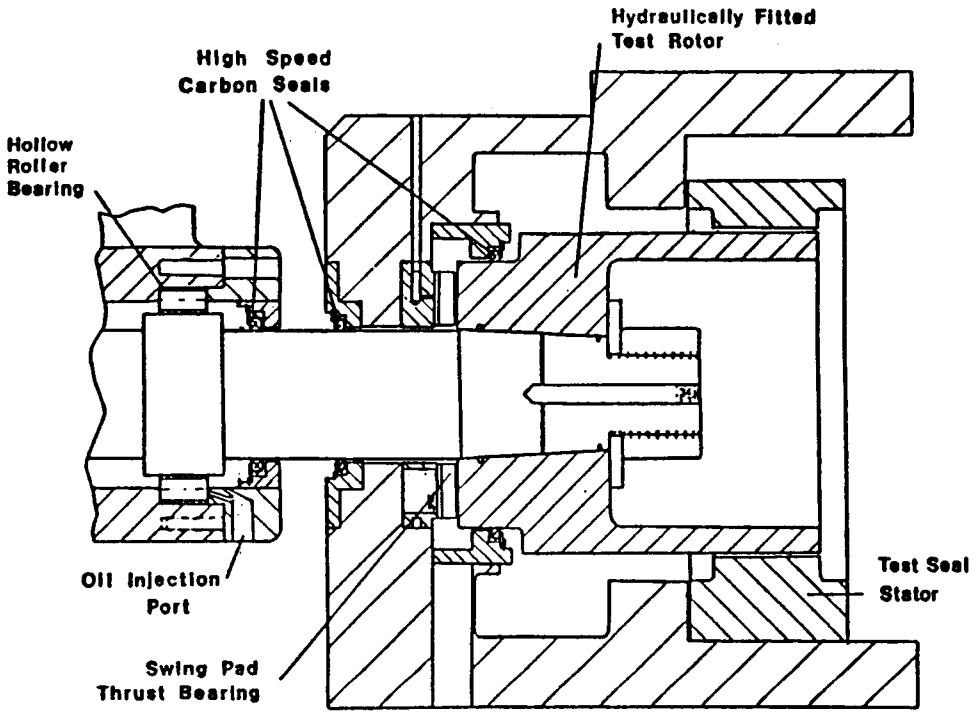


Figure 3. Test-section cross section.

Test Variables

When shaking about the centered position, the dynamic-seal-apparatus is capable of controlling the following four independent variables: *pressure ratio, rotor speed, shake frequency, and inlet circumferential velocity.* The actual test points for three of these variables are shown in Table 1.

Table 1. Test Variables

Pressure Ratio	Rotor Speeds	Inlet Circumferential Velocities
1 - 3.03	1 - 3000 cpm	-2 - High velocity against rotation
2 - 4.45	2 - 6000 cpm	-1 - Low velocity against rotation
3 - 5.70	3 - 9500 cpm	0 - Zero circumferential velocity
4 - 6.95	4 - 13000 cpm	1 - Low velocity with rotation
5 - 8.00	5 - 16000 cpm	2 - High velocity with rotation

The inlet circumferential velocities are controlled using the inlet guide vanes shown in figure 4. The inlet circumferential velocities are given in figures 5–11 as a function of pressure ratio. For a set of swirl vanes at a constant running speed, the figures show inlet circumferential velocity remains almost constant over the pressure ratios tested. There were five test points for inlet circumferential velocity: two positive, two negative, and one at zero. The negative numbers shown in the figures mean that the inlet circumferential velocity was opposed to the direction of rotor rotation. The positive numbers mean that

the inlet circumferential velocity was in the same direction as rotor rotation. Figures 12–18 show the inlet circumferential velocity as a function of rotor speed. The velocity tends to decrease with rotor speed, mainly because the rotor grows with increasing speed and reduces the leakage. The ratio of inlet circumferential velocity to rotor surface velocity, $u_{\theta o}$, ranged from about -3.1 to about 3.8. Although the larger numbers are unrealistic, they give insight into the effects of inlet circumferential velocity that would have otherwise gone unnoticed.

Normalization of Coefficients

Due to thermal and mechanical stresses, the seal rotor grows with changes in the shaft speed. To account for the resulting changes in the radial clearance, the growth was measured over the range of speeds tested. The results of the measurements are included in Table 2. To remove the effect of clearance change, the coefficients are normalized in the following manner:

$$\overline{K} = \frac{KCr}{LD(P_r - P_b)} \qquad \overline{C} = \frac{CCr}{LD(P_r - P_b)}$$
$$\overline{k} = \frac{kCr}{LD(P_r - P_b)} \qquad \overline{c} = \frac{cCr}{LD(P_r - P_b)} \tag{2}$$

The whirl frequency ratio

$$f = \frac{k}{C\omega} \tag{3}$$

is a useful nondimensional parameter for comparing the stability properties of seals. For circular synchronous orbits, it provides a ratio between the destabilizing force component due to k and the stabilizing force component due to C. Comparisons of $\overline{K}$, $\overline{k}$, $\overline{C}$, and f are presented in this report.

Table 2. Growth of Rotor with Rotational Speed.

Rotor Speed (cpm)	Diametrical Growth (mm)	(inches × 1000)
3,000	0.01	0.3
6,000	0.02	0.8
9,500	0.03	1.2
13,000	0.05	1.8
16,000	0.11	4.4

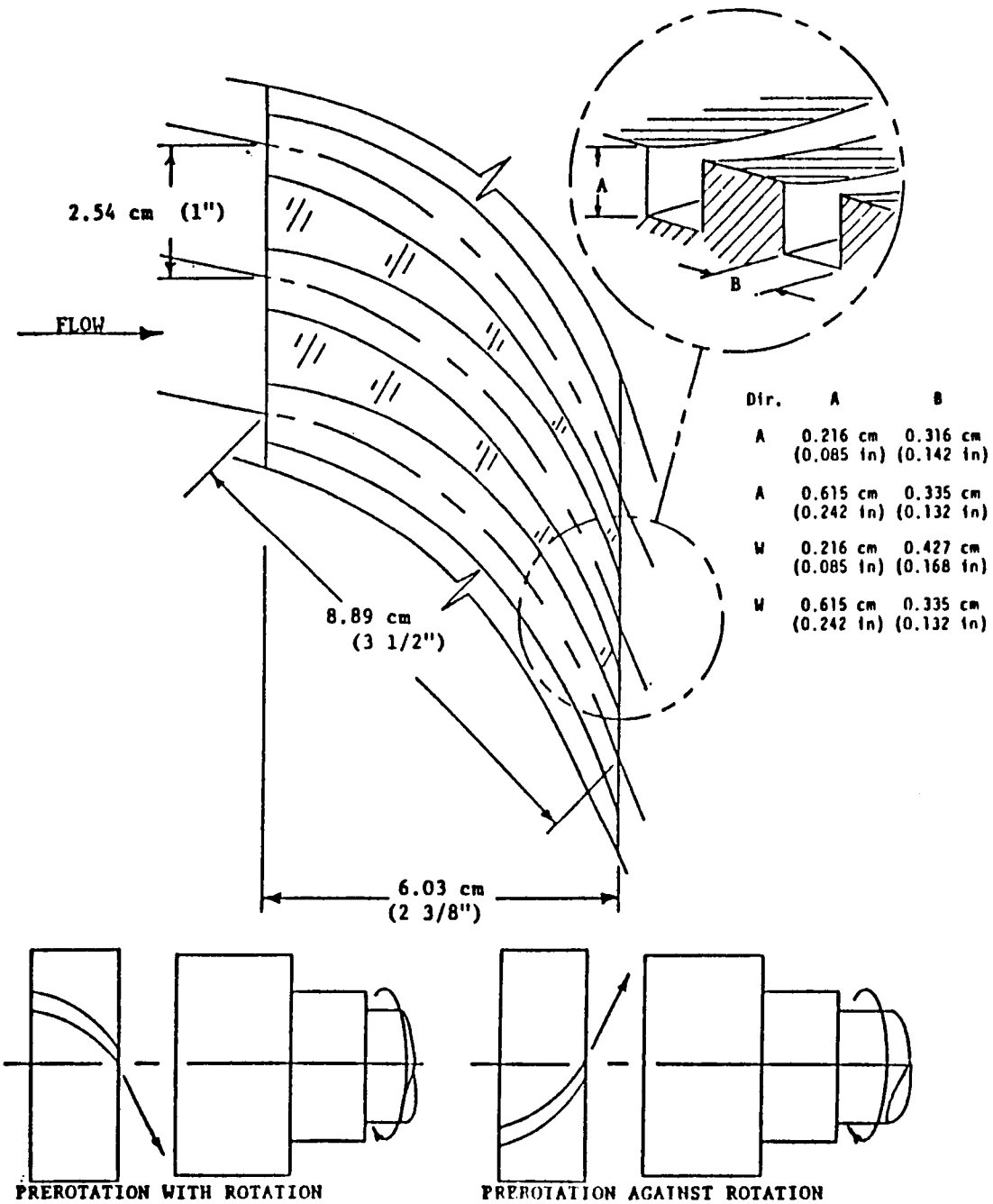


Figure 4. Inlet-guide-vane detail.

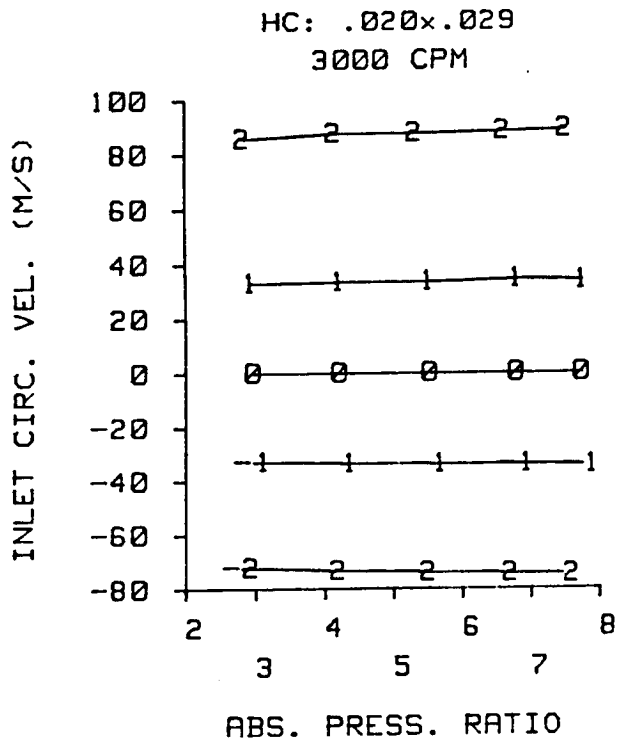


Figure 5. Inlet-circumferential velocity versus pressure ratio for seal 1 of Table 3.

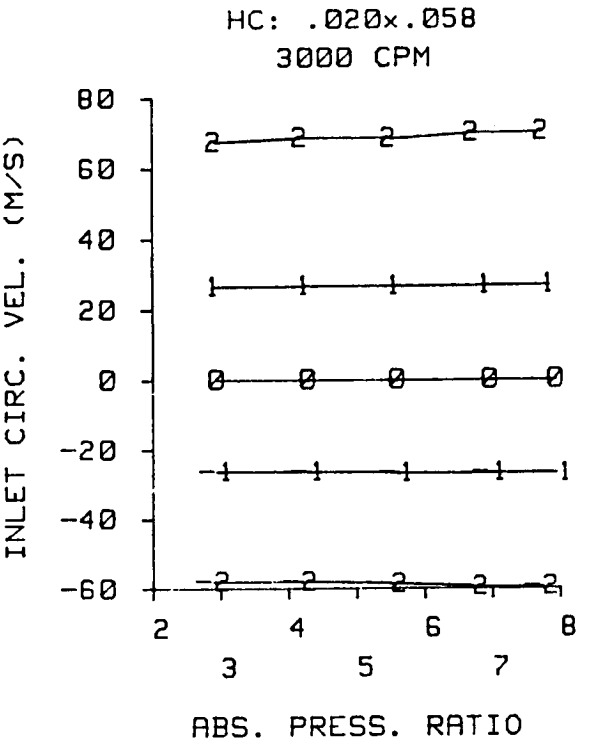


Figure 6. Inlet-circumferential velocity versus pressure ratio for seal 2 of Table 3.

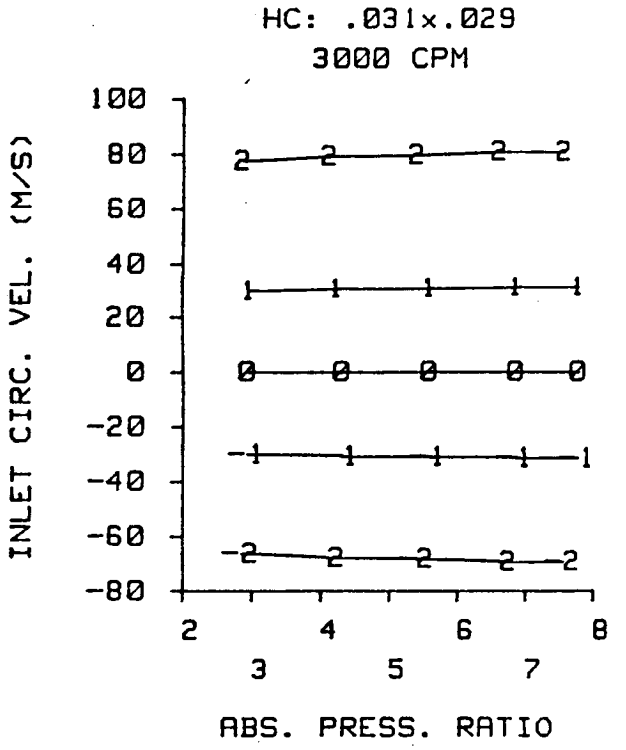


Figure 7. Inlet-circumferential velocity versus pressure ratio for seal 3 of Table 3.

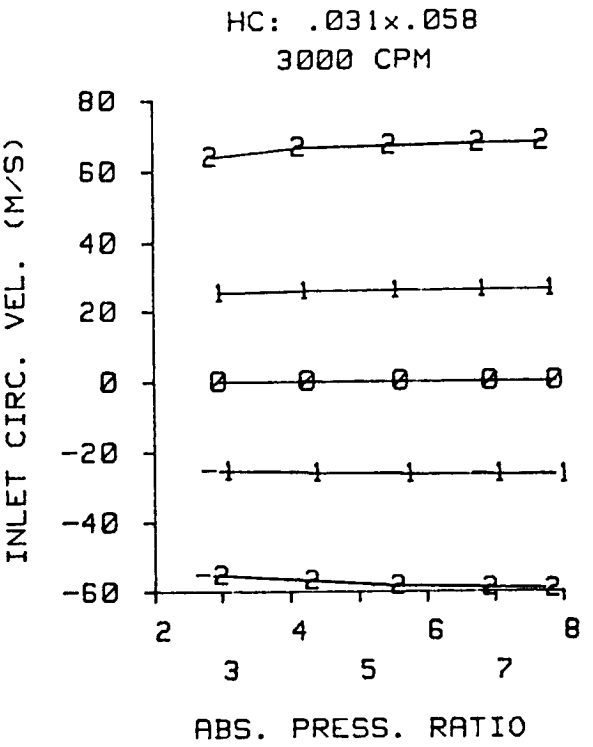


Figure 8. Inlet-circumferential velocity versus pressure ratio for seal 4 of Table 3.

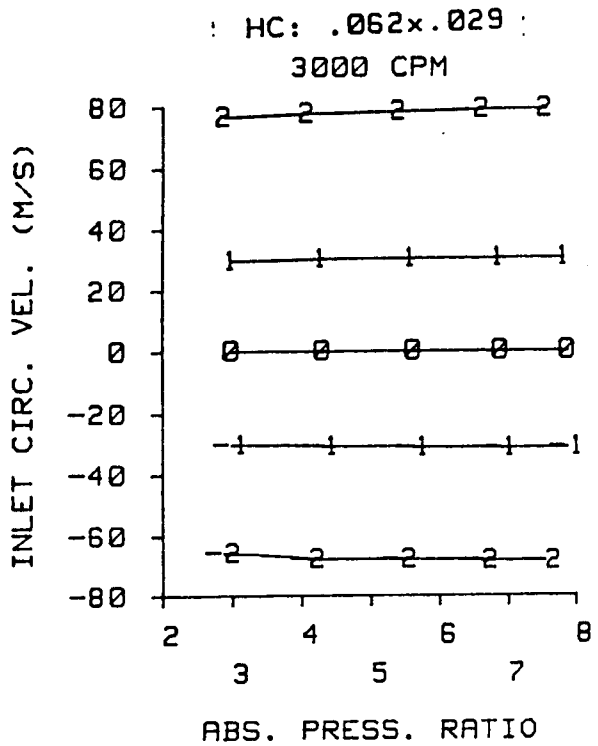


Figure 9. Inlet-circumferential velocity versus pressure ratio for seal 5 of Table 3.

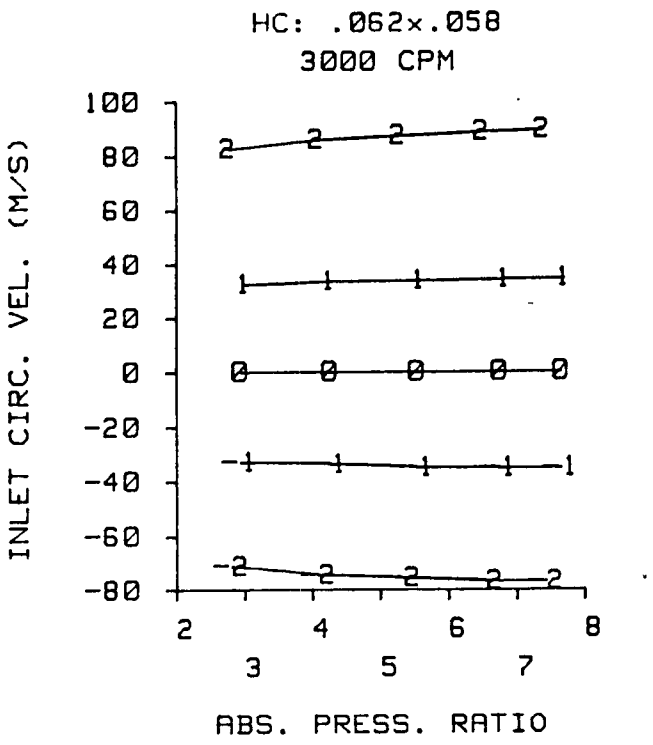


Figure 10. Inlet-circumferential velocity versus pressure ratio for seal 6 of Table 3.

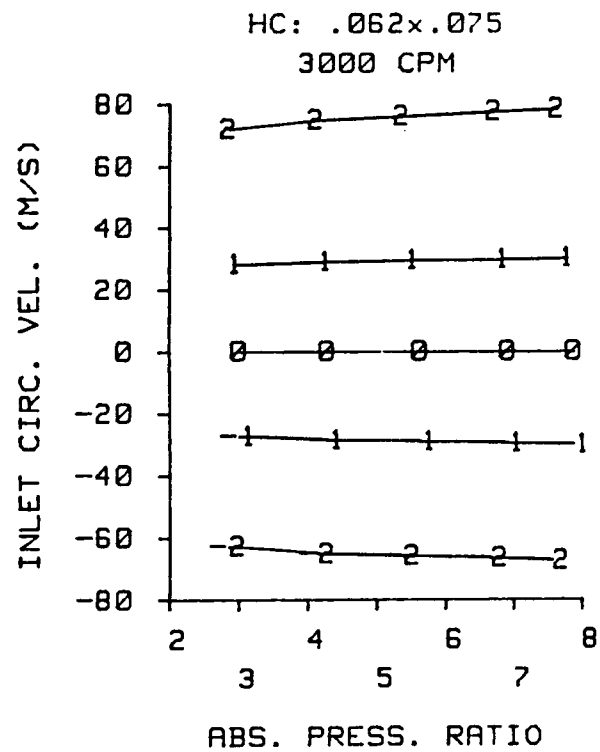


Figure 11. Inlet-circumferential velocity versus pressure ratio for seal 7 of Table 3.

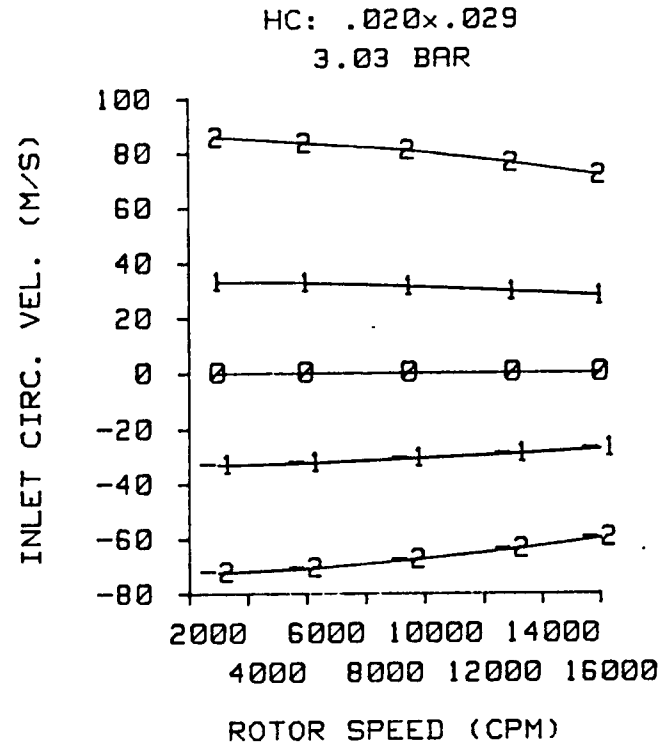


Figure 12. Inlet-circumferential velocity versus rotor speed for seal 1 of Table 3.

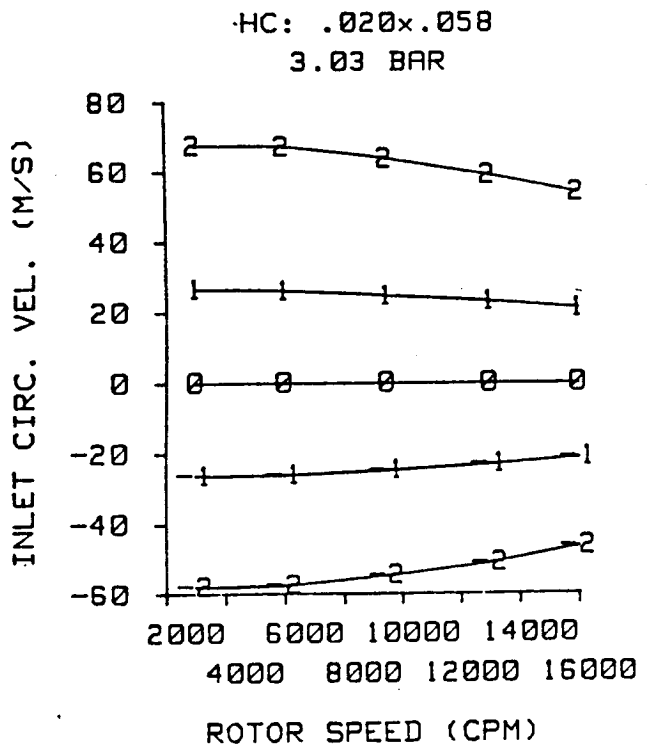


Figure 13. Inlet-circumferential velocity versus rotor speed for seal 2 of Table 3.

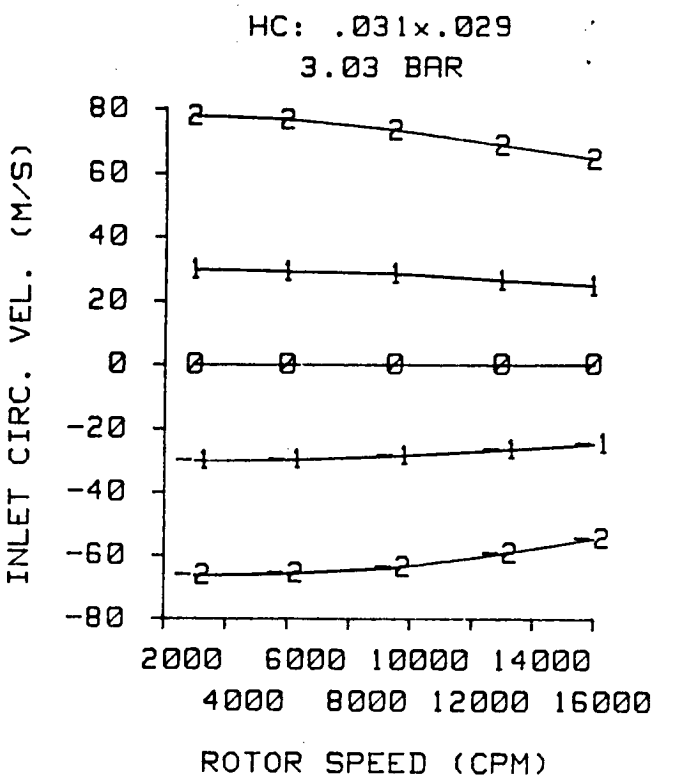


Figure 14. Inlet-circumferential velocity versus rotor speed for seal 3 of Table 3.

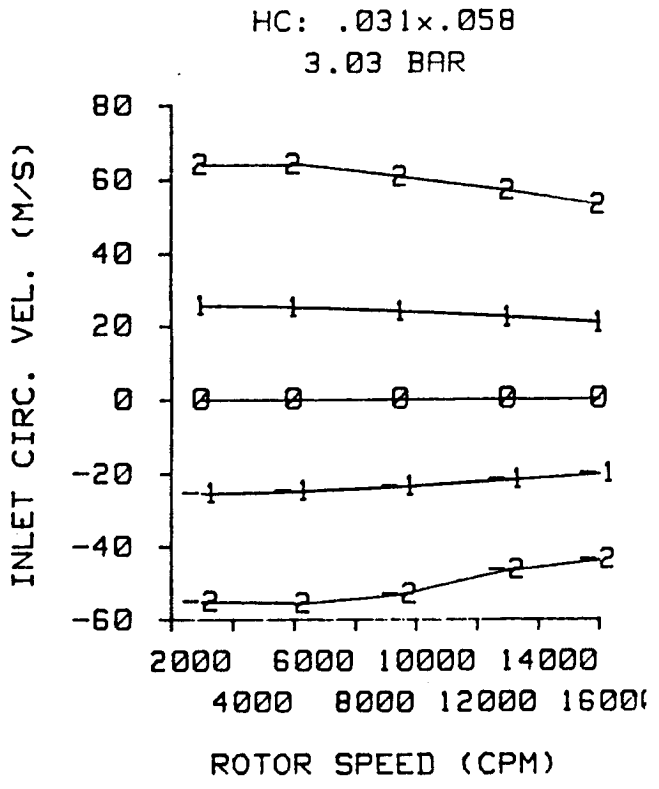


Figure 15. Inlet-circumferential velocity versus rotor speed for seal 4 of Table 3.

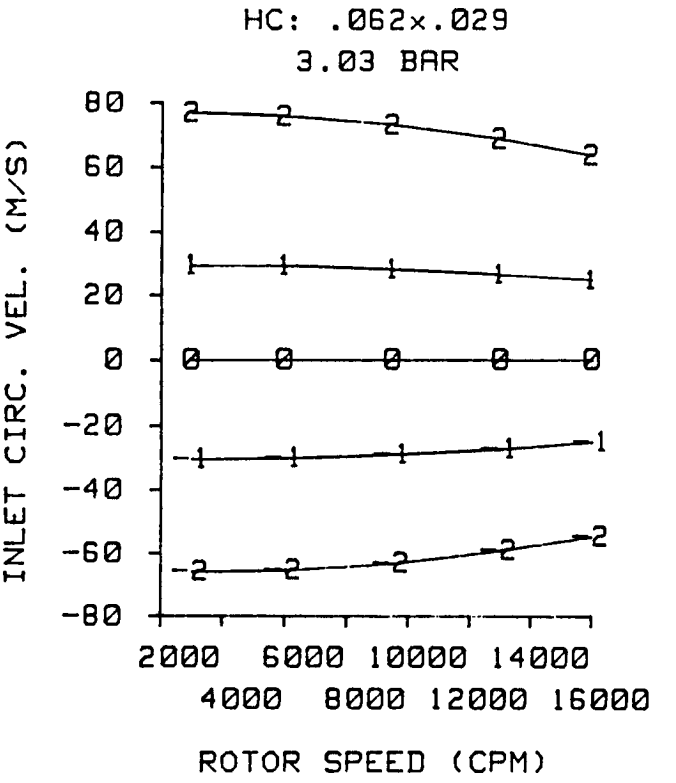


Figure 16. Inlet-circumferential velocity versus rotor speed for seal 5 of Table 3.

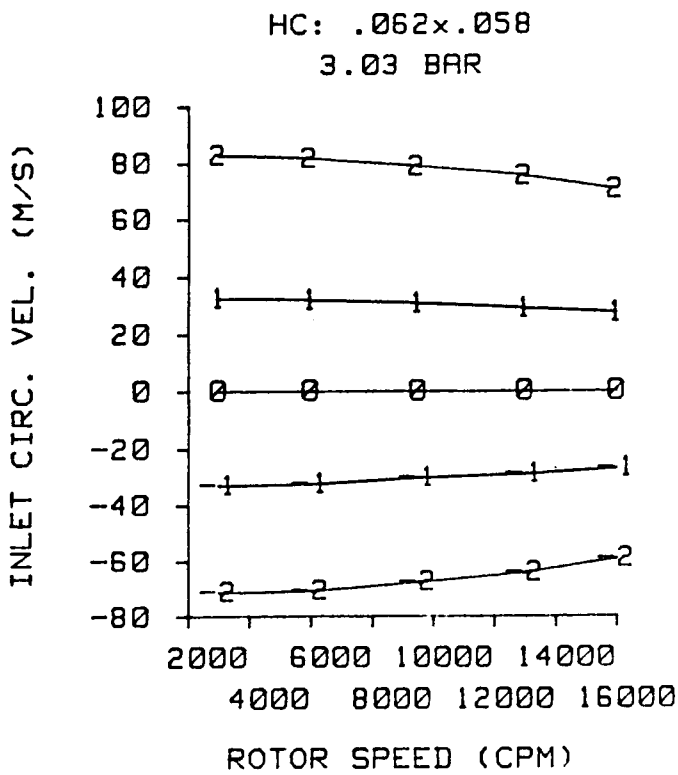


Figure 17. Inlet-circumferential velocity versus rotor speed for seal 6 of Table 3.

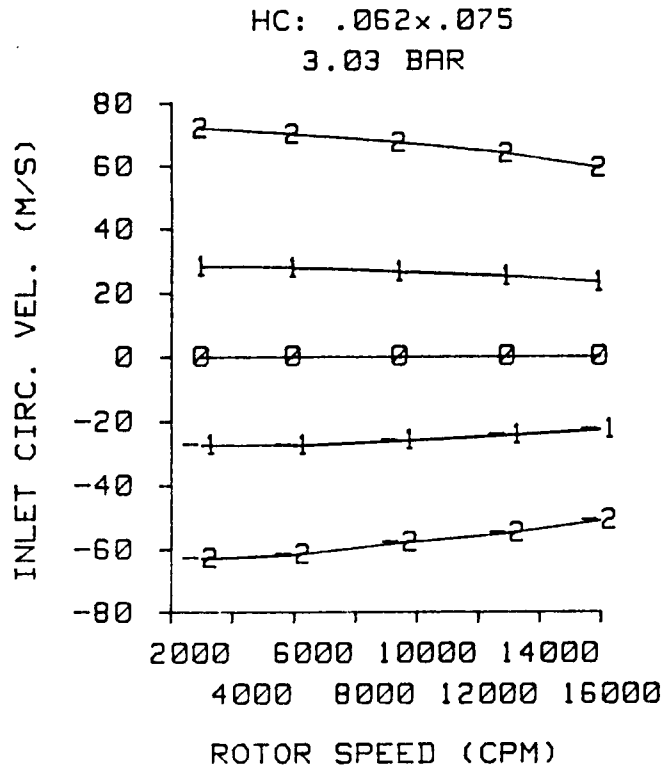


Figure 18. Inlet-circumferential velocity versus rotor speed for seal 7 of Table 3.

COMPARISON OF HONEYCOMB SEALS

Figure 19 illustrates the typical geometry of the seven honeycomb seals tested. The dimensions of each seal are given in Table 3. The smooth rotor for all three seals has a nominal diameter of 151.36 mm. When reviewing the following figures, Table 3 should be consulted for the descriptions of the numbered honeycomb seals.

Table 3. Honeycomb Seal Dimensions

Seal	Length	Clearance	Cell Size	Cell Depth
1	50.8 mm	0.41 mm	0.51 mm	0.74 mm
2	50.8 mm	0.41 mm	0.51 mm	1.47 mm
3	50.8 mm	0.41 mm	0.79 mm	0.74 mm
4	50.8 mm	0.41 mm	0.79 mm	1.47 mm
5	50.8 mm	0.41 mm	1.57 mm	0.74 mm
6	50.8 mm	0.41 mm	1.57 mm	1.47 mm
7	50.8 mm	0.41 mm	1.57 mm	1.91 mm

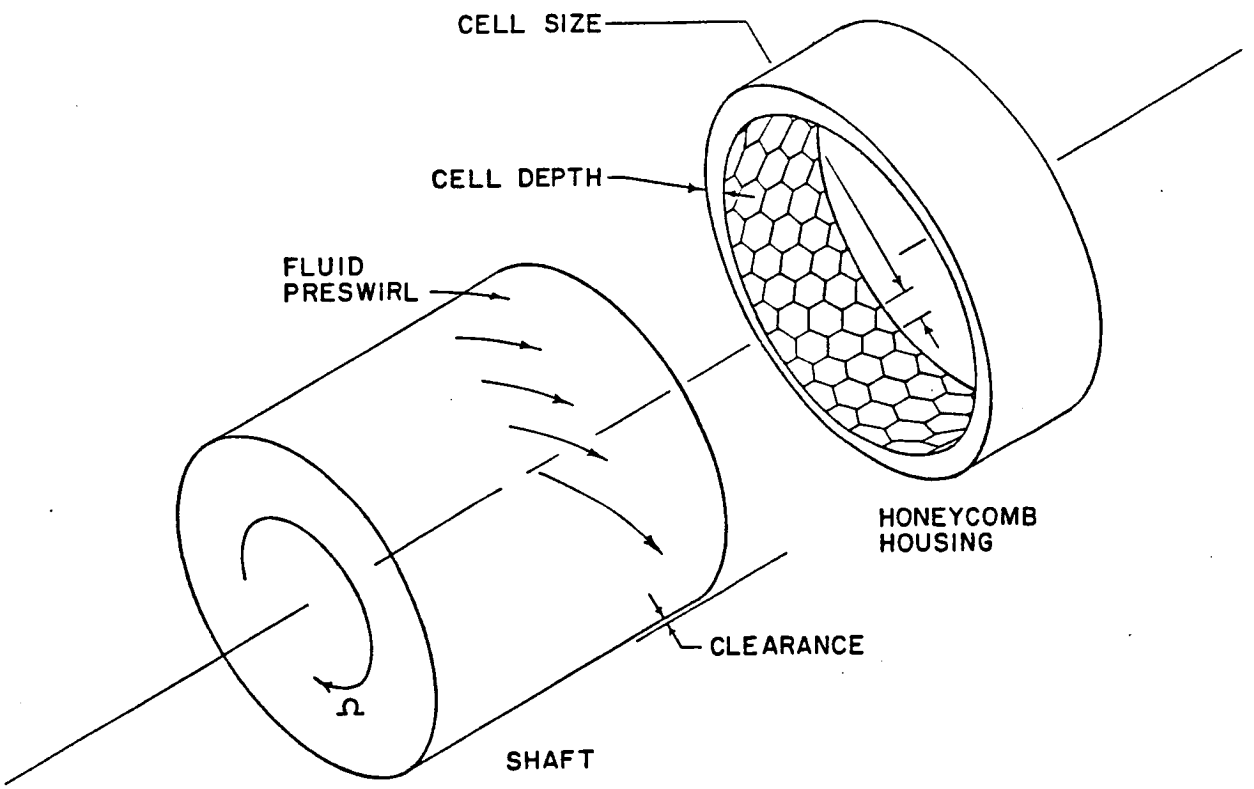


Figure 19. Honeycomb seal geometry.

Leakage Performance

Figures 20 and 21 illustrate the flow coefficient,

$$\Phi = \frac{\dot{m}\sqrt{R_c T_r}}{\pi D C r P_r}, \tag{2}$$

for the seven honeycomb seals in Table 3. All seven seals are unchoked at an inlet pressure of 3.08 bars, and choked at 8.26 bars. The dependence of leakage on cell size and depth is difficult to generalize. At the shallowest cell depth tested, curves 1, 3, and 5 of figures 20 and 21 show little difference between the flow coefficients for the three cell sizes; Φ is lowest for a cell size of 0.79 mm and highest for a cell size of 0.51 mm. At a cell depth of 1.47 mm, Φ increases with increasing cell size (curves 2, 4, and 6). For the smallest cell size, Φ decreases when the cell depth is increased from 0.74 mm to 1.47 mm (curves 1 and 2). For the 0.79 mm cell size (curves 3 and 4), there is no difference in Φ for the cell depths tested. For the largest cell size tested, Φ increases when the cell depth is increased from 0.74 mm to 1.47 mm (curves 5 and 6), but Φ is lowest for the greatest cell depth tested (curve 7). Tests on flat plates with single cavities by Wieghardt [2], cited by Schlichting [3], suggest that Φ may be dependent on the ratio of cell depth to seal clearance.

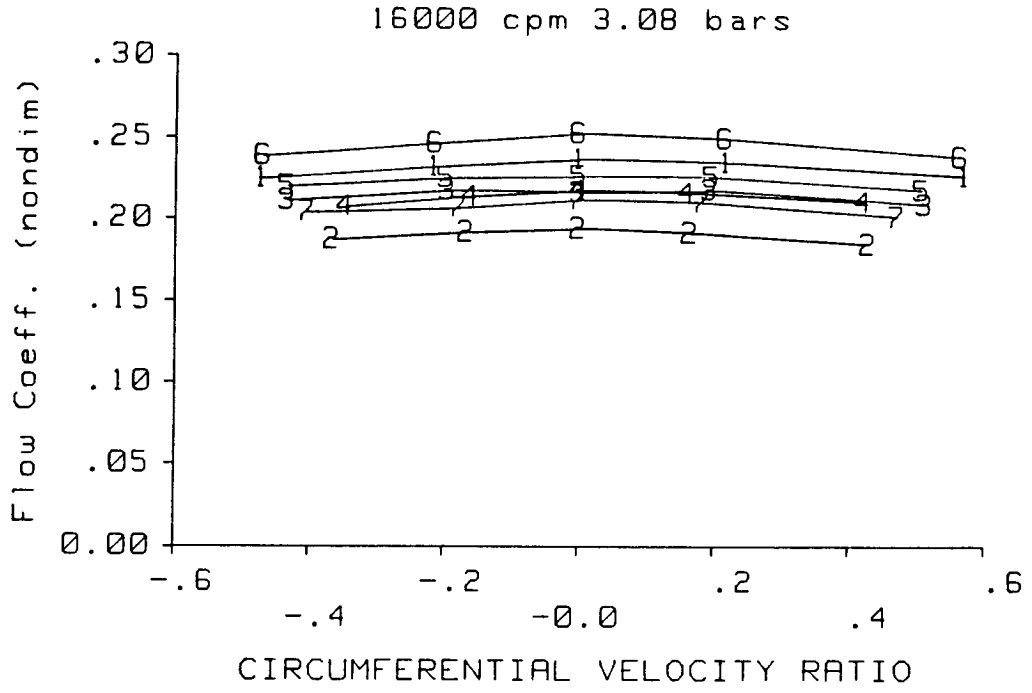


Figure 20. Comparison of flow coefficient versus circumferential velocity at 3.08 bars for the honeycomb seals of Table 3.

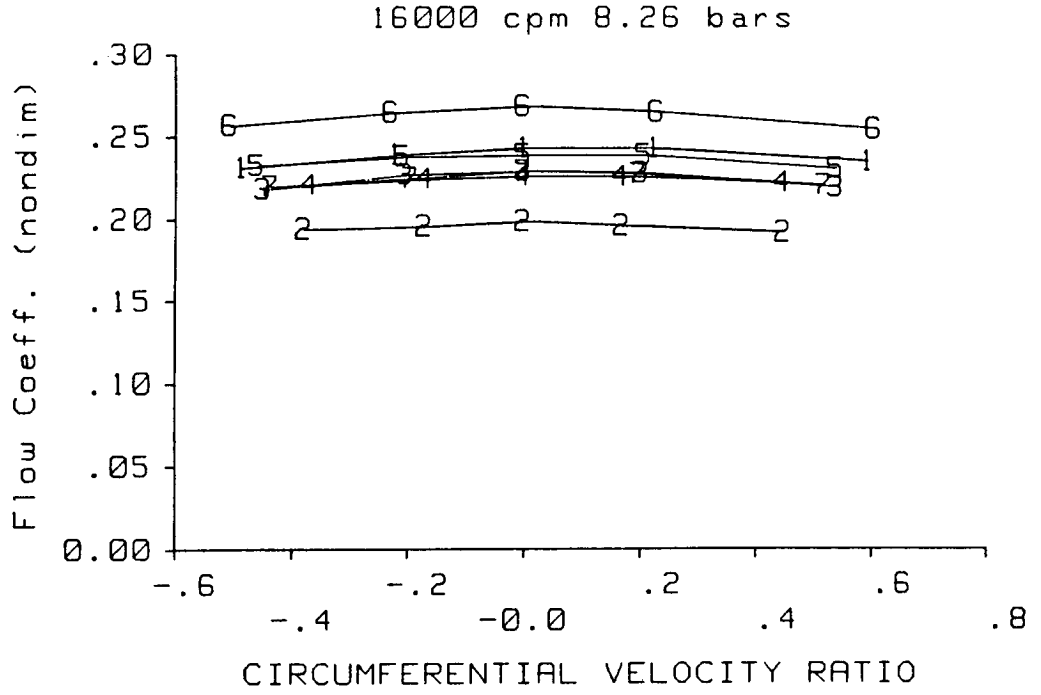


Figure 21. Comparison of flow coefficient versus circumferential velocity at 8.26 bars for the honeycomb seals of Table 3.

Rotordynamic Coefficients

Relative Uncertainty

The uncertainty in the dynamic coefficients can be determined using the method described by Holman [4]. The uncertainty in the force, excitation frequency, and displacement measurements are 0.44 N (0.1 lb), 0.065 Hz, and 0.0013 mm (0.05 mils), respectively. Before normalization, the maximum calculated uncertainty in the stiffness and damping coefficients is 24.1 N/mm (138 lb/in), and 0.072 N-s/mm (0.41 lb-s/in), respectively.

Frequency Dependency of Rotordynamic Coefficients

The stiffness coefficients of the honeycomb seals are shake-frequency-dependent. Previously, frequency-dependent results have been observed for an interlock seal [5]. However, this characteristic has not been evident in tests of smooth (constant-clearance or taper-geometry) seals, labyrinth-rotor/smooth-stator seals, or labyrinth-stator/smooth-rotor seals. Figures 22–42 show plots of K, k, and C versus pressure ratio for three test frequencies: 38.7, 56.8, and 74.6 Hz.

Observe in figures 22–28 that the effect on K of changing the shake frequency is greatest for seals 2, 4, and 7, which have the lowest stiffness magnitudes. The direct stiffness of seal 1 is greatest in magnitude and least affected by a change of shake frequency. With increasing pressure ratio, K is increasingly negative for seals 1 and 3, and increasingly positive for seals 2, 5, and 6. For seals 4 and 7, a clear trend is not present.

The effect on k of changing the shake frequency (figures 29–35) is greatest for seals 5 and 7, which have the lowest cross-coupled stiffnesses. Changing the shake frequency has little effect on the cross-coupled stiffness of the other five honeycomb seals tested. Generally, the magnitude of k increases with increasing pressure ratio.

Figures 36–42 show that C is independent of shake frequency and increasing with pressure ratio for the honeycomb seals tested.

Cross-Coupled Stiffness Results

Figure 43 illustrates $\overline{k}$ versus $u_{\theta o}$ at the lowest and highest inlet pressures and highest running speed of Table 1. The seven curves represent the results for the seven honeycomb seals of Table 3. The figure shows that $\overline{k}$ is positive, i.e. destabilizing, even for negative $u_{\theta o}$. For smooth-rotor/smooth-stator and labyrinth seals, $\overline{k}$ is negative (stabilizing) when $u_{\theta o}$ is negative. The figure also shows that destabilizing forces are highest for seal 1 of Table 3, and lowest for seal 7. For the two smaller cell sizes tested, $\overline{k}$ decreases with increasing cell depth. For the largest cell size, $\overline{k}$ increases and then decreases with increasing cell depth. For seals 2, 4, 5, 6, and 7 of Table 3, there is little dependence of $\overline{k}$ on $u_{\theta o}$.

Figure 44 shows $\overline{k}$ versus ω for the low and high inlet pressures of Table 1 with $u_{\theta o} = 0$. Honeycomb seal 7 has the lowest $\overline{k}$ at all running speeds. At low rotor speeds, $\overline{k}$ is as low for seal 1 as it is for seal 7. At 3.08 bars, $\overline{k}$ increases with increasing ω, especially for seal 1. At 8.26 bars, $\overline{k}$ decreases slightly with increasing ω for seal 2. Further increases in ω might lead to higher values of $\overline{k}$ for seal 7 than for seal 2.

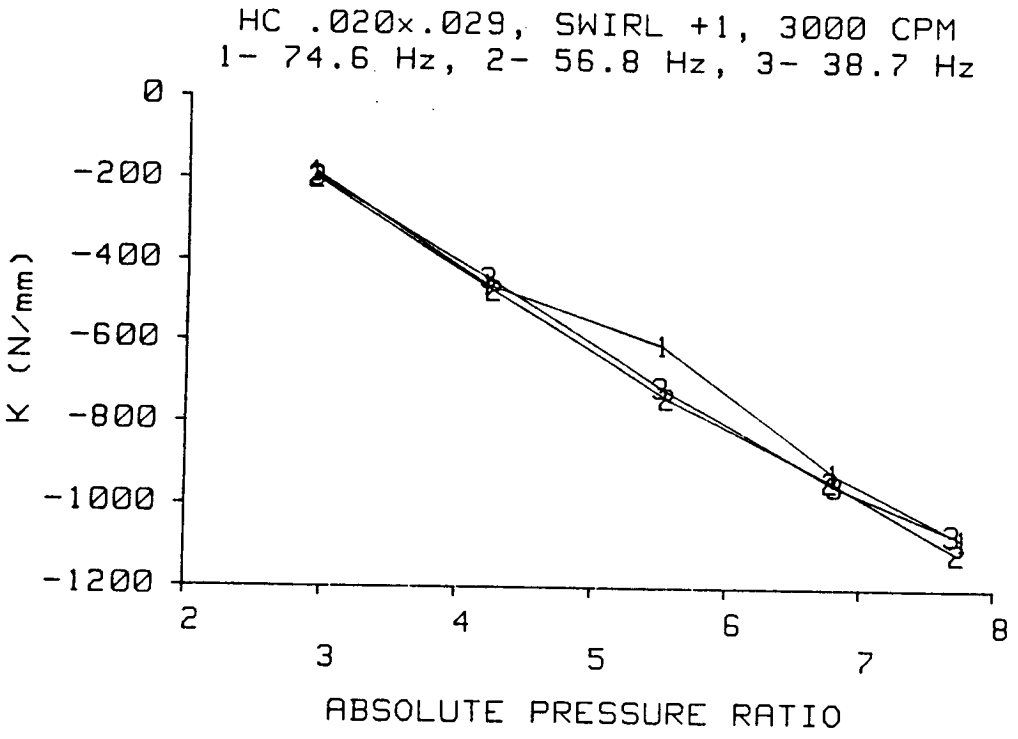


Figure 22. K versus pressure ratio for three excitation frequencies of seal 1 of Table 3.

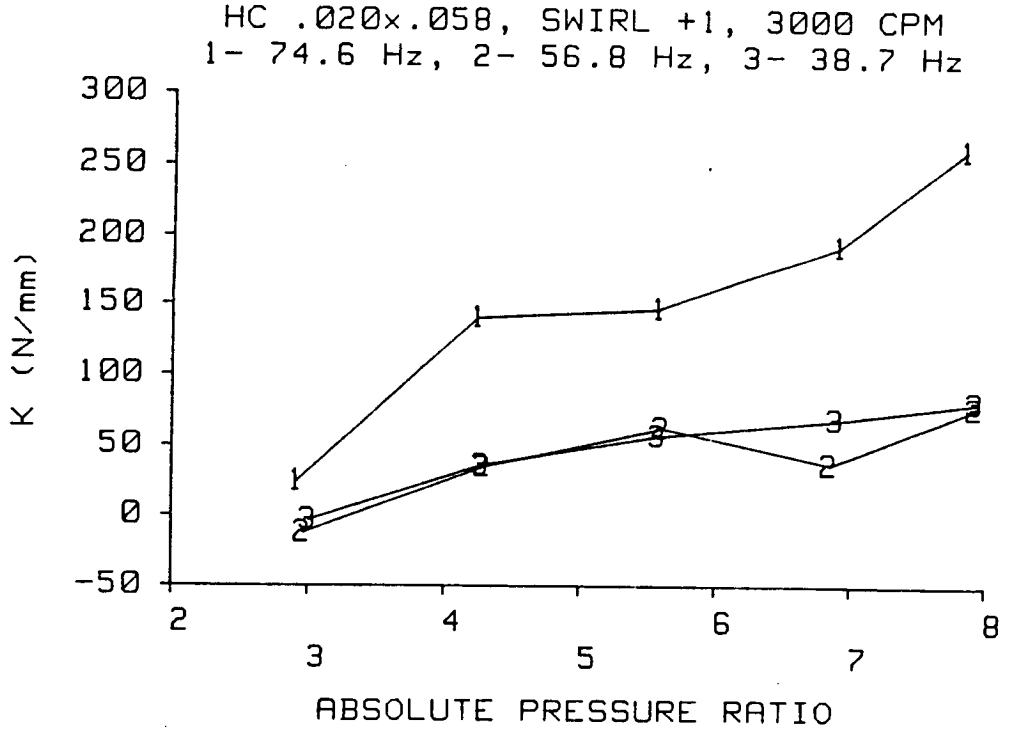


Figure 23. K versus pressure ratio for three excitation frequencies of seal 2 of Table 3.

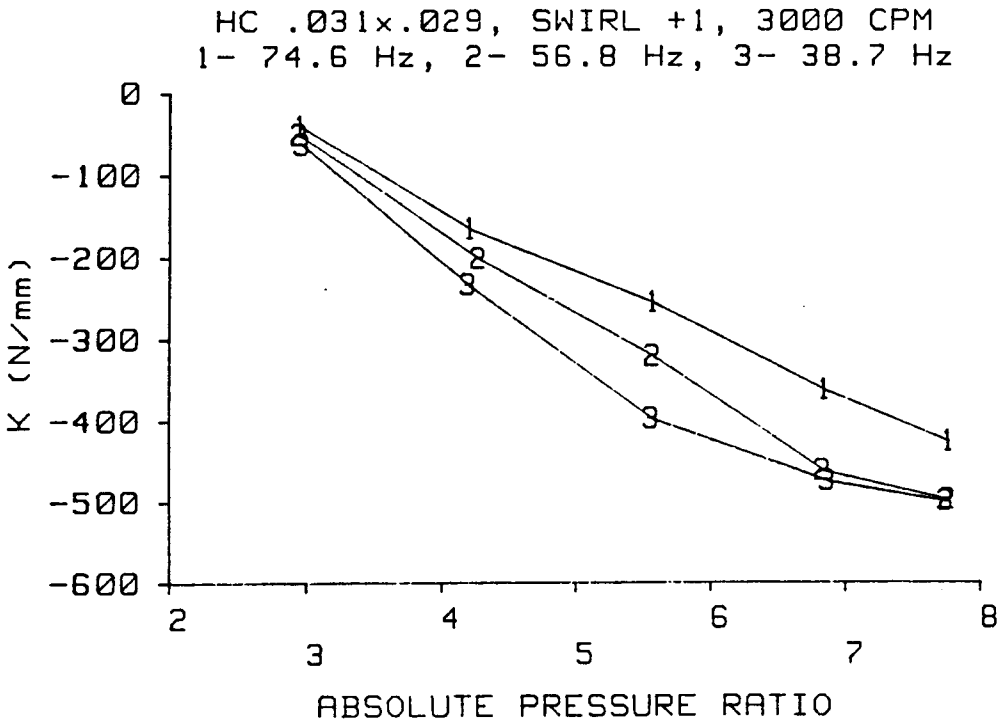


Figure 24. *K* **versus pressure ratio for three excitation frequencies of seal 3 of Table 3.**

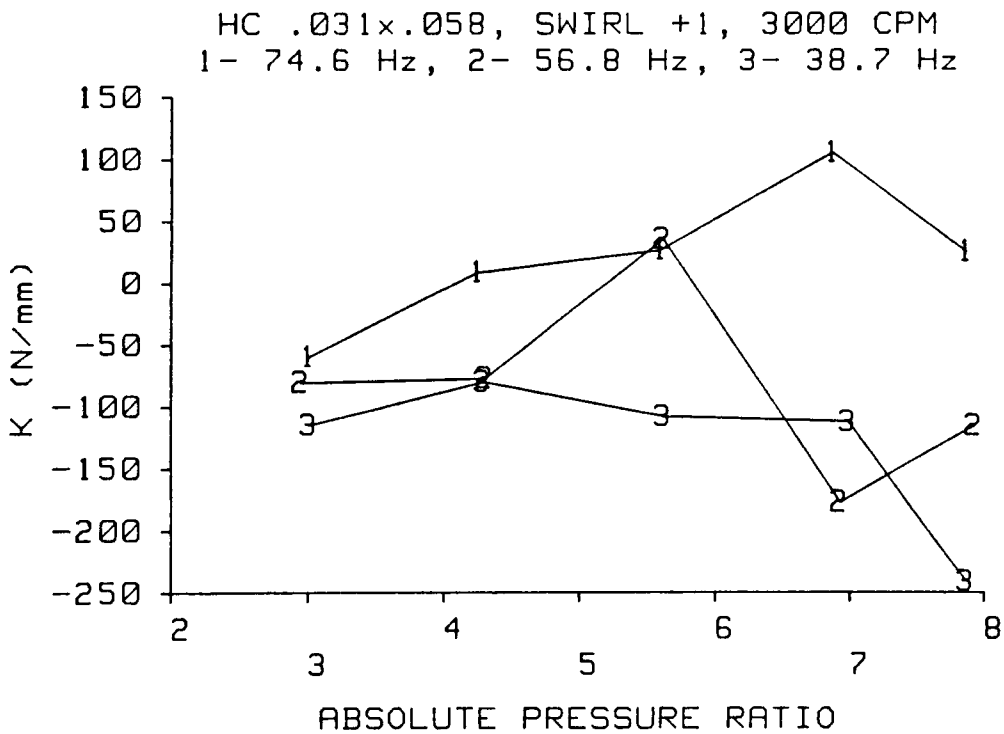


Figure 25. *K* **versus pressure ratio for three excitation frequencies of seal 4 of Table 3.**

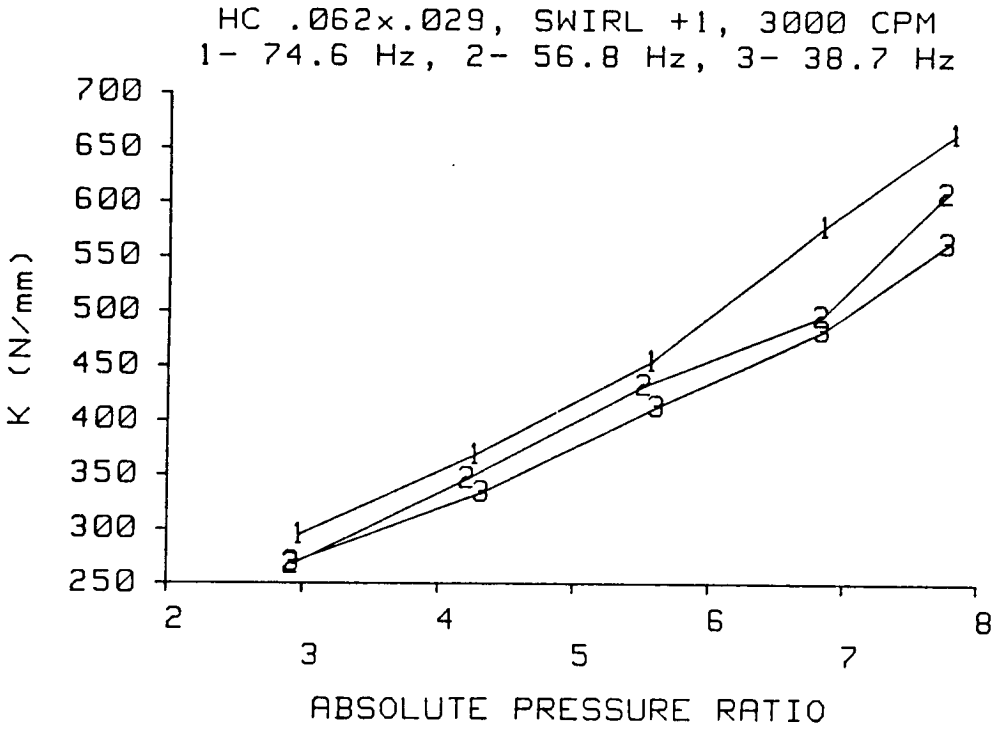


Figure 26. *K* versus pressure ratio for three excitation frequencies of seal 5 of Table 3.

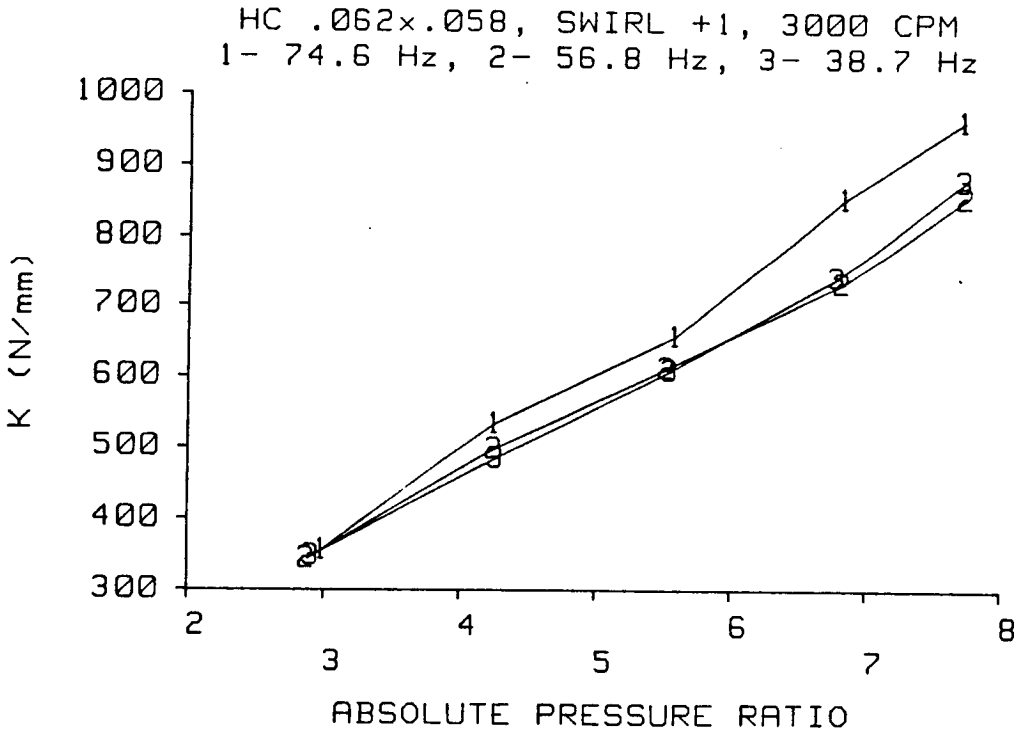


Figure 27. *K* versus pressure ratio for three excitation frequencies of seal 6 of Table 3.

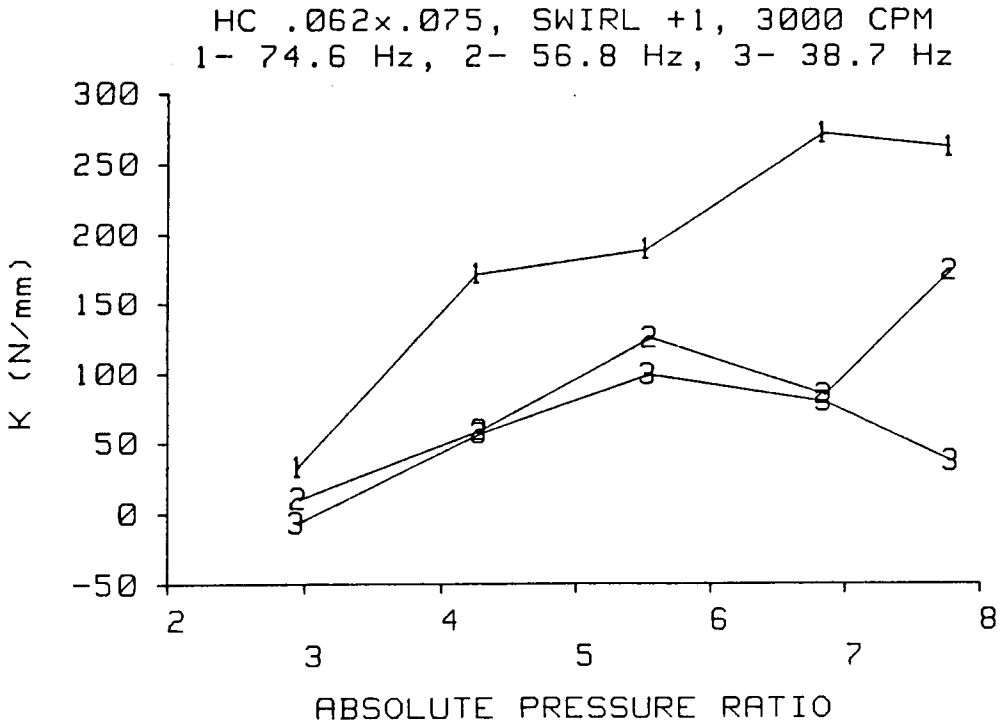


Figure 28. K versus pressure ratio for three excitation frequencies of seal 7 of Table 3.

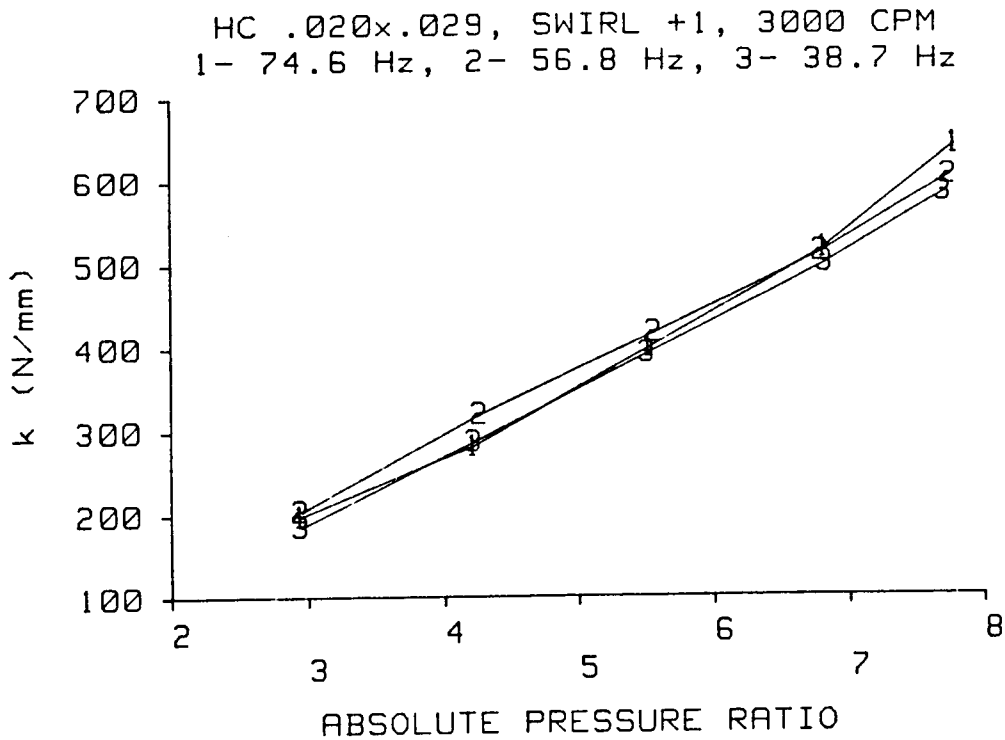


Figure 29. k versus pressure ratio for three excitation frequencies of seal 1 of Table 3.

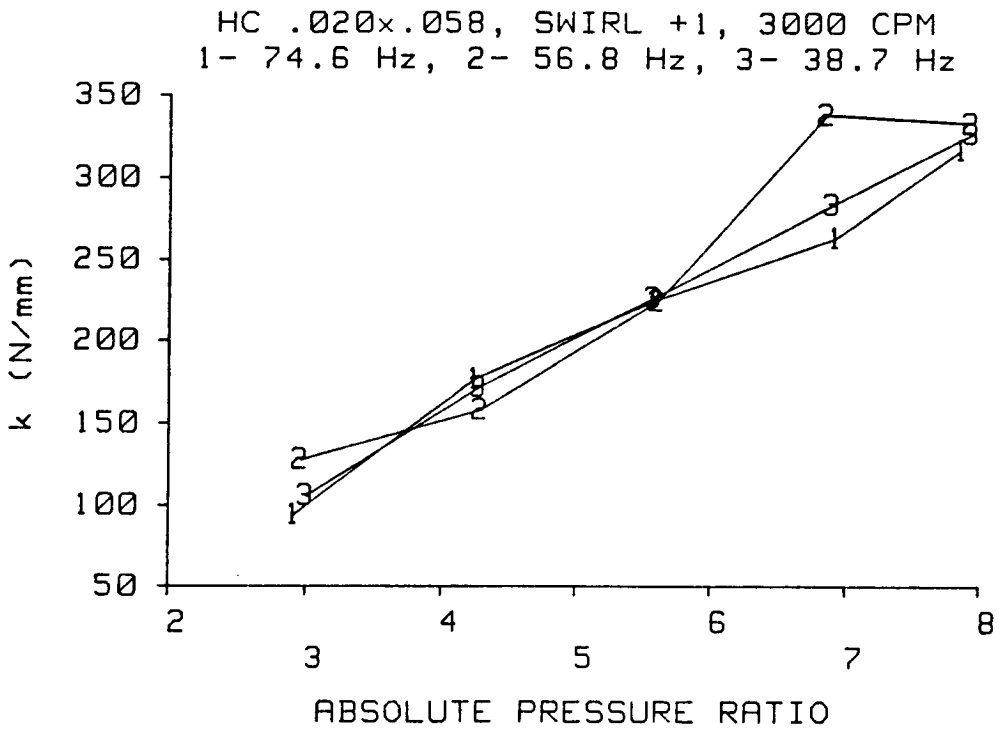


Figure 30. *k* versus pressure ratio for three excitation frequencies of seal 2 of Table 3.

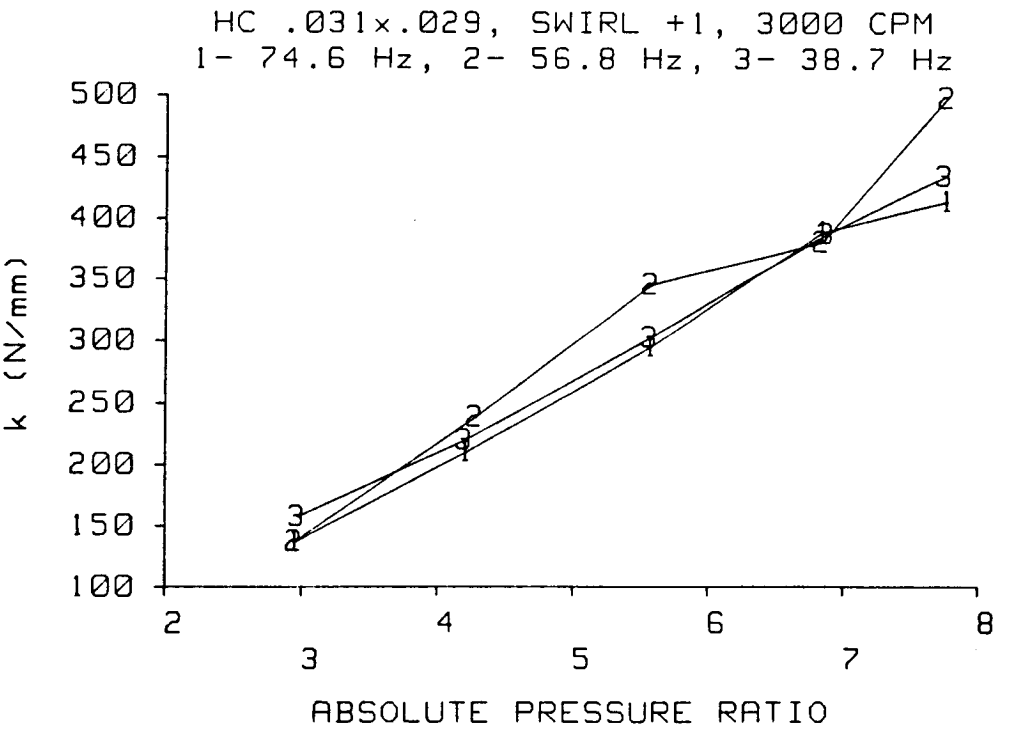


Figure 31. *k* versus pressure ratio for three excitation frequencies of seal 3 of Table 3.

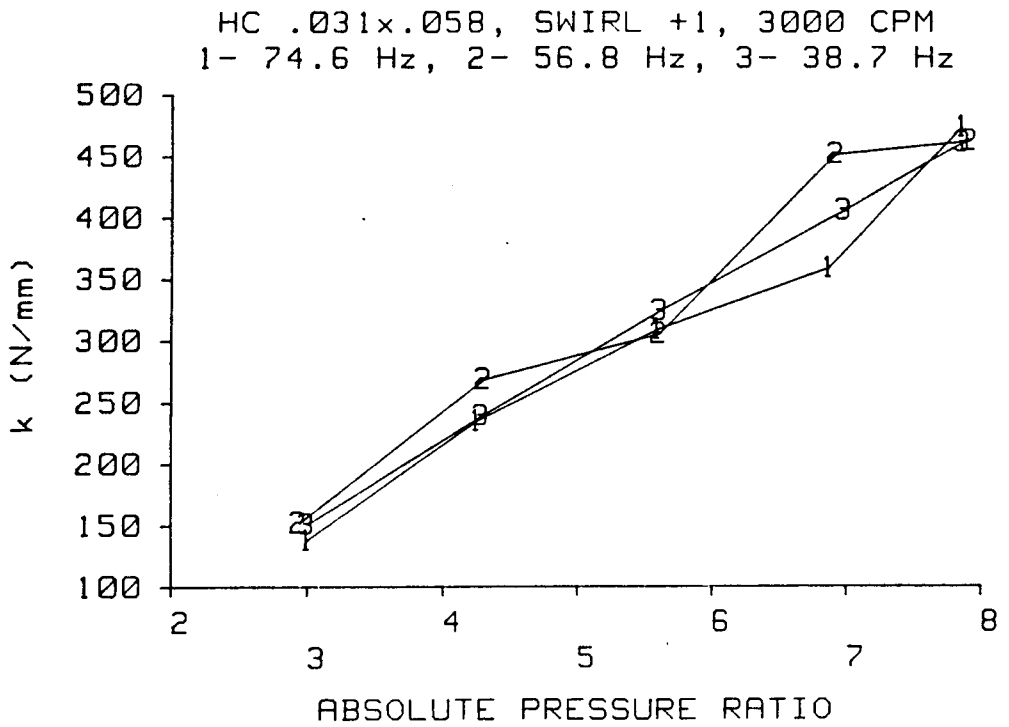


Figure 32. k versus pressure ratio for three excitation frequencies of seal 4 of Table 3.

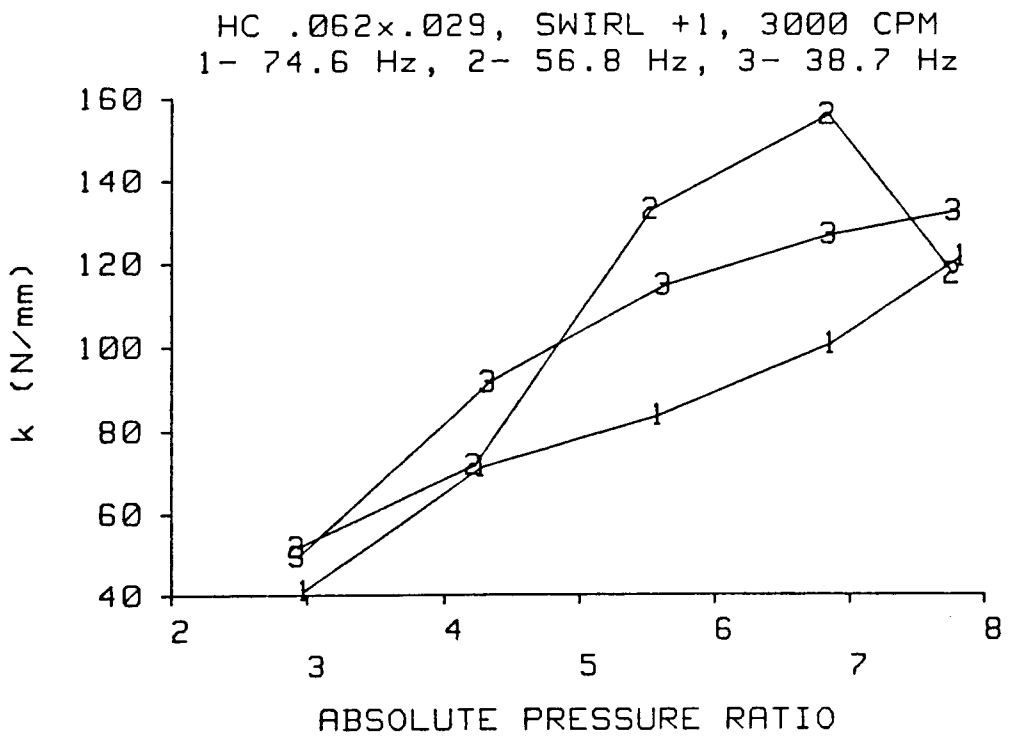


Figure 33. k versus pressure ratio for three excitation frequencies of seal 5 of Table 3.

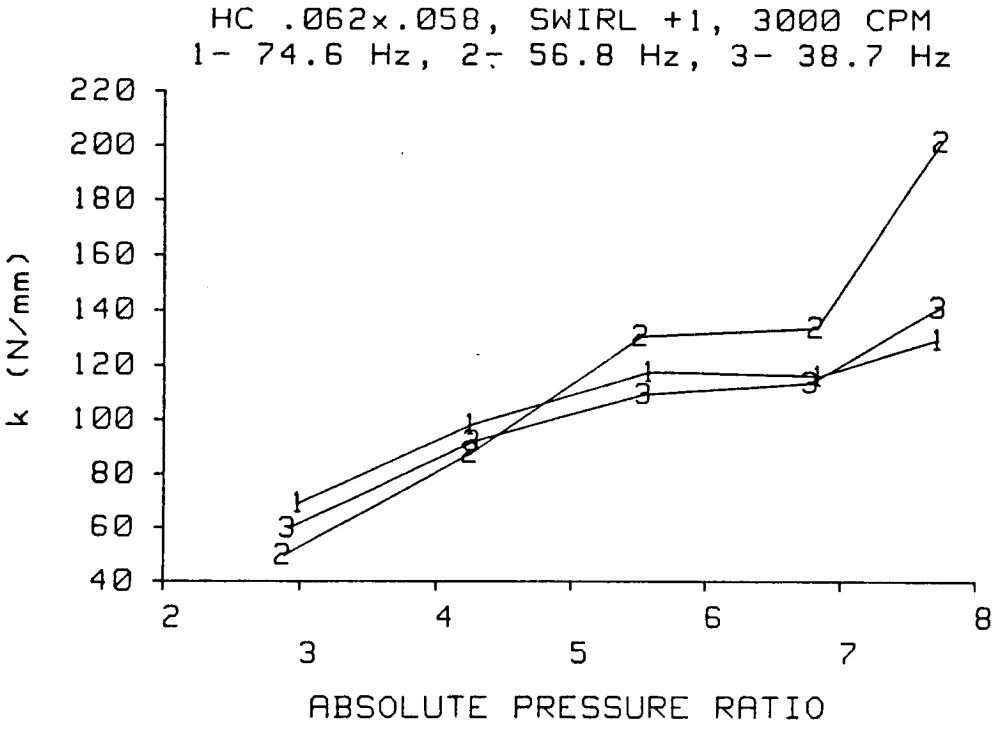


Figure 34. *k* versus pressure ratio for three excitation frequencies of seal 6 of Table 3.

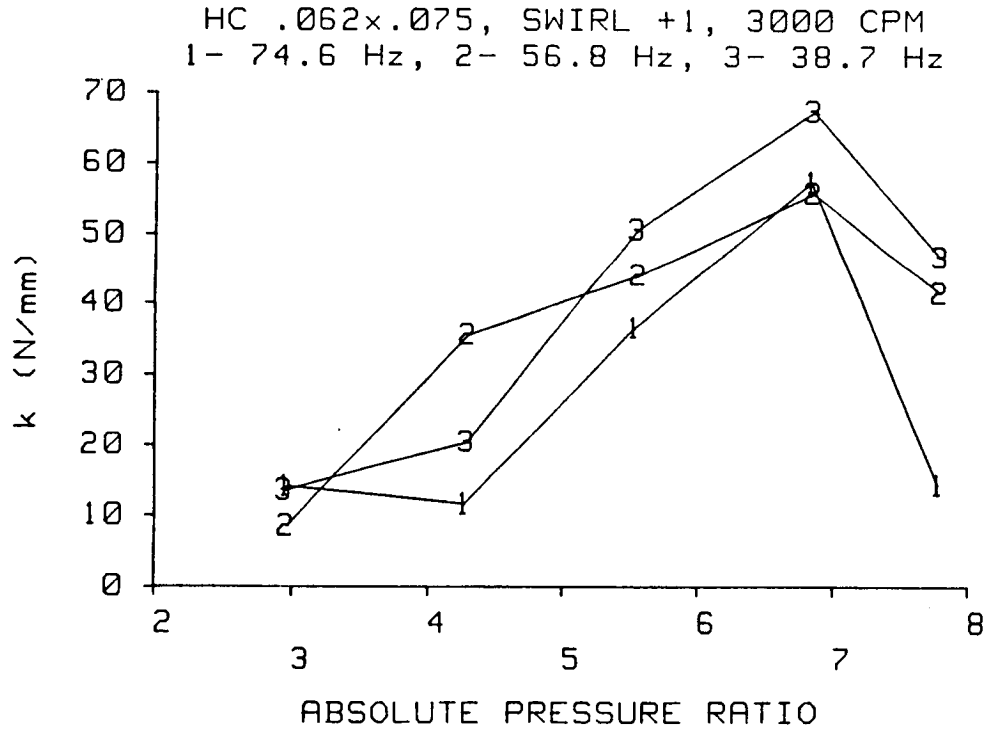


Figure 35. *k* versus pressure ratio for three excitation frequencies of seal 7 of Table 3.

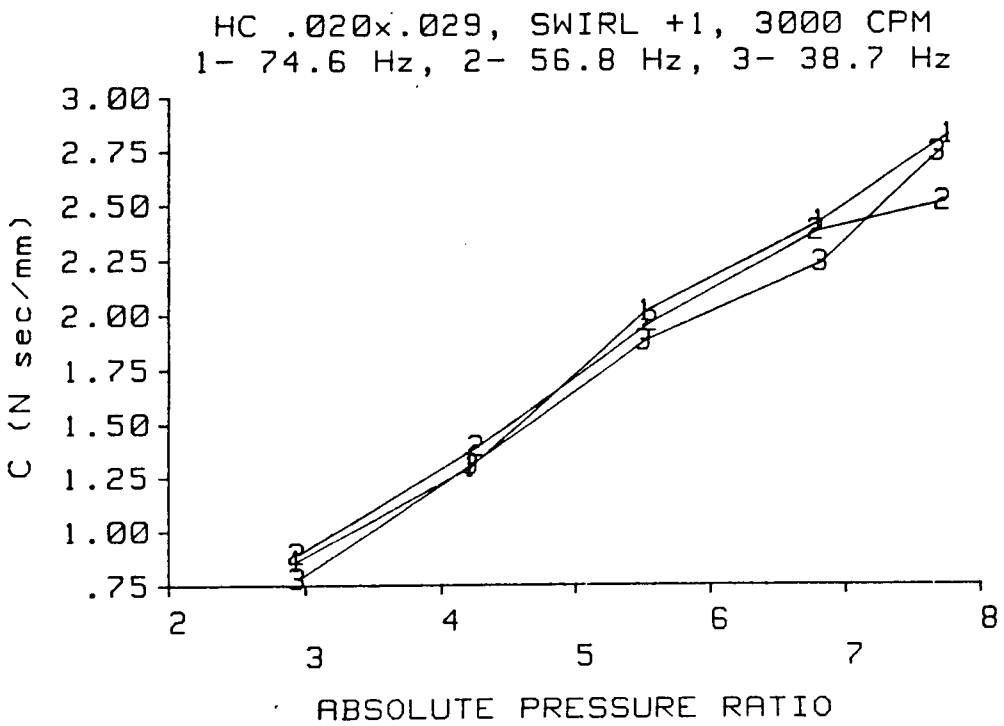


Figure 36. *C* **versus pressure ratio for three excitation frequencies of seal 1 of Table 3.**

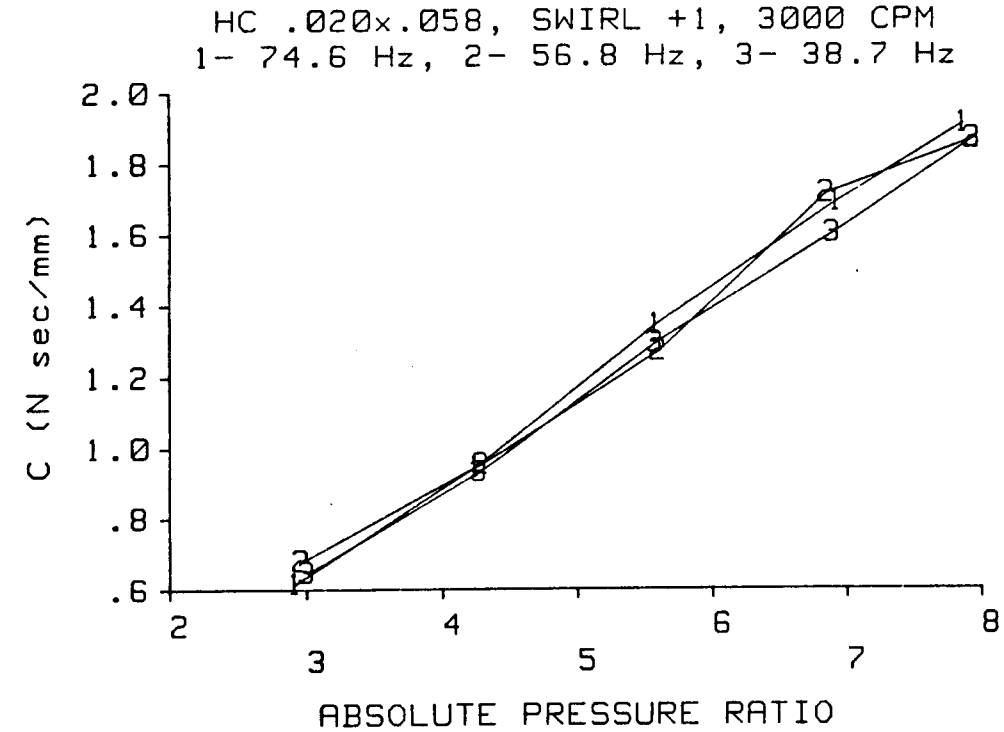


Figure 37. *C* **versus pressure ratio for three excitation frequencies of seal 2 of Table 3.**

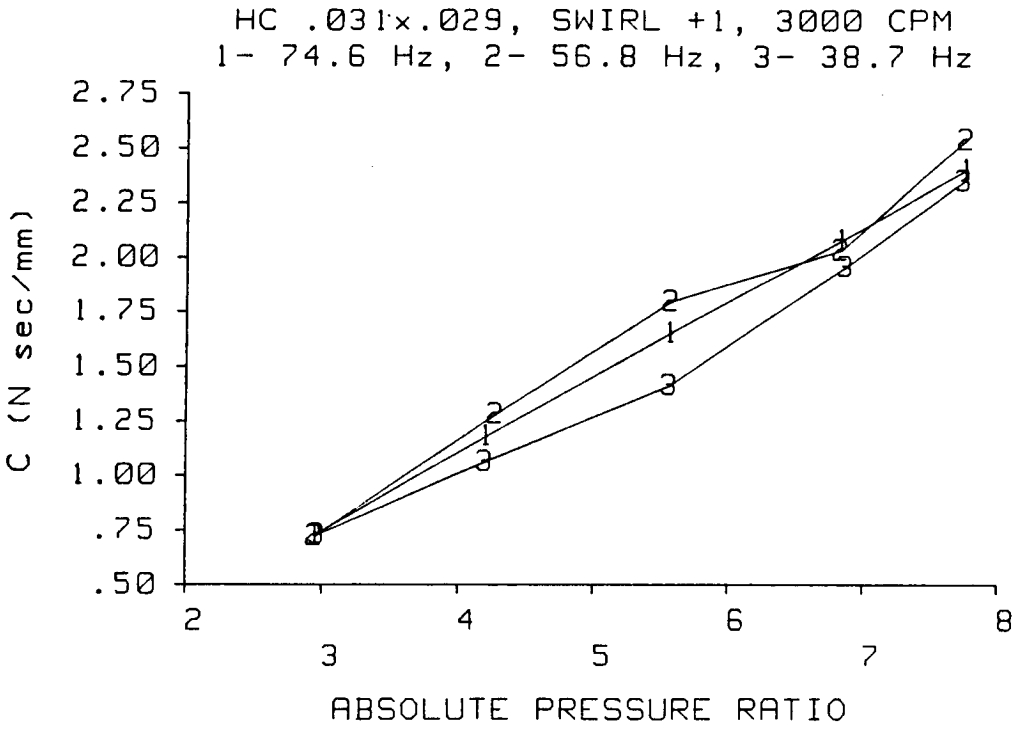


Figure 38. *C* **versus pressure ratio for three excitation frequencies of seal 3 of Table 3.**

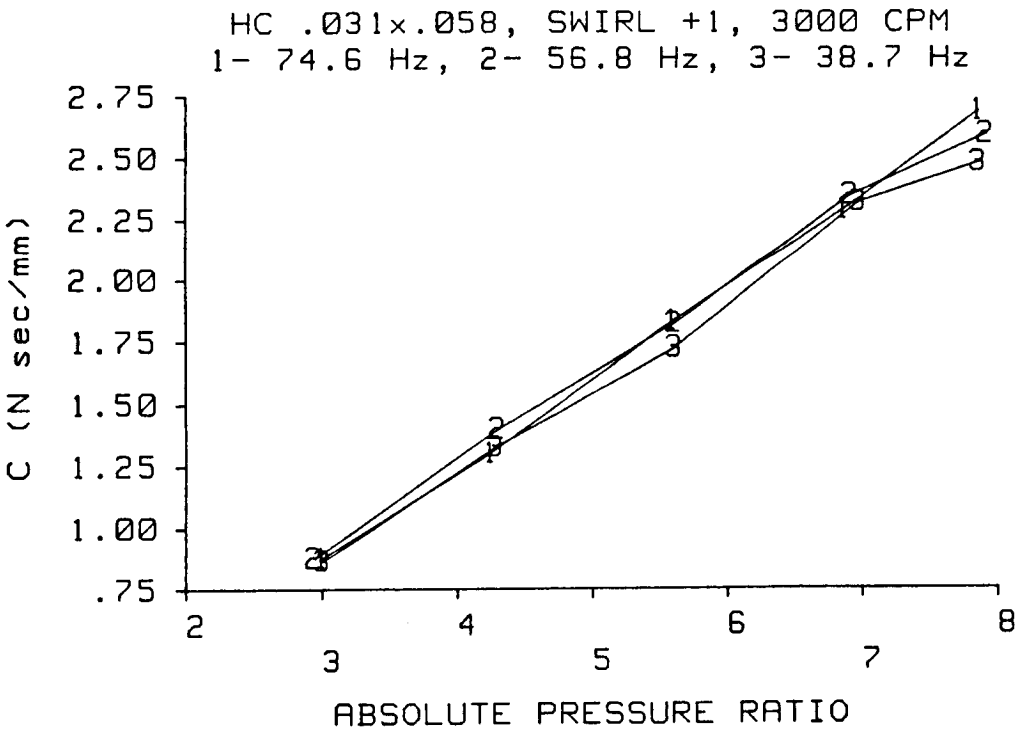


Figure 39. *C* **versus pressure ratio for three excitation frequencies of seal 4 of Table 3.**

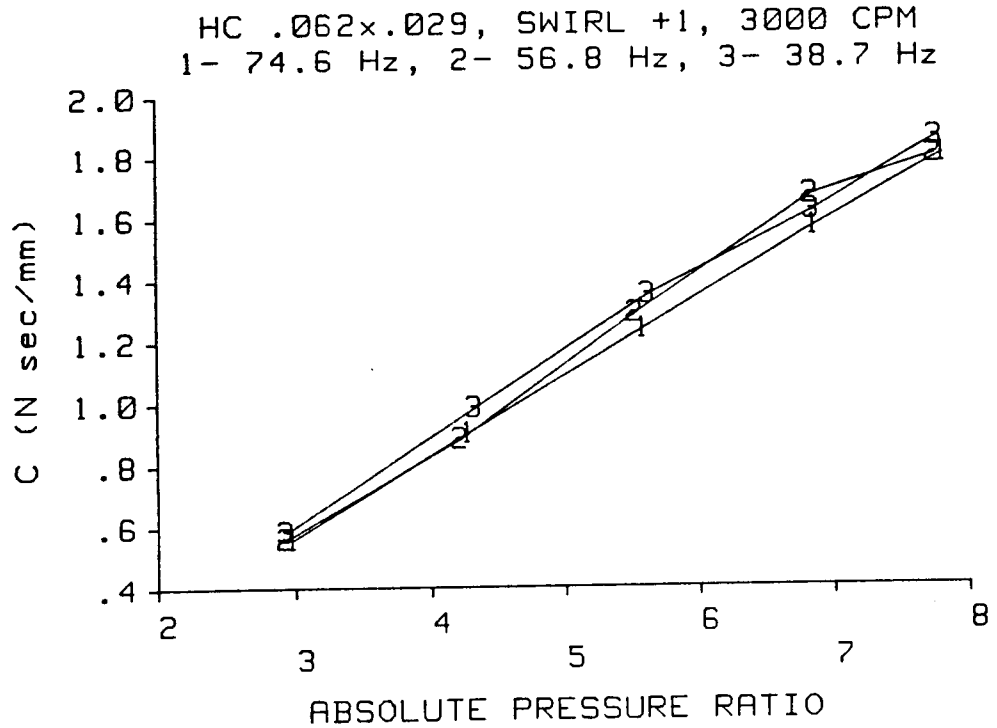


Figure 40. *C* **versus pressure ratio for three excitation frequencies of seal 5 of Table 3.**

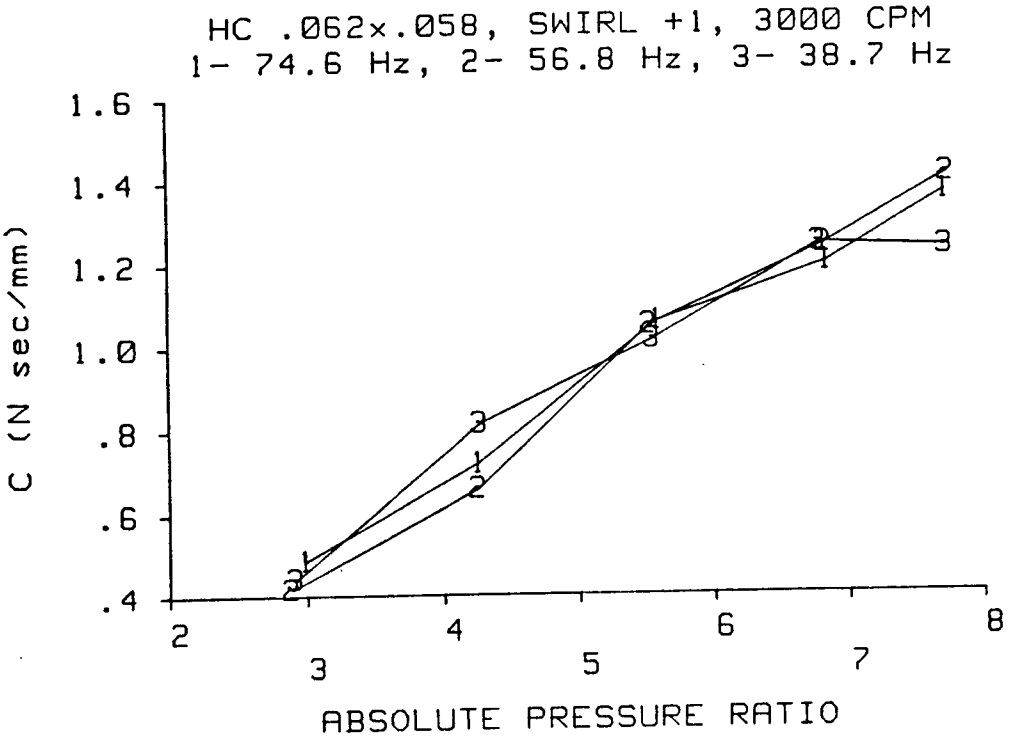


Figure 41. *C* **versus pressure ratio for three excitation frequencies of seal 6 of Table 3.**

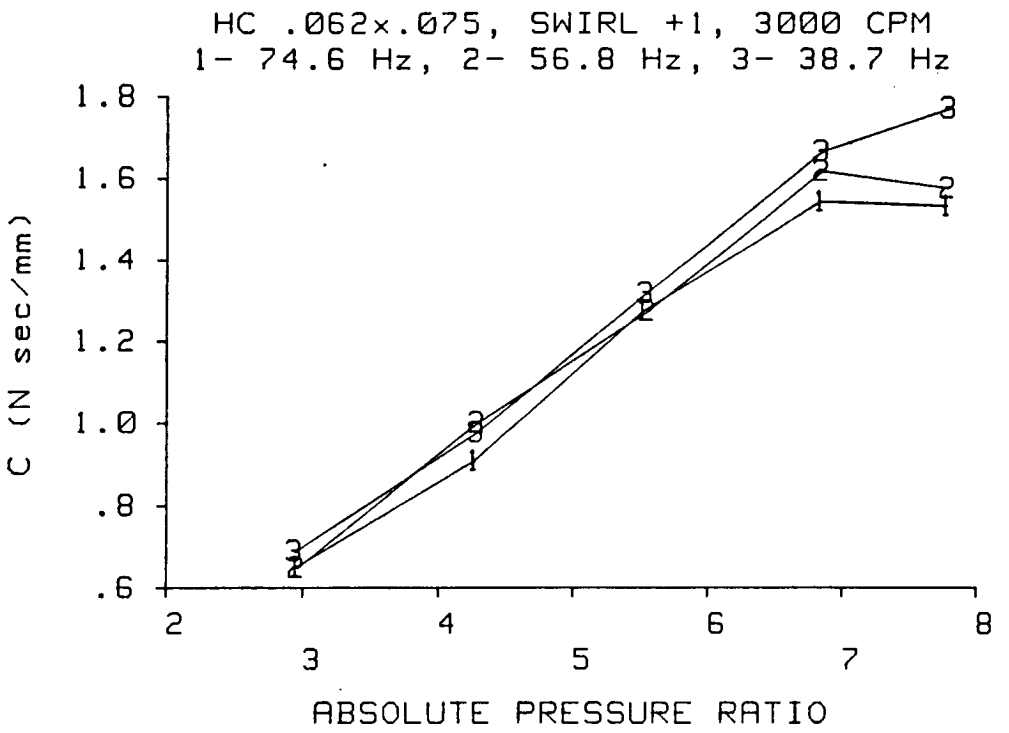


Figure 42. *C* **versus pressure ratio for three excitation frequencies of seal 7 of Table 3.**

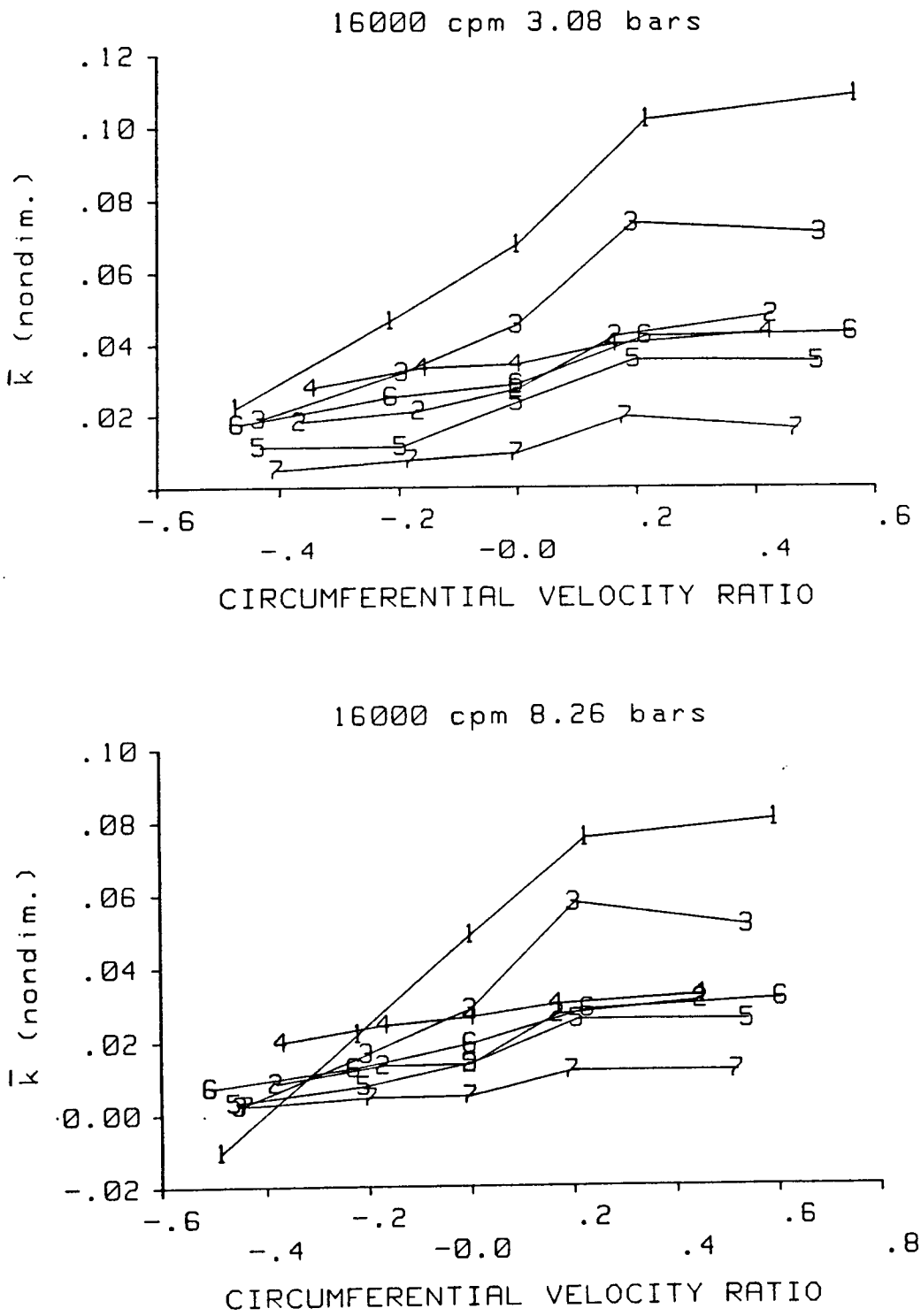


Figure 43. $\bar{k}$ versus $u_{\theta o}$ for the seven honeycomb seals of Table 3.

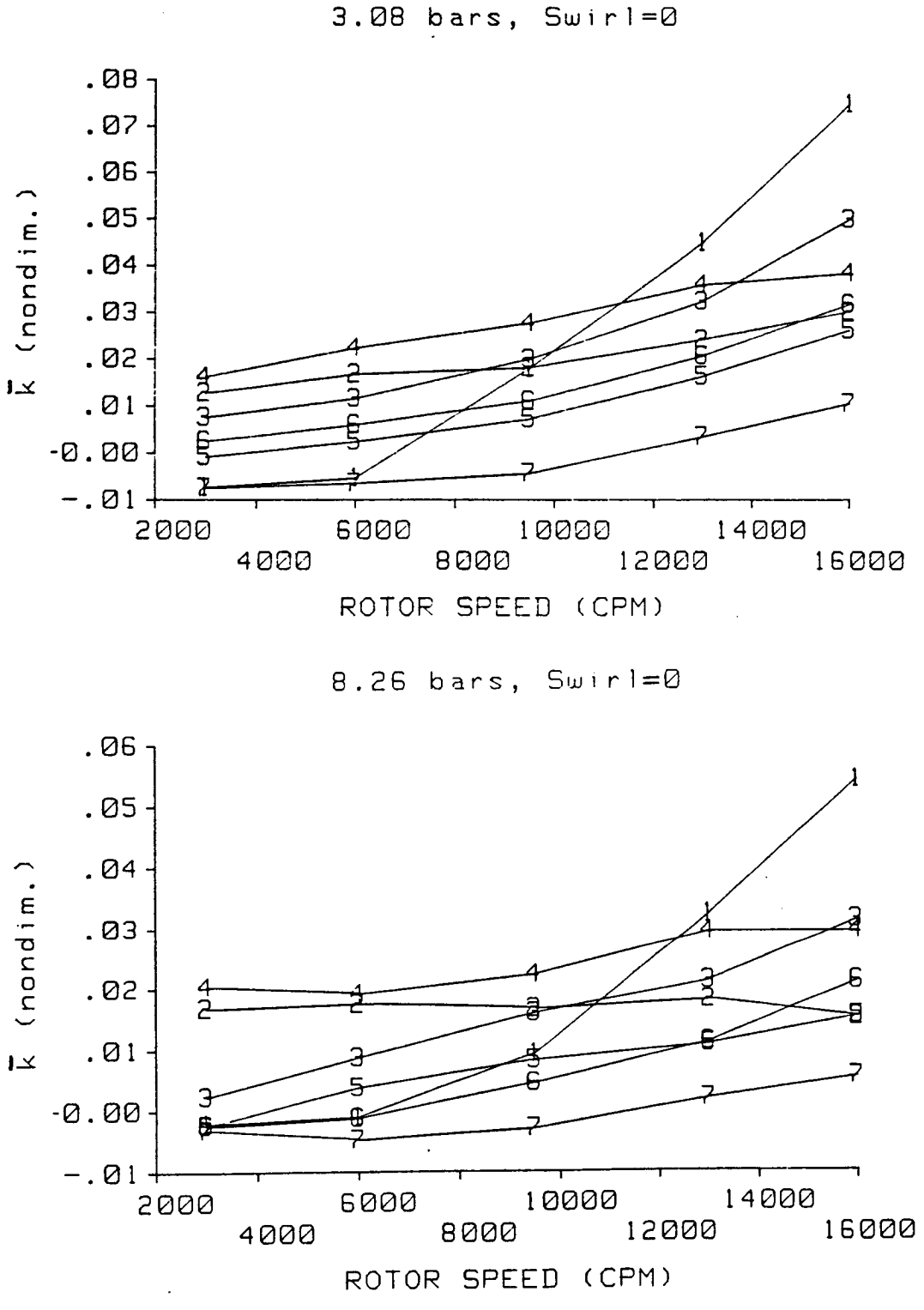


Figure 44. $\bar{k}$ versus ω for the seven honeycomb seals of Table 3.

Direct Damping Results

Figure 45 shows $\overline{C}$ versus $u_{\theta o}$ for the lowest and highest inlet pressures and highest rotor speed of Table 1. Seals 1 and 3 of Table 3 have the highest values of $\overline{C}$. The lowest values of $\overline{C}$ occur for the honeycombs with the largest cell size. Figure 46 shows that the normalized damping of honeycomb seals 1 and 3 increases with increasing rotor speed. There is no clear trend with increasing ω for the remainder of the honeycomb seals tested.

Whirl Frequency Ratio Results

Figure 47 provides comparisons of the whirl frequency ratio, f (see equation 3), for the seven honeycomb seals of Table 3 at the lowest and highest inlet pressures and at the highest rotor speed of Table 1. For the two smaller cell sizes, an increase in cell depth results in a more stable seal (lower f). Seal 5, however, with large shallow cells, is more stable than seal 6. Only seal 1 is less stable than seal 6. Seal 7, with 0.44 mm deeper cells than seal 6, is the most stable seal tested.

Direct Stiffness Results

Figure 48 shows $\overline{K}$ versus $u_{\theta o}$ for the seven honeycomb seals at the lowest and highest inlet pressures and at the highest rotor speed of Table 1. $\overline{K}$ is generally negative for seals 1 and 3 and positive for seals 2, 5, 6, and 7. For seal 4, $\overline{K}$ is positive at the 8.26 bars inlet pressure, and near zero at the 3.08 bars inlet pressure. $\overline{K}$ is highest for seal 6, and generally lowest for seal 1.

Figure 49 illustrates $\overline{K}$ versus rotor speed for no prerotation of the inlet air. Except for seals 1 and 3, $\overline{K}$ increases as ω increases at both the lowest and highest inlet pressures of Table 1.

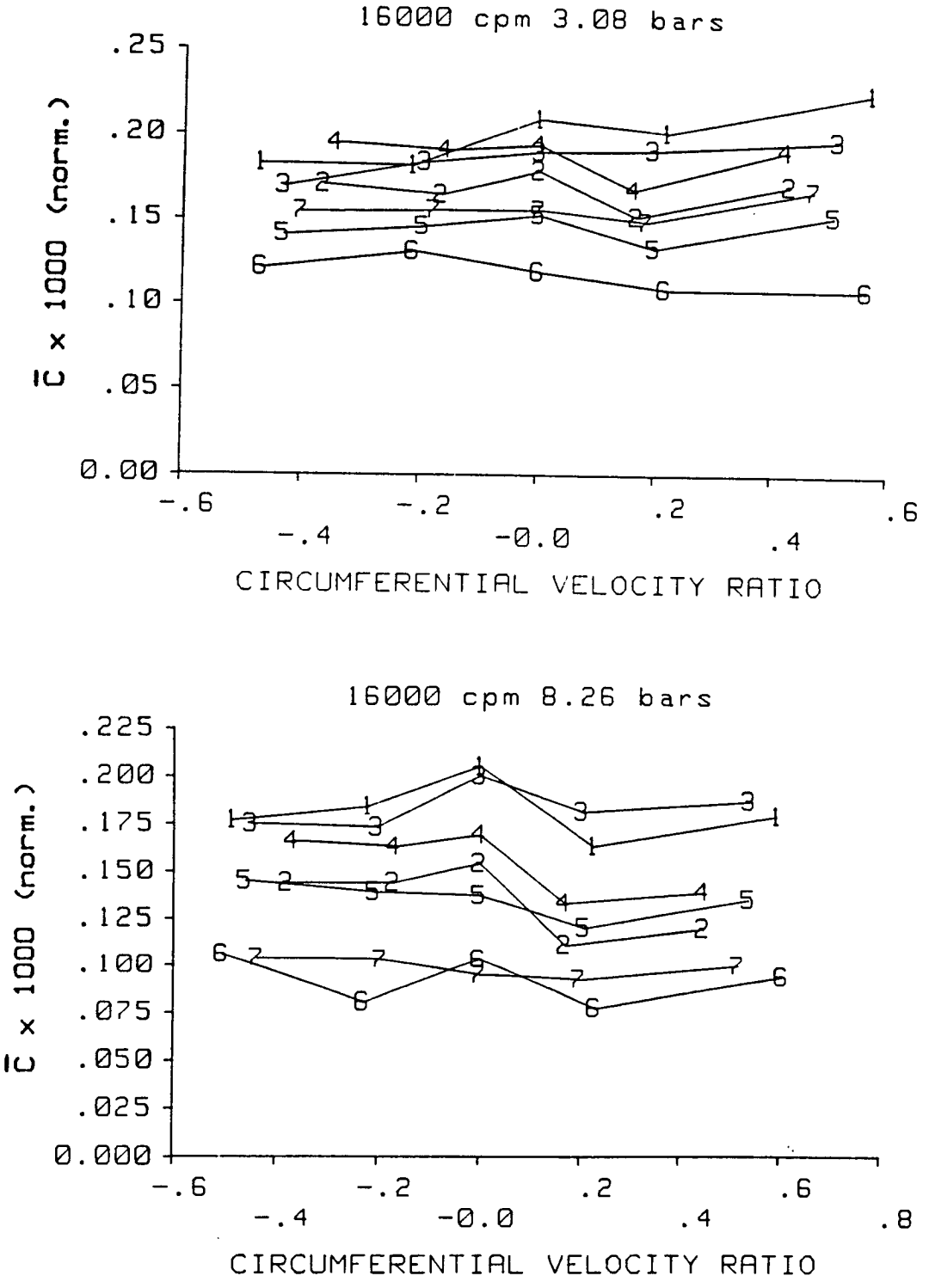


Figure 45. $\overline{C}$ versus $u_{\theta o}$ for the seven honeycomb seals of Table 3.

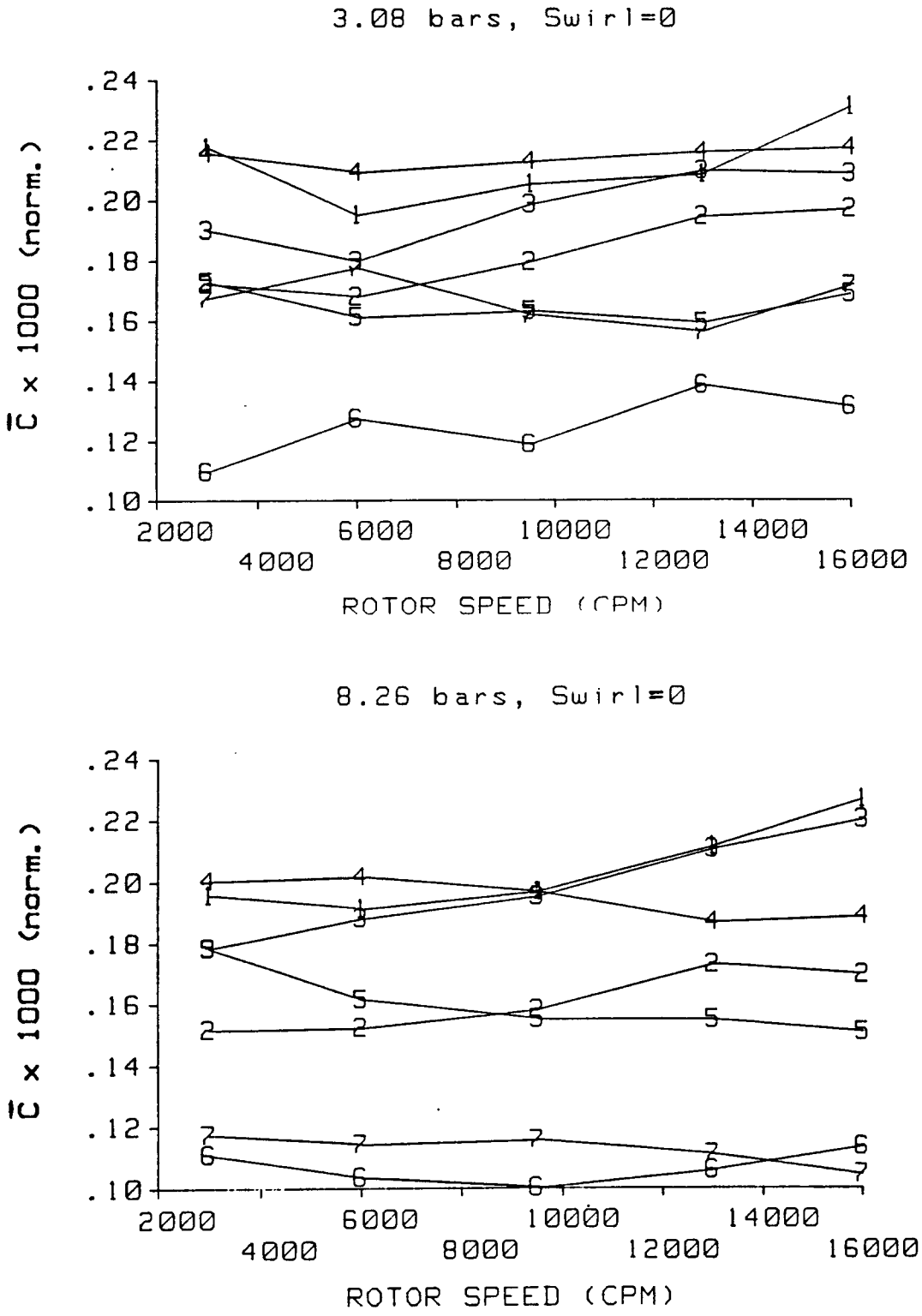


Figure 46. $\overline{C}$ versus ω for the seven honeycomb seals of Table 3.

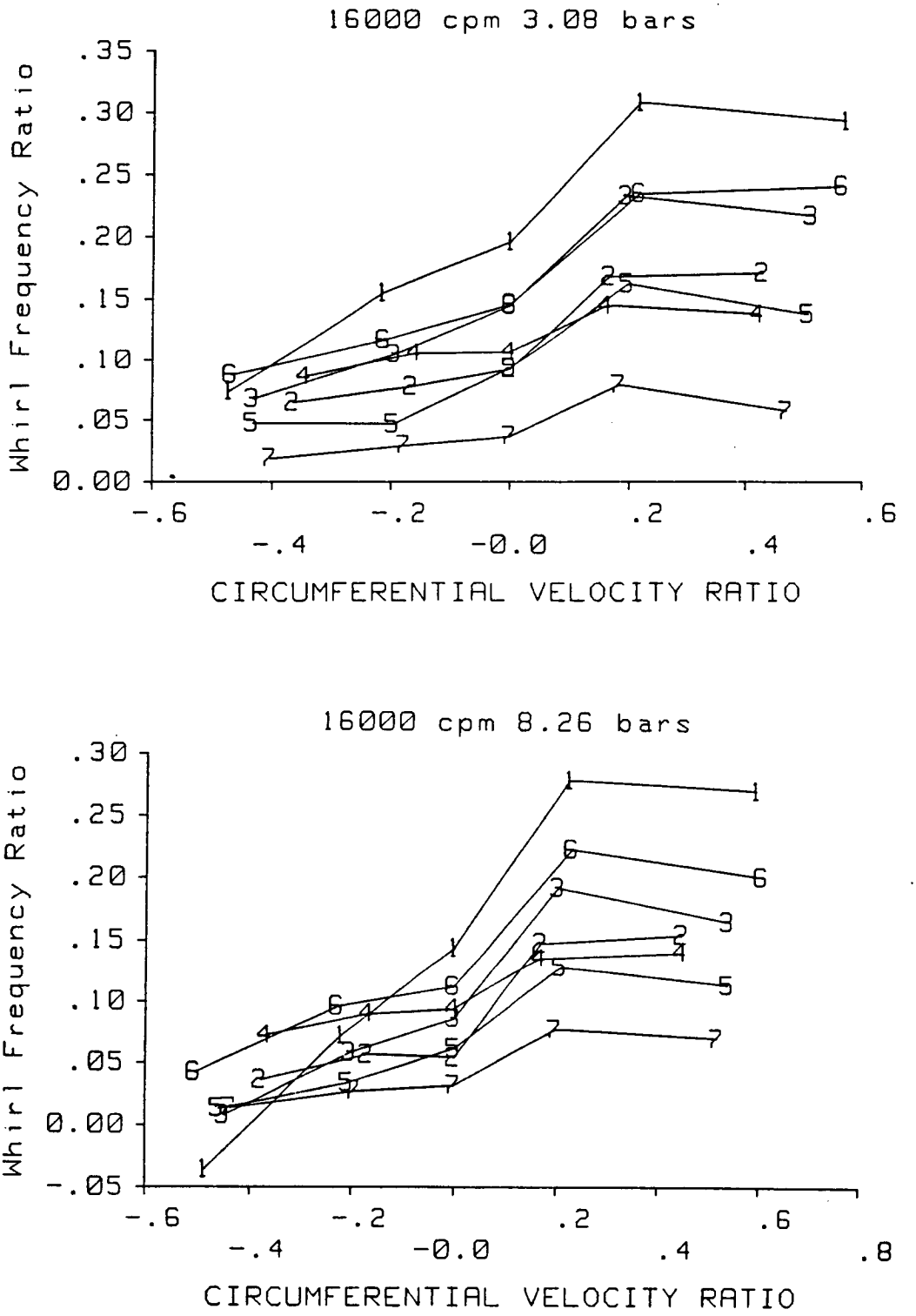


Figure 47. Whirl frequency ratio versus $u_{\theta o}$ for the seven honeycomb seals of Table 3.

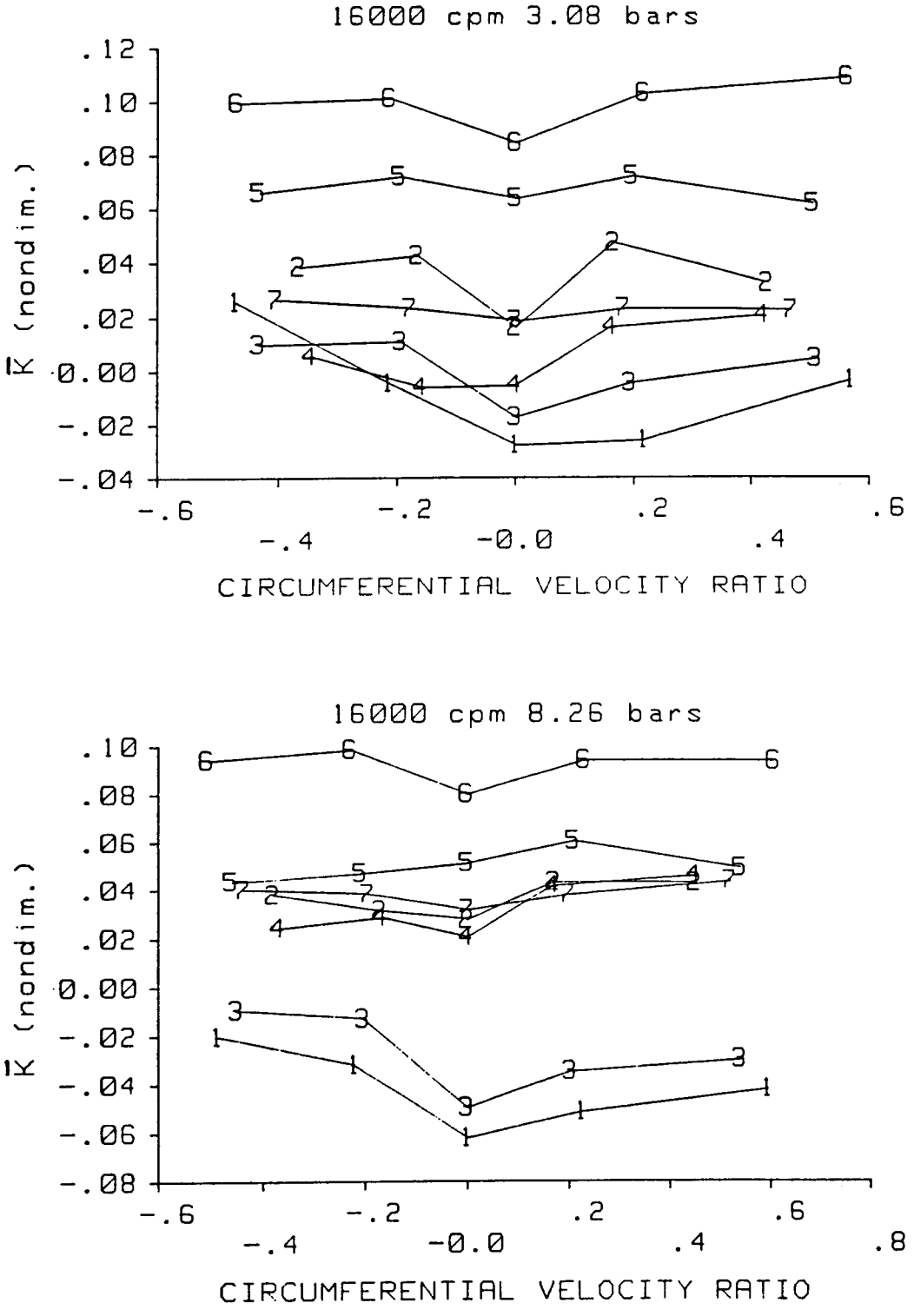


Figure 48. $\overline{K}$ versus $u_{\theta o}$ for the seven honeycomb seals of Table 3.

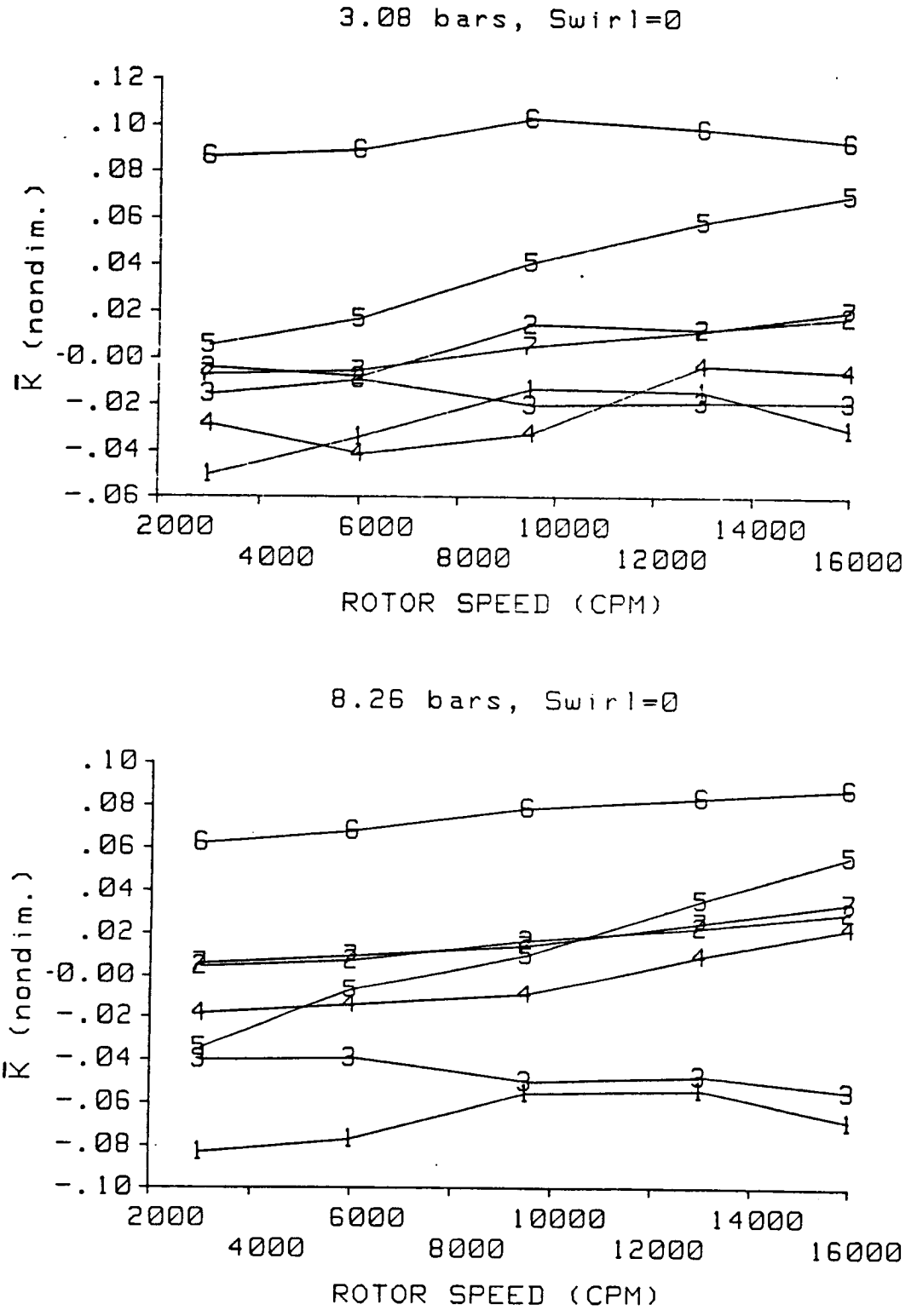


Figure 49. $\overline{K}$ versus ω for the seven honeycomb seals of Table 3.

COMPARISON OF SMOOTH, LABYRINTH, AND HONEYCOMB SEALS

In this section, results from tests of a smooth-rotor/smooth-stator seal, a smooth-rotor/labyrinth-stator seal, and honeycomb seal 7 of Table 3 are compared. Figure 19 in the previous section illustrates the geometry of a smooth-rotor/honeycomb-stator seal. Figure 50 illustrates the geometry of a teeth-on-stator labyrinth seal. The rotor for all three seals has a nominal diameter of 151.36 mm. The nominal radial clearance of each seal is 0.41 mm (0.016 in). Two questions which are answered in this section are:

(a) How do the seals compare with respect to nondimensionalized leakage?
(b) How do the seals compare with respect to rotordynamic stability?

In the following figures, smooth seal data is labeled S, labyrinth seal data is labeled L, and data for honeycomb seal 7 of Table 3 is labeled H.

Leakage Performance

Figure 51 illustrates the flow coefficient Φ, defined in equation (2), for the smooth (curve S), labyrinth (curve L), and honeycomb (curve H) seals. The seals are unchoked at an inlet pressure of 3.08 bars, and choked at 8.26 bars. As one would expect, Φ is highest for the smooth seal. A comparison of figures 51, 20, and 21 reveals that all seven honeycomb seals listed in Table 3 leak less than the labyrinth seal. For the most stable honeycomb seal tested (seal 7 of Table 3, curve H of figure 51), Φ is about 30% less than for the labyrinth seal.

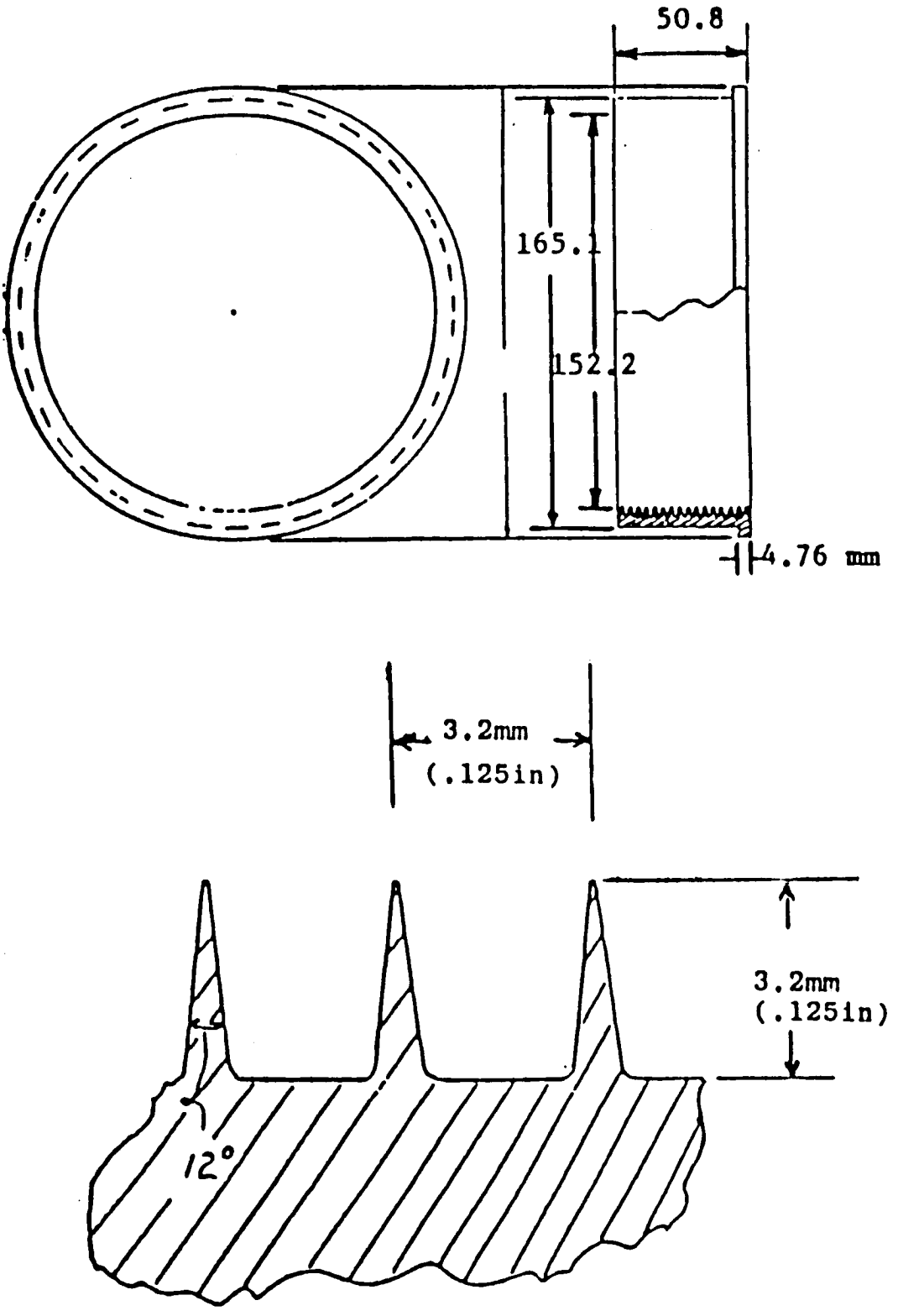


Figure 50. Labyrinth seal geometry.

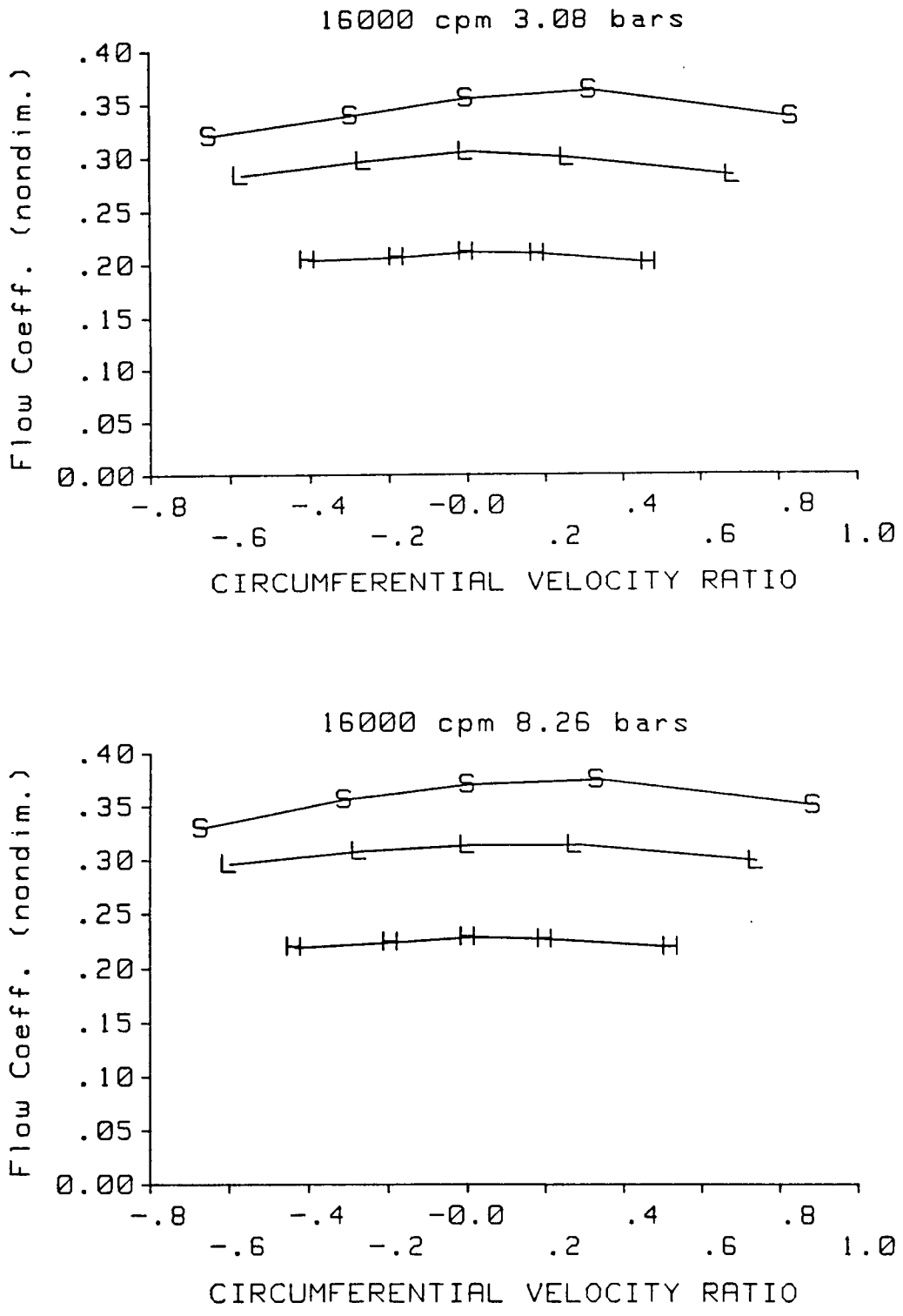


Figure 51. Comparison of flow coefficient versus circumferential velocity ratio for the smooth, labyrinth, and honeycomb seals.

Rotordynamic Coefficients

Cross-Coupled Stiffness Results

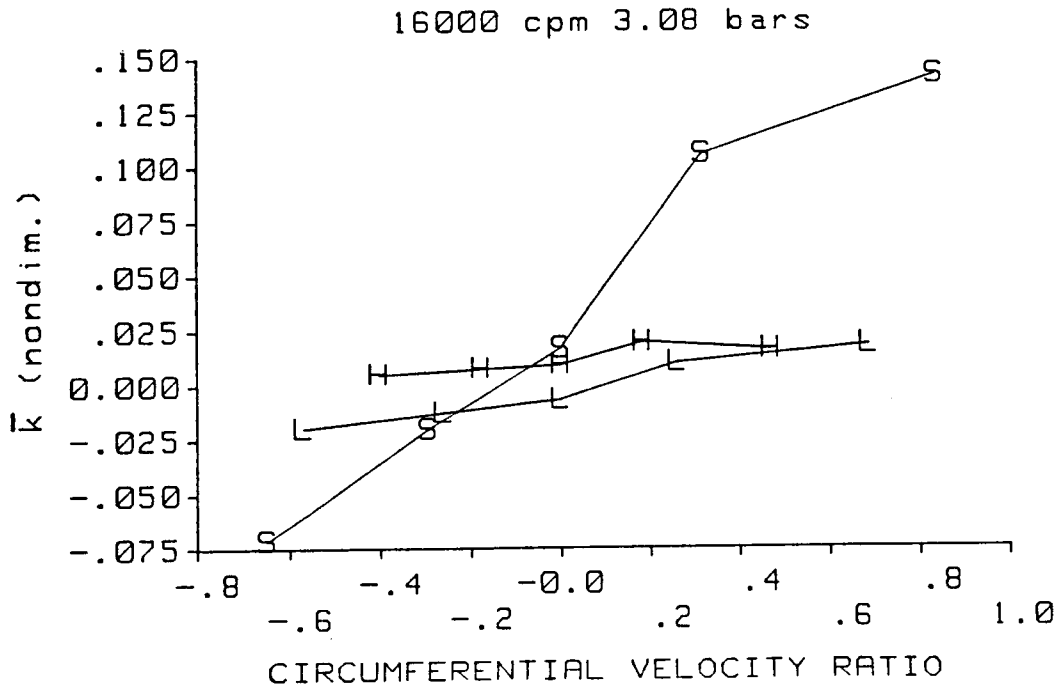
Figure 52 shows $\overline{k}$ versus $u_{\theta o}$ at the lowest and highest inlet pressures and highest rotor speed of Table 1. For the smooth and labyrinth seals (curves S and L, respectively), $\overline{k}$ is negative, i.e. stabilizing, for negative $u_{\theta o}$. For the labyrinth seal, $\overline{k}$ is even stabilizing for no prerotation of the inlet air. For the honeycomb seal, $\overline{k}$ is positive (destabilizing) for all inlet circumferential velocities of Table 1. For positive $u_{\theta o}$, $\overline{k}$ is almost equally destabilizing for the labyrinth and honeycomb seals. A comparison of figures 52 and 43 reveals that, for positive $u_{\theta o}$, $\overline{k}$ for honeycomb seal 1 of Table 1 is almost as destabilizing as $\overline{k}$ for the smooth seal.

Figure 53 shows $\overline{k}$ versus ω for the three seals. The results shown are from tests with no prerotation of the inlet air and an inlet pressure of 3.08 bars. For the smooth and honeycomb seals, $\overline{k}$ increases as the rotor speed increases. For the labyrinth seal, $\overline{k}$ is increasingly negative as the rotor speed increases. The figure also shows that, for the lowest three rotor speeds of Table 1, $\overline{k}$ for the honeycomb seal is negative. At rotor speeds out to about 9000 cpm, $\overline{k}$ is smaller for the honeycomb than for the labyrinth seal.

Direct Damping Results

Figure 54 shows $\overline{C}$ versus $u_{\theta o}$ for the smooth, labyrinth, and honeycomb seals. $\overline{C}$ for the honeycomb seal is five or six times $\overline{C}$ for the labyrinth seal. At an inlet pressure of 3.08 bars, the smooth and honeycomb seals have about the same normalized direct damping. At 8.26 bars, $\overline{C}$ for the smooth seal is about one-half of $\overline{C}$ for the honeycomb seal when $u_{\theta o}$ is positive. For non-positive $u_{\theta o}$, $\overline{C}$ for the smooth seal is greater than $\overline{C}$ for the honeycomb seal.

Figure 55 shows $\overline{C}$ versus ω for no prerotation of the inlet air and 3.08 bars inlet pressure. In this figure, $\overline{C}$ for the smooth seal increases with increasing rotor speed. For the labyrinth and honeycomb seals, there is little change in $\overline{C}$ as ω increases.



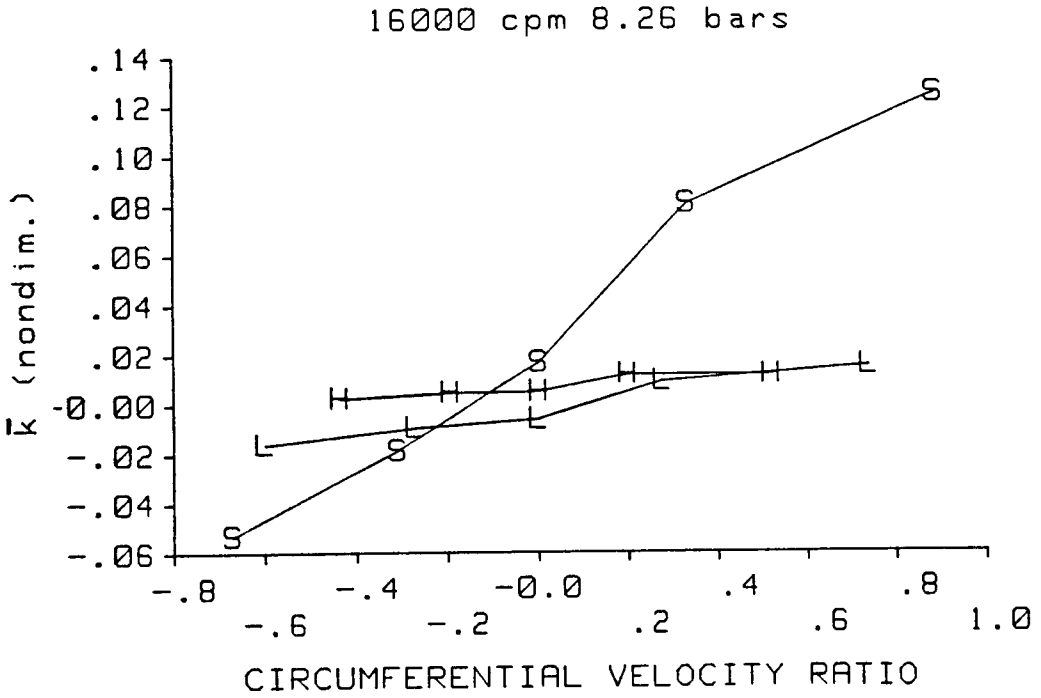


Figure 52. $\bar{k}$ versus $u_{\theta o}$ for the smooth, labyrinth and honeycomb seals.

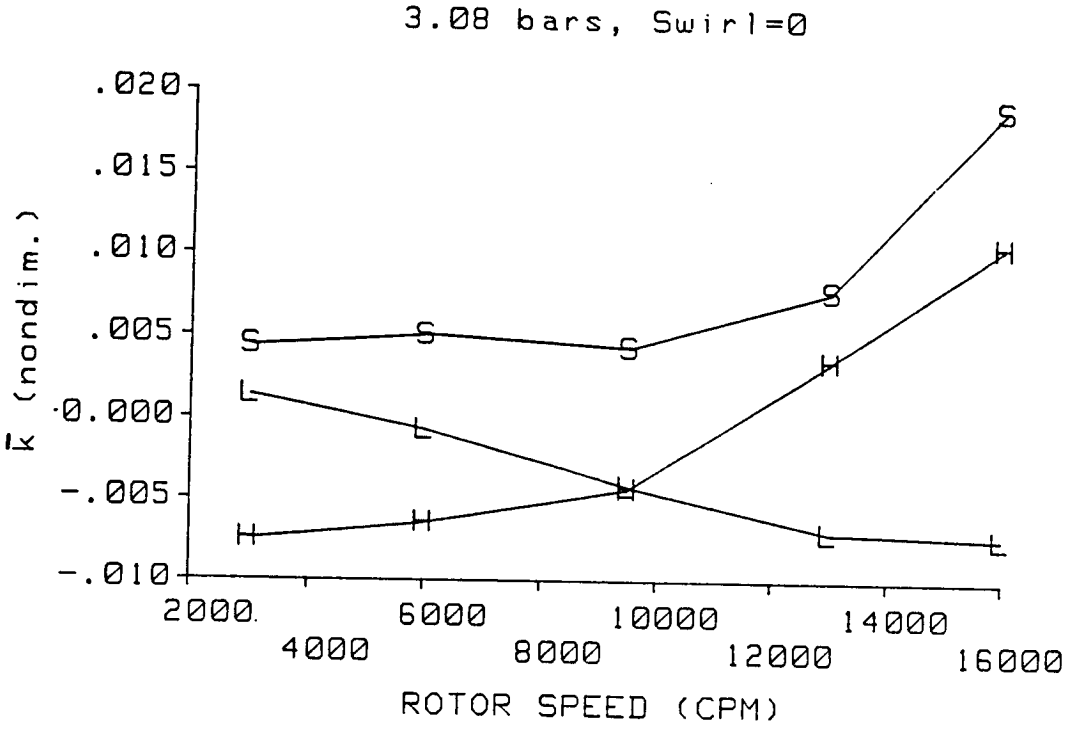


Figure 53. $\bar{k}$ versus ω for the smooth, labyrinth and honeycomb seals.

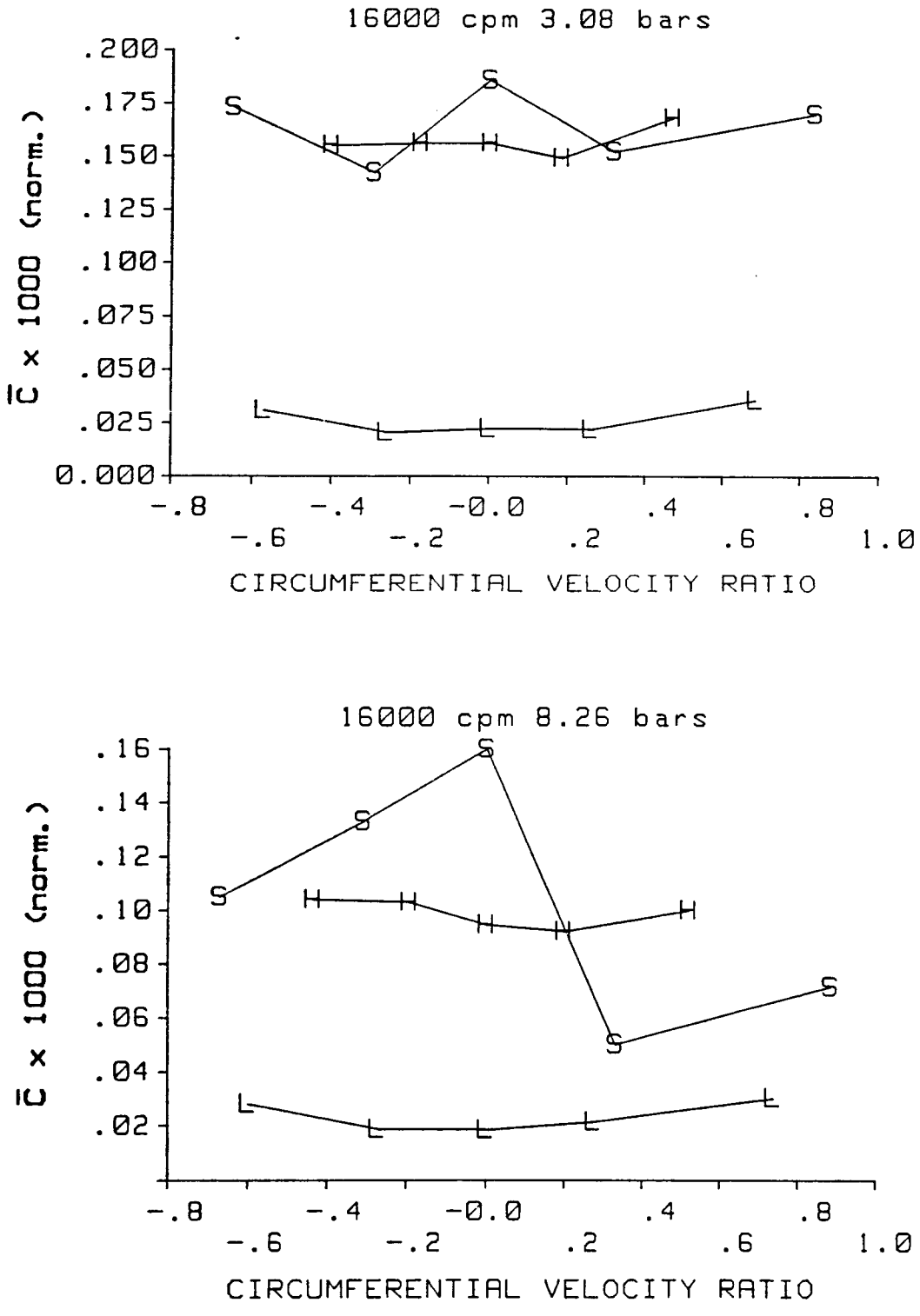


Figure 54. $\overline{C}$ versus $u_{\theta o}$ for the smooth, labyrinth and honeycomb seals.

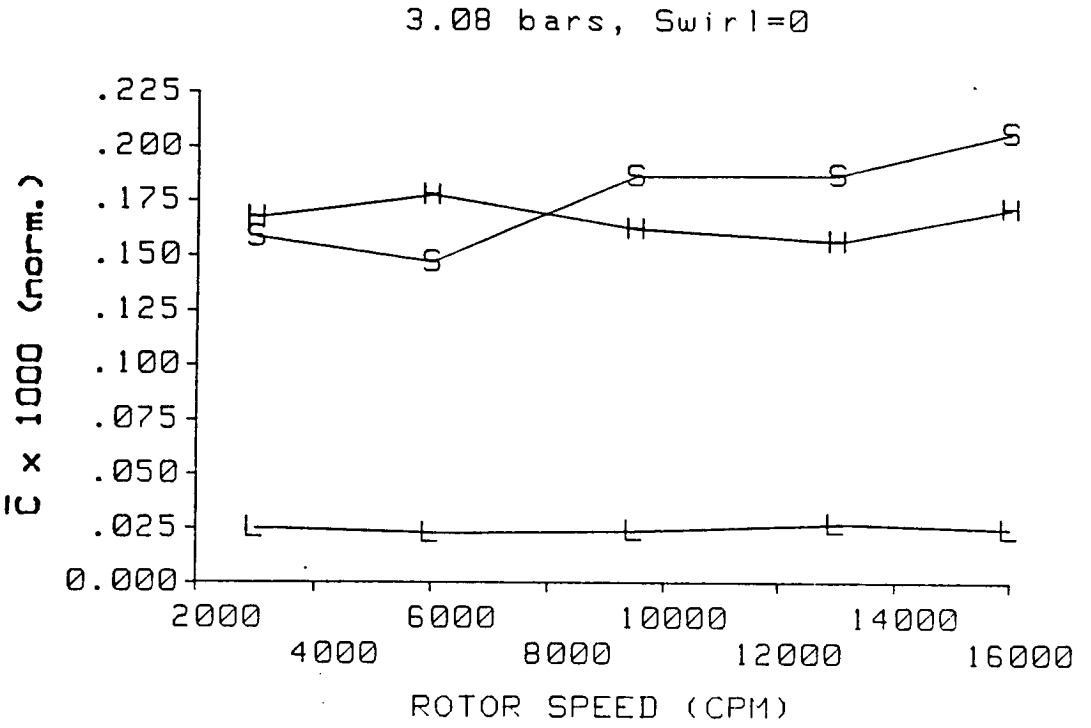


Figure 55. $\overline{C}$ **versus** ω
for the smooth, labyrinth and honeycomb seals.

Whirl Frequency Ratio Results

Figure 56 shows f (defined in equation (3)) versus $u_{\theta o}$ for the smooth, labyrinth, and honeycomb seals. For negative $u_{\theta o}$, the labyrinth seal is the most stable, and the honeycomb seal is the least stable seal. For $u_{\theta o} = 0$, the labyrinth seal is the most stable, and the smooth seal is the least stable seal. For positive $u_{\theta o}$, the honeycomb seal is the most stable, and the smooth seal is the least stable seal. A comparison of figures 56 and 47 reveals that the least stable honeycomb seal tested (seal 1 of Table 3) is more stable than the smooth and labyrinth seals for positive $u_{\theta o}$.

Direct Stiffness Results

Figure 57 illustrates $\overline{K}$ versus $u_{\theta o}$ for a rotor speed of 16000 cpm, and inlet pressures of 3.08 and 8.26 bars. For the honeycomb seal, $\overline{K}$ is positive and relatively insensitive to changes in $u_{\theta o}$. For the labyrinth seal, $\overline{K}$ is negative and independent of $u_{\theta o}$. For the smooth seal, $\overline{K}$ is negative for no prerotation of the inlet air and increasingly positive for increasing, positive $u_{\theta o}$. For negative $u_{\theta o}$, $\overline{K}$ for the smooth seal is negative at 8.26 bars and positive at 3.08 bars.

Figure 58 shows $\overline{K}$ versus ω for no prerotation of the inlet air and an inlet pressure of 3.08 bars. For the labyrinth seal, $\overline{K}$ is negative and independent of rotor speed. For the honeycomb seal, $\overline{K}$ increases with increasing ω; $\overline{K}$ is negative at 3000 cpm, and becomes positive between 6000 and 9500 cpm. For the smooth seal, $\overline{K}$ generally decreases with increasing ω; at 9500 and 16000 cpm, $\overline{K}$ is negative.

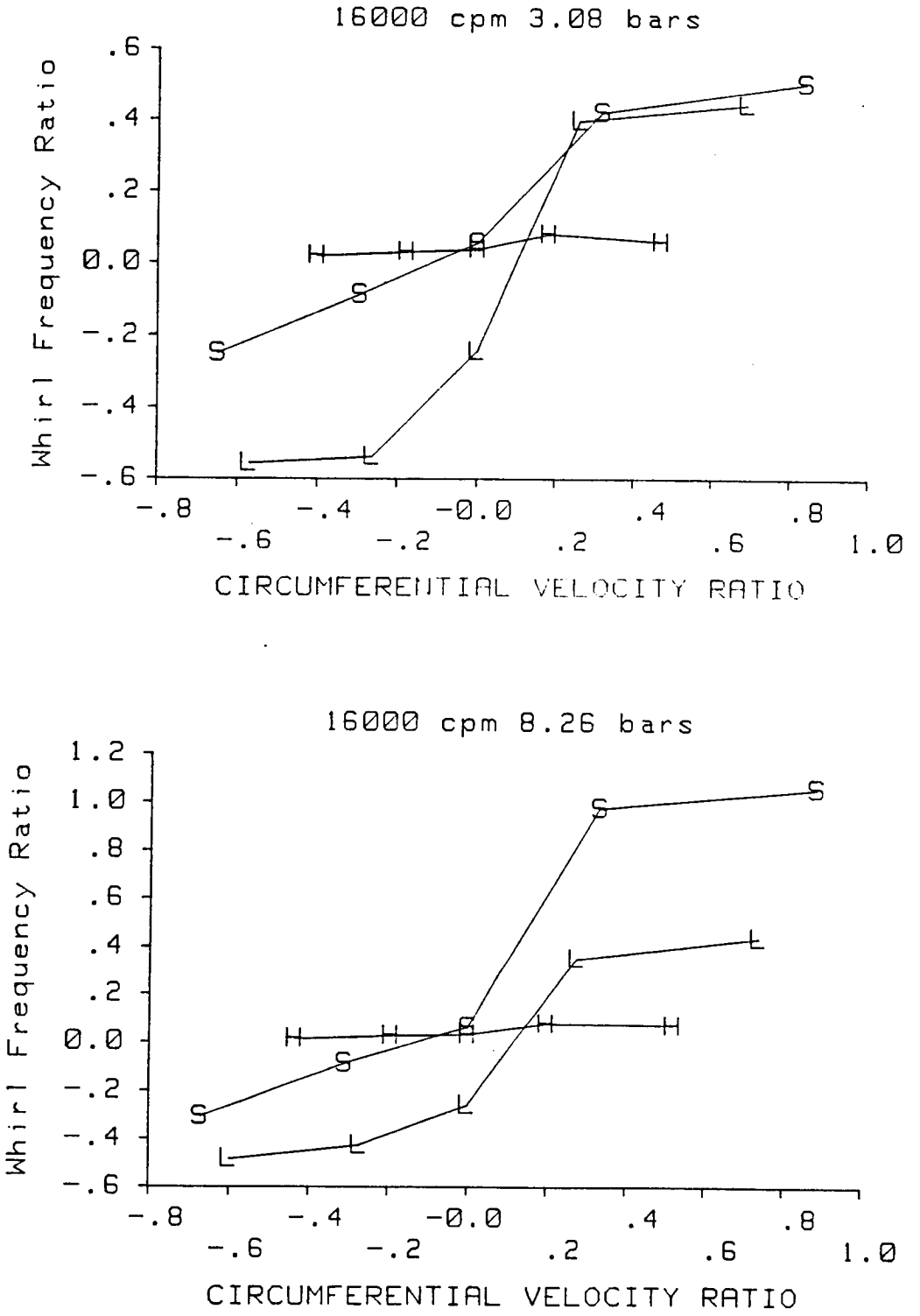


Figure 56. Whirl frequency ratio versus $u_{\theta o}$ for the smooth, labyrinth and honeycomb seals.

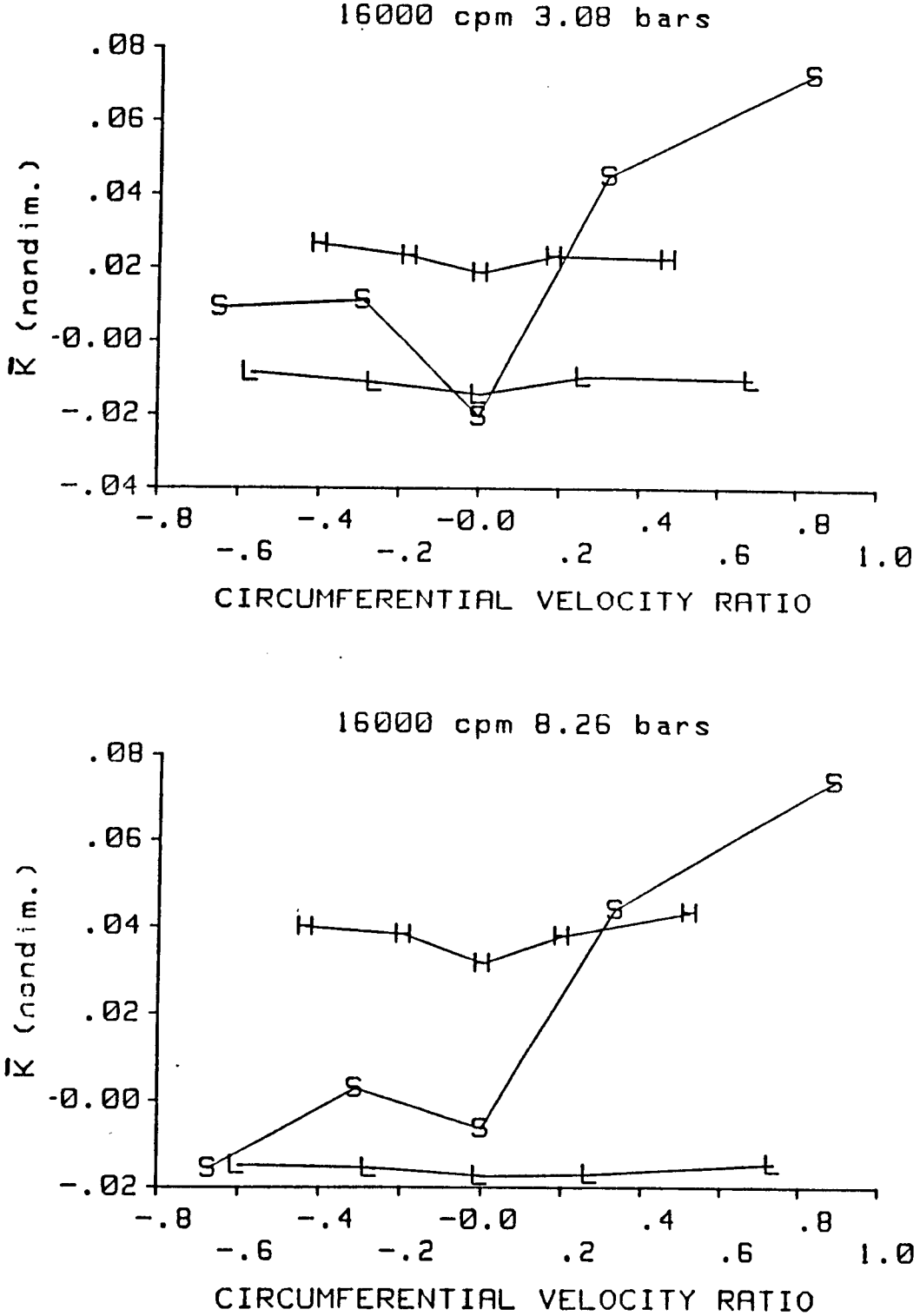


Figure 57. $\overline{K}$ **versus** v_{θ_0}
for the smooth, labyrinth and honeycomb seals.

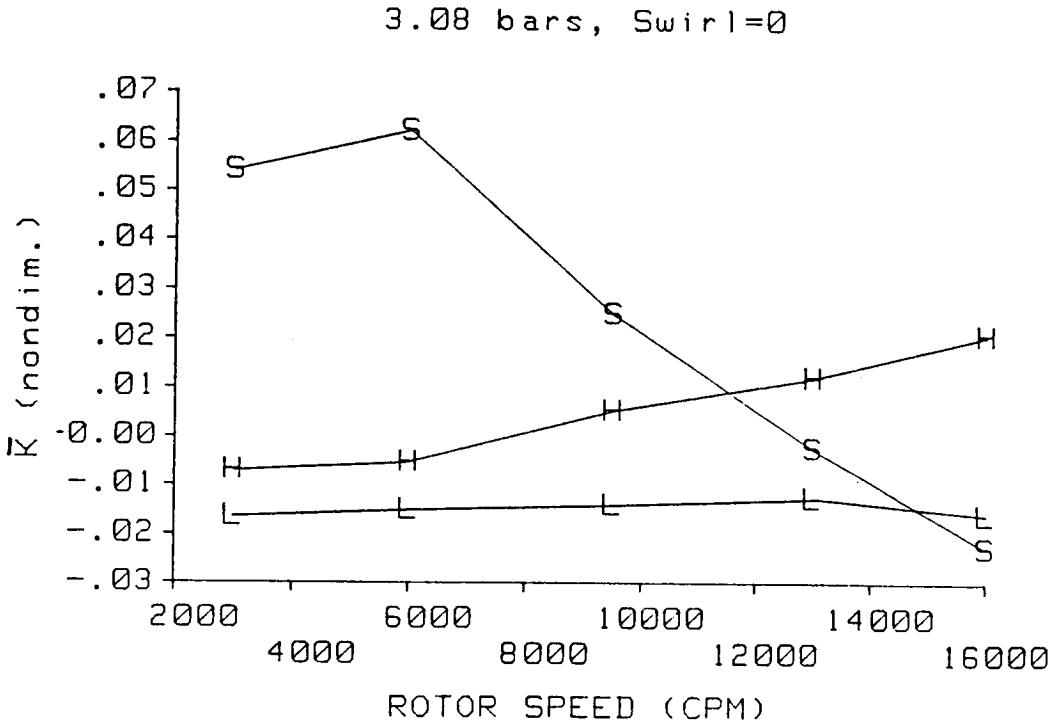


Figure 58. $\overline{K}$ versus ω for the smooth, labyrinth and honeycomb seals.

CONCLUSIONS

Comparison of Honeycomb Seals

- The most stable honeycomb seal tested had the largest cell size (1.57 mm) and the deepest cell depth (1.91 mm).
- One conclusion of a seal analysis by von Pragenau [6] is that seal stability improves as the ratio of stator friction to rotor friction increases. From the results in figures 20 and 47, the honeycomb seal with the highest stator friction (lowest Φ) is not the most stable seal tested (lowest f).
- Honeycomb seal stability is very sensitive to small changes in cell depth.
- Additional tests of honeycomb seals are required at larger cell depths and at additional clearances.

Comparison of Smooth, Labyrinth, and Honeycomb Seals

- The most stable honeycomb seal tested leaks less than the smooth-rotor/smooth-stator and smooth-rotor/labyrinth-stator seals.
- All honeycomb seals tested are more stable than the smooth-rotor/smooth-stator and labyrinth seals for fluid prerotation in the direction of rotor rotation.
- At high rotor speeds, the labyrinth seal is the most stable seal for no fluid prerotation and for prerotation opposed to the direction of rotor rotation.
- The installation of highly effective swirl brakes upstream of the seal would make the labyrinth seal more stable than the honeycomb seals tested at high rotor speeds.

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2. Wieghardt, K., "Erhöhung des turbulenten Reibungswiderstandes durch Oberflächenstörungen," *Techn. Berichte 10*, Heft 9 (1943).
3. Schlichting, H., *Boundary Layer Theory*, McGraw-Hill, New York, NY, Seventh Edition, 1979, pg.656.
4. Holman, J. P., *Experimental Methods for Engineers*, McGraw-Hill, New York, NY, 1978, pg. 45.
5. Childs, D. W., Nelson, C. C., Nicks, C., Scharrer, J., Elrod, D., Hale, K., "Theory Versus Experiment for the Rotordynamic Coefficients of Annular Gas Seals: Part 1, Test Facility and Apparatus," *ASME Trans. J. of Tribology*, Vol. 108, pp. 426–432.
6. von Pragenau, G. L., "Damping Seals for Turbomachinery," NASA Technical Paper 1987, Mar. 1982.

APPENDIX A

This appendix contains raw data for the seven honeycomb-stator/smooth-rotor seals of Table 3. There are 375 test cases for each seal. The fourteen columns in the top half of each table contain the following information:

Column	Heading	Description
1	Case	Case number
2	CPM	Rotor speed (cpm)
3	Tr	Reservoir temperature (K)
4	Tb	Sump temperature (K)
5	Pr	Reservoir pressure (bars)
6	Pb	Sump pressure (bars)
7	f	Shake frequency (Hz)
8	Vt	Inlet circumferential velocity (m/sec)
9	A	Shake amplitude (m)
10	$\dot{m}$	Mass flow rate (kg/sec)
11	$\overline{K}$	Normalized direct stiffness (nondim.)
12	$\overline{k}$	Normalized cross-coupled stiffness (nondim.)
13	$\overline{C}$x1000	Normalized direct damping x 1000 (norm.)
14	$\overline{c}$x1000	Normalized cross-coupled damping x 1000 (norm.)

The static pressure in the seal is measured at fifteen locations. The lower half of each of the following tables contains the pressure measurements for each test case, in bars. For the axial location of the pressures entered in the columns labelled "i=1 to 15", multiply i by 0.318 cm (0.125 in).

Table A1a. Static and dynamic test data for seal 1 of Table 3 for no inlet circumferential velocity and 38.7 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	B	K	k	Cx1000	cx1000
1	3000	298	291	3.1	1.01	38.7	0	.0869	.0544	-.0515	-.0125	.207	.0329
2	6000	299	287	3.03	1.01	38.7	0	.0879	.0529	-.0378	-.0116	.192	.0492
3	9500	299	287	3.03	1.01	38.7	0	.0871	.0509	-.0201	.0153	.181	-.00665
4	13000	294	290	2.98	1.01	38.7	0	.0859	.0475	-.022	.0459	.182	-.0241
5	16000	294	298	3.07	1.01	38.7	0	.0873	.0453	-.0362	.0694	.196	-.0229
6	3000	298	290	4.43	1.01	38.7	0	.0891	.0807	-.075	-.00814	.192	.0165
7	6000	299	286	4.41	1.01	38.7	0	.0856	.0781	-.0595	-.0153	.192	.0732
8	9500	299	287	4.42	1.01	38.7	0	.0896	.0753	-.0425	.00704	.179	.00866
9	13000	295	287	4.43	1	38.7	0	.0878	.0711	-.0444	.0357	.181	-.0234
10	16000	294	290	4.39	1	38.7	0	.0904	.0655	-.0509	.0619	.189	-.0457
11	3000	299	292	5.77	1	38.7	0	.0918	.104	-.0846	-.00765	.202	.0194
12	6000	300	288	5.72	1.01	38.7	0	.0832	.102	-.0737	-.0158	.189	.0759
13	9500	299	287	5.77	1.01	38.7	0	.0922	.0991	-.0567	.00225	.178	.0313
14	13000	294	286	5.8	1	38.7	0	.0907	.0943	-.0563	.0337	.192	-.0176
15	16000	293	288	5.79	1	38.7	0	.0935	.088	-.0634	.0584	.196	-.0473
16	3000	299	292	7.14	1.01	38.7	0	.0881	.13	-.0864	-.00698	.192	.021
17	6000	300	287	7.15	1.01	38.7	0	.0859	.129	-.0775	-.0147	.19	.072
18	9500	299	286	7.08	1.01	38.7	0	.0944	.123	-.0604	.00254	.179	.0438
19	13000	294	285	7.09	1.01	38.7	0	.0927	.117	-.0595	.0312	.197	-.0125
20	16000	293	287	7.17	1.01	38.7	0	.0964	.109	-.0682	.0561	.198	-.0501
21	3000	300	293	8.12	1.01	38.7	0	.0874	.149	-.0832	-.00714	.201	.0219
22	6000	300	290	8.12	1.01	38.7	0	.0869	.146	-.0764	-.0135	.196	.075
23	9500	299	286	8.08	1.01	38.7	0	.0957	.141	-.0584	.00143	.202	.0462
24	13000	294	285	8.13	1.01	38.7	0	.0942	.134	-.0597	.03	.195	-.00903
25	16000	293	286	8.16	1.01	38.7	0	.0977	.125	-.0674	.0557	.2	-.0461

Case	Pi, i=1 to 15 ----------)														
1	2.83	2.71	2.6	2.52	2.42	2.32	2.25	2.14	2.05	1.93	1.85	1.73	1.61	1.42	1.22
2	2.76	2.64	2.55	2.46	2.36	2.26	2.19	2.08	2	1.87	1.8	1.67	1.56	1.37	1.19
3	2.77	2.66	2.56	2.48	2.39	2.29	2.21	2.1	2.01	1.89	1.79	1.69	1.57	1.38	1.19
4	2.74	2.62	2.53	2.44	2.34	2.25	2.16	2.06	1.95	1.85	1.73	1.66	1.5	1.36	1.16
5	2.81	2.7	2.59	2.51	2.41	2.3	2.23	2.1	2.01	1.87	1.79	1.65	1.55	1.36	1.19
6	4.03	3.84	3.67	3.57	3.42	3.27	3.15	3	2.85	2.7	2.54	2.4	2.16	1.81	1.45
7	4.02	3.83	3.69	3.56	3.42	3.27	3.16	2.99	2.86	2.68	2.54	2.36	2.15	1.79	1.44
8	4.05	3.85	3.72	3.58	3.45	3.31	3.18	3.03	2.87	2.71	2.5	2.4	2.11	1.8	1.43
9	4.07	3.87	3.75	3.6	3.46	3.32	3.18	3.04	2.87	2.68	2.48	2.38	2.04	1.8	1.39
10	4.03	3.85	3.7	3.59	3.44	3.29	3.19	3	2.85	2.67	2.5	2.33	2.09	1.73	1.4
11	5.27	4.99	4.77	4.63	4.43	4.24	4.09	3.87	3.67	3.48	3.23	3.08	2.72	2.25	1.75
12	5.21	4.95	4.77	4.59	4.41	4.21	4.06	3.85	3.67	3.44	3.22	3.03	2.69	2.21	1.73
13	5.28	5	4.84	4.64	4.47	4.28	4.11	3.91	3.72	3.47	3.2	3.1	2.63	2.26	1.7
14	5.31	5.04	4.87	4.69	4.49	4.32	4.13	3.95	3.71	3.5	3.19	3.08	2.61	2.24	1.67
15	5.3	5.07	4.86	4.7	4.5	4.29	4.17	3.88	3.69	3.47	3.22	2.96	2.64	2.13	1.67
16	6.51	6.16	5.88	5.7	5.44	5.22	5.01	4.76	4.54	4.27	3.97	3.78	3.33	2.74	2.11
17	6.49	6.18	5.94	5.71	5.5	5.23	5.06	4.78	4.57	4.27	4.01	3.73	3.33	2.71	2.11
18	6.47	6.11	5.92	5.65	5.45	5.21	5	4.75	4.51	4.2	3.86	3.73	3.15	2.7	2
19	6.5	6.16	5.95	5.73	5.48	5.28	5.03	4.82	4.53	4.25	3.89	3.74	3.15	2.71	1.99
20	6.56	6.25	6	5.8	5.53	5.3	5.12	4.79	4.52	4.26	3.92	3.66	3.23	2.6	2.01
21	7.38	7	6.68	6.47	6.17	5.93	5.69	5.4	5.14	4.85	4.49	4.3	3.76	3.1	2.38
22	7.37	7.01	6.73	6.49	6.24	5.93	5.75	5.42	5.16	4.86	4.54	4.24	3.77	3.07	2.38
23	7.38	6.95	6.74	6.45	6.21	5.94	5.7	5.45	5.16	4.8	4.44	4.28	3.6	3.11	2.26
24	7.44	7.04	6.8	6.54	6.25	6.03	5.73	5.51	5.16	4.82	4.41	4.27	3.58	3.08	2.23
25	7.45	7.11	6.81	6.58	6.29	6.01	5.81	5.43	5.13	4.86	4.47	4.13	3.66	2.9	2.25

Table A1b. Static and dynamic test data for seal 1 of Table 3 for no inlet circumferential velocity and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
26	3000	297	288	3.09	1.01	56.8	0	.0869	.0549	-.056	-.0135	.189	.0333
27	6000	297	286	3.02	1.01	56.8	0	.0861	.0528	-.046	-.0108	.169	.0276
28	9500	297	286	3.05	1.01	56.8	0	.0875	.0519	-.0171	.0151	.19	-.00362
29	13000	298	291	3.02	1.01	56.8	0	.0845	.0475	-.0162	.0437	.191	-.0228
30	16000	298	298	3.02	1.01	56.8	0	.0828	.0445	-.0367	.0699	.2	-.0377
31	3000	297	290	4.39	1.01	56.8	0	.0869	.0789	-.0771	-.00468	.208	.0182
32	6000	297	284	4.42	1.01	56.8	0	.0851	.0779	-.0564	-.00944	.193	.0579
33	9500	297	286	4.37	1.01	56.8	0	.0897	.0751	-.0452	.0101	.183	.00279
34	13000	298	289	4.37	1.01	56.8	0	.0869	.0695	-.0431	.0375	.188	-.0217
35	16000	298	293	4.4	1.01	56.8	0	.0899	.0655	-.0585	.0614	.197	-.0441
36	3000	297	289	5.72	1.01	56.8	0	.0918	.104	-.0817	-.00784	.195	.0156
37	6000	297	285	5.74	1	56.8	0	.0883	.103	-.0795	-.00632	.169	.0608
38	9500	298	286	5.75	1.01	56.8	0	.0877	.0988	-.0479	.00686	.19	.017
39	13000	298	287	5.72	1.01	56.8	0	.0883	.0921	-.0555	.0347	.193	-.017
40	16000	298	291	5.77	1	56.8	0	.0936	.0862	-.0679	.0584	.195	-.0459
41	3000	298	290	7.07	1.01	56.8	0	.0867	.129	-.0868	.000942	.205	.0151
42	6000	297	288	7.12	1.01	56.8	0	.0849	.129	-.0786	-.00688	.179	.0563
43	9500	298	285	7.08	1.01	56.8	0	.09	.123	-.0569	.00842	.185	.0167
44	13000	298	287	7.14	1.01	56.8	0	.0896	.117	-.0565	.0331	.195	-.0148
45	16000	298	290	7.15	1.01	56.8	0	.0951	.107	-.0669	.0574	.199	-.0457
46	3000	297	291	8.1	1.01	56.8	0	.0855	.15	-.0831	.000465	.205	.0149
47	6000	298	288	8.07	1.01	56.8	0	.0893	.147	-.074	-.00382	.198	.0534
48	9500	298	285	8.09	1.01	56.8	0	.0848	.141	-.0549	.00687	.182	.0235
49	13000	298	286	8.11	1.01	56.8	0	.0894	.132	-.059	.0326	.196	-.0119
50	16000	299	290	8.16	1.01	56.8	0	.0906	.124	-.0643	.055	.204	-.0608

Case	Pi, i=1 to 15 ---------->														
26	2.82	2.7	2.59	2.51	2.42	2.31	2.24	2.14	2.06	1.93	1.84	1.76	1.6	1.43	1.22
27	2.75	2.64	2.54	2.45	2.36	2.26	2.18	2.08	2	1.87	1.78	1.69	1.55	1.39	1.19
28	2.78	2.68	2.57	2.49	2.39	2.3	2.22	2.11	2.02	1.89	1.8	1.7	1.56	1.39	1.19
29	2.77	2.67	2.57	2.48	2.39	2.3	2.21	2.11	2.02	1.88	1.79	1.69	1.54	1.38	1.18
30	2.77	2.67	2.57	2.48	2.38	2.28	2.2	2.1	2	1.85	1.76	1.66	1.52	1.36	1.18
31	3.98	3.8	3.63	3.52	3.37	3.23	3.11	2.97	2.84	2.64	2.5	2.36	2.12	1.81	1.43
32	4.02	3.85	3.69	3.57	3.43	3.29	3.17	3.03	2.9	2.69	2.55	2.4	2.13	1.82	1.43
33	3.98	3.82	3.68	3.56	3.43	3.28	3.16	3.02	2.88	2.68	2.52	2.37	2.11	1.8	1.42
34	3.98	3.82	3.67	3.55	3.41	3.27	3.15	2.99	2.84	2.63	2.47	2.32	2.06	1.75	1.39
35	4.03	3.87	3.71	3.58	3.43	3.28	3.15	2.99	2.84	2.62	2.45	2.31	2.04	1.73	1.38
36	5.19	4.95	4.72	4.57	4.38	4.18	4.02	3.83	3.67	3.41	3.22	3.02	2.69	2.24	1.72
37	5.23	5	4.78	4.62	4.43	4.22	4.06	3.86	3.68	3.41	3.21	3.01	2.64	2.22	1.7
38	5.21	5	4.79	4.63	4.44	4.27	4.1	3.89	3.72	3.43	3.22	3.04	2.66	2.22	1.71
39	5.2	5	4.8	4.64	4.46	4.27	4.11	3.9	3.71	3.43	3.21	2.99	2.65	2.2	1.69
40	5.27	5.06	4.85	4.68	4.48	4.3	4.13	3.91	3.71	3.42	3.2	2.97	2.61	2.17	1.65
41	6.41	6.11	5.83	5.64	5.4	5.16	4.97	4.73	4.51	4.2	3.97	3.73	3.3	2.74	2.1
42	6.46	6.17	5.9	5.69	5.46	5.22	5.03	4.79	4.57	4.24	3.98	3.73	3.27	2.72	2.07
43	6.42	6.15	5.9	5.68	5.45	5.22	5.04	4.75	4.55	4.19	3.94	3.68	3.24	2.66	2.03
44	6.49	6.23	5.98	5.77	5.54	5.3	5.1	4.84	4.61	4.24	3.98	3.72	3.26	2.68	2.04
45	6.52	6.25	5.99	5.78	5.54	5.3	5.09	4.82	4.58	4.22	3.93	3.64	3.2	2.62	1.98
46	7.34	7	6.66	6.44	6.16	5.89	5.66	5.39	5.17	4.78	4.51	4.25	3.75	3.1	2.35
47	7.32	6.98	6.67	6.44	6.19	5.91	5.71	5.42	5.17	4.81	4.53	4.24	3.74	3.1	2.35
48	7.33	7.02	6.72	6.48	6.21	5.94	5.72	5.42	5.16	4.77	4.49	4.17	3.67	3.03	2.28
49	7.37	7.08	6.78	6.55	6.28	6.02	5.79	5.49	5.21	4.8	4.51	4.18	3.67	3.03	2.27
50	7.46	7.15	6.85	6.6	6.32	6.07	5.83	5.5	5.24	4.83	4.5	4.16	3.62	3.02	2.22

Table A1c. Static and dynamic test data for seal 1 of Table 3 for no inlet circumferential velocity and 74.6 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
51	3000	297	285	3.05	1.01	74.6	0	.0901	.0546	-.0504	-.00731	.218	.0269
52	6000	296	285	3.01	1.01	74.6	0	.0897	.0527	-.0334	-.00523	.192	.0213
53	9500	296	286	2.98	1.01	74.6	0	.0933	.0503	-.0129	-.0172	.197	-.000883
54	13000	295	290	3.05	1.01	74.6	0	.09	.0482	-.0137	.042	.195	-.0221
55	16000	296	298	3.07	1.01	74.6	0	.0907	.0456	-.0276	.0673	.208	-.0414
56	3000	297	285	4.4	1.01	74.6	0	.088	.0805	-.0687	-.00505	.213	.0169
57	6000	296	283	4.35	1.01	74.6	0	.0881	.078	-.0572	-.00491	.195	.0434
58	9500	296	286	4.43	1.01	74.6	0	.0909	.0764	-.0343	.0102	.187	.00654
59	13000	296	288	4.43	1.01	74.6	0	.0969	.0702	-.0409	.0355	.188	-.0208
60	16000	296	292	4.46	1.01	74.6	0	.0885	.0661	-.0483	.0587	.208	-.0449
61	3000	297	285	5.74	1	74.6	0	.0871	.104	-.0834	-.00235	.207	.0132
62	6000	297	284	5.78	1	74.6	0	.0867	.104	-.0693	-.00282	.196	.035
63	9500	296	286	5.76	1.01	74.6	0	.0906	.0996	-.05	.0089	.193	.0116
64	13000	296	287	5.75	1	74.6	0	.0939	.0927	-.0471	.0322	.202	-.018
65	16000	296	290	5.72	1	74.6	0	.0919	.0863	-.0553	.0555	.214	-.05
66	3000	297	286	7.05	1	74.6	0	.087	.13	-.0784	-.00173	.211	.00717
67	6000	297	285	7.16	1.01	74.6	0	.0859	.128	-.069	.000854	.201	.0308
68	9500	296	285	7.11	1.01	74.6	0	.0921	.124	-.058	.00913	.19	.011
69	13000	296	286	7.11	1.01	74.6	0	.0935	.117	-.0487	.0307	.193	-.0205
70	16000	296	290	7.1	1.01	74.6	0	.0878	.108	-.0575	.0543	.211	-.0559
71	3000	297	288	8.09	1.01	74.6	0	.0887	.149	-.0832	-.00206	.196	.0135
72	6000	297	287	8.08	1.01	74.6	0	.0945	.146	-.0757	-.000989	.188	.0352
73	9500	296	285	8.1	1.01	74.6	0	.0923	.142	-.0532	.00896	.189	.00899
74	13000	296	285	8.17	1.01	74.6	0	.0918	.134	-.0507	.0302	.198	-.019
75	16000	297	289	8.13	1.01	74.6	0	.0883	.124	-.0619	.0487	.205	-.0547

Case	Pi, i=1 to 15 ---------->														
51	2.77	2.65	2.54	2.47	2.37	2.27	2.19	2.1	2.02	1.89	1.8	1.71	1.56	1.41	1.2
52	2.73	2.63	2.52	2.44	2.35	2.25	2.17	2.07	1.99	1.86	1.78	1.69	1.55	1.39	1.19
53	2.71	2.61	2.51	2.44	2.35	2.25	2.17	2.06	1.98	1.85	1.76	1.67	1.53	1.36	1.18
54	2.78	2.69	2.59	2.51	2.41	2.32	2.23	2.12	2.04	1.9	1.81	1.71	1.56	1.39	1.19
55	2.81	2.71	2.6	2.52	2.42	2.32	2.23	2.12	2.02	1.89	1.79	1.69	1.55	1.38	1.18
56	3.99	3.82	3.65	3.54	3.4	3.25	3.14	2.98	2.85	2.66	2.53	2.39	2.13	1.81	1.43
57	3.93	3.77	3.6	3.48	3.34	3.2	3.09	2.93	2.79	2.59	2.45	2.31	2.06	1.78	1.41
58	4.01	3.86	3.71	3.59	3.46	3.31	3.19	3.03	2.88	2.66	2.51	2.37	2.11	1.8	1.42
59	4.05	3.91	3.76	3.65	3.51	3.37	3.25	3.09	2.93	2.71	2.57	2.4	2.13	1.81	1.43
60	4.08	3.92	3.77	3.64	3.48	3.33	3.21	3.04	2.86	2.65	2.49	2.34	2.07	1.76	1.39
61	5.21	4.98	4.75	4.6	4.41	4.22	4.06	3.86	3.68	3.42	3.24	3.05	2.69	2.26	1.73
62	5.24	5.01	4.79	4.63	4.43	4.23	4.08	3.88	3.68	3.41	3.22	3.01	2.66	2.24	1.72
63	5.22	5.02	4.8	4.65	4.46	4.28	4.13	3.93	3.73	3.43	3.23	3.02	2.66	2.25	1.71
64	5.22	5.01	4.81	4.66	4.48	4.29	4.14	3.91	3.71	3.42	3.22	3.01	2.66	2.22	1.7
65	5.22	5.02	4.82	4.65	4.46	4.28	4.12	3.92	3.68	3.38	3.17	2.94	2.58	2.17	1.65
66	6.38	6.09	5.82	5.63	5.41	5.17	4.97	4.73	4.5	4.18	3.96	3.73	3.29	2.76	2.1
67	6.48	6.18	5.9	5.7	5.48	5.23	5.04	4.79	4.56	4.22	3.97	3.71	3.26	2.73	2.07
68	6.44	6.17	5.92	5.71	5.5	5.24	5.05	4.81	4.54	4.18	3.93	3.66	3.23	2.7	2.04
69	6.44	6.19	5.94	5.74	5.51	5.27	5.08	4.83	4.56	4.19	3.92	3.66	3.2	2.66	2.02
70	6.46	6.21	5.97	5.77	5.54	5.3	5.12	4.84	4.55	4.19	3.93	3.64	3.18	2.66	1.99
71	7.32	6.98	6.65	6.45	6.17	5.91	5.69	5.4	5.13	4.78	4.51	4.23	3.75	3.13	2.37
72	7.33	7.01	6.69	6.45	6.18	5.91	5.7	5.42	5.17	4.8	4.5	4.21	3.68	3.05	2.31
73	7.32	7	6.72	6.47	6.25	5.94	5.76	5.45	5.17	4.76	4.45	4.15	3.65	3.03	2.3
74	7.43	7.12	6.82	6.59	6.32	6.03	5.83	5.53	5.25	4.84	4.48	4.17	3.62	3	2.27
75	7.4	7.12	6.82	6.58	6.3	6.04	5.82	5.53	5.2	4.8	4.43	4.15	3.61	2.93	2.25

Table A2a. Static and dynamic test data for seal 1 of Table 3 for low inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
76	3000	296	289	3.01	1.01	38.7	-33.1	.0902	.053	-.0581	-.0453	.204	.032
77	6000	297	287	3.01	1.01	38.7	-32.8	.0842	.0525	-.0507	-.053	.2	.0405
78	9500	297	286	3.04	1.01	38.7	-30.7	.089	.0496	-.000391	-.039	.164	.0282
79	13000	297	291	3	1.01	38.7	-28.9	.0905	.0461	.0255	.00938	.145	-.0168
80	16000	297	299	3.02	1.01	38.7	-27.2	.0928	.0437	.00243	.0461	.177	-.00708
81	3000	297	291	4.33	1.01	38.7	-33.6	.0924	.0771	-.0794	-.0431	.194	.0256
82	6000	297	285	4.39	1.01	38.7	-32.7	.0873	.0763	-.0753	-.0435	.191	.0362
83	9500	297	286	4.37	1.01	38.7	-31.3	.0922	.0726	-.0386	-.0424	.17	.0378
84	13000	297	288	4.45	1.01	38.7	-29.5	.0902	.0698	-.00539	-.00544	.14	-.012
85	16000	298	293	4.42	1.01	38.7	-27.7	.0949	.0649	-.0207	.0356	.167	-.0146
86	3000	297	291	5.76	1	38.7	-33.6	.0967	.103	-.0889	-.0432	.202	.0392
87	6000	297	283	5.73	1.01	38.7	-33.2	.0863	.101	-.0868	-.0411	.201	.0384
88	9500	297	286	5.79	1.01	38.7	-31.7	.0954	.0973	-.0614	-.0402	.179	.0463
89	13000	297	287	5.76	1.01	38.7	-29.7	.092	.0907	-.0265	-.00986	.158	.00117
90	16000	298	291	5.75	1	38.7	-27.7	.0986	.0844	-.033	.0275	.17	-.0111
91	3000	297	290	7.13	1.01	38.7	-34.2	.0896	.129	-.0923	-.042	.185	.0408
92	6000	297	285	7.15	1.01	38.7	-33.4	.0901	.126	-.0896	-.0399	.192	.049
93	9500	297	285	7.13	1.01	38.7	-32	.0988	.121	-.0635	-.0396	.19	.0491
94	13000	297	286	7.09	1.01	38.7	-30	.0909	.113	-.036	-.0181	.162	.0124
95	16000	298	290	7.19	1.01	38.7	-27.8	.0962	.106	-.0339	.0244	.175	-.0122
96	3000	297	290	8.09	1.01	38.7	-33.8	.0913	.145	-.0881	-.0432	.19	.036
97	6000	297	286	8.09	1.01	38.7	-33.4	.0916	.143	-.0856	-.0397	.203	.0548
98	9500	297	285	8.13	1.01	38.7	-32.2	.096	.139	-.0676	-.0392	.183	.0514
99	13000	297	286	8.18	1.01	38.7	-29.9	.0919	.13	-.0376	-.0176	.175	.0209
100	16000	298	290	8.18	1.01	38.7	-28	.0978	.121	-.0353	.0227	.179	-.00268

Case	Pi, i=1 to 15 ----------)														
76	2.71	2.59	2.48	2.4	2.3	2.2	2.12	2.02	1.94	1.81	1.74	1.65	1.51	1.36	1.18
77	2.71	2.6	2.47	2.39	2.3	2.19	2.11	2.02	1.93	1.8	1.73	1.64	1.51	1.37	1.17
78	2.75	2.63	2.52	2.46	2.33	2.25	2.15	2.06	1.97	1.84	1.76	1.65	1.53	1.35	1.18
79	2.71	2.62	2.5	2.44	2.34	2.24	2.17	2.05	1.98	1.83	1.75	1.65	1.51	1.36	1.17
80	2.75	2.64	2.53	2.45	2.35	2.24	2.17	2.05	1.97	1.81	1.74	1.61	1.51	1.33	1.16
81	3.89	3.7	3.53	3.42	3.27	3.11	3	2.83	2.72	2.51	2.41	2.23	2.02	1.73	1.37
82	3.95	3.76	3.58	3.45	3.3	3.14	3.03	2.86	2.75	2.53	2.43	2.25	2.03	1.74	1.37
83	3.95	3.76	3.6	3.48	3.31	3.17	3.05	2.9	2.76	2.57	2.43	2.26	2.05	1.71	1.39
84	4.02	3.84	3.69	3.59	3.41	3.28	3.15	2.98	2.86	2.63	2.51	2.3	2.09	1.76	1.4
85	4.02	3.85	3.69	3.58	3.41	3.25	3.15	2.94	2.82	2.57	2.48	2.22	2.04	1.7	1.37
86	5.18	4.9	4.68	4.51	4.31	4.09	3.94	3.71	3.55	3.3	3.14	2.88	2.61	2.14	1.67
87	5.14	4.89	4.65	4.49	4.29	4.06	3.92	3.7	3.56	3.29	3.14	2.87	2.59	2.15	1.65
88	5.24	4.96	4.76	4.58	4.36	4.16	3.99	3.78	3.57	3.35	3.13	2.9	2.59	2.12	1.66
89	5.19	4.93	4.71	4.57	4.34	4.16	3.98	3.76	3.58	3.3	3.12	2.83	2.57	2.09	1.62
90	5.22	4.97	4.76	4.6	4.39	4.19	4.05	3.78	3.6	3.31	3.13	2.83	2.57	2.05	1.6
91	6.42	6.08	5.78	5.58	5.31	5.06	4.87	4.58	4.36	4.09	3.87	3.56	3.2	2.58	2.01
92	6.42	6.1	5.79	5.59	5.34	5.07	4.9	4.61	4.42	4.09	3.91	3.56	3.22	2.62	2.01
93	6.43	6.08	5.84	5.61	5.35	5.1	4.9	4.63	4.38	4.09	3.8	3.56	3.14	2.55	1.97
94	6.41	6.05	5.82	5.58	5.34	5.09	4.89	4.63	4.35	4.08	3.76	3.53	3.1	2.51	1.95
95	6.53	6.21	5.94	5.72	5.46	5.21	5.03	4.7	4.47	4.14	3.88	3.52	3.16	2.49	1.95
96	7.26	6.89	6.55	6.31	6.03	5.72	5.51	5.18	4.96	4.61	4.39	4.01	3.62	2.91	2.26
97	7.26	6.89	6.55	6.33	6.04	5.73	5.52	5.21	4.98	4.63	4.41	4.02	3.64	2.93	2.26
98	7.33	6.94	6.62	6.38	6.06	5.8	5.54	5.26	4.98	4.64	4.31	4.03	3.55	2.87	2.23
99	7.43	6.99	6.71	6.43	6.16	5.88	5.6	5.33	5.03	4.71	4.34	4.09	3.54	2.89	2.22
100	7.42	7.02	6.74	6.49	6.2	5.92	5.69	5.33	5.05	4.69	4.36	3.96	3.55	2.79	2.16

Table A2b. Static and dynamic test data for seal 1 of Table 3 for low inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
101	3000	295	285	3.01	1.01	56.8	-32.5	.0887	.0523	-.0561	-.0468	.206	.038
102	6000	293	282	3	1.01	56.8	-32	.085	.0516	-.0391	-.0515	.196	.04
103	9500	293	285	3.01	1.01	56.8	-30.4	.0902	.0493	.00029	-.0406	.177	.0354
104	13000	294	289	3.02	1.01	56.8	-29	.094	.0469	.0196	.00801	.163	-.0116
105	16000	294	297	3.06	1.01	56.8	-27	.0964	.0443	-.00367	.0484	.177	-.0204
106	3000	295	287	4.33	1	56.8	-33.3	.0889	.0769	-.0745	-.0431	.2	.0317
107	6000	293	282	4.37	1	56.8	-32.5	.0966	.0762	-.0675	-.0415	.195	.0339
108	9500	294	284	4.4	1.01	56.8	-31	.092	.0732	-.0377	-.0392	.177	.0412
109	13000	294	287	4.42	1.01	56.8	-29.3	.088	.0695	-.00798	-.00957	.156	.000184
110	16000	295	292	4.44	1.01	56.8	-27.5	.0925	.0654	-.0233	.0351	.169	-.0212
111	3000	295	285	5.69	1	56.8	-33.5	.0922	.102	-.0912	-.0411	.182	.0301
112	6000	293	281	5.7	1	56.8	-32.7	.0859	.1	-.0865	-.0368	.194	.0353
113	9500	294	284	5.74	1.01	56.8	-31.4	.0963	.0965	-.0553	-.0362	.186	.0493
114	13000	294	285	5.74	1	56.8	-29.5	.0894	.091	-.0236	-.0171	.169	.0168
115	16000	295	290	5.73	1	56.8	-27.8	.0943	.0852	-.0289	.0273	.18	-.0201
116	3000	293	285	7.12	1.01	56.8	-34.1	.089	.13	-.0915	-.0385	.19	.0474
117	6000	293	282	7.15	1.01	56.8	-33.2	.091	.127	-.0863	-.0357	.194	.0395
118	9500	294	283	7.16	1.01	56.8	-31.7	.0918	.122	-.0649	-.0369	.193	.0408
119	13000	294	285	7.14	1.01	56.8	-29.8	.0898	.114	-.0355	-.0203	.18	.0258
120	16000	295	289	7.19	1	56.8	-27.9	.0962	.107	-.0326	.0241	.18	-.0155
121	3000	294	285	8.15	1.01	56.8	-34	.0905	.148	-.0869	-.0378	.188	.0402
122	6000	293	283	8.1	1.01	56.8	-33.3	.0914	.145	-.0844	-.0337	.197	.0451
123	9500	294	283	8.17	1.01	56.8	-31.8	.0927	.139	-.064	-.035	.198	.0539
124	13000	294	284	8.18	1.01	56.8	-29.9	.091	.131	-.0361	-.0189	.174	.0242
125	16000	295	289	8.17	1.01	56.8	-27.9	.0969	.122	-.0363	.0225	.184	-.0114

Case	Pi, i=1 to 15 ----------)														
101	2.71	2.59	2.47	2.39	2.29	2.19	2.11	2.01	1.92	1.81	1.72	1.64	1.51	1.36	1.18
102	2.71	2.59	2.47	2.39	2.29	2.19	2.11	2.01	1.93	1.8	1.72	1.63	1.5	1.36	1.17
103	2.73	2.61	2.5	2.42	2.32	2.22	2.13	2.04	1.95	1.83	1.74	1.65	1.51	1.36	1.17
104	2.74	2.63	2.53	2.45	2.35	2.26	2.17	2.07	1.98	1.84	1.76	1.66	1.52	1.36	1.17
105	2.79	2.68	2.57	2.48	2.38	2.28	2.19	2.08	1.98	1.84	1.75	1.64	1.51	1.35	1.16
106	3.88	3.7	3.54	3.42	3.27	3.13	3.01	2.86	2.72	2.54	2.4	2.27	2.02	1.74	1.38
107	3.93	3.75	3.58	3.45	3.3	3.14	3.03	2.88	2.74	2.55	2.42	2.27	2.03	1.74	1.39
108	3.98	3.79	3.62	3.49	3.35	3.19	3.08	2.92	2.78	2.58	2.43	2.27	2.03	1.74	1.38
109	3.99	3.82	3.65	3.53	3.38	3.23	3.11	2.95	2.81	2.6	2.44	2.3	2.04	1.74	1.39
110	4.02	3.85	3.69	3.56	3.41	3.25	3.13	2.96	2.81	2.58	2.44	2.28	2.01	1.71	1.36
111	5.11	4.87	4.64	4.48	4.28	4.07	3.91	3.71	3.53	3.29	3.1	2.92	2.57	2.15	1.66
112	5.13	4.88	4.64	4.47	4.27	4.07	3.9	3.71	3.54	3.28	3.09	2.89	2.56	2.15	1.65
113	5.18	4.93	4.7	4.52	4.34	4.12	3.96	3.76	3.58	3.29	3.09	2.89	2.54	2.13	1.62
114	5.19	4.95	4.72	4.55	4.35	4.17	3.99	3.78	3.6	3.32	3.11	2.91	2.54	2.12	1.63
115	5.18	4.94	4.74	4.57	4.37	4.16	4	3.78	3.59	3.3	3.09	2.86	2.51	2.09	1.58
116	6.38	6.06	5.77	5.56	5.31	5.06	4.85	4.61	4.39	4.08	3.85	3.61	3.17	2.63	2
117	6.43	6.11	5.81	5.59	5.34	5.08	4.87	4.64	4.42	4.09	3.85	3.6	3.16	2.63	1.99
118	6.43	6.13	5.83	5.62	5.35	5.12	4.89	4.64	4.41	4.08	3.82	3.57	3.12	2.59	1.96
119	6.44	6.14	5.85	5.65	5.39	5.13	4.93	4.68	4.45	4.09	3.83	3.59	3.12	2.59	1.95
120	6.5	6.22	5.95	5.73	5.48	5.23	5.03	4.76	4.52	4.17	3.87	3.62	3.12	2.58	1.94
121	7.3	6.94	6.61	6.36	6.08	5.78	5.55	5.27	5.01	4.64	4.39	4.11	3.61	2.98	2.25
122	7.27	6.91	6.57	6.34	6.05	5.76	5.52	5.24	4.99	4.63	4.36	4.09	3.59	2.97	2.25
123	7.36	6.98	6.66	6.4	6.13	5.82	5.61	5.31	5.04	4.66	4.36	4.07	3.55	2.94	2.22
124	7.4	7.03	6.7	6.47	6.18	5.87	5.63	5.34	5.09	4.65	4.36	4.06	3.53	2.92	2.19
125	7.4	7.05	6.73	6.49	6.19	5.91	5.68	5.37	5.09	4.68	4.35	4.03	3.49	2.86	2.14

Table A2c. Static and dynamic test data for seal 1 of Table 3 for low inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	K̄	k̄	Cx1000	cx1000
126	3000	297	287	3.06	1.01	74.6	-33.1	.0932	.0537	-.0639	-.0416	.191	.0345
127	6000	296	285	3	1.01	74.6	-32.3	.0925	.0517	-.0372	-.0466	.194	.0466
128	9500	296	286	3.07	1.01	74.6	-30.7	.0955	.0502	-.000526	-.0349	.171	.0227
129	13000	295	292	3.09	1.01	74.6	-29.1	.0914	.0479	.0113	.0068	.174	-.00573
130	16000	296	298	3.07	1.01	74.6	-27.2	.0925	.0446	-.00448	.0464	.181	-.0133
131	3000	297	286	4.37	1.01	74.6	-33.6	.0889	.0777	-.0745	-.0369	.207	.0293
132	6000	296	283	4.4	1.01	74.6	-32.9	.09	.0771	-.0648	-.0364	.196	.0274
133	9500	296	286	4.45	1.01	74.6	-31.4	.0941	.0743	-.0299	-.0349	.183	.0382
134	13000	295	288	4.43	1.01	74.6	-29.5	.0933	.0699	-.00808	-.00724	.16	.00784
135	16000	296	294	4.46	1.01	74.6	-27.5	.094	.0654	-.02	.032	.169	-.018
136	3000	297	285	5.76	1	74.6	-33.8	.0936	.103	-.0846	-.0383	.204	.0311
137	6000	296	284	5.79	1.01	74.6	-32.9	.0912	.101	-.077	-.0338	.2	.0332
138	9500	296	285	5.8	1.01	74.6	-31.7	.094	.0978	-.0524	-.0329	.179	.0379
139	13000	296	286	5.75	1.01	74.6	-29.8	.0943	.0914	-.0255	-.00788	.176	.00975
140	16000	296	291	5.77	1	74.6	-27.6	.0919	.0849	-.0291	.0268	.182	-.0156
141	3000	297	289	7.08	1.01	74.6	-33.9	.0901	.127	-.0863	-.0342	.211	.0392
142	6000	296	286	7.14	1.01	74.6	-33.3	.0915	.127	-.0837	-.034	.19	.0424
143	9500	296	285	7.17	1.01	74.6	-31.7	.093	.121	-.0512	-.0289	.203	.0496
144	13000	295	285	7.19	1.01	74.6	-30	.0936	.115	-.0301	-.0164	.183	.0316
145	16000	296	290	7.18	1.01	74.6	-27.8	.0884	.106	-.0302	.0233	.18	-.0133
146	3000	297	290	8.11	1.01	74.6	-34.3	.0888	.148	-.0883	-.0351	.191	.0398
147	6000	296	287	8.08	1.01	74.6	-33.3	.0898	.143	-.0788	-.0293	.2	.0437
148	9500	296	284	8.12	1.01	74.6	-32	.0925	.138	-.0593	-.0291	.199	.0496
149	13000	295	285	8.12	1.01	74.6	-30	.0963	.13	-.0339	-.0124	.178	.0228
150	16000	296	289	8.17	1.01	74.6	-28.1	.0874	.122	-.0319	.0218	.183	-.0165

Case	Pi, i=1 to 15 ---------->														
126	2.76	2.64	2.53	2.44	2.35	2.24	2.15	2.06	1.97	1.85	1.76	1.68	1.54	1.38	1.19
127	2.71	2.59	2.49	2.4	2.31	2.21	2.13	2.03	1.95	1.83	1.74	1.65	1.52	1.37	1.18
128	2.77	2.66	2.54	2.46	2.36	2.26	2.17	2.08	1.99	1.85	1.77	1.67	1.53	1.37	1.18
129	2.79	2.67	2.56	2.48	2.38	2.28	2.2	2.09	1.99	1.86	1.77	1.67	1.53	1.37	1.18
130	2.78	2.68	2.57	2.49	2.39	2.29	2.2	2.08	1.99	1.85	1.76	1.66	1.52	1.36	1.17
131	3.92	3.74	3.58	3.46	3.31	3.16	3.03	2.89	2.75	2.57	2.43	2.3	2.05	1.75	1.39
132	3.95	3.77	3.6	3.48	3.33	3.18	3.05	2.9	2.78	2.59	2.46	2.31	2.06	1.76	1.4
133	4	3.83	3.66	3.53	3.39	3.22	3.11	2.96	2.81	2.61	2.47	2.31	2.07	1.77	1.4
134	3.99	3.82	3.66	3.54	3.39	3.23	3.12	2.96	2.81	2.59	2.45	2.29	2.05	1.74	1.38
135	4.03	3.86	3.7	3.58	3.43	3.28	3.16	2.99	2.82	2.59	2.45	2.29	2.03	1.73	1.37
136	5.15	4.91	4.69	4.53	4.33	4.12	3.95	3.75	3.56	3.32	3.14	2.96	2.61	2.18	1.67
137	5.19	4.95	4.71	4.55	4.35	4.14	3.97	3.77	3.59	3.33	3.16	2.96	2.61	2.19	1.67
138	5.21	4.97	4.74	4.58	4.37	4.17	4.02	3.8	3.62	3.34	3.13	2.94	2.6	2.18	1.67
139	5.18	4.93	4.71	4.55	4.35	4.16	4	3.78	3.57	3.3	3.1	2.88	2.53	2.13	1.63
140	5.21	4.99	4.77	4.6	4.41	4.22	4.05	3.84	3.59	3.29	3.08	2.86	2.54	2.11	1.62
141	6.33	6.03	5.74	5.54	5.3	5.06	4.85	4.59	4.36	4.05	3.84	3.61	3.17	2.64	2
142	6.39	6.09	5.8	5.59	5.34	5.08	4.88	4.63	4.42	4.09	3.87	3.64	3.19	2.66	2
143	6.44	6.14	5.84	5.64	5.39	5.14	4.96	4.68	4.44	4.1	3.84	3.58	3.15	2.62	1.99
144	6.48	6.17	5.88	5.69	5.43	5.18	4.99	4.73	4.48	4.13	3.86	3.59	3.16	2.62	1.99
145	6.48	6.21	5.93	5.71	5.48	5.23	5.05	4.77	4.5	4.11	3.83	3.55	3.14	2.58	1.95
146	7.25	6.9	6.58	6.35	6.06	5.77	5.54	5.24	4.96	4.61	4.36	4.11	3.61	3	2.26
147	7.24	6.88	6.55	6.32	6.03	5.75	5.52	5.23	4.96	4.6	4.35	4.09	3.58	2.98	2.25
148	7.29	6.92	6.61	6.38	6.08	5.81	5.56	5.28	5	4.61	4.33	4.03	3.53	2.95	2.23
149	7.3	6.97	6.63	6.41	6.11	5.84	5.6	5.32	5.02	4.61	4.31	4.01	3.5	2.91	2.19
150	7.37	7.06	6.73	6.49	6.21	5.94	5.71	5.4	5.1	4.64	4.33	4.02	3.45	2.9	2.18

Table A3a. Static and dynamic test data for seal 1 of Table 3 for low inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
151	3000	296	288	3.03	1.01	38.7	32.7	.0965	.0527	-.0551	.0517	.217	-.00622
152	6000	295	284	2.96	1.01	38.7	32.3	.0867	.0511	-.0411	.0586	.203	-.012
153	9500	295	285	3.03	1.01	38.7	31.2	.0967	.0506	-.0284	.071	.193	-.032
154	13000	294	291	3.06	1.01	38.7	29.2	.0877	.0479	-.0212	.0896	.184	-.0327
155	16000	295	298	3.08	1.01	38.7	27.4	.0887	.0451	-.0264	.101	.191	-.0362
156	3000	296	286	4.36	1.01	38.7	33.6	.0976	.0778	-.0746	.0481	.219	-.0102
157	6000	295	284	4.44	1.01	38.7	32.9	.0894	.0781	-.0645	.0536	.197	-.0167
158	9500	295	285	4.33	1.01	38.7	31.9	.0988	.0737	-.0526	.0655	.191	-.0288
159	13000	294	287	4.39	1.01	38.7	29.8	.0913	.0703	-.0434	.0813	.178	-.0389
160	16000	295	292	4.37	1.01	38.7	27.9	.0919	.0652	-.0484	.0942	.174	-.0353
161	3000	296	287	5.7	1	38.7	34	.1	.103	-.0854	.047	.224	.00192
162	6000	295	283	5.73	1.01	38.7	33.4	.086	.102	-.0783	.0529	.185	-.00757
163	9500	295	284	5.69	1.01	38.7	32.3	.0948	.0981	-.0636	.0637	.197	-.0278
164	13000	294	285	5.69	1	38.7	30.1	.093	.092	-.056	.0789	.187	-.0374
165	16000	295	289	5.7	1	38.7	28.1	.0944	.0856	-.0539	.0918	.181	-.0442
166	3000	296	287	7.09	1.01	38.7	34.4	.104	.13	-.0877	.0462	.206	-.0106
167	6000	295	283	7.08	1.01	38.7	33.6	.0886	.127	-.0758	.0525	.212	-.0192
168	9500	295	283	7.12	1.01	38.7	32.3	.097	.123	-.0695	.0629	.186	-.029
169	13000	295	285	7.14	1.01	38.7	30.2	.0954	.115	-.0572	.0781	.199	-.0572
170	16000	295	289	7.13	1.01	38.7	28.5	.0967	.108	-.0536	.0896	.177	-.0582
171	3000	296	287	8.04	1.01	38.7	34.2	.099	.146	-.0851	.0466	.218	-.00888
172	6000	295	285	8.11	1.01	38.7	33.7	.0897	.146	-.079	.0515	.188	-.00991
173	9500	295	283	8.05	1.01	38.7	32.7	.0914	.14	-.0667	.0619	.195	-.0222
174	13000	295	284	8.07	1.01	38.7	30.4	.0966	.131	-.058	.0777	.189	-.0396
175	16000	295	288	8.08	1.01	38.7	28.5	.0971	.123	-.0529	.0912	.168	-.0652

Case	Pi, i=1 to 15 ---------->														
151	2.75	2.62	2.51	2.43	2.34	2.24	2.17	2.06	1.97	1.87	1.78	1.67	1.56	1.37	1.19
152	2.69	2.57	2.47	2.39	2.3	2.2	2.14	2.02	1.95	1.83	1.75	1.63	1.53	1.35	1.18
153	2.76	2.63	2.53	2.45	2.35	2.26	2.18	2.07	1.98	1.87	1.77	1.67	1.55	1.37	1.19
154	2.79	2.67	2.57	2.49	2.39	2.29	2.22	2.1	2.01	1.89	1.79	1.68	1.56	1.37	1.19
155	2.82	2.7	2.6	2.51	2.41	2.31	2.23	2.11	2	1.89	1.78	1.68	1.55	1.36	1.18
156	3.94	3.75	3.59	3.47	3.33	3.18	3.08	2.9	2.77	2.61	2.45	2.29	2.08	1.74	1.42
157	4.02	3.84	3.68	3.56	3.41	3.26	3.16	2.97	2.83	2.67	2.5	2.33	2.11	1.75	1.42
158	3.94	3.74	3.59	3.48	3.33	3.2	3.07	2.92	2.77	2.62	2.41	2.32	2.03	1.75	1.4
159	4.01	3.82	3.67	3.55	3.39	3.27	3.13	2.98	2.81	2.66	2.44	2.34	2.05	1.75	1.4
160	3.98	3.8	3.64	3.52	3.36	3.23	3.09	2.93	2.76	2.61	2.39	2.29	2	1.71	1.37
161	5.15	4.88	4.67	4.52	4.31	4.14	3.97	3.76	3.56	3.38	3.11	2.97	2.59	2.18	1.69
162	5.17	4.92	4.71	4.54	4.37	4.16	4.03	3.78	3.61	3.38	3.17	2.93	2.64	2.14	1.7
163	5.17	4.9	4.71	4.55	4.35	4.19	4	3.82	3.59	3.41	3.19	2.93	2.59	2.14	1.69
164	5.19	4.93	4.74	4.58	4.37	4.21	4.02	3.84	3.61	3.41	3.1	2.99	2.54	2.17	1.64
165	5.2	4.95	4.75	4.59	4.37	4.22	4.03	3.84	3.61	3.4	3.09	2.99	2.53	2.17	1.62
166	6.41	6.07	5.8	5.61	5.35	5.15	4.93	4.67	4.41	4.18	3.83	3.69	3.17	2.66	2.03
167	6.38	6.08	5.81	5.61	5.38	5.12	4.97	4.66	4.43	4.17	3.87	3.6	3.22	2.6	2.05
168	6.45	6.13	5.88	5.68	5.42	5.23	4.99	4.77	4.49	4.24	3.87	3.74	3.16	2.71	2.02
169	6.5	6.19	5.93	5.74	5.47	5.27	5.04	4.8	4.5	4.25	3.85	3.73	3.14	2.68	1.99
170	6.51	6.21	5.94	5.75	5.49	5.26	5.08	4.76	4.5	4.25	3.9	3.65	3.21	2.59	1.99
171	7.24	6.89	6.57	6.36	6.07	5.81	5.6	5.28	4.99	4.73	4.34	4.16	3.59	2.99	2.29
172	7.32	6.95	6.65	6.43	6.15	5.89	5.67	5.35	5.07	4.79	4.43	4.17	3.67	3	2.33
173	7.28	6.91	6.63	6.41	6.11	5.89	5.62	5.38	5.05	4.76	4.34	4.2	3.54	3.04	2.23
174	7.34	6.97	6.7	6.48	6.17	5.96	5.68	5.44	5.09	4.8	4.36	4.22	3.52	3.04	2.21
175	7.37	7.02	6.72	6.49	6.2	5.93	5.73	5.36	5.06	4.77	4.38	4.08	3.59	2.89	2.22

Table A3b. Static and dynamic test data for seal 1 of Table 3 for low inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
176	3000	295	287	3.03	1.01	56.8	33	.0869	.0533	-.0563	.0568	.249	.00568
177	6000	295	285	3.06	1.01	56.8	32.8	.0907	.0534	-.0392	.0591	.22	-.03
178	9500	295	286	3.02	1.01	56.8	31.2	.0909	.0503	-.0262	.0697	.213	-.0388
179	13000	295	290	3.05	1.01	56.8	29.4	.09	.0479	-.0195	.0897	.202	-.044
180	16000	295	297	3.04	1.01	56.8	27.5	.0919	.0447	-.0276	.105	.195	-.0427
181	3000	296	286	4.41	1.01	56.8	33.7	.0886	.079	-.0788	.0529	.23	-.0195
182	6000	296	283	4.39	1.01	56.8	33	.092	.0771	-.0689	.0556	.197	-.0193
183	9500	296	286	4.37	1.01	56.8	31.8	.0929	.0742	-.0521	.0647	.203	-.0349
184	13000	295	287	4.44	1.01	56.8	29.7	.0858	.0705	-.0445	.081	.193	-.0536
185	16000	296	292	4.39	1.01	56.8	27.9	.0921	.0654	-.0496	.0965	.19	-.0554
186	3000	296	287	5.77	1	56.8	34	.0902	.104	-.0873	.0492	.231	-.00583
187	6000	295	283	5.81	1.01	56.8	33.1	.0846	.103	-.0761	.0556	.212	-.0275
188	9500	296	285	5.74	1.01	56.8	32	.0936	.0979	-.0638	.0651	.204	-.0315
189	13000	295	286	5.76	1.01	56.8	30.2	.0865	.0928	-.0547	.0821	.198	-.0487
190	16000	295	289	5.8	1	56.8	28	.0942	.0868	-.0556	.0945	.184	-.0588
191	3000	296	289	7.06	1.01	56.8	34.3	.0932	.129	-.0873	.0476	.22	.00186
192	6000	295	286	7.14	1.01	56.8	33.5	.0869	.127	-.0765	.0555	.21	-.0183
193	9500	296	284	7.13	1.01	56.8	32.3	.0961	.123	-.0683	.0649	.201	-.0354
194	13000	295	285	7.16	1.01	56.8	30.2	.0874	.115	-.0554	.079	.192	-.059
195	16000	296	289	7.15	1.01	56.8	28.1	.0895	.107	-.0543	.0919	.177	-.0771
196	3000	296	288	8.09	1.01	56.8	34.4	.095	.148	-.0883	.048	.199	-.0162
197	6000	296	286	8.07	1.01	56.8	33.8	.0841	.145	-.081	.055	.193	-.0217
198	9500	296	284	8.11	1.01	56.8	32.5	.0949	.141	-.0681	.0662	.198	-.0312
199	13000	296	284	8.18	1.01	56.8	30.5	.0874	.133	-.0576	.0795	.186	-.0568
200	16000	296	288	8.16	1.01	56.8	28.6	.0875	.124	-.0546	.0916	.165	-.0839

Case	Pi, i=1 to 15 ----------)														
176	2.74	2.62	2.51	2.43	2.34	2.24	2.17	2.07	1.98	1.85	1.77	1.68	1.54	1.39	1.19
177	2.77	2.65	2.54	2.46	2.37	2.27	2.2	2.09	2.01	1.87	1.79	1.69	1.55	1.39	1.19
178	2.75	2.63	2.53	2.45	2.36	2.26	2.19	2.09	2	1.87	1.78	1.69	1.54	1.38	1.19
179	2.78	2.67	2.56	2.48	2.38	2.29	2.21	2.1	2.01	1.87	1.78	1.68	1.54	1.37	1.18
180	2.78	2.67	2.56	2.47	2.37	2.27	2.19	2.08	1.98	1.84	1.75	1.65	1.52	1.36	1.17
181	3.96	3.79	3.62	3.49	3.36	3.2	3.08	2.93	2.8	2.6	2.46	2.31	2.06	1.77	1.4
182	3.96	3.79	3.63	3.5	3.38	3.22	3.11	2.96	2.83	2.61	2.47	2.32	2.06	1.77	1.4
183	3.96	3.79	3.63	3.51	3.38	3.23	3.11	2.97	2.83	2.62	2.47	2.33	2.06	1.76	1.41
184	4.04	3.88	3.72	3.6	3.46	3.31	3.19	3.04	2.88	2.67	2.5	2.35	2.08	1.77	1.4
185	4	3.83	3.67	3.55	3.4	3.25	3.13	2.97	2.82	2.6	2.44	2.29	2.02	1.74	1.37
186	5.2	4.96	4.75	4.57	4.4	4.2	4.04	3.84	3.66	3.39	3.18	3	2.64	2.22	1.7
187	5.24	5	4.79	4.61	4.43	4.23	4.08	3.87	3.7	3.42	3.21	3.02	2.65	2.22	1.71
188	5.18	4.96	4.75	4.59	4.41	4.22	4.06	3.86	3.68	3.4	3.19	2.99	2.63	2.19	1.69
189	5.22	5.01	4.8	4.63	4.44	4.26	4.09	3.89	3.69	3.41	3.19	2.98	2.62	2.19	1.67
190	5.28	5.06	4.85	4.67	4.49	4.3	4.12	3.92	3.72	3.43	3.2	2.98	2.62	2.17	1.66
191	6.35	6.05	5.79	5.57	5.36	5.11	4.92	4.66	4.44	4.11	3.86	3.62	3.19	2.64	2.02
192	6.42	6.14	5.87	5.66	5.44	5.2	5	4.75	4.53	4.19	3.93	3.68	3.24	2.69	2.05
193	6.43	6.15	5.89	5.68	5.45	5.21	5.02	4.76	4.54	4.18	3.92	3.67	3.21	2.65	2.02
194	6.48	6.2	5.94	5.74	5.5	5.27	5.07	4.81	4.57	4.22	3.95	3.68	3.24	2.66	2.02
195	6.51	6.24	5.97	5.76	5.52	5.28	5.08	4.83	4.58	4.2	3.92	3.67	3.21	2.63	1.99
196	7.27	6.93	6.62	6.37	6.13	5.84	5.62	5.33	5.07	4.68	4.4	4.12	3.62	3.01	2.29
197	7.26	6.93	6.63	6.39	6.14	5.86	5.65	5.37	5.11	4.73	4.43	4.16	3.65	3.03	2.3
198	7.31	6.99	6.69	6.45	6.19	5.92	5.69	5.4	5.15	4.74	4.44	4.16	3.64	3	2.29
199	7.4	7.09	6.78	6.55	6.28	6.01	5.79	5.49	5.22	4.82	4.51	4.19	3.69	3.02	2.28
200	7.43	7.12	6.81	6.55	6.28	6	5.78	5.46	5.18	4.77	4.45	4.13	3.61	2.95	2.22

Table A3c. Static and dynamic test data for seal 1 of Table 3 for low inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
201	3000	296	286	3.02	1.01	74.6	33.1	.0894	.0533	-.0524	.0554	.241	-.00497
202	6000	296	285	3.03	1.01	74.6	32.6	.0924	.0526	-.0426	.0544	.216	-.0189
203	9500	296	285	3.08	1.01	74.6	31.2	.0882	.0512	-.0273	.0655	.211	-.0288
204	13000	296	289	3.03	1.01	74.6	29.3	.0946	.0474	-.0173	.0845	.202	-.0415
205	16000	296	297	3.05	1.01	74.6	27.5	.0905	.0448	-.0258	.102	.2	-.0396
206	3000	296	284	4.35	1.01	74.6	33.6	.0882	.0778	-.0774	.0473	.217	-.00451
207	6000	296	284	4.41	1.01	74.6	33.3	.0918	.0782	-.0512	.0497	.219	-.0232
208	9500	296	285	4.43	1.01	74.6	31.9	.0875	.075	-.0487	.062	.197	-.0351
209	13000	295	287	4.36	1.01	74.6	30	.0916	.0699	-.0421	.0782	.198	-.0439
210	16000	296	292	4.44	1.01	74.6	27.9	.0923	.066	-.0395	.0924	.195	-.0577
211	3000	296	288	5.73	1	74.6	33.7	.0867	.102	-.0726	.0475	.239	-.0211
212	6000	296	284	5.71	1.01	74.6	33.5	.09	.102	-.0748	.0533	.212	-.0234
213	9500	297	285	5.79	1.01	74.6	32.1	.0941	.0987	-.0566	.0598	.213	-.0373
214	13000	295	286	5.75	1.01	74.6	30.2	.0953	.0927	-.0509	.0761	.202	-.0529
215	16000	296	289	5.8	1	74.6	28.1	.0938	.0869	-.0495	.0845	.183	-.0689
216	3000	297	288	7.08	1	74.6	34.4	.0932	.129	-.0852	.0478	.223	-.0158
217	6000	296	286	7.13	1.01	74.6	33.9	.0886	.128	-.0625	.054	.231	-.0265
218	9500	296	284	7.12	1.01	74.6	32.4	.0933	.123	-.0648	.0611	.199	-.0356
219	13000	296	285	7.12	1.01	74.6	30.4	.0941	.115	-.0498	.0753	.204	-.0589
220	16000	297	289	7.13	1.01	74.6	28.5	.0915	.108	-.0492	.0863	.185	-.0774
221	3000	296	288	8.11	1.01	74.6	33.8	.0917	.146	-.0851	.0507	.223	-.0168
222	6000	296	287	8.07	1.01	74.6	33.5	.09	.144	-.0674	.0523	.213	-.0282
223	9500	296	284	8.09	1.01	74.6	32.5	.0896	.14	-.0568	.0606	.209	-.0404
224	13000	296	285	8.15	1.01	74.6	30.6	.0915	.133	-.0522	.0762	.2	-.0598
225	16000	296	288	8.17	1.01	74.6	28.5	.0932	.124	-.0513	.0752	.163	-.0817

Case	Pi, i=1 to 15 ----------)														
201	2.73	2.61	2.51	2.42	2.34	2.23	2.16	2.06	1.98	1.86	1.77	1.67	1.54	1.38	1.19
202	2.74	2.62	2.52	2.44	2.35	2.25	2.17	2.07	1.99	1.86	1.78	1.68	1.54	1.38	1.19
203	2.8	2.69	2.58	2.5	2.4	2.3	2.22	2.11	2.03	1.9	1.81	1.7	1.56	1.39	1.19
204	2.76	2.66	2.55	2.47	2.38	2.28	2.2	2.09	2.01	1.88	1.78	1.68	1.54	1.37	1.18
205	2.78	2.67	2.57	2.48	2.38	2.28	2.2	2.08	2	1.86	1.76	1.66	1.52	1.36	1.17
206	3.92	3.75	3.59	3.47	3.34	3.19	3.08	2.91	2.79	2.59	2.46	2.31	2.06	1.76	1.4
207	3.97	3.8	3.64	3.52	3.38	3.23	3.12	2.95	2.81	2.6	2.47	2.32	2.07	1.77	1.4
208	4	3.84	3.69	3.56	3.43	3.28	3.17	3.01	2.86	2.66	2.52	2.36	2.1	1.79	1.41
209	3.96	3.8	3.65	3.53	3.4	3.26	3.15	2.98	2.83	2.62	2.48	2.33	2.08	1.76	1.39
210	4.03	3.87	3.72	3.6	3.45	3.31	3.19	3.01	2.85	2.63	2.49	2.33	2.07	1.76	1.38
211	5.16	4.93	4.71	4.54	4.37	4.16	4.01	3.79	3.62	3.34	3.17	2.98	2.62	2.2	1.68
212	5.15	4.93	4.72	4.56	4.39	4.19	4.04	3.83	3.63	3.35	3.16	2.96	2.62	2.2	1.69
213	5.23	5	4.8	4.64	4.46	4.27	4.12	3.91	3.69	3.41	3.22	3	2.67	2.23	1.7
214	5.21	4.99	4.79	4.63	4.45	4.26	4.11	3.9	3.67	3.39	3.17	2.97	2.62	2.21	1.68
215	5.27	5.07	4.86	4.69	4.5	4.31	4.15	3.92	3.69	3.4	3.19	2.97	2.62	2.19	1.66
216	6.35	6.06	5.8	5.6	5.38	5.13	4.96	4.69	4.45	4.1	3.88	3.64	3.21	2.69	2.04
217	6.41	6.12	5.87	5.67	5.44	5.2	5.02	4.73	4.51	4.16	3.95	3.69	3.25	2.7	2.05
218	6.42	6.14	5.88	5.68	5.46	5.22	5.05	4.75	4.51	4.14	3.89	3.66	3.21	2.69	2.03
219	6.43	6.16	5.91	5.71	5.49	5.25	5.07	4.79	4.53	4.16	3.9	3.66	3.21	2.68	2.02
220	6.48	6.22	5.96	5.75	5.52	5.28	5.1	4.81	4.52	4.14	3.88	3.6	3.16	2.62	1.98
221	7.28	6.95	6.64	6.4	6.16	5.88	5.68	5.36	5.07	4.67	4.41	4.13	3.64	3.04	2.31
222	7.24	6.92	6.62	6.4	6.16	5.89	5.68	5.38	5.09	4.7	4.44	4.15	3.68	3.06	2.32
223	7.29	6.97	6.67	6.44	6.2	5.92	5.72	5.41	5.11	4.7	4.42	4.12	3.65	3.02	2.29
224	7.36	7.05	6.75	6.52	6.28	6	5.8	5.48	5.18	4.75	4.45	4.16	3.65	3.03	2.28
225	7.41	7.11	6.8	6.57	6.31	6.03	5.82	5.5	5.16	4.73	4.43	4.09	3.58	2.97	2.24

Table A4a. Static and dynamic test data for seal 1 of Table 3 for high inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
226	3000	297	292	3.03	1.01	38.7	-72.2	.0876	.0505	-.0506	-.0686	.2	.0323
227	6000	296	286	3	1.01	38.7	-71.1	.084	.0495	-.0481	-.0699	.189	.0295
228	9500	297	286	3.09	1.01	38.7	-68.1	.0827	.0489	-.0155	-.072	.168	.0374
229	13000	295	293	2.98	1.01	38.7	-64.1	.0858	.0448	.0276	-.0413	.173	.0249
230	16000	295	299	3.02	1.01	38.7	-59.8	.0891	.0424	.0282	.0162	.178	.00261
231	3000	297	291	4.33	1.01	38.7	-74	.0889	.074	-.0665	-.0657	.21	.0481
232	6000	297	285	4.3	1.01	38.7	-72.3	.0869	.072	-.0679	-.0608	.187	.0371
233	9500	297	286	4.35	1.01	38.7	-69.2	.0928	.07	-.0444	-.063	.176	.0385
234	13000	296	289	4.36	1.01	38.7	-65	.0887	.0663	-.0117	-.0513	.168	.0279
235	16000	295	294	4.36	1.01	38.7	-60.9	.09	.0623	.0027	.000416	.17	.00619
236	3000	297	291	5.65	1	38.7	-74.7	.0908	.0974	-.0779	-.0668	.196	.0474
237	6000	297	284	5.74	1.01	38.7	-72.8	.0897	.0969	-.0828	-.0624	.174	.0389
238	9500	296	286	5.68	1.01	38.7	-69.2	.0956	.0915	-.0634	-.0618	.18	.0497
239	13000	296	287	5.69	1.01	38.7	-65.3	.0892	.087	-.0343	-.0521	.165	.035
240	16000	296	291	5.78	1	38.7	-60.9	.0917	.0827	-.0107	-.00962	.175	.0116
241	3000	297	291	7.07	1.01	38.7	-75.3	.0933	.123	-.0769	-.0672	.202	.0462
242	6000	297	286	7.07	1.01	38.7	-73.3	.0935	.12	-.0824	-.0624	.185	.0605
243	9500	296	286	7.13	1.01	38.7	-70	.1	.116	-.0692	-.0592	.191	.068
244	13000	295	287	7.09	1.01	38.7	-66.2	.0927	.11	-.047	-.0535	.179	.0546
245	16000	296	290	7.15	1.01	38.7	-61.8	.0931	.104	-.0169	-.0134	.173	.0233
246	3000	297	290	8.04	1.01	38.7	-75.4	.0955	.14	-.0773	-.068	.187	.0525
247	6000	297	287	7.99	1.01	38.7	-73.8	.0957	.136	-.0829	-.0628	.174	.0533
248	9500	296	285	8.05	1.01	38.7	-70.1	.0979	.131	-.0724	-.0596	.186	.0676
249	13000	296	286	8.14	1.01	38.7	-66.1	.0941	.126	-.0494	-.0535	.181	.0599
250	16000	296	290	8.13	1.01	38.7	-61.9	.0944	.118	-.0193	-.0139	.171	.0244

Case	Pi, i=1 to 15 ---------->														
226	2.65	2.53	2.45	2.37	2.28	2.18	2.1	2.01	1.92	1.82	1.72	1.64	1.52	1.36	1.19
227	2.61	2.52	2.41	2.34	2.24	2.15	2.07	1.97	1.89	1.78	1.7	1.61	1.5	1.34	1.18
228	2.71	2.59	2.5	2.41	2.32	2.22	2.13	2.03	1.95	1.83	1.74	1.65	1.52	1.36	1.18
229	2.63	2.51	2.44	2.35	2.26	2.17	2.08	2	1.9	1.79	1.7	1.61	1.49	1.33	1.16
230	2.69	2.55	2.48	2.39	2.29	2.19	2.11	2.01	1.91	1.8	1.69	1.62	1.47	1.34	1.15
231	3.76	3.58	3.45	3.33	3.19	3.05	2.93	2.8	2.65	2.5	2.34	2.25	1.98	1.72	1.38
232	3.72	3.56	3.41	3.31	3.16	3.02	2.9	2.75	2.62	2.46	2.34	2.18	1.99	1.68	1.37
233	3.81	3.62	3.49	3.35	3.21	3.06	2.95	2.8	2.66	2.49	2.33	2.21	1.98	1.7	1.37
234	3.84	3.64	3.52	3.38	3.25	3.09	2.98	2.84	2.7	2.51	2.34	2.23	1.97	1.69	1.36
235	3.87	3.66	3.55	3.39	3.27	3.11	2.99	2.84	2.69	2.52	2.33	2.22	1.94	1.68	1.34
236	4.91	4.66	4.49	4.32	4.13	3.94	3.77	3.61	3.41	3.2	2.98	2.86	2.47	2.12	1.62
237	4.99	4.74	4.55	4.38	4.18	3.99	3.81	3.64	3.44	3.24	3.01	2.88	2.51	2.12	1.63
238	4.98	4.72	4.53	4.36	4.17	3.97	3.83	3.63	3.44	3.22	2.98	2.85	2.46	2.1	1.6
239	5.01	4.75	4.58	4.39	4.23	4.01	3.86	3.68	3.48	3.24	2.99	2.86	2.46	2.09	1.6
240	5.16	4.86	4.72	4.5	4.33	4.13	3.97	3.77	3.57	3.32	3.06	2.92	2.5	2.13	1.6
241	6.12	5.8	5.58	5.36	5.12	4.89	4.67	4.45	4.21	3.95	3.66	3.53	3.01	2.57	1.94
242	6.13	5.83	5.58	5.38	5.13	4.9	4.68	4.45	4.2	3.96	3.67	3.51	3.05	2.55	1.95
243	6.23	5.91	5.66	5.45	5.21	4.97	4.76	4.54	4.28	4.01	3.7	3.54	3.05	2.57	1.93
244	6.22	5.89	5.68	5.42	5.22	4.96	4.76	4.53	4.29	3.96	3.67	3.51	2.97	2.53	1.88
245	6.36	5.99	5.79	5.52	5.32	5.06	4.87	4.62	4.34	4.03	3.71	3.57	3	2.57	1.88
246	6.96	6.59	6.34	6.09	5.81	5.54	5.3	5.06	4.77	4.47	4.15	4	3.4	2.92	2.16
247	6.93	6.58	6.3	6.07	5.78	5.53	5.27	5.03	4.75	4.47	4.13	3.97	3.41	2.88	2.18
248	7.02	6.66	6.39	6.13	5.86	5.58	5.35	5.1	4.82	4.5	4.16	3.98	3.39	2.89	2.15
249	7.14	6.76	6.51	6.23	5.99	5.68	5.47	5.19	4.9	4.55	4.2	4.03	3.42	2.89	2.13
250	7.2	6.8	6.59	6.28	6.05	5.75	5.52	5.22	4.94	4.56	4.22	4.03	3.38	2.89	2.09

Table A4b. Static and dynamic test data for seal 1 of Table 3 for high inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
251	3000	295	287	3.02	1.01	56.8	-72.2	.0896	.051	-.0457	-.0651	.233	.0386
252	6000	293	284	2.96	1.01	56.8	-70.8	.0843	.0492	-.0496	-.0671	.21	.0446
253	9500	293	286	2.97	1.01	56.8	-66.9	.0857	.0467	-.00355	-.0708	.19	.0477
254	13000	293	291	2.99	1.01	56.8	-63.7	.0857	.0449	.0343	-.04	.174	.0168
255	16000	294	300	3	1.01	56.8	-59.8	.0861	.0425	.0276	.0251	.178	-.0161
256	3000	295	286	4.32	1	56.8	-73.7	.0912	.0742	-.0599	-.0639	.208	.0394
257	6000	293	283	4.32	1.01	56.8	-71.3	.0868	.0723	-.0704	-.0582	.195	.0333
258	9500	294	286	4.36	1.01	56.8	-68.4	.0887	.0701	-.0433	-.0608	.183	.0453
259	13000	293	288	4.35	1	56.8	-64.8	.0894	.0666	-.0118	-.0492	.171	.0314
260	16000	294	293	4.37	1.01	56.8	-60.6	.0853	.0626	.00144	.00264	.167	-.00273
261	3000	294	285	5.68	1	56.8	-73.9	.0895	.0978	-.078	-.064	.203	.0461
262	6000	293	283	5.69	1	56.8	-71.9	.089	.0959	-.0838	-.0586	.195	.0432
263	9500	294	285	5.71	1.01	56.8	-68.8	.0913	.0922	-.0613	-.0559	.198	.0584
264	13000	293	287	5.73	1.01	56.8	-65.2	.0815	.088	-.0318	-.0561	.176	.0488
265	16000	294	291	5.76	1	56.8	-60.8	.0919	.0825	-.0101	-.00447	.171	.00116
266	3000	294	286	7.03	1	56.8	-74.9	.0903	.123	-.0771	-.0602	.221	.0608
267	6000	294	284	7.07	1	56.8	-72.9	.086	.121	-.0845	-.0569	.197	.0545
268	9500	294	285	7.05	1.01	56.8	-69.5	.089	.115	-.0674	-.0524	.203	.0641
269	13000	294	286	7.08	1.01	56.8	-65.4	.0862	.109	-.0407	-.0522	.186	.0632
270	16000	294	290	7.13	1.01	56.8	-61.2	.0934	.103	-.0189	-.00513	.171	.0128
271	3000	294	286	8.02	1	56.8	-75.1	.0873	.14	-.0716	-.0615	.2	.0627
272	6000	294	285	8.09	1	56.8	-73.3	.0875	.139	-.0881	-.056	.183	.0513
273	9500	294	284	8.09	1.01	56.8	-70	.0901	.133	-.07	-.0518	.21	.0688
274	13000	293	286	8.13	1.01	56.8	-65.9	.0885	.126	-.0491	-.0517	.196	.062
275	16000	295	289	8.16	1.01	56.8	-61.8	.0945	.119	-.0219	-.0138	.167	.0189

Case	Pi, i=1 to 15 ---------->														
251	2.61	2.52	2.42	2.35	2.25	2.15	2.07	1.98	1.9	1.78	1.7	1.63	1.49	1.35	1.17
252	2.57	2.48	2.38	2.3	2.21	2.11	2.03	1.95	1.86	1.75	1.67	1.6	1.47	1.34	1.17
253	2.59	2.5	2.4	2.33	2.23	2.14	2.06	1.96	1.88	1.77	1.68	1.6	1.47	1.33	1.16
254	2.63	2.53	2.43	2.36	2.27	2.17	2.09	2	1.91	1.78	1.7	1.61	1.48	1.33	1.16
255	2.66	2.56	2.46	2.39	2.28	2.2	2.11	2.01	1.92	1.79	1.7	1.61	1.48	1.33	1.15
256	3.72	3.58	3.43	3.31	3.18	3.03	2.91	2.78	2.64	2.47	2.34	2.22	1.97	1.7	1.36
257	3.74	3.6	3.44	3.33	3.19	3.04	2.92	2.78	2.64	2.47	2.34	2.21	1.97	1.71	1.36
258	3.8	3.66	3.5	3.38	3.24	3.09	2.97	2.83	2.7	2.51	2.37	2.24	1.99	1.71	1.37
259	3.82	3.65	3.5	3.39	3.24	3.09	2.97	2.83	2.69	2.49	2.34	2.2	1.96	1.69	1.35
260	3.87	3.7	3.55	3.42	3.27	3.13	3.01	2.85	2.72	2.5	2.34	2.19	1.94	1.67	1.34
261	4.89	4.7	4.48	4.34	4.14	3.95	3.79	3.61	3.44	3.2	3.01	2.84	2.49	2.1	1.63
262	4.92	4.73	4.51	4.36	4.16	3.97	3.8	3.61	3.44	3.21	3.02	2.85	2.5	2.11	1.62
263	4.95	4.76	4.54	4.38	4.19	3.99	3.83	3.64	3.46	3.21	3.02	2.85	2.5	2.1	1.62
264	5.02	4.8	4.59	4.44	4.24	4.04	3.88	3.68	3.51	3.24	3.04	2.83	2.49	2.09	1.6
265	5.09	4.87	4.65	4.5	4.29	4.11	3.93	3.74	3.54	3.26	3.06	2.85	2.5	2.09	1.6
266	6.03	5.79	5.52	5.34	5.1	4.86	4.66	4.43	4.2	3.93	3.69	3.48	3.05	2.53	1.94
267	6.07	5.83	5.56	5.36	5.13	4.89	4.68	4.45	4.23	3.93	3.7	3.49	3.04	2.55	1.93
268	6.11	5.86	5.58	5.4	5.15	4.91	4.71	4.47	4.24	3.93	3.69	3.47	3.04	2.52	1.92
269	6.17	5.92	5.64	5.46	5.21	4.97	4.78	4.53	4.31	3.98	3.74	3.49	3.04	2.51	1.91
270	6.3	6.01	5.74	5.54	5.28	5.04	4.84	4.59	4.34	4	3.73	3.49	3.02	2.49	1.88
271	6.87	6.6	6.29	6.08	5.79	5.52	5.3	5.04	4.79	4.47	4.2	3.96	3.48	2.87	2.19
272	6.96	6.68	6.37	6.15	5.88	5.6	5.36	5.1	4.85	4.52	4.25	4.01	3.5	2.92	2.21
273	6.99	6.7	6.38	6.15	5.88	5.6	5.38	5.12	4.85	4.5	4.22	3.94	3.47	2.87	2.16
274	7.1	6.78	6.46	6.25	5.97	5.68	5.45	5.17	4.89	4.51	4.22	3.92	3.45	2.84	2.14
275	7.21	6.87	6.56	6.34	6.04	5.76	5.52	5.24	4.96	4.58	4.3	3.98	3.48	2.87	2.15

Table A4c. Static and dynamic test data for seal 1 of Table 3 for high inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
276	3000	295	287	2.97	1.01	74.6	-72.6	.0917	.0503	-.0384	-.0676	.218	.0442
277	6000	295	284	2.97	1.01	74.6	-71	.0926	.0492	-.0492	-.0657	.203	.0281
278	9500	295	286	3.05	1.01	74.6	-67.8	.0878	.0485	-.00932	-.0672	.188	.047
279	13000	294	292	3.04	1.01	74.6	-64	.0917	.0457	.0326	-.0383	.173	.0323
280	16000	294	299	3.03	1.01	74.6	-59.8	.0909	.0427	.0255	.0222	.182	-.0114
281	3000	295	285	4.31	1.01	74.6	-73.7	.0881	.0739	-.0633	-.0628	.205	.0456
282	6000	294	284	4.42	1.01	74.6	-71.8	.0894	.0741	-.0656	-.0566	.199	.039
283	9500	295	286	4.31	1.01	74.6	-68.3	.0891	.0688	-.038	-.0582	.186	.0529
284	13000	294	288	4.34	1.01	74.6	-65.1	.0915	.0664	-.00526	-.0461	.176	.0399
285	16000	295	294	4.42	1.01	74.6	-60.6	.0908	.063	.00562	.00634	.169	-.000177
286	3000	295	284	5.72	1	74.6	-74.3	.0848	.0989	-.0748	-.0617	.212	.0519
287	6000	295	284	5.73	1	74.6	-72.2	.0899	.0966	-.0749	-.0557	.206	.0424
288	9500	295	285	5.66	1.01	74.6	-69.3	.0903	.0917	-.0587	-.0529	.199	.0536
289	13000	294	287	5.67	1.01	74.6	-65	.0907	.0866	-.0259	-.0479	.183	.0485
290	16000	295	291	5.76	1	74.6	-61	.09	.0826	-.0112	-.00355	.165	.0115
291	3000	295	287	7.04	1.01	74.6	-74.7	.0915	.122	-.0695	-.0599	.205	.0527
292	6000	295	285	7.04	1	74.6	-73.1	.0939	.12	-.0737	-.052	.212	.0534
293	9500	295	285	7.08	1.01	74.6	-69.8	.0889	.115	-.0649	-.0487	.205	.0529
294	13000	295	286	7.12	1.01	74.6	-65.4	.0943	.109	-.038	-.0465	.192	.0537
295	16000	295	290	7.14	1.01	74.6	-61.2	.0855	.103	-.0165	-.0118	.173	.0185
296	3000	295	286	8.01	1.01	74.6	-75.1	.0918	.14	-.073	-.0563	.208	.0585
297	6000	295	286	8.03	1.01	74.6	-73.4	.0948	.137	-.0742	-.0538	.204	.0557
298	9500	295	284	8.05	1.01	74.6	-70.3	.0902	.132	-.066	-.0468	.202	.0621
299	13000	295	286	8.15	1.01	74.6	-66.1	.0945	.126	-.0435	-.043	.19	.0575
300	16000	295	290	8.17	1.01	74.6	-61.7	.0926	.118	-.0203	-.0104	.176	.0227

Case	Pi, i=1 to 15 ---------->														
276	2.56	2.47	2.37	2.3	2.21	2.12	2.04	1.95	1.86	1.75	1.67	1.6	1.47	1.33	1.17
277	2.58	2.49	2.38	2.31	2.21	2.12	2.04	1.95	1.86	1.75	1.67	1.6	1.47	1.33	1.16
278	2.66	2.56	2.45	2.38	2.29	2.19	2.11	2.01	1.92	1.8	1.71	1.63	1.5	1.35	1.17
279	2.67	2.57	2.47	2.4	2.3	2.21	2.12	2.02	1.94	1.81	1.72	1.63	1.5	1.34	1.16
280	2.68	2.57	2.47	2.4	2.31	2.21	2.13	2.01	1.93	1.8	1.72	1.62	1.49	1.34	1.16
281	3.71	3.58	3.42	3.32	3.18	3.03	2.91	2.76	2.63	2.46	2.33	2.21	1.97	1.69	1.36
282	3.8	3.67	3.51	3.39	3.25	3.1	2.98	2.84	2.69	2.51	2.38	2.25	2.01	1.73	1.37
283	3.75	3.61	3.46	3.34	3.2	3.06	2.94	2.8	2.67	2.48	2.34	2.2	1.98	1.71	1.36
284	3.8	3.65	3.48	3.37	3.22	3.09	2.96	2.81	2.67	2.48	2.35	2.2	1.96	1.68	1.34
285	3.91	3.74	3.58	3.48	3.33	3.18	3.05	2.9	2.74	2.53	2.39	2.23	2	1.7	1.35
286	4.91	4.72	4.5	4.35	4.16	3.97	3.82	3.63	3.44	3.22	3.03	2.86	2.52	2.13	1.64
287	4.93	4.75	4.52	4.37	4.18	3.98	3.82	3.63	3.46	3.21	3.02	2.84	2.51	2.12	1.64
288	4.9	4.7	4.49	4.32	4.14	3.93	3.78	3.59	3.42	3.18	2.98	2.78	2.44	2.07	1.59
289	4.95	4.75	4.54	4.39	4.2	4	3.84	3.64	3.46	3.19	2.99	2.81	2.47	2.07	1.59
290	5.07	4.83	4.62	4.45	4.26	4.08	3.92	3.71	3.49	3.23	3.03	2.81	2.49	2.07	1.59
291	6.05	5.82	5.54	5.35	5.12	4.87	4.67	4.45	4.22	3.93	3.69	3.48	3.05	2.54	1.94
292	6.06	5.83	5.55	5.35	5.11	4.87	4.67	4.44	4.2	3.9	3.66	3.44	3.02	2.53	1.93
293	6.13	5.89	5.62	5.4	5.18	4.91	4.73	4.49	4.26	3.96	3.7	3.46	3.02	2.53	1.91
294	6.22	5.94	5.67	5.49	5.22	4.99	4.79	4.55	4.29	3.97	3.72	3.47	3.04	2.52	1.91
295	6.3	6.02	5.74	5.56	5.31	5.07	4.89	4.64	4.37	4.03	3.76	3.51	3.05	2.54	1.92
296	6.87	6.6	6.29	6.07	5.81	5.53	5.3	5.03	4.77	4.44	4.17	3.93	3.44	2.87	2.18
297	6.89	6.63	6.31	6.09	5.82	5.54	5.32	5.06	4.79	4.45	4.18	3.94	3.46	2.89	2.2
298	6.96	6.67	6.36	6.12	5.86	5.56	5.34	5.08	4.82	4.45	4.17	3.87	3.39	2.82	2.13
299	7.12	6.8	6.5	6.25	5.98	5.7	5.46	5.18	4.93	4.55	4.25	3.93	3.44	2.84	2.13
300	7.21	6.86	6.56	6.32	6.04	5.77	5.54	5.26	4.95	4.56	4.29	3.94	3.44	2.85	2.14

Table A5a. Static and dynamic test data for seal 1 of Table 3 for high inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
301	3000	296	287	3.07	1.01	38.7	86.7	.0926	.0512	-.0453	.073	.229	-.0148
302	6000	295	285	3.03	1.01	38.7	84.9	.0858	.0497	-.0358	.0814	.222	-.0257
303	9500	295	286	3.08	1.01	38.7	81.7	.0857	.0488	-.0297	.0892	.207	-.0408
304	13000	295	291	3.11	1.01	38.7	77.1	.0855	.0467	-.0173	.101	.205	-.0375
305	16000	295	299	3.04	1.01	38.7	72.3	.0862	.0429	-.0184	.111	.21	-.0457
306	3000	296	286	4.46	1.01	38.7	88.2	.0935	.0754	-.0616	.0658	.229	-.0411
307	6000	295	283	4.41	1.01	38.7	86.8	.0874	.0737	-.0564	.0732	.209	-.0557
308	9500	295	286	4.45	1.01	38.7	83.1	.087	.0716	-.0485	.0806	.206	-.0514
309	13000	295	288	4.38	1.01	38.7	78.8	.0873	.0671	-.0387	.0935	.193	-.0504
310	16000	295	292	4.41	1.01	38.7	73.6	.088	.0634	-.0434	.103	.198	-.0577
311	3000	296	286	5.81	1	38.7	89.2	.0962	.0992	-.0755	.0649	.223	-.0249
312	6000	295	283	5.83	1.01	38.7	88.1	.0902	.0988	-.0681	.0713	.201	-.0344
313	9500	295	285	5.74	1.01	38.7	83.5	.0892	.0926	-.0616	.08	.195	-.039
314	13000	295	287	5.8	1.01	38.7	79.1	.09	.0891	-.0517	.0898	.196	-.0523
315	16000	295	290	5.79	1	38.7	74.2	.0919	.0838	-.0502	.0982	.191	-.0659
316	3000	296	287	7.2	1.01	38.7	90.2	.0984	.124	-.0767	.0646	.217	-.0144
317	6000	295	283	7.23	1.01	38.7	88.8	.0922	.123	-.0685	.0709	.21	-.0266
318	9500	295	285	7.15	1.01	38.7	84.7	.0913	.117	-.064	.0785	.2	-.0423
319	13000	295	286	7.17	1.01	38.7	80.4	.0915	.112	-.0546	.0895	.199	-.0489
320	16000	295	289	7.15	1.01	38.7	74.4	.0928	.104	-.0501	.0971	.184	-.0699
321	3000	296	287	8.21	1.01	38.7	90.2	.0964	.142	-.077	.0625	.203	-.0207
322	6000	295	284	8.14	1.01	38.7	88.7	.0942	.139	-.0693	.0705	.201	-.0167
323	9500	295	284	8.22	1.01	38.7	85.2	.0922	.135	-.0622	.0767	.199	-.0455
324	13000	295	286	8.22	1.01	38.7	81	.0928	.129	-.0547	.0882	.194	-.0639
325	16000	296	289	8.14	1.01	38.7	75.4	.0933	.119	-.048	.0973	.176	-.0824

Case	Pi, i=1 to 15 ---------->														
301	2.66	2.53	2.43	2.36	2.26	2.17	2.09	1.98	1.89	1.8	1.69	1.62	1.48	1.35	1.17
302	2.63	2.51	2.4	2.33	2.24	2.14	2.08	1.96	1.88	1.78	1.69	1.59	1.49	1.32	1.17
303	2.7	2.57	2.47	2.4	2.3	2.21	2.13	2.03	1.93	1.84	1.72	1.65	1.5	1.36	1.17
304	2.73	2.62	2.51	2.43	2.34	2.23	2.18	2.05	1.98	1.83	1.77	1.63	1.54	1.35	1.18
305	2.68	2.57	2.47	2.39	2.3	2.18	2.13	2	1.93	1.78	1.72	1.59	1.49	1.32	1.16
306	3.87	3.66	3.51	3.4	3.24	3.13	2.98	2.86	2.7	2.54	2.35	2.28	1.97	1.74	1.37
307	3.82	3.62	3.47	3.37	3.22	3.1	2.97	2.83	2.67	2.54	2.35	2.25	1.99	1.71	1.38
308	3.87	3.69	3.53	3.42	3.27	3.14	3.02	2.85	2.71	2.55	2.37	2.24	2.01	1.69	1.38
309	3.83	3.67	3.52	3.4	3.27	3.11	3.04	2.84	2.73	2.52	2.41	2.19	2.02	1.68	1.37
310	3.89	3.71	3.55	3.44	3.29	3.12	3.04	2.84	2.71	2.51	2.38	2.17	1.99	1.65	1.35
311	5	4.75	4.54	4.39	4.2	4.01	3.88	3.64	3.46	3.28	3.04	2.86	2.53	2.09	1.65
312	5.04	4.77	4.57	4.44	4.23	4.06	3.9	3.69	3.49	3.31	3.04	2.89	2.54	2.11	1.66
313	5	4.74	4.55	4.41	4.19	4.04	3.86	3.67	3.47	3.28	3	2.88	2.49	2.1	1.63
314	5.07	4.84	4.64	4.48	4.3	4.09	3.99	3.72	3.56	3.32	3.12	2.85	2.59	2.08	1.65
315	5.1	4.87	4.66	4.51	4.32	4.11	3.99	3.72	3.54	3.3	3.08	2.83	2.56	2.06	1.63
316	6.21	5.87	5.62	5.45	5.18	4.99	4.76	4.53	4.26	4.04	3.69	3.57	3.04	2.58	1.96
317	6.24	5.91	5.66	5.49	5.23	5.04	4.82	4.57	4.32	4.11	3.76	3.6	3.13	2.6	2.01
318	6.16	5.89	5.64	5.45	5.23	4.97	4.84	4.5	4.33	4	3.79	3.44	3.12	2.49	1.97
319	6.27	5.96	5.7	5.52	5.27	5.04	4.87	4.57	4.33	4.08	3.76	3.5	3.11	2.5	1.96
320	6.31	6	5.76	5.57	5.32	5.08	4.92	4.6	4.35	4.09	3.77	3.51	3.11	2.49	1.94
321	7.09	6.71	6.41	6.22	5.91	5.7	5.43	5.17	4.87	4.6	4.2	4.08	3.45	2.94	2.2
322	7.03	6.65	6.37	6.17	5.87	5.64	5.41	5.12	4.82	4.58	4.17	4	3.45	2.87	2.21
323	7.09	6.77	6.47	6.25	6	5.69	5.54	5.16	4.94	4.59	4.33	3.93	3.57	2.83	2.24
324	7.16	6.82	6.54	6.32	6.05	5.76	5.61	5.22	4.97	4.66	4.34	3.99	3.58	2.84	2.24
325	7.15	6.81	6.53	6.3	6.03	5.74	5.58	5.2	4.93	4.62	4.29	3.93	3.53	2.8	2.18

Table A5b. Static and dynamic test data for seal 1 of Table 3 for high inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
326	3000	294	284	3.04	1.01	56.8	86.8	.0919	.0512	-.0575	.069	.192	-.00606
327	6000	293	285	3.07	1.01	56.8	85.5	.0872	.051	-.0503	.082	.211	-.00512
328	9500	293	285	3	1.01	56.8	80.9	.0876	.0474	-.0259	.0892	.218	-.0437
329	13000	293	291	3.04	1.01	56.8	76.9	.089	.0457	-.0143	.102	.223	-.0519
330	16000	294	298	3.05	1.01	56.8	71.9	.089	.0431	-.0142	.112	.222	-.0541
331	3000	294	283	4.37	1.01	56.8	88.2	.0917	.0743	-.0579	.0712	.243	-.0377
332	6000	293	283	4.41	1.01	56.8	86.3	.0892	.0739	-.0545	.075	.216	-.0263
333	9500	294	285	4.39	1.01	56.8	83.1	.0893	.0709	-.0506	.0803	.201	-.0448
334	13000	294	287	4.41	1.01	56.8	78.3	.0903	.0674	-.0366	.0927	.204	-.0552
335	16000	294	292	4.41	1.01	56.8	73.3	.0904	.0634	-.0416	.103	.204	-.06
336	3000	294	283	5.83	1.01	56.8	88.5	.0934	.0997	-.0779	.0717	.236	-.0178
337	6000	293	282	5.79	1.01	56.8	87.7	.0917	.0985	-.0692	.0741	.211	-.0232
338	9500	294	285	5.85	1.01	56.8	83.1	.0905	.0945	-.0537	.0781	.216	-.0608
339	13000	293	286	5.82	1.01	56.8	79.5	.0918	.0904	-.0471	.0905	.207	-.0679
340	16000	294	289	5.78	1	56.8	74.2	.0921	.084	-.0471	.1	.196	-.0696
341	3000	294	284	7.15	1.01	56.8	90.1	.0961	.124	-.0829	.0628	.188	-.0235
342	6000	293	282	7.14	1.01	56.8	88.7	.0943	.122	-.0712	.0737	.207	-.0216
343	9500	294	284	7.18	1.01	56.8	84.5	.0899	.118	-.063	.0815	.209	-.0619
344	13000	293	285	7.17	1.01	56.8	80.1	.0911	.112	-.0506	.0908	.206	-.0645
345	16000	294	289	7.13	1.01	56.8	74.7	.092	.104	-.0475	.0971	.19	-.0892
346	3000	294	284	8.15	1.01	56.8	89.8	.0976	.141	-.0793	.0641	.198	-.0188
347	6000	294	282	8.18	1.01	56.8	88.5	.0944	.14	-.0676	.073	.207	-.0315
348	9500	294	283	8.18	1.01	56.8	85.2	.0915	.135	-.0571	.0799	.21	-.0582
349	13000	294	284	8.15	1.01	56.8	80.2	.0908	.128	-.0483	.0893	.204	-.0821
350	16000	294	288	8.22	1.01	56.8	74.9	.0908	.121	-.0434	.0967	.18	-.0934

Case	Pi, i=1 to 15 ---------->														
326	2.62	2.51	2.41	2.33	2.25	2.15	2.08	1.98	1.91	1.78	1.69	1.61	1.48	1.34	1.17
327	2.66	2.55	2.44	2.36	2.27	2.17	2.1	2	1.91	1.78	1.7	1.61	1.48	1.34	1.16
328	2.62	2.51	2.4	2.33	2.24	2.14	2.07	1.97	1.89	1.76	1.67	1.6	1.46	1.33	1.16
329	2.67	2.55	2.45	2.37	2.28	2.18	2.11	2.01	1.92	1.79	1.7	1.61	1.48	1.34	1.16
330	2.7	2.59	2.48	2.4	2.3	2.2	2.12	2.02	1.93	1.8	1.7	1.62	1.48	1.33	1.16
331	3.75	3.58	3.43	3.31	3.18	3.04	2.92	2.78	2.66	2.47	2.33	2.18	1.96	1.68	1.36
332	3.8	3.63	3.48	3.35	3.22	3.07	2.96	2.81	2.69	2.48	2.35	2.2	1.96	1.7	1.36
333	3.8	3.64	3.49	3.37	3.24	3.1	2.98	2.83	2.71	2.5	2.36	2.23	1.98	1.7	1.37
334	3.86	3.69	3.54	3.42	3.28	3.14	3.02	2.87	2.73	2.54	2.38	2.23	1.99	1.71	1.36
335	3.89	3.72	3.57	3.44	3.3	3.15	3.04	2.88	2.73	2.52	2.37	2.22	1.97	1.69	1.35
336	5.02	4.79	4.59	4.42	4.25	4.05	3.9	3.71	3.54	3.27	3.08	2.88	2.54	2.15	1.65
337	4.98	4.76	4.55	4.39	4.21	4.02	3.87	3.67	3.49	3.23	3.03	2.84	2.51	2.1	1.63
338	5.07	4.84	4.64	4.48	4.29	4.11	3.96	3.75	3.57	3.31	3.09	2.9	2.56	2.13	1.65
339	5.07	4.85	4.64	4.48	4.29	4.1	3.95	3.74	3.55	3.29	3.07	2.86	2.52	2.1	1.62
340	5.08	4.86	4.66	4.49	4.3	4.11	3.95	3.75	3.54	3.27	3.05	2.85	2.5	2.08	1.6
341	6.12	5.83	5.58	5.37	5.16	4.92	4.74	4.49	4.28	3.96	3.71	3.48	3.05	2.54	1.95
342	6.11	5.83	5.58	5.38	5.16	4.92	4.74	4.49	4.27	3.95	3.7	3.46	3.05	2.52	1.93
343	6.2	5.93	5.68	5.47	5.24	5.01	4.82	4.57	4.35	4.01	3.76	3.5	3.08	2.55	1.94
344	6.24	5.97	5.71	5.51	5.28	5.04	4.86	4.59	4.36	4.02	3.77	3.49	3.08	2.54	1.92
345	6.26	5.98	5.73	5.52	5.28	5.04	4.86	4.59	4.35	4.01	3.73	3.46	3.04	2.5	1.89
346	6.97	6.65	6.36	6.12	5.88	5.61	5.39	5.11	4.87	4.5	4.22	3.94	3.48	2.89	2.2
347	7.02	6.69	6.4	6.17	5.92	5.65	5.44	5.16	4.92	4.54	4.25	3.98	3.5	2.9	2.21
348	7.05	6.72	6.44	6.2	5.95	5.69	5.47	5.18	4.94	4.55	4.26	3.98	3.49	2.88	2.19
349	7.08	6.77	6.48	6.25	5.99	5.73	5.52	5.21	4.96	4.57	4.28	3.99	3.49	2.88	2.18
350	7.21	6.9	6.61	6.36	6.08	5.81	5.59	5.28	5	4.6	4.3	3.99	3.48	2.84	2.14

Table A5c. Static and dynamic test data for seal 1 of Table 3 for high inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
351	3000	294	283	3.04	1.01	74.6	86.8	.0941	.0511	-.0382	.0748	.242	-.0128
352	6000	292	283	3.03	1.01	74.6	84.5	.103	.05	-.0304	.0777	.228	-.0126
353	9500	292	284	3.01	1.01	74.6	81.7	.0894	.0481	-.0193	.0842	.228	-.0384
354	13000	292	290	3	1.01	74.6	76.9	.106	.0454	-.00383	.0952	.224	-.0525
355	16000	292	296	3.06	1.01	74.6	72.1	.106	.0435	-.00336	.108	.224	-.0504
356	3000	293	282	4.49	1	74.6	88.8	.0867	.0771	-.0603	.0652	.223	-.0186
357	6000	292	281	4.44	1.01	74.6	86.9	.1	.0751	-.0486	.0677	.218	-.0506
358	9500	292	284	4.41	1.01	74.6	83	.0864	.0716	-.0349	.0751	.227	-.0484
359	13000	292	287	4.4	1.01	74.6	78.3	.103	.0677	-.0275	.0868	.214	-.0557
360	16000	293	290	4.42	1.01	74.6	73	.104	.0635	-.0299	.0965	.216	-.0625
361	3000	293	281	5.79	1	74.6	88.9	.0803	.0995	-.0678	.0658	.234	-.0264
362	6000	292	281	5.8	1	74.6	87.6	.0994	.0988	-.0525	.07	.228	-.0443
363	9500	292	284	5.83	1.01	74.6	83.6	.0853	.0951	-.0423	.0733	.224	-.0379
364	13000	292	285	5.76	1	74.6	79.3	.0996	.0895	-.0431	.0858	.217	-.057
365	16000	293	289	5.84	1	74.6	73.7	.103	.0846	-.0373	.0889	.196	-.0725
366	3000	293	281	7.22	1	74.6	89.5	.0951	.125	-.0647	.0629	.224	-.0354
367	6000	292	281	7.18	1	74.6	88.5	.0974	.123	-.0548	.07	.228	-.0339
368	9500	292	283	7.18	1.01	74.6	84.3	.0829	.118	-.0542	.0734	.214	-.0528
369	13000	292	284	7.2	1.01	74.6	80.5	.0968	.114	-.0448	.0842	.211	-.063
370	16000	293	288	7.17	1.01	74.6	74.4	.0998	.105	-.0351	.0888	.202	-.0915
371	3000	293	281	8.23	1.01	74.6	90.2	.0931	.144	-.0631	.0653	.228	-.0339
372	6000	292	281	8.19	1.01	74.6	88.4	.0969	.141	-.0646	.0691	.205	-.0339
373	9500	292	282	8.18	1.01	74.6	85	.0822	.135	-.0496	.0718	.208	-.0561
374	13000	292	284	8.17	1.01	74.6	80.5	.0798	.129	-.0454	.0833	.206	-.0696
375	16000	293	288	8.15	1.01	74.6	75.3	.0993	.12	-.042	.0801	.179	-.0981

Case	Pi, i=1 to 15 ----------)														
351	2.62	2.51	2.41	2.33	2.24	2.13	2.06	1.96	1.89	1.76	1.68	1.59	1.47	1.33	1.16
352	2.62	2.51	2.41	2.33	2.24	2.14	2.07	1.98	1.9	1.77	1.68	1.59	1.47	1.33	1.16
353	2.61	2.5	2.4	2.32	2.24	2.14	2.07	1.96	1.88	1.75	1.68	1.59	1.47	1.33	1.16
354	2.63	2.52	2.42	2.35	2.26	2.16	2.08	1.98	1.89	1.77	1.69	1.6	1.48	1.33	1.16
355	2.69	2.58	2.48	2.4	2.31	2.2	2.13	2.02	1.92	1.8	1.71	1.62	1.49	1.34	1.16
356	3.84	3.68	3.52	3.4	3.27	3.11	3	2.83	2.71	2.51	2.39	2.24	2	1.72	1.37
357	3.8	3.64	3.5	3.37	3.24	3.09	2.98	2.81	2.7	2.5	2.37	2.22	1.98	1.69	1.36
358	3.82	3.66	3.51	3.39	3.26	3.12	3.01	2.86	2.7	2.51	2.37	2.22	2	1.72	1.37
359	3.84	3.69	3.54	3.42	3.29	3.15	3.04	2.88	2.72	2.52	2.38	2.24	2	1.72	1.37
360	3.88	3.72	3.57	3.44	3.3	3.16	3.05	2.89	2.71	2.51	2.36	2.21	1.99	1.7	1.35
361	4.95	4.73	4.52	4.36	4.19	4	3.85	3.65	3.47	3.2	3	2.79	2.47	2.09	1.61
362	4.97	4.75	4.55	4.39	4.22	4.02	3.87	3.65	3.47	3.2	3.03	2.84	2.5	2.1	1.61
363	5.04	4.82	4.62	4.46	4.28	4.1	3.96	3.74	3.56	3.28	3.06	2.87	2.53	2.14	1.64
364	5.01	4.79	4.59	4.43	4.26	4.07	3.93	3.72	3.5	3.23	3.02	2.82	2.5	2.1	1.61
365	5.12	4.9	4.7	4.54	4.36	4.17	4.02	3.8	3.57	3.29	3.09	2.87	2.54	2.14	1.63
366	6.16	5.89	5.63	5.43	5.21	4.97	4.8	4.55	4.32	3.99	3.73	3.47	3.06	2.56	1.95
367	6.15	5.87	5.61	5.41	5.19	4.96	4.78	4.53	4.32	3.98	3.72	3.46	3.04	2.52	1.92
368	6.2	5.92	5.67	5.48	5.24	5.02	4.85	4.58	4.36	4	3.74	3.48	3.06	2.57	1.95
369	6.25	5.97	5.72	5.52	5.29	5.06	4.88	4.63	4.37	4.02	3.74	3.47	3.04	2.54	1.93
370	6.3	6.03	5.76	5.56	5.32	5.08	4.9	4.64	4.37	4.02	3.73	3.46	3.03	2.51	1.91
371	7.03	6.72	6.42	6.2	5.94	5.67	5.48	5.19	4.91	4.53	4.23	3.94	3.47	2.9	2.21
372	7.01	6.7	6.42	6.19	5.93	5.65	5.43	5.12	4.93	4.55	4.27	3.97	3.47	2.87	2.18
373	7.05	6.73	6.44	6.22	5.96	5.7	5.49	5.2	4.94	4.56	4.23	3.93	3.45	2.88	2.17
374	7.09	6.78	6.49	6.27	6.01	5.75	5.54	5.26	4.98	4.58	4.26	3.94	3.44	2.86	2.17
375	7.13	6.82	6.53	6.3	6.04	5.78	5.57	5.26	4.95	4.53	4.23	3.91	3.44	2.85	2.14

Table A6a. Static and dynamic test data for seal 2 of Table 3 for no inlet circumferential velocity and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
1	3000	298	295	3.12	1.01	38.7	0	.0883	.0437	-.0141	.0123	.155	-.00322
2	6000	298	287	2.99	1.01	38.7	0	.0904	.0425	-.0103	.0128	.163	-.00124
3	9500	298	286	3.09	1.01	38.7	0	.0889	.0412	-.0038	.0156	.164	.00115
4	13000	297	300	3.1	1.01	38.7	0	.0895	.0381	.00539	.0221	.171	-.000814
5	16000	297	303	3.11	1.01	38.7	0	.0907	.0351	.00761	.0266	.172	-.0106
6	3000	298	295	4.35	1.01	38.7	0	.0892	.0636	-.00364	.0124	.145	.00234
7	6000	298	286	4.36	1.01	38.7	0	.0892	.0622	-.000207	.0126	.149	.00273
8	9500	298	287	4.4	1.01	38.7	0	.0874	.0602	.00268	.0143	.152	.00225
9	13000	298	290	4.44	1.01	38.7	0	.0885	.0556	.0089	.018	.159	.000669
10	16000	298	297	4.41	1.01	38.7	0	.0896	.0501	.0106	.0248	.163	-.00595
11	3000	299	295	5.78	1.01	38.7	0	.089	.0841	-.00663	.0145	.142	.00805
12	6000	298	286	5.79	1.01	38.7	0	.0894	.0828	-.00196	.0114	.143	.00613
13	9500	298	286	5.77	1.01	38.7	0	.0877	.0782	.000341	.015	.15	.0113
14	13000	297	289	5.8	1.01	38.7	0	.089	.0733	.00403	.0164	.162	.00196
15	16000	298	294	5.77	1.01	38.7	0	.0911	.0662	.0095	.0215	.155	-.00782
16	3000	298	294	7.15	1	38.7	0	.0912	.104	-.00471	.0139	.141	.00282
17	6000	298	291	7.19	1.01	38.7	0	.0901	.103	-.00319	.0135	.14	.00726
18	9500	298	286	7.2	1.01	38.7	0	.0889	.0971	-6.4E-5	.0143	.152	-6.16E-5
19	13000	298	288	7.16	1.01	38.7	0	.09	.0902	.00172	.0173	.167	-.000281
20	16000	298	293	7.21	1.01	38.7	0	.09	.0831	.0088	.0216	.157	-.0107
21	3000	298	293	8.18	1.01	38.7	0	.0914	.12	-.00367	.0125	.132	.00507
22	6000	298	291	8.11	1.01	38.7	0	.0899	.116	-.00339	.0128	.14	.00742
23	9500	298	287	8.19	1.01	38.7	0	.088	.11	.00179	.0147	.147	.005
24	13000	298	287	8.21	1.01	38.7	0	.0896	.104	.00251	.0164	.168	.00199
25	16000	298	292	8.27	1.01	38.7	0	.0909	.0956	.00749	.0191	.158	-.0102

Case	Pi, i=1 to 15 ---------->														
1	2.91	2.81	2.71	2.6	2.5	2.38	2.3	2.16	2.04	1.87	1.77	1.6	1.48	1.31	1.18
2	2.77	2.66	2.56	2.46	2.36	2.25	2.17	2.04	1.93	1.79	1.69	1.53	1.42	1.27	1.15
3	2.87	2.75	2.64	2.53	2.4	2.3	2.21	2.07	1.95	1.82	1.7	1.55	1.43	1.28	1.16
4	2.88	2.76	2.64	2.53	2.4	2.29	2.2	2.06	1.94	1.81	1.69	1.53	1.42	1.27	1.16
5	2.89	2.76	2.64	2.52	2.4	2.28	2.18	2.04	1.92	1.79	1.68	1.52	1.41	1.26	1.15
6	4.02	3.86	3.7	3.53	3.37	3.2	2.89	2.86	2.68	2.43	2.27	2.02	1.84	1.59	1.36
7	4.04	3.88	3.7	3.55	3.36	3.21	3.07	2.85	2.65	2.45	2.26	2.02	1.82	1.58	1.36
8	4.07	3.9	3.72	3.55	3.37	3.19	3.06	2.83	2.65	2.42	2.26	2	1.82	1.58	1.35
9	4.11	3.93	3.74	3.57	3.37	3.21	3.06	2.84	2.65	2.44	2.25	2.01	1.82	1.58	1.35
10	4.08	3.9	3.7	3.53	3.32	3.16	2.99	2.77	2.57	2.39	2.19	1.97	1.78	1.55	1.32
11	5.34	5.12	4.9	4.67	4.44	4.21	4.03	3.73	3.48	3.16	2.94	2.4	2.34	2	1.66
12	5.34	5.12	4.87	4.67	4.39	4.2	3.99	3.71	3.43	3.16	2.89	2.58	2.3	1.97	1.64
13	5.34	5.12	4.87	4.66	4.39	4.18	3.97	3.68	3.41	3.14	2.89	2.56	2.3	1.98	1.64
14	5.37	5.13	4.87	4.67	4.37	4.18	3.95	3.68	3.4	3.14	2.85	2.57	2.28	1.97	1.63
15	5.34	5.09	4.83	4.61	4.33	4.11	3.89	3.61	3.32	3.08	2.8	2.51	2.23	1.93	1.59
16	6.61	6.33	6.05	5.77	5.49	5.19	4.97	4.59	4.28	3.88	3.59	3.17	2.86	2.42	2
17	6.65	6.38	6.07	5.82	5.49	5.24	4.98	4.62	4.27	3.93	3.59	3.21	2.86	2.44	2.01
18	6.67	6.38	6.07	5.79	5.46	5.19	4.93	4.56	4.23	3.89	3.56	3.16	2.83	2.41	1.98
19	6.63	6.33	6	5.75	5.38	5.15	4.85	4.52	4.16	3.84	3.48	3.13	2.76	2.37	1.93
20	6.67	6.36	6.01	5.77	5.37	5.15	4.83	4.52	4.13	3.82	3.46	3.11	2.74	2.37	1.91
21	7.56	7.25	6.92	6.62	6.27	5.96	5.7	5.26	4.89	4.47	4.11	3.63	3.27	2.76	2.28
22	7.51	7.2	6.87	6.57	6.23	5.92	5.64	5.22	4.84	4.44	4.06	3.61	3.23	2.74	2.26
23	7.59	7.25	6.91	6.58	6.23	5.91	5.63	5.21	4.82	4.43	4.05	3.6	3.21	2.73	2.24
24	7.61	7.26	6.89	6.6	6.16	5.92	5.56	5.2	4.77	4.41	3.98	3.58	3.15	2.72	2.2
25	7.65	7.29	6.9	6.62	6.16	5.92	5.53	5.18	4.75	4.38	3.96	3.57	3.14	2.72	2.17

Table A6b. Static and dynamic test data for seal 2 of Table 3 for no inlet circumferential velocity and 56.8 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
26	3000	298	293	3.02	1.01	56.8	0	.0901	.0437	-.00992	.0114	.163	-.00832
27	6000	298	285	3.03	1.01	56.8	0	.0897	.0429	-.00614	.0168	.171	-.00488
28	9500	298	288	3.11	1.01	56.8	0	.0907	.0419	.00713	.0148	.165	-.00502
29	13000	297	294	3.1	1.01	56.8	0	.0983	.0387	.013	.0227	.171	-.000859
30	16000	297	302	3.01	1.01	56.8	0	.0907	.034	.00867	.0286	.18	-.0104
31	3000	298	295	4.4	1.01	56.8	0	.0888	.0636	.0043	.0131	.153	-.00869
32	6000	298	285	4.41	1.01	56.8	0	.091	.0633	-.00382	.0148	.153	-.00157
33	9500	298	288	4.48	1.01	56.8	0	.0887	.0599	.00727	.0158	.16	-.00353
34	13000	297	290	4.4	1.01	56.8	0	.0947	.056	.0154	.0193	.165	-.00459
35	16000	298	296	4.45	1.01	56.8	0	.0866	.0502	.0147	.0258	.167	-.013
36	3000	298	295	5.76	1.01	56.8	0	.0857	.0834	-.00466	.0202	.163	.000952
37	6000	298	285	5.78	1.01	56.8	0	.0893	.0826	9.49E-5	.0173	.152	-.00197
38	9500	298	287	5.79	1.01	56.8	0	.0887	.0775	.00523	.0167	.155	.000202
39	13000	298	290	5.8	1.01	56.8	0	.0935	.0727	.0103	.0199	.171	-.00549
40	16000	298	295	5.9	1.01	56.8	0	.0861	.0674	.00899	.0227	.164	-.0111
41	3000	298	294	7.18	1.01	56.8	0	.09	.104	-.00222	.015	.142	-.00642
42	6000	298	289	7.18	1	56.8	0	.0897	.103	.00277	.0191	.147	-.00849
43	9500	298	287	7.12	1.01	56.8	0	.0869	.0949	.00236	.0184	.154	.000346
44	13000	298	288	7.17	1.01	56.8	0	.0917	.0908	.0102	.019	.165	-.00576
45	16000	298	292	7.1	1.01	56.8	0	.0864	.0822	.0151	.0214	.159	-.0146
46	3000	298	293	8.14	1	56.8	0	.0867	.119	-.00198	.0184	.15	.00275
47	6000	298	287	8.22	1.01	56.8	0	.0891	.118	.00387	.0167	.145	.00334
48	9500	298	287	8.17	1.01	56.8	0	.0874	.111	.00382	.0188	.156	-.00257
49	13000	298	288	8.16	1.01	56.8	0	.093	.104	.00769	.0197	.164	-.00707
50	16000	298	292	8.19	1.01	56.8	0	.0861	.0945	.0126	.0209	.158	-.0176

Case	Pi, i=1 to 15 ----------)														
26	2.79	2.68	2.58	2.48	2.36	2.27	2.17	2.06	1.93	1.78	1.67	1.53	1.41	1.27	1.15
27	2.81	2.69	2.6	2.49	2.38	2.28	2.18	2.07	1.95	1.8	1.69	1.54	1.41	1.27	1.15
28	2.89	2.77	2.67	2.56	2.43	2.34	2.23	2.11	1.98	1.83	1.71	1.57	1.43	1.29	1.16
29	2.89	2.76	2.65	2.53	2.41	2.32	2.2	2.09	1.96	1.82	1.7	1.55	1.42	1.28	1.16
30	2.8	2.67	2.56	2.44	2.32	2.22	2.12	2	1.88	1.74	1.64	1.5	1.38	1.25	1.14
31	4.07	3.9	3.74	3.58	3.39	3.24	3.08	2.89	2.69	2.44	2.26	2.04	1.83	1.61	1.37
32	4.07	3.9	3.74	3.58	3.4	3.25	3.08	2.9	2.7	2.46	2.28	2.04	1.83	1.6	1.36
33	4.15	3.97	3.8	3.64	3.44	3.28	3.1	2.91	2.7	2.48	2.3	2.06	1.85	1.61	1.37
34	4.09	3.9	3.74	3.56	3.36	3.21	3.03	2.85	2.65	2.42	2.24	2.02	1.82	1.59	1.35
35	4.14	3.93	3.76	3.57	3.38	3.22	3.05	2.85	2.65	2.42	2.24	2	1.81	1.58	1.34
36	5.33	5.1	4.89	4.68	4.42	4.23	3.99	3.75	3.48	3.15	2.9	2.6	2.32	2	1.65
37	5.34	5.1	4.88	4.66	4.4	4.21	3.98	3.75	3.49	3.17	2.92	2.61	2.33	2.01	1.66
38	5.37	5.13	4.91	4.68	4.41	4.21	3.98	3.72	3.45	3.14	2.89	2.58	2.31	1.98	1.64
39	5.37	5.12	4.9	4.65	4.38	4.19	3.94	3.69	3.42	3.11	2.87	2.55	2.28	1.96	1.62
40	5.44	5.16	4.92	4.67	4.39	4.17	3.92	3.65	3.37	3.07	2.82	2.51	2.25	1.94	1.6
41	6.64	6.34	6.08	5.8	5.48	5.25	4.95	4.63	4.29	3.89	3.58	3.19	2.85	2.44	2
42	6.65	6.34	6.08	5.81	5.49	5.26	4.97	4.64	4.3	3.9	3.59	3.19	2.84	2.43	1.99
43	6.6	6.3	6.02	5.74	5.4	5.15	4.87	4.54	4.21	3.82	3.53	3.13	2.79	2.39	1.95
44	6.65	6.32	6.04	5.74	5.4	5.16	4.86	4.54	4.21	3.82	3.52	3.12	2.78	2.38	1.94
45	6.55	6.21	5.93	5.63	5.28	5.02	4.74	4.41	4.08	3.7	3.41	3.02	2.7	2.32	1.88
46	7.54	7.2	6.91	6.61	6.24	5.97	5.65	5.29	4.89	4.44	4.08	3.64	3.23	2.76	2.26
47	7.62	7.27	6.97	6.65	6.29	6.02	5.68	5.3	4.9	4.44	4.09	3.64	3.24	2.77	2.26
48	7.57	7.21	6.89	6.57	6.18	5.9	5.57	5.19	4.82	4.36	4.02	3.57	3.18	2.72	2.21
49	7.56	7.18	6.85	6.51	6.11	5.85	5.51	5.14	4.75	4.32	3.97	3.51	3.14	2.68	2.18
50	7.59	7.2	6.87	6.5	6.11	5.84	5.49	5.1	4.72	4.28	3.94	3.48	3.11	2.66	2.15

Table A6c. Static and dynamic test data for seal 2 of Table 3 for no inlet circumferential velocity and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	K	k	Cx1000	cx1000
51	3000	299	292	3.02	1.01	74.6	0	.0951	.0425	-.00429	.0128	.173	-.00343
52	6000	298	285	3	1.01	74.6	0	.0954	.0426	-.00805	.0166	.166	-.00536
53	9500	298	288	3	1.01	74.6	0	.0925	.0399	.0139	.0174	.173	6.04E-5
54	13000	297	295	3.01	1.01	74.6	0	.0937	.037	.0117	.0227	.183	-.00853
55	16000	297	301	3.1	1.01	74.6	0	.0921	.035	.0162	.0272	.178	-.0081
56	3000	299	291	4.39	1.01	74.6	0	.0888	.0627	.00775	.0139	.157	-.00144
57	6000	298	285	4.4	1.01	74.6	0	.0944	.0629	.009	.016	.156	-.00188
58	9500	298	287	4.43	1.01	74.6	0	.0944	.0596	.0183	.0146	.161	-.00292
59	13000	297	289	4.45	1	74.6	0	.0964	.0563	.0245	.0194	.166	-.00764
60	16000	297	296	4.45	1.01	74.6	0	.0906	.0504	.0249	.0235	.159	-.0137
61	3000	299	290	5.8	1.01	74.6	0	.0862	.0832	.000318	.0188	.159	-.0027
62	6000	298	285	5.67	1	74.6	0	.0988	.0831	.0131	.0151	.151	-.00968
63	9500	298	286	5.77	1.01	74.6	0	.0928	.0773	.0158	.0147	.162	-.00476
64	13000	297	290	5.77	1.01	74.6	0	.0945	.0725	.0207	.0168	.163	-.00701
65	16000	298	294	5.77	1.01	74.6	0	.0896	.0664	.0255	.0215	.161	-.0171
66	3000	299	289	7.21	1	74.6	0	.0873	.104	.00549	.0155	.151	-.00614
67	6000	298	286	7.21	1.01	74.6	0	.0964	.103	.00882	.0157	.15	-.000854
68	9500	298	286	7.11	1.01	74.6	0	.0917	.0949	.0105	.0158	.152	-.00524
69	13000	297	288	7.17	1.01	74.6	0	.0979	.0906	.0211	.0176	.164	-.0106
70	16000	298	293	7.17	1.01	74.6	0	.0847	.0817	.0211	.0182	.162	-.0119
71	3000	299	289	8.17	1	74.6	0	.0856	.119	.00457	.0168	.152	-.00458
72	6000	298	286	8.12	1	74.6	0	.0931	.116	.00735	.0173	.151	-.00585
73	9500	298	287	8.17	1.01	74.6	0	.0923	.111	.0162	.0161	.153	-.0114
74	13000	297	288	8.17	1.01	74.6	0	.0966	.103	.0218	.017	.163	-.0109
75	16000	298	291	8.24	1.01	74.6	0	.0934	.0956	.0275	.0137	.153	-.0166

Case	Pi, i=1 to 15 ----------)														
51	2.8	2.7	2.6	2.49	2.37	2.28	2.17	2.05	1.93	1.79	1.67	1.53	1.41	1.27	1.15
52	2.78	2.67	2.57	2.47	2.35	2.26	2.16	2.04	1.93	1.79	1.67	1.53	1.41	1.27	1.15
53	2.79	2.67	2.57	2.47	2.34	2.25	2.15	2.03	1.91	1.77	1.67	1.53	1.41	1.27	1.15
54	2.8	2.68	2.57	2.46	2.34	2.24	2.14	2.02	1.91	1.77	1.66	1.52	1.4	1.26	1.15
55	2.88	2.74	2.63	2.51	2.38	2.28	2.17	2.04	1.91	1.77	1.66	1.52	1.4	1.26	1.15
56	4.07	3.91	3.76	3.61	3.42	3.26	3.09	2.88	2.68	2.45	2.27	2.04	1.84	1.6	1.36
57	4.07	3.9	3.74	3.59	3.4	3.25	3.09	2.89	2.68	2.45	2.28	2.05	1.84	1.61	1.36
58	4.11	3.93	3.78	3.61	3.41	3.26	3.08	2.88	2.67	2.44	2.27	2.04	1.83	1.6	1.36
59	4.13	3.95	3.77	3.6	3.41	3.26	3.09	2.89	2.67	2.44	2.26	2.03	1.83	1.6	1.36
60	4.12	3.92	3.75	3.56	3.35	3.19	3.02	2.81	2.6	2.37	2.21	1.98	1.79	1.57	1.33
61	5.35	5.12	4.91	4.7	4.44	4.25	4.02	3.75	3.47	3.15	2.92	2.61	2.33	2.01	1.66
62	5.37	5.13	4.93	4.72	4.46	4.26	4.04	3.78	3.48	3.18	2.93	2.62	2.35	2.02	1.67
63	5.35	5.11	4.89	4.67	4.4	4.2	3.97	3.7	3.42	3.11	2.88	2.57	2.3	1.98	1.64
64	5.34	5.09	4.86	4.63	4.36	4.16	3.93	3.67	3.39	3.09	2.84	2.54	2.27	1.96	1.62
65	5.33	5.06	4.82	4.58	4.31	4.11	3.88	3.61	3.33	3.02	2.78	2.47	2.21	1.91	1.57
66	6.68	6.39	6.13	5.86	5.54	5.29	5.02	4.68	4.31	3.9	3.6	3.21	2.86	2.46	2.01
67	6.66	6.36	6.09	5.83	5.51	5.26	4.98	4.65	4.29	3.9	3.58	3.19	2.83	2.43	1.99
68	6.59	6.28	6.01	5.73	5.4	5.16	4.87	4.54	4.19	3.81	3.5	3.11	2.77	2.38	1.94
69	6.64	6.32	6.03	5.75	5.41	5.16	4.88	4.55	4.19	3.8	3.49	3.11	2.78	2.38	1.94
70	6.63	6.29	6.02	5.7	5.38	5.11	4.82	4.5	4.14	3.75	3.45	3.05	2.73	2.34	1.9
71	7.57	7.24	6.94	6.63	6.28	5.99	5.67	5.29	4.9	4.43	4.08	3.63	3.23	2.76	2.26
72	7.51	7.18	6.87	6.57	6.21	5.94	5.62	5.25	4.84	4.39	4.03	3.59	3.19	2.73	2.23
73	7.58	7.21	6.91	6.59	6.21	5.93	5.6	5.22	4.82	4.36	4.01	3.56	3.17	2.72	2.22
74	7.58	7.21	6.88	6.56	6.16	5.88	5.55	5.19	4.78	4.33	3.97	3.52	3.13	2.68	2.18
75	7.64	7.25	6.92	6.57	6.21	5.89	5.55	5.19	4.77	4.32	3.97	3.53	3.14	2.69	2.17

Table A7a. Static and dynamic test data for seal 2 of Table 3 for low inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
76	3000	305	301	3.04	1.01	38.7	-27.2	.0845	.0428	-.000472	-.0057	.168	.0137
77	6000	305	293	3.03	1.01	38.7	-26.8	.0896	.0419	.00323	.000159	.14	-.00567
78	9500	305	293	3.07	1.01	38.7	-25.4	.0922	.0403	.0149	.00535	.139	-.0039
79	13000	305	299	3.02	1.01	38.7	-23.4	.094	.0365	.029	.0104	.147	.0134
80	16000	306	303	3.1	1.01	38.7	-21.4	.0926	.0344	.0359	.0193	.158	.00695
81	3000	305	301	4.44	1.01	38.7	-27.2	.0871	.0625	-.000366	-.00381	.15	.0191
82	6000	305	291	4.4	1.01	38.7	-27.1	.0862	.0618	.00933	.00111	.139	.00636
83	9500	306	292	4.42	1.01	38.7	-25.4	.0905	.0578	.0142	.00594	.135	.00569
84	13000	305	293	4.46	1.01	38.7	-23.8	.0923	.0549	.0297	.0101	.132	.0116
85	16000	306	301	4.46	1.01	38.7	-21.5	.0917	.0496	.0342	.0152	.15	.0106
86	3000	305	301	5.76	1.01	38.7	-27.5	.089	.082	.000839	-.00468	.14	.0169
87	6000	305	292	5.75	1.01	38.7	-26.9	.0876	.0802	.00585	-.000537	.142	.021
88	9500	306	291	5.86	1.01	38.7	-25.4	.0907	.0769	.0125	.00755	.129	.00582
89	13000	305	292	5.83	1.01	38.7	-23.7	.0915	.0716	.0225	.00835	.134	.0136
90	16000	306	296	5.78	1.01	38.7	-21.7	.0906	.0647	.0272	.014	.147	.0133
91	3000	305	302	7.16	1.01	38.7	-27.8	.0889	.103	-.00344	-.00127	.145	.013
92	6000	306	297	7.17	1.01	38.7	-27.1	.0889	.1	.00249	.00122	.141	.0228
93	9500	306	292	7.16	1.01	38.7	-25.6	.0913	.0945	.00872	.00883	.133	.00869
94	13000	306	292	7.18	1.01	38.7	-23.9	.0909	.0885	.021	.00835	.139	.0116
95	16000	307	296	7.13	1.01	38.7	-21.7	.0913	.0797	.0247	.0136	.153	.0118
96	3000	306	302	8.14	1.01	38.7	-27.6	.088	.116	-.00459	-.000608	.144	.0199
97	6000	305	298	8.17	1.01	38.7	-27.2	.0877	.115	.00232	.000372	.141	.0207
98	9500	306	294	8.21	1.01	38.7	-25.5	.0908	.108	.011	.00801	.13	.00666
99	13000	306	291	8.26	1.01	38.7	-23.9	.0911	.102	.019	.00882	.139	.0126
100	16000	306	294	8.18	1.01	38.7	-21.8	.0907	.0922	.0263	.0133	.147	.00566

Case	Pi, i=1 to 15 ---------->														
76	2.79	2.69	2.6	2.49	2.39	2.28	2.2	2.06	1.96	1.79	1.69	1.54	1.42	1.27	1.15
77	2.8	2.7	2.6	2.49	2.39	2.29	2.21	2.07	1.97	1.81	1.71	1.55	1.43	1.28	1.16
78	2.83	2.72	2.61	2.51	2.4	2.29	2.21	2.07	1.95	1.81	1.71	1.55	1.43	1.28	1.16
79	2.79	2.68	2.57	2.46	2.36	2.25	2.17	2.03	1.93	1.79	1.68	1.52	1.41	1.27	1.15
80	2.87	2.75	2.63	2.51	2.4	2.29	2.21	2.05	1.94	1.79	1.7	1.53	1.42	1.27	1.16
81	4.07	3.92	3.76	3.59	3.42	3.25	3.13	2.89	2.72	2.47	2.3	2.05	1.85	1.61	1.37
82	4.05	3.89	3.73	3.57	3.4	3.23	3.11	2.88	2.71	2.47	2.31	2.04	1.86	1.61	1.37
83	4.07	3.89	3.73	3.58	3.37	3.23	3.08	2.85	2.66	2.45	2.27	2.03	1.83	1.59	1.36
84	4.11	3.93	3.75	3.59	3.39	3.24	3.1	2.87	2.68	2.46	2.28	2.03	1.84	1.6	1.36
85	4.12	3.94	3.75	3.58	3.38	3.22	3.07	2.84	2.65	2.44	2.25	2.01	1.82	1.59	1.35
86	5.29	5.09	4.88	4.65	4.44	4.21	4.05	3.73	3.5	3.16	2.94	2.6	2.34	2	1.66
87	5.29	5.07	4.85	4.64	4.39	4.19	4	3.7	3.44	3.15	2.91	2.58	2.32	1.98	1.65
88	5.4	5.17	4.92	4.72	4.45	4.26	4.04	3.76	3.47	3.21	2.94	2.62	2.34	2.02	1.66
89	5.37	5.14	4.89	4.67	4.41	4.2	4.01	3.7	3.44	3.17	2.91	2.59	2.32	1.99	1.65
90	5.33	5.08	4.82	4.61	4.34	4.13	3.94	3.63	3.36	3.09	2.83	2.52	2.26	1.95	1.61
91	6.58	6.32	6.04	5.77	5.48	5.21	5	4.61	4.29	3.91	3.6	3.19	2.87	2.44	2.01
92	6.59	6.32	6.04	5.77	5.48	5.22	5	4.61	4.29	3.92	3.61	3.2	2.87	2.44	2.01
93	6.61	6.32	6.01	5.77	5.42	5.19	4.92	4.57	4.22	3.89	3.54	3.18	2.81	2.42	1.97
94	6.62	6.32	6.01	5.75	5.41	5.17	4.92	4.54	4.21	3.87	3.53	3.16	2.8	2.4	1.97
95	6.58	6.26	5.95	5.68	5.32	5.09	4.81	4.47	4.1	3.78	3.44	3.09	2.73	2.36	1.91
96	7.48	7.19	6.88	6.55	6.25	5.92	5.7	5.24	4.89	4.43	4.1	3.61	3.25	2.76	2.27
97	7.52	7.21	6.9	6.59	6.26	5.97	5.7	5.26	4.89	4.47	4.11	3.65	3.26	2.77	2.28
98	7.58	7.25	6.92	6.63	6.25	5.96	5.68	5.26	4.85	4.48	4.07	3.65	3.24	2.77	2.26
99	7.63	7.27	6.91	6.62	6.23	5.95	5.65	5.23	4.84	4.45	4.06	3.63	3.22	2.76	2.24
100	7.55	7.19	6.84	6.54	6.11	5.87	5.56	5.13	4.73	4.35	3.96	3.54	3.13	2.7	2.19

Table A7b. Static and dynamic test data for seal 2 of Table 3 for low inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
101	3000	301	297	3.07	1.01	56.8	-26.9	.0907	.0433	-.00651	-.00474	.157	.00986
102	6000	302	289	3.04	1.01	56.8	-26.7	.0868	.0423	.00248	.00112	.161	.000381
103	9500	303	292	3.06	1.01	56.8	-25.2	.0866	.0403	.0142	.00759	.151	-.000545
104	13000	303	298	3.08	1.01	56.8	-23.3	.093	.0375	.0315	.0151	.151	.00769
105	16000	303	303	3.09	1.01	56.8	-21.2	.0907	.0342	.0318	.0249	.167	.00229
106	3000	302	298	4.41	1.01	56.8	-27.2	.0875	.0628	-.00108	-8.28E-5	.16	.0178
107	6000	302	289	4.42	1.01	56.8	-26.7	.0871	.0615	.0114	.00417	.144	.00588
108	9500	303	290	4.41	1.01	56.8	-25.7	.0841	.059	.0124	.00998	.139	-.00216
109	13000	303	292	4.44	1.01	56.8	-23.6	.0916	.0546	.029	.0117	.146	.00659
110	16000	304	300	4.39	1.01	56.8	-21.6	.0889	.0493	.0308	.0217	.154	.00178
111	3000	302	298	5.76	1.01	56.8	-27	.0888	.0812	.0067	-.00134	.148	.018
112	6000	302	289	5.83	1.01	56.8	-26.6	.0881	.0812	.00955	.00335	.146	.0104
113	9500	303	289	5.82	1.01	56.8	-25.2	.0835	.0765	.0144	.0101	.141	-.0036
114	13000	303	293	5.81	1.01	56.8	-23.8	.091	.0721	.0254	.0115	.143	.00651
115	16000	304	296	5.81	1.01	56.8	-21.4	.0892	.0648	.0254	.0195	.152	-.000583
116	3000	302	297	7.11	1.01	56.8	-27.2	.088	.101	-.00435	.00266	.152	.0197
117	6000	302	291	7.15	1.01	56.8	-26.9	.0942	.1	.00522	.00442	.143	.0124
118	9500	303	290	7.2	1.01	56.8	-25.1	.088	.0944	.0118	.0117	.142	-.0053
119	13000	303	291	7.18	1.01	56.8	-23.6	.0894	.0885	.0229	.0109	.14	.00696
120	16000	304	295	7.19	1.01	56.8	-21.7	.0873	.0811	.0243	.0167	.153	5.9E-5
121	3000	302	297	8.16	1	56.8	-27.4	.0885	.117	-.000716	.00647	.152	.0122
122	6000	303	294	8.16	1.01	56.8	-26.8	.0928	.114	.00558	.00592	.146	.0149
123	9500	303	292	8.15	1.01	56.8	-25.1	.0891	.107	.0118	.0115	.137	-.00202
124	13000	303	291	8.15	1.01	56.8	-23.7	.0892	.101	.0196	.012	.146	.0068
125	16000	304	294	8.17	1.01	56.8	-21.9	.091	.093	.0272	.0159	.145	.000803

Case	Pi, i=1 to 15 ---------->														
101	2.82	2.72	2.62	2.52	2.4	2.31	2.22	2.08	1.96	1.81	1.7	1.55	1.42	1.28	1.16
102	2.8	2.69	2.6	2.49	2.38	2.29	2.19	2.07	1.95	1.81	1.49	1.55	1.42	1.28	1.16
103	2.83	2.72	2.61	2.51	2.38	2.29	2.2	2.07	1.95	1.81	1.69	1.55	1.42	1.28	1.15
104	2.85	2.73	2.62	2.51	2.38	2.29	2.19	2.07	1.95	1.81	1.69	1.55	1.42	1.28	1.15
105	2.86	2.73	2.62	2.5	2.38	2.27	2.18	2.05	1.93	1.78	1.67	1.52	1.4	1.27	1.15
106	4.05	3.89	3.73	3.57	3.38	3.23	3.07	2.87	2.67	2.43	2.26	2.03	1.82	1.59	1.36
107	4.07	3.9	3.75	3.58	3.4	3.26	3.11	2.9	2.71	2.47	2.29	2.06	1.85	1.61	1.37
108	4.06	3.88	3.72	3.56	3.35	3.21	3.05	2.84	2.65	2.42	2.24	2.01	1.81	1.58	1.35
109	4.08	3.91	3.73	3.56	3.36	3.22	3.06	2.86	2.66	2.43	2.25	2.02	1.81	1.59	1.35
110	4.04	3.85	3.68	3.5	3.3	3.14	2.99	2.78	2.59	2.35	2.18	1.95	1.76	1.55	1.32
111	5.29	5.09	4.88	4.66	4.41	4.21	4.01	3.74	3.47	3.14	2.9	2.59	2.31	1.99	1.65
112	5.36	5.14	4.93	4.71	4.46	4.26	4.05	3.77	3.5	3.18	2.93	2.62	2.33	2.01	1.66
113	5.37	5.13	4.91	4.68	4.42	4.23	4.01	3.73	3.46	3.16	2.91	2.59	2.32	2	1.65
114	5.35	5.11	4.88	4.65	4.38	4.18	3.97	3.7	3.44	3.13	2.87	2.57	2.29	1.97	1.62
115	5.35	5.09	4.85	4.6	4.33	4.12	3.91	3.62	3.35	3.04	2.8	2.5	2.23	1.93	1.59
116	6.54	6.27	6.02	5.74	5.44	5.2	4.95	4.61	4.27	3.86	3.55	3.18	2.82	2.42	1.98
117	6.58	6.3	6.04	5.76	5.46	5.22	4.95	4.61	4.28	3.88	3.57	3.18	2.83	2.43	1.99
118	6.66	6.35	6.07	5.79	5.45	5.21	4.94	4.58	4.26	3.87	3.56	3.17	2.83	2.42	1.97
119	6.62	6.31	6.02	5.73	5.4	5.15	4.88	4.54	4.22	3.82	3.52	3.13	2.79	2.39	1.95
120	6.64	6.29	6.01	5.71	5.38	5.11	4.84	4.5	4.16	3.78	3.47	3.08	2.75	2.36	1.91
121	7.51	7.18	6.88	6.57	6.24	5.95	5.66	5.27	4.89	4.42	4.07	3.63	3.22	2.76	2.25
122	7.51	7.19	6.9	6.58	6.24	5.96	5.66	5.27	4.89	4.43	4.07	3.63	3.22	2.57	2.26
123	7.53	7.18	6.88	6.55	6.19	5.9	5.61	5.21	4.83	4.39	4.04	3.59	3.2	2.74	2.22
124	7.51	7.16	6.84	6.51	6.14	5.86	5.56	5.17	4.79	4.34	3.99	3.55	3.16	2.7	2.2
125	7.54	7.16	6.82	6.49	6.12	5.83	5.51	5.12	4.74	4.32	3.97	3.51	3.12	2.68	2.16

Table A7c. Static and dynamic test data for seal 2 of Table 3 for low inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
126	3000	296	292	3.03	1.01	74.6	-26.4	.0914	.0427	.000244	.000327	.176	.0114
127	6000	297	284	3.05	1.01	74.6	-26.1	.0928	.0423	.0103	.00397	.165	.00745
128	9500	297	288	3.1	1.01	74.6	-24.7	.0942	.0407	.0164	.00644	.158	.00184
129	13000	298	297	3.06	1.01	74.6	-22.9	.0932	.0372	.0364	.0142	.158	.0021
130	16000	299	302	3.08	1.01	74.6	-21.1	.0904	.0343	.0423	.0212	.165	-.00303
131	3000	294	290	4.41	1.01	74.6	-26.5	.0889	.0628	.0182	-.000446	.159	.00598
132	6000	297	286	4.43	1.01	74.6	-26.3	.09	.0619	.0181	.00329	.151	.00657
133	9500	297	288	4.5	1.01	74.6	-24.7	.0908	.059	.0188	.00865	.149	-.00107
134	13000	298	290	4.4	1.01	74.6	-23.4	.0947	.0545	.0376	.011	.146	.00194
135	16000	299	298	4.48	1.01	74.6	-21.2	.0873	.0503	.0405	.0193	.147	-.00611
136	3000	296	288	5.78	1	74.6	-26.8	.0871	.0824	.0114	.00153	.157	.0082
137	6000	297	284	5.77	1.01	74.6	-26.3	.0878	.0807	.0171	.00335	.146	.00535
138	9500	298	287	5.84	1.01	74.6	-24.8	.0882	.0767	.0214	.0104	.147	-.00246
139	13000	298	289	5.75	1.01	74.6	-23.5	.0901	.0717	.0333	.0096	.148	.00229
140	16000	300	294	5.77	1.01	74.6	-21.3	.0821	.0648	.0365	.0175	.15	-.00332
141	3000	297	289	7.13	1	74.6	-26.7	.0911	.101	.00843	.00353	.159	.00268
142	6000	297	286	7.1	1	74.6	-26.4	.0861	.0998	.0164	.00722	.146	-.00152
143	9500	298	287	7.14	1.01	74.6	-24.8	.0872	.0941	.0197	.00955	.146	-.0046
144	13000	298	289	7.2	1.01	74.6	-23.2	.0878	.0885	.0316	.0113	.147	-.0018
145	16000	300	294	7.21	1.01	74.6	-21.5	.086	.0819	.0326	.0161	.148	-.00367
146	3000	297	287	8.23	1	74.6	-26.9	.091	.118	.0104	.00567	.153	.0058
147	6000	297	285	8.23	1.01	74.6	-26.4	.0916	.116	.022	.00777	.144	-.0015
148	9500	298	288	8.17	1.01	74.6	-25.3	.0873	.11	.021	.00975	.139	-.00654
149	13000	298	288	8.14	1.01	74.6	-23.4	.0864	.101	.0265	.0117	.149	-.00434
150	16000	300	293	8.27	1.01	74.6	-21.6	.0849	.0942	.0312	.0134	.143	-.00577

Case	Fi, i=1 to 15 ---------->														
126	2.79	2.69	2.58	2.47	2.35	2.26	2.16	2.04	1.72	1.78	1.66	1.52	1.4	1.27	1.15
127	2.81	2.71	2.61	2.51	2.39	2.3	2.2	2.08	1.96	1.81	1.7	1.55	1.42	1.28	1.16
128	2.87	2.76	2.65	2.54	2.41	2.32	2.21	2.08	1.97	1.82	1.71	1.56	1.43	1.28	1.16
129	2.84	2.72	2.61	2.5	2.37	2.28	2.18	2.06	1.94	1.8	1.68	1.54	1.41	1.27	1.15
130	2.85	2.72	2.61	2.49	2.36	2.26	2.16	2.03	1.92	1.77	1.66	1.51	1.39	1.26	1.14
131	4.05	3.9	3.75	3.57	3.38	3.23	3.05	2.86	2.67	2.43	2.25	2.02	1.82	1.59	1.35
132	4.07	3.91	3.76	3.59	3.41	3.26	2.91	2.9	2.69	2.46	2.28	2.05	1.84	1.61	1.36
133	4.16	3.97	3.81	3.64	3.44	3.28	3.11	2.9	2.69	2.47	2.29	2.05	1.85	1.61	1.37
134	4.06	3.89	3.72	3.55	3.35	3.21	3.03	2.84	2.64	2.42	2.25	2.01	1.81	1.58	1.35
135	4.14	3.95	3.78	3.6	3.39	3.23	3.07	2.84	2.65	2.42	2.25	2.01	1.81	1.58	1.34
136	5.31	5.09	4.89	4.66	4.41	4.2	3.97	3.7	3.44	3.12	2.88	2.57	2.29	1.98	1.63
137	5.32	5.09	4.88	4.66	4.4	4.2	3.97	3.72	3.46	3.14	2.89	2.58	2.3	1.98	1.64
138	5.41	5.16	4.94	4.72	4.45	4.25	4	3.74	3.45	3.13	2.9	2.59	2.32	2	1.64
139	5.28	5.05	4.82	4.61	4.34	4.14	3.91	3.66	3.39	3.08	2.85	2.55	2.27	1.95	1.61
140	5.31	5.06	4.82	4.6	4.31	4.1	3.89	3.6	3.33	3.02	2.79	2.49	2.23	1.92	1.58
141	6.56	6.28	6.03	5.74	5.43	5.18	4.9	4.56	4.22	3.83	3.54	3.15	2.8	2.41	1.97
142	6.54	6.27	6.01	5.72	5.41	5.16	4.89	4.56	4.25	3.85	3.55	3.16	2.81	2.41	1.96
143	6.59	6.28	6.02	5.74	5.42	5.18	4.89	4.57	4.21	3.82	3.53	3.14	2.79	2.4	1.96
144	6.63	6.33	6.05	5.76	5.43	5.18	4.9	4.57	4.2	3.81	3.51	3.13	2.79	2.39	1.95
145	6.65	6.32	6.03	5.74	5.41	5.14	4.87	4.5	4.17	3.77	3.48	3.08	2.76	2.37	1.92
146	7.56	7.25	6.96	6.63	6.28	6	5.69	5.3	4.88	4.43	4.09	3.64	3.24	2.77	2.27
147	7.57	7.25	6.95	6.63	6.27	5.99	5.66	5.28	4.88	4.42	4.09	3.65	3.24	2.76	2.25
148	7.54	7.2	6.89	6.57	6.21	5.91	5.6	5.23	4.82	4.36	4.03	3.58	3.2	2.73	2.22
149	7.51	7.15	6.83	6.51	6.12	5.84	5.52	5.14	4.74	4.29	3.96	3.51	3.13	2.69	2.18
150	7.62	7.23	6.89	6.57	6.17	5.87	5.57	5.16	4.74	4.29	3.95	3.5	3.13	2.69	2.17

Table A8a. Static and dynamic test data for seal 2 of Table 3 for low inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	K	k	Cx1000	cx1000
151	3000	295	290	3.08	1.01	38.7	26.8	.0866	.0442	-.000825	.0268	.164	-.00854
152	6000	294	284	3.02	1.01	38.7	25.6	.0834	.0414	.00138	.0285	.157	-.00551
153	9500	294	286	3.03	1.01	38.7	24.3	.0811	.0395	.00774	.0333	.153	-.00581
154	13000	294	298	3.11	1.01	38.7	22.7	.0802	.0378	.0218	.0385	.154	-.00636
155	16000	295	303	3.06	1.01	38.7	20.8	.0817	.0342	.0239	.0393	.16	-.0021
156	3000	296	292	4.38	1.01	38.7	26.5	.0854	.062	.00559	.0268	.145	-.00745
157	6000	294	283	4.42	1.01	38.7	26.1	.0812	.062	.0135	.0264	.141	-.00658
158	9500	294	287	4.37	1.01	38.7	24.7	.0797	.058	.0123	.0306	.149	-.00973
159	13000	295	288	4.45	1.01	38.7	23.1	.0795	.0553	.0257	.033	.136	-.00529
160	16000	295	300	4.36	1.01	38.7	21	.0802	.0491	.0319	.0354	.144	-.000473
161	3000	296	292	5.74	1	38.7	26.6	.0854	.0817	.00627	.0251	.144	-.0117
162	6000	295	282	5.78	1.01	38.7	26	.0795	.0807	.0104	.0264	.143	-.00479
163	9500	295	286	5.7	1.01	38.7	24.8	.0797	.0758	.0109	.0287	.14	-.01
164	13000	294	289	5.74	1.01	38.7	23.4	.0784	.0719	.0184	.0329	.143	-.0116
165	16000	295	292	5.74	1	38.7	21.1	.0799	.0649	.0316	.0313	.132	-.00848
166	3000	296	292	7.1	1	38.7	26.8	.0851	.102	.00586	.0245	.138	-.0047
167	6000	295	284	7.19	1	38.7	26.3	.0821	.102	.0107	.0265	.138	-.0108
168	9500	294	285	7.16	1.01	38.7	25	.0788	.0961	.0122	.029	.142	-.00557
169	13000	294	287	7.15	1.01	38.7	23.2	.0792	.089	.0186	.0321	.142	-.0109
170	16000	295	291	7.21	1.01	38.7	21.3	.0797	.0824	.0295	.0311	.131	-.011
171	3000	295	290	8.21	1	38.7	26.9	.0843	.118	.00587	.0239	.136	-.00563
172	6000	295	287	8.19	1	38.7	26.3	.0824	.115	.00958	.0254	.133	-.00509
173	9500	295	285	8.12	1.01	38.7	25.1	.079	.109	.0121	.0287	.136	-.00556
174	13000	294	286	8.2	1.01	38.7	23.3	.0789	.103	.0167	.031	.139	-.0116
175	16000	295	291	8.15	1.01	38.7	21.5	.0792	.0938	.0295	.0295	.132	-.0138

Case	Pi, i=1 to 15 ---------->														
151	2.82	2.71	2.61	2.51	2.39	2.29	2.21	2.07	1.96	1.81	1.71	1.54	1.43	1.27	1.16
152	2.78	2.67	2.57	2.46	2.36	2.26	2.17	2.04	1.94	1.79	1.69	1.53	1.42	1.27	1.15
153	2.79	2.67	2.57	2.47	2.35	2.25	2.16	2.02	1.91	1.78	1.68	1.52	1.41	1.26	1.15
154	2.87	2.75	2.64	2.53	2.41	2.3	2.21	2.07	1.96	1.81	1.7	1.54	1.43	1.28	1.16
155	2.83	2.7	2.59	2.47	2.35	2.24	2.15	2.01	1.9	1.76	1.66	1.5	1.4	1.25	1.14
156	4.01	3.85	3.68	3.53	3.35	3.19	3.04	2.82	2.63	2.41	2.24	2	1.81	1.57	1.35
157	4.05	3.88	3.73	3.56	3.39	3.22	3.08	2.86	2.68	2.44	2.29	2.02	1.84	1.6	1.36
158	4.01	3.84	3.67	3.52	3.31	3.17	3	2.79	2.6	2.4	2.21	1.99	1.79	1.56	1.33
159	4.1	3.92	3.75	3.57	3.38	3.21	3.06	2.85	2.65	2.44	2.26	2.02	1.82	1.58	1.35
160	4.02	3.83	3.66	3.49	3.29	3.12	2.96	2.75	2.55	2.36	2.17	1.95	1.76	1.54	1.32
161	5.27	5.05	4.82	4.64	4.37	4.18	3.96	3.67	3.4	3.14	2.87	2.57	2.3	1.97	1.64
162	5.31	5.08	4.86	4.65	4.41	4.19	4	3.7	3.45	3.15	2.92	2.58	2.32	1.98	1.65
163	5.22	5.01	4.76	4.58	4.29	4.1	3.87	3.61	3.33	3.08	2.8	2.52	2.24	1.94	1.6
164	5.27	5.04	4.8	4.59	4.32	4.11	3.89	3.62	3.34	3.08	2.82	2.51	2.25	1.93	1.6
165	5.28	5.03	4.79	4.57	4.29	4.08	3.85	3.58	3.29	3.04	2.77	2.48	2.21	1.91	1.57
166	6.52	6.24	5.96	5.72	5.39	5.15	4.89	4.53	4.2	3.86	3.53	3.15	2.81	2.4	1.98
167	6.6	6.32	6.04	5.79	5.46	5.22	4.96	4.59	4.26	3.9	3.58	3.18	2.84	2.42	1.99
168	6.58	6.3	6	5.77	5.39	5.18	4.87	4.55	4.19	3.86	3.5	3.16	2.78	2.39	1.95
169	6.58	6.28	5.98	5.75	5.36	5.15	4.83	4.52	4.16	3.83	3.47	3.12	2.75	2.37	1.93
170	6.64	6.33	6.02	5.76	5.39	5.16	4.85	4.5	4.14	3.82	3.47	3.11	2.75	2.37	1.93
171	7.53	7.21	6.87	6.61	6.23	5.97	5.65	5.25	4.86	4.47	4.06	3.64	3.23	2.77	2.27
172	7.52	7.19	6.88	6.57	6.23	5.92	5.65	5.21	4.85	4.42	4.08	3.6	3.24	2.74	2.26
173	7.47	7.15	6.81	6.54	6.13	5.88	5.54	5.19	4.76	4.4	3.98	3.59	3.17	2.71	2.21
174	7.54	7.21	6.85	6.58	6.13	5.89	5.52	5.17	4.74	4.36	3.94	3.55	3.11	2.69	2.17
175	7.5	7.15	6.8	6.51	6.11	5.82	5.47	5.11	4.7	4.33	3.92	3.5	3.1	2.67	2.16

Table A8b. Static and dynamic test data for seal 2 of Table 3 for low inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
176	3000	297	295	3.04	1.01	56.8	26.2	.0869	.0423	-.00315	.0331	.176	-.00106
177	6000	296	284	3.02	1.01	56.8	26	.0906	.0418	-.00022	.03	.162	-.0138
178	9500	296	287	3.05	1.01	56.8	24.6	.0908	.04	.00997	.0334	.16	-.0126
179	13000	296	295	3.08	1.01	56.8	23	.0885	.0378	.0246	.0396	.156	-.0154
180	16000	296	302	3.1	1.01	56.8	20.9	.0896	.0345	.0296	.0418	.157	-.00867
181	3000	297	294	4.42	1.01	56.8	26.6	.0854	.0625	.00533	.0244	.147	-.0027
182	6000	296	284	4.42	1.01	56.8	26.3	.0883	.062	.0131	.0293	.146	-.0109
183	9500	297	288	4.37	1.01	56.8	24.6	.087	.0573	.015	.0306	.148	-.0198
184	13000	296	289	4.44	1.01	56.8	23.3	.0882	.0553	.0267	.0353	.139	-.0188
185	16000	297	298	4.41	1.01	56.8	21.1	.0859	.0496	.0327	.0369	.139	-.0117
186	3000	297	293	5.77	1.01	56.8	26.6	.0866	.0817	.00683	.0247	.14	-.0151
187	6000	296	283	5.78	1.01	56.8	26.3	.0896	.081	.013	.0278	.143	-.00732
188	9500	297	286	5.76	1.01	56.8	24.9	.0862	.0763	.0124	.0309	.147	-.0181
189	13000	296	289	5.81	1.01	56.8	23.3	.0948	.0724	.0234	.0331	.14	-.0159
190	16000	297	293	5.84	1.01	56.8	21.1	.0874	.0658	.0295	.0357	.138	-.0164
191	3000	297	292	7.1	1.01	56.8	27	.0819	.102	-.00313	.0292	.148	-.00101
192	6000	296	284	7.11	1.01	56.8	26.5	.089	.101	.0133	.0289	.144	-.0112
193	9500	296	286	7.15	1.01	56.8	25.1	.0854	.0957	.0127	.0291	.143	-.0205
194	13000	296	288	7.15	1.01	56.8	23.2	.0927	.0888	.0216	.0321	.144	-.0207
195	16000	297	292	7.13	1.01	56.8	21.3	.0858	.0811	.034	.0324	.121	-.0203
196	3000	297	291	8.21	1	56.8	27	.0918	.118	.00557	.0243	.136	-.0138
197	6000	296	287	8.21	1.01	56.8	26.5	.0885	.116	.0122	.0262	.137	-.00778
198	9500	296	286	8.17	1.01	56.8	25.3	.0941	.11	.0139	.029	.14	-.0196
199	13000	296	287	8.19	1.01	56.8	23.4	.0946	.102	.0203	.0321	.142	-.0244
200	16000	297	291	8.25	1.01	56.8	21.5	.0844	.0946	.0317	.031	.122	-.0223

Case	Pi, i=1 to 15 ---------->														
176	2.8	2.68	2.59	2.49	2.37	2.28	2.18	2.06	1.94	1.79	1.68	1.54	1.41	1.28	1.15
177	2.78	2.67	2.57	2.48	2.35	2.27	2.17	2.06	1.94	1.79	1.68	1.54	1.41	1.28	1.15
178	2.82	2.7	2.6	2.5	2.37	2.28	2.17	2.06	1.94	1.8	1.68	1.55	1.41	1.28	1.15
179	2.84	2.72	2.61	2.5	2.37	2.28	2.17	2.06	1.94	1.8	1.68	1.54	1.41	1.27	1.15
180	2.87	2.74	2.63	2.51	2.38	2.27	2.17	2.05	1.93	1.78	1.67	1.52	1.4	1.27	1.15
181	4.05	3.87	3.72	3.57	3.37	3.23	3.05	2.87	2.66	2.43	2.25	2.03	1.82	1.59	1.36
182	4.06	3.88	3.73	3.57	3.38	3.23	3.07	2.88	2.69	2.45	2.28	2.04	1.83	1.6	1.36
183	4.02	3.84	3.69	3.52	3.33	3.18	3.01	2.83	2.62	2.41	2.23	2	1.8	1.57	1.34
184	4.09	3.9	3.74	3.56	3.36	3.21	3.04	2.85	2.65	2.43	2.24	2.02	1.81	1.58	1.35
185	4.07	3.87	3.71	3.52	3.32	3.16	2.99	2.79	2.59	2.37	2.19	1.97	1.77	1.56	1.33
186	5.29	5.06	4.86	4.65	4.39	4.21	3.98	3.73	3.45	3.14	2.89	2.59	2.31	2	1.65
187	5.3	5.07	4.87	4.65	4.4	4.21	3.98	3.73	3.47	3.15	2.9	2.59	2.31	1.99	1.64
188	5.3	5.05	4.85	4.63	4.36	4.17	3.92	3.68	3.41	3.11	2.86	2.55	2.28	1.97	1.62
189	5.35	5.1	4.89	4.65	4.38	4.18	3.94	3.69	3.42	3.12	2.87	2.55	2.28	1.96	1.62
190	5.38	5.12	4.91	4.64	4.37	4.15	3.91	3.65	3.38	3.07	2.83	2.52	2.26	1.95	1.6
191	6.51	6.2	5.96	5.69	5.37	5.15	4.85	4.54	4.2	3.82	3.51	3.13	2.78	2.38	1.95
192	6.52	6.22	5.97	5.71	5.39	5.15	4.87	4.56	4.22	3.83	3.53	3.15	2.79	2.39	1.96
193	6.58	6.28	6.02	5.75	5.42	5.18	4.88	4.57	4.24	3.86	3.54	3.15	2.81	2.4	1.96
194	6.59	6.27	6.02	5.73	5.39	5.14	4.85	4.55	4.2	3.82	3.5	3.12	2.77	2.38	1.94
195	6.57	6.24	5.98	5.67	5.34	5.08	4.78	4.46	4.13	3.74	3.45	3.06	2.72	2.34	1.9
196	7.54	7.2	6.92	6.61	6.24	5.99	5.67	5.3	4.91	4.46	4.11	3.65	3.26	2.79	2.28
197	7.55	7.2	6.92	6.62	6.25	5.98	5.65	5.29	4.9	4.44	4.09	3.65	3.23	2.77	2.26
198	7.51	7.17	6.87	6.56	6.18	5.9	5.58	5.22	4.83	4.39	4.03	3.6	3.19	2.73	2.22
199	7.54	7.17	6.87	6.54	6.16	5.87	5.54	5.18	4.78	4.34	3.98	3.55	3.16	2.7	2.19
200	7.61	7.22	6.92	6.56	6.16	5.87	5.54	5.16	4.78	4.34	3.97	3.54	3.15	2.69	2.18

Table A8c. Static and dynamic test data for seal 2 of Table 3 for low inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
201	3000	298	292	3	1.01	74.6	26.6	.0923	.0423	.00641	.025	.164	-.00682
202	6000	297	284	3.1	1.01	74.6	26.1	.0979	.0429	.00922	.0285	.164	-.00465
203	9500	297	287	3.07	1.01	74.6	24.6	.0957	.0402	.0176	.032	.161	-.01
204	13000	297	300	3.11	1.01	74.6	23	.094	.038	.0317	.0381	.153	-.0156
205	16000	298	303	3.05	1.01	74.6	21	.0951	.0339	.0468	.042	.151	-.0189
206	3000	298	291	4.37	1.01	74.6	26.8	.0855	.062	.0219	.0277	.148	-.0108
207	6000	297	285	4.43	1.01	74.6	26.3	.0917	.062	.0217	.0261	.14	-.0179
208	9500	297	288	4.44	1.01	74.6	24.9	.0921	.0588	.0186	.0289	.15	-.0146
209	13000	297	289	4.46	1.01	74.6	23.5	.092	.0557	.0367	.0332	.139	-.0187
210	16000	298	299	4.42	1.01	74.6	21.2	.0868	.0498	.0466	.035	.132	-.0148
211	3000	298	289	5.74	1.01	74.6	26.8	.0837	.0814	.0162	.0249	.149	-.0152
212	6000	297	284	5.82	1.01	74.6	26.1	.0885	.0808	.00998	.0244	.145	-.0103
213	9500	298	287	5.83	1.01	74.6	24.8	.0897	.0767	.0213	.0278	.141	-.02
214	13000	297	290	5.76	1.01	74.6	23.4	.0898	.0718	.0302	.0294	.141	-.0217
215	16000	298	295	5.83	1.01	74.6	21.4	.0853	.0663	.0386	.0323	.128	-.0142
216	3000	298	289	7.16	1.01	74.6	26.9	.0796	.102	.0165	.0225	.144	-.0152
217	6000	297	285	7.17	1.01	74.6	26.4	.0847	.101	.0235	.0246	.133	-.0248
218	9500	297	286	7.15	1.01	74.6	25.1	.0845	.0954	.0254	.0254	.142	-.0195
219	13000	297	288	7.14	1.01	74.6	23.5	.0868	.0891	.0329	.0297	.137	-.0263
220	16000	299	293	7.13	1.01	74.6	21.4	.0827	.0808	.0421	.0293	.115	-.0261
221	3000	298	289	8.13	1.01	74.6	27	.0788	.116	.0192	.0234	.141	-.0163
222	6000	297	288	8.11	1	74.6	26.4	.0801	.114	.0191	.0247	.142	-.0226
223	9500	297	287	8.18	1.01	74.6	25.1	.0834	.109	.0243	.0256	.138	-.0224
224	13000	297	287	8.2	1.01	74.6	23.4	.0851	.102	.0339	.0269	.134	-.0254
225	16000	299	292	8.15	1.01	74.6	21.6	.0809	.0931	.043	.027	.11	-.0237

Case	Pi, i=1 to 15 ---------->														
201	2.76	2.65	2.56	2.46	2.34	2.26	2.15	2.04	1.92	1.79	1.68	1.53	1.41	1.27	1.15
202	2.85	2.74	2.64	2.53	2.41	2.32	2.21	2.1	1.98	1.84	1.72	1.57	1.44	1.29	1.16
203	2.83	2.71	2.62	2.52	2.38	2.3	2.18	2.07	1.94	1.8	1.69	1.55	1.42	1.28	1.16
204	2.87	2.75	2.65	2.54	2.4	2.31	2.2	2.08	1.95	1.81	1.7	1.55	1.42	1.28	1.16
205	2.82	2.69	2.59	2.48	2.35	2.25	2.14	2.02	1.9	1.77	1.66	1.51	1.39	1.26	1.15
206	4	3.83	3.69	3.54	3.34	3.03	3.04	2.85	2.64	2.41	2.24	2.02	1.82	1.58	1.35
207	4.07	3.89	3.75	3.59	3.4	3.25	3.09	2.89	2.69	2.46	2.29	2.06	1.85	1.61	1.37
208	4.08	3.9	3.75	3.59	3.39	3.24	3.06	2.86	2.66	2.44	2.26	2.03	1.83	1.59	1.36
209	4.11	3.92	3.76	3.59	3.4	3.24	3.07	2.88	2.67	2.44	2.26	2.03	1.83	1.6	1.36
210	4.09	3.89	3.73	3.55	3.36	3.2	3.02	2.83	2.62	2.39	2.21	1.99	1.79	1.57	1.34
211	5.26	5.03	4.84	4.63	4.37	4.19	3.97	3.71	3.42	3.11	2.87	2.57	2.29	1.98	1.64
212	5.35	5.11	4.91	4.71	4.44	4.25	4.02	3.76	3.48	3.16	2.92	2.61	2.33	2.01	1.66
213	5.36	5.11	4.92	4.7	4.43	4.24	3.99	3.74	3.45	3.14	2.91	2.59	2.31	2	1.65
214	5.3	5.04	4.84	4.62	4.35	4.15	3.92	3.67	3.39	3.08	2.83	2.53	2.26	1.95	1.61
215	5.38	5.11	4.89	4.65	4.38	4.17	3.93	3.66	3.39	3.07	2.83	2.52	2.25	1.95	1.61
216	6.57	6.28	6.04	5.79	5.46	5.23	4.96	4.64	4.27	3.88	3.57	3.01	2.84	2.44	2
217	6.59	6.29	6.04	5.78	5.46	5.22	4.94	4.61	4.26	3.87	3.56	3.18	2.83	2.43	1.99
218	6.58	6.28	6.03	5.77	5.43	5.2	4.91	4.6	4.23	3.84	3.54	3.15	2.81	2.41	1.96
219	6.57	6.26	6	5.72	5.39	5.14	4.86	4.54	4.19	3.81	3.49	3.11	2.77	2.38	1.94
220	6.57	6.23	5.96	5.69	5.35	5.09	4.8	4.5	4.13	3.76	3.45	3.06	2.73	2.35	1.9
221	7.47	7.13	6.84	6.57	6.21	5.94	5.63	5.26	4.85	4.4	4.05	3.61	3.2	2.75	2.25
222	7.45	7.11	6.83	6.54	6.17	5.9	5.59	5.21	4.82	4.36	4.02	3.58	3.19	2.73	2.23
223	7.52	7.18	6.89	6.59	6.21	5.93	5.61	5.24	4.84	4.38	4.03	3.59	3.19	2.73	2.23
224	7.56	7.19	6.9	6.59	6.2	5.91	5.59	5.23	4.82	4.37	4	3.56	3.16	2.71	2.2
225	7.51	7.13	6.82	6.5	6.11	5.82	5.49	5.15	4.74	4.28	3.94	3.49	3.1	2.66	2.16

Table A9a. Static and dynamic test data for seal 2 of Table 3 for high inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
226	3000	300	296	3.07	1.01	38.7	-59	.0916	.0419	.0018	-.0167	.163	.016
227	6000	300	286	3.08	1.01	38.7	-59.1	.0887	.0422	-.00141	-.0122	.149	.0169
228	9500	300	289	3.01	1.01	38.7	-55.7	.0882	.039	.00774	-.00491	.152	.0181
229	13000	300	299	3.01	1.01	38.7	-50.9	.0887	.0357	.025	.0104	.155	.00886
230	16000	300	302	3.09	1.01	38.7	-47.3	.0886	.0341	.0311	.0178	.165	.012
231	3000	300	296	4.38	1.01	38.7	-59.3	.089	.0601	.00933	-.0129	.148	.0174
232	6000	300	287	4.34	1.01	38.7	-59.4	.087	.0597	.0108	-.0124	.139	.0217
233	9500	300	289	4.41	1.01	38.7	-56.4	.0866	.0577	.0131	-.0049	.138	.0219
234	13000	300	291	4.41	1.01	38.7	-52.5	.0879	.0539	.0244	.00848	.137	.0181
235	16000	300	300	4.46	1.01	38.7	-47.6	.0874	.0495	.0316	.0153	.145	.0152
236	3000	301	297	5.71	1	38.7	-59.9	.0891	.079	.00577	-.0125	.143	.0207
237	6000	301	287	5.75	1.01	38.7	-59.1	.0875	.0786	.00448	-.0106	.139	.0294
238	9500	300	288	5.73	1.01	38.7	-55.9	.0864	.0743	.0101	-.00398	.145	.0192
239	13000	300	291	5.77	1.01	38.7	-52.6	.0869	.0706	.0197	.00766	.144	.0178
240	16000	300	295	5.84	1.01	38.7	-47.6	.0884	.0648	.0235	.0133	.148	.0107
241	3000	300	297	7.1	1.01	38.7	-60.2	.0887	.0988	-.00135	-.0124	.141	.0236
242	6000	300	292	7.16	1.01	38.7	-59.4	.0877	.0985	.00145	-.0097	.137	.0337
243	9500	301	288	7.1	1.01	38.7	-55.8	.087	.0918	.00722	-.00278	.138	.0216
244	13000	300	290	7.12	1.01	38.7	-52	.0876	.0862	.0182	.00633	.142	.0209
245	16000	300	294	7.17	1.01	38.7	-48	.0888	.0802	.0247	.0125	.145	.0103
246	3000	300	296	8.16	1	38.7	-60.7	.0879	.114	.001	-.0112	.145	.0317
247	6000	300	292	8.13	1	38.7	-59.5	.0886	.112	.000968	-.00815	.134	.0329
248	9500	301	289	8.11	1.01	38.7	-56.2	.0879	.106	.00643	-.0022	.14	.0253
249	13000	300	289	8.14	1.01	38.7	-52.4	.088	.0993	.0153	.00592	.138	.0227
250	16000	301	294	8.19	1.01	38.7	-48.2	.0885	.0919	.021	.0119	.144	.0126

Case	Fi, i=1 to 15 ---------->														
226	2.78	2.67	2.56	2.46	2.35	2.25	2.16	2.03	1.93	1.77	1.67	1.52	1.41	1.26	1.15
227	2.79	2.68	2.57	2.46	2.36	2.26	2.17	2.05	1.94	1.78	1.68	1.53	1.41	1.27	1.15
228	2.74	2.63	2.52	2.42	2.31	2.21	2.13	2	1.9	1.75	1.66	1.5	1.39	1.26	1.14
229	2.74	2.63	2.53	2.42	2.31	2.21	2.12	2	1.9	1.75	1.66	1.5	1.4	1.26	1.14
230	2.81	2.7	2.58	2.47	2.35	2.24	2.16	2.01	1.91	1.76	1.66	1.5	1.4	1.26	1.15
231	3.95	3.79	3.63	3.47	3.3	3.13	3	2.78	2.61	2.36	2.21	1.97	1.78	1.56	1.33
232	3.92	3.76	3.6	3.44	3.28	3.11	2.99	2.79	2.62	2.37	2.22	1.97	1.78	1.56	1.33
233	3.99	3.83	3.66	3.49	3.32	3.15	3.02	2.8	2.62	2.39	2.23	1.98	1.8	1.56	1.34
234	3.99	3.83	3.66	3.49	3.31	3.14	3	2.79	2.62	2.39	2.23	1.98	1.79	1.57	1.34
235	4.06	3.88	3.68	3.52	3.33	3.17	3.01	2.79	2.6	2.39	2.21	1.97	1.79	1.56	1.33
236	5.17	4.94	4.72	4.51	4.28	4.07	3.89	3.6	3.36	3.05	2.82	2.5	2.25	1.93	1.61
237	5.2	4.98	4.76	4.54	4.31	4.09	3.92	3.63	3.39	3.07	2.86	2.52	2.27	1.95	1.61
238	5.2	4.97	4.75	4.54	4.29	4.08	3.89	3.6	3.35	3.06	2.84	2.51	2.26	1.94	1.61
239	5.25	5.01	4.77	4.57	4.28	4.09	3.87	3.59	3.33	3.07	2.81	2.51	2.24	1.93	1.6
240	5.31	5.07	4.81	4.59	4.31	4.09	3.89	3.59	3.33	3.06	2.81	2.5	2.25	1.93	1.6
241	6.41	6.13	5.86	5.59	5.31	5.03	4.82	4.45	4.15	3.76	3.48	3.06	2.76	2.35	1.93
242	6.47	6.19	5.92	5.65	5.36	5.09	4.87	4.5	4.19	3.81	3.53	3.1	2.79	2.37	1.95
243	6.44	6.16	5.87	5.61	5.3	5.04	4.79	4.44	4.12	3.77	3.47	3.07	2.75	2.35	1.93
244	6.46	6.21	5.88	5.64	5.29	5.06	4.77	4.44	4.1	3.77	3.44	3.08	2.73	2.34	1.92
245	6.53	6.23	5.9	5.64	5.3	5.04	4.78	4.42	4.08	3.76	3.44	3.05	2.73	2.33	1.9
246	7.37	7.05	6.74	6.43	6.1	5.79	5.55	5.13	4.78	4.33	4	3.52	3.17	2.69	2.21
247	7.34	7.02	6.72	6.39	6.09	5.75	5.52	5.1	4.77	4.28	3.99	3.5	3.15	2.68	2.18
248	7.34	7.03	6.7	6.39	6.05	5.73	5.47	5.05	4.7	4.29	3.94	3.49	3.12	2.66	2.18
249	7.4	7.04	6.73	6.44	6.03	5.77	5.45	5.07	4.67	4.31	3.92	3.51	3.1	2.66	2.17
250	7.44	7.1	6.73	6.43	6.03	5.73	5.43	5.02	4.64	4.29	3.9	3.47	3.09	2.64	2.14

Table A9b. Static and dynamic test data for seal 2 of Table 3 for high inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	B	K	k	Cx1000	cx1000
251	3000	296	293	2.98	1.01	56.8	-58.9	.0899	.0411	.00186	-.0139	.174	.0218
252	6000	296	284	3.03	1.01	56.8	-58.3	.0899	.0416	.00521	-.0105	.165	.0194
253	9500	296	287	3.05	1.01	56.8	-55	.0922	.0395	.0174	-.00408	.163	.013
254	13000	296	296	3.01	1.01	56.8	-51.2	.0963	.0363	.0294	.00944	.161	5.38E-5
255	16000	297	302	3.05	1.01	56.8	-46.8	.0946	.0338	.0312	.0189	.159	-.00152
256	3000	296	293	4.4	1.01	56.8	-58.3	.0859	.0601	.0136	-.00703	.161	.0152
257	6000	296	284	4.43	1.01	56.8	-59.3	.0889	.0618	.0132	-.00865	.149	.0223
258	9500	296	287	4.42	1.01	56.8	-55.3	.0901	.0575	.0151	-.00128	.149	.0159
259	13000	297	290	4.42	1	56.8	-52.3	.0947	.0544	.0325	.00836	.145	.00665
260	16000	297	299	4.44	1.01	56.8	-47.2	.0905	.0493	.0372	.016	.143	-.00215
261	3000	297	293	5.72	1	56.8	-59.6	.0864	.0798	.0126	-.0106	.139	.0163
262	6000	296	284	5.72	1	56.8	-58.7	.0905	.0789	.00992	-.0064	.148	.0193
263	9500	297	286	5.79	1.01	56.8	-55.3	.0897	.0753	.0141	-.000227	.149	.0164
264	13000	297	290	5.81	1.01	56.8	-52	.0942	.0711	.0256	.00874	.146	.00653
265	16000	297	294	5.74	1	56.8	-47.8	.0901	.0646	.0348	.012	.137	-.0022
266	3000	296	291	7.06	1	56.8	-59.9	.0943	.0992	.00591	-.00858	.145	.0261
267	6000	296	285	7.1	1	56.8	-58.7	.0973	.0979	.0097	-.00354	.143	.022
268	9500	296	286	7.09	1	56.8	-55.5	.0892	.0925	.0116	-.000217	.148	.0182
269	13000	296	288	7.05	1	56.8	-52.3	.093	.0868	.0239	.00786	.147	.00651
270	16000	297	293	7.14	1.01	56.8	-48.2	.0885	.081	.0312	.0125	.142	8.19E-5
271	3000	297	290	8.17	1	56.8	-59.7	.0936	.114	.00552	-.00616	.15	.0257
272	6000	296	288	8.13	1	56.8	-58.8	.0966	.112	.00723	-.00262	.143	.0224
273	9500	297	286	8.11	1	56.8	-56	.0896	.107	.0115	.00189	.149	.0176
274	13000	297	288	8.12	1.01	56.8	-52.1	.0933	.0995	.0236	.00796	.146	.0118
275	16000	298	292	8.18	1.01	56.8	-48.1	.0885	.0924	.0263	.0138	.136	-.00304

Case	Pi, i=1 to 15 ---------->														
251	2.7	2.59	2.49	2.39	2.28	2.2	2.1	1.99	1.87	1.74	1.63	1.5	1.38	1.25	1.13
252	2.74	2.63	2.53	2.43	2.32	2.23	2.13	2.02	1.91	1.77	1.66	1.52	1.39	1.26	1.14
253	2.78	2.66	2.56	2.46	2.35	2.26	2.15	2.04	1.92	1.78	1.67	1.53	1.4	1.27	1.15
254	2.74	2.63	2.53	2.43	2.31	2.22	2.12	2.01	1.9	1.76	1.65	1.51	1.39	1.26	1.14
255	2.79	2.67	2.56	2.45	2.33	2.24	2.13	2.01	1.89	1.75	1.64	1.5	1.39	1.25	1.14
256	3.99	3.81	3.66	3.5	3.32	3.17	3.01	2.82	2.63	2.4	2.21	1.99	1.79	1.57	1.34
257	4	3.83	3.67	3.51	3.33	3.18	3.02	2.84	2.65	2.42	2.24	2.02	1.81	1.58	1.35
258	4.01	3.84	3.68	3.51	3.33	3.18	3.01	2.82	2.62	2.4	2.23	2	1.8	1.57	1.34
259	4.01	3.85	3.67	3.5	3.3	3.16	2.99	2.81	2.61	2.4	2.22	2	1.8	1.58	1.34
260	4.04	3.87	3.69	3.53	3.32	3.17	3	2.82	2.61	2.39	2.21	1.98	1.79	1.57	1.34
261	5.18	4.95	4.74	4.53	4.28	4.1	3.87	3.62	3.36	3.05	2.81	2.51	2.24	1.94	1.6
262	5.17	4.95	4.73	4.51	4.27	4.09	3.88	3.63	3.36	3.06	2.82	2.52	2.25	1.94	1.61
263	5.26	5.02	4.8	4.58	4.32	4.13	3.89	3.64	3.38	3.07	2.83	2.53	2.26	1.95	1.61
264	5.26	5.04	4.8	4.58	4.31	4.12	3.88	3.63	3.37	3.06	2.82	2.52	2.25	1.94	1.6
265	5.21	4.97	4.74	4.51	4.25	4.06	3.84	3.58	3.31	3.02	2.78	2.48	2.22	1.91	1.58
266	6.39	6.11	5.85	5.59	5.28	5.05	4.78	4.47	4.13	3.75	3.44	3.08	2.74	2.35	1.92
267	6.43	6.15	5.89	5.62	5.32	5.09	4.81	4.5	4.17	3.78	3.48	3.1	2.76	2.37	1.94
268	6.45	6.15	5.89	5.62	5.3	5.06	4.78	4.47	4.13	3.77	3.46	3.08	2.75	2.35	1.93
269	6.41	6.14	5.86	5.57	5.25	5.01	4.73	4.41	4.08	3.71	3.42	3.04	2.71	2.33	1.89
270	6.49	6.18	5.91	5.61	5.29	5.04	4.74	4.42	4.09	3.69	3.39	3.01	2.69	2.31	1.87
271	7.4	7.05	6.76	6.45	6.11	5.83	5.53	5.17	4.78	4.33	3.97	3.55	3.15	2.7	2.2
272	7.36	7.02	6.71	6.4	6.05	5.79	5.49	5.13	4.75	4.3	3.95	3.53	3.13	2.68	2.18
273	7.35	7.02	6.71	6.4	6.03	5.77	5.43	5.08	4.71	4.27	3.93	3.49	3.12	2.66	2.16
274	7.38	7.03	6.71	6.4	6.03	5.74	5.42	5.05	4.68	4.24	3.9	3.46	3.08	2.64	2.14
275	7.42	7.07	6.72	6.41	6.03	5.74	5.42	5.06	4.68	4.25	3.9	3.45	3.08	2.64	2.13

Table A9c. Static and dynamic test data for seal 2 of Table 3 for high inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
276	3000	295	290	3.02	1.01	74.6	-58.2	.0926	.0414	.0176	-.0117	.172	.0177
277	6000	295	285	3.08	1.01	74.6	-57.6	.0925	.0418	-.000676	-.00952	.177	.0179
278	9500	295	288	3.04	1.01	74.6	-54.6	.0928	.0393	.0204	-.00481	.166	.0113
279	13000	296	298	3.08	1.01	74.6	-51	.0982	.0371	.0343	.00825	.163	.00173
280	16000	296	302	3.04	1.01	74.6	-46.3	.0903	.0333	.0381	.0182	.17	-.00334
281	3000	295	289	4.37	1	74.6	-58.3	.097	.0599	.0234	-.00978	.15	.0188
282	6000	295	285	4.42	1.01	74.6	-57.9	.0943	.0603	.0308	-.00557	.145	.0208
283	9500	295	288	4.36	1.01	74.6	-55.4	.0901	.057	.0234	-.00146	.159	.0129
284	13000	295	289	4.45	1	74.6	-51.9	.0937	.0546	.0387	.00645	.146	.00261
285	16000	296	298	4.4	1.01	74.6	-47.1	.0875	.0491	.0449	.0148	.146	-.00719
286	3000	295	286	5.77	1	74.6	-58.9	.0961	.08	.0229	-.00683	.147	.0182
287	6000	295	283	5.72	1.01	74.6	-57.9	.0908	.0781	.0325	-.00628	.136	.0169
288	9500	296	287	5.82	1.01	74.6	-55.4	.0872	.0759	.0231	-.000311	.152	.0136
289	13000	296	290	5.79	1.01	74.6	-52	.0982	.0712	.0314	.00742	.147	.000847
290	16000	297	293	5.82	1.01	74.6	-47.5	.0918	.0653	.0378	.00979	.142	-.00341
291	3000	295	286	7.04	1	74.6	-59.7	.0941	.0989	.0173	-.0076	.147	.0158
292	6000	295	284	7.15	1	74.6	-58.1	.088	.098	.0188	-.00421	.146	.0128
293	9500	296	286	7.09	1.01	74.6	-55.6	.0892	.0928	.0204	-.000321	.151	.0146
294	13000	295	288	7.19	1.01	74.6	-51.8	.0944	.0881	.0321	.0062	.145	.000391
295	16000	297	293	7.11	1	74.6	-47.4	.0903	.0795	.0359	.0115	.142	-.00647
296	3000	295	286	8.14	1	74.6	-59.6	.0902	.114	.018	-.00667	.147	.0131
297	6000	295	284	8.08	1	74.6	-58.4	.0889	.111	.0171	-.00158	.15	.0143
298	9500	296	286	8.18	1.01	74.6	-55.8	.0879	.108	.0175	.000624	.151	.00886
299	13000	296	288	8.11	1.01	74.6	-52.2	.0926	.0999	.0324	.00524	.143	-.00258
300	16000	297	292	8.13	1.01	74.6	-48.1	.091	.0922	.0377	.00855	.143	-.0091

Case	Pi, i=1 to 15 ---------->														
276	2.74	2.63	2.53	2.43	2.32	2.23	2.13	2.01	1.9	1.76	1.65	1.51	1.39	1.26	1.14
277	2.79	2.68	2.58	2.48	2.36	2.27	2.17	2.05	1.93	1.79	1.68	1.54	1.41	1.27	1.15
278	2.77	2.66	2.56	2.46	2.34	2.25	2.14	2.03	1.91	1.78	1.67	1.53	1.4	1.27	1.15
279	2.81	2.7	2.59	2.48	2.36	2.26	2.15	2.04	1.92	1.79	1.67	1.53	1.4	1.27	1.15
280	2.79	2.66	2.56	2.44	2.32	2.22	2.11	1.99	1.89	1.75	1.64	1.5	1.38	1.25	1.14
281	3.96	3.79	3.64	3.48	3.3	3.16	3	2.81	2.62	2.39	2.21	1.99	1.79	1.57	1.34
282	4	3.84	3.69	3.52	3.33	3.19	3.02	2.82	2.62	2.39	2.22	2	1.8	1.58	1.34
283	3.94	3.78	3.63	3.47	3.28	3.13	2.96	2.76	2.58	2.36	2.19	1.97	1.77	1.55	1.32
284	4.03	3.87	3.7	3.53	3.33	3.18	3.01	2.82	2.62	2.4	2.23	2	1.8	1.57	1.34
285	4.01	3.82	3.66	3.48	3.28	3.12	2.95	2.76	2.56	2.35	2.18	1.95	1.76	1.54	1.32
286	5.23	5	4.79	4.58	4.34	4.15	3.94	3.67	3.4	3.09	2.86	2.55	2.27	1.96	1.62
287	5.18	4.96	4.76	4.55	4.31	4.12	3.74	3.64	3.37	3.06	2.83	2.53	2.26	1.95	1.61
288	5.27	5.04	4.83	4.61	4.35	4.14	3.92	3.66	3.38	3.08	2.85	2.54	2.27	1.96	1.62
289	5.25	5.04	4.81	4.57	4.31	4.1	3.87	3.61	3.35	3.04	2.82	2.51	2.24	1.94	1.59
290	5.3	5.06	4.82	4.58	4.32	4.11	3.87	3.6	3.32	3.02	2.81	2.5	2.24	1.93	1.59
291	6.37	6.1	5.84	5.58	5.28	5.05	4.78	4.46	4.13	3.74	3.45	3.08	2.74	2.35	1.92
292	6.47	6.19	5.93	5.67	5.36	5.14	4.87	4.54	4.19	3.8	3.5	3.11	2.77	2.38	1.95
293	6.42	6.14	5.88	5.61	5.3	5.06	4.78	4.45	4.11	3.74	3.44	3.07	2.73	2.34	1.92
294	6.51	6.24	5.95	5.66	5.34	5.1	4.8	4.47	4.16	3.78	3.49	3.1	2.75	2.36	1.92
295	6.45	6.14	5.86	5.57	5.23	4.97	4.69	4.37	4.02	3.65	3.36	2.99	2.67	2.29	1.86
296	7.37	7.04	6.75	6.44	6.1	5.84	5.53	5.15	4.75	4.31	3.97	3.54	3.15	2.69	2.2
297	7.31	6.99	6.69	6.39	6.05	5.79	5.49	5.11	4.72	4.27	3.93	3.5	3.11	2.67	2.18
298	7.42	7.09	6.79	6.47	6.12	5.84	5.51	5.15	4.74	4.31	3.97	3.52	3.14	2.7	2.2
299	7.38	7.06	6.73	6.43	6.04	5.76	5.44	5.07	4.67	4.25	3.91	3.47	3.09	2.65	2.15
300	7.38	7.05	6.7	6.39	6.01	5.74	5.4	5.01	4.62	4.18	3.86	3.43	3.05	2.62	2.13

Table A10a. Static and dynamic test data for seal 2 of Table 3 for high inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
301	3000	298	291	3.08	1.01	38.7	70.7	.0941	.0421	.00113	.0375	.166	-.0164
302	6000	299	285	3.09	1.01	38.7	69.1	.0922	.0413	.00171	.0393	.159	-.0129
303	9500	299	287	3.05	1.01	38.7	65.7	.0921	.0389	.00861	.041	.154	-.0184
304	13000	298	297	3.03	1.01	38.7	61.8	.0921	.0365	.0241	.0461	.162	-.00809
305	16000	299	304	3.09	1.01	38.7	56.4	.0922	.0341	.0271	.0476	.163	-.00663
306	3000	299	293	4.46	1	38.7	71.1	.0928	.0614	.00931	.0351	.144	-.0159
307	6000	299	286	4.44	1.01	38.7	70.3	.0913	.0604	.0131	.0358	.145	-.0184
308	9500	299	288	4.4	1.01	38.7	66.7	.0904	.0569	.0106	.0379	.144	-.0163
309	13000	299	291	4.42	1.01	38.7	62.5	.0903	.0538	.0271	.0416	.137	-.0115
310	16000	299	301	4.43	1.01	38.7	57.3	.0896	.0497	.0353	.0425	.139	-.00508
311	3000	299	294	5.72	1.01	38.7	71.8	.0921	.0795	.0124	.0347	.142	-.0172
312	6000	299	286	5.81	1.01	38.7	69.8	.0905	.0783	.0115	.0355	.148	-.0111
313	9500	299	288	5.8	1.01	38.7	66.2	.0899	.0746	.0161	.0363	.14	-.0191
314	13000	299	291	5.81	1.01	38.7	62.9	.0896	.0712	.0233	.0383	.139	-.0133
315	16000	299	295	5.77	1	38.7	57.3	.0894	.0646	.0295	.0403	.138	-.0123
316	3000	299	294	7.15	1.01	38.7	71.5	.0929	.0988	.00764	.0325	.141	-.0202
317	6000	299	287	7.13	1.01	38.7	70.3	.09	.0968	.0115	.0343	.139	-.016
318	9500	299	287	7.17	1.01	38.7	66.6	.0898	.0927	.0124	.0363	.146	-.0143
319	13000	299	289	7.19	1.01	38.7	63	.0899	.0882	.021	.0371	.136	-.0169
320	16000	299	293	7.12	1	38.7	57.6	.0885	.0801	.0281	.0394	.141	-.0154
321	3000	299	293	8.23	1	38.7	71.8	.0924	.114	.0102	.032	.141	-.0175
322	6000	299	290	8.26	1.01	38.7	70.6	.0911	.113	.00892	.0334	.139	-.013
323	9500	299	287	8.26	1.01	38.7	67.4	.0891	.108	.0111	.036	.146	-.0134
324	13000	299	289	8.23	1.01	38.7	63	.0897	.101	.0202	.0369	.14	-.0137
325	16000	299	293	8.23	1.01	38.7	57.7	.0884	.0929	.028	.0395	.138	-.0118

Case	Pi, i=1 to 15 ---------->														
301	2.73	2.62	2.54	2.43	2.33	2.23	2.14	2.03	1.92	1.76	1.67	1.52	1.4	1.26	1.15
302	2.74	2.63	2.55	2.43	2.34	2.23	2.15	2.04	1.93	1.77	1.68	1.53	1.41	1.27	1.15
303	2.73	2.62	2.53	2.42	2.31	2.21	2.13	2.01	1.91	1.76	1.67	1.51	1.4	1.26	1.15
304	2.72	2.61	2.52	2.4	2.3	2.19	2.11	1.99	1.89	1.74	1.65	1.5	1.39	1.25	1.14
305	2.8	2.67	2.57	2.44	2.34	2.22	2.14	2.01	1.91	1.74	1.66	1.5	1.39	1.26	1.14
306	3.95	3.79	3.65	3.48	3.33	3.16	3.03	2.82	2.65	2.39	2.25	2	1.81	1.58	1.35
307	3.94	3.78	3.65	3.47	3.32	3.14	3.02	2.82	2.65	2.4	2.25	2	1.8	1.58	1.34
308	3.92	3.76	3.61	3.44	3.27	3.1	2.97	2.76	2.59	2.36	2.2	1.96	1.78	1.55	1.33
309	3.96	3.79	3.63	3.47	3.28	3.12	2.98	2.77	2.59	2.38	2.2	1.96	1.78	1.56	1.33
310	3.99	3.81	3.65	3.45	3.29	3.1	2.97	2.75	2.58	2.33	2.19	1.94	1.76	1.54	1.32
311	5.06	4.86	4.67	4.46	4.25	4.03	3.86	3.57	3.34	3.04	2.83	2.49	2.26	1.93	1.61
312	5.15	4.93	4.73	4.51	4.3	4.06	3.89	3.61	3.39	3.06	2.86	2.51	2.26	1.94	1.6
313	5.18	4.96	4.74	4.54	4.29	4.08	3.89	3.61	3.36	3.08	2.85	2.52	2.27	1.94	1.62
314	5.21	4.99	4.77	4.54	4.31	4.07	3.9	3.6	3.36	3.07	2.84	2.51	2.26	1.94	1.61
315	5.19	4.95	4.75	4.48	4.26	4	3.83	3.53	3.3	2.99	2.79	2.44	2.21	1.9	1.57
316	6.33	6.07	5.83	5.57	5.29	5.04	4.81	4.45	4.15	3.79	3.5	3.09	2.78	2.37	1.95
317	6.32	6.06	5.81	5.55	5.26	5	4.78	4.42	4.13	3.75	3.48	3.05	2.75	2.34	1.92
318	6.4	6.13	5.86	5.61	5.29	5.04	4.8	4.44	4.13	3.79	3.48	3.09	2.76	2.36	1.94
319	6.44	6.17	5.89	5.62	5.32	5.04	4.8	4.44	4.12	3.79	3.47	3.07	2.75	2.35	1.92
320	6.42	6.11	5.83	5.54	5.25	4.94	4.71	4.33	4.05	3.68	3.4	2.99	2.69	2.3	1.87
321	7.28	6.98	6.72	6.41	6.1	5.78	5.54	5.13	4.79	4.35	4.03	3.54	3.19	2.7	2.23
322	7.33	7.02	6.76	6.42	6.13	5.79	5.55	5.14	4.81	4.33	4.05	3.53	3.19	2.71	2.21
323	7.37	7.06	6.75	6.45	6.1	5.8	5.53	5.12	4.76	4.37	4.01	3.55	3.18	2.7	2.21
324	7.38	7.06	6.74	6.45	6.07	5.79	5.49	5.09	4.71	4.34	3.95	3.52	3.13	2.67	2.18
325	7.39	7.05	6.73	6.38	6.03	5.68	5.42	4.98	4.64	4.23	3.89	3.42	3.07	2.61	2.13

Table A10b. Static and dynamic test data for seal 2 of Table 3 for high inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
326	3000	294	290	3.03	1.01	56.8	68.6	.0942	.0408	.00454	.0396	.18	-.0308
327	6000	293	282	3.06	1.01	56.8	68.7	.09	.0415	.00649	.0387	.176	-.0155
328	9500	293	286	3.04	1.01	56.8	63.9	.0892	.0385	.0111	.0411	.173	-.0226
329	13000	295	294	3.08	1.01	56.8	60.7	.0884	.0369	.0262	.048	.17	-.0198
330	16000	295	303	3.04	1.01	56.8	55.7	.0911	.0335	.0305	.0502	.171	-.0133
331	3000	294	290	4.46	1	56.8	68.9	.0893	.0604	.0178	.0364	.159	-.0335
332	6000	293	282	4.45	1.01	56.8	68.7	.0869	.0604	.00949	.0371	.159	-.0209
333	9500	293	286	4.47	1.01	56.8	65.3	.0875	.0578	.0157	.0375	.147	-.0213
334	13000	295	288	4.44	1	56.8	61.9	.0868	.0541	.0295	.042	.153	-.0233
335	16000	296	298	4.44	1	56.8	56	.0879	.0492	.0358	.0453	.149	-.016
336	3000	295	289	5.77	1	56.8	69.9	.089	.0791	.0118	.0341	.152	-.0357
337	6000	293	282	5.82	1.01	56.8	68.2	.0843	.0765	.0148	.0371	.147	-.0255
338	9500	294	285	5.82	1.01	56.8	65.4	.0852	.0751	.0147	.0366	.151	-.022
339	13000	295	288	5.81	1.01	56.8	62	.0899	.071	.0233	.0412	.154	-.0204
340	16000	296	293	5.77	1	56.8	56.6	.0867	.0645	.0358	.0399	.141	-.021
341	3000	294	288	7.2	1	56.8	71	.0876	.1	.0109	.0387	.153	-.0216
342	6000	293	281	7.2	1	56.8	68.7	.0852	.0975	.0127	.0375	.148	-.0232
343	9500	294	285	7.2	1.01	56.8	65.5	.0852	.0931	.0124	.0386	.146	-.0226
344	13000	295	288	7.22	1.01	56.8	62.2	.088	.0886	.0269	.0391	.147	-.0289
345	16000	296	293	7.21	1.01	56.8	56.7	.085	.0807	.0306	.0413	.14	-.0276
346	3000	294	287	8.24	1	56.8	71.3	.0864	.115	.00844	.0325	.139	-.0158
347	6000	294	282	8.22	1	56.8	69.5	.0835	.113	.0124	.0348	.143	-.0248
348	9500	294	285	8.23	1	56.8	66.2	.0816	.107	.0161	.0347	.141	-.028
349	13000	295	287	8.24	1.01	56.8	61.8	.0866	.1	.0238	.0387	.147	-.0282
350	16000	296	293	8.25	1.01	56.8	57.4	.0837	.0934	.0285	.0396	.142	-.0257

Case	Pi, i=1 to 15 ----------)														
326	2.7	2.59	2.5	2.41	2.29	2.21	2.11	2	1.88	1.75	1.64	1.51	1.38	1.25	1.14
327	2.72	2.61	2.52	2.43	2.31	2.22	2.13	2.02	1.9	1.77	1.66	1.52	1.4	1.26	1.14
328	2.73	2.62	2.52	2.42	2.3	2.21	2.11	2	1.88	1.76	1.64	1.51	1.39	1.26	1.14
329	2.78	2.66	2.56	2.45	2.33	2.24	2.14	2.02	1.9	1.77	1.66	1.52	1.4	1.27	1.15
330	2.75	2.63	2.53	2.41	2.29	2.2	2.09	1.97	1.86	1.73	1.62	1.48	1.37	1.24	1.13
331	3.96	3.8	3.66	3.51	3.32	3.18	3	2.81	2.62	2.39	2.22	2	1.79	1.57	1.34
332	3.96	3.79	3.65	3.49	3.3	3.15	2.99	2.81	2.62	2.39	2.22	2	1.79	1.57	1.34
333	4	3.82	3.68	3.52	3.32	3.17	3	2.82	2.62	2.4	2.22	1.99	1.79	1.57	1.34
334	3.98	3.81	3.66	3.49	3.29	3.15	2.98	2.8	2.61	2.38	2.21	1.98	1.78	1.56	1.33
335	4.02	3.82	3.66	3.48	3.29	3.13	2.96	2.77	2.58	2.35	2.18	1.95	1.76	1.55	1.32
336	5.11	4.89	4.71	4.51	4.25	4.06	3.83	3.59	3.33	3.02	2.79	2.49	2.23	1.93	1.59
337	5.19	4.96	4.77	4.56	4.3	4.11	3.89	3.65	3.39	3.08	2.85	2.54	2.26	1.96	1.61
338	5.2	4.97	4.78	4.56	4.3	4.1	3.88	3.63	3.37	3.07	2.83	2.52	2.25	1.95	1.61
339	5.21	4.97	4.76	4.53	4.28	4.07	3.84	3.6	3.34	3.04	2.8	2.5	2.23	1.93	1.59
340	5.2	4.95	4.75	4.5	4.24	4.04	3.8	3.56	3.3	2.99	2.76	2.46	2.2	1.9	1.56
341	6.4	6.12	5.89	5.63	5.32	5.09	4.8	4.5	4.17	3.79	3.48	3.11	2.76	2.38	1.94
342	6.41	6.13	5.9	5.63	5.32	5.08	4.8	4.5	4.17	3.79	3.49	3.11	2.76	2.37	1.93
343	6.44	6.14	5.9	5.63	5.3	5.06	4.78	4.48	4.15	3.77	3.47	3.09	2.75	2.36	1.92
344	6.48	6.18	5.93	5.64	5.32	5.07	4.78	4.48	4.15	3.78	3.46	3.09	2.74	2.36	1.92
345	6.51	6.19	5.93	5.62	5.3	5.04	4.74	4.42	4.09	3.73	3.42	3.04	2.71	2.33	1.89
346	7.31	7	6.74	6.44	6.08	5.82	5.5	5.15	4.77	4.33	3.99	3.55	3.15	2.71	2.21
347	7.32	7	6.73	6.44	6.07	5.8	5.48	5.14	4.77	4.32	3.98	3.54	3.14	2.69	2.19
348	7.36	7.02	6.75	6.44	6.07	5.79	5.48	5.13	4.75	4.32	3.97	3.53	3.13	2.69	2.18
349	7.4	7.06	6.77	6.43	6.07	5.79	5.45	5.11	4.73	4.29	3.93	3.51	3.11	2.67	2.17
350	7.44	7.08	6.76	6.42	6.04	5.76	5.42	5.05	4.68	4.25	3.9	3.47	3.08	2.65	2.14

Table A10c. Static and dynamic test data for seal 2 of Table 3 for high inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
351	3000	295	288	3.09	1.01	74.6	68.2	.0869	.0414	.00658	.0359	.176	-.0108
352	6000	292	281	3.07	1.01	74.6	67.9	.104	.0414	.0101	.0366	.177	-.0115
353	9500	291	284	3.01	1.01	74.6	64.3	.109	.0386	.0137	.0385	.174	-.0183
354	13000	292	294	3	1.01	74.6	59.5	.116	.0357	.0324	.0461	.167	-.0209
355	16000	294	301	3.08	1.01	74.6	54.3	.0958	.0333	.0321	.0479	.17	-.0115
356	3000	294	285	4.43	1	74.6	69.4	.1	.0604	.0194	.033	.156	-.0165
357	6000	292	281	4.48	1.01	74.6	68.8	.105	.0611	.0198	.0331	.153	-.019
358	9500	291	286	4.48	1.01	74.6	64.5	.0911	.0576	.0254	.0353	.155	-.0221
359	13000	291	288	4.48	1	74.6	60.8	.106	.0544	.0369	.0394	.152	-.021
360	16000	294	296	4.49	1.01	74.6	55.3	.0927	.0493	.0464	.0392	.133	-.0242
361	3000	294	283	5.81	1	74.6	69.3	.0983	.0791	.0143	.0352	.16	-.0154
362	6000	292	280	5.8	1	74.6	69	.1	.0793	.0245	.0317	.144	-.0261
363	9500	292	284	5.82	1.01	74.6	65.3	.086	.0756	.0238	.0347	.151	-.0228
364	13000	291	287	5.77	1.01	74.6	61	.104	.0703	.035	.0349	.145	-.0267
365	16000	295	292	5.81	1.01	74.6	56.4	.0868	.065	.0441	.0374	.141	-.0268
366	3000	294	281	7.15	1	74.6	70.9	.0957	.0996	.0181	.0314	.151	-.0203
367	6000	292	281	7.21	1	74.6	69.9	.0976	.0997	.0198	.0324	.148	-.0219
368	9500	292	283	7.18	1.01	74.6	65.9	.0828	.094	.0231	.0321	.146	-.0273
369	13000	292	286	7.21	1.01	74.6	61.2	.103	.0881	.0339	.0342	.144	-.0265
370	16000	294	291	7.12	1.01	74.6	56.4	.0846	.0798	.0426	.034	.132	-.0271
371	3000	293	281	8.25	1	74.6	71.1	.093	.116	.0216	.0324	.149	-.028
372	6000	292	281	8.24	1	74.6	69.5	.096	.113	.0198	.0307	.144	-.0245
373	9500	292	282	8.19	1	74.6	65.7	.0814	.107	.0253	.0321	.139	-.0269
374	13000	292	285	8.16	1.01	74.6	61.1	.101	.0995	.0337	.0324	.138	-.0279
375	16000	294	290	8.2	1.01	74.6	56.8	.084	.0924	.0425	.0307	.12	-.0325

Case	Pi, i=1 to 15 ---------->														
351	2.75	2.64	2.55	2.45	2.33	2.24	2.14	2.04	1.92	1.79	1.67	1.53	1.4	1.27	1.15
352	2.74	2.63	2.54	2.44	2.32	2.23	2.13	2.03	1.92	1.79	1.67	1.53	1.4	1.27	1.15
353	2.7	2.59	2.5	2.39	2.28	2.19	2.09	2	1.88	1.76	1.64	1.5	1.38	1.25	1.14
354	2.72	2.6	2.5	2.39	2.27	2.19	2.09	1.99	1.87	1.74	1.63	1.5	1.38	1.25	1.14
355	2.8	2.67	2.57	2.44	2.32	2.22	2.11	2.01	1.89	1.75	1.63	1.5	1.38	1.25	1.14
356	3.93	3.78	3.64	3.48	3.29	3.15	2.98	2.81	2.62	2.41	2.23	2	1.8	1.58	1.35
357	3.98	3.81	3.67	3.51	3.32	3.18	3.02	2.83	2.64	2.43	2.26	2.02	1.82	1.59	1.35
358	4.01	3.84	3.7	3.53	3.33	3.18	3.01	2.82	2.64	2.42	2.24	2.02	1.81	1.58	1.35
359	4.03	3.85	3.7	3.51	3.32	3.16	3	2.82	2.63	2.41	2.23	2	1.8	1.58	1.34
360	4.07	3.88	3.72	3.53	3.33	3.17	2.99	2.8	2.62	2.39	2.21	1.98	1.78	1.57	1.33
361	5.17	4.95	4.77	4.55	4.3	4.12	3.89	3.64	3.37	3.08	2.85	2.54	2.28	1.97	1.62
362	5.16	4.94	4.75	4.54	4.28	4.09	3.87	3.63	3.38	3.08	2.86	2.55	2.27	1.96	1.62
363	5.2	4.98	4.78	4.56	4.3	4.09	3.87	3.62	3.37	3.08	2.84	2.53	2.26	1.95	1.61
364	5.18	4.95	4.75	4.51	4.25	4.05	3.82	3.57	3.33	3.04	2.79	2.49	2.22	1.92	1.58
365	5.25	5	4.79	4.55	4.27	4.06	3.82	3.56	3.31	3.02	2.78	2.47	2.22	1.91	1.57
366	6.35	6.08	5.85	5.6	5.29	5.07	4.79	4.47	4.14	3.76	3.49	3.11	2.78	2.39	1.95
367	6.41	6.13	5.9	5.65	5.33	5.09	4.82	4.5	4.17	3.79	3.51	3.12	2.78	2.39	1.95
368	6.42	6.13	5.9	5.63	5.29	5.06	4.77	4.45	4.14	3.76	3.47	3.09	2.76	2.36	1.93
369	6.48	6.18	5.93	5.65	5.31	5.07	4.78	4.44	4.12	3.75	3.45	3.07	2.74	2.35	1.91
370	6.44	6.12	5.86	5.57	5.24	4.99	4.69	4.37	4.04	3.68	3.39	3.01	2.68	2.31	1.87
371	7.33	7.01	6.76	6.47	6.11	5.84	5.52	5.16	4.77	4.33	4.01	3.57	3.18	2.73	2.22
372	7.34	7.02	6.76	6.45	6.09	5.81	5.49	5.13	4.76	4.33	4	3.57	3.18	2.71	2.21
373	7.32	6.99	6.72	6.41	6.04	5.77	5.44	5.08	4.71	4.27	3.94	3.52	3.13	2.67	2.18
374	7.33	6.99	6.71	6.4	6.02	5.73	5.41	5.04	4.65	4.23	3.9	3.46	3.09	2.65	2.14
375	7.41	7.04	6.74	6.41	6.02	5.73	5.39	5.01	4.64	4.22	3.9	3.46	3.07	2.63	2.12

Table A11a. Static and dynamic test data for seal 3 of Table 3 for no inlet circumferential velocity and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	tx1000
1	3000	299	292	3.02	1.02	38.7	0	.0903	.0488	-.019	.00416	.18	.00629
2	6000	298	287	3.07	1.01	38.7	0	.0871	.0488	-.0227	.0127	.175	-.00294
3	9500	298	290	3.09	1.02	38.7	0	.0872	.0473	-.0299	.0196	.178	-.0154
4	13000	298	299	3	1.01	38.7	0	.0875	.0431	-.028	.034	.182	-.0223
5	16000	297	303	3.04	1.01	38.7	0	.0893	.0402	-.0303	.0458	.177	-.029
6	3000	299	284	4.38	1.01	38.7	0	.0898	.0728	-.0377	.000754	.183	.00872
7	6000	298	284	4.43	1.01	38.7	0	.0888	.0719	-.0383	.00571	.182	.00483
8	9500	298	287	4.39	1.01	38.7	0	.0897	.0687	-.0451	.015	.178	-.00947
9	13000	297	291	4.39	1.01	38.7	0	.0905	.0645	-.0501	.026	.175	-.0172
10	16000	298	297	4.45	1.01	38.7	0	.0928	.0606	-.0503	.0386	.179	-.0244
11	3000	299	286	5.79	1	38.7	0	.0917	.0963	-.0474	-.000716	.171	.0134
12	6000	299	285	5.72	1.01	38.7	0	.0909	.094	-.0512	.00424	.163	.013
13	9500	298	286	5.81	1.01	38.7	0	.0922	.0899	-.0494	.0133	.187	-.00624
14	13000	297	289	5.75	1.01	38.7	0	.0933	.0846	-.0541	.0237	.189	-.0204
15	16000	298	293	5.78	1	38.7	0	.0964	.08	-.0571	.0344	.181	-.0308
16	3000	299	294	7.16	1	38.7	0	.0933	.122	-.0428	-1.59E-6	.185	.0156
17	6000	299	284	7.16	1	38.7	0	.0934	.119	-.0492	.00319	.18	.0144
18	9500	298	286	7.14	1	38.7	0	.094	.113	-.0512	.0118	.186	-.00387
19	13000	298	287	7.15	1.01	38.7	0	.0961	.107	-.0535	.0223	.189	-.0176
20	16000	298	291	7.16	1.01	38.7	0	.0984	.0977	-.0577	.0336	.185	-.0324
21	3000	299	294	8.13	.997	38.7	0	.0939	.138	-.0448	.000457	.175	.0133
22	6000	299	288	8.15	1	38.7	0	.0944	.136	-.0487	.00196	.183	.0128
23	9500	298	285	8.19	1	38.7	0	.0948	.13	-.0511	.0112	.19	-.00471
24	13000	298	287	8.14	1	38.7	0	.0967	.121	-.0538	.0218	.186	-.0189
25	16000	298	290	8.16	1.01	38.7	0	.0931	.113	-.0558	.032	.195	-.0358

Case	Pi, i=1 to 15 ---------->														
1	2.78	2.7	2.67	2.59	2.52	2.44	2.37	2.3	2.21	2.1	1.99	1.85	1.72	1.54	1.3
2	2.82	2.75	2.7	2.62	2.55	2.46	2.39	2.32	2.23	2.1	1.99	1.84	1.71	1.55	1.29
3	2.86	2.78	2.74	2.66	2.58	2.5	2.43	2.36	2.25	2.14	2.01	1.87	1.74	1.55	1.3
4	2.78	2.71	2.66	2.59	2.52	2.44	2.37	2.29	2.2	2.07	1.97	1.81	1.69	1.52	1.27
5	2.81	2.74	2.69	2.62	2.55	2.46	2.39	2.3	2.22	2.08	1.98	1.82	1.7	1.52	1.27
6	4.02	3.9	3.85	3.72	3.61	3.49	3.38	3.26	3.11	2.94	2.74	2.52	2.32	2	1.61
7	4.07	3.95	3.9	3.77	3.67	3.54	3.44	3.32	3.17	2.99	2.81	2.56	2.36	2.04	1.63
8	4.05	3.92	3.86	3.73	3.62	3.5	3.39	3.27	3.1	2.93	2.72	2.51	2.27	1.97	1.58
9	4.04	3.92	3.86	3.74	3.64	3.52	3.41	3.28	3.12	2.95	2.76	2.52	2.31	1.99	1.6
10	4.12	4.01	3.94	3.83	3.72	3.59	3.48	3.33	3.18	2.99	2.79	2.54	2.33	2	1.6
11	5.31	5.15	5.08	4.9	4.76	4.59	4.45	4.3	4.09	3.86	3.59	3.29	3.01	2.58	2.06
12	5.26	5.1	5.03	4.87	4.72	4.55	4.42	4.25	4.06	3.82	3.57	3.24	2.98	2.54	2.02
13	5.37	5.2	5.13	4.95	4.81	4.64	4.49	4.34	4.09	3.89	3.57	3.32	2.96	2.59	2.02
14	5.29	5.13	5.04	4.87	4.73	4.55	4.4	4.22	4	3.78	3.5	3.2	2.91	2.49	1.97
15	5.34	5.17	5.09	4.93	4.79	4.63	4.48	4.29	4.07	3.86	3.55	3.25	2.95	2.51	1.99
16	6.57	6.37	6.28	6.06	5.88	5.67	5.49	5.31	5.03	4.78	4.42	4.08	3.69	3.19	2.52
17	6.57	6.38	6.29	6.08	5.9	5.68	5.51	5.3	5.05	4.76	4.43	4.02	3.69	3.13	2.49
18	6.57	6.37	6.29	6.06	5.9	5.68	5.49	5.31	5.02	4.77	4.38	4.07	3.64	3.17	2.47
19	6.6	6.41	6.32	6.12	5.94	5.73	5.55	5.33	5.06	4.79	4.43	4.06	3.68	3.13	2.47
20	6.62	6.41	6.32	6.12	5.95	5.74	5.54	5.31	5.03	4.78	4.39	4.03	3.64	3.11	2.44
21	7.47	7.23	7.14	6.88	6.67	6.43	6.23	6.01	5.7	5.4	4.98	4.61	4.16	3.6	2.84
22	7.47	7.25	7.16	6.91	6.71	6.47	6.27	6.04	5.73	5.42	5.02	4.61	4.19	3.58	2.84
23	7.54	7.3	7.21	6.96	6.77	6.52	6.3	6.1	5.75	5.48	5.01	4.66	4.16	3.63	2.8
24	7.5	7.29	7.17	6.95	6.74	6.5	6.29	6.04	5.74	5.42	5.01	4.6	4.16	3.53	2.8
25	7.56	7.33	7.22	7.01	6.8	6.56	6.33	6.07	5.75	5.47	5.01	4.62	4.14	3.56	2.78

Table A11b. Static and dynamic test data for seal 3 of Table 3 for no inlet circumferential velocity and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
26	3000	298	294	2.98	1.02	56.8	0	.0926	.0488	-.0191	.00175	.173	.00675
27	6000	297	287	3.04	1.02	56.8	0	.0889	.0485	-.0213	.0126	.186	-.00346
28	9500	297	289	3.06	1.02	56.8	0	.0921	.0472	-.0256	.0206	.19	-.0155
29	13000	297	297	3.09	1.01	56.8	0	.0893	.0444	-.0271	.0321	.184	-.0192
30	16000	296	303	3.09	1.01	56.8	0	.0879	.0407	-.0293	.0447	.191	-.0333
31	3000	298	285	4.37	1.01	56.8	0	.0918	.0732	-.0416	.00215	.189	.0173
32	6000	298	284	4.41	1.01	56.8	0	.0904	.0716	-.0382	.00829	.181	.00149
33	9500	298	286	4.35	1.01	56.8	0	.0965	.0683	-.0461	.0151	.175	-.00667
34	13000	297	290	4.45	1.01	56.8	0	.0881	.0647	-.0466	.0261	.19	-.0203
35	16000	297	297	4.43	1.01	56.8	0	.0905	.0595	-.0451	.0374	.192	-.0308
36	3000	298	286	5.69	1	56.8	0	.0928	.0959	-.0475	.00134	.186	.0228
37	6000	298	284	5.75	1.01	56.8	0	.0923	.0948	-.0418	.0079	.191	.0064
38	9500	297	286	5.78	1.01	56.8	0	.0925	.0901	-.0478	.0144	.184	-.00633
39	13000	297	288	5.77	1.01	56.8	0	.0891	.0849	-.0531	.0257	.195	-.0169
40	16000	297	292	5.72	1	56.8	0	.0939	.0773	-.0545	.0351	.194	-.0307
41	3000	298	285	7.14	1	56.8	0	.0948	.122	-.0468	.000867	.175	.0179
42	6000	298	284	7.18	1	56.8	0	.0934	.119	-.0488	.00577	.178	.0098
43	9500	297	285	7.14	1	56.8	0	.0926	.112	-.0507	.0149	.188	-.00266
44	13000	297	287	7.13	1	56.8	0	.0904	.105	-.053	.0244	.195	-.0162
45	16000	297	291	7.16	1	56.8	0	.0931	.0995	-.0527	.0332	.191	-.0338
46	3000	298	289	8.14	.997	56.8	0	.0913	.139	-.0498	.00026	.17	.0189
47	6000	296	288	8.09	.995	56.8	0	.0878	.135	-.0477	.00595	.177	.00854
48	9500	297	285	8.15	1	56.8	0	.094	.129	-.0496	.0131	.175	-.00266
49	13000	297	286	8.12	1	56.8	0	.0912	.121	-.0522	.024	.193	-.0146
50	16000	297	290	8.16	1	56.8	0	.0937	.113	-.053	.0309	.188	-.0331

Case	Pi, i=1 to 15 ---------->														
26	2.74	2.67	2.63	2.54	2.48	2.4	2.34	2.27	2.18	2.06	1.95	1.82	1.69	1.54	1.28
27	2.8	2.73	2.69	2.6	2.53	2.45	2.38	2.31	2.22	2.09	1.97	1.84	1.7	1.54	1.28
28	2.81	2.74	2.69	2.61	2.54	2.45	2.38	2.31	2.21	2.09	1.96	1.84	1.7	1.53	1.28
29	2.86	2.79	2.74	2.66	2.6	2.52	2.44	2.37	2.27	2.15	2.03	1.89	1.73	1.57	1.29
30	2.86	2.79	2.74	2.66	2.59	2.51	2.43	2.36	2.26	2.12	2	1.87	1.71	1.55	1.28
31	4	3.9	3.83	3.7	3.6	3.47	3.37	3.26	3.12	2.92	2.73	2.52	2.29	2.02	1.6
32	4.05	3.94	3.88	3.75	3.65	3.52	3.41	3.3	3.15	2.95	2.76	2.54	2.31	2.03	1.61
33	3.99	3.89	3.83	3.7	3.59	3.47	3.36	3.25	3.1	2.91	2.72	2.51	2.27	2	1.58
34	4.1	4	3.93	3.8	3.7	3.56	3.45	3.33	3.17	2.97	2.77	2.56	2.31	2.03	1.6
35	4.08	3.97	3.9	3.77	3.67	3.54	3.41	3.3	3.13	2.93	2.72	2.51	2.26	1.99	1.57
36	5.19	5.06	4.98	4.8	4.66	4.49	4.36	4.21	4.02	3.76	3.51	3.23	2.93	2.55	1.99
37	5.26	5.12	5.03	4.86	4.72	4.55	4.41	4.26	4.05	3.79	3.53	3.25	2.94	2.55	2
38	5.32	5.18	5.1	4.92	4.79	4.6	4.46	4.32	4.11	3.83	3.58	3.29	2.95	2.58	2
39	5.32	5.18	5.09	4.92	4.78	4.61	4.45	4.29	4.09	3.82	3.54	3.26	2.93	2.55	1.98
40	5.28	5.15	5.07	4.9	4.78	4.6	4.45	4.29	4.09	3.81	3.54	3.26	2.93	2.55	1.97
41	6.54	6.36	6.26	6.03	5.86	5.63	5.47	5.28	5.04	4.71	4.39	4.04	3.66	3.18	2.48
42	6.57	6.41	6.3	6.08	5.92	5.69	5.52	5.34	5.08	4.75	4.43	4.07	3.68	3.19	2.49
43	6.55	6.39	6.28	6.06	5.91	5.68	5.51	5.32	5.06	4.74	4.41	4.04	3.64	3.16	2.45
44	6.56	6.4	6.28	6.08	5.92	5.7	5.51	5.31	5.06	4.73	4.39	4.04	3.63	3.14	2.44
45	6.62	6.45	6.35	6.16	6	5.78	5.6	5.42	5.16	4.81	4.46	4.09	3.67	3.18	2.45
46	7.45	7.25	7.13	6.87	6.68	6.42	6.23	6.01	5.73	5.36	5	4.59	4.15	3.6	2.81
47	7.41	7.22	7.11	6.86	6.68	6.42	6.23	6.01	5.74	5.36	5.01	4.58	4.15	3.59	2.79
48	7.49	7.3	7.18	6.93	6.73	6.49	6.28	6.06	5.78	5.39	5.02	4.61	4.14	3.6	2.79
49	7.47	7.28	7.16	6.94	6.76	6.52	6.31	6.09	5.79	5.41	5.03	4.63	4.17	3.6	2.79
50	7.53	7.33	7.2	6.98	6.82	6.58	6.36	6.14	5.85	5.46	5.09	4.66	4.17	3.62	2.8

Table A11c. Static and dynamic test data for seal 3 of Table 3 for no inlet circumferential velocity and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	K̄	k̄	Cx1000	cx1000
51	3000	296	290	3.08	1.01	74.6	0	.0933	.05	-.0159	.00768	.192	.00438
52	6000	296	284	3.01	1.01	74.6	0	.0983	.048	-.00936	.0115	.178	-.00467
53	9500	296	288	2.99	1.01	74.6	0	.0934	.0459	-.0196	.0192	.192	-.0127
54	13000	297	298	3.08	1.01	74.6	0	.0932	.0441	-.0179	.0305	.198	-.0242
55	16000	297	301	3.08	1.01	74.6	0	.0873	.0402	-.0173	.0451	.189	-.0367
56	3000	296	285	4.36	1	74.6	0	.09	.0729	-.0358	.00178	.188	.0126
57	6000	296	284	4.42	1	74.6	0	.0969	.0719	-.0325	.00594	.178	.00238
58	9500	297	286	4.45	1.01	74.6	0	.0916	.0689	-.0413	.0138	.187	-.0118
59	13000	296	290	4.43	1.01	74.6	0	.0924	.0645	-.0386	.0248	.195	-.0185
60	16000	297	295	4.45	1.01	74.6	0	.0896	.0605	-.0436	.0364	.187	-.0349
61	3000	297	287	5.67	1	74.6	0	.0857	.0959	-.0411	.00324	.192	.0122
62	6000	296	283	5.79	1	74.6	0	.093	.0951	-.0427	.00679	.177	.00545
63	9500	297	285	5.8	1	74.6	0	.09	.0912	-.0468	.0144	.19	-.00532
64	13000	297	288	5.74	1	74.6	0	.0911	.0849	-.0484	.0235	.198	-.0212
65	16000	297	292	5.83	1	74.6	0	.0867	.0796	-.0428	.0324	.193	-.0344
66	3000	296	289	7.14	.998	74.6	0	.0852	.122	-.0445	.00496	.189	.00863
67	6000	296	282	7.15	.997	74.6	0	.0929	.117	-.0381	.0058	.181	.00572
68	9500	297	285	7.11	1	74.6	0	.0882	.112	-.0478	.0143	.189	-.0102
69	13000	297	287	7.17	1	74.6	0	.0933	.107	-.048	.023	.197	-.0222
70	16000	297	292	7.19	1	74.6	0	.0844	.0983	-.0454	.0323	.203	-.0399
71	3000	296	286	8.14	.994	74.6	0	.0897	.139	-.0405	.00229	.18	.0121
72	6000	296	290	8.11	.997	74.6	0	.0921	.135	-.039	.00863	.186	.00512
73	9500	297	285	8.19	.996	74.6	0	.0875	.13	-.0483	.0154	.188	-.00748
74	13000	297	286	8.21	1	74.6	0	.0923	.122	-.0449	.02	.199	-.0223
75	16000	298	291	8.17	1	74.6	0	.0857	.113	-.0496	.0284	.2	-.0347

Case	Pi, i=1 to 15 ---------->														
51	2.84	2.77	2.73	2.64	2.57	2.48	2.41	2.34	2.25	2.12	2	1.86	1.72	1.56	1.3
52	2.76	2.7	2.66	2.57	2.5	2.42	2.35	2.28	2.19	2.07	1.95	1.82	1.69	1.53	1.28
53	2.76	2.69	2.65	2.57	2.5	2.42	2.35	2.28	2.19	2.07	1.95	1.83	1.68	1.52	1.27
54	2.85	2.78	2.74	2.66	2.59	2.51	2.43	2.35	2.26	2.13	2.01	1.88	1.73	1.55	1.29
55	2.85	2.79	2.74	2.66	2.6	2.51	2.43	2.36	2.26	2.13	2.01	1.87	1.71	1.54	1.28
56	4.01	3.91	3.85	3.72	3.63	3.51	3.41	3.3	3.16	2.96	2.78	2.55	2.32	2.03	1.61
57	4.06	3.96	3.9	3.76	3.66	3.52	3.41	3.3	3.16	2.96	2.76	2.54	2.3	2.02	1.6
58	4.1	4	3.94	3.81	3.72	3.59	3.48	3.36	3.21	3	2.81	2.6	2.35	2.06	1.61
59	4.09	3.99	3.93	3.81	3.71	3.58	3.46	3.33	3.18	2.98	2.79	2.58	2.33	2.04	1.61
60	4.1	3.99	3.92	3.8	3.71	3.58	3.46	3.33	3.17	2.97	2.78	2.56	2.31	2.01	1.59
61	5.18	5.05	4.97	4.8	4.67	4.5	4.37	4.21	4.01	3.75	3.51	3.22	2.91	2.53	1.97
62	5.29	5.16	5.08	4.9	4.77	4.58	4.43	4.26	4.07	3.8	3.55	3.26	2.94	2.56	1.99
63	5.32	5.19	5.11	4.94	4.81	4.63	4.48	4.32	4.12	3.86	3.61	3.32	2.99	2.6	2.02
64	5.28	5.14	5.05	4.9	4.77	4.59	4.45	4.28	4.07	3.81	3.55	3.27	2.95	2.57	1.99
65	5.37	5.23	5.14	4.99	4.86	4.69	4.54	4.36	4.15	3.87	3.62	3.34	2.99	2.58	2.01
66	6.52	6.35	6.24	6.02	5.85	5.63	5.47	5.27	5.03	4.7	4.41	4.04	3.66	3.18	2.47
67	6.57	6.41	6.32	6.1	5.93	5.7	5.53	5.33	5.1	4.77	4.45	4.08	3.68	3.18	2.46
68	6.52	6.35	6.25	6.03	5.88	5.65	5.47	5.27	5.01	4.66	4.36	4.01	3.62	3.13	2.43
69	6.6	6.44	6.33	6.13	5.97	5.76	5.57	5.36	5.09	4.75	4.43	4.07	3.67	3.19	2.46
70	6.63	6.48	6.37	6.17	6.02	5.8	5.61	5.4	5.12	4.78	4.45	4.08	3.67	3.18	2.46
71	7.43	7.24	7.13	6.88	6.7	6.44	6.25	6.02	5.74	5.36	5.03	4.62	4.18	3.63	2.82
72	7.42	7.24	7.13	6.88	6.69	6.43	6.24	6.01	5.75	5.38	5.02	4.59	4.14	3.59	2.78
73	7.51	7.32	7.2	6.96	6.78	6.52	6.33	6.11	5.79	5.41	5.04	4.62	4.18	3.64	2.82
74	7.54	7.35	7.24	7	6.81	6.58	6.37	6.15	5.89	5.45	5.05	4.65	4.18	3.62	2.81
75	7.54	7.36	7.24	7.02	6.84	6.59	6.39	6.15	5.82	5.44	5.05	4.65	4.18	3.63	2.8

Table A12a. Static and dynamic test data for seal 3 of Table 3 for low inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	K̄	k̄	Cx1000	cx1000
76	3000	295	291	3.02	1.01	38.7	-29.8	.0911	.048	.0181	-.0276	.158	.0137
77	6000	296	285	3.03	1.01	38.7	-29.5	.0885	.0476	.0328	-.0379	.132	.0253
78	9500	296	288	3.06	1.01	38.7	-28.3	.0878	.0462	.0159	-.0141	.148	-.00675
79	13000	297	299	3.06	1.01	38.7	-26.6	.0886	.0433	.00862	.00994	.159	.00141
80	16000	297	303	3.1	1.01	38.7	-24.6	.0891	.0405	.00032	.0242	.179	-6.87E-5
81	3000	295	287	4.34	1	38.7	-30.5	.0906	.0706	-.00505	-.0256	.163	.0137
82	6000	296	284	4.42	1	38.7	-30.1	.0883	.0709	.0121	-.0343	.137	.0281
83	9500	297	285	4.42	1.01	38.7	-28.8	.0893	.0676	-.000222	-.0168	.143	.00078
84	13000	297	291	4.43	1	38.7	-26.9	.0893	.0635	-.00507	.00276	.158	.00398
85	16000	297	297	4.41	1.01	38.7	-25	.0897	.0586	-.011	.0168	.173	.00288
86	3000	296	290	5.77	1	38.7	-30.7	.0912	.0943	-.0117	-.0244	.158	.0181
87	6000	296	284	5.78	1	38.7	-30.4	.0889	.0936	.0023	-.0318	.143	.0206
88	9500	297	286	5.75	1	38.7	-29	.0892	.0886	-.00839	-.0191	.151	-.00579
89	13000	297	289	5.73	1	38.7	-27.4	.0898	.0834	-.0139	.00182	.161	.00235
90	16000	297	292	5.82	1	38.7	-25.1	.0905	.0776	-.0158	.016	.173	-.0015
91	3000	296	292	7.13	.998	38.7	-31	.0916	.118	-.0116	-.024	.158	.0215
92	6000	296	287	7.16	1	38.7	-30.7	.0889	.117	-.000908	-.0305	.14	.0181
93	9500	297	285	7.17	1	38.7	-29.4	.089	.112	-.00847	-.0194	.144	-.000142
94	13000	297	288	7.19	1	38.7	-27.6	.0903	.106	-.0166	-.00162	.164	.00161
95	16000	297	292	7.15	1	38.7	-25.7	.0915	.0975	-.016	.0149	.175	.00161
96	3000	296	293	8.08	.993	38.7	-31.2	.0916	.134	-.0115	-.0241	.152	.0233
97	6000	296	289	8.1	.997	38.7	-30.7	.0884	.133	-.00466	-.0286	.137	.024
98	9500	297	285	8.09	1	38.7	-29.5	.0886	.127	-.00945	-.0202	.142	-.00172
99	13000	297	287	8.19	1	38.7	-27.8	.0907	.121	-.0189	-.00137	.156	.00179
100	16000	297	292	8.17	.998	38.7	-25.7	.0923	.111	-.0161	.0135	.17	-.00104

Case	Pi, i=1 to 15 ----------)														
76	2.74	2.68	2.62	2.54	2.45	2.36	2.29	2.21	2.12	2.01	1.9	1.77	1.64	1.49	1.26
77	2.75	2.69	2.63	2.55	2.46	2.4	2.32	2.26	2.16	2.05	1.93	1.81	1.67	1.52	1.27
78	2.79	2.72	2.66	2.59	2.49	2.43	2.34	2.27	2.17	2.06	1.95	1.81	1.67	1.51	1.27
79	2.79	2.73	2.67	2.6	2.52	2.43	2.36	2.29	2.2	2.07	1.95	1.83	1.67	1.53	1.26
80	2.84	2.78	2.71	2.65	2.56	2.48	2.4	2.32	2.24	2.09	1.98	1.84	1.68	1.54	1.26
81	3.92	3.82	3.74	3.62	3.49	3.35	3.25	3.14	2.98	2.82	2.63	2.42	2.22	1.95	1.55
82	4.03	3.9	3.84	3.7	3.57	3.45	3.32	3.23	3.07	2.89	2.69	2.48	2.26	1.97	1.59
83	3.99	3.91	3.82	3.71	3.57	3.45	3.34	3.22	3.08	2.89	2.71	2.48	2.25	2	1.56
84	4.03	3.93	3.84	3.74	3.6	3.49	3.37	3.25	3.12	2.9	2.72	2.5	2.26	2	1.56
85	4.01	3.91	3.83	3.73	3.6	3.48	3.36	3.25	3.12	2.9	2.72	2.5	2.24	2	1.55
86	5.21	5.07	4.97	4.8	4.62	4.44	4.31	4.15	3.94	3.71	3.47	3.17	2.88	2.51	1.97
87	5.25	5.08	5	4.82	4.64	4.48	4.32	4.2	3.98	3.75	3.47	3.2	2.9	2.51	1.99
88	5.19	5.11	4.97	4.83	4.66	4.48	4.35	4.19	4.01	3.73	3.46	3.21	2.85	2.52	1.96
89	5.21	5.06	4.97	4.82	4.65	4.49	4.33	4.17	3.98	3.71	3.48	3.15	2.86	2.48	1.93
90	5.28	5.18	5.04	4.91	4.74	4.57	4.41	4.27	4.07	3.77	3.5	3.24	2.85	2.53	1.93
91	6.44	6.26	6.14	5.92	5.7	5.47	5.3	5.11	4.84	4.57	4.26	3.88	3.54	3.06	2.4
92	6.49	6.27	6.19	5.95	5.73	5.52	5.32	5.16	4.89	4.6	4.26	3.91	3.54	3.06	2.42
93	6.49	6.29	6.19	5.96	5.77	5.55	5.35	5.19	4.89	4.63	4.28	3.91	3.54	3.05	2.41
94	6.53	6.33	6.23	6.01	5.8	5.6	5.4	5.21	4.92	4.65	4.31	3.91	3.54	3.03	2.39
95	6.48	6.36	6.19	6.02	5.81	5.6	5.41	5.2	4.99	4.6	4.3	3.94	3.48	3.09	2.34
96	7.29	7.08	6.94	6.71	6.45	6.19	6	5.79	5.48	5.17	4.82	4.39	4.02	3.46	2.72
97	7.34	7.1	6.99	6.73	6.48	6.24	6.02	5.84	5.54	5.22	4.82	4.44	4	3.46	2.74
98	7.32	7.12	6.99	6.76	6.5	6.3	6.05	5.86	5.55	5.23	4.84	4.43	4	3.44	2.73
99	7.46	7.21	7.12	6.84	6.63	6.39	6.16	5.94	5.61	5.32	4.87	4.5	4.03	3.47	2.72
100	7.4	7.24	7.06	6.87	6.65	6.4	6.17	5.95	5.69	5.24	4.92	4.46	4	3.51	2.64

Table A12b. Static and dynamic test data for seal 3 of Table 3 for low inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
101	3000	298	288	3.04	1.01	56.8	-30.3	.092	.0487	.0205	-.0304	.16	.00812
102	6000	298	286	3.04	1.01	56.8	-29.7	.101	.0478	.0268	-.0377	.157	.0162
103	9500	298	290	3.08	1.01	56.8	-28.7	.102	.0468	.0134	-.0141	.158	-.00832
104	13000	297	297	3.07	1.01	56.8	-26.8	.0929	.0438	.0133	.0106	.163	-.00685
105	16000	298	304	3.03	1.01	56.8	-24.6	.0925	.0395	.00365	.0299	.181	-.0142
106	3000	299	286	4.34	1.01	56.8	-30.8	.0913	.0706	-.00253	-.028	.16	.0142
107	6000	298	286	4.41	1.01	56.7	-30.1	.0992	.0702	.0103	-.0346	.148	.0226
108	9500	298	287	4.38	1.01	56.8	-29.2	.105	.0677	.00103	-.0166	.154	.00514
109	13000	297	291	4.43	1.01	56.8	-27.1	.0926	.0637	-.00757	.003	.164	6.35E-5
110	16000	297	297	4.41	1.01	56.8	-25.2	.0944	.0589	-.00908	.0198	.178	-.0102
111	3000	298	292	5.73	1	56.8	-31.1	.0894	.0939	-.0112	-.0228	.173	.0182
112	6000	299	284	5.78	1	56.8	-30.4	.0978	.0928	.00576	-.0316	.143	.024
113	9500	298	286	5.79	1	56.8	-29.1	.0866	.0894	-.00801	-.0189	.158	.00758
114	13000	297	289	5.76	1.01	56.8	-27.4	.0922	.0838	-.0141	.000278	.168	.00289
115	16000	298	293	5.84	1	56.8	-25.2	.094	.0782	-.0134	.0152	.174	-.00623
116	3000	298	290	7.12	1	56.8	-31.6	.0883	.119	-.0146	-.0229	.165	.0246
117	6000	298	289	7.15	1	56.8	-30.8	.0861	.116	.00017	-.0287	.139	.0189
118	9500	298	285	7.18	1	56.8	-29.2	.0842	.111	-.012	-.0207	.155	.00631
119	13000	298	288	7.16	1	56.8	-27.7	.0929	.105	-.0184	-.000332	.162	.0043
120	16000	298	294	7.15	1	56.8	-25.1	.0923	.0953	-.0134	.0155	.173	-.0051
121	3000	299	294	8.14	.998	56.8	-31.7	.0887	.136	-.0121	-.0252	.149	.0164
122	6000	299	290	8.1	.998	56.8	-31.1	.0856	.133	-.00131	-.0274	.141	.0209
123	9500	298	286	8.14	1	56.8	-29.4	.0848	.127	-.0066	-.021	.149	.00916
124	13000	298	287	8.2	1	56.8	-27.9	.0844	.121	-.0191	-.00183	.162	.00458
125	16000	298	292	8.2	1	56.8	-25.5	.0931	.111	-.0131	.0141	.176	-.00846

Case	Pi, i=1 to 15 ---------->														
101	2.76	2.68	2.63	2.53	2.45	2.36	2.29	2.22	2.12	2.01	1.89	1.77	1.64	1.49	1.26
102	2.76	2.69	2.64	2.55	2.47	2.38	2.31	2.24	2.15	2.03	1.91	1.79	1.66	1.51	1.27
103	2.8	2.73	2.68	2.59	2.51	2.42	2.35	2.28	2.18	2.06	1.94	1.81	1.67	1.52	1.27
104	2.81	2.73	2.69	2.6	2.53	2.45	2.37	2.3	2.2	2.08	1.96	1.83	1.68	1.52	1.27
105	2.78	2.7	2.65	2.57	2.5	2.41	2.34	2.27	2.17	2.05	1.92	1.8	1.65	1.49	1.25
106	3.93	3.82	3.75	3.61	3.49	3.35	3.25	3.14	2.98	2.81	2.63	2.42	2.2	1.95	1.55
107	4.01	3.89	3.83	3.68	3.57	3.43	3.32	3.21	3.05	2.87	2.67	2.46	2.24	1.97	1.57
108	3.98	3.88	3.81	3.67	3.56	3.42	3.31	3.2	3.05	2.86	2.67	2.47	2.24	1.97	1.57
109	4.04	3.92	3.86	3.72	3.61	3.49	3.37	3.26	3.1	2.91	2.7	2.5	2.25	1.99	1.58
110	4.03	3.91	3.84	3.72	3.61	3.48	3.36	3.25	3.08	2.9	2.69	2.49	2.24	1.98	1.56
111	5.18	5.02	4.94	4.75	4.59	4.4	4.27	4.12	3.91	3.68	3.43	3.15	2.87	2.5	1.96
112	5.24	5.09	5	4.8	4.65	4.47	4.33	4.19	3.99	3.74	3.48	3.2	2.89	2.54	1.98
113	5.25	5.12	5.01	4.83	4.67	4.51	4.35	4.2	4.02	3.76	3.49	3.21	2.89	2.53	1.97
114	5.25	5.1	5.02	4.83	4.68	4.51	4.36	4.21	4.01	3.75	3.47	3.19	2.86	2.5	1.95
115	5.34	5.19	5.09	4.92	4.77	4.61	4.45	4.3	4.08	3.81	3.53	3.24	2.9	2.53	1.97
116	6.43	6.23	6.12	5.89	5.69	5.45	5.28	5.09	4.84	4.55	4.22	3.88	3.51	3.06	2.4
117	6.47	6.27	6.16	5.92	5.72	5.49	5.32	5.14	4.88	4.58	4.26	3.9	3.52	3.07	2.39
118	6.48	6.32	6.19	5.96	5.78	5.55	5.38	5.2	4.94	4.62	4.29	3.94	3.53	3.09	2.4
119	6.52	6.32	6.2	5.98	5.79	5.57	5.38	5.19	4.94	4.61	4.26	3.92	3.5	3.05	2.36
120	6.52	6.32	6.2	5.98	5.79	5.57	5.37	5.17	4.89	4.58	4.23	3.88	3.47	3.01	2.34
121	7.36	7.13	7.01	6.75	6.51	6.25	6.04	5.84	5.54	5.2	4.84	4.43	4.03	3.5	2.74
122	7.31	7.09	6.97	6.7	6.48	6.22	6.03	5.82	5.53	5.19	4.83	4.43	4	3.48	2.72
123	7.37	7.17	7.03	6.78	6.54	6.31	6.1	5.89	5.6	5.26	4.87	4.45	4	3.5	2.71
124	7.45	7.23	7.11	6.86	6.63	6.39	6.16	5.96	5.65	5.3	4.9	4.49	4.02	3.5	2.71
125	7.47	7.26	7.12	6.88	6.68	6.42	6.2	5.96	5.67	5.28	4.91	4.5	4.02	3.48	2.68

Table A12c. Static and dynamic test data for seal 3 of Table 3 for low inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
126	3000	298	291	3.02	1.01	74.6	-30.1	.0963	.0481	.0199	-.0269	.158	.0141
127	6000	297	287	3.05	1.01	74.6	-29.8	.102	.0484	.0274	-.0354	.144	.0226
128	9500	297	290	3.02	1.01	74.6	-28.5	.0933	.0457	.0166	-.016	.162	.000621
129	13000	296	298	3.04	1.01	74.6	-26.5	.0997	.0429	.0166	.00885	.165	-.0043
130	16000	297	301	3.06	1.01	74.6	-24.6	.103	.0401	.011	.0319	.184	-.0157
131	3000	298	289	4.44	1.01	74.6	-30.8	.0924	.0723	.000527	-.0259	.162	.0192
132	6000	297	284	4.37	1.01	74.6	-30.4	.1	.0706	.0135	-.034	.147	.0244
133	9500	297	287	4.44	1.01	74.6	-28.9	.0904	.0682	8.83E-5	-.0195	.16	.00837
134	13000	296	290	4.4	1.01	74.6	-27.2	.0972	.0637	-.00414	.00483	.167	-.0033
135	16000	297	295	4.43	1.01	74.6	-25.1	.1	.0592	-.00515	.0221	.178	-.0138
136	3000	298	289	5.77	1	74.6	-31	.0919	.0946	-.00961	-.0227	.166	.0191
137	6000	297	284	5.72	1	74.6	-30.7	.098	.0931	.00424	-.0318	.144	.0277
138	9500	297	286	5.71	1.01	74.6	-29	.0899	.088	-.00549	-.0194	.152	.00621
139	13000	297	288	5.85	1.01	74.6	-27.4	.101	.0854	-.0113	.00138	.165	.00072
140	16000	296	292	5.84	1.01	74.6	-25.6	.0963	.0796	-.00794	.0191	.188	-.012
141	3000	298	291	7.13	1	74.6	-31.4	.0888	.118	-.00319	-.0217	.162	.0208
142	6000	297	287	7.12	1	74.6	-31	.0979	.117	.00297	-.0275	.14	.0248
143	9500	297	285	7.19	1	74.6	-29.1	.0859	.111	-.0017	-.0184	.156	.0167
144	13000	296	287	7.13	1	74.6	-27.8	.0979	.105	-.0129	1.91E-5	.169	-.00112
145	16000	297	291	7.22	1	74.6	-25.6	.0923	.0983	-.0132	.0155	.179	-.0102
146	3000	298	292	8.12	.999	74.6	-31.6	.0871	.136	-.000915	-.0204	.161	.0218
147	6000	297	290	8.11	.996	74.6	-31	.0938	.133	.00553	-.0252	.138	.0241
148	9500	297	284	8.14	.998	74.6	-29.4	.084	.127	-.000675	-.0179	.155	.0131
149	13000	297	287	8.17	1	74.6	-27.8	.0964	.121	-.0168	-.00186	.169	.00119
150	16000	297	291	8.21	1	74.6	-25.8	.093	.113	-.013	.0165	.172	-.0116

Case	Pi, i=1 to 15 ----------)														
126	2.75	2.67	2.63	2.54	2.46	2.37	2.3	2.23	2.14	2.03	1.91	1.78	1.65	1.5	1.27
127	2.77	2.69	2.64	2.55	2.47	2.39	2.32	2.25	2.15	2.03	1.92	1.79	1.66	1.5	1.26
128	2.75	2.68	2.63	2.54	2.47	2.39	2.31	2.25	2.15	2.04	1.92	1.8	1.66	1.51	1.27
129	2.78	2.71	2.67	2.58	2.51	2.43	2.35	2.28	2.19	2.07	1.94	1.82	1.67	1.51	1.26
130	2.8	2.73	2.68	2.6	2.53	2.44	2.36	2.29	2.19	2.08	1.95	1.82	1.66	1.51	1.26
131	4	3.89	3.82	3.68	3.55	3.41	3.3	3.19	3.02	2.84	2.65	2.44	2.23	1.97	1.57
132	3.95	3.84	3.77	3.63	3.51	3.38	3.27	3.17	3.02	2.84	2.64	2.44	2.22	1.96	1.57
133	4.02	3.92	3.85	3.72	3.6	3.47	3.37	3.25	3.09	2.9	2.7	2.5	2.26	1.99	1.57
134	4.01	3.89	3.82	3.7	3.59	3.46	3.35	3.24	3.08	2.89	2.7	2.49	2.25	1.98	1.57
135	4.06	3.94	3.87	3.76	3.65	3.51	3.39	3.27	3.11	2.92	2.72	2.51	2.26	1.98	1.56
136	5.21	5.05	4.96	4.78	4.62	4.43	4.29	4.13	3.92	3.69	3.44	3.15	2.87	2.51	1.97
137	5.17	5.03	4.94	4.76	4.6	4.42	4.29	4.16	3.95	3.71	3.45	3.17	2.87	2.52	1.97
138	5.15	5.03	4.93	4.75	4.59	4.42	4.27	4.13	3.92	3.68	3.42	3.14	2.84	2.48	1.93
139	5.31	5.16	5.07	4.9	4.75	4.58	4.43	4.26	4.06	3.79	3.53	3.24	2.91	2.54	1.98
140	5.32	5.17	5.07	4.9	4.76	4.58	4.43	4.27	4.04	3.77	3.51	3.23	2.9	2.53	1.96
141	6.42	6.23	6.11	5.88	5.67	5.44	5.28	5.1	4.85	4.55	4.22	3.87	3.51	3.06	2.39
142	6.44	6.25	6.14	5.91	5.71	5.48	5.32	5.14	4.89	4.58	4.24	3.9	3.52	3.07	2.4
143	6.48	6.32	6.2	5.98	5.79	5.57	5.39	5.21	4.94	4.63	4.3	3.95	3.57	3.1	2.4
144	6.47	6.29	6.17	5.95	5.77	5.56	5.37	5.19	4.91	4.59	4.24	3.91	3.51	3.06	2.38
145	6.58	6.39	6.26	6.05	5.87	5.66	5.46	5.26	4.98	4.66	4.29	3.94	3.53	3.09	2.38
146	7.32	7.1	6.97	6.71	6.47	6.21	6.01	5.81	5.52	5.19	4.83	4.42	4.01	3.49	2.73
147	7.32	7.11	6.98	6.72	6.49	6.24	6.04	5.84	5.56	5.22	4.86	4.45	4.02	3.49	2.72
148	7.36	7.16	7.02	6.78	6.57	6.32	6.12	5.91	5.61	5.24	4.87	4.47	4.02	3.5	2.72
149	7.41	7.21	7.08	6.83	6.62	6.37	6.15	5.94	5.61	5.25	4.86	4.44	4	3.49	2.69
150	7.48	7.28	7.13	6.9	6.7	6.45	6.22	5.99	5.66	5.29	4.89	4.5	4	3.5	2.72

Table A13a. Static and dynamic test data for seal 3 of Table 3 for low inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{\varepsilon}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
151	3000	295	291	3.06	1.02	38.7	29.8	.0951	.0486	-.017	.042	.194	-.0225
152	6000	296	287	3.07	1.02	38.7	29.3	.0866	.0479	-.0302	.0459	.188	-.024
153	9500	296	289	3.1	1.02	38.7	28.1	.0857	.0464	-.0308	.0548	.188	-.0228
154	13000	296	299	3.04	1.02	38.7	26.4	.0869	.0427	-.0189	.0653	.182	-.0186
155	16000	296	304	3.02	1.01	38.7	24.5	.0878	.0395	-.0131	.0687	.183	-.0138
156	3000	296	284	4.34	1.01	38.7	30.4	.0902	.0702	-.0383	.036	.174	-.0209
157	6000	296	284	4.38	1.01	38.7	29.8	.0879	.0695	-.0437	.0401	.167	-.0204
158	9500	296	286	4.43	1.02	38.7	28.9	.0892	.0683	-.0448	.0484	.182	-.025
159	13000	296	291	4.37	1.01	38.7	27.2	.0894	.0634	-.0397	.0575	.183	-.0262
160	16000	297	297	4.4	1.01	38.7	25.4	.0904	.0595	-.0331	.0614	.18	-.0223
161	3000	296	285	5.76	1	38.7	30.7	.0916	.094	-.0455	.0346	.162	-.0109
162	6000	296	285	5.71	1	38.7	30.1	.089	.0914	-.0453	.0389	.187	-.0216
163	9500	296	286	5.75	1.01	38.7	29	.0904	.0888	-.0479	.0472	.183	-.0304
164	13000	296	288	5.79	1	38.7	27.4	.0919	.0845	-.0475	.0555	.184	-.0279
165	16000	297	293	5.8	1	38.7	25.7	.0927	.0793	-.039	.057	.181	-.0293
166	3000	296	284	7.15	1	38.7	31	.0916	.118	-.042	.0343	.173	-.0216
167	6000	296	283	7.11	1	38.7	30.6	.0914	.116	-.0471	.0396	.175	-.0249
168	9500	297	285	7.16	1	38.7	29.3	.0921	.112	-.0515	.0471	.178	-.0279
169	13000	297	287	7.12	1	38.7	27.6	.0934	.105	-.0474	.0544	.186	-.031
170	16000	297	291	7.14	1	38.7	25.7	.0945	.0976	-.0397	.0556	.184	-.0332
171	3000	296	287	8.1	1	38.7	31.2	.0914	.134	-.0383	.0333	.18	-.0303
172	6000	296	285	8.12	.998	38.7	30.5	.0912	.132	-.0484	.038	.172	-.0228
173	9500	297	284	8.11	.999	38.7	29.4	.0932	.127	-.0498	.0475	.179	-.032
174	13000	296	286	8.19	1	38.7	27.7	.0939	.121	-.0471	.0521	.185	-.035
175	16000	297	291	8.16	1	38.7	26	.0952	.113	-.0415	.0555	.178	-.0434

Case	Pi, i=1 to 15 ---------->														
151	2.8	2.72	2.67	2.59	2.52	2.44	2.38	2.29	2.2	2.08	1.97	1.82	1.71	1.53	1.28
152	2.81	2.74	2.68	2.6	2.54	2.44	2.38	2.31	2.22	2.08	1.97	1.84	1.69	1.55	1.28
153	2.84	2.77	2.71	2.63	2.57	2.47	2.41	2.32	2.24	2.1	2	1.84	1.71	1.55	1.28
154	2.79	2.73	2.68	2.6	2.54	2.44	2.38	2.3	2.22	2.07	1.96	1.84	1.69	1.54	1.27
155	2.78	2.72	2.66	2.58	2.52	2.43	2.36	2.28	2.2	2.05	1.95	1.82	1.66	1.52	1.26
156	3.95	3.84	3.76	3.65	3.55	3.41	3.32	3.19	3.07	2.85	2.7	2.46	2.27	1.99	1.57
157	3.99	3.89	3.81	3.69	3.59	3.45	3.36	3.23	3.13	2.89	2.74	2.5	2.28	2.02	1.57
158	4.06	3.94	3.86	3.74	3.64	3.5	3.4	3.27	3.14	2.93	2.76	2.51	2.31	2	1.59
159	4.01	3.91	3.83	3.71	3.62	3.47	3.38	3.24	3.12	2.87	2.72	2.48	2.26	1.99	1.56
160	4.03	3.93	3.84	3.72	3.63	3.47	3.38	3.23	3.11	2.87	2.72	2.47	2.25	1.97	1.54
161	5.25	5.1	4.99	4.83	4.7	4.51	4.39	4.21	4.06	3.74	3.55	3.21	2.95	2.56	1.98
162	5.19	5.05	4.94	4.79	4.65	4.46	4.35	4.17	4.02	3.71	3.51	3.18	2.91	2.53	1.95
163	5.25	5.11	5.01	4.86	4.72	4.54	4.41	4.23	4.08	3.76	3.56	3.21	2.94	2.56	1.97
164	5.33	5.19	5.09	4.93	4.81	4.6	4.49	4.28	4.12	3.79	3.58	3.23	2.95	2.56	1.96
165	5.34	5.2	5.1	4.94	4.82	4.62	4.5	4.29	4.13	3.81	3.6	3.24	2.96	2.55	1.98
166	6.53	6.34	6.22	6.01	5.84	5.61	5.45	5.21	4.99	4.67	4.39	3.96	3.66	3.11	2.46
167	6.48	6.31	6.18	5.98	5.82	5.58	5.43	5.2	5.02	4.63	4.38	3.95	3.61	3.13	2.4
168	6.53	6.37	6.24	6.05	5.9	5.64	5.5	5.26	5.08	4.65	4.42	3.99	3.62	3.16	2.41
169	6.52	6.36	6.23	6.03	5.89	5.64	5.49	5.24	5.06	4.66	4.42	3.98	3.63	3.13	2.4
170	6.55	6.38	6.25	6.07	5.9	5.67	5.51	5.24	5.04	4.69	4.41	3.95	3.64	3.08	2.41
171	7.38	7.17	7.03	6.8	6.61	6.34	6.17	5.9	5.66	5.29	4.97	4.48	4.13	3.51	2.78
172	7.39	7.21	7.06	6.83	6.65	6.37	6.21	5.94	5.73	5.29	5.01	4.51	4.14	3.56	2.76
173	7.4	7.22	7.07	6.85	6.68	6.39	6.23	5.96	5.75	5.28	5	4.5	4.1	3.56	2.72
174	7.5	7.31	7.17	6.95	6.77	6.5	6.33	6.04	5.83	5.38	5.11	4.58	4.2	3.6	2.78
175	7.49	7.32	7.16	6.95	6.77	6.48	6.32	6.01	5.78	5.37	5.05	4.52	4.17	3.52	2.76

Table A13b. Static and dynamic test data for seal 3 of Table 3 for low inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	K̄	k̄	C̄x1000	c̄x1000
176	3000	293	286	3.02	1.01	56.8	29.6	.0956	.0481	-.014	.0372	.196	-.025
177	6000	292	282	3.03	1.01	56.8	28.9	.0903	.0474	-.022	.0455	.204	-.0263
178	9500	292	284	3.05	1.01	56.8	27.7	.0905	.0457	-.0201	.0541	.198	-.0364
179	13000	292	296	3.09	1.02	56.8	26.4	.088	.0441	-.0183	.0661	.194	-.035
180	16000	292	301	3.08	1.01	56.8	24.4	.0888	.0406	-.00911	.0725	.19	-.0221
181	3000	293	281	4.4	1	56.8	30.3	.0937	.0717	-.0324	.0383	.205	-.0296
182	6000	292	281	4.33	1	56.8	29.8	.0904	.0697	-.039	.0413	.188	-.0281
183	9500	292	284	4.4	1.01	56.8	28.4	.092	.0676	-.0384	.0476	.194	-.0403
184	13000	292	289	4.4	1.01	56.8	26.9	.0902	.0641	-.0356	.0583	.192	-.0358
185	16000	293	295	4.43	1.01	56.8	25	.0902	.0599	-.0313	.0636	.188	-.0359
186	3000	293	284	5.77	1	56.8	30.5	.093	.0945	-.0367	.0395	.205	-.0285
187	6000	292	280	5.74	1	56.8	29.8	.0913	.0926	-.0453	.0407	.183	-.0261
188	9500	292	283	5.75	1.01	56.8	28.6	.0908	.0888	-.0454	.0474	.198	-.0425
189	13000	292	285	5.7	1.01	56.8	27.2	.0915	.0839	-.0426	.0571	.196	-.0388
190	16000	293	291	5.8	1.01	56.8	25.3	.0887	.0791	-.0369	.0616	.18	-.038
191	3000	293	287	7.08	.999	56.8	31	.0933	.118	-.0413	.0341	.182	-.00922
192	6000	292	283	7.09	1	56.8	30.3	.0917	.116	-.0444	.0399	.187	-.0272
193	9500	292	282	7.12	1	56.8	29.1	.0915	.112	-.0496	.0474	.183	-.0315
194	13000	292	284	7.09	1	56.8	27.7	.09	.106	-.0453	.0566	.191	-.042
195	16000	293	289	7.23	1	56.8	25.4	.0896	.0992	-.0388	.0609	.183	-.0374
196	3000	293	285	8.08	.996	56.8	30.9	.0864	.135	-.0382	.0382	.195	-.0201
197	6000	292	284	8.15	.996	56.8	30.3	.0849	.133	-.0421	.0389	.187	-.0335
198	9500	292	281	8.11	1	56.8	29.2	.0907	.128	-.0489	.0465	.185	-.0378
199	13000	292	283	8.19	1	56.8	27.7	.09	.123	-.0457	.0547	.186	-.0495
200	16000	293	289	8.17	1	56.8	25.6	.0892	.113	-.0367	.0575	.176	-.0432

Case	Pi, i=1 to 15 ---------->														
176	2.77	2.69	2.64	2.56	2.49	2.41	2.34	2.27	2.18	2.05	1.94	1.81	1.68	1.52	1.27
177	2.78	2.7	2.66	2.57	2.51	2.42	2.35	2.28	2.18	2.06	1.94	1.82	1.68	1.52	1.27
178	2.81	2.73	2.68	2.6	2.54	2.46	2.38	2.31	2.21	2.09	1.97	1.84	1.7	1.53	1.28
179	2.84	2.77	2.72	2.63	2.57	2.48	2.4	2.33	2.23	2.1	1.98	1.85	1.7	1.54	1.28
180	2.85	2.77	2.72	2.64	2.57	2.48	2.4	2.32	2.22	2.09	1.97	1.84	1.69	1.52	1.27
181	4.02	3.9	3.83	3.7	3.6	3.46	3.36	3.25	3.1	2.9	2.72	2.51	2.29	2	1.59
182	3.95	3.83	3.76	3.63	3.54	3.4	3.29	3.19	3.04	2.84	2.66	2.45	2.23	1.96	1.55
183	4.03	3.91	3.84	3.71	3.61	3.48	3.37	3.25	3.1	2.9	2.71	2.51	2.27	1.99	1.57
184	4.04	3.92	3.85	3.72	3.63	3.49	3.38	3.26	3.1	2.91	2.71	2.5	2.27	1.99	1.57
185	4.08	3.96	3.89	3.77	3.68	3.53	3.41	3.29	3.13	2.93	2.73	2.51	2.27	1.99	1.57
186	5.26	5.1	5.01	4.83	4.7	4.53	4.38	4.23	4.03	3.77	3.53	3.23	2.93	2.55	1.99
187	5.24	5.09	4.99	4.83	4.7	4.51	4.37	4.22	4.03	3.76	3.51	3.22	2.92	2.54	1.98
188	5.26	5.11	5.02	4.86	4.72	4.55	4.4	4.24	4.04	3.79	3.52	3.24	2.91	2.55	1.98
189	5.24	5.09	5	4.84	4.71	4.53	4.38	4.23	4.02	3.75	3.5	3.22	2.9	2.52	1.95
190	5.36	5.21	5.11	4.95	4.82	4.65	4.48	4.33	4.12	3.84	3.59	3.28	2.95	2.58	1.99
191	6.46	6.26	6.15	5.93	5.77	5.54	5.37	5.19	4.94	4.61	4.31	3.95	3.57	3.11	2.41
192	6.47	6.28	6.17	5.96	5.81	5.58	5.41	5.22	4.98	4.64	4.34	3.97	3.59	3.12	2.42
193	6.52	6.33	6.21	6.01	5.85	5.64	5.45	5.27	5.04	4.7	4.37	4.03	3.62	3.15	2.44
194	6.5	6.31	6.19	5.99	5.83	5.6	5.41	5.22	4.96	4.63	4.3	3.95	3.53	3.08	2.38
195	6.67	6.49	6.36	6.16	5.99	5.77	5.57	5.37	5.11	4.75	4.42	4.06	3.63	3.15	2.43
196	7.37	7.15	7.01	6.77	6.58	6.32	6.11	5.92	5.64	5.26	4.9	4.49	4.06	3.55	2.75
197	7.4	7.18	7.05	6.8	6.62	6.36	6.17	5.97	5.7	5.32	4.97	4.55	4.11	3.58	2.77
198	7.42	7.21	7.08	6.84	6.67	6.4	6.2	5.99	5.7	5.33	4.97	4.55	4.09	3.57	2.75
199	7.51	7.31	7.17	6.94	6.75	6.49	6.28	6.06	5.76	5.38	5	4.6	4.12	3.58	2.77
200	7.52	7.3	7.18	6.94	6.76	6.5	6.28	6.05	5.76	5.37	5	4.59	4.11	3.56	2.74

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Table A13c. Static and dynamic test data for seal 3 of Table 3 for low inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
201	3000	296	289	3.03	1.01	74.6	29.8	.0905	.0481	-.0112	.037	.197	-.0153
202	6000	294	283	3.03	1.01	74.6	29.1	.0934	.0473	-.0202	.0431	.199	-.0228
203	9500	294	286	3.01	1.01	74.6	28.4	.0975	.0459	-.0203	.0529	.195	-.032
204	13000	293	298	3.08	1.01	74.6	26.3	.0856	.0436	-.0148	.0618	.194	-.036
205	16000	293	300	3.06	1.01	74.6	24.5	.0941	.0405	-.00454	.073	.19	-.0316
206	3000	295	288	4.33	1	74.6	30.5	.0927	.0705	-.0271	.0345	.194	-.0106
207	6000	294	282	4.37	1	74.6	29.8	.0945	.0699	-.0328	.037	.185	-.0215
208	9500	294	285	4.35	1.01	74.6	28.7	.096	.0669	-.0383	.0464	.191	-.0318
209	13000	293	289	4.44	1.01	74.6	27	.0918	.0647	-.0308	.0571	.193	-.0418
210	16000	293	294	4.4	1.01	74.6	25.2	.0936	.0597	-.0261	.0623	.181	-.0365
211	3000	296	289	5.75	1	74.6	30.8	.0885	.0945	-.0292	.0338	.189	-.0184
212	6000	294	282	5.77	1	74.6	30.1	.0922	.0929	-.0506	.0369	.175	-.018
213	9500	294	284	5.73	1	74.6	29.1	.0943	.0895	-.0428	.0445	.189	-.0326
214	13000	293	286	5.79	1	74.6	27.2	.0944	.0848	-.0382	.054	.195	-.0416
215	16000	293	290	5.72	1	74.6	25.2	.087	.0775	-.0249	.0615	.19	-.046
216	3000	295	289	7.11	.996	74.6	31.3	.0858	.119	-.0323	.0347	.185	-.0136
217	6000	295	282	7.09	.998	74.6	30.6	.0938	.116	-.0379	.0386	.189	-.0278
218	9500	293	283	7.16	1	74.6	29.1	.0915	.112	-.0431	.0436	.187	-.0376
219	13000	293	285	7.16	1	74.6	27.5	.0916	.106	-.0378	.051	.194	-.0457
220	16000	294	289	7.11	1	74.6	25.2	.0859	.0965	-.0346	.0585	.177	-.0415
221	3000	295	287	8.09	.994	74.6	31.3	.0899	.135	-.0327	.0318	.184	-.0295
222	6000	295	288	8.13	.994	74.6	30.7	.0938	.133	-.04	.0358	.18	-.0308
223	9500	293	282	8.09	1	74.6	29.3	.0874	.127	-.0461	.0448	.188	-.0412
224	13000	293	284	8.11	.999	74.6	27.8	.0902	.121	-.0395	.0514	.195	-.0483
225	16000	293	288	8.2	.999	74.6	25.7	.094	.114	-.0345	.0573	.18	-.0477

Case	P_i, i=1 to 15 ---------->														
201	2.78	2.7	2.66	2.57	2.49	2.41	2.33	2.26	2.17	2.05	1.93	1.8	1.66	1.51	1.26
202	2.78	2.7	2.65	2.57	2.51	2.42	2.34	2.27	2.18	2.06	1.94	1.81	1.66	1.51	1.26
203	2.77	2.7	2.66	2.57	2.5	2.42	2.34	2.27	2.18	2.06	1.93	1.8	1.66	1.51	1.26
204	2.84	2.76	2.71	2.63	2.56	2.48	2.4	2.32	2.22	2.1	1.98	1.85	1.7	1.53	1.27
205	2.83	2.75	2.7	2.62	2.56	2.47	2.39	2.31	2.22	2.09	1.97	1.84	1.69	1.52	1.27
206	3.94	3.82	3.75	3.62	3.52	3.39	3.27	3.16	3.01	2.83	2.65	2.44	2.21	1.94	1.54
207	4	3.89	3.8	3.68	3.57	3.44	3.34	3.22	3.08	2.89	2.71	2.5	2.27	1.99	1.57
208	3.98	3.88	3.81	3.69	3.59	3.47	3.35	3.23	3.09	2.89	2.71	2.5	2.27	1.99	1.57
209	4.09	3.97	3.9	3.78	3.67	3.53	3.41	3.28	3.12	2.93	2.74	2.52	2.28	2	1.58
210	4.04	3.93	3.85	3.73	3.63	3.5	3.38	3.25	3.1	2.91	2.72	2.52	2.27	1.99	1.57
211	5.24	5.08	4.98	4.82	4.66	4.49	4.33	4.18	3.98	3.72	3.47	3.19	2.87	2.5	1.94
212	5.28	5.13	5.03	4.87	4.72	4.55	4.41	4.26	4.05	3.8	3.54	3.25	2.94	2.56	2
213	5.24	5.09	5	4.84	4.71	4.53	4.39	4.22	4.01	3.75	3.51	3.23	2.92	2.54	1.98
214	5.34	5.19	5.1	4.94	4.81	4.64	4.48	4.31	4.09	3.83	3.57	3.29	2.97	2.59	2
215	5.26	5.11	5.02	4.87	4.75	4.57	4.42	4.24	4.03	3.76	3.5	3.23	2.9	2.53	1.95
216	6.45	6.25	6.13	5.93	5.75	5.52	5.32	5.13	4.86	4.54	4.23	3.87	3.49	3.05	2.37
217	6.46	6.26	6.16	5.96	5.79	5.57	5.4	5.2	4.94	4.61	4.3	3.95	3.56	3.11	2.41
218	6.53	6.35	6.24	6.04	5.89	5.68	5.5	5.31	5.03	4.71	4.38	4.04	3.65	3.17	2.46
219	6.57	6.39	6.26	6.06	5.89	5.68	5.49	5.29	5.01	4.68	4.35	4	3.6	3.14	2.43
220	6.55	6.37	6.24	6.05	5.89	5.66	5.47	5.28	4.99	4.65	4.31	3.95	3.56	3.08	2.39
221	7.36	7.14	7.01	6.77	6.59	6.34	6.14	5.93	5.64	5.25	4.9	4.5	4.07	3.55	2.76
222	7.42	7.21	7.08	6.86	6.67	6.42	6.22	6.01	5.71	5.33	4.95	4.55	4.09	3.57	2.77
223	7.38	7.17	7.04	6.84	6.66	6.41	6.2	5.99	5.66	5.28	4.92	4.52	4.09	3.58	2.77
224	7.43	7.23	7.1	6.89	6.71	6.48	6.26	6.03	5.71	5.31	4.93	4.53	4.08	3.55	2.75
225	7.54	7.34	7.2	6.98	6.8	6.55	6.33	6.1	5.77	5.37	4.98	4.56	4.1	3.56	2.75

Table A14a. Static and dynamic test data for seal 3 of Table 3 for high inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
226	3000	296	292	2.99	1.01	38.7	-66	.0941	.046	.015	-.0502	.162	.0168
227	6000	297	288	3.02	1.01	38.7	-65.3	.0869	.0459	.0217	-.046	.137	.0218
228	9500	297	290	3.04	1.01	38.7	-63	.0859	.0447	.0326	-.0368	.126	.0224
229	13000	298	300	3.01	1.01	38.7	-58.9	.0872	.0413	.0318	-.0107	.142	.0187
230	16000	299	303	3.08	1.01	38.7	-54.9	.0899	.0395	.00736	.014	.171	-.00287
231	3000	297	289	4.37	1	38.7	-67.8	.0928	.0688	-.0123	-.0479	.169	.0254
232	6000	297	284	4.35	1.01	38.7	-66.4	.0871	.0672	.00752	-.0418	.129	.0331
233	9500	298	287	4.41	1.01	38.7	-64.2	.0869	.0659	.0114	-.0382	.13	.0248
234	13000	298	292	4.36	1.01	38.7	-60.3	.0875	.0612	.00856	-.0209	.138	.0228
235	16000	299	298	4.43	1.01	38.7	-56.1	.0899	.0579	-.00896	.00272	.179	.0185
236	3000	297	286	5.7	1	38.7	-68.2	.0931	.0904	-.0194	-.0468	.161	.0287
237	6000	297	284	5.68	1	38.7	-67.3	.0851	.0888	-.000117	-.0409	.13	.0218
238	9500	298	286	5.8	1	38.7	-64.1	.0875	.0863	.00519	-.0385	.128	.0377
239	13000	298	290	5.79	1	38.7	-60.6	.0889	.0816	-.00633	-.0249	.153	.0207
240	16000	300	294	5.74	1	38.7	-56.4	.0913	.0753	-.0157	-.000983	.176	.0166
241	3000	297	286	7.09	.997	38.7	-68.8	.0933	.113	-.0201	-.0443	.163	.0375
242	6000	297	288	7.1	1	38.7	-67.8	.0846	.112	.000909	-.0382	.13	.028
243	9500	298	286	7.1	1	38.7	-64.8	.0876	.107	.000309	-.038	.129	.0338
244	13000	298	288	7.13	1	38.7	-61	.0888	.101	-.00746	-.0254	.156	.0302
245	16000	300	293	7.15	1	38.7	-56.9	.0943	.0944	-.0178	-.00218	.17	.0197
246	3000	297	287	8.04	.997	38.7	-69.3	.094	.129	-.0175	-.0433	.161	.0381
247	6000	297	284	8.03	.998	38.7	-67.9	.0851	.127	-.00248	-.0365	.137	.0344
248	9500	298	285	8.07	1	38.7	-65.4	.0876	.122	.000833	-.0358	.127	.0369
249	13000	298	287	8.17	1	38.7	-61.7	.0902	.117	-.00962	-.025	.157	.0293
250	16000	300	293	8.11	1	38.7	-57	.0942	.108	-.0183	-.00522	.176	.0267

Case	Pi, i=1 to 15 ---------->														
226	2.65	2.57	2.53	2.44	2.36	2.28	2.21	2.14	2.04	1.95	1.84	1.73	1.61	1.46	1.24
227	2.69	2.61	2.57	2.48	2.39	2.32	2.24	2.18	2.08	1.98	1.87	1.75	1.63	1.48	1.25
228	2.72	2.65	2.59	2.51	2.42	2.36	2.27	2.21	2.12	2.01	1.9	1.77	1.65	1.49	1.25
229	2.72	2.64	2.59	2.52	2.42	2.36	2.28	2.22	2.13	2.01	1.9	1.78	1.64	1.49	1.25
230	2.79	2.72	2.66	2.6	2.51	2.44	2.36	2.28	2.2	2.07	1.96	1.81	1.68	1.51	1.26
231	3.85	3.73	3.66	3.52	3.39	3.26	3.16	3.06	2.9	2.74	2.56	2.36	2.16	1.9	1.52
232	3.85	3.73	3.66	3.52	3.39	3.27	3.16	3.06	2.91	2.74	2.57	2.36	2.16	1.89	1.52
233	3.92	3.8	3.73	3.6	3.46	3.36	3.23	3.14	2.99	2.81	2.63	2.42	2.21	1.94	1.54
234	3.92	3.78	3.72	3.59	3.47	3.37	3.24	3.15	2.99	2.82	2.64	2.42	2.21	1.93	1.54
235	3.99	3.88	3.82	3.69	3.57	3.47	3.34	3.23	3.08	2.89	2.7	2.47	2.26	1.95	1.56
236	5.03	4.85	4.77	4.58	4.41	4.24	4.1	3.97	3.76	3.54	3.29	3.04	2.77	2.39	1.89
237	5.03	4.85	4.78	4.59	4.42	4.25	4.11	3.99	3.79	3.57	3.33	3.04	2.79	2.4	1.9
238	5.16	4.99	4.9	4.72	4.54	4.4	4.24	4.1	3.9	3.67	3.42	3.12	2.85	2.45	1.92
239	5.2	5.03	4.93	4.77	4.59	4.46	4.29	4.15	3.95	3.7	3.46	3.15	2.87	2.46	1.94
240	5.18	5.01	4.92	4.77	4.61	4.46	4.29	4.14	3.93	3.7	3.43	3.13	2.84	2.43	1.91
241	6.26	6.02	5.94	5.69	5.49	5.27	5.1	4.94	4.69	4.39	4.1	3.76	3.42	2.96	2.33
242	6.28	6.06	5.96	5.72	5.5	5.31	5.12	4.97	4.72	4.44	4.14	3.79	3.45	2.96	2.33
243	6.31	6.11	6	5.78	5.55	5.39	5.18	5.02	4.78	4.47	4.18	3.81	3.46	2.97	2.33
244	6.39	6.17	6.08	5.85	5.63	5.46	5.25	5.08	4.83	4.53	4.21	3.83	3.48	2.97	2.34
245	6.45	6.24	6.14	5.91	5.73	5.54	5.33	5.16	4.87	4.59	4.27	3.89	3.51	2.99	2.35
246	7.08	6.83	6.72	6.45	6.21	5.97	5.77	5.59	5.3	4.98	4.63	4.26	3.88	3.33	2.63
247	7.09	6.85	6.73	6.47	6.22	6.01	5.79	5.62	5.34	5.02	4.68	4.28	3.9	3.34	2.64
248	7.16	6.93	6.8	6.56	6.32	6.11	5.89	5.7	5.42	5.08	4.73	4.33	3.92	3.35	2.64
249	7.33	7.07	6.98	6.71	6.47	6.25	6.02	5.84	5.53	5.19	4.82	4.42	3.98	3.41	2.68
250	7.31	7.07	6.95	6.73	6.49	6.29	6.06	5.84	5.53	5.2	4.8	4.4	3.97	3.37	2.66

Table A14b. Static and dynamic test data for seal 3 of Table 3 for high inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
251	3000	303	297	3.04	1.01	56.8	-67	.0905	.0465	.0145	-.0513	.152	.025
252	6000	304	290	3.03	1.01	56.8	-66	.0902	.0454	.0201	-.0461	.151	.0188
253	9500	304	292	3.02	1.01	56.8	-64	.0908	.0441	.0317	-.0363	.141	.0212
254	13000	303	300	2.99	1.01	56.8	-59	.0903	.0404	.032	-.00926	.162	.00446
255	16000	303	304	3.09	1.01	56.8	-55.1	.0913	.0392	.00808	.0172	.17	-.00363
256	3000	304	291	4.34	1.01	56.8	-68.4	.0878	.0675	-.00948	-.0494	.16	.028
257	6000	304	287	4.4	1.01	56.8	-67.6	.0915	.0675	-.0011	-.0404	.145	.0224
258	9500	304	289	4.38	1.01	56.8	-65.1	.0924	.0649	.0134	-.0372	.137	.0288
259	13000	304	294	4.46	1.01	56.8	-59.8	.0891	.061	.0106	-.0214	.145	.0245
260	16000	304	297	4.45	1.01	56.8	-56.4	.0907	.0574	-.00904	.00599	.169	-3.64E-5
261	3000	304	288	5.69	1	56.8	-69.2	.0873	.0893	-.0199	-.0454	.17	.0271
262	6000	304	287	5.75	1	56.8	-68	.0911	.0886	.00184	-.0413	.137	.0158
263	9500	304	289	5.78	1	56.8	-64.7	.093	.0852	.00528	-.0371	.141	.0388
264	13000	304	292	5.72	1	56.8	-61.1	.0899	.0799	-.00525	-.0238	.153	.0206
265	16000	304	295	5.77	1.01	56.8	-56.9	.0905	.0753	-.016	.00271	.171	.00794
266	3000	304	290	7.08	1	56.8	-69.6	.0874	.112	-.0244	-.0458	.158	.034
267	6000	305	287	7.07	1	56.8	-68.4	.0911	.11	-.000538	-.0371	.14	.033
268	9500	304	289	7.07	1	56.8	-65.7	.0936	.106	.00214	-.0352	.134	.0389
269	13000	304	290	7.11	1	56.8	-61.9	.0897	.1	-.00498	-.0256	.154	.0309
270	16000	304	294	7.15	1	56.8	-57.2	.0919	.0935	-.0126	-.001	.168	.0137
271	3000	304	295	8.05	.998	56.8	-69.7	.0867	.127	-.0153	-.0427	.152	.027
272	6000	305	289	8.06	1	56.8	-68.3	.092	.125	-.00457	-.0371	.141	.024
273	9500	304	288	8.12	1	56.8	-65.7	.0914	.121	.00512	-.0351	.129	.0361
274	13000	304	290	8.18	1	56.8	-61.9	.09	.115	-.0085	-.0248	.157	.0267
275	16000	304	294	8.17	1	56.8	-57.2	.0912	.107	-.0115	-.00271	.169	.0156

Case	Pi, i=1 to 15 ----------)														
251	2.7	2.62	2.57	2.47	2.4	2.31	2.25	2.18	2.08	1.98	1.87	1.75	1.63	1.48	1.25
252	2.7	2.62	2.57	2.47	2.4	2.31	2.25	2.18	2.09	1.98	1.87	1.76	1.63	1.47	1.25
253	2.7	2.61	2.57	2.47	2.4	2.31	2.24	2.18	2.09	1.97	1.86	1.75	1.62	1.47	1.25
254	2.71	2.62	2.58	2.49	2.42	2.34	2.27	2.2	2.11	2	1.89	1.77	1.63	1.48	1.25
255	2.79	2.72	2.68	2.59	2.52	2.44	2.36	2.29	2.2	2.07	1.95	1.82	1.67	1.51	1.26
256	3.83	3.71	3.65	3.5	3.38	3.24	3.15	3.04	2.91	2.73	2.56	2.36	2.16	1.91	1.52
257	3.9	3.77	3.71	3.55	3.44	3.31	3.21	3.1	2.97	2.79	2.61	2.41	2.2	1.94	1.54
258	3.89	3.77	3.7	3.56	3.44	3.32	3.22	3.1	2.96	2.79	2.61	2.4	2.19	1.93	1.53
259	4.02	3.89	3.82	3.69	3.57	3.45	3.35	3.23	3.09	2.9	2.7	2.5	2.26	1.99	1.58
260	4.01	3.9	3.83	3.69	3.58	3.45	3.33	3.21	3.06	2.87	2.67	2.46	2.22	1.95	1.54
261	5.01	4.84	4.76	4.55	4.4	4.21	4.09	3.94	3.76	3.52	3.29	3.02	2.75	2.39	1.88
262	5.08	4.9	4.82	4.62	4.46	4.29	4.16	4.02	3.83	3.59	3.35	3.08	2.79	2.44	1.9
263	5.15	4.98	4.89	4.7	4.54	4.38	4.24	4.1	3.91	3.66	3.41	3.14	2.82	2.46	1.92
264	5.13	4.97	4.88	4.69	4.54	4.37	4.24	4.09	3.89	3.64	3.39	3.12	2.81	2.43	1.89
265	5.22	5.06	4.97	4.78	4.65	4.49	4.34	4.18	3.98	3.72	3.45	3.16	2.84	2.46	1.91
266	6.23	6.01	5.91	5.66	5.47	5.24	5.09	4.91	4.68	4.39	4.1	3.76	3.41	2.97	2.32
267	6.24	6.04	5.93	5.68	5.49	5.27	5.12	4.93	4.71	4.41	4.12	3.77	3.41	2.97	2.3
268	6.28	6.08	5.97	5.73	5.55	5.34	5.18	4.99	4.76	4.45	4.14	3.81	3.43	2.97	2.31
269	6.37	6.17	6.06	5.82	5.65	5.44	5.26	5.06	4.84	4.51	4.19	3.85	3.45	2.99	2.32
270	6.45	6.26	6.16	5.93	5.75	5.53	5.37	5.17	4.92	4.58	4.26	3.9	3.5	3.04	2.34
271	7.07	6.83	6.72	6.42	6.21	5.94	5.77	5.56	5.3	4.97	4.64	4.26	3.86	3.36	2.62
272	7.12	6.88	6.77	6.48	6.27	6.01	5.83	5.64	5.37	5.03	4.69	4.3	3.89	3.38	2.62
273	7.2	6.97	6.85	6.56	6.37	6.11	5.94	5.73	5.46	5.12	4.76	4.36	3.95	3.42	2.65
274	7.33	7.09	6.96	6.71	6.5	6.25	6.07	5.83	5.57	5.19	4.83	4.44	3.99	3.43	2.66
275	7.37	7.15	7	6.76	6.57	6.31	6.11	5.89	5.6	5.23	4.87	4.46	3.99	3.43	2.65

Table A14c. Static and dynamic test data for seal 3 of Table 3 for high inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	a	K	k	Cx1000	cx1000
276	3000	301	292	3	1.01	74.6	-66.6	.0893	.0459	.00989	-.0455	.171	.0265
277	6000	302	290	3.04	1.01	74.6	-66	.0925	.0459	.0155	-.0462	.158	.0162
278	9500	302	291	3	1.01	74.6	-64	.0984	.044	.0327	-.0323	.137	.0272
279	13000	303	302	3.05	1.01	74.6	-59.6	.0933	.0417	.0344	-.0124	.155	.0134
280	16000	303	303	3.07	1.01	74.6	-54.9	.0939	.0388	.00988	.0189	.169	-.00771
281	3000	301	290	4.32	1.01	74.6	-68.1	.0863	.0676	-.00779	-.0433	.17	.0319
282	6000	302	287	4.34	1.01	74.6	-67.6	.0929	.067	.013	-.0399	.146	.0303
283	9500	303	289	4.38	1.01	74.6	-64.7	.0856	.0648	.0118	-.0366	.141	.0262
284	13000	303	294	4.37	1.01	74.6	-60.7	.0918	.0608	.0113	-.0182	.149	.021
285	16000	303	297	4.41	1.01	74.6	-56	.092	.0568	-.00513	.00654	.165	.00146
286	3000	302	286	5.73	1	74.6	-68.5	.0905	.0898	-.0172	-.0439	.16	.0319
287	6000	303	287	5.72	1	74.6	-67.3	.0902	.0878	.0043	-.038	.14	.0276
288	9500	303	288	5.72	1	74.6	-65.1	.0914	.0851	.000871	-.0338	.141	.0264
289	13000	303	292	5.67	1	74.6	-61.1	.092	.0793	.00179	-.0214	.158	.0244
290	16000	303	295	5.8	1.01	74.6	-56.7	.0976	.0755	-.013	.00334	.168	.00255
291	3000	302	293	7.06	.999	74.6	-69.6	.0874	.112	-.0134	-.0407	.161	.0345
292	6000	302	286	7.11	1	74.6	-68.2	.0907	.111	.000576	-.0354	.144	.0308
293	9500	303	289	7.07	1	74.6	-65.5	.0908	.106	.00346	-.0337	.13	.0321
294	13000	303	291	7.12	1	74.6	-61.9	.0961	.101	-.00314	-.0226	.151	.0234
295	16000	304	295	7.17	1	74.6	-57.3	.0898	.0943	-.00803	.00135	.165	.00592
296	3000	302	293	8.08	.998	74.6	-69.5	.0857	.128	-.0139	-.0386	.162	.0355
297	6000	303	287	8.09	.999	74.6	-68.6	.092	.127	-.00287	-.0364	.137	.0301
298	9500	304	288	8.08	.998	74.6	-65.6	.09	.121	.003	-.0309	.135	.0342
299	13000	303	290	8.18	1	74.6	-61.8	.0936	.116	-.00336	-.02	.152	.0312
300	16000	304	295	8.12	1	74.6	-56.9	.0906	.106	-.00957	.00222	.175	.00938

Case	Pi, i=1 to 15 ---------->														
276	2.67	2.59	2.54	2.45	2.38	2.29	2.23	2.16	2.07	1.96	1.86	1.74	1.62	1.48	1.25
277	2.7	2.61	2.56	2.46	2.39	2.3	2.24	2.17	2.08	1.96	1.85	1.74	1.62	1.47	1.24
278	2.68	2.6	2.55	2.46	2.38	2.3	2.24	2.17	2.08	1.97	1.86	1.74	1.61	1.47	1.24
279	2.76	2.67	2.63	2.54	2.47	2.39	2.32	2.24	2.15	2.04	1.92	1.8	1.66	1.5	1.26
280	2.77	2.71	2.66	2.58	2.52	2.44	2.36	2.28	2.19	2.07	1.95	1.83	1.68	1.51	1.26
281	3.81	3.68	3.62	3.47	3.36	3.22	3.13	3.02	2.87	2.71	2.54	2.35	2.14	1.89	1.51
282	3.84	3.71	3.64	3.49	3.37	3.24	3.14	3.04	2.9	2.72	2.54	2.35	2.14	1.89	1.51
283	3.9	3.78	3.71	3.56	3.45	3.32	3.22	3.12	2.99	2.8	2.62	2.42	2.2	1.93	1.54
284	3.92	3.8	3.74	3.59	3.48	3.36	3.26	3.15	3.01	2.82	2.63	2.43	2.21	1.94	1.54
285	3.97	3.85	3.78	3.65	3.54	3.41	3.3	3.2	3.03	2.84	2.64	2.44	2.21	1.94	1.54
286	5.05	4.88	4.8	4.59	4.44	4.25	4.13	3.99	3.78	3.55	3.31	3.05	2.77	2.41	1.89
287	5.06	4.9	4.81	4.61	4.46	4.27	4.15	4.01	3.84	3.6	3.35	3.07	2.78	2.42	1.89
288	5.08	4.92	4.83	4.63	4.49	4.31	4.18	4.04	3.86	3.61	3.36	3.08	2.78	2.42	1.89
289	5.07	4.92	4.82	4.65	4.51	4.34	4.21	4.08	3.88	3.62	3.38	3.11	2.81	2.45	1.91
290	5.21	5.07	4.97	4.8	4.67	4.49	4.34	4.18	3.98	3.71	3.44	3.16	2.84	2.47	1.91
291	6.19	5.98	5.88	5.62	5.43	5.2	5.05	4.88	4.63	4.34	4.06	3.73	3.39	2.94	2.29
292	6.26	6.06	5.95	5.7	5.51	5.28	5.13	4.96	4.72	4.42	4.11	3.77	3.41	2.97	2.31
293	6.27	6.07	5.95	5.72	5.54	5.33	5.17	4.98	4.74	4.43	4.13	3.78	3.42	2.96	2.3
294	6.37	6.18	6.07	5.82	5.65	5.44	5.28	5.1	4.85	4.54	4.22	3.87	3.48	3.02	2.34
295	6.46	6.26	6.15	5.92	5.75	5.53	5.36	5.18	4.91	4.57	4.25	3.9	3.49	3.02	2.34
296	7.1	6.86	6.75	6.47	6.26	5.99	5.82	5.62	5.35	5.01	4.67	4.28	3.9	3.39	2.64
297	7.13	6.89	6.77	6.49	6.27	6.02	5.84	5.65	5.39	5.04	4.69	4.3	3.89	3.37	2.62
298	7.17	6.94	6.82	6.55	6.34	6.1	5.91	5.71	5.44	5.09	4.74	4.33	3.91	3.41	2.63
299	7.31	7.08	6.95	6.69	6.48	6.24	6.05	5.84	5.57	5.19	4.83	4.44	3.98	3.46	2.66
300	7.3	7.07	6.97	6.68	6.49	6.27	6.09	5.86	5.57	5.2	4.82	4.42	3.96	3.43	2.65

Table A15a. Static and dynamic test data for seal 3 of Table 3 for high inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
301	3000	301	294	3.02	1.01	38.7	78.3	.0897	.0451	-.00694	.0585	.196	-.0394
302	6000	301	291	3.05	1.01	38.7	77.4	.0869	.045	-.0172	.0627	.206	-.0489
303	9500	302	291	3.03	1.01	38.7	73.9	.0852	.0428	-.0181	.069	.201	-.0555
304	13000	301	302	3.07	1.01	38.7	70.6	.0867	.0415	-.0122	.0749	.199	-.0444
305	16000	301	305	3.06	1.01	38.7	65	.0865	.0384	-.0121	.0785	.198	-.0528
306	3000	301	289	4.39	1.01	38.7	81	.0893	.0677	-.0245	.0492	.188	-.0398
307	6000	302	286	4.44	1.01	38.7	79.1	.0878	.0668	-.0314	.053	.197	-.0511
308	9500	302	289	4.42	1.01	38.7	76.1	.0872	.064	-.0347	.0596	.191	-.0545
309	13000	301	294	4.42	1.01	38.7	71.4	.0877	.0604	-.0305	.065	.187	-.0581
310	16000	301	300	4.43	1.01	38.7	66.7	.0884	.0569	-.0287	.0698	.185	-.0511
311	3000	301	287	5.76	1	38.7	81.1	.0901	.0888	-.0323	.0481	.185	-.0175
312	6000	302	286	5.8	1.01	38.7	79.6	.0885	.0877	-.0432	.0528	.179	-.035
313	9500	301	288	5.79	1.01	38.7	76.3	.0886	.0842	-.0384	.0568	.189	-.0589
314	13000	302	291	5.82	1.01	38.7	72.3	.089	.0806	-.0405	.0641	.191	-.0494
315	16000	302	294	5.81	1.01	38.7	67.7	.0906	.0756	-.037	.0656	.19	-.0657
316	3000	302	295	7.16	1	38.7	82.1	.0911	.111	-.0331	.047	.177	-.0226
317	6000	302	286	7.18	1	38.7	80.9	.0905	.11	-.0396	.0511	.186	-.0495
318	9500	302	287	7.16	1	38.7	77.1	.0904	.105	-.0406	.0565	.186	-.0451
319	13000	302	290	7.15	1	38.7	73	.0901	.0996	-.0398	.06	.184	-.0587
320	16000	302	293	7.15	1	38.7	67.7	.0913	.093	-.0362	.0635	.186	-.0753
321	3000	302	289	8.13	1	38.7	82.3	.0901	.127	-.0298	.0445	.176	-.026
322	6000	302	286	8.17	1	38.7	80.5	.0911	.125	-.0376	.0502	.185	-.0426
323	9500	302	288	8.13	1	38.7	77.6	.0905	.12	-.0415	.0556	.184	-.0563
324	13000	302	289	8.21	1	38.7	73.4	.092	.115	-.0437	.0607	.174	-.0641
325	16000	302	293	8.21	1	38.7	68.8	.0922	.108	-.0397	.0622	.169	-.0713

Case	Pi, i=1 to 15 ---------->														
301	2.66	2.6	2.55	2.48	2.42	2.33	2.27	2.19	2.11	1.99	1.9	1.76	1.65	1.48	1.26
302	2.68	2.61	2.56	2.49	2.42	2.33	2.27	2.19	2.11	1.99	1.89	1.75	1.64	1.48	1.25
303	2.69	2.62	2.57	2.5	2.42	2.34	2.27	2.19	2.1	2	1.88	1.76	1.64	1.47	1.25
304	2.73	2.66	2.61	2.54	2.47	2.38	2.31	2.23	2.14	2.03	1.92	1.78	1.66	1.48	1.26
305	2.74	2.67	2.62	2.55	2.48	2.39	2.32	2.23	2.14	2.03	1.91	1.77	1.65	1.48	1.25
306	3.84	3.73	3.66	3.54	3.44	3.31	3.21	3.08	2.94	2.78	2.6	2.38	2.2	1.9	1.54
307	3.89	3.8	3.72	3.61	3.51	3.37	3.27	3.13	3	2.82	2.65	2.41	2.23	1.94	1.55
308	3.89	3.79	3.72	3.61	3.5	3.37	3.26	3.14	2.97	2.83	2.62	2.43	2.2	1.93	1.55
309	3.92	3.82	3.74	3.64	3.53	3.4	3.29	3.15	3	2.85	2.65	2.43	2.22	1.93	1.55
310	3.96	3.85	3.77	3.67	3.56	3.43	3.3	3.18	3.01	2.86	2.64	2.44	2.21	1.92	1.54
311	5.03	4.89	4.8	4.65	4.51	4.33	4.2	4.03	3.84	3.63	3.37	3.08	2.83	2.42	1.93
312	5.08	4.94	4.85	4.7	4.55	4.38	4.24	4.06	3.86	3.66	3.39	3.1	2.83	2.42	1.93
313	5.11	4.97	4.88	4.74	4.59	4.43	4.27	4.12	3.9	3.71	3.41	3.18	2.84	2.48	1.95
314	5.18	5.04	4.93	4.79	4.64	4.47	4.33	4.14	3.93	3.73	3.43	3.17	2.86	2.46	1.94
315	5.19	5.04	4.94	4.8	4.65	4.48	4.33	4.15	3.93	3.74	3.42	3.16	2.84	2.44	1.92
316	6.24	6.07	5.95	5.77	5.58	5.36	5.19	4.98	4.74	4.47	4.15	3.79	3.47	2.96	2.36
317	6.27	6.12	6	5.81	5.64	5.42	5.25	5.02	4.79	4.52	4.2	3.82	3.49	2.98	2.37
318	6.32	6.13	6.02	5.85	5.65	5.47	5.25	5.08	4.77	4.56	4.16	3.89	3.46	3.03	2.34
319	6.34	6.16	6.05	5.88	5.69	5.49	5.28	5.09	4.8	4.58	4.19	3.89	3.47	3.02	2.34
320	6.39	6.21	6.09	5.92	5.73	5.54	5.33	5.13	4.83	4.61	4.21	3.92	3.47	3.02	2.34
321	7.06	6.89	6.76	6.55	6.34	6.1	5.9	5.67	5.39	5.1	4.71	4.33	3.94	3.38	2.68
322	7.12	6.96	6.82	6.62	6.41	6.16	5.97	5.71	5.44	5.15	4.76	4.36	3.96	3.39	2.69
323	7.17	6.96	6.83	6.64	6.42	6.2	5.97	5.77	5.43	5.18	4.72	4.43	3.92	3.45	2.64
324	7.29	7.08	6.95	6.76	6.53	6.32	6.07	5.86	5.5	5.26	4.79	4.48	3.96	3.47	2.66
325	7.33	7.13	6.98	6.8	6.58	6.36	6.12	5.88	5.53	5.28	4.81	4.49	3.97	3.45	2.67

Table A15b. Static and dynamic test data for seal 3 of Table 3 for high inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
326	3000	302	294	3.05	1.01	56.8	78.6	.0932	.0457	-.00468	.061	.215	-.0347
327	6000	302	290	3.06	1.01	56.8	77.1	.0891	.0449	-.016	.0607	.208	-.0458
328	9500	302	290	3.03	1.01	56.8	74.7	.0928	.0432	-.0146	.0671	.206	-.059
329	13000	301	300	3.06	1.01	56.8	69.9	.0965	.041	-.00634	.0727	.212	-.0491
330	16000	302	304	3.03	1.01	56.8	64.8	.0975	.0379	-.00497	.0757	.208	-.0435
331	3000	302	296	4.42	1.01	56.8	80.5	.0912	.0675	-.0204	.0434	.182	-.0328
332	6000	302	286	4.38	1.01	56.8	78.8	.0909	.0656	-.0288	.0515	.197	-.0458
333	9500	302	288	4.43	1.01	56.8	76	.087	.0641	-.0343	.0566	.197	-.0507
334	13000	302	293	4.4	1.01	56.8	71.6	.0984	.0603	-.0249	.0643	.205	-.0534
335	16000	302	298	4.38	1.01	56.8	67.1	.0975	.0564	-.0236	.0669	.197	-.0502
336	3000	302	287	5.76	1	56.8	82	.0925	.0895	-.0309	.0463	.184	-.0268
337	6000	302	286	5.79	1.01	56.8	79.8	.0913	.0876	-.0355	.0508	.195	-.0451
338	9500	302	288	5.81	1	56.8	76.9	.0872	.085	-.0367	.0557	.187	-.0526
339	13000	302	291	5.85	1	56.8	72	.0977	.0807	-.0304	.059	.201	-.0586
340	16000	302	294	5.79	1.01	56.8	67.5	.0986	.0751	-.0313	.0628	.196	-.0566
341	3000	302	290	7.13	1	56.8	82	.0889	.111	-.0302	.0465	.181	-.0234
342	6000	302	286	7.16	1	56.8	80.9	.0926	.11	-.0358	.0502	.183	-.0435
343	9500	302	287	7.15	1	56.8	76.9	.0868	.105	-.0409	.0539	.186	-.0503
344	13000	302	290	7.16	1	56.8	72.5	.0967	.0993	-.0338	.0548	.191	-.0591
345	16000	302	293	7.21	1	56.8	68.2	.0892	.0942	-.0375	.0619	.182	-.0644
346	3000	302	292	8.16	1	56.8	82.2	.0937	.127	-.0253	.0453	.181	-.0447
347	6000	302	286	8.16	1	56.8	80.9	.0912	.125	-.0369	.0492	.18	-.0409
348	9500	302	287	8.16	1	56.8	77.7	.0854	.121	-.0368	.0528	.191	-.0536
349	13000	302	289	8.18	1	56.8	73.2	.0853	.114	-.0366	.0596	.192	-.0612
350	16000	302	293	8.2	1	56.8	68.3	.0897	.107	-.0341	.0579	.178	-.0632

Case	Pi, i=1 to 15 ----------)														
326	2.68	2.62	2.57	2.49	2.43	2.35	2.27	2.21	2.12	2	1.89	1.78	1.64	1.5	1.26
327	2.69	2.63	2.58	2.5	2.43	2.35	2.28	2.21	2.12	2	1.89	1.77	1.63	1.49	1.25
328	2.68	2.61	2.56	2.48	2.41	2.33	2.25	2.19	2.09	1.98	1.86	1.75	1.61	1.47	1.24
329	2.72	2.65	2.61	2.53	2.46	2.38	2.3	2.23	2.14	2.02	1.91	1.79	1.65	1.5	1.25
330	2.72	2.65	2.61	2.53	2.46	2.38	2.3	2.23	2.14	2.02	1.9	1.79	1.63	1.49	1.25
331	3.86	3.76	3.69	3.57	3.47	3.35	3.23	3.13	2.99	2.8	2.61	2.42	2.21	1.94	1.55
332	3.84	3.74	3.67	3.55	3.45	3.32	3.21	3.1	2.96	2.78	2.59	2.4	2.17	1.92	1.53
333	3.9	3.8	3.73	3.61	3.51	3.38	3.26	3.16	3	2.82	2.62	2.43	2.2	1.94	1.54
334	3.89	3.79	3.72	3.6	3.5	3.37	3.25	3.14	2.99	2.8	2.61	2.42	2.18	1.92	1.53
335	3.89	3.79	3.72	3.6	3.5	3.38	3.25	3.14	2.99	2.8	2.6	2.41	2.18	1.91	1.52
336	5.02	4.89	4.8	4.64	4.5	4.33	4.18	4.04	3.85	3.61	3.36	3.09	2.79	2.44	1.91
337	5.06	4.93	4.84	4.67	4.54	4.37	4.21	4.08	3.88	3.63	3.37	3.11	2.8	2.45	1.91
338	5.1	4.98	4.88	4.73	4.6	4.42	4.26	4.11	3.92	3.66	3.41	3.14	2.83	2.46	1.92
339	5.19	5.06	4.96	4.81	4.68	4.51	4.34	4.2	3.99	3.74	3.47	3.2	2.88	2.5	1.95
340	5.16	5.02	4.93	4.77	4.64	4.46	4.3	4.15	3.95	3.69	3.41	3.15	2.83	2.45	1.91
341	6.2	6.05	5.94	5.74	5.57	5.36	5.18	5.01	4.76	4.46	4.16	3.81	3.46	3	2.34
342	6.25	6.09	5.98	5.78	5.62	5.4	5.21	5.03	4.79	4.48	4.16	3.82	3.45	3	2.33
343	6.26	6.12	6	5.8	5.63	5.42	5.22	5.04	4.79	4.47	4.16	3.82	3.44	2.98	2.31
344	6.33	6.18	6.05	5.86	5.71	5.49	5.29	5.11	4.86	4.54	4.21	3.88	3.49	3.02	2.34
345	6.42	6.26	6.15	5.96	5.79	5.58	5.37	5.19	4.92	4.6	4.26	3.91	3.52	3.03	2.35
346	7.1	6.91	6.79	6.56	6.37	6.12	5.92	5.71	5.43	5.09	4.74	4.34	3.94	3.41	2.66
347	7.11	6.94	6.82	6.59	6.4	6.15	5.94	5.74	5.47	5.11	4.75	4.37	3.93	3.42	2.66
348	7.16	6.98	6.86	6.64	6.45	6.21	5.99	5.78	5.5	5.15	4.79	4.39	3.96	3.43	2.66
349	7.24	7.06	6.94	6.71	6.54	6.29	6.06	5.84	5.55	5.19	4.82	4.43	3.98	3.45	2.67
350	7.29	7.12	7	6.78	6.59	6.35	6.1	5.89	5.61	5.24	4.84	4.47	4.01	3.46	2.68

Table A15c. Static and dynamic test data for seal 3 of Table 3 for high inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
351	3000	302	292	3.06	1.01	74.6	78.7	.0941	.0458	-3.39E-5	.0546	.2	-.0319
352	6000	301	290	3.05	1.01	74.6	77.4	.0917	.0451	-.013	.0548	.202	-.0526
353	9500	301	289	3.06	1.01	74.6	74.1	.101	.0434	-.0083	.0606	.198	-.0452
354	13000	301	301	3.02	1.01	74.6	69.3	.0963	.0403	.000516	.065	.204	-.052
355	16000	301	303	3.03	1.01	74.6	64.8	.0956	.0379	.00454	.0704	.197	-.0473
356	3000	302	292	4.41	1.01	74.6	80.5	.091	.0673	-.0174	.0437	.196	-.0346
357	6000	302	286	4.42	1.01	74.6	79.1	.0984	.0665	-.0237	.0462	.19	-.0436
358	9500	301	289	4.35	1.01	74.6	75.8	.092	.063	-.0299	.0519	.193	-.0516
359	13000	301	293	4.39	1.01	74.6	71.3	.0907	.06	-.0216	.0568	.2	-.0425
360	16000	301	297	4.37	1.01	74.6	66.6	.0941	.056	-.014	.0603	.188	-.0532
361	3000	302	287	5.8	1	74.6	81	.0865	.0891	-.0186	.0441	.197	-.0404
362	6000	302	286	5.82	1.01	74.6	80	.103	.0884	-.0276	.0477	.196	-.0427
363	9500	301	287	5.8	1.01	74.6	76.5	.0856	.0848	-.0393	.0506	.195	-.0487
364	13000	301	290	5.74	1	74.6	71.9	.0895	.0792	-.0289	.054	.2	-.0527
365	16000	301	294	5.77	1.01	74.6	67.2	.0901	.0746	-.0279	.0568	.194	-.0538
366	3000	302	287	7.13	1	74.6	82.2	.0844	.111	-.0239	.0432	.184	-.0318
367	6000	302	285	7.19	1	74.6	80.5	.0988	.11	-.0287	.0454	.191	-.0448
368	9500	301	287	7.17	1	74.6	76.8	.0889	.105	-.0292	.0486	.195	-.0562
369	13000	301	289	7.17	1	74.6	72.1	.0865	.099	-.0286	.0529	.199	-.0537
370	16000	301	293	7.15	1	74.6	68.2	.0873	.0939	-.0226	.0549	.196	-.0592
371	3000	302	290	8.21	.999	74.6	82.2	.0831	.128	-.0231	.0406	.18	-.0373
372	6000	302	287	8.2	1	74.6	80.5	.0963	.125	-.0285	.0439	.187	-.043
373	9500	301	287	8.16	1	74.6	77.4	.0862	.121	-.0323	.0473	.185	-.0574
374	13000	302	288	8.24	1	74.6	73	.084	.115	-.0233	.0496	.196	-.0597
375	16000	301	292	8.2	1	74.6	68.4	.0841	.108	-.0298	.0508	.186	-.0581

Case	Pi, i=1 to 15 ---------->														
351	2.68	2.62	2.57	2.49	2.43	2.35	2.28	2.2	2.11	2	1.9	1.77	1.64	1.49	1.24
352	2.69	2.62	2.57	2.49	2.42	2.34	2.27	2.2	2.11	1.99	1.87	1.75	1.63	1.48	1.25
353	2.7	2.64	2.59	2.52	2.45	2.37	2.3	2.23	2.12	2.01	1.9	1.78	1.65	1.5	1.26
354	2.69	2.63	2.58	2.51	2.44	2.36	2.29	2.21	2.12	2.01	1.9	1.78	1.64	1.49	1.25
355	2.71	2.65	2.61	2.53	2.47	2.38	2.31	2.23	2.14	2.02	1.91	1.79	1.64	1.49	1.25
356	3.85	3.75	3.69	3.57	3.47	3.35	3.23	3.12	2.97	2.79	2.62	2.42	2.2	1.94	1.55
357	3.87	3.77	3.7	3.58	3.49	3.36	3.25	3.14	2.98	2.8	2.61	2.41	2.2	1.94	1.55
358	3.82	3.72	3.65	3.54	3.44	3.31	3.2	3.09	2.93	2.74	2.57	2.37	2.16	1.91	1.52
359	3.88	3.79	3.72	3.61	3.52	3.39	3.27	3.17	3	2.81	2.62	2.43	2.2	1.94	1.54
360	3.9	3.81	3.73	3.62	3.53	3.4	3.28	3.17	3	2.82	2.62	2.42	2.2	1.94	1.53
361	5.05	4.93	4.84	4.68	4.55	4.38	4.23	4.08	3.87	3.63	3.39	3.11	2.83	2.47	1.93
362	5.08	4.94	4.85	4.69	4.55	4.38	4.23	4.09	3.88	3.63	3.36	3.09	2.78	2.43	1.9
363	5.09	4.96	4.87	4.72	4.58	4.42	4.27	4.11	3.91	3.65	3.39	3.12	2.81	2.45	1.92
364	5.08	4.95	4.86	4.72	4.59	4.42	4.27	4.11	3.9	3.64	3.39	3.12	2.81	2.46	1.92
365	5.13	5	4.91	4.76	4.64	4.46	4.3	4.15	3.92	3.66	3.4	3.13	2.81	2.45	1.91
366	6.2	6.05	5.94	5.75	5.59	5.37	5.18	4.99	4.75	4.43	4.13	3.79	3.45	3	2.33
367	6.27	6.11	6	5.8	5.64	5.42	5.24	5.07	4.81	4.5	4.17	3.83	3.45	3	2.33
368	6.29	6.15	6.03	5.84	5.68	5.46	5.29	5.1	4.82	4.53	4.19	3.84	3.46	3.01	2.34
369	6.33	6.18	6.07	5.89	5.73	5.51	5.32	5.13	4.86	4.54	4.21	3.86	3.48	3.03	2.35
370	6.36	6.21	6.1	5.92	5.76	5.54	5.35	5.16	4.89	4.56	4.22	3.87	3.48	3.01	2.34
371	7.13	6.96	6.83	6.61	6.42	6.17	5.96	5.76	5.47	5.1	4.74	4.35	3.94	3.43	2.67
372	7.15	6.98	6.85	6.62	6.44	6.19	5.98	5.78	5.52	5.15	4.78	4.39	3.95	3.43	2.66
373	7.15	6.98	6.85	6.64	6.46	6.21	6	5.78	5.5	5.12	4.75	4.36	3.93	3.41	2.66
374	7.27	7.11	6.97	6.76	6.58	6.33	6.12	5.91	5.59	5.23	4.85	4.45	3.99	3.46	2.68
375	7.29	7.11	6.98	6.78	6.6	6.36	6.15	5.92	5.62	5.23	4.84	4.43	3.98	3.44	2.66

Table A16a. Static and dynamic test data for seal 4 of Table 3 for no inlet circumferential velocity and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
1	3000	295	288	3.09	1.01	38.7	0	.0933	.041	-.0475	.0149	.195	.0204
2	6000	295	287	3.05	1.01	38.7	0	.0913	.0402	-.0439	.021	.201	.01
3	9500	295	290	3.06	1.01	38.7	0	.089	.0385	-.0404	.0306	.192	-.014
4	13000	295	298	3.08	1.01	38.7	0	.0879	.0358	-.0286	.0358	.193	-.0142
5	16000	295	303	3.08	1.01	38.7	0	.0889	.0331	-.0241	.0412	.191	-.028
6	3000	296	290	4.45	1	38.7	0	.0919	.0602	-.0337	.0192	.187	.00785
7	6000	295	283	4.39	1.01	38.7	0	.0894	.0591	-.0341	.0226	.174	.0024
8	9500	295	287	4.42	1.01	38.7	0	.0894	.0569	-.0286	.0328	.176	-.0158
9	13000	295	289	4.4	1.01	38.7	0	.087	.0528	-.00751	.0373	.174	-.0239
10	16000	295	297	4.41	1.01	38.7	0	.0884	.049	-.013	.0392	.169	-.0316
11	3000	295	289	5.75	1	38.7	0	.0923	.0801	-.031	.019	.205	.0119
12	6000	295	284	5.81	1	38.7	0	.0917	.0808	-.0397	.0221	.187	.017
13	9500	295	285	5.77	1	38.7	0	.0892	.075	-.0249	.0304	.181	-.0143
14	13000	295	288	5.81	1	38.7	0	.0878	.0707	-.0112	.0387	.177	-.0371
15	16000	295	294	5.79	1.01	38.7	0	.0882	.0648	-.00669	.0413	.17	-.0456
16	3000	295	289	7.17	.998	38.7	0	.0932	.1	-.0329	.0171	.206	.0226
17	6000	295	283	7.17	1	38.7	0	.0922	.0991	-.0363	.0201	.205	.0152
18	9500	295	285	7.16	1	38.7	0	.0899	.094	-.0248	.0269	.185	-.0104
19	13000	295	287	7.15	1	38.7	0	.0884	.0871	-.0113	.038	.178	-.0295
20	16000	295	291	7.21	1	38.7	0	.0877	.0816	-.00183	.0432	.171	-.0494
21	3000	295	289	8.19	.997	38.7	0	.0935	.116	-.036	.0173	.205	.0253
22	6000	295	283	8.15	1	38.7	0	.0934	.113	-.0363	.0181	.204	.00625
23	9500	295	285	8.17	1	38.7	0	.0912	.107	-.0272	.0245	.184	.000439
24	13000	295	287	8.22	1	38.7	0	.0887	.101	-.0121	.0353	.179	-.0357
25	16000	296	291	8.24	1	38.7	0	.0884	.0934	.00169	.0418	.157	-.0611

Case	Pi, i=1 to 15 ---------->														
1	2.8	2.66	2.55	2.48	2.36	2.27	2.2	2.08	1.97	1.87	1.78	1.62	1.5	1.35	1.21
2	2.76	2.63	2.53	2.46	2.34	2.25	2.17	2.05	1.93	1.84	1.75	1.59	1.48	1.33	1.19
3	2.77	2.64	2.53	2.47	2.33	2.25	2.15	2.06	1.92	1.83	1.73	1.59	1.46	1.33	1.19
4	2.79	2.66	2.56	2.46	2.37	2.25	2.18	2.06	1.96	1.88	1.76	1.58	1.48	1.33	1.19
5	2.79	2.65	2.54	2.44	2.35	2.23	2.17	2.04	1.94	1.81	1.75	1.57	1.47	1.32	1.19
6	4	3.79	3.62	3.52	3.32	3.19	3.05	2.88	2.67	2.51	2.35	2.11	1.9	1.66	1.41
7	3.95	3.75	3.58	3.47	3.29	3.14	3	2.82	2.62	2.47	2.31	2.06	1.86	1.62	1.39
8	3.97	3.78	3.6	3.51	3.28	3.18	2.99	2.85	2.64	2.45	2.3	2.06	1.85	1.63	1.38
9	3.97	3.76	3.61	3.47	3.31	3.14	3.02	2.82	2.65	2.45	2.33	2.04	1.88	1.62	1.39
10	3.95	3.75	3.57	3.43	3.27	3.08	2.97	2.76	2.59	2.39	2.27	1.99	1.83	1.59	1.34
11	5.15	4.88	4.65	4.53	4.25	4.09	3.88	3.67	3.4	3.17	2.95	2.63	2.35	2.03	1.69
12	5.19	4.93	4.69	4.56	4.28	4.11	3.89	3.66	3.37	3.15	2.92	2.6	2.32	2.01	1.67
13	5.16	4.91	4.67	4.55	4.24	4.09	3.84	3.66	3.37	3.12	2.92	2.58	2.31	2.01	1.66
14	5.21	4.94	4.72	4.54	4.32	4.08	3.92	3.65	3.4	3.15	2.96	2.59	2.36	2.02	1.69
15	5.17	4.9	4.68	4.47	4.27	4.02	3.87	3.58	3.35	3.09	2.91	2.53	2.32	1.98	1.66
16	6.42	6.08	5.8	5.65	5.29	5.12	4.82	4.57	4.23	3.91	3.66	3.24	2.87	2.49	2.04
17	6.4	6.07	5.78	5.63	5.26	5.07	4.76	4.52	4.15	3.83	3.57	3.17	2.8	2.43	1.99
18	6.4	6.08	5.79	5.64	5.27	5.08	4.77	4.54	4.19	3.82	3.6	3.15	2.83	2.43	2.01
19	6.39	6.09	5.79	5.6	5.27	5.03	4.78	4.48	4.12	3.87	3.58	3.15	2.83	2.43	2.01
20	6.44	6.1	5.82	5.6	5.28	5.04	4.79	4.45	4.13	3.84	3.58	3.13	2.84	2.43	2.01
21	7.33	6.94	6.61	6.44	6.04	5.84	5.5	5.21	4.8	4.44	4.15	3.68	3.26	2.82	2.31
22	7.27	6.9	6.58	6.41	6	5.77	5.44	5.13	4.72	4.38	4.06	3.61	3.19	2.76	2.26
23	7.3	6.95	6.6	6.45	5.99	5.8	5.43	5.16	4.75	4.38	4.07	3.62	3.2	2.78	2.28
24	7.34	6.99	6.64	6.48	6.01	5.83	5.44	5.2	4.76	4.37	4.08	3.61	3.21	2.78	2.28
25	7.35	6.97	6.63	6.36	6.05	5.71	5.48	5.07	4.72	4.41	4.08	3.56	3.23	2.76	2.28

Table A16b. Static and dynamic test data for seal 4 of Table 3 for no inlet circumferential velocity and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
26	3000	298	290	3	1.01	56.8	0	.0882	.0396	-.0399	.0226	.223	.0029
27	6000	299	289	3.09	1.01	56.8	0	.0891	.0406	-.0399	.0232	.208	-.00398
28	9500	298	291	3.04	1.01	56.8	0	.0877	.038	-.0314	.0281	.197	-.0171
29	13000	299	299	3.02	1.01	56.8	0	.0951	.0349	-.0209	.0333	.198	-.0186
30	16000	299	303	3.12	1.01	56.8	0	.0925	.0335	-.00823	.0368	.194	-.0253
31	3000	299	291	4.38	1.01	56.8	0	.0879	.0601	-.0266	.0248	.205	.00156
32	6000	299	286	4.45	1.01	56.8	0	.0883	.0603	-.0225	.0257	.191	-.00151
33	9500	299	288	4.44	1.01	56.8	0	.0863	.0568	-.0192	.032	.188	-.024
34	13000	299	291	4.46	1.01	56.8	0	.0922	.053	.00396	.0363	.176	-.0306
35	16000	299	298	4.41	1.01	56.8	0	.0905	.0488	-.00423	.0395	.18	-.0388
36	3000	299	287	5.73	1	56.8	0	.0857	.0793	-.0217	.0233	.21	-.002
37	6000	299	286	5.74	1.01	56.8	0	.0892	.0781	-.0274	.026	.194	.00435
38	9500	299	287	5.83	1.01	56.8	0	.0874	.0747	-.0147	.0286	.168	-.0201
39	13000	299	290	5.84	1	56.8	0	.0906	.0701	.00138	.0367	.173	-.0331
40	16000	299	295	5.78	1.01	56.8	0	.0869	.0644	.011	.0373	.172	-.0383
41	3000	299	292	7.2	1	56.8	0	.0866	.101	-.0301	.0233	.205	.0124
42	6000	299	286	7.15	1	56.8	0	.0888	.0979	-.0275	.023	.199	-.0001
43	9500	299	287	7.16	1	56.8	0	.0863	.0931	-.0166	.0272	.182	-.0204
44	13000	299	289	7.19	1	56.8	0	.0889	.0873	-.000924	.0344	.175	-.0381
45	16000	300	293	7.2	1	56.8	0	.0847	.0804	.00797	.0374	.168	-.0466
46	3000	299	287	8.17	1	56.8	0	.0878	.115	-.0283	.025	.21	.00518
47	6000	300	285	8.23	1	56.8	0	.089	.113	-.0276	.0216	.196	-.00508
48	9500	300	287	8.17	1	56.8	0	.088	.107	-.0223	.0261	.18	-.0168
49	13000	299	289	8.19	1	56.8	0	.0874	.0993	-.00145	.0348	.172	-.0358
50	16000	300	293	8.16	1	56.8	0	.0822	.0918	.0165	.0307	.152	-.0531

Case	Pi, i=1 to 15 ---------->														
26	2.72	2.59	2.49	2.41	2.31	2.22	2.14	2.04	1.94	1.82	1.75	1.59	1.48	1.33	1.2
27	2.81	2.66	2.56	2.49	2.37	2.28	2.19	2.09	1.97	1.85	1.77	1.61	1.49	1.34	1.2
28	2.76	2.62	2.52	2.44	2.33	2.24	2.15	2.05	1.93	1.81	1.73	1.58	1.47	1.32	1.19
29	2.74	2.61	2.51	2.43	2.31	2.22	2.14	2.04	1.92	1.81	1.73	1.57	1.46	1.32	1.19
30	2.82	2.68	2.57	2.49	2.37	2.27	2.18	2.08	1.96	1.83	1.75	1.59	1.48	1.33	1.19
31	3.94	3.73	3.59	3.47	3.3	3.16	3.02	2.86	2.69	2.48	2.35	2.09	1.9	1.65	1.41
32	4	3.78	3.64	3.51	3.33	3.19	3.04	2.87	2.67	2.48	2.34	2.08	1.88	1.64	1.4
33	3.99	3.77	3.62	3.5	3.31	3.17	3.02	2.85	2.65	2.46	2.32	2.06	1.87	1.63	1.39
34	4.01	3.8	3.65	3.52	3.34	3.19	3.04	2.88	2.68	2.48	2.34	2.08	1.89	1.65	1.4
35	3.96	3.74	3.58	3.44	3.26	3.11	2.96	2.8	2.6	2.4	2.27	2.01	1.83	1.6	1.37
36	5.15	4.86	4.67	4.51	4.28	4.08	3.89	3.67	3.42	3.16	2.97	2.62	2.36	2.03	1.69
37	5.15	4.86	4.67	4.51	4.27	4.07	3.87	3.65	3.39	3.13	2.93	2.58	2.32	1.99	1.66
38	5.24	4.95	4.76	4.59	4.34	4.15	3.94	3.71	3.44	3.17	2.98	2.62	2.36	2.03	1.7
39	5.24	4.96	4.76	4.58	4.33	4.13	3.93	3.7	3.43	3.16	2.96	2.61	2.35	2.03	1.69
40	5.19	4.9	4.7	4.51	4.27	4.08	3.87	3.66	3.38	3.12	2.92	2.57	2.33	2	1.67
41	6.45	6.07	5.84	5.63	5.35	5.1	4.86	4.57	4.25	3.92	3.69	3.23	2.91	2.48	2.06
42	6.4	6.03	5.8	5.59	5.29	5.05	4.79	4.5	4.17	3.84	3.6	3.16	2.83	2.42	2
43	6.44	6.08	5.83	5.62	5.33	5.09	4.84	4.55	4.2	3.88	3.64	3.18	2.86	2.46	2.03
44	6.45	6.1	5.84	5.64	5.32	5.09	4.83	4.54	4.19	3.86	3.62	3.17	2.85	2.45	2.02
45	6.45	6.09	5.83	5.6	5.3	5.05	4.79	4.51	4.17	3.83	3.6	3.16	2.85	2.45	2.02
46	7.32	6.89	6.63	6.38	6.05	5.78	5.49	5.17	4.81	4.42	4.15	3.64	3.26	2.78	2.31
47	7.37	6.96	6.68	6.44	6.11	5.82	5.53	5.19	4.8	4.42	4.15	3.63	3.25	2.77	2.3
48	7.32	6.92	6.64	6.41	6.05	5.78	5.48	5.14	4.77	4.38	4.12	3.61	3.24	2.77	2.29
49	7.35	6.95	6.66	6.42	6.06	5.79	5.5	5.17	4.77	4.39	4.12	3.59	3.23	2.77	2.29
50	7.33	6.91	6.63	6.38	6.03	5.78	5.46	5.13	4.75	4.36	4.07	3.58	3.22	2.76	2.27

Table A16c. Static and dynamic test data for seal 4 of Table 3 for no inlet circumferential velocity and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
51	3000	296	287	3.02	1.01	74.6	0	.0945	.0406	-.0289	.0164	.219	.00539
52	6000	297	291	3.02	1.01	74.6	0	.105	.0399	-.0408	.0221	.207	.000304
53	9500	297	291	3.01	1.01	74.6	0	.0961	.0378	-.0312	.0265	.204	-.0124
54	13000	297	297	3.09	1.01	74.6	0	.0994	.036	-.00317	.0335	.202	-.0204
55	16000	297	304	3.07	1.01	74.6	0	.1	.0333	-.00532	.0342	.194	-.025
56	3000	296	286	4.42	1.01	74.6	0	.0889	.061	-.0141	.0198	.204	-.0059
57	6000	297	286	4.43	1.01	74.6	0	.103	.06	-.0173	.0232	.192	-.000891
58	9500	297	288	4.44	1.01	74.6	0	.0916	.057	-.00766	.0264	.187	-.0247
59	13000	297	291	4.46	1.01	74.6	0	.0902	.053	.00898	.0321	.18	-.0235
60	16000	298	298	4.44	1.01	74.6	0	.0954	.0489	.0236	.0314	.176	-.0442
61	3000	297	285	5.82	1	74.6	0	.0872	.0812	-.0118	.0199	.204	-.0044
62	6000	297	286	5.8	1	74.6	0	.099	.0795	-.0265	.0225	.195	-.00149
63	9500	297	287	5.77	1.01	74.6	0	.0877	.0749	-.00827	.0271	.188	-.0182
64	13000	298	290	5.78	1	74.6	0	.0866	.0699	.00745	.033	.184	-.0348
65	16000	298	295	5.8	1.01	74.6	0	.0897	.0648	.0162	.0329	.17	-.0387
66	3000	297	285	7.18	1	74.6	0	.0845	.101	-.0159	.0227	.211	-.000532
67	6000	297	284	7.18	1	74.6	0	.0921	.0982	-.0124	.017	.197	-.00949
68	9500	297	287	7.18	1	74.6	0	.0862	.094	-.00222	.0232	.182	-.0207
69	13000	298	289	7.17	1	74.6	0	.0833	.0867	.0103	.0293	.179	-.0365
70	16000	299	293	7.17	1	74.6	0	.0881	.0809	.0183	.0282	.163	-.0399
71	3000	297	285	8.17	.998	74.6	0	.0886	.116	-.0187	.0206	.203	.00209
72	6000	297	283	8.19	.999	74.6	0	.0912	.113	-.0142	.019	.2	-.0066
73	9500	297	286	8.21	1	74.6	0	.0846	.108	-.00984	.0213	.199	-.0143
74	13000	298	288	8.21	1	74.6	0	.0859	.0995	.00893	.0275	.175	-.032
75	16000	298	293	8.21	1	74.6	0	.0861	.0927	.0203	.0262	.168	-.0459

Case	Pi, i=1 to 15 ---------->														
51	2.74	2.59	2.5	2.42	2.31	2.22	2.14	2.04	1.94	1.83	1.75	1.59	1.48	1.33	1.19
52	2.74	2.6	2.5	2.42	2.31	2.22	2.13	2.03	1.93	1.81	1.73	1.58	1.47	1.33	1.19
53	2.73	2.59	2.49	2.42	2.3	2.21	2.12	2.02	1.9	1.79	1.72	1.56	1.45	1.32	1.19
54	2.8	2.67	2.56	2.49	2.37	2.28	2.18	2.08	1.95	1.84	1.76	1.6	1.48	1.34	1.19
55	2.78	2.63	2.53	2.45	2.34	2.24	2.15	2.04	1.92	1.81	1.73	1.57	1.46	1.32	1.19
56	3.97	3.76	3.61	3.48	3.3	3.15	3.01	2.85	2.68	2.48	2.34	2.08	1.88	1.64	1.4
57	3.99	3.77	3.62	3.51	3.33	3.18	3.03	2.85	2.66	2.46	2.34	2.07	1.88	1.64	1.4
58	4	3.78	3.63	3.52	3.33	3.19	3.04	2.87	2.66	2.47	2.33	2.07	1.89	1.64	1.4
59	4.02	3.8	3.65	3.53	3.35	3.2	3.05	2.89	2.68	2.48	2.33	2.08	1.89	1.65	1.4
60	3.99	3.77	3.61	3.49	3.3	3.15	3	2.83	2.62	2.42	2.28	2.02	1.84	1.61	1.37
61	5.23	4.93	4.74	4.57	4.34	4.13	3.95	3.7	3.46	3.18	3.01	2.65	2.38	2.04	1.7
62	5.19	4.9	4.71	4.55	4.31	4.1	3.91	3.67	3.39	3.13	2.95	2.59	2.35	2.01	1.68
63	5.18	4.89	4.68	4.53	4.28	4.09	3.88	3.67	3.39	3.13	2.93	2.59	2.32	2.01	1.68
64	5.18	4.89	4.68	4.52	4.28	4.08	3.88	3.66	3.38	3.12	2.92	2.56	2.32	2	1.67
65	5.19	4.89	4.67	4.51	4.26	4.06	3.85	3.64	3.36	3.1	2.9	2.54	2.3	1.99	1.65
66	6.43	6.04	5.8	5.6	5.33	5.07	4.83	4.51	4.2	3.86	3.65	3.2	2.89	2.46	2.03
67	6.42	6.05	5.81	5.61	5.32	5.06	4.82	4.52	4.17	3.84	3.6	3.15	2.83	2.43	2.01
68	6.43	6.07	5.82	5.63	5.31	5.07	4.82	4.54	4.2	3.86	3.62	3.16	2.84	2.44	2.02
69	6.42	6.06	5.81	5.59	5.29	5.04	4.79	4.52	4.19	3.85	3.61	3.16	2.84	2.44	2.01
70	6.42	6.06	5.79	5.57	5.25	5.02	4.74	4.47	4.15	3.82	3.57	3.13	2.83	2.43	2
71	7.32	6.88	6.61	6.38	6.07	5.78	5.51	5.15	4.77	4.39	4.14	3.63	3.26	2.78	2.31
72	7.33	6.92	6.64	6.41	6.08	5.8	5.51	5.16	4.76	4.37	4.11	3.6	3.24	2.77	2.29
73	7.35	6.92	6.64	6.4	6.06	5.77	5.48	5.16	4.78	4.41	4.12	3.6	3.23	2.76	2.28
74	7.35	6.93	6.64	6.41	6.05	5.77	5.47	5.15	4.77	4.39	4.11	3.59	3.23	2.76	2.28
75	7.31	6.9	6.61	6.34	6.02	5.71	5.46	5.14	4.74	4.35	4.06	3.58	3.22	2.76	2.27

Table A17a. Static and dynamic test data for seal 4 of Table 3 for low inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
76	3000	304	292	3.03	1.01	38.7	-26	.0932	.0409	-.0445	-.0292	.171	.118
77	6000	304	292	3.09	1.01	38.7	-25	.0925	.0401	-.052	-.00795	.197	.0542
78	9500	304	294	3.08	1.01	38.7	-24	.0897	.0385	-.0463	.0166	.182	.0017
79	13000	304	300	3.08	1.01	38.7	-22.2	.0888	.0356	-.0231	.0257	.19	-.00148
80	16000	303	305	3.09	1.01	38.7	-20.6	.0898	.0332	-.0162	.0311	.189	-.00641
81	3000	304	294	4.43	1.01	38.7	-26.4	.0913	.0608	-.0305	-.0252	.139	.14
82	6000	304	289	4.35	1.01	38.7	-25.8	.0923	.0583	-.0335	-.011	.187	.0845
83	9500	304	290	4.44	1.01	38.7	-24.4	.0902	.0564	-.0289	.0157	.181	.00272
84	13000	304	293	4.45	1.01	38.7	-22.9	.0881	.0529	-.00524	.0282	.178	-.00979
85	16000	304	299	4.41	1.01	38.7	-21.1	.0898	.0484	-.00766	.032	.182	-.0105
86	3000	304	291	5.73	1.01	38.7	-26.7	.0912	.0794	-.0197	-.0199	.139	.106
87	6000	305	289	5.81	1.01	38.7	-26.2	.0935	.0789	-.0365	-.0147	.187	.113
88	9500	304	289	5.85	1.01	38.7	-24.6	.0906	.0747	-.0205	.0106	.18	.0173
89	13000	304	292	5.79	1.01	38.7	-22.7	.0886	.0684	-.0032	.0245	.175	-.00953
90	16000	304	296	5.8	1.01	38.7	-21.1	.0881	.0637	.00467	.0326	.177	-.0145
91	3000	305	294	7.18	1	38.7	-26.7	.0905	.0994	-.0196	-.0192	.137	.0667
92	6000	305	288	7.11	1	38.7	-26.3	.0947	.0967	-.0358	-.018	.149	.121
93	9500	304	290	7.18	1	38.7	-24.8	.091	.0925	-.021	.0047	.181	.0293
94	13000	304	291	7.18	1	38.7	-22.9	.0889	.0856	-.00318	.0216	.175	-.00192
95	16000	304	295	7.17	1	38.7	-21.3	.0864	.0793	.0169	.0294	.165	-.0185
96	3000	305	297	8.2	1	38.7	-27	.0919	.115	-.017	-.0205	.144	.0757
97	6000	305	288	8.21	.999	38.7	-26.4	.0933	.112	-.0302	-.0197	.151	.119
98	9500	304	291	8.19	1	38.7	-24.9	.0914	.106	-.0211	.00235	.179	.0399
99	13000	305	291	8.23	1	38.7	-23	.0886	.0983	-.00397	.0196	.179	-.0038
100	16000	305	294	8.26	1	38.7	-21.5	.0858	.092	.0141	.0284	.166	-.0232

Case	Pi, i=1 to 15 ---------->														
76	2.81	2.67	2.57	2.49	2.38	2.28	2.21	2.1	1.98	1.87	1.8	1.63	1.51	1.36	1.21
77	2.88	2.74	2.63	2.55	2.43	2.33	2.25	2.13	2	1.9	1.8	1.63	1.52	1.36	1.21
78	2.87	2.73	2.61	2.54	2.4	2.31	2.21	2.1	1.96	1.86	1.76	1.61	1.49	1.34	1.2
79	2.87	2.74	2.61	2.54	2.42	2.32	2.23	2.1	1.98	1.87	1.78	1.61	1.5	1.35	1.2
80	2.89	2.75	2.62	2.55	2.41	2.32	2.22	2.1	1.97	1.87	1.77	1.61	1.49	1.35	1.2
81	4.1	3.88	3.71	3.59	3.41	3.25	3.13	2.94	2.75	2.57	2.42	2.15	1.95	1.69	1.44
82	4.01	3.81	3.63	3.51	3.34	3.17	3.05	2.85	2.66	2.48	2.34	2.07	1.89	1.63	1.4
83	4.12	3.91	3.72	3.63	3.4	3.28	3.1	2.94	2.72	2.53	2.37	2.12	1.91	1.67	1.41
84	4.14	3.93	3.73	3.63	3.41	3.28	3.12	2.93	2.72	2.54	2.37	2.12	1.92	1.68	1.42
85	4.11	3.88	3.67	3.57	3.34	3.21	3.03	2.87	2.64	2.48	2.3	2.06	1.86	1.64	1.39
86	5.29	5	4.77	4.6	4.37	4.17	3.99	3.73	3.49	3.24	3.03	2.69	2.41	2.09	1.73
87	5.36	5.06	4.82	4.66	4.39	4.2	3.99	3.74	3.46	3.22	2.99	2.66	2.37	2.04	1.7
88	5.43	5.14	4.89	4.78	4.45	4.31	4.05	3.85	3.56	3.26	3.07	2.71	2.42	2.1	1.74
89	5.38	5.1	4.83	4.71	4.41	4.24	4.01	3.78	3.48	3.25	3.01	2.68	2.4	2.08	1.72
90	5.4	5.11	4.82	4.7	4.38	4.22	3.97	3.76	3.46	3.21	2.97	2.65	2.37	2.06	1.71
91	6.63	6.26	5.97	5.76	5.45	5.22	4.97	4.66	4.33	4.02	3.75	3.32	2.97	2.55	2.11
92	6.56	6.2	5.9	5.71	5.38	5.15	4.89	4.57	4.22	3.93	3.65	3.23	2.88	2.47	2.05
93	6.65	6.31	5.98	5.83	5.45	5.26	4.94	4.69	4.33	3.96	3.71	3.28	2.93	2.53	2.08
94	6.67	6.32	5.98	5.83	5.44	5.25	4.93	4.67	4.29	3.98	3.69	3.27	2.92	2.53	2.08
95	6.69	6.32	5.98	5.82	5.43	5.25	4.93	4.68	4.29	3.97	3.69	3.27	2.93	2.54	2.09
96	7.56	7.14	6.8	6.57	6.23	5.95	5.68	5.33	4.94	4.59	4.29	3.78	3.39	2.9	2.4
97	7.57	7.17	6.83	6.6	6.26	5.96	5.71	5.31	4.93	4.59	4.28	3.75	3.37	2.87	2.39
98	7.58	7.19	6.81	6.63	6.21	5.97	5.63	5.31	4.88	4.54	4.2	3.73	3.31	2.87	2.35
99	7.64	7.24	6.86	6.68	6.26	6.01	5.67	5.36	4.91	4.56	4.22	3.74	3.33	2.88	2.36
100	7.68	7.26	6.87	6.68	6.23	6.03	5.64	5.36	4.91	4.52	4.21	3.71	3.32	2.86	2.36

Table A17b. Static and dynamic test data for seal 4 of Table 3 for low inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
101	3000	303	289	3.03	1.01	56.8	-26	.0865	.0411	-.0396	-.0207	.178	.0943
102	6000	303	291	3.02	1.01	56.8	-25.1	.0907	.0394	-.0468	-.000299	.216	.0286
103	9500	304	293	3.08	1.01	56.8	-24	.0845	.0385	-.0431	.0169	.199	-.00659
104	13000	303	299	3.08	1.01	56.8	-22.1	.0936	.0355	-.016	.0269	.196	-.00929
105	16000	303	304	3.07	1.01	56.8	-20.6	.0928	.033	-.00881	.0332	.196	-.0196
106	3000	303	289	4.4	1	56.8	-26.6	.0863	.061	-.0237	-.0156	.167	.0991
107	6000	304	288	4.47	1.01	56.8	-25.9	.0888	.0602	-.0311	-.00158	.202	.0527
108	9500	304	290	4.47	1.01	56.8	-24.5	.0864	.057	-.0189	.0172	.183	-.00741
109	13000	304	293	4.43	1.01	56.8	-22.6	.0905	.0521	.00606	.0274	.183	-.0159
110	16000	304	299	4.42	1.01	56.8	-21.3	.0899	.0491	.00226	.0315	.18	-.0241
111	3000	303	288	5.78	1	56.8	-26.6	.0927	.0799	-.0129	-.0119	.167	.0714
112	6000	304	288	5.78	1.01	56.8	-26	.0881	.0779	-.0305	-.00363	.197	.0641
113	9500	304	289	5.8	1.01	56.8	-24.6	.0861	.0743	-.0167	.0133	.186	.00699
114	13000	304	292	5.81	1	56.8	-22.9	.0898	.0691	.00553	.0259	.183	-.0147
115	16000	304	296	5.82	1.01	56.8	-21.2	.0859	.0642	.0162	.032	.171	-.0284
116	3000	304	295	7.16	1	56.8	-27	.092	.1	-.00982	-.0174	.152	.0562
117	6000	304	288	7.14	1	56.8	-26.2	.0888	.097	-.0296	-.00509	.175	.0785
118	9500	304	290	7.12	1	56.8	-24.7	.0898	.0914	-.0123	.0105	.186	.0127
119	13000	304	291	7.24	1	56.8	-22.9	.0887	.0861	.00326	.0232	.183	-.0174
120	16000	305	295	7.17	1	56.8	-21.6	.0923	.0803	.0135	.0309	.171	-.0317
121	3000	304	291	8.19	1	56.8	-26.9	.0925	.114	-.016	-.018	.148	.0595
122	6000	305	288	8.17	1	56.8	-26.4	.0904	.112	-.0313	-.00389	.184	.0838
123	9500	304	290	8.14	1	56.8	-24.8	.0882	.105	-.0125	.00923	.188	.0175
124	13000	304	292	8.16	1	56.8	-23.1	.0866	.0979	.0031	.023	.183	-.0111
125	16000	305	295	8.17	1	56.8	-21.5	.0917	.0912	.0203	.0302	.162	-.0294

Case	Pi, i=1 to 15 ---------->														
101	2.82	2.68	2.57	2.5	2.38	2.3	2.21	2.11	2	1.88	1.8	1.64	1.52	1.37	1.21
102	2.8	2.66	2.56	2.48	2.37	2.28	2.19	2.08	1.96	1.84	1.76	1.6	1.48	1.34	1.2
103	2.87	2.73	2.61	2.53	2.4	2.31	2.21	2.1	1.98	1.86	1.77	1.61	1.49	1.34	1.2
104	2.87	2.74	2.62	2.54	2.41	2.32	2.22	2.12	1.99	1.86	1.78	1.61	1.5	1.35	1.2
105	2.87	2.72	2.59	2.51	2.38	2.29	2.19	2.09	1.96	1.84	1.75	1.59	1.47	1.33	1.19
106	4.06	3.85	3.68	3.55	3.38	3.24	3.11	2.93	2.73	2.54	2.41	2.14	1.94	1.69	1.44
107	4.13	3.91	3.74	3.62	3.43	3.28	3.13	2.95	2.76	2.55	2.41	2.13	1.94	1.68	1.43
108	4.14	3.94	3.76	3.64	3.44	3.29	3.13	2.95	2.75	2.54	2.39	2.13	1.93	1.67	1.42
109	4.12	3.9	3.73	3.6	3.41	3.26	3.1	2.93	2.72	2.52	2.37	2.11	1.91	1.67	1.42
110	4.11	3.88	3.69	3.57	3.36	3.22	3.05	2.88	2.67	2.47	2.32	2.05	1.87	1.63	1.39
111	5.33	5.04	4.8	4.64	4.4	4.21	4.01	3.78	3.52	3.26	3.05	2.71	2.43	2.09	1.74
112	5.33	5.04	4.81	4.64	4.39	4.19	3.98	3.74	3.48	3.2	3	2.64	2.37	2.03	1.7
113	5.36	5.09	4.86	4.69	4.44	4.23	4.02	3.78	3.5	3.23	3.03	2.67	2.4	2.07	1.72
114	5.39	5.1	4.87	4.7	4.44	4.24	4.03	3.79	3.51	3.24	3.03	2.67	2.41	2.07	1.73
115	5.41	5.11	4.85	4.69	4.43	4.22	4	3.77	3.48	3.21	3.01	2.65	2.4	2.06	1.71
116	6.6	6.23	5.94	5.74	5.44	5.2	4.95	4.66	4.34	3.99	3.75	3.3	2.96	2.54	2.1
117	6.58	6.22	5.92	5.72	5.41	5.17	4.91	4.61	4.27	3.92	3.68	3.23	2.9	2.47	2.05
118	6.59	6.23	5.95	5.75	5.42	5.19	4.92	4.63	4.27	3.94	3.7	3.24	2.91	2.49	2.07
119	6.71	6.35	6.04	5.83	5.52	5.25	4.99	4.69	4.33	4	3.74	3.28	2.96	2.53	2.09
120	6.65	6.28	5.95	5.73	5.42	5.17	4.89	4.59	4.24	3.91	3.66	3.21	2.9	2.5	2.06
121	7.55	7.13	6.8	6.56	6.23	5.96	5.66	5.35	4.95	4.57	4.28	3.76	3.37	2.89	2.39
122	7.53	7.12	6.78	6.54	6.19	5.91	5.61	5.26	4.87	4.47	4.19	3.67	3.3	2.8	2.32
123	7.53	7.12	6.79	6.56	6.21	5.92	5.62	5.27	4.88	4.49	4.21	3.69	3.31	2.84	2.34
124	7.56	7.15	6.81	6.58	6.21	5.93	5.62	5.3	4.88	4.5	4.2	3.68	3.3	2.83	2.34
125	7.58	7.16	6.79	6.54	6.17	5.9	5.59	5.24	4.84	4.45	4.17	3.65	3.3	2.84	2.33

Table A17c. Static and dynamic test data for seal 4 of Table 3 for low inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
126	3000	300	289	3.04	1.01	74.6	-25.4	.0988	.0409	-.0326	-.00601	.209	.0598
127	6000	301	291	3.04	1.01	74.6	-24.9	.103	.0397	-.0494	.00488	.205	.0254
128	9500	301	292	3.05	1.01	74.6	-23.7	.1	.038	-.0328	.0155	.212	-.00198
129	13000	301	300	3.07	1.01	74.6	-21.9	.0935	.0352	-.00544	.0272	.208	-.00447
130	16000	302	305	3.04	1.01	74.6	-20.2	.0932	.0323	-.00606	.0333	.19	-.0226
131	3000	300	290	4.39	1.01	74.6	-26	.091	.0601	-.021	.000295	.179	.0568
132	6000	301	288	4.36	1.01	74.6	-25.2	.0986	.0577	-.0233	.00693	.207	.0377
133	9500	301	289	4.4	1.01	74.6	-24.3	.0973	.0561	-.0167	.0165	.195	-.0099
134	13000	302	293	4.45	1.01	74.6	-22.6	.0981	.0526	.0111	.0255	.18	-.0126
135	16000	302	299	4.39	1.01	74.6	-20.9	.0894	.0479	.0101	.0299	.173	-.0236
136	3000	300	288	5.81	1	74.6	-26.3	.0914	.0804	-.012	-.005	.174	.0299
137	6000	301	288	5.78	1.01	74.6	-25.7	.0947	.0781	-.025	.00588	.203	.0415
138	9500	301	288	5.82	1	74.6	-24.2	.0947	.074	-.00893	.0125	.183	.00367
139	13000	302	292	5.79	1	74.6	-22.7	.0933	.0688	.0115	.0232	.175	-.0175
140	16000	302	296	5.82	1.01	74.6	-21.1	.0892	.0642	.0154	.0285	.171	-.0303
141	3000	300	290	7.17	1	74.6	-26.4	.0895	.0796	-.0145	-.00587	.169	.0219
142	6000	301	286	7.2	1	74.6	-25.6	.0887	.0768	-.0201	.00423	.193	.0403
143	9500	301	288	7.18	1	74.6	-24.4	.091	.0719	-.00436	.0143	.189	.0125
144	13000	302	291	7.23	1	74.6	-22.9	.0912	.0867	.00793	.0218	.177	-.0142
145	16000	303	294	7.17	1	74.6	-21.1	.095	.0792	.0295	.0266	.161	-.0332
146	3000	301	287	8.17	.997	74.6	-26.7	.0873	.114	-.0164	-.00251	.178	.0157
147	6000	301	286	8.21	.999	74.6	-26	.0872	.112	-.0112	.0056	.196	.0416
148	9500	301	288	8.21	1	74.6	-24.7	.091	.106	-.00296	.012	.183	.0131
149	13000	302	291	8.17	1	74.6	-22.9	.091	.0979	.013	.0206	.18	-.0163
150	16000	303	294	8.22	1	74.6	-21.3	.0937	.0915	.0286	.0242	.162	-.0336

Case	Pi, i=1 to 15 ----------)														
126	2.74	2.61	2.52	2.44	2.34	2.26	2.18	2.07	1.96	1.85	1.78	1.62	1.5	1.36	1.21
127	2.74	2.6	2.51	2.44	2.33	2.24	2.15	2.05	1.93	1.82	1.75	1.59	1.48	1.33	1.19
128	2.75	2.61	2.52	2.45	2.34	2.24	2.16	2.06	1.93	1.82	1.74	1.58	1.47	1.33	1.19
129	2.78	2.64	2.55	2.47	2.35	2.26	2.17	2.07	1.95	1.83	1.76	1.6	1.48	1.34	1.2
130	2.76	2.61	2.51	2.43	2.31	2.22	2.13	2.03	1.92	1.8	1.73	1.57	1.46	1.32	1.18
131	3.93	3.72	3.58	3.47	3.3	3.17	3.03	2.87	2.68	2.49	2.36	2.11	1.91	1.67	1.42
132	3.89	3.68	3.54	3.43	3.26	3.12	2.98	2.81	2.62	2.43	2.3	2.04	1.86	1.62	1.38
133	3.93	3.72	3.57	3.46	3.28	3.13	2.99	2.83	2.63	2.43	2.29	2.03	1.84	1.61	1.38
134	3.99	3.79	3.63	3.51	3.34	3.19	3.05	2.87	2.66	2.47	2.34	2.08	1.89	1.65	1.4
135	3.93	3.71	3.56	3.43	3.25	3.1	2.95	2.78	2.58	2.38	2.25	2	1.82	1.59	1.36
136	5.18	4.89	4.7	4.55	4.34	4.15	3.96	3.73	3.48	3.21	3.02	2.67	2.4	2.07	1.73
137	5.14	4.84	4.65	4.49	4.26	4.06	3.87	3.65	3.39	3.12	2.94	2.58	2.32	1.99	1.66
138	5.19	4.9	4.72	4.56	4.32	4.12	3.93	3.71	3.43	3.17	2.97	2.61	2.35	2.03	1.69
139	5.19	4.91	4.71	4.56	4.31	4.13	3.92	3.7	3.41	3.15	2.95	2.61	2.36	2.04	1.7
140	5.19	4.9	4.68	4.52	4.27	4.07	3.87	3.65	3.36	3.09	2.9	2.55	2.32	2	1.67
141	6.37	6.02	5.78	5.6	5.32	5.09	4.86	4.58	4.24	3.92	3.67	3.24	2.91	2.5	2.07
142	6.41	6.04	5.81	5.6	5.31	5.07	4.82	4.55	4.23	3.89	3.65	3.2	2.87	2.45	2.03
143	6.38	6.03	5.78	5.59	5.29	5.04	4.8	4.52	4.2	3.86	3.62	3.18	2.84	2.45	2.02
144	6.46	6.1	5.84	5.64	5.35	5.1	4.84	4.56	4.2	3.87	3.62	3.18	2.86	2.46	2.04
145	6.4	6.04	5.78	5.59	5.3	5.05	4.8	4.52	4.16	3.84	3.58	3.14	2.83	2.44	2.02
146	7.26	6.85	6.58	6.37	6.06	5.79	5.53	5.2	4.82	4.45	4.17	3.67	3.28	2.81	2.33
147	7.29	6.89	6.62	6.4	6.07	5.8	5.51	5.18	4.81	4.43	4.15	3.63	3.25	2.78	2.3
148	7.3	6.9	6.63	6.42	6.07	5.79	5.51	5.18	4.78	4.4	4.11	3.6	3.23	2.78	2.29
149	7.28	6.9	6.6	6.39	6.03	5.77	5.48	5.16	4.77	4.38	4.09	3.59	3.22	2.76	2.28
150	7.32	6.88	6.59	6.36	6.03	5.74	5.44	5.15	4.73	4.35	4.07	3.56	3.21	2.76	2.27

Table A18a. Static and dynamic test data for seal 4 of Table 3 for low inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\bar{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
151	3000	296	288	3.08	1.01	38.7	24.9	.095	.0408	-.0256	.0335	.193	.00532
152	6000	296	288	3.08	1.01	38.7	24.5	.095	.0403	-.0239	.0329	.192	-.0161
153	9500	296	290	3.08	1.01	38.7	23.3	.0922	.0382	-.024	.0372	.175	-.0159
154	13000	297	299	3.05	1.01	38.7	21.9	.0923	.0355	-.0124	.0382	.175	-.00632
155	16000	297	303	3.06	1.01	38.7	20.3	.0931	.0331	-.00504	.0404	.176	-.00479
156	3000	297	290	4.39	1.01	38.7	25.6	.0917	.0599	-.0109	.0324	.18	-.00729
157	6000	296	285	4.41	1.01	38.7	24.9	.0932	.0585	-.0136	.0332	.169	-.00378
158	9500	297	287	4.44	1.01	38.7	23.9	.0915	.0565	-.00902	.036	.163	-.0133
159	13000	297	291	4.41	1.01	38.7	22.3	.0905	.0524	.01	.0385	.157	-.0164
160	16000	298	297	4.4	1.01	38.7	21	.0916	.049	.0056	.0379	.16	-.00693
161	3000	297	291	5.78	1	38.7	25.7	.0918	.0789	-.0104	.0311	.166	-.000808
162	6000	296	284	5.8	1	38.7	25.3	.0852	.0781	-.0123	.0312	.17	-.00644
163	9500	297	286	5.81	1.01	38.7	24.1	.0911	.0744	-.00147	.0351	.164	-.015
164	13000	297	289	5.74	1.01	38.7	22.5	.0897	.0689	.0114	.0379	.154	-.0179
165	16000	298	294	5.79	1.01	38.7	21	.0904	.0646	.0177	.0379	.15	-.0207
166	3000	297	284	7.19	.999	38.7	26.2	.088	.1	-.00833	.0301	.172	-.003
167	6000	296	284	7.19	1	38.7	25.4	.0866	.0974	-.0166	.0308	.165	-.013
168	9500	296	286	7.18	1.01	38.7	24.3	.0904	.0931	.00124	.034	.16	-.0191
169	13000	297	288	7.18	1.01	38.7	22.8	.0891	.0873	.0113	.0365	.155	-.0207
170	16000	298	292	7.18	1	38.7	21.1	.0879	.0802	.0239	.0371	.146	-.0231
171	3000	296	284	8.14	.997	38.7	26.3	.0881	.114	-.0155	.0297	.159	.00137
172	6000	296	283	8.21	1	38.7	25.5	.0879	.112	-.0122	.0306	.169	-.0117
173	9500	297	285	8.19	1	38.7	24.4	.0901	.106	.00109	.0332	.155	-.0179
174	13000	297	287	8.18	1.01	38.7	22.7	.0893	.0991	.00986	.0362	.152	-.0192
175	16000	298	292	8.22	1	38.7	21.3	.0874	.0929	.0262	.0361	.143	-.0243

Case	Pi, i=1 to 15 ---------->														
151	2.85	2.71	2.6	2.51	2.41	2.29	2.22	2.1	1.99	1.87	1.8	1.62	1.51	1.35	1.21
152	2.86	2.72	2.6	2.51	2.4	2.29	2.21	2.09	1.98	1.85	1.78	1.6	1.5	1.34	1.2
153	2.86	2.73	2.6	2.52	2.4	2.29	2.21	2.09	1.97	1.86	1.77	1.6	1.49	1.34	1.2
154	2.85	2.72	2.59	2.51	2.39	2.29	2.21	2.08	1.96	1.85	1.77	1.59	1.49	1.34	1.19
155	2.86	2.72	2.59	2.51	2.38	2.28	2.2	2.07	1.95	1.85	1.75	1.59	1.48	1.33	1.19
156	4.06	3.85	3.67	3.54	3.38	3.2	3.09	2.88	2.72	2.5	2.39	2.1	1.92	1.65	1.42
157	4.08	3.87	3.68	3.57	3.38	3.22	3.09	2.88	2.69	2.51	2.37	2.09	1.9	1.64	1.41
158	4.12	3.91	3.71	3.6	3.4	3.24	3.1	2.9	2.69	2.52	2.36	2.09	1.9	1.65	1.41
159	4.11	3.9	3.69	3.59	3.37	3.23	3.08	2.9	2.68	2.51	2.35	2.1	1.9	1.66	1.41
160	4.09	3.87	3.66	3.56	3.33	3.2	3.03	2.85	2.62	2.46	2.29	2.05	1.85	1.62	1.38
161	5.34	5.05	4.8	4.65	4.42	4.19	4.02	3.74	3.5	3.24	3.06	2.67	2.42	2.05	1.73
162	5.36	5.08	4.81	4.68	4.39	4.21	3.98	3.75	3.47	3.22	3	2.66	2.37	2.06	1.7
163	5.39	5.11	4.84	4.71	4.43	4.23	4.02	3.76	3.49	3.25	3.03	2.68	2.4	2.07	1.72
164	5.34	5.06	4.78	4.65	4.34	4.18	3.95	3.73	3.43	3.19	2.96	2.63	2.36	2.05	1.69
165	5.38	5.1	4.81	4.67	4.37	4.18	3.96	3.73	3.42	3.2	2.96	2.62	2.36	2.04	1.69
166	6.63	6.29	5.97	5.76	5.49	5.2	4.99	4.63	4.32	4.01	3.77	3.28	2.96	2.51	2.1
167	6.65	6.3	5.96	5.81	5.43	5.23	4.92	4.65	4.28	3.95	3.68	3.26	2.89	2.49	2.05
168	6.65	6.32	5.97	5.8	5.46	5.22	4.96	4.64	4.28	3.99	3.71	3.28	2.92	2.51	2.08
169	6.67	6.33	5.97	5.81	5.44	5.23	4.93	4.65	4.27	3.97	3.67	3.26	2.9	2.51	2.06
170	6.68	6.33	5.97	5.79	5.44	5.22	4.93	4.63	4.25	3.96	3.67	3.25	2.91	2.51	2.06
171	7.51	7.1	6.75	6.52	6.2	5.87	5.64	5.23	4.87	4.51	4.23	3.7	3.33	2.81	2.35
172	7.58	7.18	6.81	6.57	6.25	5.91	5.66	5.24	4.89	4.5	4.24	3.67	3.32	2.8	2.34
173	7.58	7.18	6.8	6.6	6.19	5.93	5.61	5.27	4.83	4.51	4.17	3.69	3.28	2.82	2.32
174	7.6	7.2	6.81	6.61	6.19	5.94	5.62	5.29	4.85	4.52	4.17	3.7	3.29	2.84	2.33
175	7.64	7.24	6.85	6.61	6.25	5.94	5.66	5.28	4.87	4.54	4.22	3.7	3.33	2.85	2.35

Table A18b. Static and dynamic test data for seal 4 of Table 3 for low inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
176	3000	300	291	3.02	1.01	56.8	25.2	.0989	.0402	-.0184	.0347	.201	-.0217
177	6000	300	289	3.03	1.02	56.8	24.4	.093	.039	-.0245	.0354	.192	-.00862
178	9500	300	292	3.04	1.02	56.8	23.4	.0897	.0374	-.0158	.0336	.185	-.0201
179	13000	300	299	3.03	1.01	56.8	21.8	.0922	.0348	-.00475	.0389	.182	-.0102
180	16000	300	303	3.11	1.01	56.8	20.4	.0912	.0333	.00736	.0398	.174	-.0199
181	3000	300	291	4.43	1.01	56.8	25.6	.0856	.0597	-.0104	.0361	.188	-.00886
182	6000	300	286	4.42	1.01	56.8	25.2	.091	.0586	-.00584	.0337	.177	-.0136
183	9500	300	288	4.42	1.01	56.8	24	.0862	.0559	-.00163	.035	.167	-.0227
184	13000	300	291	4.42	1.01	56.8	22.5	.088	.0525	.0166	.0362	.158	-.021
185	16000	300	298	4.38	1.01	56.8	20.9	.0884	.0483	.015	.0388	.159	-.0218
186	3000	300	294	5.78	1	56.8	25.9	.0872	.0788	.00344	.0294	.175	-.0205
187	6000	300	286	5.77	1.01	56.8	25.5	.0895	.0775	-.00807	.0342	.176	-.0152
188	9500	300	287	5.77	1.01	56.8	24.1	.0837	.0733	.00378	.0349	.165	-.0304
189	13000	300	290	5.79	1.01	56.8	22.8	.0863	.0695	.0201	.0367	.152	-.0319
190	16000	300	295	5.81	1.01	56.8	21.1	.085	.0644	.0255	.0383	.149	-.0283
191	3000	300	285	7.16	1	56.8	26.1	.0864	.0983	-.0132	.0337	.175	-.00058
192	6000	300	286	7.14	1	56.8	25.3	.0897	.0952	-.00979	.032	.171	-.0212
193	9500	300	287	7.19	1.01	56.8	24.3	.0827	.0921	.00803	.0326	.161	-.029
194	13000	300	289	7.16	1.01	56.8	22.7	.0844	.0855	.0179	.0365	.153	-.0276
195	16000	300	293	7.2	1	56.8	21.1	.0841	.08	.0326	.0365	.14	-.0275
196	3000	300	287	8.2	1	56.8	26.2	.0885	.113	-.00735	.0295	.165	-.0177
197	6000	300	286	8.17	1	56.8	25.8	.0877	.111	-.0133	.0322	.165	-.0117
198	9500	300	287	8.15	1	56.8	24.4	.0862	.105	.00446	.0338	.161	-.027
199	13000	300	289	8.17	1	56.8	22.9	.0844	.0988	.0174	.0371	.151	-.0293
200	16000	301	293	8.21	1	56.8	21.3	.0818	.092	.0323	.0364	.142	-.0292

Case	Pi, i=1 to 15 ---------->														
176	2.81	2.67	2.55	2.48	2.36	2.27	2.18	2.08	1.97	1.84	1.77	1.61	1.49	1.35	1.2
177	2.82	2.68	2.57	2.49	2.37	2.28	2.19	2.08	1.96	1.84	1.76	1.6	1.49	1.34	1.2
178	2.83	2.69	2.57	2.5	2.37	2.28	2.18	2.08	1.96	1.84	1.76	1.6	1.48	1.34	1.19
179	2.83	2.69	2.57	2.5	2.37	2.28	2.18	2.08	1.96	1.84	1.75	1.59	1.48	1.34	1.19
180	2.9	2.75	2.63	2.54	2.41	2.32	2.22	2.11	1.99	1.86	1.77	1.61	1.49	1.34	1.2
181	4.1	3.88	3.7	3.58	3.39	3.25	3.1	2.92	2.73	2.53	2.39	2.13	1.93	1.67	1.42
182	4.09	3.88	3.7	3.58	3.39	3.24	3.08	2.91	2.71	2.51	2.37	2.1	1.9	1.65	1.41
183	4.1	3.88	3.7	3.57	3.38	3.23	3.07	2.9	2.69	2.5	2.35	2.09	1.89	1.65	1.4
184	4.12	3.91	3.72	3.6	3.4	3.25	3.1	2.93	2.72	2.52	2.37	2.1	1.91	1.66	1.41
185	4.08	3.85	3.66	3.53	3.34	3.18	3.02	2.85	2.64	2.44	2.3	2.03	1.85	1.61	1.38
186	5.34	5.05	4.81	4.65	4.41	4.22	4.02	3.77	3.51	3.24	3.06	2.69	2.42	2.07	1.74
187	5.33	5.04	4.8	4.64	4.39	4.18	3.97	3.74	3.47	3.19	3	2.63	2.37	2.03	1.7
188	5.36	5.08	4.82	4.66	4.41	4.2	3.99	3.76	3.48	3.21	3.02	2.66	2.39	2.06	1.71
189	5.39	5.1	4.84	4.67	4.41	4.21	3.99	3.77	3.48	3.22	3.01	2.65	2.39	2.06	1.72
190	5.41	5.11	4.85	4.67	4.41	4.21	3.99	3.75	3.46	3.2	2.99	2.63	2.38	2.05	1.7
191	6.62	6.25	5.96	5.76	5.45	5.21	4.96	4.66	4.32	3.98	3.75	3.29	2.95	2.52	2.09
192	6.59	6.23	5.93	5.73	5.41	5.16	4.9	4.6	4.26	3.91	3.67	3.22	2.88	2.46	2.04
193	6.67	6.31	6.01	5.81	5.48	5.25	4.96	4.67	4.33	3.99	3.74	3.27	2.93	2.52	2.08
194	6.66	6.3	5.98	5.77	5.45	5.2	4.93	4.64	4.29	3.95	3.7	3.24	2.92	2.5	2.07
195	6.7	6.34	6.01	5.79	5.46	5.23	4.95	4.66	4.29	3.95	3.71	3.25	2.93	2.51	2.07
196	7.57	7.16	6.81	6.57	6.23	5.95	5.66	5.31	4.93	4.53	4.26	3.73	3.36	2.85	2.36
197	7.54	7.13	6.78	6.56	6.2	5.91	5.61	5.26	4.88	4.47	4.2	3.67	3.29	2.81	2.32
198	7.56	7.15	6.8	6.56	6.21	5.92	5.62	5.28	4.88	4.5	4.21	3.69	3.31	2.83	2.35
199	7.59	7.17	6.81	6.58	6.21	5.92	5.62	5.28	4.88	4.48	4.2	3.67	3.31	2.83	2.33
200	7.64	7.22	6.84	6.6	6.23	5.95	5.63	5.31	4.9	4.5	4.21	3.69	3.32	2.85	2.35

Table A18c. Static and dynamic test data for seal 4 of Table 3 for low inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
201	3000	301	287	3.09	1.01	74.6	25.3	.0903	.041	-.0133	.0306	.195	-.00491
202	6000	301	291	3.08	1.01	74.6	24.8	.109	.04	-.0229	.0321	.189	-.00682
203	9500	301	291	3.09	1.01	74.6	23.6	.0944	.0382	-.00928	.0307	.185	-.0192
204	13000	300	299	3.02	1.01	74.6	21.9	.106	.0349	.0158	.0365	.182	-.0186
205	16000	300	303	3.08	1.01	74.6	20.4	.106	.0331	.0164	.0399	.167	-.021
206	3000	302	287	4.37	1.01	74.6	25.8	.0825	.0592	.00121	.0321	.178	-.00342
207	6000	301	287	4.44	1.01	74.6	25.3	.103	.0589	-.00285	.0303	.173	-.00653
208	9500	301	289	4.43	1.01	74.6	24.1	.0881	.0561	-.000227	.0305	.169	-.0194
209	13000	301	291	4.42	1.01	74.6	22.6	.105	.0526	.0274	.0348	.161	-.0201
210	16000	301	298	4.41	1.01	74.6	21	.0984	.0487	.0321	.0372	.156	-.0292
211	3000	302	291	5.76	1.01	74.6	26.1	.0821	.0786	.00262	.0298	.177	-.013
212	6000	301	287	5.77	1.01	74.6	25.4	.106	.077	.00152	.0303	.171	-.00695
213	9500	301	288	5.77	1.01	74.6	24.2	.085	.0732	.0148	.0296	.161	-.0267
214	13000	300	290	5.78	1.01	74.6	22.7	.101	.0692	.0325	.031	.148	-.0289
215	16000	301	295	5.83	1.01	74.6	21.2	.0927	.0652	.038	.0334	.147	-.0269
216	3000	302	290	7.11	1	74.6	26.2	.0751	.0976	.00793	.027	.172	-.0155
217	6000	302	285	7.19	1	74.6	25.9	.0979	.0975	.00221	.0269	.165	-.0168
218	9500	301	288	7.17	1.01	74.6	24.4	.0823	.0919	.0175	.0287	.16	-.0284
219	13000	301	290	7.21	1.01	74.6	23.1	.084	.0874	.0288	.0311	.146	-.029
220	16000	301	293	7.21	1	74.6	21.4	.0904	.0812	.0447	.0307	.132	-.0332
221	3000	302	287	8.16	1	74.6	26.5	.0988	.113	.00162	.0304	.172	-.0133
222	6000	302	285	8.16	1	74.6	25.6	.0955	.11	.00934	.0255	.166	-.0173
223	9500	301	287	8.17	1	74.6	24.7	.0843	.106	.0141	.0287	.16	-.0302
224	13000	301	289	8.2	1.01	74.6	23	.0855	.0991	.03	.0284	.148	-.0292
225	16000	300	293	8.22	1	74.6	21.4	.088	.0924	.0416	.0298	.132	-.0329

Case	Pi, i=1 to 15 ---------->														
201	2.87	2.73	2.61	2.53	2.41	2.32	2.23	2.12	2.01	1.88	1.8	1.63	1.52	1.36	1.21
202	2.86	2.72	2.61	2.53	2.41	2.31	2.22	2.1	1.98	1.86	1.78	1.62	1.5	1.35	1.2
203	2.87	2.73	2.61	2.54	2.41	2.32	2.22	2.11	1.98	1.86	1.77	1.61	1.49	1.34	1.2
204	2.82	2.69	2.57	2.49	2.37	2.28	2.18	2.08	1.95	1.83	1.76	1.6	1.48	1.34	1.2
205	2.88	2.74	2.61	2.53	2.4	2.31	2.21	2.1	1.97	1.85	1.76	1.6	1.48	1.34	1.2
206	4.04	3.83	3.65	3.54	3.36	3.21	3.07	2.89	2.7	2.5	2.34	2.1	1.91	1.65	1.41
207	4.11	3.9	3.72	3.61	3.42	3.26	3.11	2.93	2.72	2.52	2.38	2.11	1.92	1.66	1.42
208	4.12	3.9	3.71	3.6	3.4	3.25	3.1	2.92	2.72	2.52	2.37	2.1	1.9	1.65	1.41
209	4.11	3.89	3.7	3.59	3.39	3.24	3.08	2.91	2.7	2.5	2.35	2.09	1.9	1.65	1.41
210	4.11	3.88	3.68	3.56	3.36	3.21	3.05	2.88	2.66	2.47	2.32	2.05	1.87	1.63	1.39
211	5.32	5.04	4.8	4.64	4.4	4.19	4	3.75	3.5	3.22	3.04	2.68	2.41	2.06	1.72
212	5.33	5.05	4.81	4.66	4.41	4.21	4.01	3.75	3.47	3.2	3	2.64	2.38	2.05	1.71
213	5.35	5.06	4.81	4.66	4.4	4.21	4	3.76	3.48	3.22	3.01	2.64	2.38	2.05	1.71
214	5.37	5.08	4.82	4.67	4.41	4.21	3.99	3.77	3.5	3.22	3.02	2.65	2.39	2.06	1.71
215	5.42	5.12	4.86	4.7	4.43	4.23	4.01	3.78	3.49	3.22	3	2.64	2.38	2.05	1.7
216	6.56	6.21	5.91	5.73	5.42	5.18	4.94	4.63	4.29	3.95	3.71	3.25	2.92	2.49	2.07
217	6.64	6.28	5.98	5.79	5.48	5.23	4.97	4.66	4.32	3.97	3.72	3.25	2.92	2.5	2.07
218	6.65	6.3	5.98	5.79	5.47	5.22	4.96	4.66	4.32	3.97	3.72	3.26	2.92	2.51	2.08
219	6.69	6.33	6.01	5.8	5.47	5.22	4.95	4.67	4.33	3.98	3.72	3.27	2.93	2.51	2.08
220	6.71	6.33	6	5.8	5.47	5.23	4.94	4.66	4.31	3.96	3.71	3.25	2.94	2.52	2.08
221	7.52	7.11	6.77	6.56	6.21	5.93	5.66	5.3	4.9	4.5	4.23	3.7	3.32	2.84	2.35
222	7.53	7.13	6.78	6.58	6.21	5.94	5.64	5.31	4.92	4.52	4.23	3.71	3.31	2.83	2.34
223	7.57	7.16	6.79	6.59	6.22	5.94	5.63	5.29	4.91	4.51	4.22	3.69	3.31	2.83	2.34
224	7.61	7.2	6.83	6.6	6.24	5.95	5.64	5.31	4.91	4.52	4.22	3.68	3.31	2.83	2.34
225	7.64	7.21	6.84	6.61	6.23	5.95	5.63	5.31	4.91	4.51	4.21	3.69	3.32	2.85	2.35

Table A19a. Static and dynamic test data for seal 4 of Table 3 for high inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
226	3000	302	288	2.97	1.01	38.7	-56.5	.0885	.0387	-.0282	-.0351	.136	.0937
227	6000	302	291	3.03	1.01	38.7	-55.5	.0868	.0389	-.0525	-.0298	.128	.12
228	9500	302	293	3.01	1.01	38.7	-53	.0895	.0369	-.0532	-.0052	.2	.0307
229	13000	302	300	3.06	1.01	38.7	-48.9	.0887	.0347	-.0336	.0258	.204	-.000216
230	16000	302	304	3.09	1.01	38.7	-45.3	.0888	.0325	-.0209	.0317	.195	-.00429
231	3000	302	289	4.43	1.01	38.7	-58.3	.0864	.0595	-.0118	-.0329	.134	.0991
232	6000	302	288	4.38	1.01	38.7	-56.5	.0867	.057	-.0269	-.0281	.126	.109
233	9500	302	290	4.37	1.01	38.7	-54	.0897	.0545	-.031	-.0103	.192	.0553
234	13000	303	294	4.4	1.01	38.7	-49.7	.0883	.0505	-.0108	.0231	.183	.00161
235	16000	303	299	4.44	1.01	38.7	-46.4	.0893	.0477	-.0103	.0308	.176	-.0062
236	3000	302	292	5.77	1	38.7	-58.3	.0872	.0775	-.00885	-.0305	.144	.0844
237	6000	303	288	5.73	1.01	38.7	-57.3	.0875	.0755	-.0259	-.0263	.129	.115
238	9500	302	289	5.78	1.01	38.7	-54.5	.0902	.0726	-.0235	-.0138	.187	.0693
239	13000	303	291	5.77	1.01	38.7	-50.5	.0891	.0674	-.00859	.0189	.191	.00795
240	16000	303	296	5.82	1.01	38.7	-46.7	.0878	.0629	.00128	.0305	.166	-.0148
241	3000	302	293	7.15	1	38.7	-58.7	.0865	.0965	-.00963	-.0277	.15	.0773
242	6000	303	287	7.16	1	38.7	-57.6	.0879	.0948	-.0208	-.0279	.118	.128
243	9500	303	290	7.16	1	38.7	-55.2	.0906	.091	-.0199	-.014	.176	.0776
244	13000	303	291	7.14	1	38.7	-50.8	.0901	.0838	-.0111	.0142	.189	.0169
245	16000	303	294	7.2	1	38.7	-46.8	.0875	.078	.0106	.0271	.161	-.0147
246	3000	302	297	8.13	.996	38.7	-58.9	.086	.11	-.0108	-.0274	.147	.072
247	6000	303	287	8.15	1	38.7	-57.7	.0887	.108	-.0209	-.0267	.112	.133
248	9500	303	290	8.18	1	38.7	-55.1	.0913	.104	-.0195	-.0165	.171	.0745
249	13000	303	290	8.18	1.01	38.7	-51	.0909	.0963	-.0119	.0119	.188	.0256
250	16000	303	294	8.18	1	38.7	-47.2	.0882	.0891	.01	.0275	.164	-.017

Case	Pi, i=1 to 15 ----------)														
226	2.59	2.5	2.42	2.34	2.26	2.17	2.11	2	1.91	1.79	1.72	1.58	1.48	1.33	1.19
227	2.65	2.55	2.46	2.39	2.29	2.2	2.13	2.02	1.91	1.81	1.73	1.57	1.47	1.32	1.19
228	2.65	2.54	2.45	2.4	2.27	2.19	2.1	2.01	1.88	1.79	1.7	1.56	1.45	1.32	1.18
229	2.71	2.59	2.49	2.42	2.3	2.22	2.13	2.02	1.9	1.81	1.72	1.57	1.46	1.32	1.18
230	2.75	2.61	2.51	2.43	2.32	2.22	2.14	2.03	1.91	1.81	1.72	1.57	1.46	1.32	1.18
231	3.83	3.68	3.55	3.42	3.27	3.12	3.01	2.84	2.67	2.49	2.35	2.08	1.91	1.65	1.41
232	3.8	3.63	3.49	3.4	3.22	3.09	2.95	2.78	2.58	2.43	2.29	2.04	1.84	1.61	1.38
233	3.81	3.64	3.49	3.41	3.21	3.09	2.93	2.78	2.57	2.42	2.27	2.03	1.83	1.61	1.37
234	3.87	3.69	3.54	3.42	3.25	3.12	2.97	2.8	2.59	2.44	2.29	2.04	1.85	1.62	1.38
235	3.9	3.72	3.54	3.43	3.22	3.1	2.94	2.77	2.56	2.41	2.25	2.01	1.81	1.59	1.36
236	4.98	4.78	4.6	4.43	4.25	4.05	3.9	3.64	3.42	3.16	2.98	2.63	2.38	2.04	1.7
237	4.95	4.72	4.53	4.39	4.16	3.98	3.79	3.56	3.3	3.09	2.89	2.55	2.28	1.97	1.65
238	5.03	4.8	4.6	4.48	4.21	4.05	3.83	3.62	3.34	3.13	2.92	2.59	2.31	2.01	1.67
239	5.05	4.81	4.6	4.46	4.2	4.05	3.82	3.6	3.32	3.11	2.9	2.57	2.3	2	1.66
240	5.11	4.86	4.62	4.48	4.2	4.05	3.82	3.61	3.32	3.09	2.89	2.56	2.29	1.99	1.65
241	6.19	5.93	5.71	5.52	5.27	5.03	4.83	4.54	4.22	3.91	3.68	3.24	2.91	2.49	2.06
242	6.18	5.9	5.66	5.5	5.18	4.97	4.71	4.43	4.09	3.82	3.56	3.14	2.8	2.41	1.99
243	6.23	5.93	5.71	5.55	5.2	5.02	4.72	4.48	4.11	3.84	3.58	3.16	2.81	2.44	2
244	6.23	5.95	5.69	5.52	5.17	5	4.7	4.45	4.08	3.81	3.54	3.13	2.78	2.42	1.99
245	6.32	6.02	5.72	5.55	5.19	5.03	4.72	4.48	4.11	3.82	3.56	3.14	2.81	2.44	2
246	7	6.71	6.46	6.24	5.95	5.68	5.46	5.11	4.76	4.41	4.13	3.64	3.26	2.78	2.31
247	7.04	6.71	6.43	6.27	5.88	5.68	5.34	5.08	4.67	4.32	4.04	3.56	3.16	2.73	2.24
248	7.1	6.78	6.5	6.31	5.93	5.71	5.39	5.1	4.67	4.37	4.07	3.6	3.19	2.77	2.27
249	7.16	6.83	6.52	6.3	5.93	5.71	5.39	5.08	4.66	4.36	4.05	3.58	3.17	2.75	2.26
250	7.16	6.82	6.49	6.3	5.9	5.69	5.33	5.06	4.64	4.33	4.02	3.56	3.16	2.74	2.25

Table A19b. Static and dynamic test data for seal 4 of Table 3 for high inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
251	3000	299	293	3.01	1.01	56.8	-55.8	.0846	.0391	-.0317	-.0344	.157	.0834
252	6000	302	290	3.02	1.01	56.8	-55.5	.0938	.0386	-.0464	-.0209	.176	.0753
253	9500	302	293	3	1.01	56.8	-52.9	.0939	.0367	-.0497	-.00191	.22	.0169
254	13000	303	300	3.03	1.01	56.8	-48.8	.0872	.0341	-.0251	.0245	.208	-.09701
255	16000	303	304	3.1	1.01	56.8	-45	.0868	.0323	-.0097	.0309	.194	-.0154
256	3000	300	293	4.39	1	56.8	-57.6	.0851	.0587	-.0151	-.0234	.146	.0798
257	6000	302	287	4.4	1.01	56.8	-57.2	.0879	.058	-.0252	-.0186	.151	.0828
258	9500	302	290	4.43	1.01	56.8	-54.4	.0936	.0556	-.0317	-.00209	.207	.0382
259	13000	304	295	4.4	1.01	56.8	-50.2	.0865	.0509	-.01	.023	.196	-.012
260	16000	304	299	4.39	1.01	56.8	-46.7	.0844	.0472	-.00122	.0311	.177	-.0209
261	3000	300	291	5.75	1	56.8	-58.1	.0874	.0773	-.00993	-.0223	.153	.0738
262	6000	302	288	5.74	1	56.8	-57.4	.0887	.0759	-.0205	-.016	.15	.0838
263	9500	303	289	5.73	1	56.8	-54.6	.0931	.072	-.0146	-.00431	.191	.046
264	13000	303	292	5.7	1	56.8	-50.8	.0859	.0667	-.00585	.0208	.195	-.00301
265	16000	304	296	5.74	1.01	56.8	-47.2	.0896	.0625	.00439	.0308	.168	-.0279
266	3000	301	292	7.13	.997	56.8	-58.6	.0844	.0965	-.0116	-.0217	.161	.064
267	6000	303	287	7.09	1	56.8	-57.8	.0908	.0942	-.0217	-.0147	.143	.089
268	9500	303	290	7.09	1	56.8	-55.2	.0882	.09	-.0133	-.00597	.184	.051
269	13000	304	292	7.08	1	56.8	-50.7	.0864	.0827	-.00323	.0175	.191	.00254
270	16000	304	294	7.12	1	56.8	-47.4	.0882	.0779	.00629	.0313	.169	-.0288
271	3000	301	294	8.15	.995	56.8	-58.8	.082	.111	-.0131	-.02	.158	.0625
272	6000	299	286	8.08	1	56.8	-58.2	.0868	.109	-.0209	-.0153	.143	.0993
273	9500	304	290	8.14	1	56.8	-55.1	.0884	.103	-.0177	-.00471	.181	.0561
274	13000	304	292	8.18	1	56.8	-50.8	.0846	.0956	-.00561	.0158	.191	.0025
275	16000	304	294	8.18	1	56.8	-47.8	.0872	.09	.0118	.0286	.163	-.0295

Case	Pi, i=1 to 15 ---------->														
251	2.64	2.54	2.46	2.39	2.29	2.22	2.13	2.05	1.94	1.83	1.75	1.6	1.49	1.35	1.2
252	2.63	2.53	2.45	2.38	2.27	2.19	2.11	2.01	1.9	1.79	1.71	1.56	1.46	1.32	1.18
253	2.63	2.52	2.44	2.37	2.26	2.17	2.08	1.99	1.88	1.77	1.7	1.55	1.44	1.31	1.17
254	2.69	2.57	2.47	2.4	2.29	2.2	2.12	2.02	1.91	1.79	1.71	1.56	1.45	1.32	1.18
255	2.76	2.62	2.52	2.44	2.32	2.23	2.14	2.05	1.93	1.81	1.73	1.57	1.46	1.32	1.18
256	3.8	3.64	3.51	3.41	3.23	3.11	2.98	2.82	2.63	2.45	2.32	2.06	1.89	1.63	1.4
257	3.81	3.65	3.52	3.4	3.25	3.1	2.97	2.81	2.62	2.43	2.3	2.04	1.85	1.62	1.38
258	3.87	3.69	3.55	3.44	3.26	3.12	2.97	2.81	2.62	2.43	2.29	2.04	1.84	1.61	1.38
259	3.87	3.68	3.54	3.42	3.24	3.1	2.96	2.8	2.61	2.42	2.28	2.03	1.85	1.61	1.37
260	3.88	3.66	3.51	3.38	3.21	3.06	2.92	2.75	2.56	2.37	2.23	1.98	1.8	1.58	1.35
261	4.96	4.75	4.58	4.42	4.22	4.04	3.87	3.66	3.4	3.13	2.96	2.61	2.35	2.03	1.68
262	4.96	4.74	4.56	4.42	4.2	4.01	3.81	3.6	3.35	3.09	2.9	2.56	2.3	1.98	1.65
263	4.99	4.74	4.57	4.42	4.19	4	3.81	3.59	3.34	3.08	2.9	2.56	2.31	1.98	1.66
264	4.99	4.72	4.54	4.38	4.15	3.98	3.77	3.56	3.3	3.05	2.86	2.52	2.28	1.97	1.64
265	5.04	4.75	4.56	4.39	4.15	3.96	3.76	3.56	3.29	3.05	2.85	2.51	2.27	1.96	1.63
266	6.15	5.88	5.66	5.48	5.21	5	4.77	4.47	4.18	3.87	3.63	3.2	2.87	2.46	2.03
267	6.11	5.83	5.61	5.42	5.15	4.91	4.67	4.4	4.08	3.75	3.53	3.1	2.77	2.38	1.97
268	6.14	5.84	5.62	5.45	5.15	4.94	4.68	4.41	4.09	3.77	3.54	3.1	2.79	2.39	1.98
269	6.21	5.88	5.65	5.46	5.18	4.94	4.71	4.44	4.11	3.8	3.56	3.13	2.81	2.42	2
270	6.25	5.88	5.65	5.44	5.14	4.92	4.65	4.38	4.04	3.74	3.49	3.07	2.76	2.37	1.96
271	7.02	6.72	6.46	6.26	5.94	5.71	5.43	5.13	4.77	4.4	4.13	3.63	3.26	2.78	2.29
272	6.92	6.57	6.33	6.1	5.78	5.51	5.23	4.92	4.56	4.18	3.92	3.44	3.08	2.63	2.18
273	7.07	6.72	6.47	6.26	5.92	5.66	5.37	5.06	4.68	4.33	4.05	3.54	3.19	2.73	2.25
274	7.18	6.79	6.51	6.28	5.96	5.7	5.4	5.08	4.7	4.34	4.05	3.55	3.19	2.73	2.25
275	7.19	6.79	6.51	6.24	5.92	5.65	5.36	5.05	4.66	4.3	4.01	3.53	3.17	2.72	2.24

Table A19c. Static and dynamic test data for seal 4 of Table 3 for high inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
276	3000	299	292	2.99	1.01	74.6	-55.4	.0867	.0387	-.013	-.0224	.168	.0488
277	6000	304	292	2.99	1.01	74.6	-55.9	.0884	.0383	-.0454	-.0147	.197	.0694
278	9500	304	293	3.04	1.01	74.6	-53.3	.0939	.0373	-.0407	-.00344	.218	.0229
279	13000	295	298	3.04	1.01	74.6	-46.7	.087	.0337	-.0173	.0195	.214	-.0119
280	16000	296	302	3.09	1.01	74.6	-43.9	.0943	.0322	.00554	.0277	.194	-.0192
281	3000	299	290	4.38	1.01	74.6	-56.9	.0916	.0581	-.00243	-.015	.155	.0481
282	6000	304	289	4.38	1.01	74.6	-57.1	.0882	.0572	-.0203	-.00976	.17	.0654
283	9500	304	291	4.38	1.01	74.6	-54.6	.0954	.0548	-.00797	-.00434	.198	.0266
284	13000	295	291	4.39	1.01	74.6	-48.3	.0904	.0503	.0032	.0197	.195	-.0153
285	16000	295	297	4.39	1.01	74.6	-45.6	.0937	.0474	.0118	.0278	.182	-.0268
286	3000	299	288	5.73	1	74.6	-58.5	.0854	.078	.00262	-.0175	.155	.0444
287	6000	299	287	5.78	1	74.6	-57.4	.0976	.0773	-.0146	-.00786	.161	.0657
288	9500	304	290	5.72	1	74.6	-55.2	.0925	.0724	.0027	-.000958	.19	.036
289	13000	295	290	5.79	1.01	74.6	-48.7	.0827	.0669	.00785	.0157	.19	-.00638
290	16000	296	293	5.8	1	74.6	-45.6	.0893	.0628	.0324	.0254	.164	-.0234
291	3000	304	292	7.14	.999	74.6	-59	.0841	.0963	.00039	-.0185	.157	.0518
292	6000	304	289	7.06	1	74.6	-57.9	.0836	.0935	-.00948	-.0073	.162	.0649
293	9500	304	290	7.12	1	74.6	-55.3	.0896	.0902	-.00484	-.00362	.187	.0412
294	13000	296	288	7.2	1	74.6	-49.3	.0905	.084	.0115	.0151	.184	-.00315
295	16000	295	291	7.15	1	74.6	-45.7	.096	.0775	.0295	.0225	.164	-.0273
296	3000	304	291	8.13	1	74.6	-59.4	.082	.11	-.00226	-.0162	.159	.0502
297	6000	299	284	8.13	1	74.6	-57.3	.094	.108	-.00578	-.00897	.155	.0692
298	9500	304	290	8.16	.999	74.6	-55.5	.0865	.104	-.00198	-.00111	.187	.045
299	13000	295	288	8.17	1	74.6	-50	.0899	.0968	.0101	.013	.186	-.000652
300	16000	296	290	8.24	1	74.6	-46.8	.0878	.0914	.0241	.0197	.165	-.027

Case	Pi, i=1 to 15 ---------->														
276	2.61	2.5	2.42	2.34	2.24	2.16	2.08	1.99	1.89	1.79	1.71	1.57	1.46	1.32	1.19
277	2.62	2.52	2.44	2.36	2.26	2.18	2.09	2	1.89	1.79	1.71	1.56	1.45	1.31	1.18
278	2.68	2.56	2.49	2.41	2.3	2.21	2.12	2.02	1.92	1.8	1.72	1.57	1.46	1.32	1.18
279	2.71	2.58	2.49	2.41	2.3	2.21	2.12	2.02	1.91	1.8	1.72	1.57	1.45	1.32	1.18
280	2.76	2.62	2.52	2.43	2.32	2.23	2.14	2.04	1.93	1.82	1.73	1.57	1.46	1.32	1.18
281	3.78	3.62	3.49	3.36	3.2	3.06	2.93	2.76	2.59	2.4	2.28	2.03	1.84	1.61	1.37
282	3.8	3.63	3.51	3.4	3.23	3.09	2.96	2.79	2.62	2.43	2.3	2.05	1.86	1.62	1.38
283	3.81	3.66	3.52	3.43	3.26	3.12	2.98	2.82	2.62	2.42	2.3	2.04	1.85	1.61	1.38
284	3.86	3.66	3.52	3.39	3.2	3.05	2.9	2.74	2.56	2.37	2.24	2	1.82	1.59	1.36
285	3.87	3.66	3.51	3.38	3.2	3.06	2.9	2.74	2.56	2.36	2.23	1.97	1.79	1.57	1.34
286	4.91	4.69	4.51	4.35	4.15	3.96	3.78	3.57	3.33	3.08	2.91	2.57	2.32	2	1.67
287	4.95	4.7	4.52	4.37	4.14	3.95	3.76	3.53	3.28	3.02	2.83	2.49	2.24	1.93	1.62
288	4.96	4.73	4.55	4.41	4.19	4	3.8	3.59	3.31	3.06	2.88	2.53	2.29	1.98	1.65
289	5.08	4.8	4.61	4.45	4.21	4.02	3.82	3.6	3.33	3.07	2.89	2.56	2.31	1.99	1.65
290	5.1	4.8	4.61	4.45	4.21	4	3.8	3.58	3.29	3.05	2.87	2.53	2.3	1.97	1.64
291	6.15	5.91	5.69	5.51	5.25	5.04	4.8	4.53	4.22	3.89	3.66	3.22	2.89	2.48	2.05
292	6.09	5.81	5.6	5.42	5.15	4.92	4.68	4.39	4.08	3.75	3.53	3.11	2.79	2.38	1.96
293	6.17	5.87	5.66	5.48	5.19	4.96	4.72	4.43	4.1	3.77	3.54	3.1	2.78	2.38	1.98
294	6.32	6	5.75	5.57	5.27	5.04	4.78	4.49	4.12	3.81	3.58	3.15	2.84	2.44	2.01
295	6.28	5.92	5.68	5.49	5.19	4.94	4.7	4.41	4.06	3.74	3.52	3.09	2.8	2.4	1.98
296	6.99	6.69	6.44	6.24	5.93	5.68	5.41	5.11	4.72	4.37	4.1	3.61	3.23	2.77	2.29
297	6.97	6.63	6.38	6.16	5.83	5.56	5.29	4.96	4.59	4.22	3.95	3.46	3.1	2.65	2.19
298	7.09	6.72	6.5	6.28	5.95	5.69	5.4	5.08	4.68	4.33	4.05	3.54	3.17	2.73	2.25
299	7.14	6.77	6.5	6.28	5.95	5.67	5.37	5.04	4.65	4.27	4.01	3.52	3.17	2.72	2.25
300	7.24	6.82	6.52	6.25	5.95	5.69	5.42	5.07	4.65	4.3	4.02	3.52	3.18	2.73	2.25

Table A20a. Static and dynamic test data for seal 4 of Table 3 for high inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
301	3000	302	298	3.02	1.01	38.7	66.3	.0866	.0385	-.0204	.0401	.188	-.0098
302	6000	302	291	3.01	1.01	38.7	64.8	.0857	.0375	-.0312	.0393	.174	-.00785
303	9500	303	291	3.08	1.02	38.7	61.9	.0849	.0366	-.0173	.0403	.169	-.0259
304	13000	302	301	3.07	1.01	38.7	58.2	.0925	.0345	-.0094	.0414	.179	-.0155
305	16000	302	304	3.05	1.01	38.7	53.7	.0935	.0317	-.000902	.0444	.179	-.0213
306	3000	302	297	4.39	1.01	38.7	68.4	.0855	.0575	-.00885	.0354	.162	-.0144
307	6000	303	288	4.4	1.01	38.7	66.9	.0844	.0563	-.0113	.0388	.17	-.0173
308	9500	303	290	4.42	1.01	38.7	63.7	.0836	.054	-.00141	.039	.162	-.0253
309	13000	303	295	4.39	1.01	38.7	59.3	.0911	.0501	.0113	.0409	.158	-.0206
310	16000	303	299	4.45	1.01	38.7	55.5	.0915	.0478	.00514	.0438	.161	-.0241
311	3000	302	296	5.74	1	38.7	68.2	.0843	.0751	-.00834	.0357	.16	-.0136
312	6000	303	288	5.79	1.01	38.7	67.3	.0841	.0746	-.0133	.0378	.163	-.0155
313	9500	303	289	5.78	1.01	38.7	64.2	.0833	.0714	.00352	.038	.156	-.0318
314	13000	303	292	5.77	1.01	38.7	59.9	.09	.0666	.0167	.0397	.152	-.0258
315	16000	303	295	5.82	1.01	38.7	55.8	.089	.0627	.0225	.0415	.147	-.0265
316	3000	303	294	7.18	1	38.7	69.3	.0833	.0951	-.0111	.0363	.157	-.0146
317	6000	303	287	7.17	1.01	38.7	67.8	.0837	.0931	-.0156	.0362	.157	-.0178
318	9500	303	289	7.14	1.01	38.7	64.7	.0817	.0887	.00288	.0368	.152	-.0253
319	13000	303	290	7.18	1.01	38.7	60.3	.0889	.0835	.0157	.0411	.148	-.0354
320	16000	303	294	7.18	1	38.7	56.4	.0883	.078	.027	.0401	.143	-.0307
321	3000	303	294	8.17	1	38.7	69.9	.0842	.109	-.00955	.0348	.151	-.0164
322	6000	303	288	8.2	1	38.7	67.9	.0824	.107	-.00996	.0346	.154	-.0136
323	9500	303	290	8.17	1	38.7	65.1	.0822	.102	.00385	.0381	.153	-.0262
324	13000	303	290	8.22	1	38.7	60.9	.0814	.0963	.0123	.0407	.15	-.0288
325	16000	304	294	8.18	1	38.7	56.8	.0873	.0895	.0281	.0419	.143	-.0396

Case	Pi, i=1 to 15 ---------->														
301	2.66	2.54	2.44	2.37	2.27	2.17	2.11	1.99	1.9	1.79	1.72	1.56	1.47	1.32	1.19
302	2.65	2.53	2.43	2.36	2.26	2.16	2.09	1.98	1.88	1.77	1.7	1.54	1.45	1.3	1.18
303	2.72	2.6	2.49	2.42	2.3	2.21	2.12	2.02	1.9	1.8	1.71	1.57	1.45	1.32	1.18
304	2.72	2.6	2.48	2.42	2.29	2.21	2.12	2.01	1.89	1.8	1.71	1.56	1.45	1.31	1.18
305	2.71	2.58	2.47	2.39	2.28	2.18	2.11	2	1.88	1.79	1.7	1.54	1.45	1.31	1.18
306	3.83	3.65	3.49	3.38	3.2	3.07	2.93	2.77	2.57	2.42	2.28	2.04	1.84	1.61	1.38
307	3.84	3.66	3.49	3.37	3.21	3.05	2.93	2.74	2.57	2.4	2.26	2	1.83	1.59	1.37
308	3.87	3.69	3.52	3.42	3.22	3.09	2.94	2.77	2.58	2.41	2.27	2.02	1.83	1.6	1.37
309	3.86	3.68	3.51	3.4	3.21	3.07	2.93	2.76	2.55	2.41	2.26	2.01	1.83	1.6	1.37
310	3.91	3.72	3.54	3.42	3.22	3.09	2.94	2.76	2.55	2.4	2.24	1.99	1.81	1.58	1.36
311	5	4.77	4.54	4.42	4.15	3.99	3.78	3.59	3.32	3.08	2.9	2.57	2.3	1.99	1.66
312	5.04	4.79	4.57	4.41	4.18	3.97	3.8	3.54	3.29	3.07	2.87	2.52	2.27	1.95	1.64
313	5.06	4.83	4.59	4.47	4.19	4.03	3.81	3.6	3.32	3.09	2.9	2.56	2.29	1.99	1.66
314	5.06	4.82	4.58	4.46	4.17	4.01	3.79	3.59	3.3	3.08	2.88	2.55	2.28	1.98	1.65
315	5.12	4.88	4.63	4.49	4.21	4.04	3.83	3.61	3.32	3.1	2.89	2.55	2.29	1.99	1.65
316	6.23	5.94	5.64	5.49	5.15	4.95	4.68	4.41	4.07	3.79	3.54	3.12	2.77	2.39	1.98
317	6.24	5.94	5.65	5.48	5.16	4.92	4.67	4.38	4.04	3.76	3.51	3.1	2.75	2.37	1.96
318	6.24	5.96	5.66	5.51	5.16	4.97	4.68	4.44	4.08	3.78	3.54	3.12	2.77	2.4	1.98
319	6.29	6	5.69	5.53	5.18	4.99	4.7	4.45	4.08	3.8	3.54	3.13	2.79	2.41	1.99
320	6.3	5.99	5.7	5.51	5.18	4.96	4.71	4.42	4.06	3.79	3.53	3.11	2.79	2.41	1.98
321	7.09	6.75	6.44	6.26	5.87	5.64	5.34	5.04	4.64	4.32	4.04	3.56	3.16	2.72	2.24
322	7.14	6.8	6.47	6.28	5.91	5.65	5.35	5.03	4.63	4.32	4.02	3.54	3.14	2.7	2.23
323	7.13	6.8	6.47	6.29	5.89	5.67	5.34	5.06	4.64	4.31	4.03	3.54	3.14	2.72	2.23
324	7.2	6.86	6.52	6.32	5.93	5.69	5.37	5.07	4.65	4.34	4.04	3.55	3.15	2.73	2.25
325	7.17	6.83	6.48	6.28	5.91	5.63	5.34	5	4.6	4.3	4	3.52	3.15	2.72	2.24

Table A20b. Static and dynamic test data for seal 4 of Table 3 for high inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
326	3000	297	289	3.02	1.01	56.8	65.4	.0986	.0386	-.0172	.0443	.199	-.0211
327	6000	299	289	3.03	1.01	56.8	64.3	.0877	.0378	-.0192	.0383	.188	-.0257
328	9500	299	292	3.06	1.01	56.8	61.5	.0847	.0366	-.0163	.0364	.182	-.0286
329	13000	300	299	3.03	1.01	56.8	57.3	.092	.0337	.00159	.0394	.182	-.0225
330	16000	300	303	3.03	1.01	56.8	53.5	.0914	.0316	.00644	.043	.182	-.0254
331	3000	298	289	4.36	1.01	56.8	67.6	.0877	.0572	-.00644	.0367	.169	-.00584
332	6000	299	286	4.41	1.01	56.8	66.2	.0854	.0567	-.00247	.0372	.166	-.0287
333	9500	299	289	4.39	1.01	56.8	62.9	.0831	.0537	.00764	.036	.162	-.0374
334	13000	300	292	4.41	1.01	56.8	59	.0892	.0505	.0203	.0406	.161	-.0258
335	16000	301	298	4.43	1.01	56.8	55.1	.0878	.0475	.0161	.0408	.162	-.0267
336	3000	298	289	5.77	1	56.8	67.7	.0865	.0758	-.00394	.0344	.166	-.0329
337	6000	299	286	5.81	1.01	56.8	66.8	.0856	.0754	-.00715	.0361	.17	-.0191
338	9500	300	288	5.76	1.01	56.8	63.8	.0806	.0712	.0107	.0357	.162	-.0381
339	13000	300	290	5.76	1.01	56.8	59.3	.087	.0663	.0215	.0412	.159	-.0359
340	16000	301	295	5.77	1.01	56.8	55.6	.0847	.0624	.022	.0424	.152	-.0356
341	3000	299	289	7.21	.998	56.8	68.6	.0841	.096	-.00995	.037	.163	-.00944
342	6000	299	286	7.17	1	56.8	67.5	.0836	.0937	-.00134	.0365	.167	-.0255
343	9500	300	288	7.19	1	56.8	63.7	.0818	.0887	.00719	.0367	.154	-.0261
344	13000	300	289	7.16	1	56.8	60	.1	.0833	.0223	.0406	.153	-.0406
345	16000	301	293	7.19	1	56.8	55.3	.081	.0772	.0324	.0417	.145	-.0391
346	3000	299	290	8.2	.999	56.8	69.2	.0842	.11	-.00271	.0326	.158	-.0359
347	6000	299	286	8.19	1	56.8	67.6	.0851	.107	-.00389	.0358	.164	-.0293
348	9500	300	288	8.23	1	56.8	64.6	.0794	.103	.00635	.0362	.158	-.0395
349	13000	301	289	8.23	1	56.8	60.4	.0744	.0964	.0171	.041	.159	-.0382
350	16000	301	293	8.24	1	56.8	56.2	.0809	.0898	.03	.0405	.141	-.044

Case	Pi, i=1 to 15 ---------->														
326	2.66	2.54	2.44	2.37	2.26	2.18	2.09	2	1.89	1.78	1.71	1.56	1.45	1.32	1.18
327	2.67	2.54	2.44	2.37	2.26	2.17	2.09	2	1.88	1.77	1.7	1.55	1.44	1.31	1.18
328	2.7	2.57	2.48	2.4	2.28	2.2	2.11	2.01	1.89	1.79	1.71	1.56	1.45	1.31	1.18
329	2.69	2.56	2.46	2.39	2.28	2.19	2.1	2.01	1.89	1.78	1.7	1.56	1.45	1.31	1.18
330	2.7	2.56	2.46	2.38	2.27	2.18	2.09	2	1.88	1.77	1.69	1.54	1.44	1.3	1.18
331	3.8	3.6	3.46	3.34	3.17	3.03	2.89	2.74	2.56	2.38	2.25	2	1.82	1.59	1.36
332	3.85	3.66	3.5	3.38	3.21	3.07	2.92	2.76	2.58	2.39	2.26	2.01	1.82	1.59	1.37
333	3.86	3.66	3.51	3.39	3.21	3.07	2.92	2.76	2.58	2.39	2.26	2	1.82	1.59	1.36
334	3.89	3.69	3.53	3.41	3.23	3.09	2.95	2.79	2.59	2.41	2.27	2.02	1.84	1.6	1.37
335	3.9	3.69	3.53	3.39	3.21	3.07	2.92	2.75	2.56	2.37	2.23	1.97	1.8	1.58	1.35
336	5.02	4.76	4.56	4.4	4.18	3.99	3.79	3.57	3.32	3.07	2.89	2.54	2.29	1.96	1.65
337	5.05	4.79	4.58	4.41	4.18	3.97	3.78	3.56	3.3	3.04	2.86	2.51	2.26	1.94	1.63
338	5.04	4.78	4.58	4.42	4.18	3.99	3.8	3.57	3.31	3.06	2.88	2.53	2.28	1.97	1.65
339	5.06	4.79	4.59	4.42	4.19	3.99	3.8	3.58	3.32	3.06	2.87	2.53	2.29	1.97	1.65
340	5.07	4.79	4.58	4.4	4.17	3.96	3.77	3.55	3.29	3.03	2.84	2.49	2.26	1.95	1.63
341	6.27	5.95	5.7	5.5	5.2	4.97	4.74	4.45	4.13	3.81	3.59	3.15	2.83	2.41	2.01
342	6.24	5.91	5.66	5.46	5.17	4.93	4.68	4.4	4.08	3.75	3.52	3.09	2.77	2.36	1.96
343	6.29	5.96	5.71	5.51	5.2	4.97	4.72	4.44	4.11	3.79	3.55	3.11	2.8	2.4	1.99
344	6.28	5.94	5.68	5.47	5.17	4.94	4.69	4.41	4.08	3.76	3.52	3.09	2.78	2.39	1.98
345	6.32	5.97	5.71	5.48	5.19	4.95	4.69	4.41	4.07	3.75	3.51	3.08	2.77	2.38	1.97
346	7.13	6.75	6.47	6.24	5.92	5.64	5.37	5.05	4.74	4.29	4.04	3.54	3.19	2.71	2.25
347	7.13	6.75	6.47	6.24	5.9	5.63	5.34	5	4.64	4.26	4.01	3.5	3.15	2.69	2.23
348	7.18	6.81	6.51	6.29	5.93	5.67	5.38	5.06	4.68	4.31	4.04	3.53	3.18	2.71	2.25
349	7.21	6.83	6.54	6.3	5.95	5.69	5.38	5.07	4.68	4.31	4.03	3.53	3.18	2.72	2.24
350	7.23	6.83	6.53	6.28	5.95	5.67	5.36	5.05	4.67	4.3	4.02	3.52	3.18	2.72	2.25

Table A20c. Static and dynamic test data for seal 4 of Table 3 for high inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
351	3000	298	286	3.03	1.01	74.6	64.7	.0907	.0381	-.00994	.0361	.193	-.0214
352	6000	298	289	3.01	1.01	74.6	64.8	.0966	.0379	-.0126	.0377	.19	-.0261
353	9500	298	290	3.06	1.01	74.6	61.3	.0883	.0367	-.00747	.0353	.187	-.0252
354	13000	298	298	3.09	1.01	74.6	57.4	.0993	.0348	.0154	.0385	.185	-.0167
355	16000	298	302	3.08	1.01	74.6	53.4	.0866	.0324	.0206	.0432	.19	-.0254
356	3000	299	286	4.39	1	74.6	67.4	.0844	.0574	-.00126	.0337	.174	-.0106
357	6000	298	287	4.37	1.01	74.6	66.9	.0918	.0568	-.00209	.0355	.177	-.0151
358	9500	298	288	4.44	1.01	74.6	63.2	.0849	.0547	.0102	.0305	.168	-.0261
359	13000	298	290	4.43	1.01	74.6	58.9	.0962	.0511	.0349	.0367	.162	-.0292
360	16000	298	296	4.38	1.01	74.6	55	.0834	.0473	.0267	.0377	.163	-.0265
361	3000	299	289	5.83	1	74.6	67.9	.0887	.0767	.00887	.0342	.171	-.0174
362	6000	298	286	5.82	1.01	74.6	66.7	.087	.0754	.00751	.0343	.172	-.0205
363	9500	298	287	5.8	1.01	74.6	63.9	.0845	.0722	.0211	.0304	.156	-.0312
364	13000	298	289	5.83	1	74.6	59.6	.0952	.068	.0369	.0331	.152	-.0347
365	16000	299	294	5.81	1.01	74.6	56.2	.094	.0639	.0322	.0351	.151	-.0349
366	3000	299	287	7.21	1	74.6	68.6	.0881	.0959	.0101	.0292	.166	-.0264
367	6000	299	286	7.19	1	74.6	67.6	.0925	.0943	.00447	.0326	.171	-.0308
368	9500	298	286	7.19	1	74.6	64.5	.0956	.0904	.0181	.0307	.158	-.0312
369	13000	298	288	7.17	1	74.6	60.2	.0956	.0843	.0312	.0336	.154	-.0371
370	16000	298	292	7.23	1	74.6	56	.0921	.0793	.0453	.0348	.143	-.0385
371	3000	299	287	8.24	.996	74.6	68.9	.095	.11	.00749	.0292	.165	-.0286
372	6000	299	284	8.25	.997	74.6	67.9	.0901	.109	.00838	.0294	.166	-.0282
373	9500	298	286	8.22	1	74.6	64.9	.0924	.104	.0172	.0305	.162	-.0334
374	13000	298	288	8.24	1	74.6	60.3	.0894	.0971	.0327	.0325	.151	-.033
375	16000	299	292	8.2	1	74.6	56.7	.0891	.091	.0457	.0321	.138	-.0473

Case	Pi, i=1 to 15 ----------)														
351	2.67	2.55	2.45	2.37	2.26	2.17	2.09	2	1.9	1.79	1.71	1.57	1.46	1.32	1.19
352	2.65	2.53	2.43	2.36	2.25	2.16	2.07	1.97	1.87	1.76	1.69	1.54	1.44	1.31	1.18
353	2.71	2.58	2.48	2.4	2.28	2.19	2.1	2	1.89	1.78	1.7	1.55	1.45	1.31	1.18
354	2.75	2.62	2.52	2.44	2.33	2.24	2.15	2.05	1.92	1.81	1.73	1.58	1.47	1.33	1.19
355	2.75	2.6	2.5	2.42	2.3	2.21	2.12	2.02	1.9	1.79	1.71	1.56	1.45	1.31	1.18
356	3.83	3.64	3.49	3.38	3.21	3.06	2.93	2.76	2.57	2.39	2.27	2.02	1.84	1.6	1.38
357	3.8	3.61	3.46	3.35	3.17	3.02	2.88	2.72	2.53	2.34	2.22	1.97	1.8	1.57	1.35
358	3.9	3.7	3.55	3.43	3.25	3.11	2.96	2.8	2.6	2.42	2.28	2.02	1.84	1.61	1.38
359	3.9	3.7	3.54	3.43	3.24	3.11	2.96	2.79	2.59	2.41	2.27	2.01	1.84	1.61	1.38
360	3.86	3.65	3.49	3.36	3.18	3.03	2.89	2.73	2.54	2.35	2.21	1.95	1.78	1.56	1.34
361	5.07	4.81	4.61	4.46	4.23	4.04	3.85	3.63	3.37	3.11	2.93	2.57	2.32	2	1.67
362	5.07	4.8	4.6	4.45	4.21	4.01	3.82	3.58	3.32	3.06	2.89	2.53	2.29	1.97	1.65
363	5.07	4.8	4.6	4.45	4.2	4.01	3.8	3.6	3.34	3.08	2.89	2.53	2.29	1.97	1.65
364	5.12	4.85	4.64	4.48	4.24	4.04	3.85	3.63	3.35	3.1	2.9	2.55	2.3	1.99	1.66
365	5.1	4.81	4.59	4.42	4.18	3.98	3.79	3.56	3.3	3.04	2.84	2.49	2.26	1.95	1.63
366	6.26	5.93	5.69	5.5	5.2	4.95	4.72	4.45	4.14	3.8	3.57	3.13	2.81	2.4	2
367	6.25	5.91	5.65	5.46	5.16	4.92	4.68	4.4	4.07	3.74	3.51	3.07	2.76	2.36	1.96
368	6.27	5.94	5.69	5.49	5.2	4.96	4.71	4.44	4.12	3.79	3.55	3.1	2.79	2.4	1.99
369	6.26	5.92	5.67	5.47	5.15	4.92	4.67	4.39	4.09	3.76	3.51	3.08	2.77	2.38	1.97
370	6.35	5.99	5.72	5.52	5.22	4.99	4.74	4.45	4.1	3.78	3.54	3.1	2.79	2.4	1.99
371	7.14	6.76	6.48	6.26	5.92	5.65	5.38	5.06	4.71	4.32	4.05	3.55	3.19	2.72	2.25
372	7.16	6.79	6.49	6.27	5.93	5.65	5.38	5.05	4.67	4.3	4.03	3.52	3.15	2.69	2.24
373	7.16	6.78	6.49	6.27	5.93	5.65	5.37	5.06	4.68	4.3	4.03	3.52	3.16	2.7	2.24
374	7.22	6.83	6.53	6.29	5.95	5.67	5.38	5.06	4.69	4.31	4.02	3.51	3.15	2.7	2.23
375	7.2	6.8	6.51	6.27	5.93	5.64	5.35	5.04	4.64	4.26	3.99	3.49	3.14	2.7	2.23

Table A21a. Static and dynamic test data for seal 5 of Table 3 for no inlet circumferential velocity and 38.7 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	m	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
1	3000	297	292	3.04	1.01	38.7	0	.0891	.0488	-.0013	-.00614	.177	.00643
2	6000	298	285	3.06	1.01	38.7	0	.0861	.0485	.013	-3.22E-5	.166	.00588
3	9500	298	286	3.07	1.01	38.7	0	.0822	.0467	.0303	.00764	.152	.00492
4	13000	298	298	3	1.01	38.7	0	.0905	.0424	.0514	.015	.151	-5.34E-5
5	16000	298	303	3.04	1.01	38.7	0	.0895	.0399	.0551	.0243	.153	-.00394
6	3000	298	295	4.39	1	38.7	0	.0904	.0707	-.0272	-.005	.176	.0115
7	6000	298	285	4.39	1	38.7	0	.0873	.0703	-.00147	.00117	.16	.0066
8	9500	298	285	4.47	1	38.7	0	.0829	.0687	.014	.00766	.145	.00356
9	13000	298	290	4.41	1	38.7	0	.089	.0642	.0338	.015	.144	-.000879
10	16000	298	297	4.39	1	38.7	0	.0882	.0592	.0453	.0227	.142	-.00669
11	3000	298	295	5.79	.994	38.7	0	.0922	.0936	-.0389	-.0047	.18	.00936
12	6000	297	287	5.79	.993	38.7	0	.0896	.0929	-.0108	.0018	.161	.0111
13	9500	298	284	5.72	.993	38.7	0	.0828	.0896	.00594	.0071	.152	.00558
14	13000	298	288	5.78	.992	38.7	0	.0883	.0854	.0246	.0135	.147	-.00022
15	16000	299	293	5.82	.997	38.7	0	.0868	.0795	.0397	.0197	.138	-.00285
16	3000	298	295	7.1	.987	38.7	0	.0943	.116	-.0435	-.00429	.176	.0134
17	6000	298	290	7.14	.987	38.7	0	.0888	.116	-.0154	.00346	.159	.00601
18	9500	298	284	7.1	.988	38.7	0	.0825	.112	.00341	.00704	.15	.0027
19	13000	298	287	7.16	.986	38.7	0	.0877	.106	.0245	.0114	.143	-.001
20	16000	298	292	7.11	.986	38.7	0	.0863	.0983	.0404	.0178	.138	-.00517
21	3000	298	295	8.11	.98	38.7	0	.0952	.132	-.0444	-.00568	.18	.0167
22	6000	298	292	8.09	.982	38.7	0	.0886	.132	-.0194	.00354	.15	.00506
23	9500	298	284	8.18	.98	38.7	0	.0829	.129	.00172	.00708	.147	.00283
24	13000	298	285	8.11	.981	38.7	0	.0872	.121	.0253	.0101	.139	-.00206
25	16000	299	291	8.12	.983	38.7	0	.0858	.113	.0406	.0162	.136	-.00539

Case	Pi, i=1 to 15 ---------->														
1	2.71	2.61	2.53	2.47	2.36	2.29	2.18	2.11	2.02	1.97	1.78	1.67	1.53	1.4	1.26
2	2.75	2.64	2.56	2.51	2.39	2.33	2.21	2.14	2.05	2	1.81	1.7	1.55	1.42	1.28
3	2.78	2.65	2.58	2.53	2.4	2.34	2.22	2.16	2.06	2.02	1.81	1.71	1.55	1.43	1.27
4	2.72	2.6	2.53	2.48	2.36	2.31	2.19	2.13	2.03	1.98	1.79	1.69	1.53	1.42	1.26
5	2.77	2.65	2.57	2.52	2.39	2.34	2.22	2.15	2.05	2	1.8	1.7	1.54	1.42	1.26
6	3.93	3.74	3.61	3.53	3.35	3.26	3.08	2.97	2.82	2.75	2.45	2.29	2.04	1.84	1.5
7	3.93	3.75	3.63	3.55	3.36	3.27	3.09	2.98	2.83	2.76	2.47	2.3	2.06	1.85	1.6
8	4.02	3.82	3.7	3.63	3.43	3.35	3.15	3.06	2.91	2.85	2.52	2.36	2.09	1.9	1.61
9	3.98	3.79	3.68	3.62	3.44	3.36	3.17	3.08	2.92	2.85	2.53	2.38	2.09	1.9	1.61
10	4	3.79	3.68	3.59	3.41	3.33	3.14	3.04	2.87	2.8	2.48	2.33	2.04	1.87	1.57
11	5.17	4.9	4.71	4.61	4.36	4.24	4	3.85	3.65	3.58	3.16	2.96	2.62	2.35	1.99
12	5.17	4.9	4.73	4.63	4.38	4.26	4.02	3.88	3.68	3.6	3.19	2.98	2.63	2.37	2.01
13	5.14	4.86	4.7	4.61	4.35	4.26	4.01	3.9	3.71	3.6	3.19	2.99	2.62	2.39	1.97
14	5.22	4.93	4.77	4.67	4.42	4.32	4.06	3.95	3.75	3.63	3.21	3.01	2.63	2.41	1.99
15	5.26	4.96	4.81	4.68	4.44	4.33	4.08	3.95	3.74	3.63	3.2	3.01	2.61	2.38	1.97
16	6.32	5.97	5.73	5.61	5.29	5.16	4.85	4.67	4.43	4.34	3.83	3.59	3.15	2.85	2.39
17	6.35	6.02	5.8	5.68	5.37	5.22	4.93	4.75	4.51	4.42	3.91	3.65	3.22	2.9	2.45
18	6.37	6	5.8	5.68	5.35	5.23	4.91	4.77	4.53	4.39	3.89	3.63	3.18	2.9	2.39
19	6.45	6.08	5.88	5.75	5.44	5.31	5	4.86	4.61	4.46	3.95	3.69	3.23	2.96	2.42
20	6.43	6.06	5.87	5.73	5.42	5.28	4.97	4.83	4.56	4.44	3.91	3.66	3.19	2.92	2.38
21	7.22	6.8	6.53	6.4	6.02	5.88	5.52	5.31	5.03	4.93	4.35	4.08	3.57	3.24	2.7
22	7.19	6.82	6.56	6.42	6.06	5.89	5.56	5.36	5.08	4.97	4.39	4.1	3.62	3.26	2.74
23	7.33	6.9	6.66	6.52	6.14	6	5.61	5.46	5.18	5.02	4.45	4.15	3.63	3.32	2.72
24	7.28	6.86	6.63	6.48	6.13	5.97	5.62	5.46	5.17	5.02	4.43	4.15	3.62	3.32	2.7
25	7.33	6.9	6.67	6.51	6.16	6.01	5.65	5.48	5.18	5.04	4.43	4.16	3.62	3.3	2.69

Table A21b. Static and dynamic test data for seal 5 of Table 3 for no inlet circumferential velocity and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K̄	k̄	Cx1000	cx1000
26	3000	296	290	3.03	1.01	56.8	0	.088	.0483	.00844	-.00747	.168	-.00424
27	6000	296	283	3.03	1.01	56.8	0	.0856	.0479	.0178	.00145	.165	.000654
28	9500	296	288	3.02	1.01	56.8	0	.09	.0456	.0377	.00718	.149	-.00185
29	13000	296	295	3.04	1.01	56.8	0	.0921	.0435	.0519	.0155	.154	-.00569
30	16000	297	303	3.01	1.01	56.8	0	.094	.0398	.061	.0237	.146	-.00715
31	3000	296	292	4.34	1	56.8	0	.0889	.0709	-.0244	7.45E-5	.192	.0037
32	6000	296	286	4.43	.998	56.8	0	.0861	.0713	-.0015	.00271	.165	.00455
33	9500	296	285	4.39	1	56.8	0	.0863	.0679	.0216	.00668	.157	-.00171
34	13000	296	290	4.42	1	56.8	0	.0908	.0647	.0364	.0152	.148	-.005
35	16000	297	297	4.45	1	56.8	0	.0911	.0607	.0492	.0226	.143	-.00846
36	3000	296	293	5.76	.992	56.8	0	.0908	.0937	-.0377	.00101	.192	.00766
37	6000	296	290	5.76	.992	56.8	0	.0882	.0928	-.00996	.00517	.165	-.0013
38	9500	297	284	5.75	.992	56.8	0	.0874	.0903	.0096	.00877	.157	-.00285
39	13000	297	287	5.8	.993	56.8	0	.0904	.0854	.0277	.0143	.151	-.00664
40	16000	297	293	5.82	.998	56.8	0	.0898	.0798	.0426	.0205	.14	-.0116
41	3000	296	293	7.15	.983	56.8	0	.0936	.117	-.0431	-.00318	.17	.0114
42	6000	296	292	7.11	.985	56.8	0	.0882	.116	-.0139	.00545	.164	.00158
43	9500	297	284	7.13	.986	56.8	0	.0873	.111	.00514	.00864	.153	-.00194
44	13000	297	285	7.07	.988	56.8	0	.0899	.105	.0289	.0128	.145	-.00713
45	16000	297	291	7.15	.985	56.8	0	.0883	.0988	.0425	.0185	.137	-.00835
46	3000	296	293	8.13	.977	56.8	0	.0911	.134	-.0488	-.00173	.171	.0163
47	6000	296	292	8.08	.978	56.8	0	.0881	.131	-.0146	.00498	.165	-.00053
48	9500	297	283	8.13	.983	56.8	0	.0863	.129	.00637	.00927	.151	-6.15E-5
49	13000	297	284	8.14	.982	56.8	0	.0879	.122	.0298	.0114	.138	-.00405
50	16000	297	289	8.17	.982	56.8	0	.0865	.113	.0417	.0171	.139	-.00623

Case	Fi, i=1 to 15 ---------->														
26	2.73	2.62	2.55	2.48	2.36	2.3	2.18	2.12	2.03	1.97	1.78	1.68	1.53	1.41	1.26
27	2.72	2.61	2.54	2.48	2.37	2.3	2.18	2.12	2.03	1.97	1.78	1.68	1.53	1.41	1.26
28	2.72	2.62	2.54	2.49	2.37	2.31	2.19	2.13	2.04	1.98	1.79	1.69	1.54	1.42	1.27
29	2.75	2.64	2.57	2.51	2.4	2.34	2.22	2.16	2.06	2.01	1.82	1.71	1.55	1.44	1.27
30	2.74	2.63	2.55	2.5	2.38	2.32	2.2	2.14	2.04	1.98	1.79	1.69	1.53	1.41	1.26
31	3.88	3.71	3.59	3.5	3.32	3.22	3.05	2.95	2.81	2.73	2.44	2.28	2.05	1.84	1.58
32	3.95	3.77	3.66	3.57	3.39	3.3	3.11	3.01	2.87	2.78	2.48	2.31	2.07	1.87	1.59
33	3.91	3.74	3.63	3.55	3.37	3.28	3.1	3.01	2.87	2.78	2.47	2.3	2.06	1.86	1.59
34	3.96	3.78	3.66	3.58	3.39	3.3	3.12	3.03	2.87	2.79	2.48	2.32	2.06	1.86	1.58
35	4.02	3.84	3.72	3.63	3.45	3.36	3.17	3.07	2.92	2.84	2.52	2.36	2.09	1.89	1.6
36	5.12	4.86	4.71	4.59	4.36	4.23	3.99	3.84	3.66	3.56	3.18	2.94	2.62	2.35	1.98
37	5.13	4.89	4.73	4.62	4.38	4.26	4.02	3.88	3.69	3.56	3.17	2.94	2.61	2.36	1.97
38	5.13	4.88	4.73	4.62	4.39	4.26	4.02	3.89	3.7	3.59	3.2	2.96	2.63	2.38	1.99
39	5.19	4.95	4.79	4.68	4.45	4.32	4.08	3.95	3.75	3.65	3.24	3.01	2.68	2.41	2.02
40	5.24	4.98	4.81	4.7	4.46	4.34	4.1	3.97	3.76	3.65	3.23	3.01	2.67	2.4	2
41	6.35	6	5.79	5.63	5.34	5.18	4.89	4.71	4.49	4.34	3.87	3.6	3.19	2.86	2.39
42	6.31	6	5.81	5.66	5.36	5.2	4.91	4.74	4.5	4.35	3.87	3.6	3.2	2.88	2.41
43	6.35	6.02	5.84	5.68	5.39	5.24	4.94	4.78	4.55	4.42	3.92	3.64	3.23	2.92	2.43
44	6.32	6	5.8	5.67	5.38	5.23	4.94	4.78	4.54	4.41	3.91	3.64	3.23	2.9	2.43
45	6.41	6.09	5.89	5.73	5.44	5.28	4.99	4.83	4.58	4.45	3.95	3.67	3.25	2.92	2.43
46	7.19	6.79	6.55	6.37	6.04	5.86	5.52	5.33	5.08	4.91	4.36	4.05	3.6	3.23	2.7
47	7.16	6.8	6.57	6.4	6.07	5.87	5.55	5.35	5.09	4.92	4.38	4.07	3.62	3.26	2.73
48	7.24	6.86	6.63	6.47	6.13	5.95	5.62	5.43	5.17	5.01	4.44	4.13	3.66	3.29	2.76
49	7.25	6.89	6.66	6.5	6.17	5.99	5.65	5.47	5.19	5.04	4.48	4.15	3.68	3.32	2.76
50	7.35	6.97	6.72	6.57	6.24	6.05	5.71	5.52	5.24	5.08	4.5	4.16	3.68	3.31	2.75

Table A21c. Static and dynamic test data for seal 5 of Table 3 for no inlet circumferential velocity and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
51	3000	299	289	3.08	1.01	74.6	0	.0919	.0486	.00566	-.00085	.175	.00657
52	6000	301	287	3.04	1.01	74.6	0	.0952	.0479	.0167	.00245	.16	-.00245
53	9500	300	292	3.07	1.01	74.6	0	.0887	.0462	.0395	.00695	.157	.00115
54	13000	301	301	3.05	1.01	74.6	0	.0953	.043	.055	.0153	.15	-.00516
55	16000	302	305	3.08	1.01	74.6	0	.094	.0404	.0634	.0235	.152	-.00502
56	3000	299	292	4.43	1	74.6	0	.0902	.071	-.0149	-.00114	.183	.00418
57	6000	301	290	4.38	1	74.6	0	.0949	.0695	.00395	.00249	.159	.00435
58	9500	301	296	4.37	1	74.6	0	.0903	.0672	.0215	.00852	.154	.0014
59	13000	302	293	4.4	1	74.6	0	.0972	.0638	.041	.014	.145	-.00645
60	16000	302	300	4.44	1	74.6	0	.0918	.0598	.0537	.0211	.141	-.0108
61	3000	299	294	5.78	.992	74.6	0	.0922	.0931	-.0306	-.00122	.182	.00356
62	6000	301	297	5.75	.994	74.6	0	.0926	.0918	-.00367	.00534	.161	-.00373
63	9500	301	286	5.78	.992	74.6	0	.0887	.089	.0149	.00807	.149	-.00414
64	13000	302	290	5.74	.992	74.6	0	.0955	.0841	.0333	.0128	.145	-.00771
65	16000	302	295	5.77	.998	74.6	0	.089	.0785	.0489	.018	.137	-.0134
66	3000	300	296	7.12	.985	74.6	0	.0872	.115	-.034	-.00172	.182	.00886
67	6000	301	298	7.17	.985	74.6	0	.0918	.115	-.0164	.00458	.16	.000865
68	9500	301	287	7.11	.987	74.6	0	.0865	.11	.0118	.00731	.147	-.00572
69	13000	302	289	7.1	.986	74.6	0	.09	.104	.0306	.0117	.147	-.00828
70	16000	302	292	7.19	.987	74.6	0	.0936	.0982	.0497	.0156	.134	-.013
71	3000	300	296	8.13	.98	74.6	0	.0875	.132	-.035	-.00244	.179	.0088
72	6000	301	298	8.12	.983	74.6	0	.0897	.131	-.00695	.00372	.159	-.00553
73	9500	302	286	8.11	.983	74.6	0	.0841	.126	.0095	.00798	.149	-.00521
74	13000	302	288	8.14	.983	74.6	0	.0874	.12	.0336	.0102	.145	-.0084
75	16000	303	292	8.14	.984	74.6	0	.0994	.112	.051	.0138	.136	-.0122

Case	Pi, i=1 to 15 ---------->														
51	2.76	2.64	2.57	2.51	2.39	2.32	2.2	2.14	2.05	1.99	1.8	1.69	1.53	1.42	1.27
52	2.73	2.61	2.54	2.48	2.36	2.29	2.17	2.11	2.02	1.96	1.77	1.67	1.52	1.4	1.25
53	2.76	2.65	2.58	2.52	2.4	2.34	2.22	2.16	2.06	2.01	1.82	1.71	1.55	1.43	1.27
54	2.76	2.65	2.58	2.52	2.41	2.35	2.23	2.16	2.07	2.01	1.82	1.71	1.55	1.43	1.27
55	2.8	2.68	2.61	2.55	2.44	2.37	2.25	2.18	2.08	2.02	1.83	1.72	1.56	1.44	1.27
56	3.94	3.75	3.63	3.55	3.37	3.26	3.08	2.97	2.83	2.75	2.46	2.29	2.04	1.83	1.57
57	3.89	3.72	3.61	3.52	3.34	3.24	3.06	2.96	2.83	2.74	2.44	2.28	2.03	1.83	1.56
58	3.9	3.73	3.62	3.54	3.36	3.27	3.09	2.99	2.85	2.77	2.47	2.3	2.06	1.86	1.58
59	3.95	3.77	3.66	3.58	3.41	3.31	3.13	3.04	2.89	2.79	2.49	2.33	2.07	1.88	1.59
60	4	3.82	3.7	3.62	3.44	3.35	3.16	3.06	2.9	2.81	2.5	2.34	2.08	1.89	1.59
61	5.13	4.87	4.72	4.6	4.36	4.23	3.99	3.84	3.67	3.56	3.17	2.94	2.61	2.34	1.97
62	5.11	4.86	4.71	4.6	4.36	4.23	3.99	3.84	3.66	3.55	3.17	2.94	2.62	2.34	1.98
63	5.15	4.91	4.75	4.64	4.41	4.27	4.05	3.9	3.71	3.6	3.2	2.98	2.64	2.38	1.99
64	5.13	4.89	4.73	4.63	4.4	4.27	4.04	3.9	3.7	3.59	3.19	2.97	2.64	2.38	1.99
65	5.18	4.94	4.78	4.67	4.44	4.31	4.07	3.94	3.73	3.62	3.22	3	2.65	2.39	1.98
66	6.3	5.98	5.77	5.63	5.34	5.18	4.88	4.69	4.47	4.33	3.86	3.57	3.18	2.85	2.39
67	6.34	6.02	5.83	5.69	5.38	5.22	4.93	4.74	4.51	4.37	3.89	3.62	3.22	2.9	2.42
68	6.32	6	5.82	5.68	5.38	5.23	4.94	4.77	4.53	4.39	3.9	3.62	3.2	2.9	2.42
69	6.33	6.02	5.82	5.69	5.4	5.24	4.96	4.79	4.54	4.4	3.9	3.63	3.21	2.9	2.42
70	6.45	6.14	5.94	5.8	5.5	5.35	5.06	4.89	4.63	4.49	3.98	3.71	3.28	2.96	2.45
71	7.19	6.81	6.57	6.4	6.07	5.87	5.54	5.31	5.08	4.91	4.38	4.05	3.6	3.23	2.69
72	7.17	6.81	6.59	6.42	6.09	5.89	5.56	5.36	5.1	4.93	4.39	4.09	3.63	3.27	2.73
73	7.19	6.83	6.61	6.45	6.11	5.93	5.6	5.41	5.13	4.98	4.42	4.09	3.64	3.29	2.74
74	7.25	6.88	6.66	6.51	6.17	5.99	5.66	5.47	5.18	5.03	4.45	4.14	3.66	3.3	2.76
75	7.28	6.93	6.7	6.54	6.21	6.03	5.7	5.5	5.21	5.05	4.47	4.16	3.69	3.32	2.76

Table A22a. Static and dynamic test data for seal 5 of Table 3 for low inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K̄	k̄	Cx1000	cx1000
76	3000	300	295	3.07	1.01	38.7	-30	.0936	.0484	.0413	-.0207	.184	.0249
77	6000	300	287	3.03	1.01	38.7	-30.1	.088	.0479	.0302	-.0188	.19	.0261
78	9500	301	288	3.02	1.01	38.7	-28.6	.0866	.0453	.0388	.000506	.14	.00602
79	13000	300	298	3.06	1.01	38.7	-26.8	.0909	.0431	.0477	.00541	.148	.0169
80	16000	301	305	3.03	1.01	38.7	-24.7	.0919	.0393	.0498	.0151	.163	.0125
81	3000	300	297	4.37	.997	38.7	-30.7	.0927	.0705	.0163	-.0194	.18	.0276
82	6000	300	286	4.46	.998	38.7	-30.3	.0887	.071	.00718	-.0174	.192	.0296
83	9500	300	287	4.41	1	38.7	-28.9	.0862	.0668	.0166	8.23E-5	.139	.00213
84	13000	301	293	4.35	.998	38.7	-27.4	.0888	.0626	.0267	.00581	.146	.0145
85	16000	302	299	4.44	1	38.7	-25.4	.0906	.059	.0373	.0135	.155	.0106
86	3000	300	297	5.77	.989	38.7	-30.9	.0932	.0936	.00354	-.0197	.18	.032
87	6000	300	291	5.74	.993	38.7	-30.9	.0862	.0933	-.00644	-.0165	.192	.0354
88	9500	301	286	5.74	.993	38.7	-29.2	.0859	.088	.00816	-.00156	.148	.000857
89	13000	301	289	5.81	.993	38.7	-27.5	.0883	.084	.0188	.0043	.146	.0132
90	16000	302	295	5.78	.997	38.7	-25.4	.0899	.077	.0335	.0133	.153	.00976
91	3000	301	298	7.05	.983	38.7	-31.4	.0946	.116	.000551	-.0212	.176	.0318
92	6000	300	295	7.05	.985	38.7	-30.7	.0865	.113	-.00927	-.0173	.194	.0419
93	9500	301	286	7.1	.987	38.7	-29.7	.0866	.111	.00192	-.00257	.154	-.00215
94	13000	301	288	7.13	.988	38.7	-27.9	.0866	.104	.0173	.00357	.145	.014
95	16000	302	293	7.15	.988	38.7	-25.6	.0897	.0957	.0345	.0111	.147	.00933
96	3000	301	297	8.11	.981	38.7	-31.3	.0945	.133	-.00369	-.0201	.177	.0367
97	6000	301	295	8.1	.979	38.7	-30.9	.0872	.131	-.0102	-.0195	.191	.0407
98	9500	301	285	8.2	.981	38.7	-29.5	.0862	.127	.000207	-.00319	.149	.00446
99	13000	301	287	8.16	.985	38.7	-27.9	.0868	.12	.016	.0012	.149	.0144
100	16000	302	293	8.13	.985	38.7	-26	.0886	.111	.0308	.0111	.147	.00842

Case	Pi, i=1 to 15 ---------->														
76	2.73	2.64	2.55	2.5	2.37	2.31	2.19	2.12	2.03	1.98	1.79	1.68	1.54	1.41	1.26
77	2.7	2.61	2.52	2.47	2.35	2.29	2.17	2.11	2.01	1.96	1.78	1.67	1.53	1.4	1.26
78	2.7	2.62	2.53	2.48	2.35	2.3	2.18	2.12	2.02	1.97	1.79	1.67	1.53	1.41	1.26
79	2.75	2.65	2.56	2.51	2.39	2.34	2.21	2.15	2.05	2	1.8	1.69	1.54	1.42	1.27
80	2.74	2.63	2.54	2.49	2.38	2.32	2.19	2.13	2.03	1.98	1.79	1.68	1.53	1.4	1.26
81	3.87	3.7	3.58	3.5	3.31	3.22	3.04	2.94	2.8	2.72	2.43	2.26	2.04	1.82	1.57
82	3.95	3.8	3.67	3.58	3.4	3.31	3.12	3.02	2.87	2.8	2.49	2.32	2.08	1.85	1.59
83	3.9	3.75	3.62	3.55	3.37	3.28	3.1	2.99	2.84	2.77	2.47	2.3	2.06	1.85	1.59
84	3.9	3.72	3.59	3.52	3.34	3.26	3.07	2.97	2.82	2.75	2.45	2.28	2.04	1.83	1.57
85	3.98	3.8	3.67	3.59	3.41	3.32	3.12	3.02	2.85	2.78	2.47	2.3	2.05	1.84	1.58
86	5.09	4.86	4.69	4.57	4.33	4.22	3.96	3.82	3.64	3.54	3.14	2.92	2.61	2.32	1.98
87	5.08	4.84	4.66	4.54	4.3	4.19	3.95	3.81	3.61	3.52	3.12	2.9	2.59	2.31	1.97
88	5.08	4.87	4.69	4.57	4.34	4.22	3.99	3.84	3.65	3.56	3.16	2.94	2.62	2.33	1.99
89	5.19	4.93	4.77	4.67	4.42	4.31	4.06	3.93	3.71	3.63	3.21	2.99	2.65	2.37	2
90	5.19	4.94	4.77	4.67	4.43	4.31	4.06	3.92	3.7	3.62	3.19	2.98	2.64	2.35	1.99
91	6.2	5.91	5.7	5.56	5.25	5.12	4.81	4.63	4.41	4.29	3.81	3.54	3.16	2.81	2.39
92	6.21	5.93	5.7	5.56	5.27	5.12	4.82	4.64	4.41	4.3	3.81	3.54	3.15	2.81	2.38
93	6.28	6.02	5.81	5.68	5.37	5.24	4.94	4.76	4.5	4.41	3.89	3.62	3.2	2.86	2.41
94	6.35	6.04	5.82	5.69	5.39	5.25	4.94	4.78	4.53	4.43	3.9	3.64	3.22	2.89	2.42
95	6.41	6.1	5.88	5.75	5.45	5.32	5.01	4.85	4.58	4.49	3.94	3.7	3.25	2.93	2.45
96	7.13	6.8	6.55	6.39	6.04	5.88	5.52	5.31	5.05	4.92	4.35	4.03	3.6	3.2	2.71
97	7.11	6.8	6.54	6.37	6.03	5.86	5.53	5.32	5.05	4.93	4.37	4.06	3.62	3.23	2.73
98	7.27	6.91	6.66	6.51	6.15	6	5.62	5.44	5.14	5.03	4.42	4.15	3.65	3.29	2.76
99	7.21	6.87	6.62	6.47	6.12	5.95	5.6	5.41	5.12	5	4.39	4.11	3.62	3.25	2.74
100	7.28	6.89	6.64	6.49	6.15	5.99	5.63	5.45	5.14	5.03	4.41	4.14	3.63	3.28	2.72

Table A22b. Static and dynamic test data for seal 5 of Table 3 for low inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
101	3000	307	299	2.99	1.01	56.8	-31	.0882	.0476	.0521	-.0239	.16	.0227
102	6000	307	292	3.06	1.01	56.8	-30.8	.086	.0483	.041	-.0209	.177	.0232
103	9500	307	291	3.03	1	56.8	-29.4	.0838	.0458	.0463	-.00475	.135	-.00255
104	13000	307	299	3.06	1	56.8	-27.4	.0913	.0432	.0586	.00382	.141	.00791
105	16000	306	306	3.04	1	56.8	-25.3	.0911	.0397	.0662	.0111	.144	.00346
106	3000	307	302	4.44	.994	56.8	-31.3	.086	.0714	.0251	-.0169	.173	.0169
107	6000	308	290	4.41	.996	56.8	-31	.0846	.07	.0209	-.0176	.177	.0253
108	9500	308	290	4.42	.997	56.8	-29.9	.0856	.0677	.0261	-.00674	.135	-.000737
109	13000	307	295	4.46	.994	56.8	-27.9	.0907	.0639	.038	.0041	.144	.00206
110	16000	307	300	4.38	.997	56.8	-25.8	.0908	.0582	.051	.0114	.139	.000988
111	3000	307	304	5.77	.987	56.8	-31.6	.0879	.0935	.0166	-.0181	.17	.0113
112	6000	308	301	5.81	.988	56.8	-31.3	.0846	.0932	.00678	-.0153	.179	.0244
113	9500	307	288	5.82	.989	56.8	-29.9	.0842	.0894	.016	-.0057	.146	-.00167
114	13000	307	292	5.77	.989	56.8	-28.3	.0908	.084	.0279	.00363	.143	.00301
115	16000	307	296	5.77	.992	56.8	-26.1	.0893	.0773	.0442	.0106	.138	.000737
116	3000	307	305	7.14	.98	56.8	-31.8	.086	.116	.00488	-.0171	.174	.0245
117	6000	308	302	7.12	.979	56.8	-31.4	.0865	.115	.00311	-.018	.18	.0266
118	9500	308	288	7.11	.983	56.8	-30.1	.0841	.11	.00966	-.00734	.145	-.000865
119	13000	308	291	7.11	.982	56.8	-28.4	.0912	.104	.0255	.00229	.141	.00462
120	16000	307	294	7.11	.981	56.8	-26.2	.089	.0957	.0424	.00922	.141	.00017
121	3000	308	305	8.16	.973	56.8	-31.8	.0869	.133	.00686	-.0162	.173	.0188
122	6000	308	303	8.2	.976	56.8	-31.4	.0854	.132	.000786	-.0146	.181	.0292
123	9500	308	288	8.16	.98	56.8	-30.1	.0846	.126	.00813	-.00766	.152	.00462
124	13000	308	291	8.18	.98	56.8	-28.3	.0905	.119	.0251	.00172	.143	.00544
125	16000	308	293	8.15	.98	56.8	-26.4	.0881	.11	.0401	.00857	.139	.000162

Case	Pi, i=1 to 15 ---------->														
101	2.67	2.56	2.49	2.43	2.32	2.26	2.14	2.08	1.99	1.94	1.76	1.65	1.51	1.39	1.25
102	2.72	2.63	2.55	2.48	2.37	2.31	2.19	2.12	2.03	1.97	1.78	1.68	1.53	1.41	1.26
103	2.7	2.6	2.52	2.46	2.35	2.29	2.16	2.11	2.01	1.96	1.76	1.67	1.51	1.4	1.25
104	2.75	2.65	2.57	2.51	2.4	2.34	2.22	2.15	2.06	2	1.81	1.7	1.54	1.43	1.26
105	2.75	2.64	2.56	2.51	2.39	2.33	2.21	2.14	2.04	1.99	1.8	1.69	1.54	1.42	1.26
106	3.93	3.76	3.64	3.55	3.37	3.28	3.09	2.99	2.85	2.77	2.47	2.31	2.07	1.86	1.59
107	3.9	3.75	3.63	3.53	3.36	3.27	3.08	2.98	2.84	2.76	2.46	2.3	2.06	1.85	1.58
108	3.91	3.76	3.63	3.55	3.38	3.28	3.1	3.01	2.87	2.78	2.48	2.32	2.06	1.87	1.59
109	3.98	3.82	3.69	3.61	3.44	3.34	3.16	3.06	2.91	2.82	2.52	2.34	2.09	1.89	1.6
110	3.93	3.76	3.64	3.55	3.39	3.29	3.11	3.01	2.86	2.77	2.47	2.3	2.04	1.85	1.57
111	5.1	4.87	4.71	4.58	4.35	4.22	3.99	3.84	3.66	3.55	3.17	2.94	2.62	2.35	1.98
112	5.13	4.92	4.74	4.62	4.38	4.26	4.02	3.88	3.7	3.58	3.2	2.97	2.65	2.37	2
113	5.15	4.94	4.76	4.65	4.41	4.3	4.06	3.92	3.73	3.62	3.22	2.99	2.65	2.39	2
114	5.13	4.91	4.74	4.62	4.4	4.27	4.03	3.91	3.71	3.6	3.2	2.97	2.64	2.37	1.99
115	5.16	4.93	4.76	4.65	4.43	4.3	4.06	3.93	3.73	3.61	3.21	2.98	2.63	2.37	1.98
116	6.29	6	5.79	5.63	5.34	5.18	4.88	4.71	4.49	4.35	3.88	3.58	3.2	2.86	2.4
117	6.25	5.99	5.78	5.62	5.34	5.18	4.89	4.72	4.5	4.35	3.89	3.6	3.21	2.89	2.41
118	6.27	6.01	5.79	5.65	5.37	5.2	4.92	4.74	4.52	4.38	3.89	3.62	3.21	2.88	2.41
119	6.3	6.02	5.8	5.67	5.38	5.23	4.93	4.77	4.53	4.4	3.91	3.62	3.21	2.9	2.4
120	6.34	6.04	5.83	5.7	5.41	5.26	4.97	4.8	4.55	4.41	3.92	3.64	3.21	2.9	2.4
121	7.17	6.83	6.59	6.42	6.07	5.89	5.55	5.35	5.1	4.94	4.39	4.07	3.63	3.24	2.71
122	7.21	6.88	6.63	6.45	6.12	5.94	5.61	5.4	5.14	4.98	4.44	4.11	3.66	3.28	2.75
123	7.18	6.88	6.63	6.46	6.14	5.95	5.62	5.42	5.15	4.99	4.45	4.11	3.66	3.29	2.74
124	7.25	6.92	6.66	6.51	6.19	5.99	5.66	5.48	5.21	5.04	4.48	4.15	3.68	3.31	2.75
125	7.26	6.91	6.67	6.51	6.18	6.01	5.67	5.47	5.19	5.03	4.46	4.13	3.66	3.29	2.72

Table A22c. Static and dynamic test data for seal 5 of Table 3 for low inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
126	3000	299	295	3.05	1	74.6	-30.4	.0944	.0489	.0579	-.0189	.162	.0155
127	6000	302	287	3.08	1	74.6	-30.1	.0942	.0483	.0546	-.0165	.155	.0154
128	9500	302	292	3.04	1	74.6	-28.9	.0904	.0461	.0558	-.00855	.142	.00463
129	13000	303	299	3.07	1	74.6	-27.2	.0906	.0435	.0575	.00218	.145	.00283
130	16000	303	304	3.01	1	74.6	-24.9	.0884	.0392	.0716	.0113	.146	.0051
131	3000	300	295	4.39	.992	74.6	-30.9	.0928	.0714	.0352	-.0184	.16	.0146
132	6000	302	288	4.4	.997	74.6	-30.7	.0915	.0705	.0308	-.0148	.164	.0202
133	9500	302	289	4.42	.993	74.6	-29.4	.0903	.068	.0314	-.00511	.137	-.00454
134	13000	303	292	4.4	.992	74.6	-28	.0887	.0641	.043	.00151	.141	-.000516
135	16000	304	299	4.47	.993	74.6	-25.7	.0862	.0598	.0559	.0101	.138	.000528
136	3000	301	297	5.77	.986	74.6	-31.3	.0949	.0945	.0225	-.0162	.164	.015
137	6000	302	296	5.77	.984	74.6	-30.7	.0911	.0925	.0196	-.0133	.174	.0266
138	9500	302	287	5.74	.987	74.6	-29.7	.0911	.089	.0243	-.00608	.138	.0013
139	13000	304	289	5.76	.986	74.6	-28	.0888	.0837	.0343	.0022	.142	.00218
140	16000	304	295	5.86	.991	74.6	-25.9	.0862	.0787	.0475	.00955	.144	.000335
141	3000	302	298	7.1	.978	74.6	-31.5	.0946	.117	.0176	-.0158	.164	.0176
142	6000	302	297	7.14	.979	74.6	-31.1	.091	.116	.0143	-.0157	.171	.0178
143	9500	303	287	7.15	.979	74.6	-30	.0898	.112	.0184	-.00663	.145	.000596
144	13000	304	289	7.13	.98	74.6	-28.3	.0878	.105	.0324	.00235	.143	.00169
145	16000	304	292	7.18	.98	74.6	-26.2	.0893	.0975	.0492	.00841	.139	-.000947
146	3000	302	298	8.14	.97	74.6	-31.3	.0932	.133	.015	-.0182	.163	.0206
147	6000	302	298	8.16	.974	74.6	-31.1	.0897	.132	.0129	-.0127	.174	.0177
148	9500	303	286	8.14	.973	74.6	-30	.0895	.127	.0148	-.00809	.15	.00437
149	13000	304	288	8.17	.977	74.6	-28.3	.088	.12	.0315	-.000384	.141	.00188
150	16000	305	292	8.2	.977	74.6	-26.5	.089	.112	.0467	.0077	.138	-.00178

Case	Pi, i=1 to 15 ---------->														
126	2.72	2.62	2.54	2.48	2.36	2.31	2.19	2.12	2.03	1.98	1.79	1.68	1.53	1.41	1.26
127	2.73	2.65	2.57	2.51	2.4	2.34	2.22	2.15	2.06	2.01	1.81	1.7	1.55	1.42	1.27
128	2.71	2.62	2.55	2.49	2.38	2.32	2.19	2.14	2.04	2	1.8	1.69	1.54	1.42	1.26
129	2.76	2.66	2.58	2.53	2.41	2.35	2.23	2.17	2.07	2.02	1.82	1.71	1.55	1.43	1.27
130	2.72	2.62	2.54	2.49	2.38	2.32	2.2	2.14	2.04	1.98	1.79	1.69	1.53	1.42	1.26
131	3.88	3.73	3.61	3.52	3.34	3.25	3.07	2.97	2.83	2.75	2.45	2.28	2.04	1.84	1.57
132	3.87	3.74	3.62	3.53	3.36	3.27	3.09	2.99	2.85	2.77	2.47	2.31	2.06	1.85	1.58
133	3.91	3.76	3.64	3.56	3.4	3.3	3.12	3.02	2.87	2.79	2.49	2.31	2.07	1.86	1.59
134	3.9	3.74	3.62	3.54	3.37	3.28	3.09	2.99	2.84	2.77	2.47	2.29	2.04	1.85	1.57
135	4	3.84	3.71	3.63	3.46	3.37	3.18	3.08	2.92	2.83	2.52	2.35	2.09	1.89	1.59
136	5.09	4.88	4.73	4.61	4.38	4.26	4.02	3.88	3.7	3.6	3.21	2.97	2.65	2.37	1.99
137	5.07	4.88	4.72	4.59	4.36	4.24	4	3.86	3.68	3.57	3.18	2.96	2.63	2.36	1.98
138	5.05	4.87	4.72	4.6	4.38	4.25	4	3.88	3.67	3.58	3.17	2.95	2.62	2.36	1.98
139	5.11	4.9	4.72	4.62	4.39	4.27	4.03	3.9	3.71	3.6	3.19	2.97	2.64	2.38	1.99
140	5.23	5	4.83	4.72	4.5	4.38	4.12	3.99	3.78	3.67	3.24	3.01	2.67	2.41	2
141	6.26	5.98	5.78	5.63	5.34	5.19	4.89	4.71	4.49	4.36	3.87	3.58	3.19	2.86	2.4
142	6.27	6.02	5.81	5.65	5.37	5.21	4.91	4.73	4.52	4.38	3.91	3.62	3.21	2.89	2.41
143	6.27	6.01	5.83	5.69	5.39	5.24	4.95	4.79	4.55	4.4	3.9	3.63	3.22	2.89	2.42
144	6.31	6.02	5.81	5.67	5.39	5.24	4.93	4.79	4.53	4.41	3.89	3.61	3.2	2.88	2.4
145	6.4	6.1	5.89	5.74	5.46	5.31	5.01	4.86	4.61	4.47	3.94	3.67	3.23	2.91	2.42
146	7.15	6.83	6.59	6.42	6.08	5.91	5.57	5.37	5.11	4.96	4.39	4.08	3.63	3.25	2.72
147	7.17	6.87	6.62	6.44	6.11	5.93	5.59	5.38	5.14	4.98	4.44	4.11	3.65	3.28	2.73
148	7.15	6.85	6.62	6.43	6.12	5.95	5.6	5.41	5.15	5	4.42	4.11	3.64	3.27	2.73
149	7.22	6.9	6.65	6.48	6.16	5.98	5.65	5.47	5.19	5.05	4.45	4.12	3.65	3.28	2.73
150	7.29	6.94	6.7	6.54	6.21	6.04	5.69	5.51	5.21	5.06	4.46	4.13	3.66	3.3	2.74

Table A23a. Static and dynamic test data for seal 5 of Table 3 for low inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
151	3000	295	293	3.01	1.01	38.7	29	.0866	.0468	.0712	.0131	.154	-.00998
152	6000	292	282	3	1.01	38.7	29.3	.0907	.0475	.0693	.0185	.145	-.0106
153	9500	293	283	3.03	1.01	38.7	28	.0882	.0457	.0718	.0235	.137	-.0101
154	13000	291	296	3.01	1.01	38.7	26.5	.0915	.0434	.0704	.0308	.137	-.00413
155	16000	292	303	3.09	1.01	38.7	24.8	.0916	.0415	.0638	.0342	.14	.00273
156	3000	295	293	4.44	1	38.7	29.9	.0838	.071	.0511	.014	.151	-.005
157	6000	292	281	4.43	1	38.7	30	.0892	.0716	.0531	.0192	.143	-.0109
158	9500	293	283	4.42	1	38.7	28.9	.0859	.0688	.0548	.0227	.143	-.00653
159	13000	292	289	4.43	1	38.7	27.1	.0894	.0651	.0537	.0301	.133	-.00424
160	16000	292	295	4.38	1	38.7	25.3	.088	.0599	.0579	.0338	.138	-.00364
161	3000	294	292	5.8	.994	38.7	30.4	.091	.0945	.0453	.0126	.148	-.0137
162	6000	292	282	5.78	.994	38.7	30.2	.0884	.0941	.0474	.0175	.142	-.0123
163	9500	292	292	5.74	.994	38.7	28.9	.0918	.0897	.0481	.0212	.14	-.00829
164	13000	291	285	5.81	.995	38.7	27.7	.0911	.0872	.0496	.0282	.129	-.00949
165	16000	292	291	5.79	.997	38.7	26	.0859	.0812	.0488	.0317	.135	-.00332
166	3000	294	291	7.1	.986	38.7	30.6	.0887	.116	.0415	.0109	.139	-.00727
167	6000	292	286	7.12	.987	38.7	30.5	.0885	.117	.0456	.0161	.139	-.0121
168	9500	292	281	7.14	.99	38.7	29.4	.0878	.113	.0455	.02	.138	-.0085
169	13000	291	284	7.09	.991	38.7	27.8	.0904	.107	.0478	.0268	.129	-.00926
170	16000	292	289	7.11	.99	38.7	26	.086	.1	.0513	.0297	.129	-.00728
171	3000	293	290	8.1	.983	38.7	30.5	.0951	.133	.0416	.00978	.137	-.0106
172	6000	293	286	8.16	.985	38.7	30.5	.0877	.134	.0444	.0154	.137	-.0102
173	9500	292	281	8.15	.984	38.7	29.4	.0882	.13	.0458	.0189	.133	-.012
174	13000	291	283	8.2	.986	38.7	27.9	.0895	.124	.0465	.0258	.133	-.00958
175	16000	292	288	8.17	.986	38.7	26.4	.0913	.116	.0529	.0283	.124	-.00751

Case	Pi, i=1 to 15 ---------->														
151	2.69	2.55	2.47	2.42	2.3	2.25	2.12	2.06	1.97	1.93	1.74	1.64	1.5	1.38	1.24
152	2.7	2.56	2.48	2.43	2.31	2.25	2.13	2.07	1.98	1.93	1.74	1.64	1.5	1.38	1.25
153	2.72	2.59	2.52	2.46	2.34	2.29	2.16	2.1	2	1.95	1.76	1.65	1.51	1.39	1.25
154	2.73	2.61	2.53	2.48	2.36	2.31	2.19	2.12	2.02	1.98	1.78	1.67	1.52	1.4	1.26
155	2.8	2.68	2.59	2.54	2.41	2.36	2.23	2.16	2.05	2	1.8	1.69	1.54	1.41	1.26
156	3.96	3.71	3.6	3.51	3.32	3.23	3.04	2.95	2.8	2.73	2.43	2.26	2.03	1.82	1.57
157	3.96	3.73	3.61	3.52	3.34	3.25	3.05	2.96	2.8	2.73	2.42	2.26	2.02	1.81	1.56
158	3.97	3.75	3.64	3.56	3.38	3.29	3.1	3.01	2.85	2.79	2.46	2.29	2.05	1.85	1.59
159	3.99	3.79	3.68	3.59	3.41	3.32	3.13	3.04	2.87	2.8	2.47	2.32	2.06	1.85	1.59
160	3.95	3.76	3.64	3.56	3.36	3.28	3.09	2.99	2.82	2.76	2.43	2.28	2.02	1.82	1.56
161	5.19	4.84	4.69	4.57	4.33	4.21	3.95	3.83	3.64	3.54	3.13	2.92	2.59	2.32	1.97
162	5.16	4.82	4.67	4.55	4.31	4.2	3.94	3.82	3.62	3.53	3.11	2.91	2.58	2.31	1.96
163	5.14	4.83	4.69	4.56	4.34	4.22	3.97	3.85	3.65	3.57	3.14	2.95	2.6	2.34	1.98
164	5.2	4.92	4.77	4.65	4.4	4.29	4.04	3.92	3.7	3.63	3.18	2.98	2.63	2.36	1.99
165	5.21	4.93	4.78	4.66	4.41	4.3	4.05	3.92	3.69	3.61	3.16	2.97	2.6	2.35	1.96
166	6.32	5.9	5.71	5.56	5.26	5.12	4.8	4.64	4.41	4.29	3.78	3.53	3.13	2.8	2.36
167	6.33	5.91	5.72	5.57	5.27	5.13	4.81	4.67	4.41	4.31	3.79	3.55	3.13	2.82	2.37
168	6.36	5.98	5.79	5.65	5.35	5.2	4.89	4.74	4.48	4.38	3.84	3.6	3.17	2.85	2.39
169	6.33	5.97	5.78	5.63	5.33	5.19	4.88	4.73	4.45	4.36	3.82	3.58	3.15	2.84	2.37
170	6.41	6.05	5.85	5.7	5.39	5.25	4.94	4.79	4.52	4.42	3.86	3.64	3.18	2.88	2.39
171	7.21	6.69	6.49	6.3	5.96	5.8	5.43	5.26	5	4.85	4.27	4	3.52	3.17	2.64
172	7.25	6.76	6.55	6.38	6.03	5.87	5.51	5.33	5.05	4.92	4.33	4.05	3.57	3.21	2.7
173	7.26	6.79	6.58	6.41	6.07	5.9	5.54	5.37	5.08	4.96	4.36	4.09	3.59	3.25	2.71
174	7.34	6.91	6.69	6.51	6.17	6	5.64	5.46	5.16	5.04	4.41	4.14	3.62	3.27	2.72
175	7.33	6.94	6.71	6.54	6.18	6.02	5.66	5.49	5.17	5.07	4.42	4.16	3.64	3.29	2.72

Table A23b. Static and dynamic test data for seal 5 of Table 3 for low inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
176	3000	293	288	3.01	1.01	56.8	29.6	.0877	.0479	.0708	.0137	.148	.00125
177	6000	292	284	3.08	1.01	56.8	29	.0939	.0483	.0689	.017	.144	-.00881
178	9500	293	284	3.04	1.01	56.8	28	.0897	.046	.0714	.0218	.14	-.00597
179	13000	293	294	3.04	1.01	56.8	26.4	.0955	.0434	.0724	.0294	.135	-.00811
180	16000	293	302	3.03	1.01	56.8	24.7	.0955	.0403	.0684	.0357	.133	-.00791
181	3000	293	289	4.36	1	56.8	30	.0847	.0703	.0545	.0113	.139	-.000638
182	6000	292	282	4.41	1	56.8	29.7	.0916	.0706	.0579	.016	.142	-.0104
183	9500	293	283	4.41	1	56.8	28.5	.0866	.0676	.058	.0201	.139	-.00756
184	13000	293	289	4.34	1	56.8	27.3	.0926	.0639	.0569	.0284	.129	-.011
185	16000	293	294	4.4	1.01	56.8	25.2	.092	.0597	.0574	.034	.122	-.0119
186	3000	293	289	5.71	.994	56.8	30	.0878	.0921	.0483	.0148	.144	-.01
187	6000	294	286	5.75	.998	56.8	29.8	.0892	.092	.0519	.0154	.133	-.0146
188	9500	293	282	5.79	.997	56.8	28.8	.0843	.0898	.0508	.0192	.133	-.00806
189	13000	293	286	5.79	.995	56.8	27.5	.0897	.0857	.0526	.0261	.129	-.016
190	16000	293	291	5.79	1	56.8	25.5	.0889	.0794	.052	.032	.129	-.0111
191	3000	293	290	7.1	.987	56.8	30.5	.0878	.116	.0427	.0134	.144	-.0058
192	6000	293	288	7.1	.986	56.8	30.1	.0882	.115	.0483	.0146	.136	-.0136
193	9500	293	282	7.12	.988	56.8	28.9	.0824	.111	.0504	.0176	.125	-.0103
194	13000	293	283	7.19	.989	56.8	27.7	.0973	.107	.0512	.0248	.128	-.015
195	16000	293	289	7.12	.99	56.8	25.6	.0868	.0983	.0546	.0301	.118	-.0148
196	3000	293	290	8.09	.982	56.8	30.4	.0861	.132	.0451	.00868	.133	.000337
197	6000	293	288	8.08	.984	56.8	30.3	.0837	.132	.0468	.0136	.135	-.0143
198	9500	293	281	8.09	.985	56.8	29.1	.0963	.127	.0503	.0178	.125	-.0093
199	13000	293	283	8.08	.987	56.8	27.7	.0961	.121	.051	.0235	.126	-.0149
200	16000	293	288	8.15	.987	56.8	25.9	.0862	.114	.0535	.0288	.116	-.0134

Case	Pi, i=1 to 15 ---------->														
176	2.69	2.55	2.48	2.41	2.3	2.24	2.12	2.07	1.98	1.92	1.74	1.64	1.5	1.38	1.24
177	2.76	2.62	2.54	2.47	2.35	2.29	2.17	2.11	2.01	1.96	1.76	1.66	1.51	1.39	1.25
178	2.74	2.61	2.53	2.47	2.36	2.3	2.17	2.11	2.02	1.97	1.77	1.67	1.52	1.41	1.26
179	2.75	2.63	2.56	2.5	2.38	2.33	2.21	2.15	2.05	1.99	1.8	1.69	1.53	1.42	1.26
180	2.74	2.63	2.55	2.49	2.37	2.31	2.19	2.13	2.02	1.96	1.77	1.67	1.52	1.4	1.25
181	3.68	3.65	3.53	3.44	3.27	3.17	2.99	2.9	2.76	2.68	2.38	2.23	1.99	1.79	1.54
182	3.93	3.7	3.59	3.5	3.32	3.23	3.05	2.95	2.82	2.74	2.43	2.27	2.03	1.83	1.57
183	3.94	3.73	3.61	3.52	3.35	3.26	3.07	2.98	2.83	2.75	2.44	2.28	2.03	1.84	1.57
184	3.9	3.72	3.6	3.51	3.34	3.25	3.07	2.97	2.82	2.74	2.43	2.27	2.02	1.83	1.56
185	3.96	3.78	3.66	3.57	3.39	3.29	3.11	3.01	2.85	2.77	2.45	2.29	2.04	1.84	1.57
186	5.07	4.76	4.6	4.48	4.25	4.13	3.89	3.77	3.58	3.47	3.09	2.87	2.55	2.29	1.93
187	5.11	4.8	4.65	4.53	4.3	4.18	3.93	3.81	3.62	3.51	3.12	2.89	2.58	2.32	1.95
188	5.15	4.87	4.71	4.59	4.36	4.23	3.99	3.86	3.66	3.55	3.15	2.93	2.6	2.34	1.97
189	5.17	4.91	4.75	4.63	4.39	4.26	4.02	3.89	3.68	3.58	3.17	2.95	2.61	2.35	1.97
190	5.2	4.94	4.77	4.66	4.42	4.3	4.04	3.92	3.71	3.6	3.18	2.95	2.61	2.35	1.96
191	6.28	5.88	5.68	5.53	5.25	5.1	4.79	4.64	4.42	4.27	3.79	3.51	3.12	2.8	2.35
192	6.3	5.9	5.7	5.55	5.27	5.11	4.81	4.65	4.42	4.29	3.8	3.52	3.13	2.81	2.36
193	6.34	5.96	5.77	5.62	5.33	5.17	4.87	4.72	4.48	4.36	3.86	3.58	3.17	2.85	2.39
194	6.42	6.08	5.88	5.73	5.43	5.27	4.98	4.81	4.56	4.43	3.92	3.64	3.22	2.9	2.41
195	6.37	6.06	5.85	5.71	5.41	5.25	4.95	4.79	4.53	4.4	3.89	3.61	3.19	2.86	2.37
196	7.17	6.69	6.48	6.29	5.97	5.79	5.44	5.26	5.01	4.83	4.29	3.97	3.53	3.16	2.65
197	7.16	6.7	6.48	6.3	5.97	5.8	5.45	5.27	5.01	4.86	4.3	3.99	3.54	3.19	2.66
198	7.18	6.75	6.53	6.35	6.03	5.84	5.5	5.31	5.04	4.9	4.33	4.02	3.56	3.2	2.67
199	7.2	6.81	6.57	6.4	6.07	5.89	5.55	5.37	5.08	4.94	4.37	4.05	3.58	3.21	2.68
200	7.29	6.93	6.67	6.51	6.16	5.98	5.63	5.44	5.15	5	4.42	4.1	3.61	3.25	2.69

Table A23c. Static and dynamic test data for seal 5 of Table 3 for low inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{a}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
201	3000	300	292	3.04	1.01	74.6	29.8	.0978	.0477	.0766	.0107	.145	-.0041
202	6000	300	287	3.03	1.01	74.6	29.7	.101	.0473	.077	.0174	.141	-.0036
203	9500	300	289	3.05	1	74.6	28.5	.0942	.0459	.0792	.0204	.135	-.00275
204	13000	300	298	3.02	1	74.6	26.7	.1	.0425	.0777	.0292	.137	-.00887
205	16000	300	304	3.01	1.01	74.6	24.9	.103	.0394	.0718	.0355	.133	-.0104
206	3000	300	293	4.38	.996	74.6	30.6	.0903	.0704	.0574	.0111	.14	-.00128
207	6000	300	285	4.43	.997	74.6	30.3	.0988	.0704	.0609	.0133	.131	-.00385
208	9500	300	287	4.4	.998	74.6	29	.0921	.0671	.0624	.0191	.129	-.00742
209	13000	300	290	4.42	.997	74.6	27.4	.104	.0638	.0641	.0266	.131	-.0109
210	16000	300	298	4.48	.997	74.6	25.8	.0958	.0609	.0651	.0325	.125	-.0147
211	3000	300	295	5.73	.989	74.6	30.7	.0868	.0923	.0506	.0093	.137	-.0036
212	6000	300	289	5.73	.988	74.6	30.7	.0972	.0927	.0558	.0118	.124	-.00823
213	9500	300	286	5.73	.989	74.6	29.4	.088	.0886	.0575	.0177	.123	-.00932
214	13000	300	288	5.82	.989	74.6	27.9	.0987	.0855	.0579	.0241	.126	-.0126
215	16000	301	293	5.73	.994	74.6	25.9	.0921	.078	.0626	.0277	.122	-.0149
216	3000	300	295	7.07	.98	74.6	30.9	.0974	.115	.0499	.00869	.136	-.0085
217	6000	300	295	7.08	.982	74.6	30.7	.0943	.114	.0528	.0107	.126	-.00777
218	9500	300	286	7.08	.982	74.6	29.7	.0882	.11	.0541	.0166	.13	-.00916
219	13000	300	287	7.09	.984	74.6	28.1	.0922	.105	.0589	.0222	.124	-.013
220	16000	300	290	7.13	.982	74.6	26.1	.0898	.0979	.0618	.0264	.114	-.0174
221	3000	300	295	8.09	.978	74.6	31	.0947	.132	.0491	.00879	.133	-.00926
222	6000	300	295	8.15	.976	74.6	30.4	.092	.13	.0534	.0122	.13	-.00728
223	9500	300	285	8.14	.978	74.6	29.8	.0873	.127	.0541	.0155	.121	-.00949
224	13000	300	286	8.17	.976	74.6	28.2	.0887	.121	.0583	.0197	.123	-.0143
225	16000	301	289	8.1	.977	74.6	26.4	.0867	.112	.06	.0254	.119	-.0159

Case	Pi, i=1 to 15 ---------->														
201	2.71	2.57	2.5	2.43	2.32	2.26	2.14	2.08	1.99	1.94	1.75	1.65	1.5	1.38	1.24
202	2.71	2.57	2.5	2.44	2.32	2.26	2.14	2.08	1.99	1.94	1.74	1.64	1.5	1.38	1.24
203	2.74	2.61	2.54	2.48	2.36	2.3	2.18	2.12	2.02	1.97	1.78	1.67	1.52	1.4	1.25
204	2.73	2.61	2.54	2.48	2.36	2.3	2.18	2.12	2.03	1.97	1.78	1.68	1.52	1.41	1.25
205	2.72	2.61	2.53	2.47	2.36	2.29	2.17	2.11	2.01	1.96	1.77	1.67	1.51	1.39	1.24
206	3.88	3.67	3.55	3.46	3.28	3.19	3.01	2.91	2.77	2.68	2.39	2.23	2	1.8	1.54
207	3.94	3.71	3.6	3.51	3.34	3.24	3.05	2.96	2.82	2.74	2.44	2.27	2.03	1.83	1.56
208	3.92	3.71	3.6	3.51	3.33	3.24	3.06	2.96	2.81	2.74	2.44	2.27	2.02	1.84	1.56
209	3.95	3.77	3.65	3.56	3.39	3.3	3.12	3.02	2.86	2.78	2.48	2.31	2.05	1.86	1.57
210	4.03	3.84	3.72	3.63	3.45	3.35	3.16	3.06	2.89	2.81	2.5	2.33	2.07	1.87	1.58
211	5.07	4.75	4.6	4.48	4.25	4.12	3.88	3.75	3.57	3.45	3.08	2.86	2.54	2.27	1.91
212	5.08	4.78	4.63	4.51	4.28	4.15	3.91	3.78	3.6	3.48	3.1	2.88	2.56	2.3	1.93
213	5.08	4.8	4.66	4.55	4.31	4.19	3.95	3.82	3.62	3.52	3.12	2.9	2.58	2.32	1.95
214	5.19	4.93	4.78	4.66	4.43	4.3	4.06	3.93	3.72	3.61	3.21	2.99	2.64	2.38	1.99
215	5.12	4.88	4.72	4.6	4.36	4.24	4	3.87	3.66	3.54	3.15	2.93	2.59	2.33	1.94
216	6.25	5.85	5.67	5.52	5.23	5.07	4.79	4.62	4.39	4.24	3.77	3.5	3.11	2.79	2.33
217	6.25	5.86	5.67	5.53	5.24	5.08	4.79	4.63	4.39	4.26	3.78	3.51	3.12	2.81	2.34
218	6.3	5.93	5.73	5.58	5.28	5.13	4.83	4.67	4.43	4.3	3.8	3.53	3.14	2.83	2.36
219	6.29	5.97	5.77	5.62	5.33	5.18	4.88	4.72	4.47	4.34	3.84	3.57	3.17	2.85	2.37
220	6.38	6.06	5.86	5.72	5.41	5.27	4.97	4.81	4.55	4.41	3.89	3.62	3.2	2.88	2.39
221	7.12	6.67	6.46	6.29	5.95	5.77	5.44	5.25	5	4.82	4.29	3.98	3.53	3.17	2.65
222	7.2	6.74	6.53	6.36	6.04	5.85	5.51	5.33	5.06	4.9	4.35	4.03	3.58	3.23	2.69
223	7.2	6.77	6.55	6.38	6.05	5.87	5.52	5.34	5.06	4.9	4.34	4.02	3.56	3.2	2.67
224	7.24	6.86	6.62	6.46	6.12	5.95	5.6	5.41	5.13	4.97	4.4	4.08	3.61	3.26	2.71
225	7.26	6.89	6.66	6.5	6.16	5.98	5.64	5.45	5.15	4.99	4.41	4.1	3.61	3.26	2.7

Table A24a. Static and dynamic test data for seal 5 of Table 3 for high inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
226	3000	294	291	3	1.01	38.7	-66	.0928	.0465	.054	-.0374	.181	.0233
227	6000	293	283	2.97	1.01	38.7	-64.8	.0876	.0454	.0527	-.0313	.158	.0305
228	9500	293	285	3.04	1.01	38.7	-62.5	.0869	.0449	.0473	-.0187	.157	.0183
229	13000	293	298	3.04	1.01	38.7	-57.6	.0886	.0416	.0536	-.00686	.166	.0155
230	16000	293	304	3	1.01	38.7	-54.1	.0876	.0387	.0665	.00817	.155	.00529
231	3000	294	291	4.35	1	38.7	-67.7	.0919	.0691	.0361	-.0359	.161	.034
232	6000	293	283	4.39	1	38.7	-66.8	.0895	.069	.0339	-.0302	.155	.0299
233	9500	293	284	4.39	1	38.7	-63.7	.0878	.066	.0304	-.0204	.16	.0157
234	13000	293	291	4.36	1	38.7	-60.5	.0893	.0625	.0294	-.00727	.171	.0217
235	16000	294	298	4.33	1	38.7	-56	.0868	.0574	.0521	.00776	.148	.00349
236	3000	294	292	5.72	.992	38.7	-68.1	.0921	.0913	.0256	-.0361	.162	.0379
237	6000	293	286	5.76	.995	38.7	-66.6	.0891	.0904	.0214	-.0292	.165	.032
238	9500	293	283	5.71	.996	38.7	-64.3	.0876	.0866	.0204	-.0208	.161	.0245
239	13000	293	287	5.78	.993	38.7	-60.9	.0895	.0834	.0249	-.00618	.164	.0126
240	16000	294	293	5.71	1	38.7	-56.4	.0859	.0762	.0427	.00532	.156	.0076
241	3000	294	291	7.05	.985	38.7	-68.6	.0916	.113	.0206	-.0356	.161	.0413
242	6000	293	288	7.08	.986	38.7	-67.3	.0899	.112	.0186	-.0295	.16	.0334
243	9500	293	282	7.02	.991	38.7	-65.1	.0872	.108	.0165	-.0204	.16	.0239
244	13000	293	285	7.07	.99	38.7	-61.7	.0896	.103	.0212	-.00754	.161	.014
245	16000	294	291	7.14	.986	38.7	-57	.0865	.0963	.0402	.00293	.151	.0131
246	3000	294	291	8.04	.982	38.7	-68.7	.0925	.13	.0205	-.0369	.152	.0413
247	6000	293	288	8.11	.98	38.7	-67.4	.0892	.128	.0167	-.0283	.157	.0393
248	9500	293	282	8.1	.985	38.7	-65.3	.0871	.125	.0142	-.0208	.159	.0281
249	13000	293	284	8.11	.988	38.7	-61.7	.0893	.118	.0208	-.00823	.161	.0165
250	16000	294	291	8.11	.984	38.7	-57.9	.0856	.111	.0402	.00207	.145	.0149

Case	Pi, i=1 to 15 ---------->														
226	2.63	2.48	2.4	2.36	2.24	2.19	2.08	2.02	1.93	1.88	1.72	1.61	1.47	1.36	1.23
227	2.61	2.48	2.4	2.36	2.24	2.19	2.08	2.01	1.93	1.88	1.71	1.61	1.47	1.36	1.23
228	2.67	2.56	2.48	2.43	2.31	2.26	2.15	2.08	1.99	1.94	1.77	1.66	1.51	1.4	1.25
229	2.69	2.6	2.51	2.46	2.34	2.29	2.18	2.11	2.02	1.96	1.79	1.67	1.52	1.41	1.26
230	2.65	2.56	2.48	2.43	2.31	2.26	2.15	2.08	1.98	1.93	1.75	1.65	1.5	1.38	1.24
231	3.79	3.56	3.43	3.38	3.19	3.11	2.93	2.83	2.69	2.62	2.35	2.18	1.95	1.76	1.51
232	3.82	3.6	3.48	3.42	3.23	3.15	2.97	2.87	2.74	2.66	2.39	2.22	1.98	1.79	1.53
233	3.82	3.63	3.51	3.44	3.27	3.18	3	2.91	2.77	2.69	2.41	2.24	2	1.81	1.55
234	3.86	3.65	3.53	3.45	3.27	3.18	3.01	2.91	2.77	2.69	2.4	2.23	1.99	1.8	1.54
235	3.82	3.66	3.54	3.46	3.28	3.2	3.03	2.93	2.77	2.7	2.41	2.24	2	1.8	1.54
236	4.97	4.64	4.48	4.4	4.14	4.03	3.79	3.66	3.48	3.38	3.02	2.8	2.49	2.23	1.87
237	5.01	4.7	4.54	4.46	4.21	4.1	3.87	3.73	3.55	3.45	3.09	2.86	2.54	2.28	1.92
238	4.97	4.7	4.55	4.45	4.22	4.11	3.88	3.75	3.57	3.47	3.1	2.87	2.55	2.28	1.94
239	5.09	4.81	4.65	4.55	4.3	4.19	3.97	3.83	3.63	3.54	3.16	2.92	2.59	2.32	1.97
240	5.03	4.81	4.63	4.54	4.29	4.18	3.95	3.82	3.62	3.52	3.13	2.89	2.57	2.3	1.93
241	6.11	5.71	5.51	5.41	5.09	4.96	4.66	4.5	4.29	4.15	3.7	3.42	3.05	2.73	2.29
242	6.13	5.76	5.57	5.45	5.15	5.01	4.72	4.55	4.34	4.2	3.76	3.48	3.1	2.78	2.33
243	6.09	5.75	5.56	5.43	5.14	5	4.73	4.56	4.33	4.23	3.77	3.48	3.1	2.77	2.34
244	6.2	5.86	5.66	5.53	5.23	5.09	4.82	4.65	4.4	4.3	3.81	3.54	3.13	2.79	2.37
245	6.25	5.98	5.76	5.62	5.33	5.19	4.91	4.73	4.49	4.37	3.89	3.58	3.18	2.84	2.39
246	6.94	6.49	6.25	6.14	5.78	5.62	5.29	5.1	4.86	4.71	4.2	3.89	3.46	3.09	2.58
247	7	6.59	6.34	6.23	5.87	5.7	5.38	5.18	4.93	4.78	4.29	3.94	3.52	3.15	2.64
248	7	6.62	6.39	6.25	5.91	5.74	5.42	5.23	4.97	4.83	4.32	3.98	3.54	3.16	2.68
249	7.08	6.7	6.47	6.3	5.97	5.8	5.49	5.29	5.02	4.89	4.35	4.02	3.56	3.18	2.7
250	7.08	6.78	6.51	6.37	6.01	5.86	5.54	5.34	5.06	4.93	4.37	4.03	3.59	3.18	2.69

Table A24b. Static and dynamic test data for seal 5 of Table 3 for high inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
251	3000	301	293	3.06	1.01	56.8	-67.5	.092	.0474	.0549	-.038	.165	.0192
252	6000	300	287	3.01	1.01	56.8	-66.2	.0898	.0461	.0483	-.0318	.161	.031
253	9500	300	288	3.03	1.01	56.8	-63.6	.0921	.0446	.0484	-.0188	.147	.0202
254	13000	295	295	3.02	1.01	56.8	-58.2	.0895	.0414	.0516	-.00737	.165	.0116
255	16000	293	303	3.05	1.01	56.8	-54.6	.0925	.0395	.0624	.0118	.148	.00236
256	3000	301	296	4.36	1	56.8	-68.7	.0903	.0688	.0325	-.0335	.167	.0334
257	6000	300	288	4.39	1	56.8	-67.4	.09	.0681	.0311	-.0297	.16	.0309
258	9500	299	286	4.39	1	56.8	-65.1	.0885	.0661	.0286	-.02	.159	.0228
259	13000	295	289	4.37	1	56.8	-59.9	.0888	.0616	.0296	-.00697	.172	.0182
260	16000	293	297	4.39	1	56.8	-56.1	.091	.0585	.047	.0103	.147	.00108
261	3000	301	297	5.73	.997	56.8	-68.7	.0895	.0902	.0257	-.0325	.163	.0362
262	6000	300	296	5.7	.995	56.8	-68.4	.0895	.0896	.0228	-.0298	.157	.0207
263	9500	300	286	5.73	.997	56.8	-65.3	.0888	.0865	.02	-.0198	.164	.0214
264	13000	295	287	5.77	.992	56.8	-60.8	.0874	.0826	.0232	-.00555	.165	.0112
265	16000	293	294	5.76	.993	56.8	-56.8	.0889	.0775	.0415	.00749	.144	.00508
266	3000	301	297	7.04	.99	56.8	-69.3	.0885	.112	.0192	-.0334	.157	.0407
267	6000	300	297	7.09	.989	56.8	-68.3	.0871	.111	.0189	-.0267	.158	.036
268	9500	299	285	7.04	.988	56.8	-66	.0866	.107	.0142	-.0203	.165	.0261
269	13000	295	285	7.09	.987	56.8	-61.3	.086	.102	.0217	-.00651	.159	.0124
270	16000	293	290	7.12	.988	56.8	-57.4	.088	.0969	.0385	.00552	.144	.00323
271	3000	301	297	8.02	.984	56.8	-69.4	.0884	.128	.0213	-.0322	.155	.0371
272	6000	300	297	8.06	.984	56.8	-68.4	.0871	.127	.0163	-.0266	.157	.0353
273	9500	299	285	8.04	.985	56.8	-66.3	.0862	.123	.0171	-.0184	.155	.0312
274	13000	295	285	8.13	.983	56.8	-61.9	.0855	.118	.0174	-.00676	.158	.0119
275	16000	294	288	8.17	.985	56.8	-57.9	.087	.112	.0365	.00584	.147	.00626

Case	Pi, i=1 to 15 ---------->														
251	2.69	2.53	2.46	2.41	2.3	2.23	2.12	2.06	1.98	1.92	1.75	1.65	1.5	1.39	1.24
252	2.65	2.5	2.43	2.38	2.27	2.21	2.1	2.04	1.95	1.9	1.73	1.63	1.48	1.37	1.24
253	2.67	2.54	2.47	2.41	2.31	2.25	2.14	2.08	1.99	1.93	1.76	1.66	1.5	1.4	1.25
254	2.68	2.57	2.49	2.43	2.32	2.26	2.15	2.09	2	1.94	1.76	1.66	1.51	1.4	1.25
255	2.69	2.6	2.52	2.46	2.35	2.29	2.18	2.12	2.02	1.96	1.78	1.67	1.51	1.4	1.25
256	3.8	3.56	3.45	3.37	3.2	3.11	2.94	2.84	2.71	2.63	2.36	2.2	1.97	1.78	1.52
257	3.82	3.59	3.48	3.4	3.24	3.14	2.97	2.88	2.75	2.65	2.39	2.23	1.99	1.8	1.54
258	3.83	3.62	3.52	3.44	3.27	3.17	3.01	2.91	2.77	2.69	2.42	2.25	2	1.82	1.55
259	3.87	3.66	3.55	3.46	3.29	3.2	3.03	2.94	2.79	2.71	2.43	2.26	2	1.82	1.55
260	3.87	3.71	3.6	3.51	3.34	3.25	3.07	2.98	2.83	2.73	2.44	2.28	2.01	1.83	1.54
261	4.99	4.64	4.5	4.39	4.17	4.04	3.82	3.68	3.51	3.4	3.04	2.82	2.5	2.25	1.9
262	4.95	4.64	4.5	4.39	4.17	4.04	3.82	3.69	3.52	3.4	3.05	2.83	2.51	2.27	1.9
263	4.98	4.7	4.55	4.44	4.21	4.09	3.87	3.74	3.57	3.45	3.09	2.87	2.54	2.29	1.93
264	5.06	4.8	4.65	4.53	4.31	4.18	3.96	3.83	3.64	3.53	3.14	2.92	2.58	2.33	1.95
265	5.05	4.82	4.67	4.55	4.32	4.21	3.98	3.84	3.66	3.54	3.14	2.92	2.56	2.32	1.93
266	6.11	5.68	5.49	5.36	5.08	4.93	4.65	4.49	4.28	4.14	3.69	3.43	3.03	2.72	2.29
267	6.15	5.75	5.57	5.43	5.16	4.99	4.73	4.55	4.34	4.2	3.76	3.49	3.09	2.78	2.33
268	6.11	5.76	5.58	5.44	5.16	5.01	4.73	4.56	4.36	4.21	3.76	3.49	3.09	2.78	2.33
269	6.22	5.87	5.68	5.53	5.24	5.1	4.82	4.65	4.43	4.29	3.81	3.55	3.12	2.82	2.35
270	6.26	5.95	5.75	5.59	5.3	5.16	4.88	4.72	4.48	4.34	3.85	3.57	3.14	2.83	2.35
271	6.95	6.46	6.25	6.1	5.78	5.59	5.27	5.09	4.85	4.68	4.18	3.87	3.44	3.08	2.58
272	6.98	6.52	6.31	6.15	5.85	5.65	5.34	5.15	4.91	4.74	4.25	3.94	3.48	3.14	2.62
273	6.97	6.56	6.34	6.18	5.87	5.68	5.37	5.18	4.94	4.78	4.28	3.95	3.5	3.15	2.63
274	7.07	6.71	6.48	6.3	5.99	5.8	5.49	5.3	5.05	4.88	4.35	4.03	3.55	3.2	2.66
275	7.12	6.82	6.58	6.41	6.07	5.9	5.57	5.38	5.1	4.95	4.39	4.07	3.58	3.22	2.67

Table A24c. Static and dynamic test data for seal 5 of Table 3 for high inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
276	3000	299	289	3.03	1.01	74.6	-66.2	.0981	.0464	.0597	-.0334	.158	.0285
277	6000	298	285	3.02	1.01	74.6	-65.7	.0979	.0459	.0518	-.0291	.161	.0298
278	9500	299	287	2.98	1.01	74.6	-63.5	.104	.0439	.0543	-.0181	.151	.0182
279	13000	299	297	3.04	1.01	74.6	-59.3	.0963	.0419	.0564	-.00726	.171	.00924
280	16000	300	304	3.08	1.01	74.6	-54.9	.0974	.0393	.0654	.0111	.14	-.00274
281	3000	299	290	4.34	1	74.6	-68.1	.094	.0683	.0387	-.0312	.158	.0331
282	6000	299	287	4.39	1	74.6	-67.5	.0929	.0685	.0388	-.0269	.152	.025
283	9500	299	289	4.33	1	74.6	-64.5	.0996	.0646	.0375	-.0163	.16	.0202
284	13000	300	291	4.42	1	74.6	-61	.0949	.0625	.0345	-.00717	.167	.0101
285	16000	300	299	4.37	1	74.6	-56	.0904	.0569	.058	.00826	.137	-.00475
286	3000	298	292	5.75	.994	74.6	-68.2	.0922	.0907	.0294	-.0321	.155	.0319
287	6000	299	294	5.72	.994	74.6	-67.6	.0913	.0895	.0284	-.025	.155	.0253
288	9500	299	285	5.69	.996	74.6	-65.5	.0978	.0862	.0264	-.0171	.161	.0232
289	13000	300	288	5.72	.995	74.6	-62.3	.0958	.0824	.0269	-.00603	.16	.00921
290	16000	301	294	5.7	1	74.6	-57	.0898	.0754	.0487	.00635	.139	-.00401
291	3000	299	293	7.04	.986	74.6	-68.6	.0897	.112	.0277	-.031	.149	.0363
292	6000	299	294	7.06	.988	74.6	-68.3	.0893	.111	.0229	-.0276	.153	.0167
293	9500	299	285	7.05	.99	74.6	-65.9	.0933	.107	.0243	-.0177	.153	.0243
294	13000	299	287	7.11	.99	74.6	-62.4	.0905	.103	.0299	-.00865	.153	.00988
295	16000	301	292	7.1	.988	74.6	-57.5	.0835	.0945	.0453	.00418	.148	-.0013
296	3000	299	294	8.04	.982	74.6	-68.8	.0868	.128	.0241	-.0314	.152	.0309
297	6000	299	295	8.06	.983	74.6	-67.7	.0862	.126	.0205	-.0266	.153	.0299
298	9500	300	285	8.06	.984	74.6	-65.9	.0899	.123	.0235	-.0181	.154	.0209
299	13000	300	286	8.11	.988	74.6	-62.1	.0893	.117	.025	-.00665	.156	.0106
300	16000	301	291	8.11	.987	74.6	-58.4	.0817	.109	.043	.00311	.144	-.000634

Case	Pi, i=1 to 15 ---------->														
276	2.66	2.5	2.43	2.38	2.27	2.21	2.1	2.04	1.96	1.9	1.73	1.63	1.48	1.37	1.24
277	2.66	2.51	2.44	2.39	2.28	2.22	2.11	2.05	1.96	1.9	1.73	1.63	1.48	1.37	1.23
278	2.62	2.5	2.43	2.38	2.27	2.21	2.11	2.05	1.96	1.91	1.73	1.64	1.49	1.38	1.24
279	2.68	2.58	2.51	2.45	2.34	2.28	2.17	2.11	2.01	1.96	1.78	1.68	1.52	1.41	1.25
280	2.71	2.62	2.55	2.49	2.38	2.33	2.21	2.14	2.04	1.98	1.8	1.7	1.53	1.42	1.26
281	3.79	3.55	3.44	3.36	3.2	3.1	2.93	2.84	2.72	2.63	2.36	2.2	1.96	1.77	1.52
282	3.82	3.59	3.49	3.4	3.23	3.14	2.97	2.88	2.75	2.66	2.39	2.22	1.98	1.8	1.54
283	3.77	3.58	3.46	3.38	3.22	3.13	2.97	2.88	2.74	2.66	2.38	2.22	1.98	1.8	1.54
284	3.88	3.7	3.59	3.5	3.33	3.24	3.07	2.98	2.83	2.74	2.45	2.28	2.02	1.84	1.57
285	3.84	3.68	3.57	3.49	3.32	3.23	3.06	2.96	2.82	2.73	2.44	2.28	2.02	1.84	1.56
286	5.01	4.67	4.51	4.4	4.18	4.05	3.82	3.69	3.54	3.42	3.07	2.84	2.52	2.26	1.9
287	4.97	4.66	4.51	4.4	4.18	4.05	3.83	3.7	3.54	3.42	3.06	2.84	2.52	2.27	1.91
288	4.95	4.68	4.53	4.42	4.21	4.08	3.87	3.74	3.56	3.46	3.09	2.86	2.53	2.29	1.92
289	5.02	4.75	4.59	4.47	4.25	4.13	3.91	3.78	3.61	3.49	3.11	2.89	2.54	2.3	1.92
290	5	4.8	4.63	4.52	4.3	4.18	3.96	3.82	3.62	3.5	3.11	2.89	2.55	2.3	1.93
291	6.11	5.69	5.5	5.37	5.09	4.94	4.67	4.51	4.31	4.17	3.72	3.45	3.05	2.74	2.3
292	6.11	5.72	5.52	5.38	5.1	4.94	4.67	4.5	4.3	4.15	3.72	3.44	3.05	2.74	2.29
293	6.12	5.77	5.58	5.44	5.16	5.01	4.73	4.57	4.36	4.22	3.78	3.49	3.08	2.78	2.32
294	6.19	5.87	5.67	5.53	5.24	5.09	4.83	4.66	4.44	4.3	3.83	3.55	3.14	2.82	2.36
295	6.18	5.95	5.75	5.61	5.31	5.16	4.9	4.73	4.49	4.35	3.86	3.58	3.14	2.84	2.35
296	6.97	6.49	6.27	6.11	5.8	5.61	5.3	5.11	4.89	4.72	4.21	3.9	3.45	3.09	2.59
297	6.97	6.52	6.31	6.16	5.84	5.66	5.35	5.15	4.93	4.76	4.26	3.95	3.49	3.15	2.63
298	6.97	6.56	6.34	6.19	5.87	5.7	5.38	5.2	4.96	4.79	4.29	3.96	3.51	3.16	2.64
299	7.07	6.68	6.46	6.29	5.96	5.79	5.48	5.3	5.04	4.87	4.34	4.02	3.53	3.18	2.65
300	7.11	6.75	6.52	6.35	6.02	5.85	5.53	5.36	5.08	4.92	4.36	4.05	3.55	3.21	2.67

Table A25a. Static and dynamic test data for seal 5 of Table 3 for high inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
301	3000	298	294	3.05	1.01	38.7	78.1	.0963	.0458	.068	.0239	.158	-.0229
302	6000	295	283	3.07	1.01	38.7	77.6	.0925	.0463	.063	.0273	.158	-.0186
303	9500	295	286	3.02	1.01	38.7	74	.0901	.0437	.0659	.0303	.152	-.0231
304	13000	294	298	3.03	1.01	38.7	69.3	.0904	.0413	.0698	.0321	.143	-.0203
305	16000	294	305	3.03	1.01	38.7	65.1	.0911	.0389	.0639	.0355	.156	-.0179
306	3000	298	294	4.43	1	38.7	80.4	.0945	.0686	.0494	.0222	.148	-.015
307	6000	296	284	4.42	1	38.7	79.3	.0914	.068	.0459	.0277	.162	-.019
308	9500	295	286	4.37	1	38.7	76.1	.0894	.0647	.0499	.0293	.148	-.021
309	13000	294	290	4.42	1	38.7	72.1	.0897	.0625	.0526	.0317	.139	-.0198
310	16000	295	300	4.43	1	38.7	66.8	.09	.0582	.0513	.0348	.14	-.0195
311	3000	297	294	5.76	.994	38.7	80.5	.0931	.0893	.0424	.021	.141	-.0164
312	6000	296	285	5.82	.995	38.7	80.7	.0913	.0909	.0411	.0251	.143	-.0163
313	9500	295	283	5.79	.997	38.7	76.9	.0887	.0867	.0428	.0267	.144	-.0226
314	13000	295	288	5.83	.993	38.7	72.6	.0886	.0829	.0444	.0301	.143	-.0199
315	16000	295	293	5.78	.999	38.7	67.8	.0891	.0769	.0458	.0323	.142	-.0177
316	3000	297	293	7.14	.986	38.7	81.9	.0927	.113	.0374	.0199	.145	-.0116
317	6000	296	289	7.16	.986	38.7	80.8	.0897	.112	.0371	.0239	.148	-.0223
318	9500	295	283	7.1	.986	38.7	77.7	.0872	.107	.0386	.0271	.141	-.0242
319	13000	294	286	7.16	.988	38.7	73.6	.0881	.103	.043	.0291	.14	-.0205
320	16000	295	293	7.16	.99	38.7	68.8	.0885	.0966	.0461	.0299	.138	-.0212
321	3000	297	293	8.16	.98	38.7	81.4	.0917	.128	.0367	.0188	.143	-.0124
322	6000	296	290	8.16	.984	38.7	80.8	.0905	.127	.0381	.0228	.138	-.0137
323	9500	295	282	8.23	.986	38.7	77.7	.0865	.125	.0376	.026	.139	-.0233
324	13000	294	284	8.2	.984	38.7	74.4	.0873	.119	.0424	.0271	.136	-.025
325	16000	295	290	8.16	.988	38.7	68.6	.0878	.11	.0462	.0287	.133	-.0211

Case	Fi, i=1 to 15 ---------->														
301	2.64	2.51	2.43	2.37	2.27	2.21	2.1	2.04	1.95	1.9	1.72	1.63	1.49	1.37	1.24
302	2.66	2.53	2.45	2.4	2.29	2.23	2.12	2.05	1.96	1.91	1.73	1.63	1.49	1.38	1.24
303	2.64	2.52	2.44	2.39	2.28	2.23	2.11	2.05	1.96	1.91	1.73	1.63	1.49	1.38	1.24
304	2.66	2.54	2.47	2.42	2.3	2.25	2.13	2.07	1.97	1.92	1.75	1.65	1.5	1.39	1.24
305	2.67	2.56	2.48	2.43	2.31	2.26	2.15	2.07	1.98	1.93	1.75	1.65	1.5	1.39	1.24
306	3.81	3.59	3.48	3.39	3.22	3.14	2.96	2.86	2.72	2.65	2.36	2.21	1.98	1.78	1.54
307	3.8	3.6	3.49	3.41	3.24	3.15	2.97	2.87	2.74	2.65	2.37	2.2	1.97	1.78	1.53
308	3.77	3.59	3.48	3.4	3.23	3.15	2.97	2.88	2.74	2.66	2.39	2.21	1.98	1.79	1.54
309	3.85	3.66	3.55	3.47	3.3	3.22	3.03	2.94	2.79	2.72	2.42	2.26	2.02	1.82	1.56
310	3.88	3.7	3.58	3.51	3.32	3.24	3.06	2.95	2.79	2.72	2.42	2.26	2.01	1.81	1.55
311	4.95	4.64	4.5	4.39	4.16	4.06	3.82	3.69	3.52	3.43	3.04	2.83	2.52	2.25	1.92
312	5	4.7	4.56	4.45	4.22	4.11	3.87	3.74	3.56	3.46	3.08	2.85	2.55	2.28	1.93
313	4.99	4.72	4.58	4.48	4.24	4.14	3.9	3.77	3.58	3.5	3.11	2.89	2.57	2.3	1.95
314	5.07	4.81	4.65	4.55	4.31	4.2	3.96	3.83	3.63	3.54	3.14	2.92	2.59	2.32	1.97
315	5.07	4.81	4.65	4.56	4.31	4.21	3.96	3.83	3.62	3.54	3.13	2.92	2.58	2.31	1.95
316	6.11	5.72	5.54	5.4	5.12	4.99	4.69	4.54	4.31	4.2	3.72	3.46	3.08	2.75	2.33
317	6.13	5.77	5.58	5.44	5.16	5.02	4.73	4.56	4.34	4.23	3.76	3.48	3.11	2.77	2.34
318	6.11	5.76	5.58	5.46	5.16	5.04	4.74	4.58	4.35	4.24	3.76	3.49	3.1	2.77	2.35
319	6.2	5.86	5.67	5.54	5.24	5.11	4.81	4.65	4.4	4.3	3.8	3.53	3.13	2.8	2.36
320	6.25	5.92	5.73	5.6	5.3	5.17	4.87	4.7	4.44	4.35	3.84	3.58	3.15	2.83	2.38
321	6.98	6.54	6.33	6.16	5.85	5.69	5.35	5.16	4.91	4.79	4.24	3.95	3.5	3.12	2.65
322	6.97	6.56	6.34	6.19	5.86	5.71	5.37	5.18	4.93	4.81	4.26	3.94	3.52	3.14	2.66
323	7.09	6.68	6.47	6.32	5.98	5.83	5.49	5.31	5.04	4.92	4.35	4.05	3.59	3.21	2.72
324	7.08	6.7	6.48	6.34	5.99	5.84	5.5	5.32	5.03	4.92	4.35	4.03	3.58	3.2	2.7
325	7.12	6.73	6.51	6.37	6.02	5.87	5.52	5.33	5.03	4.92	4.34	4.05	3.57	3.19	2.68

Table A25b. Static and dynamic test data for seal 5 of Table 3 for high inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
326	3000	294	290	3.08	1.01	56.8	76.6	.0923	.0461	.066	.0207	.157	-.0216
327	6000	291	282	3.03	1.01	56.8	76.4	.0903	.0457	.0597	.0264	.165	-.0192
328	9500	291	284	3.07	1.01	56.8	73.6	.0927	.0447	.0623	.0291	.158	-.0256
329	13000	290	296	3.03	1.01	56.8	68.7	.0977	.0415	.0649	.0342	.154	-.0178
330	16000	290	304	3.1	1.01	56.8	64.7	.0943	.04	.0591	.0387	.162	-.0119
331	3000	295	291	4.45	1	56.8	78.4	.0894	.0679	.0467	.0239	.151	-.0097
332	6000	291	279	4.44	1	56.8	78.2	.0888	.0684	.0493	.0248	.146	-.0164
333	9500	291	285	4.45	1	56.8	75.1	.0899	.066	.0454	.029	.146	-.0157
334	13000	290	289	4.38	1	56.8	71.2	.0953	.0621	.0486	.033	.147	-.0201
335	16000	291	296	4.45	1	56.8	66.4	.0905	.0589	.0473	.0364	.152	-.0149
336	3000	295	291	5.75	.992	56.8	79.1	.0872	.0884	.0399	.024	.158	-.0165
337	6000	291	283	5.79	.992	56.8	79.4	.0871	.0904	.0414	.024	.146	-.0174
338	9500	291	281	5.76	.995	56.8	76.1	.0855	.0866	.0431	.0279	.147	-.0224
339	13000	290	285	5.75	.994	56.8	72.2	.0938	.0826	.045	.0318	.146	-.0228
340	16000	291	292	5.77	1	56.8	67.3	.0894	.0773	.0431	.0343	.144	-.0195
341	3000	294	290	7.13	.983	56.8	81.1	.0879	.112	.037	.0177	.141	-.00884
342	6000	291	285	7.17	.985	56.8	79.4	.0867	.112	.0331	.023	.153	-.0179
343	9500	291	280	7.1	.986	56.8	77.2	.0913	.108	.0411	.0258	.14	-.0229
344	13000	290	284	7.15	.988	56.8	72.5	.0915	.103	.0401	.0297	.146	-.0222
345	16000	291	290	7.22	.989	56.8	67.4	.0876	.0969	.0403	.0322	.145	-.0195
346	3000	293	288	8.2	.976	56.8	80.9	.0859	.129	.0399	.017	.136	-.0201
347	6000	292	286	8.19	.978	56.8	79.9	.0855	.128	.0333	.0214	.148	-.0206
348	9500	290	279	8.25	.984	56.8	77.2	.0899	.126	.0386	.0245	.135	-.0223
349	13000	290	282	8.16	.985	56.8	73.2	.091	.119	.0406	.0283	.143	-.0224
350	16000	291	289	8.17	.986	56.8	68.5	.086	.111	.0444	.0301	.138	-.0213

Case	Pi, i=1 to 15 ---------->														
326	2.68	2.54	2.47	2.4	2.3	2.24	2.12	2.06	1.98	1.92	1.74	1.64	1.49	1.38	1.24
327	2.63	2.5	2.42	2.36	2.26	2.2	2.08	2.02	1.93	1.88	1.71	1.61	1.46	1.36	1.23
328	2.68	2.55	2.48	2.42	2.31	2.25	2.13	2.07	1.98	1.93	1.74	1.65	1.5	1.39	1.24
329	2.66	2.54	2.47	2.41	2.31	2.25	2.13	2.07	1.98	1.92	1.75	1.65	1.5	1.39	1.24
330	2.73	2.61	2.54	2.48	2.36	2.3	2.18	2.11	2.01	1.96	1.77	1.67	1.51	1.4	1.25
331	3.84	3.62	3.51	3.42	3.26	3.17	2.99	2.9	2.76	2.68	2.39	2.24	1.99	1.8	1.54
332	3.83	3.62	3.51	3.42	3.26	3.17	2.99	2.9	2.76	2.68	2.39	2.23	1.98	1.8	1.54
333	3.85	3.65	3.55	3.46	3.28	3.2	3.02	2.93	2.78	2.7	2.41	2.25	2	1.82	1.55
334	3.82	3.63	3.52	3.44	3.27	3.18	3	2.91	2.76	2.68	2.39	2.24	1.98	1.8	1.53
335	3.9	3.71	3.6	3.51	3.34	3.25	3.07	2.96	2.81	2.72	2.42	2.27	2.01	1.82	1.55
336	4.93	4.64	4.5	4.38	4.17	4.05	3.82	3.7	3.53	3.41	3.04	2.83	2.51	2.26	1.9
337	4.97	4.69	4.55	4.42	4.21	4.09	3.85	3.73	3.55	3.44	3.06	2.85	2.52	2.28	1.91
338	4.97	4.7	4.56	4.44	4.22	4.1	3.87	3.75	3.56	3.46	3.08	2.86	2.53	2.29	1.92
339	4.99	4.73	4.58	4.46	4.24	4.13	3.88	3.76	3.57	3.46	3.07	2.86	2.52	2.28	1.9
340	5.04	4.79	4.63	4.52	4.29	4.17	3.93	3.8	3.6	3.49	3.09	2.89	2.54	2.29	1.91
341	6.09	5.72	5.54	5.39	5.12	4.97	4.68	4.52	4.31	4.18	3.71	3.45	3.05	2.74	2.29
342	6.15	5.78	5.6	5.45	5.18	5.03	4.73	4.58	4.36	4.23	3.76	3.49	3.09	2.79	2.33
343	6.09	5.76	5.58	5.43	5.16	5	4.71	4.57	4.33	4.21	3.74	3.47	3.07	2.77	2.31
344	6.2	5.86	5.68	5.54	5.25	5.1	4.81	4.65	4.41	4.28	3.81	3.54	3.12	2.81	2.34
345	6.3	5.97	5.77	5.62	5.33	5.19	4.88	4.72	4.46	4.32	3.83	3.56	3.13	2.81	2.34
346	7.01	6.57	6.36	6.19	5.88	5.71	5.37	5.2	4.97	4.8	4.27	3.96	3.5	3.15	2.63
347	7.02	6.59	6.38	6.21	5.89	5.72	5.38	5.21	4.96	4.81	4.27	3.97	3.51	3.16	2.64
348	7.1	6.68	6.48	6.31	5.98	5.83	5.48	5.3	5.04	4.89	4.34	4.04	3.57	3.21	2.68
349	7.06	6.68	6.46	6.29	5.97	5.8	5.46	5.28	5.01	4.87	4.31	4.01	3.53	3.19	2.65
350	7.11	6.74	6.51	6.35	6.02	5.85	5.51	5.33	5.04	4.9	4.33	4.03	3.55	3.19	2.65

Table A25c. Static and dynamic test data for seal 5 of Table 3 for high inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
351	3000	292	285	3.08	1.01	74.6	77.8	.0904	.0471	.07	.0197	.155	-.0155
352	6000	291	282	2.99	1.01	74.6	76.6	.0929	.0452	.0645	.0223	.148	-.0182
353	9500	291	283	3.11	1.01	74.6	73.9	.0962	.0454	.0665	.0268	.142	-.0175
354	13000	291	296	3.07	1.01	74.6	69.4	.0914	.0423	.0665	.0321	.153	-.0149
355	16000	291	301	3.03	1.01	74.6	64.2	.0927	.0388	.0615	.0349	.153	-.0138
356	3000	292	285	4.39	1	74.6	79	.0915	.068	.0528	.0191	.146	-.00944
357	6000	291	281	4.46	1	74.6	78.5	.0937	.069	.0517	.0246	.146	-.0144
358	9500	291	285	4.41	1	74.6	75.5	.0941	.0656	.0478	.0252	.144	-.0159
359	13000	291	287	4.47	1	74.6	71.5	.0937	.0635	.0515	.0299	.15	-.0169
360	16000	291	295	4.4	1	74.6	66.7	.0887	.0585	.0509	.0326	.149	-.0166
361	3000	292	286	5.82	.994	74.6	79.8	.0909	.091	.045	.0194	.145	-.0148
362	6000	291	283	5.79	.996	74.6	79.8	.0982	.091	.0486	.0202	.135	-.0191
363	9500	292	281	5.83	.995	74.6	76	.0902	.0873	.0481	.0251	.138	-.0161
364	13000	291	285	5.84	.995	74.6	72.4	.0943	.0838	.0461	.0274	.146	-.018
365	16000	291	292	5.85	.995	74.6	67.4	.0956	.0785	.0508	.0302	.139	-.0205
366	3000	292	286	7.17	.986	74.6	80.5	.0892	.113	.0428	.0148	.143	-.011
367	6000	291	286	7.13	.986	74.6	79.8	.0956	.112	.0437	.0203	.141	-.0193
368	9500	291	281	7.15	.989	74.6	76.8	.0875	.108	.0421	.0225	.143	-.0173
369	13000	291	283	7.14	.99	74.6	73.3	.0982	.104	.0461	.0247	.137	-.0187
370	16000	291	288	7.09	.989	74.6	67.8	.0961	.0956	.0506	.0273	.13	-.021
371	3000	292	286	8.2	.984	74.6	80.7	.0925	.13	.0424	.0139	.14	-.00899
372	6000	292	286	8.16	.983	74.6	80.3	.0957	.129	.0397	.0191	.14	-.0133
373	9500	292	280	8.17	.985	74.6	77.2	.0854	.124	.044	.0219	.137	-.0178
374	13000	291	282	8.24	.985	74.6	73.4	.0939	.12	.0449	.0244	.141	-.0202
375	16000	291	287	8.23	.986	74.6	68.4	.0933	.112	.0485	.025	.134	-.0194

Case	Pi, i=1 to 15 ----------)														
351	2.67	2.53	2.46	2.4	2.29	2.23	2.11	2.06	1.97	1.92	1.74	1.64	1.49	1.38	1.24
352	2.6	2.47	2.4	2.34	2.24	2.18	2.06	2	1.92	1.87	1.7	1.6	1.46	1.36	1.22
353	2.7	2.58	2.51	2.45	2.34	2.29	2.16	2.1	2	1.95	1.77	1.67	1.51	1.4	1.25
354	2.69	2.57	2.5	2.44	2.33	2.27	2.15	2.09	1.99	1.94	1.76	1.66	1.5	1.39	1.24
355	2.68	2.57	2.5	2.44	2.33	2.26	2.15	2.08	1.99	1.93	1.75	1.65	1.5	1.39	1.24
356	3.77	3.57	3.46	3.37	3.21	3.12	2.94	2.85	2.72	2.64	2.36	2.21	1.97	1.78	1.52
357	3.83	3.63	3.53	3.44	3.27	3.18	3	2.9	2.76	2.69	2.39	2.23	1.99	1.8	1.54
358	3.81	3.62	3.51	3.43	3.26	3.17	2.99	2.9	2.75	2.67	2.39	2.23	1.99	1.81	1.54
359	3.89	3.7	3.59	3.51	3.34	3.25	3.07	2.97	2.82	2.73	2.44	2.29	2.02	1.83	1.55
360	3.85	3.67	3.55	3.47	3.3	3.21	3.02	2.91	2.77	2.68	2.39	2.24	1.98	1.79	1.52
361	4.98	4.69	4.55	4.43	4.22	4.1	3.86	3.74	3.56	3.44	3.07	2.86	2.54	2.28	1.91
362	4.95	4.67	4.53	4.42	4.2	4.09	3.85	3.72	3.53	3.43	3.05	2.84	2.52	2.28	1.91
363	5.02	4.76	4.61	4.5	4.28	4.16	3.92	3.79	3.6	3.49	3.11	2.9	2.57	2.31	1.94
364	5.06	4.8	4.65	4.54	4.31	4.19	3.95	3.82	3.62	3.51	3.12	2.91	2.57	2.32	1.93
365	5.11	4.86	4.71	4.6	4.37	4.25	4	3.86	3.65	3.54	3.14	2.93	2.59	2.33	1.94
366	6.12	5.76	5.58	5.42	5.16	5.02	4.72	4.56	4.34	4.2	3.75	3.48	3.08	2.76	2.32
367	6.09	5.74	5.56	5.42	5.15	5	4.71	4.55	4.32	4.19	3.73	3.46	3.07	2.77	2.32
368	6.15	5.81	5.63	5.49	5.22	5.07	4.78	4.63	4.38	4.25	3.78	3.52	3.12	2.81	2.34
369	6.17	5.85	5.66	5.52	5.25	5.1	4.81	4.65	4.4	4.27	3.8	3.54	3.12	2.82	2.35
370	6.17	5.86	5.67	5.54	5.25	5.11	4.81	4.65	4.39	4.25	3.77	3.52	3.1	2.79	2.32
371	6.98	6.57	6.36	6.19	5.89	5.73	5.38	5.2	4.96	4.8	4.27	3.96	3.51	3.16	2.64
372	6.95	6.56	6.36	6.19	5.88	5.71	5.38	5.19	4.94	4.79	4.26	3.95	3.51	3.16	2.64
373	7.01	6.62	6.42	6.25	5.94	5.76	5.43	5.25	4.98	4.83	4.3	3.99	3.53	3.19	2.66
374	7.12	6.74	6.53	6.37	6.04	5.87	5.54	5.35	5.06	4.91	4.36	4.06	3.59	3.24	2.69
375	7.16	6.8	6.58	6.42	6.08	5.91	5.58	5.38	5.09	4.94	4.38	4.07	3.6	3.24	2.68

Table A26a. Static and dynamic test data for seal 6 of Table 3 for no inlet circumferential velocity and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
1	3000	295	282	3.02	1.01	38.7	0	.0903	.0536	.0826	.00102	.116	.00473
2	6000	295	285	3.06	1.01	38.7	0	.092	.0535	.0872	.00524	.11	-6.45E-5
3	9500	295	285	3.05	1.01	38.7	0	.0927	.0503	.09	.0111	.114	.000746
4	13000	295	293	3.04	1.01	38.7	0	.0981	.0481	.0838	.0209	.108	-.0103
5	16000	295	300	3.09	1	38.7	0	.0993	.0459	.078	.032	.122	-.0146
6	3000	296	289	4.42	1	38.7	0	.0895	.0802	.0686	-.000463	.114	.00337
7	6000	295	287	4.42	.999	38.7	0	.0892	.0792	.074	.0035	.107	.00563
8	9500	295	288	4.41	1	38.7	0	.0897	.0758	.0819	.00952	.107	-.00208
9	13000	295	289	4.37	1	38.7	0	.0953	.0709	.0862	.018	.105	-.00801
10	16000	295	294	4.42	1	38.7	0	.096	.0666	.0776	.0281	.111	-.0158
11	3000	295	292	5.74	.988	38.7	0	.0874	.106	.0592	-.00236	.114	.00735
12	6000	295	287	5.75	.99	38.7	0	.0884	.106	.064	.00178	.116	.00655
13	9500	295	285	5.77	.991	38.7	0	.0884	.101	.0723	.0071	.102	.00466
14	13000	295	287	5.77	.993	38.7	0	.0889	.0951	.0756	.0162	.112	-.00679
15	16000	296	290	5.79	.993	38.7	0	.0938	.089	.077	.0253	.105	-.0164
16	3000	295	292	7.08	.985	38.7	0	.0859	.134	.0555	-.00295	.12	.00797
17	6000	295	289	7.1	.985	38.7	0	.0839	.132	.0619	-.00032	.117	.00805
18	9500	295	288	7.11	.981	38.7	0	.0869	.126	.0689	.00565	.097	.00202
19	13000	295	289	7.12	.981	38.7	0	.0872	.119	.0726	.0132	.0991	-.00231
20	16000	296	288	7.18	.985	38.7	0	.0917	.112	.0789	.0237	.0972	-.0156
21	3000	295	292	8.09	.977	38.7	0	.0851	.154	.0532	-.00388	.103	.00776
22	6000	295	289	8.11	.975	38.7	0	.0831	.151	.0586	-.000791	.114	.00834
23	9500	295	290	8.12	.978	38.7	0	.0856	.145	.0666	.0046	.103	.00348
24	13000	295	285	8.1	.973	38.7	0	.0862	.136	.0697	.0131	.0979	-.00451
25	16000	296	289	8.17	.982	38.7	0	.0903	.129	.0764	.0224	.103	-.0093

Case	Pi, i=1 to 15 ---------->														
1	2.68	2.62	2.55	2.43	2.36	2.27	2.16	2.08	1.98	1.89	1.75	1.63	1.5	1.32	1.16
2	2.71	2.65	2.58	2.46	2.38	2.29	2.18	2.09	1.98	1.9	1.75	1.64	1.5	1.32	1.15
3	2.7	2.65	2.57	2.46	2.37	2.28	2.16	2.08	1.97	1.88	1.74	1.63	1.48	1.31	1.15
4	2.68	2.63	2.55	2.44	2.35	2.25	2.15	2.05	1.95	1.86	1.72	1.61	1.48	1.3	1.14
5	2.73	2.67	2.6	2.47	2.39	2.29	2.18	2.09	1.97	1.89	1.74	1.63	1.49	1.31	1.15
6	3.88	3.79	3.69	3.51	3.38	3.23	3.07	2.93	2.78	2.64	2.42	2.22	2	1.68	1.37
7	3.89	3.81	3.7	3.52	3.39	3.23	3.05	2.93	2.75	2.62	2.39	2.2	1.97	1.66	1.35
8	3.88	3.8	3.7	3.52	3.39	3.25	3.06	2.94	2.76	2.63	2.4	2.23	1.98	1.68	1.37
9	3.84	3.76	3.66	3.48	3.35	3.21	3.03	2.9	2.73	2.6	2.37	2.2	1.96	1.66	1.36
10	3.89	3.8	3.69	3.51	3.38	3.23	3.04	2.91	2.73	2.61	2.37	2.2	1.96	1.66	1.36
11	5.04	4.95	4.81	4.58	4.42	4.22	4	3.84	3.61	3.45	3.14	2.89	2.58	2.16	1.71
12	5.03	4.92	4.79	4.55	4.38	4.19	3.95	3.79	3.57	3.41	3.1	2.86	2.55	2.13	1.68
13	5.07	4.97	4.84	4.61	4.43	4.24	3.99	3.84	3.61	3.42	3.12	2.89	2.54	2.15	1.68
14	5.08	4.97	4.84	4.6	4.42	4.23	3.98	3.81	3.57	3.4	3.08	2.86	2.53	2.12	1.67
15	5.08	4.98	4.83	4.6	4.42	4.24	3.99	3.82	3.59	3.44	3.12	2.9	2.56	2.15	1.69
16	6.2	6.06	5.9	5.61	5.4	5.17	4.88	4.7	4.43	4.23	3.84	3.56	3.17	2.67	2.08
17	6.22	6.09	5.93	5.64	5.43	5.19	4.9	4.71	4.42	4.22	3.83	3.53	3.14	2.63	2.05
18	6.24	6.12	5.95	5.67	5.45	5.22	4.91	4.74	4.44	4.23	3.83	3.55	3.13	2.64	2.05
19	6.24	6.11	5.94	5.65	5.43	5.21	4.89	4.72	4.42	4.18	3.81	3.53	3.12	2.64	2.03
20	6.3	6.16	5.98	5.69	5.47	5.24	4.93	4.73	4.44	4.25	3.85	3.57	3.16	2.65	2.07
21	7.07	6.91	6.73	6.4	6.16	5.9	5.57	5.37	5.05	4.82	4.38	4.05	3.6	3.03	2.36
22	7.09	6.95	6.76	6.44	6.2	5.93	5.6	5.38	5.07	4.84	4.4	4.05	3.61	3.01	2.35
23	7.12	6.97	6.78	6.46	6.21	5.96	5.6	5.41	5.09	4.8	4.38	4.05	3.57	3.02	2.33
24	7.1	6.95	6.77	6.44	6.18	5.94	5.56	5.38	5.03	4.76	4.33	4.01	3.55	3	2.31
25	7.16	7	6.8	6.47	6.21	5.96	5.6	5.38	5.04	4.8	4.35	4.03	3.58	3.02	2.34

Table A26b. Static and dynamic test data for seal 6 of Table 3 for no inlet circumferential velocity and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
26	3000	296	283	3.02	1.01	56.8	0	.0928	.0536	.0792	.00338	.14	.00445
27	6000	296	289	3.01	1.01	56.8	0	.0935	.0526	.0918	.00508	.116	.00207
28	9500	296	286	3.03	1.01	56.8	0	.0977	.0497	.0916	.0109	.123	-.00168
29	13000	296	294	3.05	1.01	56.8	0	.0941	.0474	.0855	.0209	.124	-.0095
30	16000	296	299	3.06	1.01	56.8	0	.0956	.045	.0809	.0305	.13	-.0126
31	3000	296	290	4.41	1	56.8	0	.0902	.0809	.0672	.00225	.127	.00777
32	6000	296	287	4.31	1	56.8	0	.0905	.0783	.0796	.00381	.119	.00466
33	9500	296	285	4.45	1	56.8	0	.092	.0762	.0812	.00859	.113	-.00306
34	13000	296	289	4.37	1	56.8	0	.0915	.0696	.0865	.0186	.114	-.00539
35	16000	297	294	4.41	1	56.8	0	.0929	.067	.0801	.027	.115	-.0183
36	3000	296	293	5.74	.99	56.8	0	.0871	.107	.0583	-.000183	.124	.00976
37	6000	296	290	5.68	.991	56.8	0	.0882	.105	.0687	.0023	.119	.00509
38	9500	296	284	5.81	.991	56.8	0	.0896	.101	.0732	.00729	.105	-.00281
39	13000	297	287	5.8	.992	56.8	0	.092	.0947	.0772	.0157	.117	-.00734
40	16000	297	290	5.74	.992	56.8	0	.0913	.0878	.0806	.0249	.107	-.0168
41	3000	296	293	7.14	.983	56.8	0	.0863	.135	.0559	.000365	.118	.00733
42	6000	296	292	7.1	.981	56.8	0	.0868	.131	.0654	.000827	.101	.00503
43	9500	297	286	7.12	.981	56.8	0	.0865	.126	.0706	.00595	.11	-2.03E-5
44	13000	296	287	7.09	.983	56.8	0	.0892	.119	.0744	.0138	.109	-.00705
45	16000	297	289	7.16	.984	56.8	0	.0906	.112	.0779	.0231	.108	-.0176
46	3000	296	293	8.07	.979	56.8	0	.0849	.153	.0527	-.00196	.122	.0117
47	6000	296	289	8.06	.978	56.8	0	.0847	.149	.0625	.00137	.106	.00282
48	9500	297	289	8.12	.974	56.8	0	.0874	.144	.0677	.00513	.0977	-.00111
49	13000	297	286	8.12	.976	56.8	0	.0882	.137	.0721	.0131	.102	-.00516
50	16000	297	289	8.16	.978	56.8	0	.0895	.127	.078	.0223	.1	-.0159

Case	Pi, i=1 to 15 ---------->														
26	2.67	2.62	2.55	2.42	2.36	2.26	2.15	2.08	1.97	1.88	1.74	1.63	1.49	1.32	1.16
27	2.66	2.6	2.54	2.42	2.35	2.25	2.14	2.06	1.96	1.86	1.73	1.62	1.48	1.31	1.14
28	2.68	2.63	2.56	2.44	2.36	2.26	2.15	2.08	1.97	1.88	1.74	1.63	1.49	1.32	1.15
29	2.72	2.67	2.61	2.49	2.41	2.31	2.19	2.11	2.01	1.91	1.77	1.65	1.51	1.33	1.16
30	2.71	2.65	2.58	2.45	2.37	2.28	2.16	2.08	1.97	1.88	1.74	1.63	1.49	1.31	1.15
31	3.88	3.81	3.71	3.53	3.42	3.26	3.1	2.99	2.82	2.67	2.46	2.26	2.02	1.72	1.39
32	3.79	3.71	3.62	3.43	3.32	3.17	2.99	2.88	2.7	2.56	2.34	2.16	1.93	1.64	1.34
33	3.93	3.85	3.75	3.56	3.44	3.29	3.1	2.98	2.81	2.65	2.43	2.25	2	1.7	1.38
34	3.85	3.77	3.67	3.49	3.37	3.22	3.04	2.92	2.75	2.6	2.38	2.2	1.97	1.67	1.35
35	3.87	3.78	3.69	3.5	3.37	3.22	3.04	2.91	2.73	2.59	2.37	2.19	1.96	1.67	1.36
36	5.04	4.93	4.81	4.56	4.4	4.2	3.98	3.83	3.61	3.41	3.13	2.88	2.57	2.16	1.69
37	4.97	4.86	4.74	4.49	4.34	4.14	3.91	3.77	3.55	3.36	3.07	2.82	2.51	2.11	1.66
38	5.11	5	4.87	4.62	4.46	4.26	4.01	3.86	3.63	3.43	3.14	2.88	2.56	2.15	1.69
39	5.1	4.99	4.87	4.62	4.46	4.26	4.01	3.85	3.61	3.42	3.12	2.87	2.55	2.15	1.68
40	5.05	4.94	4.81	4.56	4.39	4.18	3.94	3.78	3.55	3.36	3.08	2.84	2.52	2.12	1.66
41	6.24	6.1	5.94	5.62	5.43	5.18	4.9	4.71	4.45	4.21	3.86	3.55	3.17	2.65	2.07
42	6.22	6.09	5.94	5.63	5.44	5.19	4.91	4.72	4.46	4.22	3.85	3.54	3.15	2.64	2.06
43	6.25	6.12	5.97	5.66	5.47	5.22	4.93	4.75	4.46	4.23	3.86	3.54	3.16	2.65	2.06
44	6.22	6.09	5.94	5.63	5.42	5.18	4.87	4.67	4.39	4.14	3.79	3.48	3.1	2.6	2.02
45	6.27	6.12	5.96	5.65	5.45	5.2	4.9	4.7	4.41	4.17	3.81	3.51	3.13	2.63	2.04
46	7.06	6.91	6.72	6.39	6.16	5.88	5.57	5.36	5.07	4.8	4.39	4.04	3.61	3.04	2.36
47	7.06	6.91	6.73	6.39	6.17	5.89	5.57	5.36	5.06	4.79	4.37	4.01	3.58	3	2.33
48	7.11	6.96	6.79	6.44	6.21	5.93	5.59	5.38	5.06	4.8	4.38	4.02	3.58	3	2.33
49	7.12	6.97	6.79	6.44	6.21	5.93	5.59	5.36	5.04	4.77	4.35	4.01	3.57	2.99	2.32
50	7.14	6.98	6.79	6.44	6.2	5.93	5.58	5.34	5.01	4.74	4.33	3.98	3.54	2.98	2.31

Table A26c. Static and dynamic test data for seal 6 of Table 3 for no inlet circumferential velocity and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
51	3000	297	284	3.02	1.01	74.6	0	.0958	.0534	.0872	.00256	.11	.0072
52	6000	297	285	3.07	1.01	74.6	0	.0982	.0532	.0883	.00596	.126	.00377
53	9500	297	287	2.98	1.01	74.6	0	.0966	.049	.0991	.0106	.114	.00316
54	13000	297	294	2.99	1.01	74.6	0	.0984	.0466	.0924	.0193	.13	-.00488
55	16000	297	299	3.07	1.01	74.6	0	.094	.0452	.0837	.0286	.118	-.015
56	3000	297	287	4.41	1	74.6	0	.095	.0817	.0735	.00104	.126	.00302
57	6000	297	289	4.36	1	74.6	0	.0977	.078	.0843	.00494	.109	.00487
58	9500	298	291	4.35	1.01	74.6	0	.0945	.0745	.09	.00877	.099	-3.68E-5
59	13000	297	290	4.42	1	74.6	0	.0945	.0713	.0908	.0156	.107	-.00498
60	16000	298	294	4.42	1	74.6	0	.0884	.0673	.0805	.0243	.109	-.0141
61	3000	297	292	5.77	.99	74.6	0	.0907	.107	.066	.000479	.115	.0041
62	6000	297	289	5.7	.992	74.6	0	.0923	.105	.0773	.00083	.0993	.00087
63	9500	298	288	5.76	.99	74.6	0	.0912	.1	.0821	.00726	.0988	.00113
64	13000	297	288	5.74	.992	74.6	0	.0934	.0938	.0803	.0136	.108	-.00616
65	16000	297	289	5.82	.992	74.6	0	.0835	.0892	.088	.0228	.102	-.0159
66	3000	297	293	7.16	.98	74.6	0	.0894	.135	.0636	-.00213	.113	.00338
67	6000	297	291	7.14	.981	74.6	0	.0906	.132	.0722	.00166	.1	.000934
68	9500	298	288	7.14	.98	74.6	0	.0892	.126	.0769	.00484	.0994	.000979
69	13000	297	291	7.13	.981	74.6	0	.0905	.119	.081	.0117	.0964	-.00624
70	16000	297	289	7.11	.986	74.6	0	.0811	.11	.0841	.0207	.099	-.015
71	3000	297	293	8.16	.975	74.6	0	.0902	.155	.0626	-.00245	.111	.00402
72	6000	298	291	8.09	.976	74.6	0	.0891	.15	.067	-.00119	.102	.00368
73	9500	298	288	8.16	.976	74.6	0	.0865	.145	.0756	.00433	.0962	.00128
74	13000	298	287	8.15	.976	74.6	0	.0863	.137	.0787	.0105	.0992	-.00514
75	16000	298	290	8.18	.978	74.6	0	.08	.128	.0795	.019	.102	-.0147

Case	Pi, i=1 to 15 ---------->														
51	2.67	2.62	2.56	2.43	2.37	2.27	2.17	2.09	1.98	1.89	1.75	1.64	1.5	1.33	1.16
52	2.7	2.65	2.58	2.46	2.38	2.28	2.17	2.09	1.98	1.88	1.75	1.64	1.49	1.32	1.15
53	2.63	2.58	2.52	2.4	2.32	2.22	2.12	2.04	1.93	1.84	1.71	1.61	1.47	1.3	1.14
54	2.64	2.58	2.52	2.4	2.32	2.22	2.12	2.03	1.93	1.84	1.71	1.6	1.46	1.3	1.14
55	2.71	2.65	2.58	2.45	2.37	2.27	2.16	2.06	1.96	1.86	1.73	1.62	1.48	1.31	1.14
56	3.87	3.78	3.69	3.5	3.38	3.23	3.06	2.94	2.77	2.62	2.4	2.22	1.98	1.69	1.37
57	3.83	3.75	3.65	3.47	3.35	3.2	3.03	2.91	2.74	2.59	2.37	2.19	1.96	1.66	1.35
58	3.82	3.75	3.65	3.47	3.35	3.2	3.03	2.91	2.74	2.6	2.38	2.2	1.97	1.67	1.36
59	3.89	3.81	3.71	3.53	3.4	3.25	3.07	2.94	2.76	2.61	2.4	2.22	1.98	1.68	1.36
60	3.88	3.8	3.7	3.5	3.38	3.22	3.04	2.9	2.73	2.59	2.37	2.2	1.96	1.66	1.35
61	5.06	4.95	4.82	4.58	4.43	4.22	4	3.86	3.64	3.44	3.14	2.89	2.58	2.17	1.7
62	4.99	4.89	4.76	4.53	4.37	4.18	3.95	3.81	3.58	3.38	3.09	2.84	2.53	2.13	1.67
63	5.06	4.95	4.82	4.58	4.43	4.23	4	3.84	3.6	3.41	3.12	2.86	2.54	2.14	1.68
64	5.04	4.93	4.81	4.56	4.41	4.21	3.97	3.81	3.58	3.38	3.1	2.85	2.54	2.14	1.68
65	5.1	4.99	4.86	4.61	4.45	4.25	4.01	3.83	3.59	3.4	3.11	2.87	2.56	2.15	1.69
66	6.27	6.14	5.98	5.68	5.48	5.24	4.97	4.79	4.52	4.27	3.91	3.59	3.2	2.69	2.09
67	6.24	6.11	5.95	5.65	5.45	5.21	4.93	4.75	4.48	4.23	3.86	3.54	3.16	2.64	2.05
68	6.26	6.13	5.98	5.68	5.48	5.24	4.94	4.75	4.46	4.22	3.86	3.53	3.15	2.65	2.06
69	6.24	6.11	5.96	5.65	5.45	5.21	4.91	4.72	4.43	4.18	3.82	3.51	3.13	2.63	2.05
70	6.22	6.08	5.92	5.62	5.41	5.16	4.86	4.66	4.37	4.13	3.78	3.47	3.09	2.59	2.02
71	7.13	6.97	6.79	6.44	6.23	5.95	5.63	5.42	5.13	4.86	4.44	4.07	3.64	3.05	2.38
72	7.08	6.94	6.76	6.41	6.19	5.9	5.59	5.38	5.09	4.81	4.4	4.04	3.6	3.02	2.34
73	7.15	7.01	6.82	6.49	6.26	5.97	5.65	5.43	5.1	4.82	4.4	4.05	3.61	3.02	2.35
74	7.14	6.99	6.81	6.46	6.23	5.95	5.61	5.38	5.06	4.78	4.36	4.01	3.57	3	2.33
75	7.16	7	6.82	6.47	6.23	5.96	5.62	5.38	5.06	4.78	4.36	4.02	3.6	3	2.33

Table A27a. Static and dynamic test data for seal 6 of Table 3 for low inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
76	3000	296	283	3.03	1.01	38.7	-32.7	.088	.0526	.076	-.0274	.156	.0326
77	6000	298	286	3.05	1.01	38.7	-32.3	.0965	.0522	.0818	-.0119	.138	.016
78	9500	298	287	3.08	1.01	38.7	-30.5	.099	.0496	.102	.00186	.0959	.00569
79	13000	299	295	3.04	1.01	38.7	-28.9	.0938	.0465	.108	.0129	.0993	.00364
80	16000	299	301	3.04	1.01	38.7	-27.3	.0951	.0439	.0969	.0224	.12	-.00365
81	3000	297	290	4.38	1.01	38.7	-33.5	.0852	.0779	.0644	-.0266	.144	.0366
82	6000	298	287	4.4	1.01	38.7	-33.3	.0944	.0775	.0683	-.0122	.128	.0202
83	9500	298	287	4.4	1.01	38.7	-31.8	.0961	.0738	.0898	-.000673	.102	9.55E-5
84	13000	299	289	4.39	1.01	38.7	-29.8	.092	.0691	.097	.00988	.0846	.00384
85	16000	300	296	4.4	1.01	38.7	-28.1	.0915	.0652	.0894	.0176	.11	.00176
86	3000	298	295	5.76	.991	38.7	-34.3	.0926	.104	.0562	-.0282	.148	.0335
87	6000	298	289	5.75	.994	38.7	-33.6	.0937	.102	.0581	-.0148	.134	.0214
88	9500	299	286	5.71	.999	38.7	-32.4	.0945	.0977	.0801	-.00273	.101	.00731
89	13000	299	289	5.82	.998	38.7	-30.5	.0907	.0936	.0847	.00818	.0949	.00371
90	16000	300	292	5.84	.997	38.7	-28.5	.0892	.0877	.0887	.0157	.113	.00207
91	3000	298	295	7.07	.985	38.7	-34.9	.092	.13	.0545	-.0284	.133	.0383
92	6000	299	290	7.12	.983	38.7	-34.6	.0939	.13	.0531	-.0164	.13	.0263
93	9500	299	286	7.1	.987	38.7	-32.8	.093	.123	.0722	-.00371	.0995	.00301
94	13000	299	287	7.12	.989	38.7	-31	.0884	.116	.084	.00601	.0792	.00717
95	16000	300	290	7.18	.99	38.7	-28.9	.0859	.109	.0883	.0135	.0923	.00316
96	3000	299	295	8.07	.978	38.7	-35.3	.0923	.15	.0505	-.029	.133	.0373
97	6000	299	293	8.07	.981	38.7	-34.6	.0924	.147	.0533	-.017	.126	.0276
98	9500	299	292	8.11	.981	38.7	-33.1	.092	.141	.0699	-.00478	.0981	.00718
99	13000	299	286	8.14	.981	38.7	-31.3	.0877	.134	.081	.00416	.0747	.00652
100	16000	300	293	8.18	.986	38.7	-29.3	.0843	.126	.0876	.0121	.089	.00472

Case	Pi, i=1 to 15 ----------)														
76	2.64	2.59	2.52	2.41	2.34	2.24	2.14	2.07	1.97	1.88	1.74	1.63	1.49	1.32	1.15
77	2.66	2.61	2.54	2.42	2.35	2.26	2.16	2.08	1.98	1.88	1.75	1.63	1.5	1.31	1.16
78	2.7	2.64	2.57	2.46	2.38	2.29	2.18	2.09	1.99	1.9	1.76	1.64	1.51	1.32	1.16
79	2.67	2.61	2.54	2.42	2.34	2.25	2.14	2.06	1.95	1.87	1.73	1.62	1.48	1.3	1.15
80	2.67	2.6	2.54	2.42	2.34	2.24	2.14	2.05	1.95	1.85	1.72	1.6	1.48	1.3	1.15
81	3.79	3.73	3.62	3.45	3.34	3.18	3.02	2.91	2.75	2.6	2.39	2.2	1.97	1.67	1.36
82	3.81	3.73	3.63	3.45	3.34	3.19	3.03	2.9	2.74	2.61	2.39	2.19	1.97	1.65	1.36
83	3.83	3.74	3.65	3.47	3.35	3.21	3.03	2.91	2.74	2.62	2.39	2.21	1.98	1.66	1.36
84	3.83	3.74	3.63	3.46	3.34	3.19	3.01	2.89	2.72	2.6	2.37	2.19	1.97	1.65	1.36
85	3.84	3.74	3.63	3.46	3.33	3.18	3	2.86	2.7	2.57	2.34	2.16	1.94	1.63	1.34
86	4.98	4.86	4.74	4.51	4.36	4.16	3.94	3.78	3.58	3.39	3.12	2.86	2.56	2.12	1.7
87	4.96	4.87	4.73	4.5	4.35	4.16	3.95	3.79	3.59	3.38	3.12	2.85	2.54	2.11	1.67
88	4.98	4.85	4.73	4.49	4.33	4.15	3.92	3.77	3.54	3.38	3.07	2.84	2.51	2.1	1.66
89	5.06	4.94	4.8	4.57	4.4	4.22	3.97	3.82	3.58	3.41	3.11	2.87	2.55	2.12	1.69
90	5.08	4.95	4.82	4.58	4.41	4.22	3.98	3.81	3.58	3.41	3.1	2.86	2.54	2.12	1.68
91	6.1	5.96	5.8	5.53	5.33	5.1	4.82	4.64	4.38	4.15	3.81	3.5	3.13	2.6	2.06
92	6.13	6.02	5.85	5.57	5.38	5.14	4.88	4.68	4.43	4.19	3.86	3.52	3.15	2.61	2.05
93	6.19	6.03	5.87	5.59	5.38	5.15	4.87	4.68	4.4	4.2	3.8	3.53	3.12	2.59	2.04
94	6.19	6.04	5.88	5.59	5.38	5.16	4.86	4.67	4.38	4.19	3.8	3.52	3.12	2.59	2.03
95	6.26	6.1	5.93	5.64	5.43	5.2	4.89	4.7	4.41	4.19	3.81	3.53	3.13	2.6	2.04
96	6.94	6.8	6.61	6.29	6.08	5.81	5.5	5.27	5	4.74	4.36	3.99	3.59	2.96	2.34
97	6.93	6.81	6.63	6.31	6.09	5.82	5.52	5.3	5.04	4.74	4.37	4	3.57	2.96	2.31
98	7.04	6.86	6.71	6.37	6.13	5.88	5.55	5.33	5.02	4.8	4.35	4.03	3.57	2.96	2.33
99	7.06	6.9	6.73	6.38	6.14	5.88	5.55	5.33	5	4.77	4.34	4	3.55	2.95	2.32
100	7.11	6.92	6.75	6.41	6.18	5.91	5.57	5.35	5.02	4.78	4.34	4.02	3.57	2.97	2.32

Table A27b. Static and dynamic test data for seal 6 of Table 3 for low inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
101	3000	300	285	3.07	1.02	56.8	-33.2	.0858	.0536	.0837	-.0262	.147	.0214
102	6000	300	292	3	1.02	56.8	-32.4	.087	.0512	.0863	-.0103	.128	.0214
103	9500	300	288	3.03	1.02	56.8	-30.8	.0868	.0491	.101	.000673	.106	.00931
104	13000	299	295	3.05	1.01	56.8	-29.2	.0859	.047	.0957	.0109	.105	-.000349
105	16000	299	300	3.09	1.01	56.8	-27.5	.0874	.0448	.1	.024	.109	-.00363
106	3000	300	293	4.34	1.01	56.8	-33.9	.0845	.0772	.0712	-.0292	.131	.0289
107	6000	300	289	4.42	1	56.8	-33.4	.0836	.0776	.0699	-.0114	.133	.0162
108	9500	300	293	4.4	1.01	56.8	-32	.0827	.0741	.0934	-.000539	.0881	.00792
109	13000	299	290	4.43	1.01	56.8	-29.9	.0819	.0699	.093	.00937	.102	.000913
110	16000	299	295	4.4	1.01	56.8	-28.1	.0834	.0651	.0936	.019	.106	-.00218
111	3000	300	296	5.79	.994	56.8	-34.7	.0835	.106	.0624	-.0275	.128	.0275
112	6000	300	292	5.77	.998	56.8	-34.4	.0824	.104	.0627	-.0129	.132	.0229
113	9500	299	286	5.74	.998	56.8	-32.8	.0819	.0992	.0801	-.00171	.0903	.00869
114	13000	300	289	5.76	.998	56.8	-30.3	.0807	.0919	.0845	.00805	.0981	-.00211
115	16000	299	292	5.78	.999	56.8	-28.5	.0809	.0867	.0904	.0166	.0983	-.000408
116	3000	300	297	7.04	.986	56.8	-35.3	.0805	.13	.0584	-.0231	.134	.0335
117	6000	300	293	7.11	.988	56.8	-34.6	.0815	.129	.059	-.0162	.122	.0194
118	9500	300	292	7.1	.986	56.8	-33.1	.0799	.123	.0735	-.00505	.102	.00621
119	13000	300	289	7.09	.985	56.8	-31.1	.0784	.116	.0805	.00694	.101	-.00178
120	16000	300	290	7.14	.99	56.8	-29.1	.0782	.109	.0916	.0148	.0843	-.00108
121	3000	300	297	8.07	.984	56.8	-35.3	.0811	.15	.0564	-.0236	.132	.0298
122	6000	300	294	8.13	.982	56.8	-34.9	.0794	.149	.0585	-.0159	.123	.0205
123	9500	300	292	8.11	.981	56.8	-33.2	.0791	.141	.0712	-.00537	.0987	.00679
124	13000	300	291	8.19	.978	56.8	-31.1	.0782	.134	.0763	.00466	.0999	.000647
125	16000	300	292	8.16	.982	56.8	-29.2	.0763	.126	.0896	.0129	.093	.00107

Case	Pi, i=1 to 15 ----------)														
101	2.67	2.61	2.54	2.43	2.35	2.26	2.16	2.08	1.99	1.89	1.76	1.64	1.5	1.32	1.16
102	2.62	2.56	2.5	2.38	2.31	2.22	2.12	2.05	1.94	1.86	1.72	1.61	1.47	1.3	1.15
103	2.66	2.6	2.54	2.42	2.35	2.25	2.15	2.07	1.97	1.88	1.74	1.63	1.49	1.31	1.15
104	2.67	2.61	2.55	2.43	2.35	2.25	2.14	2.06	1.95	1.86	1.73	1.62	1.48	1.3	1.15
105	2.71	2.64	2.58	2.46	2.38	2.28	2.17	2.08	1.97	1.88	1.74	1.63	1.49	1.31	1.15
106	3.76	3.68	3.58	3.4	3.29	3.15	2.98	2.87	2.72	2.58	2.37	2.19	1.96	1.65	1.35
107	3.83	3.75	3.65	3.47	3.36	3.21	3.05	2.94	2.77	2.63	2.4	2.22	1.98	1.67	1.36
108	3.82	3.74	3.65	3.47	3.35	3.2	3.04	2.92	2.75	2.61	2.4	2.21	1.98	1.67	1.36
109	3.85	3.78	3.68	3.49	3.37	3.22	3.04	2.92	2.75	2.61	2.39	2.21	1.97	1.67	1.36
110	3.82	3.74	3.63	3.45	3.32	3.17	3	2.87	2.7	2.56	2.34	2.15	1.93	1.63	1.33
111	5	4.89	4.75	4.52	4.38	4.18	3.95	3.8	3.59	3.4	3.12	2.87	2.55	2.13	1.69
112	4.98	4.87	4.74	4.51	4.36	4.16	3.95	3.8	3.59	3.4	3.11	2.86	2.54	2.12	1.68
113	4.97	4.87	4.75	4.51	4.36	4.16	3.94	3.78	3.57	3.38	3.09	2.85	2.53	2.11	1.67
114	4.99	4.88	4.76	4.52	4.36	4.16	3.94	3.78	3.56	3.37	3.08	2.83	2.52	2.1	1.66
115	5.02	4.9	4.77	4.53	4.37	4.17	3.94	3.77	3.55	3.36	3.07	2.82	2.51	2.09	1.66
116	6.07	5.93	5.77	5.49	5.31	5.08	4.8	4.62	4.37	4.14	3.8	3.5	3.12	2.59	2.04
117	6.13	6	5.84	5.55	5.37	5.13	4.87	4.69	4.42	4.19	3.83	3.53	3.14	2.6	2.04
118	6.14	6.02	5.87	5.58	5.38	5.14	4.87	4.68	4.41	4.18	3.82	3.51	3.12	2.59	2.03
119	6.15	6	5.84	5.55	5.35	5.12	4.83	4.65	4.37	4.14	3.78	3.49	3.08	2.56	2.01
120	6.19	6.05	5.89	5.6	5.4	5.16	4.86	4.67	4.38	4.15	3.79	3.49	3.11	2.58	2.03
121	6.95	6.79	6.61	6.29	6.08	5.8	5.48	5.29	5.01	4.74	4.34	3.99	3.57	2.96	2.34
122	7	6.85	6.67	6.35	6.13	5.87	5.56	5.35	5.05	4.79	4.38	4.02	3.59	2.97	2.34
123	7.03	6.85	6.69	6.35	6.14	5.86	5.55	5.33	5.03	4.78	4.37	4	3.57	2.96	2.31
124	7.11	6.94	6.74	6.41	6.18	5.89	5.57	5.36	5.04	4.78	4.37	4	3.57	2.96	2.32
125	7.07	6.91	6.73	6.39	6.16	5.89	5.55	5.33	5.01	4.74	4.34	3.99	3.56	2.95	2.31

Table A27c. Static and dynamic test data for seal 6 of Table 3 for low inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
126	3000	299	285	3.03	1.02	74.6	-33	.0862	.0528	.0864	-.0217	.138	.0259
127	6000	299	292	3	1.01	74.6	-32.4	.116	.0513	.0958	-.00873	.129	.0179
128	9500	295	286	3.01	1	74.6	-30.2	.0916	.0487	.105	.00432	.11	.0098
129	13000	294	292	3.04	1	74.6	-28.9	.0939	.0472	.106	.0124	.106	.00279
130	16000	294	299	3	1	74.6	-26.9	.0837	.0433	.101	.0251	.131	.0033
131	3000	299	290	4.42	1.01	74.6	-33.7	.0826	.0786	.079	-.0243	.125	.025
132	6000	299	290	4.38	1.01	74.6	-33.4	.112	.0771	.081	-.0108	.117	.0143
133	9500	295	288	4.39	1	74.6	-31.6	.0867	.0741	.0941	.00229	.105	.00994
134	13000	294	289	4.37	.999	74.6	-29.9	.0903	.0702	.1	.00878	.0905	-.00122
135	16000	295	293	4.42	.999	74.6	-28.1	.0892	.0666	.0937	.0192	.109	-.00253
136	3000	299	294	5.78	.996	74.6	-35	.0798	.106	.0696	-.0252	.126	.0287
137	6000	299	292	5.76	.997	74.6	-34	.107	.103	.0759	-.0109	.121	.0172
138	9500	295	291	5.74	.988	74.6	-32.2	.0827	.0988	.085	-.00127	.103	.00964
139	13000	294	286	5.77	.99	74.6	-30.3	.0986	.0939	.0919	.00768	.0995	-.000403
140	16000	295	289	5.77	.993	74.6	-28.4	.0835	.0877	.0971	.0158	.0961	-.0048
141	3000	299	296	7.07	.989	74.6	-35.3	.0768	.131	.0624	-.0211	.125	.0294
142	6000	299	293	7.13	.988	74.6	-34.6	.103	.13	.0683	-.0123	.124	.0176
143	9500	295	283	7.11	.979	74.6	-32.8	.0809	.124	.0813	-.00449	.0979	.00974
144	13000	294	288	7.14	.979	74.6	-30.7	.0954	.118	.0904	.00554	.0895	.000201
145	16000	295	288	7.13	.984	74.6	-28.8	.0957	.11	.0964	.014	.0845	-.00373
146	3000	300	296	8.04	.981	74.6	-35.3	.0764	.149	.0617	-.0221	.118	.0309
147	6000	300	290	8.11	.986	74.6	-34.8	.1	.148	.0672	-.0136	.12	.0173
148	9500	294	287	8.11	.973	74.6	-33.1	.0879	.144	.0762	-.00386	.0984	.00756
149	13000	294	286	8.13	.973	74.6	-31	.0927	.135	.0874	.00486	.0857	.00163
150	16000	295	288	8.17	.979	74.6	-29	.0935	.127	.0977	.0126	.0798	-.00367

Case	Pi, i=1 to 15 ---------->														
126	2.65	2.59	2.52	2.41	2.34	2.25	2.14	2.07	1.98	1.88	1.74	1.63	1.49	1.32	1.16
127	2.61	2.56	2.5	2.38	2.32	2.23	2.13	2.05	1.95	1.86	1.73	1.62	1.48	1.31	1.15
128	2.65	2.59	2.53	2.4	2.34	2.24	2.13	2.06	1.96	1.86	1.73	1.61	1.48	1.31	1.15
129	2.67	2.61	2.54	2.43	2.34	2.25	2.14	2.06	1.95	1.86	1.72	1.61	1.48	1.3	1.14
130	2.62	2.57	2.5	2.38	2.31	2.21	2.1	2.02	1.92	1.83	1.7	1.59	1.46	1.29	1.14
131	3.82	3.74	3.64	3.47	3.36	3.21	3.04	2.93	2.77	2.63	2.41	2.22	1.99	1.68	1.37
132	3.79	3.71	3.62	3.44	3.33	3.18	3.02	2.9	2.74	2.61	2.39	2.2	1.97	1.66	1.35
133	3.83	3.73	3.64	3.46	3.34	3.19	3.02	2.9	2.73	2.59	2.37	2.18	1.96	1.66	1.35
134	3.8	3.72	3.62	3.45	3.32	3.18	3	2.88	2.71	2.57	2.36	2.17	1.94	1.65	1.34
135	3.84	3.76	3.66	3.47	3.35	3.19	3.01	2.89	2.72	2.57	2.36	2.17	1.95	1.65	1.34
136	4.98	4.88	4.74	4.51	4.37	4.17	3.95	3.8	3.6	3.4	3.13	2.88	2.57	2.14	1.69
137	4.97	4.87	4.74	4.51	4.36	4.16	3.95	3.79	3.58	3.4	3.11	2.86	2.54	2.12	1.67
138	4.96	4.86	4.75	4.51	4.36	4.16	3.93	3.77	3.56	3.37	3.08	2.83	2.51	2.11	1.65
139	5.01	4.89	4.76	4.53	4.37	4.17	3.95	3.78	3.55	3.36	3.07	2.82	2.52	2.12	1.66
140	5	4.89	4.76	4.52	4.36	4.16	3.93	3.75	3.53	3.34	3.06	2.81	2.51	2.1	1.65
141	6.09	5.95	5.79	5.51	5.34	5.1	4.82	4.65	4.39	4.15	3.82	3.5	3.14	2.61	2.05
142	6.13	6.01	5.85	5.57	5.38	5.15	4.88	4.69	4.43	4.2	3.85	3.53	3.15	2.61	2.05
143	6.15	6.02	5.87	5.57	5.38	5.14	4.87	4.67	4.41	4.17	3.81	3.49	3.12	2.59	2.02
144	6.18	6.06	5.89	5.61	5.41	5.17	4.88	4.69	4.41	4.17	3.81	3.49	3.12	2.61	2.03
145	6.18	6.03	5.87	5.58	5.38	5.14	4.86	4.65	4.37	4.13	3.78	3.47	3.11	2.59	2.02
146	6.92	6.76	6.58	6.26	6.06	5.79	5.48	5.27	4.98	4.72	4.33	3.98	3.56	2.96	2.32
147	6.97	6.83	6.66	6.33	6.12	5.85	5.54	5.32	5.03	4.77	4.38	4.02	3.58	2.96	2.32
148	7	6.85	6.69	6.34	6.13	5.86	5.56	5.34	5.02	4.74	4.34	3.98	3.55	2.97	2.32
149	7.03	6.89	6.67	6.36	6.13	5.86	5.53	5.31	4.98	4.72	4.31	3.95	3.53	2.95	2.3
150	7.05	6.91	6.72	6.38	6.17	5.89	5.56	5.33	5	4.73	4.32	3.97	3.55	2.97	2.31

Table A28a. Static and dynamic test data for seal 6 of Table 3 for low inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
151	3000	301	285	3	1.01	38.7	32.7	.0878	.0515	.0923	.0158	.117	-.00985
152	6000	301	287	2.98	1.01	38.7	32.2	.0974	.0503	.0962	.0204	.103	-.00941
153	9500	301	287	3.01	1.01	38.7	30.7	.09	.0485	.0997	.0253	.114	-.00674
154	13000	301	297	3	1.01	38.7	29.2	.0904	.0459	.0989	.0323	.108	-.000156
155	16000	301	301	3.01	1.01	38.7	27.3	.0965	.0431	.0955	.0392	.119	-.000267
156	3000	301	295	4.42	1	38.7	33.6	.0848	.0777	.0749	.0142	.126	-.00581
157	6000	301	293	4.44	1	38.7	33.1	.0954	.0768	.0791	.0177	.11	-.00794
158	9500	302	291	4.37	1.01	38.7	31.9	.0882	.0728	.0884	.0231	.102	-.00772
159	13000	301	291	4.41	1	38.7	30.3	.0971	.0698	.0912	.0293	.106	-.00239
160	16000	302	296	4.35	1	38.7	28.3	.093	.0645	.0872	.0355	.105	-.00474
161	3000	301	297	5.75	.994	38.7	34.4	.0881	.103	.0676	.0121	.112	-.006
162	6000	301	294	5.76	.994	38.7	33.8	.0942	.102	.072	.0156	.0825	-.00413
163	9500	302	292	5.74	.996	38.7	32.4	.0861	.0972	.0787	.0207	.102	-.00781
164	13000	301	288	5.77	.996	38.7	30.8	.095	.093	.0825	.0277	.104	-.0042
165	16000	302	291	5.76	.994	38.7	28.7	.091	.0866	.0864	.0326	.0964	-.00611
166	3000	302	298	7.07	.986	38.7	35.2	.087	.13	.0644	.00984	.108	.00135
167	6000	301	296	7.08	.987	38.7	34.4	.092	.127	.0691	.0144	.095	-.00452
168	9500	302	286	7.09	.986	38.7	32.9	.0854	.122	.0716	.0193	.106	-.00124
169	13000	301	291	7.13	.984	38.7	31	.0943	.116	.0793	.0253	.0936	-.00507
170	16000	302	290	7.12	.986	38.7	28.9	.0883	.108	.0862	.0316	.0905	-.0107
171	3000	301	298	8.08	.98	38.7	35.2	.0887	.148	.0655	.0105	.0916	-.00247
172	6000	301	295	8.06	.98	38.7	35	.0913	.147	.064	.0134	.102	-.00339
173	9500	302	290	8.07	.981	38.7	33.2	.0874	.14	.0712	.0178	.0939	-.00544
174	13000	302	287	8.13	.979	38.7	31.4	.0933	.133	.0771	.0242	.0923	-.00561
175	16000	302	294	8.11	.982	38.7	29.3	.0925	.124	.0835	.0299	.0911	-.00592

Case	Pi, i=1 to 15 ---------->														
151	2.62	2.56	2.49	2.37	2.31	2.21	2.11	2.03	1.93	1.84	1.71	1.6	1.47	1.3	1.15
152	2.6	2.54	2.47	2.35	2.28	2.19	2.09	2.01	1.91	1.82	1.7	1.58	1.46	1.29	1.14
153	2.64	2.58	2.52	2.4	2.32	2.23	2.13	2.05	1.94	1.86	1.72	1.61	1.47	1.31	1.14
154	2.62	2.57	2.5	2.38	2.31	2.21	2.11	2.02	1.92	1.83	1.7	1.59	1.46	1.29	1.14
155	2.65	2.59	2.52	2.4	2.32	2.22	2.12	2.03	1.93	1.84	1.71	1.6	1.47	1.3	1.14
156	3.82	3.73	3.62	3.44	3.33	3.18	3.01	2.88	2.72	2.59	2.36	2.18	1.96	1.66	1.35
157	3.84	3.75	3.64	3.46	3.34	3.2	3.02	2.9	2.73	2.6	2.37	2.19	1.96	1.65	1.35
158	3.79	3.71	3.6	3.42	3.3	3.16	2.98	2.86	2.68	2.55	2.32	2.16	1.92	1.64	1.33
159	3.83	3.76	3.65	3.47	3.34	3.19	3.02	2.88	2.71	2.58	2.36	2.18	1.96	1.65	1.35
160	3.79	3.71	3.6	3.41	3.28	3.14	2.96	2.82	2.65	2.52	2.3	2.13	1.91	1.61	1.32
161	4.97	4.85	4.71	4.47	4.31	4.13	3.89	3.74	3.51	3.35	3.05	2.81	2.5	2.1	1.66
162	4.98	4.86	4.72	4.49	4.32	4.15	3.91	3.76	3.53	3.37	3.05	2.82	2.5	2.1	1.66
163	4.97	4.87	4.73	4.5	4.32	4.15	3.9	3.76	3.53	3.34	3.04	2.81	2.48	2.1	1.64
164	5.01	4.91	4.76	4.53	4.35	4.17	3.93	3.76	3.52	3.36	3.05	2.82	2.5	2.11	1.65
165	5.01	4.91	4.76	4.51	4.34	4.15	3.91	3.74	3.51	3.36	3.05	2.83	2.51	2.1	1.66
166	6.09	5.95	5.78	5.49	5.29	5.06	4.77	4.58	4.32	4.12	3.74	3.44	3.07	2.57	2.01
167	6.1	5.96	5.79	5.5	5.29	5.09	4.79	4.61	4.33	4.13	3.74	3.45	3.06	2.57	2
168	6.13	6	5.83	5.54	5.33	5.13	4.82	4.64	4.37	4.12	3.76	3.47	3.06	2.59	2
169	6.17	6.06	5.89	5.59	5.38	5.17	4.85	4.66	4.36	4.16	3.76	3.49	3.08	2.59	2.02
170	6.18	6.06	5.87	5.57	5.35	5.12	4.82	4.61	4.32	4.12	3.73	3.46	3.06	2.57	2
171	6.95	6.79	6.59	6.27	6.04	5.79	5.46	5.25	4.93	4.72	4.28	3.95	3.51	2.94	2.3
172	6.95	6.8	6.59	6.27	6.03	5.8	5.45	5.26	4.93	4.71	4.26	3.94	3.48	2.94	2.27
173	6.98	6.84	6.64	6.31	6.07	5.82	5.48	5.29	4.96	4.69	4.27	3.95	3.48	2.94	2.27
174	7.03	6.9	6.7	6.36	6.11	5.87	5.52	5.3	4.96	4.74	4.29	3.97	3.51	2.96	2.29
175	7.02	6.89	6.68	6.34	6.08	5.84	5.49	5.26	4.93	4.71	4.25	3.96	3.51	2.95	2.29

Table A28b. Static and dynamic test data for seal 6 of Table 3 for low inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
176	3000	299	286	2.97	1.01	56.8	32.7	.0891	.0511	.093	.0134	.113	.00464
177	6000	300	289	3.05	1.01	56.8	32.3	.0978	.0517	.0962	.0206	.114	-.00522
178	9500	300	288	3.06	1.01	56.8	30.5	.0854	.0491	.101	.0247	.122	-.00297
179	13000	300	295	3.05	1.01	56.8	29.3	.0899	.0469	.0971	.0333	.121	-.0054
180	16000	300	301	3.06	1.01	56.8	27.6	.0912	.0443	.092	.0414	.115	-.00236
181	3000	299	289	4.4	1	56.8	33.7	.0847	.078	.0774	.0136	.102	.00694
182	6000	300	287	4.38	1	56.8	33	.0952	.0761	.0846	.0172	.107	-.00689
183	9500	300	291	4.43	1.01	56.8	31.6	.0819	.0736	.0911	.0222	.0896	-.00819
184	13000	300	291	4.42	1	56.8	30.1	.0941	.0699	.0927	.0297	.109	-.00872
185	16000	301	295	4.42	1	56.8	28.4	.0872	.0658	.0895	.0368	.103	-.00957
186	3000	300	295	5.72	.994	56.8	34.3	.093	.103	.0684	.0146	.117	.00169
187	6000	300	291	5.76	.993	56.8	34	.0933	.103	.0724	.0146	.114	-.00514
188	9500	300	286	5.74	.993	56.8	32.3	.088	.0976	.0776	.0194	.105	-.00369
189	13000	300	288	5.76	.995	56.8	31	.0928	.0938	.0848	.0284	.104	-.00819
190	16000	301	292	5.76	.995	56.8	28.5	.091	.0862	.0876	.0345	.0998	-.0087
191	3000	300	296	7.11	.984	56.8	35	.0916	.131	.0632	.0115	.107	.00447
192	6000	300	293	7.11	.985	56.8	34.2	.0925	.128	.0698	.0141	.0958	-.0015
193	9500	301	285	7.1	.985	56.8	33	.088	.123	.0716	.0184	.103	-.00757
194	13000	300	288	7.14	.985	56.8	31.2	.091	.117	.0817	.0256	.0949	-.0124
195	16000	301	290	7.16	.986	56.8	28.9	.0929	.109	.0883	.0321	.0904	-.0131
196	3000	300	296	8.08	.979	56.8	34.9	.0899	.148	.0636	.015	.105	-.00199
197	6000	300	293	8.11	.981	56.8	34.2	.0903	.146	.0686	.0133	.0884	-.00824
198	9500	300	289	8.08	.975	56.8	33.1	.0846	.14	.0743	.0168	.105	-.00645
199	13000	300	290	8.13	.977	56.8	31.4	.0892	.134	.0792	.0247	.0911	-.0114
200	16000	301	293	8.15	.979	56.8	29.5	.0925	.126	.0862	.0307	.0853	-.0124

Case	Pi, i=1 to 15 ----------)														
176	2.59	2.53	2.47	2.35	2.28	2.19	2.09	2.02	1.92	1.83	1.7	1.59	1.46	1.3	1.14
177	2.66	2.6	2.53	2.4	2.33	2.24	2.13	2.05	1.94	1.85	1.72	1.61	1.47	1.3	1.14
178	2.68	2.62	2.55	2.43	2.35	2.26	2.15	2.07	1.96	1.87	1.73	1.63	1.48	1.31	1.15
179	2.66	2.61	2.54	2.41	2.33	2.24	2.13	2.04	1.94	1.85	1.71	1.6	1.46	1.3	1.14
180	2.68	2.62	2.55	2.42	2.34	2.24	2.13	2.05	1.93	1.84	1.71	1.6	1.47	1.3	1.14
181	3.81	3.72	3.62	3.43	3.32	3.17	3	2.89	2.73	2.58	2.37	2.18	1.96	1.66	1.35
182	3.79	3.7	3.61	3.42	3.31	3.16	2.99	2.88	2.71	2.57	2.35	2.17	1.94	1.65	1.34
183	3.85	3.76	3.67	3.47	3.35	3.21	3.02	2.9	2.74	2.58	2.37	2.19	1.95	1.66	1.35
184	3.83	3.75	3.65	3.46	3.33	3.19	3.01	2.88	2.71	2.57	2.35	2.17	1.94	1.65	1.34
185	3.84	3.76	3.66	3.46	3.33	3.19	3.01	2.88	2.7	2.55	2.33	2.16	1.92	1.64	1.33
186	4.96	4.84	4.7	4.47	4.32	4.13	3.89	3.75	3.54	3.34	3.05	2.8	2.49	2.1	1.65
187	4.97	4.85	4.73	4.48	4.32	4.12	3.89	3.74	3.52	3.33	3.04	2.79	2.49	2.09	1.64
188	4.97	4.86	4.74	4.49	4.33	4.14	3.9	3.75	3.53	3.34	3.05	2.8	2.49	2.09	1.64
189	5	4.89	4.77	4.51	4.35	4.16	3.92	3.76	3.54	3.34	3.06	2.82	2.51	2.1	1.65
190	5	4.9	4.77	4.51	4.34	4.15	3.91	3.75	3.51	3.33	3.04	2.8	2.49	2.09	1.64
191	6.13	5.97	5.82	5.51	5.33	5.09	4.8	4.62	4.36	4.12	3.77	3.46	3.08	2.59	2.02
192	6.14	5.99	5.83	5.52	5.34	5.11	4.82	4.64	4.37	4.13	3.77	3.46	3.08	2.57	2
193	6.13	6	5.85	5.54	5.34	5.12	4.83	4.63	4.36	4.12	3.77	3.46	3.08	2.57	2.01
194	6.18	6.05	5.9	5.58	5.38	5.14	4.86	4.66	4.37	4.14	3.78	3.48	3.1	2.6	2.02
195	6.21	6.08	5.92	5.59	5.38	5.15	4.85	4.64	4.36	4.14	3.78	3.47	3.1	2.59	2.02
196	6.97	6.8	6.62	6.27	6.06	5.78	5.46	5.26	4.96	4.69	4.29	3.94	3.52	2.94	2.29
197	6.98	6.82	6.64	6.29	6.07	5.81	5.48	5.28	4.98	4.71	4.31	3.94	3.51	2.94	2.29
198	6.97	6.82	6.65	6.3	6.07	5.82	5.49	5.28	4.96	4.71	4.3	3.93	3.51	2.93	2.27
199	7.03	6.89	6.71	6.35	6.12	5.87	5.52	5.29	4.99	4.72	4.3	3.96	3.53	2.95	2.29
200	7.07	6.92	6.74	6.37	6.14	5.87	5.53	5.31	4.98	4.72	4.3	3.96	3.53	2.96	2.3

Table A28c. Static and dynamic test data for seal 6 of Table 3 for low inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	m	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
201	3000	299	284	3.08	1.01	74.6	32.6	.0886	.0529	.0911	.0177	.124	.00497
202	6000	298	292	3.03	1.01	74.6	31.9	.0917	.0511	.1	.0191	.108	-.0046
203	9500	298	287	3.03	1.01	74.6	30.7	.09	.0492	.103	.0251	.118	-.00255
204	13000	298	293	3.07	1.01	74.6	29	.0935	.0471	.106	.0328	.107	-.00603
205	16000	298	298	3.06	1	74.6	27.4	.0928	.0443	.102	.0419	.108	-.0116
206	3000	299	288	4.38	1	74.6	33.7	.0869	.0779	.0833	.0153	.112	.00212
207	6000	298	285	4.36	1	74.6	33.2	.0879	.0763	.0906	.0173	.0999	-.00161
208	9500	298	290	4.4	1	74.6	31.9	.0849	.0741	.094	.0208	.101	-.00788
209	13000	298	290	4.42	1	74.6	30	.0891	.0701	.0956	.0278	.0983	-.00795
210	16000	299	294	4.42	1	74.6	28.1	.0885	.0657	.098	.035	.0906	-.0164
211	3000	299	293	5.78	.991	74.6	34	.0841	.104	.0724	.0129	.116	.00125
212	6000	298	292	5.72	.993	74.6	33.8	.0907	.102	.0761	.0129	.106	-.00369
213	9500	299	294	5.74	.992	74.6	32.4	.0961	.0981	.0833	.0189	.1	-.00789
214	13000	298	287	5.75	.994	74.6	30.5	.0988	.0928	.0934	.0257	.0927	-.0106
215	16000	299	289	5.72	.994	74.6	28.7	.0856	.0866	.0923	.0333	.0917	-.0133
216	3000	299	293	7.12	.981	74.6	34.5	.0841	.13	.0735	.00997	.103	.00194
217	6000	298	289	7.08	.982	74.6	34.1	.0942	.127	.0746	.0125	.0916	-.00478
218	9500	299	293	7.09	.983	74.6	33	.0944	.123	.0811	.0161	.0964	-.00638
219	13000	298	290	7.1	.985	74.6	31.1	.0947	.117	.0853	.0247	.0936	-.00979
220	16000	298	289	7.17	.986	74.6	29	.0923	.11	.0906	.0287	.0872	-.014
221	3000	299	293	8.05	.979	74.6	34.8	.0962	.148	.0719	.00965	.102	.000143
222	6000	299	290	8.09	.979	74.6	34.5	.0939	.147	.071	.0109	.0972	-.000873
223	9500	298	284	8.06	.977	74.6	33.2	.0921	.141	.0781	.0158	.0914	-.00871
224	13000	298	290	8.1	.973	74.6	31.4	.0935	.134	.0838	.0225	.0904	-.0124
225	16000	298	288	8.15	.979	74.6	29.2	.0943	.126	.0935	.0282	.0766	-.0177

Case	Pi, i=1 to 15 ---------->														
201	2.68	2.62	2.55	2.43	2.36	2.26	2.15	2.07	1.97	1.88	1.74	1.63	1.49	1.31	1.15
202	2.64	2.58	2.51	2.39	2.32	2.23	2.12	2.04	1.94	1.85	1.72	1.61	1.47	1.3	1.14
203	2.65	2.59	2.53	2.41	2.33	2.24	2.13	2.05	1.95	1.85	1.72	1.62	1.48	1.31	1.15
204	2.69	2.64	2.57	2.45	2.37	2.27	2.16	2.08	1.97	1.87	1.74	1.63	1.49	1.31	1.15
205	2.68	2.62	2.55	2.43	2.35	2.25	2.14	2.05	1.94	1.85	1.71	1.61	1.47	1.3	1.14
206	3.8	3.71	3.61	3.43	3.32	3.17	3	2.88	2.71	2.56	2.36	2.17	1.94	1.65	1.34
207	3.78	3.7	3.6	3.42	3.3	3.16	2.99	2.87	2.71	2.57	2.36	2.18	1.95	1.65	1.34
208	3.82	3.73	3.63	3.45	3.32	3.18	3.01	2.89	2.72	2.58	2.36	2.18	1.95	1.66	1.35
209	3.84	3.76	3.67	3.47	3.35	3.2	3.03	2.9	2.73	2.58	2.37	2.19	1.96	1.66	1.35
210	3.85	3.76	3.66	3.47	3.34	3.2	3.02	2.89	2.71	2.56	2.35	2.18	1.95	1.65	1.34
211	4.99	4.87	4.74	4.49	4.33	4.13	3.9	3.75	3.53	3.33	3.05	2.82	2.51	2.1	1.65
212	4.95	4.83	4.7	4.46	4.31	4.12	3.9	3.73	3.51	3.32	3.04	2.8	2.49	2.09	1.64
213	4.97	4.86	4.74	4.49	4.33	4.14	3.92	3.75	3.54	3.34	3.05	2.81	2.49	2.1	1.64
214	4.98	4.89	4.76	4.51	4.35	4.17	3.93	3.77	3.54	3.35	3.05	2.81	2.5	2.1	1.65
215	4.96	4.87	4.74	4.48	4.31	4.12	3.89	3.72	3.49	3.29	3.01	2.78	2.47	2.08	1.63
216	6.13	5.99	5.83	5.52	5.34	5.11	4.83	4.64	4.37	4.13	3.77	3.48	3.09	2.6	2.03
217	6.11	5.97	5.8	5.51	5.32	5.1	4.81	4.62	4.35	4.1	3.76	3.45	3.07	2.56	2
218	6.12	5.98	5.83	5.53	5.34	5.1	4.82	4.63	4.36	4.12	3.76	3.45	3.07	2.57	2
219	6.13	6.02	5.86	5.55	5.34	5.11	4.82	4.62	4.34	4.1	3.74	3.45	3.07	2.56	2
220	6.22	6.09	5.92	5.6	5.39	5.16	4.86	4.67	4.38	4.14	3.78	3.48	3.09	2.59	2.02
221	6.93	6.76	6.59	6.26	6.04	5.78	5.46	5.25	4.95	4.68	4.27	3.94	3.52	2.94	2.29
222	6.97	6.81	6.64	6.3	6.08	5.82	5.49	5.28	4.97	4.69	4.29	3.95	3.51	2.94	2.29
223	6.94	6.8	6.62	6.27	6.05	5.79	5.47	5.25	4.94	4.66	4.26	3.92	3.48	2.91	2.27
224	7	6.87	6.69	6.34	6.11	5.85	5.51	5.3	4.97	4.7	4.29	3.95	3.51	2.94	2.29
225	7.06	6.92	6.74	6.37	6.14	5.88	5.53	5.3	4.98	4.71	4.3	3.96	3.52	2.96	2.3

Table A29a. Static and dynamic test data for seal 6 of Table 3 for high inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K̄	k̄	Cx1000	cx1000
226	3000	296	283	3.01	1.01	38.7	-71.9	.0899	.0502	.0935	-.0445	.132	.0272
227	6000	296	286	3.02	1.01	38.7	-70.9	.0898	.0498	.0831	-.038	.144	.0212
228	9500	297	287	3.04	1.01	38.7	-68.4	.0938	.0483	.0833	-.0163	.116	.0263
229	13000	297	294	3.01	1.01	38.7	-64.6	.0941	.0454	.0819	-.00264	.131	.0143
230	16000	297	301	3.02	1.01	38.7	-60.1	.0985	.0425	.0993	.0147	.132	.00744
231	3000	296	292	4.34	1	38.7	-74.3	.0878	.0746	.0799	-.0453	.142	.0382
232	6000	295	290	4.33	1	38.7	-73.3	.0884	.0738	.0722	-.0399	.124	.0318
233	9500	297	285	4.36	1	38.7	-70.4	.0921	.0711	.0716	-.0219	.12	.0278
234	13000	297	291	4.39	1	38.7	-66.7	.093	.068	.0734	-.00495	.129	.0182
235	16000	297	295	4.42	1	38.7	-62.3	.096	.0642	.089	.00868	.129	.0113
236	3000	296	294	5.72	.994	38.7	-75.4	.087	.0998	.0698	-.0447	.112	.0486
237	6000	296	290	5.75	.992	38.7	-74.8	.0873	.0997	.0632	-.0414	.116	.0402
238	9500	297	285	5.71	.993	38.7	-71.7	.0908	.0949	.0613	-.0238	.118	.0334
239	13000	297	288	5.75	.994	38.7	-67.3	.0917	.0898	.0664	-.00666	.123	.0191
240	16000	297	292	5.76	.994	38.7	-63.1	.0934	.0848	.0878	.00652	.114	.0158
241	3000	297	294	7.07	.987	38.7	-76.8	.0863	.125	.0616	-.0437	.111	.0524
242	6000	296	292	7.07	.984	38.7	-76	.0869	.124	.0605	-.044	.12	.0414
243	9500	297	284	7.05	.982	38.7	-72.8	.0894	.119	.0559	-.0239	.115	.0357
244	13000	298	288	7.08	.987	38.7	-68.4	.0899	.112	.0664	-.00694	.11	.0195
245	16000	297	289	7.11	.985	38.7	-64	.0906	.106	.0826	.00519	.116	.017
246	3000	297	294	8.03	.983	38.7	-77.2	.0862	.143	.0591	-.0454	.117	.0382
247	6000	296	292	8.08	.977	38.7	-76.4	.0856	.143	.0591	-.0436	.112	.0431
248	9500	297	287	8.09	.975	38.7	-73.3	.0888	.137	.0541	-.0268	.12	.0347
249	13000	297	290	8.08	.977	38.7	-68.9	.0886	.129	.0665	-.00852	.112	.0212
250	16000	298	291	8.14	.98	38.7	-64.4	.0894	.122	.0807	.00475	.109	.0206

Case	Pi, i=1 to 15 ---------->														
226	2.53	2.48	2.41	2.29	2.22	2.13	2.03	1.96	1.87	1.78	1.66	1.56	1.44	1.28	1.13
227	2.54	2.5	2.42	2.32	2.25	2.16	2.07	2	1.9	1.81	1.69	1.58	1.44	1.29	1.14
228	2.57	2.52	2.45	2.34	2.27	2.18	2.09	2	1.91	1.81	1.69	1.58	1.45	1.29	1.14
229	2.55	2.51	2.44	2.33	2.26	2.16	2.07	1.98	1.89	1.8	1.67	1.56	1.44	1.28	1.13
230	2.59	2.53	2.46	2.35	2.28	2.17	2.08	1.99	1.9	1.8	1.69	1.58	1.45	1.29	1.13
231	3.61	3.55	3.44	3.27	3.16	3.01	2.85	2.74	2.59	2.44	2.26	2.09	1.88	1.6	1.31
232	3.59	3.53	3.42	3.26	3.14	3.01	2.85	2.74	2.6	2.45	2.26	2.07	1.86	1.59	1.3
233	3.64	3.58	3.47	3.31	3.2	3.06	2.91	2.78	2.64	2.48	2.3	2.11	1.9	1.61	1.32
234	3.7	3.61	3.51	3.34	3.23	3.08	2.91	2.78	2.62	2.48	2.28	2.1	1.89	1.6	1.32
235	3.76	3.66	3.56	3.39	3.27	3.11	2.94	2.8	2.65	2.51	2.3	2.12	1.91	1.61	1.32
236	4.73	4.65	4.5	4.27	4.14	3.94	3.72	3.58	3.38	3.18	2.94	2.69	2.42	2.04	1.6
237	4.76	4.67	4.52	4.31	4.16	3.97	3.77	3.62	3.43	3.23	2.98	2.72	2.43	2.04	1.6
238	4.76	4.66	4.52	4.31	4.16	3.98	3.76	3.6	3.4	3.22	2.95	2.71	2.43	2.03	1.61
239	4.83	4.71	4.58	4.35	4.19	4	3.78	3.61	3.39	3.22	2.94	2.7	2.42	2.01	1.6
240	4.87	4.77	4.62	4.4	4.24	4.04	3.82	3.63	3.43	3.26	2.97	2.74	2.44	2.04	1.62
241	5.82	5.72	5.54	5.25	5.08	4.84	4.58	4.39	4.16	3.91	3.61	3.31	2.97	2.5	1.94
242	5.83	5.73	5.55	5.29	5.1	4.88	4.62	4.44	4.21	3.97	3.66	3.34	3	2.5	1.95
243	5.86	5.74	5.57	5.31	5.12	4.89	4.64	4.44	4.19	3.97	3.64	3.33	2.98	2.48	1.95
244	5.92	5.8	5.64	5.36	5.18	4.94	4.66	4.45	4.2	3.99	3.65	3.35	3	2.49	1.96
245	6	5.87	5.69	5.42	5.21	4.98	4.7	4.48	4.22	4.01	3.66	3.37	3.02	2.51	1.97
246	6.61	6.5	6.29	5.98	5.79	5.51	5.21	5	4.74	4.46	4.12	3.77	3.4	2.84	2.21
247	6.65	6.54	6.32	6.04	5.82	5.57	5.27	5.07	4.81	4.53	4.18	3.81	3.41	2.85	2.22
248	6.71	6.58	6.38	6.08	5.87	5.61	5.32	5.1	4.81	4.57	4.18	3.83	3.44	2.86	2.24
249	6.75	6.61	6.42	6.11	5.9	5.63	5.32	5.09	4.78	4.55	4.15	3.81	3.41	2.84	2.23
250	6.87	6.67	6.5	6.19	5.97	5.69	5.36	5.14	4.83	4.59	4.18	3.84	3.45	2.87	2.25

Table A29b. Static and dynamic test data for seal 6 of Table 3 for high inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
251	3000	296	283	3.03	1.01	56.8	-71.2	.0955	.0503	.0991	-.0413	.145	.0357
252	6000	295	288	3	1.01	56.8	-70.5	.0964	.0495	.0873	-.037	.125	.0264
253	9500	295	294	3.07	1.01	56.8	-67.6	.0958	.0486	.0888	-.0159	.134	.0251
254	13000	295	294	3.04	1.01	56.8	-63.8	.0965	.0455	.0826	-.00181	.134	.0157
255	16000	295	300	3.02	1.01	56.8	-59.7	.0954	.0424	.0974	.0174	.126	.00129
256	3000	296	286	4.39	1	56.8	-73.6	.0919	.075	.0837	-.0427	.128	.038
257	6000	294	286	4.31	1	56.8	-73.1	.0925	.0736	.0707	-.0386	.137	.0397
258	9500	295	285	4.39	1	56.8	-69.6	.0946	.0714	.0782	-.0177	.117	.0275
259	13000	295	290	4.34	1	56.8	-66.3	.0927	.0675	.0836	-.00389	.131	.0174
260	16000	295	294	4.32	1	56.8	-61.8	.0905	.0628	.0927	.0119	.119	.00662
261	3000	295	292	5.68	.99	56.8	-75	.0913	.0989	.078	-.0413	.108	.0465
262	6000	294	288	5.68	.991	56.8	-74.7	.0928	.0988	.0609	-.0387	.135	.0433
263	9500	295	290	5.68	.994	56.8	-71.2	.0937	.0944	.0648	-.0195	.127	.0281
264	13000	295	286	5.78	.994	56.8	-66.7	.0921	.0903	.0737	-.00455	.113	.0143
265	16000	295	291	5.75	.995	56.8	-62.6	.0866	.0844	.085	.011	.123	.00726
266	3000	296	292	7.01	.986	56.8	-76.3	.0877	.124	.0683	-.0442	.118	.0307
267	6000	295	286	7	.981	56.8	-75.9	.0904	.124	.0594	-.0406	.121	.0506
268	9500	295	289	7.03	.986	56.8	-71.8	.0926	.118	.0599	-.0213	.126	.0299
269	13000	295	285	7.07	.982	56.8	-68.1	.0901	.113	.0688	-.00759	.119	.0147
270	16000	296	289	7.13	.985	56.8	-63.5	.0836	.106	.0863	.0086	.112	.00844
271	3000	295	292	7.98	.979	56.8	-76.9	.085	.142	.0653	-.0417	.115	.0449
272	6000	295	289	8.04	.981	56.8	-76	.0905	.142	.0584	-.0398	.125	.0517
273	9500	295	288	8.03	.974	56.8	-72.9	.0921	.136	.0566	-.0217	.117	.035
274	13000	295	286	8.11	.977	56.8	-68.3	.0883	.13	.0666	-.00833	.114	.0177
275	16000	296	289	8.1	.979	56.8	-64.2	.0823	.122	.0846	.00628	.1	.0091

Case	Pi, i=1 to 15 ----------)														
251	2.55	2.5	2.43	2.31	2.24	2.15	2.05	1.98	1.88	1.79	1.67	1.57	1.45	1.29	1.14
252	2.53	2.48	2.41	2.3	2.24	2.15	2.05	1.98	1.89	1.8	1.67	1.57	1.44	1.28	1.13
253	2.59	2.54	2.47	2.36	2.29	2.19	2.09	2.02	1.92	1.82	1.7	1.59	1.46	1.3	1.14
254	2.58	2.53	2.47	2.36	2.29	2.18	2.08	2	1.9	1.81	1.68	1.58	1.45	1.29	1.13
255	2.58	2.53	2.46	2.35	2.27	2.17	2.07	1.99	1.89	1.8	1.67	1.57	1.44	1.28	1.13
256	3.66	3.58	3.47	3.3	3.18	3.03	2.87	2.76	2.61	2.46	2.28	2.1	1.9	1.62	1.32
257	3.6	3.52	3.42	3.25	3.15	3.01	2.85	2.75	2.6	2.46	2.26	2.09	1.87	1.59	1.31
258	3.68	3.6	3.49	3.32	3.21	3.06	2.91	2.79	2.62	2.49	2.29	2.11	1.88	1.61	1.32
259	3.67	3.58	3.49	3.31	3.2	3.05	2.89	2.77	2.61	2.47	2.27	2.1	1.88	1.6	1.31
260	3.66	3.57	3.48	3.3	3.18	3.04	2.87	2.74	2.58	2.44	2.24	2.07	1.85	1.58	1.3
261	4.71	4.61	4.47	4.25	4.1	3.9	3.69	3.55	3.34	3.15	2.91	2.67	2.4	2.02	1.59
262	4.7	4.6	4.46	4.25	4.1	3.92	3.72	3.58	3.38	3.19	2.93	2.69	2.4	2.02	1.59
263	4.72	4.63	4.48	4.26	4.12	3.93	3.72	3.58	3.36	3.17	2.91	2.67	2.38	2.01	1.58
264	4.85	4.75	4.62	4.39	4.23	4.04	3.81	3.66	3.44	3.26	2.98	2.74	2.45	2.05	1.62
265	4.86	4.72	4.61	4.38	4.23	4.02	3.8	3.63	3.42	3.23	2.96	2.73	2.43	2.04	1.6
266	5.79	5.67	5.49	5.21	5.04	4.8	4.53	4.36	4.11	3.88	3.57	3.28	2.94	2.47	1.93
267	5.77	5.66	5.48	5.22	5.05	4.82	4.56	4.39	4.15	3.92	3.6	3.3	2.94	2.47	1.93
268	5.82	5.71	5.54	5.27	5.08	4.85	4.59	4.4	4.15	3.92	3.59	3.3	2.94	2.45	1.92
269	5.92	5.8	5.63	5.35	5.17	4.94	4.66	4.48	4.21	3.98	3.64	3.35	2.98	2.49	1.95
270	6.01	5.86	5.71	5.43	5.23	4.99	4.71	4.51	4.24	4.01	3.67	3.37	3.01	2.52	1.97
271	6.59	6.44	6.25	5.93	5.73	5.46	5.14	4.95	4.67	4.41	4.06	3.73	3.35	2.81	2.19
272	6.64	6.5	6.31	6.01	5.8	5.54	5.24	5.06	4.77	4.5	4.14	3.79	3.39	2.84	2.21
273	6.65	6.51	6.33	6.02	5.82	5.56	5.26	5.07	4.78	4.51	4.13	3.79	3.38	2.84	2.21
274	6.77	6.63	6.44	6.12	5.92	5.65	5.33	5.13	4.81	4.55	4.16	3.82	3.42	2.86	2.23
275	6.8	6.7	6.48	6.16	5.95	5.67	5.35	5.12	4.82	4.56	4.17	3.85	3.43	2.88	2.24

Table A29c. Static and dynamic test data for seal 6 of Table 3 for high inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
276	3000	298	285	2.97	1.01	74.6	-71.6	.0938	.0492	.103	-.0408	.13	.036
277	6000	297	291	2.96	1.01	74.6	-71	.0904	.0488	.0872	-.0334	.134	.0265
278	9500	297	288	3.01	1.01	74.6	-67.8	.0925	.0474	.0943	-.0133	.131	.0235
279	13000	297	292	3.04	1.01	74.6	-64.4	.0975	.0457	.0995	-.000217	.137	.0133
280	16000	295	298	3.08	1	74.6	-59.4	.098	.0431	.0986	.0173	.12	.00437
281	3000	298	288	4.34	1	74.6	-74.8	.0925	.0749	.0921	-.0378	.121	.038
282	6000	297	290	4.38	1	74.6	-73.4	.0931	.0744	.0804	-.0357	.118	.035
283	9500	297	286	4.35	1	74.6	-70.3	.0869	.071	.08	-.0167	.13	.0248
284	13000	297	291	4.4	1	74.6	-66.1	.0988	.0678	.0911	-.00227	.112	.0141
285	16000	295	293	4.38	1	74.6	-61.6	.0916	.0635	.0926	.0136	.122	.00498
286	3000	298	292	5.71	.994	74.6	-75.9	.091	.0997	.0801	-.0361	.118	.0365
287	6000	297	292	5.63	.994	74.6	-75.5	.091	.0982	.0756	-.0349	.111	.0389
288	9500	297	292	5.76	.993	74.6	-71.8	.0864	.0957	.0724	-.0183	.123	.0312
289	13000	297	288	5.7	.995	74.6	-67.1	.0963	.089	.0837	-.00569	.112	.0145
290	16000	295	290	5.76	.995	74.6	-63.2	.0897	.0855	.092	.00883	.107	.00608
291	3000	298	292	7.04	.985	74.6	-77.1	.0899	.125	.0728	-.0371	.118	.0403
292	6000	297	291	7.05	.984	74.6	-76.4	.0942	.124	.0676	-.0363	.12	.0456
293	9500	297	284	7.09	.982	74.6	-72.9	.0884	.119	.0694	-.0198	.115	.0288
294	13000	297	288	7.03	.985	74.6	-68.4	.0933	.112	.0769	-.00573	.114	.0154
295	16000	295	288	7.12	.984	74.6	-63.5	.0823	.106	.0915	.00559	.105	.00727
296	3000	298	293	8.02	.984	74.6	-77.3	.0917	.143	.0718	-.0381	.116	.0412
297	6000	297	291	8.05	.981	74.6	-76.5	.0938	.142	.0647	-.0371	.119	.0424
298	9500	297	293	8.05	.978	74.6	-73.6	.0877	.137	.0658	-.0208	.118	.0299
299	13000	297	291	8.08	.979	74.6	-69	.0902	.129	.0768	-.00857	.112	.0176
300	16000	295	288	8.11	.978	74.6	-64.1	.0936	.122	.0934	.00729	.105	.00714

Case	Pi, i=1 to 15 ----------)														
276	2.5	2.44	2.37	2.26	2.19	2.1	2	1.94	1.85	1.76	1.65	1.55	1.43	1.28	1.14
277	2.49	2.44	2.38	2.27	2.2	2.12	2.03	1.96	1.87	1.78	1.66	1.56	1.43	1.28	1.13
278	2.54	2.49	2.42	2.32	2.25	2.15	2.06	1.98	1.89	1.8	1.67	1.57	1.44	1.28	1.13
279	2.58	2.52	2.46	2.35	2.28	2.19	2.09	2.01	1.91	1.82	1.69	1.59	1.46	1.29	1.14
280	2.64	2.57	2.51	2.39	2.32	2.22	2.11	2.02	1.92	1.83	1.7	1.59	1.46	1.29	1.13
281	3.61	3.53	3.43	3.26	3.15	3.01	2.84	2.73	2.57	2.43	2.25	2.07	1.87	1.6	1.31
282	3.64	3.58	3.47	3.3	3.19	3.05	2.9	2.79	2.63	2.49	2.29	2.11	1.89	1.61	1.32
283	3.64	3.57	3.46	3.3	3.2	3.05	2.9	2.78	2.62	2.48	2.28	2.11	1.89	1.61	1.32
284	3.72	3.65	3.55	3.39	3.28	3.13	2.96	2.84	2.67	2.52	2.32	2.14	1.92	1.63	1.33
285	3.71	3.63	3.53	3.35	3.24	3.08	2.91	2.78	2.62	2.48	2.28	2.11	1.89	1.6	1.31
286	4.73	4.63	4.49	4.26	4.12	3.93	3.71	3.57	3.37	3.18	2.93	2.69	2.41	2.03	1.6
287	4.65	4.56	4.42	4.21	4.07	3.88	3.68	3.54	3.34	3.15	2.9	2.66	2.39	2.01	1.58
288	4.78	4.68	4.54	4.32	4.17	3.99	3.78	3.62	3.41	3.22	2.95	2.72	2.42	2.04	1.61
289	4.77	4.67	4.54	4.31	4.16	3.97	3.75	3.6	3.38	3.19	2.92	2.69	2.4	2.02	1.59
290	4.86	4.76	4.62	4.39	4.25	4.05	3.82	3.64	3.43	3.24	2.97	2.74	2.45	2.05	1.61
291	5.8	5.68	5.5	5.23	5.05	4.82	4.55	4.36	4.12	3.89	3.58	3.28	2.95	2.48	1.93
292	5.81	5.7	5.52	5.26	5.08	4.85	4.59	4.41	4.17	3.93	3.62	3.32	2.97	2.48	1.94
293	5.87	5.76	5.59	5.33	5.14	4.91	4.66	4.46	4.21	3.98	3.65	3.35	3	2.51	1.95
294	5.88	5.76	5.59	5.32	5.14	4.91	4.65	4.47	4.2	3.97	3.63	3.33	2.97	2.49	1.94
295	5.99	5.89	5.71	5.41	5.23	4.99	4.71	4.51	4.23	4	3.66	3.37	3.01	2.52	1.96
296	6.6	6.46	6.27	5.95	5.75	5.47	5.17	4.97	4.69	4.42	4.07	3.74	3.36	2.81	2.2
297	6.62	6.5	6.3	6	5.79	5.54	5.24	5.04	4.76	4.49	4.13	3.79	3.38	2.84	2.21
298	6.66	6.54	6.34	6.05	5.83	5.58	5.27	5.06	4.77	4.5	4.12	3.79	3.39	2.84	2.21
299	6.74	6.6	6.42	6.1	5.88	5.62	5.31	5.1	4.8	4.52	4.13	3.8	3.39	2.84	2.22
300	6.82	6.63	6.47	6.16	5.94	5.66	5.34	5.12	4.81	4.55	4.15	3.83	3.42	2.87	2.23

Table A30a. Static and dynamic test data for seal 6 of Table 3 for high inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
301	3000	299	286	3	1.01	38.7	85	.0932	.0486	.0935	.0326	.125	-.0179
302	6000	300	290	3.04	1.01	38.7	83.5	.0918	.0483	.0994	.035	.104	-.031
303	9500	300	289	3.01	1.01	38.7	80.3	.0941	.0462	.0951	.039	.116	-.0249
304	13000	300	295	3.07	1.01	38.7	76.7	.093	.0451	.0949	.0408	.119	-.0221
305	16000	299	303	3.02	1.01	38.7	71.5	.0953	.0416	.098	.0449	.114	-.0256
306	3000	300	294	4.43	1	38.7	88.9	.0908	.0746	.0811	.0288	.113	-.0206
307	6000	300	290	4.43	1	38.7	86.5	.0886	.0727	.0867	.0314	.0951	-.0297
308	9500	300	287	4.4	1	38.7	83.7	.0918	.0702	.0852	.0342	.0971	-.0262
309	13000	300	289	4.45	1	38.7	79.3	.091	.0675	.0863	.037	.106	-.0227
310	16000	300	294	4.41	1	38.7	74	.0914	.0627	.102	.0427	.0953	-.0285
311	3000	300	297	5.77	.991	38.7	89.6	.0897	.098	.0706	.0267	.112	-.0212
312	6000	300	294	5.76	.992	38.7	88	.0879	.0959	.0755	.0292	.0936	-.0226
313	9500	300	286	5.83	.994	38.7	84.5	.0894	.0937	.0747	.0319	.0893	-.0265
314	13000	300	288	5.78	.995	38.7	80.2	.0887	.0886	.0837	.0353	.1	-.0232
315	16000	300	292	5.8	.996	38.7	75.4	.093	.084	.0908	.039	.0939	-.0283
316	3000	300	297	7.19	.98	38.7	91.9	.0889	.125	.0683	.0243	.0918	-.0173
317	6000	300	294	7.16	.984	38.7	90.1	.0863	.122	.0722	.0267	.0871	-.0272
318	9500	300	288	7.17	.981	38.7	86.1	.089	.117	.069	.0297	.0986	-.0249
319	13000	300	288	7.13	.986	38.7	81.4	.0874	.111	.0807	.0334	.0895	-.0244
320	16000	300	289	7.17	.986	38.7	77	.0912	.106	.0877	.0369	.0914	-.0255
321	3000	300	296	8.16	.977	38.7	91.6	.0887	.141	.0646	.0237	.108	-.014
322	6000	300	295	8.16	.979	38.7	90	.086	.139	.0659	.0267	.106	-.0191
323	9500	300	285	8.15	.977	38.7	86.9	.0882	.134	.0709	.0276	.0898	-.02
324	13000	300	288	8.19	.979	38.7	82	.0861	.128	.0785	.0318	.0823	-.0252
325	16000	300	294	8.23	.98	38.7	77.4	.0902	.122	.0843	.0354	.0865	-.026

Case	Pi, i=1 to 15 ----------)														
301	2.49	2.44	2.39	2.28	2.21	2.12	2.03	1.95	1.86	1.77	1.66	1.54	1.43	1.27	1.13
302	2.53	2.48	2.42	2.31	2.24	2.14	2.05	1.97	1.89	1.78	1.67	1.56	1.43	1.28	1.13
303	2.52	2.47	2.41	2.3	2.23	2.13	2.04	1.95	1.86	1.78	1.66	1.55	1.43	1.27	1.13
304	2.57	2.52	2.45	2.34	2.26	2.16	2.07	1.98	1.88	1.8	1.67	1.56	1.43	1.27	1.13
305	2.55	2.5	2.43	2.32	2.24	2.15	2.05	1.96	1.87	1.78	1.66	1.55	1.43	1.27	1.13
306	3.62	3.55	3.46	3.28	3.18	3.02	2.88	2.74	2.61	2.45	2.27	2.07	1.88	1.59	1.31
307	3.64	3.57	3.48	3.3	3.19	3.05	2.9	2.75	2.62	2.48	2.28	2.09	1.88	1.59	1.31
308	3.64	3.57	3.47	3.3	3.18	3.04	2.88	2.75	2.59	2.47	2.26	2.09	1.88	1.59	1.31
309	3.71	3.63	3.53	3.35	3.22	3.09	2.91	2.78	2.61	2.49	2.27	2.11	1.89	1.6	1.32
310	3.7	3.62	3.52	3.35	3.22	3.08	2.91	2.78	2.61	2.5	2.28	2.11	1.9	1.61	1.32
311	4.7	4.61	4.48	4.25	4.1	3.91	3.71	3.54	3.35	3.17	2.91	2.66	2.38	1.99	1.58
312	4.71	4.63	4.5	4.27	4.12	3.93	3.73	3.56	3.37	3.18	2.92	2.66	2.39	1.99	1.58
313	4.81	4.72	4.59	4.37	4.2	4.04	3.8	3.64	3.42	3.26	2.96	2.74	2.43	2.03	1.61
314	4.8	4.7	4.57	4.35	4.17	4	3.76	3.61	3.38	3.22	2.92	2.71	2.4	2.02	1.6
315	4.85	4.74	4.61	4.38	4.2	4.03	3.79	3.63	3.4	3.25	2.94	2.73	2.42	2.04	1.61
316	5.84	5.72	5.56	5.29	5.1	4.88	4.61	4.41	4.16	3.97	3.62	3.31	2.96	2.46	1.94
317	5.84	5.74	5.58	5.29	5.12	4.89	4.64	4.43	4.19	3.97	3.64	3.31	2.97	2.47	1.94
318	5.9	5.78	5.61	5.35	5.14	4.93	4.65	4.45	4.17	4	3.61	3.33	2.96	2.48	1.94
319	5.9	5.79	5.62	5.35	5.13	4.93	4.62	4.44	4.15	3.97	3.59	3.32	2.93	2.47	1.93
320	5.98	5.85	5.69	5.41	5.18	4.98	4.67	4.49	4.19	4.01	3.63	3.36	2.98	2.51	1.95
321	6.62	6.49	6.31	5.99	5.79	5.53	5.23	5	4.72	4.5	4.11	3.76	3.36	2.79	2.2
322	6.64	6.52	6.34	6.01	5.82	5.54	5.26	5.03	4.76	4.5	4.13	3.76	3.37	2.8	2.19
323	6.67	6.56	6.37	6.07	5.84	5.6	5.27	5.06	4.74	4.54	4.1	3.78	3.36	2.81	2.2
324	6.77	6.64	6.45	6.15	5.89	5.67	5.32	5.11	4.78	4.56	4.14	3.83	3.39	2.85	2.22
325	6.85	6.72	6.51	6.2	5.93	5.7	5.35	5.14	4.8	4.58	4.14	3.85	3.41	2.87	2.22

Table A30b. Static and dynamic test data for seal 6 of Table 3 for high inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
326	3000	292	280	2.99	1.01	56.8	83.7	.0912	.0489	.0906	.0297	.13	-.00714
327	6000	291	285	3.06	1.01	56.8	81.7	.0938	.0491	.0998	.0334	.109	-.0241
328	9500	291	283	3.03	1.01	56.8	78.9	.0953	.0472	.101	.0343	.121	-.024
329	13000	291	292	3.03	1.01	56.8	75.4	.0895	.045	.104	.04	.127	-.0224
330	16000	292	300	3.08	1.01	56.8	70.8	.0918	.043	.0967	.0462	.13	-.0165
331	3000	291	281	4.41	1	56.8	87.2	.0901	.075	.0812	.0278	.114	-.0109
332	6000	291	283	4.4	1.01	56.8	85.1	.0904	.0733	.0853	.0307	.11	-.0178
333	9500	291	283	4.36	1.01	56.8	81.7	.0934	.0699	.0913	.0325	.102	-.0215
334	13000	291	287	4.4	1.01	56.8	78.2	.0988	.0677	.0964	.0362	.112	-.0245
335	16000	293	293	4.42	1	56.8	73.7	.0875	.0641	.091	.0403	.115	-.0219
336	3000	292	285	5.78	.993	56.8	88.7	.086	.0998	.076	.0235	.109	-.0165
337	6000	291	283	5.74	.996	56.8	86.4	.0896	.0971	.0792	.0288	.0956	-.024
338	9500	292	282	5.82	.996	56.8	83.4	.0909	.0949	.0781	.0307	.103	-.0257
339	13000	292	284	5.8	.996	56.8	79.5	.0955	.0905	.0876	.0339	.107	-.0282
340	16000	293	290	5.82	1	56.8	74	.0844	.0847	.0896	.0381	.1	-.0237
341	3000	291	287	7.12	.986	56.8	89.8	.0883	.125	.0704	.0242	.118	-.0257
342	6000	290	284	7.17	.987	56.8	88.8	.0878	.124	.071	.0265	.101	-.023
343	9500	292	281	7.19	.986	56.8	84.7	.0887	.119	.0719	.0288	.104	-.0262
344	13000	292	284	7.14	.986	56.8	80.7	.0942	.113	.0804	.0327	.103	-.0258
345	16000	293	287	7.18	.989	56.8	75.8	.0904	.107	.09	.0368	.0978	-.0257
346	3000	291	286	8.23	.979	56.8	90.3	.0858	.144	.0633	.0242	.114	-.00953
347	6000	290	284	8.16	.982	56.8	89.1	.0865	.142	.0726	.0262	.087	-.0255
348	9500	292	284	8.19	.979	56.8	85.2	.0879	.136	.0711	.0282	.0956	-.0224
349	13000	292	285	8.23	.981	56.8	80.9	.0845	.131	.0797	.0312	.1	-.0241
350	16000	293	288	8.19	.983	56.8	76.1	.089	.122	.0863	.0349	.097	-.0255

Case	Pi, i=1 to 15 ----------)														
326	2.48	2.43	2.37	2.26	2.2	2.11	2.01	1.94	1.84	1.76	1.64	1.54	1.41	1.26	1.13
327	2.55	2.5	2.44	2.33	2.26	2.17	2.06	1.99	1.89	1.8	1.67	1.57	1.44	1.28	1.13
328	2.54	2.49	2.43	2.32	2.25	2.16	2.06	1.98	1.88	1.8	1.67	1.57	1.44	1.28	1.13
329	2.55	2.5	2.44	2.32	2.25	2.16	2.06	1.98	1.89	1.8	1.67	1.57	1.44	1.28	1.13
330	2.6	2.55	2.48	2.36	2.28	2.19	2.08	2	1.9	1.81	1.68	1.58	1.45	1.29	1.14
331	3.61	3.54	3.45	3.27	3.16	3.02	2.86	2.74	2.59	2.45	2.25	2.07	1.86	1.58	1.3
332	3.62	3.54	3.44	3.27	3.15	3.01	2.85	2.73	2.58	2.44	2.24	2.07	1.85	1.58	1.3
333	3.61	3.54	3.45	3.27	3.16	3.02	2.85	2.73	2.58	2.43	2.23	2.06	1.85	1.58	1.3
334	3.67	3.59	3.5	3.32	3.2	3.06	2.89	2.76	2.6	2.46	2.26	2.09	1.86	1.59	1.3
335	3.7	3.61	3.52	3.33	3.21	3.05	2.88	2.76	2.59	2.45	2.24	2.08	1.86	1.59	1.3
336	4.71	4.61	4.5	4.26	4.12	3.93	3.72	3.56	3.37	3.18	2.91	2.67	2.38	2	1.58
337	4.7	4.6	4.49	4.26	4.11	3.93	3.71	3.56	3.35	3.17	2.9	2.66	2.36	1.98	1.56
338	4.79	4.69	4.57	4.33	4.18	3.99	3.77	3.61	3.4	3.21	2.93	2.7	2.4	2.02	1.58
339	4.8	4.7	4.59	4.34	4.19	4	3.77	3.62	3.4	3.22	2.94	2.7	2.4	2.02	1.59
340	4.86	4.75	4.64	4.38	4.22	4.03	3.8	3.63	3.4	3.21	2.94	2.71	2.4	2.02	1.59
341	5.79	5.67	5.53	5.24	5.07	4.84	4.58	4.4	4.15	3.92	3.59	3.29	2.93	2.45	1.91
342	5.84	5.71	5.57	5.29	5.11	4.88	4.61	4.42	4.17	3.94	3.6	3.3	2.94	2.45	1.91
343	5.89	5.77	5.63	5.33	5.15	4.92	4.64	4.46	4.19	3.96	3.62	3.33	2.94	2.47	1.93
344	5.89	5.77	5.63	5.33	5.14	4.92	4.64	4.45	4.17	3.95	3.61	3.32	2.96	2.47	1.93
345	5.97	5.83	5.69	5.37	5.18	4.95	4.67	4.48	4.22	3.98	3.64	3.34	2.98	2.49	1.94
346	6.67	6.53	6.37	6.05	5.84	5.58	5.27	5.05	4.78	4.53	4.13	3.79	3.38	2.83	2.21
347	6.63	6.5	6.34	6.01	5.8	5.55	5.24	5.03	4.75	4.49	4.1	3.76	3.34	2.8	2.18
348	6.71	6.57	6.43	6.08	5.87	5.61	5.29	5.09	4.79	4.52	4.13	3.8	3.37	2.82	2.2
349	6.8	6.67	6.51	6.17	5.94	5.68	5.35	5.14	4.83	4.57	4.17	3.83	3.42	2.86	2.23
350	6.82	6.67	6.5	6.14	5.91	5.65	5.31	5.09	4.79	4.52	4.15	3.81	3.4	2.85	2.21

Table A30c. Static and dynamic test data for seal 6 of Table 3 for high inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
351	3000	296	284	2.98	1.01	74.6	84	.0879	.0483	.0996	.0294	.122	-.0125
352	6000	296	291	3.07	1.01	74.6	82.8	.0847	.0489	.1	.0315	.122	-.0107
353	9500	297	287	3.05	1.01	74.6	79.8	.0893	.047	.103	.0333	.117	-.0165
354	13000	297	294	3.03	1.01	74.6	76.4	.0902	.0448	.0965	.0364	.126	-.0144
355	16000	297	299	3.07	1.01	74.6	71.4	.0888	.0427	.108	.0429	.108	-.0236
356	3000	296	284	4.42	1.01	74.6	87.5	.0878	.0742	.0911	.0227	.107	-.0132
357	6000	296	289	4.39	1.01	74.6	85.8	.0941	.0725	.0907	.0252	.102	-.0224
358	9500	297	286	4.41	1.01	74.6	82.7	.0839	.0703	.0953	.0283	.108	-.0174
359	13000	297	289	4.4	1.01	74.6	78.6	.0855	.0669	.0967	.033	.108	-.0158
360	16000	298	294	4.43	1.01	74.6	74.7	.0827	.0641	.0969	.0368	.108	-.0236
361	3000	296	286	5.77	.997	74.6	89	.0848	.0984	.0723	.0244	.129	-.0155
362	6000	296	286	5.78	.999	74.6	87.8	.0919	.0974	.0813	.0228	.107	-.0159
363	9500	297	285	5.77	.998	74.6	84.6	.0833	.0936	.0827	.0275	.0995	-.0194
364	13000	297	287	5.77	.998	74.6	80.2	.0954	.0893	.0881	.0295	.103	-.0194
365	16000	298	292	5.8	1	74.6	75	.0914	.0842	.1	.0345	.0977	-.0229
366	3000	296	292	7.13	.992	74.6	90.5	.0868	.123	.074	.0195	.119	-.0133
367	6000	297	287	7.21	.987	74.6	89.5	.0964	.124	.076	.0227	.105	-.0157
368	9500	297	285	7.15	.986	74.6	86	.0926	.118	.0793	.0256	.103	-.021
369	13000	297	289	7.17	.986	74.6	81.7	.0926	.113	.0869	.0284	.0986	-.0189
370	16000	298	288	6.89	.99	74.6	79.3	.0917	.105	.1	.033	.0915	-.0271
371	3000	297	292	8.14	.983	74.6	91.2	.0859	.142	.0701	.021	.118	-.00997
372	6000	296	290	8.22	.982	74.6	90	.0945	.142	.0736	.0219	.105	-.0157
373	9500	297	289	8.17	.982	74.6	86.2	.0925	.135	.0772	.0227	.0946	-.023
374	13000	297	288	8.19	.982	74.6	82.4	.0892	.13	.085	.0266	.0989	-.0205
375	16000	298	289	8.16	.985	74.6	76.8	.0867	.121	.0929	.0309	.0931	-.0215

Case	Pi, i=1 to 15 ---------->														
351	2.49	2.43	2.38	2.27	2.2	2.11	2.01	1.94	1.84	1.76	1.63	1.54	1.41	1.27	1.13
352	2.56	2.51	2.45	2.33	2.26	2.17	2.07	2	1.9	1.81	1.67	1.57	1.44	1.28	1.14
353	2.55	2.5	2.45	2.33	2.26	2.17	2.07	2	1.9	1.81	1.68	1.58	1.45	1.29	1.14
354	2.55	2.5	2.44	2.32	2.24	2.15	2.05	1.97	1.87	1.79	1.66	1.56	1.43	1.27	1.13
355	2.6	2.54	2.47	2.36	2.27	2.18	2.08	1.99	1.9	1.8	1.67	1.57	1.44	1.28	1.13
356	3.62	3.55	3.46	3.28	3.17	3.03	2.87	2.75	2.61	2.47	2.26	2.09	1.86	1.59	1.31
357	3.62	3.54	3.46	3.28	3.16	3.03	2.87	2.76	2.61	2.46	2.26	2.08	1.86	1.59	1.31
358	3.65	3.58	3.49	3.3	3.19	3.05	2.88	2.76	2.61	2.47	2.26	2.09	1.87	1.61	1.31
359	3.67	3.6	3.51	3.33	3.21	3.06	2.89	2.76	2.61	2.47	2.26	2.09	1.87	1.59	1.31
360	3.7	3.62	3.53	3.34	3.22	3.07	2.9	2.77	2.62	2.47	2.27	2.1	1.88	1.6	1.31
361	4.71	4.6	4.49	4.26	4.11	3.93	3.72	3.56	3.37	3.19	2.91	2.68	2.38	2	1.58
362	4.72	4.63	4.52	4.28	4.13	3.94	3.72	3.56	3.37	3.18	2.91	2.67	2.38	1.99	1.57
363	4.74	4.64	4.54	4.28	4.13	3.95	3.73	3.57	3.37	3.17	2.9	2.66	2.36	1.99	1.57
364	4.78	4.68	4.58	4.33	4.17	3.99	3.75	3.59	3.38	3.2	2.92	2.69	2.39	2.01	1.58
365	4.83	4.73	4.61	4.36	4.2	4	3.78	3.61	3.39	3.2	2.93	2.7	2.4	2.01	1.58
366	5.8	5.67	5.54	5.26	5.08	4.85	4.58	4.4	4.14	3.92	3.59	3.3	2.94	2.47	1.92
367	5.88	5.76	5.62	5.33	5.15	4.92	4.65	4.46	4.21	3.98	3.64	3.34	2.97	2.48	1.93
368	5.87	5.75	5.62	5.32	5.13	4.9	4.62	4.43	4.2	3.96	3.61	3.32	2.94	2.46	1.92
369	5.92	5.81	5.68	5.38	5.18	4.96	4.67	4.47	4.2	3.97	3.63	3.34	2.98	2.48	1.93
370	5.93	5.8	5.66	5.35	5.15	4.92	4.63	4.43	4.16	3.93	3.6	3.32	2.96	2.47	1.93
371	6.6	6.47	6.32	5.99	5.78	5.52	5.22	5	4.73	4.48	4.1	3.75	3.34	2.8	2.18
372	6.69	6.55	6.4	6.05	5.85	5.59	5.27	5.06	4.8	4.53	4.14	3.79	3.37	2.81	2.19
373	6.69	6.57	6.41	6.07	5.85	5.59	5.27	5.07	4.79	4.52	4.12	3.78	3.35	2.82	2.19
374	6.75	6.62	6.47	6.13	5.9	5.64	5.32	5.09	4.79	4.53	4.15	3.8	3.4	2.83	2.2
375	6.78	6.64	6.49	6.14	5.92	5.65	5.32	5.08	4.78	4.52	4.14	3.81	3.39	2.83	2.2

Table A31a. Static and dynamic test data for seal 7 of Table 3 for no inlet circumferential velocity and 38.7 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
1	3000	298	284	3.03	1	38.7	0	.0886	.0448	-.0179	-.00624	.174	.0143
2	6000	297	287	3	1.01	38.7	0	.0865	.0442	-.0206	-.00637	.179	.0145
3	9500	298	287	3.07	1.01	38.7	0	.085	.0431	-.00606	-.00262	.155	.00337
4	13000	299	292	3.04	1.01	38.7	0	.0888	.0401	.00198	.00608	.153	.0061
5	16000	299	296	3.08	1.01	38.7	0	.089	.0376	-.00271	.00928	.162	.00373
6	3000	298	287	4.41	.997	38.7	0	.0859	.0681	-.00489	-.00429	.154	.00915
7	6000	297	284	4.41	.997	38.7	0	.0846	.0676	-.0026	-.00412	.155	.0099
8	9500	298	286	4.44	1	38.7	0	.0833	.0645	.00725	.000426	.135	.00487
9	13000	298	289	4.42	.999	38.7	0	.0854	.0609	.0198	.00685	.124	.000106
10	16000	300	298	4.4	1	38.7	0	.0841	.056	.0264	.0143	.127	-.00458
11	3000	298	288	5.76	.991	38.7	0	.0857	.0903	-.00597	-.00251	.149	.00936
12	6000	297	285	5.77	.99	38.7	0	.0842	.0902	-.00333	-.00263	.155	.0105
13	9500	298	285	5.79	.993	38.7	0	.0821	.0856	.00603	.000497	.136	.00521
14	13000	298	288	5.76	.996	38.7	0	.0836	.0803	.0205	.00842	.123	-.00109
15	16000	300	293	5.82	.996	38.7	0	.0831	.0749	.0243	.0138	.125	-.00242
16	3000	298	292	7.16	.98	38.7	0	.0855	.114	-.00608	-.00236	.143	.0081
17	6000	297	291	7.13	.983	38.7	0	.0837	.112	-.00443	-.005	.139	.015
18	9500	298	286	7.11	.985	38.7	0	.0812	.106	.00397	-.00181	.133	.0123
19	13000	298	286	7.15	.991	38.7	0	.0799	.101	.0169	.00477	.12	.00329
20	16000	300	291	7.17	.986	38.7	0	.0816	.0928	.0266	.0116	.115	-.00555
21	3000	297	294	8.14	.979	38.7	0	.0863	.131	-.00638	-.00386	.126	.00902
22	6000	298	295	8.14	.976	38.7	0	.0851	.129	-.00507	-.00504	.123	.014
23	9500	298	292	8.17	.98	38.7	0	.0817	.124	.00125	-.00385	.122	.0133
24	13000	298	287	8.17	.984	38.7	0	.0795	.117	.0122	.0011	.109	.00427
25	16000	300	291	8.17	.982	38.7	0	.0814	.108	.019	.00542	.102	-.00377

Case	Pi, i=1 to 15 ----------)														
1	2.77	2.7	2.62	2.51	2.45	2.33	2.21	2.07	1.98	1.84	1.72	1.62	1.45	1.34	1.16
2	2.74	2.68	2.59	2.49	2.43	2.3	2.18	2.02	1.95	1.81	1.7	1.58	1.44	1.32	1.15
3	2.8	2.74	2.63	2.54	2.46	2.35	2.21	2.07	1.97	1.85	1.72	1.61	1.45	1.34	1.16
4	2.77	2.7	2.6	2.51	2.44	2.32	2.19	2.04	1.95	1.83	1.71	1.59	1.44	1.33	1.15
5	2.82	2.74	2.64	2.55	2.47	2.35	2.23	2.07	1.98	1.85	1.72	1.6	1.45	1.34	1.16
6	4	3.91	3.76	3.62	3.52	3.32	3.13	2.88	2.74	2.53	2.34	2.14	1.9	1.68	1.36
7	3.99	3.9	3.75	3.61	3.5	3.3	3.1	2.85	2.71	2.51	2.31	2.12	1.88	1.65	1.35
8	4.03	3.93	3.77	3.64	3.5	3.33	3.1	2.88	2.72	2.52	2.31	2.14	1.87	1.67	1.35
9	4.01	3.9	3.75	3.6	3.48	3.29	3.09	2.84	2.69	2.5	2.3	2.11	1.86	1.65	1.34
10	4	3.89	3.74	3.58	3.49	3.28	3.1	2.84	2.71	2.49	2.31	2.1	1.86	1.65	1.34
11	5.2	5.08	4.88	4.69	4.55	4.29	4.04	3.71	3.51	3.24	2.98	2.71	2.39	2.09	1.65
12	5.21	5.09	4.88	4.69	4.55	4.28	4.02	3.68	3.49	3.22	2.96	2.68	2.36	2.06	1.63
13	5.25	5.12	4.91	4.72	4.57	4.31	4.04	3.71	3.52	3.25	2.98	2.71	2.38	2.09	1.64
14	5.22	5.08	4.87	4.69	4.52	4.29	4.01	3.68	3.48	3.23	2.94	2.7	2.36	2.08	1.63
15	5.27	5.13	4.93	4.71	4.58	4.3	4.05	3.69	3.53	3.22	2.98	2.69	2.37	2.08	1.63
16	6.46	6.29	6.05	5.8	5.65	5.31	5.01	4.59	4.35	4	3.69	3.33	2.95	2.55	2
17	6.45	6.3	6.04	5.82	5.63	5.32	4.99	4.58	4.34	4.01	3.66	3.33	2.92	2.55	1.99
18	6.43	6.27	6	5.78	5.57	5.27	4.93	4.52	4.27	3.95	3.6	3.29	2.87	2.51	1.95
19	6.48	6.31	6.04	5.83	5.61	5.32	4.97	4.57	4.31	3.99	3.64	3.34	2.9	2.55	1.98
20	6.5	6.32	6.06	5.81	5.63	5.3	4.98	4.55	4.33	3.97	3.65	3.31	2.9	2.54	1.97
21	7.34	7.17	6.88	6.62	6.41	6.05	5.69	5.23	4.94	4.57	4.18	3.8	3.34	2.91	2.27
22	7.35	7.18	6.89	6.62	6.41	6.05	5.69	5.21	4.94	4.55	4.17	3.79	3.33	2.9	2.26
23	7.38	7.2	6.89	6.65	6.4	6.07	5.67	5.21	4.92	4.54	4.15	3.8	3.31	2.9	2.26
24	7.4	7.21	6.9	6.65	6.39	6.08	5.66	5.21	4.92	4.55	4.16	3.82	3.3	2.91	2.24
25	7.4	7.19	6.9	6.6	6.4	6.02	5.67	5.17	4.92	4.53	4.16	3.76	3.3	2.88	2.23

Table A31b. Static and dynamic test data for seal 7 of Table 3 for no inlet circumferential velocity and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	K	k	Cx1000	cx1000
26	3000	301	286	3	1.01	56.8	0	.0864	.0451	-.00911	-.00724	.174	.00125
27	6000	301	289	3	1.02	56.8	0	.0821	.0443	-.0187	-.00677	.175	.00734
28	9500	301	287	3.05	1.01	56.8	0	.081	.0429	-.00205	-.00315	.159	-.00189
29	13000	300	290	3.11	1.01	56.8	0	.0818	.0408	.00704	.00335	.148	-.00353
30	16000	301	294	3.08	1.01	56.8	0	.0802	.0376	.00779	.00898	.159	-.00642
31	3000	300	289	4.39	1.01	56.8	0	.0817	.0679	.000635	-.00447	.148	.00529
32	6000	300	287	4.39	1.01	56.8	0	.0803	.067	.00138	-.00447	.151	.00327
33	9500	301	287	4.43	1.01	56.8	0	.0782	.0645	.0125	-.00106	.138	-.00577
34	13000	300	290	4.4	1	56.8	0	.0794	.0603	.0233	.00551	.127	-.00448
35	16000	300	297	4.44	1	56.8	0	.0742	.056	.0308	.0134	.125	-.00999
36	3000	301	294	5.76	.998	56.8	0	.0816	.0908	.00741	-.00313	.143	-.00467
37	6000	301	292	5.74	1	56.8	0	.0811	.0893	.00126	-.00227	.15	.00404
38	9500	301	287	5.79	1	56.8	0	.0763	.0852	.0102	.000525	.139	-.000879
39	13000	301	289	5.75	.999	56.8	0	.0747	.0806	.0244	.00684	.126	-.00525
40	16000	301	293	5.75	1	56.8	0	.0717	.0739	.0314	.0132	.123	-.0103
41	3000	301	296	7.09	.99	56.8	0	.0824	.113	-.000233	-.0039	.131	.001
42	6000	301	298	7.13	.993	56.8	0	.0792	.112	-.000672	-.00262	.133	-1.87E-6
43	9500	301	291	7.13	.992	56.8	0	.0766	.107	.0112	-.000916	.128	.00169
44	13000	300	289	7.13	.996	56.8	0	.0732	.101	.0218	.00503	.117	-.00478
45	16000	301	291	7.18	.991	56.8	0	.0694	.0933	.028	.01	.114	-.0105
46	3000	301	298	8.15	.986	56.8	0	.0803	.131	-.0018	-.00194	.116	-.0024
47	6000	301	298	8.17	.984	56.8	0	.0793	.129	4.63E-5	-.004	.109	-.0016
48	9500	301	299	8.14	.986	56.8	0	.0751	.123	.00511	-.00295	.108	.00165
49	13000	301	297	8.15	.989	56.8	0	.0726	.115	.0179	.00162	.0985	-.00635
50	16000	301	291	8.21	.989	56.8	0	.0681	.108	.0243	.00502	.0894	-.0128

Case	Pi, i=1 to 15 ---------->														
26	2.74	2.68	2.59	2.5	2.42	2.31	2.18	2.04	1.96	1.83	1.71	1.6	1.44	1.33	1.16
27	2.75	2.68	2.59	2.5	2.42	2.31	2.17	2.03	1.95	1.82	1.7	1.59	1.44	1.33	1.16
28	2.79	2.72	2.63	2.54	2.46	2.35	2.21	2.07	1.98	1.85	1.72	1.62	1.46	1.34	1.17
29	2.85	2.77	2.68	2.58	2.5	2.38	2.25	2.1	2.01	1.88	1.75	1.63	1.47	1.35	1.17
30	2.82	2.74	2.64	2.55	2.47	2.36	2.22	2.07	1.98	1.85	1.72	1.61	1.45	1.34	1.16
31	3.98	3.88	3.74	3.61	3.49	3.31	3.1	2.88	2.74	2.52	2.33	2.14	1.89	1.67	1.36
32	3.99	3.89	3.75	3.61	3.48	3.3	3.09	2.86	2.71	2.5	2.31	2.12	1.87	1.66	1.35
33	4.03	3.93	3.78	3.64	3.51	3.33	3.11	2.88	2.74	2.52	2.33	2.13	1.88	1.68	1.35
34	4	3.89	3.75	3.6	3.48	3.3	3.08	2.85	2.7	2.49	2.3	2.12	1.87	1.67	1.35
35	4.05	3.93	3.78	3.63	3.51	3.33	3.12	2.88	2.72	2.5	2.31	2.11	1.86	1.66	1.34
36	5.21	5.07	4.89	4.7	4.55	4.31	4.04	3.73	3.52	3.24	2.98	2.73	2.39	2.1	1.65
37	5.2	5.07	4.89	4.69	4.54	4.3	4.02	3.72	3.52	3.22	2.97	2.71	2.37	2.08	1.64
38	5.25	5.12	4.93	4.74	4.58	4.34	4.05	3.74	3.54	3.25	2.99	2.74	2.39	2.11	1.65
39	5.22	5.07	4.88	4.68	4.53	4.29	4	3.69	3.5	3.22	2.96	2.71	2.37	2.08	1.63
40	5.22	5.07	4.88	4.68	4.51	4.28	4	3.68	3.49	3.2	2.94	2.68	2.34	2.07	1.62
41	6.41	6.24	6.01	5.79	5.6	5.29	4.96	4.58	4.33	3.97	3.66	3.33	2.91	2.55	1.98
42	6.45	6.29	6.05	5.82	5.62	5.33	4.99	4.6	4.35	3.99	3.67	3.35	2.92	2.55	1.99
43	6.46	6.29	6.05	5.81	5.61	5.32	4.97	4.59	4.34	3.98	3.66	3.33	2.9	2.55	1.98
44	6.47	6.28	6.04	5.8	5.6	5.3	4.96	4.56	4.33	3.98	3.66	3.32	2.9	2.55	1.97
45	6.52	6.32	6.08	5.83	5.62	5.32	4.98	4.59	4.34	3.99	3.66	3.34	2.91	2.55	1.98
46	7.37	7.17	6.9	6.64	6.42	6.08	5.7	5.26	4.97	4.56	4.2	3.83	3.35	2.93	2.27
47	7.4	7.2	6.93	6.67	6.44	6.1	5.72	5.27	4.98	4.56	4.2	3.82	3.34	2.93	2.27
48	7.37	7.18	6.9	6.64	6.4	6.07	5.67	5.24	4.95	4.55	4.17	3.8	3.31	2.91	2.26
49	7.38	7.18	6.91	6.64	6.41	6.07	5.67	5.22	4.94	4.54	4.17	3.79	3.3	2.9	2.24
50	7.45	7.22	6.95	6.65	6.43	6.09	5.68	5.24	4.93	4.54	4.17	3.79	3.31	2.9	2.24

Table A31c. Static and dynamic test data for seal 7 of Table 3 for no inlet circumferential velocity and 74.6 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
51	3000	301	286	3	1.01	74.6	0	.0922	.0447	-.00714	-.00751	.169	.00959
52	6000	300	289	2.99	1.01	74.6	0	.0908	.0443	-.0053	-.00635	.176	.00649
53	9500	301	287	3.09	1.01	74.6	0	.0938	.0436	.00508	-.00419	.156	.00274
54	13000	300	291	3.06	1.01	74.6	0	.0893	.04	.0112	.00327	.147	-.000713
55	16000	300	293	3.11	1.01	74.6	0	.0935	.0382	.0185	.00949	.154	-.00657
56	3000	301	290	4.39	1.01	74.6	0	.0793	.0675	.00629	-.00537	.147	.00221
57	6000	300	286	4.38	1.01	74.6	0	.0861	.067	.013	-.00643	.148	.00506
58	9500	301	287	4.38	1.01	74.6	0	.0799	.0636	.0193	-.00222	.132	.00137
59	13000	300	290	4.41	1	74.6	0	.0874	.0607	.0309	.00563	.127	-.00486
60	16000	301	294	4.44	1	74.6	0	.0876	.0564	.041	.0119	.118	-.0114
61	3000	301	293	5.78	.999	74.6	0	.0799	.0906	.00927	-.00346	.141	.00222
62	6000	300	290	5.75	.997	74.6	0	.0856	.089	.0104	-.00384	.143	-.00024
63	9500	300	286	5.76	.999	74.6	0	.0877	.085	.0199	-.000609	.132	.00226
64	13000	300	288	5.8	.999	74.6	0	.0877	.0812	.0329	.00628	.123	-.00605
65	16000	300	292	5.81	1	74.6	0	.0826	.075	.0381	.0117	.117	-.00788
66	3000	301	295	7.13	.99	74.6	0	.0776	.113	.00561	-.000858	.137	.00332
67	6000	300	297	7.11	.991	74.6	0	.0738	.111	.00821	-.00527	.131	.00264
68	9500	300	288	7.11	.99	74.6	0	.0854	.106	.0203	.000191	.129	.00328
69	13000	300	287	7.14	.995	74.6	0	.0829	.1	.03	.00369	.115	-.00404
70	16000	300	291	7.17	.992	74.6	0	.0817	.0932	.038	.00826	.107	-.00742
71	3000	301	297	8.13	.986	74.6	0	.0757	.131	.00608	-.00319	.118	.00392
72	6000	300	297	8.14	.986	74.6	0	.0721	.128	.00745	-.00469	.113	.00352
73	9500	300	297	8.13	.986	74.6	0	.0836	.123	.0137	-.00284	.111	.00584
74	13000	301	287	8.2	.987	74.6	0	.0831	.117	.0238	.0018	.104	-.00179
75	16000	300	290	8.21	.989	74.6	0	.0789	.109	.0314	.00494	.0941	-.00687

Case	Pi, i=1 to 15 ---------->														
51	2.74	2.67	2.58	2.5	2.42	2.31	2.18	2.04	1.96	1.82	1.71	1.6	1.44	1.34	1.16
52	2.73	2.66	2.57	2.48	2.41	2.29	2.16	2.02	1.93	1.8	1.69	1.58	1.43	1.32	1.15
53	2.83	2.76	2.66	2.57	2.49	2.37	2.24	2.09	2	1.87	1.74	1.63	1.47	1.35	1.17
54	2.8	2.73	2.64	2.54	2.46	2.35	2.22	2.07	1.98	1.85	1.73	1.62	1.46	1.35	1.16
55	2.85	2.77	2.67	2.57	2.49	2.38	2.24	2.09	2	1.86	1.73	1.62	1.46	1.35	1.16
56	3.98	3.88	3.74	3.61	3.5	3.31	3.11	2.88	2.72	2.51	2.32	2.13	1.88	1.67	1.34
57	3.97	3.87	3.73	3.59	3.48	3.29	3.08	2.85	2.7	2.49	2.3	2.11	1.87	1.66	1.35
58	3.98	3.87	3.73	3.59	3.47	3.29	3.08	2.85	2.7	2.49	2.29	2.11	1.86	1.66	1.34
59	4	3.9	3.75	3.61	3.48	3.31	3.1	2.86	2.71	2.5	2.3	2.12	1.87	1.66	1.35
60	4.03	3.92	3.77	3.62	3.5	3.32	3.11	2.87	2.72	2.5	2.31	2.11	1.87	1.66	1.35
61	5.22	5.09	4.91	4.72	4.57	4.33	4.06	3.75	3.53	3.24	2.99	2.74	2.4	2.1	1.65
62	5.21	5.08	4.89	4.71	4.56	4.31	4.03	3.72	3.52	3.23	2.97	2.72	2.38	2.1	1.64
63	5.22	5.09	4.89	4.71	4.55	4.31	4.03	3.71	3.51	3.22	2.96	2.71	2.37	2.09	1.64
64	5.25	5.1	4.91	4.71	4.54	4.31	4.02	3.72	3.5	3.21	2.95	2.69	2.36	2.07	1.63
65	5.27	5.11	4.91	4.72	4.55	4.31	4.03	3.7	3.5	3.21	2.95	2.68	2.35	2.07	1.62
66	6.43	6.27	6.03	5.81	5.63	5.31	4.99	4.61	4.35	3.98	3.66	3.34	2.92	2.56	1.99
67	6.44	6.28	6.05	5.83	5.63	5.32	4.99	4.6	4.35	3.98	3.66	3.33	2.91	2.55	1.99
68	6.44	6.26	6.03	5.8	5.6	5.31	4.96	4.58	4.31	3.96	3.64	3.31	2.89	2.54	1.97
69	6.46	6.28	6.04	5.81	5.61	5.31	4.97	4.57	4.31	3.97	3.64	3.31	2.89	2.53	1.97
70	6.5	6.31	6.07	5.82	5.61	5.33	4.98	4.57	4.33	3.98	3.65	3.32	2.9	2.55	1.97
71	7.34	7.14	6.87	6.62	6.4	6.06	5.68	5.25	4.96	4.55	4.17	3.8	3.32	2.92	2.26
72	7.36	7.18	6.91	6.66	6.43	6.09	5.7	5.26	4.96	4.55	4.18	3.8	3.32	2.91	2.26
73	7.36	7.17	6.9	6.64	6.41	6.07	5.68	5.23	4.94	4.53	4.16	3.79	3.3	2.9	2.25
74	7.42	7.22	6.95	6.68	6.44	6.1	5.71	5.25	4.96	4.55	4.18	3.81	3.31	2.91	2.25
75	7.44	7.21	6.93	6.67	6.44	6.08	5.68	5.21	4.95	4.54	4.17	3.79	3.3	2.9	2.23

Table A32a. Static and dynamic test data for seal 7 of Table 3 for low inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
76	3000	302	288	3.07	1.01	38.7	-28.6	.0898	.0459	-.0179	-.0173	.181	.0237
77	6000	302	290	3.05	1.01	38.7	-27.9	.0894	.0445	-.0203	-.0152	.191	.0225
78	9500	303	290	3	1.01	38.7	-26.5	.088	.0414	.00499	-.00514	.141	.00878
79	13000	302	294	2.99	1.01	38.7	-24.8	.0932	.0388	.00904	.00122	.156	.0148
80	16000	302	296	3.09	1.01	38.7	-23.1	.0931	.0374	.00895	.0029	.165	.0154
81	3000	302	290	4.39	1	38.7	-29.5	.0877	.0676	-.00509	-.0147	.164	.0246
82	6000	303	287	4.38	1	38.7	-28.9	.0883	.0659	.000674	-.0123	.169	.0201
83	9500	302	289	4.37	1.01	38.7	-27.5	.0869	.0628	.0162	-.00408	.124	.000808
84	13000	302	291	4.45	.999	38.7	-25.7	.0893	.0599	.0275	.00287	.126	.0113
85	16000	303	297	4.4	1	38.7	-23.9	.0892	.055	.0352	.0083	.129	.0105
86	3000	303	296	5.74	.992	38.7	-30	.0875	.0898	-.0048	-.0112	.163	.0169
87	6000	302	290	5.82	.995	38.7	-29.1	.0885	.0885	-.00445	-.0098	.163	.0178
88	9500	302	288	5.81	.999	38.7	-27.7	.0856	.084	.0162	-.00203	.128	-.00252
89	13000	302	290	5.74	.996	38.7	-26.3	.0881	.0789	.0278	.00351	.122	.0082
90	16000	303	294	5.79	.997	38.7	-24.3	.0876	.0735	.036	.00964	.125	.0102
91	3000	303	297	7.12	.985	38.7	-30.3	.0874	.112	-.00638	-.0101	.163	.0209
92	6000	302	299	7.14	.986	38.7	-29.5	.0879	.11	-.000504	-.0105	.148	.0177
93	9500	302	289	7.15	.991	38.7	-28.4	.0848	.106	.0166	-.00185	.115	.00232
94	13000	303	289	7.19	.986	38.7	-26.6	.0873	.0996	.0257	.00232	.113	.00741
95	16000	304	293	7.12	.989	38.7	-24.7	.0868	.0916	.0334	.00677	.117	.0111
96	3000	302	300	8.14	.977	38.7	-30.7	.0876	.13	-.00552	-.0109	.133	.013
97	6000	303	300	8.15	.983	38.7	-29.9	.0871	.127	-.00175	-.0111	.13	.0115
98	9500	303	297	8.18	.987	38.7	-28.5	.0844	.122	.0133	-.00425	.107	.00644
99	13000	303	289	8.14	.987	38.7	-26.9	.0865	.114	.0217	-.000376	.105	.00927
100	16000	303	293	8.21	.981	38.7	-25.1	.0859	.108	.0275	.00281	.102	.00953

Case	Pi, i=1 to 15 ---------->														
76	2.76	2.7	2.61	2.52	2.46	2.33	2.21	2.07	1.98	1.85	1.73	1.61	1.46	1.34	1.16
77	2.75	2.69	2.6	2.51	2.44	2.32	2.19	2.04	1.95	1.83	1.7	1.59	1.44	1.33	1.16
78	2.72	2.65	2.56	2.47	2.39	2.29	2.15	2.02	1.93	1.82	1.69	1.59	1.43	1.33	1.15
79	2.72	2.65	2.56	2.46	2.4	2.28	2.16	2.02	1.94	1.81	1.69	1.58	1.43	1.32	1.15
80	2.81	2.73	2.63	2.54	2.46	2.34	2.22	2.06	1.98	1.84	1.72	1.6	1.45	1.33	1.16
81	3.92	3.83	3.69	3.56	3.47	3.28	3.1	2.86	2.72	2.51	2.32	2.13	1.89	1.67	1.36
82	3.93	3.83	3.7	3.56	3.45	3.27	3.07	2.84	2.69	2.5	2.29	2.12	1.87	1.66	1.34
83	3.93	3.83	3.67	3.54	3.42	3.24	3.03	2.8	2.65	2.46	2.26	2.08	1.83	1.63	1.33
84	4.02	3.91	3.76	3.62	3.5	3.31	3.12	2.86	2.73	2.52	2.33	2.13	1.88	1.67	1.35
85	3.97	3.86	3.71	3.57	3.45	3.27	3.07	2.82	2.68	2.48	2.29	2.09	1.85	1.64	1.33
86	5.1	4.98	4.79	4.62	4.48	4.23	3.99	3.67	3.46	3.2	2.94	2.68	2.36	2.06	1.63
87	5.2	5.08	4.89	4.71	4.57	4.32	4.05	3.73	3.53	3.26	2.98	2.72	2.39	2.09	1.64
88	5.21	5.07	4.87	4.69	4.52	4.28	4	3.7	3.48	3.22	2.94	2.71	2.35	2.08	1.62
89	5.17	5.03	4.82	4.64	4.47	4.24	3.97	3.64	3.45	3.19	2.92	2.67	2.34	2.06	1.61
90	5.23	5.08	4.88	4.69	4.53	4.29	4.03	3.68	3.49	3.23	2.96	2.7	2.36	2.08	1.63
91	6.33	6.18	5.94	5.72	5.54	5.25	4.94	4.54	4.29	3.97	3.62	3.31	2.9	2.53	1.98
92	6.36	6.22	5.99	5.77	5.59	5.3	4.97	4.57	4.32	4	3.65	3.35	2.91	2.55	1.98
93	6.4	6.25	6.02	5.8	5.58	5.3	4.95	4.56	4.3	3.98	3.63	3.34	2.89	2.54	1.97
94	6.46	6.29	6.04	5.8	5.6	5.29	4.96	4.55	4.31	3.99	3.65	3.32	2.9	2.54	1.97
95	6.42	6.24	5.98	5.76	5.54	5.26	4.92	4.52	4.28	3.95	3.61	3.3	2.87	2.53	1.96
96	7.21	7.05	6.78	6.51	6.34	5.98	5.64	5.18	4.9	4.52	4.15	3.77	3.31	2.87	2.24
97	7.25	7.1	6.83	6.59	6.37	6.05	5.67	5.23	4.93	4.55	4.15	3.82	3.31	2.91	2.25
98	7.33	7.13	6.86	6.63	6.37	6.05	5.64	5.22	4.91	4.53	4.14	3.81	3.28	2.9	2.24
99	7.33	7.11	6.84	6.58	6.34	6.01	5.63	5.17	4.88	4.52	4.13	3.78	3.28	2.88	2.23
100	7.38	7.18	6.89	6.61	6.4	6.05	5.67	5.18	4.91	4.53	4.16	3.77	3.3	2.89	2.23

Table A32b. Static and dynamic test data for seal 7 of Table 3 for low inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
101	3000	297	286	3.05	1.01	56.8	-28.2	.0898	.0456	-.00914	-.0149	.184	.0203
102	6000	299	289	3.06	1.01	56.8	-27.8	.0941	.045	-.00427	-.0129	.184	.0178
103	9500	299	289	3.03	1.01	56.8	-26.2	.0874	.0421	.00504	-.00629	.147	.00192
104	13000	299	291	3.04	1.01	56.8	-24.7	.0952	.0396	.0132	.00264	.156	.00585
105	16000	300	295	3.05	1	56.8	-23	.0874	.037	.0086	.00758	.164	.00953
106	3000	298	286	4.36	1	56.8	-29.1	.089	.0673	.00955	-.0113	.164	.0142
107	6000	299	286	4.37	1	56.8	-28.8	.0924	.0665	.00395	-.00965	.159	.0148
108	9500	299	287	4.37	1	56.8	-27.3	.093	.063	.0219	-.00303	.125	-.00198
109	13000	300	290	4.44	.998	56.8	-25.7	.0951	.06	.0308	.00403	.129	.00023
110	16000	300	295	4.39	.999	56.8	-23.7	.0817	.0549	.0388	.0114	.127	-.000165
111	3000	298	291	5.73	.993	56.8	-29.7	.0887	.0901	.011	-.00841	.158	.012
112	6000	299	290	5.78	.992	56.8	-29.2	.0891	.089	.0085	-.00772	.154	.0113
113	9500	299	286	5.81	.994	56.8	-27.7	.0903	.085	.02	-.00244	.132	-.00559
114	13000	300	289	5.78	.993	56.8	-26.2	.0914	.0798	.0345	.0058	.12	-.00161
115	16000	300	293	5.81	.995	56.8	-24.2	.0843	.0741	.0382	.012	.125	-.00171
116	3000	298	294	7.1	.985	56.8	-29.9	.0879	.112	.0107	-.00726	.149	.0104
117	6000	299	295	7.12	.985	56.8	-29.5	.0884	.111	.000342	-.00595	.15	.00885
118	9500	300	288	7.13	.984	56.8	-28.2	.088	.106	.0203	-.00186	.124	-.0021
119	13000	300	288	7.12	.989	56.8	-26.5	.091	.0993	.0291	.00293	.117	-.000734
120	16000	300	292	7.16	.988	56.8	-24.5	.0826	.0924	.0357	.00811	.114	-.000109
121	3000	298	295	8.13	.981	56.8	-30.3	.0872	.13	.00126	-.00696	.132	.0092
122	6000	299	297	8.14	.981	56.8	-29.7	.0887	.128	.00355	-.0078	.119	.00758
123	9500	300	295	8.17	.982	56.8	-28.5	.0867	.123	.0189	-.00207	.105	.000864
124	13000	300	287	8.2	.984	56.8	-26.6	.0845	.115	.0259	.00152	.105	-.000516
125	16000	301	292	8.2	.984	56.8	-25	.0885	.108	.0318	.0052	.0972	-.00284

Case	Pi, i=1 to 15 ----------)														
101	2.74	2.68	2.59	2.51	2.44	2.32	2.19	2.06	1.97	1.84	1.72	1.61	1.45	1.34	1.16
102	2.76	2.69	2.6	2.5	2.43	2.31	2.18	2.04	1.95	1.82	1.7	1.59	1.44	1.32	1.15
103	2.75	2.69	2.6	2.51	2.43	2.32	2.19	2.05	1.96	1.83	1.71	1.6	1.44	1.33	1.16
104	2.76	2.69	2.59	2.5	2.42	2.31	2.18	2.04	1.95	1.82	1.7	1.59	1.44	1.33	1.15
105	2.77	2.7	2.6	2.51	2.43	2.32	2.19	2.04	1.96	1.83	1.7	1.59	1.44	1.33	1.15
106	3.9	3.8	3.67	3.53	3.43	3.25	3.06	2.84	2.69	2.48	2.28	2.11	1.86	1.65	1.34
107	3.91	3.82	3.68	3.54	3.43	3.25	3.04	2.82	2.68	2.46	2.27	2.09	1.84	1.64	1.33
108	3.93	3.84	3.69	3.55	3.43	3.26	3.04	2.82	2.68	2.47	2.28	2.09	1.85	1.64	1.33
109	4	3.89	3.74	3.6	3.48	3.3	3.09	2.85	2.71	2.5	2.31	2.11	1.86	1.66	1.34
110	3.97	3.85	3.71	3.56	3.44	3.26	3.06	2.82	2.68	2.46	2.27	2.08	1.84	1.64	1.32
111	5.1	4.98	4.79	4.62	4.48	4.24	3.98	3.68	3.49	3.2	2.94	2.7	2.35	2.07	1.63
112	5.16	5.04	4.87	4.68	4.53	4.28	4.02	3.71	3.52	3.22	2.97	2.71	2.37	2.09	1.63
113	5.22	5.1	4.9	4.72	4.56	4.31	4.03	3.72	3.53	3.24	2.98	2.72	2.38	2.09	1.64
114	5.2	5.06	4.86	4.67	4.5	4.26	3.99	3.68	3.49	3.2	2.95	2.69	2.35	2.07	1.62
115	5.25	5.09	4.88	4.69	4.53	4.28	4.02	3.69	3.5	3.21	2.96	2.69	2.35	2.08	1.62
116	6.31	6.14	5.92	5.7	5.52	5.22	4.9	4.54	4.29	3.93	3.61	3.3	2.88	2.53	1.96
117	6.34	6.19	5.97	5.74	5.56	5.25	4.93	4.55	4.31	3.94	3.63	3.31	2.89	2.53	1.96
118	6.38	6.23	5.99	5.74	5.56	5.26	4.92	4.55	4.3	3.94	3.62	3.3	2.87	2.52	1.95
119	6.41	6.23	5.99	5.75	5.55	5.26	4.92	4.54	4.29	3.94	3.62	3.3	2.87	2.53	1.96
120	6.45	6.26	6.01	5.77	5.56	5.27	4.93	4.53	4.3	3.94	3.62	3.29	2.88	2.53	1.95
121	7.21	7.04	6.78	6.53	6.32	5.99	5.63	5.2	4.92	4.51	4.14	3.78	3.3	2.9	2.24
122	7.25	7.08	6.83	6.57	6.36	6.01	5.64	5.22	4.93	4.52	4.15	3.78	3.3	2.89	2.24
123	7.33	7.13	6.86	6.59	6.38	6.02	5.63	5.19	4.92	4.51	4.14	3.78	3.29	2.88	2.23
124	7.36	7.17	6.87	6.61	6.38	6.05	5.65	5.21	4.93	4.53	4.15	3.79	3.3	2.89	2.24
125	7.37	7.15	6.87	6.6	6.36	6.03	5.63	5.18	4.91	4.5	4.14	3.76	3.28	2.88	2.23

Table A32c. Static and dynamic test data for seal 7 of Table 3 for low inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
126	3000	295	283	3.06	1	74.6	-27.4	.0886	.0448	.002	-.0135	.18	.0157
127	6000	295	285	3.03	1.01	74.6	-27.5	.091	.0446	-.0115	-.0127	.181	.0132
128	9500	295	286	3	1.01	74.6	-26	.093	.0418	.0114	-.00507	.154	.00638
129	13000	295	289	3.03	1	74.6	-24.3	.0884	.0394	.0173	.000626	.149	.00699
130	16000	296	296	3.06	1	74.6	-22.6	.0922	.0369	.0231	.00765	.156	.0036
131	3000	295	283	4.39	.997	74.6	-28.6	.0848	.0671	.00754	-.0126	.157	.0139
132	6000	295	283	4.39	.997	74.6	-28.5	.0902	.0669	.0276	-.00738	.154	.0132
133	9500	295	285	4.4	1	74.6	-26.9	.0881	.0634	.0262	-.00499	.129	.00102
134	13000	295	288	4.46	.997	74.6	-25.7	.0859	.0612	.0386	.00275	.124	3.E-5
135	16000	296	294	4.44	1	74.6	-23.6	.0853	.056	.0447	.0101	.125	-.00208
136	3000	295	286	5.77	.987	74.6	-29	.0839	.0896	.0156	-.00867	.152	.00744
137	6000	295	283	5.76	.988	74.6	-28.9	.0872	.0892	.00383	-.0101	.159	.00615
138	9500	295	284	5.78	.994	74.6	-27.4	.0849	.0847	.026	-.00336	.128	-.00151
139	13000	295	287	5.78	.992	74.6	-25.9	.0818	.0803	.0375	.00433	.125	-.000911
140	16000	296	292	5.85	.995	74.6	-24.1	.0805	.0751	.0448	.00984	.119	-.00243
141	3000	295	290	7.12	.98	74.6	-29.6	.0829	.113	.0102	-.00619	.146	.0121
142	6000	295	287	7.17	.981	74.6	-29.2	.0855	.112	.0194	-.00897	.145	.00591
143	9500	295	283	7.15	.988	74.6	-27.8	.0813	.106	.0278	-.00319	.126	.00114
144	13000	295	286	7.17	.989	74.6	-26.2	.0816	.101	.0355	.00177	.115	-.000402
145	16000	296	290	7.18	.984	74.6	-24.2	.0781	.0926	.0418	.00796	.114	-.00106
146	3000	295	291	8.15	.973	74.6	-30.1	.0808	.131	.00845	-.00649	.132	.0105
147	6000	295	289	8.14	.976	74.6	-29.5	.0855	.129	.0129	-.00709	.132	.00789
148	9500	295	286	8.16	.979	74.6	-28.2	.0793	.123	.0228	-.00403	.115	.00184
149	13000	295	285	8.18	.981	74.6	-26.6	.0803	.116	.0327	.000175	.107	.000742
150	16000	297	289	8.19	.984	74.6	-24.6	.0752	.107	.0379	.00457	.102	.00355

Case	Pi, i=1 to 15 ---------->														
126	2.76	2.7	2.61	2.52	2.45	2.34	2.21	2.07	1.98	1.84	1.72	1.61	1.45	1.34	1.16
127	2.74	2.67	2.58	2.49	2.42	2.3	2.17	2.04	1.95	1.82	1.69	1.59	1.43	1.32	1.15
128	2.72	2.65	2.56	2.47	2.4	2.29	2.15	2.01	1.92	1.8	1.68	1.58	1.43	1.32	1.15
129	2.76	2.69	2.59	2.5	2.42	2.31	2.19	2.05	1.96	1.83	1.7	1.6	1.44	1.33	1.15
130	2.79	2.71	2.61	2.52	2.44	2.33	2.2	2.05	1.97	1.83	1.7	1.59	1.44	1.33	1.15
131	3.92	3.83	3.7	3.56	3.46	3.27	3.07	2.85	2.71	2.5	2.31	2.12	1.87	1.66	1.34
132	3.93	3.84	3.7	3.56	3.44	3.26	3.06	2.83	2.68	2.47	2.28	2.1	1.85	1.64	1.34
133	3.96	3.86	3.71	3.57	3.45	3.27	3.05	2.83	2.69	2.48	2.29	2.1	1.85	1.65	1.33
134	4.03	3.91	3.76	3.62	3.5	3.31	3.1	2.86	2.72	2.51	2.32	2.12	1.87	1.66	1.35
135	4.01	3.9	3.75	3.61	3.48	3.3	3.09	2.85	2.71	2.49	2.3	2.11	1.86	1.66	1.34
136	5.14	5.01	4.83	4.64	4.5	4.26	3.99	3.69	3.5	3.22	2.96	2.7	2.36	2.08	1.63
137	5.14	5.01	4.83	4.64	4.49	4.25	3.98	3.69	3.49	3.19	2.93	2.69	2.35	2.06	1.62
138	5.2	5.06	4.86	4.67	4.51	4.26	3.98	3.66	3.48	3.2	2.95	2.69	2.35	2.06	1.61
139	5.21	5.06	4.87	4.67	4.51	4.27	3.99	3.67	3.48	3.2	2.95	2.69	2.35	2.07	1.62
140	5.27	5.12	4.92	4.73	4.56	4.32	4.04	3.71	3.51	3.22	2.97	2.71	2.37	2.09	1.62
141	6.32	6.17	5.94	5.71	5.53	5.23	4.92	4.54	4.29	3.92	3.62	3.31	2.89	2.53	1.96
142	6.39	6.24	6.02	5.79	5.59	5.29	4.96	4.58	4.35	3.99	3.66	3.33	2.9	2.54	1.98
143	6.41	6.24	6.01	5.77	5.58	5.26	4.93	4.53	4.3	3.94	3.64	3.31	2.89	2.52	1.96
144	6.45	6.27	6.02	5.78	5.58	5.28	4.94	4.54	4.3	3.95	3.64	3.31	2.89	2.54	1.96
145	6.46	6.27	6.03	5.79	5.58	5.28	4.95	4.53	4.29	3.94	3.62	3.29	2.88	2.53	1.95
146	7.23	7.06	6.8	6.53	6.32	5.99	5.62	5.19	4.91	4.5	4.15	3.78	3.3	2.88	2.23
147	7.24	7.09	6.83	6.58	6.37	6.03	5.65	5.21	4.92	4.51	4.13	3.77	3.29	2.88	2.24
148	7.31	7.13	6.86	6.59	6.35	6.02	5.62	5.17	4.9	4.48	4.13	3.78	3.29	2.88	2.23
149	7.35	7.14	6.86	6.59	6.37	6.02	5.64	5.18	4.89	4.49	4.14	3.77	3.29	2.89	2.23
150	7.36	7.15	6.87	6.6	6.37	6.03	5.64	5.17	4.89	4.48	4.13	3.76	3.28	2.88	2.21

Table A33a. Static and dynamic test data for seal 7 of Table 3 for low inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
151	3000	295	293	3.02	1.01	38.7	27.8	.089	.0449	-.00186	.00353	.18	9.13E-5
152	6000	296	286	3.03	1.01	38.7	27.3	.0872	.0442	-.00153	.00451	.177	.000879
153	9500	297	286	3.05	1.01	38.7	26.3	.0865	.0426	.00687	.00642	.157	-.00323
154	13000	298	290	3.04	1.01	38.7	24.8	.0883	.04	.0124	.0123	.153	.0109
155	16000	298	293	3.03	1.01	38.7	23	.0877	.037	.0101	.0139	.162	.0147
156	3000	296	294	4.4	1	38.7	28.8	.0872	.0675	.00874	.00317	.151	-.00258
157	6000	296	284	4.4	1	38.7	28.5	.0863	.0669	.0119	.00453	.156	-.000823
158	9500	297	285	4.4	1	38.7	27.2	.085	.0635	.0197	.00792	.137	-.002
159	13000	298	288	4.43	1	38.7	26.1	.0852	.0612	.0329	.0145	.121	.0033
160	16000	298	297	4.41	1	38.7	23.9	.0835	.0559	.0365	.0186	.13	.00602
161	3000	296	294	5.72	.993	38.7	29.1	.0863	.0888	.011	.00563	.147	-.00233
162	6000	296	289	5.73	.995	38.7	29	.0852	.0883	.0119	.00624	.148	-.00252
163	9500	297	285	5.75	1	38.7	27.7	.0845	.0847	.0195	.00984	.138	-.00148
164	13000	298	287	5.78	.999	38.7	26.3	.0837	.0805	.0306	.0144	.123	.0056
165	16000	298	291	5.75	1	38.7	24.4	.0828	.0744	.0376	.0187	.126	.00397
166	3000	296	294	7.1	.984	38.7	29.6	.0861	.112	.00679	.00579	.143	-.00293
167	6000	297	293	7.1	.987	38.7	29.3	.0859	.111	.00822	.00531	.145	-.00119
168	9500	298	285	7.13	.988	38.7	28.2	.0839	.107	.0169	.00827	.135	.00373
169	13000	298	286	7.16	.992	38.7	26.6	.0831	.101	.0255	.012	.121	.00537
170	16000	299	290	7.15	.991	38.7	24.6	.082	.0929	.0335	.0161	.126	.000875
171	3000	296	294	8.11	.981	38.7	30	.0853	.129	.00267	.00344	.131	-2.31E-5
172	6000	296	294	8.12	.982	38.7	29.5	.0848	.127	.00782	.00176	.123	.000546
173	9500	298	292	8.13	.982	38.7	28.4	.0842	.122	.0114	.00457	.12	.00666
174	13000	298	286	8.16	.989	38.7	26.9	.0824	.116	.0218	.00945	.11	.00224
175	16000	299	290	8.19	.988	38.7	24.9	.0821	.108	.0248	.00897	.113	.00539

Case	Pi, i=1 to 15 ----------)														
151	2.73	2.66	2.57	2.48	2.42	2.29	2.18	2.03	1.95	1.81	1.7	1.58	1.44	1.32	1.16
152	2.74	2.67	2.58	2.48	2.41	2.29	2.17	2.02	1.94	1.81	1.69	1.58	1.43	1.32	1.15
153	2.77	2.7	2.61	2.52	2.44	2.33	2.2	2.05	1.96	1.84	1.71	1.6	1.45	1.33	1.16
154	2.77	2.7	2.6	2.51	2.44	2.32	2.2	2.05	1.96	1.84	1.71	1.6	1.45	1.33	1.16
155	2.76	2.69	2.6	2.5	2.43	2.31	2.2	2.03	1.96	1.83	1.71	1.58	1.44	1.33	1.16
156	3.95	3.84	3.7	3.55	3.46	3.25	3.07	2.82	2.68	2.47	2.29	2.09	1.85	1.64	1.34
157	3.95	3.85	3.7	3.56	3.46	3.26	3.07	2.82	2.69	2.48	2.29	2.1	1.86	1.65	1.35
158	3.96	3.86	3.71	3.58	3.45	3.27	3.07	2.83	2.69	2.5	2.29	2.11	1.86	1.65	1.34
159	3.99	3.89	3.74	3.6	3.48	3.29	3.09	2.84	2.7	2.5	2.3	2.11	1.86	1.65	1.34
160	3.99	3.88	3.72	3.58	3.45	3.27	3.07	2.82	2.68	2.48	2.28	2.09	1.84	1.64	1.33
161	5.13	4.98	4.79	4.61	4.48	4.22	3.97	3.65	3.46	3.19	2.93	2.66	2.35	2.06	1.62
162	5.12	4.99	4.79	4.62	4.48	4.22	3.96	3.63	3.45	3.18	2.92	2.66	2.34	2.04	1.61
163	5.18	5.04	4.84	4.67	4.5	4.28	3.99	3.67	3.48	3.23	2.94	2.7	2.36	2.08	1.63
164	5.2	5.07	4.87	4.69	4.52	4.29	4.01	3.69	3.48	3.23	2.95	2.71	2.36	2.08	1.63
165	5.19	5.04	4.83	4.65	4.47	4.24	3.97	3.64	3.45	3.19	2.92	2.67	2.33	2.06	1.61
166	6.35	6.17	5.91	5.69	5.52	5.21	4.9	4.5	4.26	3.93	3.6	3.27	2.88	2.51	1.96
167	6.36	6.19	5.94	5.73	5.54	5.24	4.91	4.52	4.27	3.95	3.6	3.29	2.88	2.52	1.97
168	6.4	6.23	5.99	5.78	5.57	5.28	4.94	4.54	4.29	3.97	3.63	3.33	2.9	2.55	1.98
169	6.44	6.27	6.02	5.81	5.58	5.31	4.95	4.55	4.3	3.97	3.62	3.33	2.89	2.54	1.97
170	6.45	6.27	6.02	5.78	5.57	5.27	4.94	4.52	4.29	3.97	3.63	3.31	2.89	2.53	1.96
171	7.25	7.05	6.77	6.5	6.32	5.95	5.61	5.15	4.86	4.49	4.13	3.76	3.29	2.86	2.23
172	7.26	7.08	6.78	6.54	6.34	5.99	5.63	5.16	4.89	4.51	4.12	3.76	3.29	2.87	2.24
173	7.28	7.09	6.81	6.56	6.34	6	5.62	5.15	4.88	4.5	4.11	3.76	3.28	2.87	2.23
174	7.33	7.13	6.85	6.6	6.35	6.03	5.63	5.17	4.89	4.54	4.14	3.79	3.29	2.89	2.24
175	7.38	7.16	6.87	6.59	6.37	6.01	5.63	5.16	4.88	4.53	4.13	3.76	3.29	2.88	2.22

Table A33b. Static and dynamic test data for seal 7 of Table 3 for low inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	m	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
176	3000	299	286	3.05	1.01	56.8	28.4	.0853	.0458	.00258	.00221	.168	.00411
177	6000	300	289	3.02	1.01	56.8	27.7	.0924	.044	-.000342	.00344	.168	-.000115
178	9500	299	288	2.99	1.01	56.8	26.2	.0918	.0414	.0154	.00444	.149	-.00281
179	13000	300	290	3.05	1.01	56.8	24.9	.0913	.04	.0187	.014	.149	-.000941
180	16000	300	295	3.07	1.01	56.8	23.1	.0921	.0374	.0185	.0177	.151	.00953
181	3000	300	288	4.43	1.01	56.8	29.3	.0819	.0682	.00906	.00546	.154	.00405
182	6000	300	286	4.4	1	56.8	28.6	.0913	.0663	.0119	.00635	.149	-.003
183	9500	300	287	4.44	1.01	56.8	27.4	.0884	.0639	.0226	.00883	.131	-.00239
184	13000	300	289	4.37	1	56.8	26.1	.0869	.0601	.0354	.0163	.122	-.00387
185	16000	300	296	4.41	1	56.8	23.9	.0865	.0555	.0435	.0219	.113	.000461
186	3000	300	292	5.76	.996	56.8	29.7	.0788	.0897	.0138	.00486	.141	.00308
187	6000	300	292	5.75	.997	56.8	29.1	.0883	.088	.0154	.00681	.143	-.00414
188	9500	301	286	5.82	.999	56.8	27.8	.0869	.0849	.0234	.00988	.132	-.0024
189	13000	300	288	5.72	.998	56.8	26.5	.0837	.0798	.0363	.0176	.119	-.00688
190	16000	300	293	5.85	1	56.8	24.5	.0825	.0755	.04	.0215	.117	-.000787
191	3000	300	295	7.1	.989	56.8	29.9	.078	.112	.00726	.0048	.139	.0017
192	6000	300	296	7.1	.988	56.8	29.6	.0864	.11	.0135	.00607	.137	-.00252
193	9500	300	293	7.12	.992	56.8	28.2	.086	.106	.0208	.00886	.128	-.000389
194	13000	300	287	7.14	.992	56.8	26.6	.0823	.1	.0309	.0148	.117	-.00671
195	16000	300	290	7.12	.991	56.8	24.7	.0809	.0927	.0389	.0201	.109	-.00407
196	3000	300	297	8.12	.981	56.8	30.2	.0782	.129	.0128	.00305	.116	-.00815
197	6000	300	297	8.13	.984	56.8	29.7	.0857	.127	.0104	.00357	.116	-.00371
198	9500	300	296	8.14	.986	56.8	28.5	.083	.122	.0165	.0074	.115	-.00266
199	13000	300	287	8.15	.988	56.8	27	.0806	.116	.0288	.0122	.101	-.00726
200	16000	300	290	8.18	.988	56.8	24.9	.0787	.107	.0324	.0137	.0929	-.00245

Case	Pi, i=1 to 15 ---------->														
176	2.77	2.69	2.6	2.51	2.44	2.33	2.2	2.07	1.98	1.84	1.72	1.61	1.46	1.34	1.16
177	2.73	2.66	2.57	2.48	2.4	2.29	2.16	2.02	1.93	1.81	1.69	1.58	1.43	1.32	1.15
178	2.72	2.65	2.56	2.47	2.4	2.29	2.16	2.02	1.94	1.81	1.69	1.59	1.43	1.32	1.16
179	2.78	2.71	2.62	2.52	2.45	2.34	2.2	2.07	1.98	1.84	1.72	1.61	1.45	1.34	1.16
180	2.81	2.73	2.63	2.54	2.46	2.35	2.22	2.07	1.98	1.85	1.72	1.61	1.45	1.34	1.16
181	3.98	3.87	3.73	3.59	3.49	3.3	3.09	2.87	2.72	2.51	2.32	2.14	1.88	1.67	1.36
182	3.96	3.85	3.72	3.58	3.47	3.29	3.08	2.85	2.7	2.49	2.3	2.12	1.87	1.66	1.35
183	3.99	3.89	3.75	3.6	3.48	3.3	3.09	2.86	2.71	2.5	2.3	2.12	1.86	1.66	1.35
184	3.95	3.84	3.7	3.55	3.43	3.26	3.05	2.82	2.67	2.47	2.28	2.09	1.84	1.64	1.34
185	3.99	3.88	3.74	3.59	3.46	3.29	3.08	2.85	2.7	2.49	2.29	2.1	1.85	1.65	1.34
186	5.16	5.01	4.82	4.64	4.49	4.26	3.99	3.69	3.49	3.21	2.95	2.71	2.36	2.08	1.63
187	5.16	5.01	4.83	4.64	4.49	4.25	3.98	3.67	3.47	3.19	2.93	2.69	2.35	2.06	1.62
188	5.23	5.09	4.91	4.73	4.57	4.33	4.04	3.73	3.53	3.24	2.98	2.72	2.39	2.1	1.64
189	5.14	4.99	4.81	4.61	4.45	4.22	3.94	3.63	3.43	3.15	2.9	2.64	2.32	2.04	1.6
190	5.3	5.13	4.94	4.74	4.57	4.34	4.05	3.73	3.54	3.25	2.99	2.72	2.39	2.1	1.64
191	6.36	6.16	5.93	5.71	5.52	5.24	4.9	4.54	4.29	3.93	3.61	3.3	2.89	2.53	1.97
192	6.35	6.17	5.94	5.72	5.54	5.25	4.91	4.53	4.28	3.93	3.6	3.29	2.87	2.51	1.96
193	6.39	6.22	5.99	5.77	5.58	5.29	4.93	4.55	4.31	3.96	3.63	3.32	2.89	2.53	1.97
194	6.42	6.25	6.02	5.78	5.58	5.29	4.94	4.55	4.3	3.96	3.64	3.32	2.9	2.54	1.97
195	6.42	6.22	5.98	5.74	5.54	5.25	4.9	4.5	4.26	3.91	3.6	3.28	2.86	2.51	1.94
196	7.25	7.05	6.77	6.51	6.31	5.99	5.6	5.18	4.88	4.48	4.12	3.76	3.28	2.87	2.23
197	7.27	7.07	6.8	6.55	6.34	6.02	5.62	5.19	4.91	4.5	4.12	3.78	3.29	2.88	2.23
198	7.3	7.09	6.85	6.58	6.36	6.03	5.64	5.19	4.91	4.51	4.14	3.78	3.3	2.89	2.23
199	7.32	7.12	6.86	6.6	6.36	6.04	5.63	5.19	4.91	4.51	4.14	3.78	3.29	2.89	2.23
200	7.36	7.15	6.88	6.6	6.36	6.02	5.62	5.17	4.9	4.49	4.14	3.77	3.28	2.87	2.23

Table A33c. Static and dynamic test data for seal 7 of Table 3 for low inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CFM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
201	3000	300	286	3.04	1.01	74.6	28.2	.0909	.045	.00844	.00365	.169	-.00192
202	6000	300	289	3.03	1.01	74.6	27.7	.0996	.0442	.012	.00472	.161	.00177
203	9500	300	287	3.02	1.01	74.6	26.4	.0894	.042	.0221	.00542	.147	-.000304
204	13000	300	290	3.05	1.01	74.6	24.9	.0951	.0401	.0248	.0139	.137	-.00151
205	16000	300	293	3.05	1.01	74.6	23.1	.0959	.0371	.023	.0194	.148	.0032
206	3000	300	288	4.4	1.01	74.6	29.1	.0869	.0672	.0266	.0018	.141	.00127
207	6000	300	286	4.38	1.01	74.6	28.7	.0944	.0661	.0291	.00378	.137	.000727
208	9500	301	287	4.4	1.01	74.6	27.5	.0851	.0635	.0322	.00773	.127	-.00134
209	13000	300	289	4.4	1	74.6	26	.0915	.0602	.0404	.0145	.116	-.00411
210	16000	300	295	4.43	1	74.6	23.9	.0907	.0557	.0498	.0214	.111	-.00549
211	3000	300	293	5.72	.999	74.6	29.6	.0861	.0889	.021	.00406	.142	-.00481
212	6000	300	287	5.75	.999	74.6	29.2	.0926	.0882	.0159	.00479	.141	7.17E-5
213	9500	300	286	5.75	.999	74.6	27.7	.0831	.0837	.0329	.00927	.124	-.0026
214	13000	301	289	5.79	.999	74.6	26.3	.0879	.08	.0422	.0152	.111	-.00768
215	16000	300	292	5.8	1	74.6	24.3	.0883	.0743	.049	.021	.103	-.00777
216	3000	300	296	7.12	.99	74.6	29.8	.0844	.112	.0233	.00492	.132	-.00451
217	6000	300	294	7.11	.993	74.6	29.5	.0899	.11	.0268	.00437	.129	-.0046
218	9500	301	287	7.13	.991	74.6	28.1	.0796	.105	.0287	.00778	.127	-.00196
219	13000	300	287	7.15	.994	74.6	26.6	.0854	.1	.0385	.0128	.106	-.00491
220	16000	301	290	7.15	.992	74.6	24.6	.0861	.0926	.0464	.0168	.0987	-.00672
221	3000	300	297	8.11	.985	74.6	30.2	.0823	.129	.0193	.00105	.113	-.00214
222	6000	300	296	8.12	.987	74.6	29.7	.0885	.127	.0219	.0016	.108	-.000116
223	9500	301	295	8.14	.985	74.6	28.4	.0798	.121	.0242	.00541	.11	-7.42E-5
224	13000	301	286	8.16	.992	74.6	27	.0824	.115	.0312	.00993	.106	-.0055
225	16000	301	290	8.1	.99	74.6	25.1	.0843	.107	.0376	.0117	.0916	-.00157

Case	Pi, i=1 to 15 ---------->														
201	2.76	2.68	2.6	2.51	2.43	2.33	2.2	2.06	1.97	1.84	1.72	1.61	1.46	1.34	1.16
202	2.75	2.68	2.59	2.49	2.42	2.31	2.17	2.04	1.96	1.82	1.7	1.59	1.44	1.33	1.16
203	2.74	2.67	2.59	2.5	2.42	2.32	2.18	2.04	1.95	1.83	1.71	1.6	1.44	1.34	1.16
204	2.78	2.71	2.62	2.53	2.45	2.34	2.21	2.06	1.97	1.84	1.72	1.61	1.46	1.34	1.16
205	2.78	2.7	2.61	2.52	2.44	2.33	2.2	2.05	1.95	1.83	1.7	1.6	1.44	1.33	1.16
206	3.95	3.85	3.71	3.57	3.45	3.27	3.07	2.84	2.69	2.48	2.29	2.1	1.86	1.65	1.35
207	3.95	3.84	3.7	3.57	3.45	3.27	3.06	2.83	2.7	2.48	2.29	2.11	1.85	1.65	1.34
208	3.96	3.86	3.72	3.58	3.47	3.28	3.07	2.84	2.69	2.48	2.29	2.11	1.86	1.65	1.34
209	3.97	3.87	3.73	3.58	3.46	3.29	3.08	2.84	2.69	2.49	2.29	2.1	1.86	1.65	1.34
210	4.01	3.89	3.75	3.6	3.48	3.31	3.09	2.85	2.7	2.49	2.29	2.1	1.85	1.65	1.34
211	5.14	4.99	4.81	4.63	4.48	4.24	3.97	3.67	3.47	3.2	2.94	2.69	2.36	2.06	1.62
212	5.15	5.01	4.82	4.64	4.48	4.25	3.98	3.67	3.48	3.19	2.94	2.69	2.35	2.06	1.62
213	5.16	5.01	4.84	4.66	4.51	4.28	3.98	3.68	3.47	3.19	2.93	2.67	2.34	2.06	1.62
214	5.21	5.07	4.88	4.69	4.53	4.29	4	3.69	3.49	3.21	2.94	2.69	2.35	2.07	1.62
215	5.24	5.09	4.9	4.7	4.55	4.31	4.03	3.71	3.51	3.23	2.96	2.7	2.36	2.09	1.63
216	6.37	6.18	5.96	5.74	5.55	5.25	4.93	4.54	4.29	3.93	3.62	3.32	2.9	2.54	1.98
217	6.37	6.19	5.96	5.75	5.56	5.27	4.93	4.54	4.29	3.93	3.62	3.31	2.89	2.53	1.96
218	6.39	6.22	6	5.78	5.58	5.3	4.95	4.56	4.3	3.96	3.63	3.31	2.89	2.54	1.97
219	6.42	6.25	6.02	5.79	5.59	5.3	4.96	4.57	4.32	3.97	3.64	3.32	2.89	2.54	1.96
220	6.44	6.25	6.01	5.77	5.57	5.27	4.94	4.53	4.3	3.95	3.63	3.31	2.88	2.53	1.95
221	7.25	7.04	6.78	6.54	6.32	5.99	5.62	5.19	4.89	4.49	4.13	3.77	3.29	2.87	2.24
222	7.27	7.07	6.82	6.56	6.36	6.02	5.63	5.19	4.89	4.49	4.13	3.77	3.28	2.88	2.23
223	7.29	7.09	6.84	6.59	6.37	6.03	5.64	5.2	4.92	4.51	4.14	3.78	3.29	2.88	2.23
224	7.32	7.12	6.87	6.6	6.37	6.04	5.63	5.2	4.92	4.52	4.15	3.78	3.29	2.89	2.23
225	7.29	7.07	6.8	6.52	6.29	5.96	5.57	5.12	4.87	4.46	4.11	3.73	3.25	2.85	2.2

Table A34a. Static and dynamic test data for seal 7 of Table 3 for high inlet circumferential velocity against shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	m	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
226	3000	301	287	3.03	1.01	38.7	-62.1	.0809	.0434	-.0153	-.0296	.187	.0356
227	6000	301	290	3	1.01	38.7	-61.4	.0863	.0425	-.0157	-.0254	.185	.0244
228	9500	301	289	3.01	1.01	38.7	-57.9	.0857	.0403	-.000998	-.0187	.159	.0206
229	13000	301	296	3	1.01	38.7	-54.8	.0921	.0381	.0112	-.00394	.165	.0256
230	16000	301	297	3.06	1.01	38.7	-50.8	.0906	.0362	.0117	.00274	.168	.0141
231	3000	301	289	4.34	.999	38.7	-64.7	.0787	.0646	.00105	-.0254	.17	.0346
232	6000	301	286	4.39	1	38.7	-63.7	.0849	.0644	.0019	-.0229	.163	.029
233	9500	300	288	4.42	1	38.7	-60.5	.0845	.0618	.00971	-.015	.142	.0225
234	13000	301	291	4.39	1	38.7	-56.8	.0893	.0578	.0245	-.00601	.132	.028
235	16000	301	300	4.44	1	38.7	-52.5	.0868	.0541	.0369	.00587	.131	.0132
236	3000	302	294	5.72	.992	38.7	-66	.0774	.0866	.00365	-.0241	.157	.029
237	6000	301	288	5.71	.993	38.7	-64.8	.0847	.0851	.00571	-.0205	.152	.0326
238	9500	301	287	5.77	.996	38.7	-61.6	.0843	.0819	.0116	-.0131	.143	.0209
239	13000	301	290	5.77	.995	38.7	-58.6	.0871	.0782	.0267	-.0024	.131	.0116
240	16000	302	294	5.76	.997	38.7	-53.7	.0852	.0715	.0368	.00553	.129	.0111
241	3000	301	298	7.09	.984	38.7	-66.7	.077	.109	.00234	-.0218	.145	.0343
242	6000	301	297	7.13	.986	38.7	-66	.0871	.108	.00409	-.02	.145	.0263
243	9500	301	288	7.11	.988	38.7	-62.1	.0836	.102	.00944	-.0137	.137	.0234
244	13000	301	288	7.09	.99	38.7	-58.9	.082	.0965	.0211	-.00513	.126	.0126
245	16000	302	292	7.13	.989	38.7	-54.5	.0847	.0898	.0338	.00285	.128	.0138
246	3000	302	298	8.08	.982	38.7	-68	.0768	.126	-.00176	-.0216	.138	.0313
247	6000	301	297	8.1	.98	38.7	-66.2	.0752	.123	.00302	-.0191	.137	.0221
248	9500	301	295	8.1	.983	38.7	-63.2	.0836	.118	.0095	-.0141	.125	.0217
249	13000	301	288	8.14	.989	38.7	-59.4	.0815	.112	.0187	-.00583	.119	.0109
250	16000	302	292	8.15	.985	38.7	-55.4	.0836	.104	.0308	-.000379	.114	.0174

Case	Pi, i=1 to 15 ---------->														
226	2.68	2.6	2.52	2.43	2.38	2.26	2.15	2.01	1.94	1.8	1.69	1.58	1.43	1.32	1.16
227	2.66	2.58	2.5	2.41	2.35	2.24	2.12	1.98	1.9	1.78	1.66	1.55	1.41	1.3	1.15
228	2.7	2.61	2.52	2.44	2.37	2.26	2.13	2	1.91	1.8	1.67	1.57	1.42	1.32	1.15
229	2.7	2.62	2.53	2.44	2.37	2.26	2.15	2	1.93	1.8	1.68	1.57	1.42	1.31	1.15
230	2.75	2.68	2.58	2.49	2.42	2.3	2.18	2.02	1.94	1.82	1.7	1.58	1.44	1.33	1.15
231	3.8	3.68	3.55	3.42	3.33	3.15	2.98	2.75	2.62	2.41	2.23	2.05	1.82	1.61	1.32
232	3.86	3.74	3.61	3.48	3.38	3.19	3.01	2.78	2.64	2.44	2.26	2.07	1.83	1.62	1.33
233	3.93	3.8	3.66	3.54	3.41	3.24	3.03	2.81	2.66	2.47	2.26	2.1	1.84	1.64	1.33
234	3.94	3.8	3.65	3.51	3.39	3.21	3.02	2.77	2.64	2.45	2.25	2.07	1.83	1.63	1.33
235	3.96	3.85	3.7	3.55	3.44	3.25	3.06	2.81	2.67	2.47	2.28	2.08	1.84	1.64	1.33
236	5	4.83	4.65	4.47	4.36	4.1	3.88	3.57	3.39	3.1	2.87	2.61	2.3	2.02	1.59
237	5	4.84	4.66	4.49	4.36	4.12	3.89	3.57	3.38	3.12	2.87	2.61	2.3	2.01	1.59
238	5.1	4.92	4.75	4.56	4.42	4.18	3.92	3.6	3.41	3.15	2.89	2.64	2.31	2.03	1.6
239	5.16	4.97	4.77	4.6	4.44	4.19	3.93	3.61	3.42	3.17	2.9	2.65	2.32	2.04	1.6
240	5.12	4.98	4.77	4.58	4.42	4.19	3.94	3.6	3.42	3.16	2.89	2.64	2.31	2.04	1.6
241	6.18	5.96	5.75	5.52	5.38	5.06	4.79	4.4	4.19	3.82	3.54	3.2	2.81	2.46	1.92
242	6.23	6.03	5.8	5.59	5.42	5.13	4.84	4.45	4.21	3.89	3.56	3.24	2.84	2.47	1.93
243	6.26	6.07	5.83	5.62	5.44	5.14	4.82	4.43	4.19	3.88	3.54	3.24	2.82	2.47	1.93
244	6.33	6.11	5.86	5.64	5.44	5.15	4.82	4.42	4.19	3.87	3.54	3.23	2.82	2.47	1.93
245	6.34	6.15	5.89	5.66	5.44	5.17	4.84	4.44	4.21	3.89	3.55	3.24	2.83	2.49	1.93
246	7.01	6.77	6.53	6.28	6.11	5.75	5.44	5	4.75	4.33	4.01	3.63	3.19	2.79	2.17
247	7.07	6.83	6.59	6.35	6.16	5.82	5.49	5.04	4.77	4.39	4.03	3.67	3.22	2.8	2.19
248	7.12	6.89	6.64	6.39	6.19	5.85	5.49	5.05	4.76	4.41	4.02	3.69	3.2	2.81	2.19
249	7.23	7.01	6.72	6.47	6.22	5.92	5.51	5.09	4.81	4.43	4.05	3.72	3.22	2.84	2.19
250	7.25	7.02	6.71	6.45	6.21	5.9	5.5	5.08	4.78	4.42	4.04	3.71	3.22	2.83	2.18

Table A34b. Static and dynamic test data for seal 7 of Table 3 for high inlet circumferential velocity against shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
251	3000	302	287	3.07	1.01	56.8	-63.4	.0857	.0446	-.00919	-.0256	.181	.0369
252	6000	303	291	3.02	1.01	56.8	-61.8	.0836	.0427	-.00792	-.0243	.179	.027
253	9500	303	290	3.09	1.01	56.8	-58.9	.0838	.0418	.00588	-.0181	.166	.0196
254	13000	303	295	3.06	1.01	56.8	-55.5	.0856	.0391	.0114	-.00467	.168	.0132
255	16000	304	298	3.08	1.01	56.8	-51.5	.0831	.0365	.0151	.00534	.164	.0111
256	3000	302	297	4.34	1	56.8	-65.5	.0833	.0651	.00748	-.0243	.157	.0288
257	6000	303	287	4.36	1	56.8	-63.7	.0817	.0635	.0135	-.0197	.153	.0282
258	9500	303	289	4.38	1.01	56.8	-60.9	.0822	.0612	.0175	-.0135	.145	.0201
259	13000	303	292	4.38	.999	56.8	-57.6	.0816	.0579	.0285	-.00434	.133	.0178
260	16000	304	300	4.36	1	56.8	-53.3	.078	.0534	.0386	.00936	.127	.00273
261	3000	303	295	5.7	.997	56.8	-66.1	.0826	.086	.00873	-.0217	.152	.0299
262	6000	303	291	5.69	.995	56.8	-64.8	.0813	.0842	.0113	-.02	.153	.0252
263	9500	303	288	5.77	.995	56.8	-61.9	.0805	.0817	.0146	-.0118	.145	.017
264	13000	304	291	5.75	.995	56.8	-58	.0775	.0763	.0306	-.00119	.128	.00749
265	16000	304	295	5.76	.997	56.8	-54	.0749	.0714	.0416	.00857	.125	-.0019
266	3000	303	300	7.09	.985	56.8	-67	.0815	.108	.00518	-.0203	.139	.0234
267	6000	303	298	7.09	.988	56.8	-65.6	.0796	.106	.00345	-.018	.152	.0241
268	9500	303	290	7.07	.989	56.8	-62.4	.0795	.101	.0141	-.0117	.139	.0185
269	13000	303	289	7.13	.989	56.8	-58.9	.0767	.0963	.0245	-.00413	.122	.00468
270	16000	304	293	7.14	.988	56.8	-54.9	.0737	.09	.0353	.0055	.125	.00619
271	3000	303	301	8.12	.98	56.8	-67.8	.0807	.125	.00621	-.0196	.124	.0188
272	6000	303	298	8.13	.983	56.8	-66.4	.0795	.123	.00606	-.0165	.119	.0142
273	9500	304	302	8.14	.983	56.8	-63.7	.0785	.118	.0111	-.0128	.118	.0138
274	13000	303	290	8.11	.983	56.8	-59.6	.0762	.111	.0211	-.00593	.115	.0119
275	16000	304	293	8.19	.985	56.8	-55.6	.0732	.104	.0319	.00244	.104	.00364

Case	Pi, i=1 to 15 ---------->														
251	2.71	2.63	2.54	2.46	2.39	2.28	2.16	2.04	1.94	1.82	1.69	1.59	1.44	1.33	1.16
252	2.68	2.6	2.52	2.43	2.36	2.25	2.13	2	1.91	1.79	1.67	1.57	1.41	1.31	1.15
253	2.76	2.68	2.6	2.5	2.43	2.32	2.19	2.05	1.96	1.84	1.71	1.6	1.44	1.33	1.16
254	2.76	2.67	2.58	2.48	2.41	2.3	2.18	2.04	1.95	1.82	1.7	1.59	1.44	1.33	1.15
255	2.76	2.68	2.59	2.5	2.42	2.31	2.19	2.04	1.96	1.83	1.7	1.59	1.44	1.33	1.15
256	3.81	3.68	3.55	3.42	3.32	3.16	2.97	2.76	2.61	2.41	2.22	2.06	1.82	1.61	1.32
257	3.84	3.71	3.59	3.46	3.36	3.19	2.99	2.78	2.64	2.44	2.24	2.07	1.82	1.62	1.33
258	3.88	3.75	3.63	3.49	3.39	3.2	3	2.78	2.64	2.44	2.25	2.07	1.82	1.63	1.33
259	3.92	3.79	3.65	3.5	3.39	3.21	3.01	2.78	2.64	2.44	2.25	2.07	1.83	1.63	1.32
260	3.89	3.77	3.63	3.48	3.36	3.19	2.99	2.76	2.63	2.42	2.23	2.04	1.81	1.61	1.31
261	4.98	4.8	4.62	4.46	4.32	4.1	3.85	3.57	3.37	3.1	2.85	2.61	2.29	2.01	1.59
262	5	4.82	4.65	4.48	4.35	4.12	3.87	3.58	3.39	3.11	2.86	2.61	2.29	2.02	1.59
263	5.09	4.92	4.75	4.57	4.42	4.19	3.91	3.62	3.43	3.15	2.89	2.65	2.32	2.04	1.6
264	5.14	4.95	4.77	4.57	4.42	4.18	3.92	3.61	3.42	3.15	2.9	2.64	2.31	2.04	1.6
265	5.12	4.95	4.76	4.56	4.4	4.18	3.91	3.59	3.4	3.12	2.87	2.61	2.29	2.02	1.58
266	6.18	5.96	5.75	5.53	5.36	5.09	4.78	4.42	4.17	3.84	3.53	3.22	2.82	2.47	1.92
267	6.2	5.99	5.78	5.57	5.4	5.12	4.81	4.44	4.2	3.86	3.54	3.24	2.83	2.47	1.93
268	6.2	6.02	5.82	5.59	5.41	5.13	4.8	4.43	4.19	3.84	3.53	3.23	2.81	2.46	1.92
269	6.36	6.14	5.89	5.67	5.48	5.18	4.84	4.47	4.23	3.89	3.58	3.25	2.84	2.49	1.93
270	6.35	6.14	5.91	5.66	5.47	5.18	4.85	4.45	4.22	3.89	3.58	3.25	2.84	2.49	1.93
271	7.07	6.8	6.56	6.32	6.11	5.81	5.45	5.04	4.76	4.36	4.02	3.66	3.2	2.81	2.18
272	7.11	6.86	6.62	6.38	6.18	5.87	5.5	5.09	4.81	4.42	4.05	3.7	3.23	2.82	2.19
273	7.15	6.92	6.68	6.42	6.21	5.89	5.52	5.09	4.81	4.41	4.05	3.7	3.22	2.82	2.19
274	7.19	6.95	6.72	6.44	6.23	5.89	5.51	5.07	4.81	4.41	4.06	3.7	3.22	2.83	2.18
275	7.27	7.03	6.76	6.49	6.25	5.92	5.54	5.11	4.83	4.43	4.07	3.7	3.24	2.84	2.18

Table A34c. Static and dynamic test data for seal 7 of Table 3 for high inlet circumferential velocity against shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
276	3000	304	288	2.99	1.01	74.6	-63.2	.0949	.0431	.000617	-.023	.178	.0314
277	6000	304	291	3	1.01	74.6	-61.9	.096	.0424	-.00067	-.0195	.177	.0234
278	9500	304	290	3	1.01	74.6	-58.1	.0917	.0398	.0112	-.016	.162	.0186
279	13000	304	293	3.02	1.01	74.6	-55.2	.0791	.0382	.0206	-.00364	.166	.00747
280	16000	304	299	3.05	1.01	74.6	-51.2	.0918	.0359	.0262	.00489	.154	.00423
281	3000	304	290	4.38	1	74.6	-65.5	.0894	.0652	.0197	-.0204	.154	.0274
282	6000	304	288	4.39	1	74.6	-64.1	.0918	.0641	.0179	-.0174	.156	.0295
283	9500	304	289	4.39	1.01	74.6	-61.1	.0828	.0612	.0254	-.0131	.142	.0191
284	13000	304	292	4.38	.999	74.6	-57.4	.0907	.0577	.034	-.00191	.135	.00588
285	16000	304	297	4.4	1	74.6	-53.2	.0866	.0537	.0485	.00687	.115	.000112
286	3000	304	295	5.69	.996	74.6	-66.2	.0884	.0857	.0137	-.0189	.151	.0251
287	6000	303	292	5.74	.994	74.6	-65.2	.0879	.0853	.0171	-.0162	.149	.0259
288	9500	304	288	5.75	.996	74.6	-62	.0864	.0813	.0263	-.0119	.139	.0129
289	13000	304	291	5.74	.995	74.6	-58.5	.0864	.077	.0353	-.0023	.128	.00398
290	16000	304	295	5.76	.998	74.6	-54	.0813	.0714	.0501	.00659	.115	-.00109
291	3000	304	298	7.08	.986	74.6	-66.9	.0861	.108	.0173	-.0146	.142	.022
292	6000	304	298	7.11	.988	74.6	-65.4	.0847	.106	.0173	-.0162	.143	.0196
293	9500	305	290	7.12	.99	74.6	-62.8	.0846	.102	.0254	-.0111	.139	.0168
294	13000	304	289	7.11	.989	74.6	-59.4	.0823	.0966	.0328	-.0035	.124	.00501
295	16000	304	293	7.14	.988	74.6	-54.5	.0775	.0893	.0425	.00472	.116	.00352
296	3000	304	301	8.06	.982	74.6	-67.7	.0826	.124	.0105	-.0148	.129	.0184
297	6000	304	301	8.1	.983	74.6	-66.6	.0801	.123	.015	-.0136	.123	.0189
298	9500	304	296	8.09	.981	74.6	-63.5	.0836	.117	.0233	-.01	.125	.0177
299	13000	304	290	8.14	.985	74.6	-59.7	.0818	.111	.0312	-.00397	.112	.00966
300	16000	305	293	8.16	.983	74.6	-55.4	.0752	.103	.0397	.00235	.104	.0064

Case	Pi, i=1 to 15 ----------)														
276	2.65	2.56	2.49	2.41	2.34	2.24	2.12	1.99	1.91	1.79	1.67	1.57	1.42	1.32	1.15
277	2.66	2.58	2.5	2.42	2.36	2.25	2.13	1.99	1.9	1.78	1.66	1.56	1.41	1.31	1.15
278	2.68	2.6	2.52	2.43	2.37	2.26	2.13	2	1.92	1.79	1.67	1.57	1.42	1.32	1.15
279	2.71	2.64	2.54	2.46	2.38	2.27	2.15	2.01	1.92	1.8	1.67	1.57	1.43	1.32	1.15
280	2.74	2.66	2.57	2.48	2.41	2.3	2.17	2.02	1.94	1.81	1.68	1.58	1.43	1.32	1.15
281	3.84	3.71	3.58	3.46	3.36	3.19	3	2.78	2.64	2.43	2.25	2.08	1.84	1.63	1.33
282	3.86	3.73	3.61	3.48	3.38	3.2	3.01	2.79	2.65	2.45	2.25	2.07	1.83	1.63	1.33
283	3.9	3.77	3.64	3.51	3.4	3.22	3.02	2.8	2.66	2.46	2.26	2.08	1.83	1.63	1.33
284	3.93	3.79	3.65	3.51	3.4	3.22	3.02	2.8	2.64	2.45	2.25	2.07	1.82	1.63	1.33
285	3.92	3.8	3.66	3.52	3.4	3.24	3.03	2.8	2.66	2.45	2.26	2.07	1.83	1.63	1.32
286	4.98	4.8	4.63	4.47	4.33	4.11	3.86	3.58	3.37	3.1	2.85	2.61	2.29	2.02	1.59
287	5.03	4.86	4.7	4.53	4.4	4.17	3.91	3.62	3.43	3.14	2.89	2.64	2.31	2.03	1.6
288	5.08	4.91	4.74	4.57	4.43	4.19	3.92	3.62	3.42	3.15	2.89	2.64	2.31	2.03	1.6
289	5.13	4.94	4.76	4.57	4.41	4.18	3.91	3.6	3.41	3.13	2.88	2.63	2.3	2.02	1.59
290	5.13	4.96	4.76	4.59	4.42	4.19	3.93	3.62	3.43	3.15	2.89	2.63	2.3	2.04	1.59
291	6.17	5.95	5.74	5.54	5.37	5.09	4.78	4.43	4.18	3.83	3.52	3.22	2.81	2.47	1.92
292	6.23	6.02	5.82	5.61	5.43	5.16	4.85	4.48	4.25	3.88	3.57	3.26	2.84	2.48	1.94
293	6.26	6.07	5.86	5.64	5.46	5.17	4.84	4.47	4.23	3.88	3.57	3.25	2.83	2.48	1.93
294	6.34	6.12	5.89	5.66	5.46	5.17	4.84	4.46	4.22	3.87	3.56	3.24	2.83	2.48	1.92
295	6.34	6.15	5.89	5.65	5.44	5.17	4.83	4.44	4.21	3.86	3.55	3.23	2.81	2.47	1.91
296	7.02	6.76	6.52	6.3	6.1	5.78	5.43	5.04	4.75	4.35	3.99	3.65	3.19	2.79	2.17
297	7.07	6.83	6.59	6.35	6.15	5.83	5.47	5.06	4.79	4.39	4.03	3.68	3.2	2.81	2.18
298	7.11	6.87	6.64	6.39	6.18	5.85	5.48	5.06	4.78	4.39	4.03	3.67	3.2	2.81	2.17
299	7.24	7.01	6.74	6.48	6.25	5.92	5.53	5.1	4.83	4.44	4.08	3.71	3.24	2.84	2.19
300	7.26	7.01	6.73	6.46	6.24	5.91	5.52	5.08	4.82	4.42	4.06	3.7	3.22	2.83	2.18

Table A35a. Static and dynamic test data for seal 7 of Table 3 for high inlet circumferential velocity with shaft rotation and 38.7 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
301	3000	296	284	3.01	1.01	38.7	72.9	.0857	.0428	-.00525	.0153	.187	-.0177
302	6000	297	287	3.02	1.01	38.7	71.6	.0872	.042	-.00589	.014	.189	-.0169
303	9500	297	287	3.05	1.01	38.7	68.1	.0875	.0406	.00391	.0137	.167	-.0257
304	13000	298	290	3.05	1.01	38.7	64.8	.0888	.0386	.0105	.0179	.162	-.0163
305	16000	298	294	3.07	1.01	38.7	60.2	.0888	.0362	.00339	.0197	.171	-.015
306	3000	296	287	4.39	1.01	38.7	76.2	.0864	.065	.0119	.0135	.163	-.0231
307	6000	296	286	4.38	1.01	38.7	74.3	.086	.0632	.0122	.0147	.165	-.0209
308	9500	297	286	4.35	1.01	38.7	71.3	.0857	.0602	.0216	.0132	.142	-.0221
309	13000	298	290	4.43	1	38.7	68	.0853	.0586	.0294	.0176	.134	-.0219
310	16000	299	295	4.39	1	38.7	63	.084	.0539	.0365	.0231	.133	-.0202
311	3000	296	291	5.77	1	38.7	77.2	.0845	.0863	.0125	.0146	.156	-.0261
312	6000	296	291	5.79	1	38.7	75.9	.0846	.0854	.012	.016	.16	-.0194
313	9500	298	285	5.73	1	38.7	72.6	.0842	.0807	.0224	.0158	.145	-.0232
314	13000	298	288	5.78	.997	38.7	68.7	.0835	.0772	.03	.0188	.135	-.0193
315	16000	299	292	5.79	.998	38.7	64.1	.0827	.0721	.0369	.0234	.13	-.019
316	3000	297	293	7.14	.995	38.7	78.5	.0851	.108	.0113	.0149	.151	-.0214
317	6000	297	294	7.12	.994	38.7	76.9	.0839	.106	.0119	.0146	.154	-.0253
318	9500	298	285	7.08	.99	38.7	73.5	.0838	.101	.0199	.0144	.143	-.0264
319	13000	298	286	7.15	.991	38.7	69.1	.0828	.0959	.0294	.0169	.128	-.0202
320	16000	299	290	7.18	.987	38.7	65	.082	.0905	.0347	.0202	.128	-.0175
321	3000	297	294	8.19	.983	38.7	79.1	.0844	.125	.0073	.0116	.14	-.0174
322	6000	297	295	8.18	.989	38.7	77.8	.0838	.123	.0099	.0102	.139	-.0189
323	9500	298	288	8.18	.985	38.7	74.5	.0833	.118	.0179	.011	.128	-.015
324	13000	298	287	8.18	.986	38.7	70.3	.0822	.112	.0247	.0131	.121	-.0164
325	16000	299	290	8.2	.985	38.7	66	.0818	.105	.0284	.0145	.112	-.0169

Case	Pi, i=1 to 15 ---------->														
301	2.64	2.58	2.48	2.41	2.34	2.23	2.11	1.97	1.89	1.78	1.66	1.56	1.41	1.31	1.15
302	2.64	2.58	2.48	2.4	2.33	2.22	2.1	1.96	1.88	1.76	1.64	1.55	1.4	1.3	1.14
303	2.69	2.63	2.53	2.46	2.37	2.28	2.14	2.01	1.92	1.8	1.67	1.58	1.42	1.32	1.15
304	2.7	2.63	2.54	2.45	2.39	2.27	2.15	2	1.93	1.79	1.68	1.57	1.43	1.32	1.15
305	2.73	2.66	2.57	2.46	2.4	2.29	2.17	2.01	1.94	1.8	1.69	1.57	1.43	1.32	1.15
306	3.8	3.71	3.55	3.45	3.32	3.17	2.96	2.74	2.59	2.41	2.21	2.05	1.81	1.61	1.31
307	3.8	3.71	3.55	3.45	3.31	3.16	2.95	2.73	2.58	2.4	2.2	2.04	1.79	1.6	1.31
308	3.79	3.7	3.55	3.43	3.3	3.14	2.93	2.71	2.57	2.39	2.19	2.03	1.78	1.59	1.3
309	3.87	3.77	3.62	3.48	3.38	3.19	3	2.75	2.63	2.42	2.24	2.04	1.81	1.61	1.32
310	3.87	3.76	3.62	3.46	3.36	3.17	2.99	2.74	2.62	2.4	2.23	2.03	1.8	1.61	1.31
311	4.97	4.86	4.63	4.5	4.32	4.13	3.84	3.57	3.35	3.09	2.82	2.62	2.27	2.01	1.57
312	5.01	4.88	4.67	4.54	4.34	4.15	3.85	3.57	3.36	3.1	2.83	2.62	2.27	2.01	1.58
313	4.98	4.85	4.64	4.5	4.32	4.11	3.82	3.53	3.33	3.08	2.81	2.59	2.25	1.99	1.56
314	5.04	4.91	4.71	4.52	4.39	4.13	3.88	3.55	3.38	3.1	2.86	2.59	2.28	2.01	1.58
315	5.07	4.93	4.73	4.53	4.39	4.14	3.89	3.55	3.38	3.09	2.85	2.58	2.27	1.99	1.56
316	6.14	5.99	5.72	5.56	5.32	5.09	4.73	4.38	4.13	3.8	3.46	3.21	2.77	2.45	1.89
317	6.14	6	5.73	5.56	5.32	5.1	4.73	4.38	4.12	3.8	3.46	3.2	2.76	2.43	1.88
318	6.14	5.99	5.73	5.53	5.33	5.04	4.72	4.32	4.09	3.77	3.45	3.15	2.75	2.4	1.87
319	6.23	6.08	5.82	5.6	5.43	5.11	4.8	4.39	4.16	3.83	3.52	3.19	2.79	2.45	1.9
320	6.29	6.12	5.87	5.61	5.45	5.13	4.82	4.4	4.19	3.83	3.54	3.2	2.8	2.45	1.9
321	7.04	6.86	6.55	6.37	6.08	5.84	5.42	5.04	4.73	4.33	3.98	3.64	3.17	2.8	2.15
322	7.04	6.88	6.56	6.38	6.11	5.84	5.42	5.01	4.71	4.35	3.97	3.67	3.16	2.79	2.14
323	7.08	6.91	6.62	6.39	6.17	5.83	5.47	5	4.74	4.37	4	3.64	3.19	2.77	2.16
324	7.12	6.94	6.66	6.39	6.2	5.84	5.48	5.01	4.76	4.38	4.02	3.64	3.19	2.79	2.16
325	7.16	6.97	6.68	6.39	6.2	5.83	5.48	5	4.76	4.36	4.03	3.64	3.19	2.78	2.15

Table A35b. Static and dynamic test data for seal 7 of Table 3 for high inlet circumferential velocity with shaft rotation and 56.8 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
326	3000	301	285	3.06	1.01	56.8	74	.092	.0434	.00774	.00835	.167	-.0221
327	6000	303	291	3.03	1.01	56.8	73	.0941	.042	.0025	.011	.18	-.0129
328	9500	294	285	3.04	1.01	56.8	68.1	.0875	.0408	.00839	.0104	.169	-.0227
329	13000	294	287	3.02	1.01	56.8	64.1	.0938	.0382	.0137	.0172	.168	-.0142
330	16000	294	294	3.05	1.01	56.8	59.8	.0882	.0361	.0139	.0206	.173	-.0084
331	3000	294	289	4.38	1	56.8	75.8	.0793	.065	.0158	.0127	.159	-.016
332	6000	304	292	4.42	1	56.8	76	.089	.0637	.0229	.00946	.15	-.0243
333	9500	295	284	4.43	1	56.8	71.1	.0831	.0619	.0253	.0126	.148	-.0205
334	13000	294	286	4.41	1	56.8	67.2	.0952	.0584	.0349	.0177	.135	-.0169
335	16000	294	292	4.42	1	56.8	62.5	.0822	.0545	.0424	.0225	.136	-.0152
336	3000	300	291	5.78	.995	56.8	78	.0875	.0862	.0193	.011	.14	-.0198
337	6000	304	297	5.77	.999	56.8	76.7	.087	.0837	.0215	.0109	.151	-.0186
338	9500	294	283	5.76	.997	56.8	72.2	.0804	.0816	.026	.015	.143	-.0232
339	13000	294	285	5.81	.995	56.8	68.9	.0919	.0787	.0366	.0194	.131	-.0197
340	16000	295	290	5.79	.999	56.8	63.6	.0789	.0726	.0427	.0218	.127	-.0159
341	3000	301	294	7.13	.988	56.8	79	.085	.107	.0084	.0111	.142	-.0164
342	6000	304	300	7.16	.99	56.8	77.8	.0837	.105	.0192	.0121	.145	-.0196
343	9500	295	282	7.14	.986	56.8	73.3	.0793	.102	.0275	.0127	.14	-.0215
344	13000	294	284	7.11	.991	56.8	69.5	.0895	.0973	.0351	.0183	.132	-.0192
345	16000	295	288	7.14	.99	56.8	64.7	.0822	.0909	.0395	.0211	.127	-.0142
346	3000	302	299	8.18	.984	56.8	79.7	.0833	.124	.0125	.0075	.113	-.0158
347	6000	304	300	8.19	.985	56.8	78.3	.0826	.121	.0148	.00796	.121	-.019
348	9500	294	284	8.22	.983	56.8	73.8	.0773	.119	.0214	.0116	.13	-.0197
349	13000	294	284	8.24	.983	56.8	69.9	.0886	.113	.0316	.0148	.119	-.0185
350	16000	295	288	8.17	.988	56.8	65.2	.0811	.105	.0381	.0155	.108	-.0136

Case	Pi, i=1 to 15 ---------->														
326	2.68	2.61	2.52	2.44	2.37	2.26	2.13	2	1.92	1.79	1.68	1.57	1.43	1.32	1.15
327	2.65	2.58	2.49	2.41	2.34	2.23	2.1	1.97	1.89	1.76	1.65	1.55	1.4	1.3	1.14
328	2.68	2.6	2.52	2.43	2.36	2.25	2.12	1.98	1.9	1.78	1.66	1.56	1.41	1.3	1.14
329	2.68	2.6	2.51	2.43	2.35	2.25	2.13	1.99	1.91	1.78	1.66	1.56	1.41	1.31	1.14
330	2.71	2.64	2.54	2.45	2.37	2.27	2.15	2.01	1.92	1.79	1.67	1.57	1.42	1.32	1.15
331	3.79	3.69	3.55	3.43	3.32	3.15	2.95	2.73	2.6	2.39	2.21	2.03	1.8	1.6	1.31
332	3.84	3.73	3.59	3.47	3.35	3.18	2.97	2.76	2.62	2.41	2.23	2.05	1.81	1.62	1.32
333	3.86	3.75	3.62	3.48	3.37	3.19	2.98	2.76	2.62	2.41	2.23	2.05	1.81	1.62	1.31
334	3.86	3.76	3.62	3.48	3.36	3.19	2.99	2.75	2.62	2.41	2.22	2.05	1.8	1.61	1.31
335	3.88	3.77	3.63	3.49	3.37	3.2	2.99	2.76	2.62	2.41	2.22	2.04	1.8	1.61	1.3
336	4.97	4.82	4.63	4.46	4.32	4.09	3.82	3.53	3.33	3.06	2.81	2.58	2.26	1.99	1.56
337	5	4.86	4.67	4.51	4.36	4.13	3.85	3.57	3.37	3.1	2.84	2.61	2.27	2	1.58
338	4.99	4.85	4.67	4.5	4.35	4.11	3.84	3.54	3.35	3.07	2.82	2.59	2.25	1.99	1.56
339	5.06	4.92	4.74	4.55	4.39	4.16	3.89	3.58	3.39	3.11	2.86	2.61	2.28	2.01	1.58
340	5.08	4.94	4.75	4.56	4.4	4.16	3.89	3.58	3.39	3.11	2.86	2.61	2.28	2.01	1.57
341	6.12	5.96	5.72	5.52	5.35	5.07	4.74	4.37	4.13	3.78	3.48	3.18	2.78	2.43	1.89
342	6.19	6.01	5.79	5.59	5.4	5.12	4.78	4.41	4.18	3.83	3.51	3.21	2.8	2.45	1.91
343	6.19	6.01	5.79	5.57	5.38	5.11	4.76	4.38	4.14	3.79	3.48	3.18	2.77	2.43	1.88
344	6.2	6.01	5.78	5.55	5.36	5.08	4.74	4.36	4.12	3.78	3.47	3.17	2.76	2.42	1.87
345	6.26	6.06	5.83	5.59	5.39	5.11	4.77	4.38	4.15	3.8	3.49	3.18	2.78	2.44	1.88
346	7.04	6.83	6.56	6.33	6.13	5.8	5.43	5.01	4.74	4.34	3.99	3.64	3.18	2.78	2.15
347	7.06	6.87	6.6	6.37	6.16	5.84	5.45	5.03	4.76	4.35	4	3.64	3.19	2.78	2.16
348	7.11	6.9	6.64	6.39	6.17	5.85	5.44	5.02	4.74	4.34	3.99	3.63	3.16	2.77	2.14
349	7.17	6.96	6.7	6.44	6.22	5.89	5.5	5.06	4.78	4.39	4.03	3.67	3.2	2.81	2.17
350	7.13	6.92	6.64	6.37	6.13	5.81	5.43	4.97	4.7	4.31	3.96	3.6	3.14	2.75	2.12

Table A35c. Static and dynamic test data for seal 7 of Table 3 for high inlet circumferential velocity with shaft rotation and 74.6 Hz shake frequency.

Case	CPM	Tr	Tb	Pr	Pb	f	Vt	A	$\dot{m}$	$\bar{K}$	$\bar{k}$	$\bar{C}$x1000	$\bar{c}$x1000
351	3000	297	284	3.02	1.01	74.6	72.9	.0921	.0428	.0147	.0103	.167	-.00914
352	6000	296	284	3.03	1.01	74.6	70.9	.0926	.042	.013	.00323	.17	-.00922
353	9500	296	286	3.01	1.01	74.6	68	.0918	.0401	.0193	.00517	.153	-.00786
354	13000	296	288	3.03	1.01	74.6	64.4	.0895	.0383	.0261	.0107	.156	-.00949
355	16000	296	291	3.02	1.01	74.6	59.6	.0902	.0355	.0223	.0159	.167	-.00294
356	3000	297	286	4.37	1	74.6	75.8	.0866	.0641	.0276	.00939	.142	-.0143
357	6000	296	284	4.43	1	74.6	74.7	.0887	.0644	.0304	.00649	.141	-.0134
358	9500	296	285	4.46	1.01	74.6	71	.0855	.0618	.0382	.00737	.133	-.0108
359	13000	296	289	4.42	1	74.6	67.7	.0852	.0585	.0427	.0121	.129	-.0107
360	16000	296	291	4.41	1	74.6	62.7	.0866	.0543	.0501	.0178	.122	-.0116
361	3000	298	289	5.73	.995	74.6	77.1	.0839	.0853	.0274	.00794	.137	-.0143
362	6000	296	287	5.77	.997	74.6	75.6	.088	.0847	.0309	.00777	.136	-.0139
363	9500	297	285	5.82	.998	74.6	72.8	.0845	.0823	.0379	.00809	.128	-.0131
364	13000	296	289	5.77	.997	74.6	68.8	.0836	.0775	.0433	.0127	.124	-.0119
365	16000	297	291	5.75	.998	74.6	63.8	.082	.0719	.0492	.0179	.118	-.013
366	3000	299	292	7.19	.985	74.6	78.7	.0775	.109	.0227	.00838	.136	-.0163
367	6000	299	293	7.17	.987	74.6	77	.075	.106	.0279	.00651	.13	-.0165
368	9500	297	286	7.15	.987	74.6	73.5	.0817	.102	.0358	.00827	.13	-.0109
369	13000	296	286	7.12	.992	74.6	69.6	.0816	.0968	.042	.0116	.121	-.0126
370	16000	297	289	7.19	.991	74.6	65.2	.0797	.0918	.0467	.0144	.114	-.0112
371	3000	300	296	8.2	.981	74.6	77.5	.0758	.125	.0239	.00543	.115	-.0145
372	6000	300	295	8.18	.985	74.6	78	.0711	.122	.0242	.00376	.11	-.0134
373	9500	300	287	8.21	.982	74.6	75.4	.0866	.119	.0263	.00445	.107	-.00738
374	13000	296	285	8.2	.987	74.6	70.5	.0785	.113	.0381	.00863	.111	-.0112
375	16000	297	289	8.2	.988	74.6	65.8	.082	.106	.0432	.0114	.0993	-.00993

Case	Pi, i=1 to 15 ---------->														
351	2.65	2.58	2.49	2.41	2.34	2.23	2.1	1.97	1.89	1.77	1.65	1.55	1.41	1.31	1.15
352	2.67	2.6	2.51	2.43	2.35	2.25	2.12	1.98	1.91	1.78	1.66	1.56	1.41	1.31	1.14
353	2.66	2.59	2.5	2.42	2.35	2.25	2.12	1.99	1.9	1.78	1.66	1.56	1.41	1.31	1.14
354	2.69	2.62	2.53	2.44	2.37	2.26	2.13	2	1.92	1.79	1.67	1.57	1.42	1.31	1.15
355	2.69	2.62	2.53	2.44	2.36	2.26	2.13	1.99	1.91	1.79	1.66	1.56	1.41	1.31	1.14
356	3.8	3.7	3.57	3.45	3.34	3.17	2.97	2.76	2.61	2.41	2.23	2.06	1.82	1.62	1.32
357	3.86	3.75	3.61	3.49	3.38	3.2	2.99	2.77	2.63	2.43	2.25	2.07	1.83	1.62	1.33
358	3.9	3.8	3.66	3.54	3.42	3.25	3.04	2.81	2.66	2.45	2.26	2.08	1.84	1.64	1.33
359	3.88	3.78	3.64	3.51	3.38	3.21	3	2.77	2.63	2.43	2.24	2.06	1.81	1.62	1.31
360	3.88	3.77	3.62	3.48	3.37	3.2	2.99	2.76	2.62	2.41	2.23	2.04	1.8	1.61	1.31
361	4.94	4.8	4.62	4.46	4.31	4.08	3.82	3.53	3.32	3.04	2.8	2.57	2.25	1.98	1.56
362	4.99	4.84	4.66	4.5	4.35	4.12	3.85	3.55	3.35	3.07	2.82	2.59	2.27	1.99	1.57
363	5.05	4.91	4.72	4.57	4.41	4.17	3.89	3.6	3.4	3.11	2.86	2.62	2.29	2.01	1.58
364	5.03	4.89	4.71	4.53	4.38	4.14	3.87	3.56	3.36	3.09	2.84	2.59	2.27	2	1.57
365	5.03	4.88	4.7	4.51	4.36	4.12	3.85	3.54	3.34	3.07	2.83	2.58	2.26	1.99	1.56
366	6.17	6.02	5.78	5.57	5.39	5.11	4.78	4.4	4.15	3.8	3.5	3.21	2.79	2.45	1.9
367	6.19	6.02	5.79	5.57	5.4	5.12	4.78	4.39	4.15	3.8	3.5	3.2	2.79	2.45	1.9
368	6.19	6.02	5.79	5.59	5.39	5.11	4.77	4.4	4.15	3.8	3.49	3.19	2.77	2.43	1.89
369	6.2	6.02	5.8	5.58	5.38	5.1	4.77	4.38	4.13	3.8	3.49	3.18	2.77	2.43	1.89
370	6.31	6.13	5.89	5.66	5.46	5.17	4.84	4.43	4.2	3.85	3.55	3.23	2.81	2.47	1.91
371	7.03	6.86	6.59	6.36	6.15	5.84	5.47	5.03	4.74	4.35	4	3.67	3.2	2.8	2.16
372	7.04	6.84	6.57	6.34	6.12	5.8	5.43	4.99	4.7	4.3	3.95	3.6	3.14	2.76	2.14
373	7.11	6.92	6.65	6.39	6.18	5.85	5.45	5.03	4.76	4.37	4.02	3.65	3.18	2.78	2.16
374	7.13	6.93	6.67	6.43	6.21	5.88	5.49	5.05	4.78	4.38	4.03	3.66	3.19	2.8	2.16
375	7.18	6.97	6.7	6.43	6.19	5.87	5.48	5.02	4.76	4.37	4.02	3.66	3.19	2.8	2.15