

UTEX INDUSTRIES, INC.

# Mechanical Seals

C A T A L O G



CARTRIDGE SEALS  
METAL BELLOWS CARTRIDGE SEALS  
HIGH PRESSURE PIPELINE SEALS  
COMPOSITE CARTRIDGE SEALS

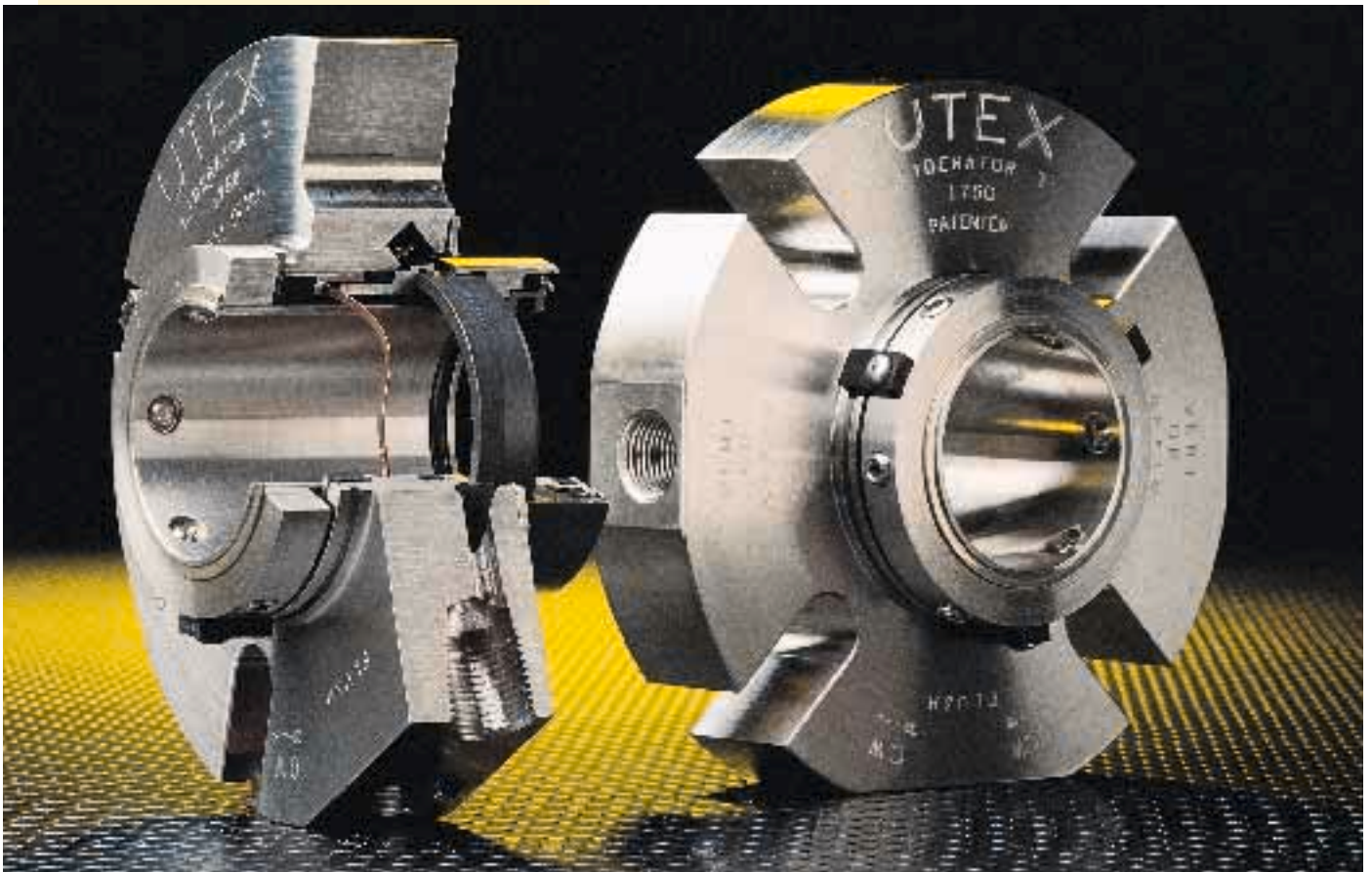
ROTARY UNITS  
• METAL BELLOWS  
• MULTI SPRING  
• OUTSIDE MOUNT

STATIONARY SEATS  
• O-RING  
• BLOCK  
• CLAMP  
• "L" TYPE



**UTEX INDUSTRIES, INC.**  
*Taking Sealing Technology Beyond Tomorrow*  
ISO 9001 Certified

# LIBERATOR™ I



## LIBERATOR I Technical Data

### MATERIALS

#### METAL PARTS

316 SS metal parts are standard.

#### STATIONARY FACE

CNFJ-B grade carbon is standard. Tungsten Carbide and Silicon Carbide are available.

#### ROTATING SEAL FACE

Alpha sintered Silicon Carbide.

#### O-RINGS

Aflas is standard. EPDM, Neoprene, Nitrile, Chemraz, Kalrez, and Viton are available.

#### TEMPERATURE

-60°F TO +400°F      -50°C TO +204°C

#### PRESSURE

400 psi                      27 bar

#### SPEED

5000 fpm                    25 m/s

The Liberator I cartridge seal (patented) incorporates advanced seal design features. Using a “ball” drive, the Liberator resists twisting and torsional strains common to pin or key drives. The thin cross-section allows the Liberator I to be used in ANSI pumps without modifications.

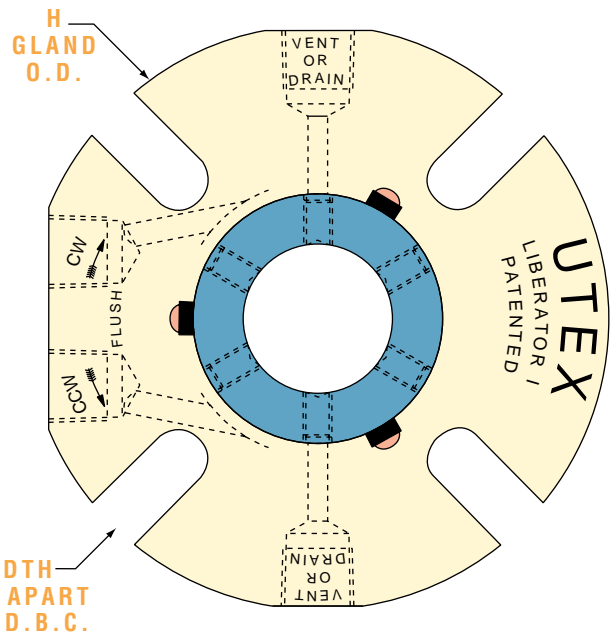
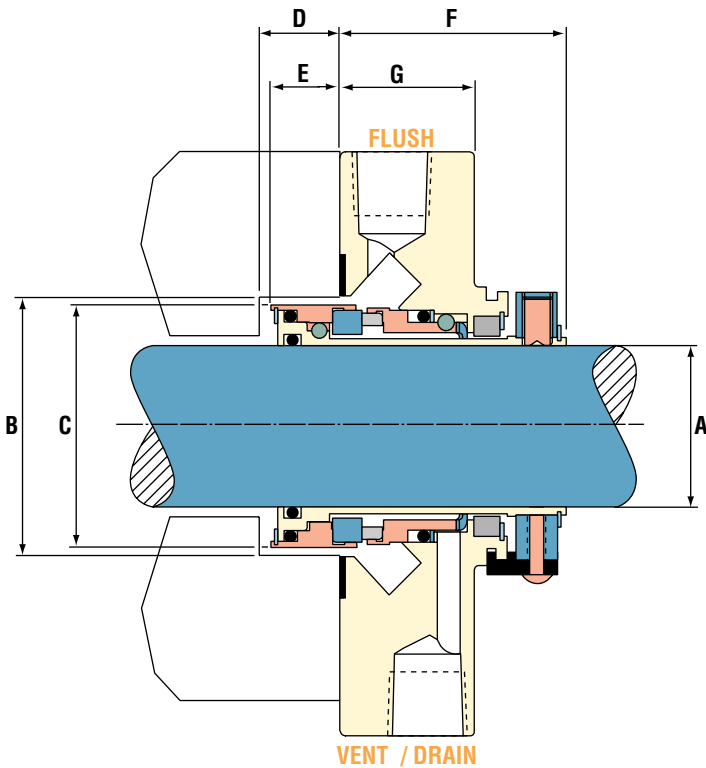
It employs a multi-crested wave spring which is a non-clogging spring isolated from the product for optimum corrosion resistance. Standard face materials are carbon vs. silicon carbide which together provide the highest PV rating of any face material combination. The rotating seat and spring loaded stationary accept higher shaft speeds, heavier viscosity fluids, and greater misalignment.

Aflas® o-rings are standard in all Liberators giving them a broad range of chemical compatibility. The Liberator gland incorporates both vent and drain connections, a carbon throttle bushing, and provides two tangential flush ports for clockwise or counterclockwise pump rotation.

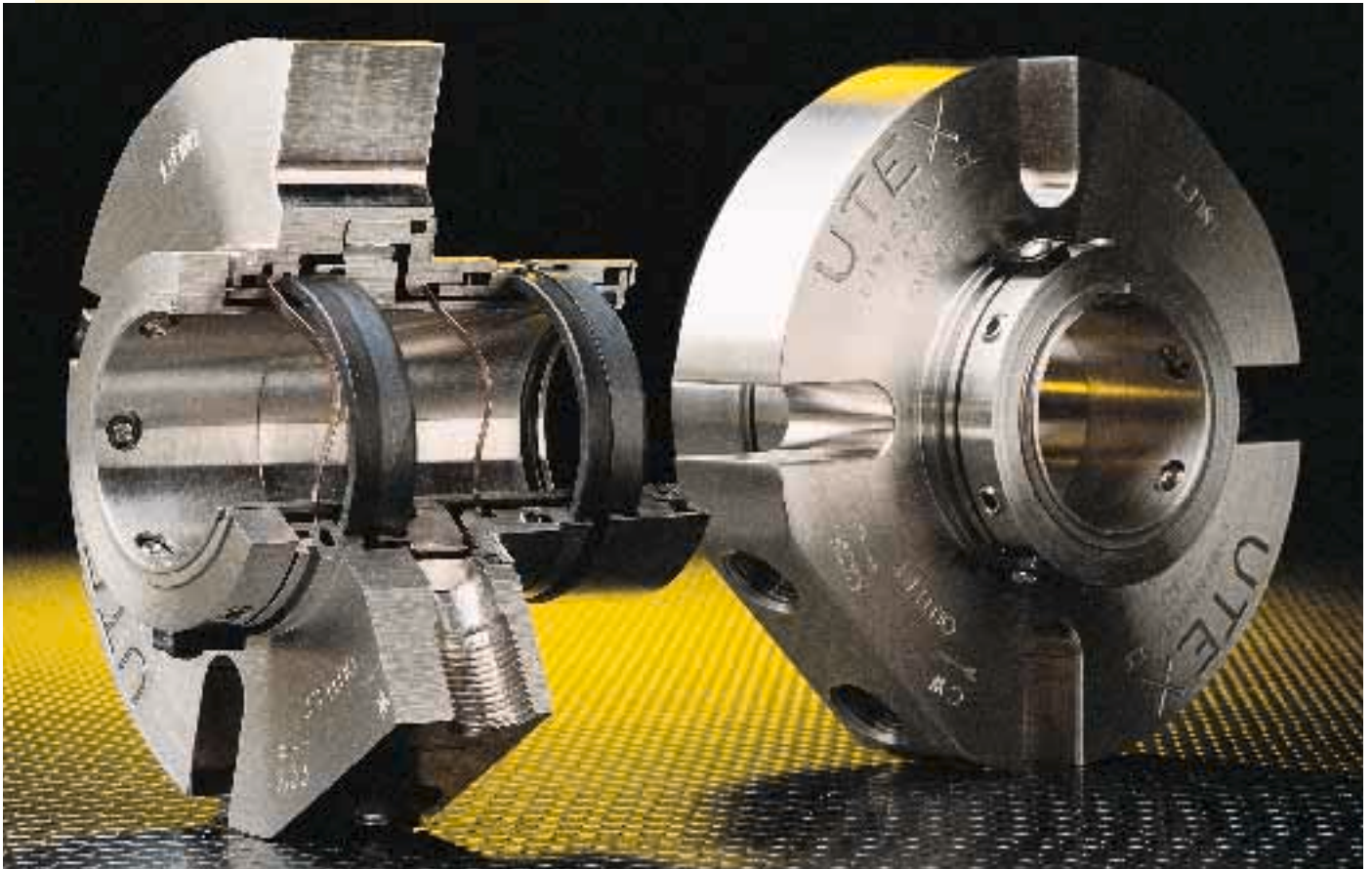


SHAFT SIZE	STUFFING BOX BORE		SEAL O.D.	STUFFING BOX DEPTH (MIN.)	IN-BOARD LENGTH	OUT-BOARD LENGTH	GLAND WIDTH	GLAND O.D.	SLOT WIDTH	BOLT CIRCLE MIN. BY BOLT SIZE				
	INCH	MM								MIN.	MAX.	<sup>3</sup> / <sub>8</sub> 10	<sup>1</sup> / <sub>2</sub> 12	<sup>5</sup> / <sub>8</sub> 16
A	B		C	D	E	F	G	H	J	K				
1.000	<b>25</b>	1.625 <b>41.5</b>	1.875 <b>48.0</b>	1.565 <b>39.8</b>	0.812 <b>21</b>	.721 <b>18.3</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	4.12 <b>104.6</b>	0.437 <b>11.1</b>	2.750 <b>70</b>			
1.125	<b>28</b>	1.750 <b>44.5</b>	2.000 <b>51.0</b>	1.690 <b>42.9</b>	0.812 <b>21</b>	.721 <b>18.3</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	4.25 <b>108.0</b>	0.437 <b>11.1</b>	2.875 <b>73</b>			
1.250	<b>30</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.815 <b>46.1</b>	0.812 <b>21</b>	.721 <b>18.3</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	4.37 <b>111.1</b>	0.437 <b>11.1</b>	3.000 <b>76</b>			
	<b>32</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.815 <b>46.1</b>	0.812 <b>21</b>	.721 <b>18.3</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	4.37 <b>111.1</b>	0.437 <b>11.1</b>	3.000 <b>76</b>			
1.375	<b>33</b>	2.000 <b>51.0</b>	2.250 <b>58.0</b>	1.940 <b>49.3</b>	0.750 <b>19</b>	.656 <b>16.7</b>	1.937 <b>49.2</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	0.437 <b>11.1</b>	3.125 <b>79</b>			
	<b>35</b>	2.000 <b>51.0</b>	2.250 <b>58.0</b>	1.940 <b>49.3</b>	0.750 <b>19</b>	.656 <b>16.7</b>	1.937 <b>49.2</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	0.437 <b>11.1</b>	3.125 <b>79</b>			
1.500	<b>38</b>	2.250 <b>57.5</b>	2.500 <b>64.0</b>	2.187 <b>55.6</b>	0.937 <b>24</b>	.822 <b>20.9</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	5.00 <b>127.0</b>	0.437 <b>11.1</b>	3.375 <b>86</b>			
1.562	<b>40</b>	2.312 <b>59.0</b>	2.562 <b>66.0</b>	2.250 <b>57.2</b>	0.937 <b>24</b>	.822 <b>20.9</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	5.25 <b>133.4</b>	0.562 <b>14.3</b>	3.437 <b>87</b>	3.562 <b>89</b>		
1.625		2.375	2.625	2.312	0.937	.822	1.875	1.13	5.25	0.562	3.500	3.625		
1.750	<b>45</b>	2.500 <b>63.5</b>	2.750 <b>70.0</b>	2.437 <b>61.9</b>	0.937 <b>24</b>	.822 <b>20.9</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	5.50 <b>139.7</b>	0.562 <b>14.3</b>	3.625 <b>92</b>	3.750 <b>94</b>		
1.875	<b>48</b>	2.625 <b>67.0</b>	2.875 <b>73.0</b>	2.562 <b>65.1</b>	0.937 <b>24</b>	.822 <b>20.9</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	5.62 <b>142.7</b>	0.562 <b>14.3</b>	3.750 <b>95</b>	3.875 <b>97</b>		
2.000	<b>50</b>	2.750 <b>70.0</b>	3.000 <b>77.0</b>	2.687 <b>68.3</b>	0.937 <b>24</b>	.822 <b>20.9</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	5.50 <b>139.7</b>	0.562 <b>14.3</b>	3.875 <b>98</b>	4.000 <b>100</b>		
2.125		2.875	3.125	2.812	0.937	.822	1.875	1.13	6.00	0.687	4.000	4.125	4.250	
2.187	<b>55</b>	2.937 <b>75.0</b>	3.187 <b>81.0</b>	2.875 <b>73.0</b>	0.937 <b>24</b>	.822 <b>20.9</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	6.00 <b>152.4</b>	0.687 <b>17.5</b>	4.062 <b>103</b>	4.187 <b>105</b>	4.312 <b>109</b>	
2.250		3.000	3.250	2.937	0.937	.822	1.875	1.13	6.25	0.687	4.125	4.250	4.375	
2.375	<b>60</b>	3.125 <b>79.5</b>	3.375 <b>86.0</b>	3.062 <b>77.8</b>	0.937 <b>24</b>	.822 <b>20.9</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	6.37 <b>161.9</b>	0.687 <b>17.5</b>	4.250 <b>108</b>	4.375 <b>110</b>	4.500 <b>114</b>	
2.500		3.250	3.500	3.187	0.937	.822	1.875	1.13	6.50	0.687	4.375	4.500	4.625	
2.625	<b>65</b>	3.375 <b>86.0</b>	3.625 <b>93.0</b>	3.312 <b>84.1</b>	0.937 <b>24</b>	.822 <b>20.9</b>	1.875 <b>47.6</b>	1.13 <b>28.6</b>	7.00 <b>177.8</b>	0.687 <b>17.5</b>	4.500 <b>114</b>	4.625 <b>116</b>	4.750 <b>120</b>	
2.750	<b>70</b>	3.750 <b>95.5</b>	4.250 <b>108.0</b>	3.625 <b>92.1</b>	1.000 <b>25</b>	.731 <b>18.6</b>	2.406 <b>61.1</b>	1.13 <b>36.5</b>	7.75 <b>196.9</b>	0.687 <b>17.5</b>	5.250 <b>133</b>	5.375 <b>135</b>	5.500 <b>139</b>	
2.875		4.000	4.500 3.875	1.000	.731	2.406	1.44	8.00	0.687	5.500	5.625	5.750		
3.000		4.000	4.500 3.875	1.000	.731	2.406	1.44	8.00	0.687	5.500	5.625	5.750		
3.125		4.250	4.750 4.125	1.000	.731	2.406	1.44	8.25	0.687	5.750	5.875	6.000		
3.250		4.250	4.750 4.125	1.000	.731	2.406	1.44	8.25	0.687	5.750	5.875	6.000		
3.375		4.500	5.000 4.375	1.000	.731	2.406	1.44	8.50	0.812	6.000	6.125	6.250	6.375	
3.500		4.500	5.000 4.375	1.000	.731	2.406	1.44	8.50	0.812	6.000	6.125	6.250	6.375	
3.625		4.750	5.250 4.625	1.000	.731	2.406	1.44	8.75	0.812	6.250	6.375	6.500	6.625	
3.750		4.750	5.250 4.625	1.000	.731	2.406	1.44	8.75	0.812	6.250	6.375	6.500	6.625	
3.875		5.000	5.500 4.875	1.000	.731	2.406	1.44	9.00	0.812	6.500	6.625	6.750	6.875	
4.000		5.000	5.500 4.875	1.000	.731	2.406	1.44	9.00	0.812	6.500	6.625	6.750	6.875	

METRIC NUMBERS ARE INDICATED IN BOLD RED. STANDARD UTEX SEALS ARE AVAILABLE FOR BOTH INCH AND MILLIMETER SHAFT SIZES LISTED IN COLUMN "A" ABOVE. FOR AVAILABILITY OF SEAL SIZES NOT LISTED IN THE TABLE, CONTACT YOUR UTEX REPRESENTATIVE.



# LIBERATOR™ II



## LIBERATOR II Technical Data

### MATERIALS

#### METAL PARTS

316 SS metal parts are standard.

#### STATIONARY FACE

CNFJ-B grade carbon is standard. Tungsten Carbide and Silicon Carbide are available.

#### ROTATING SEAL FACE

Alpha sintered Silicon Carbide.

#### O-RINGS

Aflas is standard. EPDM, Neoprene, Nitrile, Chemraz, Kalrez, and Viton are available.

#### TEMPERATURE

-60°F TO +400°F      -50°C TO +204°C

#### PRESSURE

400 psi                      27 bar

#### SPEED

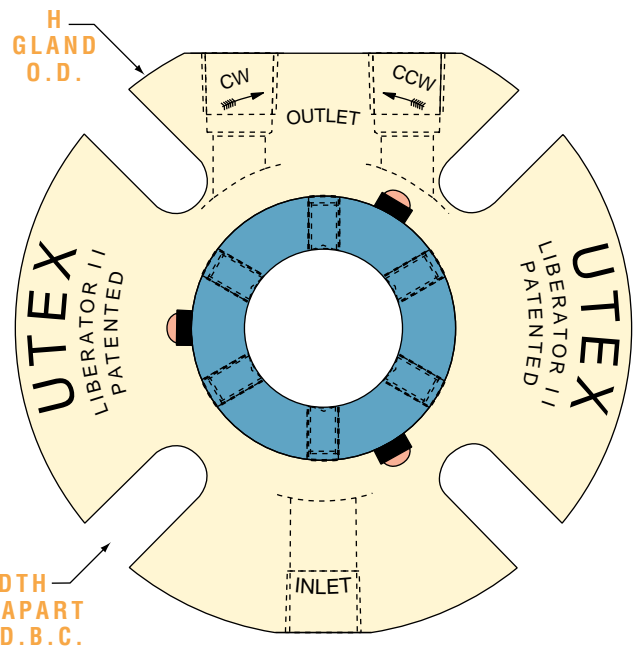
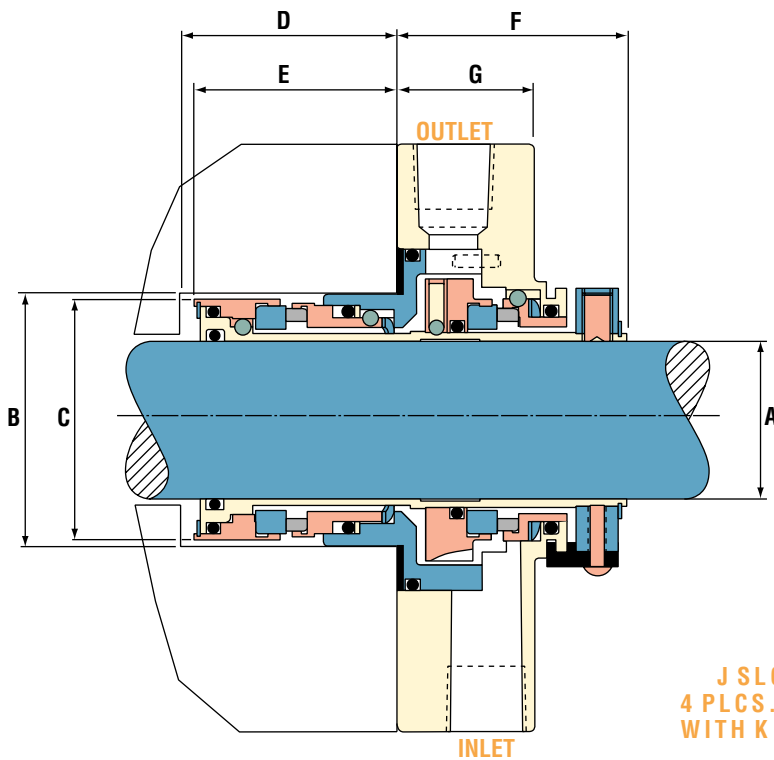
5000 fpm                    25 m/s

The Liberator II cartridge seal (patented) offers all of the design features of the Liberator I. In addition, it features two tangential outlet ports for clockwise or counterclockwise pump rotation. A pumping ring built in as a standard feature provides positive barrier fluid circulation.

The Liberator II is a double hydraulically balanced seal which allows it to be used as a double or tandem seal. In vertical installations, the secondary seal chamber is self-venting to insure proper lubrication of the secondary sealing faces. The barrier fluid at the secondary seal is on the O.D. of the sealing faces, which insures maximum heat dissipation.

SHAFT SIZE		STUFFING BOX BEFORE		SEAL O.D.	STUFFING BOX DEPTH (MIN.)	IN-BOARD LENGTH	OUT-BOARD LENGTH	GLAND WIDTH	GLAND O.D.	SLOT WIDTH	BOLT CIRCLE MIN. BY BOLT SIZE			
INCH	MM	MIN.	MAX.								<sup>3</sup> / <sub>8</sub> 10	<sup>1</sup> / <sub>2</sub> 12	<sup>5</sup> / <sub>8</sub> 16	<sup>3</sup> / <sub>4</sub>
A	B		C	D	E	F	G	H	J	K				
1.000	<b>25</b>	1.625 <b>41.5</b>	1.875 <b>48.0</b>	1.565 <b>39.8</b>	1.875 <b>48</b>	1.750 <b>44.5</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	4.12 <b>104.6</b>	0.437 <b>11.1</b>	2.750 <b>70</b>			
1.125	<b>28</b>	1.750 <b>44.5</b>	2.000 <b>51.0</b>	1.690 <b>42.9</b>	1.875 <b>48</b>	1.750 <b>44.5</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	4.25 <b>108.0</b>	0.437 <b>11.1</b>	2.875 <b>73</b>			
1.250	<b>30</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.815 <b>46.1</b>	1.875 <b>48</b>	1.750 <b>44.5</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	4.37 <b>111.1</b>	0.437 <b>11.1</b>	3.000 <b>76</b>			
	<b>32</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.815 <b>46.1</b>	1.875 <b>48</b>	1.750 <b>44.5</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	4.37 <b>111.1</b>	0.437 <b>11.1</b>	3.000 <b>76</b>			
1.375	<b>33</b>	2.000 <b>51.0</b>	2.250 <b>58.0</b>	1.940 <b>49.3</b>	1.875 <b>48</b>	1.750 <b>44.5</b>	2.042 <b>51.9</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	0.437 <b>11.1</b>	3.125 <b>79</b>			
	<b>35</b>	2.000 <b>51.0</b>	2.250 <b>58.0</b>	1.940 <b>49.3</b>	1.875 <b>48</b>	1.750 <b>44.5</b>	2.042 <b>51.9</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	0.437 <b>11.1</b>	3.125 <b>79</b>			
1.500	<b>38</b>	2.250 <b>57.5</b>	2.500 <b>64.0</b>	2.187 <b>55.6</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	5.00 <b>127.0</b>	0.437 <b>11.1</b>	3.375 <b>86</b>			
1.562	<b>40</b>	2.312 <b>59.0</b>	2.562 <b>66.0</b>	2.250 <b>57.2</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	5.25 <b>133.4</b>	0.562 <b>14.3</b>	3.437 <b>87</b>	3.562 <b>89</b>		
1.625		2.375	2.625	2.312	2.000	1.875	2.042	1.23	5.25	0.562	3.500	3.625		
1.750	<b>45</b>	2.500 <b>63.5</b>	2.750 <b>70.0</b>	2.437 <b>61.9</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	5.50 <b>139.7</b>	0.562 <b>14.3</b>	3.625 <b>92</b>	3.750 <b>94</b>		
1.875	<b>48</b>	2.625 <b>67.0</b>	2.875 <b>73.0</b>	2.562 <b>65.1</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	5.62 <b>142.7</b>	0.562 <b>14.3</b>	3.750 <b>95</b>	3.875 <b>97</b>		
2.000	<b>50</b>	2.750 <b>70.0</b>	3.000 <b>77.0</b>	2.687 <b>68.3</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	5.50 <b>139.7</b>	0.562 <b>14.3</b>	3.875 <b>98</b>	4.000 <b>100</b>		
		2.125	2.875	3.125	2.812	2.000	1.875	2.042	1.23	6.00	0.687	4.000	4.125	4.250
2.187	<b>55</b>	2.937 <b>75.0</b>	3.187 <b>81.0</b>	2.875 <b>73.0</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	6.00 <b>152.4</b>	0.687 <b>17.5</b>	4.062 <b>103</b>	4.187 <b>105</b>	4.312 <b>109</b>	
		2.250	3.000	3.250	2.937	2.000	1.875	2.042	1.23	6.25	0.687	4.125	4.250	4.375
2.375	<b>60</b>	3.125 <b>79.5</b>	3.375 <b>86.0</b>	3.062 <b>77.8</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	6.37 <b>161.9</b>	0.687 <b>17.5</b>	4.250 <b>108</b>	4.375 <b>110</b>	4.500 <b>114</b>	
		2.500	3.250	3.500	3.187	2.000	1.875	2.042	1.23	6.50	0.687	4.375	4.500	4.625
2.625	<b>65</b>	3.375 <b>86.0</b>	3.625 <b>93.0</b>	3.312 <b>84.1</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.042 <b>51.9</b>	1.23 <b>31.3</b>	7.00 <b>177.8</b>	0.687 <b>17.5</b>	4.500 <b>114</b>	4.625 <b>116</b>	4.750 <b>120</b>	
2.750	<b>70</b>	3.750 <b>95.5</b>	4.250 <b>108.0</b>	3.625 <b>92.1</b>	2.312 <b>59</b>	2.181 <b>55.4</b>	2.406 <b>61.1</b>	1.44 <b>36.5</b>	7.75 <b>196.9</b>	0.687 <b>17.5</b>	5.250 <b>133</b>	5.375 <b>135</b>	5.500 <b>139</b>	
2.875		4.000	4.500	3.875	2.312	2.181	2.406	1.43	8.000	0.687	5.500	5.625	5.750	
3.000		4.000	4.500	3.875	2.312	2.181	2.406	1.43	8.000	0.687	5.500	5.625	5.750	
3.125		4.250	4.750	4.125	2.312	2.181	2.406	1.43	8.250	0.687	5.750	5.875	6.000	
3.250		4.250	4.750	4.125	2.312	2.181	2.406	1.43	8.250	0.687	5.750	5.875	6.000	
3.375		4.500	5.000	4.375	2.312	2.181	2.406	1.43	8.500	0.812	6.000	6.125	6.250	6.375
3.500		4.500	5.000	4.375	2.312	2.181	2.406	1.43	8.500	0.812	6.000	6.125	6.250	6.375
3.625		4.750	5.250	4.635	2.312	2.181	2.406	1.43	8.750	0.812	6.250	6.375	6.500	6.625
3.750		4.750	5.250	4.625	2.312	2.181	2.406	1.43	8.750	0.812	6.250	6.375	6.500	6.625
3.875		5.000	5.500	4.875	2.312	2.181	2.406	1.43	9.000	0.812	6.500	6.625	6.750	6.875
4.000		5.000	5.500	4.875	2.312	2.181	2.406	1.43	9.000	0.812	6.500	6.625	6.750	6.875

METRIC NUMBERS ARE INDICATED IN BOLD RED. STANDARD UTEX SEALS ARE AVAILABLE FOR BOTH INCH AND MILLIMETER SHAFT SIZES LISTED IN COLUMN "A" ABOVE. FOR AVAILABILITY OF SEAL SIZES NOT LISTED IN THE TABLE, CONTACT YOUR UTEX REPRESENTATIVE.

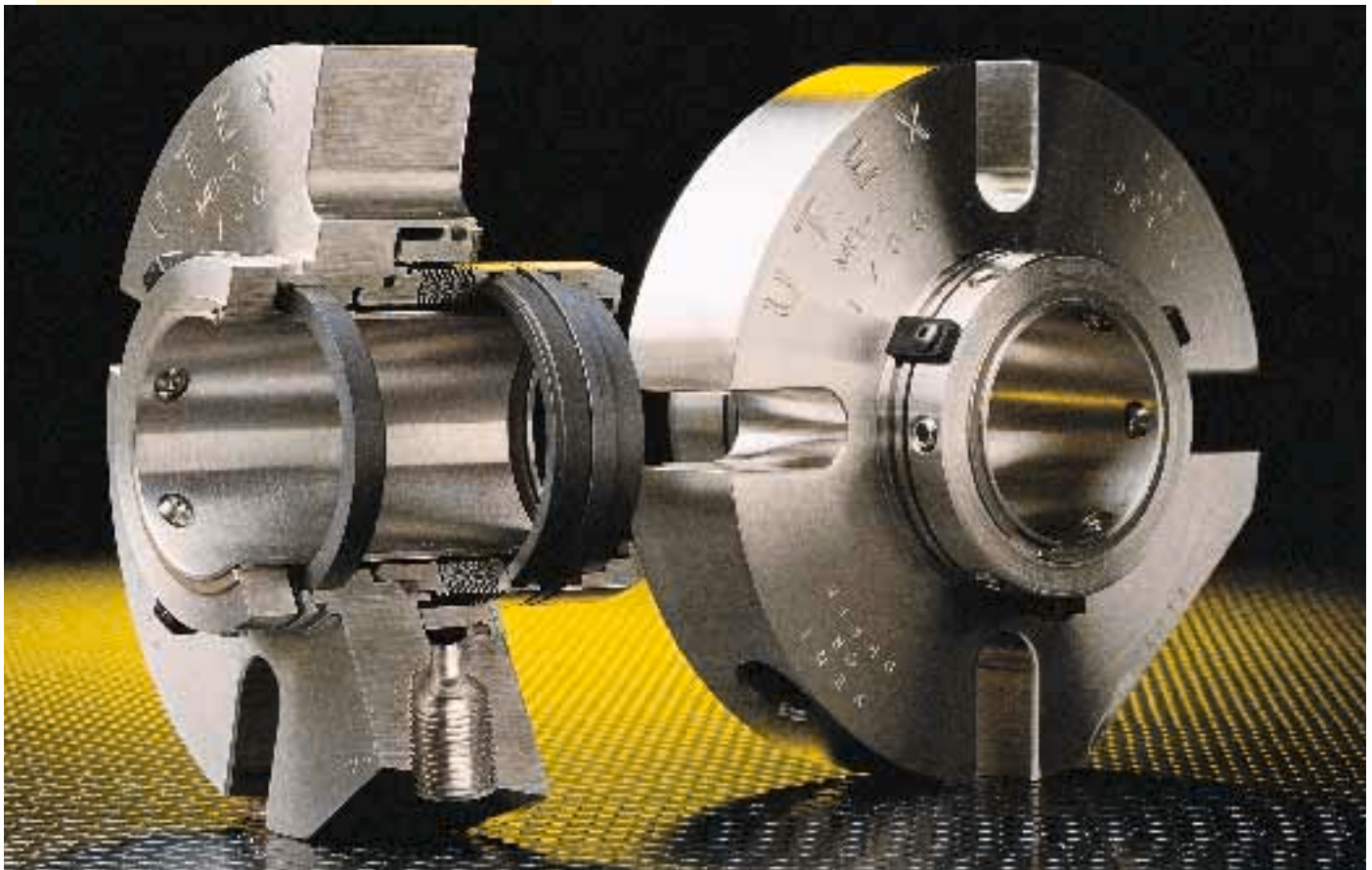


J SLOT WIDTH  
4 PLCS., 90° APART  
WITH K MIN. D.B.C.



# UTEX MB-I

## Single Metal Bellows Cartridge Seal



### MB-1 Technical Data

#### MATERIALS

##### BELLOWS & END FITTINGS

Hastelloy C-276 bellows core. 316 SS standard end fittings, Hastelloy C is available.

##### METAL PARTS

316 SS metal parts are standard. Hastelloy C and Alloy 20 are available.

##### STATIONARY SEAL FACE

CNFJ-B grade carbon is standard. Tungsten carbide and silicon carbide are available.

##### ROTATING SEAL FACE

Alpha sintered silicon carbide.

##### O-RINGS

Viton is standard. EPDM, Neoprene, Nitrile, Aflas, Chemraz, Kalrez, PTFE, and encapsulated Viton are available.

##### TEMPERATURE

-75°F to 400°F (-60°C to 204°C) depending on o-ring material chosen.

##### PRESSURE

Maximum pressure is 300 psi (20 bar)

##### SPEED

Up to 4500 fpm (23 m/s)

##### NOTES

Vent/Drain and flush connection sizes:

1/4" N.P.T. for seal sizes 1" thru 1 3/8"

3/8" N.P.T. for seal sizes 1 1/2" thru 2 3/4"

## THE UTEX SEAL THAT DOUBLES YOUR OPTIONS

The compact and versatile MB-I can be used as either a stationary or rotating bellows seal. The MB-I is supplied in its standard configuration as a stationary bellows assembly. The mutually interchangeable bellows and seat allow easy, on-site conversion to a rotary bellows design.

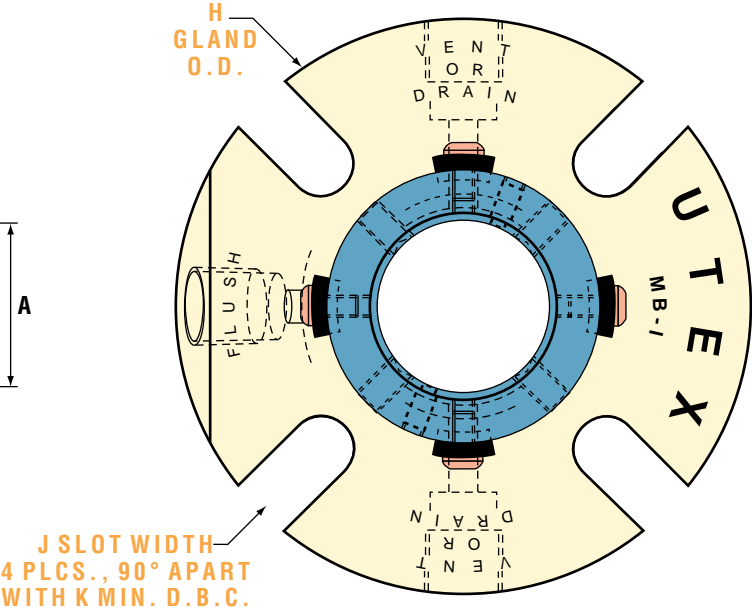
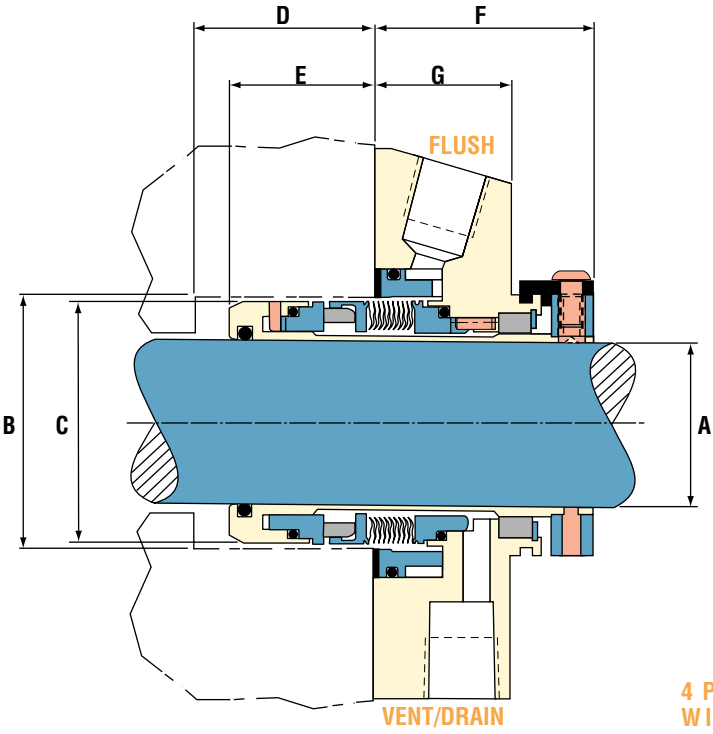
The bellows design provides even distribution of load around the entire circumference of the seal face. In addition, the need for dynamic o-rings, with associated frictional drag and wear, is eliminated. The extremely low mass of the face and bellows assembly improves face tracking characteristics during operation.

The MB-I's unique multi-ported flushing system uses a single gland connection that enters into an annular cavity. The flush medium flows around this cavity and exits through evenly spaced ports, traveling axially over the seal faces. This provides full 360° lubrication and cooling while protecting the faces from abrasive particles.

The MB-I fits ANSI pumps without modification. Temperature range is from -75°F to +400°F (-60°C to +204°C) depending on o-ring material chosen. Maximum pressure is 300 psi (20 bar), with speeds up to 4500 fpm (23 m/s).

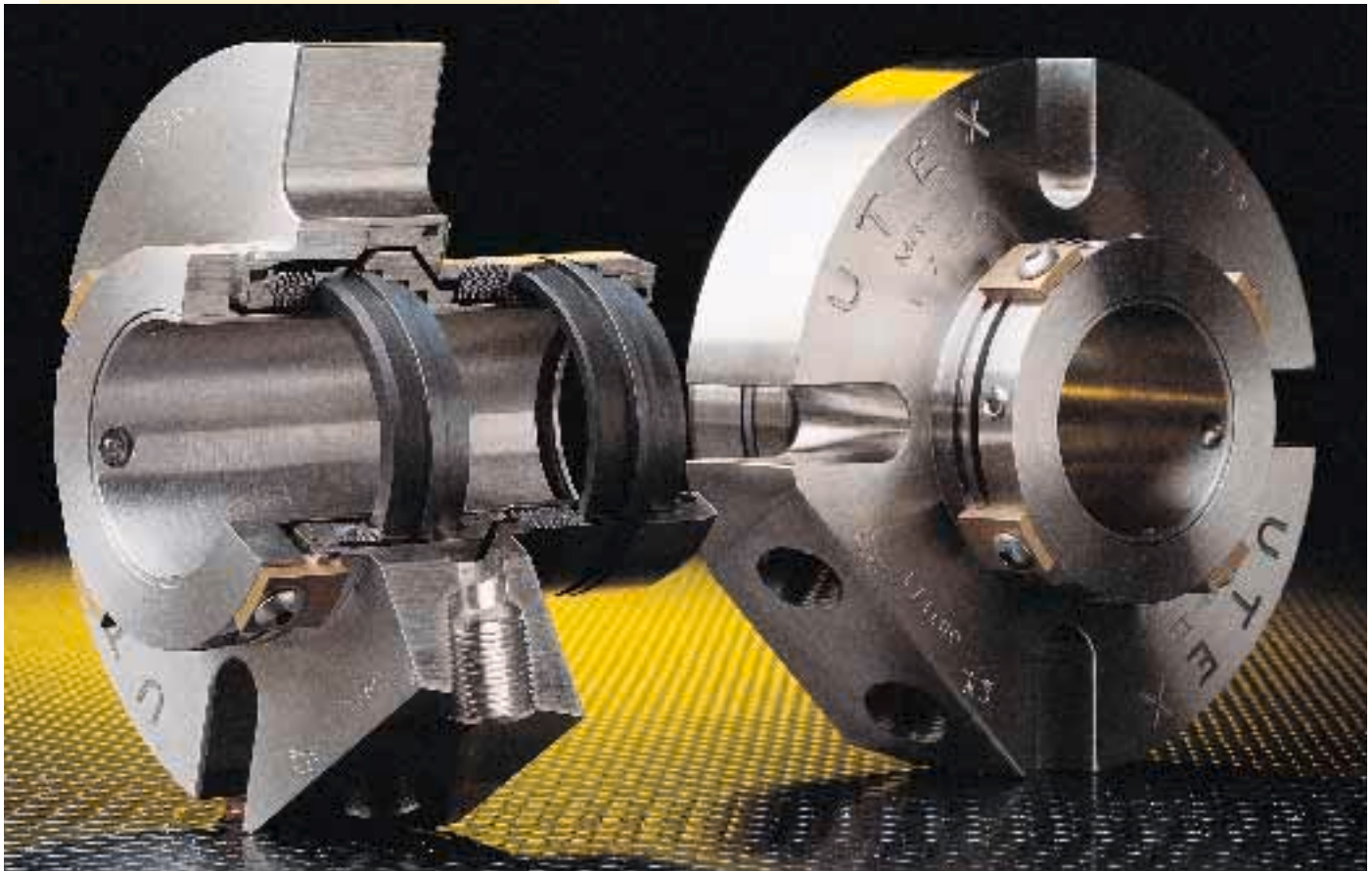
SHAFT SIZE INCH <b>MM</b>	STUFFING BOX BORE		SEAL O.D. C	STUFFING BOX DEPTH (MIN.) D	IN-BOARD LENGTH E	OUT-BOARD LENGTH F	GLAND WIDTH G	GLAND O.D. H	SLOT WIDTH J	BOLT CIRCLE MIN. BY BOLT SIZE				
	MIN.	MAX.								<sup>3</sup> / <sub>8</sub> 10	<sup>1</sup> / <sub>2</sub> 12	<sup>5</sup> / <sub>8</sub> 16		
A	B									K				
1.000 <b>25</b>	1.625 <b>41.5</b>	1.875 <b>48.0</b>	1.562 <b>39.7</b>	1.156 <b>30</b>	1.047 <b>26.6</b>	1.937 <b>49.2</b>	1.19 <b>30.2</b>	4.11 <b>104.4</b>	.437 <b>11.1</b>	2.750 <b>70</b>				
1.125 <b>28</b>	1.750 <b>44.5</b>	2.000 <b>51.0</b>	1.687 <b>42.9</b>	1.156 <b>30</b>	1.047 <b>26.6</b>	1.937 <b>49.2</b>	1.19 <b>30.2</b>	4.11 <b>104.4</b>	.437 <b>11.1</b>	2.875 <b>73</b>				
1.250 <b>30</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.812 <b>46.0</b>	1.156 <b>30</b>	1.047 <b>26.6</b>	1.937 <b>49.2</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	.437 <b>11.1</b>	3.000 <b>76</b>				
	<b>32</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.812 <b>46.0</b>	1.156 <b>30</b>	1.047 <b>26.6</b>	1.937 <b>49.2</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	.437 <b>11.1</b>	3.000 <b>76</b>			
1.375 <b>33</b>	2.000 <b>51.0</b>	2.250 <b>58.0</b>	1.937 <b>49.2</b>	1.156 <b>30</b>	1.047 <b>26.6</b>	1.937 <b>49.2</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	.437 <b>11.1</b>	3.125 <b>79</b>				
	<b>35</b>	2.000 <b>51.0</b>	2.250 <b>58.0</b>	1.937 <b>49.2</b>	1.156 <b>30</b>	1.047 <b>26.6</b>	1.937 <b>49.2</b>	4.18 <b>106.2</b>	.437 <b>11.1</b>	3.125 <b>79</b>				
1.500 <b>38</b>	2.250 <b>57.5</b>	2.500 <b>64.0</b>	2.187 <b>55.6</b>	1.406 <b>36</b>	1.281 <b>32.5</b>	2.000 <b>50.8</b>	1.25 <b>31.8</b>	4.49 <b>114.0</b>	.562 <b>14.3</b>	3.375 <b>86</b>	3.500 <b>88</b>			
1.625 <b>40</b>	2.375 <b>60.5</b>	2.625 <b>67.0</b>	2.312 <b>58.7</b>	1.406 <b>36</b>	1.281 <b>32.5</b>	2.000 <b>50.8</b>	1.25 <b>31.8</b>	4.99 <b>126.7</b>	.562 <b>14.3</b>	3.500 <b>89</b>	3.625 <b>91</b>			
1.750 <b>45</b>	2.500 <b>63.5</b>	2.750 <b>70.0</b>	2.437 <b>61.9</b>	1.453 <b>37</b>	1.328 <b>33.7</b>	2.000 <b>50.8</b>	1.25 <b>31.8</b>	5.49 <b>139.4</b>	.562 <b>14.3</b>	3.625 <b>92</b>	3.750 <b>94</b>			
1.875 <b>48</b>	2.625 <b>67.0</b>	2.875 <b>73.0</b>	2.562 <b>65.1</b>	1.453 <b>37</b>	1.328 <b>33.7</b>	2.000 <b>50.8</b>	1.25 <b>31.8</b>	5.49 <b>139.4</b>	.562 <b>14.3</b>	3.750 <b>95</b>	3.875 <b>97</b>			
2.000 <b>50</b>	2.750 <b>70.0</b>	3.000 <b>77.0</b>	2.687 <b>68.3</b>	1.453 <b>37</b>	1.328 <b>33.7</b>	2.000 <b>50.8</b>	1.25 <b>31.8</b>	5.49 <b>139.4</b>	.562 <b>14.3</b>	3.875 <b>98</b>	4.000 <b>100</b>			
2.125	2.875	3.250	2.812	1.453	1.328	2.000	1.25	5.99	.687	4.125	4.250	4.375		
2.250 <b>55</b>	3.000 <b>76.5</b>	3.375 <b>86.0</b>	2.937 <b>74.6</b>	1.453 <b>37</b>	1.328 <b>33.7</b>	2.000 <b>50.8</b>	1.25 <b>31.8</b>	5.99 <b>152.1</b>	.687 <b>17.5</b>	4.250 <b>108</b>	4.375 <b>110</b>	4.500 <b>114</b>		
2.375 <b>60</b>	3.125 <b>79.5</b>	3.625 <b>93.0</b>	3.062 <b>77.8</b>	1.453 <b>37</b>	1.328 <b>33.7</b>	2.000 <b>50.8</b>	1.25 <b>31.8</b>	6.24 <b>158.5</b>	.687 <b>17.5</b>	4.500 <b>114</b>	4.625 <b>116</b>	4.750 <b>120</b>		
2.500	3.250	3.750	3.187	1.453	1.328	2.000	1.25	6.49	.687	4.625	4.750	4.875		
2.625 <b>65</b>	3.375 <b>86.0</b>	3.875 <b>99.0</b>	3.312 <b>84.1</b>	1.453 <b>37</b>	1.328 <b>33.7</b>	2.000 <b>50.8</b>	1.25 <b>31.8</b>	6.99 <b>177.5</b>	.687 <b>17.5</b>	4.750 <b>121</b>	4.875 <b>123</b>	5.000 <b>127</b>		
2.750 <b>70</b>	3.750 <b>95.5</b>	4.000 <b>105.0</b>	3.625 <b>92.1</b>	1.625 <b>42</b>	1.500 <b>38.1</b>	2.375 <b>60.3</b>	1.43 <b>36.5</b>	7.24 <b>183.9</b>	.687 <b>17.5</b>	5.000 <b>127</b>	5.125 <b>129</b>	5.250 <b>133</b>		

METRIC NUMBERS ARE INDICATED IN BOLD RED. STANDARD UTEX SEALS ARE AVAILABLE FOR BOTH INCH AND MILLIMETER SHAFT SIZES LISTED IN COLUMN "A" ABOVE. FOR AVAILABILITY OF SEAL SIZES NOT LISTED IN THE TABLE, CONTACT YOUR UTEX REPRESENTATIVE.



# UTEX MB-II

## Dual Stationary Metal Bellows



### MB-II Technical Data

#### MATERIALS

##### BELLOWS & END FITTINGS

Hastelloy C-276 bellows core. 316 SS standard end fittings, Hastelloy C available.

##### METAL PARTS

316 SS metal parts are standard. Hastelloy C and Alloy available.

##### STATIONARY SEAL FACE

CNFJ-B grade carbon is standard. Tungsten carbide and silicon carbide are available.

##### ROTATING SEAL FACE

Alpha sintered silicon carbide inboard seal. Reaction bonded silicon carbide outboard seal.

##### O-RINGS

Viton is standard. EPDM, Neoprene, Nitrile, Aflas, Chemraz, Kalrez, PTFE, and encapsulated Viton are available.

##### TEMPERATURE

-75°F to 400°F (-60°C to 204°C) depending on o-ring material chosen.

##### PRESSURE

A maximum pressure differential of 300 psi (20 bar) across either bellows:

##### Double Mode

Max. stuffing box pressure = 275 psi (19 bar)

Max. buffer pressure = 300 psi (20 bar)

##### Tandem Mode

Max. stuffing box pressure = 300 psi (20 bar)

Max. buffer pressure = 275 psi (19 bar)

##### SPEED:

Up to 4500 fpm (23 m/s)

##### NOTES:

1. INLET/OUTLET CONNECTION SIZES:

1/4" N.P.T. for seal sizes 1" thru 1 1/2"

3/8" N.P.T. for seal sizes 1 5/8" thru 2 3/4"

## THE UTEX SEAL THAT KEEPS YOU PUMPING LONGER

The unique MB-II can be operated as either a double or tandem seal, both of which are hydraulically balanced, making it one of the most versatile seals available. It is designed and built to reduce emissions to EPA standards and to increase mean time between planned maintenance (MTBPM).

The dual stationary bellows assembly self adjusts for misalignment and reduces the potential for harmonic vibration. The extremely low mass of the face and bellows assembly improves face tracking characteristics during operation.

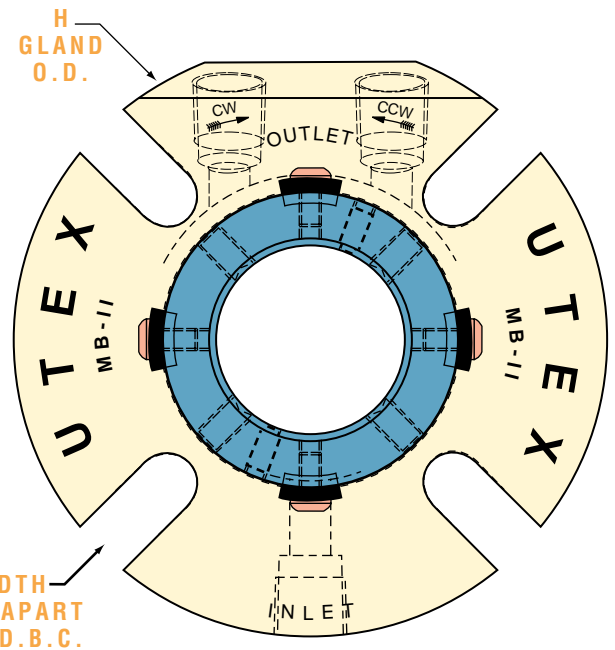
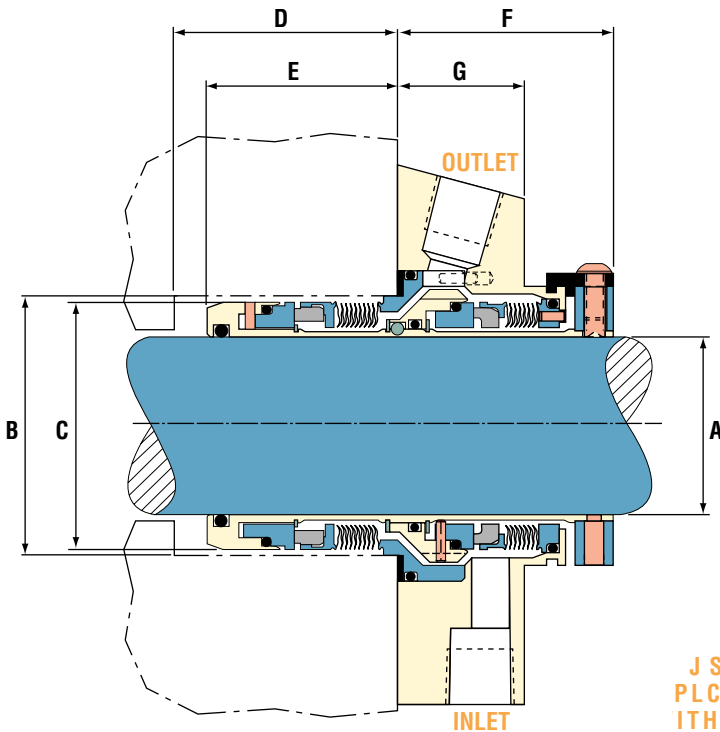
The buffer fluid is sealed on the O.D. of the outboard bellows. This prevents heat related problems resulting from air entrapment and dead fluid zones. Also, higher buffer fluid pressures are attainable. A radial flow pumping ring produces a high performance flow of buffer fluid for efficient cooling and helps prevent abrasives from settling in the seal cavity.

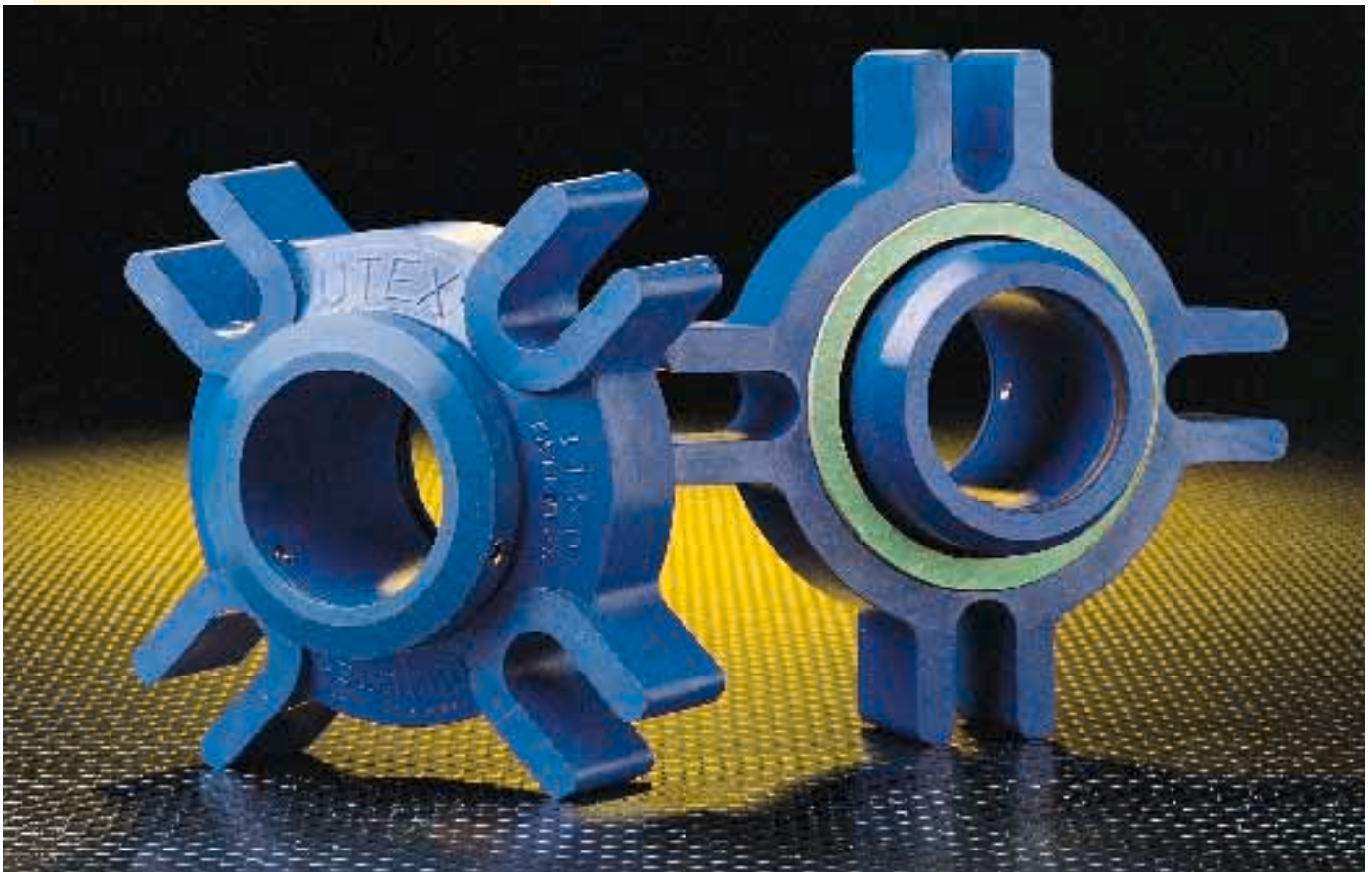
The MB-II fits ANSI pumps without modification. Temperature range is from -75°F to + 400°F (-60°C to + 204°C) depending on o-ring material chosen. Maximum pressure differential is 300 psi (20 bar) across either bellows, with speeds up to 4500 fpm (23m/s).



SHAFT SIZE INCH <b>MM</b>	STUFFING BOX BORE		SEAL O.D.	STUFFING BOX DEPTH (MIN.)	IN-BOARD LENGTH	OUT-BOARD LENGTH	GLAND WIDTH	GLAND O.D.	SLOT WIDTH	BOLT CIRCLE MIN. BY BOLT SIZE		
	MIN.	MAX.								<sup>3</sup> / <sub>8</sub> " <b>10</b>	<sup>1</sup> / <sub>2</sub> " <b>12</b>	<sup>5</sup> / <sub>8</sub> " <b>16</b>
A	B		C	D	E	F	G	H	J	K		
1.000 <b>25</b>	1.625 <b>41.5</b>	1.875 <b>48.0</b>	1.562 <b>39.7</b>	1.718 <b>44</b>	1.609 <b>40.9</b>	2.000 <b>50.8</b>	1.19 <b>30.2</b>	4.11 <b>104.4</b>	.437 <b>11.1</b>	2.750 <b>70</b>		
1.125 <b>28</b>	1.750 <b>44.5</b>	2.000 <b>51.0</b>	1.687 <b>42.9</b>	1.718 <b>44</b>	1.609 <b>40.9</b>	2.000 <b>50.8</b>	1.19 <b>30.2</b>	4.11 <b>104.4</b>	.437 <b>11.1</b>	2.875 <b>73</b>		
1.250 <b>30</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.812 <b>46.0</b>	1.718 <b>44</b>	1.609 <b>40.9</b>	2.000 <b>50.8</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	.437 <b>11.1</b>	3.000 <b>76</b>		
<b>32</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.812 <b>46.0</b>	1.718 <b>44</b>	1.609 <b>40.9</b>	2.000 <b>50.8</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	.437 <b>11.1</b>	3.000 <b>76</b>		
1.375 <b>33</b>	2.000 <b>51.0</b>	2.250 <b>58.0</b>	1.937 <b>49.2</b>	1.718 <b>44</b>	1.609 <b>40.9</b>	2.000 <b>50.8</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	.437 <b>11.1</b>	3.125 <b>79</b>		
<b>35</b>	2.000 <b>51.0</b>	2.250 <b>58.0</b>	1.937 <b>49.2</b>	1.718 <b>44</b>	1.609 <b>40.9</b>	2.000 <b>50.8</b>	1.19 <b>30.2</b>	4.18 <b>106.2</b>	.437 <b>11.1</b>	3.125 <b>79</b>		
1.500 <b>38</b>	2.250 <b>57.5</b>	2.500 <b>64.0</b>	2.187 <b>55.6</b>	1.937 <b>49</b>	1.828 <b>46.4</b>	2.125 <b>54.0</b>	1.25 <b>31.8</b>	4.49 <b>114.0</b>	.562 <b>14.3</b>	3.375 <b>86</b>	3.500 <b>88</b>	
1.625 <b>40</b>	2.375 <b>60.5</b>	2.625 <b>67.0</b>	2.312 <b>58.7</b>	1.937 <b>49</b>	1.828 <b>46.4</b>	2.125 <b>54.0</b>	1.25 <b>31.8</b>	4.99 <b>126.7</b>	.562 <b>14.3</b>	3.500 <b>89</b>	3.625 <b>91</b>	
1.750 <b>45</b>	2.500 <b>63.5</b>	2.750 <b>70.0</b>	2.437 <b>61.9</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.125 <b>54.0</b>	1.25 <b>31.8</b>	5.49 <b>139.4</b>	.562 <b>14.3</b>	3.625 <b>92</b>	3.750 <b>94</b>	
1.875 <b>48</b>	2.625 <b>67.0</b>	2.875 <b>73.0</b>	2.562 <b>65.1</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.125 <b>54.0</b>	1.25 <b>31.8</b>	5.49 <b>139.4</b>	.562 <b>14.3</b>	3.750 <b>95</b>	3.875 <b>97</b>	
2.000 <b>50</b>	2.750 <b>70.0</b>	3.000 <b>77.0</b>	2.687 <b>68.3</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.125 <b>54.0</b>	1.25 <b>31.8</b>	5.49 <b>139.4</b>	.562 <b>14.3</b>	3.875 <b>98</b>	4.000 <b>100</b>	
2.125	2.875	3.250	2.812	2.000	1.875	2.125	1.25	5.99	.687	4.125	4.250	4.375
2.250 <b>55</b>	3.000 <b>76.5</b>	3.375 <b>86.0</b>	2.937 <b>74.6</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.125 <b>54.0</b>	1.25 <b>31.8</b>	5.99 <b>152.1</b>	.687 <b>17.5</b>	4.250 <b>108</b>	4.375 <b>110</b>	4.500 <b>114</b>
2.375 <b>60</b>	3.125 <b>79.5</b>	3.625 <b>93.0</b>	3.062 <b>77.8</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.125 <b>54.0</b>	1.25 <b>31.8</b>	6.24 <b>158.5</b>	.687 <b>17.5</b>	4.500 <b>114</b>	4.625 <b>116</b>	4.750 <b>120</b>
2.500	3.250	3.750	3.187	2.000	1.875	2.215	1.25	6.49	.687	4.625	4.750	4.875
2.625 <b>65</b>	3.375 <b>86.0</b>	3.875 <b>99.0</b>	3.312 <b>84.1</b>	2.000 <b>51</b>	1.875 <b>47.6</b>	2.125 <b>54.0</b>	1.25 <b>31.8</b>	6.99 <b>177.5</b>	.687 <b>17.5</b>	4.750 <b>121</b>	4.875 <b>123</b>	5.000 <b>127</b>
2.750 <b>70</b>	3.750 <b>95.5</b>	4.000 <b>105.0</b>	3.625 <b>92.1</b>	2.375 <b>61</b>	2.250 <b>57.2</b>	2.625 <b>66.7</b>	1.50 <b>38.1</b>	7.24 <b>183.9</b>	.687 <b>17.5</b>	5.000 <b>127</b>	5.125 <b>129</b>	5.250 <b>133</b>

METRIC NUMBERS ARE INDICATED IN BOLD RED. STANDARD UTEX SEALS ARE AVAILABLE FOR BOTH INCH AND MILLIMETER SHAFT SIZES LISTED IN COLUMN "A" ABOVE. FOR AVAILABILITY OF SEAL SIZES NOT LISTED IN THE TABLE, CONTACT YOUR UTEX REPRESENTATIVE.





**UNILITE Technical Data**

**MATERIALS**

**BASE MATERIAL**

Polyphenylene Sulfide Composite.

**SPRING**

Hastelloy C-276.

**STATIONARY FACE**

CNFJ-B grade carbon is standard. Tungsten carbide and silicon carbide are available.

**ROTATING SEAL FACE**

Alpha sintered silicon carbide.

**O-RINGS**

Viton is standard. Aflas, Nitrile, EPDM, Neoprene, Chemraz and Kalrez are available.

**TEMPERATURE**

212°F                      100°C

**PRESSURE**

200 psi                      13.8 bar

**SPEED**

2950 fpm                      15 m/s

**THE ECONOMICAL, LONG LASTING UNILITE FROM UTEX**

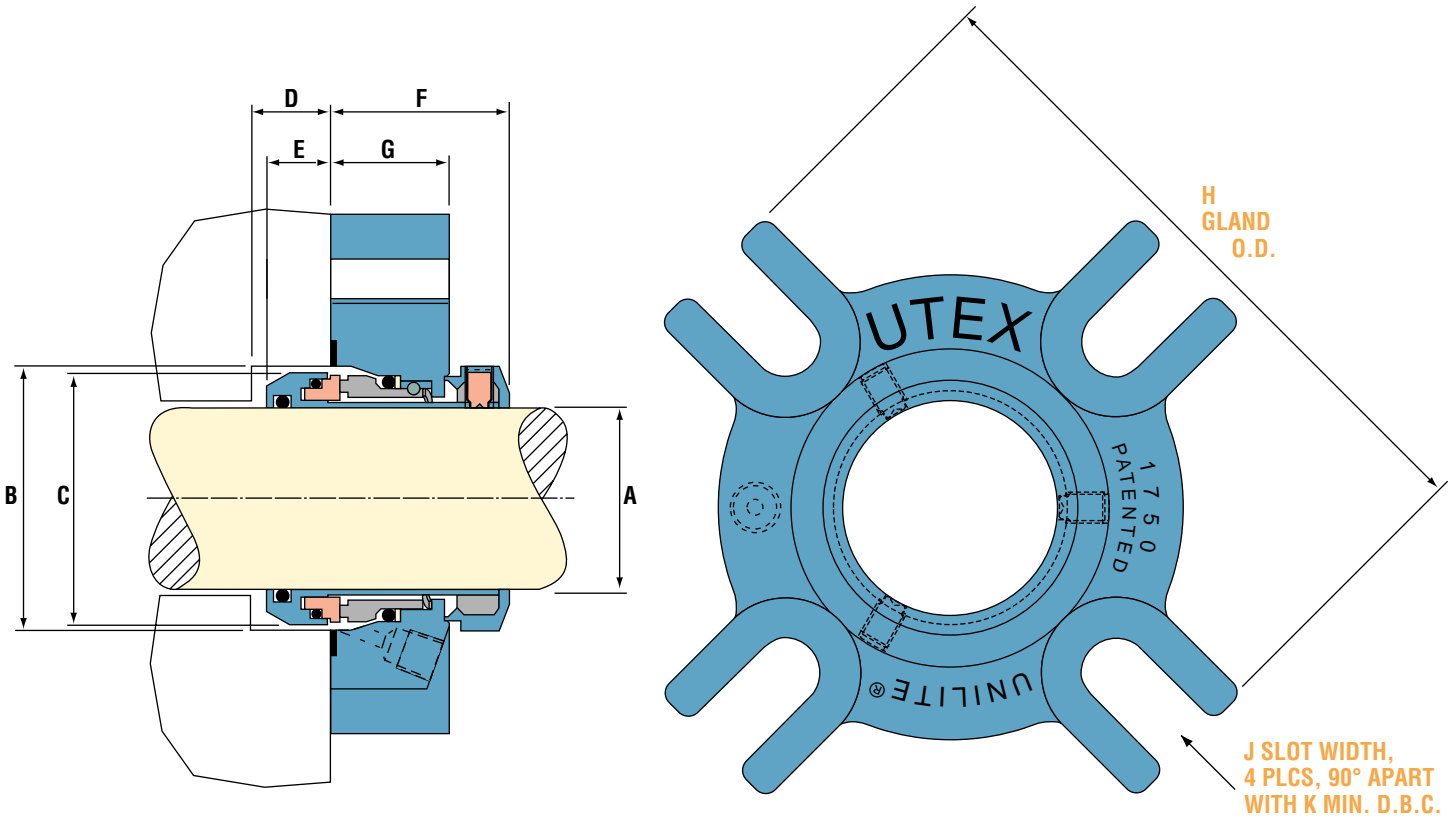
The Unilite is a unique non-metallic mechanical seal that delivers economy and durability all in a proven design. A metal collar insert protects the composite material when the set screws are tightened, making this a uniquely rugged design for the field. And because it uses no setting clips, this full cartridge seal is simpler to install than previous mechanical seals. Its features include:

- The economy of a non-metallic seal
- Proven polyphenylene sulfide non-metallic composite
- High chemical resistance
- Available with flush on request
- No setting clips required
- Factory repairable

SHAFT SIZE INCH <b>MM</b>	STUFFING BOX BORE		SEAL O.D.	STUFFING BOX DEPTH (MIN.)	IN-BOARD LENGTH	OUT-BOARD LENGTH	GLAND WIDTH	GLAND O.D.	SLOT WIDTH	BOLT CIRCLE MIN. BY BOLT SIZE		
	MIN.	MAX.								<sup>3</sup> / <sub>8</sub> 10	<sup>1</sup> / <sub>2</sub> 12	<sup>5</sup> / <sub>8</sub> 16
A	B		C	D	E	F	G	H	J	K		
1.000 <b>25</b>	1.625 <b>41.5</b>	1.875 <b>48.0</b>	1.562 <b>39.7</b>	0.828 <b>21</b>	0.703 <b>17.9</b>	1.578 <b>40.1</b>	1.00 <b>25.4</b>	4.12 <b>104.8</b>	0.437 <b>11.1</b>	2.750 <b>70</b>		
1.125 <b>28</b>	1.750 <b>44.5</b>	2.000 <b>51.0</b>	1.687 <b>42.8</b>	0.828 <b>21</b>	0.703 <b>17.9</b>	1.578 <b>40.1</b>	1.00 <b>25.4</b>	4.12 <b>104.8</b>	0.437 <b>11.1</b>	2.875 <b>73</b>		
1.250 <b>30</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.812 <b>46.0</b>	0.828 <b>21</b>	0.703 <b>17.9</b>	1.578 <b>40.1</b>	1.00 <b>25.4</b>	4.25 <b>108.0</b>	0.437 <b>11.1</b>	3.000 <b>76</b>		
<b>32</b>	1.875 <b>48.0</b>	2.125 <b>54.0</b>	1.812 <b>46.0</b>	0.828 <b>21</b>	0.703 <b>17.9</b>	1.578 <b>40.1</b>	1.00 <b>25.4</b>	4.25 <b>108.0</b>	0.437 <b>11.1</b>	3.000 <b>76</b>		
1.375 <b>35</b>	2.000 <b>51.0</b>	2.250 <b>58.0</b>	1.937 <b>49.2</b>	0.828 <b>21</b>	0.703 <b>17.9</b>	1.578 <b>40.1</b>	1.00 <b>25.4</b>	4.25 <b>108.0</b>	0.437 <b>11.1</b>	3.125 <b>79</b>		
1.500 <b>38</b>	2.250 <b>57.5</b>	2.500 <b>64.0</b>	2.187 <b>55.6</b>	0.844 <b>22</b>	0.719 <b>18.3</b>	1.719 <b>43.7</b>	1.14 <b>29.0</b>	4.50 <b>114.3</b>	0.437 <b>11.1</b>	3.375 <b>86</b>		
<b>40</b>	2.312 <b>59.0</b>	2.562 <b>66.0</b>	2.250 <b>57.2</b>	0.844 <b>22</b>	0.719 <b>18.3</b>	1.719 <b>43.7</b>	1.14 <b>29.0</b>	5.00 <b>127.0</b>	0.562 <b>14.3</b>	3.437 <b>87</b>	3.562 <b>89</b>	
1.625	2.375	2.625	2.312	0.844	0.719	1.719	1.14	5.00	0.562	3.500	3.625	
1.750 <b>45</b>	2.500 <b>63.5</b>	2.750 <b>70.0</b>	2.437 <b>61.9</b>	0.844 <b>22</b>	0.719 <b>18.3</b>	1.719 <b>43.7</b>	1.14 <b>29.0</b>	5.50 <b>139.7</b>	0.562 <b>14.3</b>	3.625 <b>92</b>	3.750 <b>94</b>	
1.875	2.625	2.875	2.562	0.844	0.719	1.719	1.14	5.50	0.562	3.750	3.875	
2.000 <b>50</b>	2.750 <b>70.0</b>	3.000 <b>77.0</b>	2.687 <b>68.3</b>	0.844 <b>22</b>	0.719 <b>18.3</b>	1.719 <b>43.7</b>	1.14 <b>29.0</b>	5.50 <b>139.7</b>	0.562 <b>14.3</b>	3.875 <b>98</b>	4.000 <b>100</b>	
2.125	2.875	3.125	2.812	0.844	0.719	1.719	1.14	6.00	0.687	4.000	4.125	4.250
<b>55</b>	2.937 <b>75.0</b>	3.187 <b>81.0</b>	2.875 <b>73.0</b>	0.844 <b>22</b>	0.719 <b>18.3</b>	1.719 <b>43.7</b>	1.14 <b>29.0</b>	6.00 <b>152.4</b>	0.687 <b>17.5</b>	4.062 <b>103</b>	4.187 <b>105</b>	4.312 <b>109</b>
2.250	3.000	3.250	2.937	0.844	0.719	1.719	1.14	6.00	0.687	4.125	4.250	4.375
2.375 <b>60</b>	3.125 <b>79.5</b>	3.375 <b>86.0</b>	3.062 <b>77.8</b>	0.844 <b>22</b>	0.719 <b>18.3</b>	1.719 <b>43.7</b>	1.14 <b>29.0</b>	6.00 <b>152.4</b>	0.687 <b>17.5</b>	4.250 <b>108</b>	4.375 <b>110</b>	4.500 <b>114</b>
2.500	3.250	3.500	3.187	0.844	0.719	1.719	1.14	6.50	0.687	4.375	4.500	4.625
2.625 <b>65</b>	3.375 <b>86.0</b>	3.625 <b>93.0</b>	3.312 <b>84.1</b>	0.844 <b>22</b>	0.719 <b>18.3</b>	1.719 <b>43.7</b>	1.14 <b>29.0</b>	6.50 <b>165.1</b>	0.687 <b>17.5</b>	4.500 <b>114</b>	4.625 <b>116</b>	4.750 <b>120</b>

METRIC NUMBERS ARE INDICATED IN BOLD RED. STANDARD UTEX SEALS ARE AVAILABLE FOR BOTH INCH AND MILLIMETER SHAFT SIZES LISTED IN COLUMN "A" ABOVE. FOR AVAILABILITY OF SEAL SIZES NOT LISTED IN THE TABLE, CONTACT YOUR UTEX REPRESENTATIVE.

TYPICAL MECHANICAL PROPERTIES OF UNILITE COMPOSITE SEAL POLYPHENYLENE SULFIDE COMPOSITE			
Tensile strength	ASTM D638	22,000 psi	155MPa
Ultimate elongation	ASTM D638	1%	1%
Flexural strength	ASTM D790	36,000 psi	248 MPa
Flexural modulus	ASTM D790	2,000,000 psi	14 GPa
Notched IZOD	ASTM D256	4 ft-lb/in	212 J/M
HDT @ 264 psi (1.82 MPa)	ASTM D648	500°F	260°C





# UTEX “MB”



## “MB” Technical Data

### MATERIALS

#### METAL COMPONENTS (MB)

Hastelloy C-276 bellows core 316SS end fittings.

#### METAL COMPONENTS (MBH)

All Hastelloy C-276

#### SEAL FACE

CNFJ-B grade carbon is standard. Tungsten carbide and silicon carbide are available.

#### O-RINGS

Viton is standard. EPDM, Neoprene, Nitrile, Aflas, Chemraz, Kalrez, PTFE and encapsulated Viton are available.

#### TEMPERATURE

-75°F to 450°F      -60°C to 232°C  
depending on o-ring material chosen.

#### PRESSURE

OPERATING: Up to 300 psi (20 bar)  
STATIC: Up to 350 psi (24 bar)  
Dependent upon seal size.

#### SPEED

Up to 4500 fpm (23 m/s).

The UTEX “MB” metal bellows seal provides unitized construction with superior nestled ripple bellows design. It is designed for applications involving more viscous fluids, such as mud pumps, compressor gas seals, and crude oil handling.

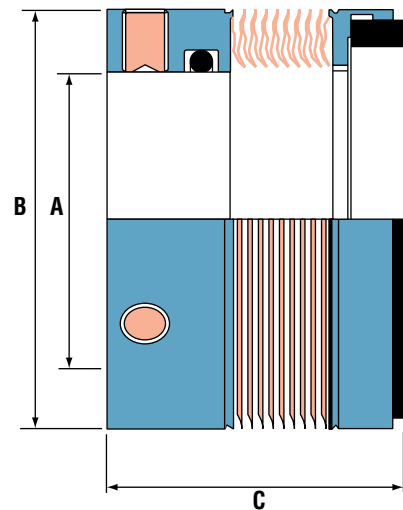
Standard materials are 316 stainless steel end fittings with a Hastelloy C bellows core. All Hastelloy C construction is also available. A carbon face is standard, and tungsten or silicon carbide faces are optional.

The static o-ring seal eliminates shaft or sleeve fretting. The welded bellows core provides 360° face loading to reduce vibration and frictional heat. This integrally balanced seal handles pressure from vacuum to 300 psi. The seal remains clean running because of the rotating bellows which generates a centrifugal force to expel abrasives.

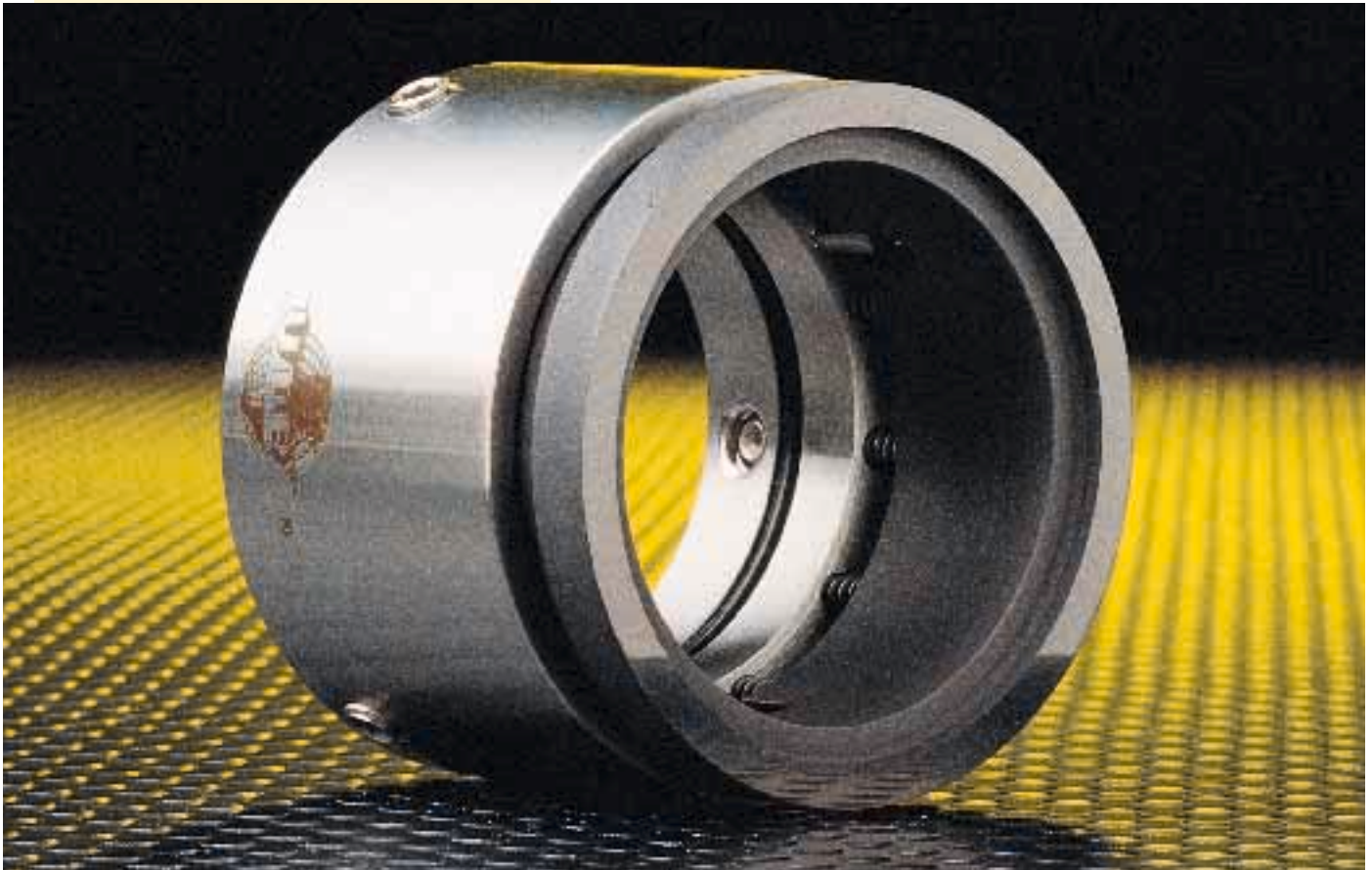
UTEX “MB” seals are available in 15/16" through 4" sizes. Consult UTEX for specific design application information.

SEAL/ SHAFT SIZE		SEAL O.D.		INSTALLED LENGTH		O-RING	SET SCREW SIZE x LENGTH
INCH	MM						
A		B		C			
<b>25</b>	1.562	<b>39.7</b>	1.181	<b>30.0</b>		<b>-120</b>	<b>M5-0.8x6</b>
1.000	1.562		1.250			-120	10-24 x 1/4
1.125	1.687	<b>42.8</b>	1.250	<b>32.4</b>		<b>-122</b>	<b>M5-0.8x6</b>
<b>30</b>	1.687	<b>42.8</b>	1.279	<b>32.4</b>		<b>-123</b>	<b>M5-0.8x6</b>
1.250	1.812		1.375			-124	1/4-20 x 1/4
<b>32</b>	1.812	<b>46.0</b>	1.279	<b>32.4</b>		<b>-124</b>	<b>M5-0.8x6</b>
<b>33</b>	1.812	<b>46.0</b>	1.279	<b>32.4</b>		<b>-125</b>	<b>M5-0.8x6</b>
1.375	1.937		1.375			-126	1/4-20 x 1/4
<b>35</b>	1.937	<b>49.2</b>	1.279	<b>32.4</b>		<b>-126</b>	<b>M5-0.8x6</b>
<b>38</b>	2.062	<b>52.4</b>	1.339	<b>34.0</b>		<b>-128</b>	<b>M6-1.0x7</b>
1.500	2.062		1.375			-128	1/4-20 x 1/4
<b>40</b>	2.187	<b>55.6</b>	1.339	<b>34.0</b>		<b>-129</b>	<b>M6-1.0x7</b>
1.625	2.187		1.375			-130	1/4-20 x 1/4
<b>43</b>	2.312	<b>58.7</b>	1.339	<b>34.0</b>		<b>-131</b>	<b>M6-1.0x7</b>
1.750	2.312		1.375			-132	1/4-20 x 1/4
<b>45</b>	2.312	<b>58.7</b>	1.339	<b>34.0</b>		<b>-132</b>	<b>M6-1.0x7</b>
1.875	2.437		1.500			-225	1/4-20 x 1/4
<b>48</b>	2.437	<b>61.9</b>	1.339	<b>34.0</b>		<b>-134</b>	<b>M6-1.0x7</b>
<b>50</b>	2.562	<b>65.1</b>	1.358	<b>34.4</b>		<b>-226</b>	<b>M6-1.0x7</b>
2.000	2.562		1.500			-226	1/4-20 x 1/4
<b>53</b>	2.687	<b>68.2</b>	1.358	<b>34.4</b>		<b>-227</b>	<b>M6-1.0x7</b>
2.125	2.687		1.500			-227	1/4-20 x 1/4
<b>55</b>	2.812	<b>71.4</b>	1.358	<b>34.4</b>		<b>-227</b>	<b>M6-1.0x7</b>
2.250	2.812		1.500			-228	1/4-20 x 1/4
<b>60</b>	2.937	<b>74.6</b>	1.555	<b>39.5</b>		<b>-229</b>	<b>M6-1.0x7</b>
2.375	2.937		1.500			-229	1/4-20 x 1/4
<b>63</b>	3.187	<b>81.0</b>	1.555	<b>39.5</b>		<b>-230</b>	<b>M6-1.0x8</b>
2.500	3.187		1.625			-230	1/4-20 x 5/16
<b>65</b>	3.312	<b>84.1</b>	1.555	<b>39.5</b>		<b>-231</b>	<b>M6-1.0x8</b>
2.625	3.312		1.625			-231	1/4-20 x 5/16
2.750	3.437		1.625			-232	1/4-20 x 5/16
<b>70</b>	3.437	<b>87.3</b>	1.750	<b>44.4</b>		<b>-232</b>	<b>M6-1.0x8</b>
2.875	3.625		1.625			-233	1/4-20 x 3/8
3.000	3.750		1.625			-234	1/4-20 x 3/8
<b>75</b>	3.750	<b>95.3</b>	1.750	<b>44.4</b>		<b>-234</b>	<b>M6-1.0x10</b>
3.125	3.875	<b>98.4</b>	1.750	<b>44.4</b>		<b>-235</b>	<b>M6-1.0x10</b>
3.250	4.000		1.750			-236	1/4-20 x 3/8
3.375	4.125	<b>104.8</b>	1.750	<b>44.4</b>		<b>-237</b>	<b>M6-1.0x10</b>
3.500	4.250	<b>108.0</b>	1.750	<b>44.4</b>		<b>-238</b>	<b>M6-1.0x10</b>
3.625	4.375		1.750			-239	1/4-20 x 3/8
3.750	4.500	<b>114.3</b>	1.750	<b>44.4</b>		<b>-240</b>	<b>M6-1.0x10</b>
3.875	4.625		1.750			-241	1/4-20 x 3/8
4.000	4.750	<b>120.7</b>	1.750	<b>44.4</b>		<b>-242</b>	<b>M6-1.0x10</b>
4.125	4.875	<b>123.8</b>	1.750	<b>44.4</b>		<b>-243</b>	<b>M6-1.0x10</b>
4.250	5.000	<b>127.0</b>	1.750	<b>44.4</b>		<b>-244</b>	<b>M6-1.0x10</b>

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# UTEX “MP”



## “MP” Technical Data

### MATERIALS

#### METAL COMPONENTS

316 stainless steel is standard.

#### SEAL FACE

CNFJ-B grade carbon is standard. Silicon carbon and special grade carbon are also available.

#### O-RINGS

Viton, Aflas, Nitrile, EPDM, Neoprene, Chemraz and Kalrez.

#### TEMPERATURE

-60°F to +400°F      -50°C to +204°C

#### PRESSURE:

450 psi                      31 bar

#### SPEED:

3940 fpm                    20 m/s

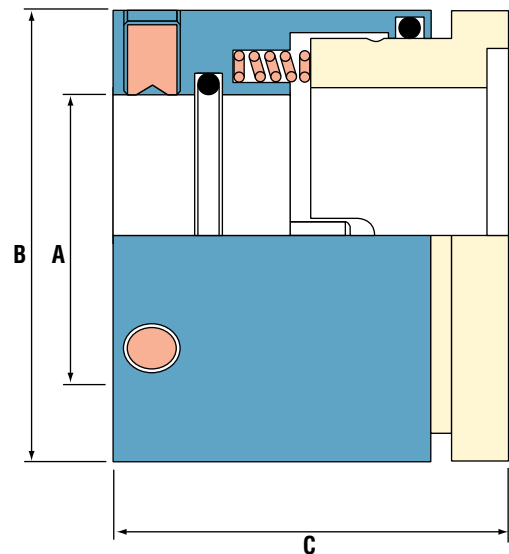
The UTEX “MP” is a straight-line, pressure-balanced seal for handling anything from clean water to crude oil. The design features springs that are isolated from the product to prevent clogging and fatigue. No sliding elastomers are used that could create shaft or sleeve fretting. Solid carbon faces are used, eliminating the need for shrink fits and allowing easy in-plant repairs.

This seal has a slim line design that fits AVS and ANSI pumps. The seal’s integral balance does not require stepped shafts or sleeves and can be used at operating pressures of 0 to 450 psi. UTEX “MP” seals are available through 6" sizes. Consult UTEX for specific design application information.

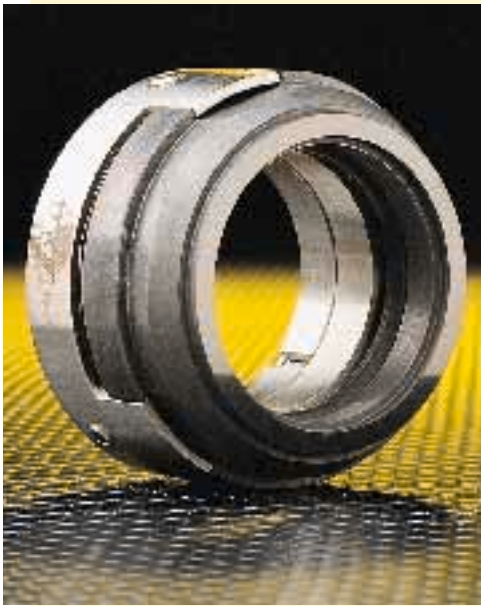


SEAL/ SHAFT SIZE	SEAL O.D.		INSTALLED LENGTH	SHAFT O-RING	CARBON O-RING	SET SCREW SIZE x LENGTH					
	INCH	MM									
A	B		C								
.937	1.500		1.750	-119	-124	1/4 - 20 x 1/4					
<b>25</b>	1.547	<b>39.3</b>	1.375	<b>34.9</b>	<b>-120</b>	<b>-125</b>	<b>M5-0.8x6</b>				
1.000	1.562		1.750	-120	-125	1/4 - 20 x 1/4					
<b>28</b>	1.664	<b>42.3</b>	1.375	<b>34.9</b>	<b>-122</b>	<b>-127</b>	<b>M5-0.8x6</b>				
1.125	1.687		1.750	-122	-127	1/4 - 20 x 1/4					
<b>30</b>	1.743	<b>44.3</b>	1.375	<b>34.9</b>	<b>-123</b>	<b>-128</b>	<b>M5-0.8x6</b>				
1.187	1.750		1.750	-123	-128	1/4 - 20 x 1/4					
1.250	<b>32</b>	1.812	<b>46.0</b>	1.750	<b>44.4</b>	-124	<b>-124</b>	-129	<b>-129</b>	1/4 - 20 x 1/4	<b>M6-1.0x7</b>
<b>33</b>	1.861	<b>47.3</b>	1.750	<b>44.4</b>	<b>-125</b>	<b>-130</b>	<b>M6-1.0x7</b>				
1.375	1.937		1.750	-126	-131	1/4 - 20 x 1/4					
<b>35</b>	1.929	<b>49.0</b>	1.750	<b>44.4</b>	<b>-126</b>	<b>-131</b>	<b>M6-1.0x7</b>				
1.500	<b>38</b>	2.062	<b>52.4</b>	1.750	<b>44.4</b>	-128	<b>-128</b>	-133	<b>-133</b>	1/4 - 20 x 1/4	<b>M6-1.0x7</b>
1.562	<b>40</b>	2.187	<b>55.6</b>	1.750	<b>44.4</b>	-129	<b>-129</b>	-135	<b>-135</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
1.625		2.250		1.750		-130		-136		1/4 - 20 x 5/16	
1.687	<b>42</b>	2.312	<b>58.7</b>	1.750	<b>44.4</b>	-131	<b>-131</b>	-137	<b>-137</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
<b>43</b>	2.312	<b>58.7</b>	1.750	<b>44.4</b>	<b>-131</b>	<b>-131</b>	<b>-137</b>	<b>-137</b>			<b>M6-1.0x7</b>
1.750	<b>45</b>	2.375	<b>60.3</b>	1.750	<b>44.4</b>	-132	<b>-132</b>	-138	<b>-138</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
1.875	<b>48</b>	2.500	<b>63.5</b>	1.750	<b>44.4</b>	-134	<b>-134</b>	-140	<b>-140</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
2.000	<b>50</b>	2.625	<b>66.7</b>	1.750	<b>44.4</b>	-136	<b>-136</b>	-142	<b>-142</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
2.125	<b>53</b>	2.750	<b>69.8</b>	1.750	<b>44.4</b>	-138	<b>-138</b>	-144	<b>-144</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
<b>55</b>	2.750	<b>69.8</b>	1.750	<b>44.4</b>	<b>-139</b>	<b>-139</b>	<b>-144</b>	<b>-144</b>			<b>M6-1.0x7</b>
2.250		2.875		1.750		-140		-146		1/4 - 20 x 5/16	
2.375	<b>60</b>	3.000	<b>76.2</b>	1.750	<b>44.4</b>	-142	<b>-142</b>	-148	<b>-148</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
2.500	<b>63</b>	3.125	<b>79.4</b>	1.750	<b>44.4</b>	-144	<b>-144</b>	-150	<b>-150</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
2.625	<b>65</b>	3.250	<b>82.6</b>	1.750	<b>44.4</b>	-146	<b>-146</b>	-151	<b>-151</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
2.750	<b>70</b>	3.375	<b>85.7</b>	1.750	<b>44.4</b>	-148	<b>-148</b>	-152	<b>-152</b>	1/4 - 20 x 5/16	<b>M6-1.0x7</b>
2.875		3.500		1.750		-150		-152		1/4 - 20 x 5/16	
3.000	<b>75</b>	3.812	<b>96.8</b>	1.750	<b>44.4</b>	-234	<b>-234</b>	-238	<b>-238</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
3.125		3.937		1.750		-235		-239		1/4 - 20 x 3/8	
3.250	<b>80</b>	4.062	<b>103.2</b>	1.750	<b>44.4</b>	-236	<b>-236</b>	-240	<b>-240</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
3.375	<b>85</b>	4.187	<b>106.4</b>	1.750	<b>44.4</b>	-237	<b>-237</b>	-241	<b>-241</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
3.500	<b>90</b>	4.312	<b>109.5</b>	1.750	<b>44.4</b>	-238	<b>-238</b>	-242	<b>-242</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
3.625		4.437		1.750		-239		-243		1/4 - 20 x 3/8	
3.750	<b>95</b>	4.562	<b>115.9</b>	1.750	<b>44.4</b>	-240	<b>-240</b>	-244	<b>-244</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
3.875		4.687		1.750		-241		-245		1/4 - 20 x 3/8	
4.000	<b>100</b>	4.812	<b>122.2</b>	1.750	<b>44.4</b>	-242	<b>-242</b>	-246	<b>-246</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
4.125	<b>105</b>	4.937	<b>125.4</b>	2.250	<b>57.2</b>	-243	<b>-243</b>	-247	<b>-247</b>	5/16 - 18 x 3/8	<b>M8-1.25x10</b>
4.250		5.062		2.250		-244		-248		5/16 - 18 x 3/8	
4.375	<b>110</b>	5.187	<b>131.8</b>	2.250	<b>57.2</b>	-245	<b>-245</b>	-249	<b>-249</b>	5/16 - 18 x 3/8	<b>M8-1.25x10</b>
4.500		5.312		2.250		-246		-250		5/16 - 18 x 3/8	
4.625		5.437		2.250		-247		-251		5/16 - 18 x 3/8	
4.750		5.562		2.250		-248		-252		5/16 - 18 x 3/8	
4.875		5.687		2.250		-249		-253		5/16 - 18 x 3/8	
5.000		5.812		2.250		-250		-254		5/16 - 18 x 3/8	
5.125		5.937		2.250		-251		-255		5/16 - 18 x 3/8	
5.250		6.062		2.250		-252		-256		5/16 - 18 x 3/8	
5.375		6.187		2.250		-253		-257		5/16 - 18 x 3/8	
5.500		6.312		2.250		-254		-258		5/16 - 18 x 3/8	
5.625		6.437		2.250		-255		-259		5/16 - 18 x 3/8	
5.750		6.562		2.250		-256		-259		5/16 - 18 x 3/8	
5.875		6.687		2.250		-257		-260		5/16 - 18 x 3/8	
6.000		6.812		2.250		-258		-260		5/16 - 18 x 3/8	

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# UTEX "CO"



## "CO" Technical Data

### MATERIALS

#### METAL COMPONENTS

316 stainless steel is standard.

#### SEAL FACE

CNFJ-B grade carbon is standard. Glass filled PTFE and special grade carbon are also available.

#### O-RINGS

Viton, Aflas, Nitrile, EPDM, Neoprene, Chemraz and Kalrez.

#### TEMPERATURE

-60°F to +400°F      -50°C to +204°C

#### PRESSURE:

150 psi      10 bar

#### SPEED

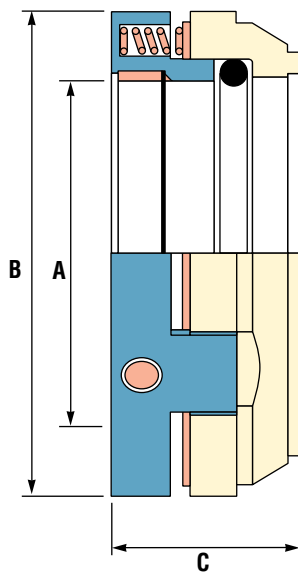
2950 fpm      15 m/s

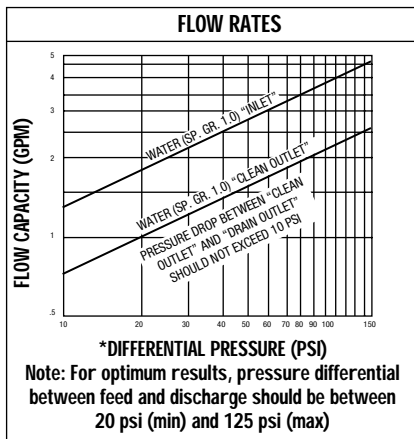
SEAL/ SHAFT SIZE	SEAL O.D.		INSTALLED LENGTH	O-RING	SET SCREW SIZE x LENGTH
INCH   MM					
A	B		C		
1.000 <b>24</b>	2.000 <b>50.8</b>	1.500 <b>38.1</b>	-318 <b>-317</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
<b>25</b>	2.000 <b>50.8</b>	1.500 <b>38.1</b>	<b>-318</b>		<b>M6-1.0x10</b>
1.125 <b>28</b>	2.125 <b>54.0</b>	1.500 <b>38.1</b>	-320 <b>-320</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
1.250 <b>30</b>	2.250 <b>57.2</b>	1.500 <b>38.1</b>	-322 <b>-321</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
<b>32</b>	2.250 <b>57.2</b>	1.500 <b>38.1</b>	<b>-322</b>		<b>M6-1.0x10</b>
1.375 <b>33</b>	2.375 <b>60.3</b>	1.500 <b>38.1</b>	-324 <b>-323</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
<b>35</b>	2.375 <b>60.3</b>	1.500 <b>38.1</b>	<b>-324</b>		<b>M6-1.0x10</b>
1.500 <b>38</b>	2.500 <b>63.5</b>	1.500 <b>38.1</b>	-325 <b>-325</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
1.625 <b>40</b>	2.625 <b>66.7</b>	1.500 <b>38.1</b>	-326 <b>-326</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
1.750 <b>42</b>	2.750 <b>69.9</b>	1.500 <b>38.1</b>	-327 <b>-326</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
<b>43</b>	2.750 <b>69.9</b>	1.500 <b>38.1</b>	<b>-327</b>		<b>M6-1.0x10</b>
<b>45</b>	2.750 <b>69.9</b>	1.500 <b>38.1</b>	<b>-327</b>		<b>M6-1.0x10</b>
1.875 <b>48</b>	2.875 <b>73.0</b>	1.500 <b>38.1</b>	-328 <b>-328</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
2.000 <b>50</b>	3.000 <b>76.2</b>	1.500 <b>38.1</b>	-329 <b>-329</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
2.125 <b>53</b>	3.125 <b>79.4</b>	1.500 <b>38.1</b>	-330 <b>-330</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
2.250 <b>55</b>	3.250 <b>82.6</b>	1.500 <b>38.1</b>	-331 <b>-330</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
2.375 <b>60</b>	3.375 <b>85.7</b>	1.500 <b>38.1</b>	-332 <b>-332</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
2.500 <b>63</b>	3.500 <b>88.9</b>	1.500 <b>38.1</b>	-333 <b>-333</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
2.625 <b>65</b>	3.625 <b>92.1</b>	1.500 <b>38.1</b>	-334 <b>-334</b>	1/4 - 20 x 3/8	<b>M6-1.0x10</b>
2.750 <b>70</b>	3.875 <b>98.4</b>	1.500 <b>38.1</b>	-335 <b>-335</b>	5/16 - 18 x 7/16	<b>M8-1.25x12</b>
2.875	4.000	1.500	-336	5/16 - 18 x 7/16	
3.000 <b>75</b>	4.125 <b>104.8</b>	1.500 <b>38.1</b>	-337 <b>-337</b>	5/16 - 18 x 7/16	<b>M8-1.25x12</b>
3.125	4.250	1.500	-338	5/16 - 18 x 7/16	
3.250 <b>80</b>	4.375 <b>111.1</b>	1.500 <b>38.1</b>	-339 <b>-338</b>	5/16 - 18 x 7/16	<b>M8-1.25x12</b>
3.375 <b>85</b>	4.500 <b>114.3</b>	1.500 <b>38.1</b>	-340 <b>-340</b>	5/16 - 18 x 7/16	<b>M8-1.25x12</b>
3.500	4.625	1.500	-341	5/16 - 18 x 7/16	
3.625 <b>90</b>	4.750 <b>120.7</b>	1.500 <b>38.1</b>	-342 <b>-341</b>	5/16 - 18 x 7/16	<b>M8-1.25x12</b>
3.750 <b>95</b>	4.875 <b>123.8</b>	1.500 <b>38.1</b>	-343 <b>-343</b>	5/16 - 18 x 7/16	<b>M8-1.25x12</b>
3.875	5.000	1.500	-344	5/16 - 18 x 7/16	
4.000 <b>100</b>	5.125 <b>130.2</b>	1.500 <b>38.1</b>	-345 <b>-345</b>	5/16 - 18 x 7/16	<b>M8-1.25x12</b>

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The UTEX "CO" seal is an outside mounted seal with a unique design ideally suited for most chemical applications. "CO" seals operate with non wetted metal parts for increased chemical resistance. It is available with Aflas o-rings to handle most chemical applications and temperature ranges. The springs are isolated from the product to prevent clogging and to further enhance the seal's chemical resistance.

This seal is externally balanced for pressures up to 150 psi and comes standard with a split clamping ring ideal for ceramic shafts. "CO" seals are available in 1" through 4" sizes. Consult UTEX for specific design application information.





EFFICIENCY CHART		
PARTICLE SIZE	PRESSURE DIFFERENTIAL	% REMOVAL
SAND	20 psi	100%
SAND	100 psi	100%
15 MICRON	20 psi	96%
15 MICRON	100 psi	99%
5 MICRON	20 psi	89%
5 MICRON	100 psi	96%
2.5 MICRON	20 psi	68%
2.5 MICRON	100 psi	87%



## MAINRAINER

The UTEX Mainstrainer uses no filter elements that could clog or fail. Its centrifugal filtering effectively separates solids from seal flush liquids by causing the solids to be expelled to the cone wall and downward to the outlet where they are drawn to a low pressure area. The clean liquid is directed to the seal area. Tests have proven its ability to remove particles of various sizes.

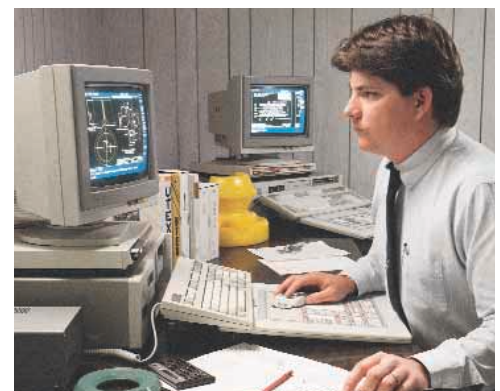
Total flow through top and bottom outlets will equal inlet flow. However, because of pressure differentials between the seal area and suction area, orifices may be necessary to control liquid flow. All inlets and outlets are 1/2" N.P.T.

## ENGINEERED SEALS

UTEX offers many years of experience in designing and manufacturing mechanical seals for a broad spectrum of industries.

Using CAD/CAM technology, we design and manufacture our own products and maintain a large inventory of standard and custom designed products. Our years of experience and engineering expertise give us the know-how to handle pumping problems whether it takes a simple balance modification or an entire custom engineered seal. This gives our customers the option of ordering high quality seals for highly specialized applications while maintaining cost efficient economies.

We have the flexibility to design custom seals and associated parts for high temperature applications, corrosive material service, for high durability operating requirements and for handling all types of fluids. It is a total sealing technology capability that UTEX offers.



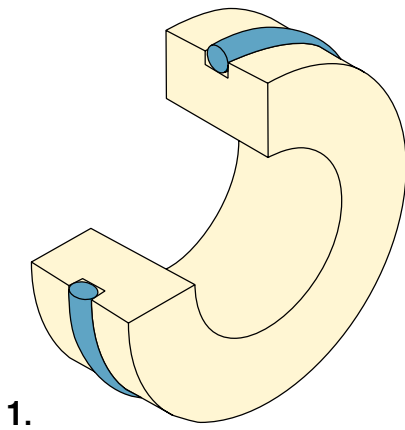
**UTEX's computerized design and engineering capabilities help us meet customers' changing needs.**



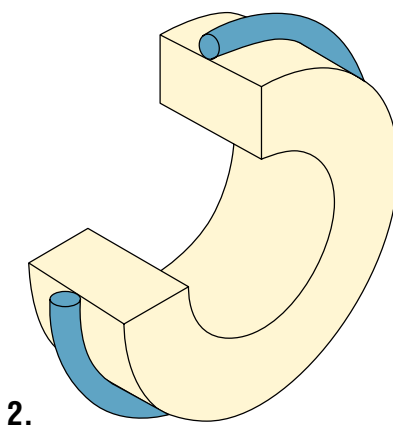
## SEATS



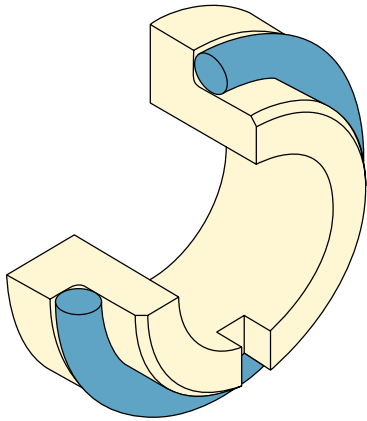
**T**he correct choice of seat material and design is critical to the success of a seal installation. UTEX has developed a wide selection of seat designs to satisfy sealing requirements. Using tungsten carbide, silicon carbide, alox, Ni-Resist or other customer specified materials, UTEX will match the correct seat to the seal operating conditions. O-ring, L-type, Clamp-type and others are all manufactured to exacting tolerances. Contact UTEX for your specific requirements.



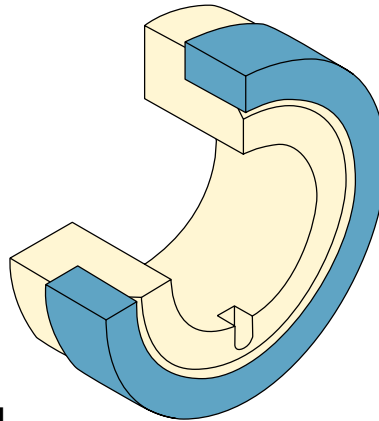
1.



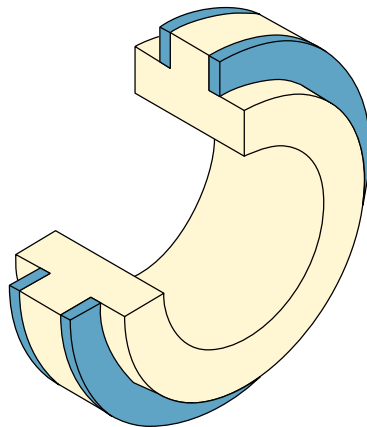
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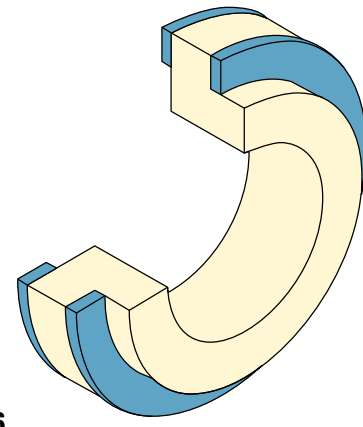
3.



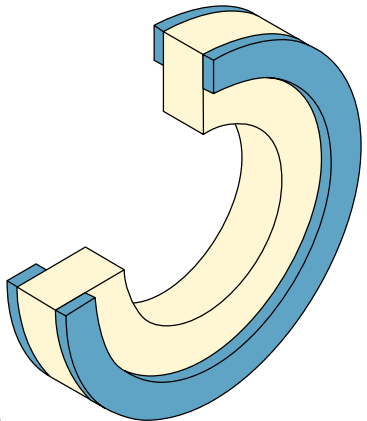
4.



5.



6.



7.

1. O-ring seat. For a wide range of general service applications. Various o-ring elastomers may be used to improve chemical resistance.

2. Square section seat. A widely used seat configuration, it can be furnished with various o-ring materials to match pump conditions.

3. Floating seat. Available for those glands requiring "L" section seats. They are furnished with anti-rotation slots and various o-ring elastomers.

4. Modified "L" section seat. Similar to floating seat but furnished with a PTFE gasket and anti-rotation slots as standard. Provides increased chemical resistance.

5. T-type clamped seat. Provides wide temperature and pressure services. Clamped between the stuffing box face and gland. Furnished with two gaskets, one PTFE and one non-asbestos.

6. L-type clamped seat. Standard clamped type seat that has been modified to fit pumps requiring this configuration. Furnished with two gaskets, one PTFE and one non-asbestos.

7. Modified clamped type seat. Standard clamped type seat that has been modified to fit pumps requiring this configuration. Furnished with two gaskets, one PTFE and one non-asbestos.

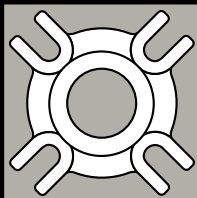
All UTEX seats are available in tungsten carbide, silicon carbide, alox and Ni-Resist, depending on customers' pumping requirements.

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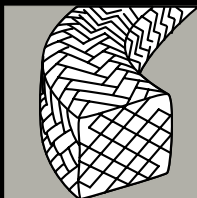


**UTEX INDUSTRIES, INC.**  
*Taking Sealing Technology Beyond Tomorrow*  
ISO 9001 Certified\*

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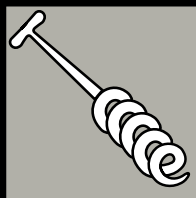
**Mechanical Seals**



**Compression Packing**



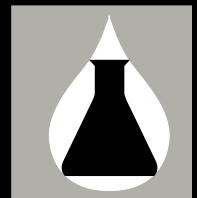
**Sheet Packing**



**Packing Tools**



**Molded Products**



**Industrial Chemicals**