

TIDESMARINE

SureSeal Shaft Seal



The SureSeal™ is ABS-Approved

Housing

Made from fiber-reinforced composite material, the housing is strong, durable and compact. The SureSeal™ is dimensionally unaffected by temperature and will not absorb water.

Bearing

The integral PTFE® bearing extends the operating life of the SureSeal™ under normal operating conditions.

Hose

Connecting the SureSeal™ to the vessel is now easier with an "articulating hose". This hose design automatically positions the SureSeal™ the correct operating distance from the stern tube. No measurements are required – installation is simplified. The articulating hose reduces side loads to the SureSeal™ when shaft misalignment occurs. As a result, lip seal and bearing life are extended.

Lip Seal Replacement

The SureSeal™ design incorporates a removable front cap which improves access to the lip seal. A worn lip seal can be replaced, even while the vessel is in the water, restoring the "100% watertight" characteristic of the SureSeal™.



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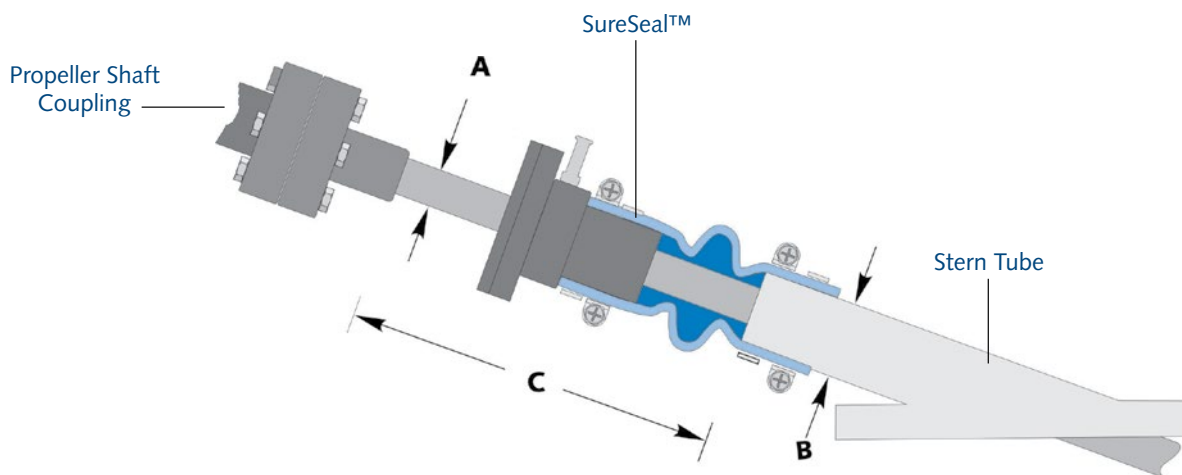
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SureSeals™ are sold as a kit which includes a section of articulating hose and four hose clamps. To determine 1) if you have enough space to install a SureSeal and 2) which SureSeal to order, you must:

- A. Measure your propeller shaft diameter. Enter the measurement on Line A below.
- B. Measure the outside diameter of your stern tube over which the Tides articulating hose will be installed. Enter the measurement on Line B below.
- C. Measure the distance from the front of the stern tube to the back of the propeller shaft flange. There should be at least this much CLEAN, SMOOTH shaft forward of the stern tube. Enter this measurement on Line C below.
- D. Please confirm what material was used to produce your propeller shaft. Enter this information on Line D below.
- E. In twin engine applications, SureSeals™ are normally supplied with two water injection fittings. The second water injection fitting on each SureSeal™ is used to construct a crossover system between the port and starboard SureSeals™.



SureSeal™ and Articulating Hose Combination

A = _____ B = _____ C = _____ D = _____

Single Engine MYes MNo

Twin Engine WITH Crossover Kit MYes MNo

Twin Engine WITHOUT Crossover Kit MYes MNo

Shaft Material _____



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Using these measurements, identify the SureSeal™ that will work in your application.

1) Identify the Correct SureSeal™ Part Number

Once you have identified the propeller shaft diameter and stern tube diameter, locate these measurements in the charts on pages 8-12. Shaft outside diameter is found in Column A and stern tube outside diameter is in Column B. Match these dimensions to the corresponding SureSeal™ part number on the same line in the chart.

2) Minimum Distance

Next, note the minimum distance requirement in Column C of these same charts. Confirm that there is at least this much CLEAN, SMOOTH shaft between the stern tube and the propeller shaft coupling. If your available space does not meet this criterion, contact Tides Marine to see if a custom SureSeal™ can be produced for your application.

3) Spare Seal Carriers

Tides Marine's spare seal carriers were developed as a convenient device for storing spare lip seals on the propeller shaft between the SureSeal™ and the propeller shaft coupling. The SureSeal™ and spare seal combination allows the vessel operator to replace worn lip seals without uncoupling the shaft from the transmission.

If you plan to order a spare seal carrier (see pages 13-16 of this catalog), you will have to increase the minimum installation distance measurement by at least 1 ¼" for each spare seal carrier you place on the shaft. Note the minimum distance figures in Column B of charts on pages 15 and 16 before ordering.

4) Single Engine Installations

In the charts on pages 8-12, note that each part number ends in "- #". For single engine vessels, replace this "#" sign with a zero (0) when you order your SureSeal™. Your SureSeal™ will have a single water injection fitting and NO (zero) crossover kit.

A hose running from a point in the engine's raw water cooling system to this single injection fitting will deliver cooling / lubricating water to the SureSeal™.

Tides Marine offers a water pick-up kit consisting of Tides-approved materials (see page 17 of this catalog for more information).



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5) Twin Engine Installations

In the charts on pages 8-12, note once again that each part number ends in “- #”. For twin engine vessels, replace this “#” sign with a one (1). Your SureSeal™ will have two water injection fittings.

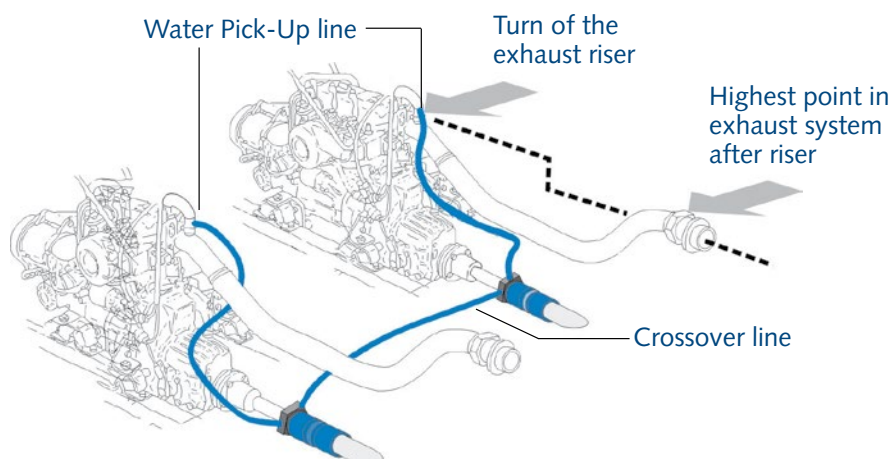
The first water injection fitting will be connected to a point in the engine's raw water cooling system. Water flowing through this hose and into the SureSeal™ provides cooling and lubrication to the SureSeal™. Again, consider a Tides Marine water pick-up kit to complete your installation.

The second water injection fitting on the port-side SureSeal™ will be connected with a hose to its counterpart on the starboard-side SureSeal™. This connection is called a crossover system. It ensures that each SureSeal™ will receive water cooling / lubrication during vessel operation, even when one engine may be out of operation.



Caution:

THE TURN OF THE EXHAUST RISER MUST BE ABOVE THE REST OF THE EXHAUST SYSTEM BEFORE OPERATING THE VESSEL YOU MUST TEST THE WATER SUPPLY



6) Other Important Installation Notes

A. Vented Loops

When the engine(s) is/are installed below the waterline (or water-lift mufflers are used), a vented loop may be required to prevent back-flooding of water through the exhaust system and into the engine.

Follow ABYC guidelines regarding materials and installation practices.

The water pick-up fitting should be installed on the “pressure” side of the vented loop “T”. This vented loop should be as far above the waterline as is practical (a minimum of 12” is required).

B. Check Valves

In twin-engine installations with water-lift mufflers, a check valve in each of the water pick-up lines is required if a crossover line is used between two SureSeals™.



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7) Maintenance

A. Tides Marine SureSeals™ require no winterization. Winterization fluids will not harm the SureSeals™.

B. SureSeal™ assemblies should be inspected at least annually.

- i. Inspect the blue articulating hose for damage.
- ii. Inspect the hose clamps for corrosion.
- iii. Remove the water injection hoses from each SureSeal™ and make sure the fittings and hoses are free of debris.
- iv. **It is very important to regularly check the pick-up point in the engine's raw water cooling system.**

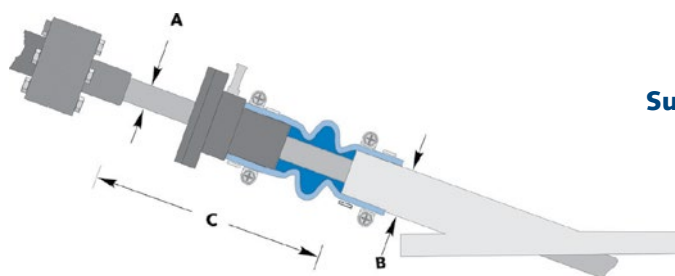
If this fitting is a hose barb, Tides recommends that you remove the fitting from the pick-up point. Make sure it is free of debris, corrosion, etc. It is also a good idea to inspect the pick-up point for any debris that may have collected since the last inspection.

If your water pick-up system uses hose tees, you should not have to remove the tee. Simply check the branch fitting on the tee to make sure it is free of debris.

- v. If your water pick-up system has any shut-off valves or sight-gauges, be sure to inspect these as well.
- vi. Make sure all hoses and clamps are re-assembled securely once you have completed any regularly scheduled inspections.



TIDEMARINE SureSeal Shaft Seal



SureSeal™ and Articulating Hose Combination

IMPERIAL (INCHES)

SHAFT OD (inches) A	STERN TUBE OD (inches) B	MINIMUM DISTANCE (inches) C	SureSeal™ KIT PART NUMBER D
7/8	1 3/4 2	6 3/4	FSK-0875-1750-# FSK-0875-2000-#
1	1 3/4 1 7/8 2 2 1/4 2 1/2	7 1/4	FSK-1000-1750-# FSK-1000-1875-# FSK-1000-2000-# FSK-1000-2250-# FSK-1000-2500-#
1 1/8	1 3/4 2 2 1/4 2 1/2	7 1/4	FSK-1125-1750-# FSK-1125-2000-# FSK-1125-2250-# FSK-1125-2500-#
1 1/4	1 3/4 2 2 1/4 2 3/8 2 1/2 2 5/8 2 3/4 3	7 1/4	FSK-1250-1750-# FSK-1250-2000-# FSK-1250-2250-# FSK-1250-2375-# FSK-1250-2500-# FSK-1250-2625-# FSK-1250-2750-# FSK-1250-3000-#
1 3/8	2 2 1/4 2 3/8 2 1/2 2 5/8 2 3/4	7 1/4	FSK-1375-2000-# FSK-1375-2250-# FSK-1375-2375-# FSK-1375-2500-# FSK-1375-2625-# FSK-1375-2750-#

SHAFT OD (inches) A	STERN TUBE OD (inches) B	MINIMUM DISTANCE (inches) C	SureSeal™ KIT PART NUMBER D
1 1/2	2 1/4 2 3/8 2 1/2 2 5/8 2 3/4 3 3 1/2 3 3/4 4	7 1/4	FSK-1500-2250-# FSK-1500-2375-# FSK-1500-2500-# FSK-1500-2625-# FSK-1500-2750-# FSK-1500-3000-# FSK-1500-3500-# FSK-1500-3750-# FSK-1500-4000-#
1 5/8	2 1/4 2 1/2 2 3/4 3	7 1/4	FSK-1625-2250-# FSK-1625-2500-# FSK-1625-2750-# FSK-1625-3000-#
1 3/4	2 1/2 2 5/8 2 3/4 3 3 1/8 3 1/4 3 1/2 3 3/4 4	7 1/4	FSK-1750-2500-# FSK-1750-2625-# FSK-1750-2750-# FSK-1750-3000-# FSK-1750-3125-# FSK-1750-3250-# FSK-1750-3500-# FSK-1750-3750-# FSK-1750-4000-#



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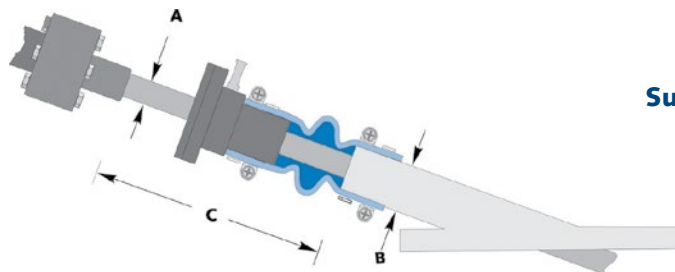
SHAFT OD (inches) A	STERN TUBE OD (inches) B	MINIMUM DISTANCE (inches) C	SureSeal™ KIT PART NUMBER D
2	2 3/4	7 1/4	FSK-2000-2750-#
	3		FSK-2000-3000-#
	3 1/8		FSK-2000-3125-#
	3 1/4		FSK-2000-3250-#
	3 3/8		FSK-2000-3375-#
	3 1/2		FSK-2000-3500-#
	3 3/4		FSK-2000-3750-#
	4		FSK-2000-4000-#
	4 1/4		FSK-2000-4250-#
	4 1/2		FSK-2000-4500-#
	5		FSK-2000-5000-#
2 1/4	3	7 1/4	FSK-2250-3000-#
	3 1/4		FSK-2250-3250-#
	3 1/2		FSK-2250-3500-#
	3 3/4		FSK-2250-3750-#
	4		FSK-2250-4000-#
	4 1/4		FSK-2250-4250-#
	4 1/2		FSK-2250-4500-#
	5		FSK-2250-5000-#
2 1/2	3 1/4	7 1/2	FSK-2500-3250-#
	3 1/2		FSK-2500-3500-#
	3 3/4		FSK-2500-3750-#
	4		FSK-2500-4000-#
	4 1/4		FSK-2500-4250-#
	4 1/2		FSK-2500-4500-#
	4 3/4		FSK-2500-4750-#
	5		FSK-2500-5000-#
	5 1/2		FSK-2500-5500-#
	6		FSK-2500-6000-#
2 5/8	4 1/2	7 1/2	FSK-2625-4500-#
2 3/4	3 1/2	7 1/2	FSK-2750-3500-#
	3 3/4		FSK-2750-3750-#
	4		FSK-2750-4000-#
	4 1/4		FSK-2750-4250-#
	4 1/2		FSK-2750-4500-#
	5		FSK-2750-5000-#
	5 1/4		FSK-2750-5250-#

SHAFT OD (inches) A	STERN TUBE OD (inches) B	MINIMUM DISTANCE (inches) C	SureSeal™ KIT PART NUMBER D
3	4	8 1/4	FSK-3000-4000-#
	4 1/4		FSK-3000-4250-#
	4 1/2		FSK-3000-4500-#
	4 3/4		FSK-3000-4750-#
	5		FSK-3000-5000-#
	5 1/4		FSK-3000-5250-#
	5 1/2		FSK-3000-5500-#
	6		FSK-3000-6000-#
	6 1/2		FSK-3000-6500-#
3 1/4	4	8 1/4	FSK-3250-4000-#
	4 1/2		FSK-3250-4500-#
	4 3/4		FSK-3250-4750-#
	5		FSK-3250-5000-#
	5 1/4		FSK-3250-5250-#
	5 1/2		FSK-3250-5500-#
3 1/2	4 1/2	8 3/4	FSK-3500-4500-#
	5		FSK-3500-5000-#
	5 1/4		FSK-3500-5250-#
	5 1/2		FSK-3500-5500-#
	6		FSK-3500-6000-#
	6 1/2		FSK-3500-6500-#
3 5/8	6	8 3/4	FSK-3625-6000-#
3 3/4	5 1/2	8 3/4	FSK-3750-5500-#
	6		FSK-3750-6000-#
	6 1/2		FSK-3750-6500-#
	7		FSK-3750-7000-#
4	5	9 1/4	FSK-4000-5000-#
	5 1/2		FSK-4000-5500-#
	6		FSK-4000-6000-#
	6 1/2		FSK-4000-6500-#
	7		FSK-4000-7000-#
	7 1/2		FSK-4000-7500-#
	8		FSK-4000-8000-#
4 1/4	6 1/4	9 1/4	FSK-4250-6250-#
	6 1/2		FSK-4250-6500-#

continued...



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SureSeal™ and Articulating Hose Combination

IMPERIAL (INCHES)

SHAFT OD (inches) A	STERN TUBE OD (inches) B	MINIMUM DISTANCE (inches) C	SureSeal™ KIT PART NUMBER D
4 1/2	5 1/2	9 3/4	FSK-4500-5500-#
	6		FSK-4500-6000-#
	6 1/2		FSK-4500-6500-#
	6 5/8		FSK-4500-6625-#
	7		FSK-4500-7000-#
	8		FSK-4500-8000-#
4 3/4	7	9 3/4	FSK-4750-7000-#
5	6 1/2	10	FSK-5000-6500-#
	7		FSK-5000-7000-#
	7 1/2		FSK-5000-7500-#
	8		FSK-5000-8000-#
	8 5/8		FSK-5000-8625-#
5 1/2	7	10 3/4	FSK-5500-7000-#
	8		FSK-5500-8000-#
6	8	11 1/4	FSK-6000-8000-#
	8 5/8		FSK-6000-8625-#
6 1/2	8 5/8	11 3/4	FSK-6500-8625-#
7 3/4	10	13 1/2	FSK-7750-10000-#
8	10	13 1/2	FSK-8000-10000-#

METRIC (MILLIMETERS)

SHAFT OD (mm) A	STERN TUBE OD (mm) B	MINIMUM DISTANCE (mm) C	SureSeal™ KIT PART NUMBER D
25mm	44mm	184mm	FSKM-25M-44M-#
	45mm		FSKM-25M-45M-#
	48mm		FSKM-25M-48M-#
	51mm		FSKM-25M-51M-#
	57mm		FSKM-25M-57M-#
	63mm		FSKM-25M-63M-#
30mm	45mm	184mm	FSKM-30M-45M-#
	48mm		FSKM-30M-48M-#
	51mm		FSKM-30M-51M-#
	54mm		FSKM-30M-54M-#
	57mm		FSKM-30M-57M-#
	60mm		FSKM-30M-60M-#
35mm	45mm	184mm	FSKM-35M-45M-#
	51mm		FSKM-35M-51M-#
	54mm		FSKM-35M-54M-#
	57mm		FSKM-35M-57M-#
	60mm		FSKM-35M-60M-#
	64mm		FSKM-35M-64M-#
	67mm		FSKM-35M-67M-#
	70mm		FSKM-35M-70M-#
	76mm		FSKM-35M-76M-#
38mm	60mm	191mm	FSKM-38M-60M-#



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SHAFT OD (mm) A	STERN TUBE OD (mm) B	MINIMUM DISTANCE (mm) C	SureSeal™ KIT PART NUMBER D
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40mm	57mm	184mm	FSKM-40M-57M-#
	60mm		FSKM-40M-60M-#
	63mm		FSKM-40M-63M-#
	64mm		FSKM-40M-64M-#
	67mm		FSKM-40M-67M-#
	70mm		FSKM-40M-70M-#
	76mm		FSKM-40M-76M-#
	79mm		FSKM-40M-79M-#
	89mm		FSKM-40M-89M-#

45mm	63mm	184mm	FSKM-45M-63M-#
	64mm		FSKM-45M-64M-#
	67mm		FSKM-45M-67M-#
	70mm		FSKM-45M-70M-#
	73mm		FSKM-45M-73M-#
	76mm		FSKM-45M-76M-#
	79mm		FSKM-45M-79M-#
	83mm		FSKM-45M-83M-#
	89mm		FSKM-45M-89M-#
	102mm		FSKM-45M-102M-#

50mm	64mm	184mm	FSKM-50M-64M-#
	70mm		FSKM-50M-70M-#
	76mm		FSKM-50M-76M-#
	79mm		FSKM-50M-79M-#
	80mm		FSKM-50M-80M-#
	83mm		FSKM-50M-83M-#
	89mm		FSKM-50M-89M-#
	95mm		FSKM-50M-95M-#
	102mm		FSKM-50M-102M-#

55mm	76mm	184mm	FSKM-55M-76M-#
	89mm		FSKM-55M-89M-#
	95mm		FSKM-55M-95M-#
	102mm		FSKM-55M-102M-#

SHAFT OD (mm) A	STERN TUBE OD (mm) B	MINIMUM DISTANCE (mm) C	SureSeal™ KIT PART NUMBER D
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60mm	76mm	184mm	FSKM-60M-76M-#
	89mm		FSKM-60M-89M-#
	95mm		FSKM-60M-95M-#
	102mm		FSKM-60M-102M-#
	108mm		FSKM-60M-108M-#
	114mm		FSKM-60M-114M-#
	121mm		FSKM-60M-121M-#

65mm	89mm	191mm	FSKM-65M-89M-#
	95mm		FSKM-65M-95M-#
	102mm		FSKM-65M-102M-#
	114mm		FSKM-65M-114M-#

70mm	89mm	191mm	FSKM-70M-89M-#
	95mm		FSKM-70M-95M-#
	102mm		FSKM-70M-102M-#
	108mm		FSKM-70M-108M-#
	114mm		FSKM-70M-114M-#
	121mm		FSKM-70M-121M-#
	127mm		FSKM-70M-127M-#
	140mm		FSKM-70M-140M-#
	165mm		FSKM-70M-165M-#

75mm	102mm	210mm	FSKM-75M-102M-#
	108mm		FSKM-75M-108M-#
	114mm		FSKM-75M-114M-#
	127mm		FSKM-75M-127M-#
	140mm		FSKM-75M-140M-#
	152mm		FSKM-75M-152M-#

80mm	102mm	210mm	FSKM-80M-102M-#
	108mm		FSKM-80M-108M-#
	114mm		FSKM-80M-114M-#
	127mm		FSKM-80M-127M-#
	140mm		FSKM-80M-140M-#
	152mm		FSKM-80M-152M-#

85mm	114mm	222mm	FSKM-85M-114M-#
	127mm		FSKM-85M-127M-#
	140mm		FSKM-85M-140M-#
	152mm		FSKM-85M-152M-#

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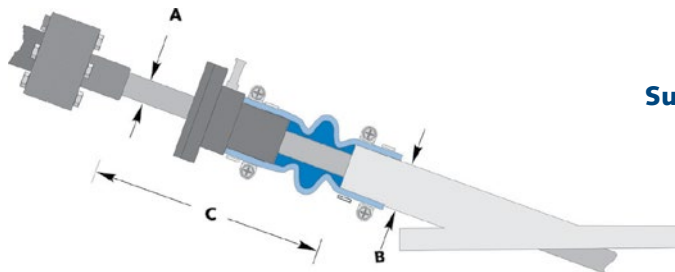
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METRIC (MILLIMETERS)

SHAFT OD (mm) A	STERN TUBE OD (mm) B	MINIMUM DISTANCE (mm) C	SureSeal™ KIT PART NUMBER D
90mm	114mm	222mm	FSKM-90M-114M-#
	127mm		FSKM-90M-127M-#
	140mm		FSKM-90M-140M-#
	152mm		FSKM-90M-152M-#
	178mm		FSKM-90M-178M-#
95mm	127mm	222mm	FSKM-95M-127M-#
	140mm		FSKM-95M-140M-#
	152mm		FSKM-95M-152M-#
	165mm		FSKM-95M-165M-#
	178mm		FSKM-95M-178M-#
100mm	127mm	235mm	FSKM-100M-127-#
	140mm		FSKM-100M-140-#
	152mm		FSKM-100M-152-#
	165mm		FSKM-100M-165-#
105mm	127mm	235mm	FSKM-105M-127-#
	140mm		FSKM-105M-140-#
	152mm		FSKM-105M-152-#
	165mm		FSKM-105M-165-#
110mm	152mm	248mm	FSKM-110M-152-#
	165mm		FSKM-110M-165-#
115mm	165mm	248mm	FSKM-115M-165-#
120mm	165mm	254mm	FSKM-120M-165-#
	178mm		FSKM-120M-178-#
125mm	165mm	254mm	FSKM-125M-165-#

SHAFT OD (mm) A	STERN TUBE OD (mm) B	MINIMUM DISTANCE (mm) C	SureSeal™ KIT PART NUMBER D
130mm	165mm	254mm	FSKM-130M-165-#
	178mm		FSKM-130M-178-#
	190mm		FSKM-130M-190-#
140mm	178mm	273mm	FSKM-140M-178-#
	203mm		FSKM-140M-203-#
150mm	203mm	286mm	FSKM-150M-203-#
	219mm		FSKM-150M-219-#

