

HOW TO MEASURE:

1

1. Bolt Circle Diameter:

2. Number of Bolt Holes
in the Gearbox Flange: _____

3. Size of Bolt Holes
in the Gearbox Flange: _____

Before ordering, you will need to examine your current *gearbox flange* and propeller shaft flange. In order to determine the following information, it will be necessary to remove all of the bolts from the flanges. Slide the propeller shaft flange aft of the *gearbox flange* approximately 50mm. All measurements are best taken with a caliper. (Record your findings in the measurement box on each page).

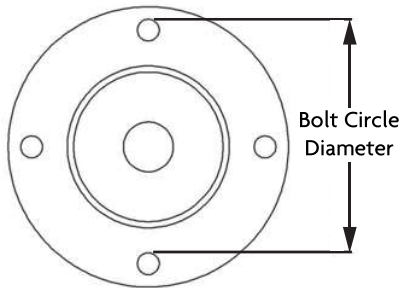
1. Bolt Circle Diameter - 4-Bolt, 6-Bolt and 8-Bolt Flanges

In each *gearbox flange*, you should find that the hole pattern aligns one hole directly across from another on the opposite side of the flange. Measure the outside edge of one hole to the inside edge of the hole directly across from it. This is the bolt circle diameter. It is always a good idea to measure two different sets of holes and compare results.

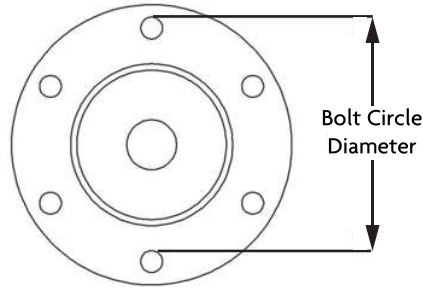
2. Count number of bolt holes in the *gearbox flange*.

3. Size of Bolt Holes in the Flange Diameter

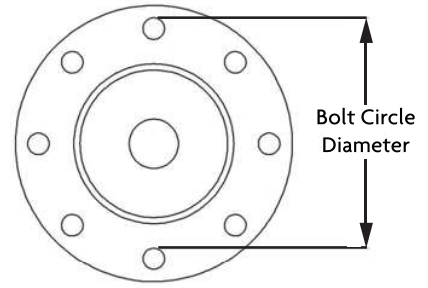
Simply measure the inside diameter of one or more of the holes in the *gearbox flange* and record result here.



**4-Bolt
Gearbox Flange**



**6-Bolt
Gearbox Flange**



**8-Bolt
Gearbox Flange**

HOW TO

MEASURE: 2

Gearbox Flange Index Ring Type -
Male or Female: _____

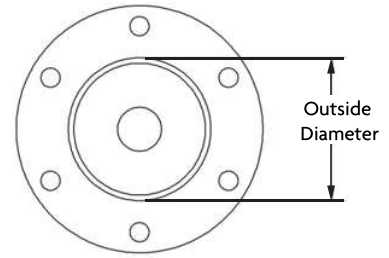
4. Gearbox Flange Index Ring Outside
Diameter/Male: _____

5. Gearbox Flange Index Ring Inside
Diameter/Female: _____

6. Propeller Shaft Flange Thickness:

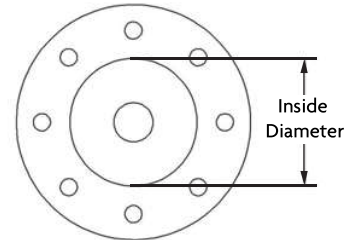
4. Index/Spigot/ Pilot Diameter - Male

Using a caliper, measure the inside diameter of the metal index ring on the face of the *gearbox flange*.



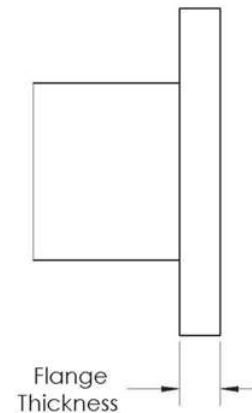
5. Index/Spigot/ Pilot Diameter - Female

Using a caliper, measure the inside diameter of the circular cavity in the center of the *gearbox flange*.



6. Propeller Shaft Flange Thickness

Using a caliper, measure the propeller shaft flange thickness at its edge. If the bolts you received with your coupling are too short for the flange thickness, please contact IsoFlex or your local distributor.



HOW TO MEASURE: 3

9. Drive Train Measurements:

A. Propeller clearance from rudder:

B. Propeller clearance from strut:

10. Maximum Torque Calculation:

Conversion factors:

1 ft-lb = 1.356 Nm	1 hp = 0.746 kW
1 Nm = 0.7376 ft-lb	1 kW = 1.34 hp

To determine the approximate engine/gearbox output torque in ft-lbs, use one of the formulae below:

$$\text{Torque (ft-lb)} = \frac{(\text{Engine power (hp)} \times 5252 \times \text{gear reduction ratio})}{\text{Engine RPM}}$$

$$\text{Torque (ft-lb)} = \frac{(\text{Engine power (kW)} \times 7038 \times \text{gear reduction ratio})}{\text{Engine RPM}}$$

$$\text{Torque (ft-lb)} = 0.737 \times \text{Torque (Nm)}$$

9. Drive Train Measurements

In some instances, the propeller shaft may have to be trimmed before installing the IsoFlex coupling. There are two reasons for this:

A. Propeller Clearance from Rudder

According to naval architecture guidelines, the rudder should be at least 20% of the propeller shaft diameter aft of the propeller for proper water flow off the prop and onto the rudder. This should minimize vibration and cavitation on the rudder.

B. Propeller Clearance from Strut

Just as important, the front end of the propeller should be no more than one shaft diameter aft of the strut. This is to prevent shaft vibration. The exposed shaft may be a bit longer to accommodate a shaft zinc, but that is all.

10. Torque Calculation

For the GEARguard coupling to work correctly, it must first be strong enough to meet the torque rating of your installation. That is, it must be able to carry the torque loads generated by the engine/transmission during normal operation.

Before installing any drive line coupling, you should first determine the "maximum allowable" torque rating of your engine/transmission. Published documentation for torque rating usually states the most conservative continuous torque rating. However, IsoFlex suggests that you take the time to calculate the rating for your specific installation.

Please use any of the formulae below to complete this calculation, noting the result in ft-lbs or Nm.

To determine the approximate engine/gearbox output torque in Nm, use one of the formulae below:

$$\text{Torque (Nm)} = \frac{(\text{Engine power (hp)} \times 7124 \times \text{gear reduction ratio})}{\text{Engine RPM}}$$

$$\text{Torque (Nm)} = \frac{(\text{Engine power (kW)} \times 9550 \times \text{gear reduction ratio})}{\text{Engine RPM}}$$

$$\text{Torque (Nm)} = 1.356 \times \text{Torque (ft-lb)}$$

HOW TO MEASURE: 4

Once you have identified maximum output torque for your application, see the definitions below to determine which description of normal operation best fits your vessel.

Pleasure Craft

Planing hulls where full throttle operation is less than 5% of total operational time. Couplings for these vessels are rated to operate at 85% of maximum allowable working torque.

Medium Duty Craft

Pleasure or commercial craft (planing, semi-displacement or multi-hulls) such as patrol boats, charter fishing boats, etc. Couplings for these vessels are rated to operate at 75% of maximum allowable working torque.

Heavy Duty Craft

Commercial craft (heavy displacement, semi-displacement or multi-hulls in commercial operation) such as trawlers, ferries, etc. Couplings for these vessels are rated to operate at 50% of maximum allowable working torque.

Next, go to the torque charts on pages 11, 13, 15 and 16.

Note the torque rating in the chart which matches 1) the IsoFlex coupling that fits your dimensional characteristics and 2) the type of “craft” you operate (given the above descriptions).

If the IsoFlex torque rating in the chart is equal to or higher than the torque rating produced by your drive train, you can now order your GEARguard coupling.

If the IsoFlex torque rating in the chart is lower than the torque rating produced by your drive train, please contact IsoFlex or your local distributor. IsoFlex may be able to produce a High Torque (HT) coupling for your installation.

GEARguard

FLEX COUPLINGS

GEARguard

COUPLINGS

4 BOLT - WORKING TORQUE RATINGS

Imperial (ft-lb)

MODEL	HEAVY DUTY	MEDIUM DUTY	PLEASURE CRAFT
IFC-4200-90	360	540	615
IFC-4300-95	360	540	615
IFC-4400-95	360	540	615
IFC-4500-95	490	725	830
IFC-4500-HT	855	1280	1445
IFC-4500-IV-HT	855	1280	1445
IFC-4550-95	315	470	535
IFC-4550-HT	650	975	1105
IFC-4600-95	270	405	465
IFC-4700-95	435	650	725
IFC-4800-95	225	335	380
IFC-4900-95	870	1300	1445

Metric (Nm)

MODEL	HEAVY DUTY	MEDIUM DUTY	PLEASURE CRAFT
IFC-4200-90	500	750	850
IFC-4300-95	500	750	850
IFC-4400-95	500	750	850
IFC-4500-95	675	1000	1150
IFC-4500-HT	1180	1770	2000
IFC-4500-IV-HT	1180	1770	2000
IFC-4550-95	435	650	740
IFC-4550-HT	900	1350	1530
IFC-4600-95	375	560	640
IFC-4700-95	600	900	1000
IFC-4800-95	310	465	525
IFC-4900-95	1200	1800	2000

GEARguard

COUPLINGS

6 BOLT - WORKING TORQUE RATINGS

Imperial (ft-lb)

MODEL	HEAVY DUTY	MEDIUM DUTY	PLEASURE CRAFT
IFC-6000-95	670	990	1140
IFC-6000-HT	980	1460	1700
IFC-6100-95	2250	3350	3800
IFC-6100-IV	2250	3350	3800
IFC-6125-95	2250	3350	3800
IFC-6150-95	2250	3350	3800
IFC-6150-IV	2250	3350	3800
IFC-6155-95	2250	3350	3800
IFC-6300-95	2600	3900	4430
IFC-6300-IV	2600	3900	4430
IFC-6400-95	2170	3250	3700
IFC-6400-HT	3280	4780	5400
IFC-6500-95	6470	9700	Use Medium
IFC-6600-95	4340	6500	Use Medium

Metric (Nm)

MODEL	HEAVY DUTY	MEDIUM DUTY	PLEASURE CRAFT
IFC-6000-95	925	1375	1575
IFC-6000-HT	1350	2020	2350
IFC-6100-95	3050	4575	5175
IFC-6100-IV	3050	4575	5175
IFC-6125-95	3050	4575	5175
IFC-6150-95	3050	4575	5175
IFC-6150-IV	3050	4575	5175
IFC-6155-95	3050	4575	5175
IFC-6300-95	3600	5400	6120
IFC-6300-IV	3600	5400	6120
IFC-6400-95	3000	4500	5100
IFC-6400-HT	4400	6600	7480
IFC-6500-95	8950	13400	Use Medium
IFC-6600-95	6000	9000	Use Medium

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COUPLINGS

8 BOLT - WORKING TORQUE RATINGS

Imperial (ft-lb)

MODEL	HEAVY DUTY	MEDIUM DUTY	PLEASURE CRAFT
IFC-8100-95	4950	7430	Use Medium
IFC-8100-HT	6150	9220	Use Medium
IFC-8200-95	3250	4880	Use Medium
IFC-8200-HT	5700	8570	Use Medium
IFC-8300-95	2170	3250	3700
IFC-8400-95	5060	7600	Use Medium
IFC-8400-HT	7600	11400	Use Medium
IFC-8500-95	6150	9220	Use Medium
IFC-8534-95	6150	9220	Use Medium
IFC8600-95	6250	9380	Use Medium
IFC-8690-95	6250	9380	Use Medium
IFC-8695-95	6500	9770	Use Medium
IFC-8695-HT	9650	14500	Use Medium
IFC-8700-95	7250	10850	Use Medium
IFC-8800-95	16300	24500	Use Medium
IFC-8900-95	13200	20000	Use Medium

Metric (Nm)

MODEL	HEAVY DUTY	MEDIUM DUTY	PLEASURE CRAFT
IFC-8100-95	6850	10275	Use Medium
IFC-8100-HT	8500	12750	Use Medium
IFC-8200-95	4500	6750	Use Medium
IFC-8200-HT	7900	11850	Use Medium
IFC-8300-95	3000	4500	5100
IFC-8400-95	7000	10500	Use Medium
IFC-8400-HT	8500	12750	Use Medium
IFC-8500-95	8500	12750	Use Medium
IFC-8534-95	8500	12750	Use Medium
IFC8600-95	8650	12975	Use Medium
IFC-8690-95	8650	12975	Use Medium
IFC-8695-95	9000	13500	Use Medium
IFC-8695-HT	13350	20100	Use Medium
IFC-8700-95	10000	15000	Use Medium
IFC-8800-95	22500	33750	Use Medium
IFC-8900-95	18300	27500	Use Medium

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COUPLINGS

10 BOLT - DIMENSIONS

Imperial							
MODEL	BOLT CIRCLE DIAMETER	SIZE OF BOLTS	INDEX RING TYPE	INDEX RING DIAMETER	GEARBOX FLANGE OUTSIDE DIAMETER	GEARBOX FLANGE INSIDE DIAMETER	ISOFLEX PART THICKNESS
IFC-10325-HT	6.69	14mm SHCS	M	5.51	8.35	2.95	1.77
0.70" T-bushing included							
Metric							
IFC-10325-HT	170.00	14mm SHCS	M	140.00	212.00	75.00	45.00
18mm T-bushing included							

10 BOLT - WORKING TORQUE RATINGS

Imperial (ft-lb)			
MODEL	HEAVY DUTY	MEDIUM DUTY	PLEASURE CRAFT
IFC-10325-HT	3600	5400	6150
Metric (Nm)			
IFC-10325-HT	5000	7500	8500