

FLEXIBLE FLANGE COUPLING

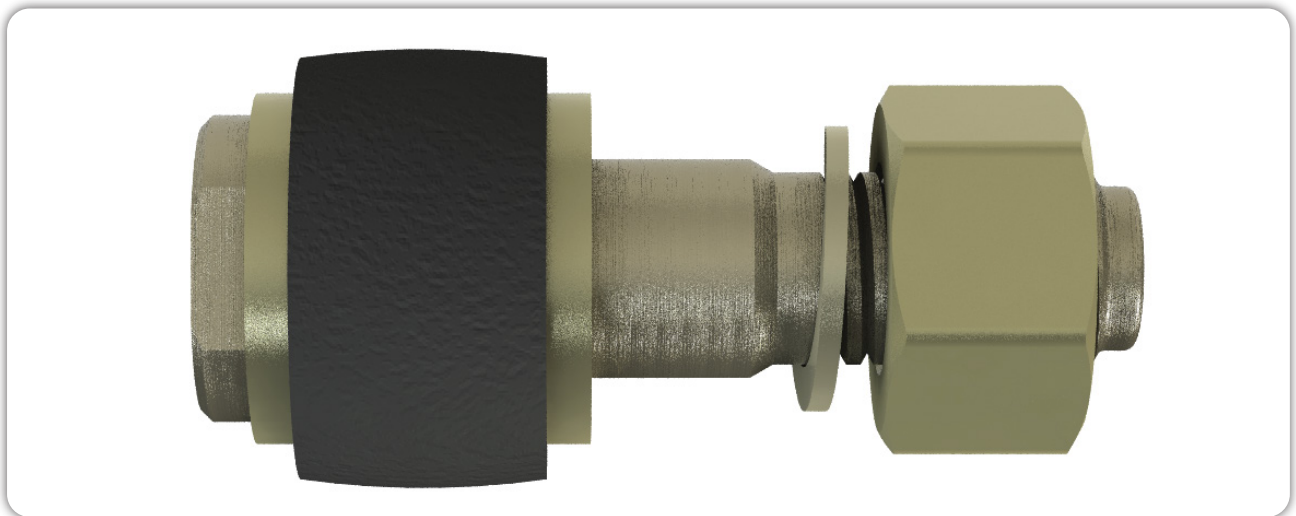
Characteristics & Advantages

The Flange Coupling delivers power smoothly and has excellent vibration absorption capability. It has a simple structure, and is simple to install and maintain. In addition, it can be inspected visually to determine when to repair it.

Structure

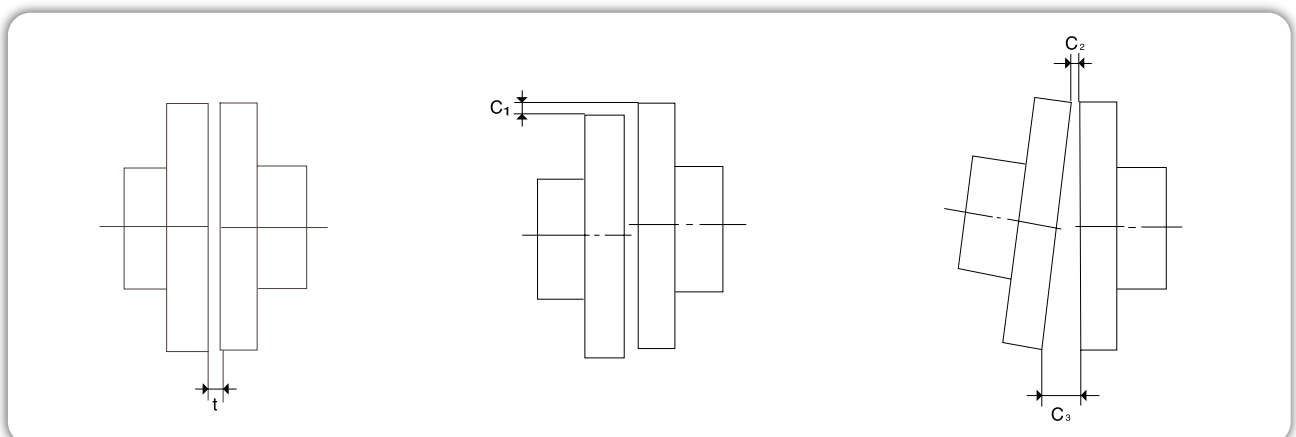
The components of the flange coupling are as follows:

- 1) Flange Hub: GC20 of KS D4301 or SF45 of KS D 3710
- 2) Reamer Bolt: KS D
- 3) Nut: SS41 of KS D 3503
- 4) Spring Washer: HSWR62B or HSWR5 of KS D 3559
- 5) Bush: NBR (HS = 70) of KS M6617
- 6) Plain Washer: SS41 of KS D 3503

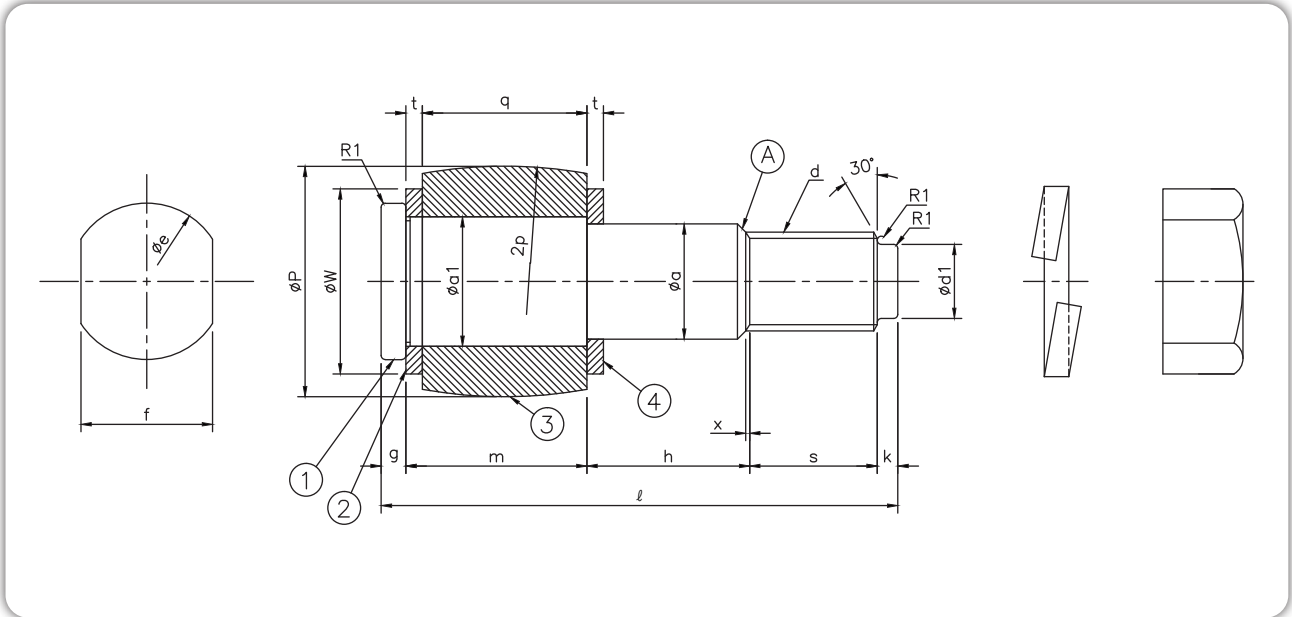


Instruction for Installation

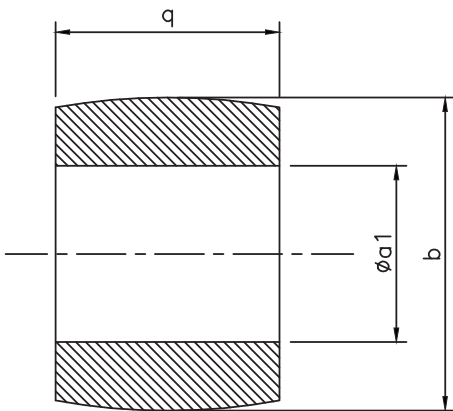
1. The outer diameter of the coupling's upper and lower sides must fit perfectly. If there is no gap, the axis of the drive shaft and the axis of the driven shaft must be exactly aligned.
2. In order to prolong the life of the rubber bush, keep C_1 , C_2 , and C_3 within 0.05mm as shown in the figure below.
3. 't' is the same thickness as the washer.



Flexible Flange Coupling Bolt

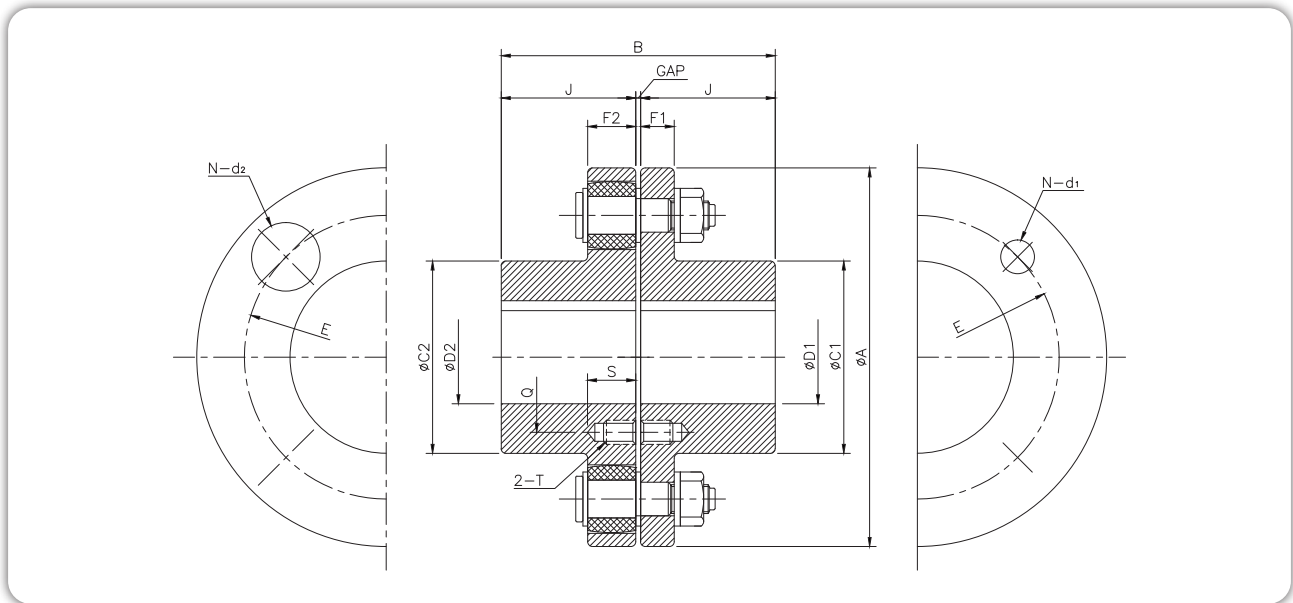


Size $\alpha \times \ell$	Coupling Size	Reamer Bolt												
		Screw Size d	a_1	a	d_1	e	f	g	m	h	s	k	l	$r(\text{about})$
8×50	90	M8	9	8	5.5	12	10	4	17	15	12	2	50	0.4
10×56	100~112	M10	12	10	7	16	13	4	19	17	14	2	56	0.5
14×64	125~180	M12	16	14	9	19	17	5	21	19	16	3	64	0.6
20×85	200~224	M20	22.4	20	15	28	24	5	26.4	24.6	25	4	85	1
25×100	250	M24	28	25	18	34	30	6	32	30	27	5	100	1
28×116	280~315	M24	31.5	28	18	38	32	6	44	30	31	5	116	1
35.5×150	355~630	M30	40	35.5	23	48	41	8	61	38.5	36.5	6	150	1.2



Size $\alpha \times \ell$	Coupling Size	Plain Washer			Bush		
		a_1	w	t	a_1	p	q
8×50	90	9	14	3	9	18	14
10×56	100~112	12	18	3	12	22	16
14×64	125~180	16	25	3	16	31	18
20×85	200~224	12.4	32	4	22.4	40	22.4
25×100	250	28	40	4	28	50	28
28×116	280~315	31.5	45	4	31.5	56	40
35.5×150	355~630	40	56	5	40	71	56

Flexible Flange Coupling



Size	Max. Speed RPM	Torque Rating (kg·m)	Bore Dia (mm)				Dimensions (mm)											Bolt Hole			Cplg wt (kg)	Size	
			Max.		Min.		A	B	C ₁	C ₂	E	F ₁	F ₂	J	Q	T	S	Gap (mm)	n	d ₁			d ₂
			D ₁	D ₂	D ₁	D ₂																	
90F	4,000	0.5	20	-	90	59	35.5	60	14	28								4	8	19	1.4	90F	
100F	4,000	1.0	25	-	100	74	42.5	67	16	35.5								4	10	23	2.1	100F	
112F	4,000	1.6	28	16	112	83	50	75	16	40								4	10	23	2.7	112F	
125F	4,000	2.5	32	28	18	125	93	56	50	85	18	45					3	4	14	32	3.5	125F	
140F	4,000	5.0	38	35	20	140	103	71	63	100	18	50						6	14	32	4.9	140F	
160F	4,000	11	45	25	160	115	80	115	18	56			-					8	14	32	6.8	160F	
180F	3,500	16	50	28	180	129	90	132	18	63								8	14	32	9.6	180F	
200F	3,200	25	56	32	200	146	100	145	22.4	71								8	20	41	13.2	200F	
224F	2,850	40	63	35	224	164	112	170	22.4	80								8	20	41	18.4	224F	
250F	2,550	63	71	40	250	184	125	180	28	90							4	8	25	51	26.0	250F	
280F	2,300	100	80	50	280	204	140	200	28	40	100							8	28	57	36.5	280F	
315F	2,050	160	90	63	315	228	160	236	28	40	112	140						10	28	57	49.1	315F	
355F	1,800	250	100	71	355	255	180	260	35.5	56	125	140	M20	51				8	35.5	72	74.9	355F	
400F	1,600	400	110	80	400	255	200	300	35.5	56	125	160						10	35.5	72	94.3	400F	
450F	1,400	630	125	90	450	285	224	355	35.5	56	140	180					5	12	35.5	72	127.8	450F	
560F	1,150	1,000	140	100	560	325	250	450	35.5	56	160	200	M22	54				14	35.5	72	206.3	560F	
630F	1,000	1,600	160	110	630	365	280	530	35.5	56	180	220						18	35.5	72	277.0	630F	

※ Coupling weight, without bore machining

Service Factor and Reference

Service Factor

The service factors listed are the typical values used for normal operation of drive systems. If the applications use repetitive high peak loads, choose a factor by using the provided instructions or formulas.

Table 1

<p>Aphabetical listing of applications</p> <p>AERATOR2.5</p> <p>AGITATORS</p> <p>Vertical and Horizontal screw,propeller,Paddle1.5</p> <p>BARGE HAUL PULLER3.0</p> <p>BLOWERS</p> <p>Centrifugal1.5</p> <p>Lobe or Vane1.75</p> <p>CAR DUMPERS4.0</p> <p>CAR PULLERS2.5</p> <p>CLARIFIER OR CLASSIFIER1.5</p> <p>COMPRESSORS</p> <p>Centrifugal1.1</p> <p>Rotary,Lobe or Vane2.0</p> <p>Rotary,Screw2.0</p> <p>Reciprocation</p> <p>Direct,Connected ★</p> <p>With out Flywheels ★</p> <p>*With flywheel and Gear between Compressor and Prime Mover</p> <p>1 cylinder,single acting5.0</p> <p>1 cylinder,double acting5.0</p> <p>2 cylinders,single acting5.0</p> <p>2 cylinders,double acting5.0</p> <p>3 cylinder,single acting5.0</p> <p>3 cylinder,double acting3.0</p> <p>4 or more cyl., single act3.5</p> <p>4 or more cyl., double act3.5</p> <p>CONVEYORS</p> <p>Apron,Assembly,Belt,Chain Flight,Screw1.5</p> <p>Bucket2.0</p> <p>Live Roll,Shaker and Reciprocation3.5</p> <p>▲★CRANES AND HOIST</p> <p>Main Hoist5</p> <p>Skip Hoist2.5</p> <p>Slope2.25</p> <p>Bridge,Travel or Trolley5</p> <p>DYNAMOMETER1.5</p> <p>ELEVATORS</p> <p>Bucket,Centrifugal Discharge2.0</p> <p>Freight or Passenger(Not Approved)</p> <p>Gravity discharge2.0</p> <p>ESCALATORS(Not Approved)</p> <p>EXCITER GENERATOR1.75</p> <p>EXTRUDER, PLASTICI2.25</p>	<p>FANS</p> <p>Centrifugal1.1</p> <p>Cooling Tower3.0</p> <p>Forced Draft-Across the Line start2.0</p> <p>Forced Draft Motro Driven thru fluid or electric slip clutch1.5</p> <p>Gas Recirculating2.5</p> <p>Induced Draft with damper control or blade cleaner2.0</p> <p>Induced Draft without controls3.0</p> <p>FEEDERS3.0</p> <p>Apron,Belt,Disc,Screw2.0</p> <p>Reciprocation3.5</p> <p>GENERATORS</p> <p>Even Load1.1</p> <p>Hoist or Railway Service2.0</p> <p>Welder Load3.0</p> <p>HAMMERMULL2.5</p> <p>LAUNDRY WASHER OR TUMBLER3.0</p> <p>LINE SHAFTS</p> <p>Any processing Machinery2.0</p> <p>MACHINE TOOLS</p> <p>Auxiliary and Traverse Drive1.5</p> <p>Bending Roll,Notching press. Punch Press, Planer, Plate Reversing2.5</p> <p>Main Drive2.0</p> <p>MAN LIFTS(Not Approved)</p> <p>METAL FORMING MACHINES</p> <p>Draw Bench Carriage and Main Drive3.0</p> <p>Extrude3.0</p> <p>Forming Machine and Forming Mills3.0</p> <p>Slitters1.5</p> <p>Wire Drawing or Flattening2.5</p> <p>Wire Winder2.25</p> <p>Coilers and Uncoilers2.25</p> <p>MIXERS (see Agitators)</p> <p>Concrete2.5</p> <p>Muller2.5</p> <p>PRESS,PRINTING2.25</p> <p>PUG MILL2.5</p> <p>PULVERIZERS</p> <p>Hammermill and Hog2.5</p> <p>Roller2.0</p> <p>PUMPS</p> <p>Centrifugal Constant Spend 1.1</p>	<p>Frequent Speed Changes under Load2.0</p> <p>Descaking,with accumulators2.0</p> <p>Gear,Rotary, or Vane1.75</p> <p>Reciprocating</p> <p>1 cyl.,single or double act.3.0</p> <p>2 cyl.,single acting3.0</p> <p>2 cyl.,double acting2.5</p> <p>3 or more cyliders2.0</p> <p>SCREENS</p> <p>Air Washing1.5</p> <p>Grizzly3.0</p> <p>Rotary Coal or Sand2.0</p> <p>Vibrating3.5</p> <p>Water1.5</p> <p>SKI TOWS & LIFTS(Not Approved)</p> <p>STEERING GEAR1.5</p> <p>STOKER1.5</p> <p>TUMBLING BARREL1.5</p> <p>WINCH,MANEUVERING</p> <p>Dredge,Marine2.5</p> <p>WINDLASS2.0</p> <p>WOODWDORKING2.0</p> <p>MACHINERY1.5</p> <p>WORK LIFT PLATFORMS(Not approved)</p> <p>Aphabetical listing of industries</p> <p>AGGREGATE PROCESSING, CEMENT, MINING KILNS: TUBE,ROD AND BALL MILLS</p> <p>Direct or on L.S. shaft of Reducer, with final drive Machined Spur Gears3.0</p> <p>Single Helical or Herringbone Gears2.25</p> <p>Conveyors,Feeders,Screens, Elevators,See General Listing</p> <p>Crushers,Ore or Stone3.5</p> <p>Dryer, Rotary2.0</p> <p>Grizzly3.0</p> <p>Hammermill or Hog2.5</p> <p>Tumbling Mill or Barrel2.5</p> <p>BREWING AND DISTILLING</p> <p>Bottle and Can Filling Machines1.5</p> <p>Brew Kettle1.5</p> <p>Cookers,Continuous Duty1.75</p> <p>Lauter Tub2.25</p> <p>Mash Tub1.75</p> <p>Scale Hopper,Frequent Peaks2.25</p> <p>CLAY WORKING INDUSTRY</p> <p>Brick Press, Briquette Machine, Clay Working Machine, Plug Mill2.5</p>
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- a. In case of a slide coupling that axial movement occurs more than five times per hour, add 0.5 to the service factor. When electric motors, generators, engines, compressors and other machines are assembled with sleeves or straight roller bearings, axial end float couplings should be used to protect the bearings. When ordering, also order limited end float discs with the coupling.
- b. *Contact us for a balanced opposed design.
- c. ▲When using in a place with risk to human safety, for safety reasons, consult us before using.
- d. ★ Contact us for high peak load applications (such as Metal Rolling Mills)
- e. Non-reversing safety factor: The required coupling torque is the same as the peak torque.
- f. Reversing safety factor: The required coupling torque is twice the peak torque.

Engine Drive Service Factors







It is necessary to use a service factor for engine drives when the application involves good flywheel regulation to prevent torque fluctuations that are greater than ± 20%. If the torque fluctuation is greater, or if operation is close to serious critical or torsional vibration, a mass elastic study will be required.

To use Table 2, begin by selecting an application service factor from Table 1. Use that service factor to choose the appropriate engine service factor from Table 2. If the service factor from Table 1 is more than 2.5, please submit the complete application details to the factory for an engineering review.

Table 2. Engine Drive Service Factors

Number of cylinders	4 or 5					6 or more				
Service Factor	1.5	1.75	2.0	2.25	2.5	1.5	1.75	2.0	2.25	2.5
Engine Service Factor	2.5	2.75	3.0	3.25	3.5	2.5	2.75	3.0	3.25	3.5

For best results, measure the system characteristics with a torque meter. The service factors provided here are only a guide based on the usual ratio between the coupling catalogue rating and general system characteristics.

Torque Demands Driven Machine	Typical applications for Driven Equipment	Typical Service Factor
	Constant torque such as Centrifugal Pumps, Blowers and Compressors.	1.0
	Continuous duty with some torque variations including Plastic Extruders, Forced Draft Fans.	1.5
	Light shock loads from Metal Extruders, Cooling Towers, Cane Knife, Log Haul.	2.0
	Moderate shock loading as expected from a Car Dumper, Stone Crusher, Vibrating Screen.	2.5
	Heavy shock load with some negative torques from Roughing Mills, Reciprocating Pumps, Compressors, Reversing Runout Talbes.	3.0
	Applications like Reciprocating Compressors with frequent torque reversals, which do not necessarily cause reverse rotations.	Refer to WCC

Shrink Heating

1. Introduction

Heat shrinking is necessary and practical in industries that require more power and precision than is possible with other fitting methods.

2. Interference

1/1,000 to 15/10,000 (mm) of the shaft diameter d

3. Methods and Procedures for Fitting

- If you use a key, put the key on the shaft first and lubricate it. If there is no key, do not apply lubricant.
- Before fitting the hub on to the shaft, with the steel flexible coupling insert the tv cover and oil seal first. In case of the gear coupling, insert the sleeve, side cover first.
- To heat, choose one of the following methods and heat to 135°C:

- Oxy-acetylene or blow-torch heating Mark near the surface of the hub with a crayon that melts at 135°C. Then pass the flame through the inner diameter to heat it. Do not put heat directly on the tooth surface during heating, or heat only one side.
- Heating in a furnace Set the thermometer to 135°C and heat for at least three minutes per 1mm thickness. Avoid direct contact with heat sources during heating.
- Oil bath heating Put the hub in oil with a boiling point of 177°C or higher and heat it for six minutes per 1mm thickness. Do not let the surface of the hub touch the bottom of the container during heating.

4. Mount the hub as soon as possible to prevent heat loss.