maurey Couplings

HI-Q COUPLINGS

STYLE 1

STYLE 2

HI-FLEX COUPLINGS

Fixed Bore Sleeve Couplings

Rigid Bushed Sleeve Couplings

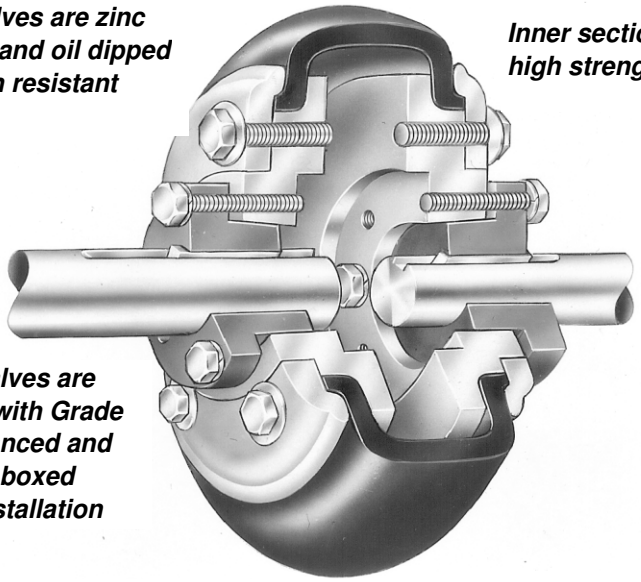
Hi-Flex® Flexible Couplings

shaft misalignments…absorbing shocks and vibrations

Outer section made from solid steel plate

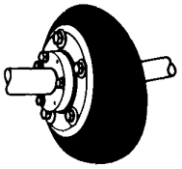
Coupling halves are zinc phosphated and oil dipped for corrosion resistant protection

Inner section made from high strength ductile iron

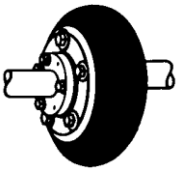


Coupling halves are assembled with Grade 8 bolts, balanced and individually boxed ready for installation

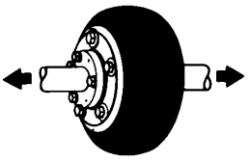
Accomodates angular shaft misalignments up to 4°.



Accomodates parallel shaft misalignments up to 1/8".

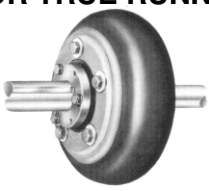


Compensates for end float up to 5/16"



(Except 110 SK which will accommodate up to 1/4")

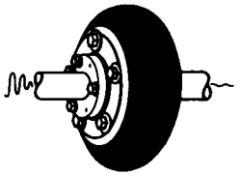
PRECISION BALANCED FOR TRUE RUNNING



All flanges are precision balanced before assembly with cover to assure trouble free service.

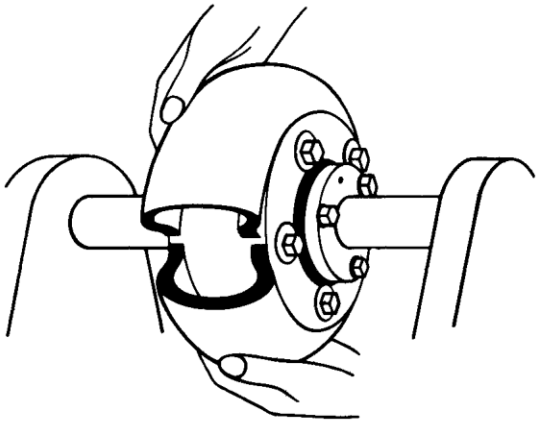
The split flexible element is made of natural rubber or Neoprene. Natural rubber has an ambient temperature range from -65° to +180°F. Neoprene has excellent resistance to oil, ozone and weather…good resistance to heat, flame and certain chemicals…. ambient temperature range from -40° F to +210° F.

Dampens torsional vibrations, absorbs shocks



Internal combustion engines develop torsional vibration which increase at certain speeds. Hi-Flex Couplings dampen vibrations.

Easy Installation

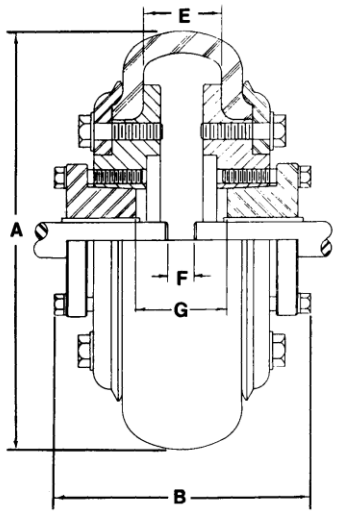


Simple standard-type alignment
Check by placing a straightedge across the outside diameter of the flange.

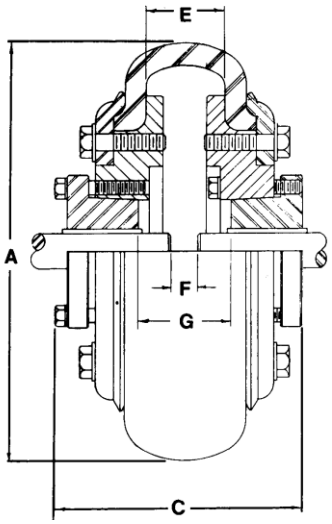
Easy installation of flexible element
Simply place split flexible element between flanges and then clamp ring. Tighten bolts to proper torque.

Fast replacement of flexible element
To replace element, loosen flange assembly bolts partially, without removing covers. However, bolts may be removed completely, thus disassembling the cover for easier removal and installation of element.

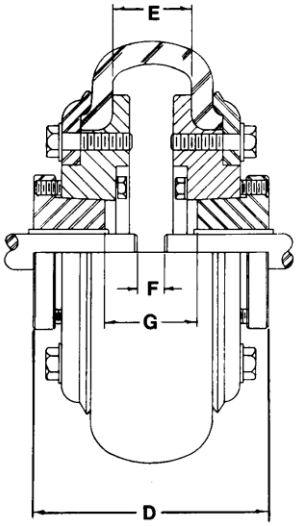
Hi-Flex® Couplings
using ful-grip bushings



OUTSIDE-OUTSIDE MOUNT
(50JA-140E)



OUTSIDE-INSIDE MOUNT
(70SH-140E)



INSIDE-INSIDE MOUNT
(70SH-140E)

FLANGE ASSEMBLY 2 REQ. PART NUMBER	BUSHING REQUIRED 1 PER EA FLANGE	FLANGE ASSEMBLY WEIGHT EACH (Lbs)	FLEXIBLE ELEMENT 1 REQ PART NUMBER				STOCK BORES QD BUSHED		COMPLETE COUPLING WEIGHT (Lbs)	
			BUNA	NEOPRENE	Element Weight	Torque @ 1.0 SF (LB.-IN.)	MIN	MAX	Less Bushing	With Bushing
50JA	JA	2.1	FE5	FE5N	0.6	900	1/2	1-3/16	4.7	6.3
60SH	SH	3.5	FE6	FE6N	0.9	1800	1/2	1-5/8	7.9	9.9
70SH	SH	4.7	FE7	FE7N	1.3	2200	1/2	1-5/8	10.7	12.7
80SDS	SDS	6.9	FE8	FE8N	1.7	3600	1/2	1-15/16	15.5	17.9
90SK	SK	10.0	FE9	FE9N	2.0	4350	1/2	2-1/2	22.0	26.0
100SF	SF	13.5	FE10	FE10N	2.0	5250	1/2	2-3/4	29.0	36.0
110SF	SF	17.4	FE11	FE11N	3.0	7750	1/2	2-3/4	37.8	44.8
120E	E	25.1	FE12	FE12N	3.8	12540	7/8	3-7/16	54.1	72.1
140E	E	51.1	FE14	FE14N	4.5	27590	7/8	3-7/16	106.7	124.7

PART NUMBER FLANGE	ELEMENT PART NUMBER		DIMENSIONS (INCHES)						
	BUNA	NEOPRENE	A	B	C	D	E±1/16	F	G
50JA	FE5	FE5N	5-1/4	3-1/4	3-1/4	3-1/4	7/8	*	23/32
60SH	FE6	FE6N	6-1/2	3-15/16	3-15/16	3-15/16	1-1/8	*	7/8
70SH	FE7	FE7N	7-3/8	4-3/16	3-31/32	3-3/4	1-3/8	*	1-1/8
80SDS	FE8	FE8N	8-5/16	4-5/8	4-13/32	4-3/16	1-1/2	*	1-7/16
90SK	FE9	FE9N	9-1/4	5-11/16	5-13/32	5-1/8	1-5/8	*	1-3/8
100SF	FE10	FE10N	10	6-1/4	5-15/16	5-5/8	1-3/4	*	1-3/4
110SF	FE11	FE11N	11	6-3/16	5-7/8	5-9/16	1-9/16	*	1-11/16
120E	FE12	FE12N	12-3/8	7-3/4	7-5/16	6-7/8	1-3/4	*	1-7/8
140E	FE14	FE14N	14-1/8	10-1/4	9-13/16	9-3/8	2-1/8	*	2-1/4

* Shaft ends although normally "G" distance apart can project beyond the bushings and be close together. If this occurs allow space between shaft ends for end float and mis-alignment.

Coupling Applications and Service Factors

TABLE 1 ● SERVICE FACTORS

APPLICATION (See Footnote)	Service Factor *
AGITATORS	
Paddle, Propeller, Screw	1.0
BLOWERS	
Centrifugal, Vane	1.0
Lobe	1.5
BREWING & DISTILLING	
Bottling Machinery,	
Brew Kettle, Mash Tub	1.0
Scale Hopper	1.5
CAR DUMPERS	2.5
CAR PULLERS	1.5
CLAY WORKING MACHINES	1.5
COMPRESSORS	
Centrifugal	1.0
Lobe Rotary	2.0
Reciprocating**	3.0
CONVEYORS	
Assembly, Belt, Screw	1.0
Reciprocating	2.5
CRANES AND HOIST	
Main, Reversing, Skip	
Trolley, Bridge, Slope	2.0
CRUSHERS	
Ore and Stone	3.0
DREDGES	
Conveyors, Pumps, Stackers	1.5
Cutter Head, Jig Pump	
Screen Drives	2.0
ELEVATORS	
Bucket, Freight, Passenger	2.0
FANS	
Centrifugal, Light	1.0
Propeller (Indoor)	1.5
Large (Mine Etc.)	
Cooling Tower	2.0
FOOD INDUSTRY	
Cereal Cooker	1.0
Beet Slicer, Dough Mixer	
Meat Grinder	1.5
GENERATORS	
Even Load	1.0
Hoist or Railway Service	1.5
Welder Load	2.0
HAMMERMILLS	2.0
KILN	2.0
LAUNDRY MACHINES	
Tumbler, Washer	2.0
LINE SHAFTS	1.5
LUMBER INDUSTRY	
Band Circular Resaw, Planer	
Rolls (Non-Reversing),	
Slab Conveyor, Sorting Table	1.5
MACHINE TOOLS	
Auxillary and Traverse	1.0
Main Drive	
Punch Press, Planer	2.0
METALFORMING MACHINES	2.0
MILLS (ROTARY TYPE)	
Dryer, Cooler	
Tumbling Barrel	1.5
Ball Pebble Rod, Tube	2.5
MIXERS	
Concrete (Continuous)	
Muller	1.5
OIL INDUSTRY	
Chiller	1.0
Paraffin Filter Press	1.5
Oil Well Pumping	2.0
PAPER MILLS	
Agitator, Bleacher Felt Stretcher	1.0
Beater, Pulper Couch Cylinder,	
Dryer, Rotary Pump, Winder	1.5
Calender, Jordan Press,	
Pulp Grinder	
Reciprocating Pump	2.0
Barking Drum Chipper	3.0
PARAFFIN FILTER PRESS	1.5
PRINTING PRESS	1.5
PROPELLER (MARINE)	1.5
PULLERS	2.5
PULVERIZERS	
Hammermill - Light Duty Roller	1.5
Hammermill - Heavy Duty Hog	2.0
PUMPS	
Centrifugal	1.0
Descaling Gear Type	1.5
Oil Well	2.0
PUMPS RECIPROCATING	
1 Cylinder - Single Acting	2.5
1 Cylinder - Double Acting	2.0
2 Cylinder - Single Acting	2.0
2 Cylinder - Double Acting	1.5
3 Cylinders or More	1.5
RUBBER INDUSTRY	
Tuber and Strainer	1.5
Calender, Warming Mill	2.0
Banbury, Mixing Mill	
Sheeter, Tire Buliding	
Machine, Washer	2.5
SCREENS	
Air Washing and Water	1.0
Coal and Sand (Rotary)	1.5
Vibrating	2.5
SHOVEL	2.0
SHREDDER	1.5
STEEL INDUSTRY *	
Cold Mills	
Coiler (Up or Down)	1.5
Strip, Temper	2.0
Hot Mills	
Coiler Edger Drive	1.5
Feed Roll, Roughing Mill	
Delivery, Sheet, Strip	3.0
Rod Mill	2.5
Soaking Pit Cover Drive	3.0
STEERING GEAR	1.0
STOKER	1.0
TEXTILE MILLS	
Batcher, Drying. Mangel,	
Napper, Soaper	1.0
Calender, Card, Dry Can,	
Spinner Tenter Frame	1.5
WINDLASS	2.0
WOODWORKING MACHINERY	1.0

● The service factors listed are intended only as a general guide and for smooth power sources such as electric motors and steam turbines. Add 0.5 to factor for somewhat rougher power sources such as internal combustion engines of four or more cylinders, steam engines and water turbines. Where substantial shock occurs or starting and stopping is frequent as on some "inching" drives and on some reversing drives or where power source is an internal combustion engine with less than four cylinders - consult factory. Where torsional vibrations occur as in, for example, internal combustion engine or reciprocating compressor or pump applications, check the coupling size for the possible development of damaging large amplitude vibrations

* These factors are based on motor HP at base speed. Where these factors do not produce a 10 factor on the peak torque of the motor, they should be increased accordingly.

** Add 0.5 factor if without flywheel

Coupling Selection

Step 1 - Determine the required HP per 100 RPM

$$\text{HP/100 rpm @ 1.0 service factor} = \frac{\text{Motor or other HP} \times 100 \text{ rpm}}{\text{Motor or other Coupling RPM}}$$

Example: 25 HP electric motor 1750 RPM, Service factor 1.00

Step 2 - Refer to Table 2 - Select a figure equal to or greater than 1.43 obtained in step 1. From Table 2, the L110 Urethane Hi-Q coupling or 60SH Hi-Flex coupling will meet the HP requirements. However the max bore in both cases is 1-5/8". A 25 HP electric motor has a 284T frame with a shaft diameter of 1-7/8". Therefore choose either:

L150 (Rubber) Hi-Q Coupling or 80SDS Hi-Flex Coupling

If angular, parallel misalignment and end float are not critcical and the Hi-Q coupling meets the other requirments of the drive, the Hi-Q coupling is recommended from the standpoint of economics.

Refering back to Table 2 and using 1.43HP/100 RPM we can select the coupling required at various service factors

Service Factor	Coupling
1.5	L150P Hi-Q or 80SDS Hi-Flex
2.0	L150P Hi-Q or 80SDS Hi-Flex
2.5	L190P Hi-Q or 80SDS Hi-Flex
3.0	L190P Hi-Q or 80SDS Hi-Flex

Step 3 - Coupling selection other than electric motor**.**
Example: 55 HP Gasoline engine 1500 RPM, Service Factor 1.5

$$\text{HP/100 rpm} = \frac{55\text{HP} \times 100 \text{ rpm}}{1500 \text{ RPM}} = 3.67 \text{ HP/100 RPM}$$

Refer to Table 2, calculate 1.5 service factor and choose the following:

L225 (Urethane) Hi-Q coupling or 80SDS Hi-Flex Coupling

However if the engine shaft or driven shaft are not within the bore range of the couplings choosen use the next larger QD bushing and coupling.

TABLE 2

HI-Q COUPLING RATING AND SELECTION GUIDE

Coupling Size	Stock Bores Fixed Bores		Max RPM	RUBBER HP PER 100 RPM			URETHANE HP PER 100 RPM			HYTREL HP PER 100 RPM		
	Min.	Max.		1.0 SF	2.0 SF	3.0 SF	1.0 SF	2.0 SF	3.0 SF	1.0 SF	2.0 SF	3.0 SF
L050	1/4	5/8		0.04	0.02	0.01	0.06	0.03	0.02	0.08	0.04	0.03
L070	1/4	3/4		0.06	0.03	0.02	0.10	0.05	0.03	0.18	0.09	0.06
L075	3/8	7/8		0.12	0.06	0.04	0.21	0.11	0.07	0.36	0.18	0.12
L090	7/16	1		0.20	0.10	0.07	0.34	0.17	0.11	0.64	0.32	0.21
L095	1/2	1-1/8	4500	0.28	0.14	0.09	0.46	0.23	0.15	0.89	0.45	0.30
L099	1/2	1-3/16	4000	0.50	0.25	0.17	0.76	0.38	0.25	1.26	0.63	0.42
L100	1/2	1-3/8	4000	0.60	0.30	0.20	1.00	0.50	0.33	1.80	0.90	0.60
L110	5/8	1-3/4	3600	1.30	0.65	0.43	1.90	0.95	0.63	3.60	1.80	1.20
L150	3/4	1-7/8	3100	2.00	1.00	0.67	3.00	1.50	1.00	5.88	2.94	1.96
L190	3/4	2-1/8	2800	2.70	1.35	0.90	4.10	2.05	1.37	7.43	3.72	2.48
L225	3/4	2-5/8	2600	3.70	1.85	1.23	5.60	2.80	1.87	9.88	4.94	3.29

HI-FLEX COUPLING RATING AND SELECTION GUIDE

Coupling Size	QD Stock Bores		Max RPM	HP PER 100 RPM SERVICE FACTOR					Torque* @ 1.0 S.F. (LB.-IN.)	Average Static Torsional Stiffness Coefficient (K)		Approx. WR^2 (LB.-FT^2)
	Min.	Max.		1.0	1.5	2.0	2.5	3.0		LB.-IN/DEG	LB.-IN/RAD.	
50JA	1/2	1-3/16	4500	1.43	.95	.72	.57	.48	900	224	12850	.08
60SH	1/2	1-5/8	4000	2.86	1.91	1.43	1.14	.95	1800	414	23700	.24
70SH	1/2	1-5/8	3600	3.49	2.33	1.75	1.40	1.16	2200	544	31200	.45
80SDS	1/2	1-15/16	3100	5.71	3.81	2.86	2.28	1.90	3600	876	50200	.88
90SK	1/2	2-1/2	2800	6.90	4.60	3.45	2.76	2.30	4350	1088	62400	1.60
100SF	1/2	2-3/4	2600	8.33	5.55	4.17	3.33	2.78	5250	1530	87700	2.90
110SF	1/2	2-3/4	2300	12.30	8.20	6.15	4.92	4.10	7750	2420	138700	4.30
120E	7/8	3-7/16	2100	19.90	13.27	9.95	7.96	6.63	12540	4014	217000	6.70
140E	7/8	3-7/16	1840	43.78	29.19	21.89	17.51	14.59	27590	8296	476000	19.50

* Allowable torque for non-varying running loads. Starting requirements or other service conditions may require the use of a service factor.

maurey

HI-FLEX COUPLING
INSTALLATION INSTRUCTIONS

FLANGE AND BUSHING INSTALLATION

Make sure the bore and tapered cone surface of the bushing and flanges are free of all foreign substances such as paint or dirt.

1. Place *QD bushing on the shaft over the key with flange end first. The end of the bushing should be flush with the end of the shaft for best results.
   NOTE: If shaft ends project beyond the bushing, be sure to allow for end float and misalignment.

2. Either loosen flange asembly screws as much as possible or disassemble. Slip flange over the *QD bushing and assemble in the following manner:

A. OUTSIDE MOUNT (50JA thru 140E)
Align the clearance holes in the *QD bushing with the tapped holes of the flange assembly. Assemble pull-up bolts and lock washers as shown in Fig. 1. Tighten pull-up bolts progressively and evenly to the *QD bushing bolt torque specified in Table 1.

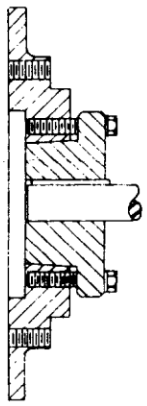


FIGURE 1
OUTSIDE MOUNT

B. INSIDE MOUNT (70SH thru 140E)
Align clearance holes in the flange assembly with the tapped holes in the *QD bushing. Assemble pull-up bolts and the lock washers as shown in Fig. 2. Tighten pull-up bolts progressively and evenly to the *QD bushing bolt torque specified in Table 1.

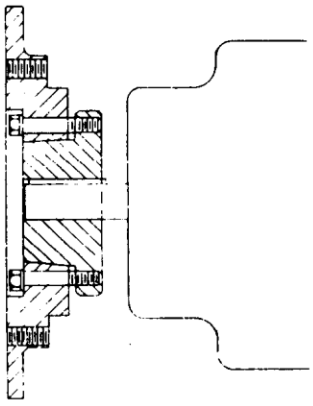


FIGURE 2
INSIDE MOUNT

CAUTION: NEVER ALLOW THE FLANGE ASSEMBLY TO BE DRAWN IN CONTACT WITH THE FLANGE OF THE *QD BUSHING. THERE SHOULD BE A GAP FROM 1/8" TO 1/4" BETWEEN THEM. IF THE GAP IS CLOSED, THE SHAFT IS SERIOUSLY UNDERSIZE.

TABLE 1

HI-FLEX COUPLING	*QD BUSHING		BUSHING BOLT SIZE	BUSHING BOLT TORQUE (in-lb)	FLANGE ASSEMBLY BOLT SIZE	FLANGE ASSEMBLY BOLT TORQUE (in-lb)
	PART NO	LENGTH				
50JA	JA	1	10-24	60	1/4-20	120
60SH	SH	1-1/4	1/4-20	108	5/16-18	300
70SH	SH	1-1/4	1/4-20	108	5/16-18	300
80SDS	SDS	1-5/16	1/4-20	108	5/16-18	300
90SK	SK	1-7/8	5/16-18	180	3/8-16	400
100SF	SF	2	3/8-16	360	3/8-16	400
110SF	SF	2	3/8-16	360	3/8-16	400
120E	E	2-5/8	1/2-13	720	1/2-13	900
140E	E	2-5/8	1/2-13	720	1/2-13	900

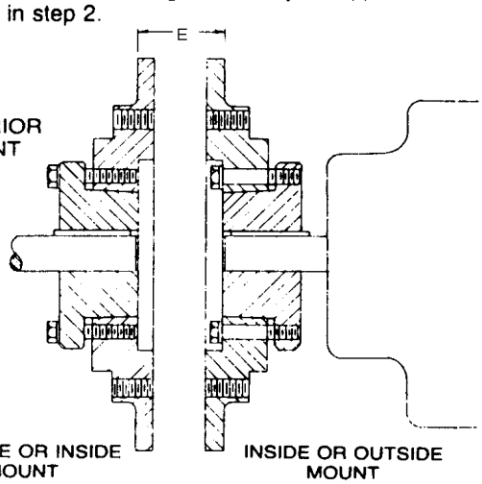
*QD BUSHING BOLTS ARE GRADE 5 ⬡ FLANGE ASSEMBLY BOLTS ARE GRADE 8 ⬡
50 JA and 60SH ARE SUPPLIED WITH SOCKET HEAD CAP SCREWS EQUIVALENT TO GRADE 8 BOLTS

3. The second *QD bushing is placed on the other shaft as described in step 1 and the second flange assembly is slipped over the bushing and assembled to it "E" distance (Table 2) apart following the instructions in step 2.

TABLE 2

PART NO.	E ± 1/16
50JA	7/8
60SH	1-1/8
70SH*	1-3/8
80SDS	1-1/2
90SK	1-5/8
100SF	1-3/4
110SF	1-9/16
120E	1-3/4
140E	2-1/8

FIGURE 3
FLANGE ASSEMBLY
MOUNTED "E" DISTANCE APART PRIOR
TO INSTALLING FLEXIBLE ELEMENT



*REG. TM

4. **FOR PARALLEL SHAFTS:** Using a scale or straight edge, check the flange spacing and angular misalignment at four places 90° apart around the coupling without rotating the flanges. The flanges should be aligned so that the dimensions at all four places do not vary more than 1/32" for best results. Check parallel misalignment by laying the straight edge across the flange O.D. several places around the circumference of the coupling. Parallel misalignment not to exceed 1/32" for best results.

   FOR PARALLEL AND NON PARALLEL SHAFTS: For the longest coupling life it is always best to align couplings as accurately as possible upon the initial installation.

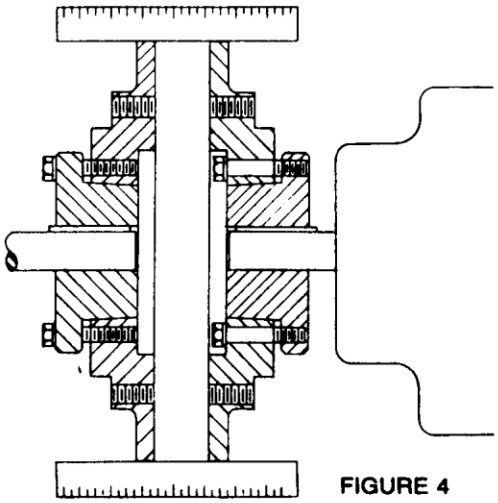


FIGURE 4

INSTALLATION OF FLEXIBLE ELEMENT

5. You may loosen the flange asembly screws as much as possible without disassembly of cover or you may remove the screws completely thus disassembling the cover. In either case wrap the flexible element around the flange assemblies as shown in Fig. 5. Make sure the beads of the element are fully worked down upon the seats of covers. To insure proper seating, rap on the tire O.D. with a small mallet until the split is closed.

   Important: Split must be closed after assembly is completed.

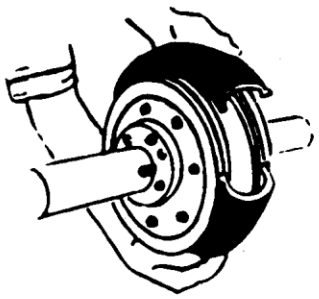


FIGURE 5

6. Hold split of the flexible element closed as shown in Fig. 6. Tighten (finger tight) one or two screws directly opposite the split. Using both hands knead the tire pulling it toward the split. Repeat the procedure on all remaining screws. Retighten each screw, in succession, with a torque wrench to the torque specified in Table 1 under the column entitled "FLANGE ASSEMBLY BOLT TORQUE".

NOTE: The metal pieces of the coupling that clamp the rubber element will operate properly only if tightly clamped by the screws. Over tightening cannot damage the rubber element, but being too loose may damage the coupling.

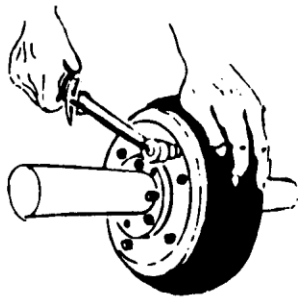


FIGURE 6

TO REPLACE TIRE

Loosen all flange assembly screws completely to disengage the covers of the flange assemblies. Grasp one end of the flexible element at the split and peel it off the flange assemblies. Remove any foreign substances, such as dirt, off both sides of the flange assemblies and install the new flexible element according to steps 5 and 6. If necessary to replace flange assembly screws, use only Grade 8 or equivalent.

IMPORTANT NOTICE: Because of the possible danger to person(s) or property from accidents which may result in the use of products, it is important that the Hi-Flex coupling be used in accordance with the engineering information specified in the catalog and in these instructions. Proper installation, maintenance and operating procedures must be observed. Proper guards and other safety devices that may be needed or specified in safety codes should be provided and used, but are neither provided by, nor the responsibility of the manufacturer.