

How To Use This Manual

This manual provides detailed instructions on installation, annual maintenance and parts identification. Use the table of contents below to locate required information.

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CAREFULLY FOLLOW THE INSTRUCTIONS IN THIS MANUAL FOR OPTIMUM PERFORMANCE AND TROUBLE FREE SERVICE.

Introduction

This manual applies to standard Types WA10, 11 & 21 Torus couplings. Couplings can operate in either the horizontal or vertical position without modification. For limited end float and thrust applications, refer to Factory.

Installation

Standard mechanics tools, torque wrenches, a straight edge, scale and feeler gauges are required to install Falk Torus Couplings. Align shafts accurately and do not exceed the recommended installation maximum values specified in Table 1, Page 4, and illustrated in Figure 3. For best results, use a dial indicator to check final alignment and make certain fasteners are tightened to the required torque.

Clearance Fit Hubs — Coupling Sizes 1020 thru 1090 are generally furnished for CLEARANCE FIT with set screws. Prior to installation, clean all parts using a non-flammable solvent. Check hubs, shafts and keyways for burrs. Install keys, mount hubs with flange face flush with shaft ends (Figure 2) and tighten set screws. Proceed to Step 2, Page 2.

Interference Fit Hubs — Sizes 1100 and larger are furnished for an INTERFERENCE FIT without set screws. Heat hubs to a maximum 275°F (135°C) using an oven, torch, induction heater or an oil bath. To prevent seal damage, DO NOT heat hubs beyond a maximum temperature of 400°F (205°C). Mount hubs per Figure 2, so that the hub face is flush with shaft end, or extended, depending upon which assembly is required for the application.

WARNING: If an oil bath is used, the oil must have a flash point of 350°F (177°C) or higher. Do not rest hubs on the bottom of the container. Do not use an open flame in a combustible atmosphere or near combustible materials. When an oxy-acetylene or blow torch is used, use an excess acetylene mixture. Mark hubs near the center of their length in several places on hub body with a temperature sensitive crayon, 275°F (135°C) melt temperature. Direct flame towards hub bore using constant motion to avoid overheating an area.

Type WA21

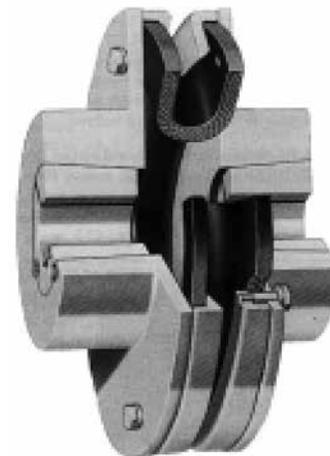


Figure 1

GAP AND BG

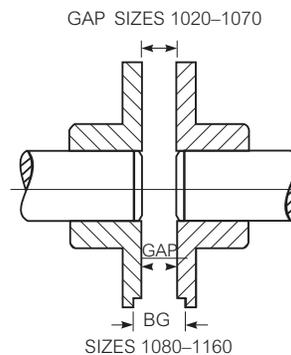
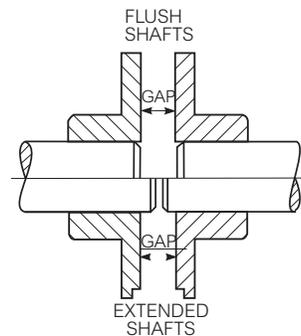


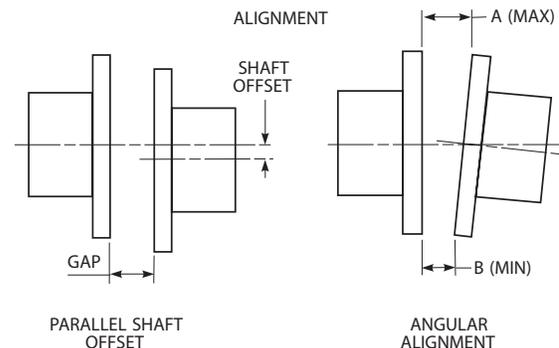
Figure 2

HUB-SHAFT POSITIONS



Allow space between shaft ends for end float and misalignment. When shaft(s) extend into the gap, one unit must be moved before replacing the flexible.

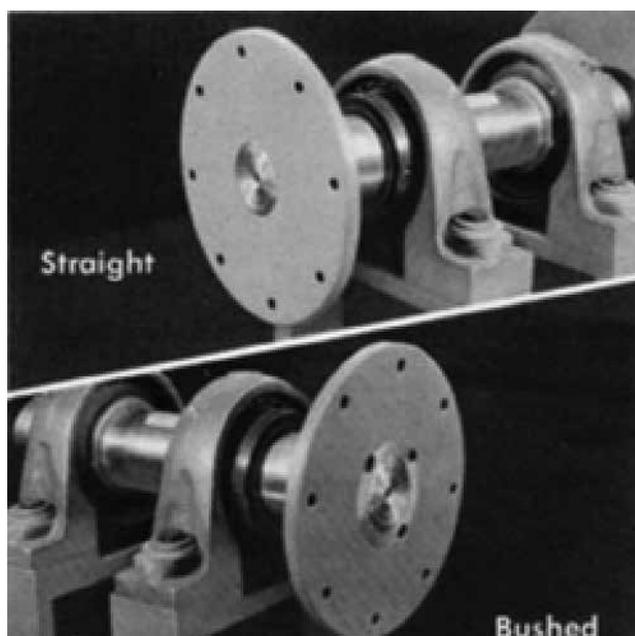
Figure 3



Maximize Performance & Life

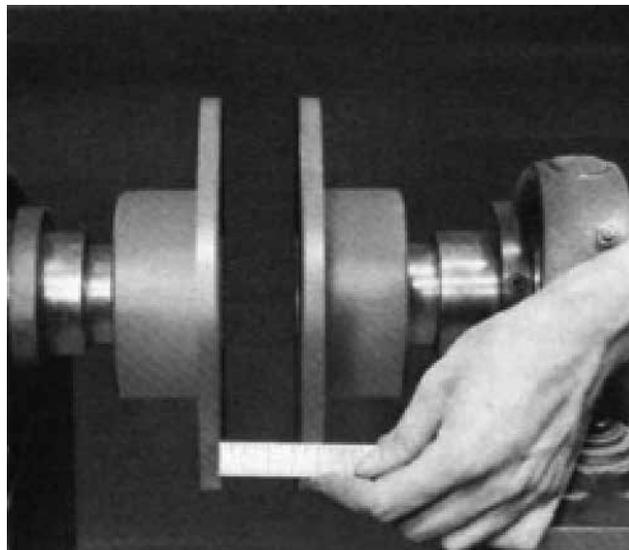
The performance and life of couplings depend largely upon how you install and maintain them. Before installing couplings, make certain that foundations of equipment to be connected meet manufacturers' requirements. Check for soft foot. The use of stainless steel shims is recommended. Measuring misalignment and positioning equipment within alignment tolerances is simplified with an alignment computer. These calculations can also be done graphically or mathematically. It is recommended that final alignment be checked using either an alignment computer or graphical analysis. Both methods allow the incorporation of "cold offsets", which will compensate for shaft position changes due to thermal growth.

WARNING: Consult applicable local and national safety codes for proper guarding of rotating members. Observe all safety rules when installing or servicing couplings. Lockout starting switch of prime mover before working on or installing couplings.



1 — Mount Hubs

Lock out starting switch of prime mover. Mount hubs as outlined on Page 1. Install and tighten set screws over key when furnished. When shaft(s) are extended thru the hub(s), assemble the element per Step 4 and then lightly bolt it to one hub. Move drives into position and then perform Steps 2, 3 and 5. Install bushings carefully per instructions furnished with the bushing.



2 — Gap & Angular Alignment

Align coupling within the angular limits and to the coupling GAP or BG dimension specified in Table 1. To determine angular misalignment in inches, measure the maximum space between flanges as shown above and the minimum space 180° away, and then subtract. Angular misalignment in inches equals maximum A minus minimum B as shown in Figure 3 on Page 1.



3 — Offset Alignment

Align shafts so that a straight edge rests squarely (or within the limits specified in Table 1) on both flanges as shown above and at 90° intervals. Check clearance with a feeler gauge. Tighten all foundation bolts and repeat Steps 2 and 3. Realign coupling if necessary.

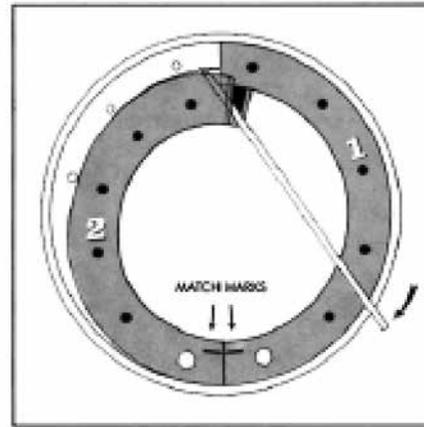


SIZES 1020 THRU 1090

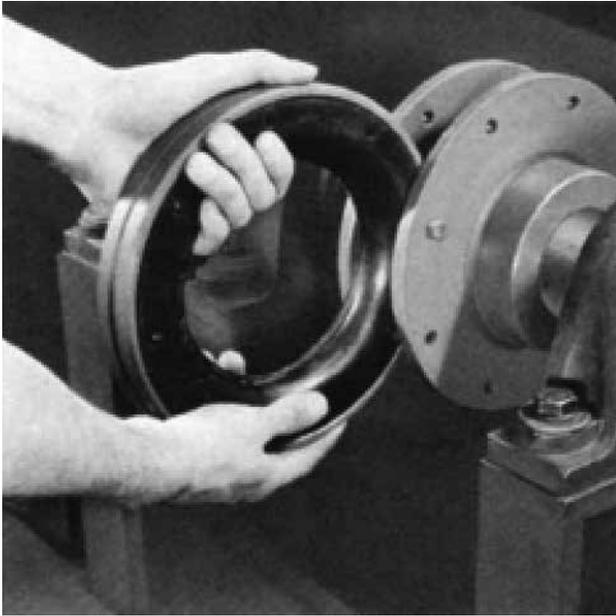
4 — Assemble Flexible Element

For Sizes 1020 thru 1090 reach through the flexible element, grip the element lip and then twist it completely through the center of the element as if attempting to turn it inside out. Insert the flexible element into the clamp rings and release.

For Sizes 1100 thru 1160 assemble the flexible element halves (1 and 2) with the match marks aligned. Do not use tools with sharp corners or burrs. Lay clamp rings on a flat surface and insert end of 1 into rings and temporarily insert one fastener as shown. Force opposite end in and down until it seats in rings. Insert end of 2 and one fastener coat opposite end with liquid soap (NOT OIL), then insert tool in 2 and pry against end of 1 until element snaps into place. Remove fasteners.



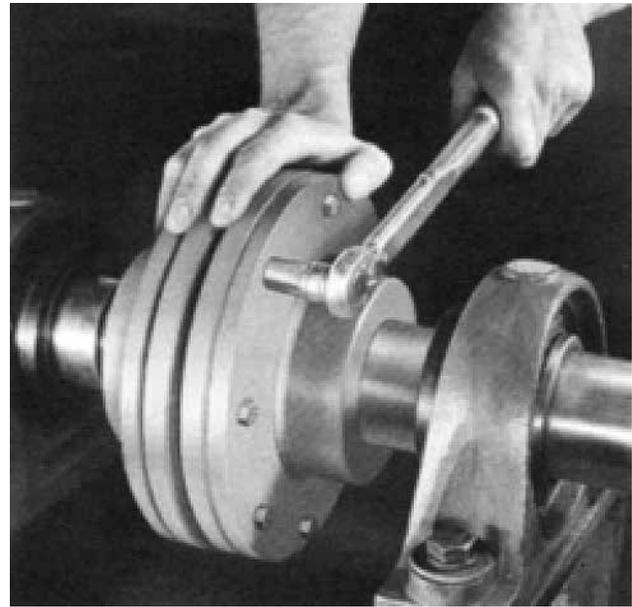
SIZES 1100 THRU 1160



5 — Install Clamp Ring Assembly & Tighten Fasteners

For Sizes 1020 thru 1090 position the clamp ring assembly as shown, insert one fastener and pivot assembly into position. Insert ALL fasteners in both flanges. Tighten fasteners in two equal increments of torque to value specified in Table 1. Check concentricity of clamp ring outside diameter. True up while tightening fasteners if needed. Repeat specified torque until stabilized. Metal to metal contact between ring and hub face is required, check with a feeler gauge.

For Sizes 1100 thru 1160 position clamp ring assembly between hubs. Line up holes in hub, flex element and clamp ring by inserting a tapered bar in one hole and inserting a fastener in an adjacent hole. Insert ALL fasteners in both flanges and tighten fasteners in three increments of torque; $\frac{1}{3}$, $\frac{2}{3}$, and a specified value in Table 1. Tighten fasteners adjacent to element splits first and then, starting at splits alternately progress toward the center of the element. Repeat specified torque until stabilized. Metal to metal contact between ring and hub face is required, check with a feeler gauge.



Annual Maintenance

For extreme or unusual operating conditions, check coupling more frequently.

1. Check alignment per Steps 2 and 3 on Page 2. If the maximum operating misalignment values are exceeded, realign the coupling to the recommended installation values. See Table 1 for installation and maximum operating misalignment values.
2. Check tightening torques of all clamp ring fasteners.
3. Inspect flexible element to determine if replacement is required.

TABLE 1 — Installation and Alignment Data — Dimensions Inches ★

COUPLING SIZE		1020	1030	1040	1050	1060	1070	1080	1090	1100	1110	1120	1130	1140	1150	1160
Allow. Speed rpm	WA 10	4500	4500	4500	4100	3600	3250	2850	2500	2200	2000	1800	1650	1500	1350	1250
	WA 11 & 21	5000	5000	5000	4500	4000	3600	3000	2800	2400	2200	2000	1850	1600	1500	1400
Fastener Tightening Torque lb-in. †		96	96	96	240	240	240	324	540	840	1200	1200	1200	1200	2400	2400
Coupling Gap ±.03 (Fig. 1) ‡		1.03	1.06	1.12	1.38	1.50	1.62	1.75	2.12	2.50	3.00	3.56	4.00	4.62	5.00	5.75
BG ±.03 (Fig. 1) ‡		...	...	...	...	...	...	1.98	2.39	2.80	3.39	4.05	4.55	5.25	5.79	6.62
Recommended Installation Maximum Values	Offset	.014	.014	.014	.014	.020	.020	.020	.020	.031	.031	.031	.042	.042	.042	.042
	Angular A minus B	.020	.020	.020	.020	.042	.042	.042	.042	.062	.062	.062	.080	.080	.080	.080
Max Operating Misalignment Values	Offset	.020	.020	.020	.020	.031	.031	.031	.031	.047	.047	.047	.062	.062	.062	.062
	Angular A minus B	.030	.030	.030	.030	.062	.062	.062	.062	.094	.094	.094	.120	.120	.120	.120

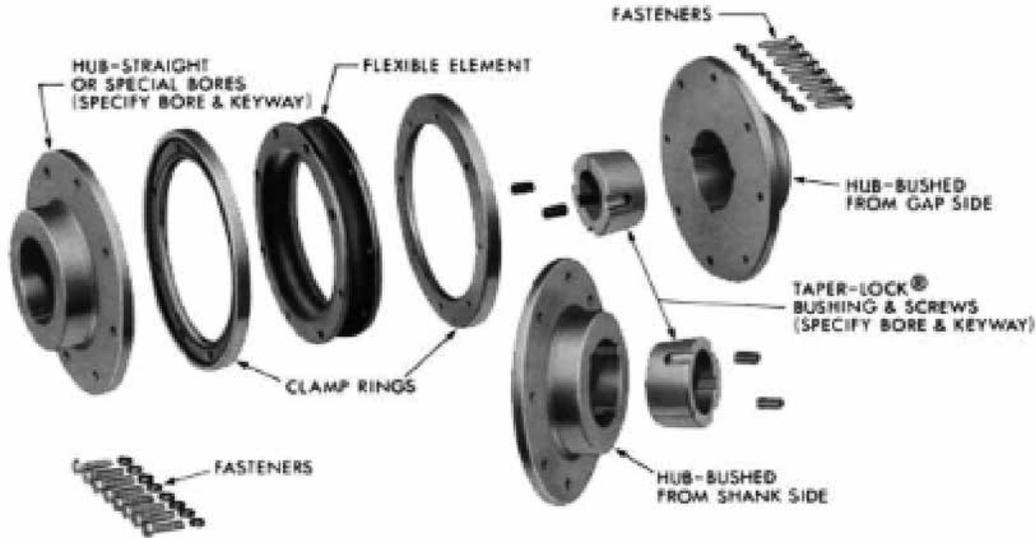
★Refer to Selection Guide for maximum bores. For reboring instructions, refer to Engineering Manual 427-108.

†For non-lubricated threads.

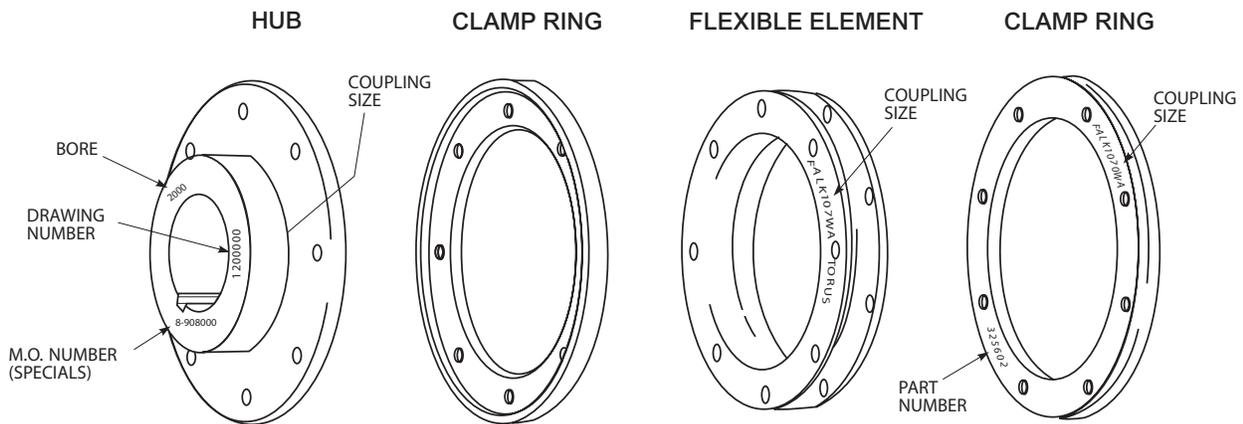
‡Refer to Factory for Gap and BG settings for limited end float applications.

Parts Identification

All coupling parts have identifying parts numbers or coupling size. When ordering parts, always specify SIZE and TYPE, hub number (1, 2, 3, etc.), bore & keyway and part number on each item. For special couplings, furnish M.O. Number and drawing number stamped on the hub. The decimal bore size is stamped on the hub face opposite the flange. Parts are interchangeable between Sizes 20 and 1020, 30 and 1030, etc.



Part Number Locations



Order Information

1. Identify part(s) required.
2. Furnish the following information:

EXAMPLE:

Coupling Size: 1070WA

Coupling Type: 21

Clamp Ring: Coupling Size or Part Number

Flexible Element: Coupling Size

Bore: 2.000

Keyway: .500 x .250

3. Contact your Rexnord Distributor or Rexnord for price and availability.

Special Couplings: For special couplings furnish SIZE and TYPE, M.O. Number and drawing number shown on the hub.