Figure 1 — Falk Lifelign Type G Gear Couplings

1. General Information

1.1. Falk Lifelign Gear Couplings are a lubricated coupling with seals and gaskets. For the longest operating life cycle possible, gear couplings require periodic maintenance. Periodic maintenance includes seal and gasket replacement, the removal of old contaminated grease and the addition of new coupling grease of proper viscosity. See corresponding Installation and Maintenance manual or lubrication expert for proper grease selection.

1.2. These instructions are intended to help you as a generalized procedure for recommended maintenance on the coupling. If your facility has existing maintenance procedures, they should be adhered to while this document may provide additional recommendations. Please read these instructions prior to maintenance of the coupling equipment. Keep these instructions near the coupling installation and available for review by maintenance personnel. For special engineered couplings, Rexnord may provide an engineering drawing containing installation instructions or maintenance details that take precedence over this document.

1.3. Rexnord Industries, LLC owns the copyright of this material. These Installation and Maintenance instructions may not be reproduced in whole or in part for competitive purposes.

1.4. Symbol descriptions:

STOP Danger of injury to persons.

⚠ Damages on the machine possible.

☞ Pointing to important items.

Ex Hints concerning explosion protection.

Required Equipment

In addition to standard mechanic tools, the following is required for coupling installation or removal:

- A suitable mechanical or hydraulic puller as detailed below with an adjusting assembly and a crosshead leg assembly (SAE Grade 8 studs required)
  - Small couplings — bore range of 2" to 9" and a weight range of 8 to 400 lb., 10 ton minimum capacity puller assembly
  - Large couplings — bores over 9" and weights over 400 lb., 50 ton minimum capacity hydraulic puller assembly with the required stroke and a hand pump or electric powered pump
- Puller plate
- Two rosebud torches
- Hot work permit (pursuant to your company policy)
- Fire extinguisher
- Heat resistant gloves
- Metal slings
- Travel indicator

2. Safety and Advice Hints

DANGER!

2.1. Safety should be a primary concern in all aspects of coupling installation, operation, and maintenance.

2.2. Do not make contact with the coupling when it is rotating and/or in operation.

2.3. Because of the possible danger to person(s) or property from accidents which may result from improper use or installation of these products, it is extremely important to follow the proper selection, installation, maintenance and operational procedures.

2.4. All personnel involved in the installation, service, operation, maintenance, and repair of this coupling and the connected equipment must read, understand, and comply with these Installation and Maintenance instructions.

PRECAUTION!

For this coupling to meet the ATEX requirements, you must precisely follow these installation and maintenance instructions, and the supplement form RTS 0004-08-70. This supplement outlines the ATEX requirements. If the operator does not follow these instructions, the coupling will immediately be considered non-conforming to ATEX.

2.5. All rotating power transmission products are potentially dangerous and can cause serious injury. They must be properly guarded in compliance with OSHA, ANSI, ATEX, European machine safety standards and other local standards. It is the responsibility of the user to provide proper guarding.

2.6. For ATEX requirements the guard must have a minimum of 12.7 mm (1/2 inch) radial clearance to the coupling outside diameter and allow for proper ventilation.

2.7. The coupling should be stored in a dry corrosion protected environment and free from external loads (for example by stacking) to prevent damage which may cause a hazard when the coupling is put into service.

2.8. Make sure to disengage the electrical power and any other sources of potential energy before you perform work on the coupling. Proper lockout-tag out procedures must be followed to safeguard against unintentional starting of the equipment.

2.9. All conductive parts of the equipment should be connected in such a way that hazardous electrical potential differences cannot occur. Earth connections must be provided in case insulated metal parts are charged, thus becoming a potential ignition source.

2.10. All work on the coupling must be performed when the coupling is at rest with no load.

2.11. Do not start or jog the motor, engine, or drive system without securing the coupling components. If the equipment is started with only a hub attached, the hub must be properly mounted and ready for operation, with the key and set screw (if included) fastened. When the full coupling assembly is started, all fasteners and hardware must be completely and properly secured. Do not run the coupling with loose fasteners.

2.12. Use explosive environment appropriate tools only, for more information see DIN EN 1127-1:2008:02, Annex A.

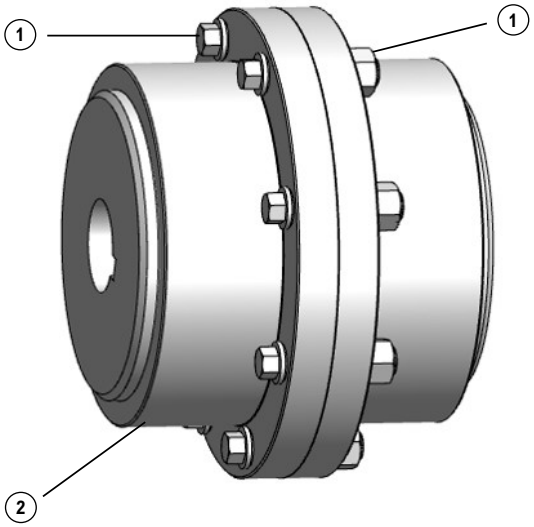
2.13. The coupling may only be used in accordance with the technical data provided in the Rexnord Falk Coupling catalog. Customer modifications and alterations to the coupling are not permissible.

2.14. All spare parts for service or replacement must originate from or be approved by Rexnord.

Rexnord
5555 S. Moorland Rd., New Berlin, WI 53151-7953
Telephone: 262-796-4060 Fax: 262-796-4064 www.rexnord.com

3. Coupling Disassembly

Figure 2 — Gear coupling



3.1. Make sure driven equipment is properly locked out in accordance with your companies health and safety guidelines.

3.2. Loosen and remove all bolts and locknuts (1) connecting sleeve to sleeve, spacer or rigid hub.

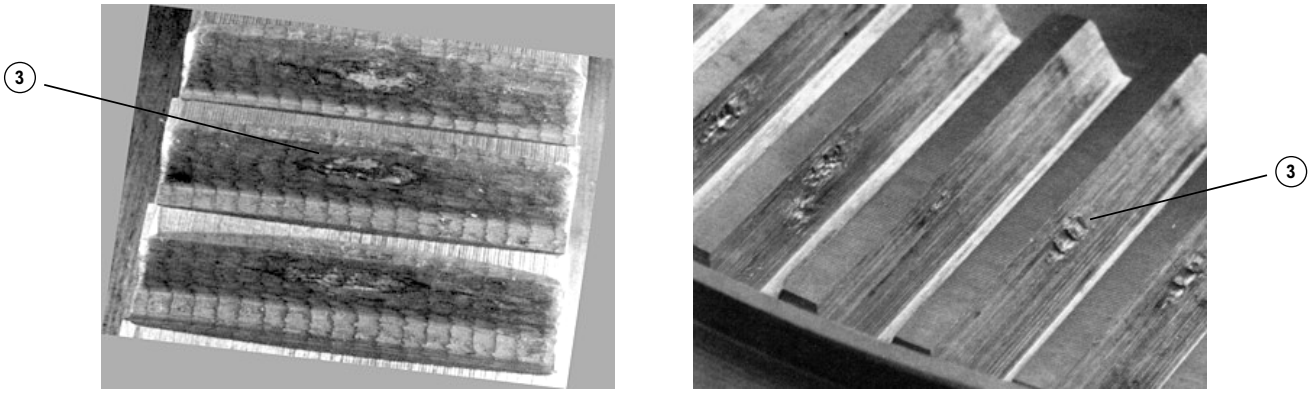
3.2. Save all removed hardware components as they will be needed for coupling reassembly purposes. Do not discard unless damage is present or they are intended to be replaced.

3.3. Slide the sleeve (2) out of position axially, disengaged from the hub gear teeth, to a position that will permit clearance for cleaning the existing grease from the assembly as much as possible.

3.4. Remove the grease seal from the sleeve.

3.5. Clean the existing lubricating grease from the hub male gear teeth and the sleeve female gear teeth sections, take notice if there are particulates of metallic composition embedded or suspended in the grease as this will be an indication of excessive wear.

Figure 3 — Gear coupling tooth wear

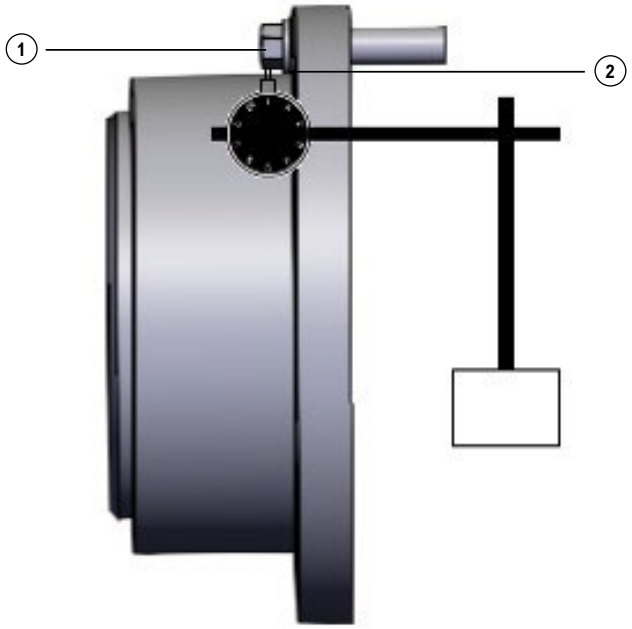


Gear hub tooth **Internal sleeve tooth**

3.6. Examine the cleaned gear teeth on the hub and the sleeve looking for wear patterns. **Figure 3** shows metal to metal contact evidence.

3.7. If there is no visible signs of wear patterns the backlash existing in the male to female teeth should be measured to determine if the components are acceptable for continued use, see **Table 1** for condemning limits by coupling size.

Figure 4 — Gear mesh measurement



3.8. Position the sleeve over the hub to the normal operating position (without grease), in some cases the weight of the sleeve will create an angular offset, if experienced install sleeve seal to reduce the effect.

3.9. Rotate the sleeve radially until there is contact from tooth to tooth.

3.10. Insert one bolt in the sleeve through the bolt hole in a position (1) you can contact with a travel indicator.

3.11. Position indicator (2) from a fixed surface so the movement of the bolt can be measured, zero indicator.

3.12. Rotate the sleeve on the hub noting the maximum amount of radial movement from opposite directions, this is measuring the distance from tooth contact to tooth contact.

3.13. There will always be a small amount of backlash present, even on a new hub and sleeve, to provide clearance for misalignment accommodation of the coupling.

3.14. To determine if the gear measured backlash is acceptable use the wear use the values located in the 'REPLACEMENT BACKLASH PER MESH VALUE' column of **Table 1** located on page 5.

3.15. If the as measured values are greater than shown in the table by coupling size, Rexnord recommends replacing both components of hub and sleeve (see **section 4**).

3.16. Rexnord recommends performing this measurement on each flexing plane of the installed coupling. Repeat steps 3.1. through 3.14. on the opposing side of the coupling.

☞ **NOTE:** Approximately 10% wear of tooth as measured at the pitch diameter

An increase in tooth bending stress of 25% if all wear takes place on one hub or sleeve tooth

The wear or reduced thickness of the mating teeth in the coupling will result in a pending failure of the gear mesh causing the coupling to be ineffective at transmitting the applied torque to the system.

Rexnord
5555 S. Moorland Rd., New Berlin, WI 53151-7953
Telephone: 262-796-4060 Fax: 262-796-4064 www.rexnord.com

Table 1 — Allowable gear mesh wear

1000G Series Gear Coupling Allowable Gear Mesh Wear						REPLACEMENT BACKLASH **PER MESH** VALUE, MEASURED **IN INCHES AT BOLT CIRCLE**	
GEAR COUPLING SIZE	COUPLING PITCH DIA. (INCHES)	"AS CUT" BACKLASH **PER MESH**		REPLACEMENT BACKLASH **PER MESH***		COUPLING BC DIAMETER (INCHES)	REPLACEMENT BACKLASH **PER MESH** AT BC (INCHES)
		AT PITCH DIA. (INCHES)	AVG. ROTATIONAL ANGLE (DEGREES)	AT PITCH DIA. (INCHES)	ROTATIONAL ANGLE (DEGREES)		
1010	2.889	.0020/.0133	0.30	0.016	0.63	3.75	0.021
1015	3.625	.0014/.0132	0.23	0.017	0.54	4.812	0.023
1020	4.428	.0027/.0162	0.24	0.021	0.54	5.875	0.028
1025	5.500	.0029/.0169	0.21	0.023	0.48	7.125	0.030
1030	6.400	.0075/.0214	0.26	0.030	0.54	8.125	0.038
1035	7.400	.0064/.0215	0.22	0.030	0.46	9.5	0.038
1040	8.750	.0106/.0239	0.23	0.037	0.48	11	0.046
1045	9.750	.0101/.0240	0.20	0.037	0.43	12	0.045
1050	10.667	.0134/.0279	0.22	0.047	0.50	13.5	0.059
1055	11.667	.0128/.0280	0.20	0.046	0.45	14.5	0.057
1060	12.800	.0204/.0372	0.26	0.060	0.54	15.75	0.074
1070	14.800	.0190/.0372	0.22	0.059	0.46	18.25	0.073
1080	16.000	.020/.026	0.16	0.061	0.44	20.75	0.080
1090	18.000	.023/.029	0.17	0.063	0.40	23.25	0.081
1000	20.000	.025/.031	0.16	0.065	0.37	25.25	0.082
1110	22.000	.028/.034	0.16	0.068	0.35	27.5	0.084
1120	24.000	.031/.037	0.16	0.071	0.34	30	0.089
1130	26.000	.032/.038	0.16	0.086	0.38	32.375	0.107
1140	28.000	.034/.040	0.15	0.087	0.36	34.5	0.108
1150	30.000	.036/.042	0.15	0.089	0.34	36.75	0.109
1160	32.000	.039/.045	0.15	0.091	0.33	39.75	0.114
1180	36.000	.042/.048	0.14	0.094	0.30	44	0.115
1200	40.000	.045/.051	0.14	0.097	0.28	48.5	0.119
1220	44.000	.051/.057	0.14	0.103	0.27	54.5	0.128
1240	48.000	.050/.056	0.13	0.112	0.27	58.25	0.137
1260	52.000	.053/.059	0.12	0.115	0.25	62.75	0.137
1280	56.000	.056/.062	0.12	0.118	0.24	67	0.140
1300	60.000	.059/.065	0.12	0.120	0.23	71.25	0.143

4. Hub Removal

For technical assistance and suggested procedures on hub removal please reference Rexnord document 458-830 Hub Installation Removal

NOTE: Any time a coupling hub is required to be removed and replaced it is highly recommended to record the actual position of the existing hub on the shaft relative to the shaft end.

This will more easily facilitate the ability to properly achieve the gap distance required by the coupling as relating to your specific distance between shaft ends.

The correct hub gap distance is critical to the gear coupling operation to ensure there is sufficient gear mesh available to transmit the required torque and reduce the opportunity to prematurely damage the mating gear teeth.

5. Hub Installation

For technical assistance and suggested procedures on hub installation please reference the Rexnord coupling installation and maintenance manual that was supplied with your coupling and/or the Engineering drawing provided if special instructions were included.

6. Lubrication

For a recommendation of various types of lubricating grease, see the coupling installation and maintenance manual. It which may be supplied with the coupling, or viewed online. (See the documents listed on page 8, or visit Rexnord.com under resources > documentation.) **Table 2** below will provide a quick reference regarding the operating speed and volume of lubricating grease required by coupling size and style.

NOTE: Rexnord highly recommends Falk Long Term Grease (LTG) for use in gear couplings due to its superior lubricating characteristics and low centrifuge properties, when the operating minimum speed is maintained as shown in Table 2 below.

If the operating speed is below the minimum for LTG as shown refer to the provided installation and maintenance

Table 2 — Lubricating Volume Data For Types G10, 20, 31, 32, 51, 52 & GP20 & GP52

COUPLING SIZE				1010G	1015G	1020G	1025G	1030G	1035G	1040G	1045G	1050G	1055G	1060G	1070G
Coupling Speed Range (rpm)	G10, 20, 51, 52 & GP20 & GP52	NLGI #0 Grease-Max. ‡		7000	6000	5000	4750	4400	3900	3600	3200	2900	2650	2450	2150
		Falk LTG or NLGI #1 Grease	Min.	**1030**	**700**	**550**	**460**	**380**	**330**	**290**	**250**	**230**	**210**	**190**	**160**
			Allow.	8000	6500	5600	5000	4400	3900	3600	3200	2900	2650	2450	2150
	G31& 32	NLGI #0 Grease-Max. ‡		7000	5500	4600	4000	3600	3100	2800	2600	2400	2200	2100	1800
		Falk LTG or NLGI #1 Grease	Min.	**1030**	**700**	**550**	**460**	**380**	**330**	**290**	**250**	**230**	**210**	**190**	**160**
			Allow.	7000	5500	4600	4000	3600	3100	2800	2600	2400	2200	2100	1800
Grease – pounds (kg)	G10& 20			.09 (0,041)	.16 (0,073)	.25 (0,11)	.50 (0,23)	.80 (0,36)	1.20 (0,54)	2.00 (0,91)	2.30 (1,0)	3.90 (1,8)	4.90 (2,2)	7.00 (3,2)	9.60 (4,4)
	G51& 52			.05 (0,023)	.09 (0,041)	.15 (0,068)	.26 (0,12)	.40 (0,18)	.60 (0,27)	1.03 (0,47)	1.25 (0,57)	2.00 (0,91)	2.50 (1,1)	3.75 (1,7)	5.00 (2,3)
	G31 & 32 per in. Spacer Length			....	....	.03 (0,014)	.06 (0,027)	.06 (0,027)	.12 (0,054)	.20 (0,091)	.20 (0,091)	.20 (0,091)	.20 (0,091)	.20 (0,091)	.20 (0,091)
	G31 & 32 Less Spacer			.09 (0,041)	.16 (0,073)	.25 (0,11)	.50 (0,23)	.80 (0,36)	1.20 (0,54)	2.00 (0,91)	2.30 (1,0)	3.90 (1,8)	4.90 (2,2)	7.00 (3,2)	9.60 (4,4)
	GP20			...	...	...	.50 (0,227)	.80 (0,363)	1.20 (0,544)	2.00 (0,907)	2.30 (1,04)	3.90 (1,77)	4.90 (2.22)	7.00 (3,18)	9.60 (4,35)
	GP52			...	...	...	.26 (0,118)	.40 (0,181)	.60 (0,272)	1.03 (0,467)	1.25 (0,567)	2.00 (0,907)	2.50 (1,13)	3.75 (1,70)	5.00 (2,27)

‡ Couplings with NLGI #0 grease may be operated at any speed between zero and the maximum shown.

6.1. Pack sleeve teeth with lubricating grease BEFORE assembly of sleeve onto mounted hub.

6.2. Lightly coat the sleeve seal BEFORE installation into the sleeve and mounting of the sleeve onto the mounted hub.

6.3. Check coupling alignment as per the installation and maintenance manual supplied with the coupling to the recommended installation limits by the coupling size and style.

6.4. G couplings only, install gasket between flanges of the coupling, sleeve to sleeve, sleeve to spacer or sleeve to rigid hub and install gap disc if required by the coupling style.

Rexnord
5555 S. Moorland Rd., New Berlin, WI 53151-7953
Telephone: 262-796-4060 Fax: 262-796-4064 www.rexnord.com

6.5. GP20 and GP52 couplings only, Clean flange faces and coat with Permatex #2 or equivalent. DO NOT install gaskets. Insert insulator bushings into flanged holes. Draw one sleeve onto hub and position insulator center plate on flange face. Draw remaining sleeve onto hub and assemble fasteners with insulating washers. Use only fasteners supplied with coupling and tighten to torque specified in installation and maintenance manual.

6.6. Ensure the flange fasteners are correctly tightened to the required torque value as relayed in the installation and maintenance manual supplied with the coupling.

6.7. Seal keyways to prevent leakage of the lubrication grease.

6.8. Remove all grease plugs (pipe plugs) from sleeve, do NOT discard as will be needed when greasing operation is completed.

6.9. Install grease fitting into one threaded hole positioned so it can be accessed by a grease gun.

6.10. Fill coupling with grease through the installed grease fitting, watching the other threaded hole (purge hole) until an excess of lubricating grease appears at the open hole.

6.11. Insert grease plug into threaded hole.

☞ **IMPORTANT: If there are more then two threaded grease holes in the sleeve, repeat step 6.10. and 6.11. until excess grease is evidenced at all holes and all have grease plug installed.**

6.12. Remove installed grease fitting and replace grease plug into hole.

☞ **IMPORTANT: This is a critical step as grease fittings left installed have the opportunity to fail at the internal close off ball which will permit the lubricating grease to be expelled from the thru hole.**

⚠ 7. Bi-Annual Maintenance

7.1. Visually inspect coupling for signs of leakage of lubricating grease from failed seals, failed gaskets, installed grease fittings or adjacent to keyways.

7.2. Visually inspect for failed or missing bolting hardware connecting sleeve to sleeve, sleeve to spacer or sleeve to rigid hub. Replace hardware as needed, refer to the installation manual or engineering drawing supplied with the coupling for specific part numbers required.

7.3. If coupling was lubricated with general purpose grease it will require a re-lubrication at every bi-annual inspection procedure.

7.4. If lubricating grease was identified as leaking from the coupling at step 7.1. replace seal, gasket or sealing medium at keyway as necessary. If grease fitting was identified as remaining installed at operation replace with a grease plug after re-lubrication procedure is completed.

7.5. If coupling is exposed to extreme temperatures, excessive moisture or frequent reversals more frequent lubrication may be needed. I this is identified ensure you update your preventative maintenance procedures to accommodate the increased frequency of re-lubrication.

8. Annual Maintenance

For extreme or unusual operating conditions check coupling with more frequency and update your preventative maintenance procedures accordingly.

8.1. Check coupling alignment as relayed in the installation and maintenance manual or supplied on the engineering drawing. These may be included with your coupling, or viewed online. (See the documents listed below. Or you can also visit Rexnord.com under resources > documentation.) If operating misalignment values are exceeded, realign to the recommended installation limits for your specific coupling.

8.2. Visually inspect coupling for signs of leakage of lubricating grease from failed seals, failed gaskets, installed grease fittings or adjacent to keyways.

8.3. Visually inspect for failed or missing bolting hardware connecting sleeve to sleeve, sleeve to spacer or sleeve to rigid hub. Replace hardware as needed, refer to the installation manual or engineering drawing supplied with the coupling for specific part numbers required.

8.4. If coupling was lubricated with general purpose grease it will require a re-lubrication at every bi-annual inspection procedure.

8.5. If lubricating grease was identified as leaking from the coupling at step 7.1. replace seal, gasket or sealing medium at keyway as necessary. If grease fitting was identified as remaining installed at operation replace with a grease plug after re-lubrication procedure is completed.

8.6. If coupling is exposed to extreme temperatures, excessive moisture or frequent reversals more frequent lubrication may be needed. I this is identified ensure you update your preventative maintenance procedures to accommodate the increased frequency of re-lubrication.

Rexnord Gear Coupling Documents

Documentation including installation and maintenance manuals, hub installation and removal procedures, Material Safety Data Sheets and white papers can be retrieved at the following website location.

https://www.rexnord.com/resources/process-motion-control/documentation

458-830 Falk Couplings, All Types, Install and Removal of Interference Fit Hubs

458-832 Falk Couplings, Install and Removal of Mill Motor Hubs

458-834 Falk Couplings, Alignment Using a Dial Indicator

458-836 Balanced Couplings Installation

427-108 Coupling Steel Hub boring, keyseating, setscrews and puller bolt holes

458-820 Falk Lifelign Type G10, G20, G31, G32, Sizes 1010-1150, 2080-2150 Gear Couplings

458-112 Falk Lifelign Type G20, G32, G52, Sizes 1080-1300, 2080-2300 Gear Couplings

458-110 Falk Lifelign Type G, Sizes 1010-1070 Gear Couplings

457-820 Falk Lifelign type G, Sizes 1080-2080, 1300-2300 gear couplings

458-810 Falk Lifelign Type G81, G82, GV82, GP82, Sizes 1010-1300 Gear Couplings

458-116 Falk Lifelign Type GV10/20, GV51/52, Sizes 1010-1070 Gear Couplings

457-120 Falk Gear Couplings, Type GV10, 20, 51, 52, Sizes 1010-1070 Vertical modifications

458-118 Falk Lifelign Type GV20, GV52, Sizes 1080-2080, 1300-2300 Gear Couplings

458-610 Falk Lifelign Type G62, G66, Sizes 1010-1070G Gear Couplings

458-710 Falk Lifelign Type GL20, Sizes 1010-1070 Gear Couplings

458-718 Falk Lifelign Type GL20-4, Sizes 1080/2080-1120/2120 Gear Couplings

458-730 Falk Lifelign Type GL32, Sizes 1010-1070 Double Engagement Gear Coupling

458-750 Falk Lifelign Type GL52, Sizes 1010-1070 Gear Couplings

458-760 Falk Lifelign Type G72, Sizes 1010-1070 Gear Couplings

458-870 Falk Lifelign Type G70, Sizes 1010-1150 Gear Couplings

Rexnord
5555 S. Moorland Rd., New Berlin, WI 53151-7953
Telephone: 262-796-4060 Fax: 262-796-4064 www.rexnord.com