RINGSPANN®
CORPORATION
Power Transmission

Installation and operating instructions for torsionally stiff high-misalignment gear couplings GHF / GHR

E 06.712 en

Important

Before installation and commissioning of the product takes place, these installation and operating instructions must be read carefully. Notes of caution and hazard warnings are to be paid particular attention to.

These installation and operating instructions apply on condition that the product meets the selection criteria for its proper use. The selection and dimensioning of the product are not the subject of these installation and operating instructions.

If these installation and operating instructions are not observed or are interpreted wrongly, this shall invalidate any product liability and warranty of RINGSPANN Corp.; the same also applies in the case that our product is taken apart or changed.

These installation and operating instructions are to be kept in a safe place and must, in the event of onward delivery of our product – be it individually or as part of a machine – be passed on along with the product so that the user has access to them.

Safety information

- The installation and commissioning of our product may only be carried out by trained personnel.
- Repair work may only be performed by the manufacturer or by authorized RINGSPANN agencies.
- If there is suspected malfunctioning, the product, or the machine into which it is built, must be taken out of operation immediately and RINGSPANN Corp. or an authorized RINGSPANN agency is to be informed.
- The power supply is to be switched off during work on electrical components.
- Rotating parts must be secured by the operator against unintentional touching.
- In the case of supplies made to a foreign country, the safety regulations applicable in that country are to be taken into consideration.

Contents

1. General information

1.1. Function

The main task of the torsionally stiff gear coupling consists in transferring the torque of one shaft end onto another element. Additionally, the coupling is designed to compensate angular, radial and axial misalignments.

1.2. General safety instructions

Safety takes the highest priority for all works with and on the coupling.

To ensure this, the following safety instructions must be observed:

- During installation and maintenance work, the drive motor must be secured against unintended start-up and the load side against turning back.
- Accidental touching of the coupling during operation must be prevented with a suitable guard or protective device.
- Do not reach into the working area of the coupling during operation.

1.3. Other applicable provisions, standards etc.

The design of the couplings is carried out utilizing applicable AGMA Couplings Standards, along with the help of operating factors that come from experience (see RINGSPANN catalog “Gear Couplings – Series H”). If the operating conditions (e.g. output, speed) should change, the original design of the coupling must be reviewed along with the load-bearing capacity of the shafts and the used shaft-hub-connections.

1.4. Classification in accordance with EC Machinery Directive 2006/42/EC

Type GHF / GHR couplings are a machine element. Since machine elements do not fall under EC Machinery Directive 2006/42/EC, RINGSPANN does not draw up a declaration of incorporation. All important information with regards to the installation, commissioning and operation is explained in the following.

2. Design and function / parts list

2.1. Labelling

Depending on the coupling size, the parts are labelled as follows:

Hubs:

- RINGSPANN logo
- Abbreviated designation

Sleeves:

- RINGSPANN logo
- Abbreviated designation

Accessory Kits:

- RINGSPANN logo
- Abbreviated designation

2.2. Dimensions

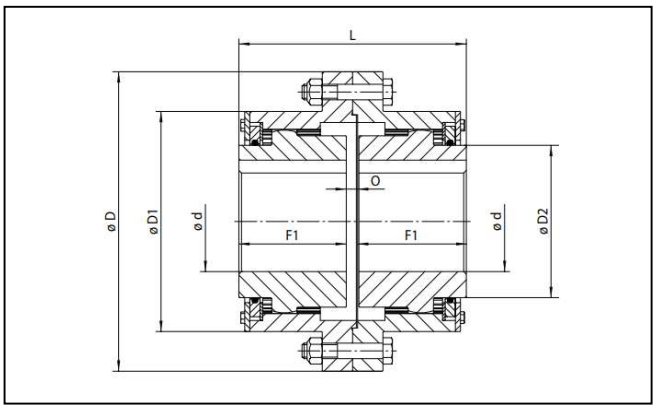


Figure 2.1: Drawing GHF

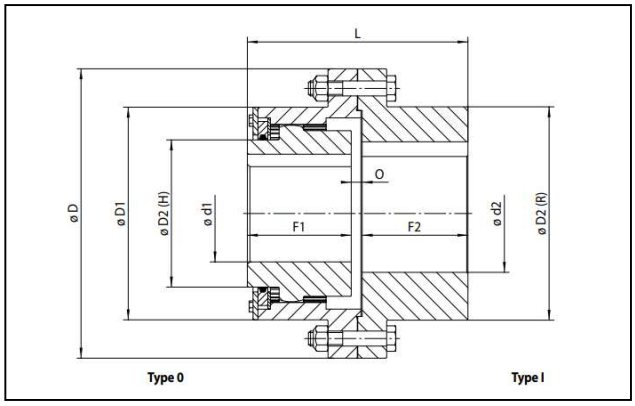


Figure 2.2: Drawing GHR

Size	Bore: d*		D	D1	D2	F1	L	O
	Max (SQ)	Max (Red)						
	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch
H150	1.63	1.75	6.00	3.88	2.31	2.19	4.63	0.25
H200	2.13	2.25	7.00	4.75	2.88	2.75	5.81	0.31
H250	2.63	2.75	8.00	5.38	3.69	3.06	6.50	0.38
H300	3.13	3.38	9.00	6.38	4.38	3.66	7.75	0.44
H350	3.63	3.88	10.69	7.63	5.00	3.91	8.31	0.50
H400	4.13	4.38	11.63	8.69	5.75	4.44	9.44	0.56
H450	4.63	5.00	12.75	9.75	6.44	4.81	10.25	0.63
H500	5.25	5.75	14.75	10.88	7.50	5.31	11.25	0.63
H550	6.00	6.50	16.38	12.25	8.63	6.00	12.81	0.81
H600	6.75	7.25	18.00	13.75	9.25	7.00	14.88	0.88
H700	7.75	8.25	20.38	15.75	11.00	8.00	17.06	1.06
H800	10.38	10.88	23.25	18.00	13.50	9.00	19.25	1.25

Table 2.1: Dimensions GHF

Size	Bore: d1 (Flex-Type 0) d2 (Rigid-Type 1)				D	D1	D2	D2	F1	F2	L	O
	d1 (Max.)		d2 (Max.)				(H)	(R)				
	SQ	Red.	SQ	Red.								
	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch
H150	1.63	1.75	2.75	2.94	6.00	3.88	2.31	4.00	2.19	2.22	4.63	0.22
H200	2.13	2.25	3.25	3.38	7.00	4.75	2.88	4.75	2.75	2.84	5.81	0.22
H250	2.63	2.75	3.75	3.88	8.00	5.38	3.69	5.50	3.06	3.09	6.38	0.22
H300	3.13	3.38	4.50	4.69	9.00	6.38	4.38	6.50	3.66	3.75	7.63	0.22
H350	3.63	3.88	5.25	5.50	10.69	7.63	5.00	7.63	3.91	4.09	8.25	0.25
H400	4.13	4.38	6.00	6.50	11.63	8.69	5.75	8.75	4.44	4.53	9.25	0.28
H450	4.63	5.00	6.50	7.00	12.75	9.75	6.44	9.75	4.81	4.94	10.06	0.31
H500	5.25	5.75	7.50	7.75	14.75	10.88	7.50	10.88	5.31	5.44	11.06	0.31
H550	6.00	6.50	8.50	9.00	16.38	12.25	8.63	12.38	6.00	6.31	12.63	0.31
H600	6.75	7.25	9.50	10.00	18.00	13.75	9.25	13.75	7.00	7.25	14.63	0.38
H700	7.75	8.25	11.25	12.00	20.38	15.75	11.00	15.88	8.00	8.50	16.88	0.38
H800	10.38	10.88	14.38	13.63	23.25	18.00	13.50	18.00	9.00	9.50	19.00	0.50

Table 2.2: Dimensions GHR

Size	Weight with solid bore [lbs]	
	GHF	GHR
H150	18.4	20.1
H200	30.7	34.0
H250	48.4	52.4
H300	72.7	80.1
H350	118.6	128.1
H400	165.5	176.9
H450	217.2	232.2
H500	321.8	340.6
H550	426.9	470.8
H600	566.3	630.8
H700	851.4	1094.9
H800	1235.5	1377.8

Table 2.3: Weight with solid bore GHF/GHR

2.3. Parts list

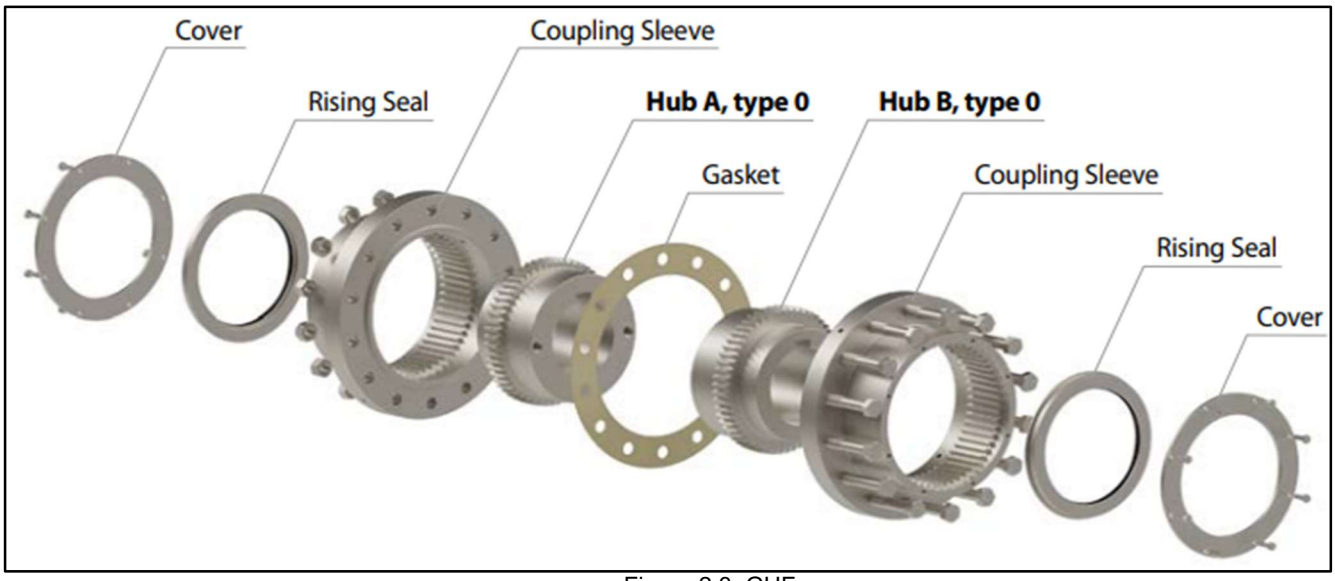


Figure 2.3: GHF

Position	Quantity	Description
1	2	Hub Gear
2	2	Coupling Sleeve
3	2	Cover
4	2	Rising Seal
5	2	Seal – O-Ring (Not Shown)
6	1	Gasket
7	Size dependent	Fitted Bolt
8	Size dependent	Hexagon Locknut
9	Size dependent	Cover Bolt
10	4	Pipe Plug (Not Shown)

Table 2.3: Parts list GHF

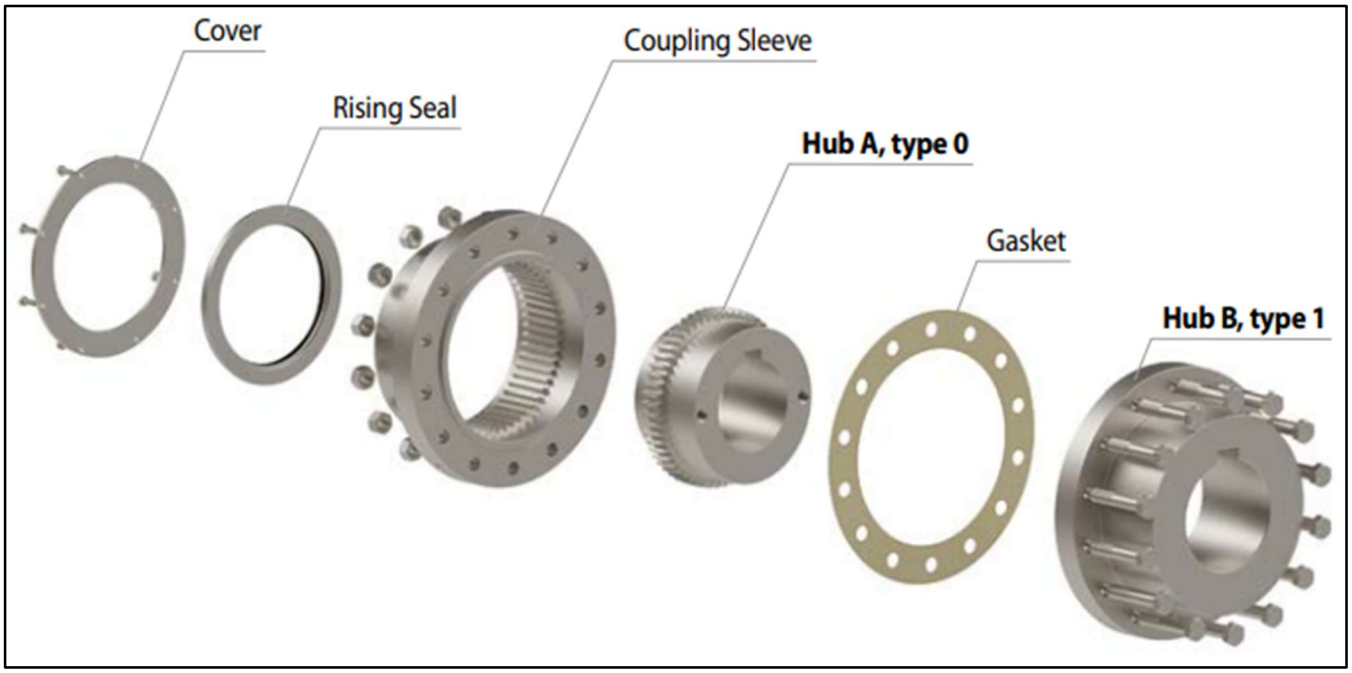


Figure 2.4: GFR

Position	Quantity	Description
1	1	Hub Gear
2	1	Coupling Sleeve
3	1	Cover
4	1	Rising Seal
5	1	Seal – O-Ring (Not Shown)
6	1	Gasket
7	Size dependent	Fitted Bolt
8	Size dependent	Hexagon Locknut
9	Size dependent	Cover Bolt
10	2	Pipe Plug (Not Shown)
11	1	Rigid Adaptor

Table 2.4: Parts list GHR

3. Intended use

The coupling may only be installed, operated and serviced if
- the operating instructions have been read and understood,
- the executing person possesses the necessary qualifications,
- authorization has been given by the company.

The coupling type GHF and GHR may only be operated within the operating limits specified in section “7. Technical prerequisite for reliable operation”.

RINGSPANN shall not assume any liability for damages that result from unauthorized constructional changes or an unintended use.

4. Warning signs / impermissible use

An impermissible use is given if:

- the shaft-hub-connection was not designed correctly
- the coupling hubs have been thermally overloaded during assembly
- the fit pair for parts to be joined has not been coordinated correctly
- the parameters necessary for the selection of the coupling were not communicated
- the tightening torques of the bolted connection do not correspond with specifications
- the coupling is wrongly fitted
- parts from other manufacturers are used
- damaged coupling parts are used

The further operation of coupling type GHF / GHR is not permissible under the following conditions:
- if the permissible limits of use (torque, speed, permissible misalignments, …) are exceeded
- exceeding or falling below the permissible temperature limits
- if the wear limit of the parts is reached
- changed running noises or the occurrence of vibrations

If the unit should be operated despite the aforementioned states, it can result in damage to the coupling and the drivetrain.

Attention! RINGSPANN shall not assume any liability for any damages that result in the event of any impermissible use.

5. Condition as delivered

Couplings are generally delivered ready-for-installation in individual parts. Upon customer request, pre-bored hubs are also available. If the hub bores are manufactured by the customer, the information in chapter 7.3 must be observed:

6. Storage

The coupling hubs can be stored in a room that has a roof and is dry. The hubs and coupling halves, as well as all bolts and nuts, are delivered in preserved condition and can be stored for up to 6 months. In the event of a longer storage, the corrosion protection should be refreshed.

The maximum storage duration of the O-rings is approx. 3 years under optimum storage conditions. Storage is best carried out in sealed polyethylene bags.

Optimum service life of the coupling is given if the storage rooms:

- have a roof and are dry,
- are free of ozone-producing equipment,
- have a relative humidity of less than 65 %,
- have a storage temperature between +41 °F (5 °C) and +68 °F (20 °C)
- are free of condensation.

7. Technical prerequisite for reliable operation

7.1. Permissible operating parameters

	GHF					GHR				
Size	Torque Rating T_{KN} @1° in-lbs	Torque Rating T_{KN} @2° in-lbs	Torque Rating T_{KN} @3-1/2° in-lbs	Max. Speed n_{max} rpm	Moment of Inertia Solid Hubs J_K lb-in^2	Torque Rating T_{KN} @1° in-lbs	Torque Rating T_{KN} @2° in-lbs	Torque Rating T_{KN} @3-1/2° in-lbs	Max. Speed n_{max} rpm	Moment of Inertia Solid Hubs J_K lb-in²
H150	23,600	16,500	10,600	4,000	61.1	23,600	16,500	10,600	4,000	65.7
H200	42,100	29,500	18,900	3,600	135.6	42,100	29,500	18,900	3,600	146.6
H250	56,500	39,500	25,400	3,600	287.0	56,500	39,500	25,400	3,600	307.8
H300	147,000	103,000	62,500	3,200	522.1	147,000	103,000	62,500	3,200	576.1
H350	227,500	159,500	97,500	3,200	1,278.9	227,500	159,500	97,500	3,200	1,361.8
H400	354,500	248,000	156,000	3,000	2,080.3	354,500	248,000	156,000	3,000	2,221.3
H450	500,500	350,000	216,500	3,000	3,251.7	500,500	350,000	216,500	3,000	3,478.7
H500	585,500	410,000	247,000	2,400	6,566.9	585,500	410,000	247,000	2,400	6,919.1
H550	879,500	615,500	357,000	2,000	10,427.1	879,500	615,500	357,000	2,000	11,537.5
H600	1,348,000	943,500	581,000	1,800	15,851.2	1,348,000	943,500	581,000	1,800	17,851.7
H700	1,467,500	1,027,000	660,000	1,600	30,419.4	1,467,500	1,027,000	660,000	1,600	43,402.2
H800	2,695,000	1,886,500	1,096,500	1,600	56,193.1	2,695,000	1,886,500	1,096,500	1,600	63,974.5

Table 7.1: Permissible operating parameters

7.2. Permissible misalignments

Size	Max. permissible misalignments GHF			Max. permissible misalignments GHR	
	Axial ΔK_a [in]	Radial ΔK_r [in]	Angular ΔK_w [°]	Axial ΔK_a [in]	Angular ΔK_w [°]
H150	±0.02	0.16	3.5	±0.02	3.5
H200		0.20			
H250		0.23			
H300		0.27			
H350	±0.04	0.30		±0.04	
H400		0.34			
H450		0.37			
H500		0.41			
H550		0.44			
H600	±0.08	0.55		±0.08	
H700		0.60			
H800		0.70			

Table 7.2: Maximum permissible misalignments

The maximum permissible misalignment values (table 7.2) must be adhered to and may not occur at the same time. In the event of the simultaneous occurrence of radial and angular offset, misalignments need to be exploited differently percentagewise (see figure 7.2). If not observed, damage to the coupling may result.

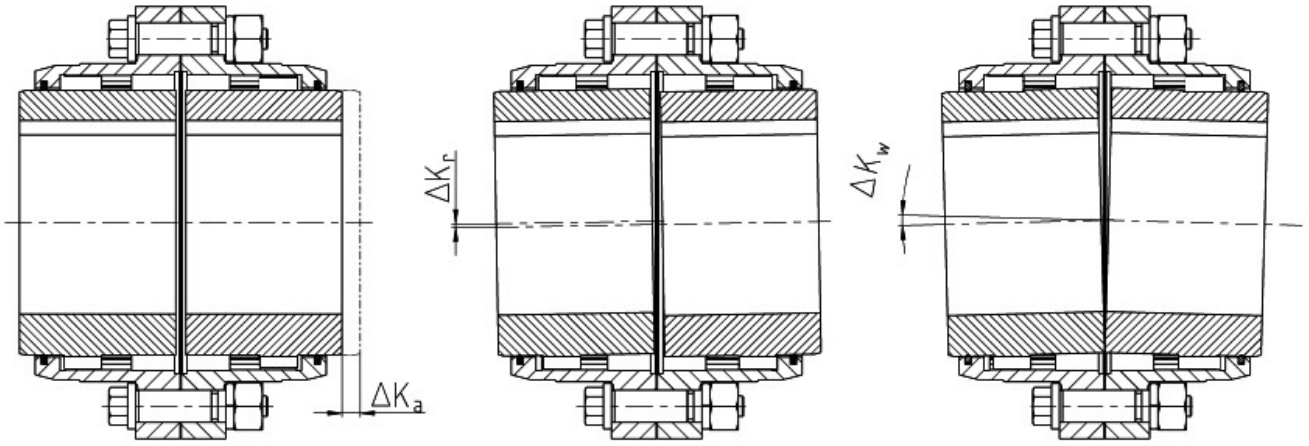


Figure 7.2: Misalignment types

The figure 7.2 shows the relationship for radial (K_r) and angular misalignments (K_w) occurring at the same time:

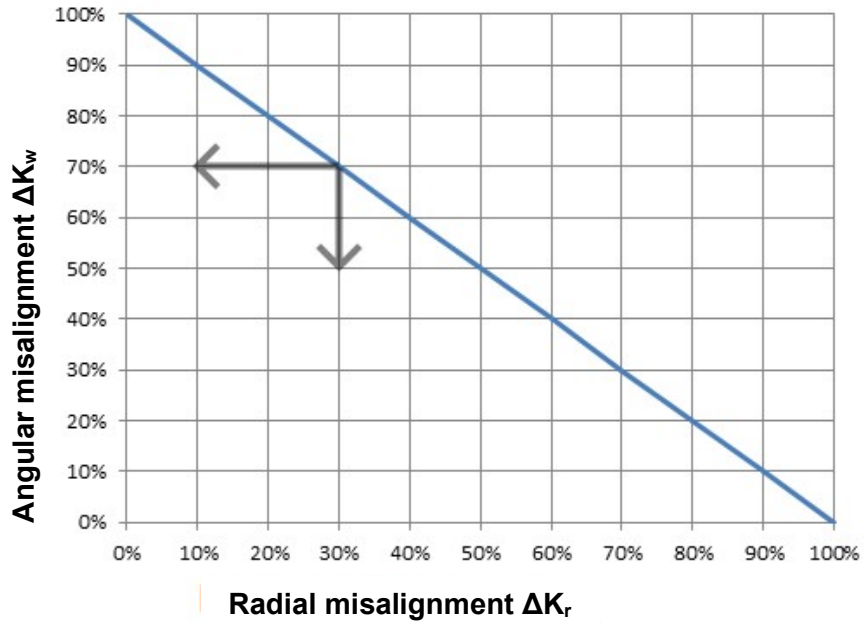


Figure 7.2: Misalignment combination

The misalignment as a percentage is calculated as follows:

$$\Delta K[\%] = \frac{\Delta K}{max.permissible\ misalignment}$$

7.3. Manufacturing the hub bore

Life-threatening danger!
The max. permissible bore diameters specified in table 7.3 may not be exceeded. If the permissible values are exceeded, the hub could fail during operation. Here, there is life-threatening danger due to flying parts.

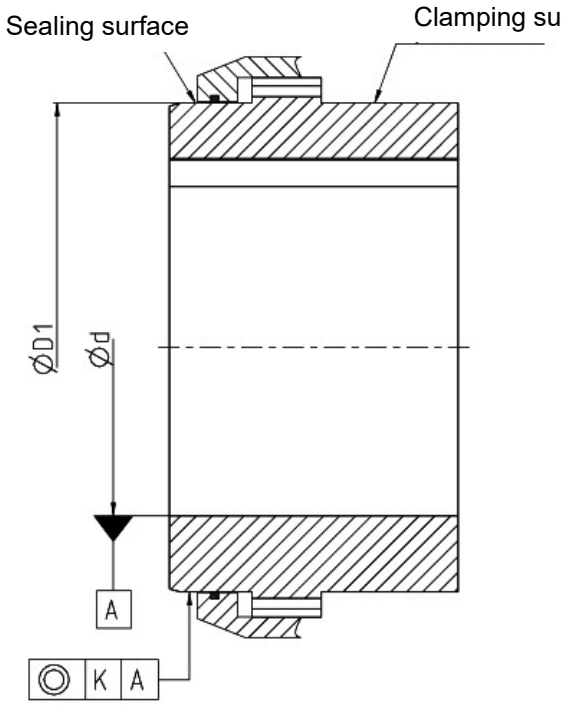
When manufacturing the hub bore, it must be ensured that:

- the hub is precisely aligned,
- the form and positional tolerances in accordance with ANSI Y14.5 are adhered to (see figure 7.3).

Attention!

Never clamp onto the sealing surface! The operator bears the sole responsibility for the damages that can arise due to defective rework on the unbored / roughly bored coupling parts.

For maximum bore sizes for each coupling size, refer to Tables 2.1 and 2.2 on Page 5.



Diameter D1		Max. permissible concentricity
from	to	
.393” (10mm)	7.08” (180mm)	.002” (0.05mm)
7.09” (181mm)	15.75” (400mm)	.0035” (0.09mm)
15.76” (401mm)	24.80” (630mm)	.0043” (0.11mm)

Figure 7.3: Specifications for the form and positional tolerance of the bore

The design and inspection of the keyway connection falls to the operator and is his responsibility. Deviating fits are possible and should be communicated to RINGSPANN as part of any query.

RINGSPANN recommends the use of Interference Fits, per AGMA / ANSI standards for bore and keyway tolerances. Deviances from this should be consulted with RINGSPANN.

The axial position is recommended to be achieved through the correct interference fit on the shaft which does not require any additional securing. The need for additional axial securing should be communicated to RINGSPANN as part of any query.

Attention!
RINGSPANN shall not assume any liability for any resulting damages that arise from work carried out by the operator .

8. Assembly

8.1. General assembly instructions

Before beginning with assembly, check for the completeness of the delivery (see chapter 2.3 Parts list) and the dimensional accuracy of the bores, the shaft, and the keyway (see 7. Technical prerequisite for reliable operation).
The parts are to be cleaned of preservative agents, the O-rings may not come into contact with solvents or cleaning agents as a result.

8.2. Assembly description

1. Slide each Cover Plate (item 3) onto each respective shaft as far as possible and rest there for later assembly with the Coupling Sleeve (item 2).

2. Insert an O-Ring (item 5) into the groove of the Rising Seal (item 4). Applying a small amount of approved grease on the O-Ring will keep it in-place during assembly.

3. Slide each Rising-Seal Assembly (items 4 & 5) onto each respective shaft as far as possible and rest there for later assembly with the Coupling Sleeve (item 2).

4. Mount the Hub Gear (item 1) on the input and output side. The shaft end may not protrude out of the Hub for normal applications.
   → facilitated sliding onto the shaft can be achieved by heating up the hub (approx. 250°F or 121°C).
   → Do **NOT** exceed 450°F (232°C).
   → Do **NOT** proceed until ambient temperature is reached.

Attention!
Use suitable means of protection when working with the heated hubs. Touching the heated hubs without safety gloves causes burns.

5. Slide the units in axial direction until the “O” dim. is achieved (see Section 2.2 Dimensions)
   → if the units are already mounted, the “O” dim. can be adjusted by sliding the Hubs onto the shaft. Here, a sufficient supporting length of the keyway must be ensured.
   → if “O” is not adhered to, the coupling may be damaged.
   - align the Hubs (item 1) to one another.
   - the available misalignments should be measured using suitable measuring equipment e.g. dial gauge, straightedge, feeler gauge or depth gauge.
   - the maximum permissible misalignments may not be exceeded.

6. Lightly lubricate the gearing of each Coupling Sleeve (item 2) with approved lubricant and slide onto each Hub (item 1).

7. Slide the Rising-Seal Assembly (items 4 & 5) into each Coupling Sleeve (item 2). Use care to avoid damaging the O-Ring. (item 5).

8. Mate the Cover Plate (item 3) to the end of each Coupling Sleeve (item 2).

9. Align the holes and fasten the Cover with the Cover Bolts (item 9). Torque-tighten in diametrically opposite pairs to the specified tightening torque (see table 8.1).

10. Align the flange holes of each Coupling Sleeve (item 2) to one another.

11. Insert the Gasket (item 6) between Coupling Sleeves and fasten them together with the Fitted Bolts (item 7), as well as the Locknuts (item 8), and torque-tighten in diametrically opposite pairs to the specified tightening torque (see table 8.1).

12. The final step before coupling operation is to properly lubricate the coupling. Thoroughly review and follow all steps outlined in Section 9.

13. Once lubrication has been properly completed, insert the Pipe Plugs (item 10) into each lube port in the Coupling Sleeves (item 2).

Size	Number of Fitted Bolts (Item 7)	Tightening torque T_A [ft-lb]	Number of Cover Bolts (Item 9)	Tightening torque T_A [ft-lb]
H150	8	16	8	6
H200	8	29	8	6
H250	10	63	10	6
H300	12	63	12	6
H350	12	125	12	12
H400	14	125	12	12
H450	14	125	12	12
H500	14	210	12	25
H550	16	210	12	25
H600	14	313	12	25
H700	16	440	12	44
H800	16	580	12	44

Table 8.1: Number and Tightening Torque of Fitted Bolts and Cover Bolts

Information

In the event of repeated assembly, it is recommended to replace the gasket (item 6), fitted bolts (item 7), the locknuts (item 8), and the cover bolts (item 9).

8.3. Alignment procedure

1. For simplification, the suitable measurement methods for each type of misalignment will be described. Whereby all misalignment types can occur simultaneously.

2. The remaining misalignments should generally be as small as possible. The size of the misalignments that may occur during assembly are specified in table 8.2.

Attention!
When putting the coupling into operation, the actual misalignments should be no more than 25% of the max. permissible misalignment values (see chapter 7.2 Permissible misalignments). The remaining 75% of misalignments provide security against external influences that arise during operation, such as deformation in the machine and thermal expansion.

Size	GHF				GHR		
	Angular misalignment		Radial misalignment [in]	Axial misalignment [in]	Angular misalignment		Axial misalignment [in]
	Angle per flex. coupling halve [°]	X [in]			Angle per flex. coupling halve [°]	X [in]	
H150	±1.0°	0.052	0.040	±0.005	±1.0°	0.052	±0.0025
H200		0.061	0.050			0.061	
H250		0.070	0.057			0.070	
H300		0.079	0.067			0.079	
H350		0.093	0.075	±0.010		0.093	±0.005
H400		0.101	0.085			0.101	
H450		0.111	0.092			0.111	
H500		0.129	0.102			0.129	
H550		0.143	0.110			0.143	
H600		0.157	0.137	±0.020		0.157	±0.010
H700		0.178	0.150			0.178	
H800		0.203	0.175			0.203	

Table 8.2: Permissible initial offsets

Coupling GHR cannot compensate any radial misalignment.

8.3.1. Check the radial misalignment

Measure the radial misalignment by laying a straightedge on both hubs (item 1) and measuring the gap between the hubs with the help of a feeler gauge (see figure 8.1). The straightedge must hereby be aligned with the axis of the hub. This measurement should be repeated multiple times until the point with the largest gap has been found. The size of the gap indicates the radial misalignment at that point. The maximum radial misalignment is given at the point of the largest gap. Alternatively, a depth gauge or dial gauge can also be used.

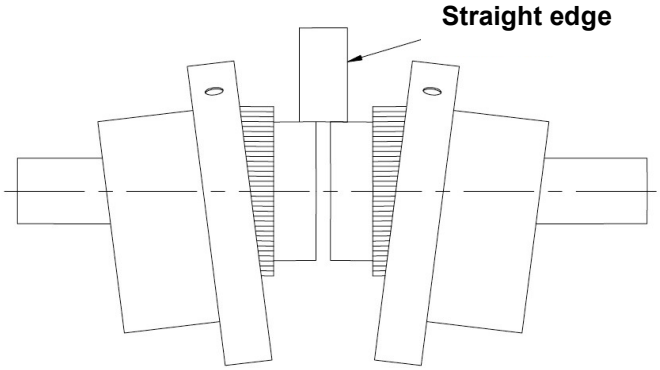


Figure 8.1: Measuring the radial misalignment

8.3.2. Check the angular misalignment

Check the angular offset with the help of dial gauges by measuring the axial run-out at the inner plane surface of the hub (item 1). The dial gauge must hereby be positioned as close to the outer diameter as possible. The angular offset 'X' in inch amounts to half of the calculated total value (see figure 8.2). The values of the angular offsets should not exceed the permissible initial offsets specified in table 8.2.

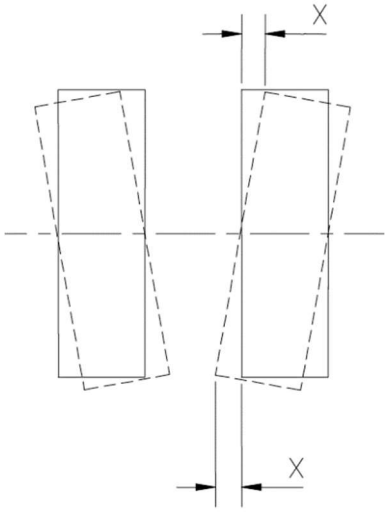


Figure 8.2: Measuring the angular misalignment

9. Start-up and lubrication

9.1 Start-up

Before putting it into operation for the first time, the following parameters need to be checked:

- the tightening torque of all fasteners,
- the tightness of the set screws (if applicable),
- the alignment of the coupling,
- the clearance L.

The operator has the task of mounting a suitable coupling protection to prevent the unintended touching of the coupling during operation. It may only be removed when the machine is at a standstill.

During commissioning, attention must be paid to vibrations and running noises. If any vibrations or unusual running noises should occur, the drive unit must be immediately switched off.

9.2 Lubrication

The initial filling of the coupling with lubricant is described in the following. We recommend the use of AGMA 9001 compliant coupling lubricant, suitable for the particular operating conditions. Couplings should be disassembled, cleaned, inspected for wear and re-lubricated annually at a minimum, preferably twice a year. Below are some examples of approved lubricants.

Manufacturer	Mobil	ExxonMobil	
Lubricant	**MOBILUX EP111**	**MOBILGREASE XTC**	**Shell Gadus S2 High Speed Coupling Grease**

Table 9.1 Example Lubricants approved by RINGSPANN

Before filling the coupling with lubricant, the quantity must be measured in accordance with table 9.2. After assembly of the flexible coupling halve, the lubricant should be applied in the cavity between the hub (item 1) and the sleeve (item 2). This approach should be carried out for all flexible coupling halves. Afterwards, the gasket (item 6) should be inserted and the two halves should be fastened together via the fitted bolts. Excess lubricant must be completely collected and disposed of in an environmentally friendly manner.

Size	GHF Lubricant quantity [lbs]	GHR Lubricant quantity [lbs]
H150	0.14	0.07
H200	0.20	0.10
H250	0.38	0.19
H300	0.54	0.27
H350	0.82	0.41
H400	1.08	0.54
H450	1.54	0.77
H500	2.58	1.29
H550	3.12	1.56
H600	3.48	1.74
H700	7.04	3.52
H800	9.16	4.58

Table 9.2: Lubricant quantity (for GHF apply half the amount to each coupling half)

Attention!
You may not mix different lubricants. The lubricant must be replaced after 6 months.

To replace the lubricant, we recommend disassembling the flexible coupling halves and thoroughly cleaning all parts. The re-filling with lubricant should then subsequently take place as described above.

10. Operational disturbances

The possible operational disturbances are listed in the following table. In order to remedy them, **first bring the unit to a standstill** and then follow the further instructions in the column “Remedy”. This table only provides a starting point for the search for the cause. All neighboring components should also be subjected to an examination.

Disturbances	Causes	Remedy
Changes in sounds or vibrations	Alignment error	1) Eliminate the cause of the alignment error 2) Carry out wear inspection 3) Re-align the coupling
	Lack of lubricant	1) Carry out wear inspection 2) Replace lubricant 3) Check seals and replace if necessary
Impermissible gearing wear	Vibrations in the drivetrain	1) Disassemble coupling 2) Replace damaged parts 3) Find and eliminate cause for the vibrations 4) Align coupling
	Misalignment is outside the permissible range	1) Disassemble coupling and examine 2) Replace worn parts 3) Check alignment and correct if necessary
	Lack of lubricant	4) Carry out wear inspection 5) Replace lubricant 6) Check seals and replace if necessary
Untightness / lubricant leaks out	O-rings worn	1) Carry out wear inspection 2) Clean coupling 3) Replace O-rings 4) Fill with lubricant
	O-ring porous due to poor storage or damaged during assembly	1) Carry out wear inspection 2) Clean coupling 3) Optimize storage and eliminate the reason for assembly errors 4) Replace O-rings 5) Fill with lubricant

	O-rings damaged due to contact with aggressive media, ozone or hot surfaces	1) Carry out wear inspection 2) Clean coupling 3) Eliminate negative influences 4) Replace O-rings 5) Fill with lubricant
Gearing or coupling halve break	Break due to overload	1) Disassemble coupling 2) Replace damaged parts 3) Eliminate cause for the overload 4) Align coupling
	The coupling selected was too weak	1) Disassemble coupling 2) Check the design of the coupling 3) Install, align and lubricate larger coupling

Table 10.1: Operational disturbances

11. Maintenance and repair

The coupling must be regularly inspected and relubricated. The scope of the inspection includes:

- examining the coupling alignment,
- examining the coupling for damages,
- examining the screw connections,
- checking the tightness,
- check the torsional backlash.

The tightening torques of the fasteners must be examined at regular intervals.

To ensure that the coupling can be safely operated, the specified wear values may not be exceeded. The wear due to torsional backlash is measured for the gear coupling.

Attention!
The wear measurement needs to be carried out on both coupling halves for coupling GHF.

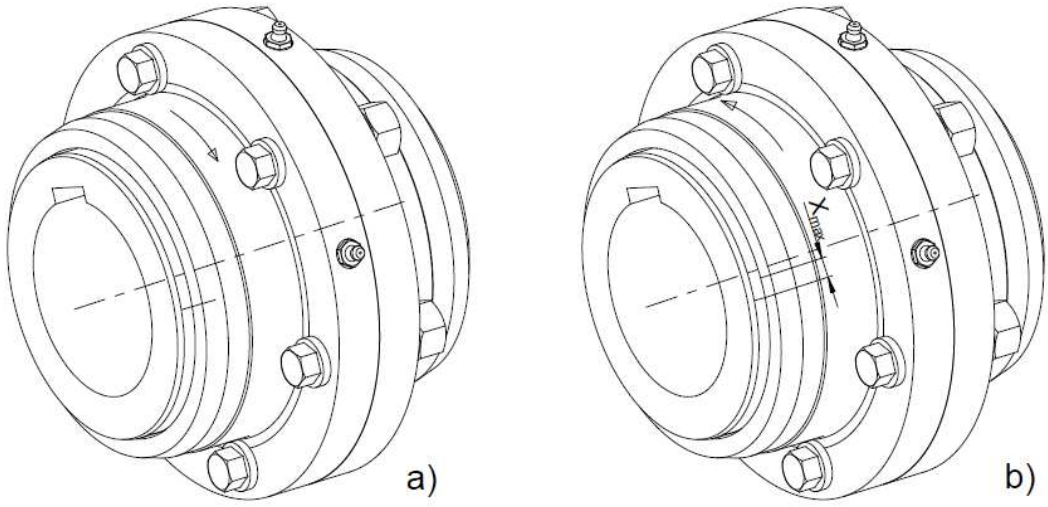


Figure 11.1: Checking the wear limit

12. Spare part stockpiling

In order to keep disturbances in operation to a minimum, it is advisable to keep a stock of spare parts directly at the deployment site in order to be able to guarantee optimal operational capability.

Attention !
RINGSPANN shall not assume any liability for any occurring damages if spare parts from other manufacturers are used.

13. Disposal

At the end of its operating life:

- plastics must be disposed of via a disposal company,
- metals must be cleaned and disposed of properly with other scrap metal,
- dispose of the lubricant under observation of the applicable provisions

Please also properly dispose of the packaging.

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