

Mounting and maintenance manual Hydrolflow

Hydro-flow



ATEX



**Shipped
WITHOUT OIL**

- The purchaser is responsible for the provision of safety guards and the correct installation of all equipment.
- During operation, the coupler contains hot oil, which in case of overload may be ejected through the opening of the fuse. The customer should take precautions and provide an adequate safety guard.
- Read instructions before installing coupler.
- Check alignment and fixation of coupler.

1. SHIPPING CONDITIONS

HYDRO-FLOW couplers are supplied without oil.

They are equipped with seals allowing a continuous operating temperature up to 90°C.

For higher temperatures, special seals are available.

Refer to REXNORD.

2. INSTALLATION

Guards and other safety devices must not prevent good ventilation of hydrodynamic coupler. Also make sure that fusible plug remains accessible.

Mounting of coupler with hollow shaft (fig.1A)

Mount HYDRO-FLOW coupler onto shaft by means of threaded bar, screwed into shaft, a piece of tube and a nut.

To prevent turning of shaft during mounting, use two nuts locked on threaded bar. Remove bar from shaft and lock coupling with bolt. In case coupler is mounted on motorshaft, use inertia of motor to remove mounting bar. This can also be done to tighten said bolt.

If the motorshaft doesn't have a tapped hole, a hammer with soft top will help you to slide coupler on it., see fig. 1B

For installation of HYDRO-FLOW types H(X)C(R), H(X)E(R) and H(X)P(R) refer to gear coupling instructions. For spacing see fig.3.

Alignment (fig.3)

Although the coupling can compensate for a limited degree of misalignment, excessive misalignment will lead to premature wear of the flexible sleeve..

Parallel alignment can be checked with a straight edge, angular alignment with feeler gauge. Respect distance E. Max. permissible misalignments : see table 4.

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3. FILLING

Use light mineral oil with viscosity ISO 3448 (VG15 or VG22).

Recommended oils : see table 1

Remove one of the filling plugs and fill with proper quantity : see table 2.

Letters given in table 2 correspond with markings on coupler.

For approximate oil quantity in litres : see table 3.

Rotate coupler until corresponding mark is on top and fill coupler until oil is on a level with opening.

To ensure optimum working conditions, (minimum slip and high efficiency) it is essential that the filling is determined according to the absorbed power. For values not given in tables 2 and 3, interpolation is required.

A higher filling will give lower slip values but higher peak to nominal torque ratio. Lower filling will have reverse effect.

High slip values will decrease the efficiency of the coupler and may cause overheating. The coupler is equipped with a fusible plug which will blow at 140°C (fusible plugs for higher temperatures : upon request). Should fuse blow repeatedly, increase filling.

4. MAINTENANCE

HYDRO-FLOW couplers require limited maintenance.

Change oil every 8000 hours or once a year.

To replace rubber bushes of the PENCOFLEX coupling, axial displacement of coupled motor is required. Removal of rubber bushes is possible after removing the retaining circlips from driving pins.

To replace the flexible elements of the SUREFLEX coupling or the TEXOFLEX coupling, remove screws fitting flanges onto their support. Push flanges closer to each other in order to move them from their centering spigot. Then, pull out the coupling radially and change flexible elements .

5. REMOVAL (Fig.2)

To remove HYDRO-FLOW , use a special screw . This auxiliary device is supplied by us on request.

Thread : see dimension M-fig.2.

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Size	M H.(R)	M HX.(R)
190	1/2"-20 UNF	1/2"-20 UNF
250-400	M20	5/8"-18 UNF
350-400	R 1"	1 1/4"-12 UNF
450-620	R 1 1/4"	1 5/8"-12 UNF
680-870	M45	1 7/8"-12 UNF

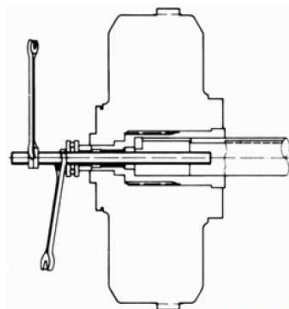


Fig.1A

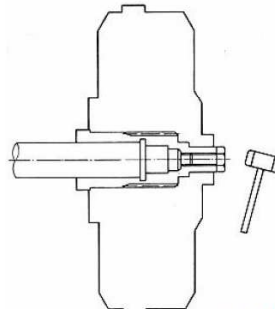


Fig.1B

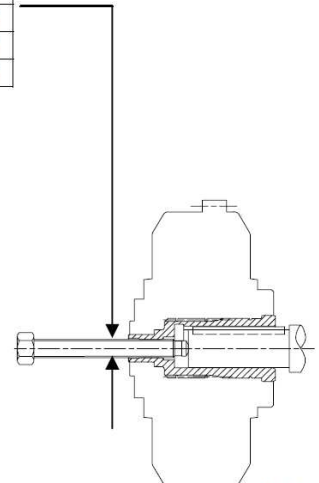


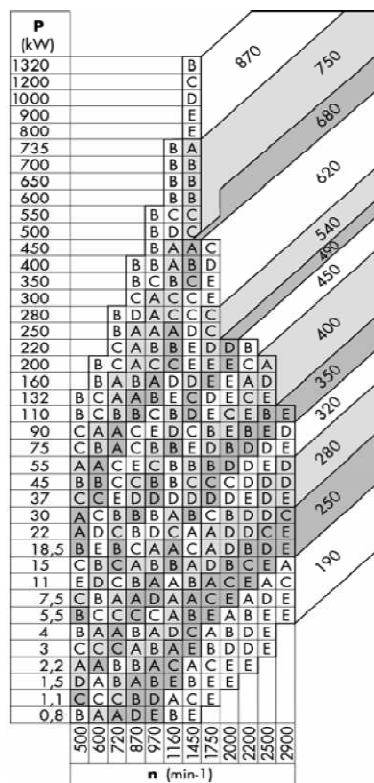
Fig.2

Tab. 1

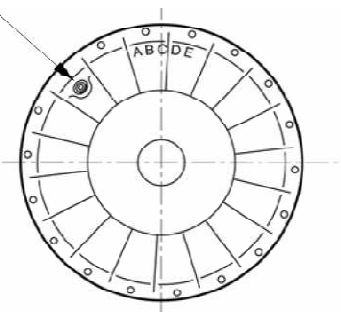
Oil brands	Oil viscosity	
	VG15	VG22
ARAL	Vitam GF 10	Vitam GF 22
BP	Energol HLP 15	Energol HLP 22
CHEVRON	EP Hydraulic Oil 15	EP Hydraulic Oil 22
ELF	Spinelf 15	Olna 22
ESSO	Nuto H 15	Teresso 32
FINA	Hydran 10	Hydran 22
GULF	Harmony 15AW	Harmony 22AW
MOBIL OIL	D.T.E 11	Velocite 10
SHELL	Tellus Oil R 10	Tellus Oil S22
TEXACO	Rando HDZ 15	Spindura 22
TOTAL	Azolla 15	Azolla 22

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Tab. 2
Motor power



Fusible
plug



Example

- 1) Table 2 :
11 kW
@ 1.450 rpm } filling B
of size H.280
- 2) Table 3 :
Filling B
Size H.280 } 2,55 litres

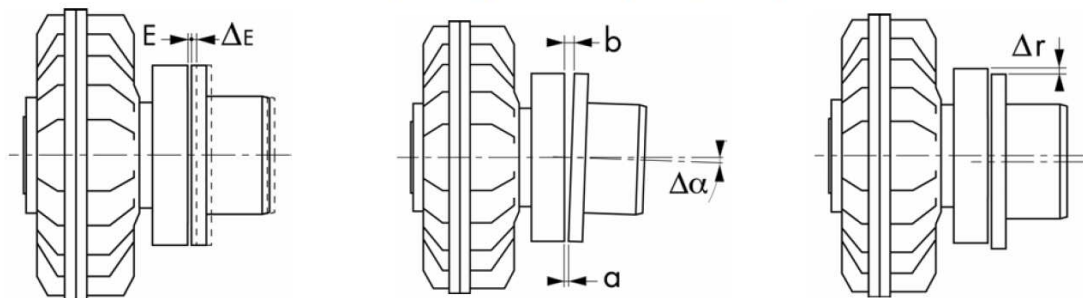
Tab. 3

Size	Oil quantity Litres				
	A	B	C	D	E
H.190	0.92	0.86	0.80	0.73	0.65
H.250	1.95	1.80	1.70	1.55	1.40
H.280	2.75	2.55	2.35	2.10	1.85
H.320	4.10	3.80	3.50	3.20	2.90
H.350	5.20	4.80	4.40	4.00	3.60
H.R350	7.50	7.00	6.30	5.70	5.10
H.400	7.60	7.10	6.60	6.00	5.40
H.R400	9.90	9.50	8.90	7.70	6.30
H.450	11.50	11.00	10.00	9.00	8.00
H.R450	15.90	14.40	13.60	12.90	11.70
H.490	14.00	13.50	12.50	11.00	10.00
H.R490	18.90	17.80	15.90	15.10	14.00
H.540	19.00	18.00	16.50	15.50	13.50
H.R540	27.60	25.40	23.50	21.90	19.70
H.620	28.50	26.50	24.50	22.50	20.50
H.R620	37.50	34.50	31.50	28.80	26.10
H.R680	57.00	53.00	50.00	46.50	43.00
H.R750	72.00	68.50	63.00	59.00	54.00
H.R870	107.00	100.00	92.50	88.50	83.50

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Fig. 3

H(X)E(R) – H(X)C(R) – H(X)P(R)



Tab. 4

Type	Size	250	280	320	350	400	450	490	540	620
H(X)E	$E^{\Delta E}$ mm	33+2	40+2	40+2	46+2,5	53+2,5	64+3	73+3	88+3	88+3
H(X)ER	(b-a) mm	2,4	2,8	2,8	3,3	3,8	4,5	5,0	6,2	6,2
	Δr mm	0,5	0,6	0,6	0,6	0,8	0,8	1,0	1,2	1,2

Type	Size	620	680	750	870
H(X)C	$E^{\Delta E}$ mm	9+2	9+2	11+2	11+2
H(X)CR	(b-a) mm	2,2	2,4	2,8	2,8
	Δr mm	1,0	1,0	1,2	1,2

Type	Size	190	250	280	320	350	400	450	490	540	620	680	750	870
H(X)P	$E^{\Delta E}$ mm	3,5+1,5	3,5+1,5	3,5+1,5	3,5+1,5	3,5+1,5	3,5+1,5	4+2	4+2	4+2	4+2	4+2	4+2	5,5+2,5
H(X)PR	(b-a) mm	0,30	0,30	0,30	0,30	0,30	0,30	0,45	0,45	0,45	0,45	0,45	0,45	0,60
	Δr mm	0,2	0,2	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3

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Record each misalignment value., calculate the ratio of this value by the maximum indicated value.

The sum of these ratios shall not exceed 1 :

$$\frac{dr}{\Delta r} + \frac{d\alpha}{\Delta \alpha} + \frac{dE}{\Delta E} < 1$$

with :

dr : recorded radial misalignment value

Δr : max. radial masalignment value

d α : recorded angular misalignment value

$\Delta \alpha$: max. angular masalignment value

dE : recorded axial misalignment value

ΔE : max. axial masalignment value

Verification measurements shall be made at four points located 90° apart

Make alignment without the flexible elements .

Checking for correct alignment is best done after the equipment is warmed up .

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6. GROUNDED

The coupling or the shafts it is mounted on should be electrically grounded.

Appr. :
Goedk. :

Prep. :
Voorb. :

Repl. :
Verv. :

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7. USE IN EXPLOSIVE AREA.

Indications and instructions concerning the use in explosive areas :

7-1-Control intervals for use in explosive areas.

Explosion group	Controls intervals
II 2D c	<p>The visual check of the coupler must be effected after 100 operating hours for the first time, after one month at the latest.</p> <p>If no leaks are observed the further inspections must be effected every 2000 operating hours or every 3 months at the latest.</p> <p>In case of leakage a search of the possible causes must be effected in accordance with the chapter «dysfunction and remedies »</p> <p>The periodicity of checks has to be reseted in case of change of operating conditions.</p>

7-2-Wear measurement.

Refer to the service manual of the coupling.



CAUTION : To insure a long lifetime of the coupling and to avoid dangers regarding in explosive areas the misalignment must be carefully checked.

7-3-Couplers materials.

Housing material : Aluminium alloy G Al Si 9 according to UNI 3051 (EN AB43100).
Shaft and covers material : Steel.

7-4-Marking of couplers for explosive areas.

Couplers for the use in hazardous areas are marked :



II 2 D

The surface temperature has to be noticed with order. Standard value by omission 145°C.

7-5-Start-up.

Before the start-up check the tightening of the setscrews or the tightening of the screw on shaft end.

Check the alignment and the distance between the coupling plate or the belt tension.

In case of use, check the tightening of the fixation nuts of the thermal protection detector and the speed controller. Check the speed controller setting too.

In explosive ambience the screws must be protected against self-loosening for example by use of bond on threading.

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7-6- dysfunction and remedies .

For the versions with coupling: Refer to the service manual of the coupling.

Dysfunction	Cause	Danger in explosive areas	Solution
Noises and/or vibrations in operation	Misalignment. Wear of coupling elastic elements.	Danger of oil leakage.	1) put the unit out of operation. 2) Eliminate the cause of misalignment (loose foundation bolt, break of machine fixing, heat expansion, mounting dimensions non respected, deflection on load. 3) Check the wear of coupling elastic elements and change it if necessary. 4) Check the oil level of the coupler and fill in if necessary. 5) Check the alignment stationary and in operation and correct it if necessary.
	self-loosening of the axial fixation of the coupler.	Danger of inflammation due to sparking.	1) put the unit out of operation. 2) Dismantle the axial fixation and remove the coupler. 3) Check the coupler parts and change it if necessary. 4) reassemble the coupler on the shaft. 5) Check the alignment stationary and in operation and correct it if necessary.
Belt slip (HV and HVR versions)	Belts wear. Belts tension insufficient.	Danger of inflammation due to sparking.	1) put the unit out of operation. 2) Establish the cause of the slip. 3) Replace the belts. 4) Check the belts tension after some hours of operation. Correct it if necessary.

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7-6- dysfunction and remedies (suite).

Dysfunction	Cause	Danger areas in explosive	Solution
Activation of thermal protection or fusible plug fusion.	The operating conditions are not in accordance with the coupler performance.	Danger of superheated oil leakage.	1) put the unit out of operation. 2) Check the operating conditions and select a bigger coupler. 3) Install the new coupler. 4) Check the alignment stationary and in operation and correct it if necessary.
	Mistake at the machine start.		1) put the unit out of operation. 2) check the coupling elastic elements or the belts. Change it if necessary. 3) Fill the coupler with the requested oil quantity. 4) Check the alignment stationary and in operation and correct it if necessary. 5) Train and drill the working and maintenance staff.
	Machine lock.		1) put the unit out of operation. 2) Detect and eliminate the cause of machine lock. 3) Replace the fusible plug or reset the thermal protection. 4) Fill the coupler with the requested oil quantity. 5) Check the alignment stationary and in operation and correct it if necessary.
Oil leakage on coupler.	Contact with aggressive liquids hydrocarbon, ozone...		1) put the unit out of operation. 2) Detect and plug the leak. 3) Fill the coupler with the requested oil quantity. 4) Protect the coupler from any contact with the faulty fluid.
	Misalignment.		1) put the unit out of operation. 2) Eliminate the cause of misalignment. 3) Detect and plug the leak. 4) Fill the coupler with the requested oil quantity. 5) Check the alignment stationary and in operation and correct it if necessary.

CAUTION !: REXNORD does not assume any liabilities or guarantees regarding the use of spare parts and accessories not provided by REXNORD and for the damages resulting here from.

Appr. :
Goedk. :

Prep. :
Voorb. :

Repl. :
Verv. :