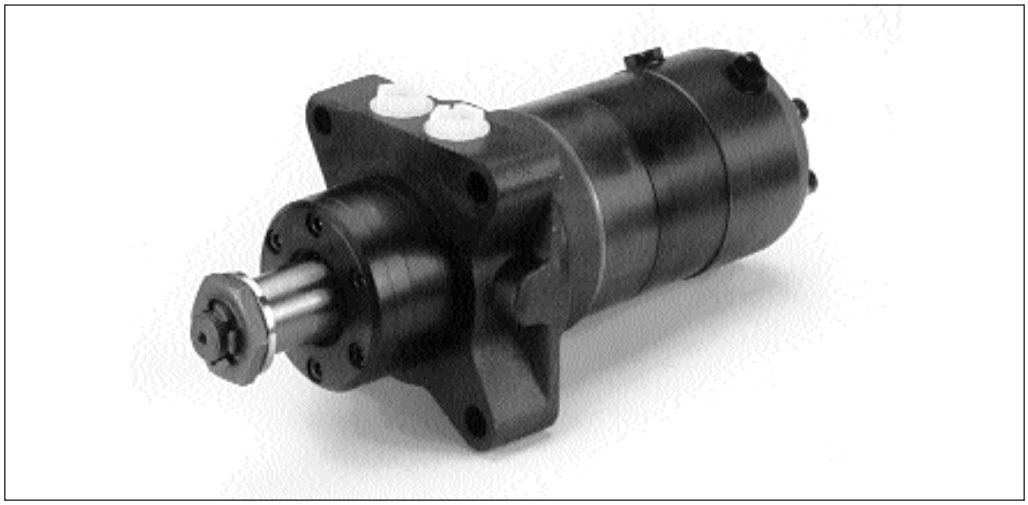
Tech Note

Hydraulic transmission motor type OMRW NF with negative brake and needle bearings

DKMH.PN.120.A1.02 is new



Introduction

Extending its range of OMR motors, Danfoss now offers a transmission motor with integrated holding brake (negative brake) and an output shaft running in needle bearings for use in both open and closed circuits. The brake is a spring-actuated multiple-disc brake that is released through application of a hydraulic pressure.

Characteristics

- High holding torque
- Compact unit with maximum brake/motor integration
- Minimum servicing
  - the brake is lubricated automatically by drain oil (no separate oil change)

Application

Because of its needle bearings the motor is ideal for arduous working conditions, for example:

- High radial load
- Frequent starts/stops
- Shaft vibrations

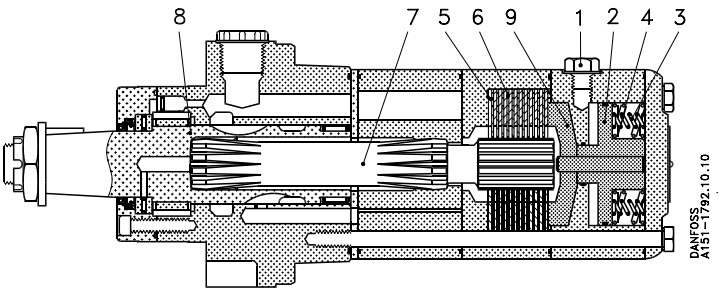
Application examples

- Road rollers
- Work platforms
- Mowing machines
- Miniloaders
- Sweepers
- Winches
- Machine tools

Function

When there is no release pressure on the integrated brake in the OMRW NF, the motor is braked. The brake is released by applying a min. 21 bar hydraulic pressure on the brake release port (1). (see also page 2, note 4) The pressure forces the piston (2) against the springs (3 and 4), which disengages the outer (5) and inner (6) discs from one another and enables the drive shaft (7) and thus also the output shaft (8) to rotate freely.

If the pressure on the brake release port is reduced to less than 21 bar, the springs force the piston and the thrust pad (9) against the brake discs and cause drive shaft/output shaft to lock in position.



Code numbers

Wheel motor with negative holding brake and needle bearings (OMRW NF)

Type	OMRW 80 NF	OMRW 100 NF	OMRW 125 NF	OMRW 160 NF	OMRW 200 NF	OMRW 250 NF	OMRW 315 NF	OMRW 375 NF
Tapered shaft ø35 mm	151-6441*	151-6442 *	151-6443 *	151-6444	151-6445	151-6446 *	151-6447*	151-6448 *
Weight (kg)	14,4	14,5	14,7	15,0	15,5	16,0	16,5	17,0

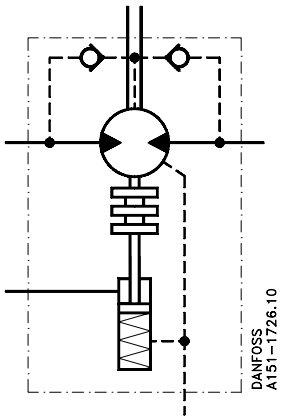
*Sales and code number not active. Please contact the Danfoss Sales Organisation for Hydraulics

Technical data on OMRW NF with 35 mm tapered shaft

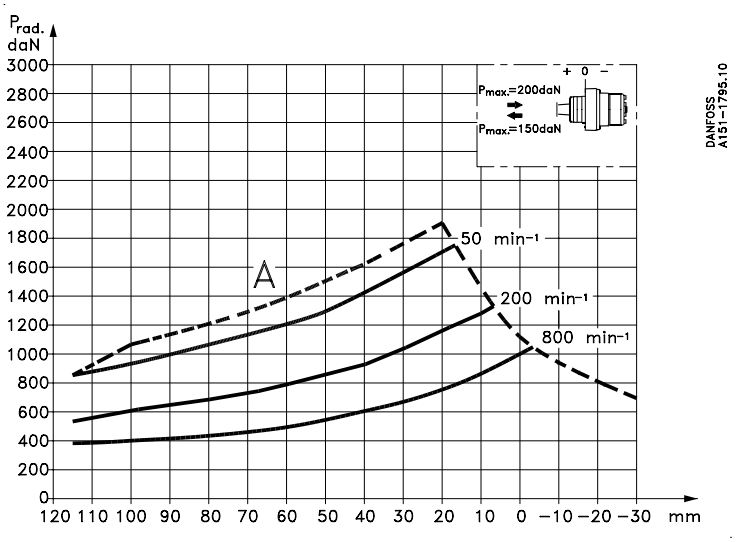
Type / Motor size			OMRW 80 NF	OMRW 100 NF	OMRW 125 NF	OMRW 160 NF	OMRW 200 NF	OMRW 250 NF	OMRW 315 NF	OMRW 375 NF
Geometric displacement	(cm^3/rev)		80,3	99,8	125,7	159,6	199,8	249,3	315,7	372,6
Max. speed	(min^{-1})	cont.	750	600	475	375	300	240	190	160
		int.[1]	940	750	600	470	375	300	240	200
Max. torque	(daNm)	cont.	19,5	24	30	38	45	54	55	58
		int.[1]	22	28	34	43	50	61	69	69
		peak [2]	27	32	37	46	56	71	84	83
Max. output	(kW)	cont.	12,5	13	12,5	12,5	11	10	9	7,5
		int.[1]	15	15	14,5	14	13	12	10	9
Max. pressure drop	(bar)	cont.	175	175	175	175	175	175	135	115
		int.[1]	200	200	200	200	200	200	175	150
		peak [2]	225	225	225	225	225	225	210	175
Max. oil flow	(l/min)	cont.	60	60	60	60	60	60	60	60
		int.[1]	75	75	75	75	75	75	75	75
Max. starting pressure with unloaded shaft	(bar)		10	9	7	5	5	5	5	5
Min. starting torque	(daNm	at max.press.drop cont.	15	20	25	32	41	50	50	47
		at max.press.drop int.[1]	17	23	28	37	46	55	66	57
Min. speed [3]	(min^{-1})		10	10	9	7	5	5	5	5
Max. inlet/return press.		cont.	175							
		int.[1]	200							
		peak [2]	225							
Holding torque		(daNm)	40							
Min. brake release press. [4]		(bar)	21							
Max.pressure in brake line		(bar)	200							

[1] Intermittent operation: the permissible values may occur for max. 10% of every minute.
[2] Peak load: the permissible values may occur for max. 1% of every minute.
[3] Operation at lower speeds may be slightly less smooth.
[4] Brake motors must always have a drain line. The brake release pressure is the difference between the pressure in the brake release line and the pressure in the drain line.

OMR W NF motors must always have a drain line



Max. permissible radial load for OMRW NF with needle bearing, 35 mm tapered shaft and square 4-hole mounting flange



A: Max. radial load

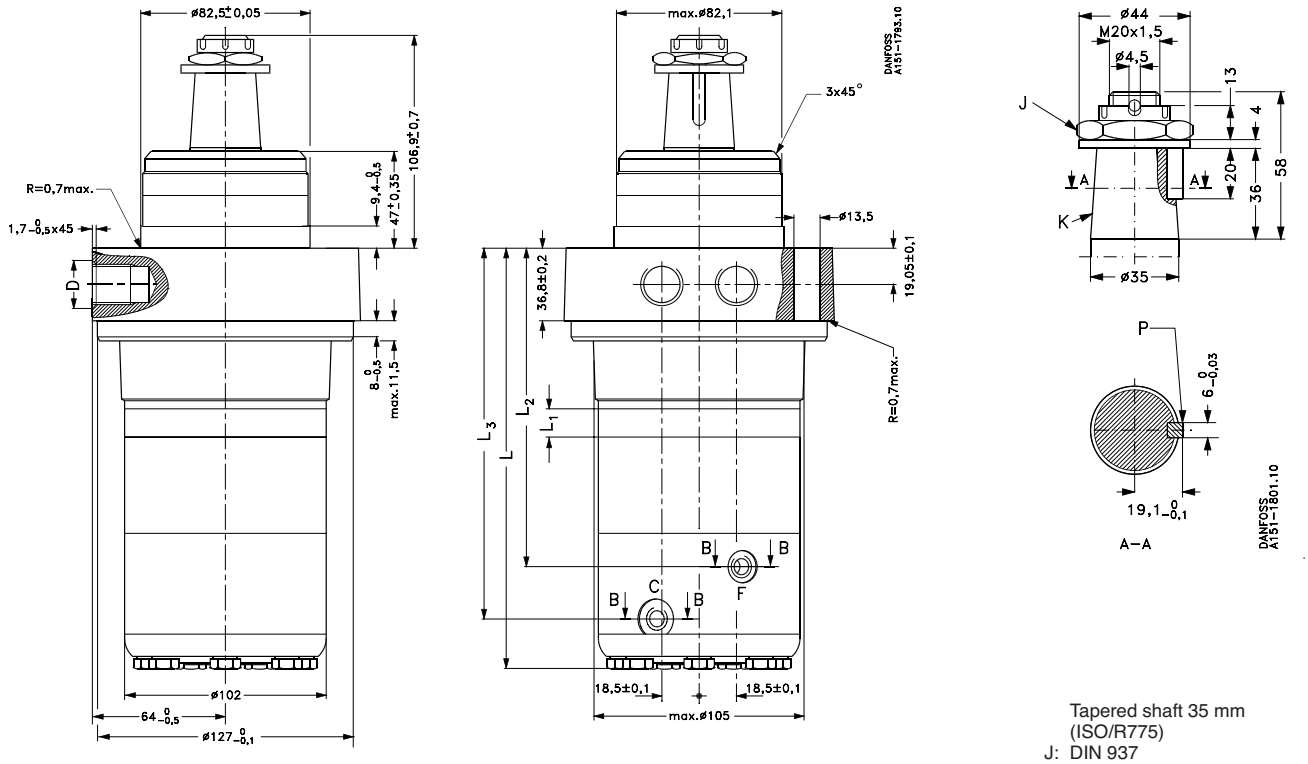
The permissible radial load on the shaft is shown for different speeds as a function of the distance from the mounting flange to the point of load application.

Curve A indicates the max. radial shaft load. Any shaft load exceeding the values quoted in curve A will involve risk of breakage.

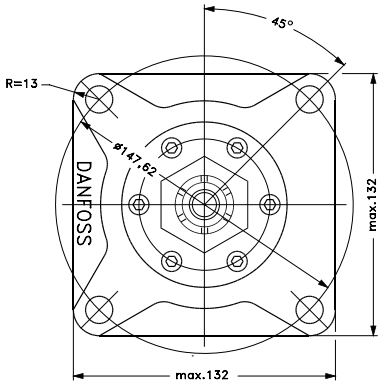
The other curves apply to a B10 bearing life of 2000 hours at the number of revolutions indicated. Mineral based hydraulic oil with a sufficient content of anti-wear additives must be used.

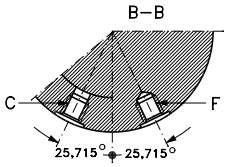
Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the subcatalogue
"General information".

Dimensions



Tapered shaft 35 mm
(ISO/R775)
J: DIN 937
NV 41
Tightening torque:
20 ± 1 daNm
K: Taper 1:10
P: Parallel key
B6 × 6 × 20
DIN 6885





Type	$L_{max.}$	L_1	L_2 max.	$L_{3\ max.}$
OMRW 80 NF	210.1	14,0	158.8	182,8
OMRW 100 NF	213.5	17,4	162.2	186,2
OMRW 125 NF	217.9	21,8	166.6	190,6
OMRW 160 NF	223.9	27,8	172.6	196,6
OMRW 200 NF	230.9	34,8	179.6	203,6
OMRW 250 NF	239.6	43,5	188.3	212,3
OMRW 315 NF	250.9	54,8	199.6	223,6
OMRW 375 NF	261.1	65,0	209.8	233,8

C : Drain connection G 1/4; 12 mm deep
D : G 1/2; 15 mm deep
E : Brake relaise port G 1/4

DK-6430 Nordborg
Denmark