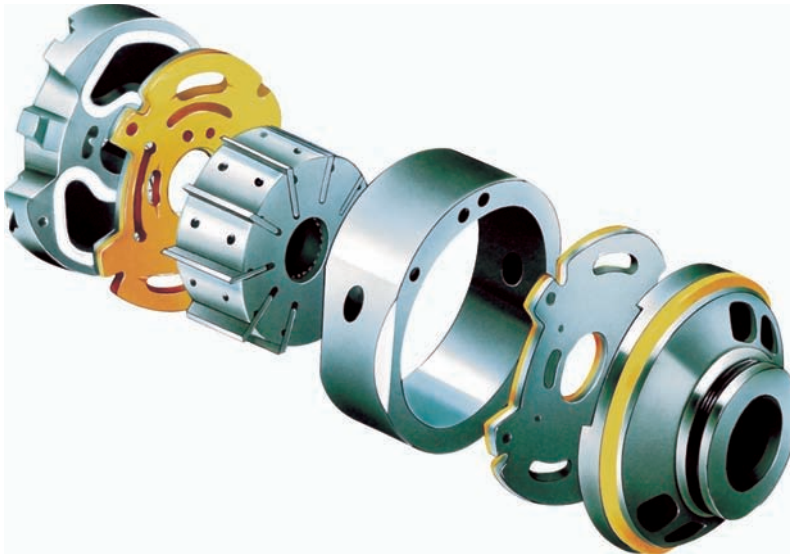
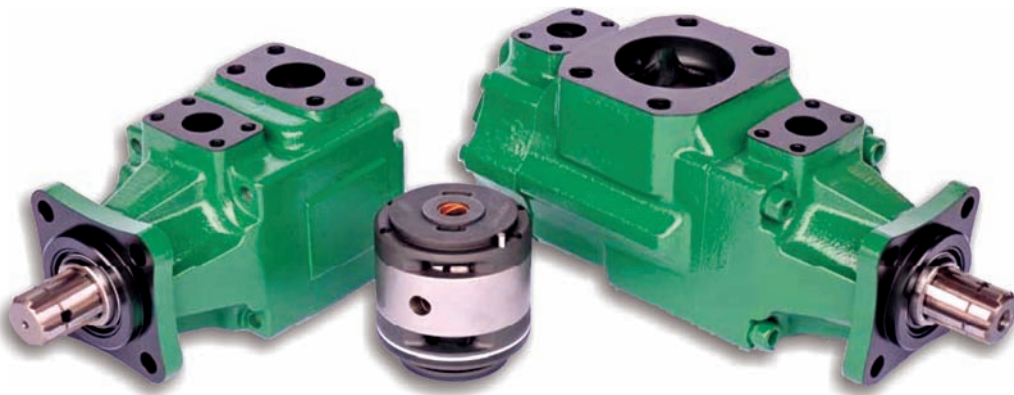




Quality products for Mechanical
& Fluid Power



Fixed Displacement Hydraulic Vane Pumps



jbj Techniques is a specialist supplier of high-quality products for the mechanical power transmission and fluid power sectors. The company offers a high level of in-house expertise plus a huge selection of products to meet a very broad range of customer applications. From specification, through technical advice and manufacture to after-sales support, jbj Techniques provides a comprehensive and valued service to the power transmission and hydraulics industries. The company fields a UK-wide team of technical sales engineers to ensure that the business is close to its customers, and it enjoys excellent associations with European manufacturers, acting as sole UK distributor in many cases.

jbj's team is recognised for its expertise in the selection and configuration of hydraulic and mechanical transmission systems. Able to draw on an extensive product range that provides the building blocks for bespoke systems both large and small, the in-house design team offers a complete service, ranging from an assessment of customer requirements to full technical backup, including product specification, CAD based system design, system build and certification. Moreover, customers can take advantage of jbj's own machine-shop facilities and skilled engineers to guarantee quality and control costs.

jbj Techniques provides probably the widest range of couplings available within the UK with 14 different designs and 22 different styles of gear couplings alone. The product portfolio includes miniature couplings, all-steel gear couplings, flexible spider couplings, shaft couplings, torque limiting couplings, disc and grid type couplings, ATEX compliant and shaft locking devices. However, as extensive as the selection is, couplings make up a fraction of jbj's portfolio. In addition, the company can provide gearboxes, clutches, pumps, hydraulic motors, flowmeters, fluid power accessories - including cooling systems, reservoirs, seals and indicators - as well as a variety of bell housings and flanges, to name just a few of the product categories.

jbj Techniques Limited is proud of its relationship and reputation with customers and suppliers. The core client base is stable and loyal, which is testament to the quality of service provided by the company. A similar relationship exists with suppliers, ensuring a continuing high-quality service in which customers can have complete confidence.



from
Small
Individual Components
to
Large Combinations



jbj Techniques Limited

providing . . .

**a diverse range of
mechanical drive & transmission
solutions to industrial markets,
including design engineering,
product supply
& after-sales service . . .**



**“ as extensive as the selection is,
couplings make up a fraction
of jbj's portfolio ”**



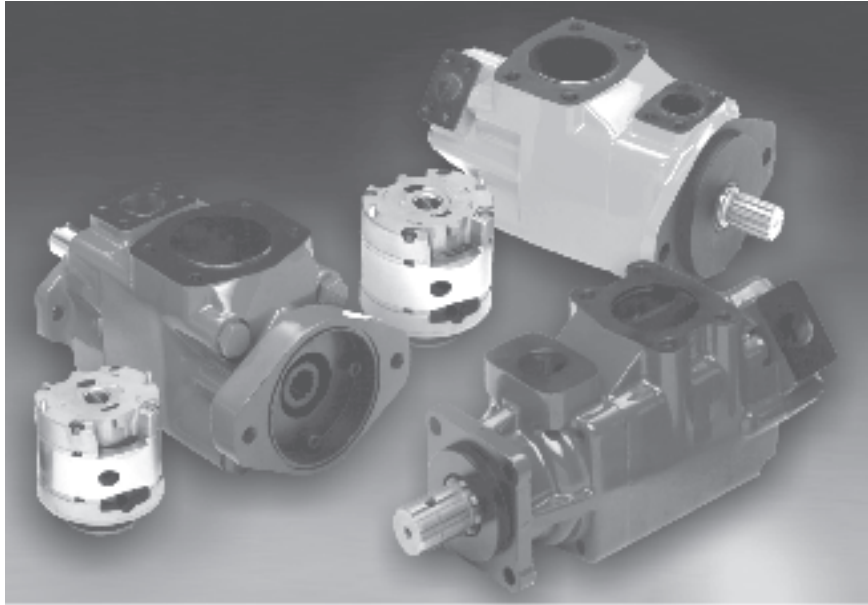
**“ ensuring a continuing high-
quality service in which
customers can have complete
confidence. ”**



Contents

High Pressure Hydraulic Vane Pumps HD Series	page 5
High Pressure Single Pump HD03 Series	page 6
High Pressure Double Pump HD33 Series	page 13
Operating Instructions	page 20

Versatility, power, compactness and low running costs are the main characteristics of vane pumps from **jbj Techniques Limited**



All the components subject to wear are contained in a cartridge unit that can be easily removed for inspection and/or replacement without disconnecting the pump from the circuit, drastically reducing expensive machine down time.

The cartridge contains a rotor, vanes and inserts, a cam ring and two covers.

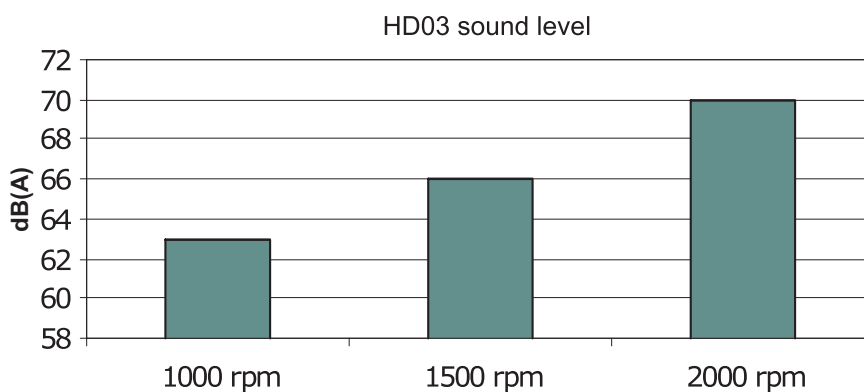
During operation the rotor is driven by a splined shaft coupled to the drive unit. As the rotation speed increases, centrifugal forces, in combination with the pressure generated behind the vanes, push the vanes outwards, where they follow the profile of the cam of the ring with a sufficient contact pressure to ensure adequate hydraulic sealing. The two opposed pumping chambers formed by the elliptical profile of the cam cancel out radial loads on the shaft bearings, thereby giving them extremely long lifetimes.

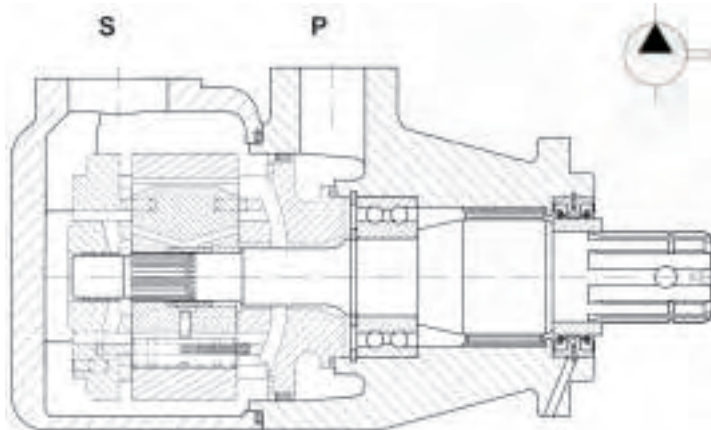
The versatility of the BV series pumps enables them to meet the requirements of the most varied industrial applications. In fact, as well as their proven high reliability and excellent volumetric efficiency in all working conditions, they operate with particularly low noise levels. This is made possible by the special profile of the cam ring and the use of a 12 vane rotor that reduces the amplitude of the supply pressure pulses, thereby reducing induced vibrations.



HIGH PRESSURE HYDRAULIC VANE PUMPS HD SERIES

The design of the HD series vane pumps makes them particularly suitable for application on trucks, especially garbage compactors. All the components subject to wear are contained in a cartridge unit that can be easily removed for inspection and/or replacement without disconnecting the pump from the circuit, drastically reducing expensive machine downtime. The special design of the double-lip vanes renders the HD series pumps particularly suitable for applications requiring high pressure levels and very low noise emissions. Furthermore, the two opposed pumping chambers formed by the elliptical profile of the cam cancel out radial loads, dramatically reducing vibrations and considerably increasing the pump lifetime. In addition to reliability, HD pump guarantees continuous high volumetric efficiency during its whole service time. That avoids having to compensate the typical efficiency loss of other kinds of pump, increasing the truck engine RPM, which causes higher fuel consumption and therefore air pollution. Such characteristics, along with an extremely low noise-level, make the HD pumps environmentally friendly, in line with the latest ecological trend. The HD series is available with single pump (from 11 to 99 l/min at 1000 rpm) and double pump (from 22 to 200 l/min at 1000 rpm) with maximum powers of over 126 kW at the max pressure and speed. The pumps are extremely compact and are supplied with different types of either ISO or UNI norm mounting for the direct coupling with PTO and SAE norm hydraulic fittings. That, together with the possibility to orientate the inlet and outlet ports, makes the HD pumps very easy to install and guarantees their interchangeability with other types of pumps.





Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in 13 different displacements with flows from 16 to 150 l/min (from 4 to 40 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics

Cartridge model	Geometric displacement		Rated capacity at 0 bar				Maximum pressure				Speed range rpm
			1200 rpm		1500 rpm		intermittent		continuous		
	ml/rev.	(in ³ /r)	l/min	(gpm)	l/min	(gpm)	bar	(psi)	bar	(psi)	
03	10,8	(0.66)	12,93	(3.42)	16,2	(4.29)	275	(4000)	240	(3500)	400 - 2800
05	17,2	(1.05)	20,60	(5.45)	25,8	(6.83)	275	(4000)	240	(3500)	400 - 2800
06	21,3	(1.30)	25,52	(6.75)	31,9	(8.44)	275	(4000)	240	(3500)	400 - 2800
08	26,4	(1.61)	31,64	(8.37)	39,6	(10.48)	275	(4000)	240	(3500)	400 - 2800
10	34,1	(2.08)	40,86	(10.81)	51,1	(13.52)	275	(4000)	240	(3500)	400 - 2800
12	37,1	(2.26)	44,45	(11.76)	55,6	(14.71)	275	(4000)	240	(3500)	400 - 2800
14	46,0	(2.81)	55,11	(14.58)	69,0	(18.25)	275	(4000)	240	(3500)	400 - 2800
17	58,3	(3.56)	69,85	(18.48)	87,4	(23.12)	275	(4000)	240	(3500)	400 - 2800
20	63,8	(3.89)	76,47	(20.23)	95,7	(25.32)	275	(4000)	240	(3500)	400 - 2800
22	70,3	(4.29)	84,26	(22.29)	105,4	(27.88)	275	(4000)	240	(3500)	400 - 2800
25	79,3	(4.84)	95,03	(25.14)	118,9	(31.46)	275	(4000)	240	(3500)	400 - 2500
28	88,8	(5.42)	106,41	(28.15)	133,2	(35.24)	210	(3000)	160	(2300)	400 - 2500
31	100,0	(6.10)	119,83	(31.70)	150,0	(39.68)	210	(3000)	160	(2300)	400 - 2500

Hydraulic fluids: anti-wear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with anti-wear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 c.St. (18 to 108 c.St. recomm.). Choose 30 c.St. for max lifetime.

Viscosity index: 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8.

Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle.

With duty cycles longer than 15 minutes, please contact the technical office of B&C.

Minimum inlet pressure: (with mineral oil 10-65 c.St.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

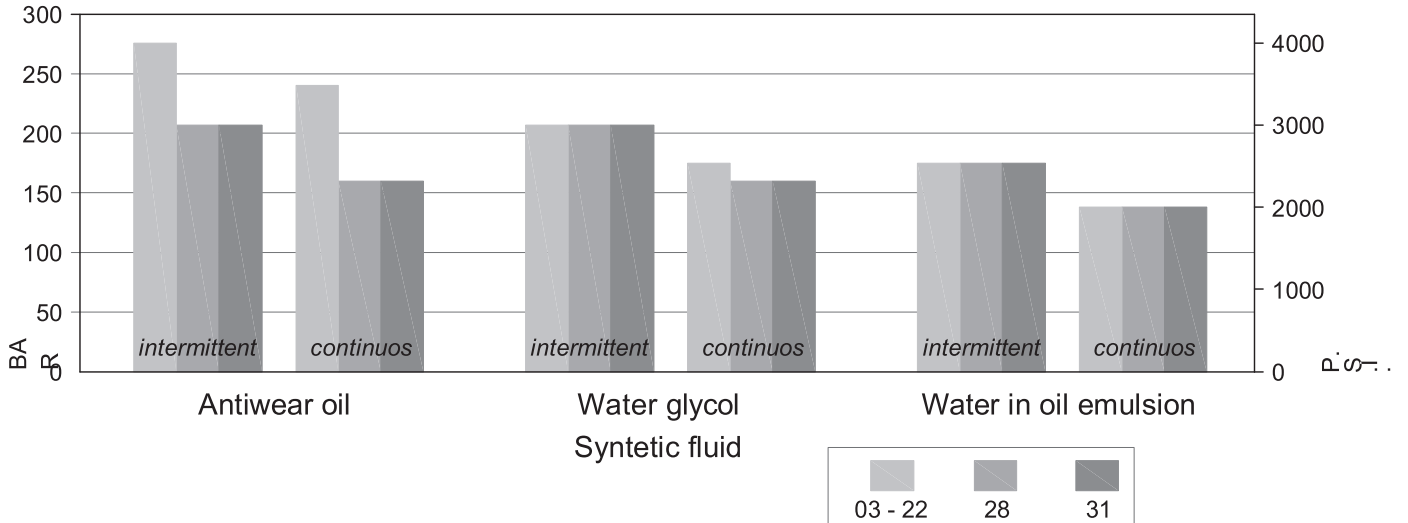
Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100° C; with water glycol and "water in oil emulsion": from +10 to +50°C; with synthetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

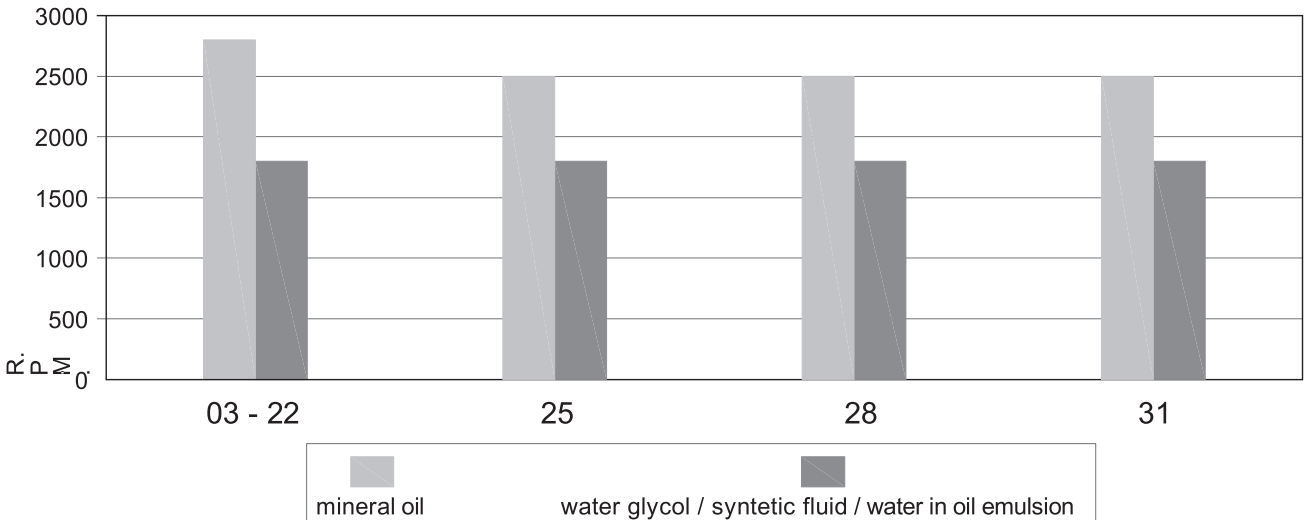


Main operating data

max pressure / fluid type



max speed / fluid type



min. allowable inlet pressure / rotation speed (abs. bar)*

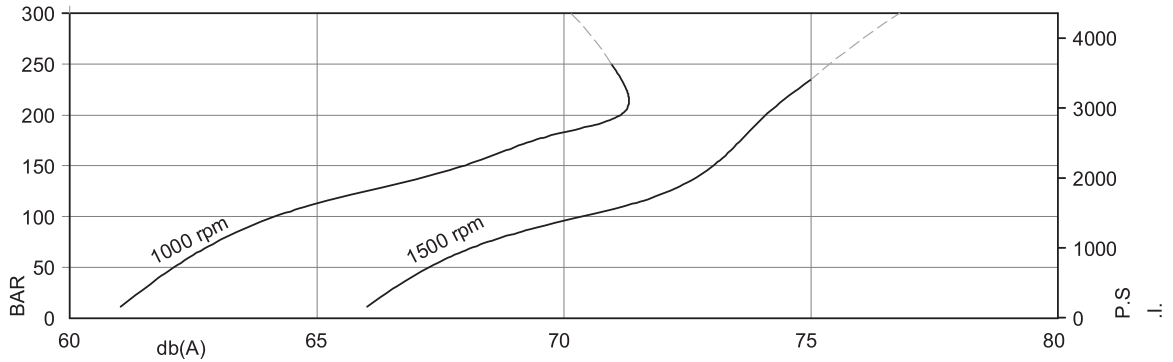
Speed r.p.m.	from 03 to 10	12	14	17	20	22	25	28	31
2800	1.00	1.00	1.00	1.03	1.03	1.05			
2500	0.90	0.92	0.95	0.95	0.95	0.98	1.05	1.08	1.11
2300	0.80	0.85	0.85	0.90	0.90	0.90	0.95	0.98	1.0
2200	0.80	0.80	0.80	0.85	0.85	0.90	0.95	0.98	0.90
2100	0.80	0.80	0.80	0.80	0.80	0.85	0.90	0.90	0.85
1800	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
1500	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
1200	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80

* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).
 Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

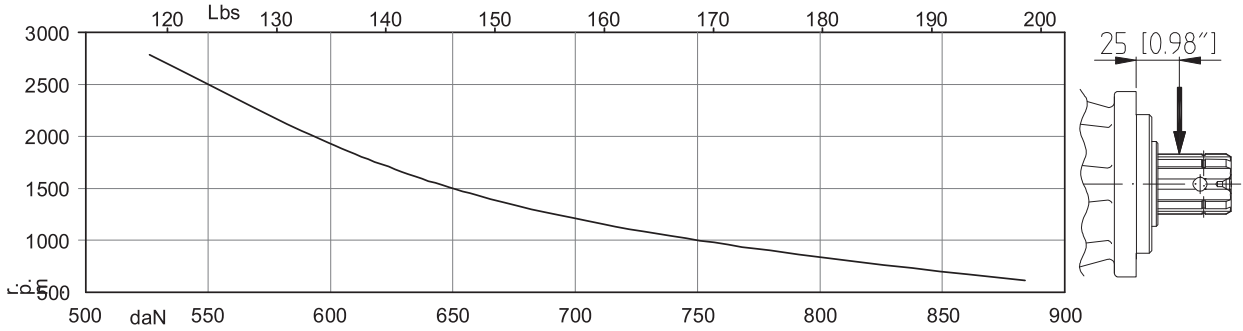


Main operating data

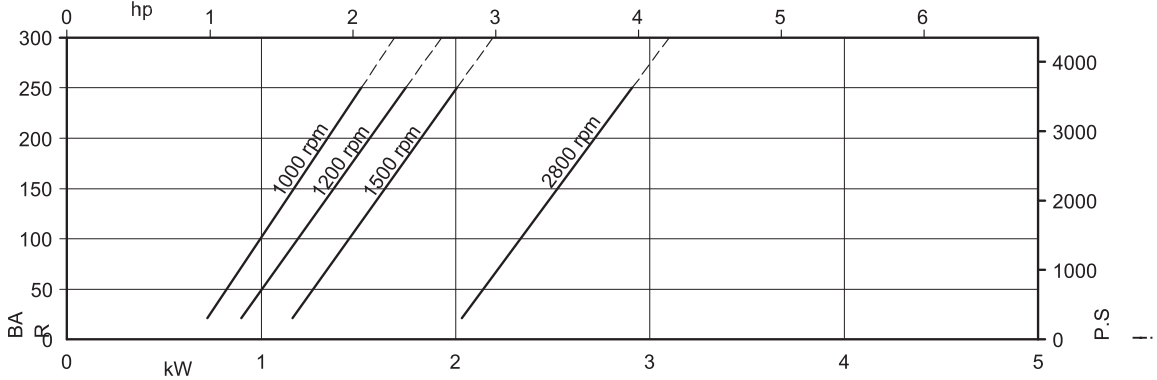
noise level (model 22, with fluid viscosity 32 c.St., inlet 0.9bar abs.)



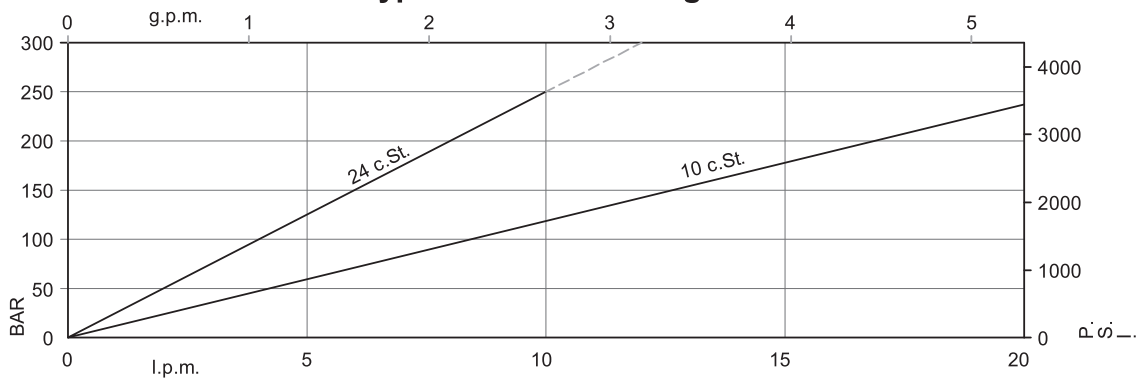
allowable radial load (positioned 25 mm from flange surface)



power loss (typical)



Typical internal leakage *



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump



Specific operating data

Typical: 24 c.St. (115 SUS)

Cartridge model	Geometric displacement		Speed rpm	140 bar		240 bar		Input power (kW)		
	ml/rev.	(in ³ /r)		l/min	(gpm)	l/min	(gpm)	7 bar (100 psi)	140 bar (2000 psi)	240 bar (3500 psi)
03	10,8	(0.68)	1000	-	-	-	-	1.00	-	-
			1200	-	-	-	-	1.05	-	-
			1500	10,7	(2.84)	-	-	1.30	5.30	-
			1800	13,6	(3.61)	-	-	1.55	8.45	-
05	17,2	(1.05)	1000	11,7	(3.09)	-	-	1.10	5.10	-
			1200	15,1	(3.99)	-	-	1.14	8.17	-
			1500	20,3	(5.37)	15,8	(4.18)	1.40	7.50	12.2
			1800	25,1	(6.65)	21,0	(5.58)	1.68	12.0	14.4
06	21,3	(1.30)	1000	15,80	(4.18)	11,30	(2.99)	1.10	6.00	10.00
			1200	19,73	(5.22)	15,61	(4.13)	1.19	7.13	11.83
			1500	26,50	(7.01)	22,00	(5.82)	1.50	8.90	14.70
			1800	32,51	(8.60)	28,39	(7.51)	1.76	10.50	17.33
08	26,4	(1.61)	1000	20,90	(5.53)	16,40	(4.34)	1.20	7.20	12.10
			1200	25,88	(6.84)	21,74	(5.75)	1.26	8.51	14.29
			1500	34,10	(9.02)	29,60	(7.83)	1.60	10.70	17.70
			1800	41,66	(11.02)	37,54	(9.93)	1.87	12.58	20.93
10	34,1	(2.09)	1000	28,60	(7.57)	21,10	(6.38)	1.30	8.90	15.10
			1200	35,08	(9.29)	30,96	(8.19)	1.37	10.61	17.95
			1500	45,70	(12.09)	41,20	(10.90)	1.70	13.40	22.30
			1800	55,53	(14.69)	51,41	(13.60)	2.03	15.72	26.47
12	37,1	(2.29)	1000	31,60	(8.38)	27,10	(7.17)	1.30	9.60	16.30
			1200	38,67	(10.23)	34,55	(9.14)	1.41	11.42	19.33
			1500	50,20	(13.28)	45,70	(12.09)	1.70	14.40	24.10
			1800	60,90	(16.11)	56,73	(15.02)	2.09	16.95	28.62
14	46,0	(2.81)	1000	40,50	(10.71)	36,00	(9.52)	1.40	11.70	19.90
			1200	49,33	(13.05)	45,21	(11.96)	1.53	13.85	23.62
			1500	63,50	(16.80)	59,00	(15.61)	1.90	17.60	29.50
			1800	78,92	(20.35)	72,60	(19.26)	2.27	20.58	34.97
17	56,3	(3.55)	1000	52,80	(13.97)	48,30	(12.78)	1.60	14.50	24.80
			1200	64,07	(16.95)	59,95	(15.86)	1.70	17.19	29.47
			1500	82,00	(21.69)	77,50	(20.50)	2.10	21.90	36.90
			1800	99,04	(26.20)	94,92	(25.11)	2.52	25.60	43.78
20	63,8	(3.89)	1000	58,30	(15.42)	53,80	(14.23)	1.60	15.80	27.00
			1200	70,89	(18.70)	66,57	(17.61)	1.77	18.88	32.09
			1500	90,20	(23.86)	85,70	(22.67)	2.20	23.80	40.20
			1800	108,90	(28.81)	103,65	(27.42)	2.63	27.84	47.63
22	70,3	(4.29)	1000	64,80	(17.14)	60,30	(15.95)	1.70	17.30	29.60
			1200	78,47	(20.76)	74,35	(19.67)	1.86	20.46	35.13
			1500	100,00	(26.48)	95,50	(25.26)	2.30	26.10	44.10
			1800	120,58	(31.90)	116,46	(30.81)	2.76	30.49	52.32
25 ¹⁾	79,3	(4.84)	1000	73,80	(19.52)	69,30	(18.33)	1.80	19.30	33.20
			1200	89,25	(23.61)	85,13	(22.52)	1.99	22.90	39.47
			1500	113,50	(30.03)	109,00	(28.84)	2.50	29.20	49.50
			1800	138,76	(36.18)	132,64	(35.09)	2.95	34.16	58.75
28 ²⁾	88,8	(5.42)	1000	83,30	(22.04)	80,10 ²⁾	(21.19) ²⁾	1.90	21.90	32.50 ²⁾
			1200	100,62	(26.62)	97,75 ²⁾	(25.86) ²⁾	2.11	25.49	37.77 ²⁾
			1500	127,70	(33.78)	124,50 ²⁾	(32.94) ²⁾	2.80	32.70	48.50 ²⁾
			1800	153,85	(40.70)	150,97 ²⁾	(39.94) ²⁾	3.14	38.04	56.42 ²⁾
34 ²⁾	100,0	(6.10)	1000	94,50	(25.00)	91,30 ²⁾	(24.15) ²⁾	2.00	24.40	36.40 ²⁾
			1200	114,04	(30.17)	111,17 ²⁾	(29.41) ²⁾	2.26	28.53	42.34 ²⁾
			1500	144,50	(38.23)	141,30 ²⁾	(37.38) ²⁾	2.80	36.50	54.40 ²⁾
			1800	173,99	(46.03)	171,12 ²⁾	(45.27) ²⁾	3.37	42.61	63.28 ²⁾

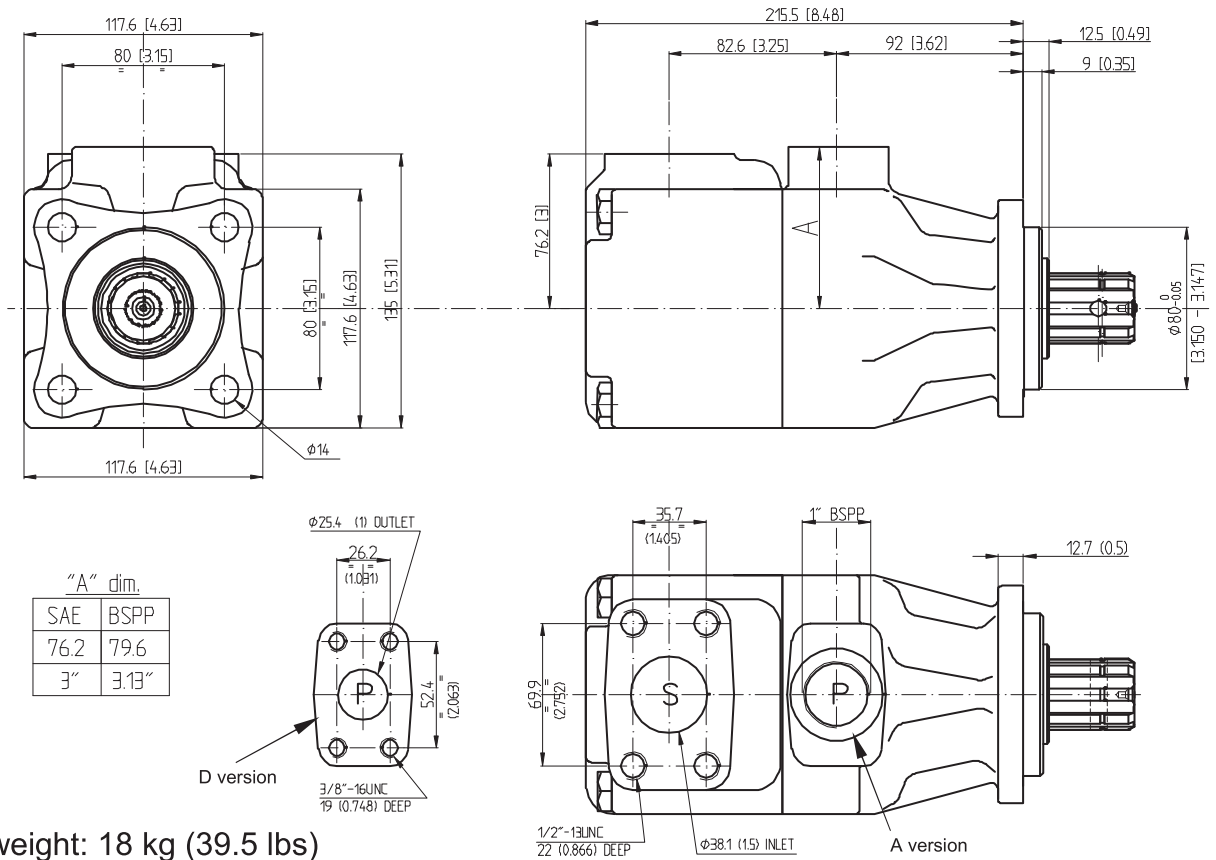
- Internal leakage exceeding 50% of the theoretical flow

1) 2500 r.p.m. max.

2) 210 bar (3000 p.s.i.) max. int.

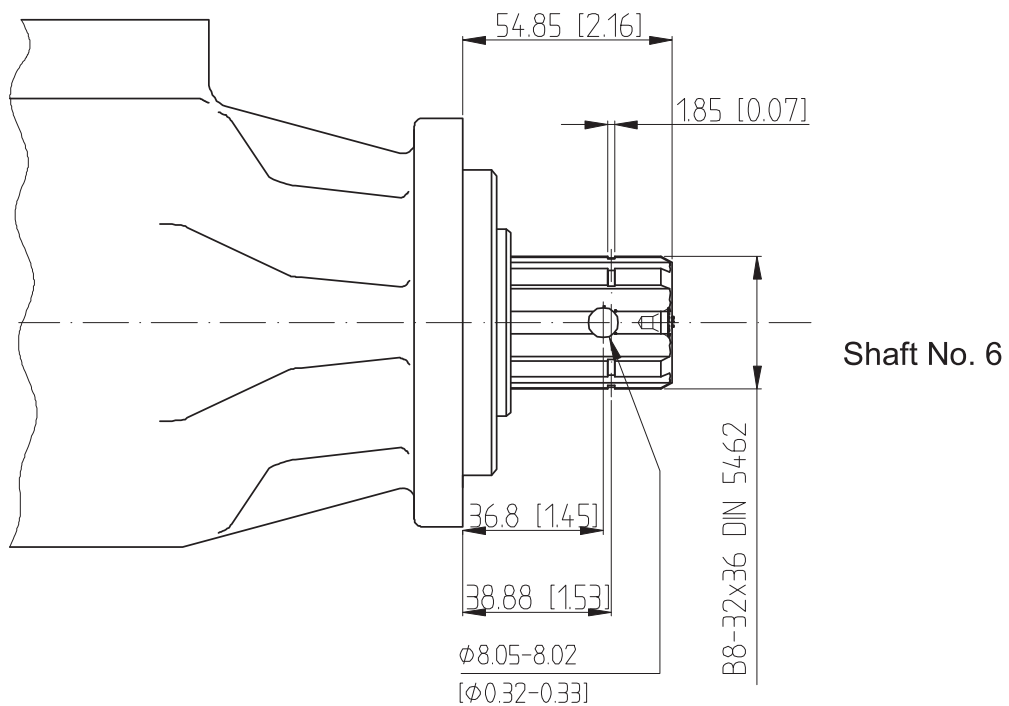


Installation dimensions mm [inches]



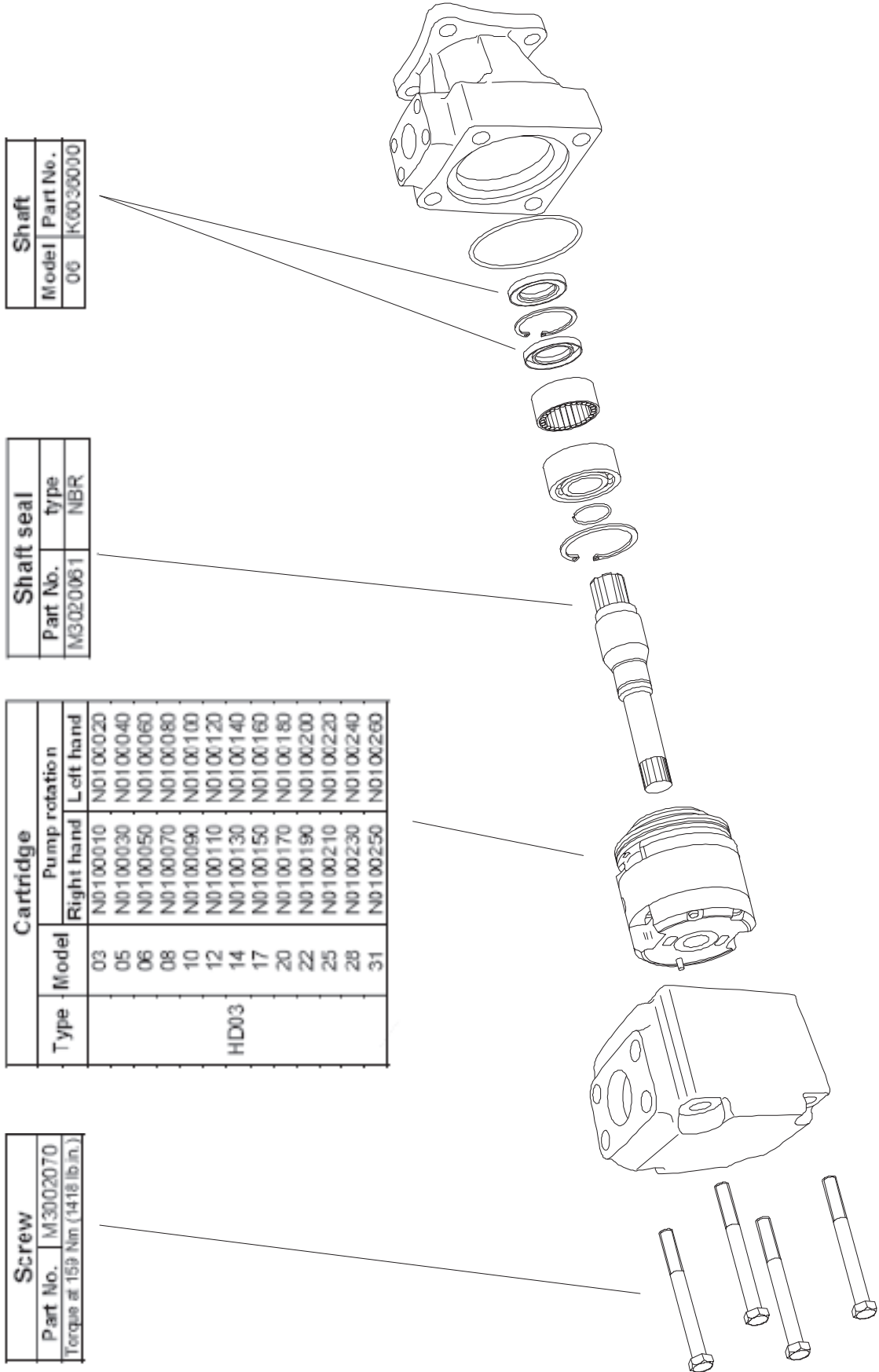
Approx weight: 18 kg (39.5 lbs)

Shaft options mm [inches]





Id. codes of pump components



Shaft	
Model	Part No.
06	K6030000

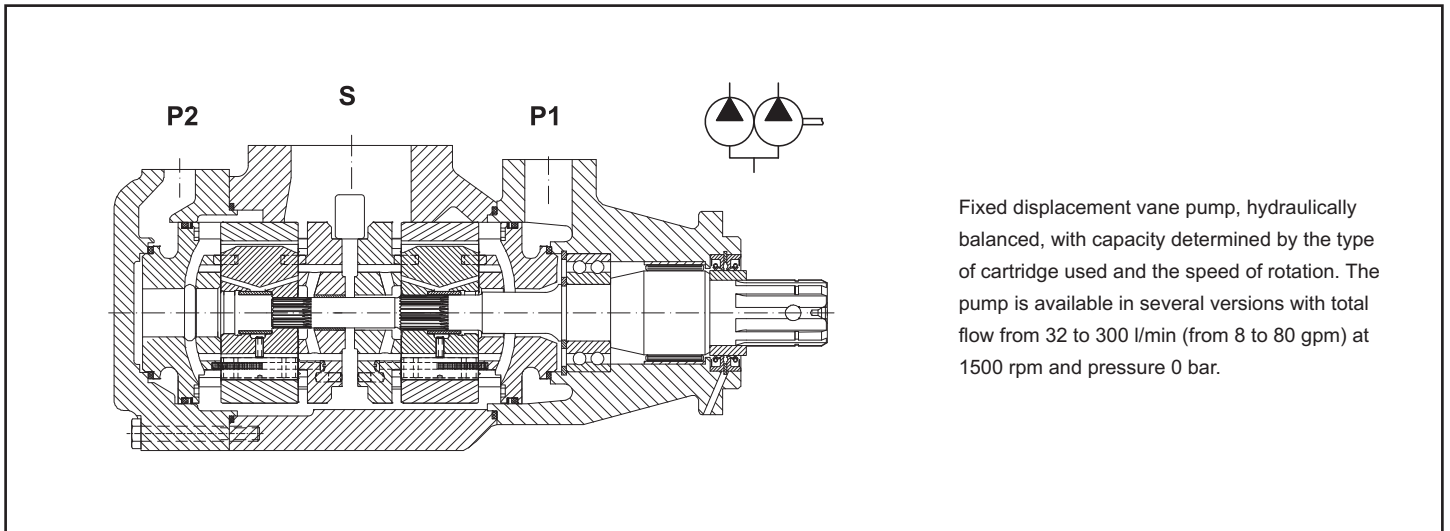
Shaft seal	
Part No.	type
M3020061	NBR

Type	Model	Cartridge	
		Right hand	Left hand
HD03	03	N0100010	N0100020
	05	N0100030	N0100040
	06	N0100050	N0100060
	08	N0100070	N0100080
	10	N0100090	N0100100
	12	N0100110	N0100120
	14	N0100130	N0100140
	17	N0100150	N0100160
	20	N0100170	N0100180
	22	N0100190	N0100200
	25	N0100210	N0100220
	28	N0100230	N0100240
	31	N0100250	N0100260

Screw	
Part No.	M3002070
Torque at 159 Nm (1418 lb.in.)	

Hydraulic Vane Pumps

High Pressure Double Pump HD33 Series



Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in several versions with total flow from 32 to 300 l/min (from 8 to 80 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics (P1 and P2 sections)

Cartridge model	Geometric displacement		Rated capacity at 0 bar				Maximum pressure				Speed range rpm
			1200 rpm		1500 rpm		intermittent		continuous		
	ml/rev.	(in ³ /r)	l/min	(gpm)	l/min	(gpm)	bar	(psi)	bar	(psi)	
03	10,8	(0.66)	12,93	(3.42)	16,2	(4.29)	275	(4000)	240	(3500)	400 - 2800
05	17,2	(1.05)	20,60	(5.45)	25,8	(6.83)	275	(4000)	240	(3500)	400 - 2800
06	21,3	(1.30)	25,52	(6.75)	31,9	(8.44)	275	(4000)	240	(3500)	400 - 2800
08	26,4	(1.61)	31,64	(8.37)	39,6	(10.48)	275	(4000)	240	(3500)	400 - 2800
10	34,1	(2.08)	40,86	(10.81)	51,1	(13.52)	275	(4000)	240	(3500)	400 - 2800
12	37,1	(2.26)	44,45	(11.76)	55,6	(14.71)	275	(4000)	240	(3500)	400 - 2800
14	46,0	(2.81)	55,11	(14.58)	69,0	(18.25)	275	(4000)	240	(3500)	400 - 2800
17	58,3	(3.56)	69,85	(18.48)	87,4	(23.12)	275	(4000)	240	(3500)	400 - 2800
20	63,8	(3.89)	76,47	(20.23)	95,7	(25.32)	275	(4000)	240	(3500)	400 - 2800
22	70,3	(4.29)	84,26	(22.29)	105,4	(27.88)	275	(4000)	240	(3500)	400 - 2800
25	79,3	(4.84)	95,03	(25.14)	118,9	(31.46)	275	(4000)	240	(3500)	400 - 2500
28	88,8	(5.42)	106,41	(28.15)	133,2	(35.24)	210	(3000)	160	(2300)	400 - 2500
31	100,0	(6.10)	119,83	(31.70)	150,0	(39.68)	210	(3000)	160	(2300)	400 - 2500

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 cSt. (18 to 108 cSt. recomm.). Choose 30 cSt. for max lifetime.

Viscosity index: 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8.

Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C.

Minimum inlet pressure: (with mineral oil 10-65 cSt.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

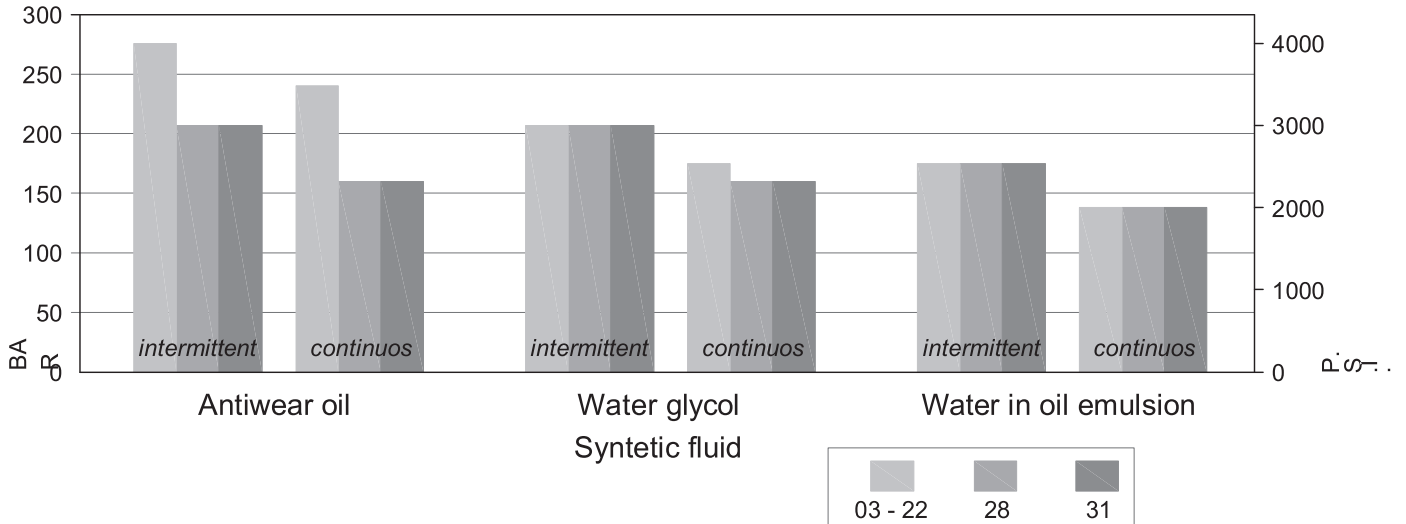
Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100° C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

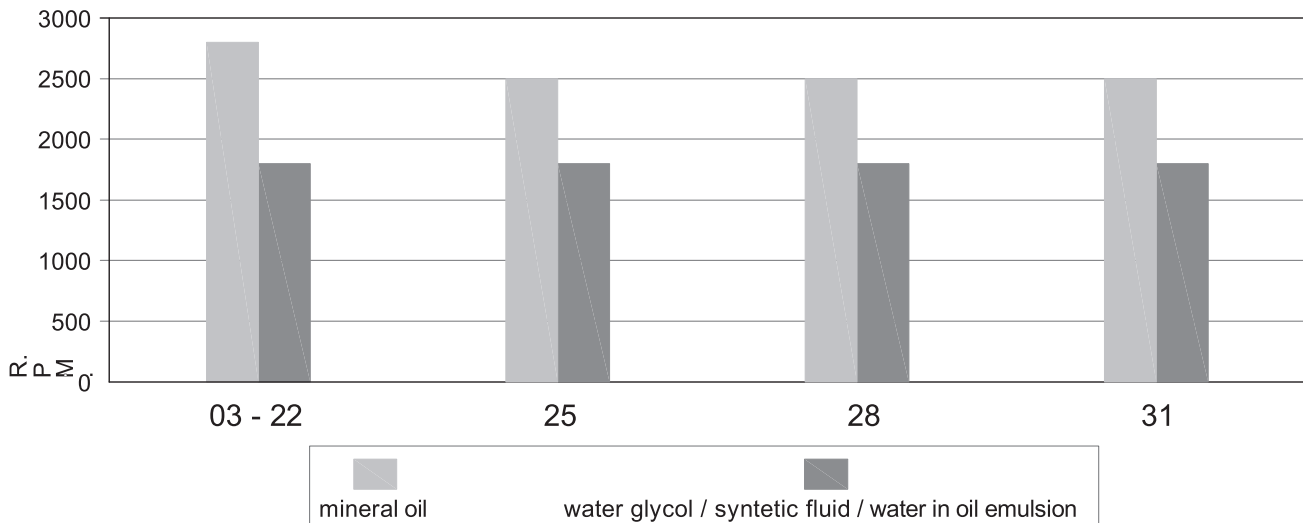


Main operating data

max pressure / fluid type



max speed / fluid type



min. allowable inlet pressure / rotation speed (abs. bar)*

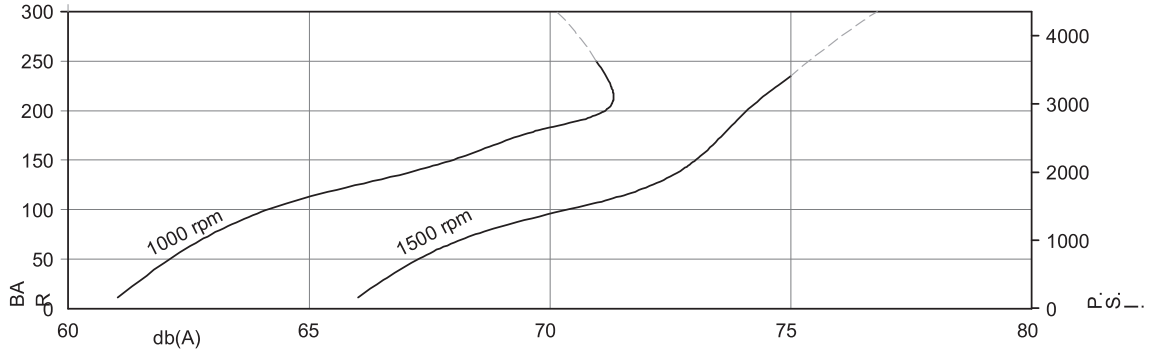
Speed r.p.m.	from 03 to 10	12	14	17	20	22	25	28	31
2500	1.00	1.00	1.00	1.03	1.03	1.05			
2300	0.90	0.92	0.95	0.95	0.95	0.98	1.05	1.08	1.11
2100	0.80	0.85	0.85	0.90	0.90	0.90	0.95	0.98	1.0
1900	0.80	0.80	0.80	0.80	0.80	0.85	0.90	0.90	0.95
1800	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
1500	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
1200	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80

* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).
 Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

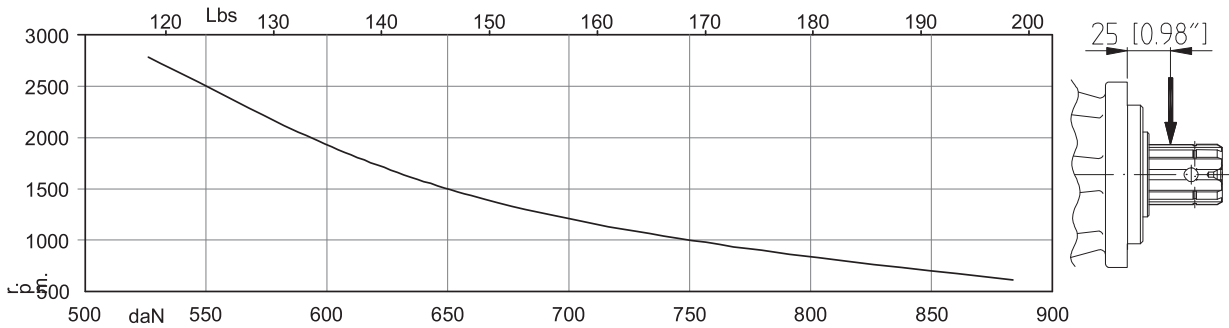


Main operating data

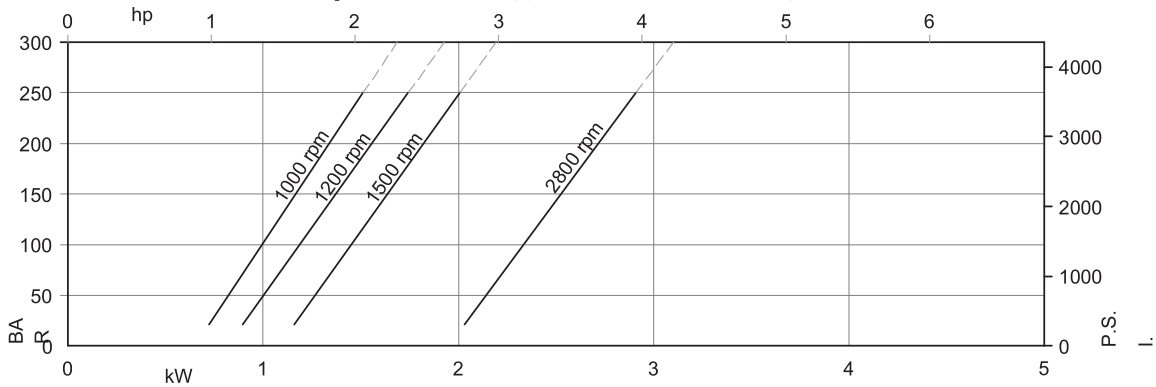
noise level (model 22, with fluid viscosity 32 c.St., inlet 0.9bar abs.)



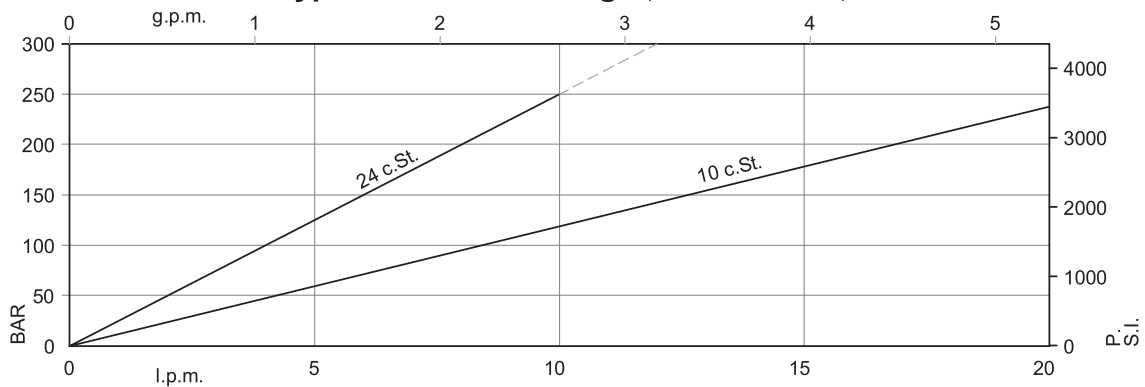
allowable radial load (positioned 25 mm from flange surface)



power loss (typical for each section)



Typical internal leakage (for each section) *



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump



Specific operating data (P1 or P2 section)

Typical: 24 c.St. (115 SUS)

Cartridge model	Geometric displacement		Speed rpm	140 bar		240 bar		Input power (kW)		
	ml/rev.	(in ³ /r)		l/min	(gpm)	l/min	(gpm)	7 bar (100 psi)	140 bar (2000 psi)	240 bar (3500 psi)
03	10,8	(0,63)	1000	-	-	-	-	1,00	-	-
			1200	-	-	-	-	1,05	-	-
			1500	10,7	(2,94)	-	-	1,30	5,30	-
			1800	13,6	(3,51)	-	-	1,55	6,45	-
05	17,2	(1,05)	1000	11,7	(3,09)	-	-	1,10	5,10	-
			1200	15,1	(3,99)	-	-	1,14	6,17	-
			1500	20,3	(5,37)	15,8	(4,15)	1,40	7,50	12,2
			1800	25,1	(6,55)	21,0	(5,56)	1,65	12,0	14,1
06	21,3	(1,30)	1000	15,30	(4,13)	11,30	(2,99)	1,10	6,00	10,00
			1200	19,72	(5,22)	15,6*	(4,13)	1,19	7,13	11,86
			1500	26,50	(7,01)	22,00	(5,82)	1,50	8,90	14,70
			1800	32,51	(8,51)	28,30	(7,51)	1,75	11,50	17,33
08	26,4	(1,61)	1000	20,90	(5,57)	17,40	(4,54)	1,20	7,20	12,10
			1200	25,00	(6,54)	21,74	(5,75)	1,28	8,51	14,29
			1500	34,10	(9,02)	29,60	(7,85)	1,60	10,70	17,70
			1800	41,80	(11,02)	37,54	(9,95)	1,87	12,58	20,98
10	34,1	(2,08)	1000	28,80	(7,57)	21,10	(6,36)	1,30	8,90	15,10
			1200	35,06	(9,28)	30,96	(8,10)	1,37	10,61	17,36
			1500	45,70	(12,09)	41,20	(10,90)	1,70	13,40	22,30
			1800	55,52	(14,69)	51,4*	(13,50)	2,00	15,72	26,47
12	37,1	(2,25)	1000	31,00	(8,20)	27,10	(7,17)	1,30	9,00	16,00
			1200	38,07	(10,23)	34,55	(9,14)	1,41	11,42	19,30
			1500	50,20	(13,28)	45,70	(12,09)	1,70	14,40	24,10
			1800	60,90	(16,11)	58,78	(15,02)	2,05	18,95	28,82
14	46,0	(2,81)	1000	40,50	(10,71)	35,00	(9,52)	1,40	11,70	19,80
			1200	49,32	(13,15)	45,2*	(11,95)	1,52	13,85	23,62
			1500	63,50	(16,80)	59,00	(15,61)	1,90	17,60	29,50
			1800	76,92	(20,35)	72,80	(19,25)	2,27	20,58	34,97
17	56,2	(3,54)	1000	52,80	(13,97)	48,30	(12,73)	1,60	14,50	24,80
			1200	64,07	(16,95)	59,95	(16,00)	1,70	17,19	29,47
			1500	82,00	(21,69)	77,50	(20,50)	2,10	21,90	36,90
			1800	99,04	(26,20)	94,92	(25,11)	2,52	25,60	43,78
20	65,8	(3,89)	1000	58,30	(15,42)	53,80	(14,23)	1,60	15,80	27,00
			1200	70,66	(18,70)	65,57	(17,61)	1,77	18,68	32,09
			1500	90,20	(23,86)	85,70	(22,67)	2,20	23,80	40,20
			1800	108,90	(29,61)	102,65	(27,42)	2,62	27,84	47,68
22	70,0	(4,24)	1000	64,00	(17,14)	60,30	(15,95)	1,70	17,30	29,80
			1200	78,47	(20,78)	74,35	(19,87)	1,88	20,46	35,18
			1500	100,00	(26,48)	95,50	(25,23)	2,30	25,10	44,10
			1800	120,58	(31,90)	116,46	(30,81)	2,78	30,49	52,32
25 ¹⁾	79,3	(4,84)	1000	73,80	(19,67)	69,30	(18,33)	1,80	18,30	33,20
			1200	89,25	(23,61)	85,13	(22,52)	1,90	22,90	39,47
			1500	113,50	(30,03)	106,00	(28,81)	2,50	28,20	49,50
			1800	136,76	(36,18)	132,64	(35,09)	2,95	34,16	58,75
28 ¹⁾	86,8	(5,12)	1000	83,30	(22,04)	80,10 ²⁾	(21,19) ²⁾	1,90	21,90	32,50 ²⁾
			1200	100,62	(26,62)	97,75 ²⁾	(26,05) ²⁾	2,11	25,49	37,77 ²⁾
			1500	127,70	(33,78)	124,50 ²⁾	(32,84) ²⁾	2,80	32,70	48,50 ²⁾
			1800	153,85	(40,70)	150,97 ²⁾	(39,84) ²⁾	3,14	38,04	56,42 ²⁾
31 ¹⁾	100,0	(6,10)	1000	91,50	(25,00)	81,30 ²⁾	(21,15) ²⁾	2,00	21,40	36,40 ²⁾
			1200	114,04	(30,17)	111,17 ²⁾	(29,41) ²⁾	2,28	26,53	42,94 ²⁾
			1500	144,50	(38,23)	141,30 ²⁾	(37,38) ²⁾	2,80	36,50	54,40 ²⁾
			1800	173,99	(48,03)	171,12 ²⁾	(45,27) ²⁾	3,37	42,81	63,28 ²⁾

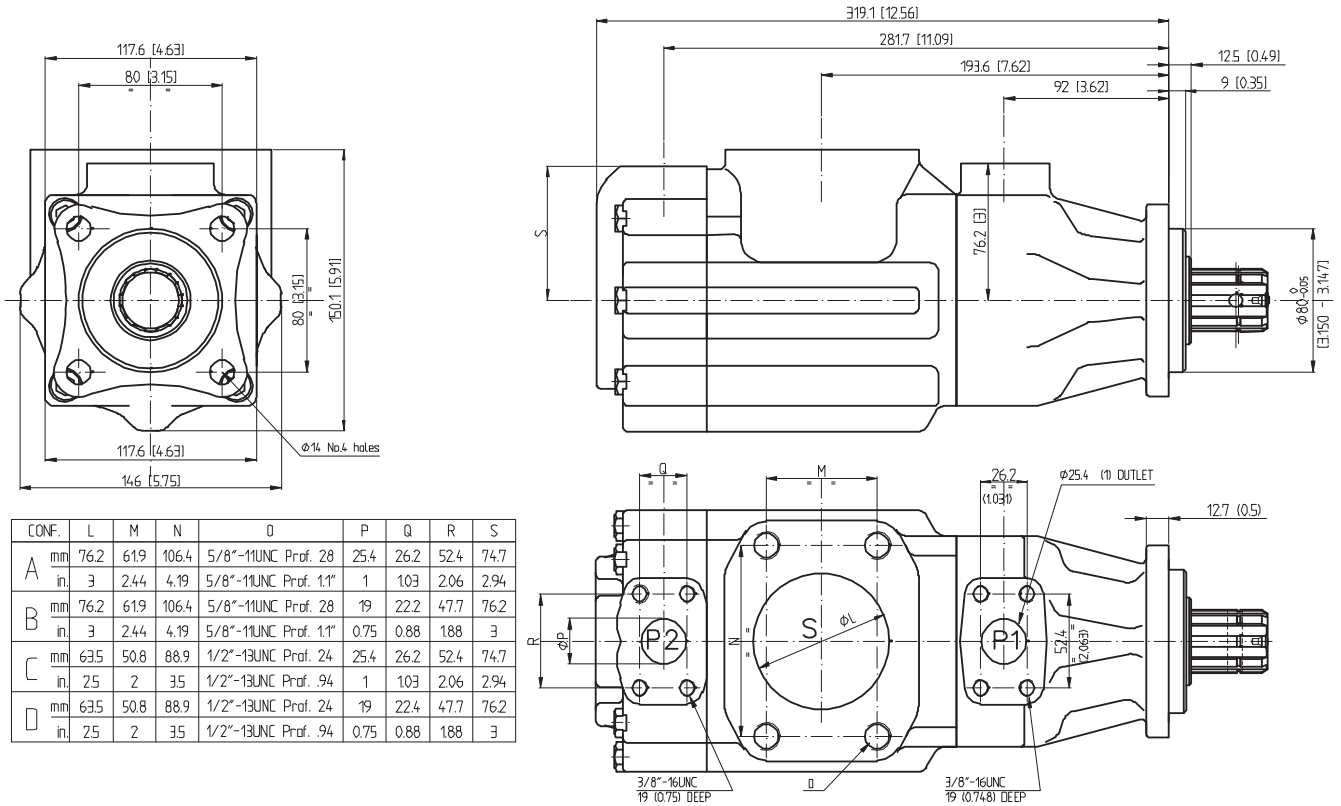
- Internal leakage exceeding 50% of the theoretical flow

1) 2500 r.p.m. max.

2) 210 bar (3000 p.s.i.) max. int.

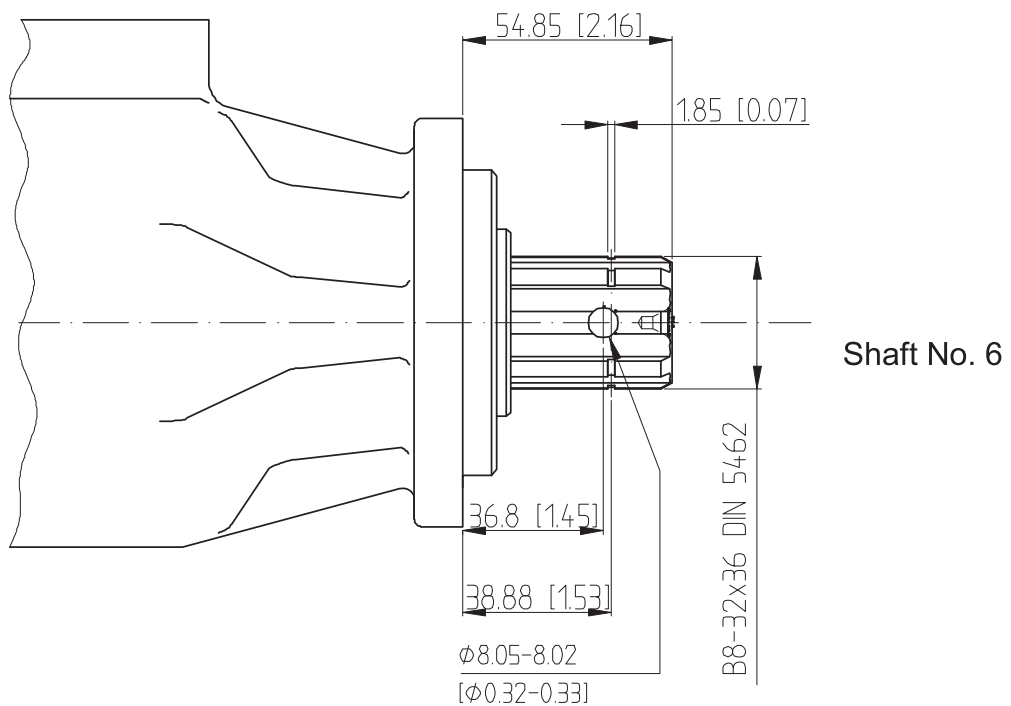


Installation dimensions mm [inches]



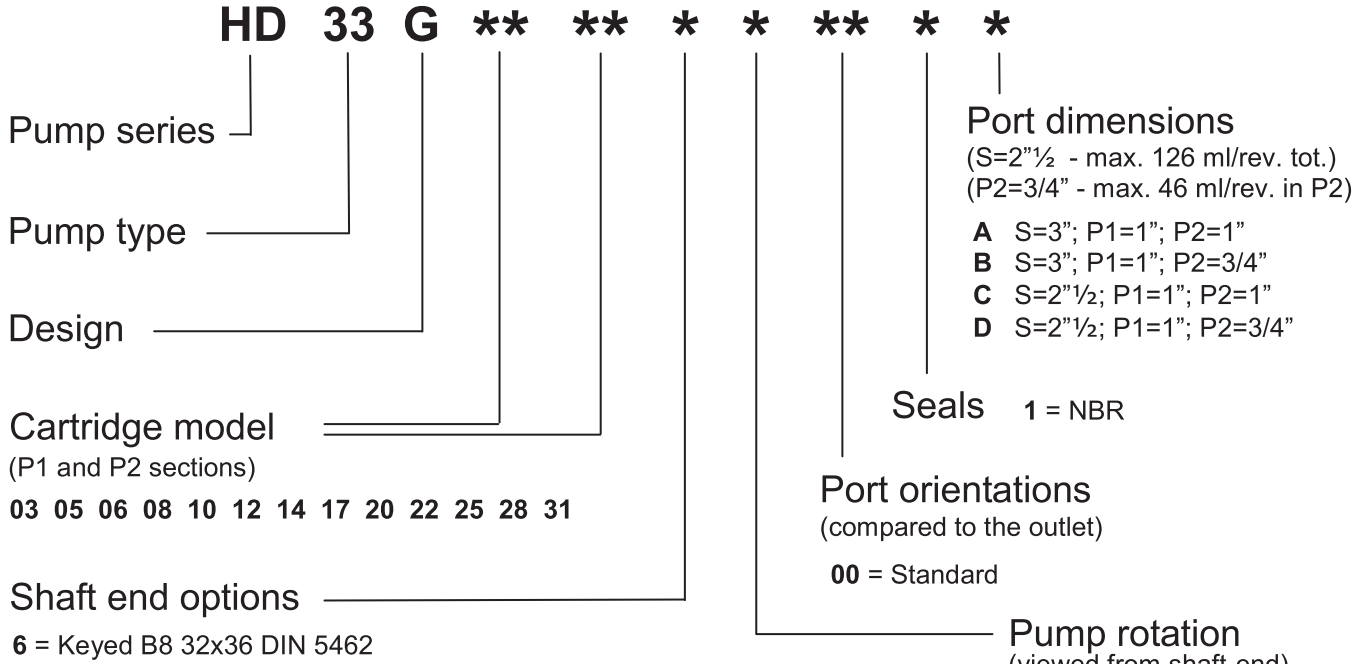
Approx weight: 27.2 kg (59.6 lbs)

Shaft options mm [inches]

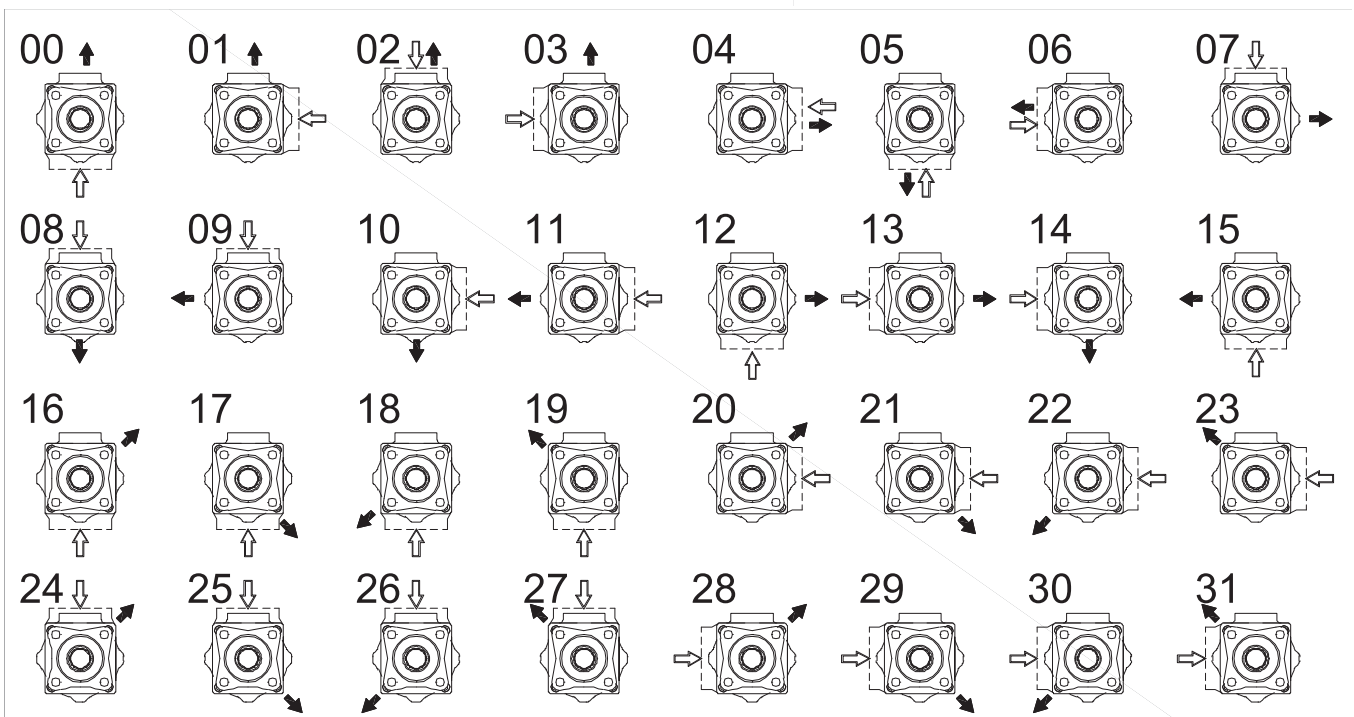
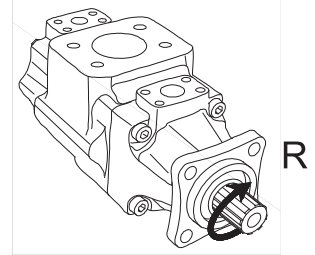
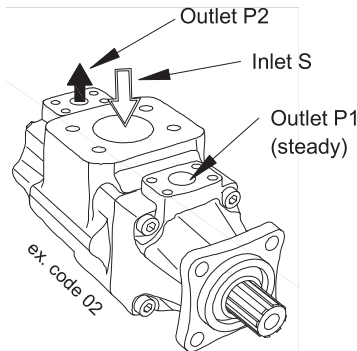




Model code breakdown



Port orientations





Id. codes of pump components

Screw	
Part No.	M3020140
Torque at 159 Nm (1418 lb.in.)	

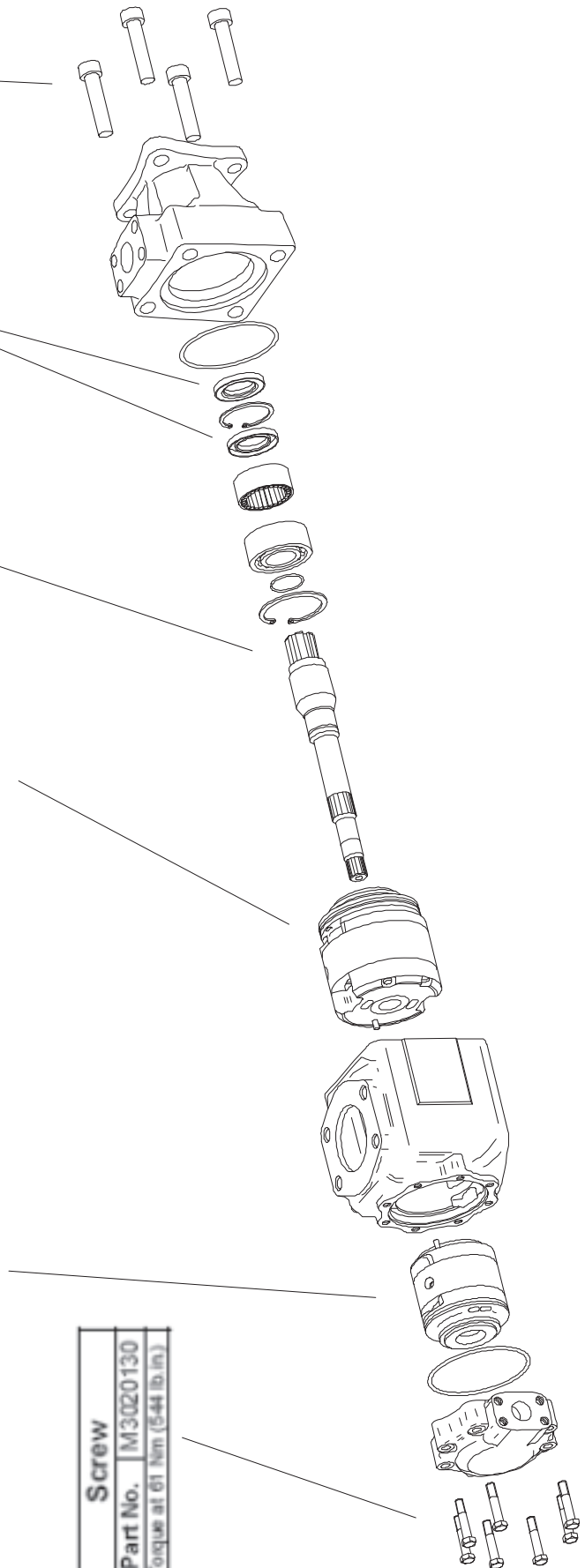
Shaft	
Model	6
Part No.	K6336000

Shaft seal	
Part No.	M3020061
type	NBR

Type	Front cartridge	
	Model	Pump rotation
HD33	03	Right hand
	05	Left hand
	06	Right hand
	08	Left hand
	10	Right hand
	12	Left hand
	14	Right hand
	17	Left hand
	20	Right hand
	22	Left hand
	25	Right hand
	28	Left hand
	31	Right hand

Type	Rear cartridge	
	Model	Pump rotation
HD33	03	Right hand
	05	Left hand
	06	Right hand
	08	Left hand
	10	Right hand
	12	Left hand
	14	Right hand
	17	Left hand
	20	Right hand
	22	Left hand
	25	Right hand
	28	Left hand
	31	Right hand

Screw	
Part No.	M3020130
Torque at 61 Nm (544 lb.in.)	





Operating instructions

Maximum speed: the maximum speeds given in this catalogue are valid for an atmospheric pressure of 1 bar (14.7psi), fluid viscosity between 10 to 65 cSt., and ambient temperature in the range of +30°C to +50°C. Sustained excess speed causes a rapid deterioration of the internal components reducing the lifetime of the cartridge.

Minimum speed: In general, the min. speed for all pumps is 400 rpm. However, it is possible to operate at lower speeds with certain pump configurations and with appropriate operating temperatures.

Inlet pressure: the inlet pressure, measured at the inlet port, should remain within the prescribed limits. Note that pressures lower than minimum limit cause cavitation and pressures above the maximum limit cause abnormal loads on the shaft and the bearings. In both cases this causes a significant reduction in the lifetime of the cartridge.

Maximum outlet pressure: the maximum continuous outlet pressure is different for each type of fluid used as can be seen from the corresponding diagrams. If fluid viscosity, pump speed and contamination level are respected, an intermittent pressure of +15% is permissible for a maximum time of 80% of the duty cycle lasting 15 minutes. For longer duty cycles, please consult our technical office.

Mounting and drive connections: consider the following indications when preparing the installation drawings: Pump with keyed shaft: the pump with keyed shaft has to be coupled axially and by means of a flexible coupling to the drive; the clearance between the keyed shaft and the corresponding sleeve coupling has to be between 0.004 and 0.030 mm; avoid axial and radial loads on the shaft; the mounting flange has to be perpendicular to the drive shaft, with a maximum error of 0.18 mm every 100 mm.

Pump with splined shaft: the female spline must be hardened (30 to 45 R.C.) and should be free to float to find its own center; the clearance between splines has to be between 0.013 and 0.051 mm on the pitch diameter; the max angular misalignment between the two spline axes must be less than ± 0.05 per 25 mm radius. The coupling spline must be lubricated with grease or similar lubricant.

Hydraulic circuit: always install a pressure relief valve on the supply line to prevent the pressure from exceeding the allowed maximum. Normally, it is set in accordance with the weakest component in the system. (In the case where it is the pump, set the valve to a pressure 15% higher than the maximum pressure rating of the pump.) Inlet line tubing must have the sections that permits a fluid velocity between 0.5 and 1.9 m/sec. It is advisable to keep the tube connecting the pump to the reservoir as short possible. Particular care has to be taken with the inlet line which must be hermetically sealed to avoid entraining air into the circuit; this varies the characteristics of the hydraulic fluid causing the operating parts to become damaged.

Filtration: the inlet line filter must have a flow rate capacity that is higher than that of the pump at its maximum operating speed. The use of a filter by-pass is recommended for cold starts and should avoid the filter become clogged. Proper maintenance of the filter elements are essential for the correct operation of the entire system. In normal conditions replace the filter element after the first 50 hours of operation. Subsequently, replace it at least every 500 hours. Regarding the filter on the return line, apply the same general conditions as for the inlet line and it should be positioned in an accessible location for ease of maintenance.

Tank: if possible, the reservoir should be positioned above the pump. Otherwise, ensure that the minimum level of the fluid contained in it is higher than the pump inlet line opening. It is important to avoid draining the inlet line with the pump at standstill. The opening of the return line into the reservoir must remain below the minimum level of the fluid in the reservoir. It must not be positioned too close to the opening of the inlet line to avoid the possibility of any air bubbles passing into the inlet line. Baffles inside the reservoir may be useful in avoiding the problem. Rapid temperature changes can cause condensation on the underside of the lid of the reservoir with the formation of droplets of water that can fall into the oil. To avoid this problem it is recommended that the lid should have small vents so that the air space in the reservoir is ventilated. The vents have to be screened, though, to prevent the entry of dust or the sudden expulsion of fluid.

Start-up: use the following procedure when the pump is started-up for the first time: completely fill the pump and the inlet line with fluid; start the motor at lower speed for approximately one second a number of times at regular intervals of approximately 2 or 3 seconds until the noise level reduces, thereby confirming that it has been primed; with a manometer check to ensure that the outlet pressure increases slightly; once the pump has been primed, maintain low pressure levels activating all parts of the circuit a number of times until air bubbles disappear completely from the return line to the reservoir.

This procedure should be carefully applied because any residual air inside the pump can quickly cause the rotor to seize. After long stops (>1 week) the start up procedure must be repeated.

Cold starting: when starting the pump, especially with low ambient temperatures, operate with moderate speed and pressure until the average temperature in the entire circuit is within the given limits. Make sure the fluid viscosity is within the limits, by consulting the specific pump model in this catalogue.

Vertical installation: The pump cannot work in vertical position (vertical shaft), unless the hydraulic circuit is equipped by devices to fill the pump completely before each starting.

The information provided in this catalogue is subject to change without notice.



an excellence in engineering

comprehensive range of components www.jbj.co.uk



Gear Pumps/Motors



Mini Power Packs



Screw Pumps



Vane Pumps



Axial & Radial Piston Motors



Pneumatic Motors & Starters



BD Clutches & Gearboxes



BDS Clutches



Planetary Gearboxes



Splitter Gearboxes



Coolers



Oil Bath Clutches



LSHT Motors/Geared Motors



Bellhousings



Torsional Couplings



Torsionally Flexible Couplings



Torsionally Rigid Couplings



Anti-static/Flameproof Couplings



Tyre Couplings



Permanent Magnetic Couplings



Torque Limiting Couplings



Hydraulic Adaptors



Engine Adaptor Kits



Dampers



Pressure Intensifiers



Flow Dividers



Tanks/Accessories



Fluid Level Indicators



Flanges



Range of ATEX certified



quality products for mechanical & fluid power

01737 767493

info@jbj.co.uk

www.jbj.co.uk



jbj Techniques Limited is ISO certified, committed to international coordination & unification of industrial standards.

- registered in England No. 1185469 -

A range of products ATEX certified to directive 94/9/E requirements





jbj Techniques Limited
28 Trowers Way Holmethorpe Industrial Estate
Redhill Surrey RH1 2LW. UNITED KINGDOM

quality products for mechanical & fluid power

 **01737 767493**  **info@jbj.co.uk**  **www.jbj.co.uk**



jbj Techniques Limited is ISO certified,
committed to international coordination &
unification of industrial standards.

registered in England No: 1185469

A range of products ATEX certified
to directive 94/9/EC requirements

