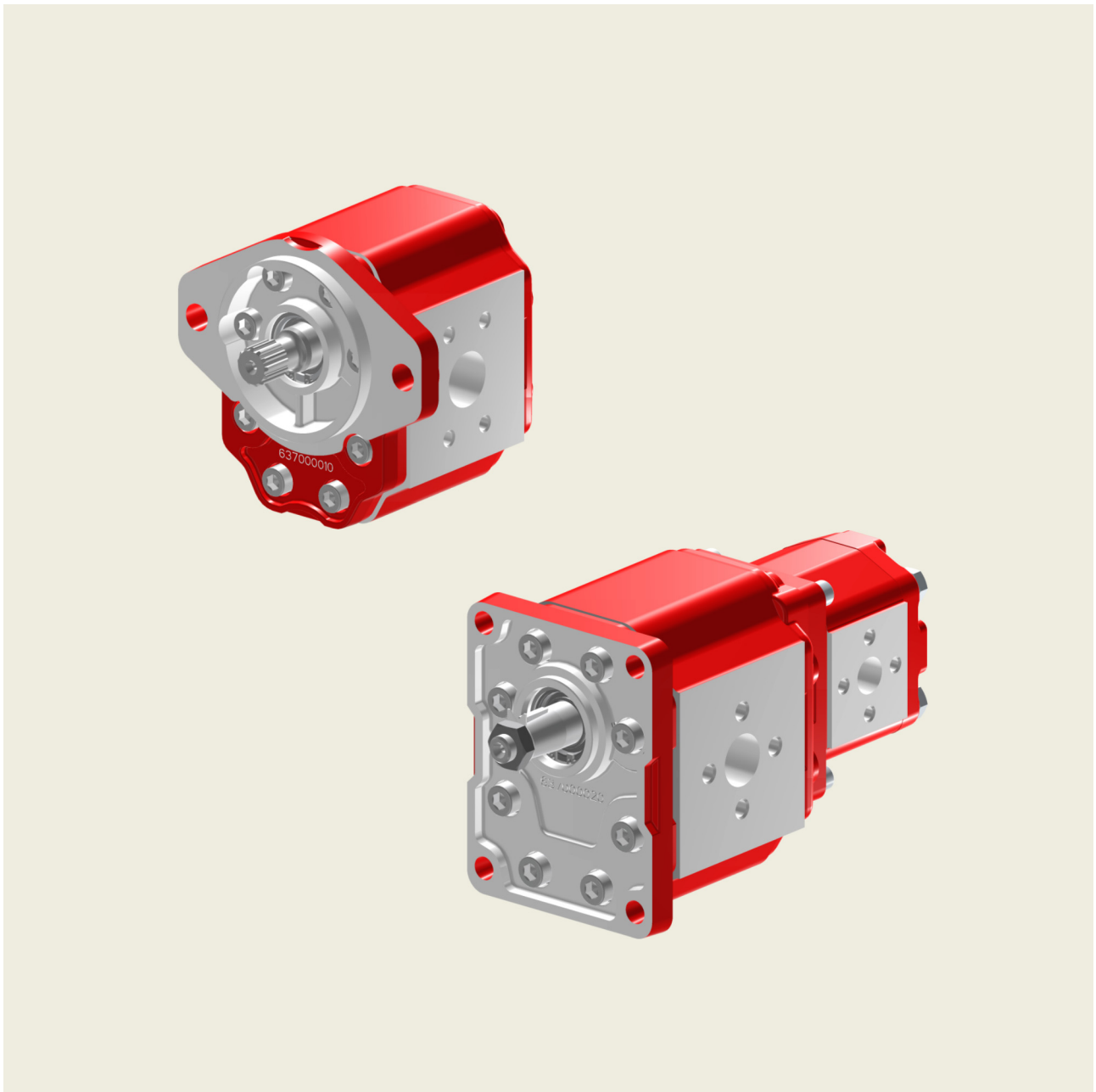


AP300 Gear Pumps

FP series, multi-stages predisposal



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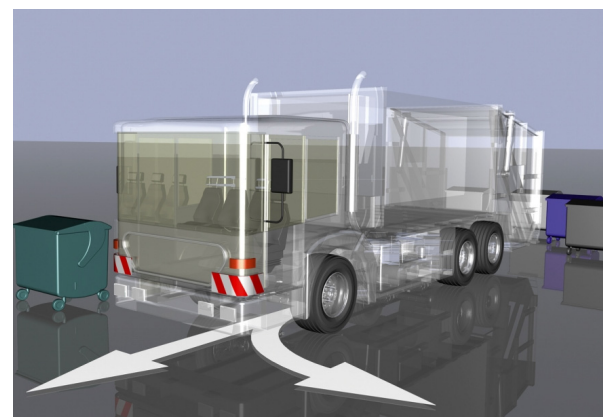
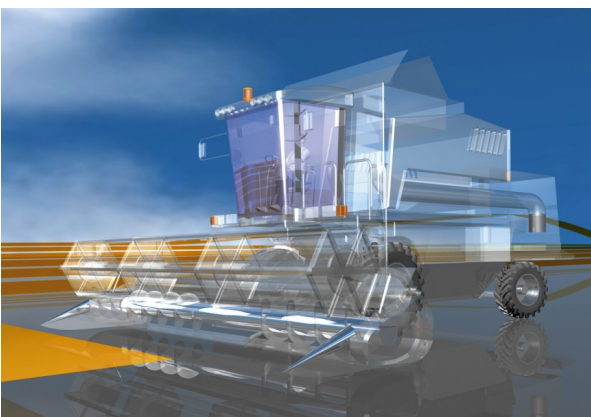
1 General information

The product range of Bucher Hydraulics SpA includes single pumps 05-100-212-212HP-250HP-300-312HP (corresponding with the common group denominations: 05-1-2-2.5-3) and several combinations of double pumps, triple pumps, and so on, that can be assembled together according to



versions of displacement, flanging, and auxiliary valves. External gear pumps are widely used in modern hydraulic systems due to their high performance, long service life and low purchase and maintenance costs.

Here following we introduce you the AP300 family range.



Bucher Hydraulics has so achieved these results by constantly improving its design, control and manufacturing techniques inline with the latest technological developments, while simultaneously enhancing our Quality

Control System which ensures that every single product offers the same high standards.

1.1 AP300 single pump technical data

Features		
Fluid temperature range (mineral oil)	NBR	-15 / +80 °C (peak: -20 / +90 °C)
Recommended fluids		hydraulic mineral oil-based
Viscosity range:	Recommended Permitted Permitted for starting	20-120 mm ² /s (cSt) up to 700 mm ² /s (cSt) 2000 mm ² /s (cSt)
Cleanliness:	recommended up to 140 bar (2000 PSI) recommended up to 210 bar (3000 PSI) recommended up to 275 bar (4000 PSI)	20/18/15 ISO 4406 19/17/14 ISO 4406 17/15/12 ISO 4406
Minimum storage temperature:	NBR	-25 °C
Standard seals material (valves not included)		NBR

1.2 Operating limits

AP300 Type	Displacement		Max. Pressure*						n min.		n max.	
	cm ³ /rev	Cu. In. P. R.	P1		P2		P3		P ≤ P1	P > P1	P ≤ P1	P > P1
			bar	P.S.I.	bar	P.S.I.	bar	P.S.I.				
AP300/27	27.0	1.674	220	3150	250	3600	280	4000	600	800	3000	3500
AP300/31	31.0	1.891	220	3150	250	3600	280	4000	600	800	3000	3500
AP300/38	38.0	2.318	220	3150	250	3600	280	4000	600	800	2500	3000
AP300/45	45.0	2.745	200	2900	230	3300	260	3700	600	800	2500	3000
AP300/53	53.0	3.233	200	2900	230	3300	260	3700	600	800	2500	3000
AP300/63	63.0	3.843	180	2600	210	3000	240	3400	550	700	2500	3000
AP300/75	75.0	4.575	170	2400	190	2700	220	3150	550	700	2000	2500
AP300/93	93.0	5.673	150	2100	170	2400	200	2900	500	650	2000	2500

* Referred to pumps with flanged ports. Utilising threaded ports, please to consider a significantly de-rated performances.

The mechanical stress localised on threaded ports cause a reduced pump life performances



Important: Please contact our Sales Department if even one of the operating limits indicated in the tables below (temperature, pressure, rpm) is exceeded, as well as in the case of two or more maximum values at the same time, or for applications with particularly heavy-duty cycles.

1.3 Pressure

Pressure levels:

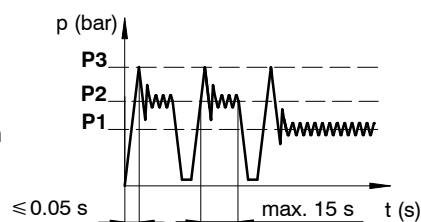
P1 = continuous pressure

P2 = intermittent pressure

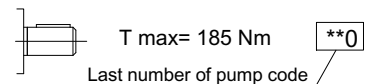
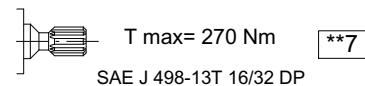
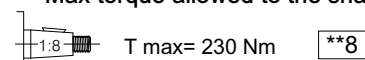
P3 = peak pressure

The recommended oil speed in the pressure pipes is:

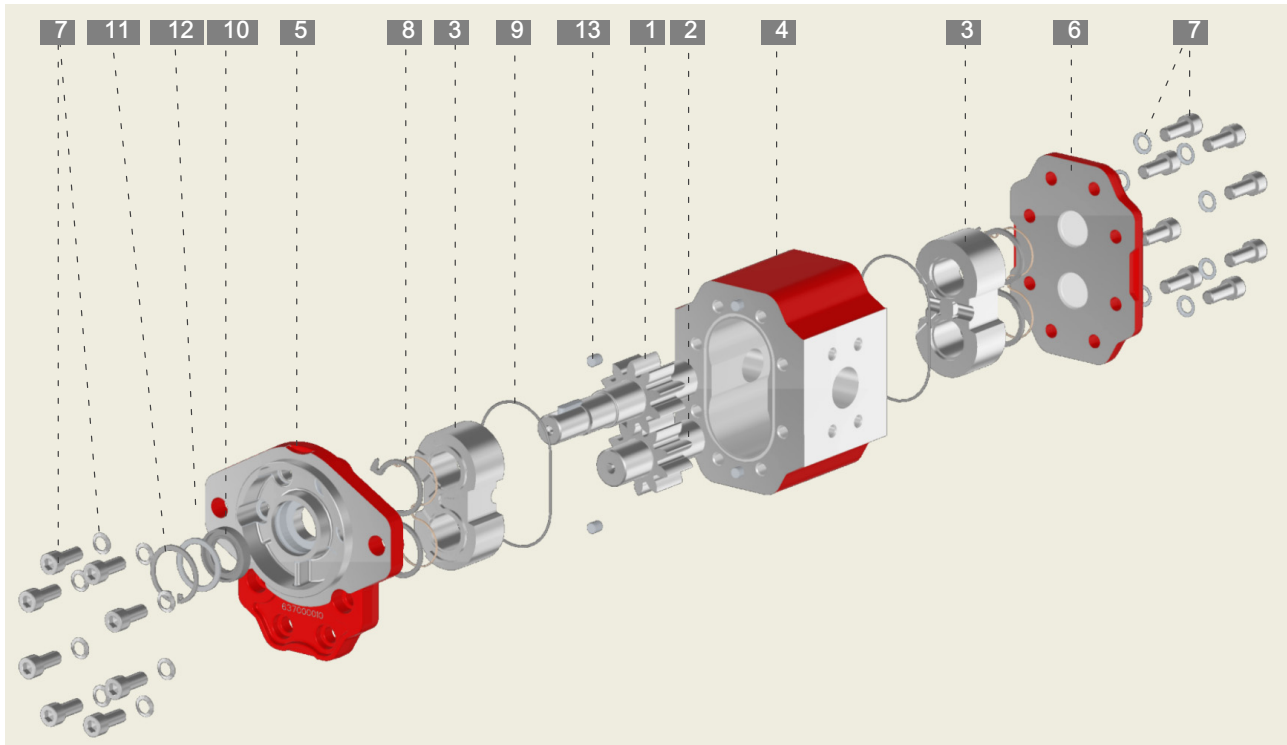
v = 2 to 5 m/s



Max torque allowed to the shaft



1.4 Product description



1. Drive gear
2. Driven gear
3. Balancing
4. Pump body
5. Front cover
6. Rear cover
7. Fixing screw and washer

8. Balancing seal
9. Oil seal
10. Shaft seal
11. Retaining ring
12. Seger
13. Centering pin

Referring to the pump shown in the figure, the drive gear (1) drives round the driven gear (2), transferring the oil from the suction port to the pressure port as it turns round.

The gears are made from high strength steel alloy.

The bushings (3) serve a dual purpose:

- to act as a bearing for the gears
- to balance axial and radial thrust in proportion to the change in operating pressure.

The gears-bushings assembly is fitted inside the pump body (4), in which generally the suction and pressure ports are formed.

The pump body is made of high strength extruded aluminium alloy.

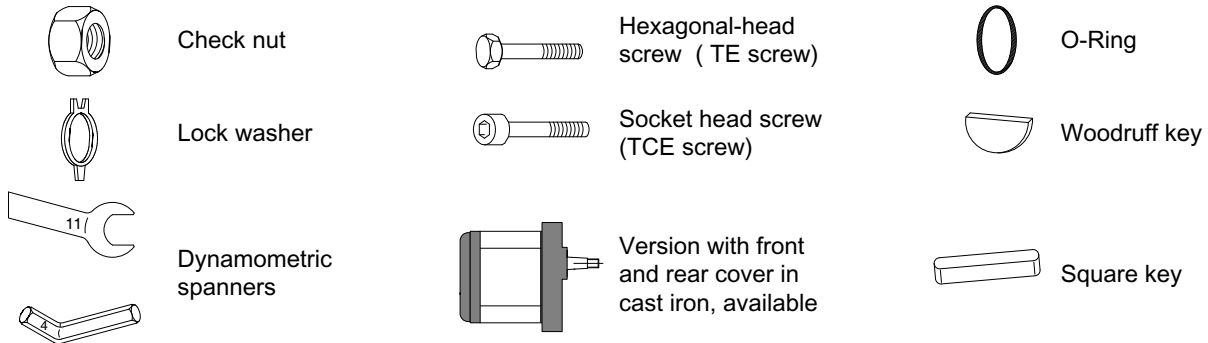
The front cover (5), which also acts as a mounting flange, and the rear cover (6) are connected to one another by fixing screw and wash (7).

The pump assembly is completed by a series of seals:

- Balancing seals (8) can be fitted in recesses in the bushings as shown in the figure, or in the covers. Their purpose is to delimit the longitudinal balancing area separating the suction and pressure zones.
- Oil seals (9) prevent oil from leaking out.
- An oil retaining ring with the dual purpose of preventing oil leaks from the drive gear shaft and preventing dust or other pollutants from entering the pump itself. Unless otherwise specified, the seals are in nitrilic compound offering high mechanical strength and heat resistance.
- Viton seals are available on request.

(see 1.7 Recommended fluids/Allowed temperatures).

1.5 Non-standard symbols used in the text



1.6 Identifying the rotation direction

The rotation direction of a gear pump is identified by looking at the pump from the front and with the drive gear turned upwards (see figures below).

Pumps with clockwise rotation (D) have a drive gear which turns clockwise, with the suction port on the left and the pressure port on the right.

Pumps with counterclockwise rotation (S) have a drive gear which turns counterclockwise, with the suction port on the right and the pressure port on the left.

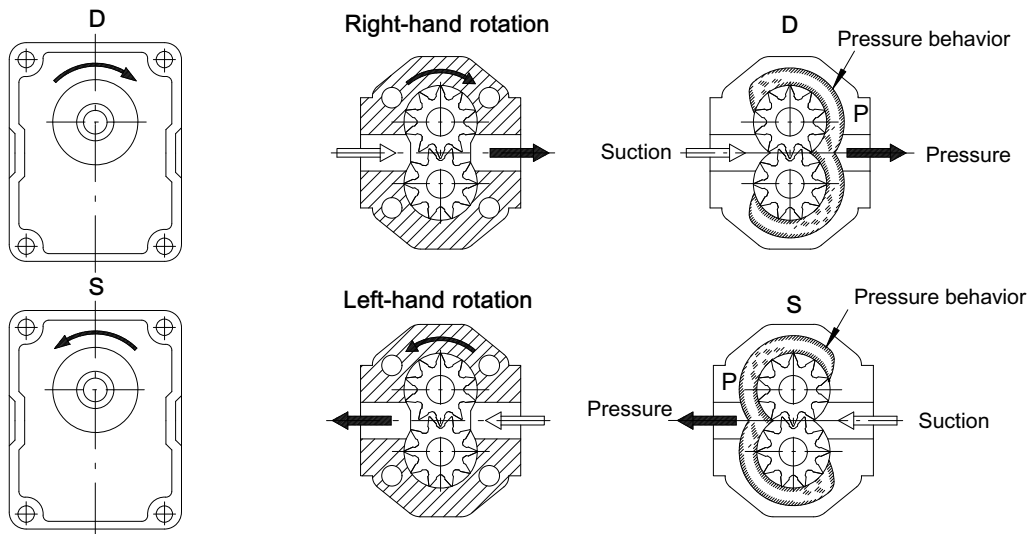
The figure also shows the pressure flow inside the pumps as the oil is transferred from the suction port to the pressure port.

Pumps with a unidirectional rotation (D or S) have the denomination AP.

It is possible to change the rotation direction of the entire range of pumps without having to replace any component, except for the AP100 group, for which it is necessary to replace the front cover.

To ensure a good technical result, we recommend in any case that such inversion be carried out at our factory.

Technical descriptions are available on request, which show the correct procedure for the pump rotation inversion.



1.7 Recommended fluids/Allowed temperatures

Bucher Hydraulics recommends to use a mineral based oil according to type HM (ISO 6743/4) or type HLP (DIN 51524) only.



: Use of pumps at temperatures above 80°C must always be agreed upon with our Technical Office, and in any case this can cause a significant worsening in the volumetric efficiency. For use under conditions different from those indicated in this catalogue, please contact our Sales Department

1.8 Suction

The absolute suction pressure must be $P_{in} \geq 0.75$ bar (11 PSI); therefore, the following must be avoided:

- large height differences between pump and tank
- long stretches of piping
- special features such as:
 - bends
 - reductions in diameter
 - quick couplings
 - etc.

It is also advisable to choose a filter of a suitable size to minimise any pressure drop and to take measures to prevent gradual clogging over time.

(Example 1)

In certain cases, the suction pressure can exceed 1 bar (14.3 PSI), or atmospheric pressure.

Please contact our Sales Department, solution for $P_{in} \leq 3.5$ bar (50 PSI), are available.

If in a particular application the P_{in} pressure is higher than the recommended value, contact our Sales Office.

The diameter of the suction pipe should ensure that the oil speed will fall within the range: $v = 0.6 - 1.2$ m/s.

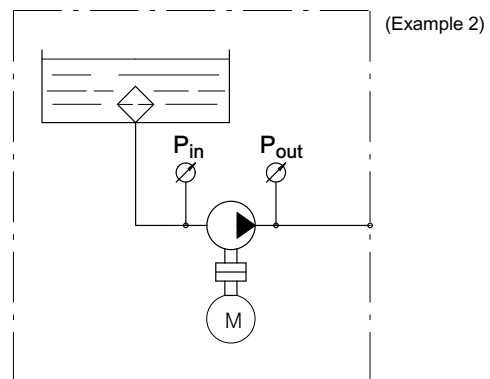
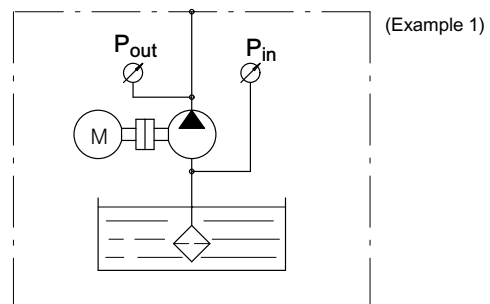
(Example 2)

1.9 Filtration

A short service life of a gear pump is normally due to the presence of impurities in the oil.

It is therefore essential to have an effective filter in the system and to carry out regular maintenance to ensure a long, trouble-free service life.

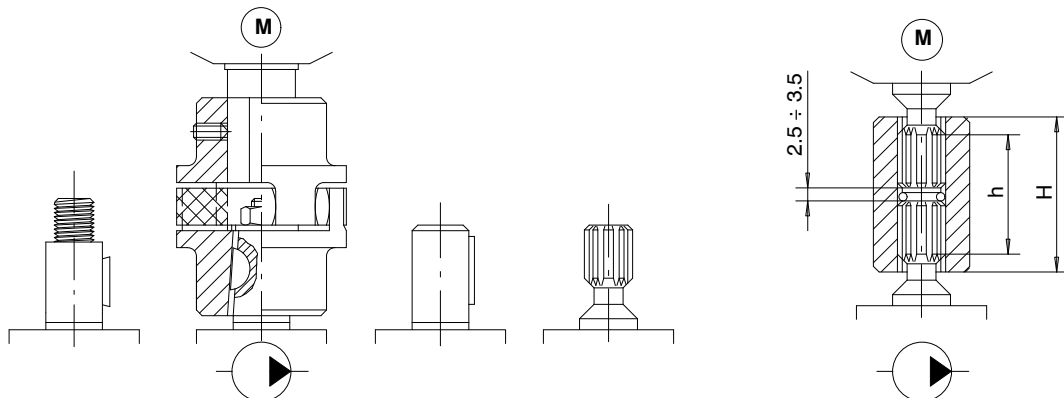
When possible and compatible with the hydraulic circuit installed, Bucher Hydraulics S.p.A. recommends that the system have total filtration (suction, pressure, return).



In any case, the filtering system must constantly ensure an oil contamination class equal to or less than those shown in the following table.

We also recommend that an adequate air filter be installed on the tank to prevent contaminating substances such as dust, sand, etc. from getting into the oil, as these substances can enter the tank through the air flow caused by the level variations in the tank itself.

1.10 Motor-pump coupling



Absolutely no radial or axial forces should be transmitted to the drive shaft in the motor-pump coupling.

Such forces cause rapid and irregular wear on the balancing surface of the bushings and gear support, with a consequent worsening in pump performance.

The coupling joint must be able to absorb any discrepancies in the coaxial alignment of the motor-pump shafts without placing any load on the pump shaft.

In the couplings between splined shafts, the connecting sleeve must be free to move along its axis.

The length of the sleeve must be sufficient to cover the splined sections of the motor-pump shafts completely in any position.

The distance between the ends of the shafts must be between 2.5 ± 3.5 mm (.10" \pm .14").

Make sure that the splined coupling is suitably lubricated to protect it against rapid deterioration.

If there are radial and/or axial loads on the drive shaft, such as when it is driven by a V-belt and pulley or pair of gear wheels, it should be fitted with a front cover with supporting bearings.

1.11 General precaution

In addition to the recommendations regarding fluids, filtration, coupling, etc., we suggest the following:

- Always check the rotation direction of the pump's drive shaft; it must be compatible with the rotation direction of the pump itself.
- Be particularly careful in cleaning and make sure, when connecting the suction and pressure piping, that no chips, rag threads, teflon tape, etc. get into the pump circulation system.
- Check the tightness of the suction and pressure fittings, the correct positioning of the O-Ring, and make sure there is no dirt between the flange and the pump body.
- The first pump start-up can be facilitated by manually filling the suction piping and the pump itself with oil. To facilitate air bleeding, start the pump with the circuit not pressurised.

- To ensure the best heat distribution inside the tank, make sure the return pipe is not too close to the pump's suction piping. The pipings themselves should be below oil tank level to prevent the formation of foam.
- Do not subject the pumps to operating conditions different from those indicated in section 1.1; for extreme operations, always contact our Technical Department.
- Never use fluids different from those indicated in section 1.7.
- In the event of pump painting, do not use solvents or paints that are incompatible with the material of the seals. Do not bake paint with excessively high temperatures. Do not paint over the product identification plate; the warranty will not be valid if this plate is illegible.

1.11.1 Directives and standards

- Atex:



: The equipment and protective systems of this catalogue ARE NOT intended for use in potentially explosive atmospheres. Ref: Directive 99/92/EC and Directive 2014/34/UE

- ISO 9001:2015 / ISO 14001:2015

Bucher Hydraulics S.p.A. is certified for research, development and production of directional control valves, power units, gear pumps and motors, electro pumps, cartridge valves and integrated manifolds for hydraulic applications.

1.12 Pressure

Pressure levels:

P1 = continuous pressure

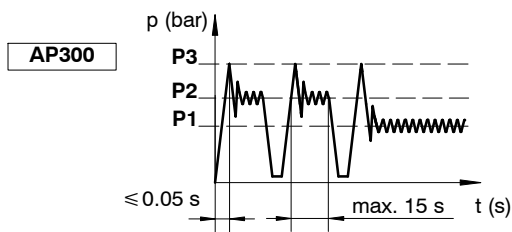
P2 = intermittent pressure

P3 = peak pressure

The recommended oil speed in the pressure pipes is:

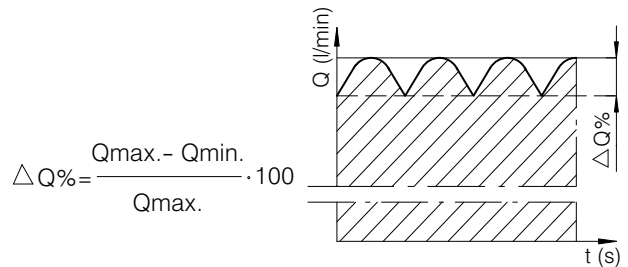
$v = 2 \text{ to } 5 \text{ m/s}$

The characteristic data of each pump is given in the tables on the following pages.



Pressure flow rate surging

Pump	z	$\Delta Q\%$
AP300	10	16



1.13 Calculating the specification of a gear pump

The following parameters are defined:

V_c = (cm³/r) pump displacement;

n = (r/min) no. of rpms of the drive shaft;

Q = (l/min) flow rate;

p = (bar) operating pressure;

T = (Nm) drive torque;

N = (kW) power;

η_v = (%) volumetric efficiency;

η_m = (%) mechanical efficiency;

η_t = (%) total efficiency

$$Q = \frac{V_c \cdot n}{100000} \cdot \eta_v$$

$$T = 1.59 \cdot \frac{p \cdot V_c}{\eta_m}$$

$$N = \frac{Q \cdot p}{6.12 \cdot \eta_t}$$

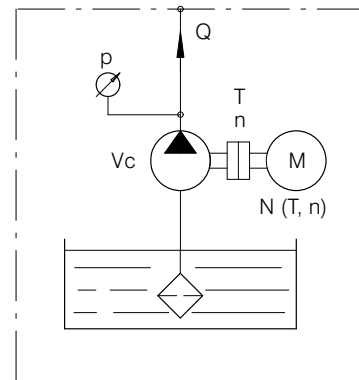
Example

AP300/45 $V_c = 11.1 \text{ cm}^3/\text{r}$ $n = 1500 \text{ r/min}$ $p = 200 \text{ bar}$ $\eta_v = 94\%$ $\eta_m = 90\%$ $\eta_t = 84.6\%$

$$Q = \frac{45 \cdot 1500}{100000} \cdot 94 = 63.45 \text{ l/min.}$$

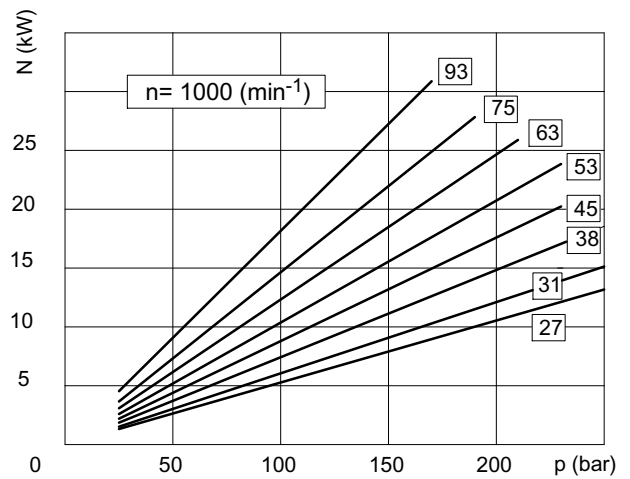
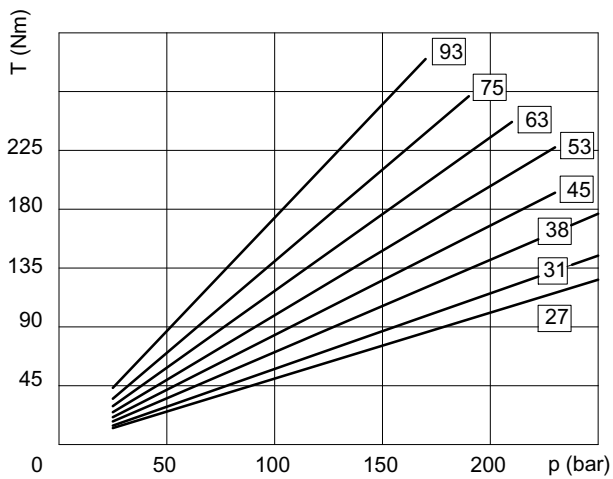
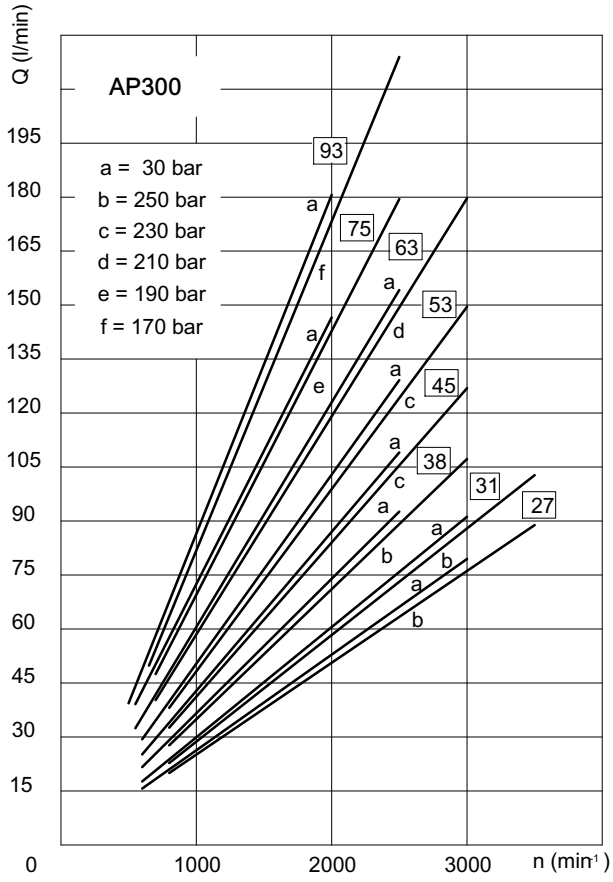
$$T = 1.59 \cdot \frac{200 \cdot 45}{90} = 159 \text{ Nm}$$

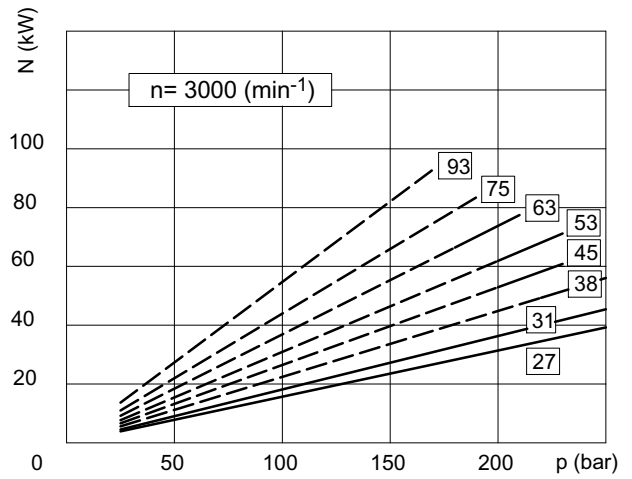
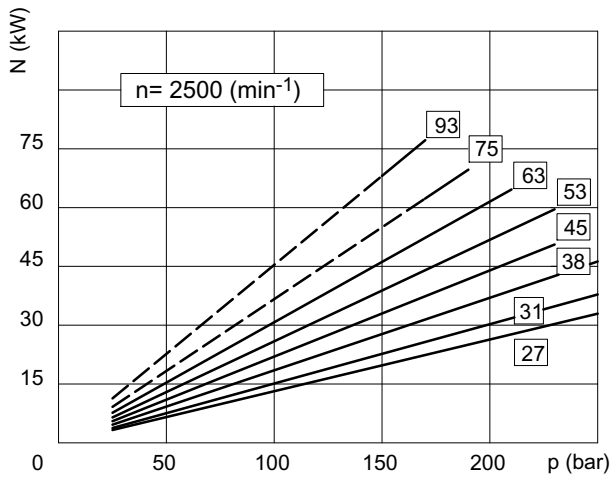
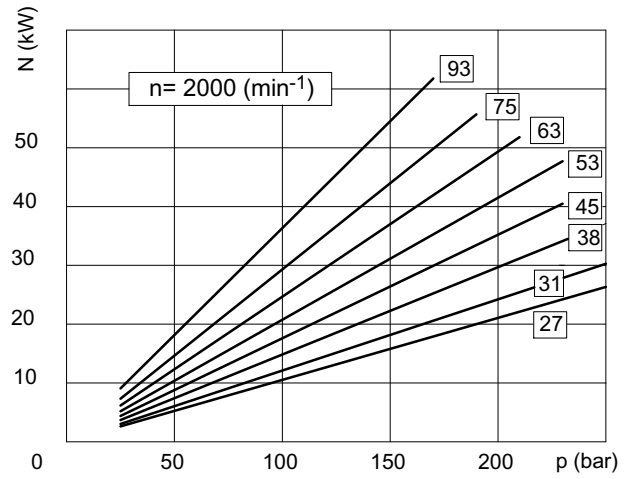
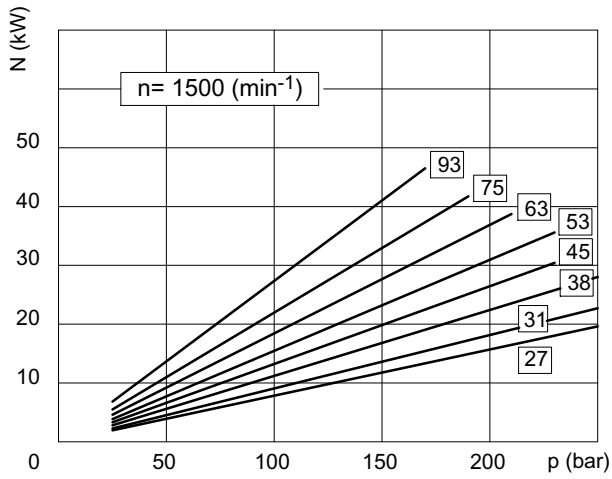
$$N = \frac{63.45 \cdot 200}{6 \cdot 84.6} = 25 \text{ kW}$$



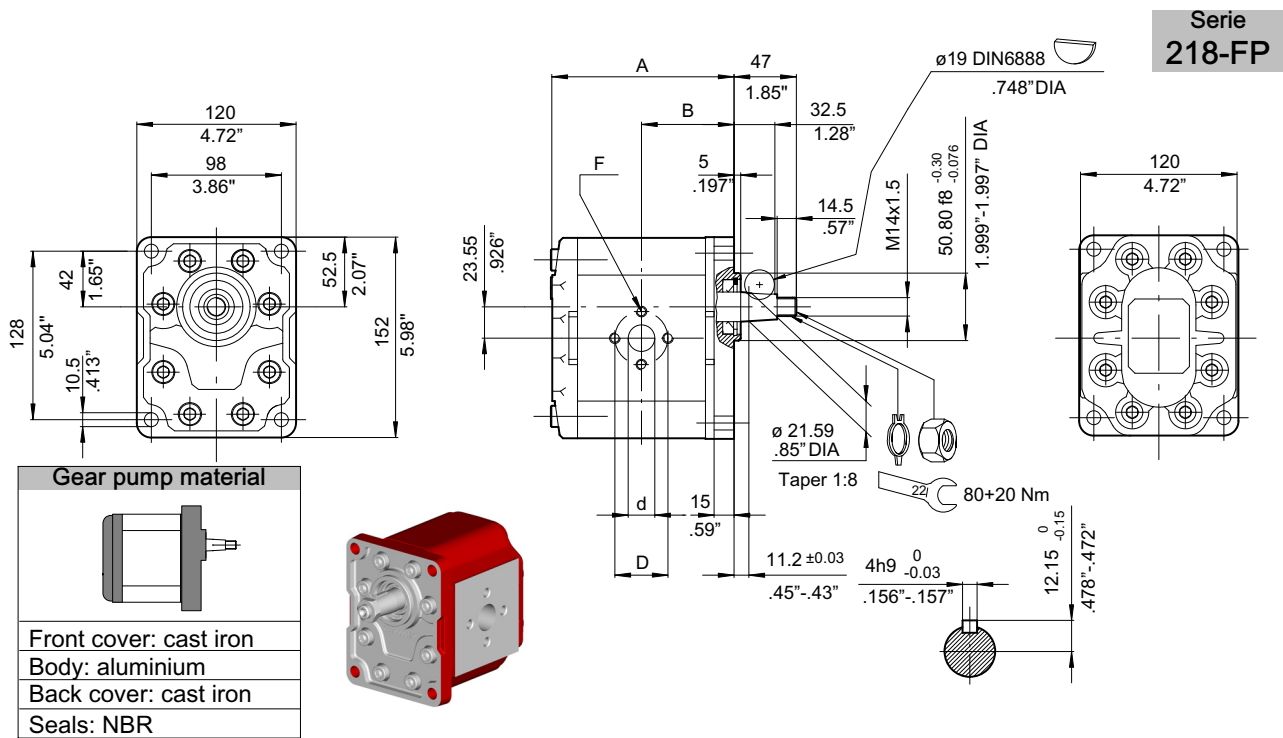
1.14 Diagrams

Oil viscosity: 37 mm²/s
 Oil temperature: 40° C





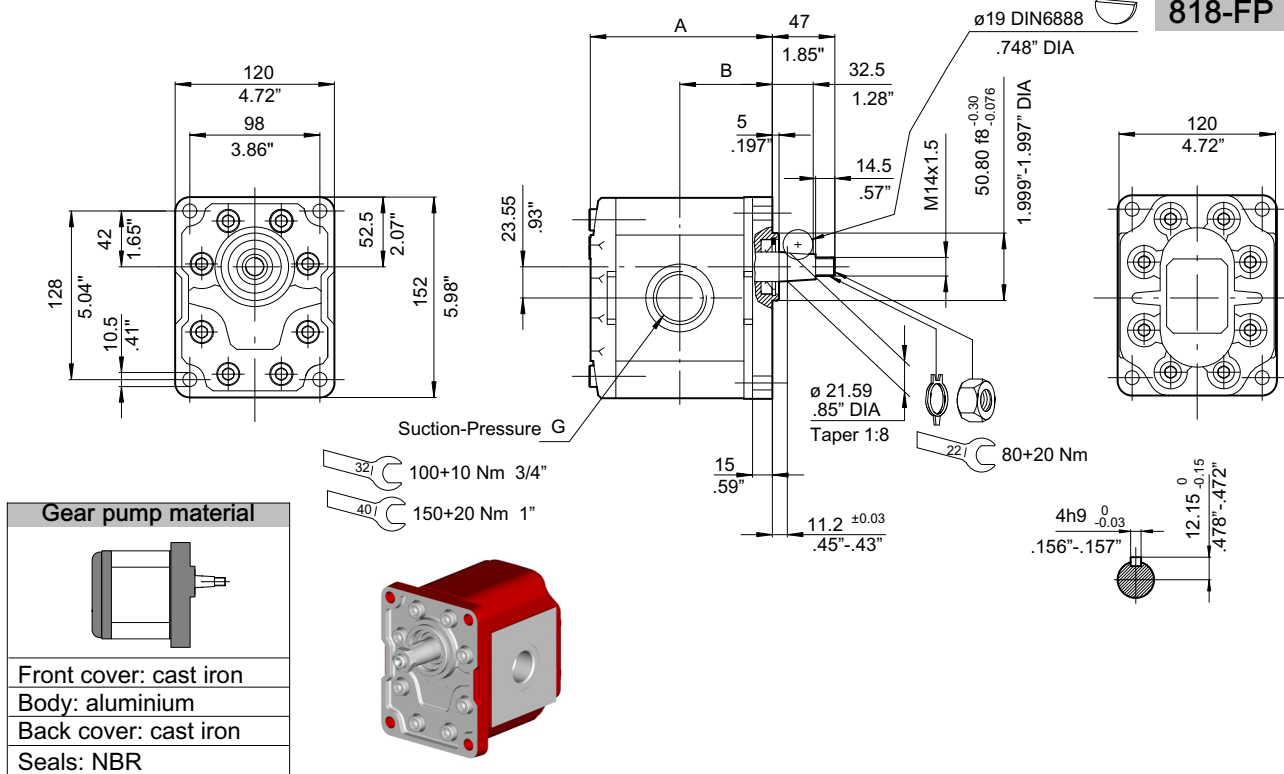
2 AP300 single pumps standard types



Type	Displacement cm ³ /rev	Dimensions				Suction					Pressure				
		A	B	d	D	F	d	D	F	d	D	F			
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
AP300/27	27	126.0	4.96	64.0	2.51										
AP300/31	31	129.0	5.07	65.0	2.55										
AP300/38	38	133.5	5.25	67.5	2.65	27	1.06	51	2.00	M10X1.5	20	.78	40	1.56	M8X1.25
AP300/45	45	138.5	5.43	70.0	2.75										
AP300/53	53	143.0	5.62	72.5	2.85										
AP300/63	63	150.0	5.90	75.5	2.97										
AP300/75	75	157.5	6.20	79.5	3.13	31	1.22	62	2.43	M12X1.75	25	.98	51	2.00	M10X1.5
AP300/93	93	169.0	6.65	85.5	3.36										

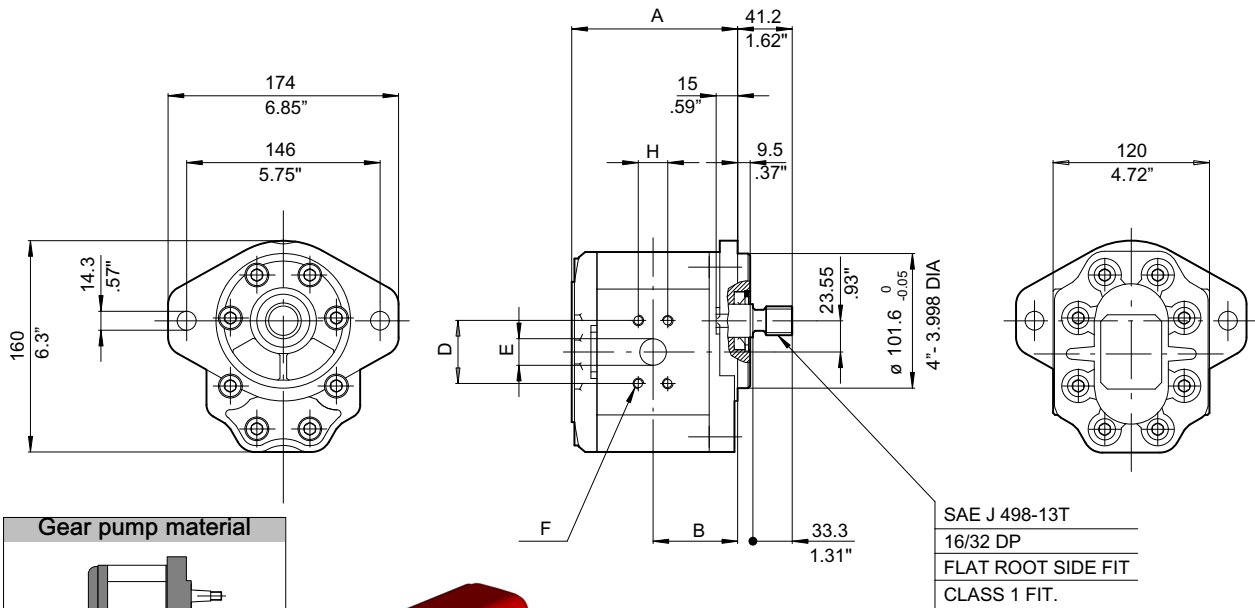
Clockwise rotation: D		Counter-clockwise rotation: S		
Type	Order Code	Type	Order Code	
AP300/27 D 218-FP	200103113210	AP300/27 S 218-FP	200103113309	<p>Tandem predisposal (FP gear types)</p> <p>Standard front cover with NBR shaft seal</p> <p>Standard end cover</p>
AP300/31 D 218-FP	200103213207	AP300/31 S 218-FP	200103213309	
AP300/38 D 218-FP	200103313205	AP300/38 S 218-FP	200103313304	
AP300/45 D 218-FP	200103413205	AP300/45 S 218-FP	200103413305	
AP300/53 D 218-FP	200103513205	AP300/53 S 218-FP	200103513305	
AP300/63 D 218-FP	200103513205	AP300/63 S 218-FP	200103613305	
AP300/75 D 218-FP	200103713205	AP300/75 S 218-FP	200103713304	
AP300/93 D 218-FP	200103813204	AP300/93 S 218-FP	200103813305	

Serie
818-FP

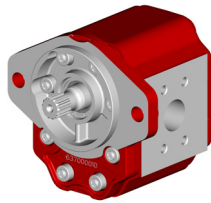


Type	Displacement cm ³ /rev	Dimensions				Suction G BSPP	Pressure G BSPP
		A		B			
		mm	inches	mm	inches		
AP300/27	27	126.0	4.96	64.0	2.51	1"	3/4"
AP300/31	31	129.0	5.07	65.0	2.55		
AP300/38	38	133.5	5.25	67.5	2.65		
AP300/45	45	138.5	5.43	70.0	2.75		
AP300/53	53	143.0	5.62	72.5	2.85		
AP300/63	63	150.0	5.90	75.5	2.97		
AP300/75	75	157.5	6.20	79.5	3.13		
AP300/93	93	169.0	6.65	85.5	3.36		

Clockwise rotation: D		Counter-clockwise rotation: S		
Type	Order Code	Type	Order Code	
AP300/27 D 818-FP	200103113211	AP300/27 S 818-FP	200103113310	Tandem predisposal (FP gear types) Standard front cover with NBR shaft seal Standard end cover
AP300/31 D 818-FP	200103213208	AP300/31 S 818-FP	200103213310	
AP300/38 D 818-FP	200103313206	AP300/38 S 818-FP	200103313305	
AP300/45 D 818-FP	200103413206	AP300/45 S 818-FP	200103413306	
AP300/53 D 818-FP	200103513206	AP300/53 S 818-FP	200103513306	
AP300/63 D 818-FP	200103613206	AP300/63 S 818-FP	200103613306	
AP300/75 D 818-FP	200103713206	AP300/75 S 818-FP	200103713305	
AP300/93 D 818-FP	200103813205	AP300/93 S 818-FP	200103813306	

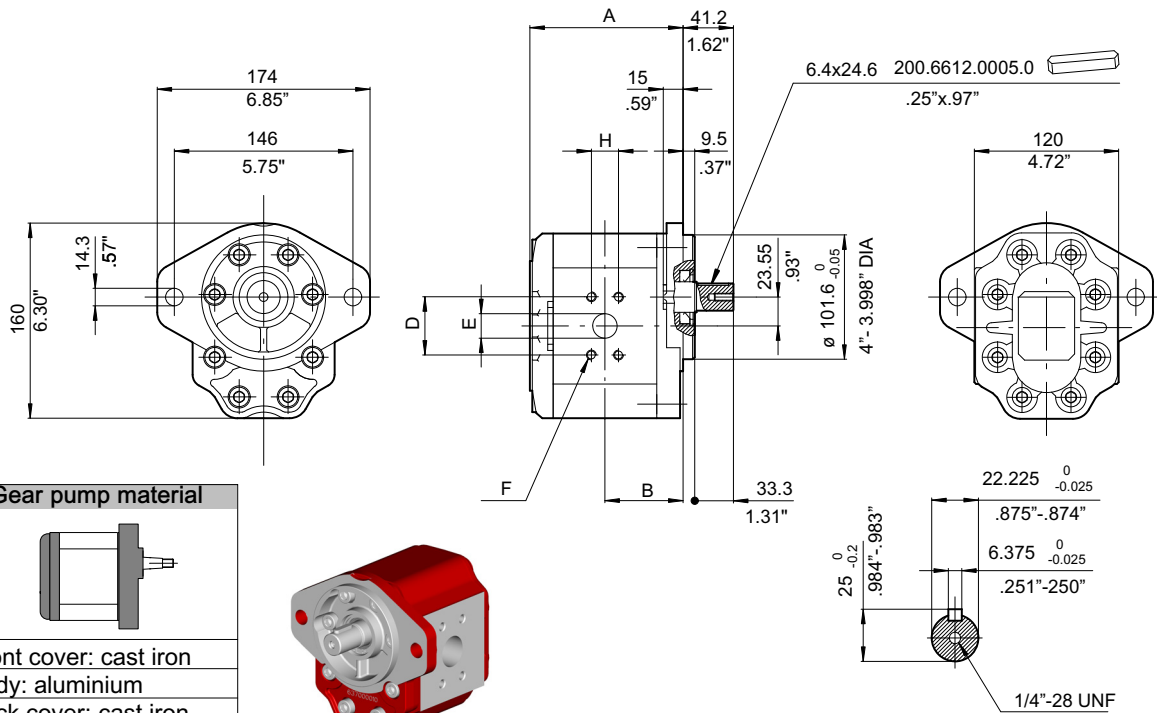


Gear pump material	
Front cover: cast iron	
Body: aluminium	
Back cover: cast iron	
Seals: NBR	



Type	Displ. cm ³ /rev	Dimensions				Suction						Pressure							
		A mm	A inch	B mm	B inch	H mm	H inch	D mm	D inch	E mm	E inch	F UNC 2B	H mm	H inch	D mm	D inch	E mm	E inch	F UNC 2B
AP300/27	27	126.0	4.96	64.0	2.51	26.2	1.03	52.4	2.06	25	.99	3/8" - 16	22.2	.88	47.6	1.88	19	.75	3/8" - 16
AP300/31	31	129.0	5.07	65.0	2.55	30.2	1.19	58.7	2.31	31	1.22	7/16" - 14	26.2	1.03	52.4	2.06	25	.99	3/8" - 16
AP300/38	38	133.5	5.25	67.5	2.65														
AP300/45	45	138.5	5.43	70.0	2.75														
AP300/53	53	143.0	5.62	72.5	2.85	35.7	1.40	70	2.76	38	1.5	1/2" - 13	30.2	1.19	58.7	2.31	31	1.22	7/16" - 14
AP300/63	63	150.0	5.90	75.5	2.97														
AP300/75	75	158.0	6.22	79.5	3.13														
AP300/93	93	169.0	6.65	85.5	3.36														

Clockwise rotation: D		Counter-clockwise rotation: S		
Type	Order Code	Type	Order Code	
AP300/27 D 287S-FP	200103186205	AP300/27 S 287S-FP	200103186304	
AP300/31 D 287S-FP	200103286203	AP300/31 S 287S-FP	200103286304	
AP300/38 D 287S-FP	200103386205	AP300/38 S 287S-FP	200103386305	
AP300/45 D 287S-FP	200103486203	AP300/45 S 287S-FP	200103486305	
AP300/53 D 287S-FP	200103586203	AP300/53 S 287S-FP	200103586306	
AP300/63 D 287S-FP	200103686204	AP300/63 S 287S-FP	200103686304	
AP300/75 D 287S-FP	200103786203	AP300/75 S 287S-FP	200103786302	
AP300/93 D 287S-FP	200103886202	AP300/93 S 287S-FP	200103886302	

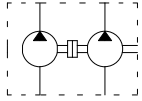


Type	Displ. cm ³ /rev	Dimensions				Suction						Pressure							
		A	B	H	D	E	F	H	D	E	F								
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	UNC 2B	mm	inch	mm	inch	mm	inch	UNC 2B
AP300/27	27	126.0	4.96	64.0	2.51	26.2	1.03	52.4	2.06	25	.99	3/8" - 16	22.2	.88	47.6	1.88	19	.75	3/8" - 16
AP300/31	31	129.0	5.07	65.0	2.55	30.2	1.19	58.7	2.31	31	1.22	7/16" - 14	26.2	1.03	52.4	2.06	25	.99	3/8" - 16
AP300/38	38	133.5	5.25	67.5	2.65														
AP300/45	45	138.5	5.43	70.0	2.75														
AP300/53	53	143.0	5.62	72.5	2.85	35.7	1.40	70	2.76	38	1.5	1/2" - 13	30.2	1.19	58.7	2.31	31	1.22	7/16" - 14
AP300/63	63	150.0	5.90	75.5	2.97														
AP300/75	75	158.0	6.22	79.5	3.13														
AP300/93	93	169.0	6.65	85.5	3.36														

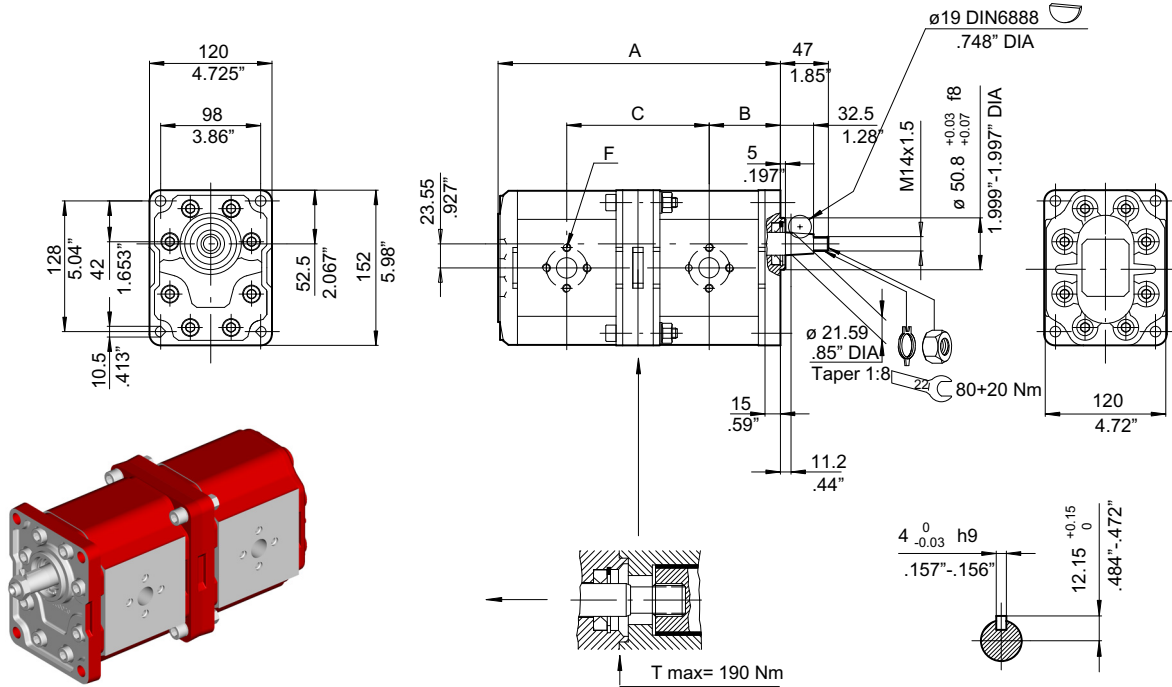
Clockwise rotation: D		Counter-clockwise rotation: S		
Type	Order Code	Type	Order Code	
AP300/27 D 280-FP	200103180203	AP300/27 S 280-FP	200103180302	
AP300/31 D 280-FP	200103280204	AP300/31 S 280-FP	200103280302	
AP300/38 D 280-FP	200103380204	AP300/38 S 280-FP	200103380302	
AP300/45 D 280-FP	200103480204	AP300/45 S 280-FP	200103480302	
AP300/53 D 280-FP	200103580204	AP300/53 S 280-FP	200103580302	
AP300/63 D 280-FP	200103680204	AP300/63 S 280-FP	200103680302	
AP300/75 D 280-FP	200103780204	AP300/75 S 280-FP	200103780302	
AP300/93 D 280-FP	200103880204	AP300/93 S 280-FP	200103880302	

3 AP300 tandem pump

3.1 AP300 + AP300



Group AP300 + AP300
Serie
2218

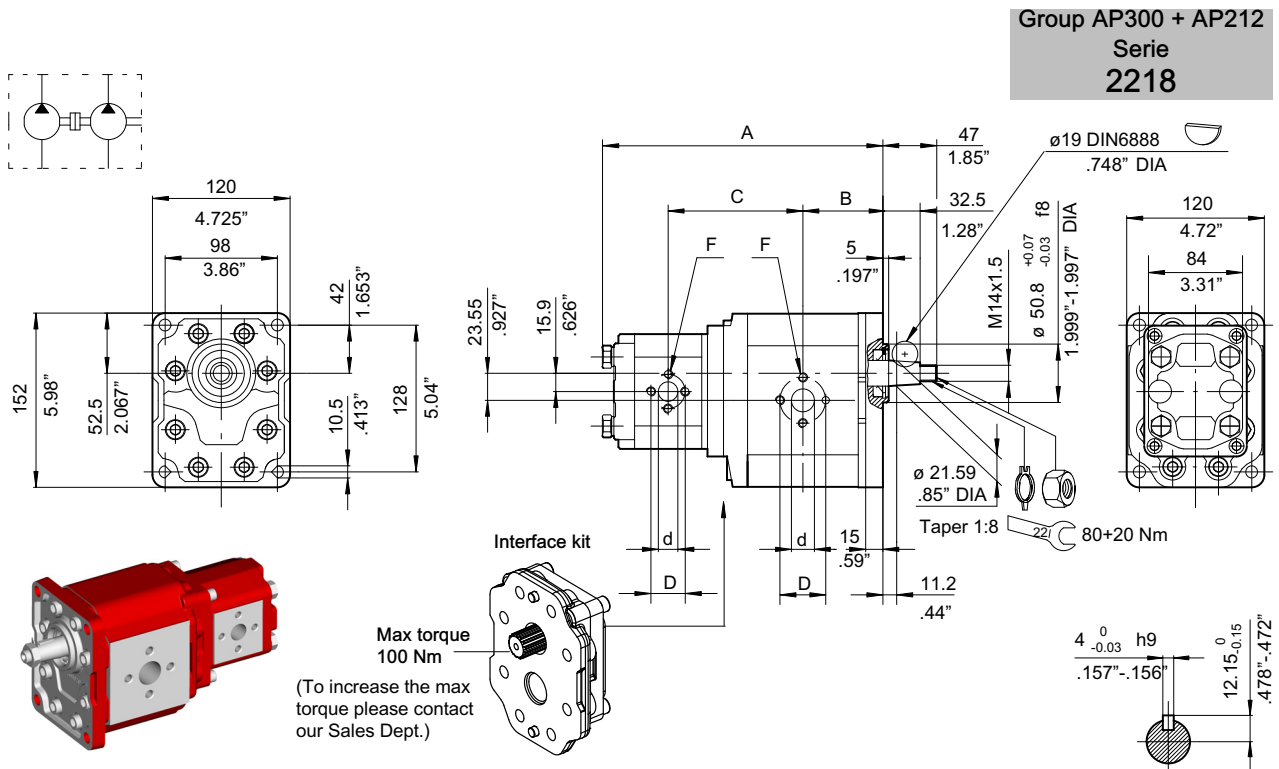


Note: With respect to the standards, the maximum pressures of some versions of this pump are reduced in relation to the max. torque allowed to the main and intermediate shafts.

Displacement cm ³ /rev	A		B		C	
	mm	inch	mm	inch	mm	inch
27+27	254	10.00	63.8	2.51	127.5	5.02
31+27	257	10.12	65.2	2.57	129	5.08
31+31	259	10.20			130.5	5.14
38+27	261	10.27	67.5	2.66	131.5	5.18
38+31	264	10.40			132.5	5.22
38+38	269	10.60	69.8	2.75	135	5.32
45+27	266	10.00			133.5	5.26
45+31	268	10.55			135	5.31
45+38	273	10.75			137.5	5.41
45+45	278	10.95			139.5	5.50
53+27	271	10.67	72.5	2.85	136	5.36
53+31	274	10.78			137.5	5.42
53+38	278	10.94			140	5.52
53+45	283	11.14			142	5.60
53+53	288	11.34			144.5	5.69

Displacement cm ³ /rev	A		B		C	
	mm	inch	mm	inch	mm	inch
63+27	278	10.95	75.5	2.97	139.5	5.50
63+31	280	11.02			141	5.55
63+38	285	11.22			143	5.63
63+45	289	11.38			145.5	5.73
63+53	295	11.61			148	5.83
63+63	301	11.85	79.5	3.13	151	5.95
75+27	285	11.22			143.5	5.65
75+31	288	11.34			144.5	5.69
75+38	293	11.54			147	5.79
75+45	297	11.70			149.5	5.89
75+53	302	11.89	85.5	3.37	152	5.99
75+63	309	12.17			155	6.10
75+75	317	12.40			159	6.26
93+27	297	11.70			149	5.87
93+31	300	11.80			150.5	5.93
93+38	304	11.97	153	6.02		
93+45	309	12.17	155	6.10		
93+53	314	12.36	157.5	6.2		
93+63	321	12.64	161	6.34		
93+75	328	12.91	165	6.5		
93+93	340	13.39	170.5	6.72		

3.2 AP300 + AP212



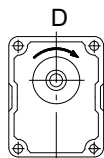
AP300 Displacement cm ³ /rev.	Suction					Pressure				
	d		D		F	d		D		F
	mm	inch	mm	inch	mm	mm	inch	mm	inch	mm
27	27	1.06	51	2.01	10	20	.79	40	1.58	8
31										
38										
45										
53										
63	31	1.22	62	2.44	12	25	.98	51	2.01	10
75										
93										

AP212 Displacement cm ³ /rev.	Suction					Pressure				
	d		D		F	d		D		F
	mm	inch	mm	inch	mm	mm	inch	mm	inch	mm
4.5	13.5	.53	30	1.18	M6X1	13.5	.53	30	1.18	M6X1
6.5										
8.5										
11	19	.75	40	1.58	M8X1.25	19	.75	40	1.58	M8X1.25
15										
19										
22										
26										

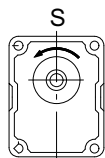
	AP300/27			AP300/31			AP300/38			AP300/45		
	A	B	C	A	B	C	A	B	C	A	B	C
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>
AP212/4.5	216.8	63.9	106.7	219.4	65.2	108	224	67.5	110.3	228.6	69.8	112.6
	<i>8.54</i>	<i>2.51</i>	<i>4.20</i>	<i>8.64</i>	<i>2.56</i>	<i>4.25</i>	<i>8.82</i>	<i>2.66</i>	<i>4.34</i>	<i>9</i>	<i>2.75</i>	<i>4.43</i>
AP212/6.5	219.8	63.9	108.2	222.4	65.2	109.5	227	67.5	111.8	231.6	69.8	114.1
	<i>8.65</i>	<i>2.51</i>	<i>4.26</i>	<i>8.76</i>	<i>2.56</i>	<i>4.31</i>	<i>8.94</i>	<i>2.66</i>	<i>4.40</i>	<i>9.12</i>	<i>2.75</i>	<i>4.49</i>
AP212/8.5	222.8	63.9	109.7	225.4	65.2	111	230	67.5	113.3	234.6	69.8	115.6
	<i>8.77</i>	<i>2.51</i>	<i>4.31</i>	<i>8.87</i>	<i>2.56</i>	<i>4.37</i>	<i>9.06</i>	<i>2.66</i>	<i>4.46</i>	<i>9.24</i>	<i>2.75</i>	<i>4.55</i>
AP212/11	226.8	63.9	111.7	229.4	65.2	113	234	67.5	115.3	238.6	69.8	117.6
	<i>8.93</i>	<i>2.51</i>	<i>4.40</i>	<i>9.03</i>	<i>2.56</i>	<i>4.45</i>	<i>9.21</i>	<i>2.66</i>	<i>4.54</i>	<i>9.33</i>	<i>2.75</i>	<i>4.63</i>
AP212/15	232.8	63.9	114.7	235.4	65.2	116	240	67.5	118.3	244.6	69.8	120.6
	<i>9.17</i>	<i>2.51</i>	<i>4.51</i>	<i>9.27</i>	<i>2.56</i>	<i>4.56</i>	<i>9.45</i>	<i>2.66</i>	<i>4.66</i>	<i>9.63</i>	<i>2.75</i>	<i>4.75</i>
AP212/19	238.8	63.9	117.7	241.4	65.2	119	246	67.5	121.3	250.6	69.8	123.6
	<i>9.4</i>	<i>2.51</i>	<i>4.63</i>	<i>9.50</i>	<i>2.56</i>	<i>4.68</i>	<i>9.69</i>	<i>2.66</i>	<i>4.77</i>	<i>9.86</i>	<i>2.75</i>	<i>4.86</i>
AP212/22	243.3	63.9	119.9	245.9	65.2	121.2	250.5	67.5	123.5	255.1	69.8	125.8
	<i>9.58</i>	<i>2.51</i>	<i>4.72</i>	<i>9.68</i>	<i>2.56</i>	<i>4.77</i>	<i>9.86</i>	<i>2.66</i>	<i>4.86</i>	<i>10.04</i>	<i>2.75</i>	<i>4.95</i>
AP212/26	249.3	63.9	122.9	251.9	65.2	124.2	256.5	67.5	126.5	261.1	69.8	128.8
	<i>9.81</i>	<i>2.51</i>	<i>4.84</i>	<i>9.92</i>	<i>2.56</i>	<i>4.89</i>	<i>10.45</i>	<i>2.66</i>	<i>4.98</i>	<i>10.28</i>	<i>2.75</i>	<i>5.07</i>

	AP300/53			AP300/63			AP300/75			AP300/93		
	A	B	C	A	B	C	A	B	C	A	B	C
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>
AP212/4.5	233.8	72.4	115.2	240.3	75.6	118.4	248.1	79.5	122.3	259.8	85.4	128.2
	<i>9.20</i>	<i>2.85</i>	<i>4.53</i>	<i>9.46</i>	<i>2.98</i>	<i>4.66</i>	<i>9.77</i>	<i>3.13</i>	<i>4.81</i>	<i>10.23</i>	<i>3.36</i>	<i>50.4</i>
AP212/6.5	236.8	72.4	116.7	243.3	75.6	119.9	251.1	79.5	123.8	262.8	85.4	129.7
	<i>9.32</i>	<i>2.85</i>	<i>4.59</i>	<i>9.58</i>	<i>2.98</i>	<i>4.72</i>	<i>9.89</i>	<i>3.13</i>	<i>4.87</i>	<i>10.35</i>	<i>3.36</i>	<i>5.10</i>
AP212/8.5	239.8	72.4	118.2	246.3	75.6	121.4	254.1	79.5	125.3	265.8	85.4	131.2
	<i>9.44</i>	<i>2.85</i>	<i>4.65</i>	<i>9.70</i>	<i>2.98</i>	<i>4.78</i>	<i>10</i>	<i>3.13</i>	<i>4.93</i>	<i>10.46</i>	<i>3.36</i>	<i>5.16</i>
AP212/11	243.8	72.4	120.5	250.3	75.6	123.4	258.1	79.5	127.3	269.8	85.4	133.2
	<i>9.60</i>	<i>2.85</i>	<i>4.73</i>	<i>9.85</i>	<i>2.98</i>	<i>4.86</i>	<i>10.16</i>	<i>3.13</i>	<i>5.01</i>	<i>10.62</i>	<i>3.36</i>	<i>5.24</i>
AP212/15	249.8	72.4	123.2	256.3	75.6	126.4	264.1	79.5	130.3	275.8	85.4	136.2
	<i>9.83</i>	<i>2.85</i>	<i>4.85</i>	<i>10.09</i>	<i>2.98</i>	<i>4.97</i>	<i>10.40</i>	<i>3.13</i>	<i>5.13</i>	<i>10.86</i>	<i>3.36</i>	<i>5.36</i>
AP212/19	255.8	72.4	126.2	262.3	75.6	129.4	270.1	79.5	133.3	281.8	85.4	139.2
	<i>10.07</i>	<i>2.85</i>	<i>4.97</i>	<i>10.33</i>	<i>2.98</i>	<i>5.09</i>	<i>10.63</i>	<i>3.13</i>	<i>5.25</i>	<i>11.09</i>	<i>3.36</i>	<i>5.48</i>
AP212/22	260.3	72.4	128.4	266.8	75.6	131.7	274.6	79.5	135.6	286.3	85.4	141.4
	<i>10.25</i>	<i>2.85</i>	<i>5.06</i>	<i>10.50</i>	<i>2.98</i>	<i>5.18</i>	<i>10.81</i>	<i>3.13</i>	<i>5.34</i>	<i>11.27</i>	<i>3.36</i>	<i>5.57</i>
AP212/26	266.3	72.4	131.4	272.8	75.6	134.7	280.6	79.5	138.6	292.3	85.4	144.4
	<i>10.48</i>	<i>2.85</i>	<i>5.17</i>	<i>10.74</i>	<i>2.98</i>	<i>5.30</i>	<i>11.05</i>	<i>3.13</i>	<i>5.45</i>	<i>11.51</i>	<i>3.36</i>	<i>5.69</i>

Example of product code



AP300/38 - 212/15 D 2218
(Clockwise rotation: D)



AP300/63 - 212/22 S 2218
(Counterclockwise rotation: S)

3.3 Pumps seal kit standard type

AP300 (NBR)	
Pump code	Seal kit
AP300/218 FP	200974000140
AP300/818 FP	
AP300/287S FP	200974000170
AP300/280 FP	

AP300+AP300 (NBR)	
Pump code	Seal kit
AP300/2218 FP	200974000150
AP300/2280-7S FP	200974000160

AP300 (NBR) + AP212 (HNBR)	
Pump code	Seal kit
AP300/2218 FP MP	200974001650
AP300/2218 FP MPS	200974001660
AP300/2287 FP MP	200974001670
AP300/2287 FP MPS	200974001680

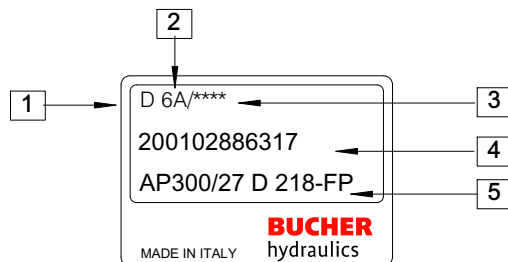
This code are referred to Dealer code only (version MP and MPS)

3.4 Single pump weight

AP300	
Pump	Weight Kg
AP300/27	8.2
AP300/31	8.4
AP300/38	8.6
AP300/45	8.8
AP300/53	9.0
AP300/63	9.2
AP300/75	9.4
AP300/93	9.6

N.B.: The weight refers to pumps with version serie 218 .
Limited weight variations are possible for pumps having a different code.

4 Product identification plate



- 1 : Rotation
(D= Clockwise rotation - S= Counterclockwise rotation)
- 2 : Manufacturing year and month
- 3 : Progressive identification no. (optional)
- 4 : Bucher Hydraulics S.p.A. product code
- 5 : Description

Manufacturing month	Manufacturing year					
	2016	2017	2018	2019	2020	2021
January	6A	7A	8M	9M	0M	1M
February	6B	7B	8N	9N	0N	1N
March	6C	7C	8P	9P	0P	1P
April	6D	7D	8Q	9Q	0Q	1Q
May	6E	7E	8R	9R	0R	1R
June	6F	7F	8S	9S	0S	1S
July	6G	7G	8T	9T	0T	1T
August	6H	7H	8U	9U	0U	1U
September	6I	7I	8V	9V	0V	1V
October	6J	7J	8Z	9Z	0Z	1Z
November	6K	7K	8X	9X	0X	1X
December	6L	7L	8Y	9Y	0Y	1Y

5 Application form

Date:			
Contact:			
Customer:			
Location:			
Overall quantity per year:			
Minimum batch size:			
Delivery time requested:	Feasibility:	Prototypes:	Series:
Target price:			
Type of application:			

External gear pump general data					
Rotation	S	D	R	Speed range	
Displacement: Single pump (cm ³ /rev)				Continuous work pressure (bar)	1st 2nd 3rd
Double pump (cm ³ /rev)	1st	2nd		Peak work pressure (bar)	1st 2nd 3rd
Multiple pump (cm ³ /rev)	1st	2nd	3rd	Oil type	
Drive shaft				Oil temperature (°C)	min max
Port type				Oil viscosity (cSt)	min max
Front cover type				Suction line pressure	
Bearing support				Voltage	
Front cover material				Drain case pressure	
Intermediate cover (with or without shaft seal)	with	without		Radial load (N)	
Back cover type/circuit				Axial load (N)	
Back cover material	aluminium	cast iron		Working hours per year	
Valves				Cycles per year	

Additional notes:

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www.bucherhydraulics.com

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Classification: 410.110.000