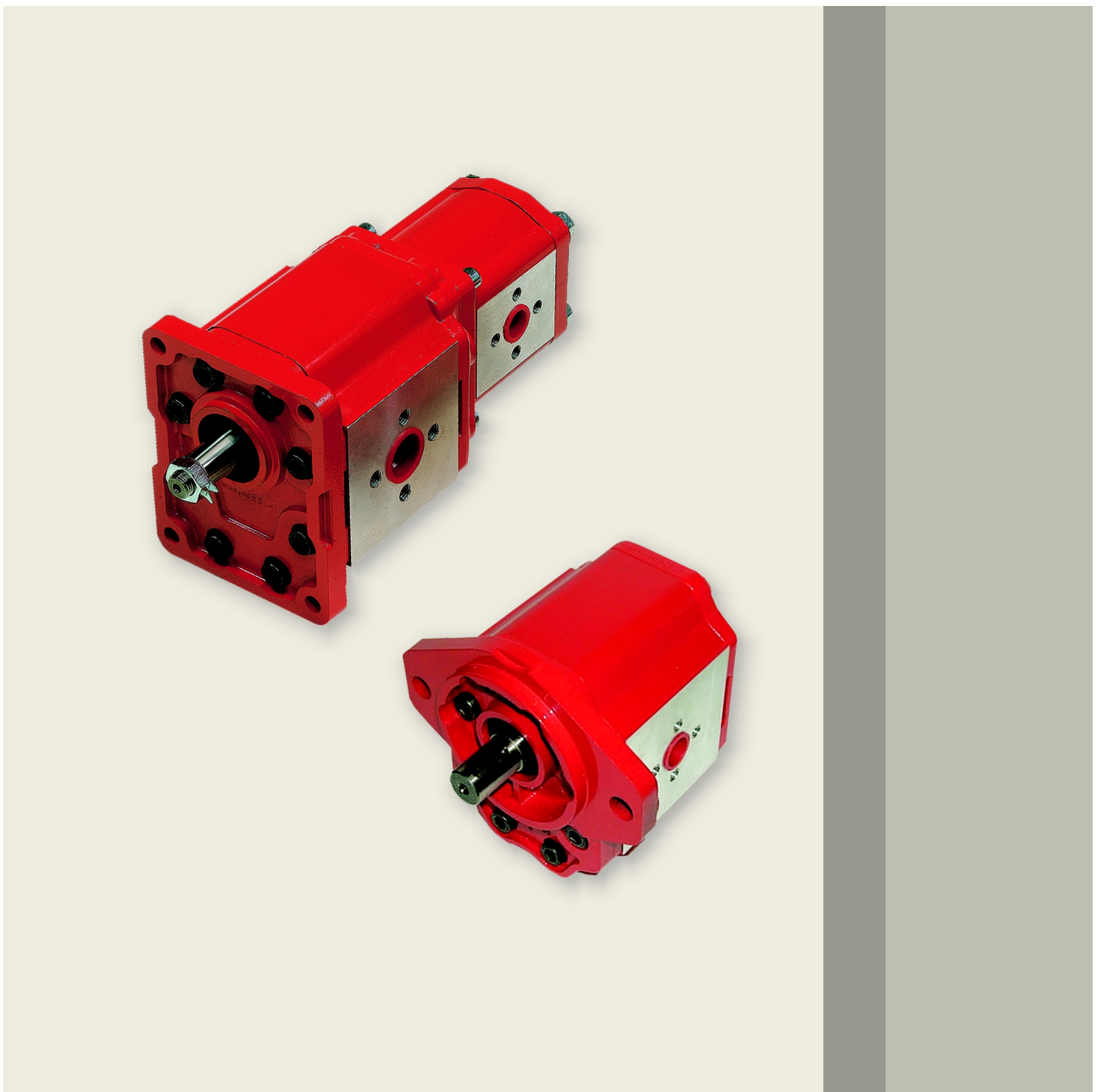


Gear Pumps - AP300



motion and progress

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1 General information

1.1 Introduction to the product

Gear pumps are widely used in modern hydraulic systems due to their high performance, long service life and low purchase and maintenance costs.

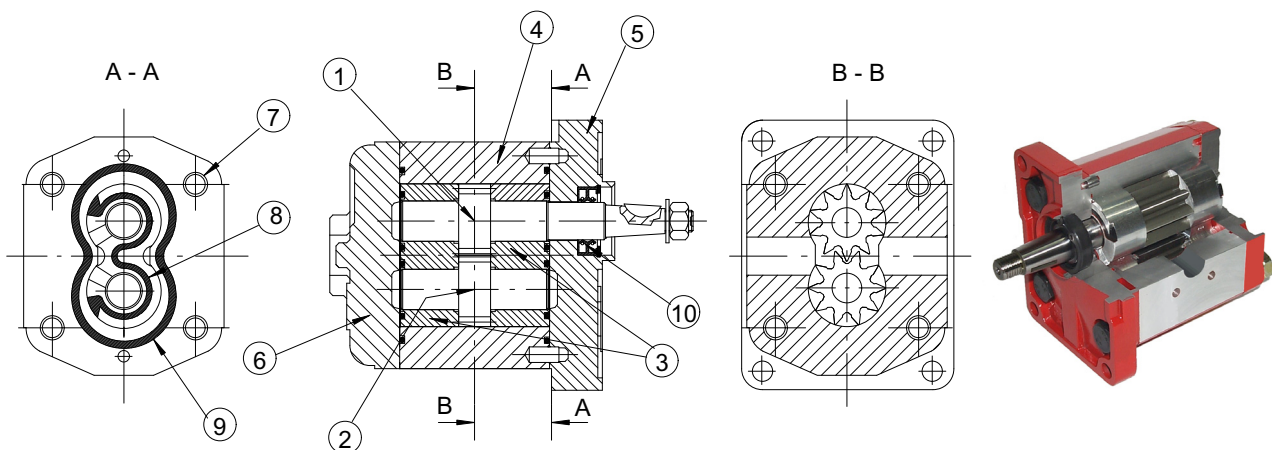
Product development has made it possible to achieve high operating pressures, excellent volumetric and mechanical efficiency, and lower noise levels, in operation, by means of:

- meticulous CAD design of the gear teeth and balancing areas
- an exacting choice of high-performance materials

- carefully controlled heat treatments
- increasingly tight coupling tolerances, and a high standard of surface finish.

Bucher Hydraulics S.p.A. has achieved these results by constantly improving its design, control, and manufacturing techniques in line with the latest technological developments, while simultaneously introducing a Quality Control System which ensures that every single product offers the same high standards.

Product description



- 25. Drive gear
- 26. Driven gear
- 27. Balancing
- 28. Pump body
- 29. Front cover

- 30. Rear cover
- 31. Mounting tie rod
- 32. Balancing seal
- 33. Oil seal
- 34. Shaft seal

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 mounting tie rods (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 2.2 Recommended fluids/Allowed temperatures).

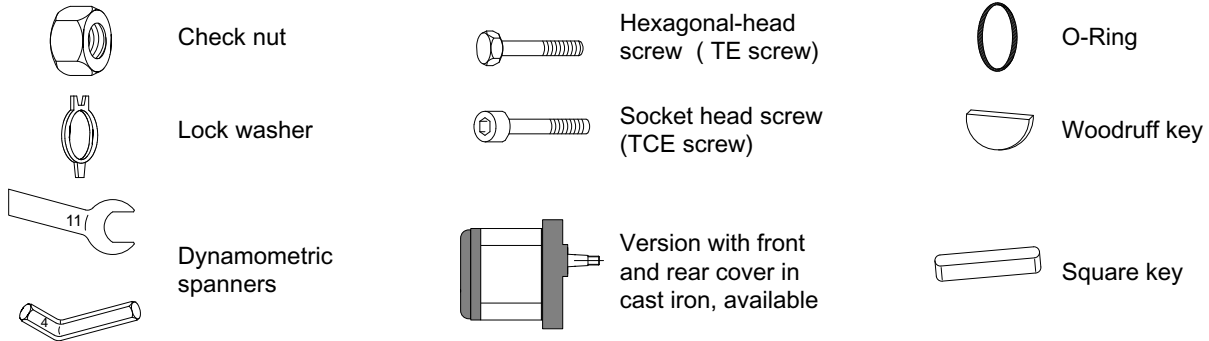
Versions available

The Bucher Hydraulics S.p.A. product range includes single pumps of groups 05-100-200-300 (corresponding to the common group denominations: 05-1-2-3) 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 indicated in this catalogue.

Bucher Hydraulics S.p.A. will examine any request for special versions, features, and customisations not shown in this catalogue.

To make such a request, please contact our Sales Department.

1.2 Non-standard symbols used in the text



2 Technical information

2.1 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.

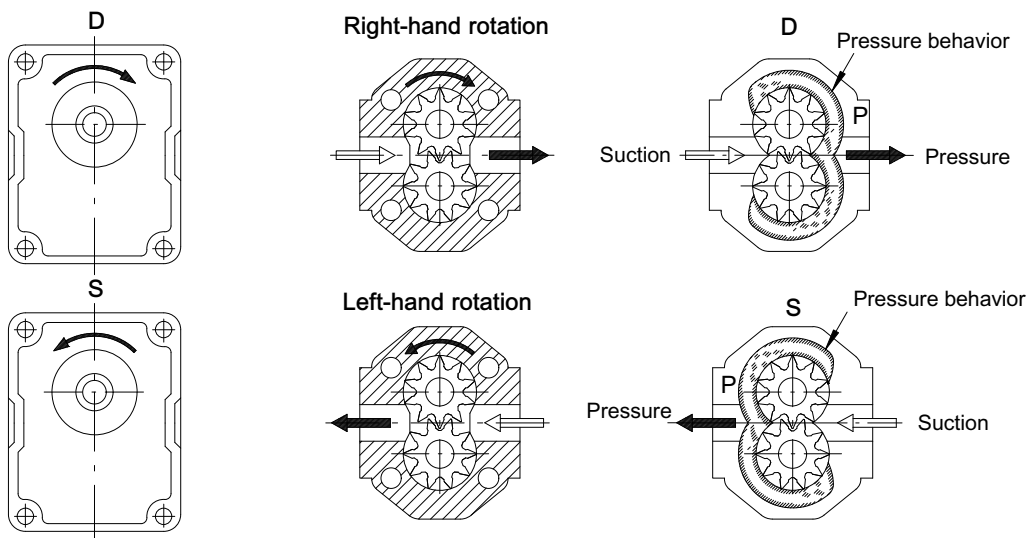
The figure also shows the pressure flow inside the pumps as the oil is transferred from the suction port to the pressure port.

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.



2.2 Recommended fluids/Allowed temperatures

We recommend using only mineral oil-based hydraulic fluids that comply with the ISO/DIN standards.

Viscosity range:

recommended $20 \div 120 \text{ mm}^2/\text{s}$ (cSt)

permitted up to $700 \text{ mm}^2/\text{s}$ (cSt)

Operating temperature

Type of seals	Temperature
	AP300
Buna N	$-15 \div 80 \text{ }^\circ\text{C}$
Viton*	$-10 \div 120 \text{ }^\circ\text{C}$



Attention: 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

2.3 Suction

The absolute suction pressure must be $P_{in} \geq 0.75 \text{ bar}$ (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.

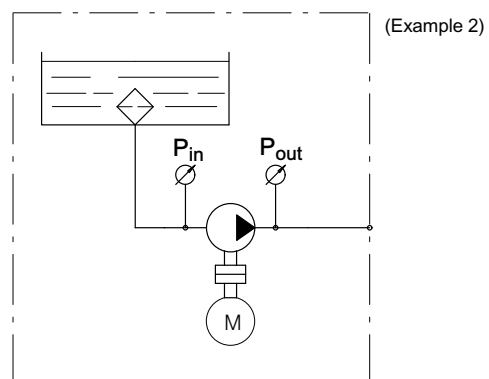
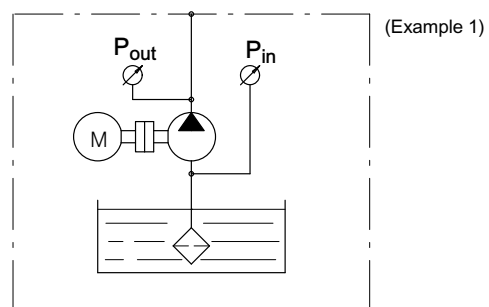
Please contact our Sales Department, solution for

$P_{in} \leq 3.5 \text{ bar}$ (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: $v = 0.6 - 1.2 \text{ m/s}$.

(Example 2)



2.4 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.

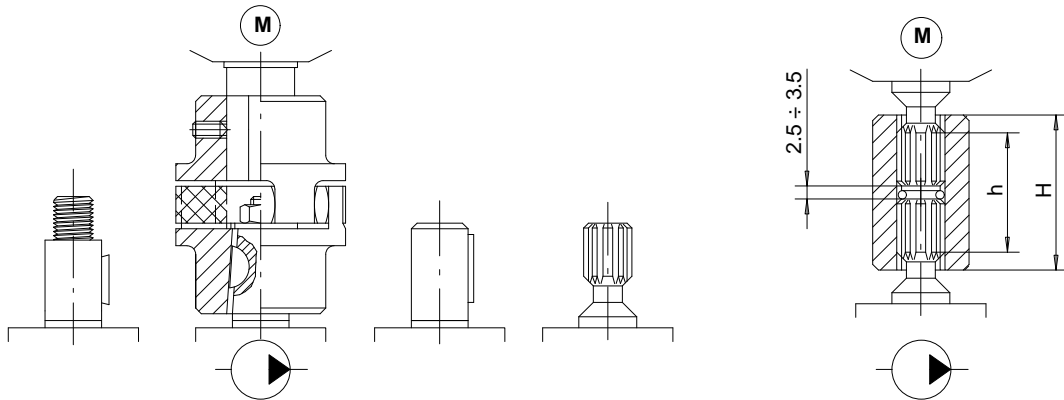
When possible and compatible with the hydraulic circuit installed, Bucher Hydraulics S.p.A. recommends that the system have total filtration (suction, pressure, return).

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

Operating pressure	> 170 bar 2430 PSI	< 170 bar 2430 PSI
Contamination class NAS 1638	9	10
Contamination class ISO 4406	18/15	19/16
Obtain wit filter $\beta_x=75$	20	25

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.

2.5 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 $2.5 \div 3.5$ mm (.10" ÷ .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.

2.6 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 2.8; for extreme operations, always contact our Technical Department.
- Never use fluids different from those indicated in section 2.2.
- 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.

2.6.1 Directives and standards

Atex



Attention: The equipment and protective systems of these catalogue ARE NOT intended for use in potentially explosive atmospheres that is to say where there is an explosive atmosphere referred to in Article 2 of the Directive 99/92/EC and referred to Article 1.3 of the Directive 94/9/EC

2.7 Pressure

Pressure levels:

P1 = continuous pressure

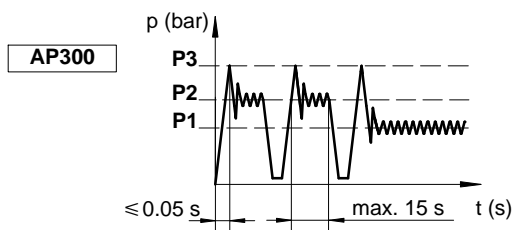
P2 = intermittent pressure

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.



Machinery safety

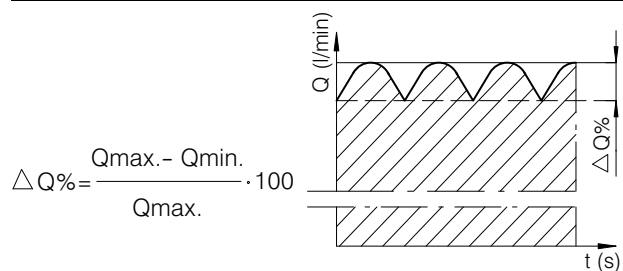
Hydraulic pumps are excluded by Directive 98/37/EC

ISO 9001: 2000

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

Pressure flow rate surging

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



2.8 Calculating the specification of a gear pump

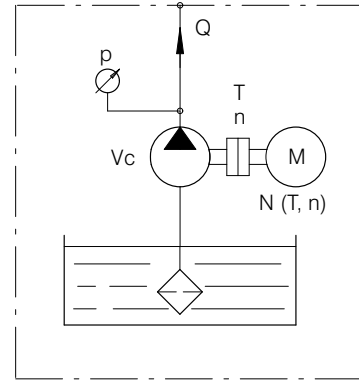
The following parameters are defined:

- 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 cm³/r n= 1500 r/min p=200 bar η_v= 94% η_m= 90% η_t= 84.6%

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

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

$$N = \frac{63.45 \cdot 200}{6.12 \cdot 84.6} = 24.51 \text{ kW}$$

Example



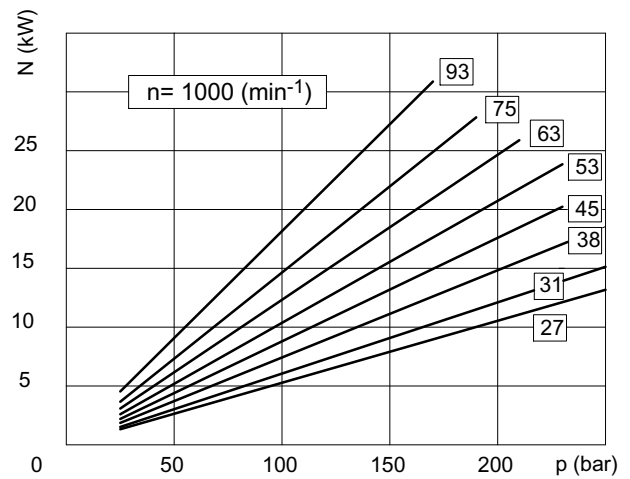
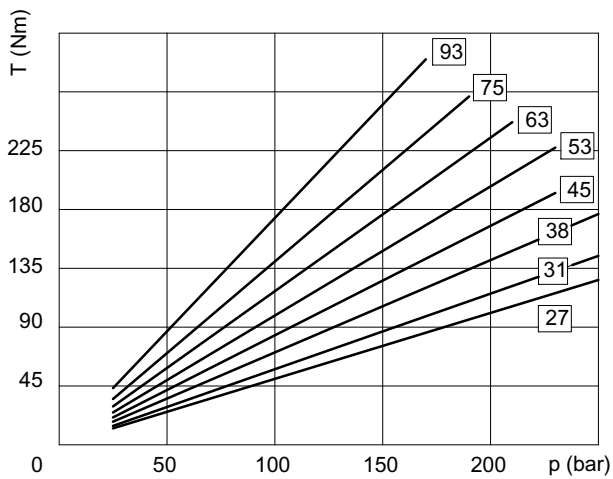
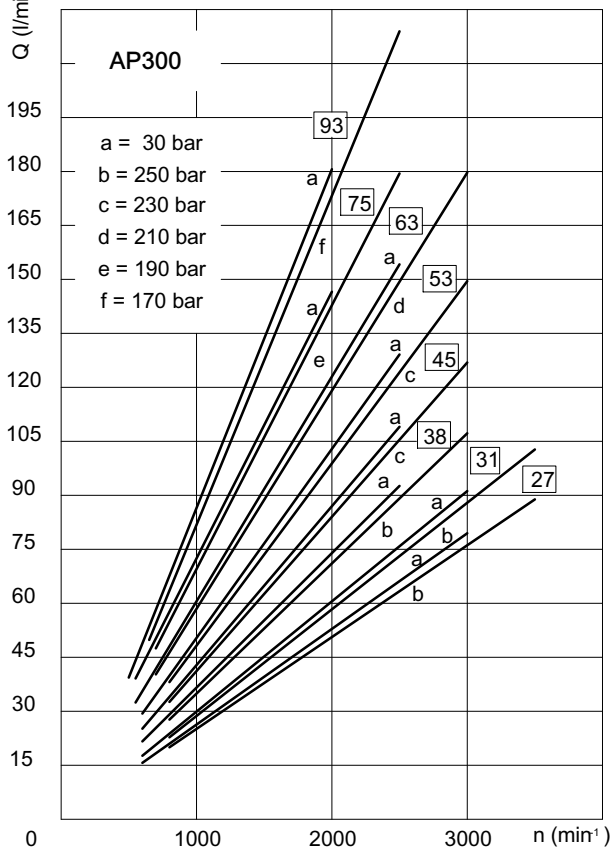
Important: Please contact our Sales Department if even one of the operating limits indicated in the tables below (temperature, pressure, rpm) is exceeded, as well as in the case of two or more maximum values at the same time, or for applications with particularly heavy-duty cycles.

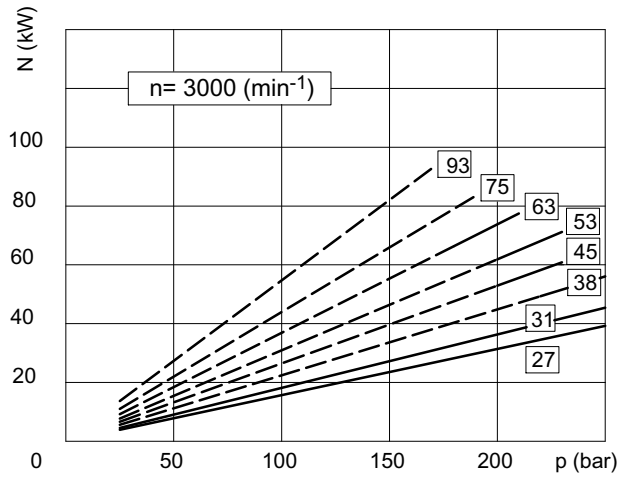
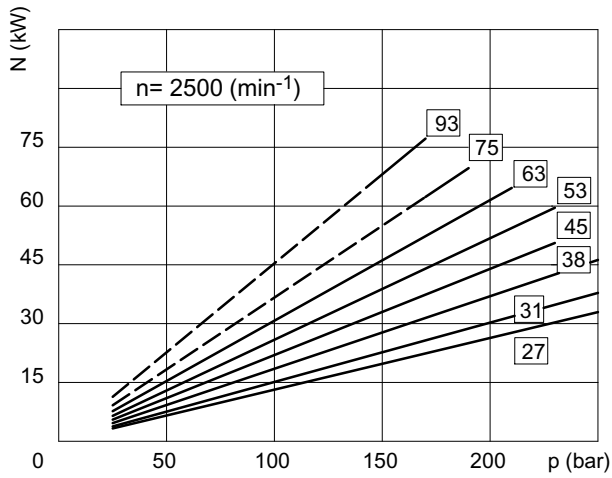
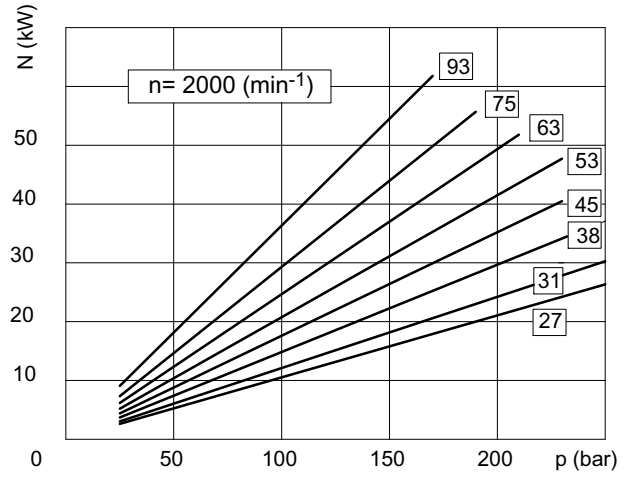
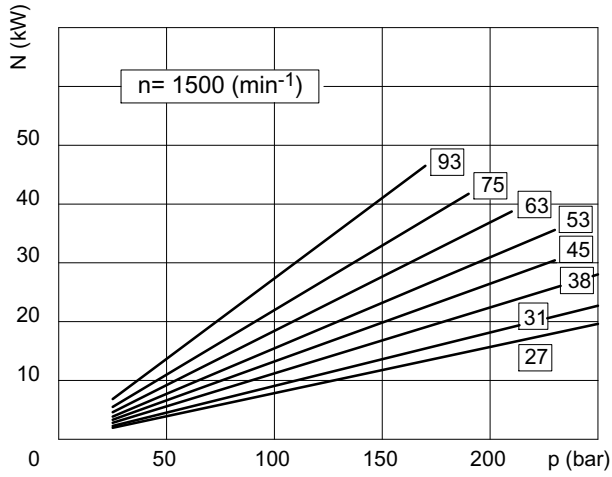
AP300 Type	Displacement		Max. pressure						n min.		n max.	
	cm ³ /rev	Cu. In. P. R.	P1		P2		P3		P ≤ P1	P > P1	P ≤ P1	P > P1
			bar	P.S.I.	bar	P.S.I.	bar	P.S.I.				
AP300/27	27.0	1.674	220	3150	250	3600	280	4000	600	800	3000	3500
AP300/31	31.0	1.891	220	3150	250	3600	280	4000	600	800	3000	3500
AP300/38	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

2.9 Diagrams

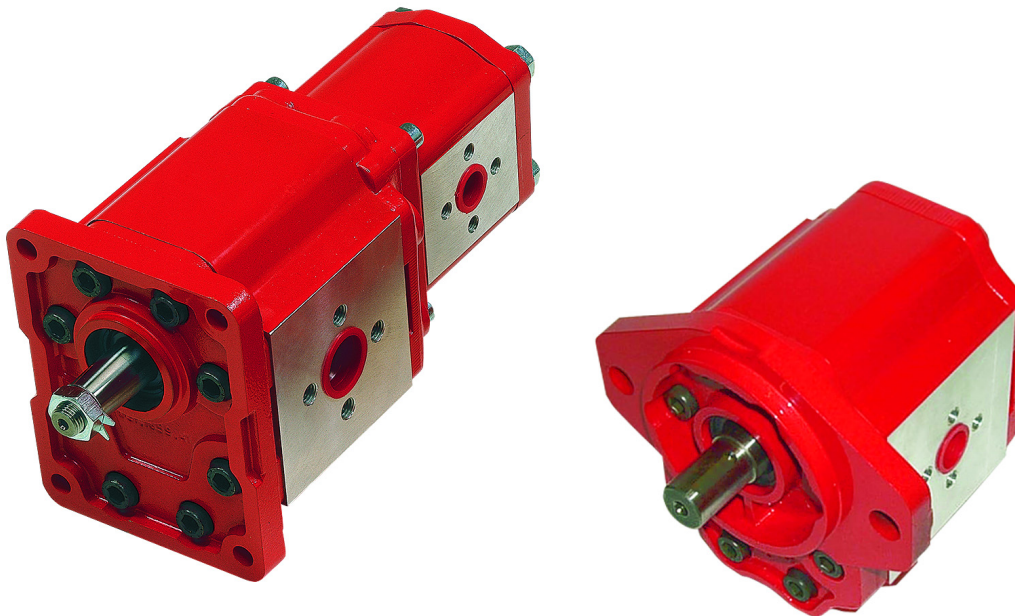
Oil viscosity: 37 mm²/s

Oil temperature: 40° C

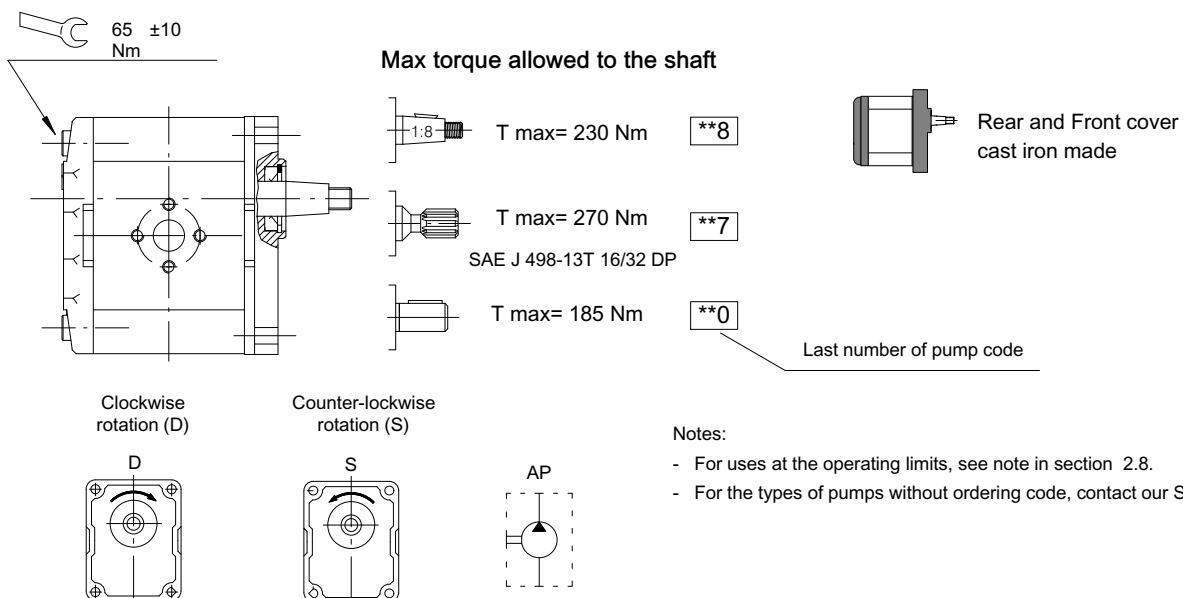




3 Gear pump group AP300

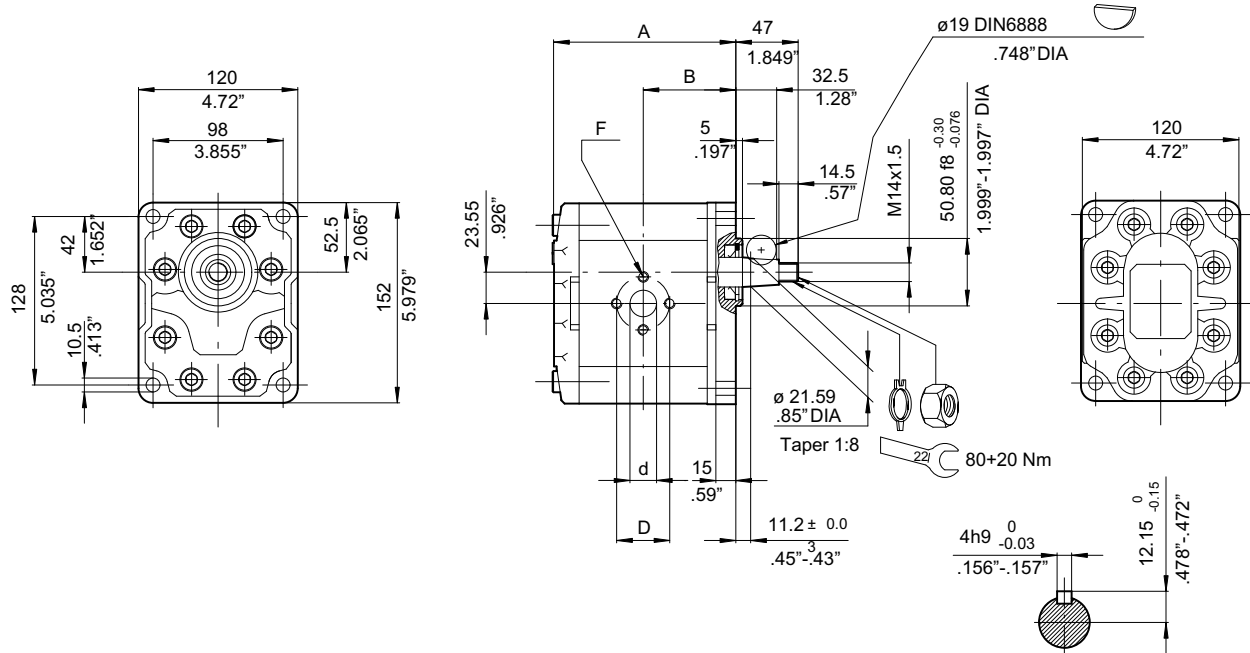


AP300 Type	Displacement		Max. pressure						n min.		n max.	
	cm ³ /rev	Cu. In. P. R.	P1		P2		P3		P ≤ P1	P > P1	P ≤ P1	P > P1
AP300/27	27.0	1.674	220	3150	250	3600	280	4000	600	800	3000	3500
AP300/31	31.0	1.891	220	3150	250	3600	280	4000	600	800	3000	3500
AP300/38	38.0	2.318	220	3150	250	3600	280	4000	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



Notes:

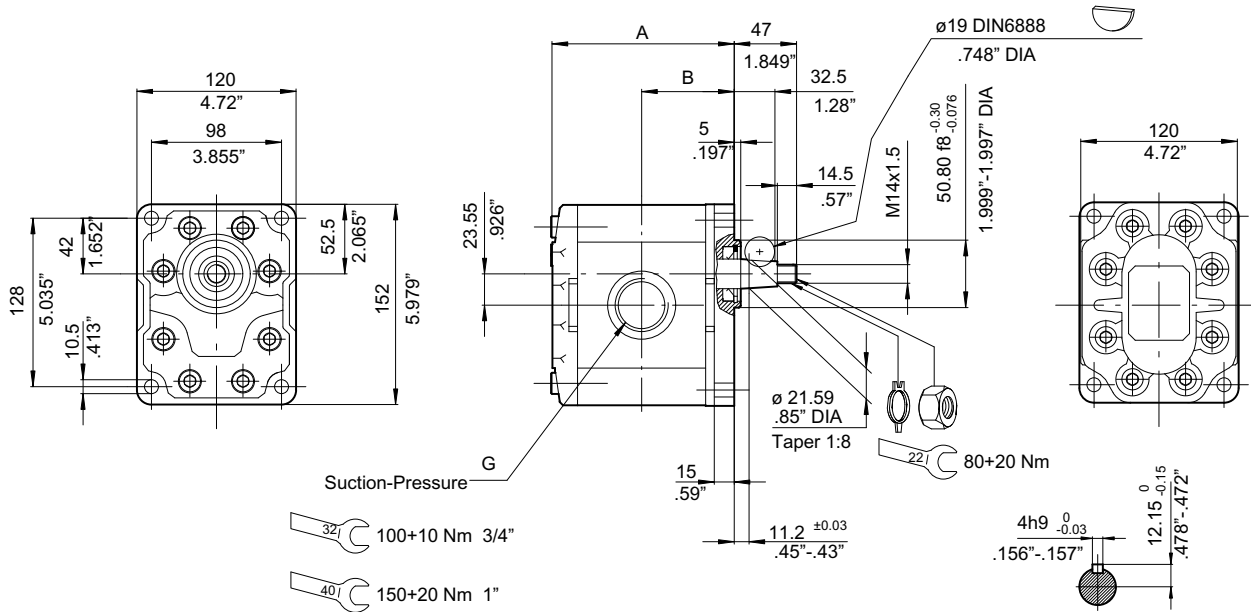
- For uses at the operating limits, see note in section 2.8.
- For the types of pumps without ordering code, contact our Sales Dept.



Type	Displacement cm ³ /rev	Dimensions				Suction					Pressure				
		A mm	inch	B mm	inch	d mm	inch	D mm	inch	F mm	d mm	inch	D mm	inch	F mm
AP300/27	27	126.0	4.96	64.0	2.51	27	1.06	51	2.00	M10X1.5	20	.78	40	1.56	M8X1.25
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	31	1.22	62	2.43	M12X1.75	25	.98	51	2.00	M10X1.5
AP300/75	75	157.5	6.20	79.5	3.13										
AP300/93	93	169.0	6.65	85.5	3.36										

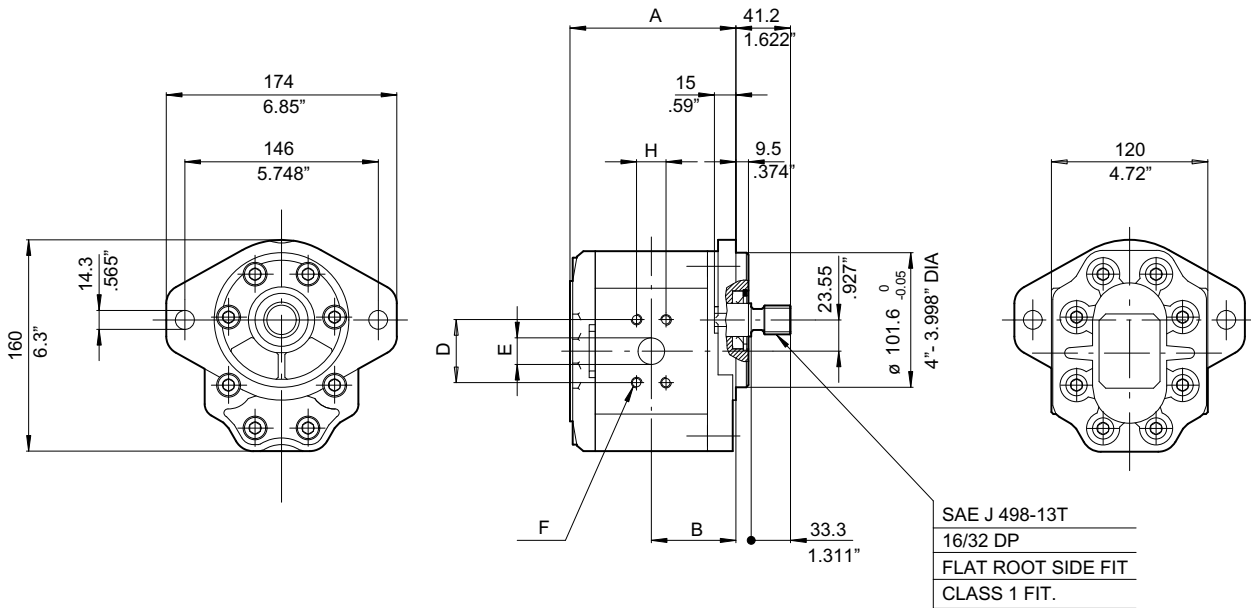
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP300/27 D 218	200103113201	AP300/27 S 218	200103113301
AP300/31 D 218	200103213201	AP300/31 S 218	200103213301
AP300/38 D 218	200103313201	AP300/38 S 218	200103313301
AP300/45 D 218	200103413201	AP300/45 S 218	200103413301
AP300/53 D 218	200103513201	AP300/53 S 218	200103513302
AP300/63 D 218	200103613202	AP300/63 S 218	200103613301
AP300/75 D 218	200103713201	AP300/75 S 218	200103713301
AP300/93 D 218	200103813201	AP300/93 S 218	200103813303

Group AP300 Code 818



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		

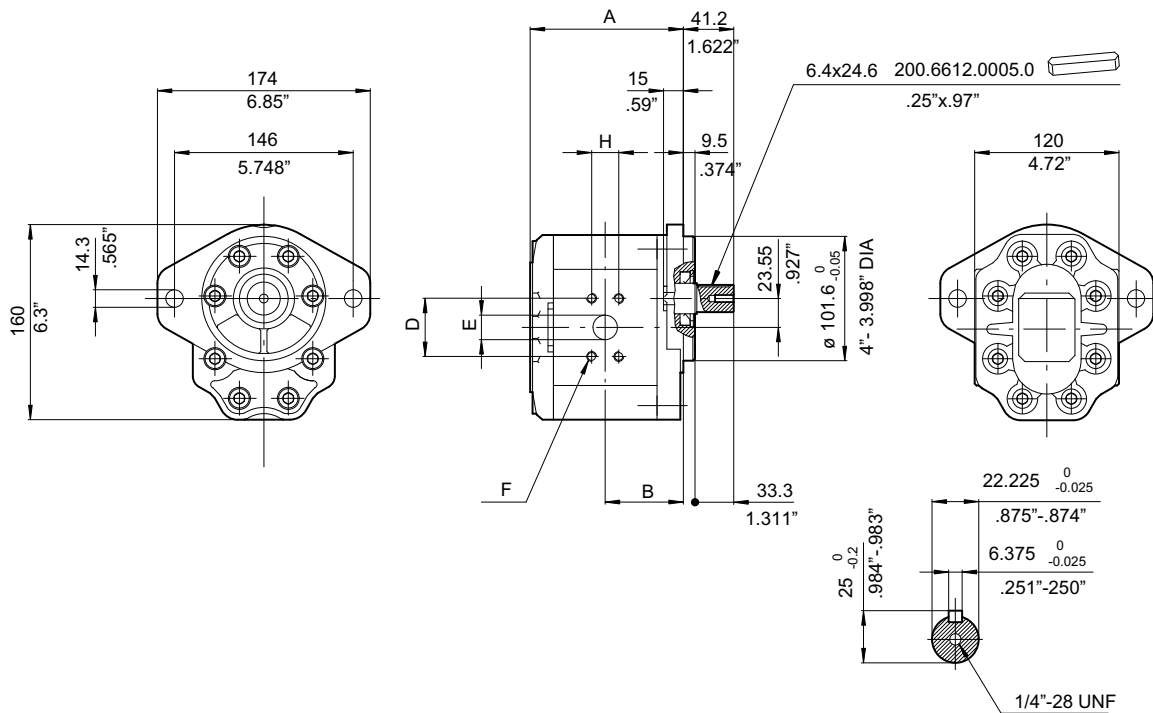
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP300/27 D 818	200103113203	AP300/27 S 818	200103113307
AP300/31 D 818	200103213205	AP300/31 S 818	200103213303
AP300/38 D 818	200103313202	AP300/38 S 818	200103313303
AP300/45 D 818	200103413203	AP300/45 S 818	200103413303
AP300/53 D 818	200103513204	AP300/53 S 818	200103513303
AP300/63 D 818	200103613201	AP300/63 S 818	200103613303
AP300/75 D 818	200103713202	AP300/75 S 818	200103713303
AP300/93 D 818	200103813202	AP300/93 S 818	200103813304



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 287S	200103186201	AP300/27 S 287S	200103186301
AP300/31 D 287S	200103286201	AP300/31 S 287S	200103286301
AP300/38 D 287S	200103386201	AP300/38 S 287S	200103386301
AP300/45 D 287S	200103486201	AP300/45 S 287S	200103486301
AP300/53 D 287S	200103586201	AP300/53 S 287S	200103586301
AP300/63 D 287S	200103686201	AP300/63 S 287S	200103686301
AP300/75 D 287S	200103786201	AP300/75 S 287S	200103786301
AP300/93 D 287S	200103886201	AP300/93 S 287S	200103886301

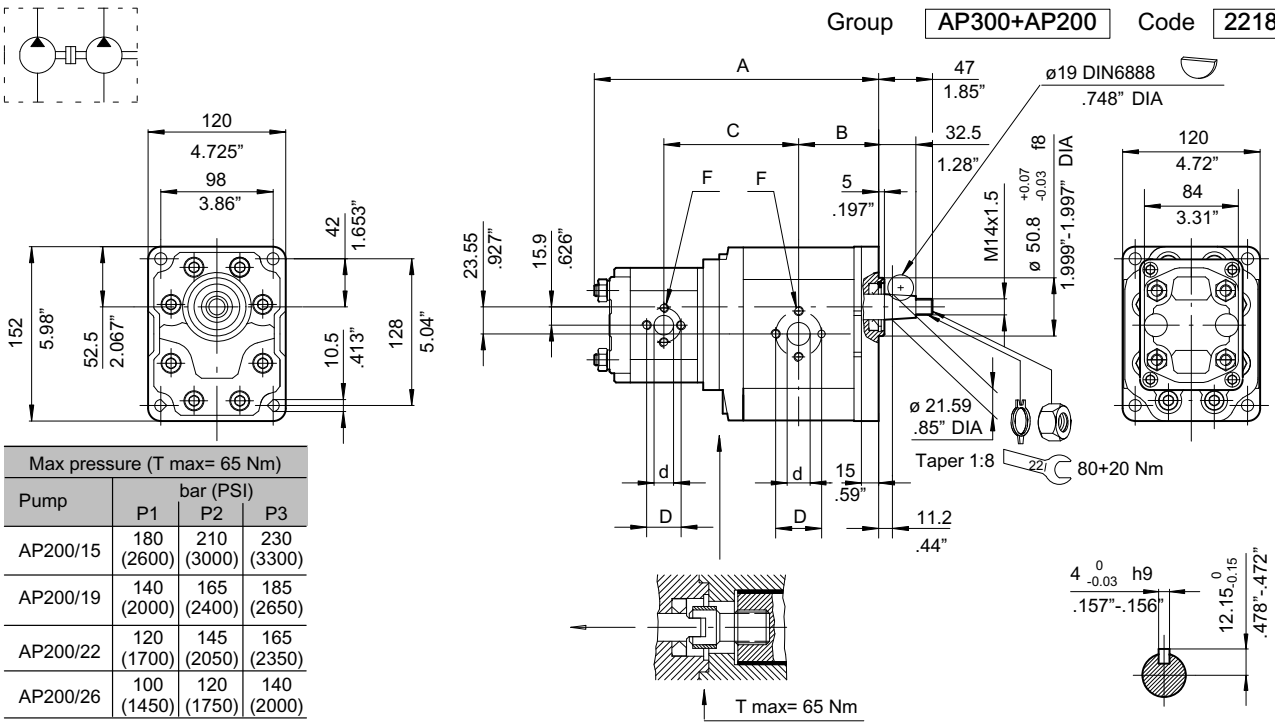
Group **AP300** Code **280**



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	200103180201	AP300/27 S 280	200103180301
AP300/31 D 280	200103280201	AP300/31 S 280	200103280301
AP300/38 D 280	200103380201	AP300/38 S 280	200103380301
AP300/45 D 280	200103480201	AP300/45 S 280	200103480301
AP300/53 D 280	200103580201	AP300/53 S 280	200103580301
AP300/63 D 280	200103680201	AP300/63 S 280	200103680301
AP300/75 D 280	200103780201	AP300/75 S 280	200103780301
AP300/93 D 280	200103880201	AP300/93 S 280	200103880301

Group **AP300+AP200** Code **2218**



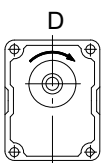
AP300 Displacement cm ³ /rev.	Suction					Pressure				
	d		D		F	d		D		F
	mm	inch	mm	inch	mm	mm	inch	mm	inch	mm
27	27	1.06	51	2.01	10	20	.79	40	1.58	8
31										
38										
45										
53	31	1.22	62	2.44	12	25	.98	51	2.01	10
63										
75										
93										

AP200 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	6	13.5	.53	30	1.18	6
6.5										
8.5										
11	19	.75	40	1.58	8	19	.75	40	1.58	8
15										
19										
22										
26										

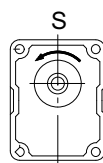
	AP300/27			AP300/31			AP300/38			AP300/45		
	A	B	C	A	B	C	A	B	C	A	B	C
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>	<i>inch</i>
AP200/4.5 AP200/6.5 AP200/8.5	215.5 <i>8.5</i>	64 <i>2.52</i>	103.5 <i>4.08</i>	218 <i>8.6</i>	65 <i>2.56</i>	105 <i>4.14</i>	222.5 <i>8.76</i>	67.5 <i>2.66</i>	107.5 <i>4.23</i>	227 <i>8.94</i>	69.8 <i>2.75</i>	109.5 <i>4.31</i>
AP200/11 AP200/15	230.5 <i>9.08</i>	64 <i>2.52</i>	111.5 <i>4.39</i>	233 <i>9.2</i>	65 <i>2.56</i>	113 <i>4.45</i>	237.5 <i>9.35</i>	67.5 <i>2.66</i>	115.5 <i>4.55</i>	242 <i>9.53</i>	69.8 <i>2.75</i>	117.5 <i>4.63</i>
AP200/19	240.5 <i>9.47</i>	64 <i>2.52</i>	117.5 <i>4.62</i>	243 <i>9.57</i>	65 <i>2.56</i>	119 <i>4.69</i>	247.5 <i>9.75</i>	67.5 <i>2.66</i>	121.5 <i>4.78</i>	252 <i>9.92</i>	69.8 <i>2.75</i>	123.5 <i>4.86</i>
AP200/22 AP200/26	245.5 <i>9.67</i>	64 <i>2.52</i>	120 <i>4.72</i>	248 <i>9.76</i>	65 <i>2.56</i>	121 <i>4.76</i>	252.5 <i>9.95</i>	67.5 <i>2.66</i>	123.5 <i>4.86</i>	257 <i>10.12</i>	69.8 <i>2.75</i>	126 <i>4.96</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>
AP200/4.5 AP200/6.5 AP200/8.5	232.5 <i>9.15</i>	72.5 <i>2.86</i>	112 <i>4.4</i>	239 <i>9.45</i>	75.5 <i>2.97</i>	115.5 <i>4.55</i>	246.5 <i>9.7</i>	79.5 <i>3.13</i>	119.5 <i>4.71</i>	258.5 <i>10.12</i>	85.5 <i>3.37</i>	125 <i>4.92</i>
AP200/11 AP200/15	247.5 <i>9.74</i>	72.5 <i>2.86</i>	120 <i>4.72</i>	254 <i>10</i>	75.5 <i>2.97</i>	123.5 <i>4.86</i>	261.5 <i>10.3</i>	79.5 <i>3.13</i>	127.5 <i>5.02</i>	273.5 <i>10.77</i>	85.5 <i>3.37</i>	133 <i>5.23</i>
AP200/19	257.5 <i>10.13</i>	72.5 <i>2.86</i>	126 <i>4.96</i>	264 <i>10.4</i>	75.5 <i>2.97</i>	129.5 <i>5.1</i>	271.5 <i>10.37</i>	79.5 <i>3.13</i>	133.5 <i>5.26</i>	283.5 <i>11.16</i>	85.5 <i>3.37</i>	139 <i>5.47</i>
AP200/22 AP200/26	262.5 <i>10.3</i>	72.5 <i>2.86</i>	128.5 <i>5.06</i>	269 <i>10.6</i>	75.5 <i>2.97</i>	131.5 <i>5.18</i>	276.5 <i>10.89</i>	79.5 <i>3.13</i>	135.5 <i>5.33</i>	288.5 <i>11.36</i>	85.5 <i>3.37</i>	141.5 <i>5.57</i>

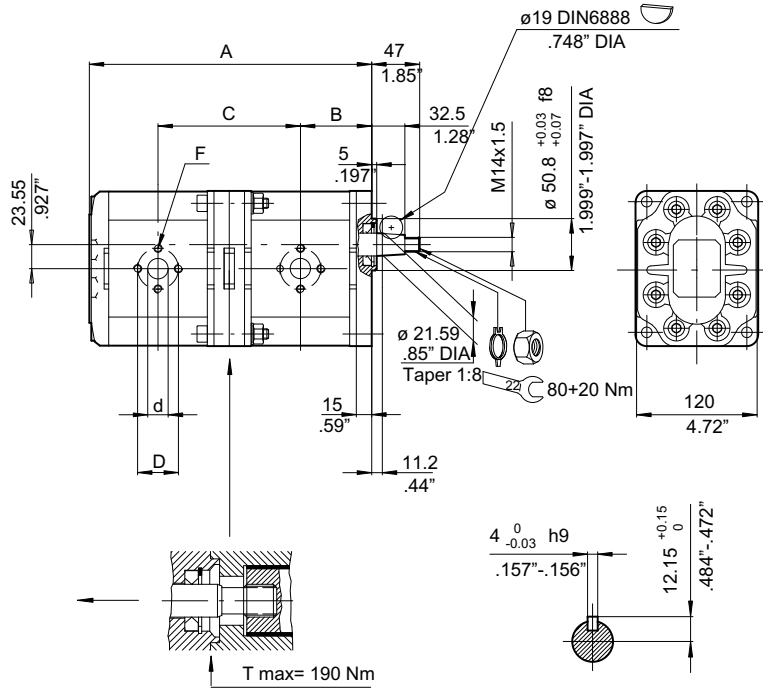
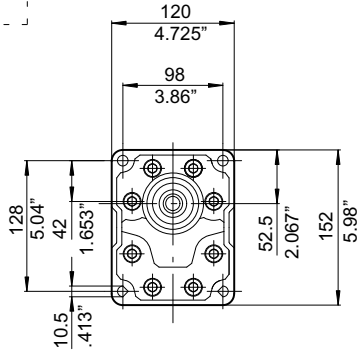
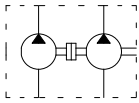
Example of product code



AP300/38 - 200/15 D 2218
(Clockwise rotation: D)



AP300/63 - 200/22 S 2218
(Counterclockwise rotation : S)



Max pressure (T max= 190 Nm)			
Pump	P1	P2	P3
	bar (PSI)		
AP300/38	200 (2900)	230 (3300)	250 (3600)
AP300/45	190 (2700)	220 (3200)	240 (3400)
AP300/53	160 (2300)	190 (2700)	210 (3000)
AP300/63	130 (1900)	160 (2300)	180 (2600)
AP300/75	100 (1450)	130 (1900)	150 (2100)
AP300/95	80 (1150)	110 (1600)	130 (1900)

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

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 shaft.

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			135	5.32
45+27	266	10.00	69.8	2.75	133.5	5.26
45+31	268	10.55			135	5.31
45+38	273	10.75			137.5	5.41
					139.5	5.50
45+45	278	10.95				

Displacement cm ³ /rev	A		B		C	
	mm	inch	mm	inch	mm	inch
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
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			151	5.95
75+27	285	11.22	79.5	3.13	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			152	5.99
75+63	309	12.17			155	6.10
75+75	317	12.40			159	6.26
93+27	297	11.70	85.5	3.37	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

Note: For the accessories see pump group AP300 code 218 page 83/96

3.1 Pumps seal kit NBR standard type

AP300	
Pump code	Seal kit
AP300/218	200974000140
AP300/818	
AP300/287S	200974000170
AP300/280	

AP300+AP200	
Pump code	Seal kit
AP300/2218	200974000110

AP300+AP300	
Pump code	Seal kit
AP300/2218	200974000150

4 Composition of product code

4.1 Single pumps

Type	Rotation	Code
AP300/**	*	****

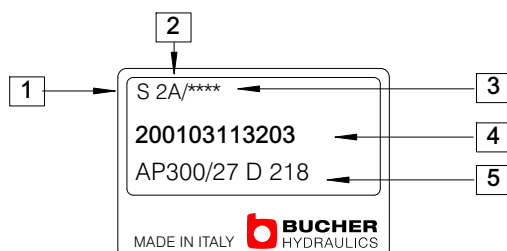
Examples	Order Code
AP300/45 S 280	200103480301

4.2 Double pumps

Type 1st pump	Type 2nd pump	Rotation	Code
AP300/**	AP200/**	****	****
AP300/**	AP300/**	****	****

Examples	Order Code
AP300/38-200/8.5 D 2218	200132313209
AP300/53-300/38 S 2218	200133513303

4.3 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

4.4 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 code 218 . Limited weight variations are possible for pumps having a different code.

Manufacturing month	Manufacturing year							
	2010	2011	2012	2013	2014	2015	2016	2017
January	0A	1A	2A	3A	4A	5A	6A	7A
February	0B	1B	2B	3B	4B	5B	6B	7B
March	0C	1C	2C	3C	4C	5C	6C	7C
April	0D	1D	2D	3D	4D	5D	6D	7D
May	0E	1E	2E	3E	4E	5E	6E	7E
June	0F	1F	2F	3F	4F	5F	6F	7F
July	0G	1G	2G	3G	4G	5G	6G	7G
August	0H	1H	2H	3H	4H	5H	6H	7H
September	0I	1I	2I	3I	4I	5I	6I	7I
October	0J	1J	2J	3J	4J	5J	6J	7J
November	0K	1K	2K	3K	4K	5K	6K	7K
December	0L	1L	2L	3L	4L	5L	6L	7L

