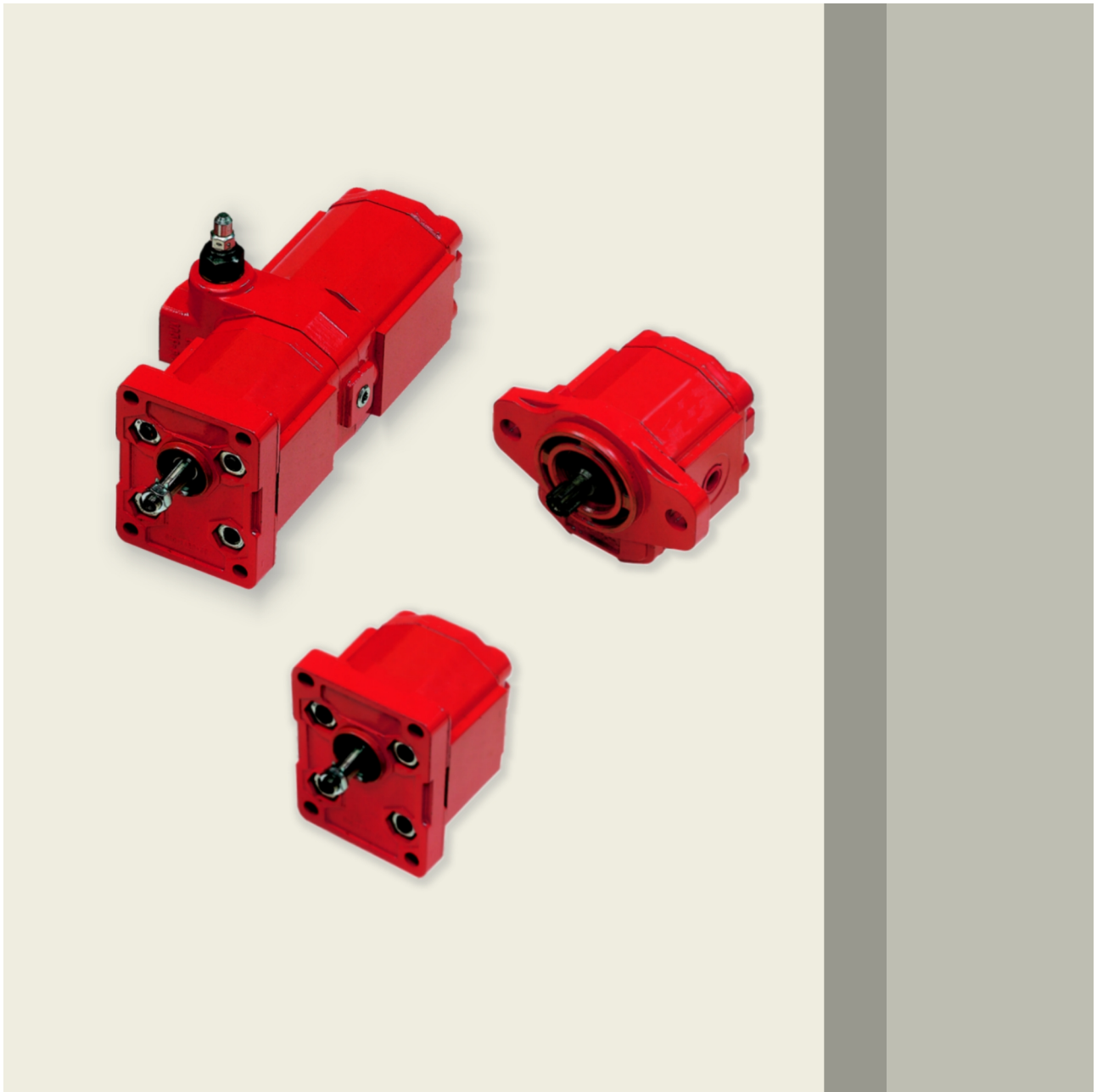


Gear Pumps - AP100



motion and progress

Contents

Page

1	General information	3
	1.1 Introduction to the product	3
	1.2 Non-standard symbols used in the text	4
2	Technical information	4
	2.1 Identifying the rotation direction	4
	2.2 Recommended fluids/Allowed temperatures	5
	2.3 Suction	5
	2.4 Filtration	5
	2.5 Motor-pump coupling	6
	2.6 General precaution	7
	2.7 Pressure	7
	2.8 Calculating the specification of a gear pump	8
	2.9 Diagrams	9
	2.10 Information about the medium level of sound pressure given out	10
3	Gear pump group AP100	11
	3.1 Pumps seal kit NBR standard type	26
4	Composition of product code	26
	4.1 Single pumps	26
	4.2 Product identification plate	26
	4.3 Single pump weight	26

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.

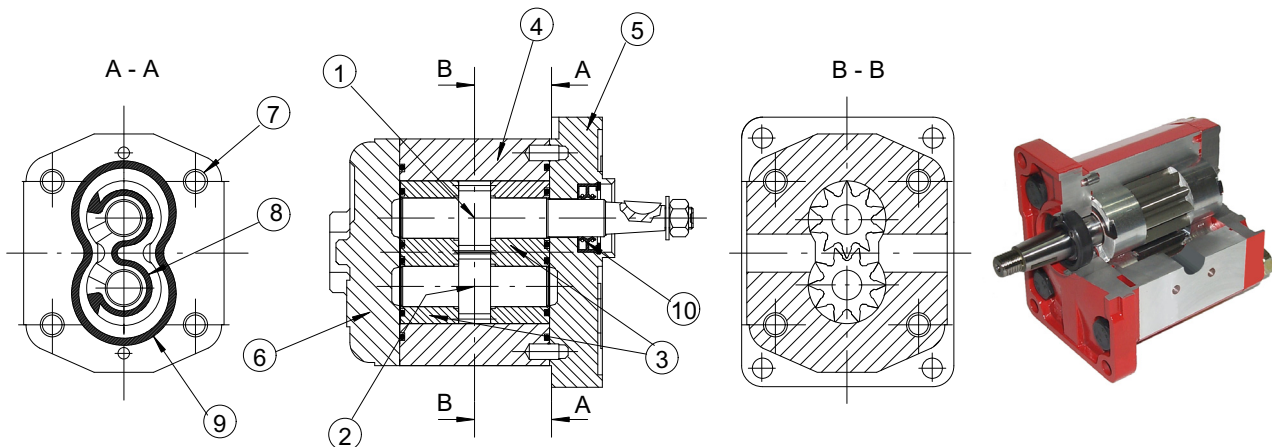
Product development has made it possible to achieve high operating pressures, excellent volumetric and mechanical efficiency, and lower noise levels, in operation, by means of:

- 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



- 15. Drive gear
- 16. Driven gear
- 17. Balancing
- 18. Pump body
- 19. Front cover

- 20. Rear cover
- 21. Mounting tie rod
- 22. Balancing seal
- 23. Oil seal
- 24. 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).

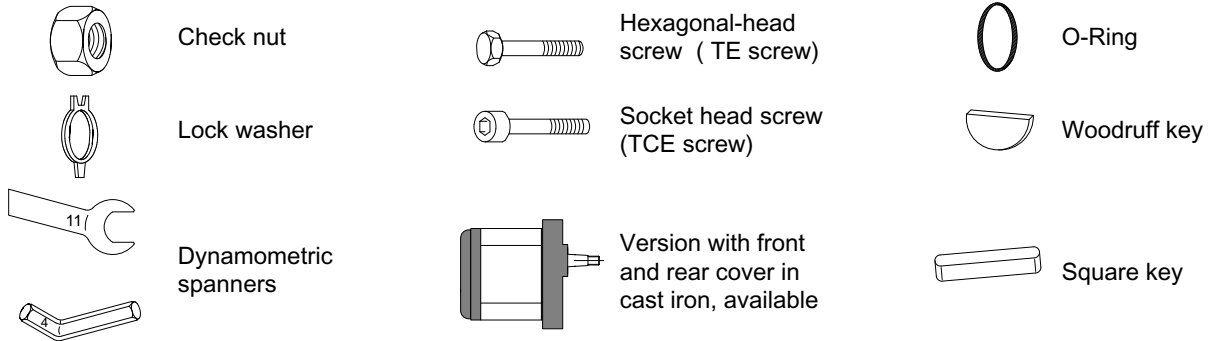
Versions available

The Bucher Hydraulics S.p.A. product range includes single pumps of groups 05-100-212-300 (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.

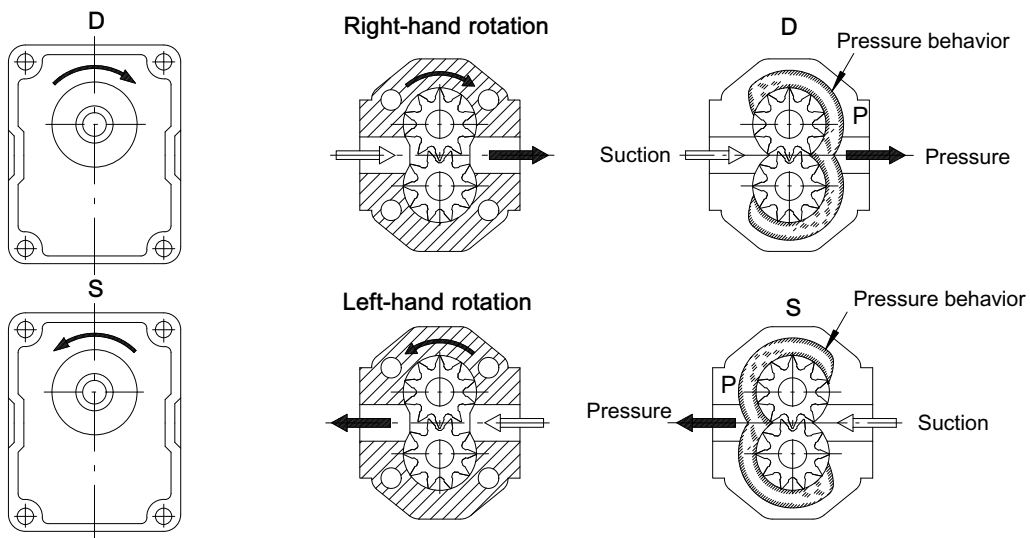
The figure also shows the pressure flow inside the pumps as the oil is transferred from the suction port to the pressure port.

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
	AP100
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)

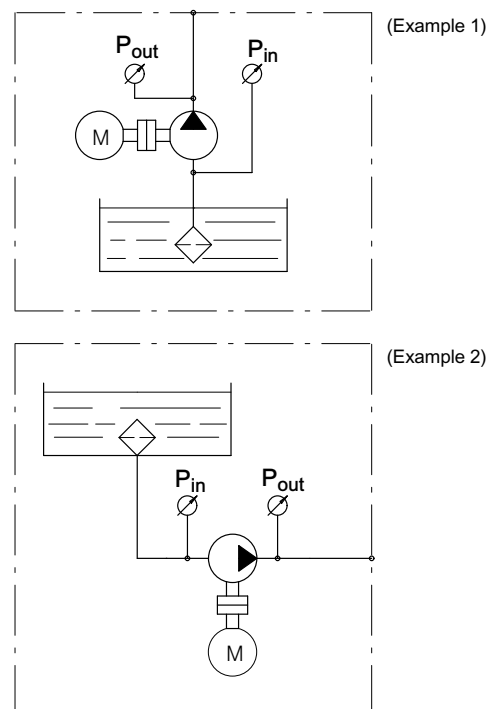
2.4 Filtration

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).

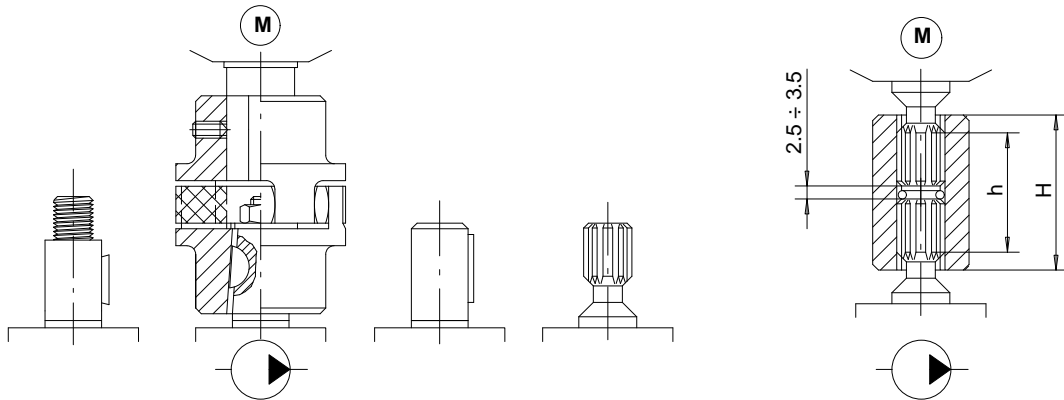
In any case, the filtering system must constantly ensure an oil contamination class equal to or less than those shown in the following table.



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 with 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 ± 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.

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

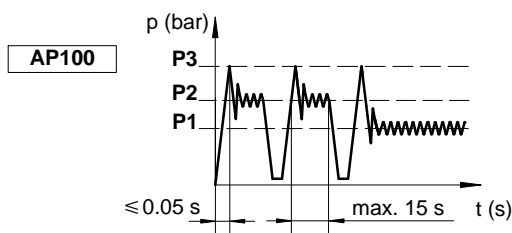
P2 = intermittent pressure

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

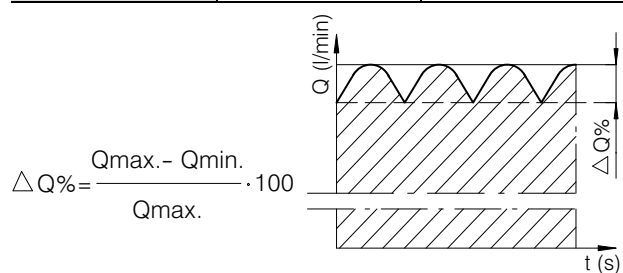
Hydraulic pumps are excluded by Directive 98/37/EC

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

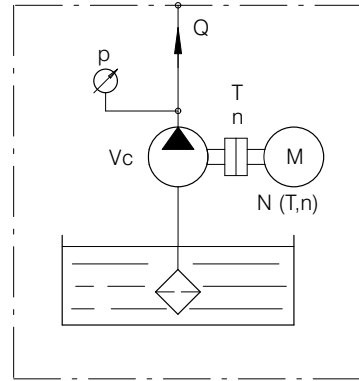
Pump	z	$\Delta Q\%$
AP100	12	15



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) absorbed 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

AP100/2.5 V_c= 11.1 cm³/r n= 1500 r/min p=200 bar η_v= 94% η_m= 90% η_t= 84.6%

$$Q = \frac{2.5 \cdot 1500}{100000} \cdot 94 = 3.52 \text{ l/min.}$$

$$T = 1.59 \cdot \frac{200 \cdot 2.5}{90} = 8.83 \text{ Nm}$$

$$N = \frac{3.52 \cdot 200}{6.12 \cdot 84.6} = 1.36 \text{ kW}$$

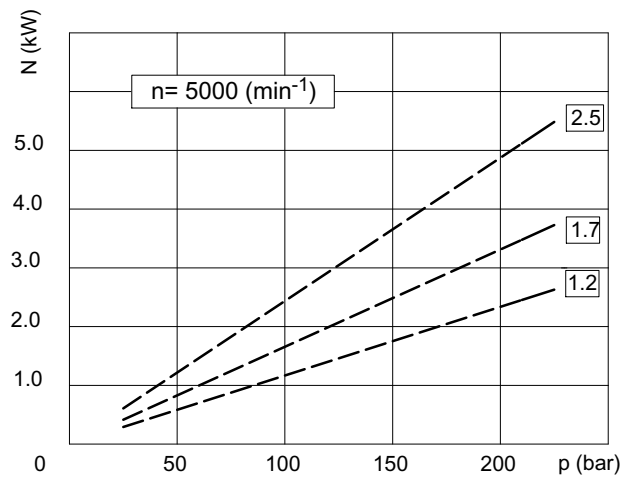
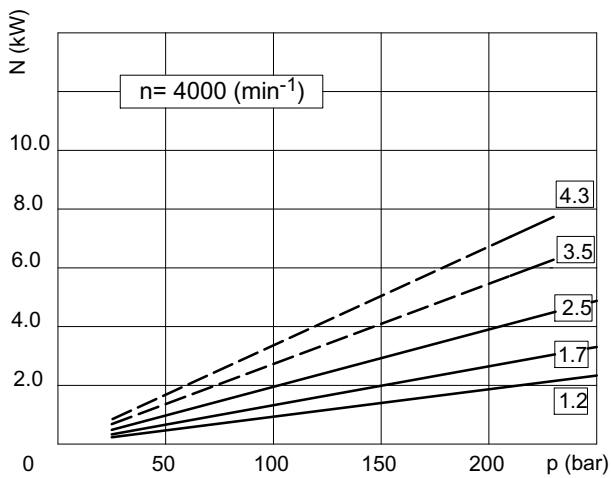
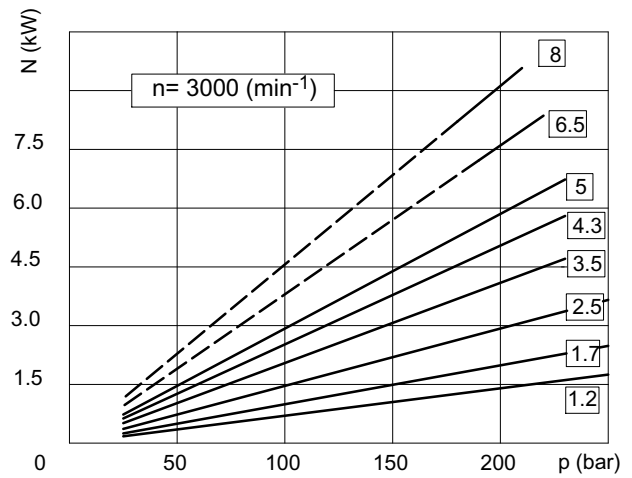
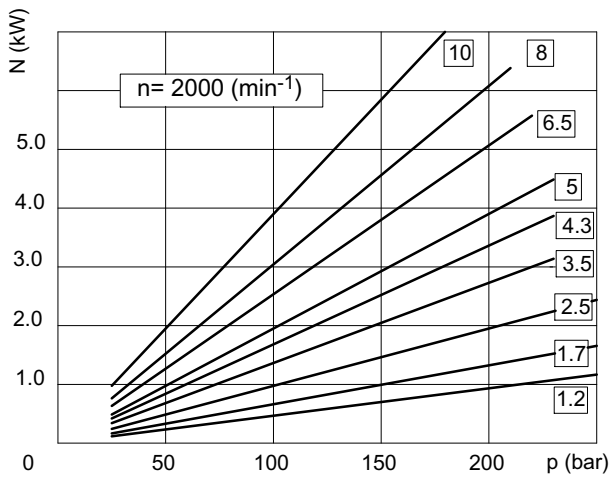
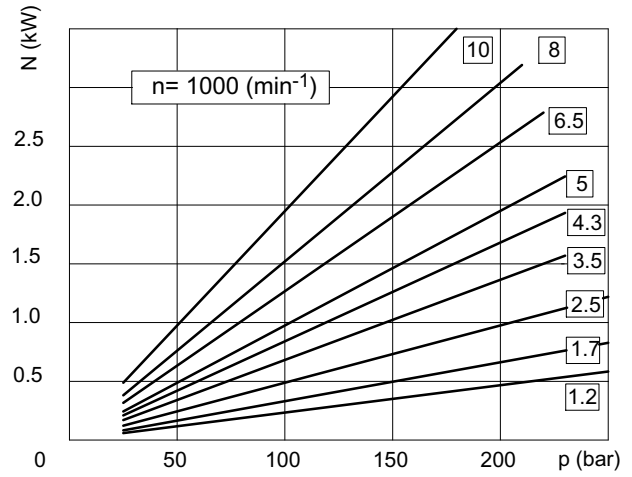
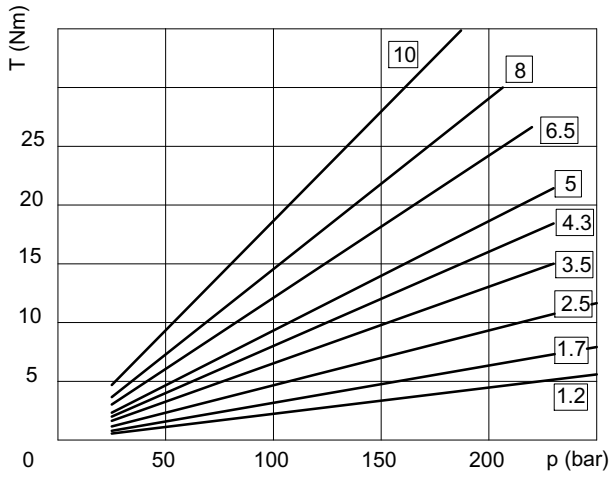


Important: Please contact our Sales Department if even one of the operating limits indicated in the tables below (temperature, pressure, rpm) is exceeded, as well as in the case of two or more maximum values at the same time, or for applications with particularly heavy-duty cycles.

AP100 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.				
AP100/1.2	1.2	.073	210	3000	250	3600	280	4000	800	1000	4500	5000
AP100/1.7	1.7	.103	210	3000	250	3600	280	4000	650	800	4500	5000
AP100/2.5	2.5	.152	210	3000	250	3600	280	4000	650	800	4500	5000
AP100/3.5	3.5	.213	210	3000	230	3300	250	3600	650	800	3500	4000
AP100/4.3	4.3	.262	210	3000	230	3300	250	3600	550	700	3500	4000
AP100/5	5.0	.305	210	3000	230	3300	250	3600	500	650	3000	3500
AP100/6.5	6.5	.396	190	2700	220	3150	240	3400	500	650	2500	3000
AP100/8	7.8	.476	180	2600	210	3000	230	3300	500	650	2500	3000
AP100/10	10.0	.610	150	2150	180	2600	200	2900	500	650	2000	2500

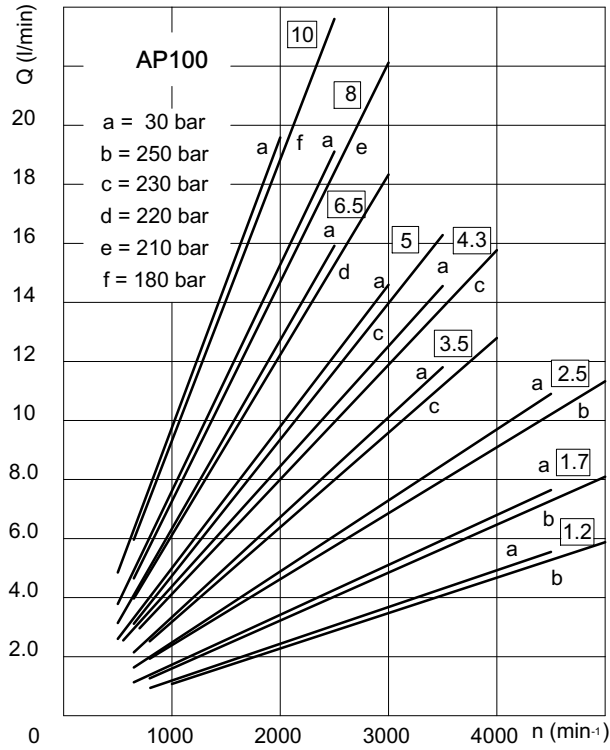
2.9 Diagrams

AP100

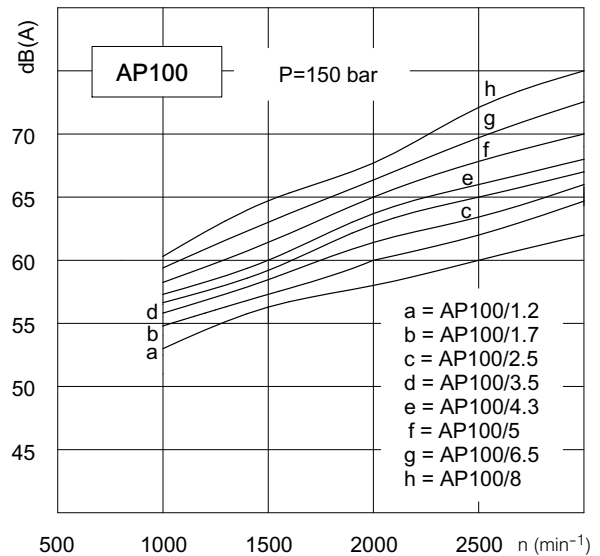
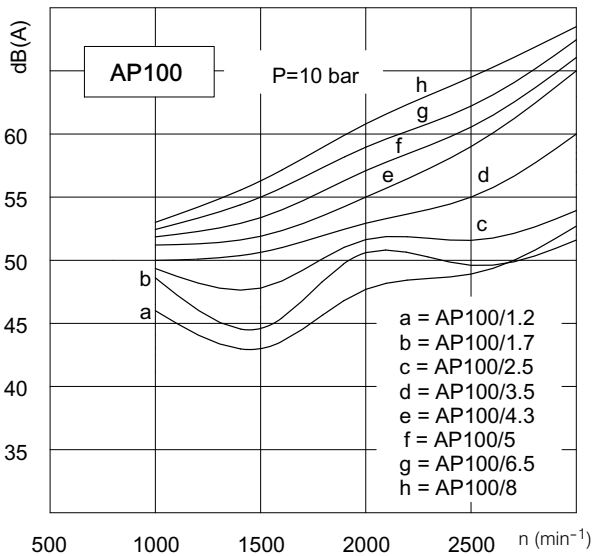
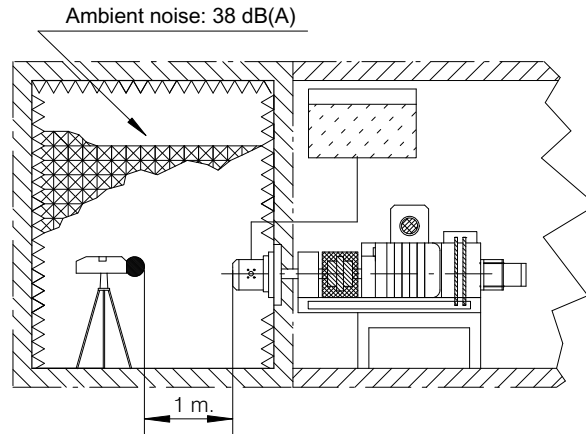


Oil viscosity: 37 mm²/s
Oil temperature: 40° C

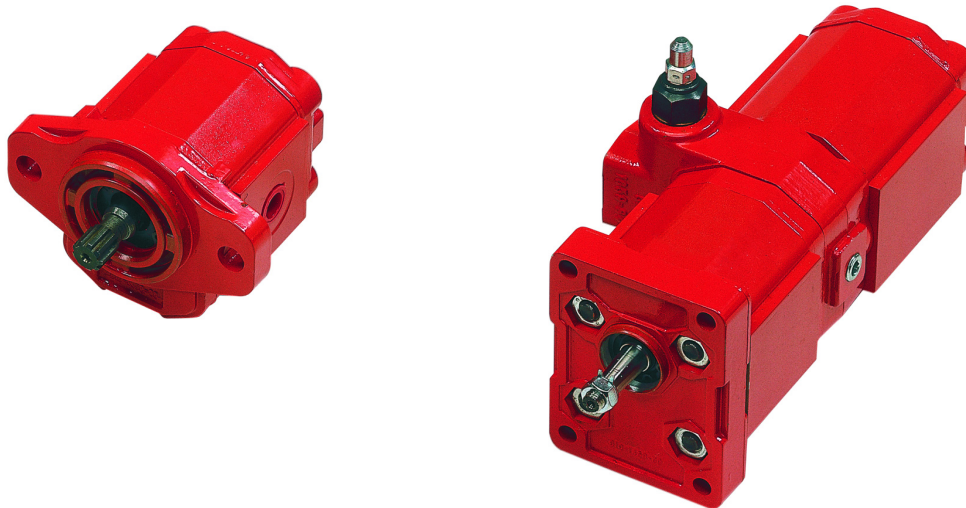
Oil viscosity: 37 mm²/s
Oil temperature: 40° C



2.10 Information about the medium level of sound pressure given out

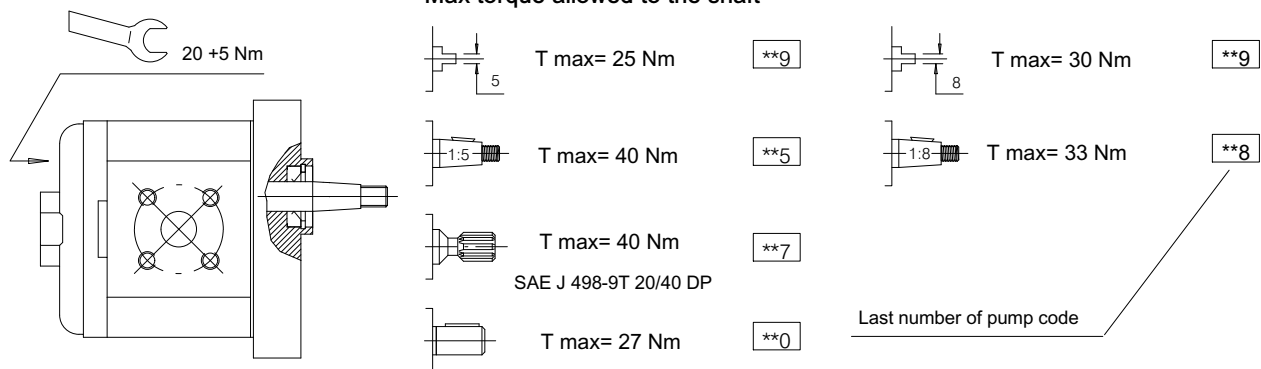


3 Gear pump group AP100

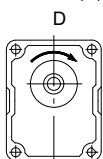


AP100 Type	Displacement		Max. pressure						n min.		n max.	
	cm ³ /rev	Cu. In. P. R.	P1		P2		P3		P ≤ P1	P > P1	P ≤ P1	P > P1
			bar	P.S.I.	bar	P.S.I.	bar	P.S.I.				
AP100/1.2	1.2	.073	210	3000	250	3600	280	4000	800	1000	4500	5000
AP100/1.7	1.7	.103	210	3000	250	3600	280	4000	650	800	4500	5000
AP100/2.5	2.5	.152	210	3000	250	3600	280	4000	650	800	4500	5000
AP100/3.5	3.5	.213	210	3000	230	3300	250	3600	650	800	3500	4000
AP100/4.3	4.3	.262	210	3000	230	3300	250	3600	550	700	3500	4000
AP100/5	5.0	.305	210	3000	230	3300	250	3600	500	650	3000	3500
AP100/6.5	6.5	.396	190	2700	220	3150	240	3400	500	650	2500	3000
AP100/8	7.8	.476	180	2600	210	3000	230	3300	500	650	2500	3000
AP100/10	10.0	.610	150	2150	180	2600	200	2900	500	650	2000	2500

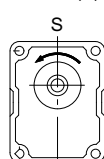
Max torque allowed to the shaft



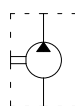
Clockwise rotation (D)



Counter-clockwise rotation (S)

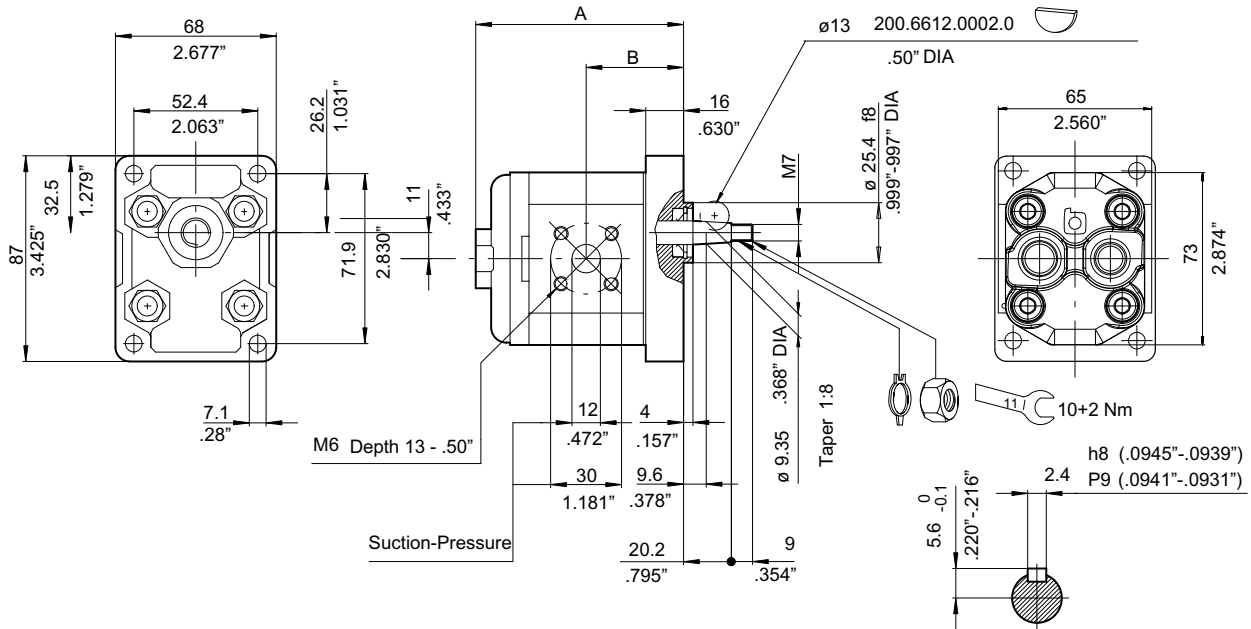


AP



Notes:

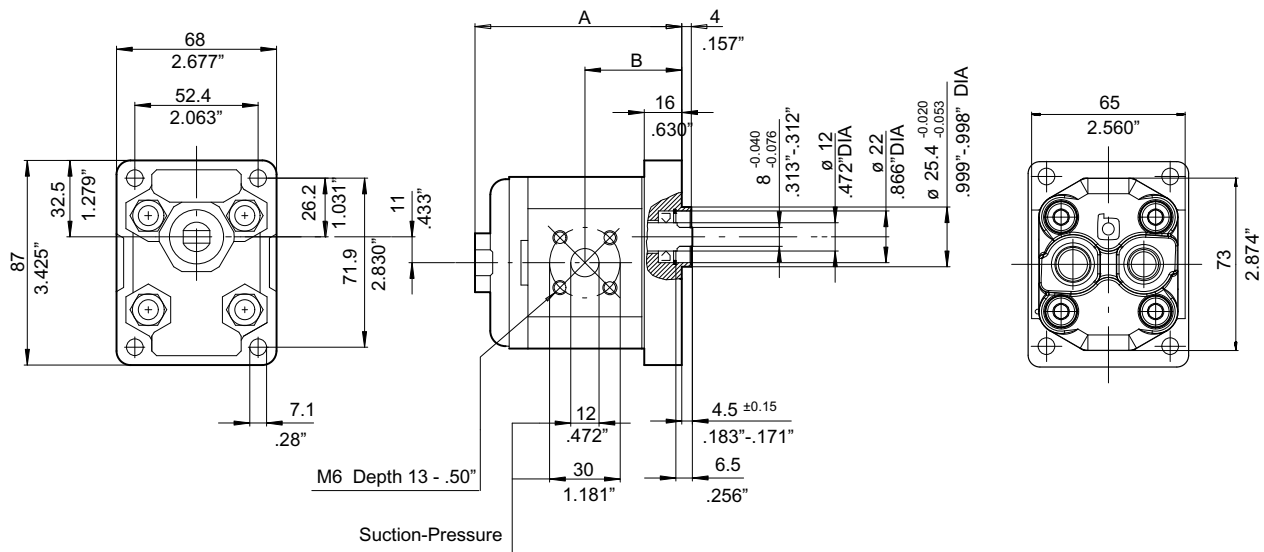
- For uses at the operating limits, see note on section 2.8
- For the types of pumps without ordering code, contact our Sales Dept.



Type	Displacement cm ³ /rev	Dimensions			
		A		B	
		mm	inch.	mm	inch.
AP100/1.2	1.2	82.5	3.25	38.5	1.51
AP100/1.7	1.7	84.5	3.33	39.5	1.55
AP100/2.5	2.5	88	3.46	41	1.61
AP100/3.5	3.5	92	3.62	43.5	1.71
AP100/4.3	4.3	96	3.78	45	1.77
AP100/5	5	98.5	3.88	46.5	1.83
AP100/6.5	6.5	103.5	4.07	49	1.93
AP100/8	7.8	109	4.29	52	2.05

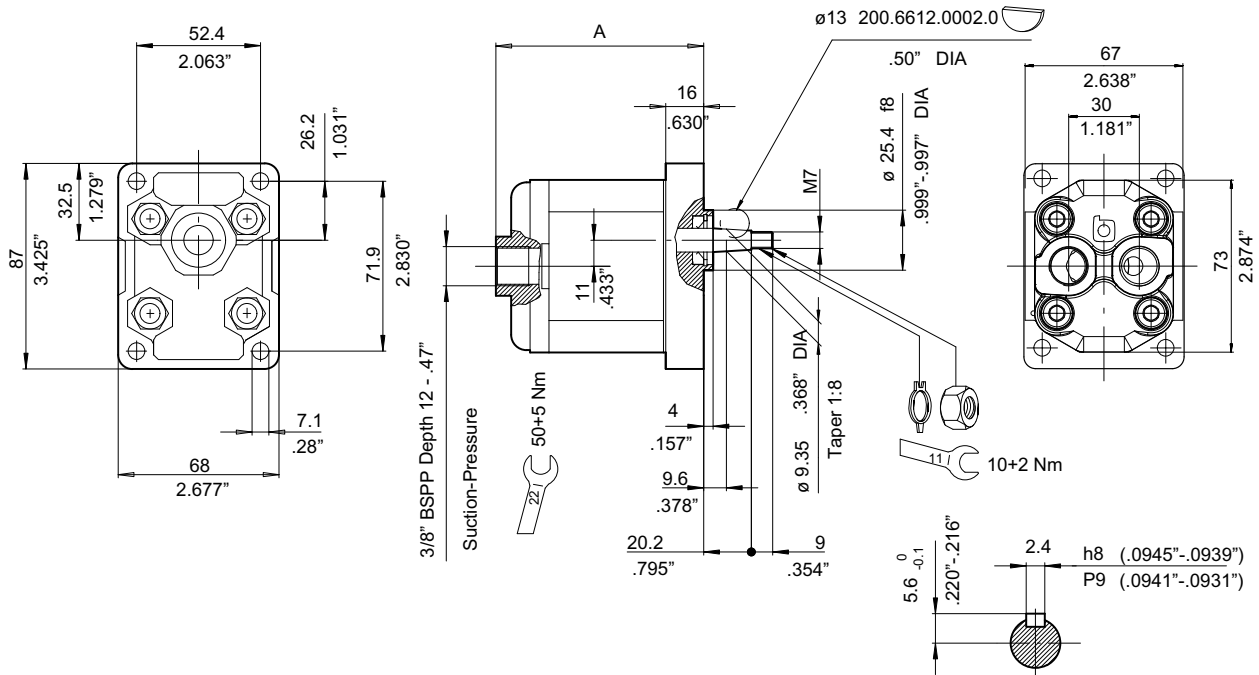
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 218	200101113204	AP100/1.2 S 218	200101113304
AP100/1.7 D 218	200101213203	AP100/1.7 S 218	200101213304
AP100/2.5 D 218	200101313203	AP100/2.5 S 218	200101313303
AP100/3.5 D 218	200101413204	AP100/3.5 S 218	200101413303
AP100/4.3 D 218	200101513203	AP100/4.3 S 218	200101513302
AP100/5 D 218	200101613203	AP100/5 S 218	200101613306
AP100/6.5 D 218	200101713203	AP100/6.5 S 218	200101713303
AP100/8 D 218	200101813202	AP100/8 S 218	200101813302

Group AP100 Code 219



Type	Displacement cm ³ /rev	Dimensions			
		mm	A inch.	mm	B inch.
AP100/1.2	1.2	82.5	3.25	38.5	1.51
AP100/1.7	1.7	84.5	3.33	39.5	1.55
AP100/2.5	2.5	88	3.46	41	1.61
AP100/3.5	3.5	92	3.62	43.5	1.71
AP100/4.3	4.3	96	3.78	45	1.77
AP100/5	5	98.5	3.88	46.5	1.83
AP100/6.5	6.5	103.5	4.07	49	1.93
AP100/8	7.8	109	4.29	52	2.05
AP100/10	10	118	4.64	56.5	2.22

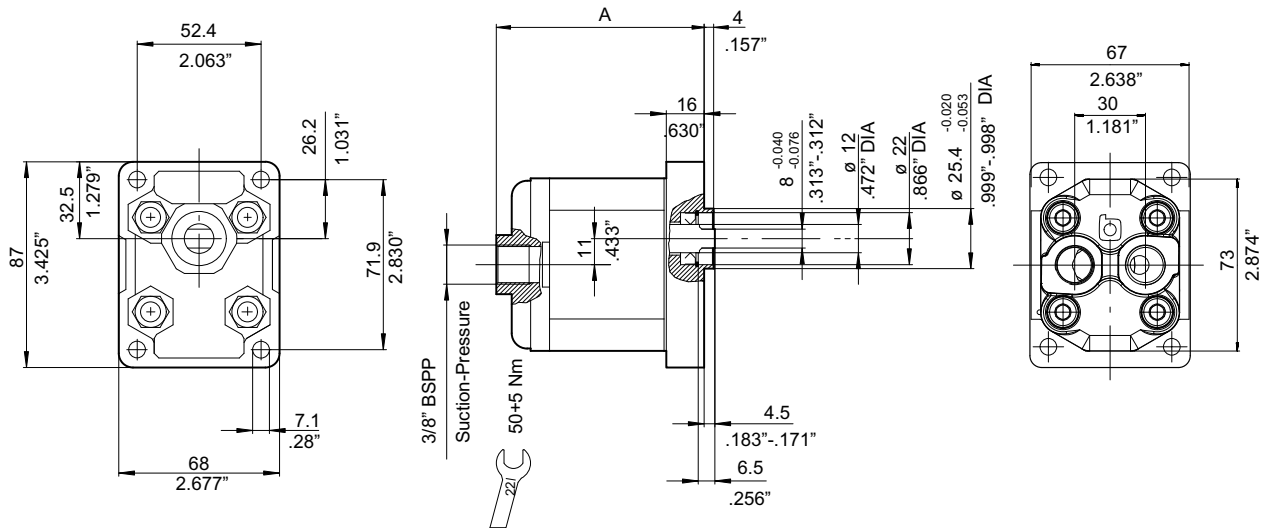
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 219		AP100/1.2 S 219	200101114306
AP100/1.7 D 219		AP100/1.7 S 219	200101214307
AP100/2.5 D 219		AP100/2.5 S 219	200101314306
AP100/3.5 D 219	200101414202	AP100/3.5 S 219	200101414306
AP100/4.3 D 219		AP100/4.3 S 219	200101514306
AP100/5 D 219		AP100/5 S 219	200101614304
AP100/6.5 D 219		AP100/6.5 S 219	200101714304
AP100/8 D 219		AP100/8 S 219	200101814302
AP100/10 D 219		AP100/10 S 219	



Type	Displacement cm ³ /rev	Dimensions A	
		mm	inch.
AP100/1.2	1.2	82.5	3.25
AP100/1.7	1.7	84.5	3.33
AP100/2.5	2.5	88	3.46
AP100/3.5	3.5	92	3.62
AP100/4.3	4.3	96	3.78
AP100/5	5	98.5	3.88
AP100/6.5	6.5	103.5	4.07
AP100/8	7.8	109	4.29

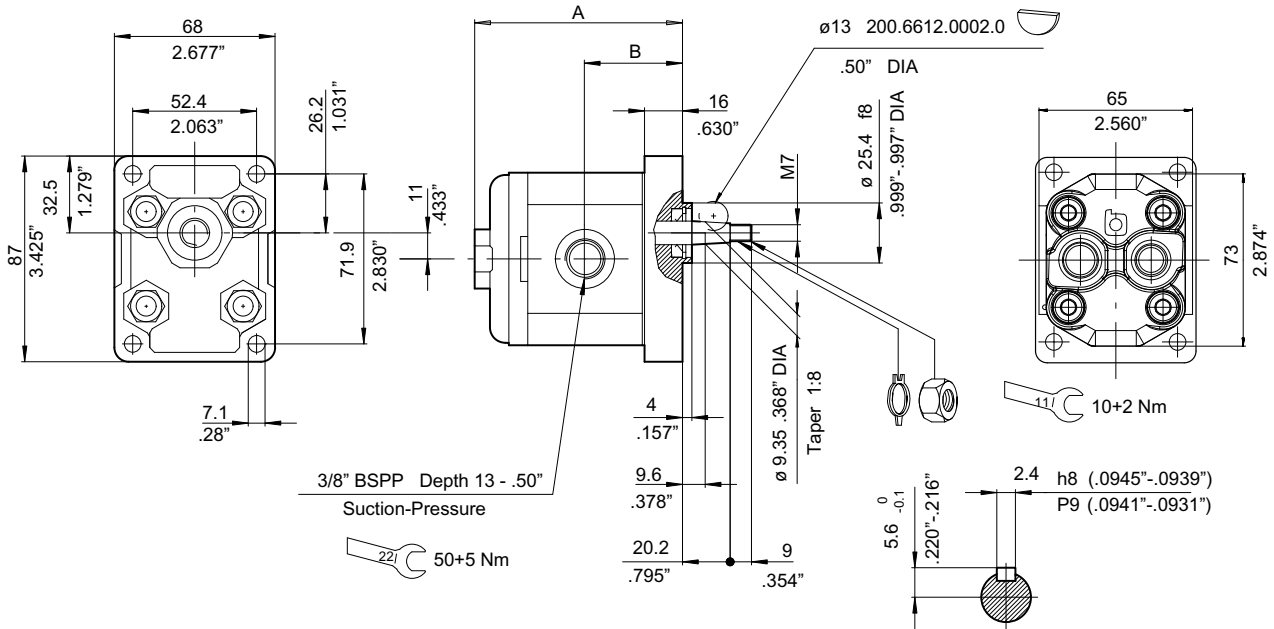
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 318	200101113205	AP100/1.2 S 318	200101113305
AP100/1.7 D 318	200101213204	AP100/1.7 S 318	200101213305
AP100/2.5 D 318	200101313204	AP100/2.5 S 318	200101313304
AP100/3.5 D 318	200101413205	AP100/3.5 S 318	200101413304
AP100/4.3 D 318	200101513204	AP100/4.3 S 318	200101513305
AP100/5 D 318	200101613204	AP100/5 S 318	200101613307
AP100/6.5 D 318	200101713204	AP100/6.5 S 318	200101713304
AP100/8 D 318	200101813203	AP100/8 S 318	200101813303

Group AP100 Code 319



Type	Displacement cm ³ /rev	Dimensions A	
		mm	inch.
AP100/1.2	1.2	82.5	3.25
AP100/1.7	1.7	84.5	3.33
AP100/2.5	2.5	88	3.46
AP100/3.5	3.5	92	3.62
AP100/4.3	4.3	96	3.78
AP100/5	5	98.5	3.88
AP100/6.5	6.5	103.5	4.07
AP100/8	7.8	109	4.29
AP100/10	10	118	4.64

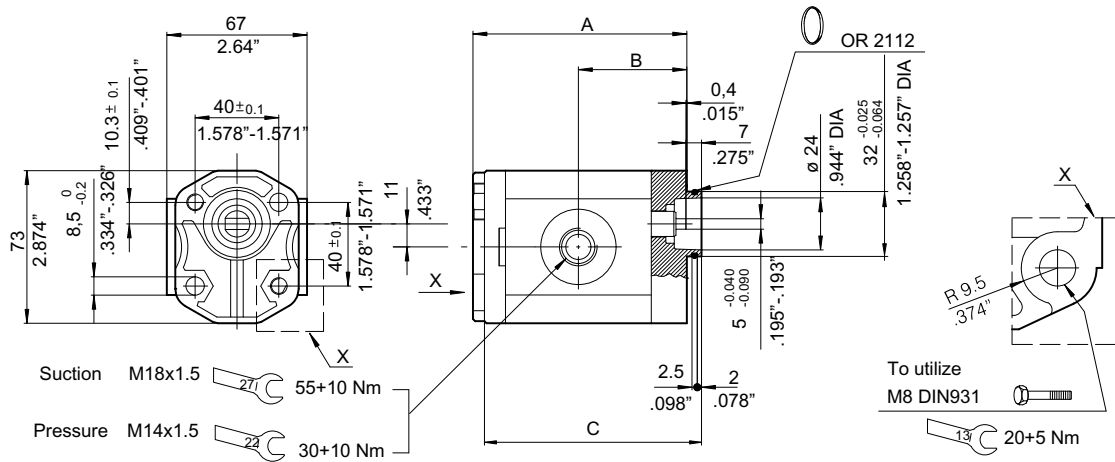
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 319		AP100/1.2 S 319	200101114307
AP100/1.7 D 319		AP100/1.7 S 319	200101214308
AP100/2.5 D 319	200101314204	AP100/2.5 S 319	200101314307
AP100/3.5 D 319	200101414201	AP100/3.5 S 319	200101414307
AP100/4.3 D 319	200101514201	AP100/4.3 S 319	200101514308
AP100/5 D 319	200101614201	AP100/5 S 319	200101614305
AP100/6.5 D 319	200101714202	AP100/6.5 S 319	200101714305
AP100/8 D 319		AP100/8 S 319	200101814303
AP100/10 D 319		AP100/10 S 319	



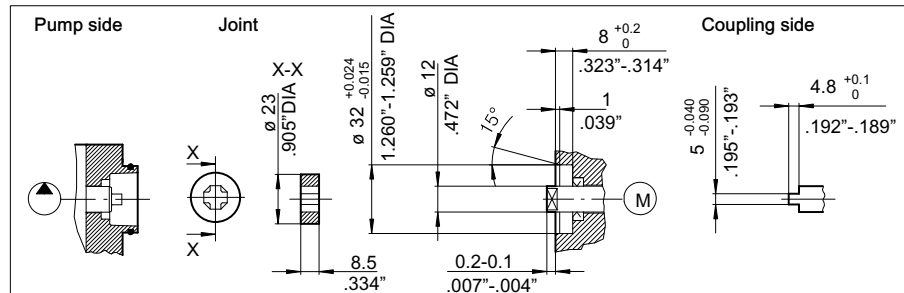
Type	Displacement cm ³ /rev	Dimensions			
		A		B	
		mm	inch.	mm	inch.
AP100/1.2	1.2	82.5	3.25	38.5	1.51
AP100/1.7	1.7	84.5	3.33	39.5	1.55
AP100/2.5	2.5	88	3.46	41	1.61
AP100/3.5	3.5	92	3.62	43.5	1.71
AP100/4.3	4.3	96	3.78	45	1.77
AP100/5	5	98.5	3.88	46.5	1.83
AP100/6.5	6.5	103.5	4.07	49	1.93
AP100/8	7.8	109	4.29	52	2.05

Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 818	200101113207	AP100/1.2 S 818	200101113306
AP100/1.7 D 818	200101213205	AP100/1.7 S 818	200101213307
AP100/2.5 D 818	200101313207	AP100/2.5 S 818	200101313305
AP100/3.5 D 818	200101413206	AP100/3.5 S 818	200101413306
AP100/4.3 D 818	200101513206	AP100/4.3 S 818	200101513304
AP100/5 D 818	200101613205	AP100/5 S 818	200101613309
AP100/6.5 D 818	200101713205	AP100/6.5 S 818	200101713305
AP100/8 D 818	200101813204	AP100/8 S 818	200101813304

Group **AP100** Code **849**



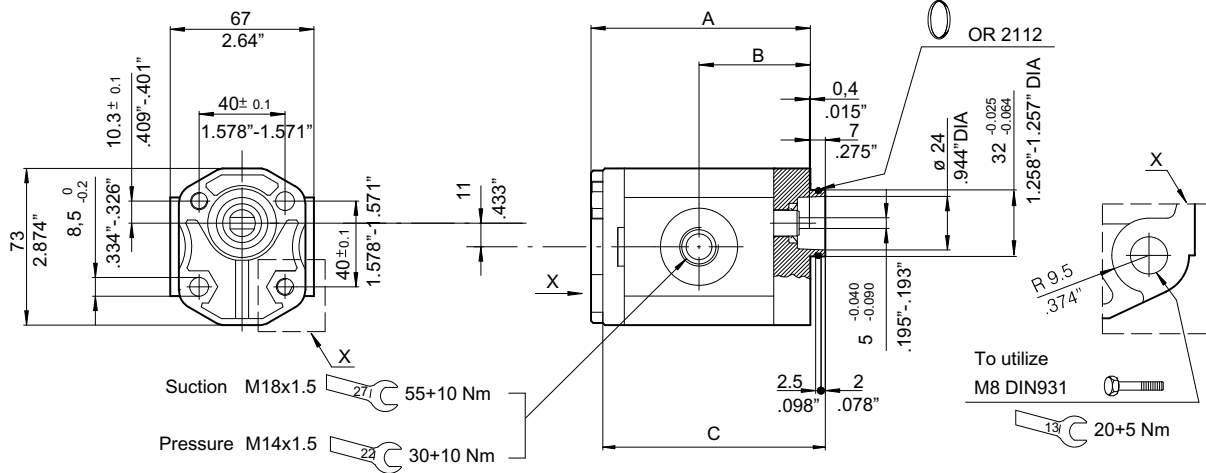
Max pressure (T max= 25 Nm)			
Pump	P bar (PSI)		
	P1	P2	P3
AP100/6.5	160 (2300)	180 (2600)	200 (2900)
AP100/8	130 (1900)	150 (2100)	170 (2400)



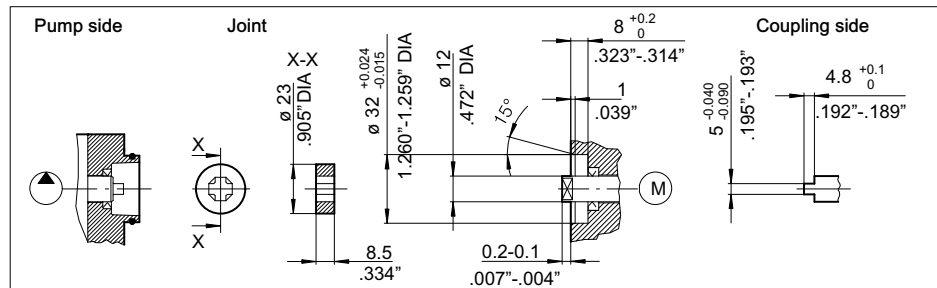
Type	Displacement cm ³ /rev	Dimensions					
		A		B		C	
		mm	inch.	mm	inch.	mm	inch.
AP100/1.2	1.2	82.5	3.25	38.5	1.51	70	2.75
AP100/1.7	1.7	84.5	3.33	39.5	1.55	72	2.83
AP100/2.5	2.5	88	3.46	41	1.61	75.5	2.97
AP100/3.5	3.5	92	3.62	43.5	1.71	80	3.15
AP100/4.3	4.3	96	3.78	45	1.77	83.5	3.29
AP100/5	5	98.5	3.88	46.5	1.83	86	3.38
AP100/6.5	6.5	103.5	4.07	49	1.93	91	3.58
AP100/8	7.8	109	4.29	52	2.05	97	3.81

Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 849	200101144201	AP100/1.2 S 849	200101144303
AP100/1.7 D 849	200101244202	AP100/1.7 S 849	200101244303
AP100/2.5 D 849	200101344203	AP100/2.5 S 849	200101344303
AP100/3.5 D 849	200101444201	AP100/3.5 S 849	200101444303
AP100/4.3 D 849	200101544201	AP100/4.3 S 849	200101544303
AP100/5 D 849	200101644201	AP100/5 S 849	200101644301
AP100/6.5 D 849	200101744201	AP100/6.5 S 849	200101744302
AP100/8 D 849	200101844201	AP100/8 S 849	200101844304

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.



Max pressure (T max= 25 Nm)			
Pump	bar (PSI)		
	P1	P2	P3
AP100/6.5	160 (2300)	180 (2600)	200 (2900)
AP100/8	130 (1900)	150 (2100)	170 (2400)

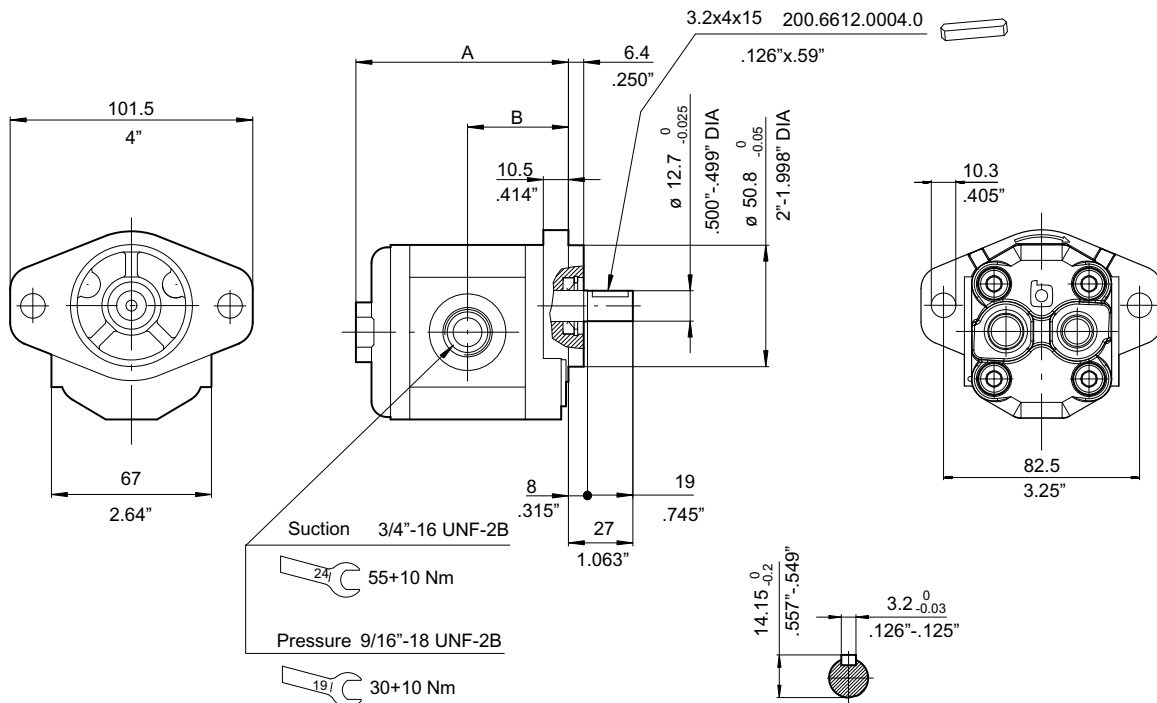


Type	Displacement cm ³ /rev	Dimensions					
		A		B		C	
		mm	inch.	mm	inch.	mm	inch.
AP100/1.2	1.2	82.5	3.25	38.5	1.51	70	2.75
AP100/1.7	1.7	84.5	3.33	39.5	1.55	72	2.83
AP100/2.5	2.5	88	3.46	41	1.61	75.5	2.97
AP100/3.5	3.5	92	3.62	43.5	1.71	80	3.15
AP100/4.3	4.3	96	3.78	45	1.77	83.5	3.29
AP100/5	5	98.5	3.88	46.5	1.83	86	3.38
AP100/6.5	6.5	103.5	4.07	49	1.93	91	3.58
AP100/8	7.8	109	4.29	52	2.05	97	3.81

Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 849-P	200101144202	AP100/1.2 S 849-P	200101144304
AP100/1.7 D 849-P	200101244203	AP100/1.7 S 849-P	200101244304
AP100/2.5 D 849-P	200101344204	AP100/2.5 S 849-P	200101344304
AP100/3.5 D 849-P	200101444202	AP100/3.5 S 849-P	200101444304
AP100/4.3 D 849-P	200101544202	AP100/4.3 S 849-P	200101544304
AP100/5 D 849-P	200101644202	AP100/5 S 849-P	200101644302
AP100/6.5 D 849-P	200101744202	AP100/6.5 S 849-P	200101744303
AP100/8 D 849-P	200101844202	AP100/8 S 849-P	200101844302

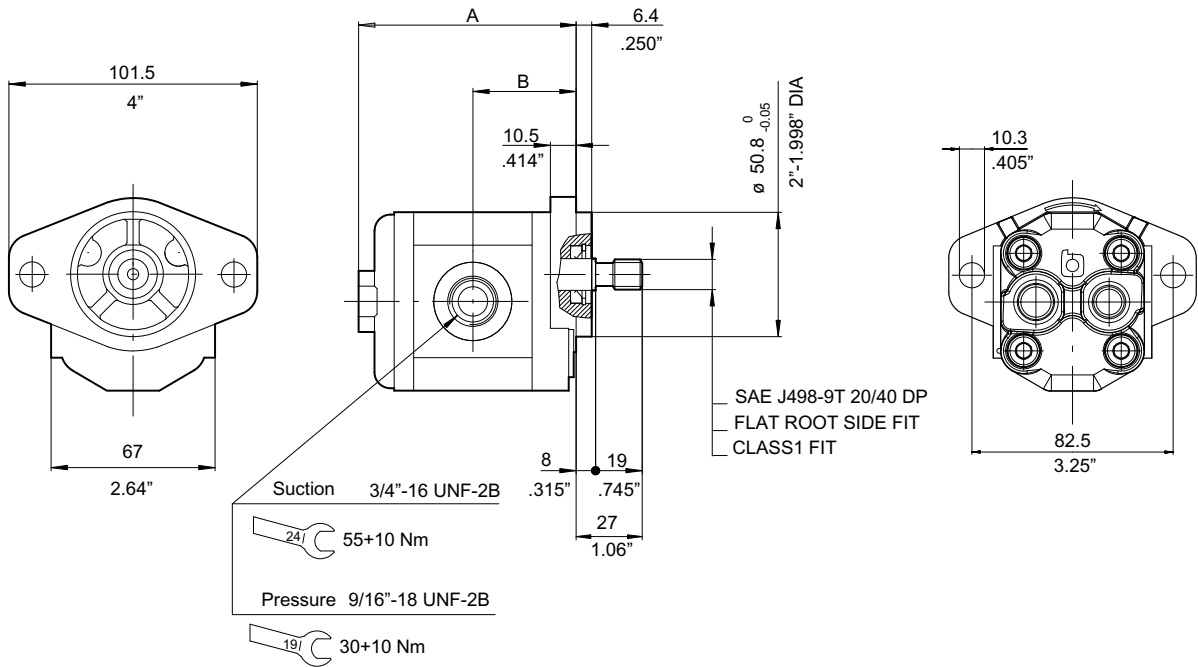
Note: With respect to the standards, the maximum pressures of some versions of this pump are reduced in relation to the max. torque allowed to the shaft.

Group **AP100** Code **880**



Type	Displacement cm ³ /rev	Dimensions			
		A		B	
		mm	inch.	mm	inch.
AP100/1.2	1.2	83.5	3.29	39.5	1.56
AP100/1.7	1.7	85.5	3.37	40.5	1.60
AP100/2.5	2.5	89	3.50	42	1.65
AP100/3.5	3.5	93	3.66	44.5	1.75
AP100/4.3	4.3	97	3.82	46	1.81
AP100/5	5	99.5	3.92	47.5	1.87
AP100/6.5	6.5	104.5	4.11	50	1.97
AP100/8	8	110	4.33	53	2.09

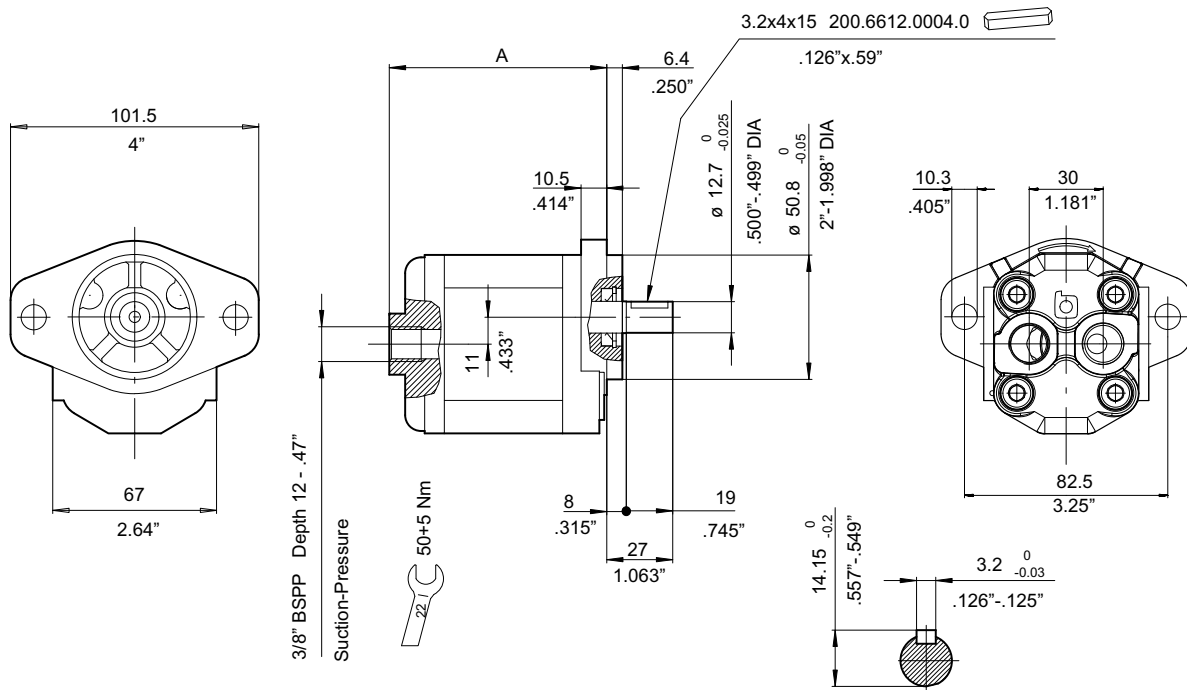
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 880	200101180201	AP100/1.2 S 880	200101180301
AP100/1.7 D 880	200101280201	AP100/1.7 S 880	200101280301
AP100/2.5 D 880	200101380201	AP100/2.5 S 880	200101380301
AP100/3.5 D 880	200101480205	AP100/3.5 S 880	200101480301
AP100/4.3 D 880	200101580201	AP100/4.3 S 880	200101580303
AP100/5 D 880	200101680201	AP100/5 S 880	200101680301
AP100/6.5 D 880	200101780201	AP100/6.5 S 880	200101780301
AP100/8 D 880	200101880201	AP100/8 S 880	200101880301



Type	Displacement cm ³ /rev	Dimensions			
		A		B	
		mm	inch.	mm	inch.
AP100/1.2	1.2	83.5	3.29	39.5	1.56
AP100/1.7	1.7	85.5	3.37	40.5	1.60
AP100/2.5	2.5	89	3.50	42	1.65
AP100/3.5	3.5	93	3.66	44.5	1.75
AP100/4.3	4.3	97	3.82	46	1.81
AP100/5	5	99.5	3.92	47.5	1.87
AP100/6.5	6.5	104.5	4.11	50	1.97
AP100/8	7.8	110	4.33	53	2.09

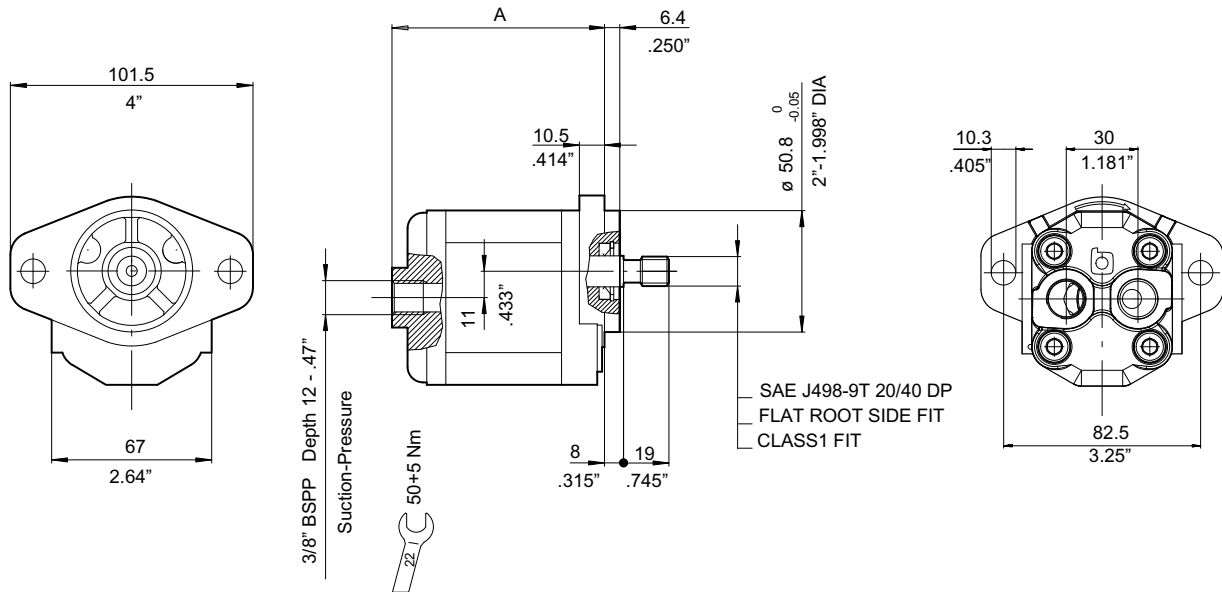
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 887S	200101186201	AP100/1.2 S 887S	200101186301
AP100/1.7 D 887S	200101286201	AP100/1.7 S 887S	200101286301
AP100/2.5 D 887S	200101386201	AP100/2.5 S 887S	200101386301
AP100/3.5 D 887S	200101486201	AP100/3.5 S 887S	200101486301
AP100/4.3 D 887S	200101586201	AP100/4.3 S 887S	200101586301
AP100/5 D 887S	200101686201	AP100/5 S 887S	200101686301
AP100/6.5 D 887S	200101786201	AP100/6.5 S 887S	200101786302
AP100/8 D 887S	200101886201	AP100/8 S 887S	200101886301

Group AP100 Code 380



Type	Displacement cm ³ /rev	Dimensions A	
		mm	inch
AP100/1.2	1.2	83.5	3.29
AP100/1.7	1.7	85.5	3.37
AP100/2.5	2.5	89	3.50
AP100/3.5	3.5	93	3.66
AP100/4.3	4.3	97	3.82
AP100/5	5	99.5	3.92
AP100/6.5	6.5	104.5	4.11
AP100/8	7.8	110	4.33

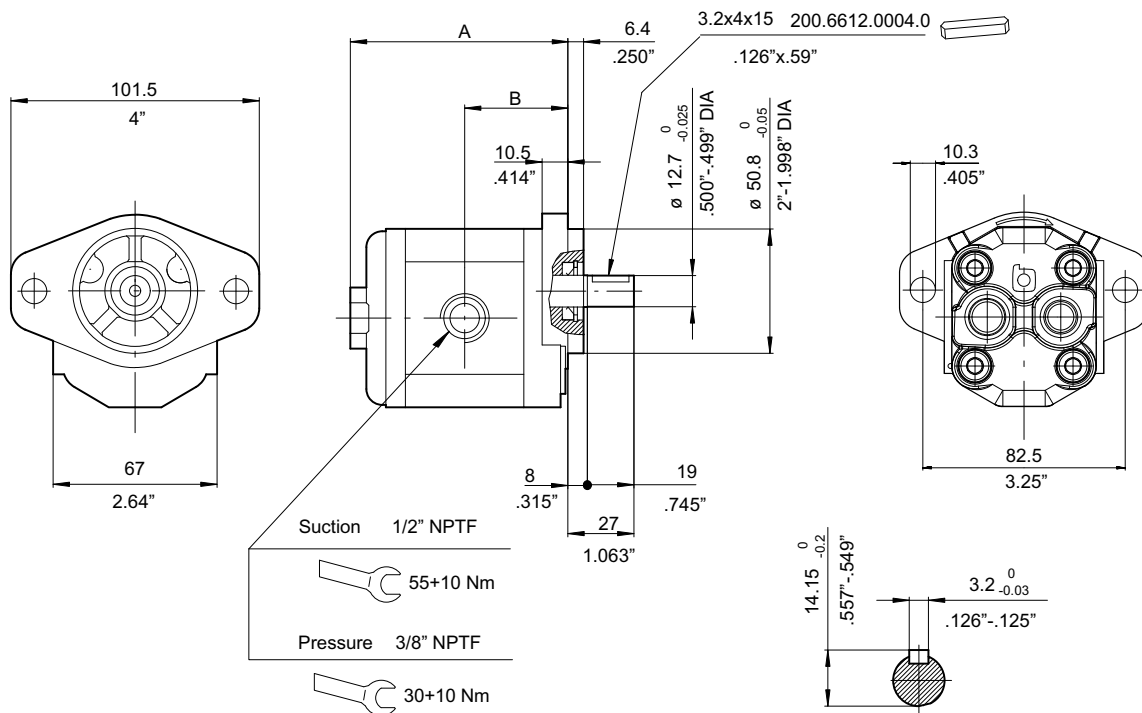
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 380		AP100/1.2 S 380	
AP100/1.7 D 380	200101280206	AP100/1.7 S 380	
AP100/2.5 D 380		AP100/2.5 S 380	
AP100/3.5 D 380	200101480207	AP100/3.5 S 380	
AP100/4.3 D 380		AP100/4.3 S 380	
AP100/5 D 380	200101680205	AP100/5 S 380	
AP100/6.5 D 380	200101780205	AP100/6.5 S 380	
AP100/8 D 380	200101880205	AP100/8 S 380	



Type	Displacement cm ³ /rev	Dimensions A	
		mm	inch
AP100/1.2	1.2	83.5	3.29
AP100/1.7	1.7	85.5	3.37
AP100/2.5	2.5	89	3.50
AP100/3.5	3.5	93	3.66
AP100/4.3	4.3	97	3.82
AP100/5	5	99.5	3.92
AP100/6.5	6.5	104.5	4.11
AP100/8	8	110	4.33

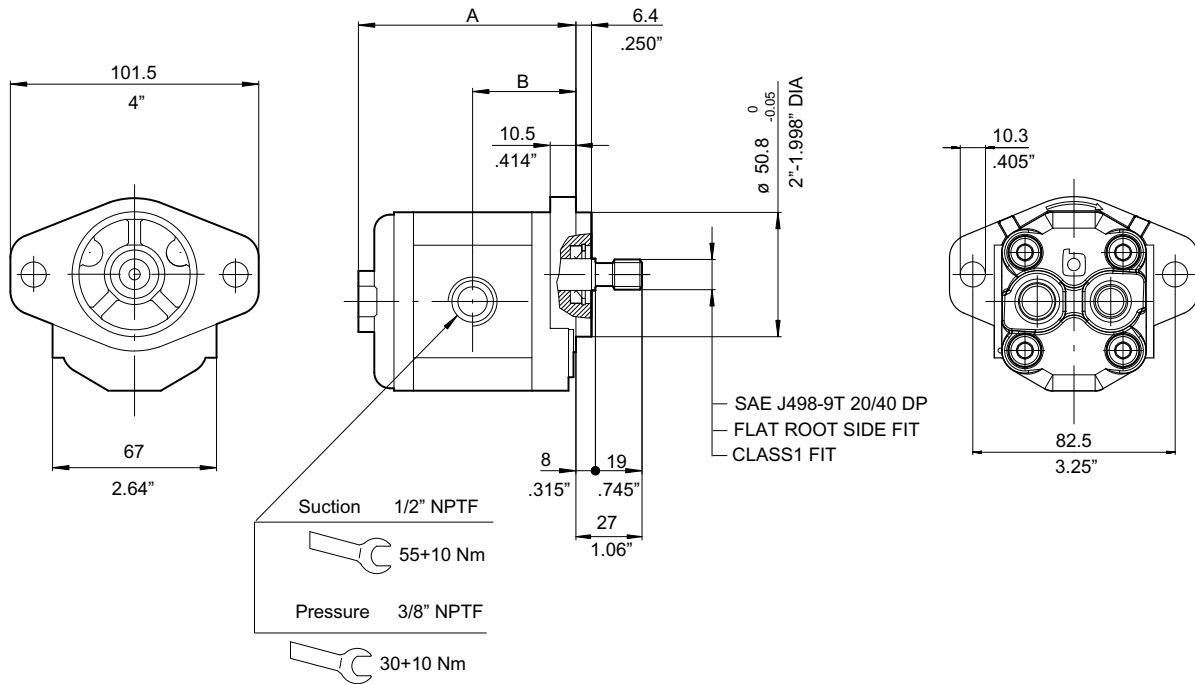
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 387S		AP100/1.2 S 387S	
AP100/1.7 D 387S		AP100/1.7 S 387S	
AP100/2.5 D 387S		AP100/2.5 S 387S	
AP100/3.5 D 387S		AP100/3.5 S 387S	
AP100/4.3 D 387S		AP100/4.3 S 387S	
AP100/5 D 387S		AP100/5 S 387S	
AP100/6.5 D 387S		AP100/6.5 S 387S	
AP100/8 D 387S		AP100/8 S 387S	

Group **AP100** Code **880-NPTF**



Type	Displacement cm ³ /rev	Dimensions			
		A		B	
		mm	inch.	mm	inch.
AP100/1.2	1.2	83.5	3.29	39.5	1.56
AP100/1.7	1.7	85.5	3.37	40.5	1.60
AP100/2.5	2.5	89	3.50	42	1.65
AP100/3.5	3.5	93	3.66	44.5	1.75
AP100/4.3	4.3	97	3.82	46	1.81
AP100/5	5	99.5	3.92	47.5	1.87
AP100/6.5	6.5	104.5	4.11	50	1.97
AP100/8	8	110	4.33	53	2.09

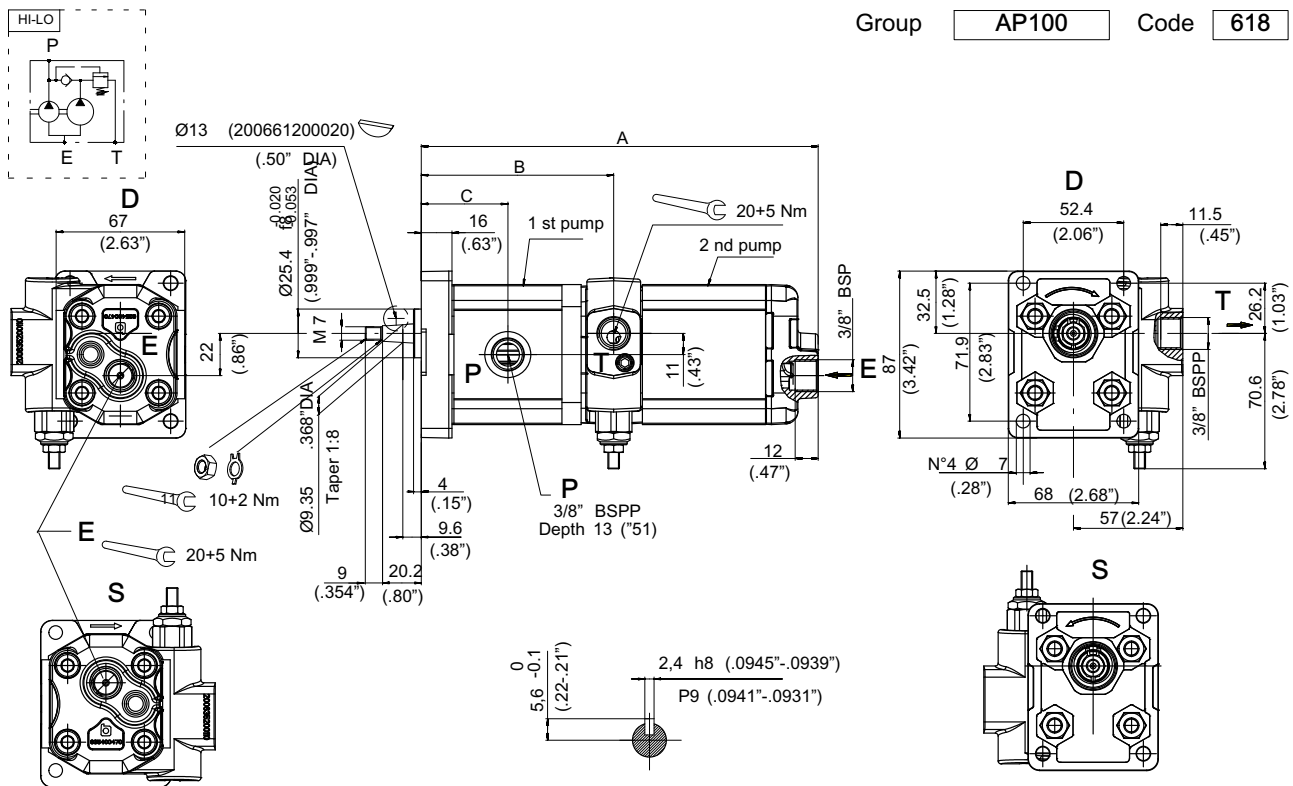
Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 880-NPTF	200101180202	AP100/1.2 S 880-NPTF	200101180302
AP100/1.7 D 880-NPTF	200101280202	AP100/1.7 S 880-NPTF	200101280302
AP100/2.5 D 880-NPTF	200101380202	AP100/2.5 S 880-NPTF	200101380302
AP100/3.5 D 880-NPTF	200101480202	AP100/3.5 S 880-NPTF	200101480302
AP100/4.3 D 880-NPTF	200101580202	AP100/4.3 S 880-NPTF	200101580301
AP100/5 D 880-NPTF	200101680202	AP100/5 S 880-NPTF	200101680302
AP100/6.5 D 880-NPTF	200101780202	AP100/6.5 S 880-NPTF	200101780302
AP100/8 D 880-NPTF	200101880202	AP100/8 S 880-NPTF	200101880302



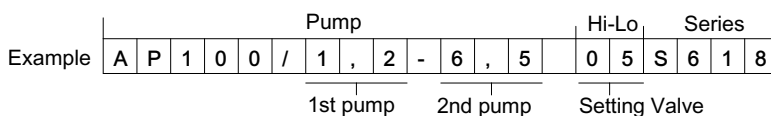
Type	Displacement cm ³ /rev	Dimensions			
		mm	A inch.	B mm	inch.
AP100/1.2	1.2	83.5	3.29	39.5	1.56
AP100/1.7	1.7	85.5	3.37	40.5	1.60
AP100/2.5	2.5	89	3.50	42	1.65
AP100/3.5	3.5	93	3.66	44.5	1.75
AP100/4.3	4.3	97	3.82	46	1.81
AP100/5	5	99.5	3.92	47.5	1.87
AP100/6.5	6.5	104.5	4.11	50	1.97
AP100/8	7.8	110	4.33	53	2.09

Clockwise rotation: D		Counter-clockwise rotation: S	
Type	Order Code	Type	Order Code
AP100/1.2 D 887S-NPTF		AP100/1.2 S 887S-NPTF	
AP100/1.7 D 887S-NPTF		AP100/1.7 S 887S-NPTF	
AP100/2.5 D 887S-NPTF		AP100/2.5 S 887S-NPTF	
AP100/3.5 D 887S-NPTF		AP100/3.5 S 887S-NPTF	
AP100/4.3 D 887S-NPTF		AP100/4.3 S 887S-NPTF	
AP100/5 D 887S-NPTF		AP100/5 S 887S-NPTF	
AP100/6.5 D 887S-NPTF		AP100/6.5 S 887S-NPTF	
AP100/8 D 887S-NPTF		AP100/8 S 887S-NPTF	

Group **AP100** Code **618**



Pump AP100		Dimension				Existing code				
1 st Pump	2 nd Pump	A		B	C	Order Code	Description	Pressure Setting (bar)		
		mm	inches	mm (inch)	mm (inch)					
AP100/1,2	AP100/2,5	177,5	7,00	38,5 (1,51")	87 (3,42")	200111113213	AP100/1,2-2,5.06 D 618	60		
						200111113303	AP100/1,2-2,5.06 S 618			
AP100/1,2	AP100/3,5	182	7,17					200111113212	AP100/1,2-3,5.06 D 618	60
AP100/1,2	AP100/4,3	185,5	7,30							
AP100/1,2	AP100/5	188	7,40					200111113215	AP100/1,2-5,0.05 D 618	50
AP100/1,2	AP100/6,5	193	7,60					200111113211	AP100/1,2-6,5.05 D 618	50
						200111113216	AP100/1,2-6,5.03 D 618	30		
AP100/1,7	AP100/5	190	7,48			200111213206	AP100/1,7-5,0.03 D 618	30		
AP100/1,7	AP100/6,5	179,5	7,07	39,50 (1,55")	89 (3,50")	200111213302	AP100/1,7-6,5 .06 S 618	60		
AP100/1,7	AP100/8	201	7,91							
AP100/2,5	AP100/3,5	187	7,36	41,2 (1,62")	92,50 (3,64")					
AP100/2,5	AP100/4,3	191	7,52					200111413302	AP100/3,5-4,3.05 S 618	50
AP100/2,5	AP100/5	193,5	7,62							
AP100/2,5	AP100/6,5	198,5	7,81			200111313206	AP100/2,5-6,5.05 D 618	50		
						200111313207	AP100/2,5-6,5.03 D 618	30		
AP100/3,5	AP100/4,3	195	7,68	43,35 (1,70")	97 (3,81")	200111413302	AP100/3,5-4,3.05 S 618	50		
AP100/3,5	AP100/6,5	203	8,00					200111413206	AP100/3,5-6,5.06 D 618	60
AP100/3,5	AP100/8	208,5	8,21					200111413205	AP100/3,5-8,0.03 D 618	30
AP100/4,3	AP100/4,3	199	7,83	45,15 (1,77")	100,5 (3,95")	200111513208	AP100/4,3-4,3.03 D 618	30		
								200111513304	AP100/4,3-4,3.05 S 618	50
AP100/4,3	AP100/6,5	206,5	8,13			200111513207	AP100/4,3-6,5 03 D 618	30		
						200111513209	AP100/4,3-6,5.06 D 618	60		



Standard setting values for HI-LO valve:
03= 30 bar (pressure range 15 ÷ 55 bar)
06= 60 bar (pressure range 55 ÷ 90 bar)

Note (*): For availability of pumps without ordering code please contact our Sales Department.

3.1 Pumps seal kit NBR standard type

AP100	
Pump code	Seal kit
AP100/218	200974000310
AP100/219	
AP100/318	
AP100/319	
AP100/818	
AP100/845	
AP100/849	

AP100/849P	200974000330
AP100/880	200974000340
AP100/887S	
AP100/380	
AP100/387S	
AP100/887S NPTF	200974000970
AP100/880 NPTF	
AP100/2218	200974000980
AP100/518	200974000930

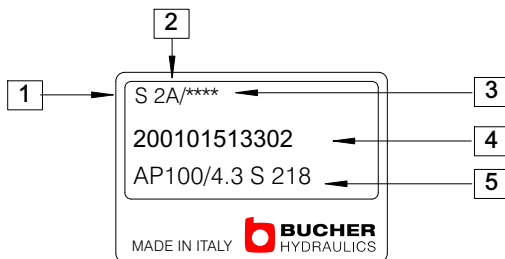
4 Composition of product code

4.1 Single pumps

Type	Rotation	Code
AP100/**	*	****

Examples Order Code
 AP100/4.3 S 218 200101513302

4.2 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

4.3 Single pump weight

AP100	
Pump	Weight Kg
AP100/1.2	0.90
AP100/1.7	0.95
AP100/2.5	1.03
AP100/3.5	10.7
AP100/4.3	1.12
AP100/5	1.18
AP100/6.5	1.23
AP100/8	1.28

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

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www.bucherhydraulics.com

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Data is provided for the purpose of product description only, and must not be construed as warranted characteristics in the legal sense. The information does not relieve users from the duty of conducting their own evaluations and tests. Because the products are subject to continual improvement, we reserve the right to amend the product specifications contained in this catalogue.

Classification: 410.110.000