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General description

The gear pumps are designed for transforming the mechanical energy as energy of the working liquid (pressure and flow rate). They are simplified in construction and they have a relatively low cost. All these benefits ensure their wide application in the hydraulic systems.

Drive arrangements

The pump drive can be direct or indirect (by gear, chains, or belt transmissions). Both drives should not impose axial or radial forces on the pump shaft. Oldham coupling serrated drive adapters are used with direct drive. For indirect drive refer to the manufacturer.

The gear pumps are designed to work at the conditions mentioned below:

- Working liquid:	hydraulic oils with viscosity 16 ... 200 mm ² /s;
- Degree of filtration:	15 ... 25 ì m;
- Ambient temperature range:	- 22 ... 55 °C;
- Fluid temperature range:	- 25 ... 80 °C;
- Inlet pressure, absolute:	0.8 ... 2.2 bar;
- Fluid velocity (suction line)	0,5 ... 1 m/s
- Outlet pressure	up to 250 bar.

The gear pumps made by "Caproni" are produced in 5 different groups: 00, 10, 20 and 20H, 30 and 40. The displacements of the pumps are in the range from 0.25 to 60 cm³.

Group 00	q = 0.25 ... 2 cm ³ ;
Group 10	q = 1 ... 9.8 cm ³ ;
Group 20	q = 4.5 ... 25 cm ³ ;
Group 20H	q = 15 ... 36 cm ³ ;
Group 30	q = 20 ... 60 cm ³ ;
Group 40	q = 46 ... 60 cm ³ .

There are different variants of flanges, shafts and ports for each pump group (standard; Germany; USA ...).

We offer the next variants too:

- tandem pumps;
- pumps with build-in valves;
- reversible pumps;
- reversible gear motors.

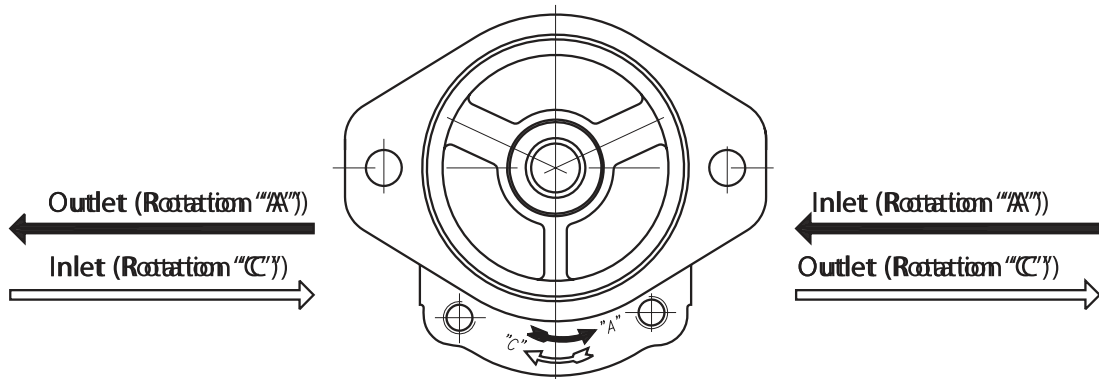
Used symbols:

n - speed of rotation	[min ⁻¹];
p - pressure	[bar];
q - displacement	[cm ³];
η - total efficiency $\eta = \eta_q \cdot \eta_{hm}$	[-];
η_{hm} - hydromechanical efficiency	[-];
η_q - volumetric efficiency	[-].

Commonly used formulas:

Flow:	$Q = \frac{q \cdot n \cdot \eta}{1000}$	[l/min]
Torque:	$M \cong \frac{q \cdot p}{20 \cdot \pi}$	[N.m]
Drive power:	$P = \frac{Q \cdot p}{600}$	[kW]

A relationship between the direction of rotation and the place of the inlet and outlet ports of the pumps



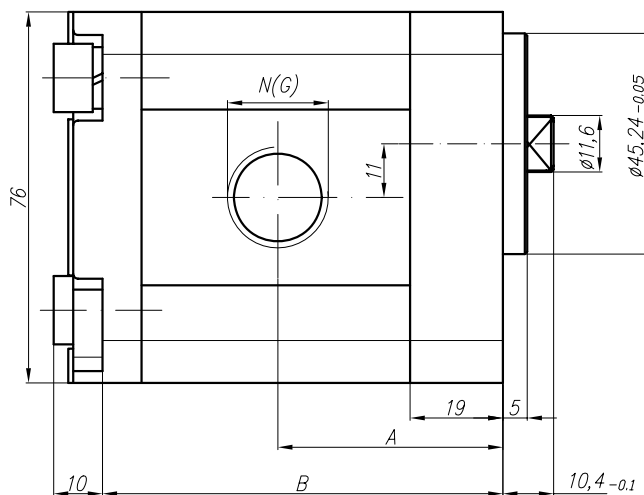
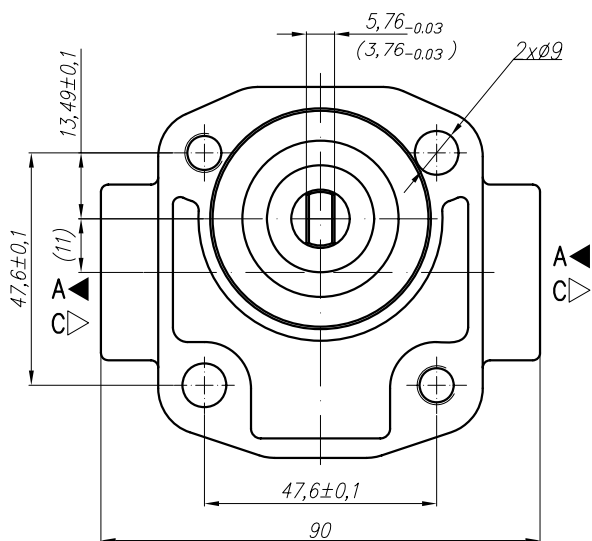
How to order:

Group	Rotation	Displacement code	Drive shaft	Pump code	Ports
00 10 20 30 40	A ↻ C ↻ R ↻		X - Through the front cover Y - Through the both covers	***(*)	- A flange with metric threads P4 - A flange with UNC threads M - Metric G - GAS U - SAE J475

Group 00	Group 10	Group 20	Group 20H	Group 30	Group 40
Code cm ³	Code cm ³	Code cm ³	Code cm ³	Code cm ³	Code cm ³
0,25 0,25	1 1	4,5 4,5	15 15	20 20	36 36
0,3 0,3	1,25 1,25	6,3 6,3	16 16	22,5 22,5	42 42
0,5 0,5	1,6 1,6	7* 7	19 19	25 25	46 46
0,75 0,75	2 2	8,2 8,2	22 22	28 28	50 50
1 1	2,5 2,5	10 10	25 25	32 32	55 55
1,25 1,25	2,65* 2,65	11 11,3	28 28	36 36	60 60
1,5 1,5	3,15 3,15	12 12	32 32	42 42	
1,75 1,75	3,65 3,65	14 14	36 36	46 46	
2 2	4,2 4,2	15 15		50 50	
	4,7* 4,7	16 16		55 55	
	5 5	17* 17,3		60 60	
	5,7 5,7	19 19			
	6,1 6,1	22 22			
	7,4 7,4	25 25			
	8* 8	28 28			
	8,5 8,5	32 32			
	9,8 9,8	36 36			

Example: 20A14X073 - Hydraulic gear pump, 20 group, direction of rotation - counter clockwise, displacement 14 cm³ modification 073.

* - These pumps - only under a special order

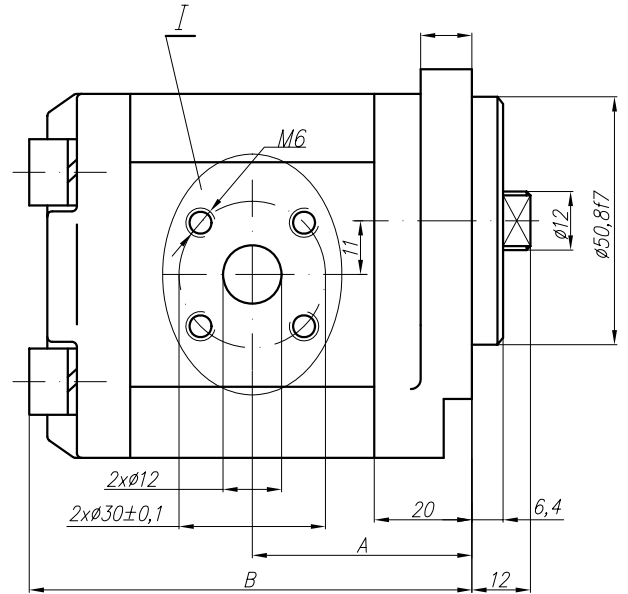
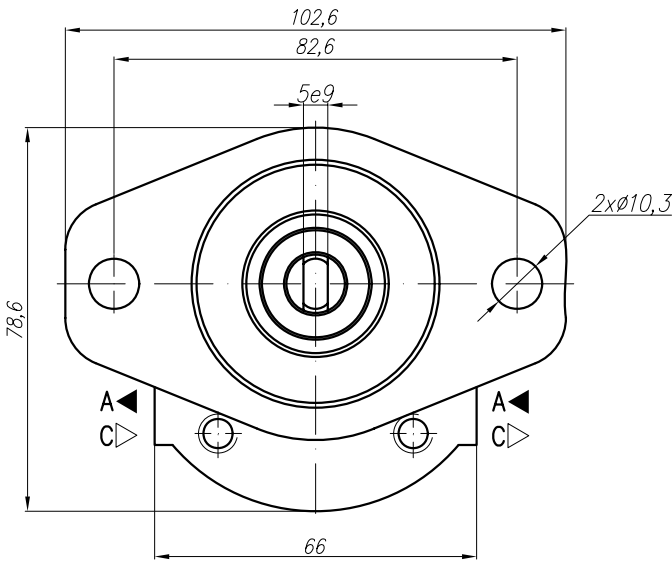


Variants:

- for drive shaft 3,76 - ...001-3
- for G ports - ...001G

Type	Displacement	Flow		Pressure	max Speed	Dimension							
		at 1500 rpm	at max rpm			Inlet			Outlet				
	cm ³ /rev	l/min	l/min	P _{nom}	n	A	B	G	N	U	G	N	U
				bar	rpm	mm	mm						
10A(C)1X001	1	1,40	3,26	250	3500	40,1	69,1	G1/2	1/2" NPTF-14		G1/2	1/2" NPTF-14	
10A(C)1,25X001	1,25	1,74	4,07	250	3500	40,6	70,1						
10A(C)1,6X001	1,6	2,23	5,21	250	3500	41,3	71,5						
10A(C)2X001	2	2,82	6,58	250	3500	42,1	73,2						
10A(C)2,5X001	2,5	3,53	8,23	250	3500	43,1	75,2						
* 10A(C)2,65X001	2,65	3,74	8,72	250	3500	43,4	75,8						
10A(C)3,15X001	3,15	4,44	10,36	250	3500	44,5	77,8						
10A(C)3,65X001	3,65	5,15	12,01	250	3500	45,4	79,8						
10A(C)4,2X001	4,2	5,92	13,82	250	3500	46,5	82,0						
* 10A(C)4,7X001	4,7	6,63	15,46	250	3500	47,5	84,1						
10A(C)5X001	5	7,05	14,10	250	3000	48,1	85,2						
10A(C)5,7X001	5,7	8,12	16,25	200	3000	49,5	88,0						
10A(C)6,1X001	6,1	8,69	14,49	200	2500	50,4	89,8						
10A(C)7,4X001	7,4	10,55	17,58	180	2500	53,1	95,3						
* 10A(C)8X001	8	11,40	15,20	150	2000	54,4	97,7						
10A(C)8,5X001	8,5	12,11	16,15	150	2000	55,4	99,8						
10A(C)9,8X001	9,8	13,97	18,62	120	2000	58,0	105,0						

* - These pumps - only under a special order

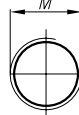


I – variants

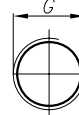
Variants:

- ...X017 - Normal version (flange);
- ...X017M - for M ports (see the picture I and the table below);
- ...X017G - for G ports (see the picture I and the table below);
- ...X017U - for U ports (see the picture I and the table below).

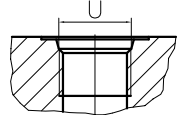
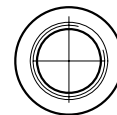
Variant M



Variant G

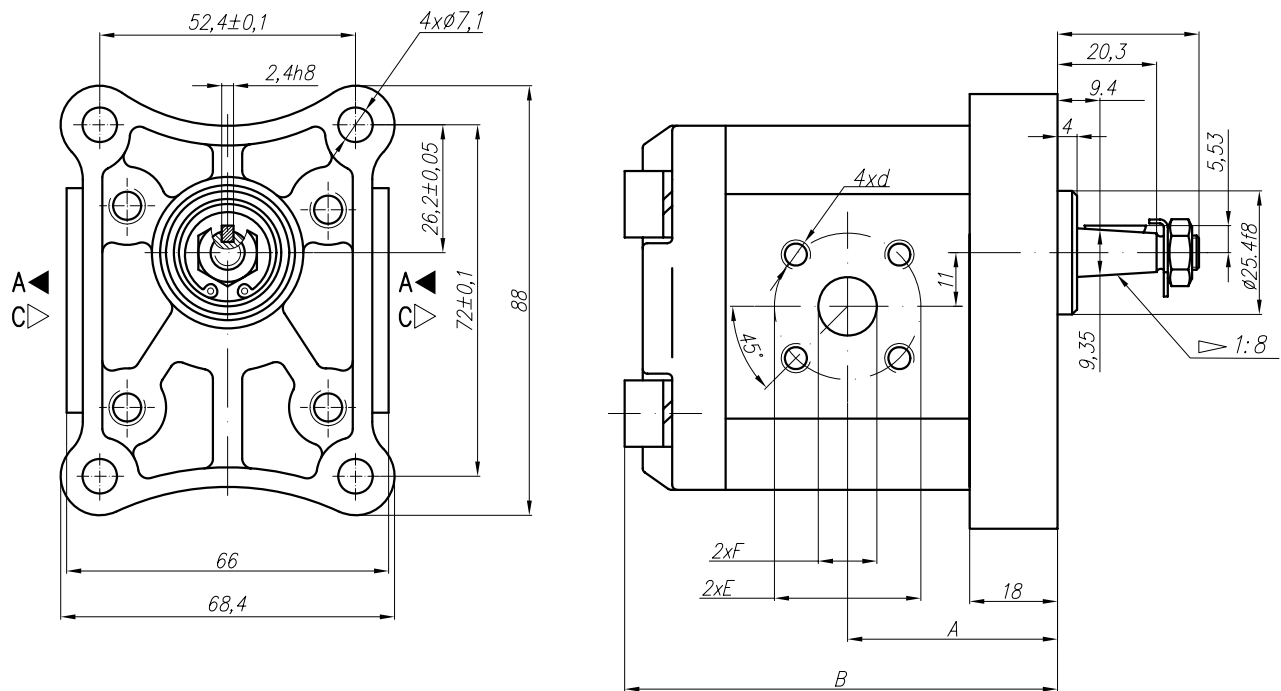


Variant U (SAEJ475 (ISO R725))



Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X017	1	1,40	3,26	250	3500	41,1	83	M16x1,5	G 3/8" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)1,25X017	1,25	1,74	4,07	250	3500	41,5	84						
10A(C)1,6X017	1,6	2,23	5,21	250	3500	42,3	85,6						
10A(C)2X017	2	2,82	6,58	250	3500	43,1	87,2						
10A(C)2,5X017	2,5	3,53	8,23	250	3500	44,1	89,2						
* 10A(C)2,65X017	2,65	3,74	8,72	250	3500	44,4	89,8	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)3,15X017	3,15	4,44	10,36	250	3500	45,5	91,8						
10A(C)3,65X017	3,65	5,15	12,01	250	3500	46,4	93,9						
10A(C)4,2X017	4,2	5,92	13,82	250	3500	47,5	96,1						
* 10A(C)4,7X017	4,7	6,63	15,46	250	3500	48,5	98						
10A(C)5X017	5	7,05	14,10	250	3000	49,1	99,2	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	3/4" - 16UNF	
10A(C)5,7X017	5,7	8,12	16,25	200	3000	50,5	102						
10A(C)6,1X017	6,1	8,69	14,49	200	2500	51,4	103,8						
10A(C)7,4X017	7,4	10,55	17,58	180	2500	54,1	109,2						
* 10A(C)8X017	8	11,40	15,20	150	2000	55,4	111,7						
10A(C)8,5X017	8,5	12,11	16,15	150	2000	56,4	113,7						
10A(C)9,8X017	9,8	13,97	18,62	120	2000	59	119						

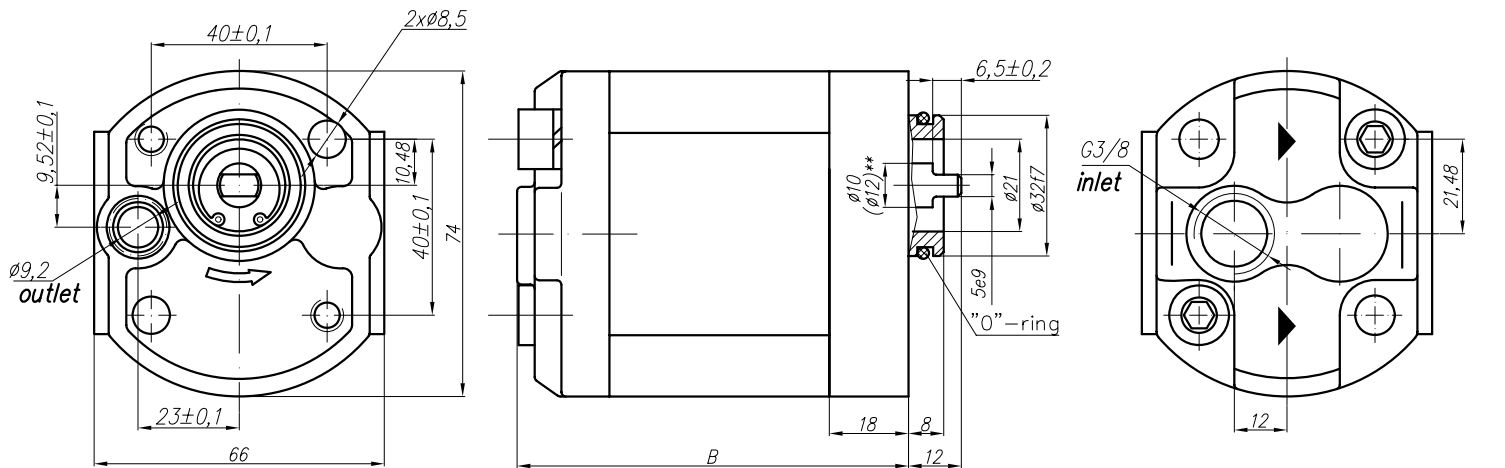
* - These pumps - only under a special order



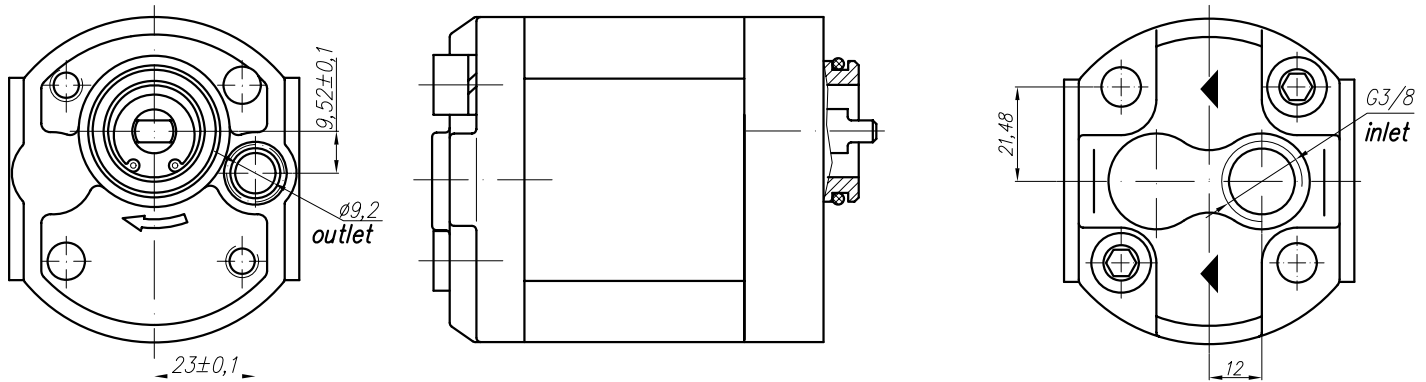
Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			Inlet		Outlet					
						A mm	B mm	E	F	d	M	G	U
10A(C)1X026	1	1,40	3,26	250	3500	39,1	81	ø 30	ø 12	M6	ø 30	ø 12	M6
10A(C)1,25X026	1,25	1,74	4,07	250	3500	39,5	82						
10A(C)1,6X026	1,6	2,23	5,21	250	3500	40,3	83,6						
10A(C)2X026	2	2,82	6,58	250	3500	41,1	85,2						
10A(C)2,5X026	2,5	3,53	8,23	250	3500	42,1	87,2						
* 10A(C)2,65X026	2,65	3,74	8,72	250	3500	42,4	87,8						
10A(C)3,15X026	3,15	4,44	10,36	250	3500	43,5	89,8						
10A(C)3,65X026	3,65	5,15	12,01	250	3500	44,4	91,9						
10A(C)4,2X026	4,2	5,92	13,82	250	3500	45,5	94,1						
* 10A(C)4,7X026	4,7	6,63	15,46	250	3500	46,1	96						
10A(C)5X026	5	7,05	14,10	250	3000	47,1	97,2						
10A(C)5,7X026	5,7	8,12	16,25	200	3000	48,5	100,1						
10A(C)6,1X026	6,1	8,69	14,49	200	2500	49,4	101,8						
10A(C)7,4X026	7,4	10,55	17,58	180	2500	52,1	107,2						
* 10A(C)8X026	8	11,40	15,20	150	2000	53,4	109,7						
10A(C)8,5X026	8,5	12,11	16,15	150	2000	54,4	111,7						
10A(C)9,8X026	9,8	13,97	18,62	120	2000	57	117						

* - These pumps - only under a special order

Rotation "A" - (anticlockwise)



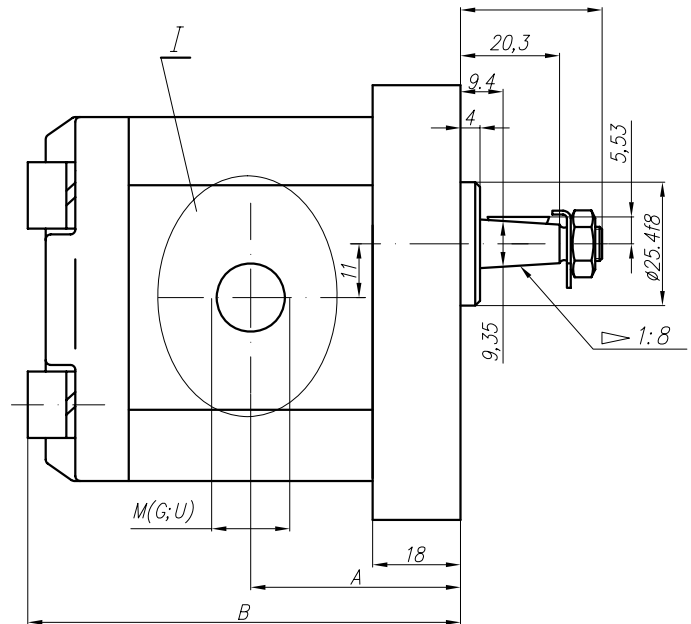
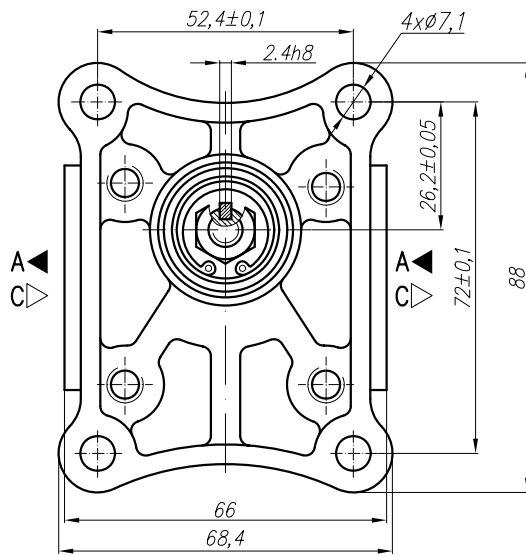
Rotation "C" - (clockwise)



Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm		B mm		Inlet			Outlet
								M	G	U	M	G	U
10A(C)1X027	1	1,40	3,26	250	3500	71	81	G 3/8" - A					
10A(C)1,25X027	1,25	1,74	4,07	250	3500	72	82						
10A(C)1,6X027	1,6	2,23	5,21	250	3500	73,6	83,6						
10A(C)2X027	2	2,82	6,58	250	3500	75,2	85,2						
10A(C)2,5X027	2,5	3,53	8,23	250	3500	77,2	87,2						
* 10A(C)2,65X027	2,65	3,74	8,72	250	3500	77,8	87,8						
10A(C)3,15X027	3,15	4,44	10,36	250	3500	79,8	89,8						
10A(C)3,65X027	3,65	5,15	12,01	250	3500	81,9	91,9						
10A(C)4,2X027	4,2	5,92	13,82	250	3500	84,1	94,1						
* 10A(C)4,7X027	4,7	6,63	15,46	250	3500	87,1	97,1						
10A(C)5X027	5	7,05	14,10	250	3000	87,2	97,2						
10A(C)5,7X027	5,7	8,12	16,25	200	3000	90,1	100,1						
10A(C)6,1X027	6,1	8,69	14,49	200	2500	91,8	101,8						
10A(C)7,4X027	7,4	10,55	17,58	180	2500	97,2	107,2						
* 10A(C)8X027	8	11,40	15,20	150	2000	99,7	109,7						
10A(C)8,5X027	8,5	12,11	16,15	150	2000	101,7	111,7						
10A(C)9,8X027	9,8	13,97	18,62	120	2000	107	117						

* - These pumps - only under a special order

** - For a shaft with dia 12 see the pump 302 (p. 32)



I – variants

Variants:

...X053M - for M ports (see the picture I and the table below);

...X053G - for G ports (see the picture I and the table below);

...X053U - for U ports (see the picture I and the table below).

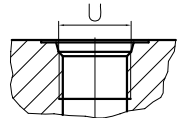
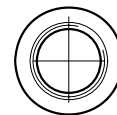
Variant M



Variant G



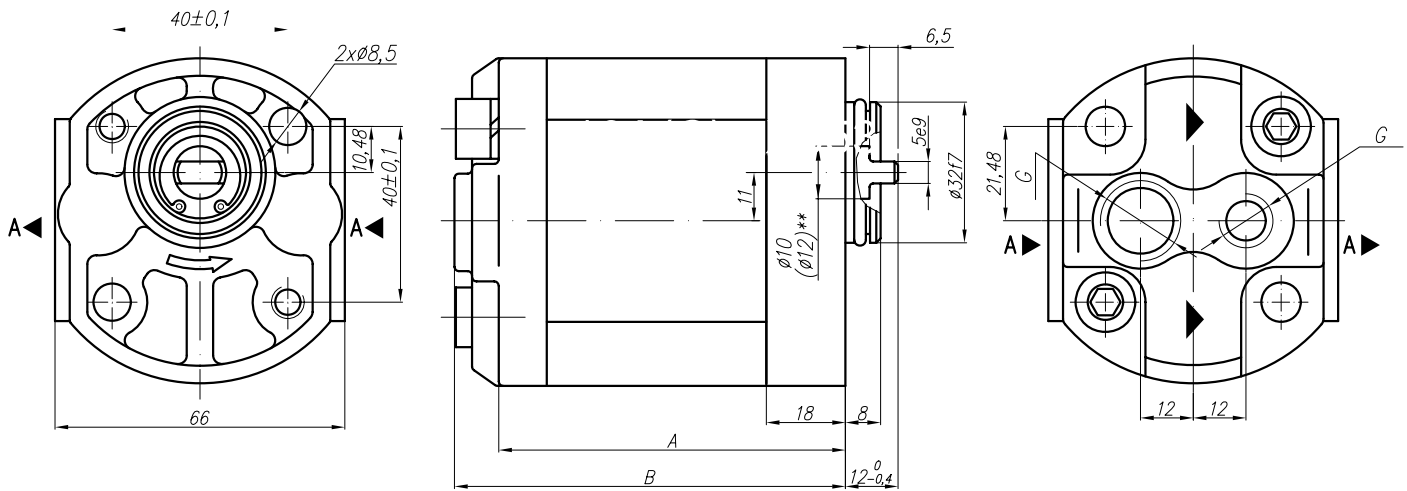
Variant U (SAEJ475 (ISO R725))



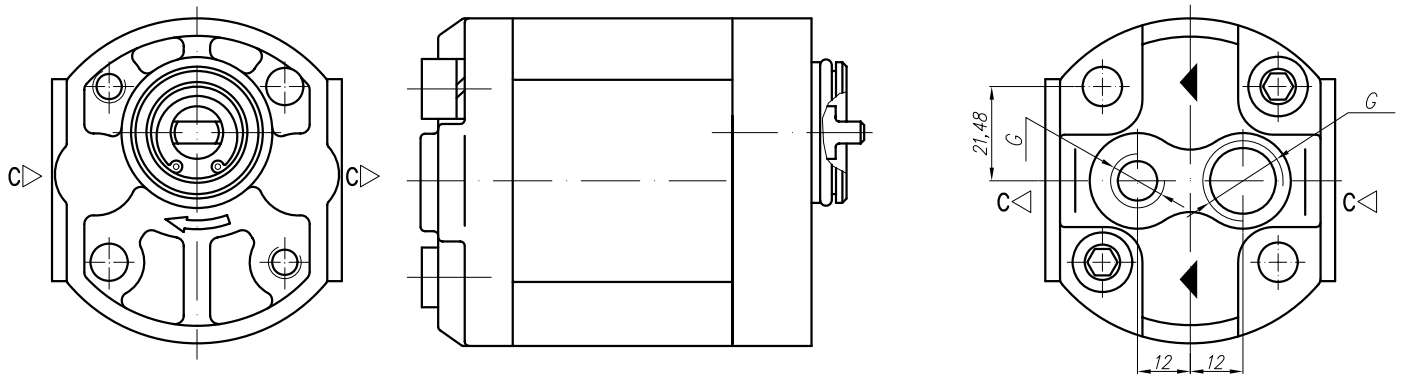
Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X053	1	1,40	3,26	250	3500	39,1	81	M16x1,5	G 3/8" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)1,25X053	1,25	1,74	4,07	250	3500	39,5	82						
10A(C)1,6X053	1,6	2,23	5,21	250	3500	40,3	83,6						
10A(C)2X053	2	2,82	6,58	250	3500	41,1	85,2						
10A(C)2,5X053	2,5	3,53	8,23	250	3500	42,1	87,2						
* 10A(C)2,65X053	2,65	3,74	8,72	250	3500	42,4	87,8	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)3,15X053	3,15	4,44	10,36	250	3500	43,5	89,8						
10A(C)3,65X053	3,65	5,15	12,01	250	3500	44,4	91,9						
10A(C)4,2X053	4,2	5,92	13,82	250	3500	45,5	94,1						
* 10A(C)4,7X053	4,7	6,63	15,46	250	3500	46,1	96						
10A(C)5X053	5	7,05	14,10	250	3000	47,1	97,2	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	3/4" - 16UNF	
10A(C)5,7X053	5,7	8,12	16,25	200	3000	48,5	100,1						
10A(C)6,1X053	6,1	8,69	14,49	200	2500	49,4	101,8						
10A(C)7,4X053	7,4	10,55	17,58	180	2500	52,1	107,2						
* 10A(C)8X053	8	11,40	15,20	150	2000	53,4	109,7						
10A(C)8,5X053	8,5	12,11	16,15	150	2000	54,4	111,7						
10A(C)9,8X053	9,8	13,97	18,62	120	2000	57	117						

* - These pumps - only under a special order

Rotation "A" - (anticlockwise)



Rotation "C" - (clockwise)

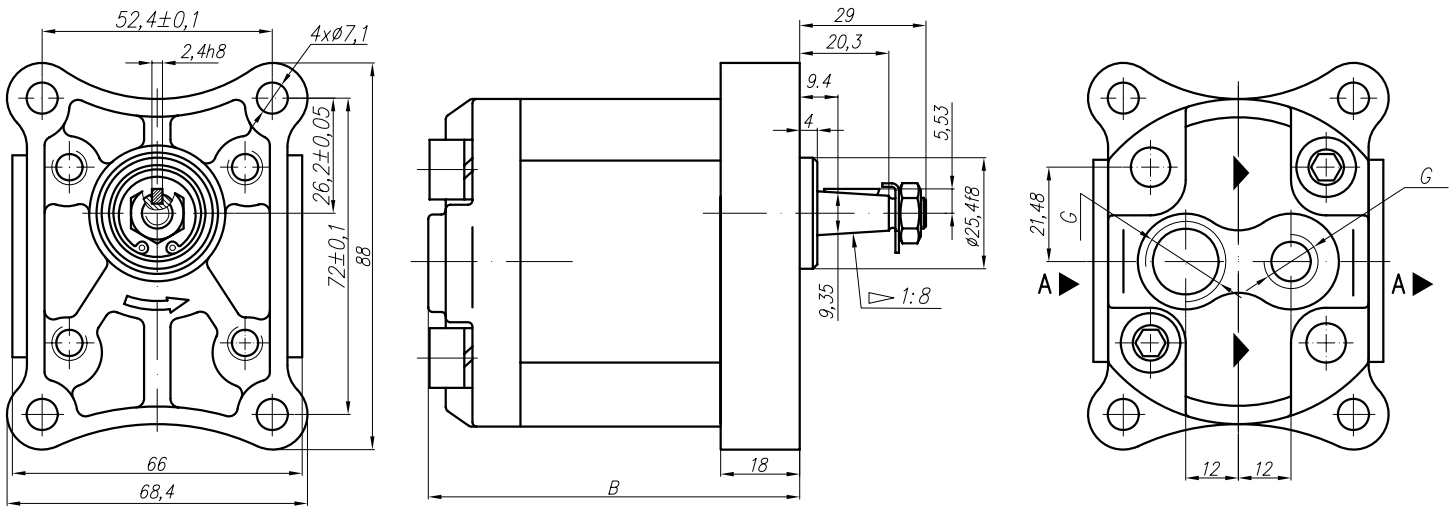


Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X054	1	1,40	3,26	250	3500	71	81	G 3/8" - A				G 1/4" - A	
10A(C)1,25X054	1,25	1,74	4,07	250	3500	72	82						
10A(C)1,6X054	1,6	2,23	5,21	250	3500	73,6	83,6						
10A(C)2X054	2	2,82	6,58	250	3500	75,2	85,2						
10A(C)2,5X054	2,5	3,53	8,23	250	3500	77,2	87,2						
* 10A(C)2,65X054	2,65	3,74	8,72	250	3500	77,8	87,8						
10A(C)3,15X054	3,15	4,44	10,36	250	3500	79,8	89,8						
10A(C)3,65X054	3,65	5,15	12,01	250	3500	81,9	91,9						
10A(C)4,2X054	4,2	5,92	13,82	250	3500	84,1	94,1						
* 10A(C)4,7X054	4,7	6,63	15,46	250	3500	87,1	97,1						
10A(C)5X054	5	7,05	14,10	250	3000	87,2	97,2						
10A(C)5,7X054	5,7	8,12	16,25	200	3000	90,1	100,1						
10A(C)6,1X054	6,1	8,69	14,49	200	2500	91,8	101,8						
10A(C)7,4X054	7,4	10,55	17,58	180	2500	97,2	107,2						
* 10A(C)8X054	8	11,40	15,20	150	2000	99,7	109,7						
10A(C)8,5X054	8,5	12,11	16,15	150	2000	101,7	111,7						
10A(C)9,8X054	9,8	13,97	18,62	120	2000	107	117						

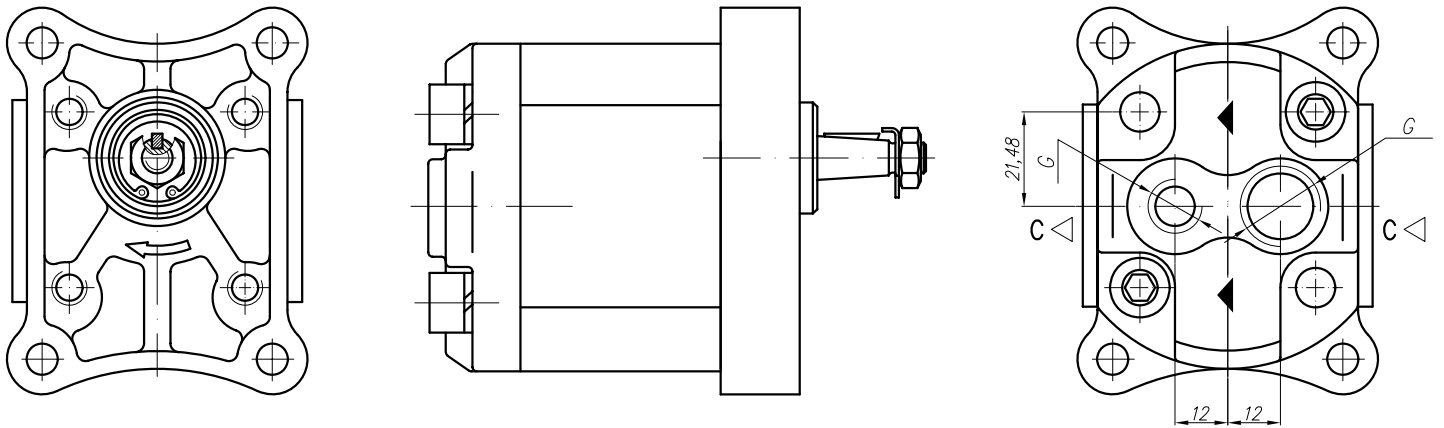
* - These pumps - only under a special order

** - Shaft dia is 10 mm for displ. 1 ... 6,1 ccm and 12 mm for displ. 7,4 ccm and more

Rotation "A" - (anticlockwise)

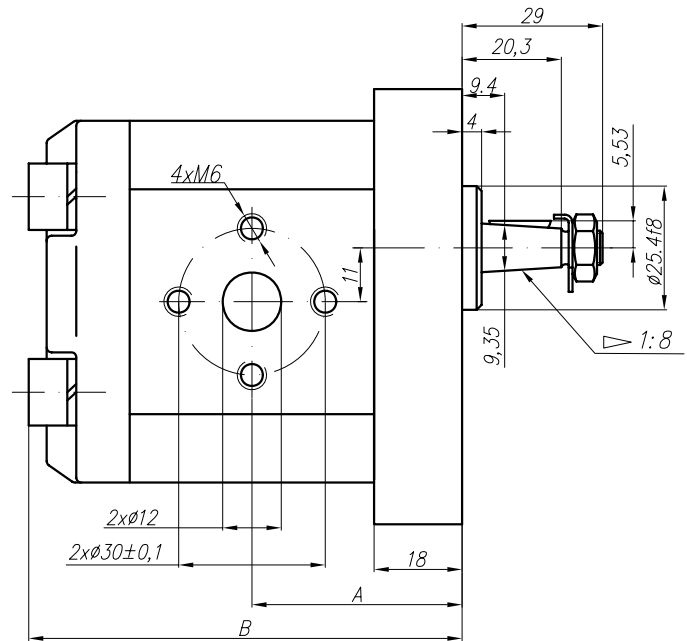
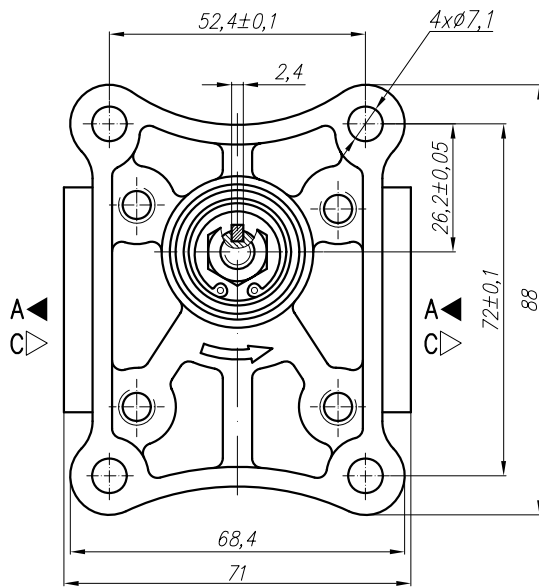


Rotation "C" - (clockwise)



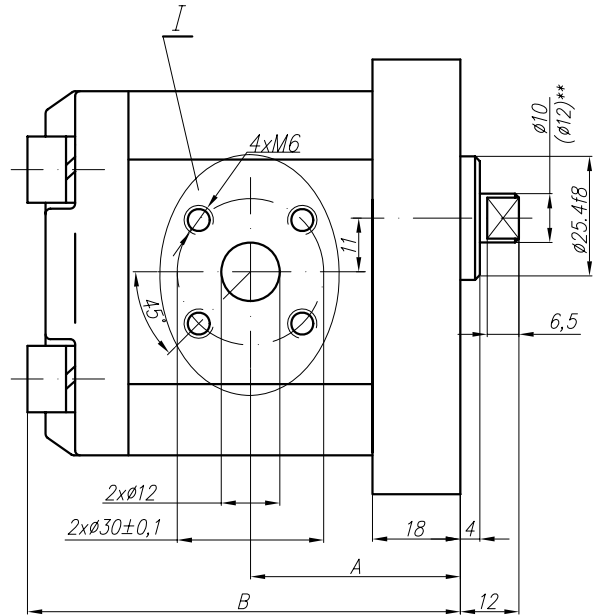
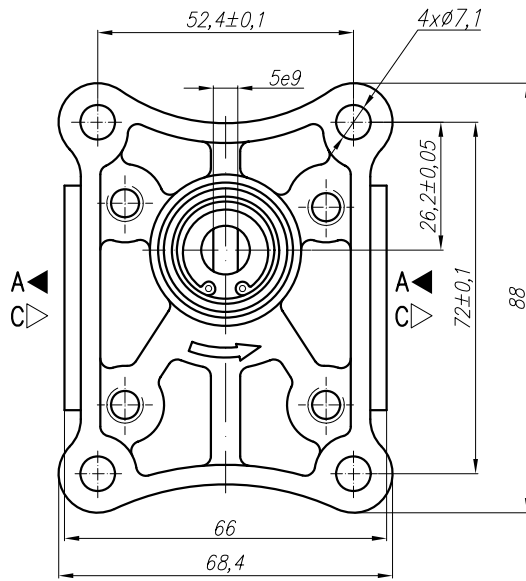
Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X055	1	1,40	3,26	250	3500	71	81	G 3/8" - A				G 1/4" - A	
10A(C)1,25X055	1,25	1,74	4,07	250	3500	72	82						
10A(C)1,6X055	1,6	2,23	5,21	250	3500	73,6	83,6						
10A(C)2X055	2	2,82	6,58	250	3500	75,2	85,2						
10A(C)2,5X055	2,5	3,53	8,23	250	3500	77,2	87,2						
* 10A(C)2,65X055	2,65	3,74	8,72	250	3500	77,8	87,8						
10A(C)3,15X055	3,15	4,44	10,36	250	3500	79,8	89,8						
10A(C)3,65X055	3,65	5,15	12,01	250	3500	81,9	91,9						
10A(C)4,2X055	4,2	5,92	13,82	250	3500	84,1	94,1						
* 10A(C)4,7X055	4,7	6,63	15,46	250	3500	87,1	97,1						
10A(C)5X055	5	7,05	14,10	250	3000	87,2	97,2						
10A(C)5,7X055	5,7	8,12	16,25	200	3000	90,1	100,1						
10A(C)6,1X055	6,1	8,69	14,49	200	2500	91,8	101,8						
10A(C)7,4X055	7,4	10,55	17,58	180	2500	97,2	107,2						
* 10A(C)8X055	8	11,40	15,20	150	2000	99,7	109,7						
10A(C)8,5X055	8,5	12,11	16,15	150	2000	101,7	111,7						
10A(C)9,8X055	9,8	13,97	18,62	120	2000	107	117						

* - These pumps - only under a special order



Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension					
		at 1500 rpm l/min	at max rpm l/min			Inlet		Outlet		A mm	B mm
						M	G	U	M	G	U
10A(C)1X056	1	1,40	3,26	250	3500						
10A(C)1,25X056	1,25	1,74	4,07	250	3500						
10A(C)1,6X056	1,6	2,23	5,21	250	3500						
10A(C)2X056	2	2,82	6,58	250	3500						
10A(C)2,5X056	2,5	3,53	8,23	250	3500						
* 10A(C)2,65X056	2,65	3,74	8,72	250	3500						
10A(C)3,15X056	3,15	4,44	10,36	250	3500						
10A(C)3,65X056	3,65	5,15	12,01	250	3500						
10A(C)4,2X056	4,2	5,92	13,82	250	3500						
* 10A(C)4,7X056	4,7	6,63	15,46	250	3500						
10A(C)5X056	5	7,05	14,10	250	3000						
10A(C)5,7X056	5,7	8,12	16,25	200	3000						
10A(C)6,1X056	6,1	8,69	14,49	200	2500						
10A(C)7,4X056	7,4	10,55	17,58	180	2500						
* 10A(C)8X056	8	11,40	15,20	150	2000						
10A(C)8,5X056	8,5	12,11	16,15	150	2000						
10A(C)9,8X056	9,8	13,97	18,62	120	2000						

* - These pumps - only under a special order

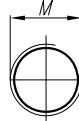


I – variants

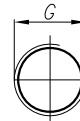
Variants:

- ...X057 - Normal version (flange);
- ...X057M - for M ports (see the picture I and the table below);
- ...X057G - for G ports (see the picture I and the table below);
- ...X057U - for U ports (see the picture I and the table below).

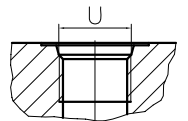
Variant M



Variant G



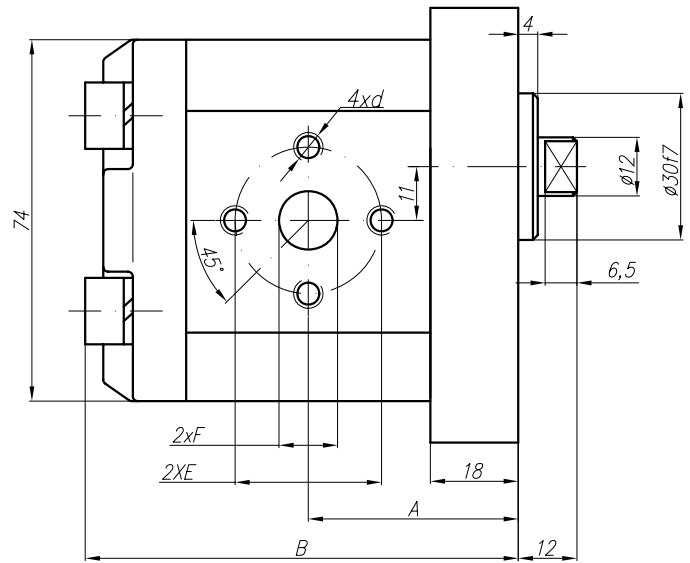
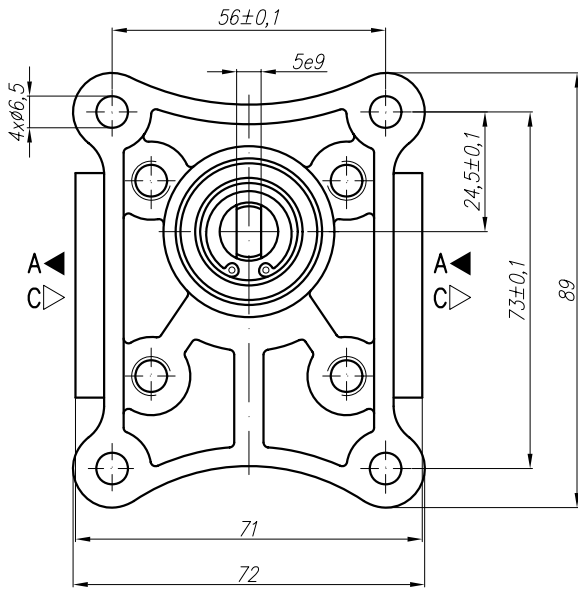
Variant U (SAEJ475 (ISO R725))



Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			Inlet			Outlet				
						A mm	B mm	M	G	U	M	G	U
10A(C)1X057	1	1,40	3,26	250	3500	39,1	81	M16x1,5	G 3/8" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)1,25X057	1,25	1,74	4,07	250	3500	39,5	82						
10A(C)1,6X057	1,6	2,23	5,21	250	3500	40,3	83,6						
10A(C)2X057	2	2,82	6,58	250	3500	41,1	85,2	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)2,5X057	2,5	3,53	8,23	250	3500	42,1	87,2						
* 10A(C)2,65X057	2,65	3,74	8,72	250	3500	42,4	87,8	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)3,15X057	3,15	4,44	10,36	250	3500	43,5	89,8						
10A(C)3,65X057	3,65	5,15	12,01	250	3500	44,4	91,9	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)4,2X057	4,2	5,92	13,82	250	3500	45,5	94,1						
* 10A(C)4,7X057	4,7	6,63	15,46	250	3500	46,1	96	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)5X057	5	7,05	14,10	250	3000	47,1	97,2						
10A(C)5,7X057	5,7	8,12	16,25	200	3000	48,5	100,1	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)6,1X057	6,1	8,69	14,49	180	2500	49,4	101,8						
10A(C)7,4X057	7,4	10,55	17,58	180	2500	52,1	107,2	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
* 10A(C)8X057	8	11,40	15,20	150	2000	53,4	109,7						
10A(C)8,5X057	8,5	12,11	16,15	150	2000	54,4	111,7	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)9,8X057	9,8	13,97	18,62	120	2000	57	117						

* - These pumps - only under a special order

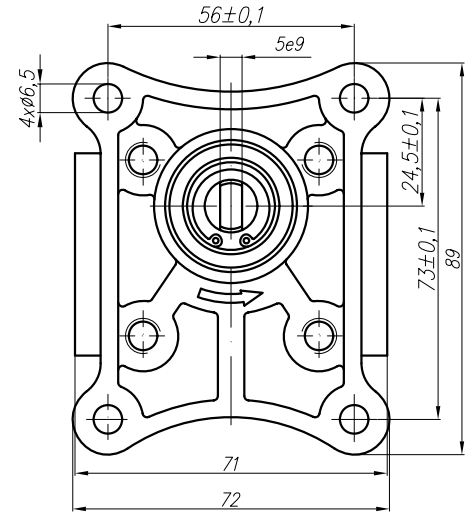
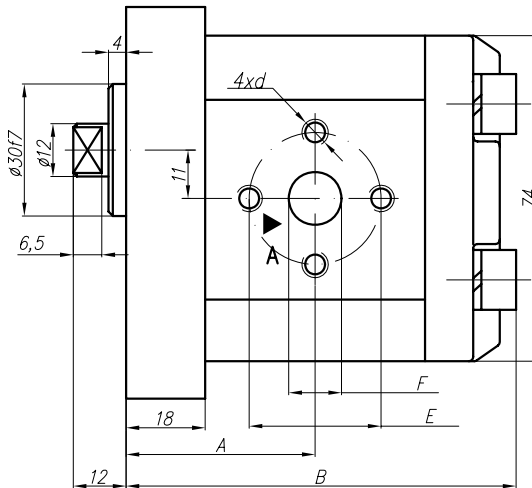
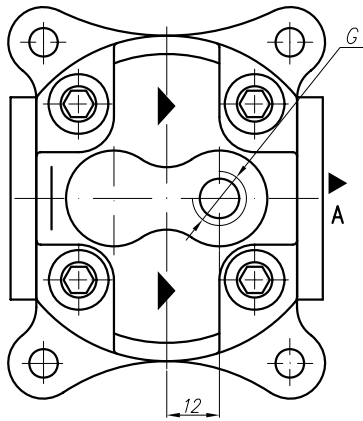
** - Shaft dia is 10 mm for displ. 1 ... 6,1 ccm and 12 mm for displ. 7,4 ccm and more



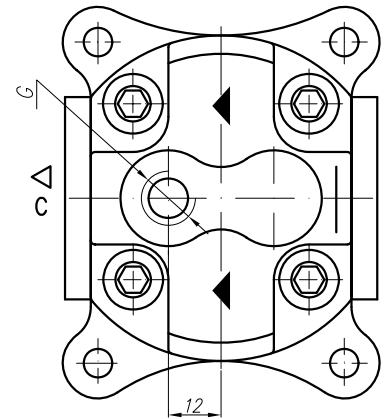
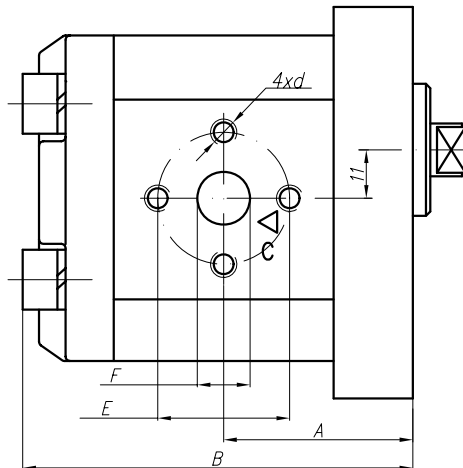
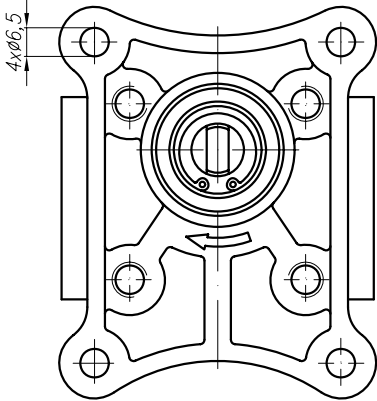
Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
10A(C)1X115	1	1,40	3,26	250	3500	39,1	81	∅30	∅12	M6	∅30	∅12	M6
10A(C)1,25X115	1,25	1,74	4,07	250	3500	39,5	82						
10A(C)1,6X115	1,6	2,23	5,21	250	3500	40,3	83,6						
10A(C)2X115	2	2,82	6,58	250	3500	41,1	85,2						
10A(C)2,5X115	2,5	3,53	8,23	250	3500	42,1	87,2						
* 10A(C)2,65X115	2,65	3,74	8,72	250	3500	42,4	87,8						
10A(C)3,15X115	3,15	4,44	10,36	250	3500	43,5	89,8						
10A(C)3,65X115	3,65	5,15	12,01	250	3500	44,4	91,9						
10A(C)4,2X115	4,2	5,92	13,82	250	3500	45,5	94,1						
* 10A(C)4,7X115	4,7	6,63	15,46	250	3500	46,1	96						
10A(C)5X115	5	7,05	14,10	250	3000	47,1	97,2						
10A(C)5,7X115	5,7	8,12	16,25	200	3000	48,5	100,1						
10A(C)6,1X115	6,1	8,69	14,49	200	2500	49,4	101,8						
10A(C)7,4X115	7,4	10,55	17,58	180	2500	52,1	107,2						
* 10A(C)8X115	8	11,40	15,20	150	2000	53,4	109,7						
10A(C)8,5X115	8,5	12,11	16,15	150	2000	54,4	111,7						
10A(C)9,8X115	9,8	13,97	18,62	120	2000	57	117						

* - These pumps - only under a special order

Rotation "A" - (anticlockwise)



Rotation "C" - (clockwise)

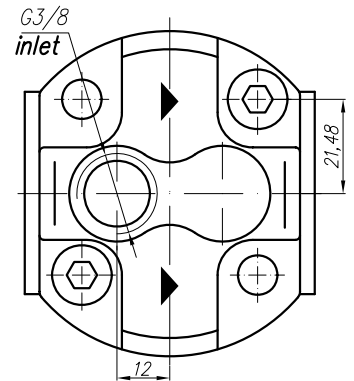
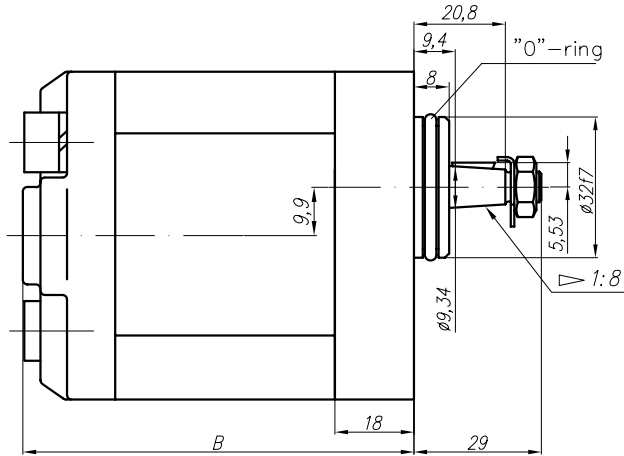
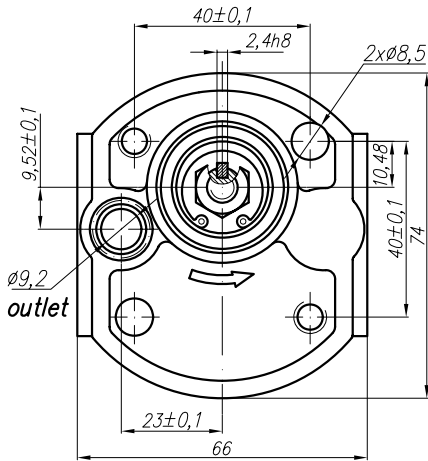


Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			Inlet		Outlet					
						A mm	B mm	E	F	d	M	G	U
10A(C)1X125	1	1,40	3,26	250	3500	39,1	81						
10A(C)1,25X125	1,25	1,74	4,07	250	3500	39,5	82						
10A(C)1,6X125	1,6	2,23	5,21	250	3500	40,3	83,6						
10A(C)2X125	2	2,82	6,58	250	3500	41,1	85,2						
10A(C)2,5X125	2,5	3,53	8,23	250	3500	42,1	87,2						
* 10A(C)2,65X125	2,65	3,74	8,72	250	3500	42,4	87,8						
10A(C)3,15X125	3,15	4,44	10,36	250	3500	43,5	89,8						
10A(C)3,65X125	3,65	5,15	12,01	250	3500	44,4	91,9						
10A(C)4,2X125	4,2	5,92	13,82	250	3500	45,5	94,1	ø30	ø12	M6			
* 10A(C)4,7X125	4,7	6,63	15,46	250	3500	46,1	96						
10A(C)5X125	5	7,05	14,10	250	3000	47,1	97,2						
10A(C)5,7X125	5,7	8,12	16,25	200	3000	48,5	100,1						
10A(C)6,1X125	6,1	8,69	14,49	200	2500	49,4	101,8						
10A(C)7,4X125	7,4	10,55	17,58	180	2500	52,1	107,2						
* 10A(C)8X125	8	11,40	15,20	150	2000	53,4	109,7						
10A(C)8,5X125	8,5	12,11	16,15	150	2000	54,4	111,7						
10A(C)9,8X125	9,8	13,97	18,62	120	2000	57	117						

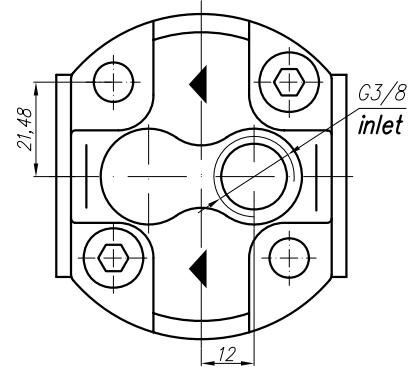
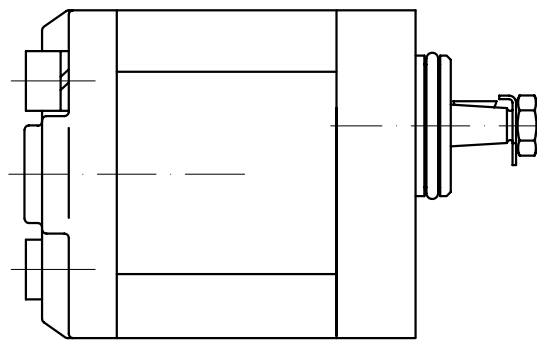
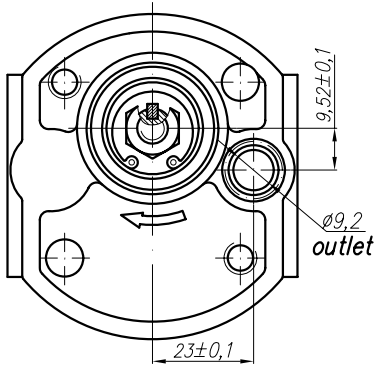
* - These pumps - only under a special order



Rotation "A" - (anticlockwise)

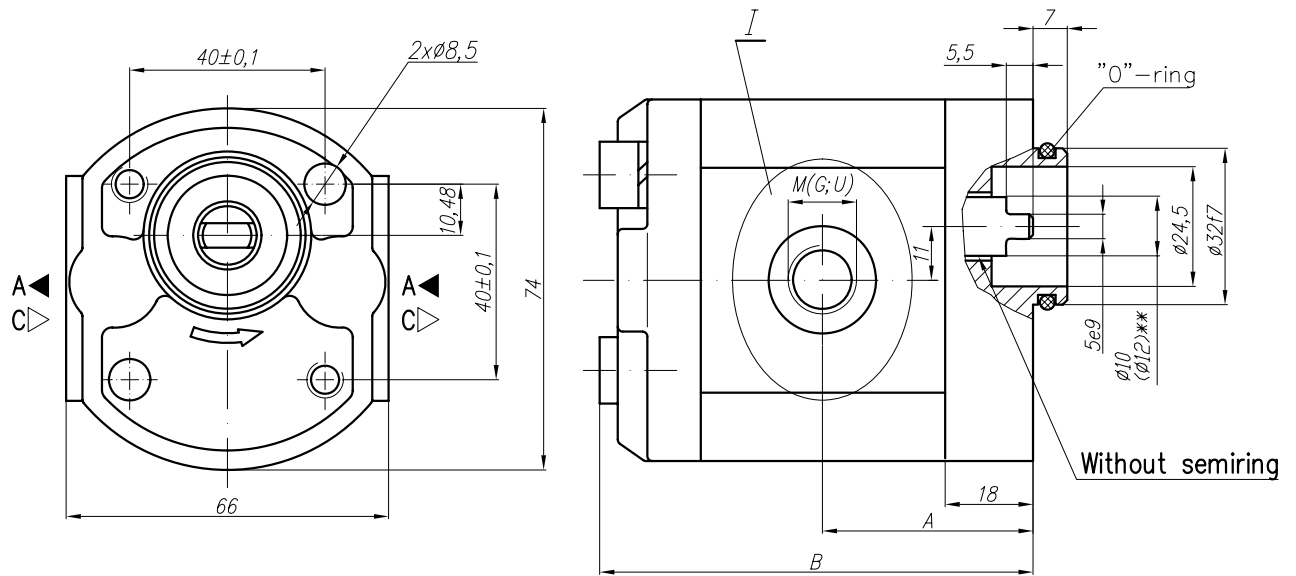


Rotation "C" - (clockwise)



Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X131	1	1,40	3,26	250	3500	71	81	G 3/8" - A				Ø9,2	
10A(C)1,25X131	1,25	1,74	4,07	250	3500	72	82						
10A(C)1,6X131	1,6	2,23	5,21	250	3500	73,6	83,6						
10A(C)2X131	2	2,82	6,58	250	3500	75,2	85,2						
10A(C)2,5X131	2,5	3,53	8,23	250	3500	77,2	87,2						
* 10A(C)2,65X131	2,65	3,74	8,72	250	3500	77,8	87,8						
10A(C)3,15X131	3,15	4,44	10,36	250	3500	79,8	89,8						
10A(C)3,65X131	3,65	5,15	12,01	250	3500	81,9	91,9						
10A(C)4,2X131	4,2	5,92	13,82	250	3500	84,1	94,1						
* 10A(C)4,7X131	4,7	6,63	15,46	250	3500	87,1	97,1						
10A(C)5X131	5	7,05	14,10	250	3000	87,2	97,2						
10A(C)5,7X131	5,7	8,12	16,25	200	3000	90,1	100,1						
10A(C)6,1X131	6,1	8,69	14,49	200	2500	91,8	101,8						
10A(C)7,4X131	7,4	10,55	17,58	180	2500	97,2	107,2						
* 10A(C)8X131	8	11,40	15,20	150	2000	99,7	109,7						
10A(C)8,5X131	8,5	12,11	16,15	150	2000	101,7	111,7						
10A(C)9,8X131	9,8	13,97	18,62	120	2000	107	117						

* - These pumps - only under a special order



I - variants

Variants:

...X 135 M - for M ports (see the picture I and the table below);

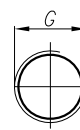
...X 135 G - for G ports (see the picture I and the table below);

...X 135 U - for U ports (see the picture I and the table below).

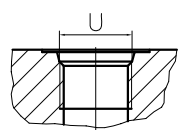
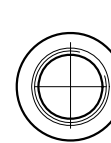
Variant M



Variant G



Variant U (SAEJ475 (ISO R725))



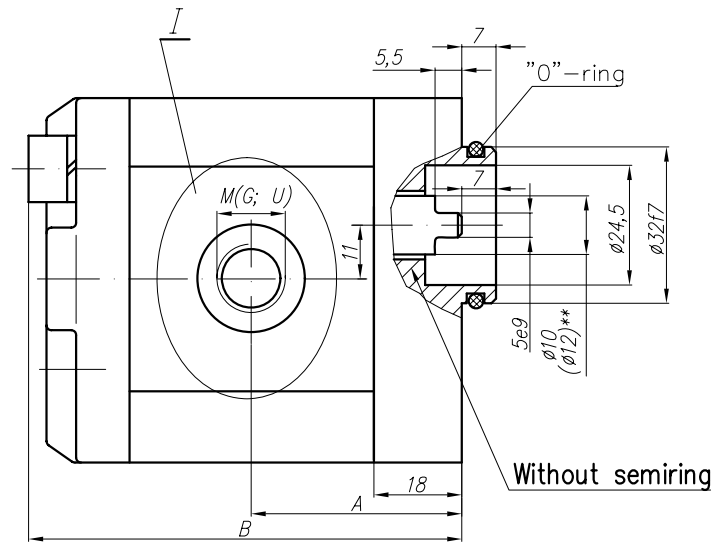
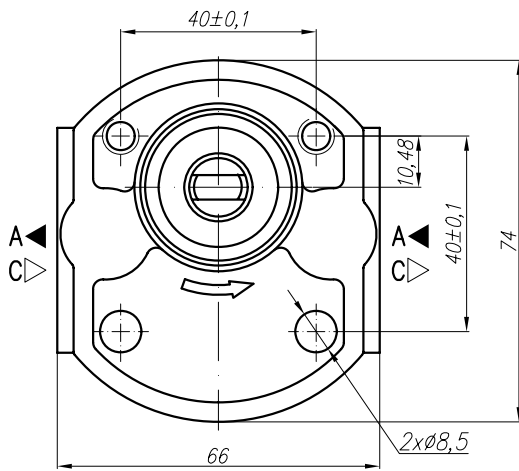
Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X135	1	1,40	3,26	250	3500	39,1	81	M16x1,5	G 3/8" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)1,25X135	1,25	1,74	4,07	250	3500	39,5	82						
10A(C)1,6X135	1,6	2,23	5,21	250	3500	40,3	83,6						
10A(C)2X135	2	2,82	6,58	250	3500	41,1	85,2						
10A(C)2,5X135	2,5	3,53	8,23	250	3500	42,1	87,2	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
* 10A(C)2,65X135	2,65	3,74	8,72	250	3500	42,4	87,8						
10A(C)3,15X135	3,15	4,44	10,36	250	3500	43,5	89,8	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)3,65X135	3,65	5,15	12,01	250	3500	44,4	91,9						
10A(C)4,2X135	4,2	5,92	13,82	250	3500	45,5	94,1	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
* 10A(C)4,7X135	4,7	6,63	15,46	250	3500	46,1	96						
10A(C)5X135	5	7,05	14,10	250	3000	47,1	97,2	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)5,7X135	5,7	8,12	16,25	200	3000	48,5	100,1						
10A(C)6,1X135	6,1	8,69	14,49	200	2500	49,4	101,8	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)7,4X135	7,4	10,55	17,58	180	2500	52,1	107,2						
* 10A(C)8X135	8	11,40	15,20	150	2000	53,4	109,7	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)8,5X135	8,5	12,11	16,15	150	2000	54,4	111,7						
10A(C)9,8X135	9,8	13,97	18,62	120	2000	57	117	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF

* - These pumps - only under a special order

** - Shaft dia is 10 mm for displ. 1 ... 6,1 ccm and 12 mm for displ. 7,4 ccm and more



The pump 10A(C)...X142 is a second section of multiple pump Gr.21.

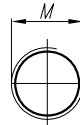


Variants:

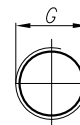
- ...X142M - for M ports (see the picture I and the table below);
- ...X142G - for G ports (see the picture I and the table below);
- ...X142U - for U ports (see the picture I and the table below).

I - variants

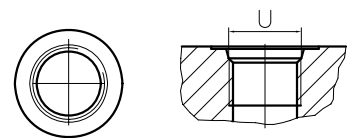
Variant M



Variant G



Variant U (SAEJ475 (ISO R725))



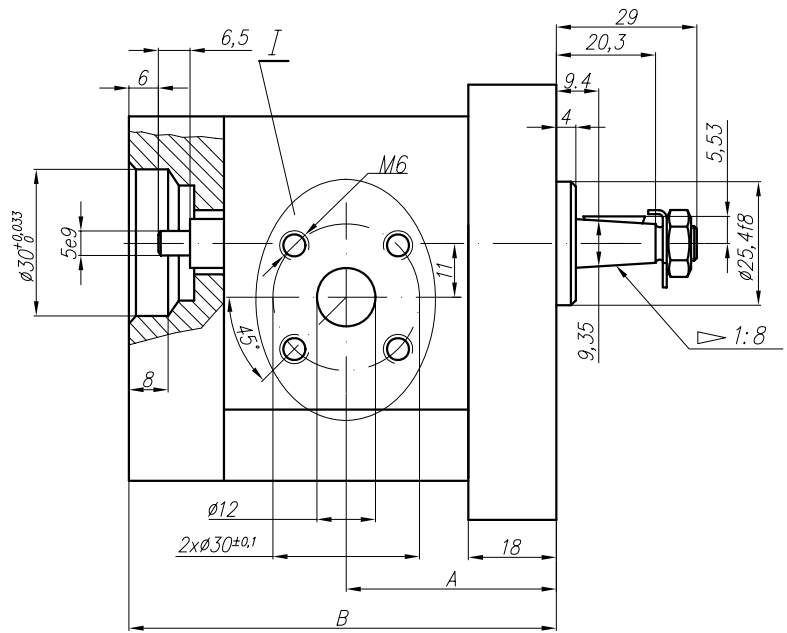
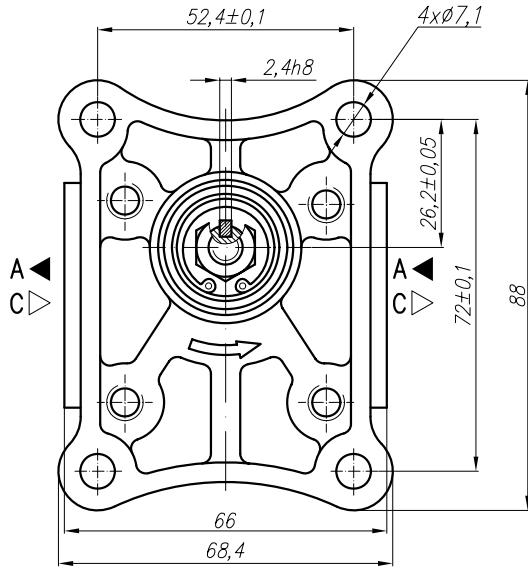
Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X142	1	1,40	3,26	250	3500	39,1	81	M16x1,5	G 3/8" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)1,25X142	1,25	1,74	4,07	250	3500	39,5	82						
10A(C)1,6X142	1,6	2,23	5,21	250	3500	40,3	83,6						
10A(C)2X142	2	2,82	6,58	250	3500	41,1	85,2	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)2,5X142	2,5	3,53	8,23	250	3500	42,1	87,2						
* 10A(C)2,65X142	2,65	3,74	8,72	250	3500	42,4	87,8						
10A(C)3,15X142	3,15	4,44	10,36	250	3500	43,5	89,8	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)3,65X142	3,65	5,15	12,01	250	3500	44,4	91,9						
10A(C)4,2X142	4,2	5,92	13,82	250	3500	45,5	94,1						
* 10A(C)4,7X142	4,7	6,63	15,46	250	3500	46,1	96	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)5X142	5	7,05	14,10	250	3000	47,1	97,2						
10A(C)5,7X142	5,7	8,12	16,25	200	3000	48,5	100,1						
10A(C)6,1X142	6,1	8,69	14,49	200	2500	49,4	101,8	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)7,4X142	7,4	10,55	17,58	180	2500	52,1	107,2						
* 10A(C)8X142	8	11,40	15,20	150	2000	53,4	109,7						
10A(C)8,5X142	8,5	12,11	16,15	150	2000	54,4	111,7	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)9,8X142	9,8	13,97	18,62	120	2000	57	117						

* - These pumps - only under a special order

** - Shaft dia is 10 mm for displ. 1 ... 6,1 ccm and 12 mm for displ. 7,4 ccm and more



The pump 10A(C)...X174 is a first section of multiple pump Gr.11.

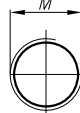


I – variants

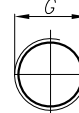
Variants:

- ...X174 - Normal version (flange);
- ...X174M - for M ports (see the picture I and the table below);
- ...X174G - for G ports (see the picture I and the table below);
- ...X174U - for U ports (see the picture I and the table below).

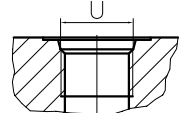
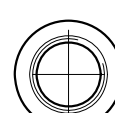
Variant M



Variant G



Variant U (SAEJ475 (ISO R725))

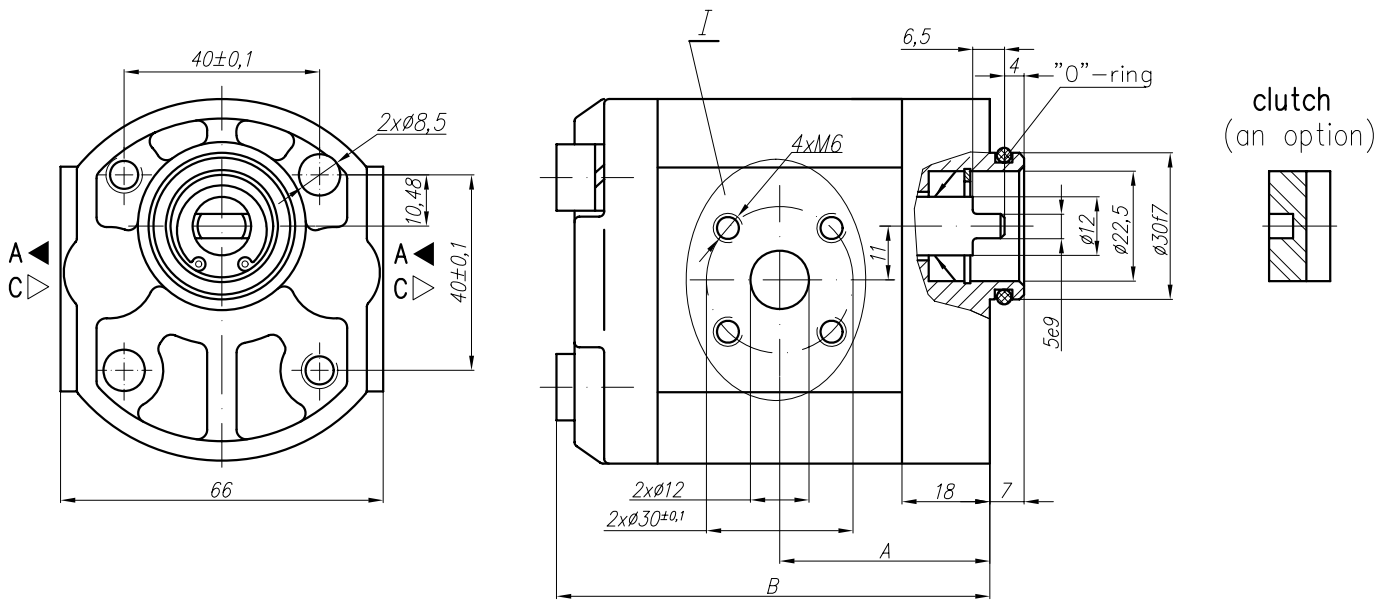


Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X174	1	1,40	3,26	250	3500	39,1	81						
10A(C)1,25X174	1,25	1,74	4,07	250	3500	39,5	82	M16x1,5	G 3/8" - A				
10A(C)1,6X174	1,6	2,23	5,21	250	3500	40,3	83,6						
10A(C)2X174	2	2,82	6,58	250	3500	41,1	85,2	M16x1,5	G 3/8" - A				
10A(C)2,5X174	2,5	3,53	8,23	250	3500	42,1	87,2						
* 10A(C)2,65X174	2,65	3,74	8,72	250	3500	42,4	87,8	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)3,15X174	3,15	4,44	10,36	250	3500	43,5	89,8						
10A(C)3,65X174	3,65	5,15	12,01	250	3500	44,4	91,9	M20x1,5	G 1/2" - A				
10A(C)4,2X174	4,2	5,92	13,82	250	3500	45,5	94,1						
* 10A(C)4,7X174	4,7	6,63	15,46	250	3500	46,1	96	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5		3/4" - 16UNF
10A(C)5X174	5	7,05	14,10	250	3000	47,1	97,2						
10A(C)5,7X174	5,7	8,12	16,25	200	3000	48,5	100,1	M22x1,5	G 1/2" - A				
10A(C)6,1X174	6,1	8,69	14,49	200	2500	49,4	101,8						
10A(C)7,4X174	7,4	10,55	17,58	180	2500	52,1	107,2	M22x1,5	G 1/2" - A				
* 10A(C)8X174	8	11,40	15,20	150	2000	53,4	109,7						
10A(C)8,5X174	8,5	12,11	16,15	150	2000	54,4	111,7	M22x1,5	G 1/2" - A				
10A(C)9,8X174	9,8	13,97	18,62	120	2000	57	117						

* - These pumps - only under a special order



The pump 10A(C)...X175 is a second section of multiple pump Gr.11.

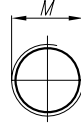


Variants:

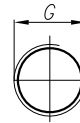
- ...X175 - Normal version (flange);
- ...X175M - for M ports (see the picture I and the table below);
- ...X175G - for G ports (see the picture I and the table below);
- ...X175U - for U ports (see the picture I and the table below).

I - variants

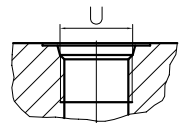
Variant M



Variant G

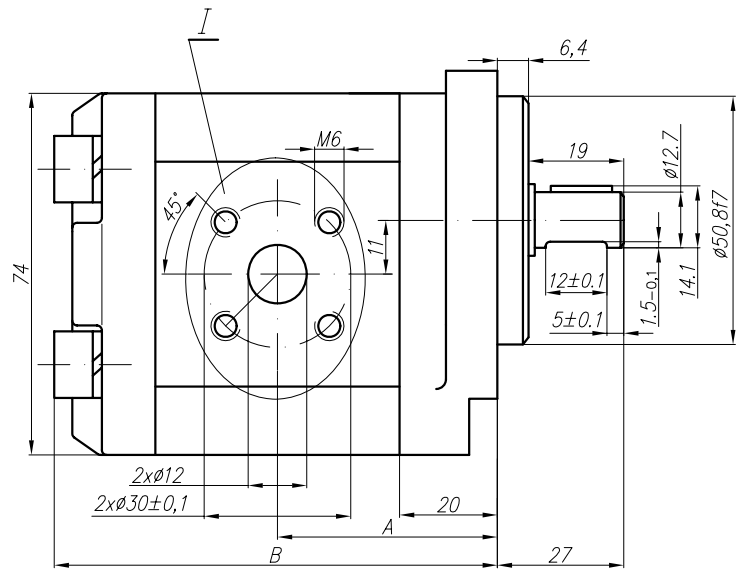
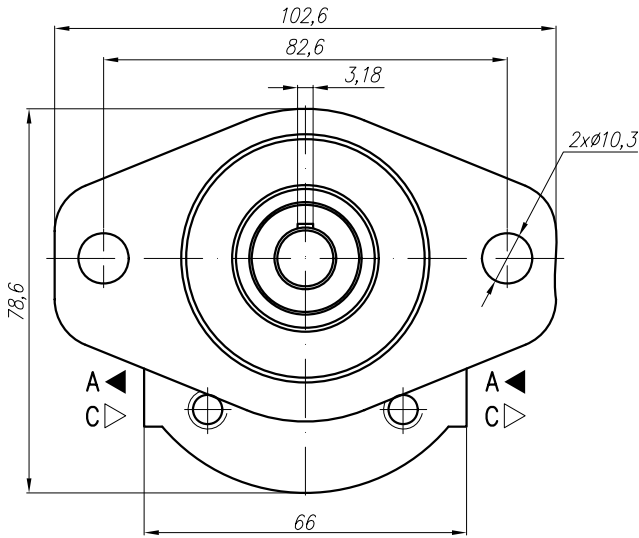


Variant U (SAEJ475 (ISO R725))



Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X175	1	1,40	3,26	250	3500	39,1	81	M16x1,5	G 3/8" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)1,25X175	1,25	1,74	4,07	250	3500	39,5	82						
10A(C)1,6X175	1,6	2,23	5,21	250	3500	40,3	83,6						
10A(C)2X175	2	2,82	6,58	250	3500	41,1	85,2						
10A(C)2,5X175	2,5	3,53	8,23	250	3500	42,1	87,2	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
* 10A(C)2,65X175	2,65	3,74	8,72	250	3500	42,4	87,8						
10A(C)3,15X175	3,15	4,44	10,36	250	3500	43,5	89,8	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)3,65X175	3,65	5,15	12,01	250	3500	44,4	91,9						
10A(C)4,2X175	4,2	5,92	13,82	250	3500	45,5	94,1						
* 10A(C)4,7X175	4,7	6,63	15,46	250	3500	46,1	96						
10A(C)5X175	5	7,05	14,10	250	3000	47,1	97,2	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)5,7X175	5,7	8,12	16,25	200	3000	48,5	100,1						
10A(C)6,1X175	6,1	8,69	14,49	200	2500	49,4	101,8						
10A(C)7,4X175	7,4	10,55	17,58	180	2500	52,1	107,2						
* 10A(C)8X175	8	11,40	15,20	150	2000	53,4	109,7	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	G 3/8" - A	3/4" - 16UNF
10A(C)8,5X175	8,5	12,11	16,15	150	2000	54,4	111,7						
10A(C)9,8X175	9,8	13,97	18,62	120	2000	57	117						

* - These pumps - only under a special order

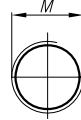


I – variants

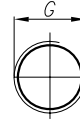
Variants:

- ...X176 - Normal version (flange);
- ...X176M - for M ports (see the picture I and the table below);
- ...X176G - for G ports (see the picture I and the table below);
- ...X176U - for U ports (see the picture I and the table below).

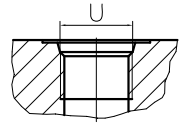
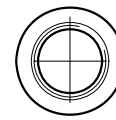
Variant M



Variant G



Variant U (SAEJ475 (ISO R725))



Type	Displacement cm ³ /rev	Flow		Pressure P _{nom} bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
								M	G	U	M	G	U
10A(C)1X176	1	1,40	3,26	250	3500	41,1	83	M16x1,5	G 3/8" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)1,25X176	1,25	1,74	4,07	250	3500	41,5	84						
10A(C)1,6X176	1,6	2,23	5,21	250	3500	42,3	85,6						
10A(C)2X176	2	2,82	6,58	250	3500	43,1	87,2						
10A(C)2,5X176	2,5	3,53	8,23	250	3500	44,1	89,2						
* 10A(C)2,65X176	2,65	3,74	8,72	250	3500	44,4	89,8	M20x1,5	G 1/2" - A	3/4" - 16UNF - 2B	M16x1,5	G 3/8" - A	9/16" - 18UNF - 2B
10A(C)3,15X176	3,15	4,44	10,36	250	3500	45,5	91,8						
10A(C)3,65X176	3,65	5,15	12,01	250	3500	46,4	93,9						
10A(C)4,2X176	4,2	5,92	13,82	250	3500	47,5	96,1						
* 10A(C)4,7X176	4,7	6,63	15,46	250	3500	48,5	98						
10A(C)5X176	5	7,05	14,10	250	3000	49,1	99,2	M22x1,5	G 1/2" - A	7/8" - 14UNF	M18x1,5	3/4" - 16UNF	
10A(C)5,7X176	5,7	8,12	16,25	200	3000	50,5	102						
10A(C)6,1X176	6,1	8,69	14,49	200	2500	51,4	103,8						
10A(C)7,4X176	7,4	10,55	17,58	180	2500	54,1	109,2						
* 10A(C)8X176	8	11,40	15,20	150	2000	55,4	111,7						
10A(C)8,5X176	8,5	12,11	16,15	150	2000	56,4	113,7						
10A(C)9,8X176	9,8	13,97	18,62	120	2000	59	119						

* - These pumps - only under a special order