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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 may 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 <sup>2</sup> /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 cm<sup>3</sup>.**

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

**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.

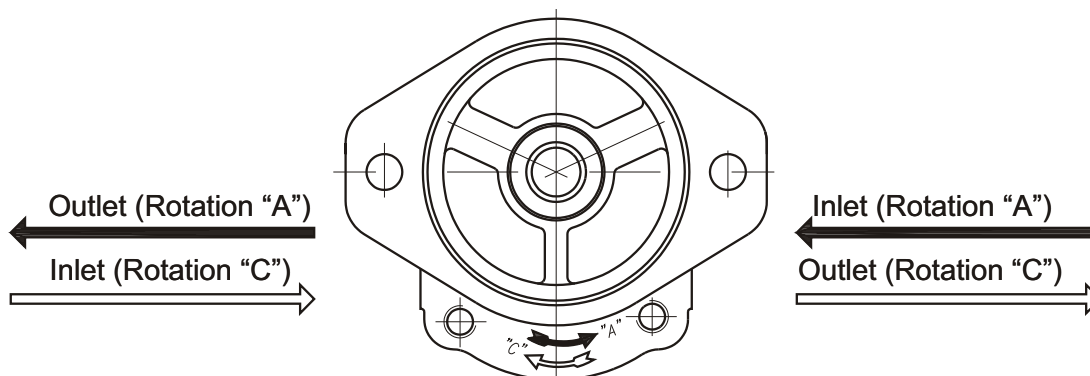
## Used symbols:

n - speed of rotation	[min <sup>-1</sup> ];
p - pressure	[bar];
q - displacement	[cm <sup>3</sup> ];
$\eta$ - total efficiency $\eta = \eta_q \cdot \eta_{hm}$	[-];
$\eta_{hm}$ - hydromechanical efficiency	[-];
$\eta_q$ - 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	
Code	cm <sup>3</sup>
0,25	0,25
0,3	0,3
0,5	0,5
0,75	0,75
1	1
1,25	1,25
1,5	1,5
1,75	1,75
2	2

Group 10	
Code	cm <sup>3</sup>
1	1
1,25	1,25
1,6	1,6
2	2
2,5	2,5
2,65*	2,65
3,15	3,15
3,65	3,65
4,2	4,2
4,7*	4,7
5	5
5,7	5,7
6,1	6,1
7,4	7,4
8*	8
8,5	8,5
9,8	9,8

Group 20	
Code	cm <sup>3</sup>
4,5	4,5
6,3	6,3
7*	7
8,2	8,2
10	10
11	11,3
12	12
14	14
15	15
16	16
17*	17,3
19	19
22	22
25	25
28	28
32	32
36	36

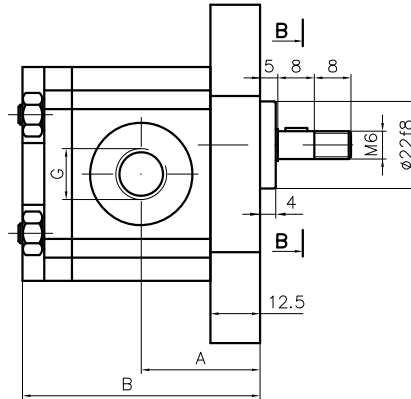
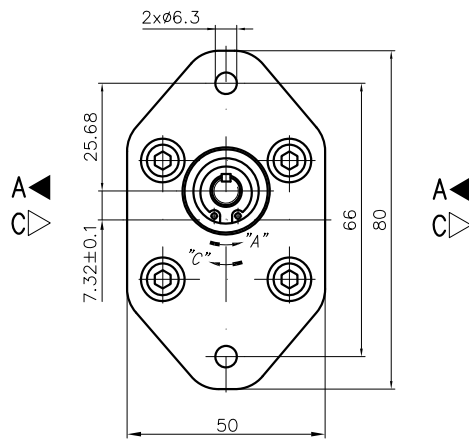
Group 20H	
Code	cm <sup>3</sup>
15	15
16	16
19	19
22	22
25	25
28	28
32	32
36	36

Group 30	
Code	cm <sup>3</sup>
20	20
22,5	22,5
25	25
28	28
32	32
36	36
42	42
46	46
50	50
55	55
60	60

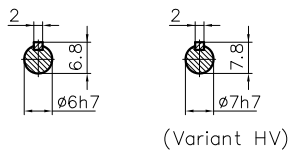
Group 40	
Code	cm <sup>3</sup>
36	36
42	42
46	46
50	50
55	55
60	60

**Example:** 20A14X073 - Hydraulic gear pump, 20 group, direction of rotation - counter clockwise, displacement 14 cm<sup>3</sup>, modification 073.

\* - These pumps - only under a special order



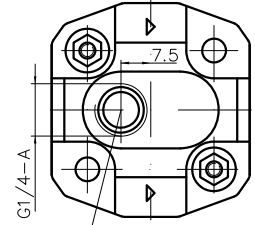
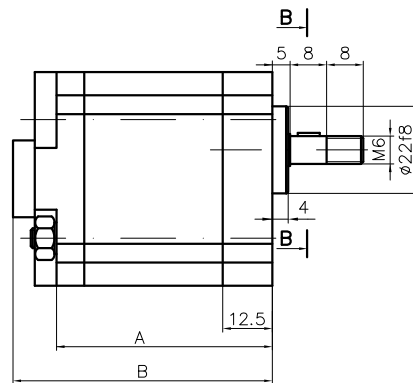
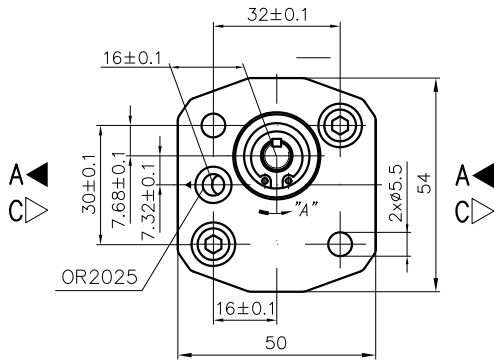
B - B



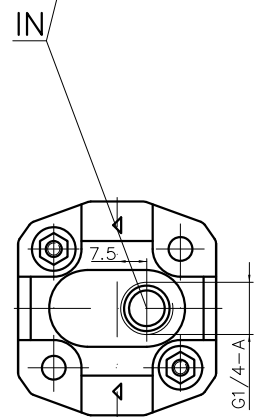
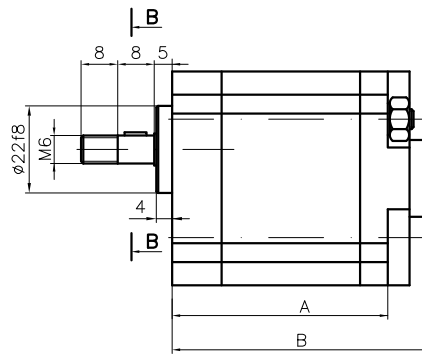
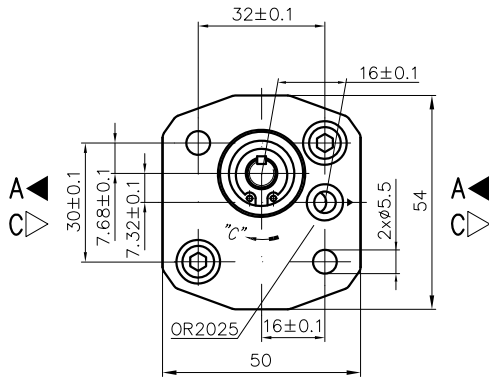
Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
										G			G
00A(C)0,25X032	0,25	0,3	0,8	200	3500	27,6	55,3						
00A(C)0,3X032	0,3	0,4	0,9	200	3500	27,7	55,7						
00A(C)0,5X032	0,5	0,7	1,6	200	3500	28,7	57,5						
00A(C)0,75X032	0,75	1,0	2,3	200	3500	29,9	59,8						
00A(C)1X032	1	1,4	3,2	200	3500	31,0	62,0			1/4"			1/4"
00A(C)1,25X032	1,25	1,7	3,4	200	3000	32,1	64,2						
00A(C)1,5X032	1,5	2,1	3,5	175	2500	33,2	66,5						
00A(C)1,75X032	1,75	2,4	4,1	160	2500	34,3	68,7						
00A(C)2X032	2	2,8	3,7	160	2000	35,5	70,9						



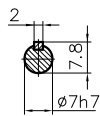
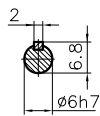
Rotation "A"



Rotation "C"

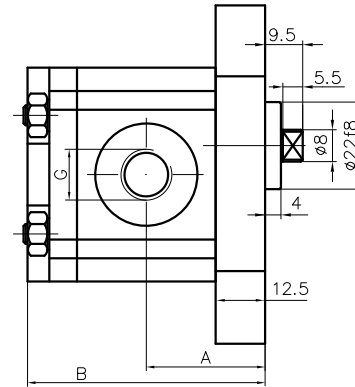
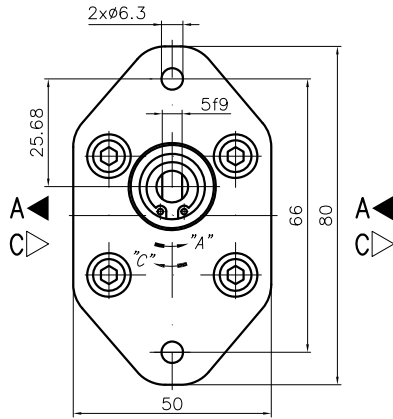


B - B



(Variant HV)

Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet G			Outlet		
00A(C)0,25X034	0,25	0,3	0,8	200	3500	55,3	60,8	1/4"	φ5,5				
00A(C)0,3X034	0,3	0,4	0,9	200	3500	55,7	61,2						
00A(C)0,5X034	0,5	0,7	1,6	200	3500	57,5	63,0						
00A(C)0,75X034	0,75	1,0	2,3	200	3500	59,8	65,3						
00A(C)1X034	1	1,4	3,2	200	3500	62,0	67,5						
00A(C)1,25X034	1,25	1,7	3,4	200	3000	64,2	69,7						
00A(C)1,5X034	1,5	2,1	3,5	175	2500	66,5	72,0						
00A(C)1,75X034	1,75	2,4	4,1	160	2500	68,7	74,2						
00A(C)2X034	2	2,8	3,7	160	2000	70,9	76,4						

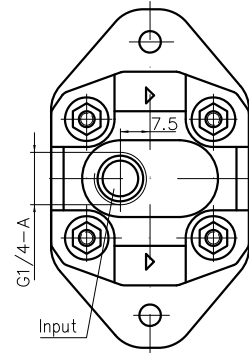
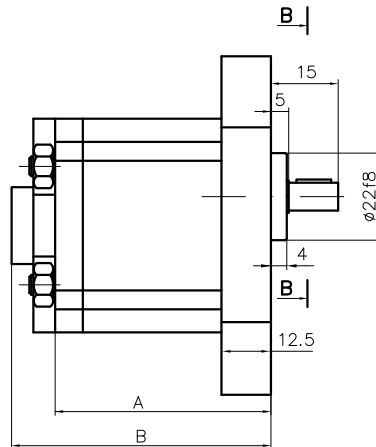
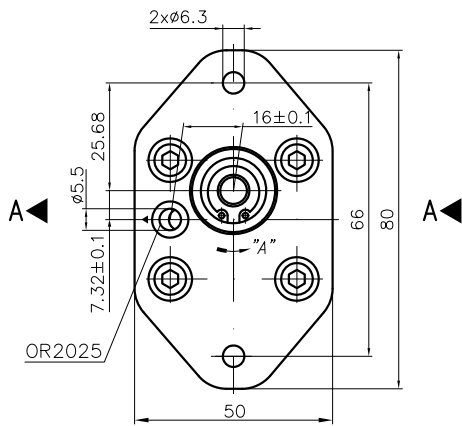


Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet		
										G			G
00A(C)0,25X043	0,25	0,3	0,8	200	3500	27,6	55,3						
00A(C)0,3X043	0,3	0,4	0,9	200	3500	27,7	55,7						
00A(C)0,5X043	0,5	0,7	1,6	200	3500	28,7	57,5						
00A(C)0,75X043	0,75	1,0	2,3	200	3500	29,9	59,8						
00A(C)1X043	1	1,4	3,2	200	3500	31,0	62,0			1/4"			1/4"
00A(C)1,25X043	1,25	1,7	3,4	200	3000	32,1	64,2						
00A(C)1,5X043	1,5	2,1	3,5	175	2500	33,2	66,5						
00A(C)1,75X043	1,75	2,4	4,1	160	2500	34,3	68,7						
00A(C)2X043	2	2,8	3,7	160	2000	35,5	70,9						

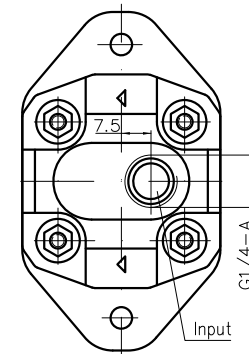
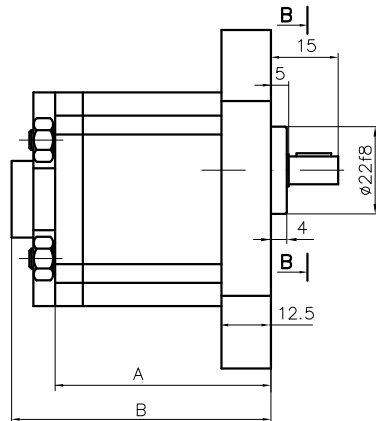
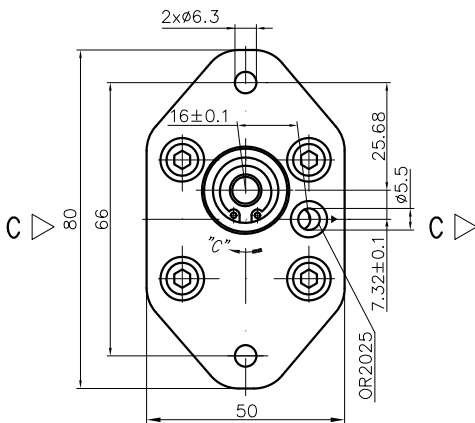




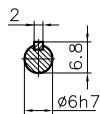
Rotation "A"



Rotation "C"



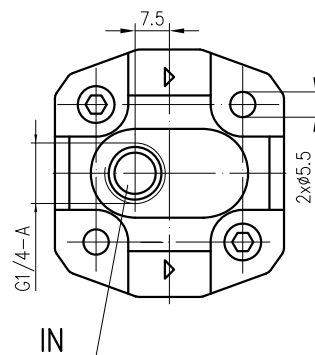
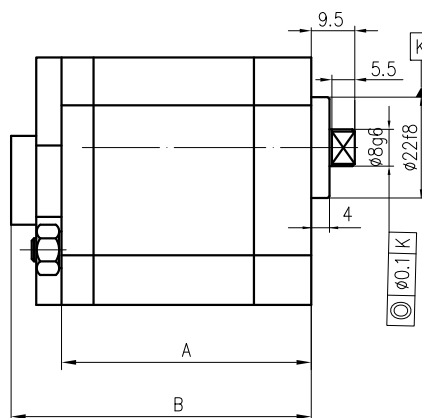
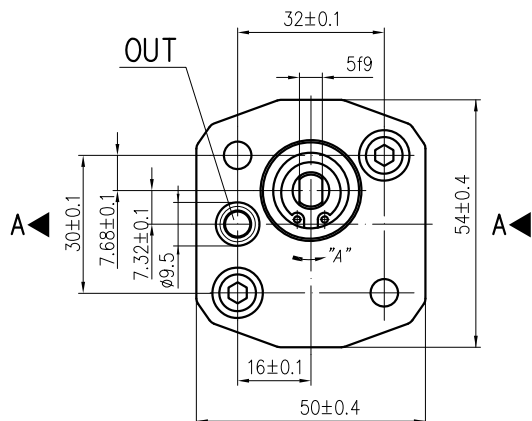
B - B



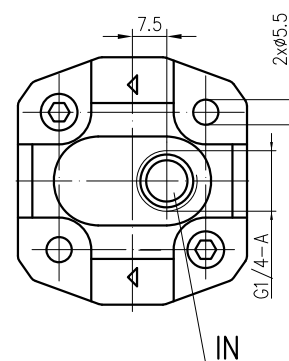
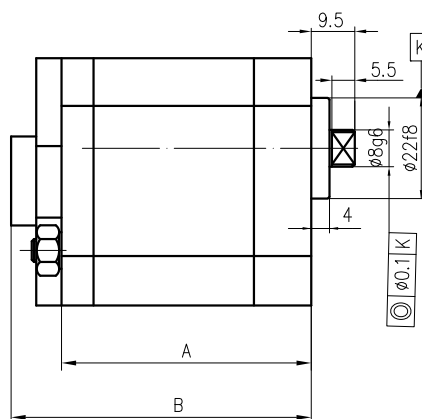
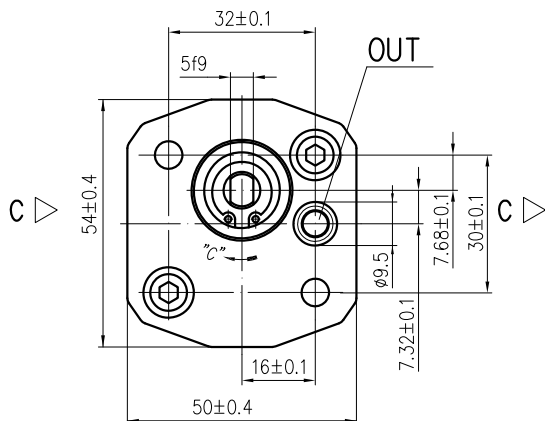
Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet		Outlet			
00A(C)0,25X045H	0,25	0,3	0,9	120	4000	55,3	60,8						
00A(C)0,3X045H	0,3	0,4	1,1	120	4000	55,7	61,2						
00A(C)0,5X045H	0,5	0,7	1,8	120	4000	57,5	63,0						
00A(C)0,75X045H	0,75	1,0	2,7	120	4000	59,8	65,3						
00A(C)1X045H	1	1,4	3,6	120	4000	62,0	67,5			1/4"		Ø5,5	
00A(C)1,25X045H	1,25	1,7	4,6	120	4000	64,2	69,7						
00A(C)1,5X045H	1,5	2,1	5,6	120	4000	66,5	72,0						
00A(C)1,75X045H	1,75	2,4	6,5	120	4000	68,7	74,2						
00A(C)2X045H	2	2,8	7,4	120	4000	70,9	76,4						



Rotation "A"

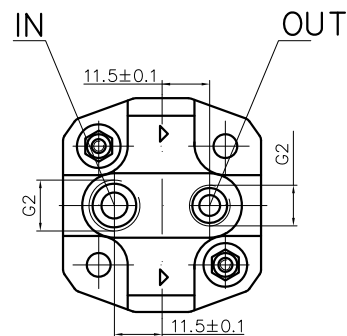
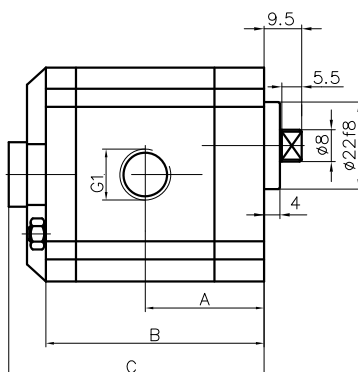
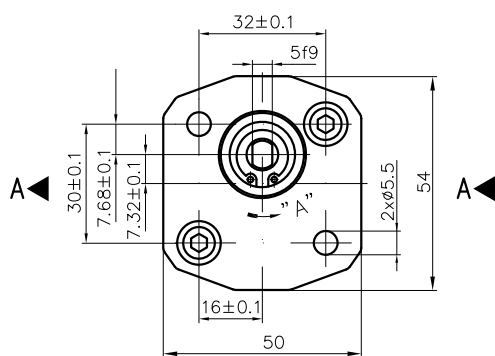


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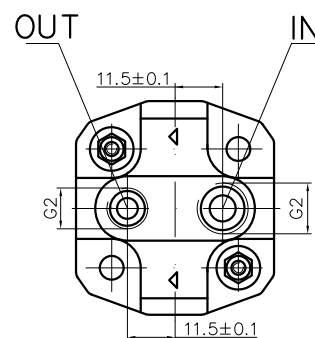
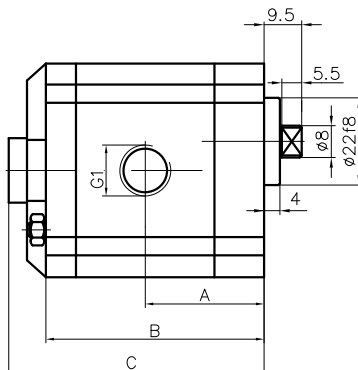
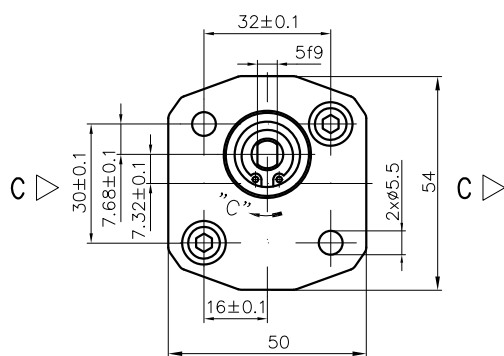


Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet		Outlet			
00A(C)0,25X047	0,25	0,3	0,8	200	3500	55,3	60,8						
00A(C)0,3X047	0,3	0,4	0,9	200	3500	55,7	61,2						
00A(C)0,5X047	0,5	0,7	1,6	200	3500	57,5	63,0						
00A(C)0,75X047	0,75	1,0	2,3	200	3500	59,8	65,3						
00A(C)1X047	1	1,4	3,2	200	3500	62,0	67,5			1/4"			Ø5,5
00A(C)1,25X047	1,25	1,7	3,4	200	3000	64,2	69,7						
00A(C)1,5X047	1,5	2,1	3,5	175	2500	66,5	72,0						
00A(C)1,75X047	1,75	2,4	4,1	160	2500	68,7	74,2						
00A(C)2X047	2	2,8	3,7	160	2000	70,9	76,4						

Rotation "A"

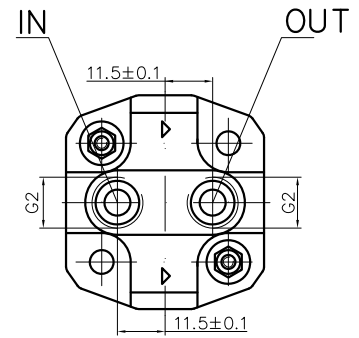
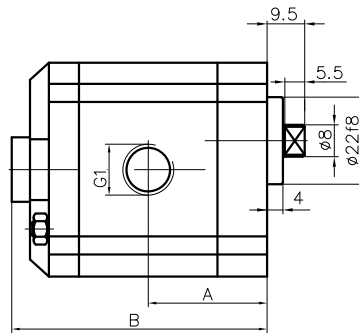
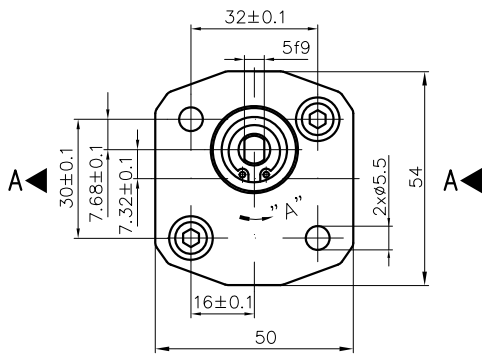


Rotation "C"

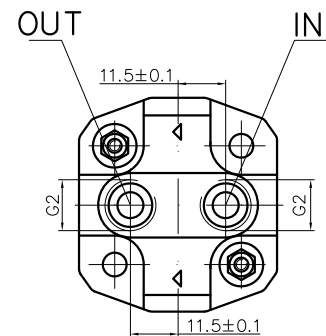
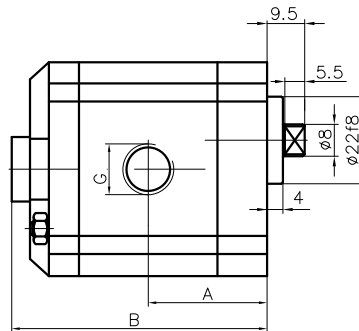
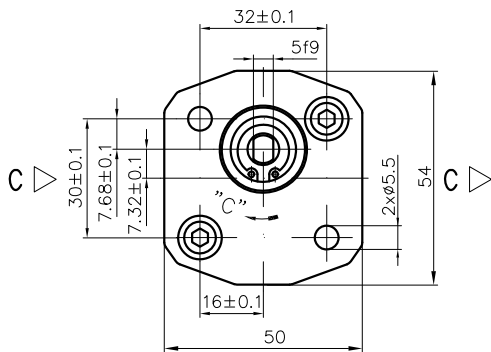


Type	Displacement	Flow		Pressure	max Speed	Dimension							
		at 1500 rpm	at max rpm			P <sub>nom</sub>	n	A	B	C	Inlet		Outlet
	cm <sup>3</sup> /rev	l/min	l/min	bar	rpm	mm	mm		G1	G2		G1	G2
00A(C)0,25X048W1	0,25	0,3	0,8	200	3500	27,6	55,3	60,8	1/4"	1/4"		1/4"	1/8"
00A(C)0,3X048W1	0,3	0,4	0,9	200	3500	27,7	55,7	61,2					
00A(C)0,5X048W1	0,5	0,7	1,6	200	3500	28,7	57,5	63,0					
00A(C)0,75X048W1	0,75	1,0	2,3	200	3500	29,9	59,8	65,3					
00A(C)1X048W1	1	1,4	3,2	200	3500	31,0	62,0	67,5					
00A(C)1,25X048W1	1,25	1,7	3,4	200	3000	32,1	64,2	69,7					
00A(C)1,5X048W1	1,5	2,1	3,5	175	2500	33,2	66,5	72,0					
00A(C)1,75X048W1	1,75	2,4	4,1	160	2500	34,3	68,7	74,2					
00A(C)2X048W1	2	2,8	3,7	160	2000	35,5	70,9	76,4					

Rotation "A"

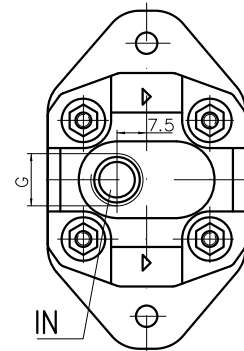
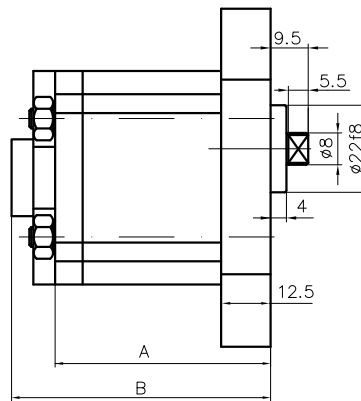
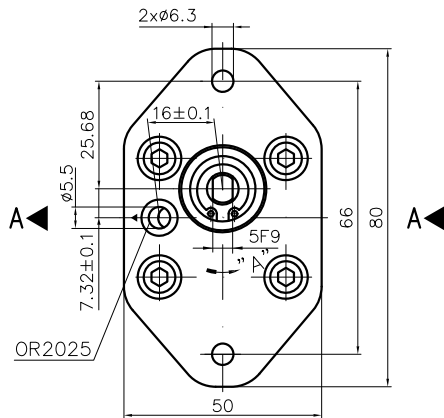


Rotation "C"

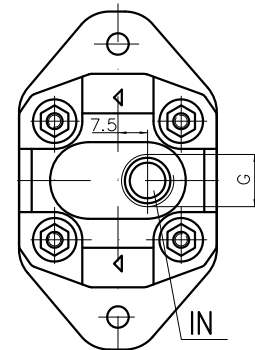
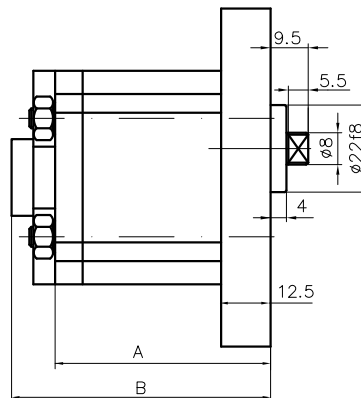
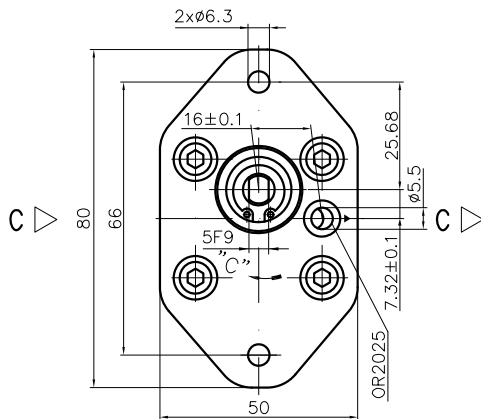


Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension						
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	C mm	Inlet G1 G1		Outlet G2 G2	
00A(C)0,25X048W2	0,25	0,3	0,8	200	3500	27,6	55,3	60,8	1/4"	1/4"	1/4"	1/4"
00A(C)0,3X048W2	0,3	0,4	0,9	200	3500	27,7	55,7	61,2				
00A(C)0,5X048W2	0,5	0,7	1,6	200	3500	28,7	57,5	63,0				
00A(C)0,75X048W2	0,75	1,0	2,3	200	3500	29,9	59,8	65,3				
00A(C)1X048W2	1	1,4	3,2	200	3500	31,0	62,0	67,5				
00A(C)1,25X048W2	1,25	1,7	3,4	200	3000	32,1	64,2	69,7				
00A(C)1,5X048W2	1,5	2,1	3,5	175	2500	33,2	66,5	72,0				
00A(C)1,75X048W2	1,75	2,4	4,1	160	2500	34,3	68,7	74,2				
00A(C)2X048W2	2	2,8	3,7	160	2000	35,5	70,9	76,4				

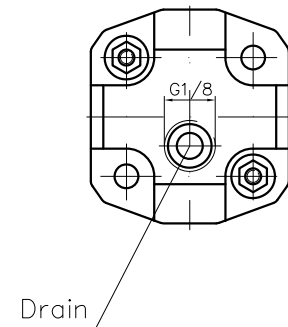
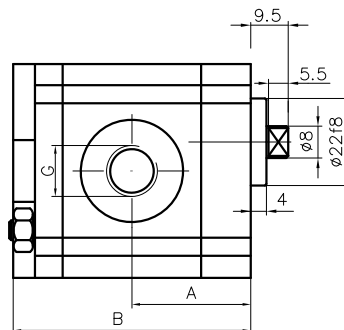
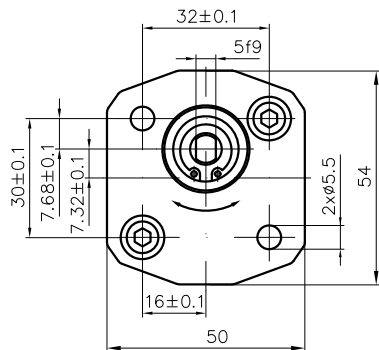
Rotation "A"



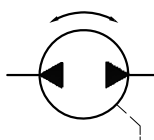
Rotation "C"



Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet		Outlet			
00A(C)0,25X049	0,25	0,3	0,8	200	3500	55,3	60,8						
00A(C)0,3X049	0,3	0,4	0,9	200	3500	55,7	61,2						
00A(C)0,5X049	0,5	0,7	1,6	200	3500	57,5	63,0						
00A(C)0,75X049	0,75	1,0	2,3	200	3500	59,8	65,3						
00A(C)1X049	1	1,4	3,2	200	3500	62,0	67,5			1/4"		Ø5,5	
00A(C)1,25X049	1,25	1,7	3,4	200	3000	64,2	69,7						
00A(C)1,5X049	1,5	2,1	3,5	175	2500	66,5	72,0						
00A(C)1,75X049	1,75	2,4	4,1	160	2500	68,7	74,2						
00A(C)2X049	2	2,8	3,7	160	2000	70,9	76,4						



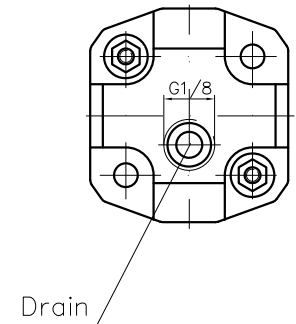
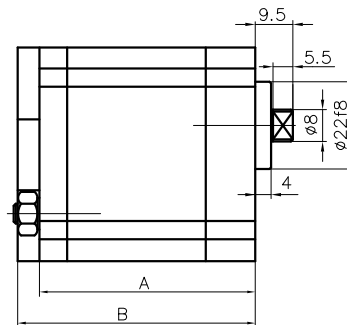
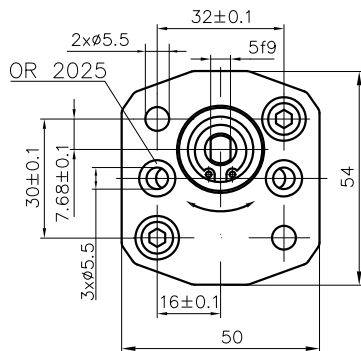
P<sub>max</sub>=170bar



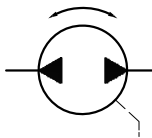
Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension								
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet			
00R0,25X051	0,25	0,3	0,8	170	3500	27,6	55,3							
00R0,3X051	0,3	0,4	0,9	170	3500	27,7	55,7							
00R0,5X051	0,5	0,7	1,6	170	3500	28,7	57,5							
00R0,75X051	0,75	1,0	2,3	170	3500	29,9	59,8							
00R1X051	1	1,4	3,2	170	3500	31,0	62,0				1/4"			1/4"
00R1,25X051	1,25	1,7	3,4	170	3000	32,1	64,2							
00R1,5X051	1,5	2,1	3,5	170	2500	33,2	66,5							
00R1,75X051	1,75	2,4	4,1	160	2500	34,3	68,7							
00R2X051	2	2,8	3,7	160	2000	35,5	70,9							





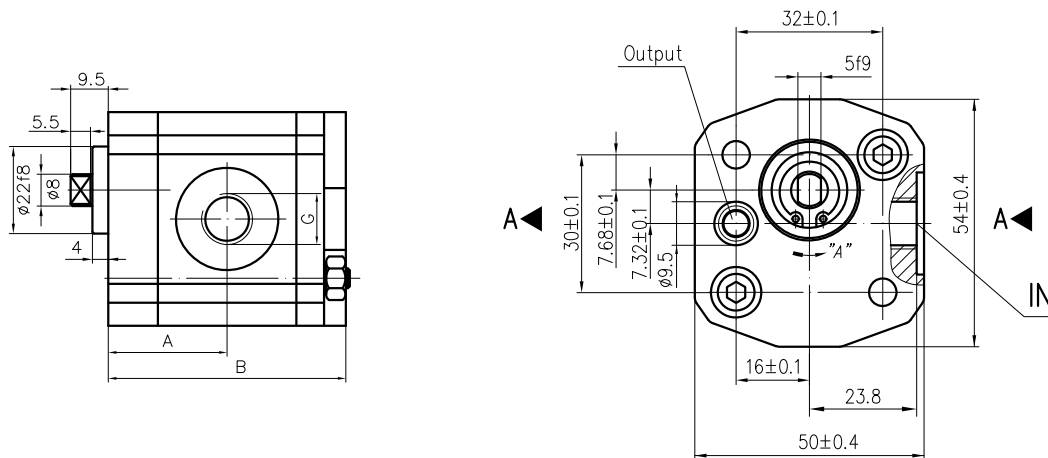


P<sub>max</sub>=170bar

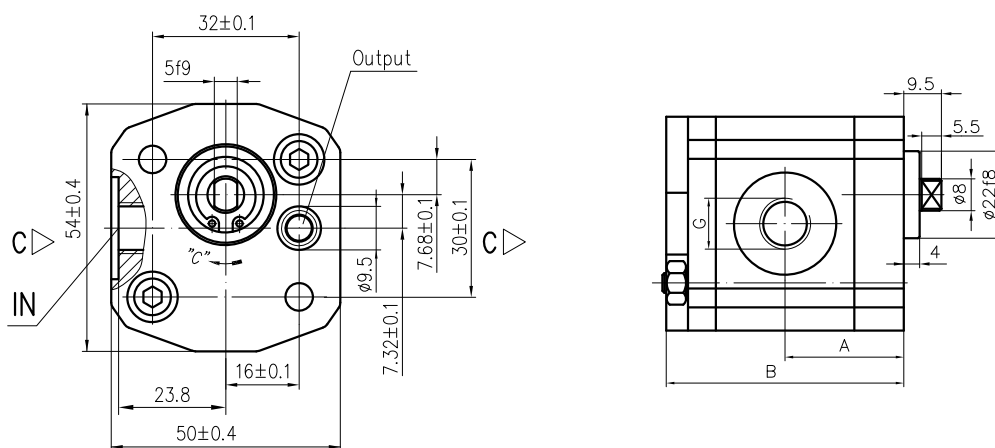


Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension								
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet			
00R0,25X060	0,25	0,3	0,8	170	3500	27,6	55,3							
00R0,3X060	0,3	0,4	0,9	170	3500	27,7	55,7							
00R0,5X060	0,5	0,7	1,6	170	3500	28,7	57,5							
00R0,75X060	0,75	1,0	2,3	170	3500	29,9	59,8							
00R1X060	1	1,4	3,2	170	3500	31,0	62,0		∅5,5				∅5,5	
00R1,25X060	1,25	1,7	3,4	170	3000	32,1	64,2							
00R1,5X060	1,5	2,1	3,5	170	2500	33,2	66,5							
00R1,75X060	1,75	2,4	4,1	160	2500	34,3	68,7							
00R2X060	2	2,8	3,7	160	2000	35,5	70,9							

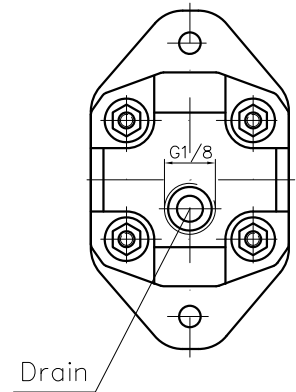
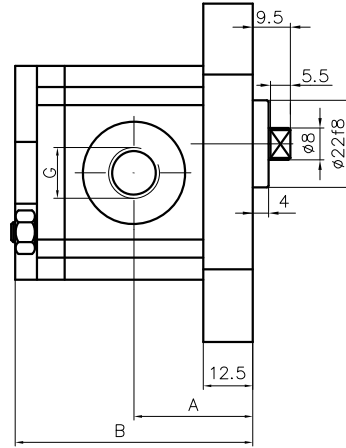
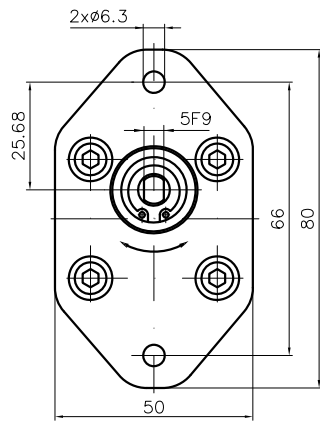
Rotation "A"



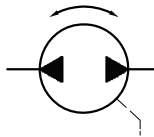
Rotation "C"



Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension						
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet	
									G			G
00A(C)0,25X063	0,25	0,3	0,8	200	3500	27,6	55,3					
00A(C)0,3X063	0,3	0,4	0,9	200	3500	27,7	55,7					
00A(C)0,5X063	0,5	0,7	1,6	200	3500	28,7	57,5					
00A(C)0,75X063	0,75	1,0	2,3	200	3500	29,9	59,8					
00A(C)1X063	1	1,4	3,2	200	3500	31,0	62,0			1/4"		Ø5,5
00A(C)1,25X063	1,25	1,7	3,4	200	3000	32,1	64,2					
00A(C)1,5X063	1,5	2,1	3,5	175	2500	33,2	66,5					
00A(C)1,75X063	1,75	2,4	4,1	160	2500	34,3	68,7					
00A(C)2X063	2	2,8	3,7	160	2000	35,5	70,9					

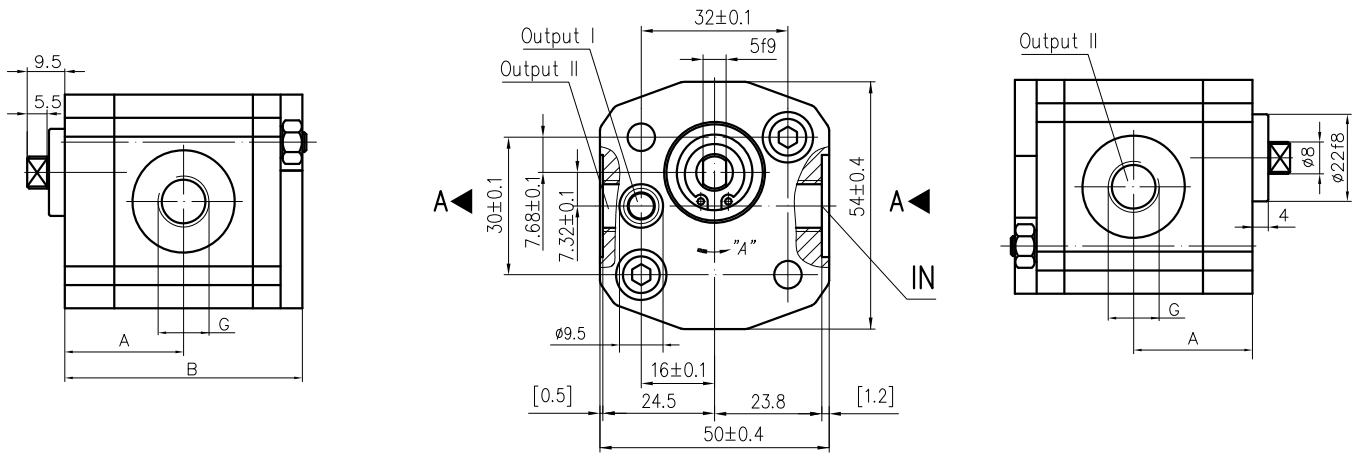


P<sub>max</sub>=170bar



Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension							
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet		Outlet			
00R0,25X064	0,25	0,3	0,8	170	3500	27,6	55,3						
00R0,3X064	0,3	0,4	0,9	170	3500	27,7	55,7						
00R0,5X064	0,5	0,7	1,6	170	3500	28,7	57,5						
00R0,75X064	0,75	1,0	2,3	170	3500	29,9	59,8						
00R1X064	1	1,4	3,2	170	3500	31,0	62,0			1/4"			1/4"
00R1,25X064	1,25	1,7	3,4	170	3000	32,1	64,2						
00R1,5X064	1,5	2,1	3,5	170	2500	33,2	66,5						
00R1,75X064	1,75	2,4	4,1	160	2500	34,3	68,7						
00R2X064	2	2,8	3,7	160	2000	35,5	70,9						

Rotation "A"



Type	Displacement cm <sup>3</sup> /rev	Flow		Pressure P <sub>nom</sub> bar	max Speed n rpm	Dimension					
		at 1500 rpm l/min	at max rpm l/min			A mm	B mm	Inlet			Outlet
									G	I	II
00A(C)0,25X065	0,25	0,3	0,8	200	3500	27,6	55,3				
00A(C)0,3X065	0,3	0,4	0,9	200	3500	27,7	55,7				
00A(C)0,5X065	0,5	0,7	1,6	200	3500	28,7	57,5				
00A(C)0,75X065	0,75	1,0	2,3	200	3500	29,9	59,8				
00A(C)1X065	1	1,4	3,2	200	3500	31,0	62,0				
00A(C)1,25X065	1,25	1,7	3,4	200	3000	32,1	64,2				
00A(C)1,5X065	1,5	2,1	3,5	175	2500	33,2	66,5				
00A(C)1,75X065	1,75	2,4	4,1	160	2500	34,3	68,7				
00A(C)2X065	2	2,8	3,7	160	2000	35,5	70,9				