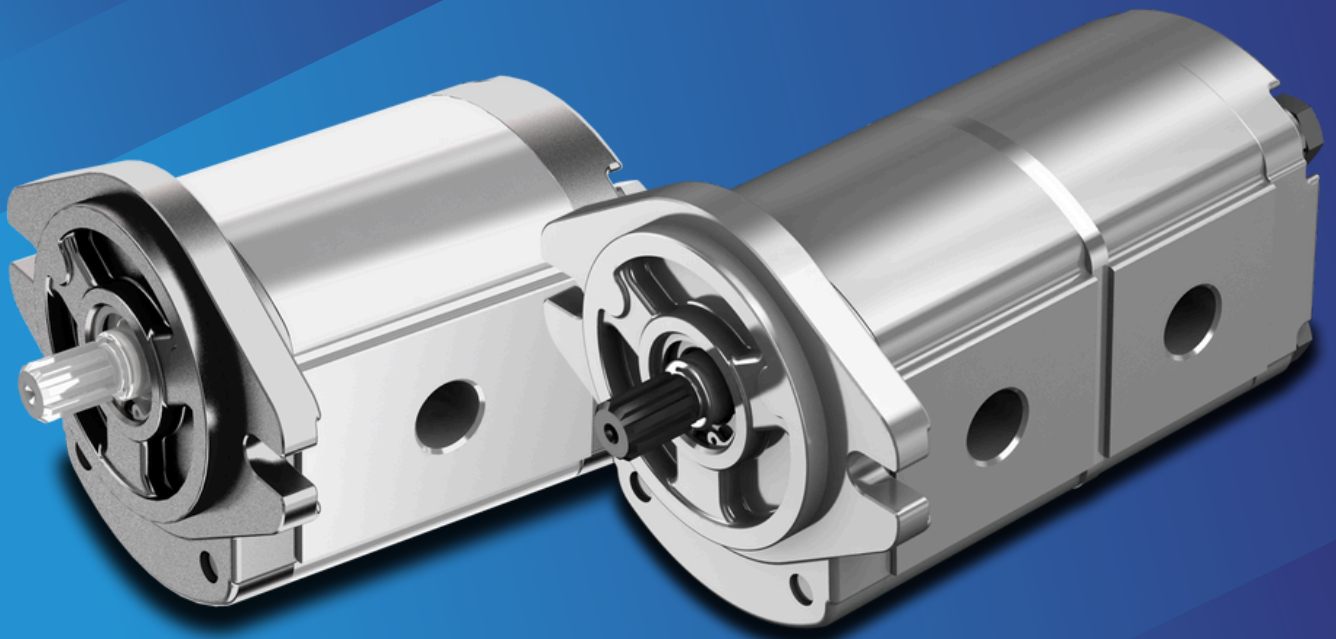
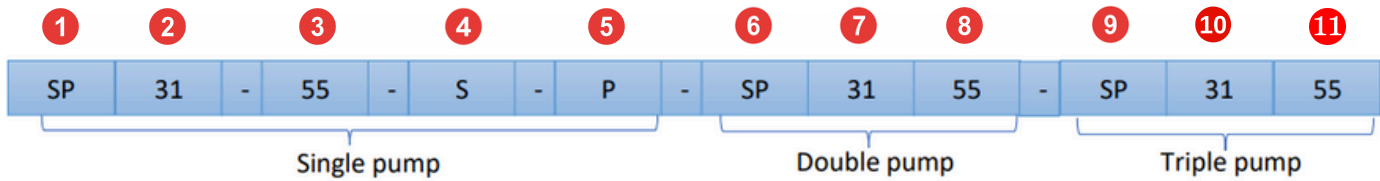


AIVIO
HYDRAULICS



HYDRAULIC GEAR
PUMP & MOTOR
"SP SERIES"

AIVIO SP Series Aluminum Gear Pump



Single pump

- 1 Aluminium Gear pump max pressure 250 bar
- 2 Group [1 , 2 , 3]
- 3 displacement (cc/rev)
 - Group 1 : [1.4 / 2.1 / 2.8 / 3.5 / 4.1 / 5.2 / 6.2 / 7.6 / 9.3 / 11 / 13.8]
 - Group 2 : [4 / 6 / 8 / 10 / 12 / 14 / 16 / 18 / 20 / 22 / 25 / 28]
 - Group 3 : [20 / 22 / 26 / 33 / 39 / 46 / 52 / 55 / 63 / 71]
- 4 Rotation [R = Clockwise, L = Anti-clockwise]
- 5 Pump shaft [S = spline shaft, P = Key shaft]



Double pump

- 6 Aluminium Gear pump max pressure 250 bar
- 7 Group [1 , 2 , 3]
- 8 displacement (cc/rev) of second pump
 - Group 1 : [1.4 / 2.1 / 2.8 / 3.5 / 4.1 / 5.2 / 6.2 / 7.6 / 9.3 / 11 / 13.8]
 - Group 2 : [4 / 6 / 8 / 10 / 12 / 14 / 16 / 18 / 20 / 22 / 25 / 28]
 - Group 3 : [20 / 22 / 26 / 33 / 39 / 46 / 52 / 55 / 63 / 71]

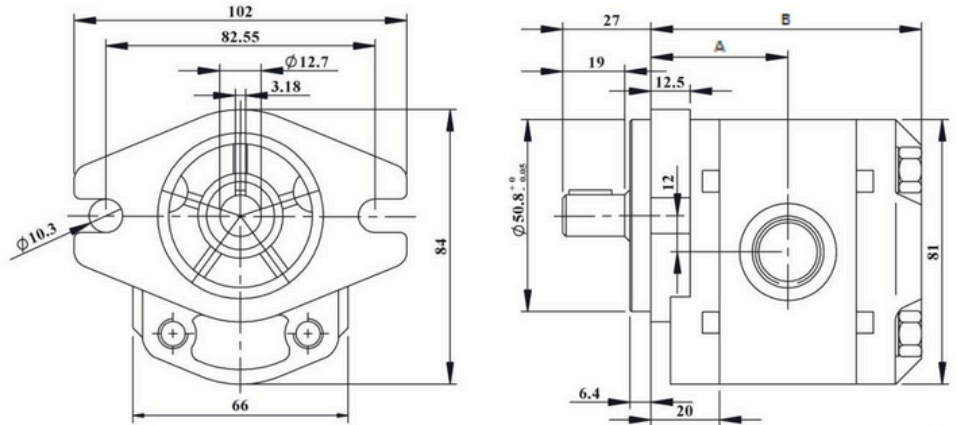
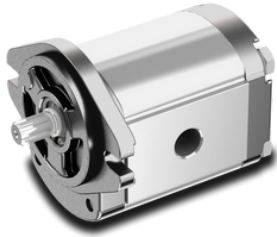


Triple pump

- 9 Aluminium Gear pump max pressure 250 bar
- 10 Group [1 , 2 , 3]
- 11 displacement (cc/rev) of third pump
 - Group 1 : [1.4 / 2.1 / 2.8 / 3.5 / 4.1 / 5.2 / 6.2 / 7.6 / 9.3 / 11 / 13.8]
 - Group 2 : [4 / 6 / 8 / 10 / 12 / 14 / 16 / 18 / 20 / 22 / 25 / 28]
 - Group 3 : [20 / 22 / 26 / 33 / 39 / 46 / 52 / 55 / 63 / 71]



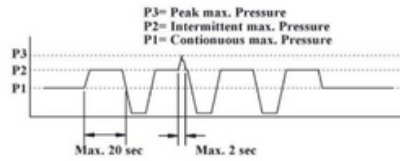
SP11 Aluminum Gear Pump



**SAE AA 2 bolts
Mounting**

FILTER RECOMMENDATION:

It is widely known that most pumps early failures are due to contaminated fluids. As a warranty cannot be issued for dirt related wear, we recommend a filter to be used, which can reduce the degree of contamination to a permissible dimension in terms of the size and concentration of dirt particles. The filtering system shall always ensure contamination levels not exceeding the values indicated below:



INLET AND DELIVERY LINES	
Intake line	0.5~1.6 m/s
Delivery line	2~6 m/s
Return line	1.6~3 m/s

Recommended fluid viscosity	10~100 cst
Recommended suction pressure	0.7~3 bar Absolute
Max. drive shaft torque	185 Nm
Pump cover tightening torque	70 Nm

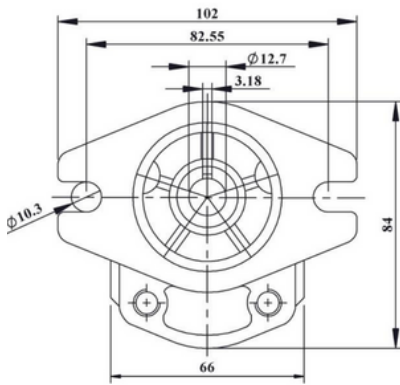
Working temperature	From -15 °C to +80 °C
Oil temperature	From -15 °C to +80 °C
NBR Seal (N)	From -10 °C to +80 °C
Viton Seal (V)	From -10 °C to +120 °C

Pressure	<140 bar	140~210 bar	>210 bar
NAS 1638 Class	10	9	8
ISO 4406 Class	19/16	18/15	17/14
Ratio x=75	25~40 m	12~15 m	6~12 m

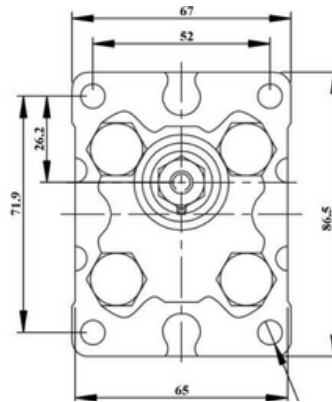
General Information and Specification

cc/rev	Max pressure			N Namx (rpm)	N min (rpm)	Inlet (BSPP)	Outlet (BSPP)	Dimension (mm.)		Wt. (kg.) approx.
	P1	P2	P3					A	B	
1.4	240	250	265	3500	800	1/2"	3/8"	42	82	0.92
2.1	240	250	265	3500	800	1/2"	3/8"	43	84	1.05
2.8	240	250	265	3500	800	1/2"	3/8"	44	86	1.22
3.5	240	250	265	3500	800	1/2"	3/8"	45	88	1.36
4.1	240	250	265	3000	800	1/2"	1/2"	46	90	1.52
5.2	220	230	245	2800	800	1/2"	1/2"	48	93	1.72
6.2	220	230	245	2500	800	1/2"	1/2"	49	96	1.90
7.6	190	200	215	2200	800	3/4"	1/2"	51	99	2.10
9.3	170	180	195	2000	600	3/4"	1/2"	52	103	2.20
11	160	170	185	1800	600	3/4"	1/2"	53	105	2.40
13.8	130	140	155	1500	600	3/4"	1/2"	55	108	2.50

FRONT END COVER

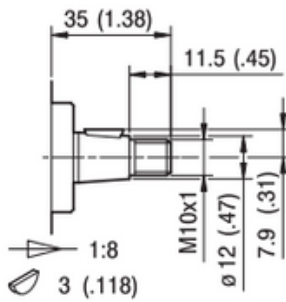


SAE AA 2 BOLT

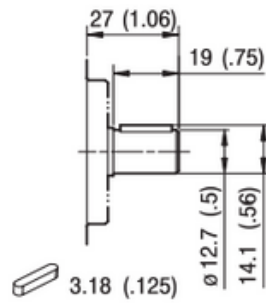


EUROPEAN

DRIVE SHAFT

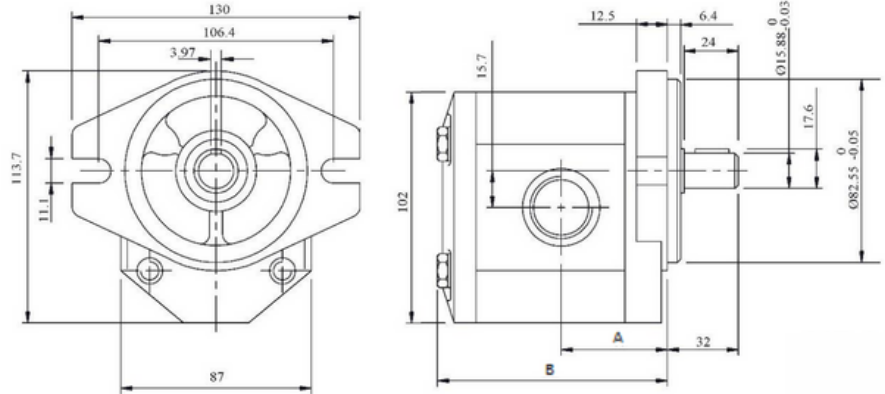


TAPER 1:8



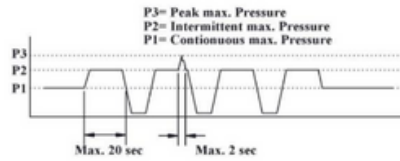
KEY 12.7 MM.

SP21 Aluminum Gear Pump



FILTER RECOMMENDATION:

It is widely known that most pumps early failures are due to contaminated fluids. As a warranty cannot be issued for dirt related war, we recommend a filter to be used, which can reduce the degree of contamination to a permissible dimension in terms of the size and concentration of dirt particles. The filtering system shall always ensure contamination levels not exceeding the values indicated below:



INLET AND DELIVERY LINES	
Intake line	0.5~1.6 m/s
Delivery line	2~6 m/s
Return line	1.6~3 m/s

Recommended fluid viscosity	10~100 cst
Recommended suction pressure	0.7~3 bar Absolute
Max. drive shaft torque	185 Nm
Pump cover tightening torque	70 Nm

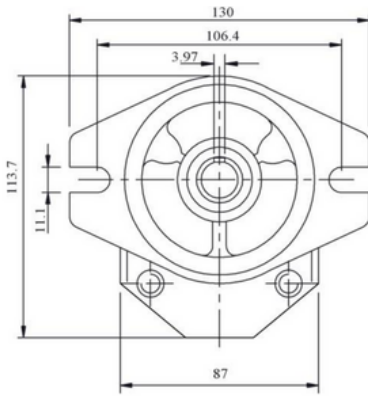
Working temperature	From -15 °C to +80 °C
Oil temperature	From -15 °C to +80 °C
NBR Seal (N)	From -10 °C to +80 °C
Viton Seal (V)	From -10 °C to +120 °C

Pressure	<140 bar	140~210 bar	>210 bar
NAS 1638 Class	10	9	8
ISO 4406 Class	19/16	18/15	17/14
Ratio x=75	25~40 m	12~15 m	6~12 m

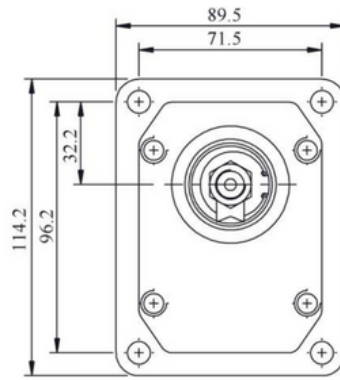
General Information and Specification

cc/rev	Max pressure			N Namx (rpm)	N min (rpm)	Inlet (BSPP)	Outlet (BSPP)	Dimension (mm.)		Wt. (kg.) approx.
	P1	P2	P3					A	B	
4.0	260	270	285	4000	600	1/2"	1/2"	43.60	91.10	3.60
6.0	260	270	285	4000	600	1/2"	1/2"	46.00	96.00	3.70
8.0	260	270	285	3500	500	1/2"	1/2"	47.70	99.30	3.80
10.0	260	270	285	3000	500	3/4"	1/2"	49.30	102.60	3.90
12.0	260	270	285	3000	500	3/4"	1/2"	51.00	105.90	4.00
14.0	240	250	265	3000	500	3/4"	1/2"	52.70	109.30	4.10
16.0	240	250	265	3000	500	3/4"	1/2"	54.40	112.70	4.30
18.0	230	240	255	2500	500	3/4"	1/2"	56.00	116.00	4.40
20.0	210	220	235	2500	500	3/4"	1/2"	57.70	119.30	4.50
22.0	190	200	215	2500	500	3/4"	1/2"	59.30	122.60	4.60
25.0	190	200	215	2000	500	3/4"	1/2"	61.80	127.60	4.70
28.0	160	170	185	2000	500	1"	3/4"	63.30	132.60	4.80

FRONT END COVER

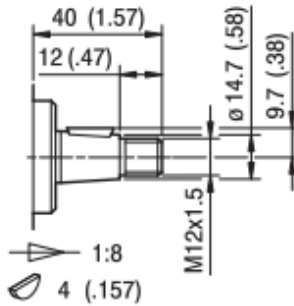


SAE A 2 BOLT

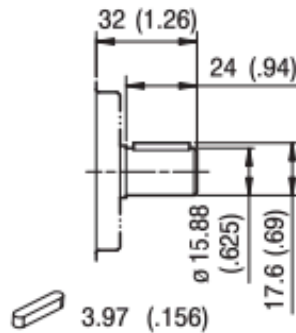


EUROPEAN

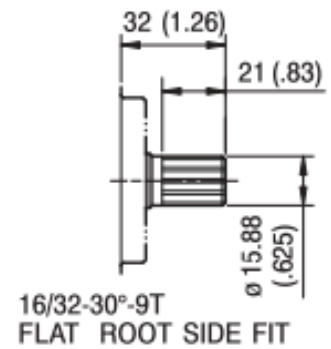
DRIVE SHAFT



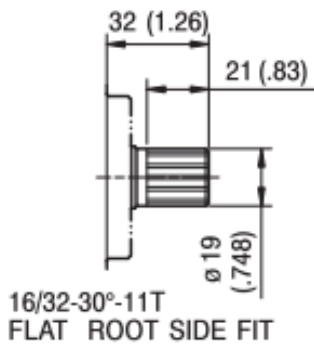
TAPER 1:8



KEY 15.88 MM.

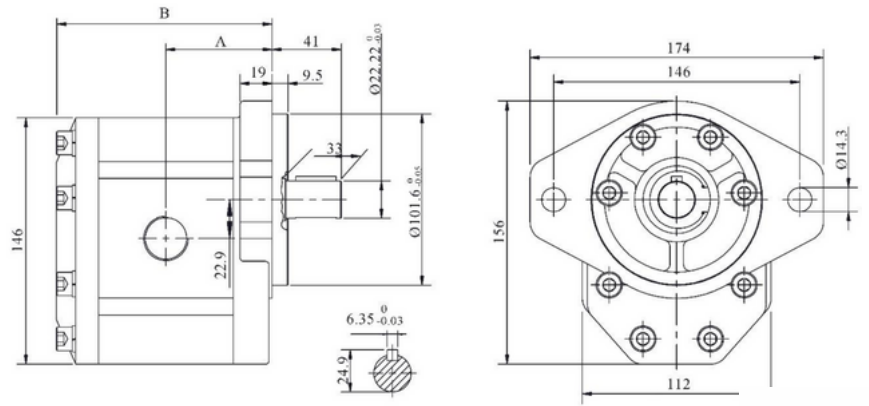


SPLINE 9T



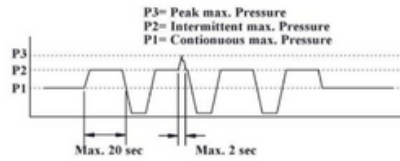
SPLINE 11 T

SP31 Aluminum Gear Pump



FILTER RECOMMENDATION:

It is widely known that most pumps early failures are due to contaminated fluids. As a warranty cannot be issued for dirt related wear, we recommend a filter to be used, which can reduce the degree of contamination to a permissible dimension in terms of the size and concentration of dirt particles. The filtering system shall always ensure contamination levels not exceeding the values indicated below:



INLET AND DELIVERY LINES	
Intake line	0.5~1.6 m/s
Delivery line	2~6 m/s
Return line	1.6~3 m/s

Recommended fluid viscosity	10~100 cst
Recommended suction pressure	0.7~3 bar Absolute
Max. drive shaft torque	185 Nm
Pump cover tightening torque	70 Nm

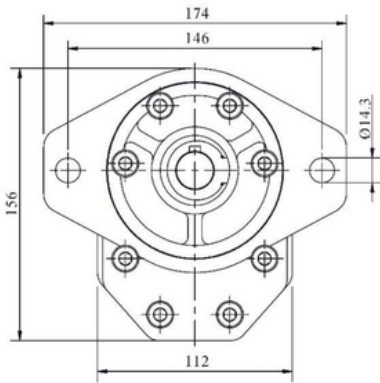
Working temperature	From -15 °C to +80 °C
Oil temperature	From -15 °C to +80 °C
NBR Seal (N)	From -10 °C to +80 °C
Viton Seal (V)	From -10 °C to +120 °C

Pressure	<140 bar	140~210 bar	>210 bar
NAS 1638 Class	10	9	8
ISO 4406 Class	19/16	18/15	17/14
Ratio x=75	25~40 m	12~15 m	6~12 m

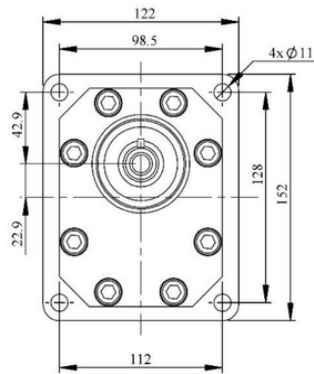
General Information and Specification

cc/rev	Max pressure			N Namx (rpm)	N min (rpm)	Inlet (BSPP)	Outlet (BSPP)	Dimension (mm.)		Wt. (kg.) approx.
	P1	P2	P3					A	B	
20.0	250	265	280	3500	600	1"	3/4"	63	128	8.70
22.0	250	265	280	3500	600	1"	3/4"	64	130	8.70
26.0	250	265	280	3000	600	1"	3/4"	65	133	9.10
33.0	230	250	270	3000	500	1"	3/4"	68	139	9.40
39.0	230	250	270	3000	500	1"	3/4"	72	146	9.70
46.0	230	250	270	3000	500	1-1/4"	1"	75	152	9.80
52.0	220	240	260	3000	500	1-1/4"	1"	78	158	10.30
55.0	200	230	250	2800	400	1-1/4"	1"	79	160	10.60
63.0	200	230	250	2800	400	1-1/4"	1"	83	168	10.90
71.0	180	200	220	2500	400	1-1/2"	1-1/4"	86	175	11.00

FRONT END COVER

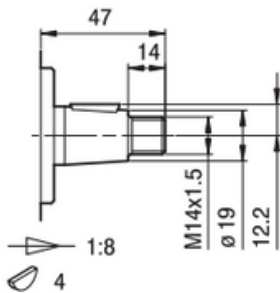


SAE A 2 BOLT

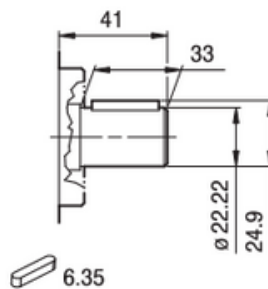


EUROPEAN

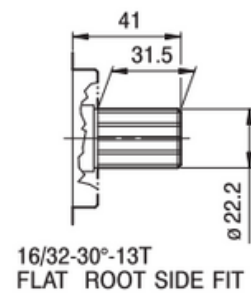
DRIVE SHAFT



TAPER 1:8



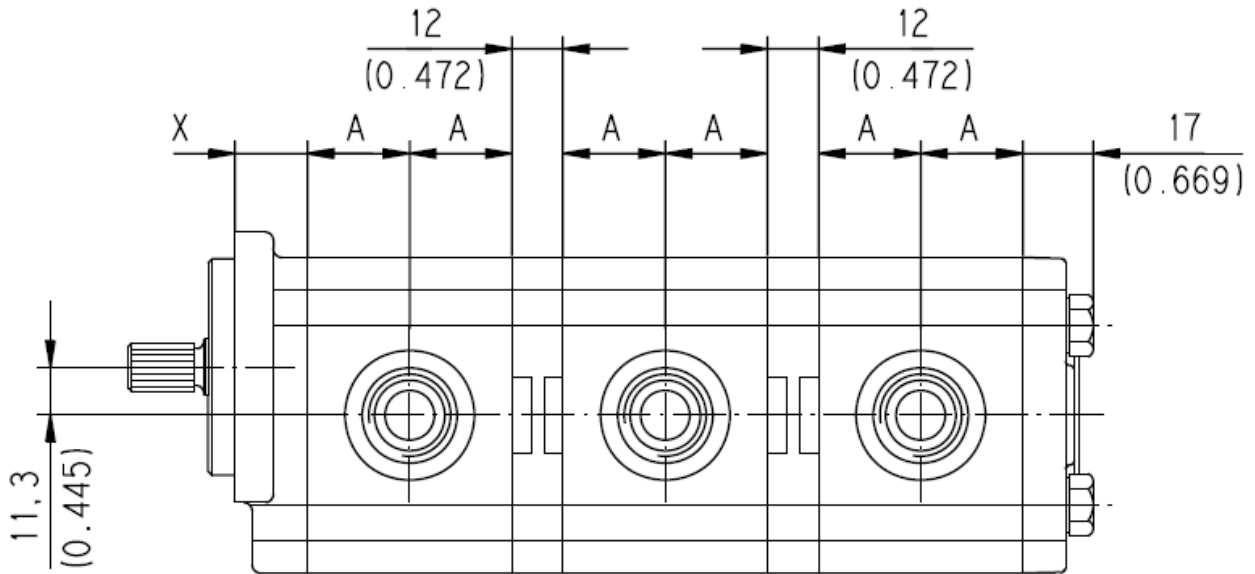
KEY 22.22 MM.



SPLINE 13T

DIMENSION

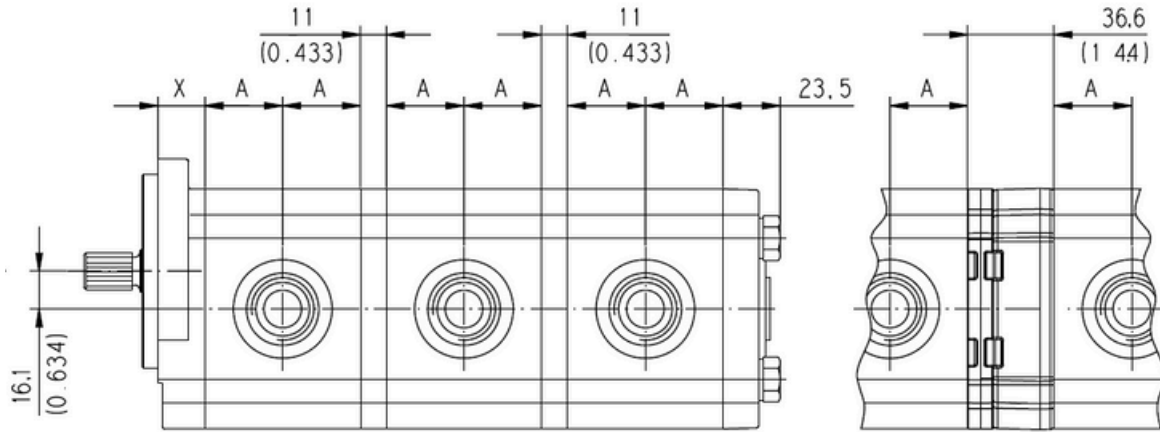
SP11 / SP11



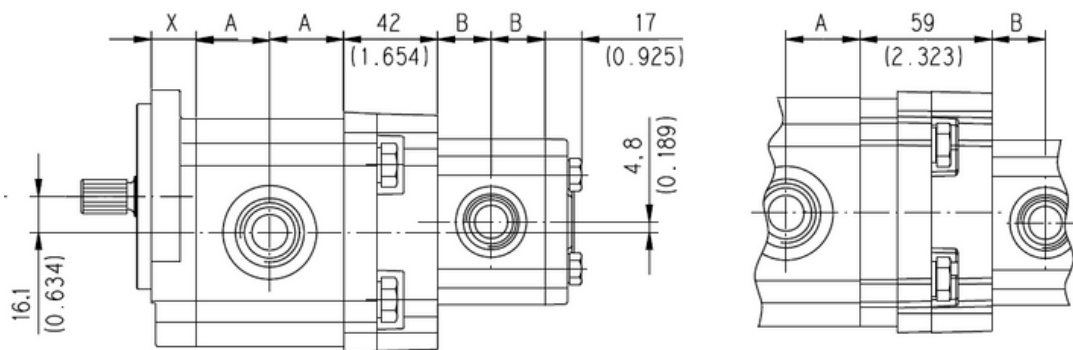
SP11 (cc/rev)	A (mm.)
1.4	22
2.1	23
2.8	24
3.5	25
4.1	26
5.2	28
6.2	29
7.6	31
9.3	32
11	33
13.8	35

DIMENSION

SP21 / SP21



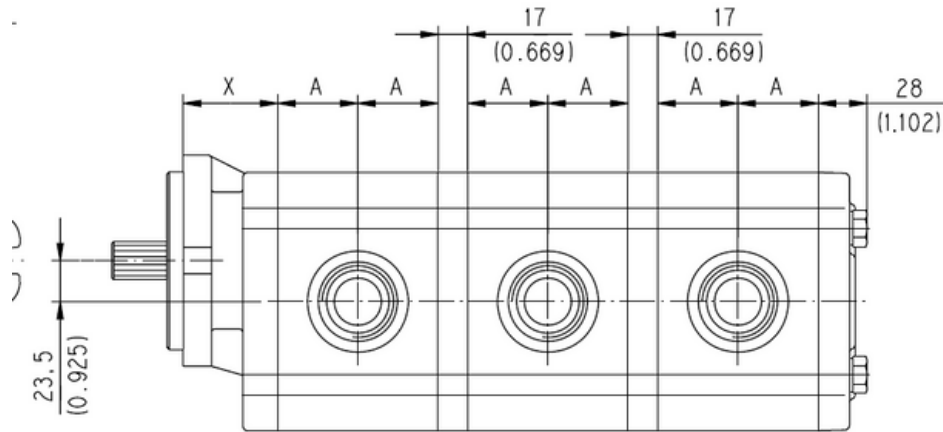
SP21 / SP11



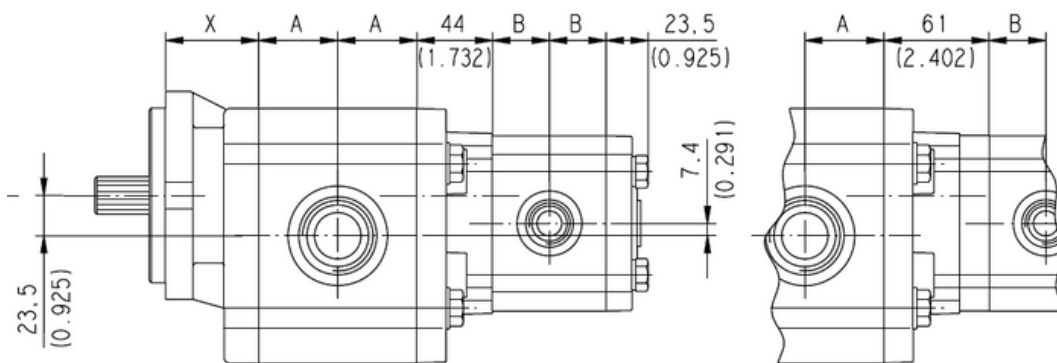
SP21 (cc/rev)	A (mm.)	SP11 (cc/rev)	A (mm.)
4.0	25.4	1.4	22
6.0	27.1	2.1	23
8.0	28.7	2.8	24
10.0	30.4	3.5	25
12.0	32.1	4.1	26
14.0	33.9	5.2	28
16.0	35.4	6.2	29
18.0	37.1	7.6	31
20.0	38.8	9.3	32
22.0	40.4	11	33
25.0	43.0	13.8	35
28.0	45.4		

DIMENSION

SP31 / SP31

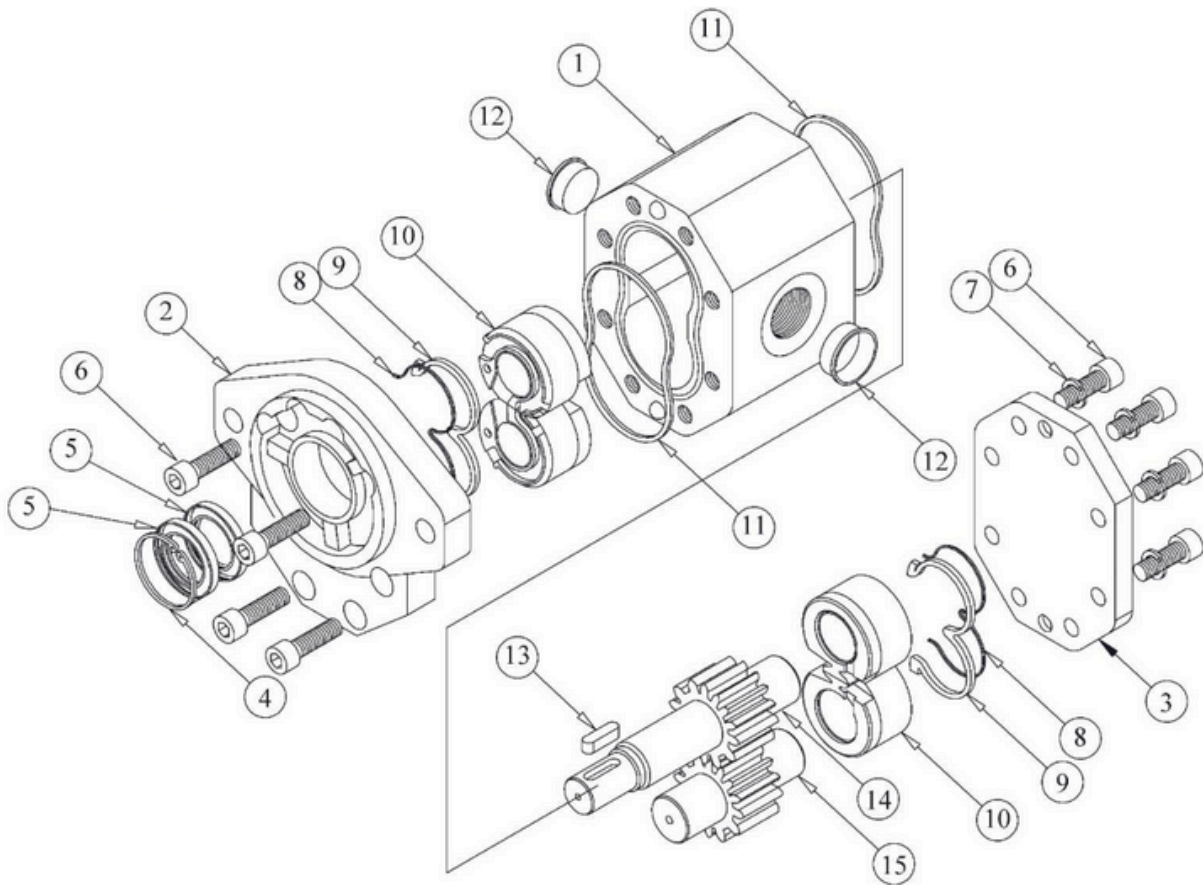


SP31 / SP21

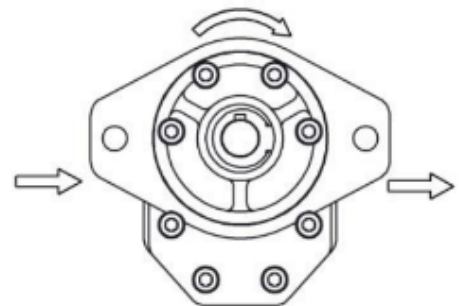


SP31 (cc/rev)	A (mm.)	SP21 (cc/rev)	A (mm.)
20.0	40.6	4.0	25.35
22.0	41.6	6.0	27.05
26.0	43.1	8.0	28.65
33.0	46.1	10.0	30.4
39.0	49.6	12.0	32.05
46.0	52.6	14.0	33.85
52.0	55.7	16.0	35.4
55.0	56.6	18.0	37.05
63.0	60.5	20.0	38.75
71.0	64.0	22.0	40.4
		25.0	43.0
		28.0	45.35

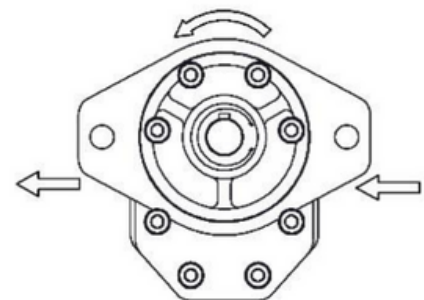
SPARE PART SP SERIES



Item	Description
1	Gear Housing
2	Front Cover
3	End Cover
4	Snap Ring
5	Shaft Seal
6	Bolt
7	Spring Washer
8	Back Up Seal
9	Pump Seal
10	Trust Plate
11	Gasket
12	Cap
13	Key
14	Drive Gear Shaft
15	Driven Gear Shaft



Clockwise



Anti-Clockwise

The logo for AIVIO HYDRAULICS. The word "AIVIO" is written in a large, bold, red, sans-serif font with a white outline. Below it, the word "HYDRAULICS" is written in a smaller, black, all-caps, sans-serif font.

AIVIO

HYDRAULICS

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