



VINCKE
HYDRAULICS
PUMPS

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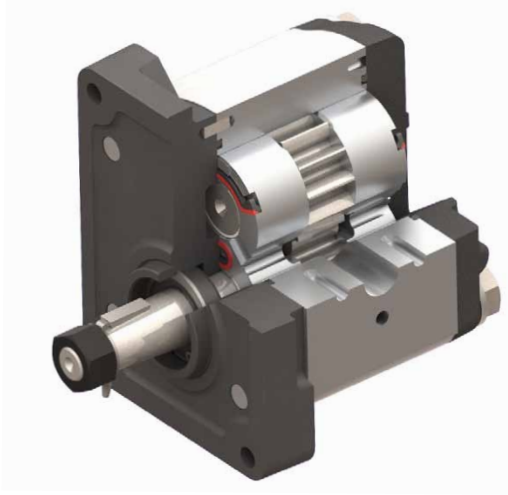
Gear pumps

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Variable displacement pumps 21

Hand pumps

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Introduction

Gear pumps from Vincke have a floating bushing feature with automatic axial clearance compensation. The bushings are made with special abrasion resistant material providing improved service life. Precisely machined gears ensure our units provide excellent low noise characteristics. Our cold extrusion motor bodies can endure pressures above 30Mpa. High strength cast iron front & rear covers also enhance our reliability. Our units are widely used in the industrial, mobile, marine and aerospace industries.

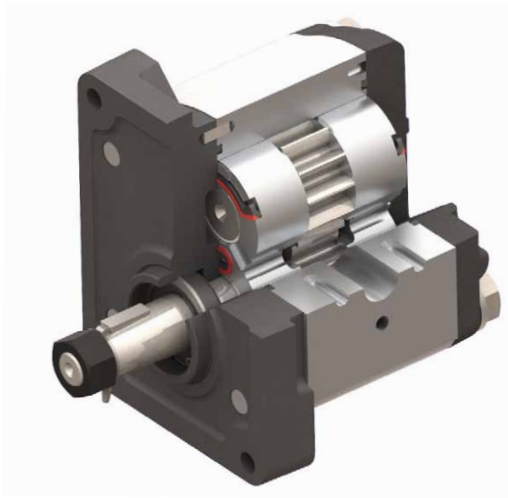
Characteristics

Vincke gear pumps are produced in 5 different versions (G0, G1, 2P, 2.5P, 3P), and in each group different displacements are obtained by changing the gears width.

- Pressure: VINCKE offers one pressure rating, please refer to charts.
- Efficiencies: volumetric up to 98%, mechanical up to 93%.
- Mountings: flanges, shaft ends and ports.
- Seals: Viton seals available.
- Integrate: all pumps can be ordered with relief valve and check valve.

Peak:	up to 30Mpa	máx. 3 sec.
Intermittent:	up to 28Mpa	máx.25 sec.
Rated:	up to 25Mpa	

The initial contamination of the fluid must not exceed class 10 NAS 1638,pass experience has shown that even brand new fluid often exceed this value in this case it is recommended below: 60 µm inlet ,and in the return side:



Hydraulic Fluid

Avoid sharp restrictions and small radius bends.

- Place safety relief valve set at correct pressure and with good dynamic characteristic.
- Recommended fluid speed in the inlet line—1.6□5ft/s(0.5□1.5m/s).
- Recommended fluid speed in the delivery line—6.5□20ft/s(2□6m/s).
- Recommended fluid speed in the return line—5□10ft/s(1.5□3m/s).
- Reservoir should have a capacity about twice as much as the volume of delivered by the pump in one minute.
- The return and inlet pipe must be separated as far as possible and under the minimum level of the oil.
- Install pump in a well cleaned environment, and make sure, prior starting the system that all pipes and reservoir are perfectly clean it is recommended to filter the new oil at 8-10um, before filling the reservoir.
- Fill the pump with fluid before installing and check the direction of rotation.
- For the first run of the pump it is advisable to disconnection the pump discharge in order to purge the air from the system.

By far largest number of premature failures of gear pumps is due to contamination; filtering with clogging indicating and alarms is recommended.

The initial contamination of the fluid must not exceed class 10 NAS 1638,pass experience has shown that even brand new fluid often exceed this value in this case it is recommended below: 60 μm inlet ,and in the return side:

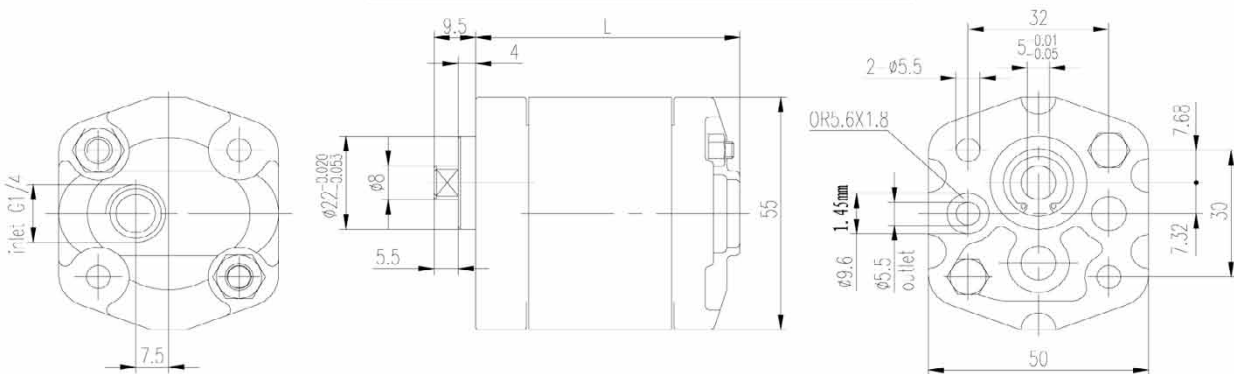
Standard	P<2000PSI(14MPa)	2000PSI(14MPa)<P<3050PSI(21MPa)	P>3050PSI(21MPa)
NAS1638	10	9	8
ISO4406	19/16	18/15	17/14
FILTER	25μm	20μm	10μm



Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	Inlet (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-0-0.16-01-B-38-OR-A	0.16	25	28	2000	6000	800	58.2	G1/4
VNK-0-0.25-01-B-38-OR-A	0.25	25	28	2000	6000	800	59	
VNK-0-0.38-01-B-38-OR-A	0.38	25	28	2000	6000	800	60.3	
VNK-0-0.50-01-B-38-OR-A	0.5	25	28	2000	6000	800	61	
VNK-0-0.75-01-B-38-OR-A	0.75	25	28	2000	6000	800	63.5	
VNK-0-1-01-01-B-38-OR-A	1,00	25	28	2000	6000	800	66	
VNK-0-1.25-01-B-38-OR-A	1.25	25	28	2000	5000	800	68.5	
VNK-0-1.5-01-B-38-OR-A	1.5	25	28	2000	4500	800	70	
VNK-0-1.75-01-B-38-OR-A	1.75	25	28	2000	4000	800	73	
VNK-0-2-01-B-38-OR-A	2	16	20	2000	3500	800	75.5	

Rotation: A Left C Right

Dimensions:

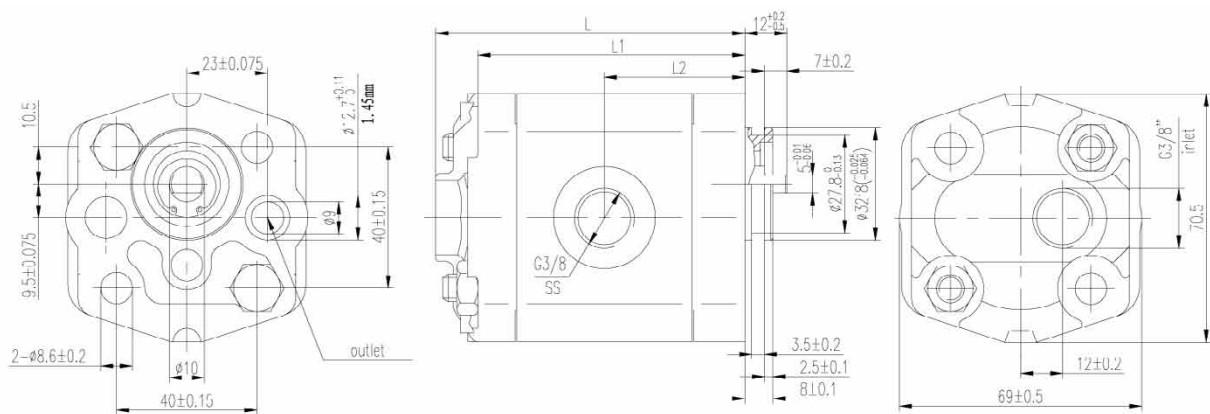




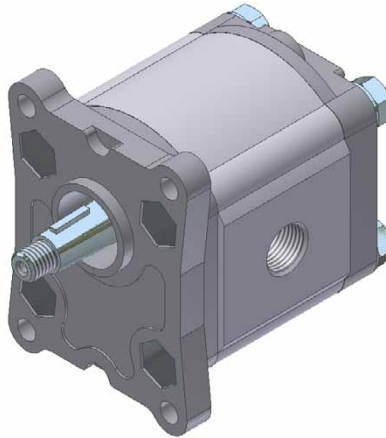
Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	Inlet (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-1-0.8-02-B-38-OR-A	0.8	25	28	2000	3500	600	32	G3/8
VNK-1-1.1-02-B-38-OR-A	1.1	25	28	2000	3500	600	33	
VNK-1-1.3-02-B-38-OR-A	1.3	25	28	2000	3500	600	33.5	
VNK-1-1.6-02-B-38-OR-A	1.6	25	28	2000	3500	600	34	
VNK-1-1.8-02-B-38-OR-A	1.8	25	28	2000	3500	600	34.5	
VNK-1-2.1-02-B-38-OR-A	2.1	25	28	2000	3500	600	35	
VNK-1-2.7-02-B-38-OR-A	2.7	25	28	2000	3500	600	36	
VNK-1-3.2-02-B-38-OR-A	3.2	25	28	2000	3500	600	37	
VNK-1-3.7-02-B-38-OR-A	3.7	25	28	2000	3500	600	38	
VNK-1-4.2-02-B-38-OR-A	4.2	25	28	2000	3500	600	39	
VNK-1-4.8-02-B-38-OR-A	4.8	23	25	2000	3500	600	40	
VNK-1-5.8-02-B-38-OR-A	5.8	23	25	2000	3500	600	42	
VNK-1-8.0-02-B-38-OR-A	8	21	23	2000	3500	600	46	
VNK-1-9.2-02-B-38-OR-A	9,2	18	20	2000	3500	600	48	

Rotation: A Left C Right

Dimensions:



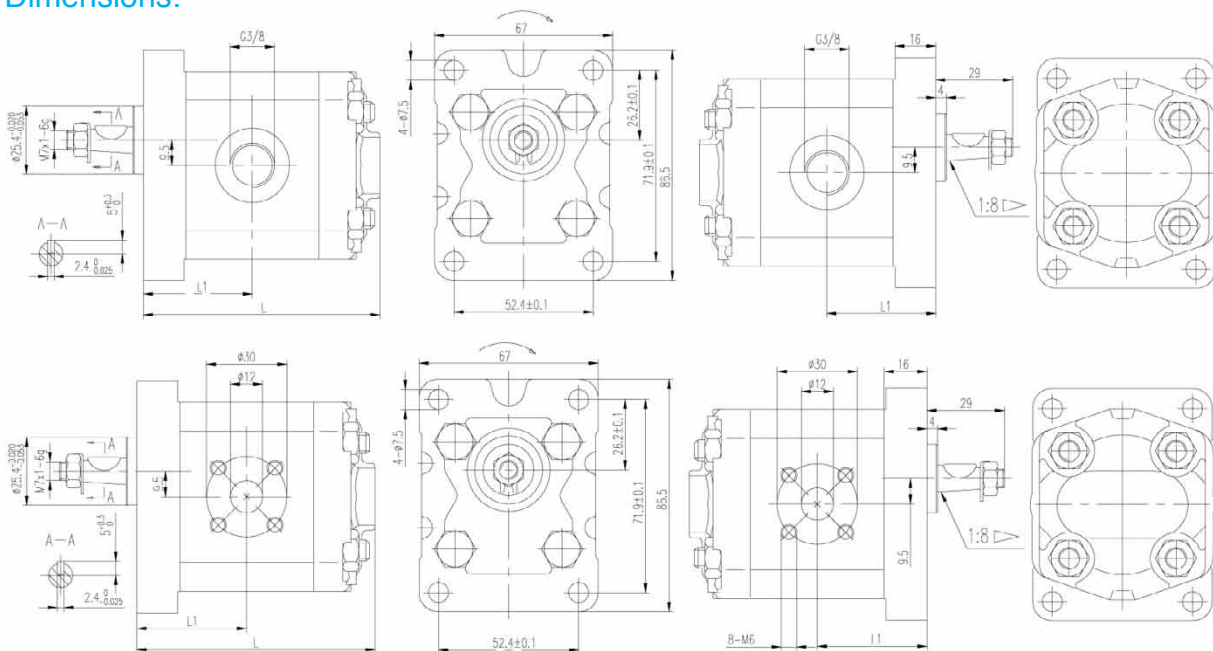
European flange



Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	L1 (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-1-0.8-*1-**-C	0.8	25	28	2000	3500	600	74	32,5
VNK-1-1.1-*1-**-C	1.1	25	28	2000	3500	600	75	33
VNK-1-1.3-*1-**-C	1.3	25	28	2000	3500	600	76	34
VNK-1-1.6-*1-**-C	1.6	25	28	2000	3500	600	78	35
VNK-1-1.8-*1-**-C	1.8	25	28	2000	3500	600	78,5	35.5
VNK-1-2.1-*1-**-C	2.1	25	28	2000	3500	600	79	36
VNK-1-2.7-*1-**-C	2.7	25	28	2000	3500	600	81	37
VNK-1-3.2-*1-**-C	3.2	25	28	2000	3500	600	83	38
VNK-1-3.7-*1-**-C	3.7	25	28	2000	3500	600	85	39
VNK-1-4.2-*1-**-C	4.2	25	28	2000	3500	600	85	40
VNK-1-4.8-*1-**-C	4.8	23	25	2000	3500	600	87	41
VNK-1-5.8-*1-**-C	5.8	23	25	2000	3500	600	89	43
VNK-1-8.0-*1-**-C	8	21	23	2000	3500	600	93	47
VNK-1-9.2-*1-**-C	9,2	18	20	2000	3500	600	101	49

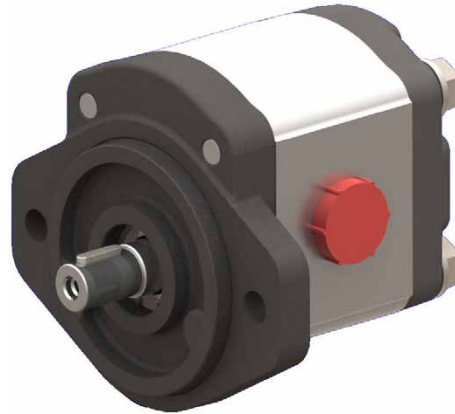
Rotation: A Left C Right

Dimensions:



Flange type 1

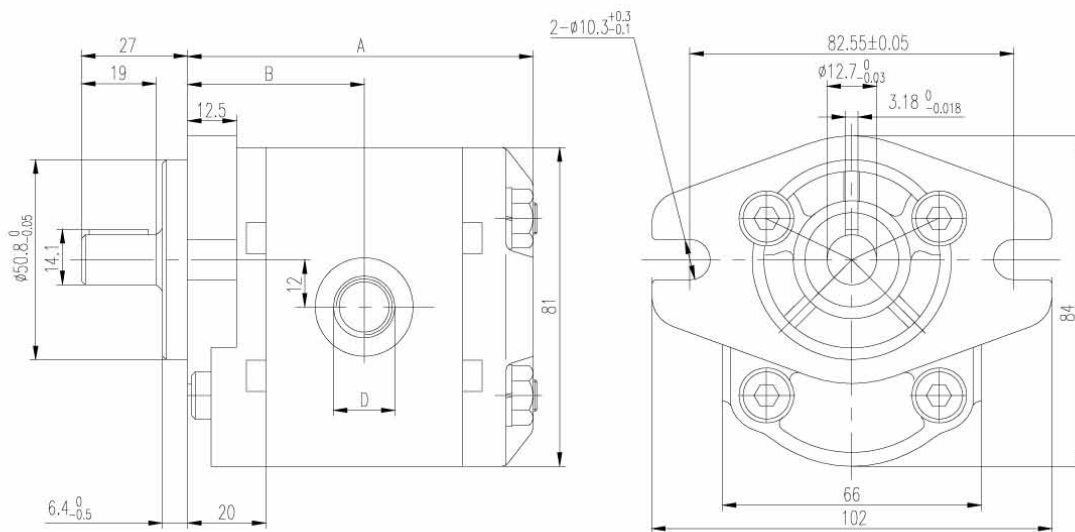
SAE A flange



Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	L1 (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-1-1.1-*4-*-*C	1.1	25	28	2000	3500	600	75	33
VNK-1-1.3-*4-*-*C	1.3	25	28	2000	3500	600	76	34
VNK-1-1.6-*4-*-*C	1.6	25	28	2000	3500	600	78	35
VNK-1-1.8-*4-*-*C	1.8	25	28	2000	3500	600	78,5	35.5
VNK-1-2.1-*4-*-*C	2.1	25	28	2000	3500	600	79	36
VNK-1-2.7-*4-*-*C	2.7	25	28	2000	3500	600	81	37
VNK-1-3.2-*4-*-*C	3.2	25	28	2000	3500	600	83	38
VNK-1-3.7-*4-*-*C	3.7	25	28	2000	3500	600	85	39
VNK-1-4.2-*4-*-*C	4.2	25	28	2000	3500	600	85	40
VNK-1-4.8-*4-*-*C	4.8	23	25	2000	3500	600	87	41
VNK-1-5.8-*4-*-*C	5.8	23	25	2000	3500	600	89	43
VNK-1-8.0-*4-*-*C	8	21	23	2000	3500	600	93	47
VNK-1-8.0-*1-*-*C	8	21	23	2000	3500	600	93	47

Rotation: A Left C Right

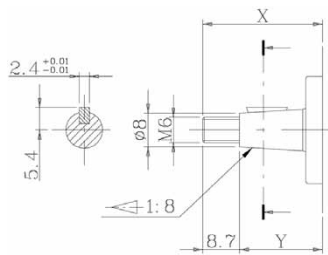
Dimensions:



Flange type 4

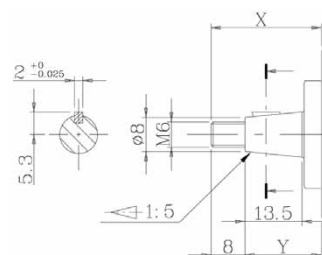
Shaft

Type 1



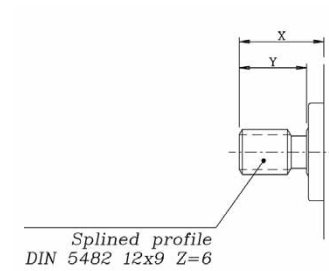
Flange type	X	Y
European	29	20

Type 4



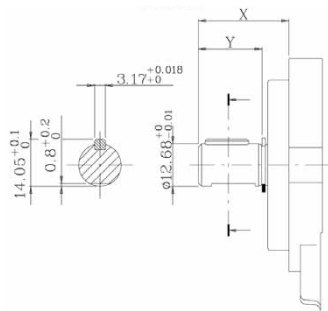
Flange type	X	Y
European	26	18

Type 5



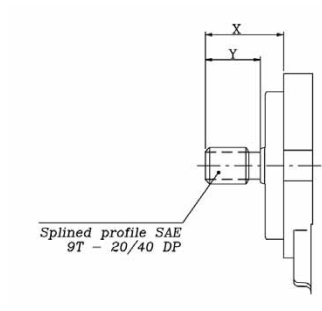
Flange type	X	Y
European	24	16

Type 6



Flange type	X	Y
SAE A	27	19

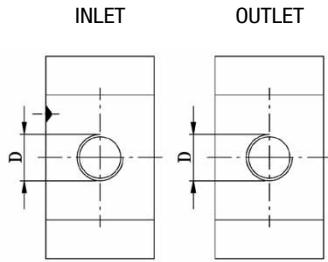
Type 7



Flange type	X	Y
SAE A	27	19

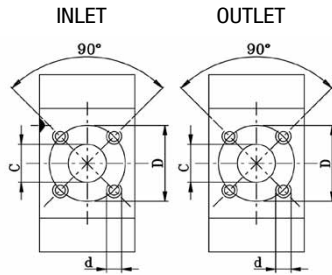
PORTS INLET/OUTLET

Shape G



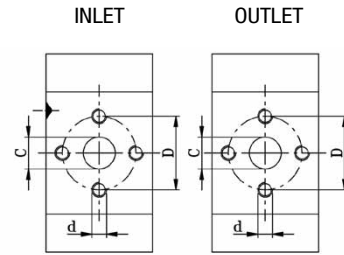
Type	threads
38	G3/8

Shape C



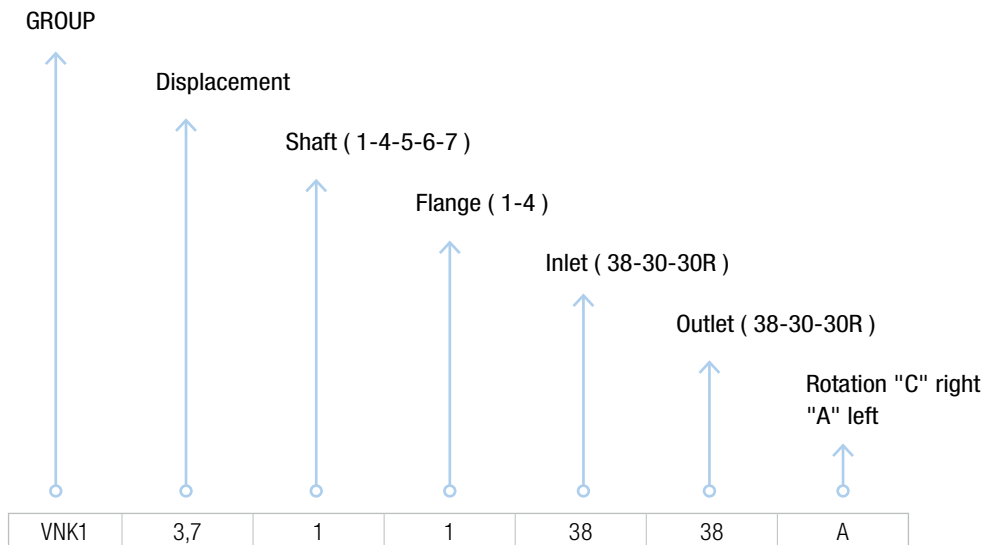
Type	Flange
30	Ø30 M6

Shape R

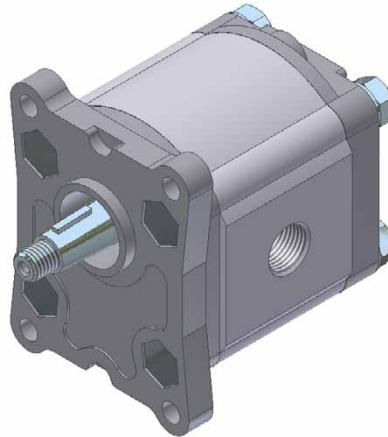


Type	Flange
30R	Ø30 M6

Ordering code



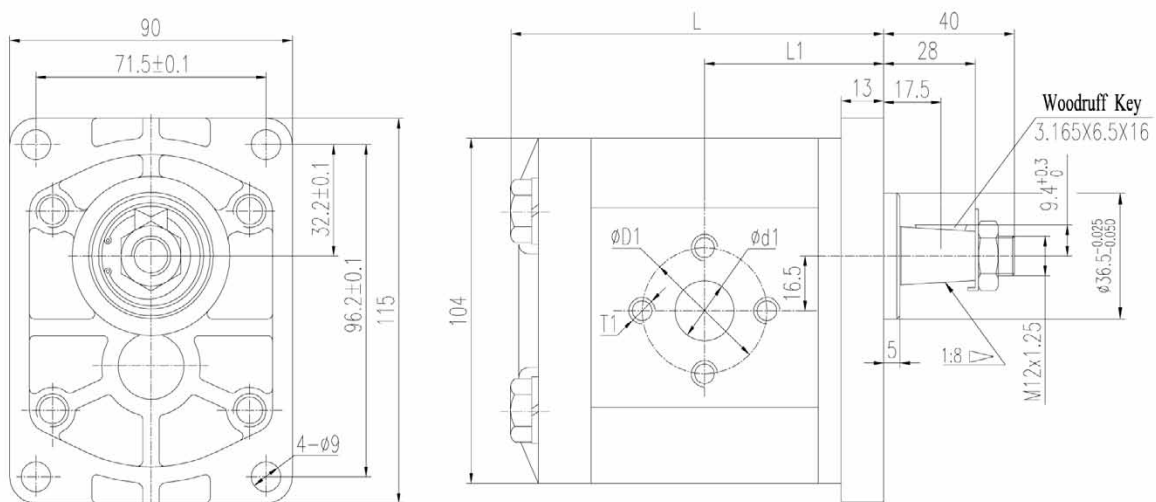
European flange



Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	L1 (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-2-4-*3-*-*C	4	25	28	2000	3500	500	95.5	43.3
VNK-2-6-*3-*-*C	6	25	28	2000	3500	500	99	45
VNK-2-8-*3-*-*C	8	25	28	2000	3500	500	102	46.5
VNK-2-10-*3-*-*C	10	25	28	2000	3500	500	105	48
VNK-2-12-*3-*-*C	12	25	28	2000	3500	500	108	49.5
VNK-2-14-*3-*-*C	14	25	28	2000	3500	500	111	51
VNK-2-16-*3-*-*C	16	25	28	2000	3500	500	114	52.5
VNK-2-18-*3-*-*C	18	25	28	2000	3500	500	117.5	54.3
VNK-2-20-*3-*-*C	20	25	28	2000	3500	500	121	56
VNK-2-23-*3-*-*C	23	20	25	2000	3500	500	125.5	58.3
VNK-2-25-*3-*-*C	25	20	25	2000	3500	500	128	59.5
VNK-2-28-*3-*-*C	28	16	20	2000	3500	500	133	62
VNK-2-30-*3-*-*C	30	16	20	2000	3500	500	136	63.5

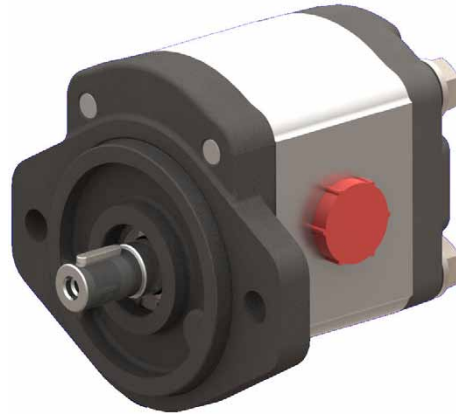
Rotation: A Left C Right

Dimensions:



Flange type 3

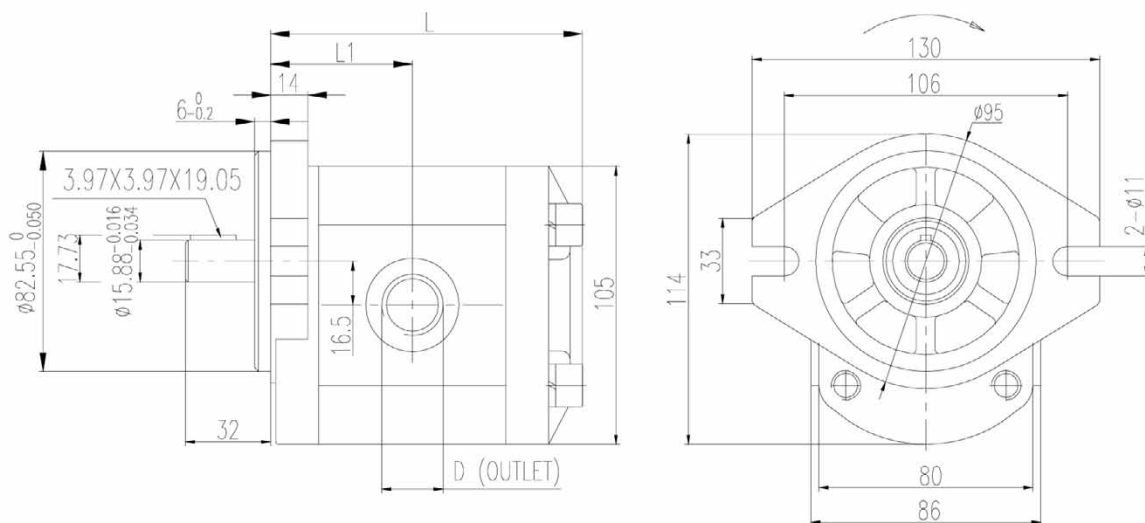
SAE A flange



Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	L1 (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-2-4-*2-*-*C	4	25	28	2000	3500	500	93	43.3
VNK-2-6-*2-*-*C	6	25	28	2000	3500	500	98	45
VNK-2-8-*2-*-*C	8	25	28	2000	3500	500	102	46.5
VNK-2-10-*2-*-*C	10	25	28	2000	3500	500	104	48
VNK-2-12-*2-*-*C	12	25	28	2000	3500	500	108	50
VNK-2-14-*2-*-*C	14	25	28	2000	3500	500	110	51
VNK-2-16-*2-*-*C	16	25	28	2000	3500	500	114	53
VNK-2-18-*2-*-*C	18	25	28	2000	3500	500	117	55
VNK-2-20-*2-*-*C	20	25	28	2000	3500	500	120	56
VNK-2-23-*2-*-*C	23	20	25	2000	3500	500	123	58
VNK-2-25-*2-*-*C	25	20	25	2000	3500	500	128	60
VNK-2-28-*2-*-*C	28	16	20	2000	3500	500	133	63
VNK-2-30-*2-*-*C	30	16	20	2000	3500	500	136	64

Rotation: A Left C Right

Dimensions:



Flange type 2

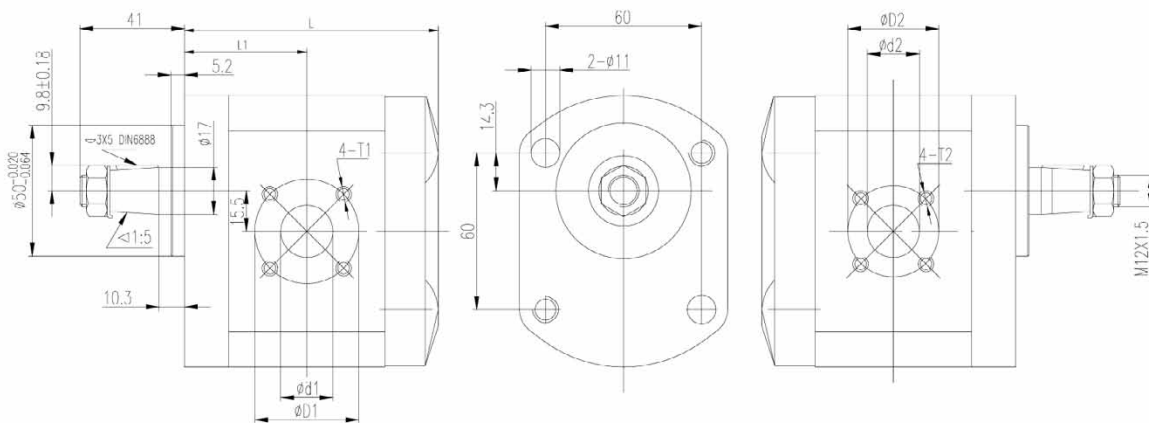
F50C Flange



Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	L1 (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-2-4-*-4-*-C	4	25	28	2000	3500	500	95.5	43.3
VNK-2-6-*-4-*-C	6	25	28	2000	3500	500	99	45
VNK-2-8-*-4-*-C	8	25	28	2000	3500	500	102	46.5
VNK-2-10-*-4-*-C	10	25	28	2000	3500	500	105	48
VNK-2-12-*-4-*-C	12	25	28	2000	3500	500	108	49.5
VNK-2-14-*-4-*-C	14	25	28	2000	3500	500	111	51
VNK-2-16-*-4-*-C	16	25	28	2000	3500	500	114	52.5
VNK-2-18-*-4-*-C	18	25	28	2000	3500	500	117.5	54.3
VNK-2-20-*-4-*-C	20	25	28	2000	3500	500	121	56
VNK-2-23-*-4-*-C	23	20	25	2000	3500	500	125.5	58.3
VNK-2-25-*-4-*-C	25	20	25	2000	3500	500	128	59.5
VNK-2-28-*-4-*-C	28	16	20	2000	3500	500	133	62
VNK-2-30-*-4-*-C	30	16	20	2000	3500	500	136	63.5

Rotation: A Left C Right

Dimensions:



Flange type 4

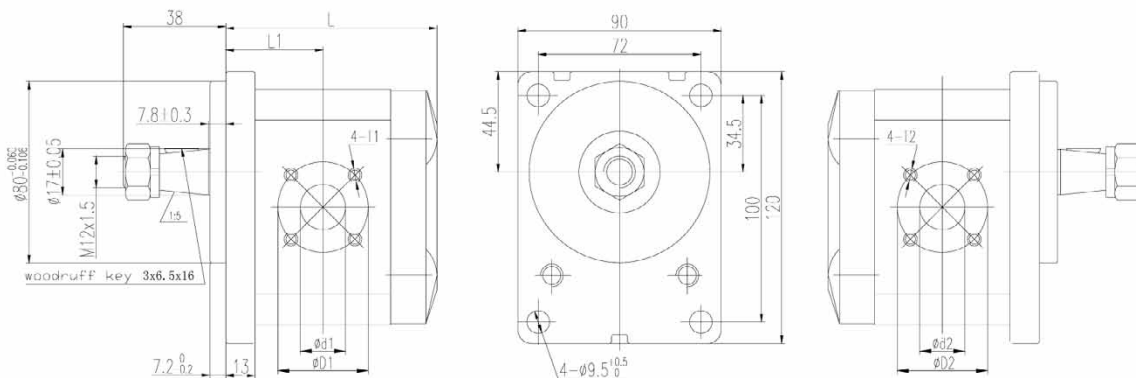
F80C Flange



Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	L1 (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-2-4-*-6-*-*-C	4	25	28	2000	3500	500	95.5	43.3
VNK-2-6-*-6-*-*-C	6	25	28	2000	3500	500	99	45
VNK-2-8-*-6-*-*-C	8	25	28	2000	3500	500	102	46.5
VNK-2-10-*-6-*-*-C	10	25	28	2000	3500	500	105	48
VNK-2-12-*-6-*-*-C	12	25	28	2000	3500	500	108	49.5
VNK-2-14-*-6-*-*-C	14	25	28	2000	3500	500	111	51
VNK-2-16-*-6-*-*-C	16	25	28	2000	3500	500	114	52.5
VNK-2-18-*-6-*-*-C	18	25	28	2000	3500	500	117.5	54.3
VNK-2-20-*-6-*-*-C	20	25	28	2000	3500	500	121	56
VNK-2-23-*-6-*-*-C	23	20	25	2000	3500	500	125.5	58.3
VNK-2-25-*-6-*-*-C	25	20	25	2000	3500	500	128	59,5
VNK-2-28-*-6-*-*-C	28	16	20	2000	3500	500	133	62
VNK-2-30-*-6-*-*-C	30	16	20	2000	3500	500	136	63.5

Rotation: A Left C Right

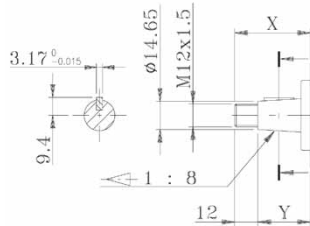
Dimensions:



Flange type 6

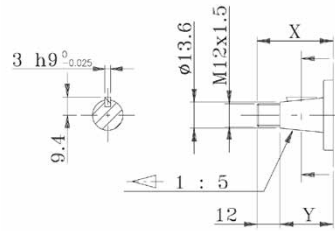
Shaft

Type 3



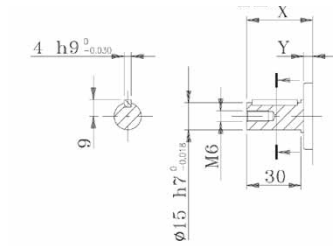
Flange type	X	Y
European	39.5	27.5

Type 8



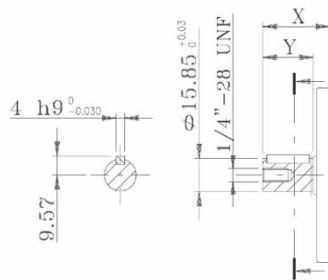
Flange type	X	Y
F50C	41	27.5
F80C	38	26

Type 9



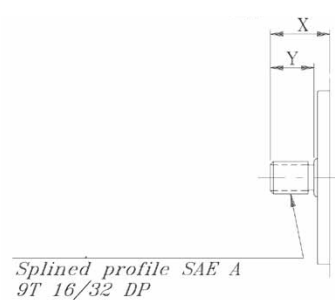
Flange type	X	Y
European	36.5	7
F50C	36,5	7
F80C	37	7.2

Type 10



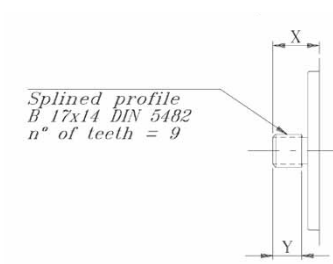
Flange type	X	Y
SAE A	32	24

Type 11



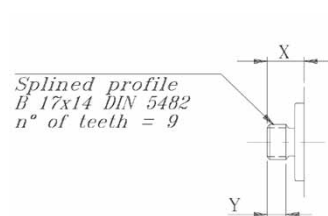
Flange type	X	Y
SAE A	31.5	23

Type 12



Flange type	X	Y
F50C	25.5	16
F80C	35.5	16

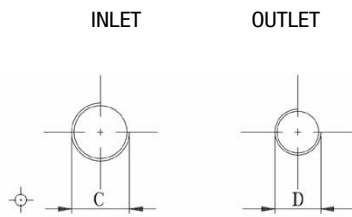
Type 13



Flange type	X	Y
European	19.5	10

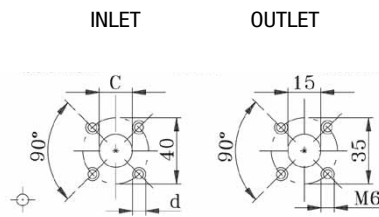
PORTS INLET/OUTLET

Shape G



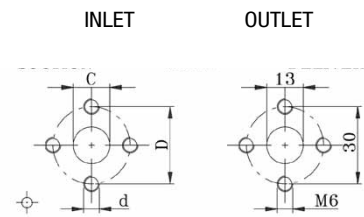
Type	threads
38	G3/8
12	G1/2
34	G3/4
10	G1"

Shape R



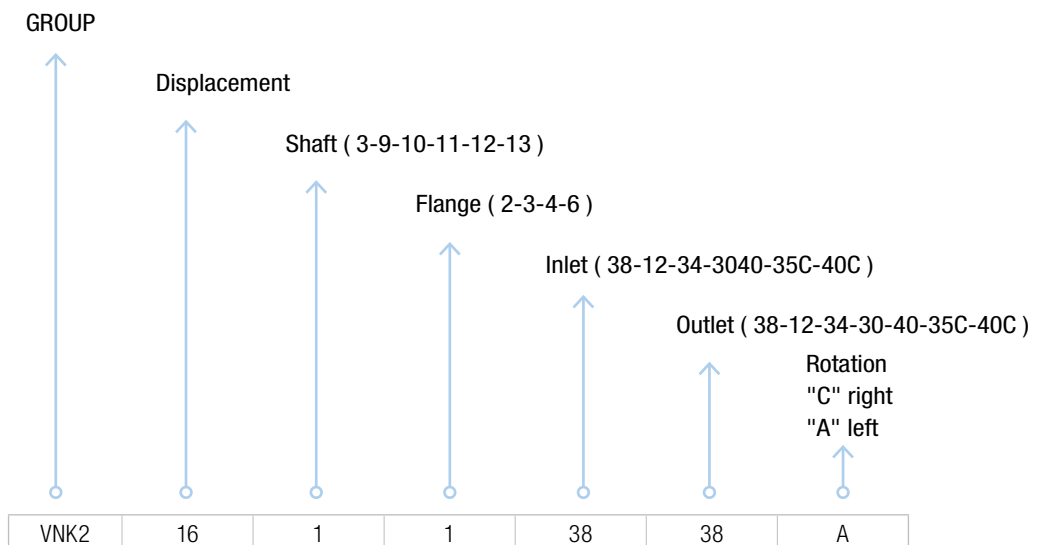
Type	Flange
30	Ø30 M6
40	Ø40 M8

Shape N

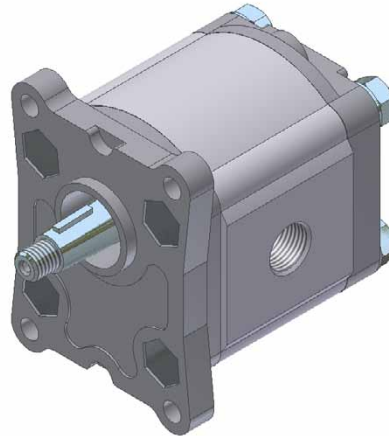


Type	Flange
35C	Ø30 M6
40C	Ø40 M6

Ordering code



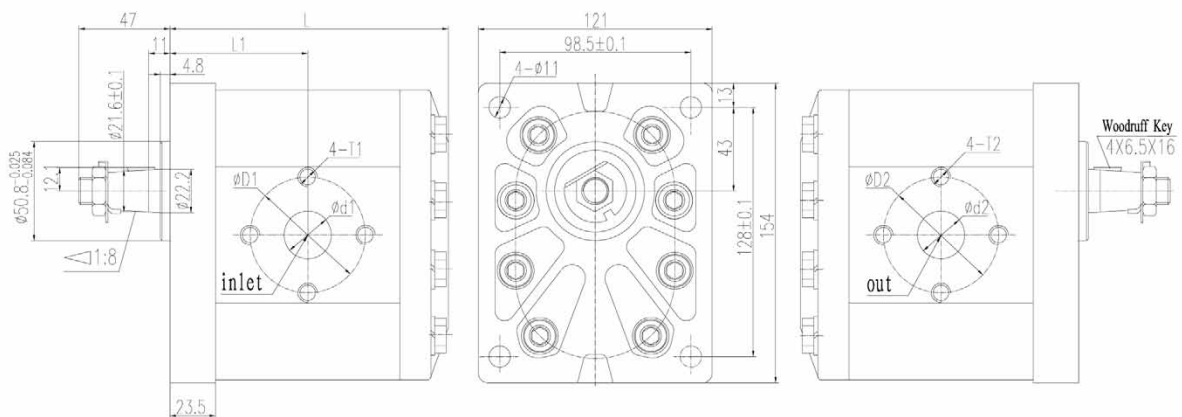
European flange



Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	L1 (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-3-22-*-5-*-C	22	25	30	2000	3000	400	128.5	65.5
VNK-3-26-*-5-*-C	26	25	30	2000	3000	400	131.5	67
VNK-3-34-*-5-*-C	34	25	30	2000	3000	400	137	69.8
VNK-3-39-*-5-*-C	39	25	30	2000	3000	400	141	71.8
VNK-3-43-*-5-*-C	43	25	30	2000	2800	400	143.5	73
VNK-3-51-*-5-*-C	51	25	30	2000	2800	400	149.5	76
VNK-3-60-*-5-*-C	60	20	25	1500	2800	400	156	79.3
VNK-3-70-*-5-*-C	70	20	23	1500	2500	400	163	82.8
VNK-3-78-*-5-*-C	78	20	23	1500	2300	400	169.2	85.2
VNK-3-89-*-5-*-C	89	18	20	1500	2000	400	174.2	88.2

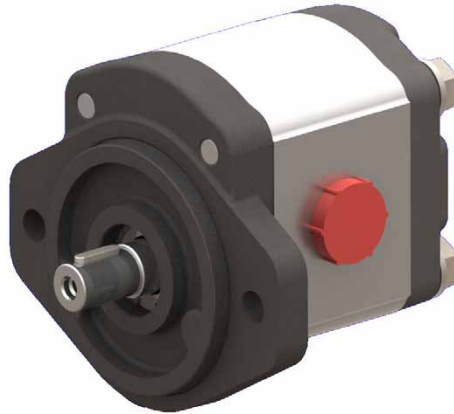
Rotation: A Left C Right

Dimensions:



Flange type 5

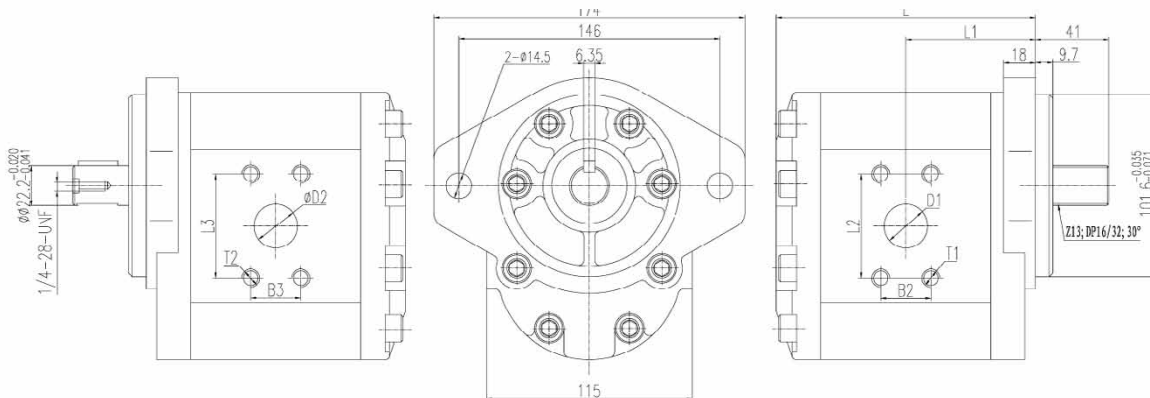
SAE A Flange



Type	Displacement c.c.	Pressure Mpa		Speed			L (mm)	L1 (mm)
		Rated	Peak	Rated	Max.	Min.		
VNK-3-22-*-7-*-C	22	25	30	2000	3000	400	130.3	65.3
VNK-3-26-*-7-*-C	26	25	30	2000	3000	400	133.3	66.8
VNK-3-34-*-7-*-C	34	25	30	2000	3000	400	138.8	69.6
VNK-3-39-*-7-*-C	39	25	30	2000	3000	400	142.8	71.6
VNK-3-43-*-7-*-C	43	25	30	2000	2800	400	145.3	72.8
VNK-3-51-*-7-*-C	51	25	30	2000	2800	400	151.3	75.8
VNK-3-60-*-7-*-C	60	20	25	1500	2800	400	157.8	73.1
VNK-3-70-*-7-*-C	70	20	23	1500	2500	400	164.8	82.5
VNK-3-78-*-7-*-C	78	20	23	1500	2300	400	171	85
VNK-3-89-*-7-*-C	89	18	20	1500	2000	400	176	88

Rotation: A Left C Right

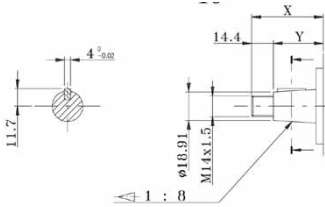
Dimensions:



Flange type 7

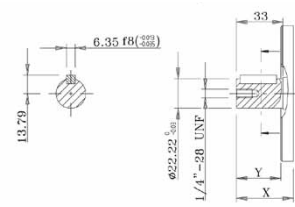
Shaft

Type 2



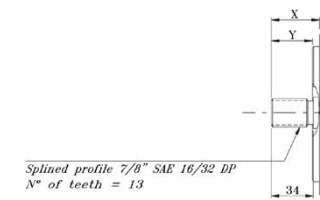
Flange type	X	Y
European	47.2	32.8
SAE B	50.2	35.8

Type 14



Flange type	X	Y
European	38	33
F50C	41	31.5

Type 15

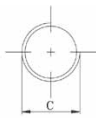


Flange type	X	Y
European	38.2	33.2
F50C	41.2	31.7

PORTS INLET/OUTLET

Shape G

OUTLET



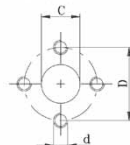
INLET



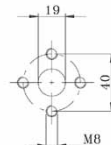
Type	Flange
34	G3/4
10	G1"

Shape R

OUTLET

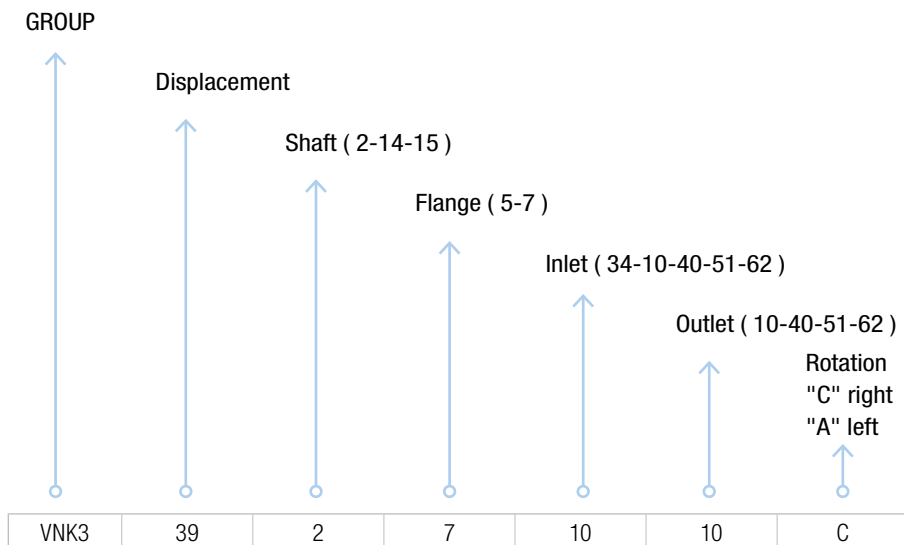


INLET



Type	threads
40	Ø40 M8
51	Ø51 M10
62	Ø62 M10

Ordering code





- Variable displacement axial piston pump of swashplate design for hydraulic open circuit systems.
- Flow is proportional to drive speed and displacement. It can be infinitely varied by adjustment of the swashplate.
- ISO mounting flange.
- Flange connections to SAE metric.
- 2 Case drain ports.
- Good suction characteristics.

- Permissible continuous pressure 28MPa.
- Low noise level.
- Long service life.
- Axial and radial loading of drive shaft possible.
- High power-weight ratio
- Wide range of controls
- Short response times
- Through drive option for Multi-circuit system.

Ordering code

VNKBA10VS	0	45	DRG	31	L	P	B	A	12	N00
Axial piston pump unit	Type of operation	DISPLACEMENT cc/rev	Control device	Series	Direction of rotation	Seals	Shaft end	Mounting flange	Connections	Through drives
Nominal Pressure 28Mpa Peak Pressure 35Mpa	0: pumps in open circuits	28	DR: Pressure control	31	Viewed on shaft end R: Right L: left	P: NBR V: FKM	see below	A: ISO 2 hole	Pressure B and Suction S ports : SAE ports at opposite sides Metric fixing thread	see below
		45	DRG: Pressure control, remotely controlled							
		71	DFR: Pressure/flow control							
		100	DFR1: Pressure/flow control, without orifice in X and tank							
		140					B: ISO 4 hole			

Shaft end

Size	28	45	71	100	140
Parallel with key DIN6885	P	*	*	*	*
Splined shaft SAE	R	7/8"	1"	1 1/4"	1 1/2"
Splined shaft SAE (higher through drive torque)	S	7/8"	1"	1 1/4"	-

*=available -= not available

Through drives

Size	28	45	71	100	140	
Without through drive	N00	*	*	*	*	*
ISO 100,2-hole splined shaft 7/8" 22-4 SAE B BA10VS028 shaft S or R	KB3	*	/	*	*	*
ISO 100,2-hole splined shaft 1" 25-4 SAE B-B BA10VS045 shaft S or R	KB4	/	*	*	*	*
ISO 100,2-hole splined shaft 1" 1/4" 35-4 SAE C BA10VS071 shaft S or R	KB5	/	/	*	*	*
ISO 125,2-hole splined shaft 1" 1/2" 38-4 SAE C-C BA10VS0100 shaft S	KB6	/	/	/	*	*

*=available -= not available

Fluid

The VNKBA10VSO variable displacement pump is suitable for use with mineral oil.

Operating viscosity range

We recommend that the operating viscosity (at operating temperature) for both the efficiency and life of the unit, be chosen within the optimum range of

V opt= opt. operating viscosity 80...170 SUS (16...36 mm²/s)

Viscosity limits

The limiting values for viscosity are as follows:

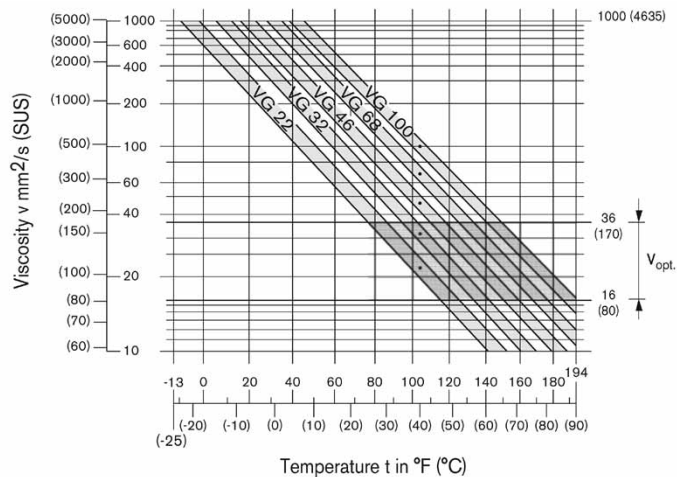
V min= 10mm²/s short term at a max. permissible case temperature of 90°C

Vmax=1000mm²/s short term on cold start

Temperature range

T min= -25°C

T max= 90°C



Filtration

The finer the filtration, the better the achieved cleanliness of the pressure fluid and the longer the life of the axial piston unit. To ensure the functioning of the axial piston unit a minimum cleanliness level of:

9 to NAS 1638

18/15 to ISO/DIS 4406

is necessary

TECHNICAL DATA

Operating pressure range-inlet

Pabs min	0,08Mpa
Pabs maxn	30Mpa

Operating pressure range-outlet

Nominal pressure	28Mpa
Peak pressure	35Mpa

Applications with intermittent operating pressures up to 315bar at 10% duty are permissible. Limitation of pump output pressure spikes is possible with relief valve blocks mounted directly on flange connection.

Case drain pressure

Maximum permissible pressure of the leakage fluid at port L max. 0,05Mpa higher than inlet pressure at port S, but not higher than 0,2Mpa absolute.

Determination of inlet pressure P abs suction port S or reduction of displacement for increasing speed.

Maximum Speed

Size / Displacement	28	45	71	100	145
Max. Speed rpm	3000	2600	2200	2000	1800

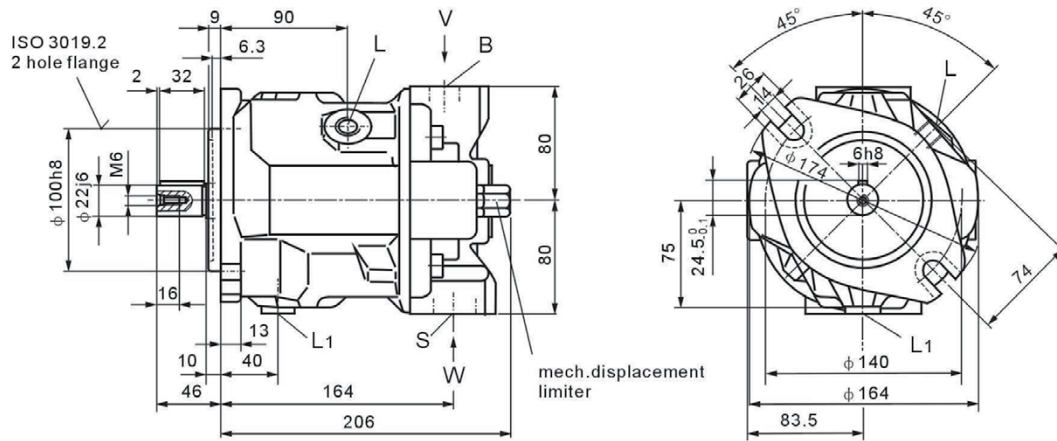
Weight

28 12kg	45 15kg	71 33kg	100 45kg	140 60kg
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Dimension

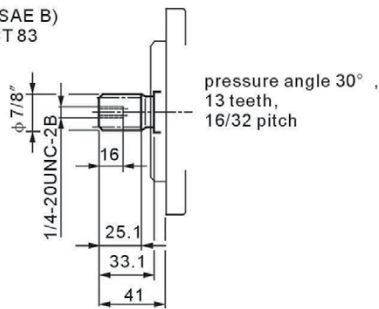
VNKBA10VSO28*31**A12N00 (without control valves)

Shaft P

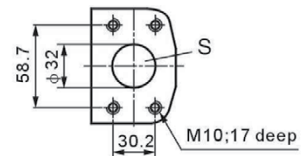


Shaft S

Shaft 22-4; (SAE B)
SAE J744 OCT 83

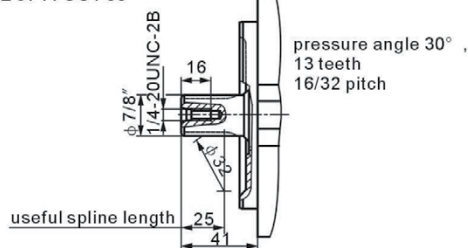


View W

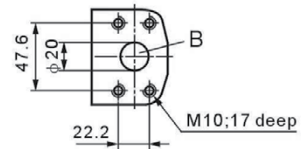


Shaft R

Shaft 22-4; (SAE B)
SAE J744 OCT 83



View V

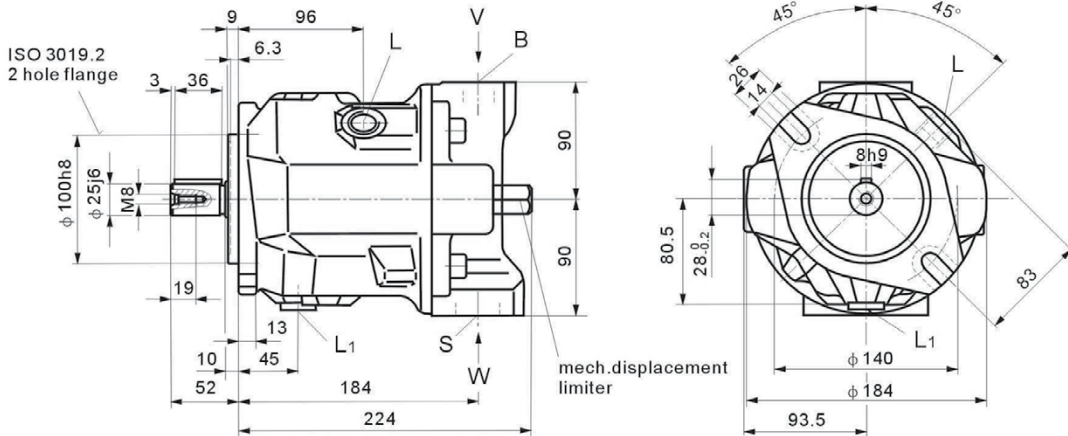


B	Pressure port	SAE 3/4"	(Standard pressure range)
S	Suction port	SAE 1 1/4"	(Standard pressure range)
L/L ₁	Case drain ports	M18 × 1.5	(L ₁ plugged at factory)

Dimension

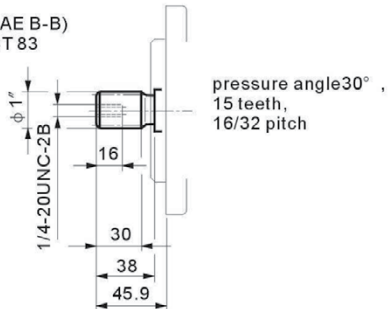
VNKBA10VSO45*31**A12N00 (without control valves)

Shaft P

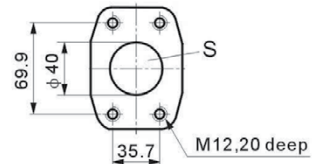


Shaft S

Shaft 25-4;(SAE B-B)
SAE J744 OCT 83

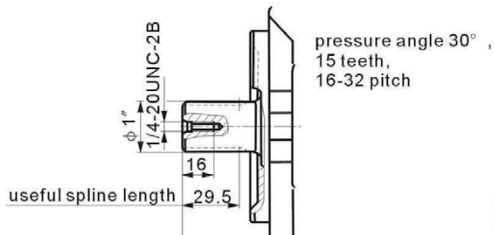


View W

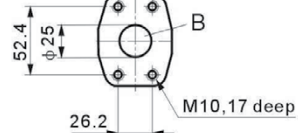


Shaft R

Shaft 25-4;(SAE B-B)
SAE J744 OCT 83



View V

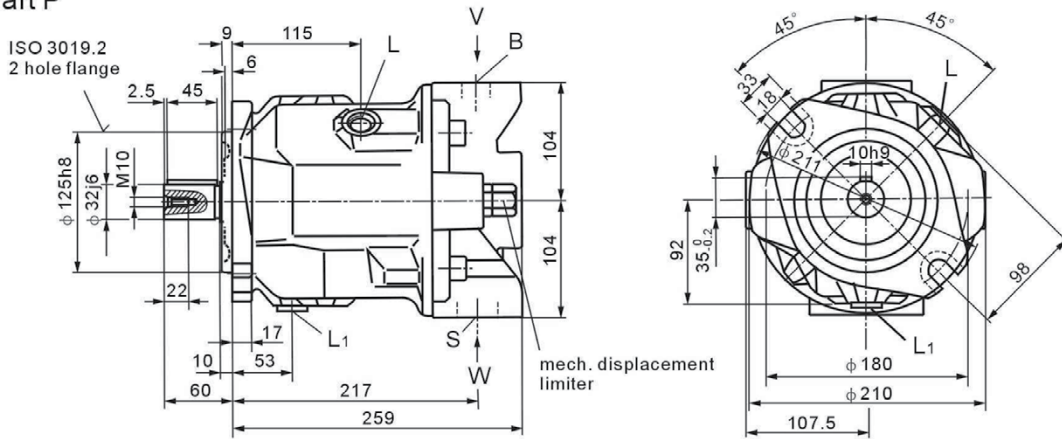


- | | | | |
|---|---------------|-----------|---------------------------|
| B | Pressure port | SAE 1" | (Standard pressure range) |
| S | Suction port | SAE 11/2" | (Standard pressure range) |

Dimension

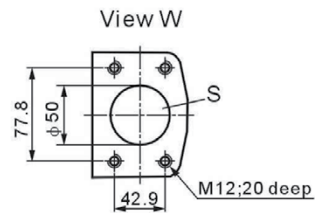
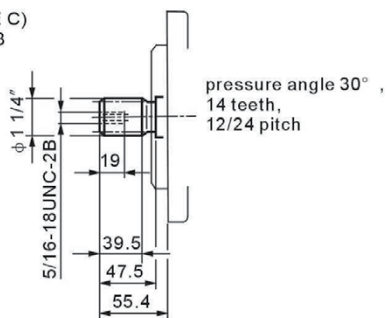
VNKBA10VSO71*31**A12N00 (without control valves)

Shaft P



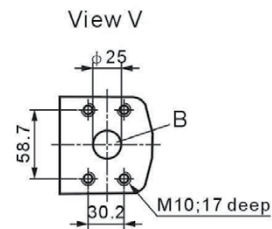
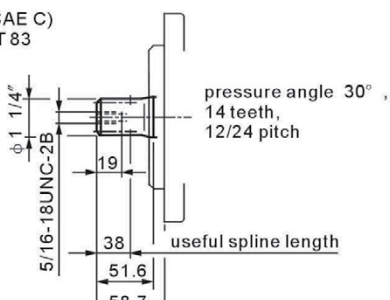
Shaft S

Shaft 32-4; (SAE C)
SAE J744 OCT 83



Shaft R

Shaft 32-4; (SAE C)
SAE J744 OCT 83

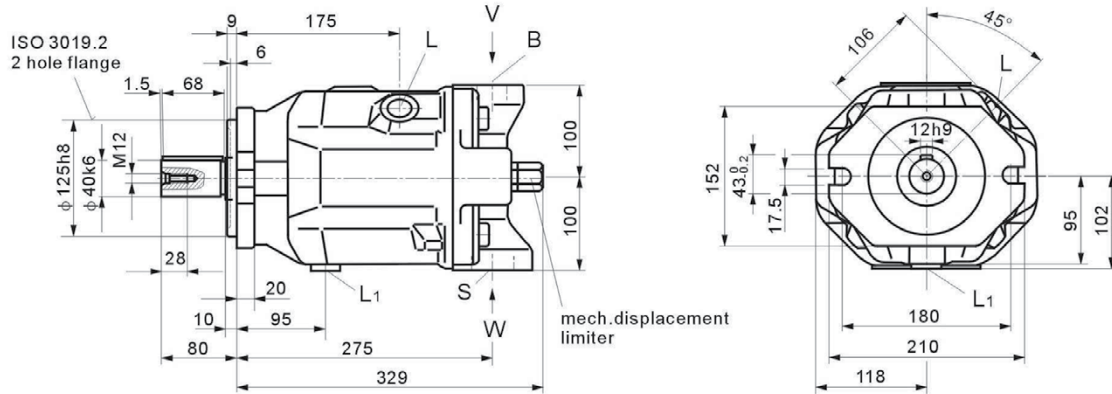


B Pressure port SAE 1" (Standard pressure range)

Dimension

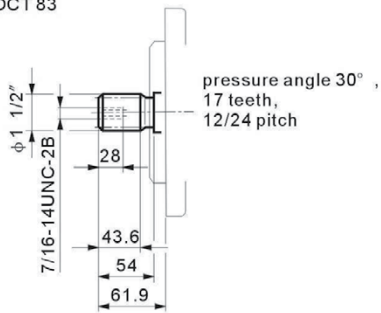
VNKBA10VSO100*31**A12N00 (without control valves)

Shaft P

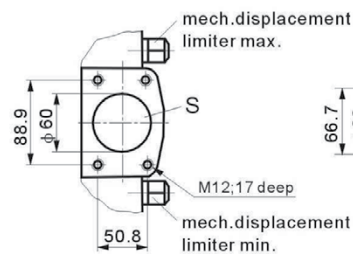


Shaft S

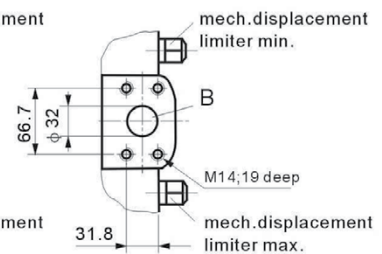
Shaft 38-4; (SAE C-C)
SAE J744 OCT 83



View W



View V

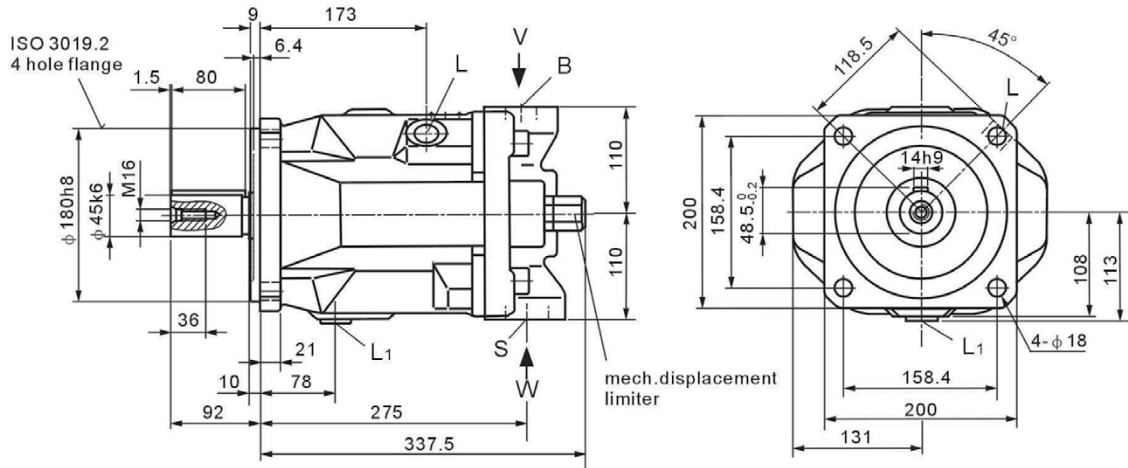


B	Pressure port	SAE 1 1/4"	(High pressure range)
S	Suction port	SAE 2 1/2"	(Standard pressure range)
L/L ₁	Case drain ports	M27 × 2	(L, plugged at factory)

Dimension

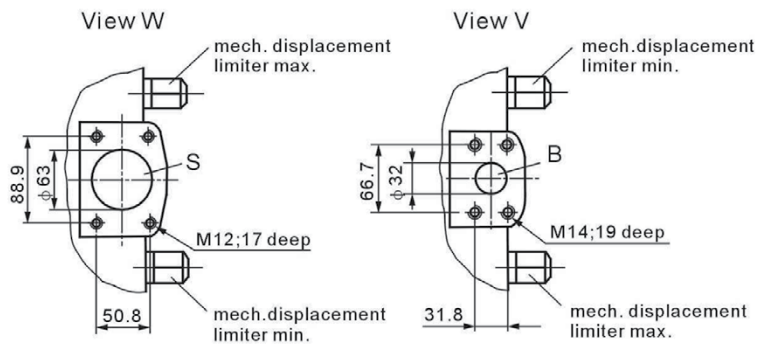
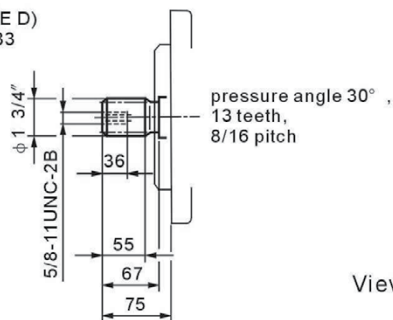
VNKBA10VSO140*31**A12N00 (without control valves)

Shaft P



Shaft S

Shaft 44-4; (SAE D)
SAE J744 OCT 83



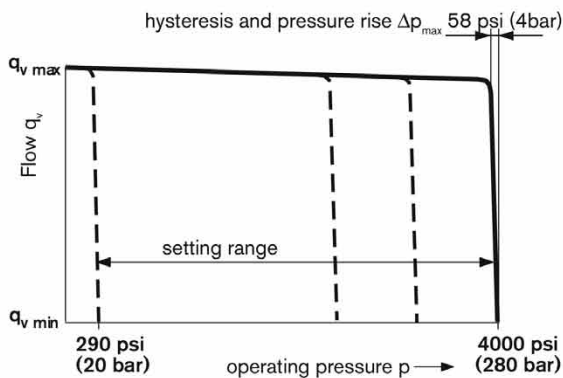
B	Pressure port	SAE 1 1/4"	(High pressure range)
S	Suction port	SAE 2 1/2"	(Standard pressure range)
L/L ₁	Case drain port	M27 × 2	(L ₁ plugged at factory)

DR Pressure control

The pressure controller serves to maintain a constant pressure in a hydraulic system within the control range of the pump. The pump therefore supplies only the amount of hydraulic fluid required by the system. Pressure may be steplessly at the control valves.

Static characteristic

(at $n_1 = 1500 \text{ rpm}$; $t_{oil} = 122^\circ\text{F} / 50^\circ\text{C}$)

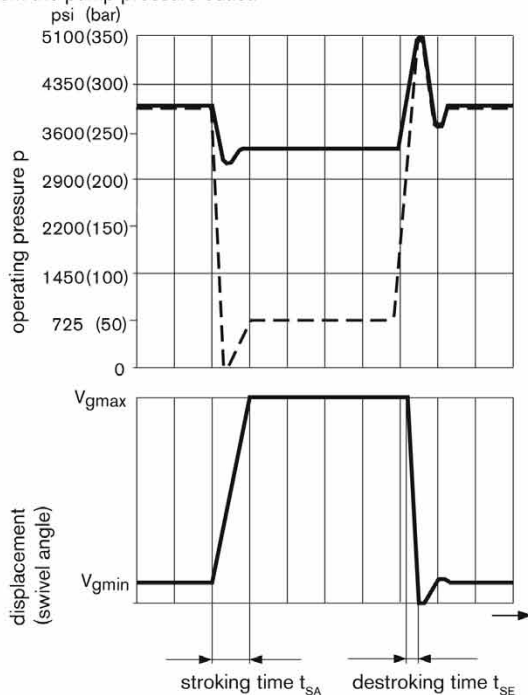


Dynamic characteristic

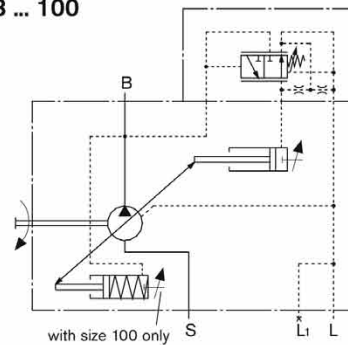
The opening curves are mean values measured under test conditions with the unit mounted inside the tank.

Conditions: $n = 1500 \text{ rpm}$
 $t_{oil} = 122^\circ\text{F} (50^\circ\text{C})$
 Main relief set at 5100 psi (350 bar)

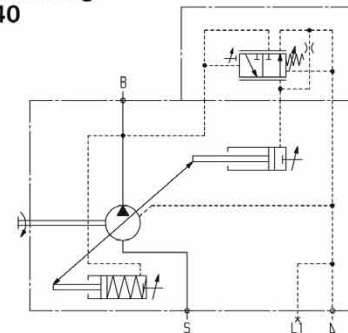
Stepped loading by suddenly opening or closing the pressure line using a pressure relief valve at 3.3 ft (1 m) downstream from the pump pressure outlet.



Circuit drawing Size 18 ... 100



Circuit drawing Size 140



Ports

- B Pressure port
- S Inlet port
- L, L₁ Case drain port (L₁ plugged)

Controller data

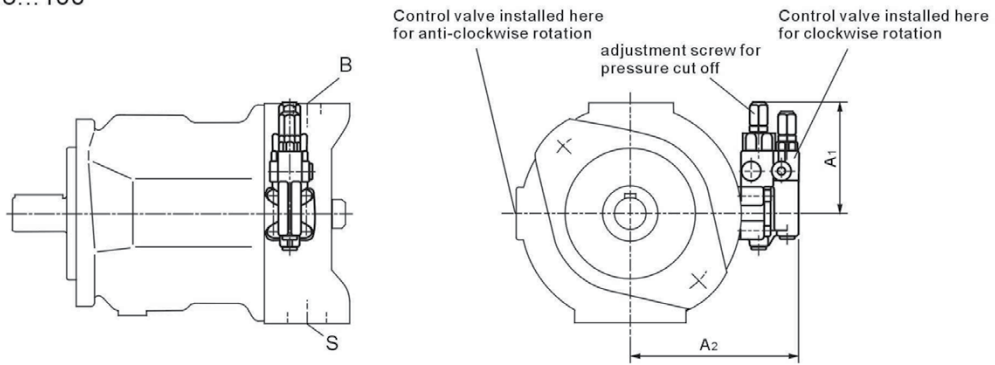
Hysteresis and repetitive accuracy Δp ___ max. 45 psi (3 bar)
 Pilot oil consumption max. approx 0.8 gpm (3 L/min)
 Flow loss at q_{vmax} see pages 8 and 9.

Control times

	t_{SA} [ms]	t_{SA} [ms]	t_{SE} [ms]
Size	against 725 psi (50 bar)	against 3200 psi (220 bar)	zero stroke 4000 psi (280 bar)
18	50	25	20
28	60	30	20
45	80	40	20
71	100	50	25
100	125	90	30
140	130	110	30

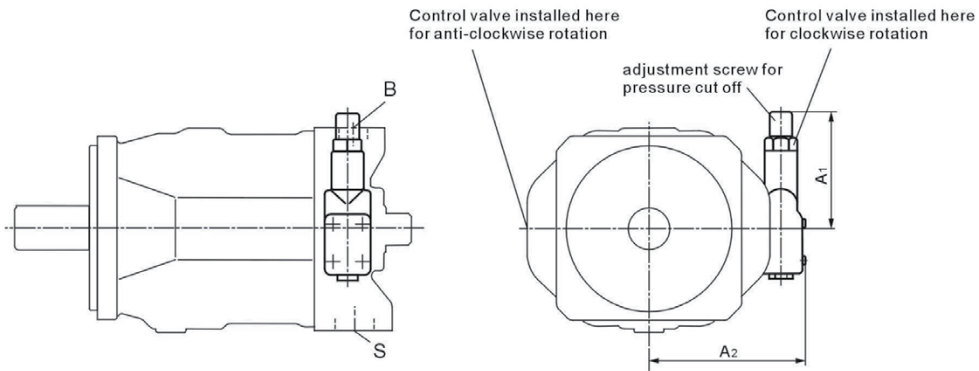
DR Pressure control

Sizes 28...100



On sizes 28 to 100 the DFR valve used has the flow control spool blocked in the factory and is not tested.

Size 140



Size	A1	A2
28	109	136
45	106	146
71	106	160
100	106	165
140	127	169

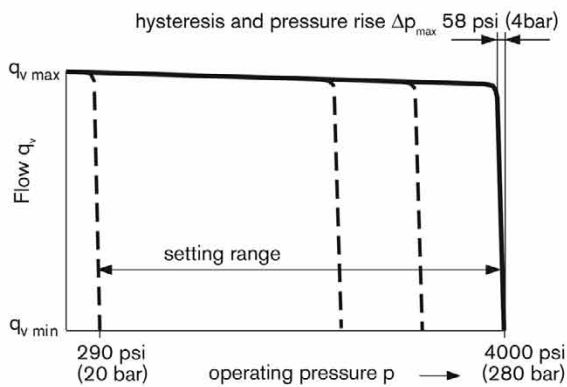
DRG Pressure control, remote

Function and equipment as for DR.

A pressure relief valve may be externally piped to port X for remote control purposes. However it is not included in the scope of supply with the DRG control. The differential pressure at the DRG control spool is set as standard to 20 bar and this results in a pilot flow of 0.4 gpm (1,5 L/min). If another setting (range 10-22 bar) is required, please state this in clear text.

Static characteristic

(at $n_1 = 1500$ rpm; $t_{oil} = 122^\circ\text{F} / 50^\circ\text{C}$)



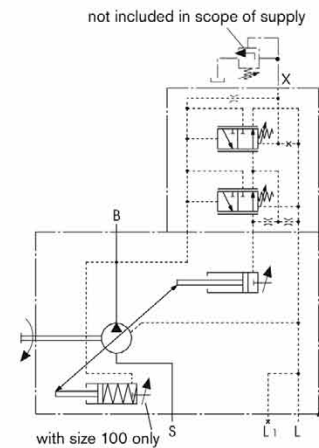
Control data

Hysteresis Δp _____ max. 45 psi (3 bar)

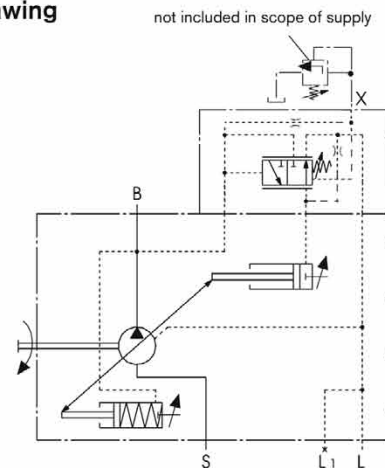
Pilot oil requirement _____ approx. 1.2 gpm (4,5 L/min)

Flow loss at q_{vmax} see pages 8 and 9.

**Circuit drawing
Size 18 ... 100**



**Circuit drawing
Size 140**

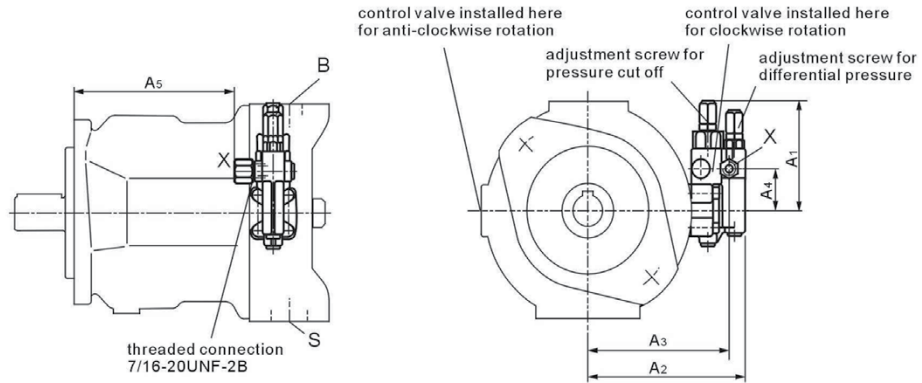


Ports

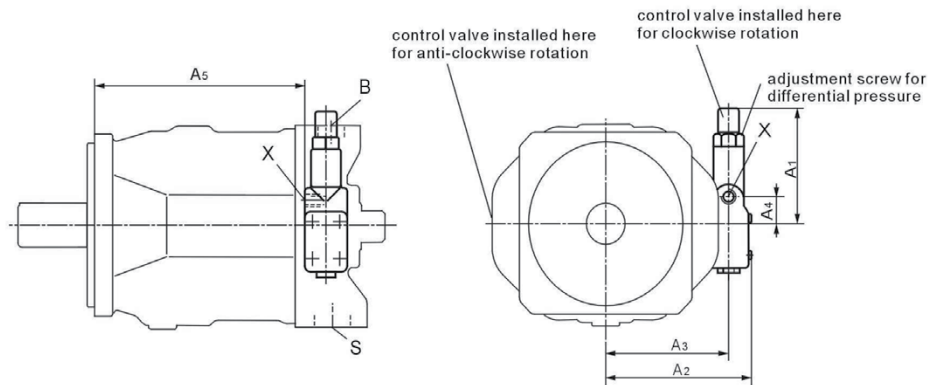
- B Pressure port
- S Inlet port
- L, L₁ Case drain port (L, plugged)
- X Pilot pressure port

DRG Pressure control, remote

Sizes 28...100



Size 140

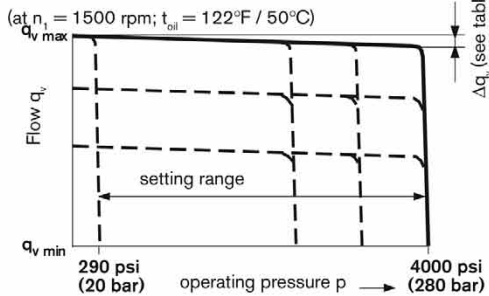


Size	A1	A2	A3	A4	A5	Port X
28	109	136	119	40	119	M 14x1.5
45	106	146	129	40	134	M 14x1.5
71	106	160	143	40	162	M 14x1.5
100	106	165	148	40	229	M 14x1.5
140	127	169	183	27	244	M 14x1.5

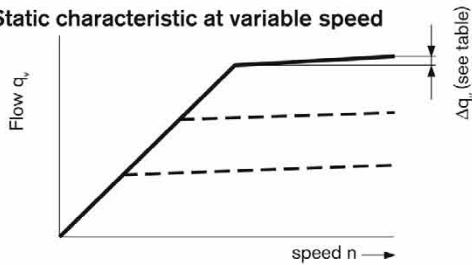
DFR / DFR1 Pressure / Flow control

In addition to the pressure control function, the pump flow to the actuator may be varied by means of a differential pressure (e.g. over an orifice or directional control valve). The pump supplies only the amount of fluid as required by the actuator. In the DFR1-valve version the orifice between the X port and tank is plugged.

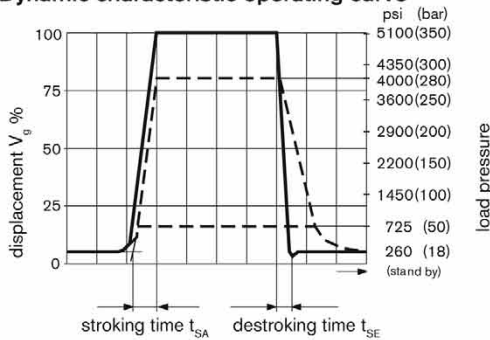
Static characteristic



Static characteristic at variable speed

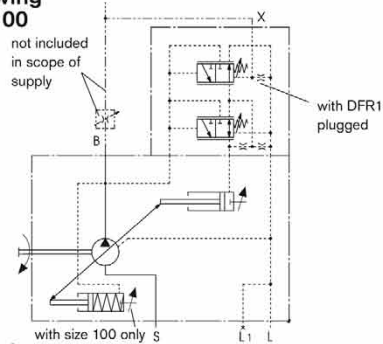


Dynamic characteristic operating curve

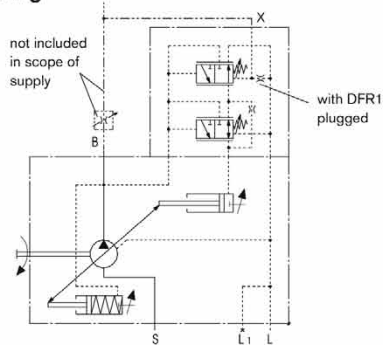


	t_{SA} [ms]	t_{SE} [ms]	t_{SE} [ms]
Size	4000 psi (280 bar)-stand by	4000 psi (280 bar)-stand by	725 psi (50 bar)-stand by
18	40	15	40
28	40	20	40
45	50	25	50
71	60	30	60
100	120	60	120
140	130	60	130

Circuit drawing
Size 18 ... 100



Circuit drawing
Size 140



Ports

- B Pressure port
- S Inlet port
- L, L₁ Drain port (L₁ closed)
- X Pilot pressure port

Differential pressure Δp :

Standard setting: 200 psi (14 bar). If a different setting is required please state in clear text.

When port X is loaded to tank (and outlet B is closed), a zero stroke pressure (standby) of $p = 260 \pm 30$ psi (18 ± 2 bar) results. (depends on Δp)

Control data

For technical data of pressure control see page 12.
Max. flow deviation (hysteresis and rise) measured at drive speed $n = 1500$ rpm.

Size	18	28	45	71	100	140
$\Delta q_{v \max}$						
gpm	0.24	0.26	0.48	0.75	1.06	1.60
(L/min)	(0,9)	(1,0)	(1,8)	(2,8)	(4,0)	(6,0)

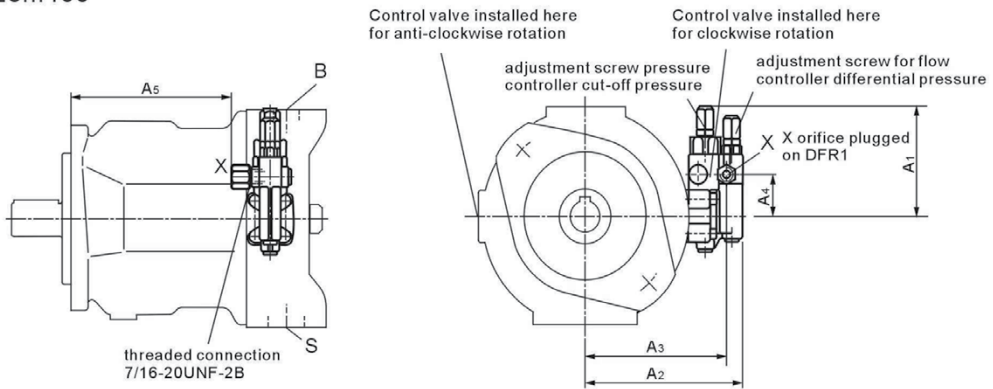
DFR pilot oil consumption ___ max. approx. 0.8 ... 1.2 gpm (3 ... 4,5 L/min)

DFR1 pilot oil consumption ___ max. approx. 0.8 gpm (3 L/min)

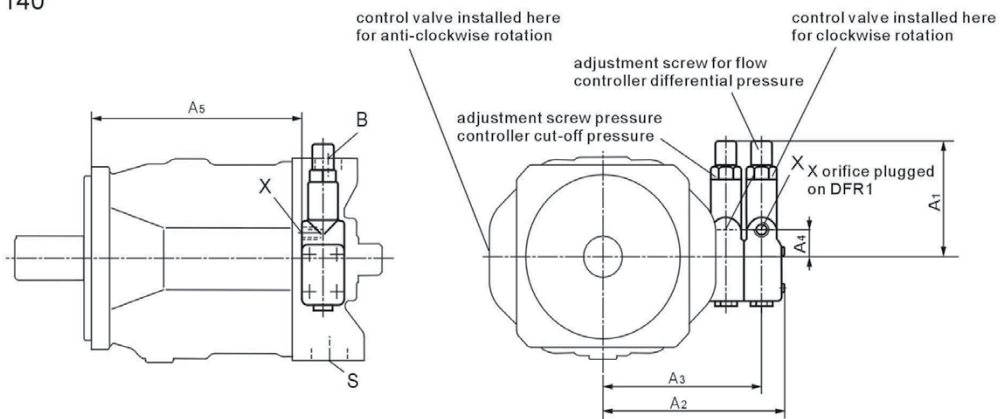
Flow loss at $q_{v \max}$ see pages 8 and 9.

DFR / DFR1 Pressure / Flow control

Sizes 28...100



Size 140



Size	A1	A2	A3	A4	A5	Port X
28	109	136	119	40	119	M 14x1.5
45	106	146	129	40	134	M 14x1.5
71	106	160	143	40	162	M 14x1.5
100	106	165	148	40	229	M 14x1.5
140	127	169	183	27	244	M 14x1.5

DESCRIPTION: Manual pumps are designed to create head flow of hydraulic oil, usually for activation of a hydraulic cylinder. They can be double acting for single and double acting cylinder.

CONSTRUCTION: The pumps consist of a body made of cast iron EN-GJL300 and a piston made of carburized steel with chrome plating.

MOUNTING: The pumps are fixed to a tank according to the installation openings of each pump.

TANKS: Welded with stopper and plug, 2 mm thickness, black painted, Hole M18x1.5

1 L - 100x170x120	2 L - 100x170x170	3 L - 100x170x220
5L - 175x175x200	7 L - 175x175x290	10L - 175x175x380

SINGLE ACTING

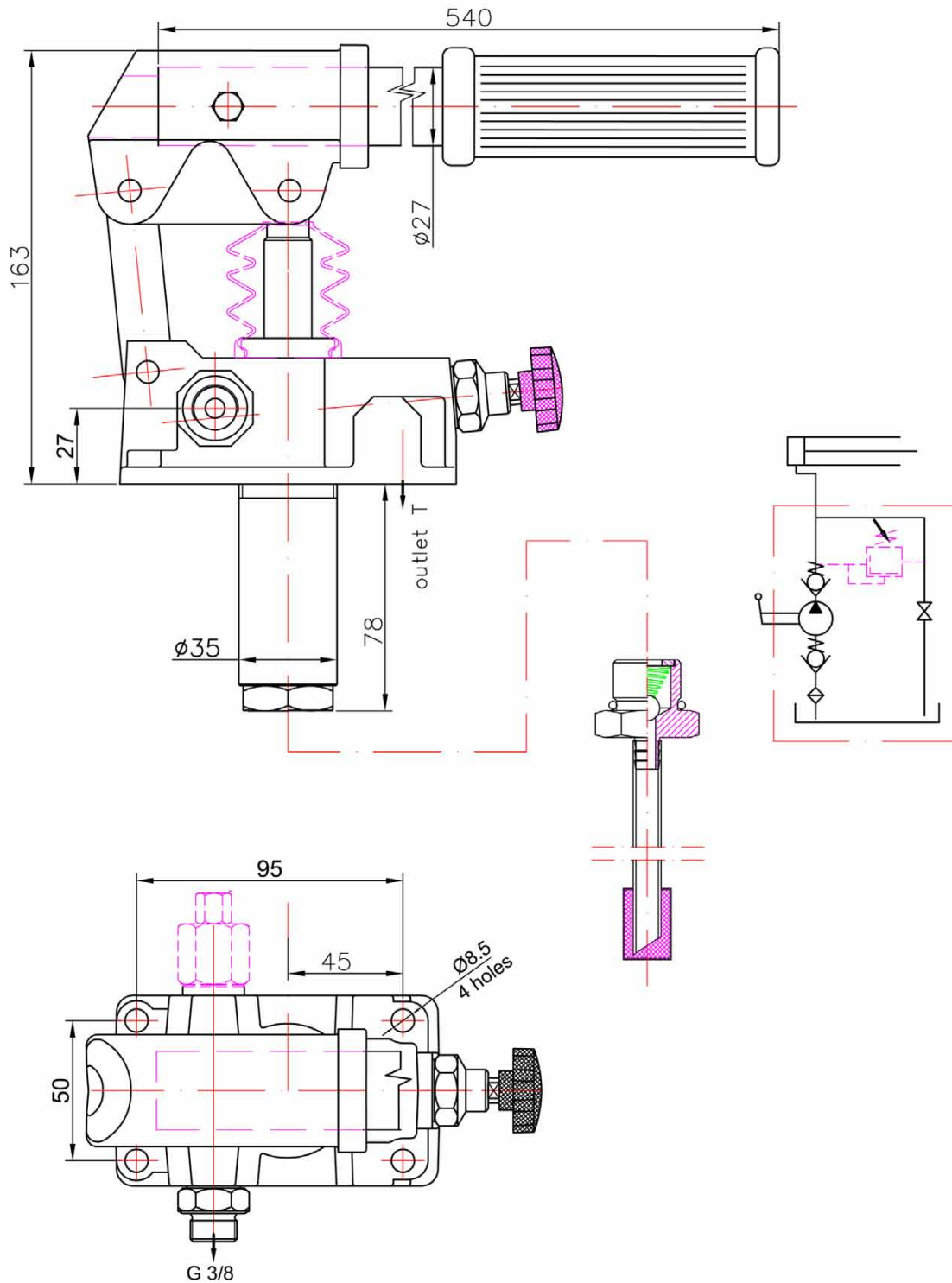
Piston hand pump double acting for single cylinder .



	HP12S	HP25S	HP45S
Displacement c.c.	12	25	45
Rated pressure Mpa	32	25	16
Weight	4	4.2	4.3

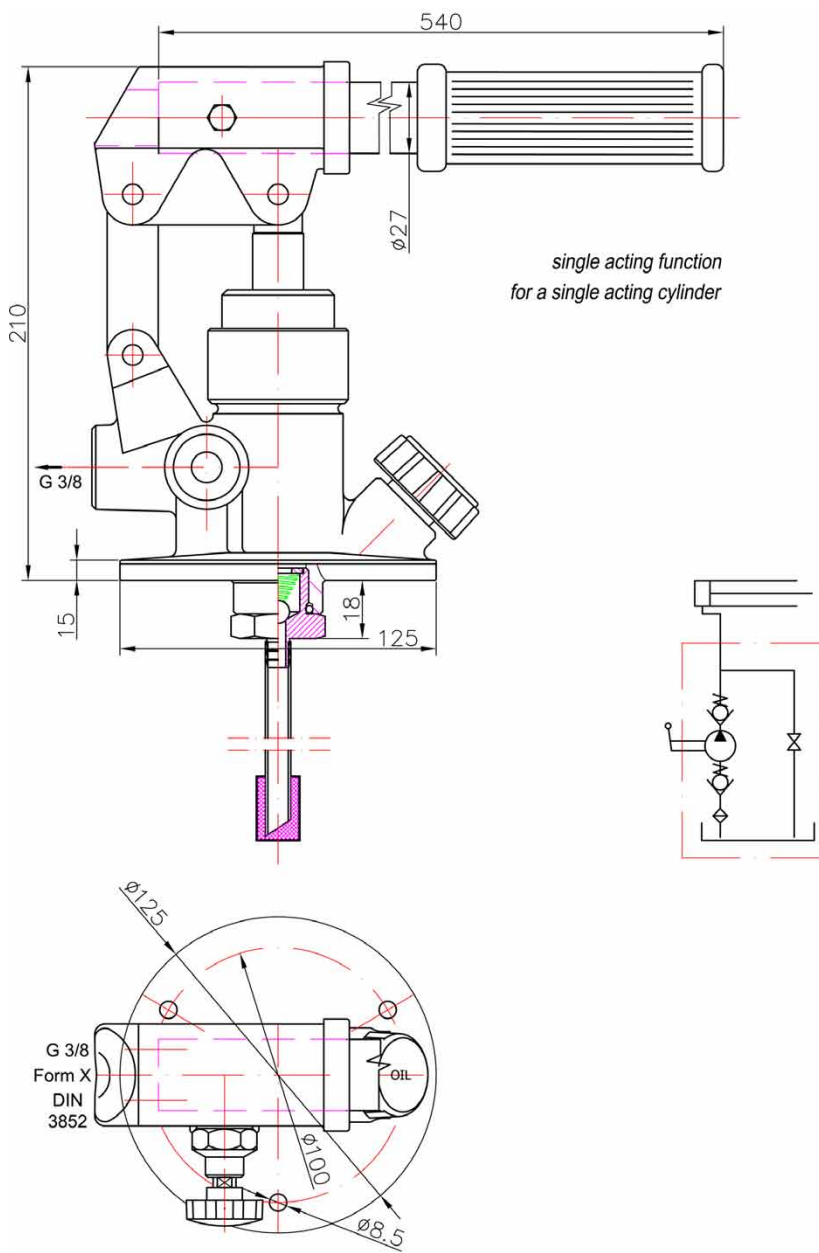
Options: "R" with relieve valve
"M" with bellows

Dimensions:



	HM12SR	HM18SR	HM25SR
Displacement c.c.	12	18	25
Rated pressure Mpa	30	20	16
Weight	4.6	4.6	4.6

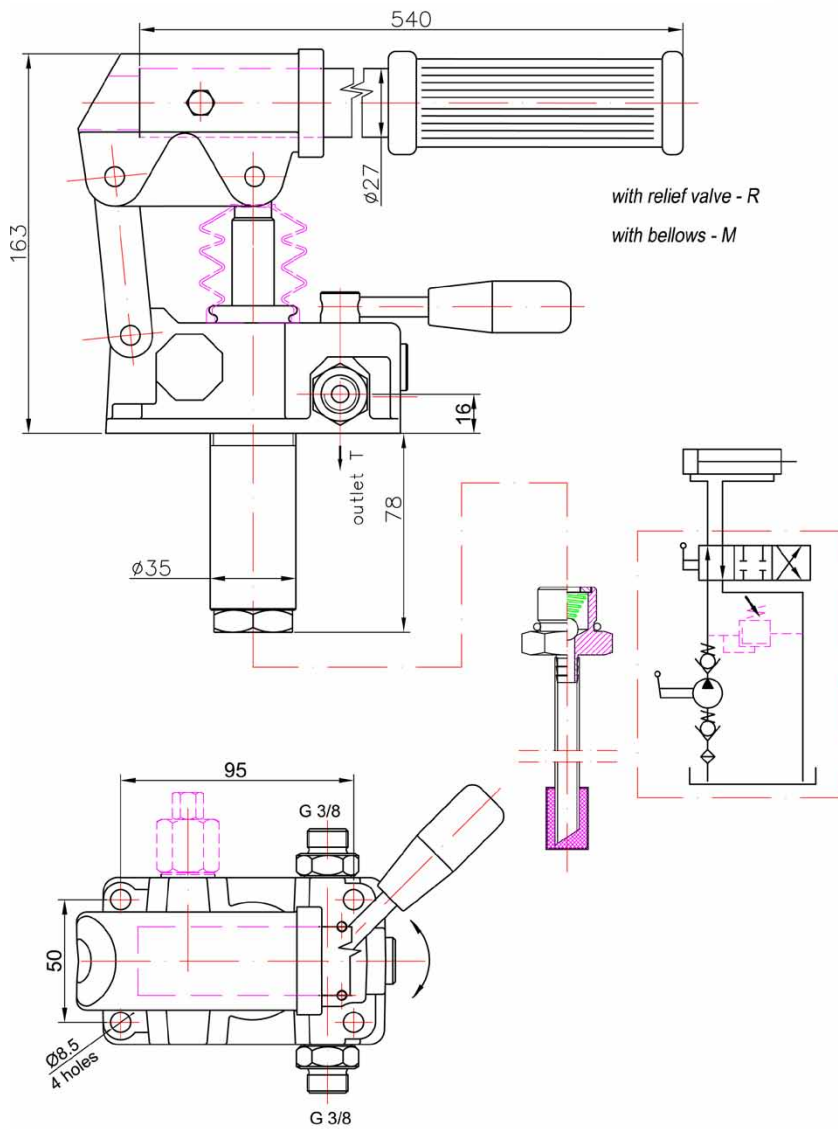
Dimensions:



	HM12D	HM25D	HM45D
Displacement c.c.	12	25	45
Rated pressure Mpa	32	25	16
Weight	4	4.2	4.3

Piston hand pump double acting for double cylinder.

Dimensions:



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