

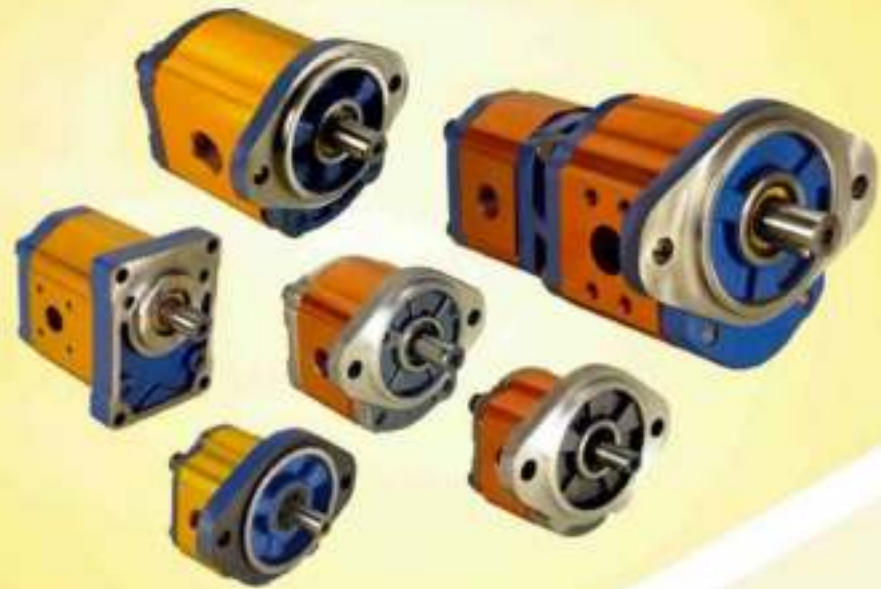
Hydraulic Gear Pump

Hydraulic Motor

Hydraulic Accessories

Hydraulic Power Pack

To Elevate
Technology & Shifting
World's Expectations



VBCTM
HYDRAULICS
ELEVATE

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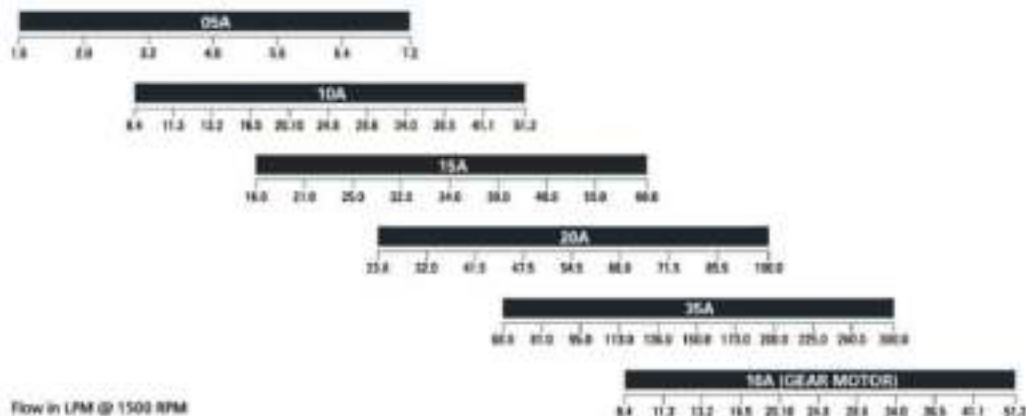
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Product Range

VBC Hydraulics gear pumps of the series VGP are produced in five different groups. Within each of them, the different displacements (between 0,8 and 200 cm³/rev) are obtained using different width of the gears. Different flanges, shafts, inlet and pressure ports are available.

The following items are also available : Pumps with pressure relief valve
Available displacements are indicated below :



Technical Information

Please strictly follow assembly and use indications given in this catalogue for top performance and longer life of the VGP series. Some general considerations should be made on the hydraulic system, in which the pump must be fitted. Special attention shall be devoted to hydraulic system design and assembly, especially to intake, delivery and return pipes and position of system parts (valves, filters, tanks, heat exchangers and accumulators). Proper safety devices and reliable instruments to avoid fluid turbulence, especially in return pipe to the tank, and prevent air, water or foreign bodies from entering into the system are of major importance.

It is also very important to equip the hydraulic system with a proper filtering unit.

Installation Notes

Before starting the system on a continuous basis, we suggest to adopt some simple precautions.

- Check for the direction of rotation of the pump to be consistent with the drive shaft one (in case of single rotation pump).
- Check for the proper alignment of pump shaft and motor shaft:
it is necessary that the connection does not induce axial or radial loads.
- Protect drive shaft seal during pump painting. Check if contact area between seal ring and shaft is clean:
dust could provoke quicker wear and leakage.
- Remove all dirt, chips and all foreign bodies from flanges connecting inlet and delivery ports.
- Ensure that intake and return pipes ends are always below fluid level and as far from each other as possible.
- Install the pump below head, if possible.
- Fill the pump with fluid, and turn it by hand.
- Disconnect pump drain during startup to bleed air off the circuit.
- At first startup, set pressure limiting valves at min. value possible.
- Avoid lower rotation speed than min. allowed with pressure higher than P1.
- Do not start the system at low temperatures under load conditions or after long stops
(always avoid or limit load starting for pump longer life).
- Start the system for a few minutes and turn on all components; bleed air off the circuit to check its proper filling.
- Check fluid level in the tank after loading all components.
- At last, gradually increase pressure, continuously check fluid and moving parts temperature, check rotation speed until you reach set operating values that shall be within the limits indicated in this catalogue.

Cleaning and Filtering The System

It is widely known that most pumps early failures are due to contaminated fluids. The extreme reduction of the tolerances required in the design of the pumps and therefore their operation with minimum clearances, are heavily influenced by a fluid that is not perfectly clean.

It is proved that particles circulating in the fluid act as abrasive agents, damaging the surfaces they touch and increasing the quantity of contaminant. For this reason ensure that system is perfectly clean during startup and keep it clean for its whole operating life. Necessary interventions to check and limit contamination should be performed in a preventive and corrective way.

Preventive actions include: Proper cleaning of the system during assembly, deburring, eliminating the welding scum and fluid filtering before filling up. Starting contamination level of system fluid should not exceed class1&15 (Ref. ISO 4406). Even fresh fluids might exceed this contamination level; therefore always pre-filter fluid when filling up or topping up the system. Fit a proper tank; its capacity should be proportional to the volume displaced by the pump in one working minute.

Fluid contamination level check and correction during operation can be obtained through filters that retain the particles in the fluid. Two parameters tell which filter is most suitable: absolute filtering power and β filtering ratio. Low absolute filtering power and high β filtering ratio for small particles help ensuring good filtration. It is then very important to limit not only max. dimensions, but also the number of smaller particles that pass through the filter.

It goes without saying that with an operating pressure increase and according to the system sophistication degree, filtering should become more and more efficient.

The filtering system shall always ensure contamination levels not exceeding the values indicated below:

Pressure	<140 Bar	140-210 Bar	>210 Bar
NAS 1638 Class	10	9	8
ISO 4406 Class	16/18	16/15	17/14
Ratio $\beta_x = 75$	25-40 μ m	12-15 μ m	6-12 μ m

It is recommended to use a filtering system having absolute filtering power 5 μ m or lower in the systems using sophisticated valve slaves.

Hydraulic Fluids

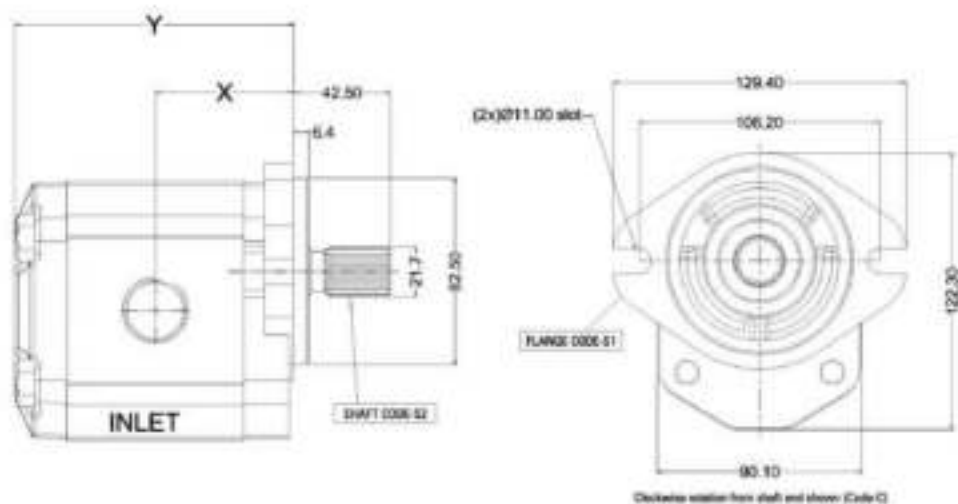
Use specific mineral oil based hydraulic fluids having good anti-wear, anti-foaming (rapid de-aeration), antioxidant, anti-corrosion and lubricating properties. Fluids should also comply with DIN 51525 and VDMA 24317 standards and get through 11th stage of FZG test. For the standard models, the temperature of the fluid should not be between -10°C and +80°C. Fluid kinematic viscosity ranges are the following:

Allowed Value (Upon Verification)	6 + 500 cSt
Recommended Value	10 + 100 cSt
Value Allowed at Startup	<2000 cSt

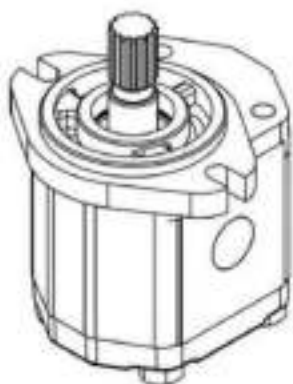
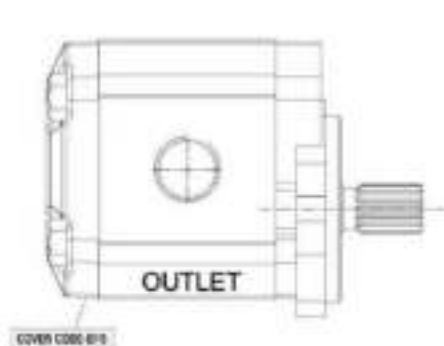
If fluids other than the above mentioned ones are used, please always indicate type of used fluid and operating conditions so that our Sales and Technical Dept. can weigh possible problems on compatibility or useful life of system parts.

Inlet Pressure

Under standard working conditions, intake pipe pressure is lower than atmospheric pressure. The operating inlet pressure should range between 0.7 and 3 bars (absolute).



Distance between front shaft end shown (Code C)



Pump Type	Dimension-X	Dimension-Y
VGP-18	53.5	109.0
VGP-21	55.5	112.0
VGP-25	57.0	115.0
VGP-32	60.0	121.0
VGP-34	61.0	123.0
VGP-39	63.0	127.0
VGP-48	67.5	136.0
VGP-55	70.0	141.0
VGP-66	74.5	150.0

All dimensions are in mm.
Tolerances for X & Y: ± 1 mm.

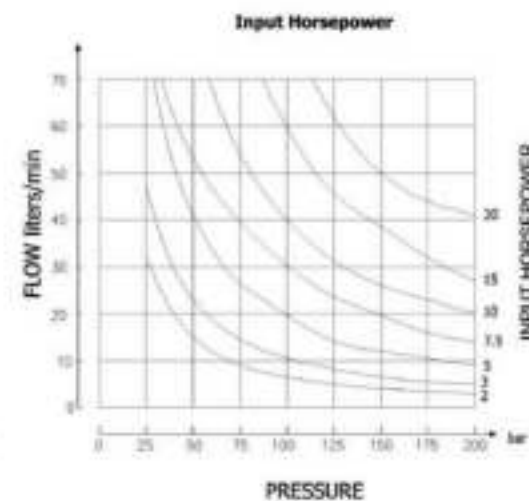
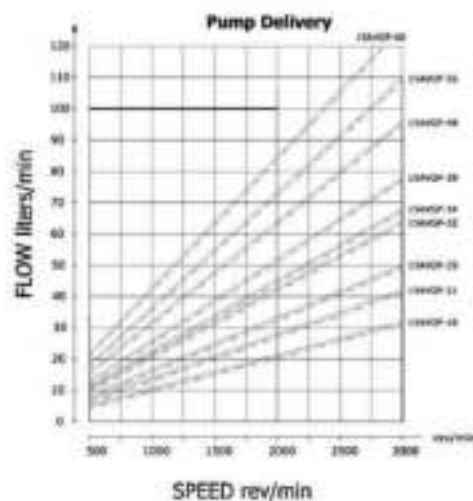
• For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 29, 30
• For suction & delivery ports - see page no. 36, 37 • For end cover - see page no. 39 & 40 • For ordering code - see page no. 43

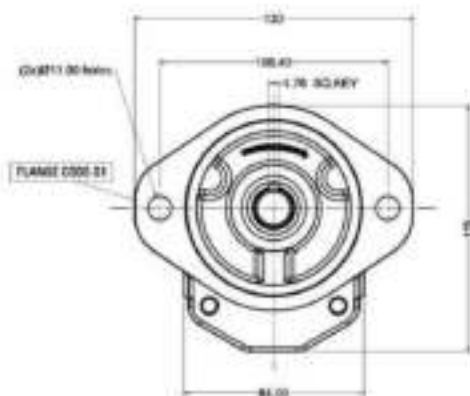
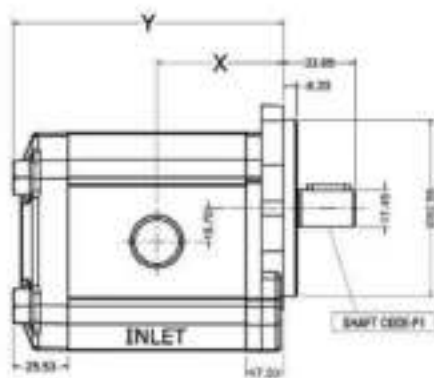
SPECIFICATION DATA

Pump Type	Theoretical Displacement	Nominal Delivery At 1500 RPM	Max. Speed at Max. Pressure	Min. Speed at Max. Continuous Pressure	Inlet	Outlet	P1, Continuous Pressure	P2, Intermittent Pressure	P3, Peak Pressure
	CC/REV	L/Min	Rev/Min	Rev/Min	BSP	BSP	BAR	BAR	BAR
VGP-18	11.80	16.00	4000	700	3/4"	3/4"	250	270	280
VGP-21	14.80	21.00	4000	700	1"	3/4"	250	270	280
VGP-25	17.70	25.00	4000	700	1"	3/4"	250	270	280
VGP-32	21.50	32.00	4000	700	1"	3/4"	250	270	280
VGP-34	23.00	34.00	4000	700	1"	3/4"	250	270	280
VGP-39	26.80	39.00	3500	700	1"	3/4"	210	230	250
VGP-48	32.80	48.00	3500	700	1 1/4"	3/4"	210	230	250
VGP-55	37.70	55.00	3500	700	1 1/4"	3/4"	180	190	210
VGP-66	44.50	66.00	3500	700	1 1/4"	3/4"	160	180	190

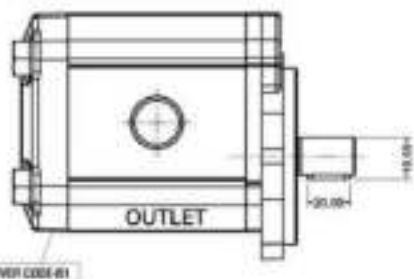
- Pressure with ENCLD 68 oil @ 50°C
- Pump with relief valve also available (Code R15)

PERFORMANCE CHART





Diectwise vision from shaft end shown (Code Q)



Pump Type	Dimension-X	Dimension-Y
VGP-07	41.0	90.0
VGP-10	42.5	93.0
VGP-12	44.0	96.0
VGP-16	45.5	99.0
VGP-20	48.0	104.0
VGP-23	50.0	108.0
VGP-27	52.0	112.0
VGP-32	55.0	120.0
VGP-36	51.5	131.0
VGP-40	64.0	130.0
VGP-50	89.5	147.0

all dimensions are in mm.
Tolerances for X & Y : ± 1 mm.

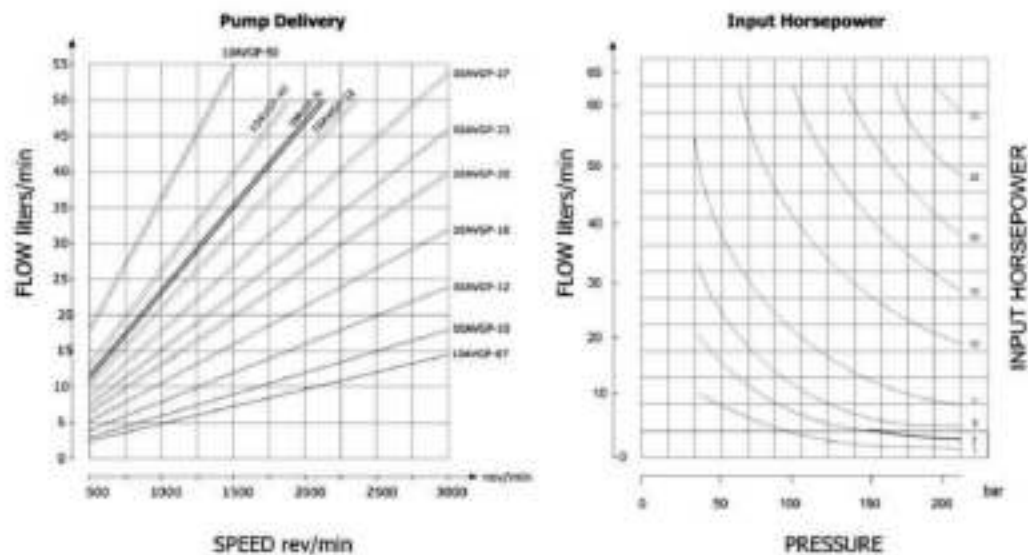
• For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 28, 29
• For suction & delivery port - see page no. 36, 37 • For end cover - see page no. 39 & 40 • For ordering code - see page no. 43

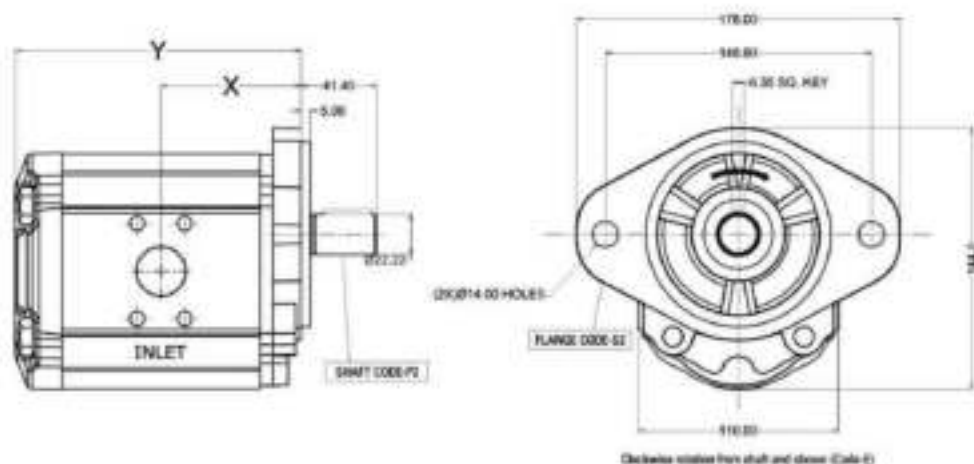
SPECIFICATION DATA

Pump Type	Theoretical Displacement	Nominal Delivery At 1500 RPM	Max. Speed at Max. Pressure	Min. Speed at Max. Continuous Pressure	Inlet	Outlet	P1, Continuous Pressure	P2, Intermittent Pressure	P3, Peak Pressure
	CC/REV	L/Min	Rev/Min	Rev/Min	BSP	BSP	BAR	BAR	BAR
VGP-7	5.90	8.40	4000	600	1/2"	1/2"	250	280	300
VGP-10	7.54	11.30	4000	600	1/2"	1/2"	250	280	300
VGP-12	8.80	13.20	4000	600	1/2"	1/2"	250	280	300
VGP-16	11.00	16.50	3500	600	3/4"	1/2"	250	280	300
VGP-20	13.40	20.10	3500	600	3/4"	3/4"	250	280	300
VGP-23	16.50	24.80	3200	600	3/4"	3/4"	250	280	300
VGP-27	19.60	28.60	3000	600	3/4"	3/4"	210	230	250
VGP-32	22.66	34.00	3000	600	1"	3/4"	210	230	250
VGP-36	24.33	36.50	3000	600	1"	3/4"	180	190	210
VGP-40	27.40	41.10	3000	600	1"	3/4"	180	190	210
VGP-50	34.13	51.20	2500	600	1"	3/4"	180	190	210

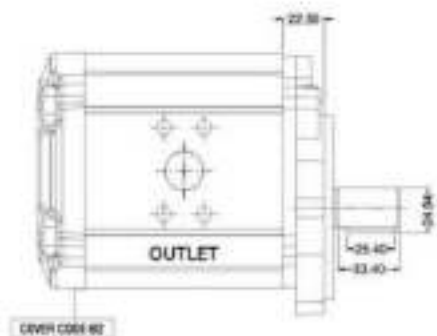
• Pressure with ENCLD 68 oil @ 50°C
• Pump with relief valve also available (Code R1)

PERFORMANCE CHART





Disassemble washer from shaft and cover (Code 0)



Pump Type	Dimension-X	Dimension-Y
VGP-22	67.0	137
VGP-32	70.5	144
VGP-41	74.0	151
VGP-47	77.0	157
VGP-54	80.0	163
VGP-66	84.0	171
VGP-71	86.0	175
VGP-85	91.5	186
VGP-100	98.0	199

All dimensions are in mm.
Tolerances for X & Y : ± 1 mm.

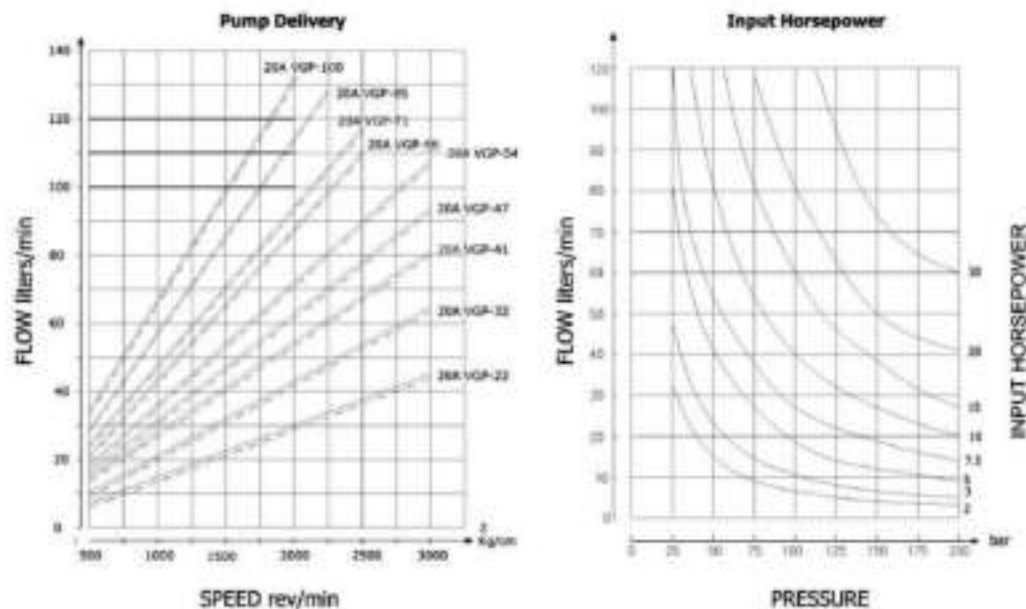
- For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 28, 36
- For suction & delivery part - see page no. 36, 37 • For end cover - see page no. 39 & 40 • For assembly code - see page no. 43
- Accessories supplied with standard pump - Threaded connection, suitable for SAE standard flange (See page no. 46)

SPECIFICATION DATA

Pump Type	Theoretical Displacement	Nominal Delivery At 1500 RPM	Max. Speed at Max. Pressure	Min. Speed at Max. Continuous Pressure	Inlet	Outlet	P1, Continuous Pressure	P2, Intermittent Pressure	P3, Peak Pressure
	CC/REV	L/Min	Rev/Min	Rev/Min	SAE Flange	SAE Flange	BAR	BAR	BAR
VGP-22	16.70	23.80	3500	600	S	R	250	270	280
VGP-32	22.50	32.00	3500	600	S	R	230	250	270
VGP-41	26.00	41.50	3300	600	S	R	230	250	270
VGP-47	33.00	47.50	3300	600	S	R	230	250	270
VGP-54	36.00	54.50	3000	600	S	R	210	230	250
VGP-66	46.00	66.00	2500	600	S	R	210	230	250
VGP-71	49.50	71.50	2500	600	S	R	180	190	210
VGP-85	55.00	85.50	2000	600	V	S	180	190	210
VGP-100	67.00	100.00	2000	600	V	S	180	190	210

- Pressure with ENCLD 68 oil @ 50°C
- Pump with relief valve also available (Code-R2)

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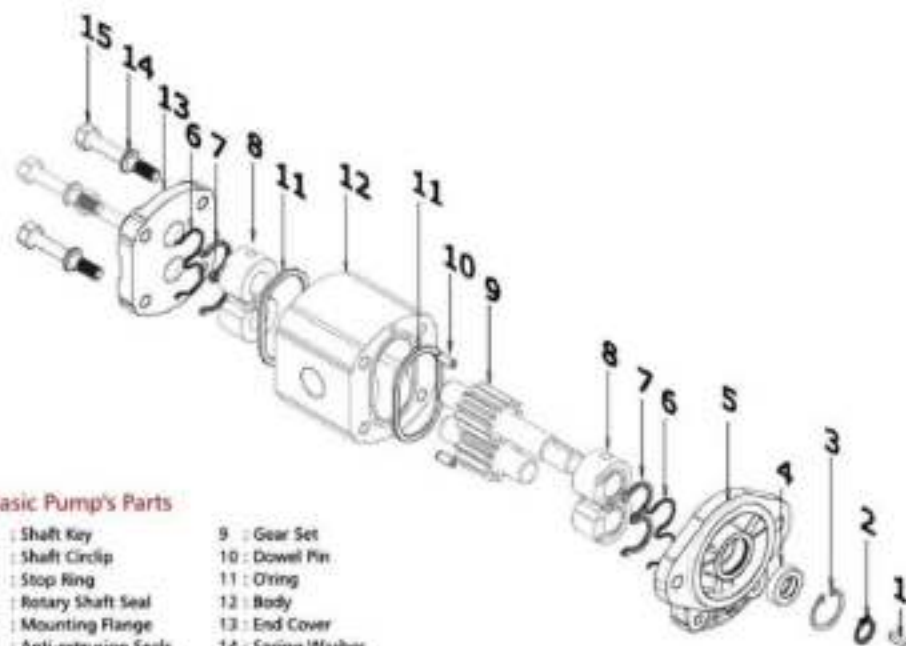
Basic Design

External gear pumps are the most popular pumps used in modern hydraulic systems. They feature versatility, strength and long useful life. Their simple construction ensures limited purchase costs and servicing. Thanks to these basic concepts, together with ever-improving product design and features, research-based on many years of experience, accuracy in material selection, production process followed in great detail and tests on mass-produced parts, our gear pumps have reached top quality standards.

For this reason, our products can work under heavy operating conditions and transmit high hydraulic power. Furthermore, VBC pumps feature good hydraulic, mechanical and volumetric efficiency, low noise level and, last but not least, compact dimensions and low weight/power ratio.

VBC Hydraulics has renovated its own range of products with a new series of pumps named VGP where groups named 05A, 10A, 15A, 20A & 35A are suitable for the most different application in both industrial and mobile sectors. Generally these gear pumps usually consist of a gear pair supported by two aluminium bushings, a body, a securing flange and a cover. Shaft of the driving gear projecting beyond the flange mounts a twin-lip seal ring (the inner lip being a seal and the outer being a dust seal). An elastic securing ring secures the ring in place. Pump body, flange and cover are made of special hi-resistant aluminium alloys for minimized deformation even when subject to high pressure, be it continuous or intermittent or peak pressure. The body is profiled by means of extrusion, whereas flange and cover are obtained by means of die-casting or gravity casting. Gears are made of special steel. Their manufacturing process includes case-hardening and quench hardening. Then gears are ground and fine finished so to have a high degree of surface finishing. Proper tooth profile design and geometric proportions ensure low pulsation levels and low noise levels during pump operation.

Bushings are made of special low-friction and hi-resistant aluminium alloy and manufactured from die-casting. They are equipped with anti-friction DU bearings. Special compensation zones onto bushing, insulated by special preformed seals with anti-extrusion ring, allow fully free axial and radial movement to bushings, which is proportional to pump operating pressure. In this way, internal dripping is dramatically reduced, thus ensuring very good pump performance (both in terms of volume and in general) and proper lubrication of pump moving parts.



Basic Pump's Parts

- | | |
|--------------------------|--------------------|
| 1 : Shaft Key | 9 : Gear Set |
| 2 : Shaft Circlip | 10 : Dowel Pin |
| 3 : Stop Ring | 11 : O-ring |
| 4 : Rotary Shaft Seal | 12 : Body |
| 5 : Mounting Flange | 13 : End Cover |
| 6 : Anti-extrusion Seals | 14 : Spring Washer |
| 7 : Compensation Seals | 15 : Bolt |
| 8 : Bushings | |

Frequently Used Formulas

Fluid Velocity

Calculate the velocity (v) of a fluid in a pipe as follows:

$$v = Q/S \cdot A \text{ [m/s]}$$

Q = Flow rate [liter/min]

A = Inside area of pipe (cm²)

Delivered Flow Rate

Calculate flow rate (Q) as follows :

$$Q = V \cdot n \cdot \eta_{vm} \cdot 10^3 \text{ [liter/min]}$$

V = Displacement [cm³/rotation]

n = Rotation speed [rotations per minute]

η_{vm} = pump volumetric efficiency

(take 0.95 as an indicative value for rotation speeds ranging between 1000 and 2000 rotations per minute)

Absorbed Torque

Calculate necessary torque (M) of a pump subject to pressure differential between inlet and delivery as follow:

$$M = (V \cdot \Delta p) / (62.8 \cdot \eta_{hm}) \text{ [Nm]}$$

V = Displacement [cm³/rotation]

Δp = Pressure differential [bar]

η_{hm} = Hydro mechanical efficiency (take 0.80 as indicative value under cold conditions and 0.85 under working conditions).

Absorbed Power

Calculate hydraulic power (P) transferred to fluid from a pump subject to a pressure differential between inlet and delivery as follows :

$$P = (Q \cdot \Delta p) / (600 \cdot \eta_{tm}) \text{ [kw]}$$

Q = Flow rate [liter/min.]

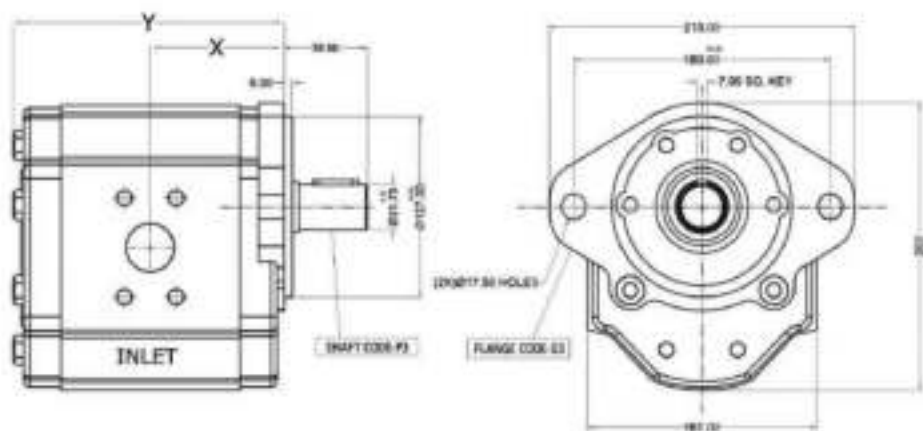
Δp = Pressure differential [bar]

η_{tm} = total pump efficiency ($\eta_{vm} \cdot \eta_{hm}$)

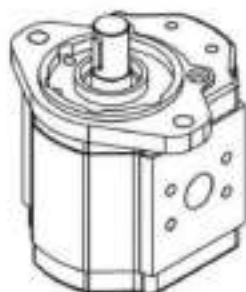
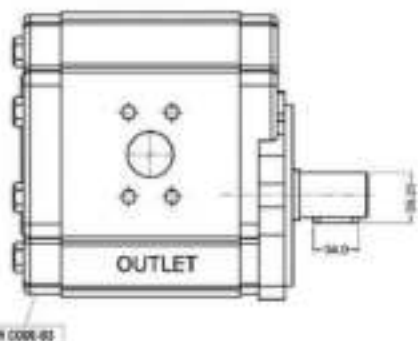
Values for η_{vm} and η_{hm} (and consequently η_{tm}) depend on pressure differential between inlet and delivery, rotation speed, fluid features (temperature and viscosity) and filtering degree. Call our sales and technical dept. for further details on efficiency. The proper values for flow rate, torque and power absorbed according to pressure differential, rotation speed and set test conditions, can be found on the pages dedicated to the performance curves.

Monodirectional VGP Single Pumps

This chapter describes VGP series in their single version, their operating features and how to select the right pump for the required application. The pumps are hydraulic machines converting mechanical power into hydraulic power. This section deals with rotary positive displacement pumps. In this type of pump, a given volume of fluid flows from inlet to outlet at each shaft rotation (theoretical displacement). Pressure depends on delivery line resistance to fluid flow. As gear pumps only transfer fluid, they are subject to pressure generated by the circuit. Therefore, if system flow rate and motor rotation speed are known, it is easy to select the right pump displacement and its model. The diagram indicating flow rate variations according to speed and pressure, shows that not all the theoretically available fluid is transferred from inlet to outlet because of pump internal dripping. Dripping can be remarkably reduced through pressure axial compensating systems (as described at the beginning of this catalog) but never eliminated. Dripping increases as circuit pressure increases. A pump requires energy, just like any other hydraulic machine. Part of this power is given to the fluid to increase pressure required by the circuit, the remaining part is used to win pump internal friction. Therefore, for proper pump operation, supplied torque shall be higher than theoretical torque. The following diagrams show, for each single displacement, the typical required power as a function of rotation speed and pressure generated by the system and allow you to easily spot the product suitable for your application. Once the pump flow rate has been selected, different flanges, shafts, inlet and outlet port position and type are available to meet our customer's needs. In the product tables, the flow shown at 1500 rpm, has been evaluated using a value of volumetric efficiency of 95%. All the drawings are shown gear pumps with clockwise rotation. The inlet and outlet ports in a counterclockwise rotating pump are in the opposite position compared to a clockwise pump.



Distance rotation from shaft and shown Code-D



Pump Type	Dimension-K	Dimension-Y
VGP-68	81.0	168.5
VGP-81	83.0	172.5
VGP-95	85.0	178.5
VGP-113	87.0	180.5
VGP-136	90.0	186.5
VGP-150	92.0	190.5
VGP-173	96.0	198.5
VGP-200	99.0	204.5
VGP-225	102.0	210.5
VGP-260	108.0	222.5
VGP-300	113.0	232.5

All dimensions are in mm.
Tolerances for X & Y : ± 1 mm.

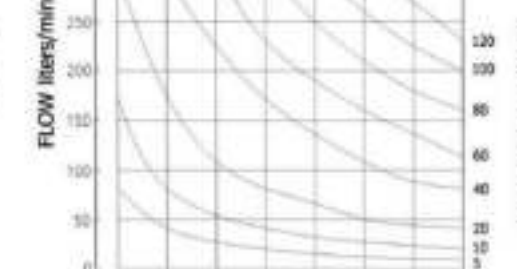
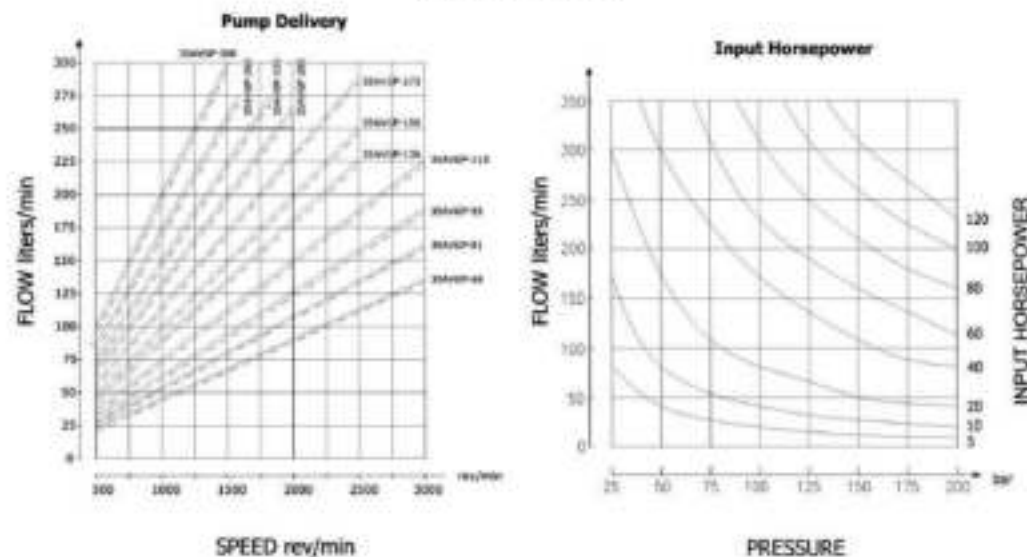
- For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 26, 30
- For suction & delivery port - see page no. 36, 37 • For end cover - see page no. 33 & 48 • For ordering code - see page no. 43
- Accessories supplied with standard pump - Threaded connections, suitable for SAE standard flange (See page no. 42)

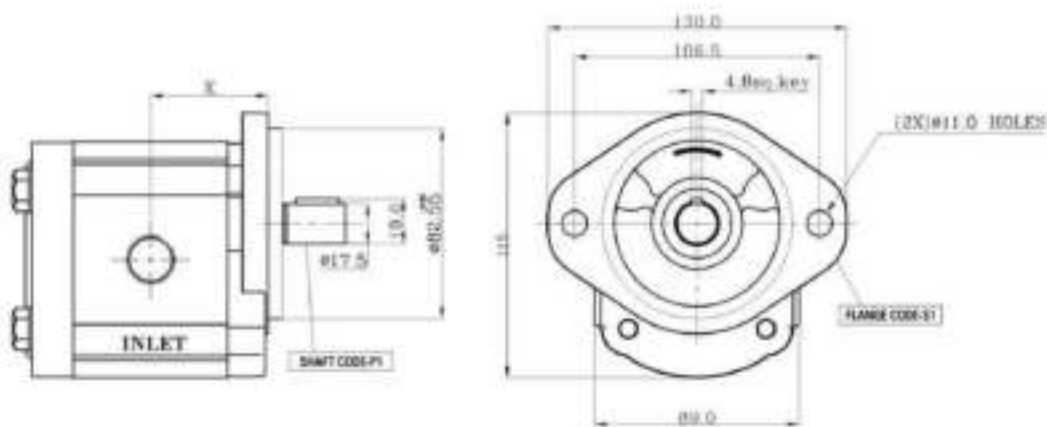
SPECIFICATION DATA

Pump Type	Theoretical Displacement	Nominal Delivery At 1500 RPM	Max. Speed at Max. Pressure	Min. Speed at Max. Continuous Pressure	Inlet	Outlet	P1, Continuous Pressure	P2, Intermittent Pressure	P3, Peak Pressure
	CC/REV	L/Min	Rpm/Min	Rpm/Min	SAE Flange	SAE Flange	BAR	BAR	BAR
VGP-68	45.00	68.00	2900	700	U	T	240	270	290
VGP-81	54.70	81.00	2900	700	U	T	240	270	290
VGP-95	64.00	95.00	2900	700	U	T	240	270	290
VGP-113	79.00	113.00	2900	700	U	T	240	270	290
VGP-136	91.40	136.00	2400	700	U	T	200	230	250
VGP-150	100.70	150.00	2400	700	V	T	200	230	250
VGP-173	116.10	173.00	2400	700	V	T	190	190	210
VGP-200	134.10	200.00	2400	700	W	V	190	190	210
VGP-225	150.70	225.00	2200	700	W	V	190	190	190
VGP-260	174.10	260.00	2200	700	W	V	140	150	160
VGP-300	201.00	300.00	2200	700	W	V	130	140	150

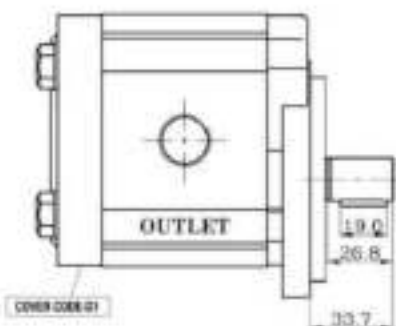
- Pressure with ENCLD 68 at @ 50°C
- Pump with relief valve also available (Code-RD)

PERFORMANCE CHART





Distance relation from shaft end flange (Code C)



Pump Type	Dimension-X	Dimension-Y
VGM-7	45.0	99.0
VGM-9	46.5	102.0
VGM-12	48.0	105.0
VGM-16	49.5	108.0
VGM-20	52.0	113.0
VGM-23	54.0	117.0
VGM-27	56.0	121.0
VGM-32	59.0	127.0
VGM-36	61.5	132.0
VGM-40	64.0	137.0
VGM-50	68.5	148.0

All dimension are in mm.
Tolerances for X & Y - ± 1 mm.

• For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 29, 30
• For suction & delivery port - see page no. 35, 37 • For end cover - see page no. 39 & 40 • For ordering code - see page no. 43



SPECIFICATION DATA

Pump Type	Theoretical Displacement	Nominal Delivery At 1450 REV/Min.	Min. Speed at Max. Pressure	Max. Speed at Max. Continuous Pressure	Body Parts Code-F		Torque	Maximum Pressure
	CM ³ /REV	L/Min	Rev/Min	Rev/Min	Inlet Code	Outlet Code		
VGM-7	5.60	8.40	650	4000	B	B	5.8	250
VGM-10	7.54	11.30	650	3800	B	B	8.12	250
VGM-12	8.80	13.20	650	3600	B	B	11.36	240
VGM-16	11.00	16.50	650	3600	C	C	14.61	240
VGM-20	13.40	20.10	650	3600	C	C	19.4	240
VGM-23	16.50	24.80	650	3500	C	C	21.7	230
VGM-27	19.00	28.60	600	3400	C	C	25.97	230
VGM-32	22.66	34.00	600	3300	D	D	30.64	210
VGM-36	24.35	36.50	600	3200	D	D	33.8	200
VGM-40	27.40	41.10	600	3100	D	D	35.44	190
VGM-50	34.13	51.20	550	2800	D	D	46.27	180

• Pressure with ENCLD 88 at 50°C

Maximum torque ratings are referred to ideal working condition, such values may reduce based on the quality of joint and connections used.

SPECIFICATIONS

Construction	External gear type motor
Mounting	See page no. 31
Port Connections	See page no. 38
Direction of rotation	Uni-directional & Bi-directional
Mounting position	any
Ambient Temperature Range	-15°C ... + 60°C (+5°F... 140°F)
Fluid	Mineral oil based hydraulic fluids to DIN150, other fluids to order
Viscosity	12... 600 mm ² /s permitted range, 20... 100 mm ² /s recommended range, ...2000 mm ² /s permitted for starting
Fluid temperature range	-15°C ... + 80°C (+5°F... 176°F)
Filtration	NAS 1638, class 10/ISO/DIS 4406, Class 19/16, obtained with filter fitness (β ₂₅ > 75)

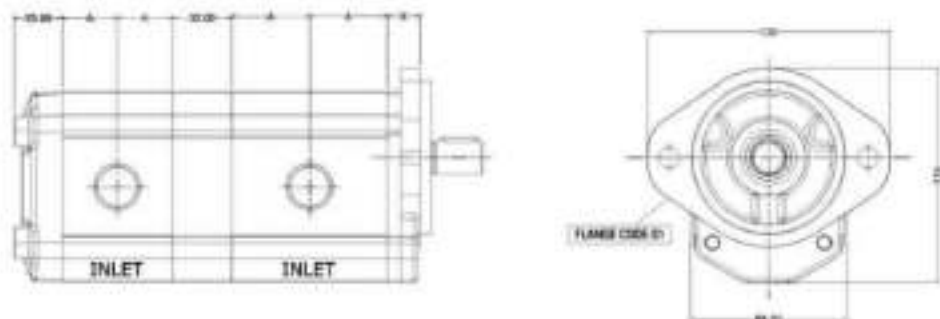
Dirt particles retention > 25 μm 1.75, i.e. 98.67%

Safety requirements pertaining to the whole system must be observed.
In the case of the applications with high numbers of load cycles, please consult us.

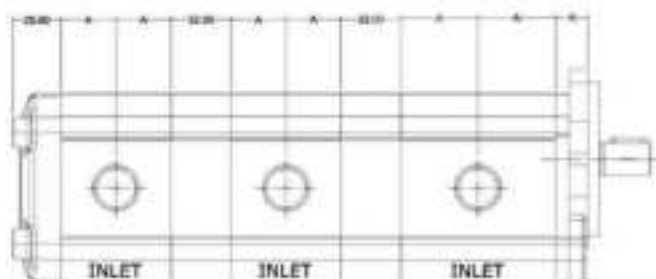
Bi-directional motor are comes with drain line (See cover D1 on page no. 40)

GROUP 10A - MULTIPLE STAGES

VGP - 10A + 10A



VGP - 10A + 10A + 10A



Pump Type	A
VGP-7	23.5
VGP-10	25
VGP-12	26.5
VGP-16	28
VGP-20	30.5
VGP-23	32.5
VGP-27	34.5
VGP-32	41.5
VGP-36	44
VGP-40	55.5
VGP-55	54

Mounting Flange	X in mm
S1	17.5
D1	19
K1	17
R1	19

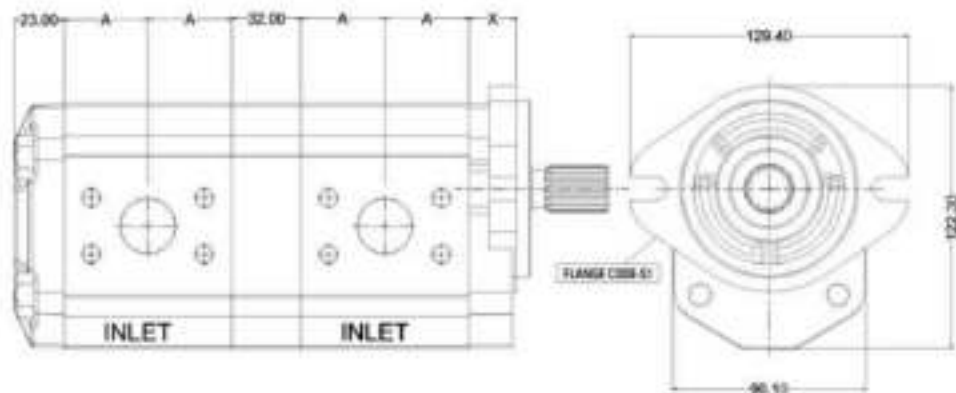
All dimension are in mm.
Tolerances for total length - ± 1 mm.



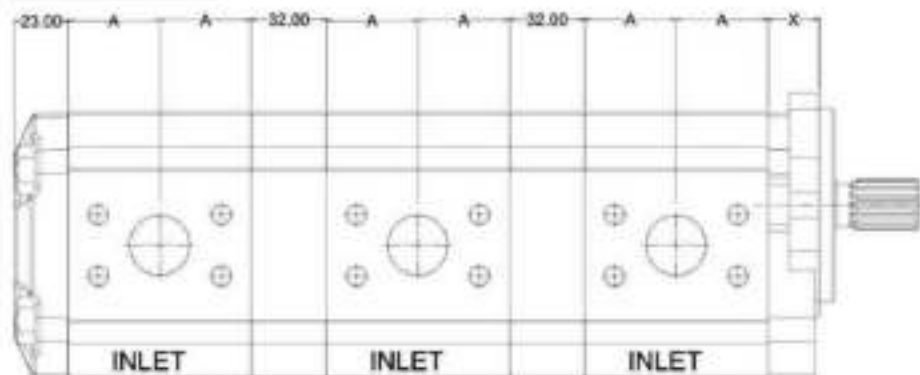
• For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 29, 30
• For suction & delivery port - see page no. 36, 37 • For end cover - see page no. 39 & 40 • For ordering code - see page no. 44

GROUP 15A - MULTIPLE STAGES

VGP - 15A + 15A



VGP - 15A + 15A + 15A



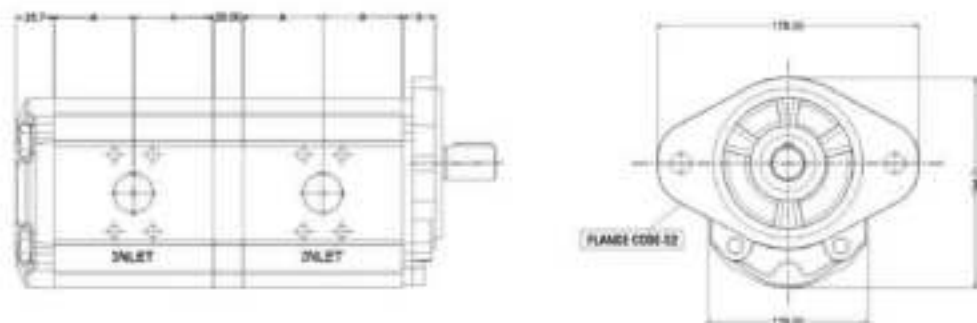
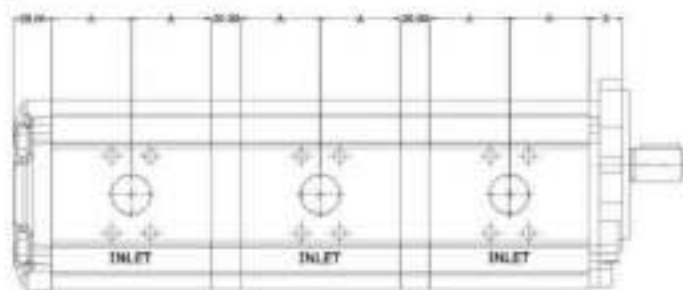
Pump Type	A
VGP-16	32
VGP-21	34
VGP-25	35
VGP-32	38
VGP-34	39
VGP-39	41
VGP-48	46
VGP-55	48
VGP-66	53

Mounting Flange	X in mm
S1	17.5
R1	19
S2	22.3
D2	20.6

All dimension are in mm.
Tolerances for total length - ± 1 mm.



• For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 29, 30
• For suction & delivery port - see page no. 36, 37 • For end cover - see page no. 39 & 40 • For ordering code - see page no. 44

VGP - 20A+20A

VGP - 20A + 20A + 20A


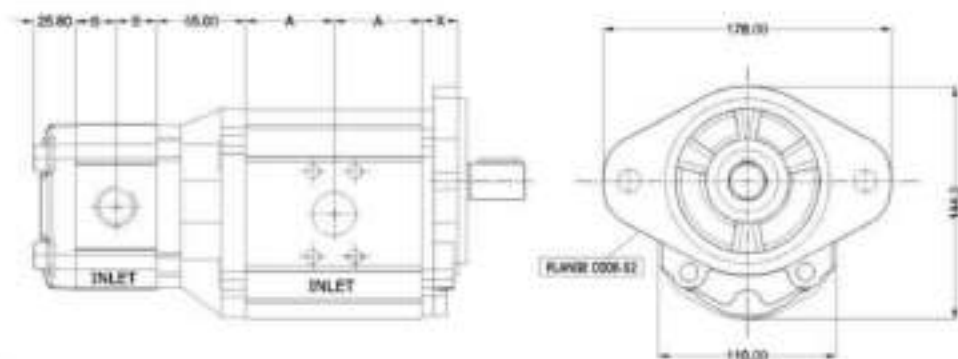
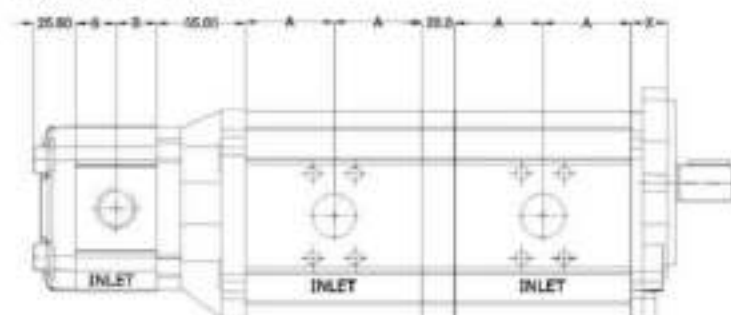
Pump Type	A in MM
VGP-22	44.5
VGP-32	48
VGP-41	51.5
VGP-47	54.5
VGP-54	57.5
VGP-66	61.5
VGP-71	63.5
VGP-85	69
VGP-100	75.5

Mounting Flange	X in mm
51	22.3
02	20.3

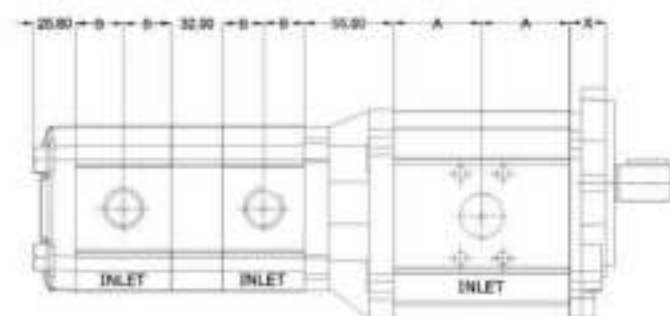


All dimensions are in mm.
Tolerances for total length - ± 1 mm.

• For inlet shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 29, 30
• For suction & delivery port - see page no. 36, 37 • For end cover - see page no. 39 & 40 • For ordering code - see page no. 44

VGP - 20A + 10A

VGP - 20A + 20A + 10A


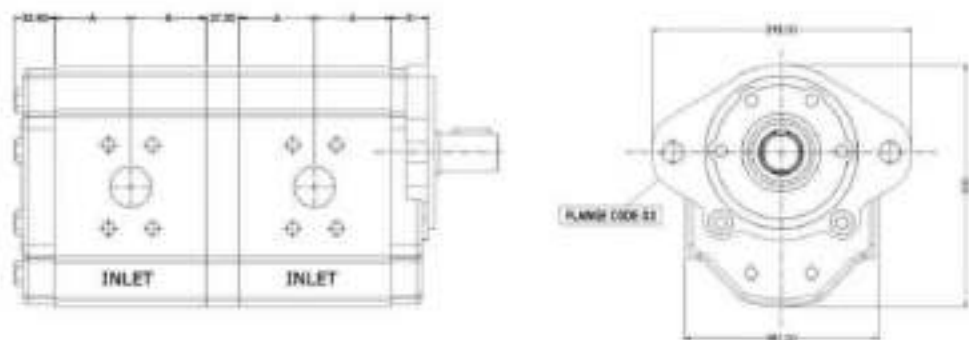
Pump Type	A in MM
VGP-22	44.5
VGP-32	48
VGP-41	51.5
VGP-47	54.5
VGP-54	57.5
VGP-66	61.5
VGP-71	63.5
VGP-85	69
VGP-100	75.5

VGP - 20A + 10A + 10A


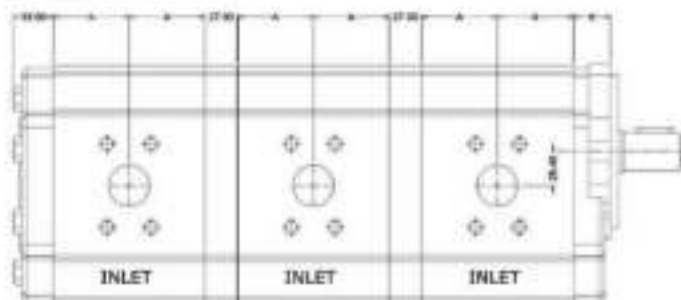
Pump Type	B in MM
VGP-7	23.5
VGP-10	25
VGP-12	26.5
VGP-16	28
VGP-20	28.5
VGP-23	32.5
VGP-27	34.5
VGP-32	41.5
VGP-36	44
VGP-40	56.5
VGP-55	54

Mounting Flange	X in mm
51	22.3
02	20.6

VGP - 35A+35A



VGP - 35A+35A+35A



Pump Type	A in MM
VGP-58	54
VGP-61	56
VGP-65	58
VGP-113	60
VGP-136	63
VGP-150	65
VGP-173	69
VGP-200	72
VGP-225	75
VGP-260	81
VGP-300	86

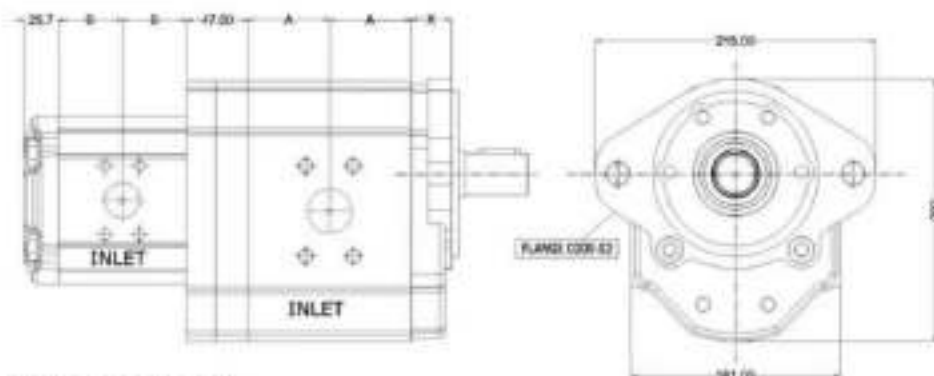
Mounting Flange	X in mm
S3	27
C3	63.5
B3	63.5
V3	63.5



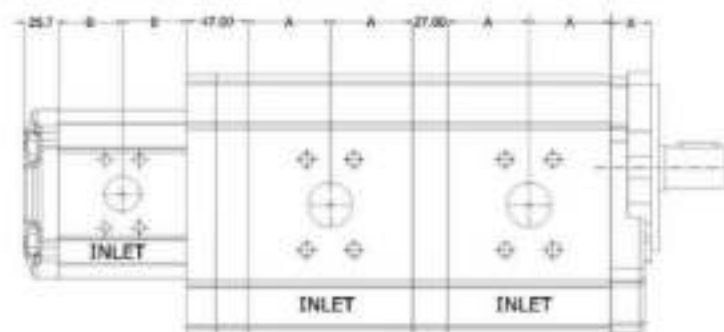
All dimensions are in mm.
Tolerances for total length - ± 1 mm.

• For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 29, 30
• For suction & delivery port - see page no. 36, 37 • For end cover - see page no. 39 & 40 • For ordering code - see page no. 44

VGP - 35A+20A

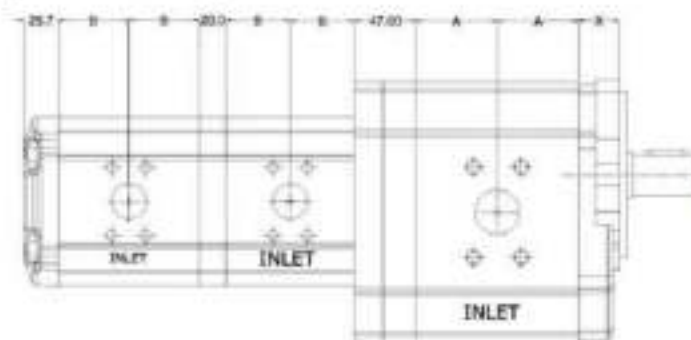


VGP - 35A+35A+20A



Pump Type	A in MM
VGP-66	54
VGP-61	56
VGP-65	58
VGP-113	60
VGP-136	63
VGP-150	65
VGP-173	69
VGP-200	72
VGP-225	75
VGP-260	81
VGP-300	86

VGP - 35A+20A+20A



Pump Type	B in MM
VGP-22	44.5
VGP-32	48
VGP-41	51.5
VGP-47	54.5
VGP-54	57.5
VGP-65	61.5
VGP-71	63.5
VGP-85	69
VGP-100	75.5

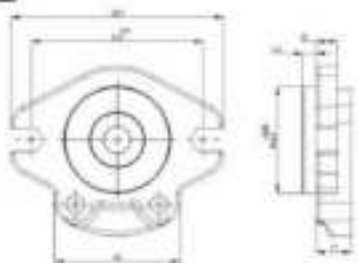
Mounting Flange	X in mm
S3	27
C3	63.5
B3	63.5
V3	63.5

All dimensions are in mm.
Tolerances for total length - ± 1 mm.

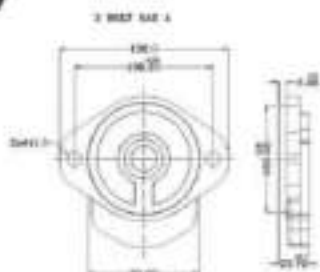
• For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 29, 30
• For suction & delivery port - see page no. 36, 37 • For end cover - see page no. 39 & 40 • For ordering code - see page no. 44

MOUNTING FLANGE

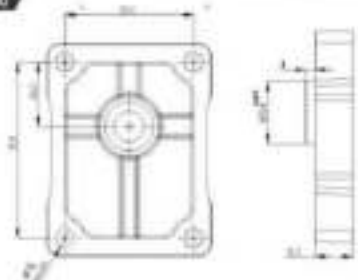
Code S0



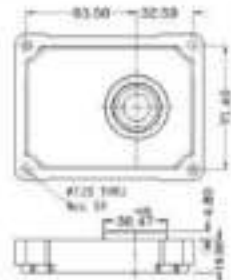
Code S1



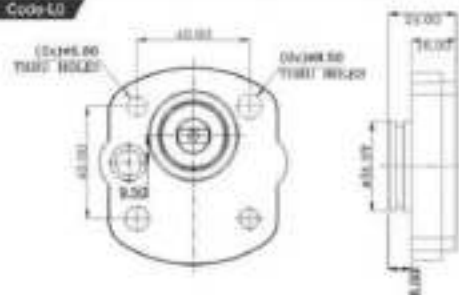
Code C0



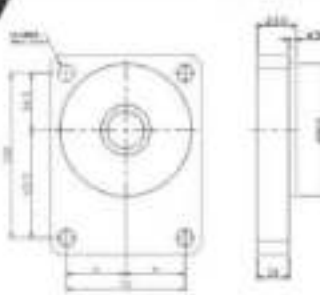
Code D1



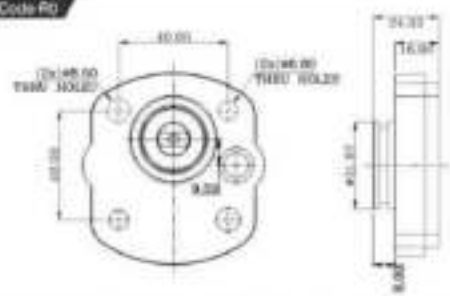
Code L0



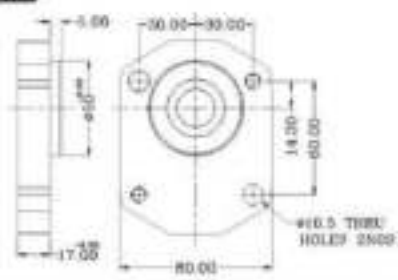
Code R1



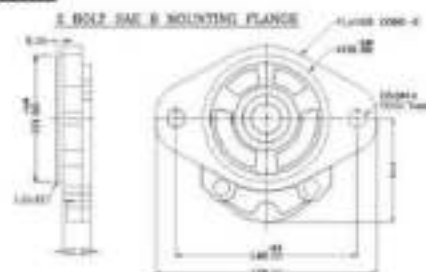
Code R0



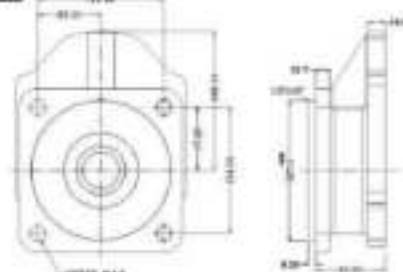
Code R1



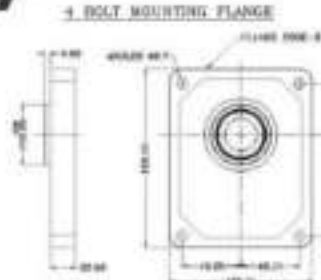
Code S2



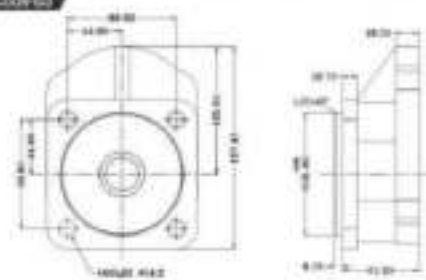
Code C1



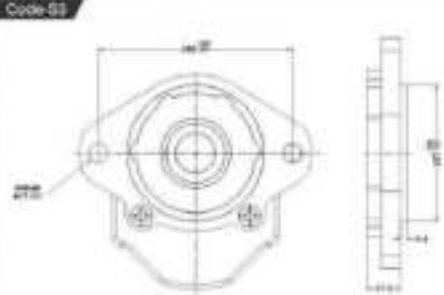
Code D0



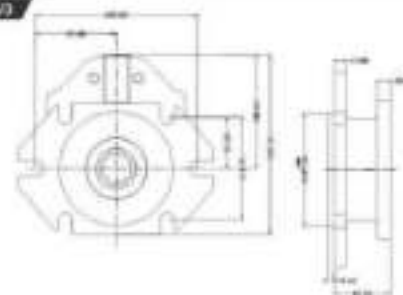
Code S0



Code S2



Code V3

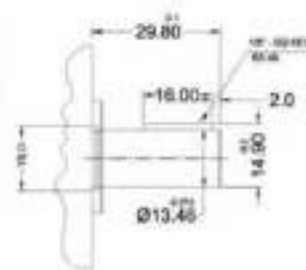


AVAILABLE MOUNTING FLANGE COMBINATION

Group	Model	Flange													
		S0	S6	L0	R0	S1	O1	R1	K1	S2	O2	S3	O3	B3	V3
65A	VGP-01	✓	✓	✓	✓										
	VGP-02	✓	✓	✓	✓										
	VGP-03	✓	✓	✓	✓										
	VGP-04	✓	✓	✓	✓										
	VGP-05	✓	✓	✓	✓										
	VGP-06	✓	✓	✓	✓										
	VGP-07	✓	✓	✓	✓										
10A	VGP-07					✓	✓	✓	✓						
	VGP-10					✓	✓	✓	✓						
	VGP-12					✓	✓	✓	✓						
	VGP-16					✓	✓	✓	✓						
	VGP-20					✓	✓	✓	✓						
	VGP-23					✓	✓	✓	✓						
	VGP-27					✓	✓	✓	✓						
	VGP-32					✓	✓	✓	✓						
	VGP-36					✓	✓	✓	✓						
	VGP-40					✓	✓	✓	✓						
15A	VGP-16					✓	✓	✓	✓	✓	✓				
	VGP-21					✓	✓	✓	✓	✓	✓				
	VGP-25					✓	✓	✓	✓	✓	✓				
	VGP-32					✓	✓	✓	✓	✓	✓				
	VGP-34					✓	✓	✓	✓	✓	✓				
	VGP-39					✓	✓	✓	✓	✓	✓				
	VGP-48					✓	✓	✓	✓	✓	✓				
	VGP-55					✓	✓	✓	✓	✓	✓				
	VGP-66					✓	✓	✓	✓	✓	✓				
	20A	VGP-22					✓	✓	✓	✓	✓	✓			
VGP-32						✓	✓	✓	✓	✓	✓				
VGP-41						✓	✓	✓	✓	✓	✓				
VGP-47						✓	✓	✓	✓	✓	✓				
VGP-54						✓	✓	✓	✓	✓	✓				
VGP-66						✓	✓	✓	✓	✓	✓				
VGP-71						✓	✓	✓	✓	✓	✓				
VGP-85						✓	✓	✓	✓	✓	✓				
VGP-100						✓	✓	✓	✓	✓	✓				
35A		VGP-68										✓	✓	✓	✓
	VGP-81										✓	✓	✓	✓	
	VGP-85										✓	✓	✓	✓	
	VGP-113										✓	✓	✓	✓	
	VGP-136										✓	✓	✓	✓	
	VGP-150										✓	✓	✓	✓	
	VGP-173										✓	✓	✓	✓	
	VGP-200										✓	✓	✓	✓	
	VGP-235										✓	✓	✓	✓	
	VGP-250										✓	✓	✓	✓	
10A (MOTOR)	VGM-07					✓	✓	✓	✓						
	VGM-10					✓	✓	✓	✓						
	VGM-12					✓	✓	✓	✓						
	VGM-16					✓	✓	✓	✓						
	VGM-20					✓	✓	✓	✓						
	VGM-25					✓	✓	✓	✓						
	VGM-27					✓	✓	✓	✓						
	VGM-32					✓	✓	✓	✓						
	VGM-38					✓	✓	✓	✓						
	VGM-40					✓	✓	✓	✓						
VGM-50					✓	✓	✓	✓							

SHAFT

Code-P0



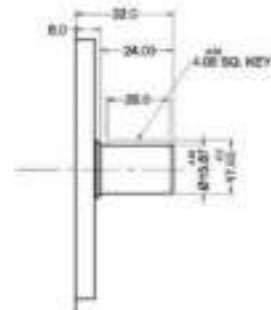
Max. Torque : 100 Nm

Code-P1



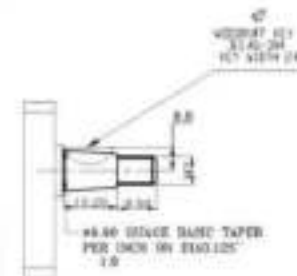
Max. Torque : 100 Nm

Code-L1



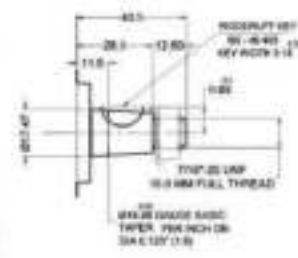
Max. Torque : 140 Nm

Code-T0



Max. Torque : 140 Nm

Code-T1



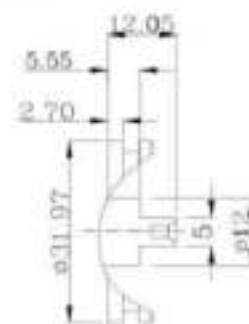
Max. Torque : 140 Nm

Code-R1



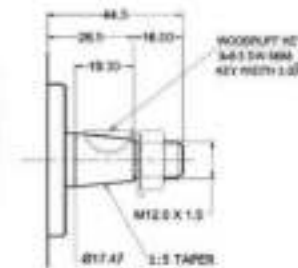
Max. Torque : 150 Nm

Code-K0



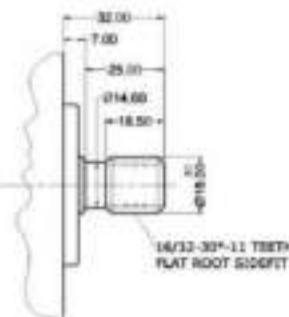
Max. Torque : 0 Nm

Code-K1



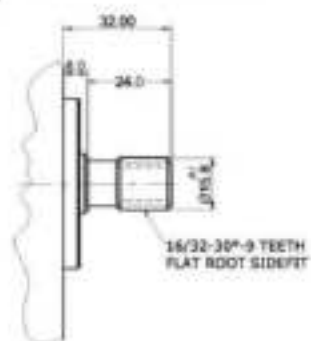
Max. Torque : 140 Nm

Code-G1



Max. Torque : 200 Nm

Code-S1



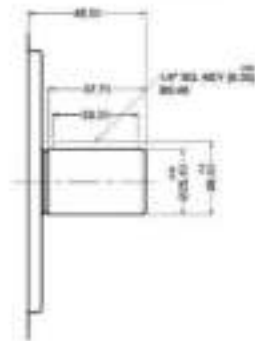
Max. Torque : 180 Nm

Code-P2



Max. Torque : 450 Nm

Code-R2



Max. Torque : 0 Nm

Code-T3



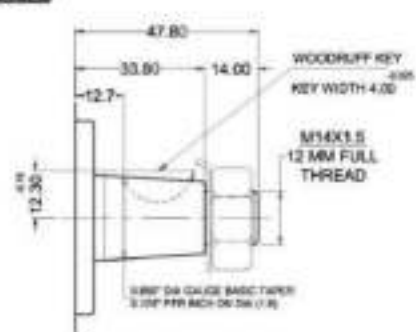
Max. Torque : 350 Nm

Code-F1



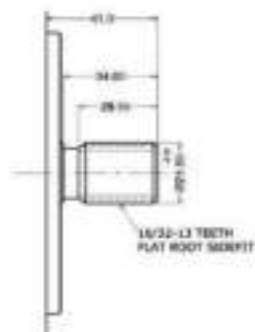
Max. Torque : 200 Nm

Code-T2



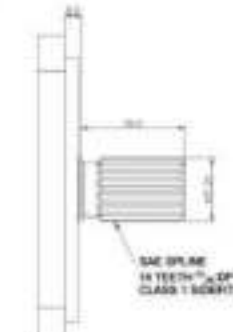
Max. Torque : 300 Nm

Code-S2



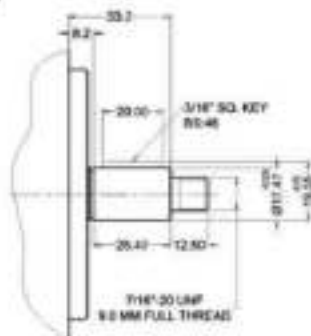
Max. Torque : 600 Nm

Code-S3



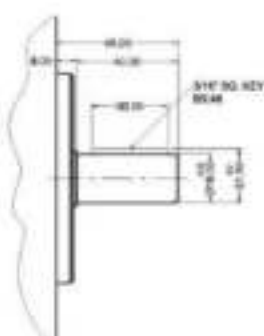
Max. Torque : 0 Nm

Code-U1



Max. Torque : 180 Nm

Code-L2



Max. Torque : 180 Nm

Code-P3



Max. Torque : 450 Nm

Code-E1



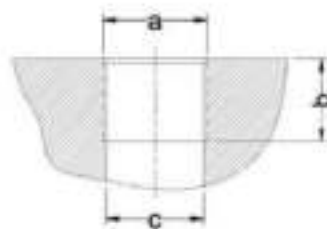
Max. Torque : 140 Nm

AVAILABLE SHAFT COMBINATION

Group	Model	Shaft																				
		P0	T0	K0	P1	T1	K1	L1	R1	G1	S1	F1	U1	P2	T2	L2	R2	S2	P3	T3	S3	E1
85A	VGP-01	✓	✓	✓																		
	VGP-02	✓	✓	✓																		
	VGP-03	✓	✓	✓																		
	VGP-04	✓	✓	✓																		
	VGP-05	✓	✓	✓																		
	VGP-06	✓	✓	✓																		
	VGP-07	✓	✓	✓																		
10A	VGP-07				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-10				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-12				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-16				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-20				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-23				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-27				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-32				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-36				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-40				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-50				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15A	VGP-16				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-21				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-25				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-32				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-34				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-39				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-48				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-55				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-65				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-65				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20A	VGP-22												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-32												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-41												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-47												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-54												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-56												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-71												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-85												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-100												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGP-08																		✓	✓	✓	✓
35A	VGP-81																		✓	✓	✓	✓
	VGP-95																		✓	✓	✓	✓
	VGP-113																		✓	✓	✓	✓
	VGP-136																		✓	✓	✓	✓
	VGP-150																		✓	✓	✓	✓
	VGP-173																		✓	✓	✓	✓
	VGP-200																		✓	✓	✓	✓
	VGP-225																		✓	✓	✓	✓
VGP-260																		✓	✓	✓	✓	
VGP-300																		✓	✓	✓	✓	
10A (MOTOR)	VGM-07				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-10				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-12				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-16				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-20				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-23				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-27				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-32				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-36				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-40				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VGM-50				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

PORTS

Gas Straight Thread Ports

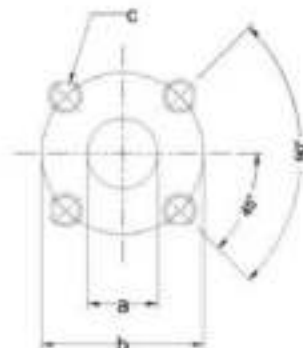


Code	a (Nominal Size)	b mm	c mm	Nm	Nm
A	3/8" BSP	20.0	15.0	15 ¹¹	25 ¹¹
B	1/2" BSP	20.0	19.0	20 ¹¹	50 ¹¹
C	3/4" BSP	21.0	24.5	30 ¹¹	90 ¹¹
D	1" BSP	22.0	30.5	50 ¹¹	130 ¹¹
E	1 1/4" BSP	25.0	38.5	60 ¹¹	170 ¹¹

Note:

- ☞ Tightening torque for low pressure side port
- ☜ Tightening torque for high pressure side port

German Flanged Ports

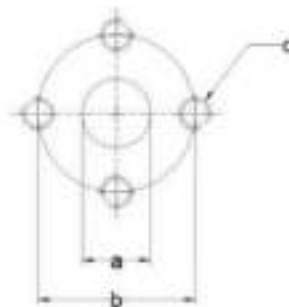


Code	a mm	b mm	c mm	Nm	Nm
F	8.0	30.0	M6	8 ¹¹	8 ¹¹
G	13.0	30.0	M6	8 ¹¹	8 ¹¹
H	15.0	35.0	M6	8 ¹¹	8 ¹¹
I	20.0	40.0	M6	15 ¹¹	15 ¹¹
J	19.0	43.15	M6	15 ¹¹	15 ¹¹
K	19.0	55.0	M8	20 ¹¹	20 ¹¹
L	27.0	55.0	M8	15 ¹¹	20 ¹¹

Note:

- ☞ Tightening torque for low pressure side port
- ☜ Tightening torque for high pressure side port

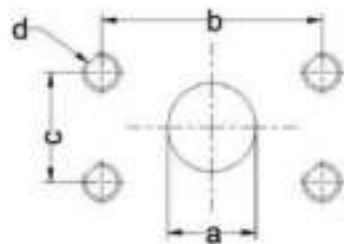
European Flanged Ports



Code	a mm	b mm	c Thread Depth mm	Nm	Nm
M	13.0	30.0	M6 (13)	8 ¹¹	8 ¹¹
N	19.0	40.0	M8 (14)	15 ¹¹	15 ¹¹
			M8 (18) ●	15 ¹¹ ●	15 ¹¹ ●
O	27.0	51.0	M10 (16)	20 ¹¹	30 ¹¹
P	33.0	62.0	M12 (18)	25 ¹¹	50 ¹¹

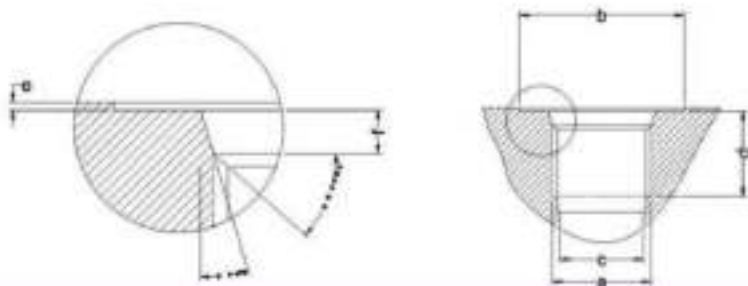
Note:

- ☞ Tightening torque for low pressure side port
- ☜ Tightening torque for high pressure side port
- For 20A Group

SAE Flanged Ports


Code	**** mm	b mm	c mm	d Thread Depth mm	Nm	Nm
Q	12.5	38.1	17.5	M8 (14) 15 ¹¹ M8 (22) 20 ¹¹	15 ¹¹	15 ¹¹
R	19.0	47.6	22.2	M10 (14) 20 ¹¹ 3/8"UNC (22) 20 ¹¹	25 ¹¹	35 ¹¹
S	27	52.4	26.2	M10 (14) 20 ¹¹ 3/8"UNC (22) 20 ¹¹	25 ¹¹	35 ¹¹
T	32	30.5	58.7	7/16"UNC (25) 30 ¹¹	60 ¹¹	60 ¹¹
U	38	69.5	36.5	3/8"UNC (22) 20 ¹¹ 1/2"UNC (25) 35 ¹¹	65 ¹¹	65 ¹¹
V	38 48 *	77.8	42.0	7/16"UNC (25) 30 ¹¹ 1/2"UNC (25) 35 ¹¹	60 ¹¹	65 ¹¹
W	50	108.5	62.0	1/2"UNC (25) 35 ¹¹	65 ¹¹	65 ¹¹

- Note :**
- Tightening torque for low pressure side port
 - Tightening torque for high pressure side port
 - ★ For low pressure port
 - ◆ For 35A Group

SAE Straight Thread Ports


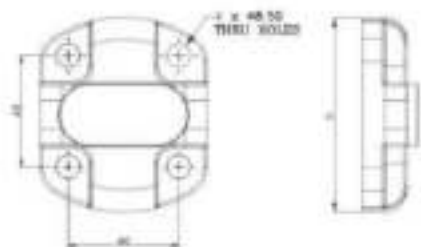
Code	a (Nominal Size)	**** mm	**** mm	d mm	e mm	f mm	****	Nm	Nm
UA	3/4" - 16 UNF	32.0	17.5	15.0	1	2.5	.....	20 ¹¹	45 ¹¹
UB	7/8" - 14 UNF	35.0	20.5	15.0	1	2.5	.....	30 ¹¹	70 ¹¹
UC	1 1/16" - 12 UNF	42.0	24.8	20.0	1	3.3	.....	40 ¹¹	120 ¹¹
UD	1 5/16" - 12 UNF	49.0	30.5	20.0	1	3.3	.....	60 ¹¹	170 ¹¹

- Note :**
- Tightening torque for low pressure side port
 - Tightening torque for high pressure side port

AVAILABLE PORTS COMBINATION

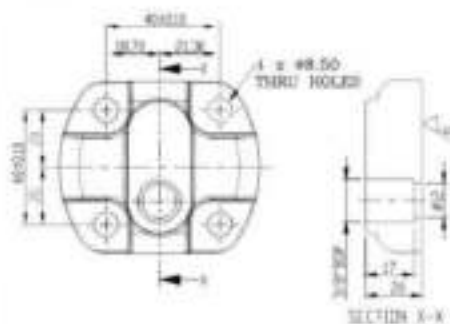
Group	Model	BSP THREAD		GERMAN FLANGE		EUROPEAN FLANGE		SAE FLANGE		UNF THREAD	
		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
35A	1	A	A								
	2	A	A								
	3	A	A								
	4	A	A								
	5	B	A								
	6	B	A								
	7	B	A								
18A	8	B	B	I	H	M	M			UB	UB
	7	B	B	I	H	M	M			UB	UB
	9	B	B	I	H	M	M			UB	UB
	12	B	B	I	H	M	M			UB	UB
	16	C	B	I	H	M	M			UB	UB
	20	C	C	I	H	N	M			UC	UB
	23	C	C	I	H	N	M			UC	UB
	27	C	C	I	H	N	M			UC	UB
	32	C	C	I	H	N	M			UC	UB
	40	C	C	I	H	N	M			UC	UB
	55	C	C	I	H	N	M			UC	UB
15A	17	C	C	I	H	N	M			UC	UB
	21	C	C	I	H	N	M			UC	UB
	25	C	C	I	H	N	M			UC	UB
	34	C	C	I	H	N	M			UC	UB
	38	D	C	I	H	N	M			UC	UB
	48	D	C	I	H	O	N			UC	UB
	55	D	C	K	J	O	N			UD	UC
65	D	C	K	J	O	N			UD	UC	
20A	22			K	J	O	N	S	R	UD	UC
	32			K	J	O	N	S	R	UD	UC
	41			K	J	O	N	S	R	UD	UC
	47			K	J	O	N	S	R	UD	UC
	54			K	J	O	N	S	R	UD	UC
	66			K	J	O	N	S	R	UD	UC
	71			K	J	O	N	S	R	UD	UC
35A	85			K	J	O	N	U	S		
	100			K	J			U	S		
	58							U	T		
	81							U	T		
	95							U	T		
	113							U	T		
	126							U	T		
	150							V	T		
	173							V	T		
	200							W	V		
	225							W	V		
15A MOTOR	260							W	V		
	300							W	V		
	7	B	B	I	H	M	M			UB	UB
	10	B	B	I	H	M	M			UB	UB
	12	B	B	I	H	M	M			UB	UB
	16	B	B	I	H	M	M			UB	UB
	20	C	B	I	H	M	M			UB	UB
	23	C	C	I	H	N	M			UC	UB
	27	C	C	I	H	N	M			UC	UB
	32	C	C	I	H	N	M			UC	UB
	36	C	C	I	H	N	M			UC	UB
40	C	C	I	H	N	M			UC	UB	
50	D	C	I	H	N	M			UC	UB	

Code-R0



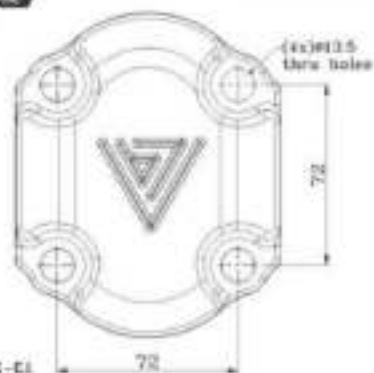
MOC - CI

Code-L0



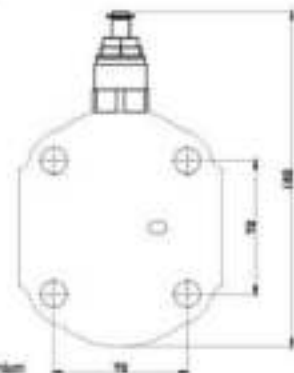
MOC - CI

Code-R2



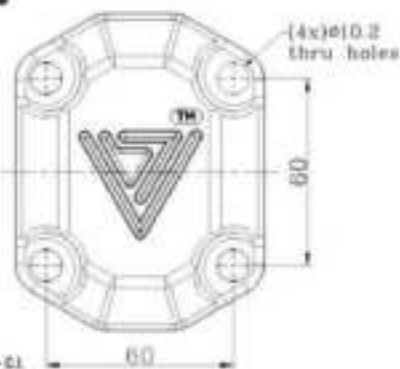
MOC - CI

Code-R2



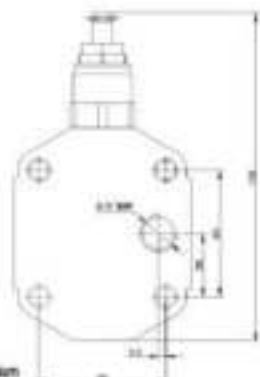
MOC - Aluminium

Code-R1



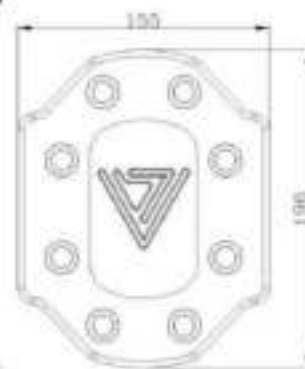
MOC - CI

Code-R1



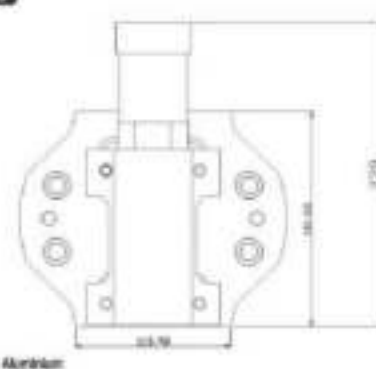
MOC - Aluminium

Code-R3



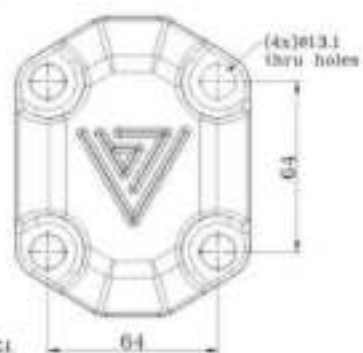
MOC - CI

Code-R3



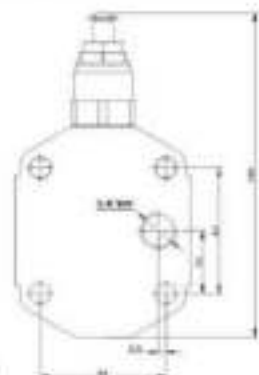
MOC - Aluminium

Code-R10



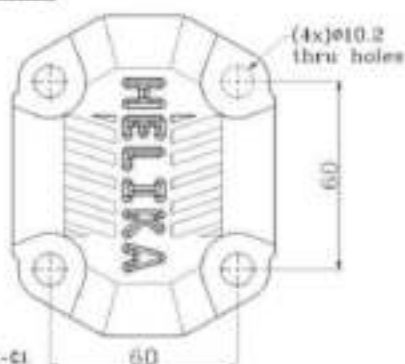
MOC - CI

Code-R10



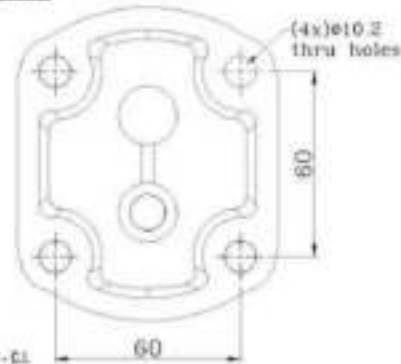
MOC - Aluminium

Helika - R1

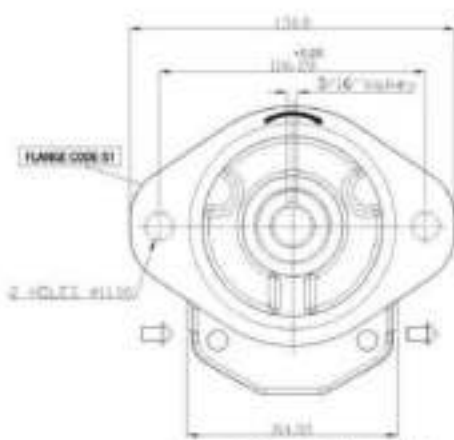
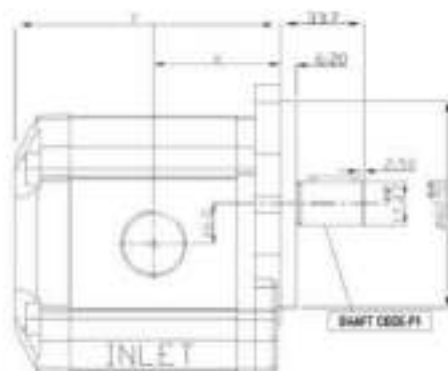


MOC - CI

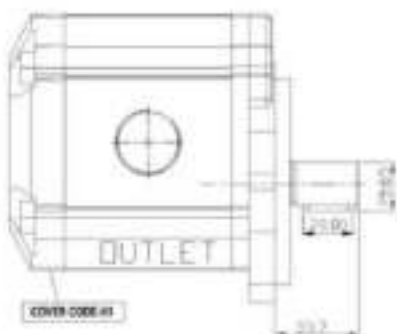
Helika - D1



MOC - CI



Clockwise rotation from shaft and driven (Code C)



SPECIFICATION DATA

Pump Type	Theoretical Displacement CC/REV	Nominal Delivery at 1500 RPM L/Min	Max. Speed at Max. Pressure Rev/Min	Max. Speed at Max. Continuous Pressure Rev/Min	Inlet BSP	Outlet BSP	P1, Continuous Pressure BAR	P2, Intermittent Pressure BAR	P3, Peak Pressure BAR	Dimension X	Dimension Y
HGP-7	5.60	8.40	4000	600	1/2"	1/2"	250	280	300	44.5	93.5
HGP-10	7.54	11.30	4000	600	1/2"	1/2"	250	280	300	45.0	94.5
HGP-12	8.80	13.20	4000	600	1/2"	1/2"	250	280	300	45.5	95.5
HGP-16	11.00	16.50	3500	600	3/4"	1/2"	250	280	300	47.0	96.5
HGP-20	13.40	20.10	3000	600	3/4"	3/4"	250	280	300	49.0	102.0
HGP-23	16.50	24.80	3200	600	3/4"	3/4"	250	280	300	51.0	106.0
HGP-27	19.00	28.60	3000	600	3/4"	3/4"	210	230	250	47.5	99.0
HGP-32	22.66	34.00	3000	600	1"	3/4"	210	230	250	54.0	112.5
HGP-36	24.33	36.50	3000	600	1"	3/4"	190	180	210	56.5	117.5
HGP-40	27.40	41.10	3000	600	1"	3/4"	190	180	210	60.0	124.5

• For drive shaft - see page no. 32, 33, 34 • For mounting flange - see page no. 28, 36
 • For suction & delivery port - see page no. 36, 37 • For end cover - see page no. 39 & 40 • For ordering code - see page no. 43

All dimension are in mm.
 Tolerances for X & Y - ± 1 mm.

10A	VGP	12	C	P1	S1	XX	B
GROUP	TYPE	MODEL	ROTATION	SHAFT	MOUNTING	PORT	COVER

GROUP	05A
	10A
	15A
	20A
	35A
	40A

TYPE	VGP
	VDM
	HGP

MODEL	
05A	1,2,3,4,5,6,7
10A	7,10,12,16,20,23,27,32,36,48,50
15A	16,21,25,32,36,39,48,55,60
20A	22,30,41,47,54,66,71,95,100
35A	68,81,95,113,136,150,173,200,225,260,300
40A	6,7,9,12,16,20,23,27,32,40,50

ROTATION WITH SHAFT SEAL	
C	Clockwise with nitric shaft seal
A	Anti clockwise with nitric shaft seal
V	Clockwise with viton shaft seal
U	Anti clockwise with viton shaft seal
E	Clockwise with double nitric shaft seal
D	Anti clockwise with double nitric shaft seal
G	Clockwise with double nitric & viton shaft seal
F	Anti clockwise with double nitric & viton shaft seal
B	Bi-directional with nitric seal

SHAFT	
P0	Parallel with key (ø13.5)
T0	Taper shaft (1.8)
K0	Tung shaft
P1	Parallel with key (ø17.45)
T1	Taper shaft (1.8)
K1	Tung shaft (1.5)
L1	Parallel with key (ø15.80)
U1	Parallel key shaft with thread (ø17.45)
R1	Parallel with key (ø18.00)
S1	9 Spline
Q1	11 Spline
T1	14 Spline
P2	Parallel key shaft (ø22.22)
T2	Taper shaft (1.8)
S2	13 Spline shaft
P3	Parallel key shaft (ø21.80)
S3	14 Spline shaft
L2	Parallel key shaft (ø19.00)
R2	Parallel key shaft (ø15.40)
T3	Taper shaft (1.8)
B1	Other

B0	Standard cover
L0	Cover with steel
B1	Standard cover
R1	Cover with FW
R15	Standard Cover
R2	Cover with FW
R2	Cover with FW
R3	Standard cover
R3	Cover with FW
R4	Standard cover
D1	Cover with steel
00	Other

Section Delivery

A,B,C,D,E	Gas Straight Thread Port (GSP)
T,G,K,L,K,L	German Flange Port
M,N,O,P	European Flange Port
Q,R,S,T,U,V,W	SAE Flange Port
XA,YB,JC,LD	SAE Straight Thread Port (STP)
	Other

MOUNTING	
00	2 Bolt Mounting with Spigot ø 62.56
01	4 Bolt Mounting with Spigot ø 36.47
L0	2 Bolt Mounting with outlet (Spigot ø 31.97)
R0	2 Bolt Mounting with outlet (Spigot ø 31.97)
S1	2 Bolt Mounting with Spigot ø 62.56
Q1	4 Bolt Mounting with Spigot ø 36.47
K1	2 Bolt Mounting with Spigot ø 56.00
R1	4 Bolt Mounting with Spigot ø 60.00
S2	2 Bolt Mounting with Spigot ø 101.5
Q2	4 Bolt Mounting with Spigot ø 50.80
Q3	4 Bolt Mounting with Spigot ø 127.00
S3	2 Bolt Mounting with Spigot ø 127.00
R2	4 Bolt Mounting with Spigot ø 101.5
02	Other

XXX / XXX	VSP	XXX / XXX	C	P1	S1	EX / XX	B
GROUP	TYPE	MODEL	ROTATION	SHAFT	MOUNTING	PORT	COVER

GROUP	05A
	10A
	15A
	20A
	35A
	12A

TYPE	VSP
	VOM
	HSP

MODEL	
05A	1,2,3,4,5 & 7
10A	7,10,12,16,20,23,27,32,36,40,50
15A	16,21,25,32,34,36,39,48,55,66
20A	22,30,41,47,54,66,71,85,100
35A	68,81,95,113,136,156,173,200,225,260,300
12A	6,7,8,12,16,20,23,27,32,40,50

ROTATION WITH SHAFT SEAL	
C	Clockwise with nitric shaft seal
A	Anti clockwise with nitric shaft seal
V	Clockwise with viton shaft seal
U	Anti clockwise with viton shaft seal
E	Clockwise with double nitric shaft seal
D	Anti clockwise with double nitric shaft seal
Q	Clockwise with double nitric & viton shaft seal
F	Anti clockwise with double nitric & viton shaft seal
B	Bi-directional with nitric seal

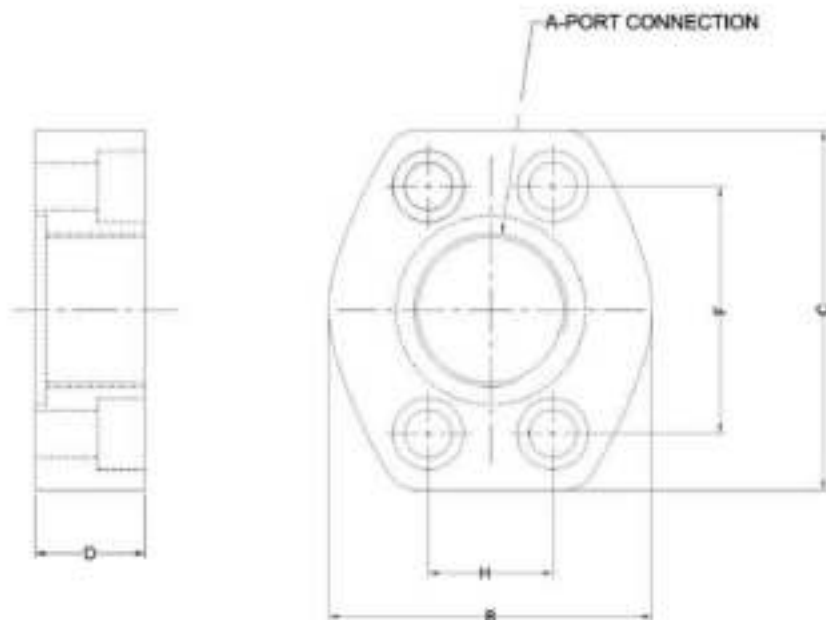
SHAFT	
P0	Parallel with key (Ø13.5)
T0	Taper shaft (1:6)
K0	Yong shaft
P1	Parallel with key (Ø17.45)
T1	Taper shaft (1:6)
K1	Taper shaft (1:5)
L1	Parallel with key (Ø15.85)
U1	Parallel key shaft with thread (Ø17.45)
R1	Parallel with key (Ø18.00)
S1	8 Spline
Q1	11 Spline
F1	14 Spline
P2	Parallel key shaft (Ø22.22)
T2	Taper shaft (1:6)
S2	12 Spline shaft
P3	Parallel key shaft (Ø21.85)
S3	14 Spline shaft
L2	Parallel key shaft (Ø18.00)
R2	Parallel key shaft (Ø15.40)
T3	Taper shaft (1:6)
00	Other

00	Standard cover
L0	Cover with Inlet
R1	Standard cover
R1	Cover with FWV
R15	Standard Cover
R15	Cover with FWV
R2	Standard cover
R2	Cover with FWV
R3	Standard cover
R3	Cover with FWV
R1	Standard cover
01	Cover with drain
00	Other

Section Delivery

A,B,C,D,E	Gas Straight Thread Port (GSP)
F,G,H,I,K,L	German Flange Port
M,N,O,P	European Flange Port
Q,R,S,T,U,V,W	SAE Flange Port
XA,YB,ZC,UD	SAE Straight Thread Port (SAP)
	Other

MOUNTING	
00	2 Bolt Mounting with Spigot Ø 62.55
00	4 Bolt Mounting with Spigot Ø 36.47
L0	2 Bolt Mounting with outlet / Spigot Ø 31.87
00	2 Bolt Mounting with outlet / Spigot Ø 31.87
S1	2 Bolt Mounting with Spigot Ø 82.55
01	4 Bolt Mounting with Spigot Ø 36.47
K1	2 Bolt Mounting with Spigot Ø 50.00
R1	4 Bolt Mounting with Spigot Ø 83.00
S2	2 Bolt Mounting with Spigot Ø 101.5
02	4 Bolt Mounting with Spigot Ø 52.80
C1	4 Bolt Mounting with Spigot Ø 127.00
S3	2 Bolt Mounting with Spigot Ø 127.00
V1	5 Bolt Mounting with Spigot Ø 127.00
R3	4 Bolt Mounting with Spigot Ø 531.8
Z	Cover Inlet / outlet
00	Other



Model No.	INLET				
	A THREAD	B	C	F	H
20A VGP 22 to 41	1" BSP	68.25	76.00	52.40	26.20
20A VGP 47, 85	1.1/4" BSP	68.25	76.00	52.40	26.20
20A VGP 71, 100	1.1/2" BSP	65.00	89.00	69.50	36.50
35A VGP 68 to 136	1.1/2" BSP	75.00	89.00	69.50	36.50
30A VGP 150, 173	2" BSP	74.80	105.6	77.80	42.00
35A VGP 225	2.1/2" PIPE	110.0	136.8	106.5	62.00

Model No.	INLET				
	A THREAD	B	C	F	H
20A VGP 22 to 41	3/4" BSP	57.75	71.00	47.60	22.20
20A VGP 47, 85	3/4" BSP	57.75	71.00	47.60	22.20
20A VGP 71, 100	1" BSP	68.25	76.00	52.40	26.20
35A VGP 68 to 136	1.1/4" BSP	65.00	89.00	69.50	36.50
35A VGP 150, 173	1.1/4" BSP	65.00	89.00	69.50	36.50
35A VGP 225	1.1/2" PIPE	75.00	89.00	69.50	36.50

FIAT / NEW HOLLAND (REPLACEMENT PARTS)

TRACTOR & MODEL	FIG. NO.	OUR MODEL NO.	OE# NUMBER	DISPLACEMENT
Fiat New Holland Tractor 6615, 960, 1180, 1280	1		A42X / 5129488 / 5129214	15 CC
Fiat New Holland Tractor 480, 580, 780, 980, 570F	1		C12X / 8273085 / 44698039 / 5129222	11 CC
Fiat New Holland Tractor 550, 570, 580, 600, 640 650, 670, 680, 750, 780, 800, 1000, 1300/45-60	1		5129481 / 5129224 / 568162 / 1901320 / 5129130 C18 (REF. NO. 644 425 032)	8 CC
Fiat Tractor	1		A 33	15 CC
Fiat Tractor	1		C20	9.50 CC
Fiat New Holland 480, 550, 750, 950	1		A31X 9667809 / 5129216 / 8280127 / 1901324 / 8282238	16 CC
Fiat Tractor	1		A34	19.80 CC
Fiat Tractor 640, 610, 650, 750, 780, 800, 900	1		A25 5129478 / 8280040 / 060006 / 1901321 / 5129130 (REF. NO. 650 525 322)	11 CC
Fiat Tractor 440, 411, 415, 420, 500M 30	1		A18 5129232 / 5130127 / 1901316 / 568206 / 568200	8 CC
Fiat Tractor 450, 470, 480, 500, 540	1		C13 8273075 / 5129486	15 CC

SAME (REPLACEMENT PARTS)

TRACTOR & MODEL	FIG. NO.	OUR MODEL NO.	OE# NUMBER	DISPLACEMENT
SAME Tractor Lantanae	1		(REF. NO. 637 525 311) 24520290 (REF. 20061)	11 CC
SAME / Haldor / Hartmann - Aster 60, 70	1		(REF. NO. 638 625 315)	16 CC
SAME Tractor	1		(REF. NO. 640 625 320)	22.5 CC
SAME - Lamborghini H - 8138	2		(REF. NO. 677 625 317)	16 CC
SAME - Lamborghini H - 8160	2		(REF. NO. 678 625 316)	19 CC
Lamborghini H300, H470, H480	4		(REF. NO. 679 725 346)	22.5 CC
Lamborghini H300, H470, H480	3		24520300 (REF. NO. 680 525 313)	11 CC

MF / LANDINI (REPLACEMENT PARTS)

TRACTOR & MODEL	FIG. NO.	OUR MODEL NO.	OE# NUMBER	DISPLACEMENT
MF 373 383 LANDINI 5530, 5800, 6080	2		353961 M913549H1 M91 (REF. NO. 662 525 338)	11 CC
MF/LANDINI 4530, 5000, 5500, 5830	1		353966 M91 (REF. NO. 664 525 313/349)	11 CC
LANDINI 2030, 6030, 7830, 8830, 6440, 7500, 7860	1		2539857 M91 (REF. NO. 665 525 342)	11 CC
LANDINI 6530, 7530, 8530, 6830, 7830, (REF. REF. #625016)	1		3539857 M91 (ONLY PUMP)	16 CC
MF 154E 154S, 164S, 174S, 184S, 194F	1		3539859 M91 (REF. NO. 674 425 308)	8 CC

DEUTZ FAHR/STEYR (REPLACEMENT PARTS)

TRACTOR & MODEL	FIG. NO.	OUR MODEL NO.	OE# NUMBER	DISPLACEMENT
DEUTZ FAHR DOKA 2050, 2055	1		01174516 (REF. NO. 670 515 390)	11 CC
DEUTZ FAHR DOKA 2050, 2055	1		01174517 / 0118080 (REF. NO. 670 515 316 / 320)	14 CC
DEUTZ FAHR 203, 305C, 360, 405C	1		01178462 (REF. NO. 671 615 318)	16 CC
DEUTZ FAHR AGR OCTRA 4 87, 8 87, 8 87/A 914, 71	2		0174210 (REF. NO. 681 665 366)	19 + 11 CC
STEYR 609H, 609L, 670H, 980H, 1080, 1200, 8050L, 8050L, 806L, 807EL, 807S, 8090L, 9090, 8130L, 8130, 8110A, 8130, 8140, 8190	2		(REF. NO. 602 615 314)	16 CC
STEYR 8100, 8090, 8090A	2		(REF. NO. 623 515 310)	11 CC
STEYR 8130L, 8116A, 8120L	2		(REF. NO. 624 515 316)	14 CC
STEYR 845, 848, 858, 780, 8050, 830	2		(REF. NO. 625 415 323)	8 CC

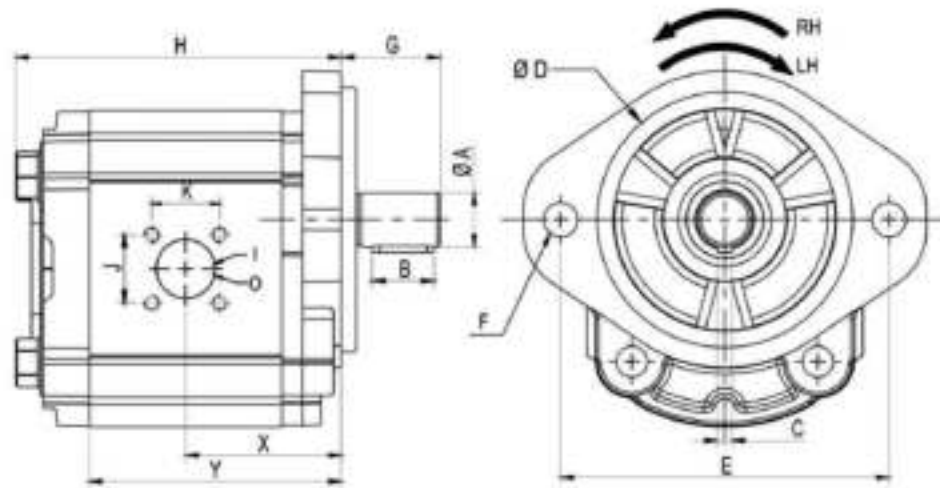
FENDT/JOHN DEERE (REPLACEMENT PARTS)

TRACTOR & MODEL	FIG. NO.	OUR MODEL NO.	OE# NUMBER	DISPLACEMENT
FENDT TRACTOR 1835, 2035 2045, 300V, 200VP FARMERS 29	1		0144, 940, 012, 916 (REF. NO. 643 515 316)	14 CC
FENDT 918, 917, LS, 912, FARMER 35	1		0150, 403, 181, 102 (REF. NO. 667 515 309)	11 CC
JOHN DEERE 500, 510, 750, 710, 33	2		AL 16681, AL 01301, AL 37753 (REF. NO. 657 415 315)	8 CC
JOHN DEERE 500, 510, 750, 710 with power steering			AL 183 49 (REF. NO. 658 515 315)	11 CC
JOHN DEERE 500, 510, 750, 710	2		AL 189 83, AL 37752 (REF. NO. 659 515 316)	16 CC
JOHN DEERE 500, 510, 750, 710	2		AL 14683, AL 37752 (REF. NO. 675 515 314)	16 CC

BOBARD / IH, INTER CASE (REPLACEMENT PARTS)

TRACTOR & MODEL	FIG. NO.	OUR MODEL NO.	OE# NUMBER	DISPLACEMENT
BOBARD M70	1		(REF. NO. 681 525 306)	6.5 CC
BOBARD 620, CC50, 521, CC70	1		(REF. NO. 682 525 322)	16 CC
BOBARD K30, K40, K35, K42	2		(REF. NO. 685 415 313)	8 CC
BOBARD K40, M50	2		(REF. NO. 684 515 314)	16 CC
BOBARD K51	2		(REF. NO. 683 515 315)	16 CC
TANDEM PUMP FOR BOBARD	3		(REF. NO. 641 585 325)	11 CC + 5.5 CC
IH, INTER CASE TRACTOR 270, 276, 304, 374, 384, 414, 434, 444	4		402 80 157201 / 704 30 896	11 CC

HYDRAULIC MINI POWER PACK
AC - 1 & 3 PHASE ARE AVAILABLE
DC - 12 & 24 VOLT ARE AVAILABLE

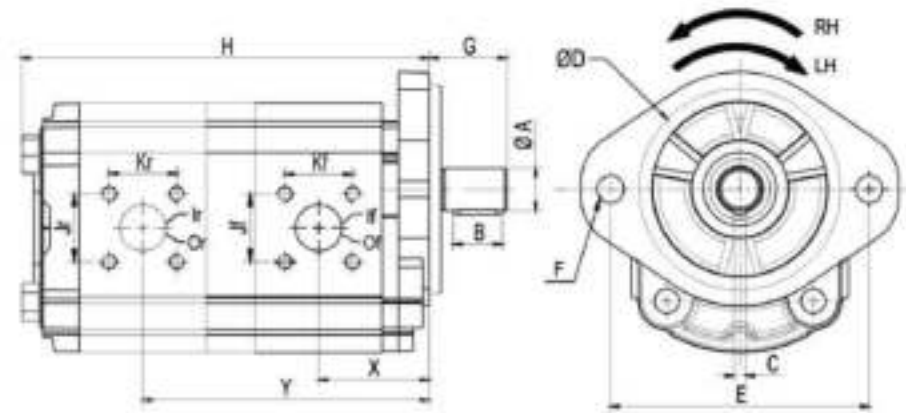


1	Customer	
2	Pump Model	
3	Flow (gpm/lpm)	
4	Application	
5	Rated Speed (RPM)	
6	Working Pressure	
7	Direction of Rotation	
8	Oil used	
9	Oil Seal Requirement Single seal Double seal	
10	A - Drive shaft details	
11	B - Type of key	
12	C - Key Dimension	
13	D - Sprocket Dia	
14	E - PCD	
15	F - No. of holes & dim	
16	G - Length as per dwg	
17	H - Length as per dwg	
18	X - Length as per dwg	
19	Y - Length as per dwg	
20	I - Inlet port details	
21	O - Outlet port details	
22	K - CTC of hole in X	
23	J - CTC of hole in Y	

Remark / Suggestion :

Modification if any :

Imported pump details :



1	Customer	
2	Pump Model	
3	Flow (gpm/lpm)	
4	Application	
5	Rated Speed (RPM)	
6	Working Pressure	
7	Direction of Rotation	
8	Oil used	
9	Oil Seal Requirement Single seal Double seal	
10	A - Drive shaft details	
11	B - Type of key	
12	C - Key Dimension	
13	D - Sprocket Dia	
14	E - PCD	
15	F - No. of holes & dim	
16	G - Length as per dwg	
17	H - Length as per dwg	
18	X - Length as per dwg	
19	IF - Inlet port front pump	
20	OF - Outlet port front pump	
21	KF - CTC of hole front pump in X	
22	JF - CTC of hole front pump in Y	
23	IR - Inlet port of rear pump	
24	OR - Outlet port of rear pump	
25	KR - CTC of hole rear pump in X	
26	JR - CTC of hole rear pump in Y	

Remark / Suggestion :

Modification if any :

Imported pump details :