SUPREMO®
GEAR PUMP

1.2 CC/REV TO 150 CC/REV
MAX PRESSURE - 3000 PSI

VBC
HYDRAULICS

1 General information

1.1 Introduction to product

Gear pumps are widely used in modern hydraulic Systems due to their high performance, long service life and low purchase and maintenance costs. Product development has made it possible to achieve high operating pressures, excellent volumetric and mechanical efficiency and lower noise levels, in operation, by means of :-

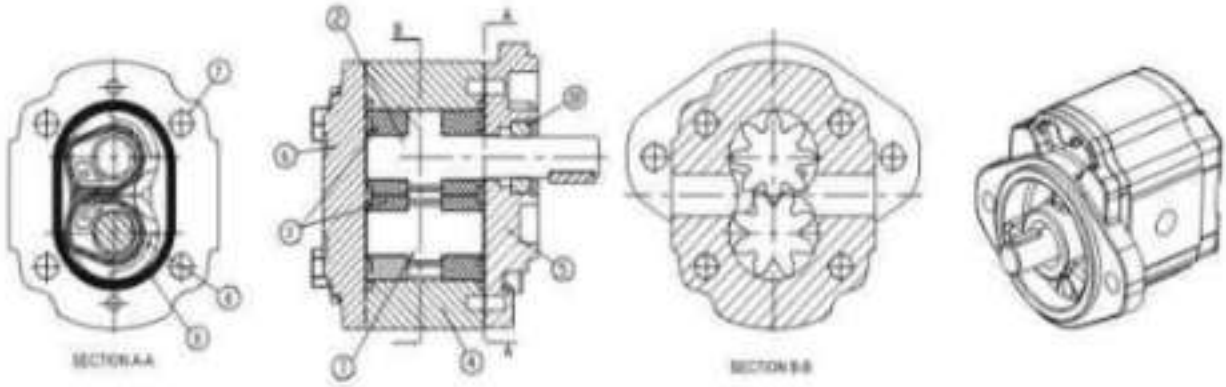
- meticulous CAD design of the gear teeth and balancing areas.
- an exacting choice of high-performance materials

Product description

Referring to the pump shown in the figure, the drive gear (1) drives round the driven gear (2), transfering the oil from the suction port to the pressure port as it turns round.

The gears are made from high strength steel alloy.

- to act as a bearing for the gears.
- to balance axial and radial thrust in proportion to the change in operating pressure.



1. Driven gear
2. Drive gear
3. Balancing
4. Pump body
5. Front cover

The gears-bushings assembly is fitted inside the pump **Body** (4) in which generally the suction and pressure ports are formed.

The pump body is made of high strength extruded aluminum alloy.

The front cover (5),which also acts as a mounting flange, and the rear cover (6) are connected to one another by mounting rods (7).

The pump assembly is completed by a series of seals

- Balancing seals (8) can be fitted in recesses in the bushings as in the figure, or in the covers. Their purpose is to delimit the longitudinal balancing area separating the suction and pressure zones.
- **Oil seals** (9) prevent oil from leaking out.
- Carefully contolled heat treatments
- Increasing tight coupling tolerances, and a high standard of surface finish.

VBC Hydraulics has achieved these results by constantly improving its design, control, and manufacturing techniques in line with the latest technological developments, while simultaneously introducing a Quality control system which ensures that every single product offers the same high standards.

- An oil retaining ring with the dual purpose of preventing oil leaks from the drive gear shaft and preventing dust or other pollutants from enteringthe pump itself.
- Unless otherwise specified, the seals are in nitrilic compound offering high mechanical strength and heat resistance.
- Viton seals are available on request.

6. Rear Cover
7. Mounting tie rod
8. Balancing seal
9. Oil seal
10. Shaft seal

(see 2.2 Recommended fluids/allowed temperatures).

Versions available

The VBC Hydraulics product range includes single pumps of groups 0A-1A-2A-3A (corresponding to the common group denominations: 0-1-2-3) and several combination of double pumps, triple pumps, four stage pumps, and so on, that can be assembled together according to version of displacement, flanging, and auxiliary valves indicated in this catalogue.

VBC Hydraulics will examine any request for special version, features, and customizations not shown in this catalogue.

To make such a request, please contact our Sales Department.

2 Technical information

2.1 Identifying the rotation direction

The rotation direction of a gear pump is identified by looking at the pump from the front and with the drive gear turned upwards (see figure below).

Pumps with clockwise rotation (D) have a drive gear which turns clockwise, with the suction port on the left and the pressure port on the right.

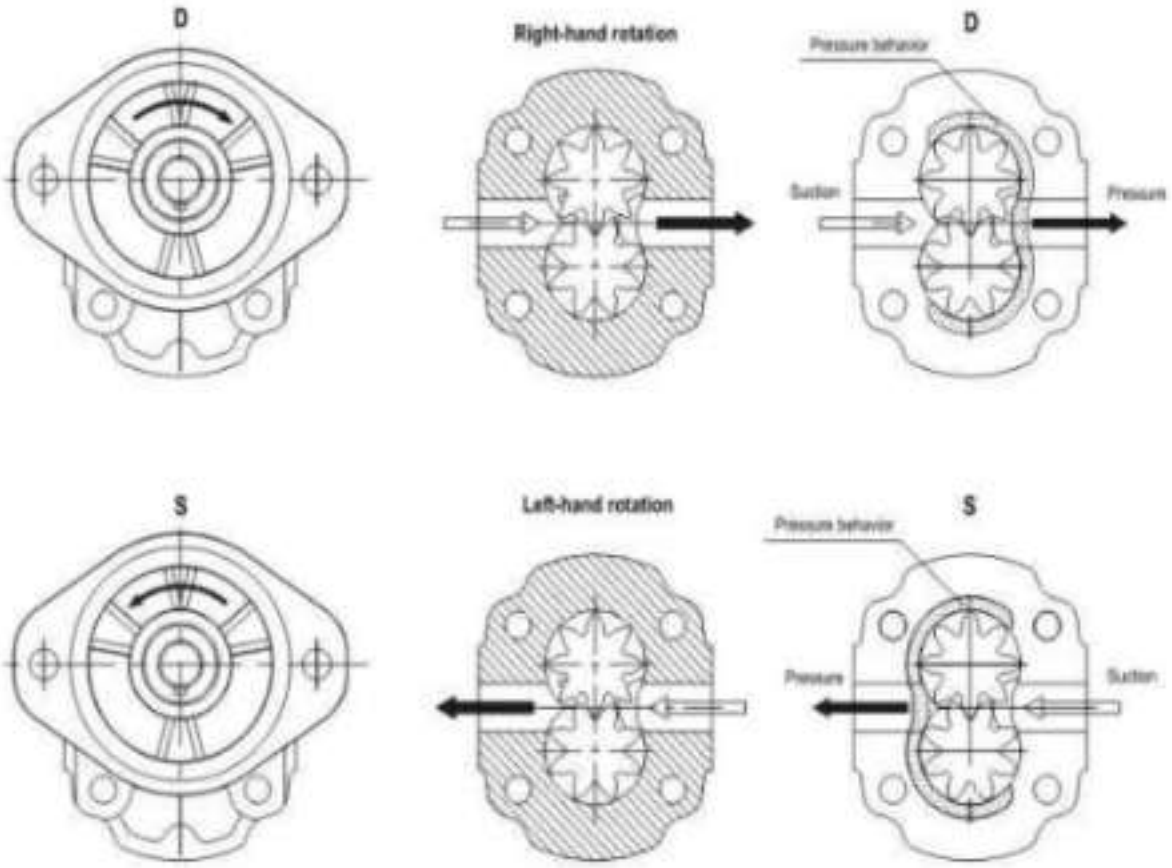
Pumps with counterclockwise rotation (S) have drive gear which turns counterclockwise, with the suction port on the right and the pressure port on the left.

The figure also shows the pressure flow inside the pumps as the oil is transferred from the suction port to the pressure port.

Rotation of direction of our entire range of gear pumps can be change without replacing any components.

To ensure a good technical result, we recommend in any case that such inversion be carried out at our factory.

Technical descriptions are available in data sheet for the selection of hydraulic gear pumps.
Please refer page no. 33



2.2 Recommended fluids/Allowed temperatures

We recommend using only mineral oil-based hydraulic fluids that comply with the ISO/DIN standards.

Operating temperature

Types of seals	Temperature
	Group:- 0A-1A-2A-3A
Buna N	-15 ÷ 80° C
Viton®	-10 ÷ 120° C

Viscosity range :
Recommended 20 ÷ 120 mm2 /s (cSt)
Permitted up to 700 mm2 /s (cSt)

Attention : Use of pumps at temperatures above 80° C must always be agreed upon with our technical office, and in any case this can cause a significant worsening in the volumetric efficiency. For use under conditions different from those indicated in this catalogue, please contact our sales department.

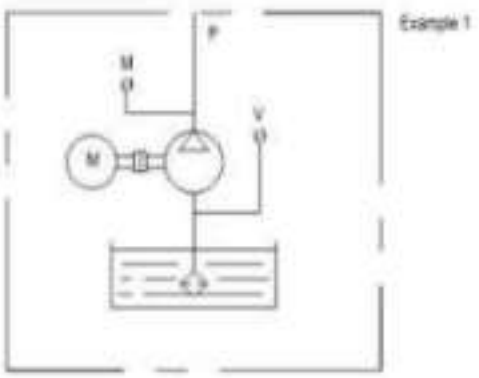
2.3 Suction

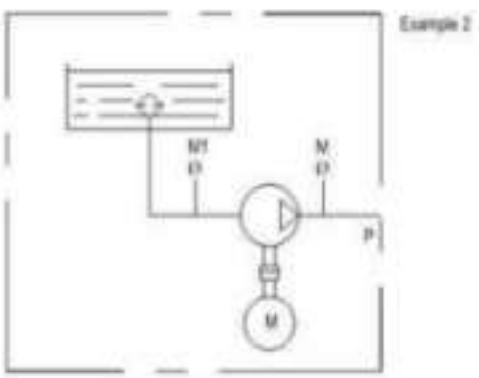
The absolute suction pressure must be V ≥ 0.75 bar (11 PSI); therefore, the following must be avoided:

- Large height differences between pump and tank
- Long stretches of piping
- Special featres such as:
  - bends
  - reduction in diameter
  - quick couplings
  - etc.

It is also advisable to choose a filter of a suitable size to minimize any pressure drop and to take measures to prevent gradual clogging over time.
(Example 1)
In certain cases, the suction pressure can exceed 1 bar (14.3 PSI), or atmospheric pressure.
Please contact our sales department, solution for **M1 ≤ 3.5 bar (50 PSI)** , are available.

If in a particular application the M! pressure is higher than the recommended value, contact our sales office. The diameter of the suction pipe should ensure that the oil speed will fall within the range: **v = 0.6 - 1.2 m/s.**
(Example 2)





2.4 Filtration

A short service life of a gear pump is normally due to the presence of impurities in the oil.

It is therefore essential to have an effective filter in the system and to carry out regular maintenance to ensure a long, trouble-free service life.

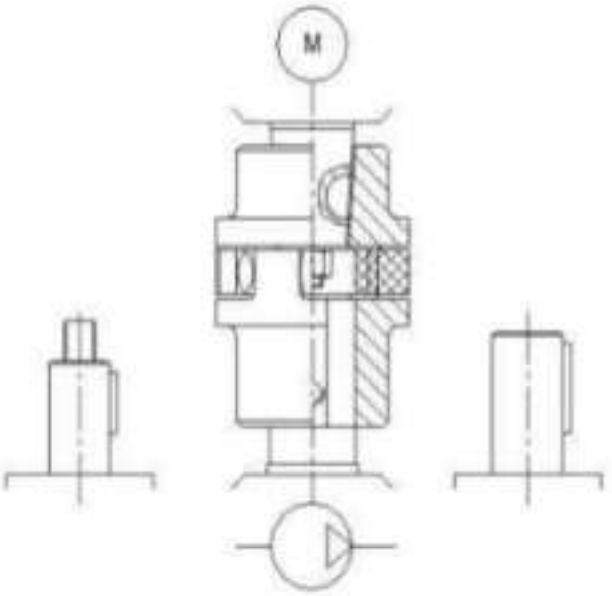
When possible and compatible with the hydraulics circuit in stalled, VBC Hydraulics recommends that system have total filtration (suction, pressure, return).

In any case, the filtering system must constantly ensure an oil contamination class equal to or less than those shown in the following table.

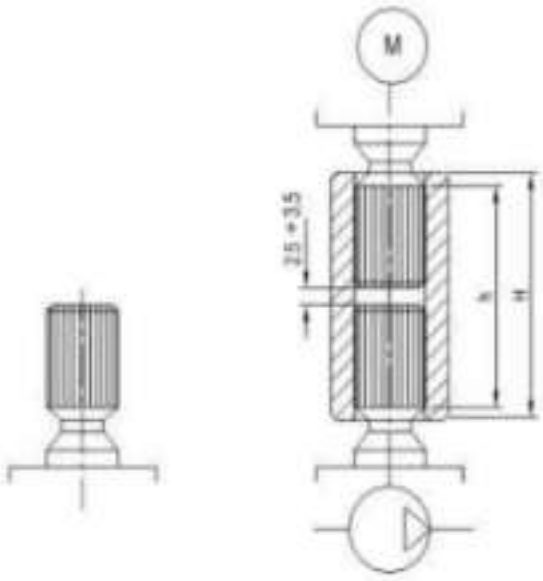
Opearting pressure	> 170 bar 2430 PSI	< 170 bar 2430 PSI
Contamination class NAS 1638	9	10
Contamination class ISO 4406	18/15	19/16
Obtain wit filter ßx=75	20	25

We also recommend that an adequate air filter be installed on the tank to prevent contaminating substances such as dust, sand, etc. from getting into the oil, as these substances can enter the tank through the air flow caused by the level variations in the tank itself.

2.5 Motor-pump coupling

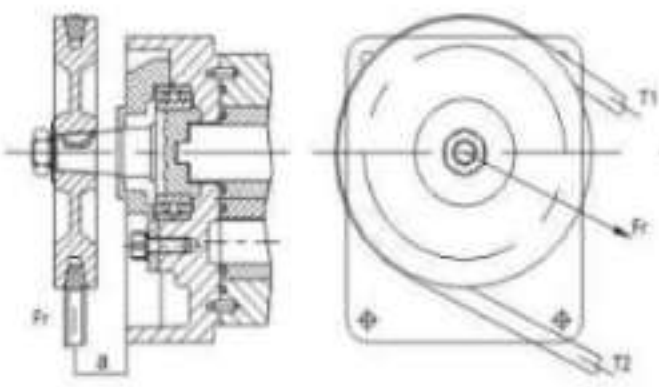


Absolutely no radial or axial forces should be transmitted to the drive shaft in the motor-pump coupling.
Such forces cause rapid and irregular wear on the balancing surface of the bushing and gear support, with a consequent worsening in pump performance.
The coupling joint must be able to adsorb any discrepancies in the coaxial alignment of the motor-pump shafts without placing any load on the pump shaft.
In the coupling between splined shafts, the connecting sleeve must be free to move along its axis.
The length of the sleeve must be sufficient to cover the splined sections of the motor-pump shafts completely in any position.

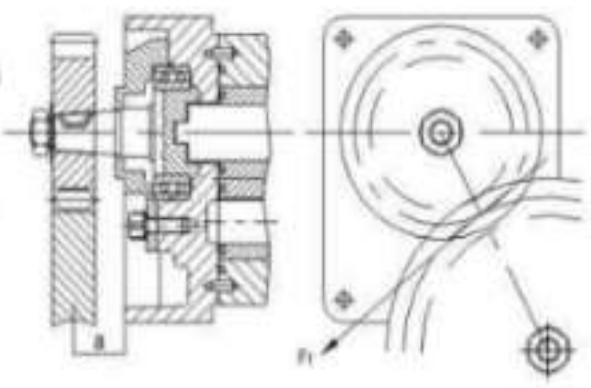


The distance between the ends of the shafts must be between **2.5 ÷ 3.5 mm (.10" ÷ .14").**
Make sure that the splined coupling is suitably lubricated to protect it against rapid deterioration.
If there are radial and/or axial loads on the drive shaft, such as when it is driven by a V-belt and pulley or pair of gear wheels, it should be fitted with a front cover with supporting bearings. (see examples 1 and 2)
Depending on the pump model concerned, these supports can replace the front cover of the pump or can be fitted in addition to and over the front cover.

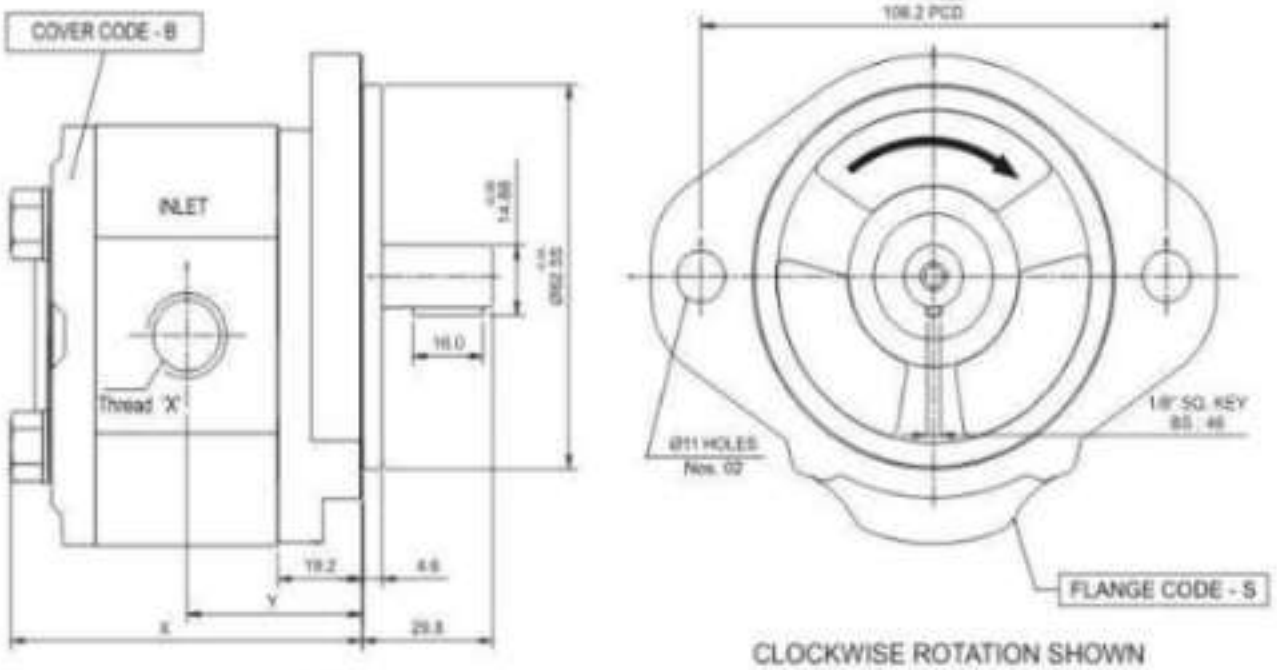
(Example 1)



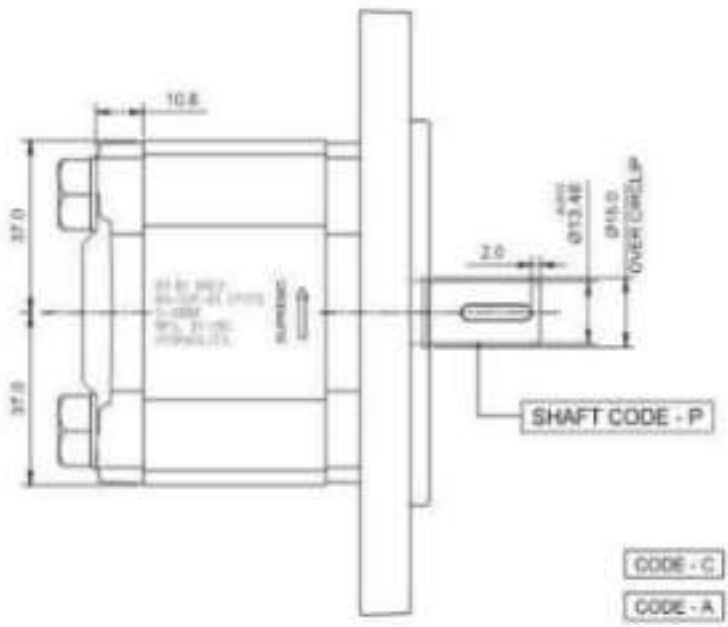
(Example 2)

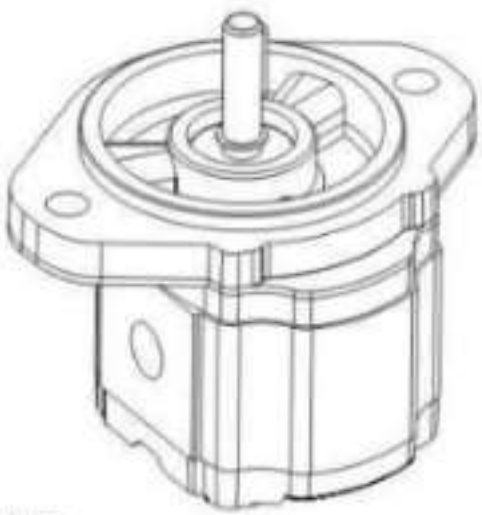


Note:- The allowed radial load values "Fr" in relation to "a" are shown in the diagrams of each version equipped with cover with support bearings.



CLOCKWISE ROTATION SHOWN





CODE - C CLOCKWISE

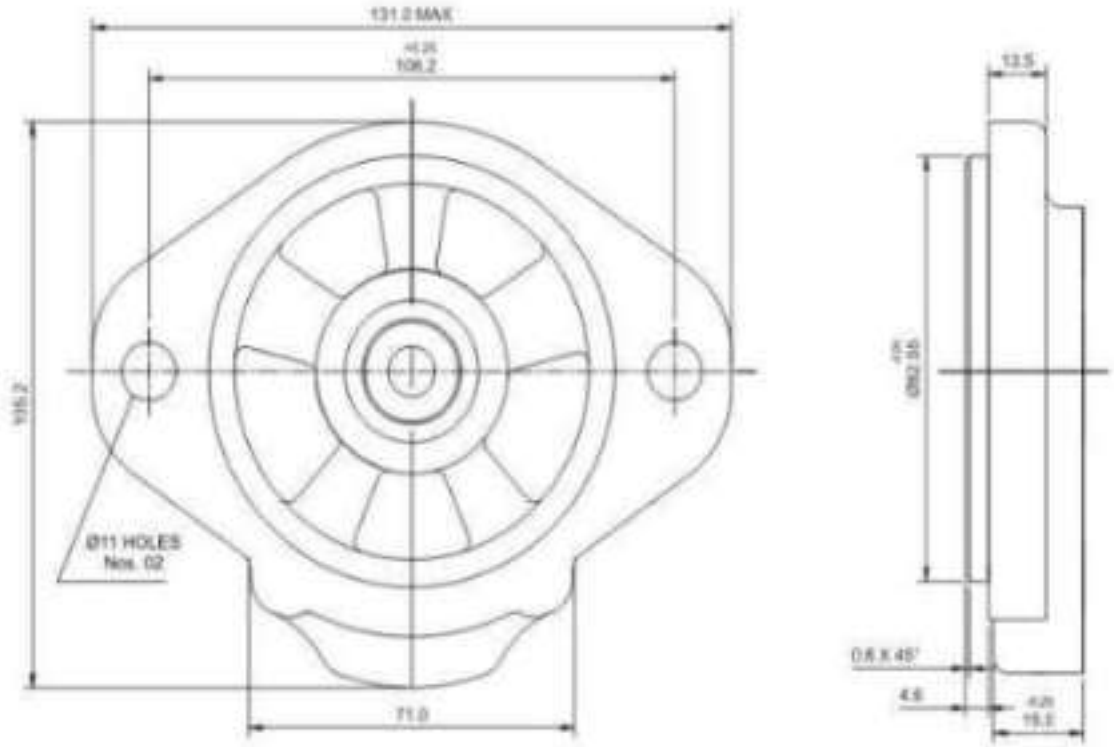
CODE - A ANTI CLOCKWISE

Pump Type	Dimension X -1.27	Dimension Y -0.25
SGP - 0	76.5	38.2
SGP - 1	77.7	38.8
SGP - 2	78.7	39.3
SGP - 3	80.0	40.0
SGP - 4	82.0	41.0
SGP - 5	83.5	41.7
SGP - 6	85.0	42.5

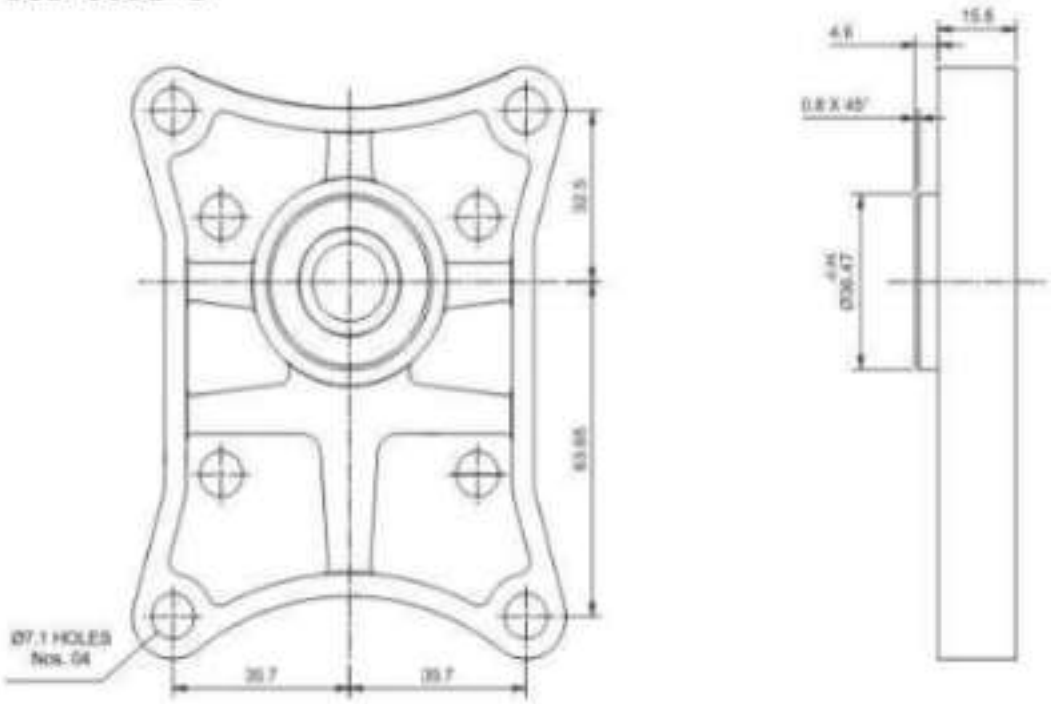
All Dimensions are in mm. Unless specified

MOUNTING FLANGE

2 BOLT SAE A CODE - S (Aluminium)



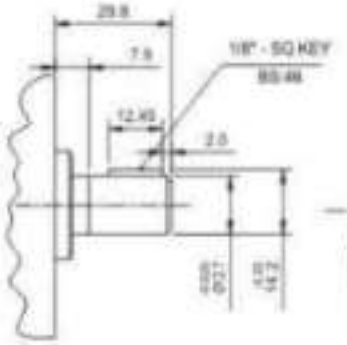
4 - BOLT CODE - D



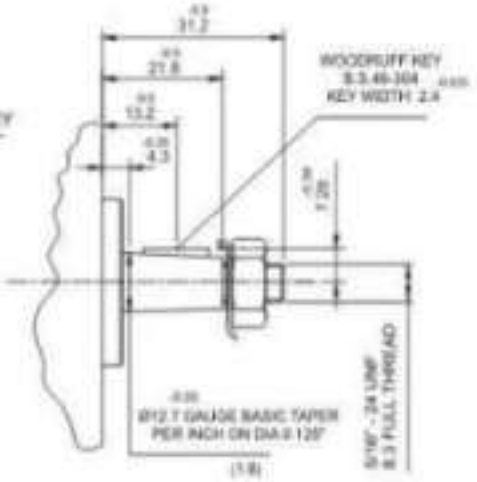
DRIVE SHAFT

SHAFT CODE - P

SHAFT CODE - L

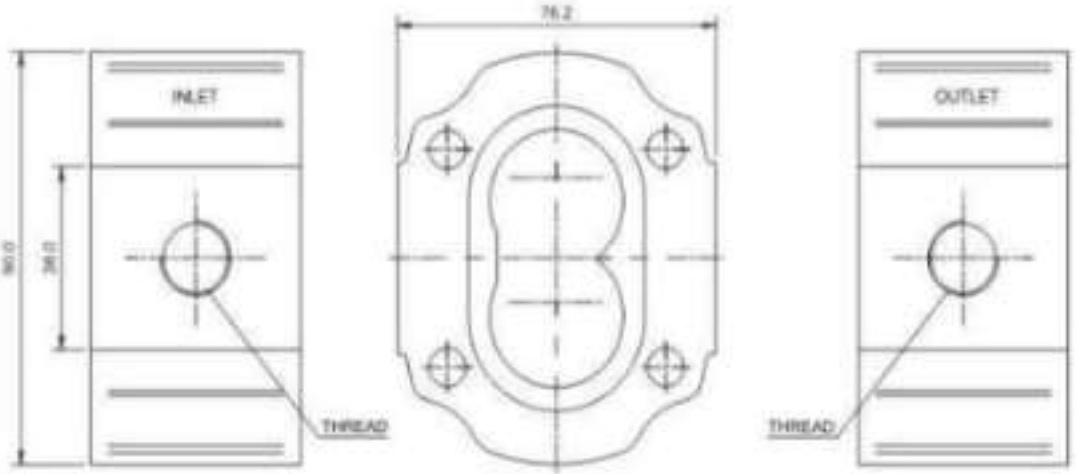


SHAFT CODE - T



BODY PORT

CODE - T

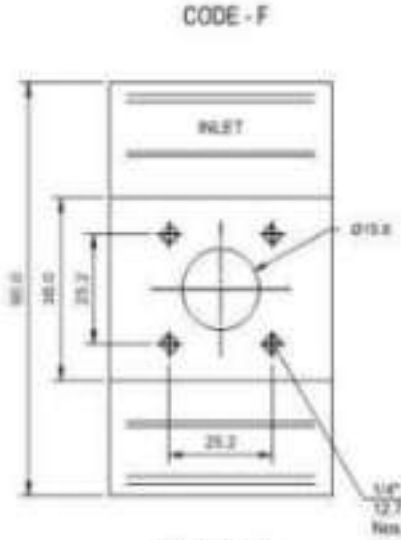


INLET AND OUTLET PORTS

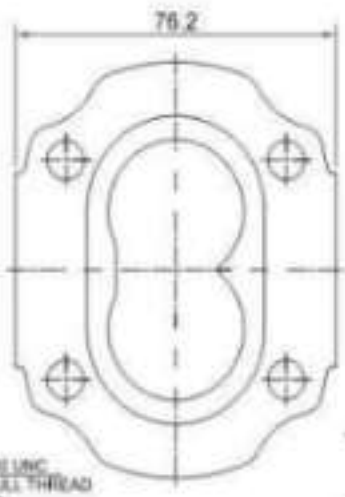
3/8" - BSP FOR PUMP TYPES OA SGP-0 TO SGP-04

1/2" - BSP FOR PUMP TYPES OA SGP-05 TO SGP-06

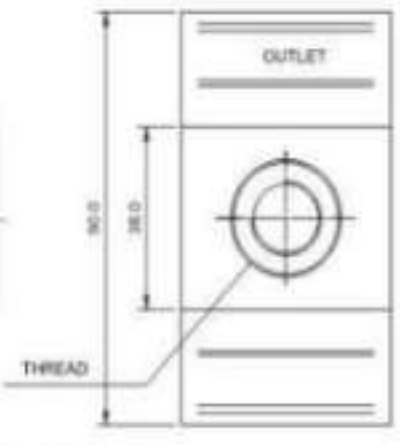
CODE - F



INLET AND OUTLET
FLANGE TYPE PORT



CODE - J

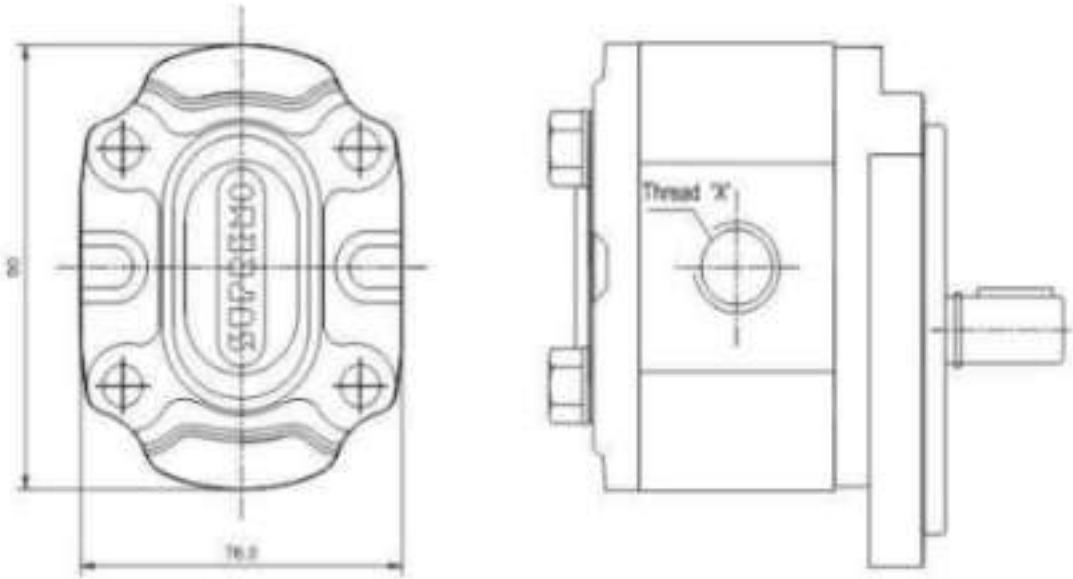


INLET AND OUTLET PORTS

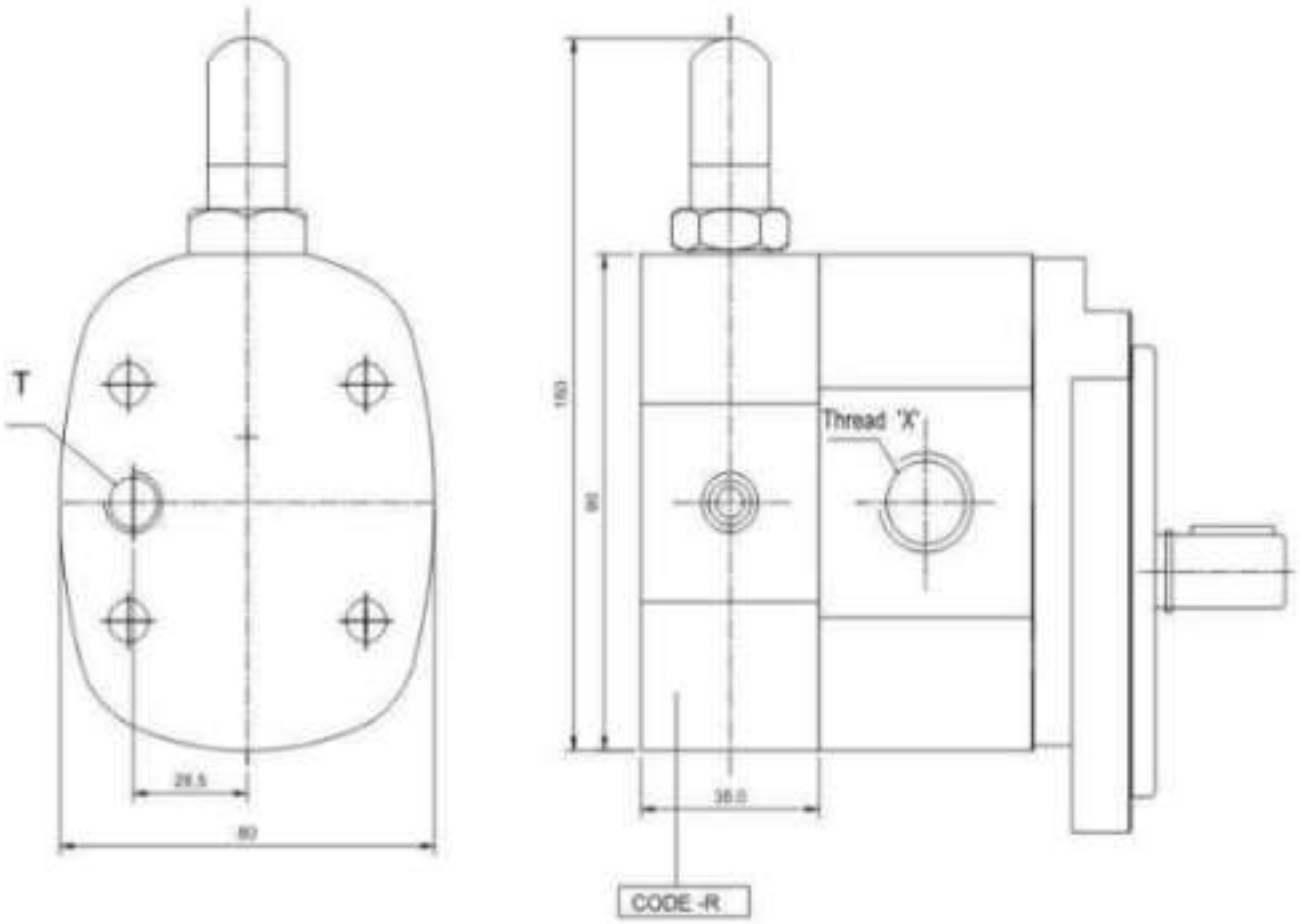
7/8" - 14 UN FOR PUMP TYPES SGP-06
INLET OUTLET 7/8 - 16UN

END COVER CODE - B

END COVER CODE - B (Aluminium)



RELIEF VALVE SUITABLE FOR GROUP 0A
MOUNTED IN PLACE OF END COVER

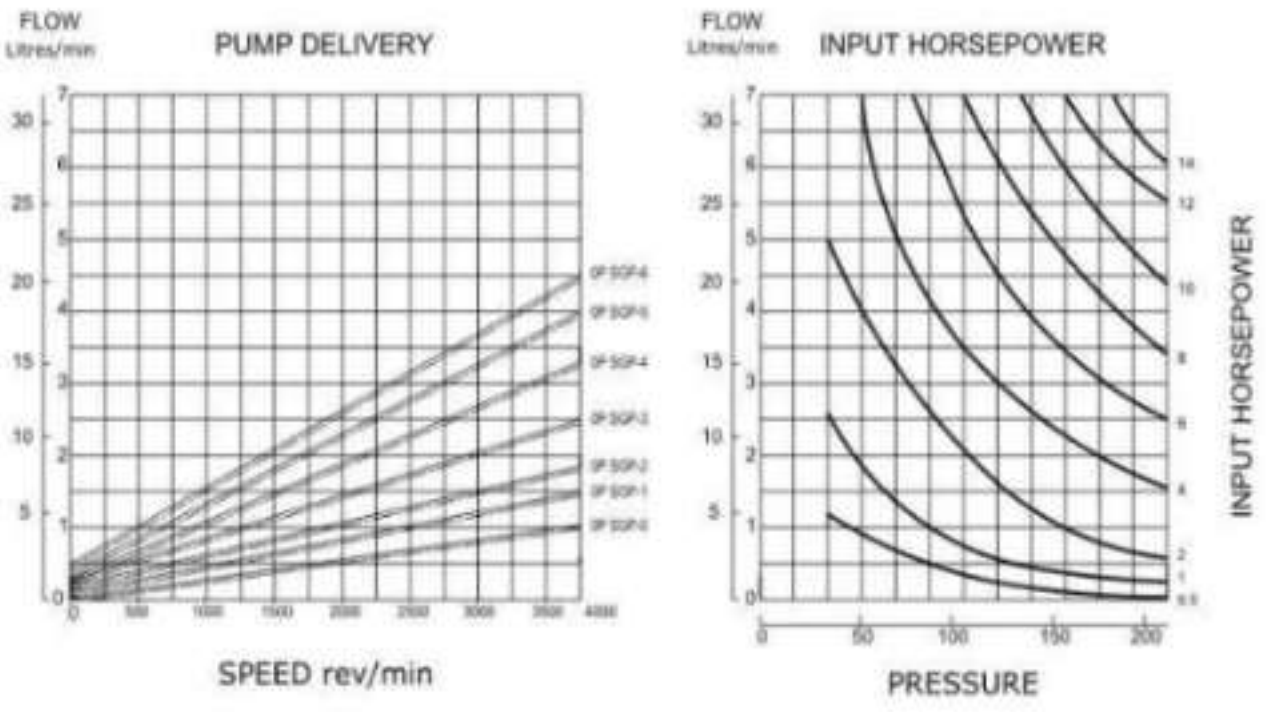


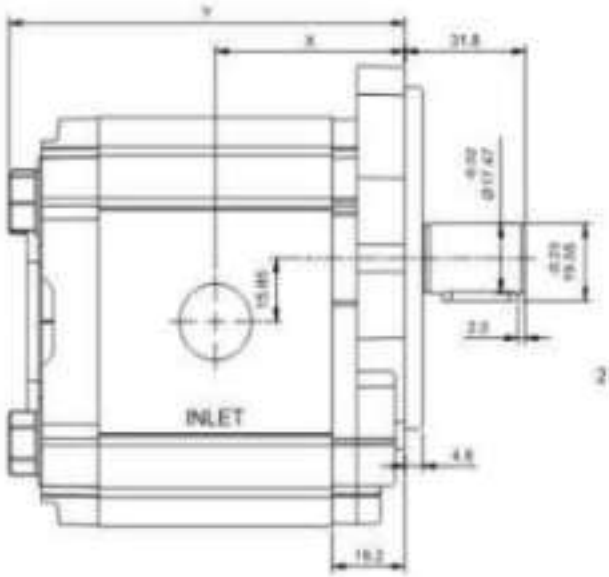
SPECIFICATION DATA

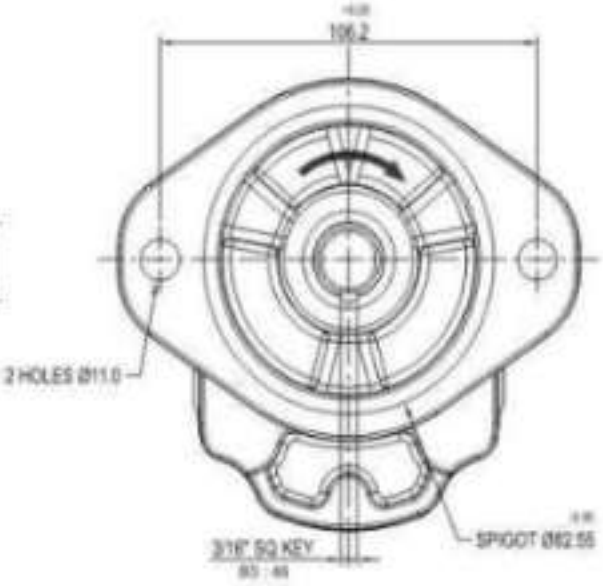
Pump Type	Theoretical Displacement	Nominal Delivery at 1450 rev/min.	Maximum Pressure	Max Speed at max Pressure rev / min.	Min Speed at max Continuous Pressure rev / min.	BODY PARTS CODE - T		WEIGHT in kg
						INLET BSP THREAD	OUTLET BSP THREAD	
	cm^3 / rev	l / min	bar					
SGP - 0	0.80	1.2	200	4000	600	3/8"	3/8"	1.90
SGP - 1	1.20	1.8	200	4000	600	3/8"	3/8"	1.95
SGP - 2	1.65	2.5	200	4000	600	3/8"	3/8"	2.00
SGP - 3	2.25	3.4	200	4000	600	3/8"	3/8"	2.05
SGP - 4	3.20	4.8	200	4000	600	3/8"	3/8"	2.07
SGP - 5	3.80	5.8	200	4000	600	1/2"	1/2"	2.10
SGP - 6	4.50	6.8	200	4000	600	1/2"	1/2"	2.12

Pressures with ENCLO 68 oil at 50° C

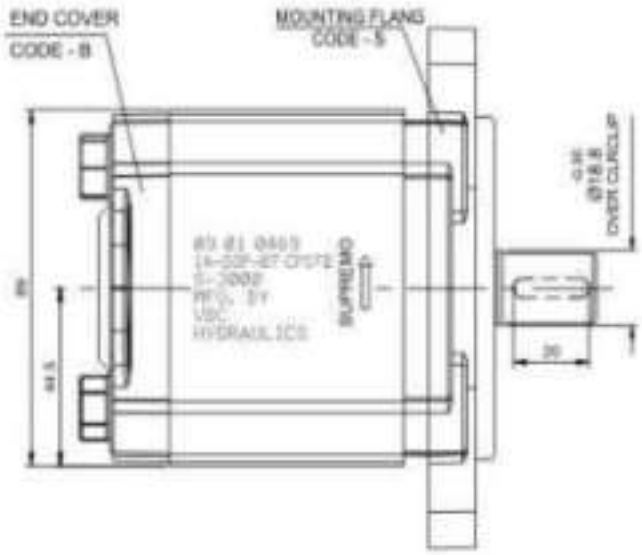
PERFORMANCE CHART

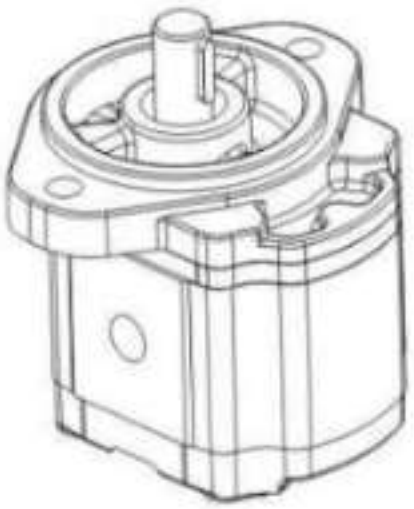






CLOCKWISE ROTATION SHOWN





PUMP TYPE	DIMENSION - X -1.2 (TOL.)	DIMENSION - Y -0.76 (TOL.)
SGP - 07	41.9	88.5
SGP - 09	42.5	89.5
SGP - 12	44.2	93.0
SGP - 16	45.7	96.0
SGP - 20	54.7	114.0

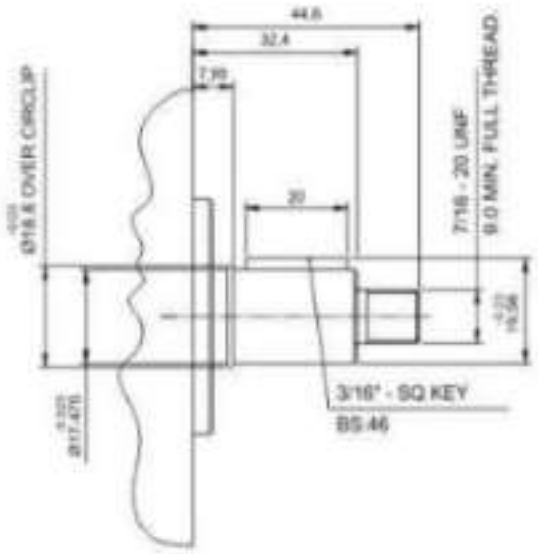
PUMP TYPE	DIMENSION - X -1.2 (TOL.)	DIMENSION - Y -0.76 (TOL.)
SGP - 23	56.2	117.0
SGP - 27	57.7	120.0
SGP - 32	59.7	124.0
SGP - 40	63.3	131.0

ALL DIMENSIONS ARE IN MM UNLESS SPECIFIED

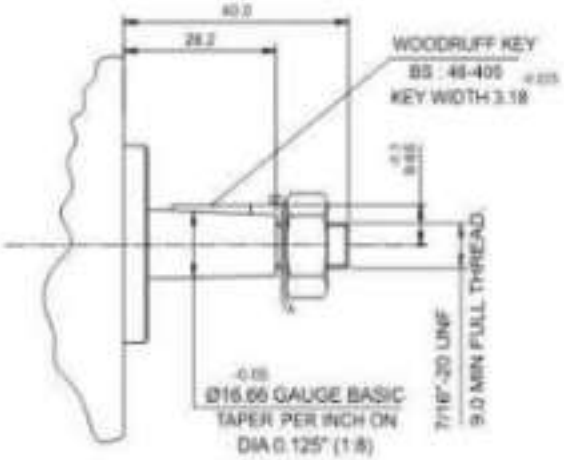
DRIVE SHAFT

CODE - P

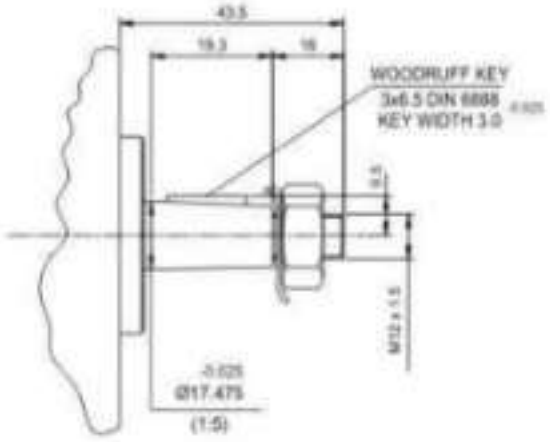
CODE - U



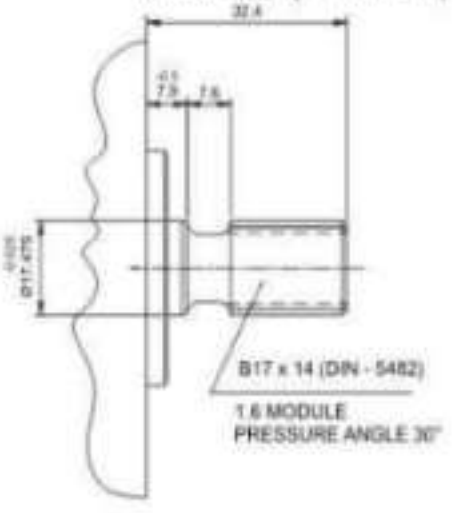
CODE - T



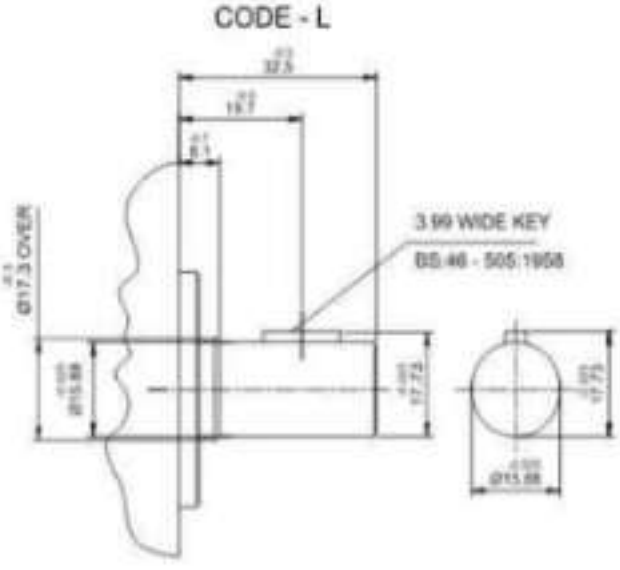
CODE - K



CODE - S (9 TEETH)
CODE - G (11 TEETH)



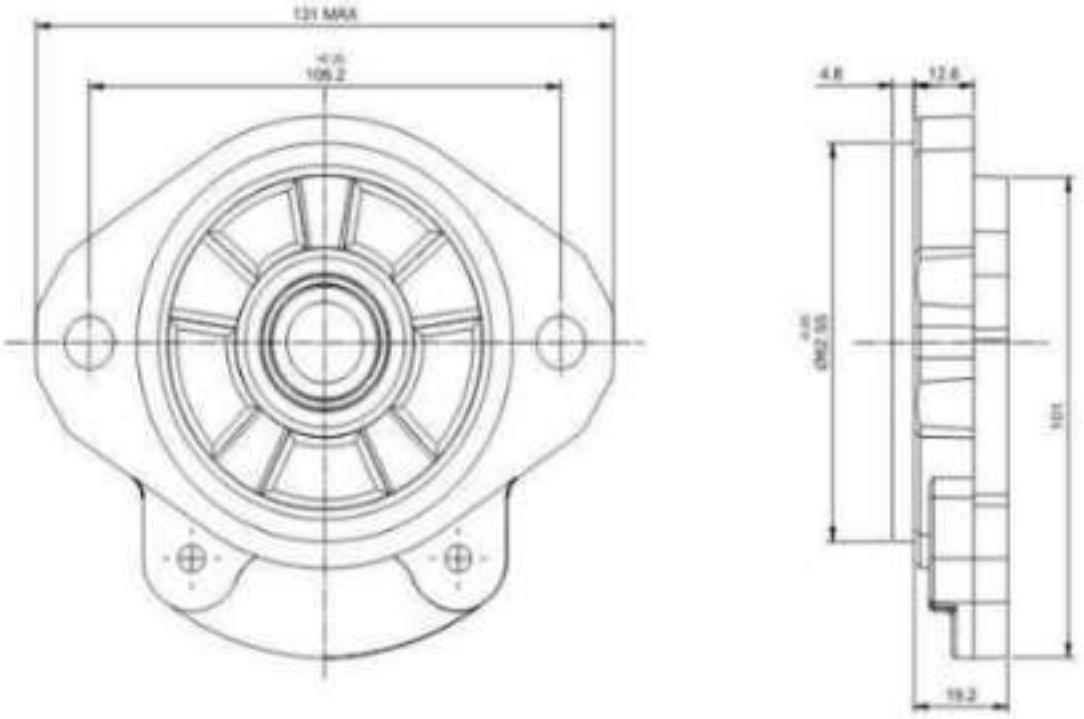
CODE - L



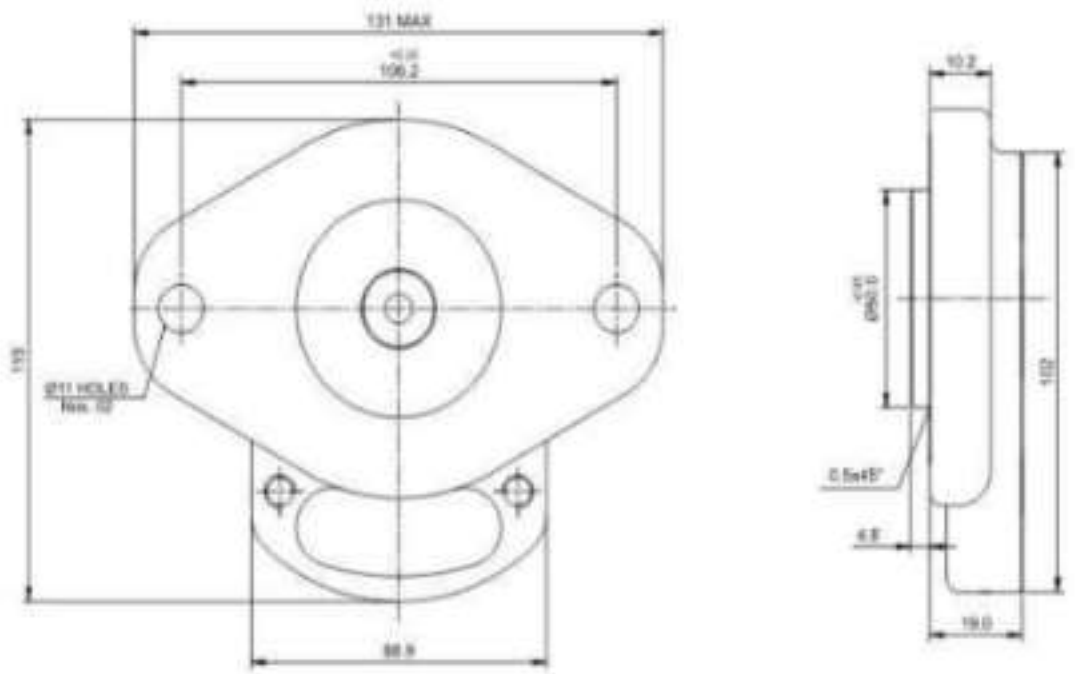
MOUNTING FLANGE

2 BOLT SAE-A CODE - S (Alluminium)

Avaliable in SGP 07 to SGP 16



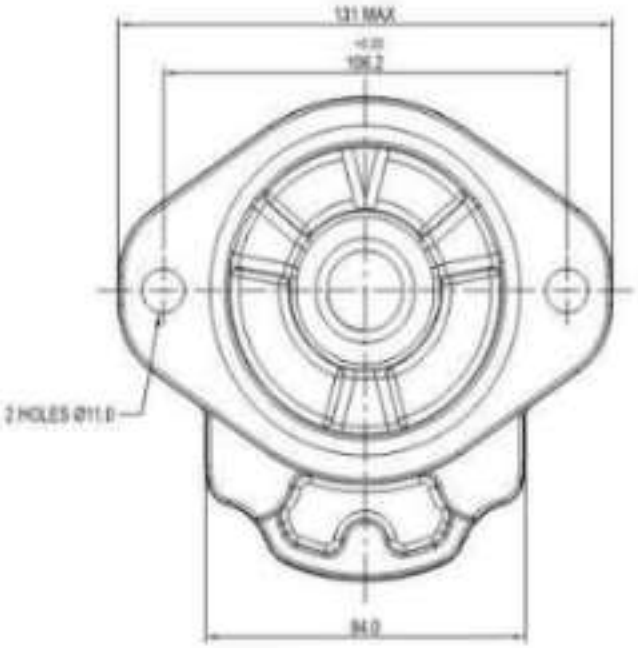
2 BOLT CODE - A

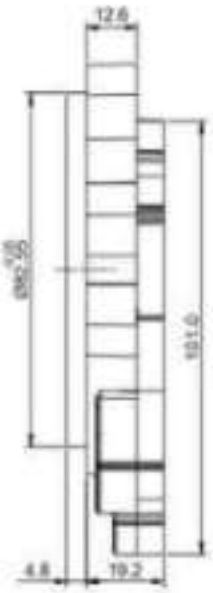


CODE - S

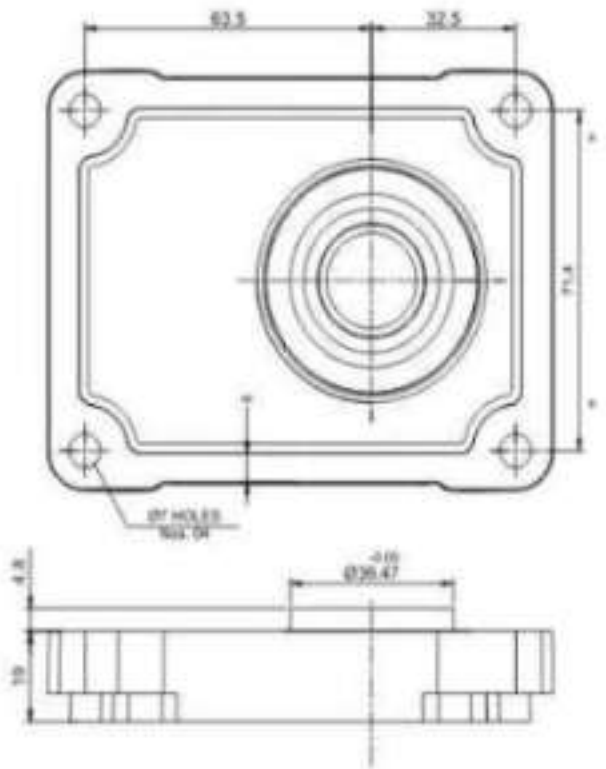
2 BOLT SAE A

Available with shaft code P,T,K,G and S

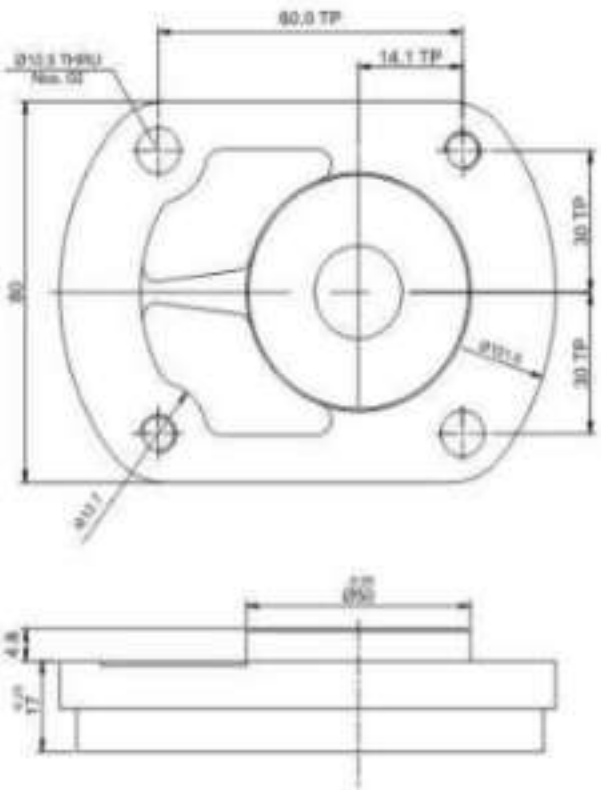




4 BOLT CODE - D



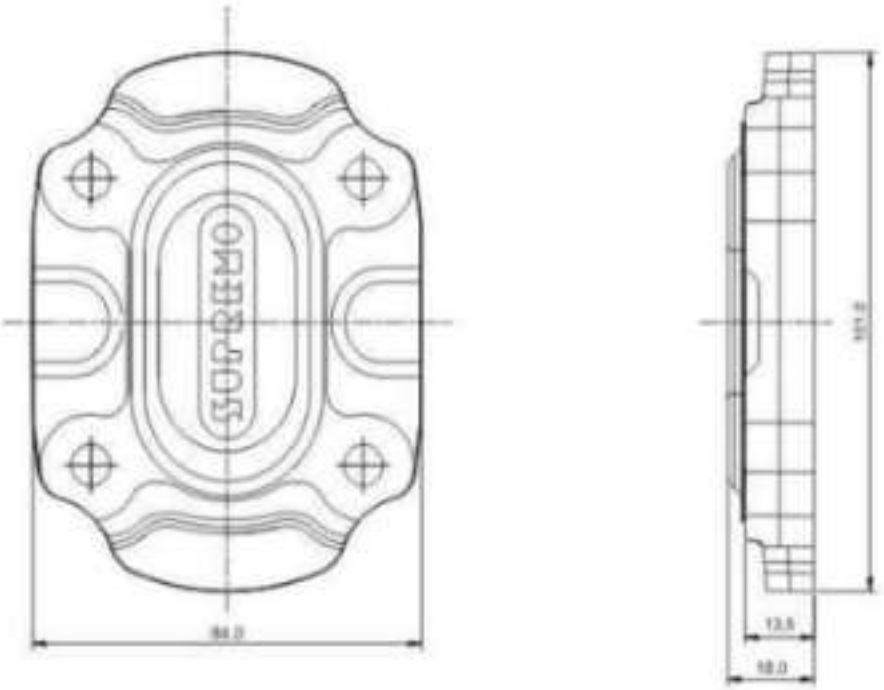
4 BOLT CODE - K



END COVER CODE - B

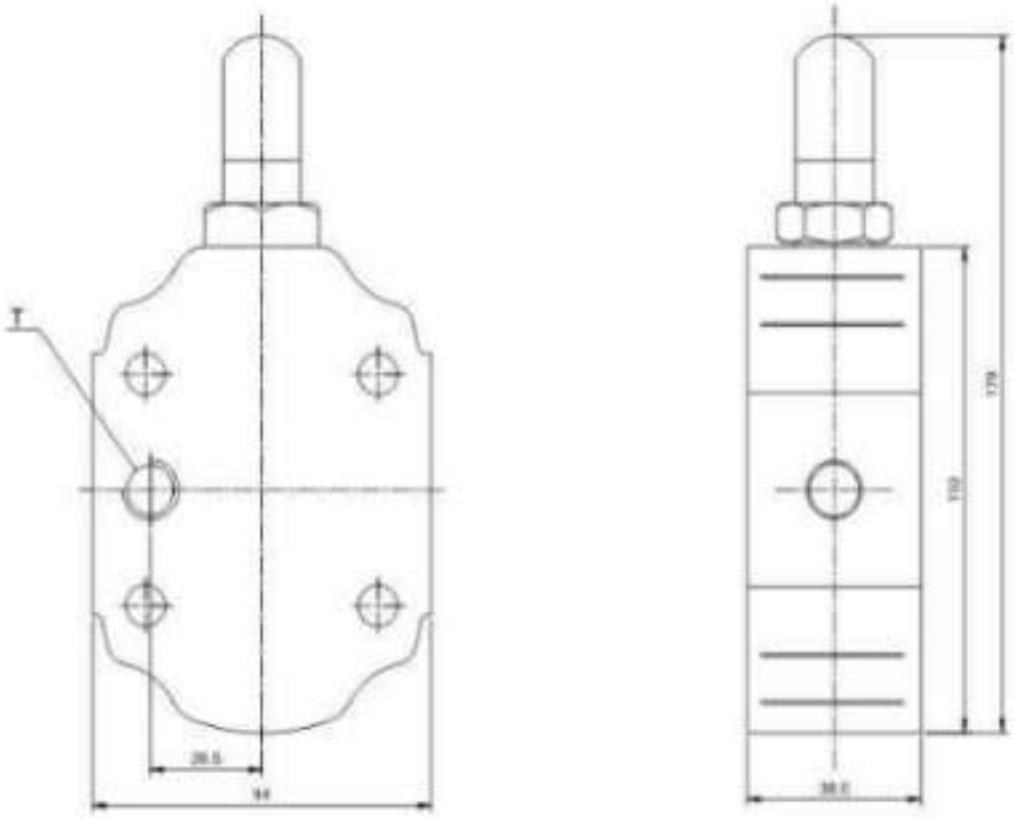
END COVER CODE - B (Cast Iron)

END COVER CODE - B (Aluminium) for SGP 07 to SGP 16

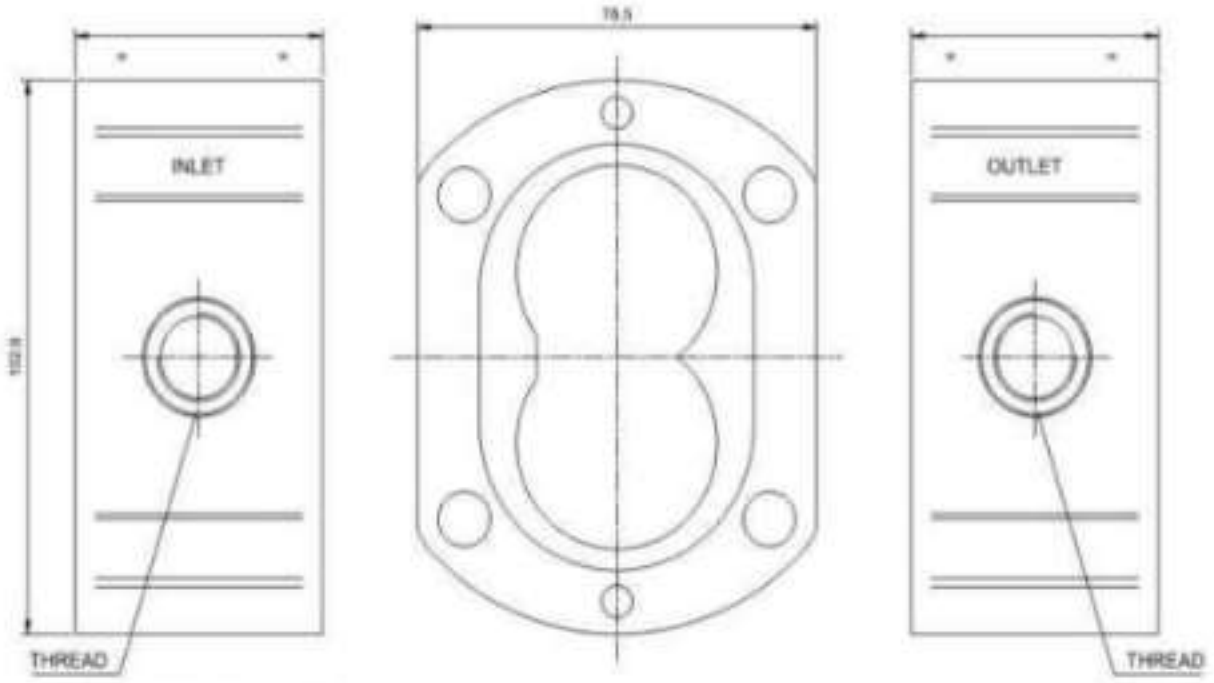


RELIEF VALVE CODE - R

MOUNTED INPLACE OF END COVER

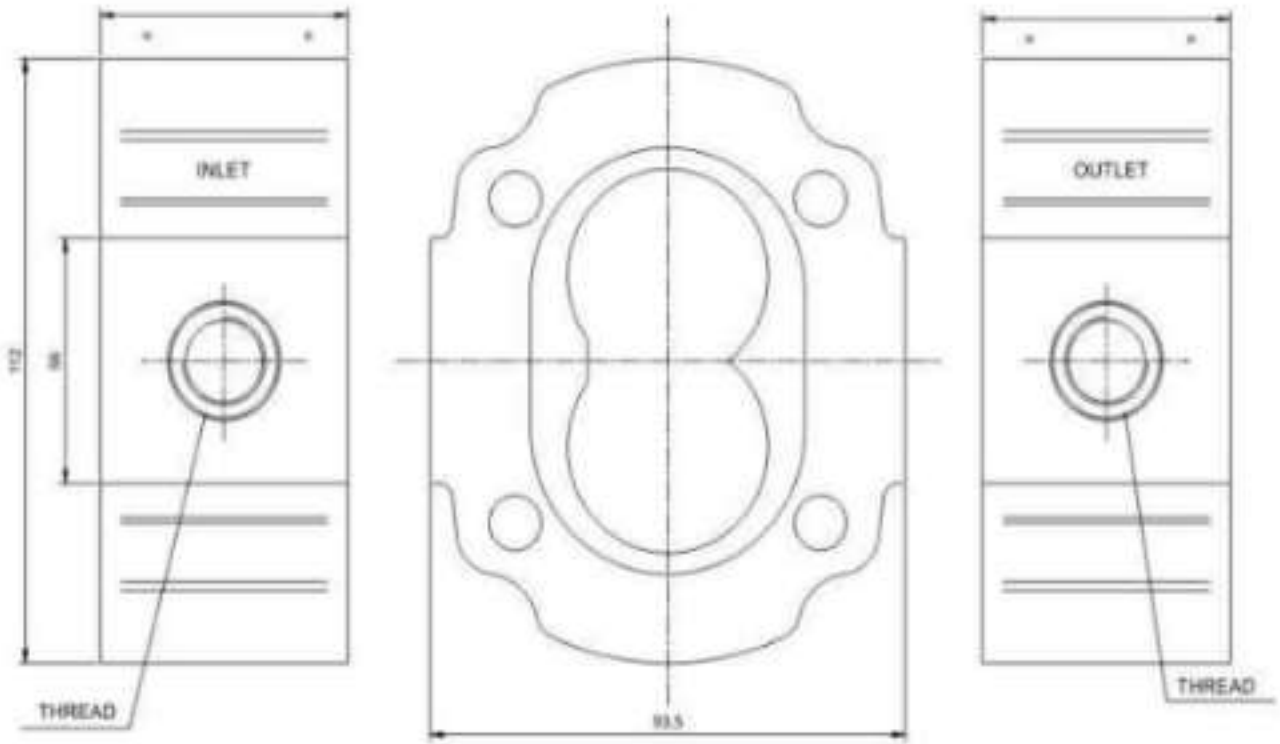


CODE - J



1 - 1/16" - 12 UN FOR PUMP
TYPES 1A SGP-07 TO SGP-16

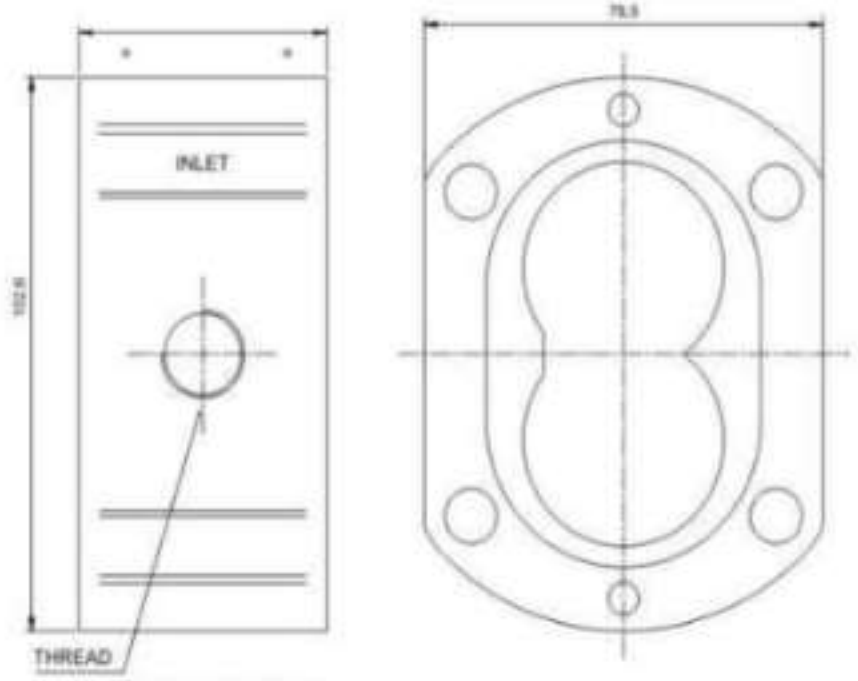
7/8" - 14 UN FOR PUMP
TYPES 1A SGP-07 TO SGP-16



1 - 5/16" - 12 UN FOR PUMP
TYPES 1A SGP-20 TO SGP-40

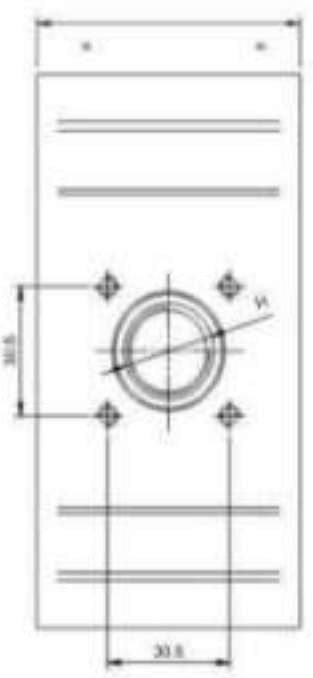
1 - 1/16" - 12 UN FOR PUMP
TYPES 1A SGP-20 TO SGP-40

CODE - T

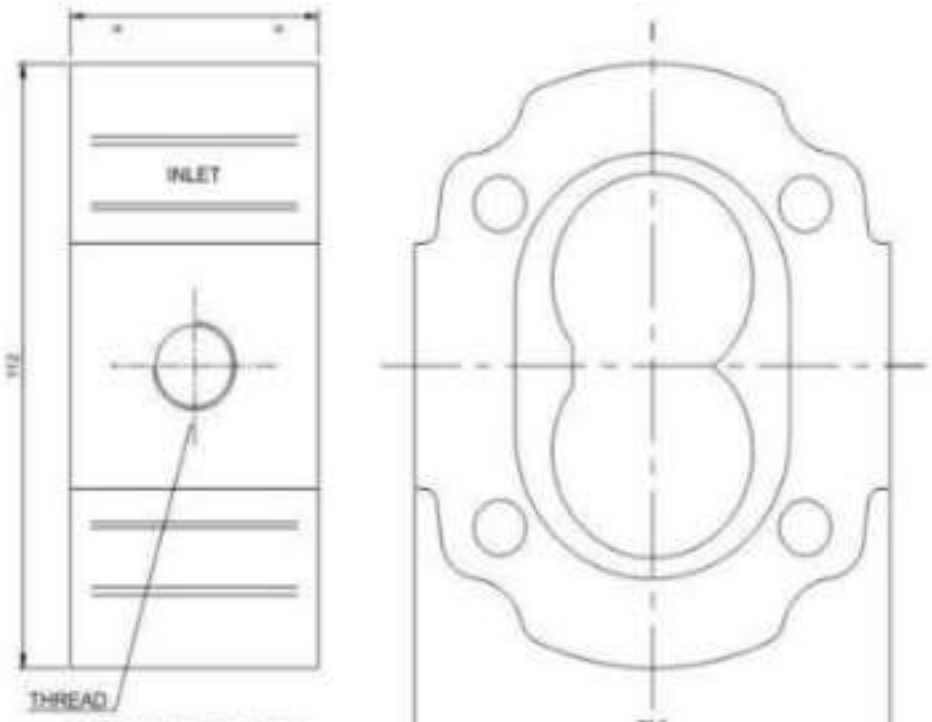


INLET & OUTLET PORTS
1/2" - BSP FOR PUMP TYPES
1A SGP-07 TO SGP-12

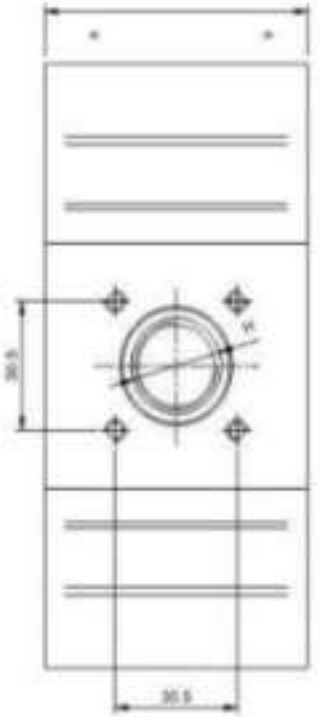
CODE - F



INLET & OUTLET PORTS
Ø H = 17.3 PUMP TYPES
1A SGP-07 TO SGP-16



INLET & OUTLET PORTS
3/4" - BSP FOR PUMP TYPES
1A SGP-16 TO SGP-40
OUTLET 1/2" - BSP FOR 1A SGP-16 ONLY



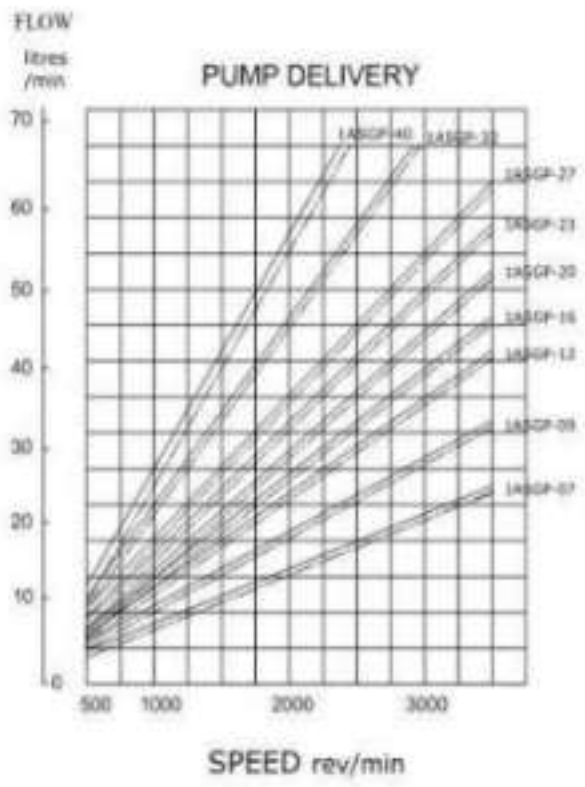
INLET & OUTLET PORTS
Ø H = 20.3 PUMP TYPES
1A SGP-20 TO SGP-40

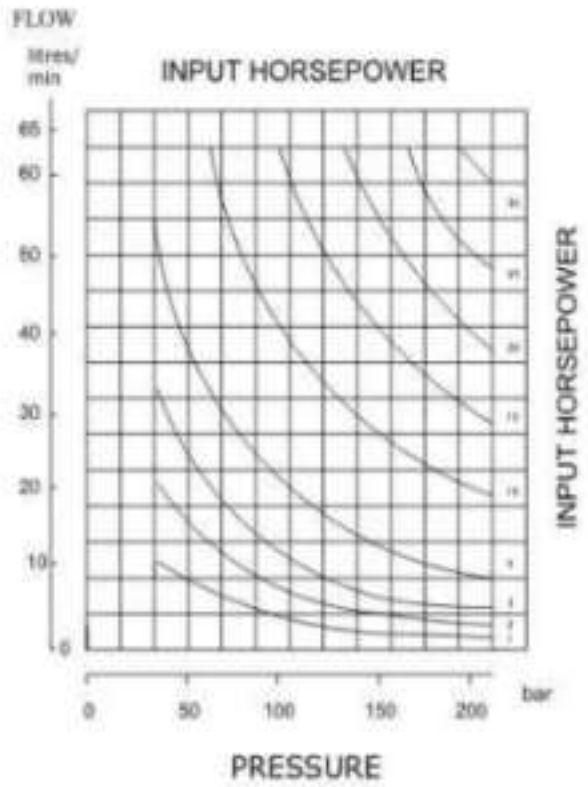
SPECIFICATION DATA

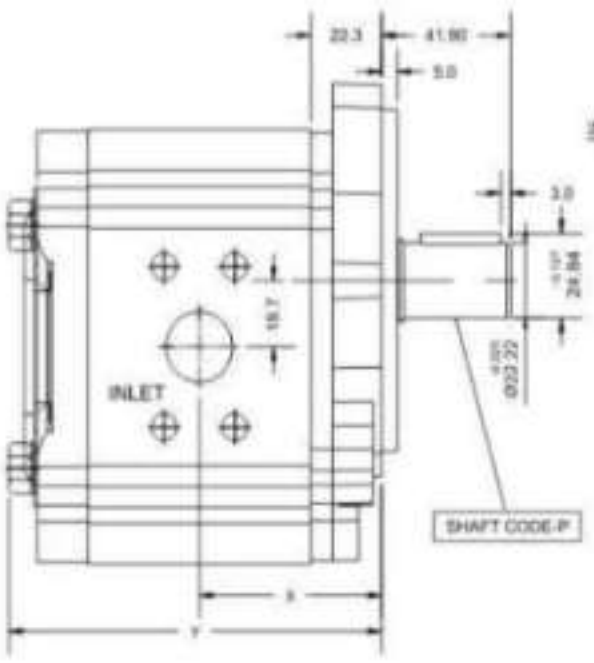
Pump Type	Theoretical Displacement	Nominal Delivery at 1450 rev/min.	Maximum Pressure	Max Speed at max Pressure rev / min.	Min Speed at max Continuous Pressure rev / min.	INLET	OUTLET	WEIGHT in kg
	cm^3 / rev	l / min	bar					
SGP - 07	5.10	7.70	207	3500	600	1/2" BSP	1/2" BSP	2.92
SGP - 09	6.00	9.10	207	3500	600	1/2" BSP	1/2" BSP	2.94
SGP - 12	8.50	12.70	207	3500	600	1/2" BSP	1/2" BSP	3.02
SGP - 16	11.00	16.40	207	3500	600	3/4" BSP	1/2" BSP	3.08
SGP - 20	13.50	20.00	207	3500	600	3/4" BSP	3/4" BSP	3.97
SGP - 23	15.70	23.60	207	3500	600	3/4" BSP	3/4" BSP	4.01
SGP - 27	18.20	27.30	207	3500	600	3/4" BSP	3/4" BSP	4.10
SGP - 32	21.80	32.70	150	3500	600	3/4" BSP	3/4" BSP	4.21
SGP - 40	27.30	40.90	130	2400	600	3/4" BSP	3/4" BSP	4.43

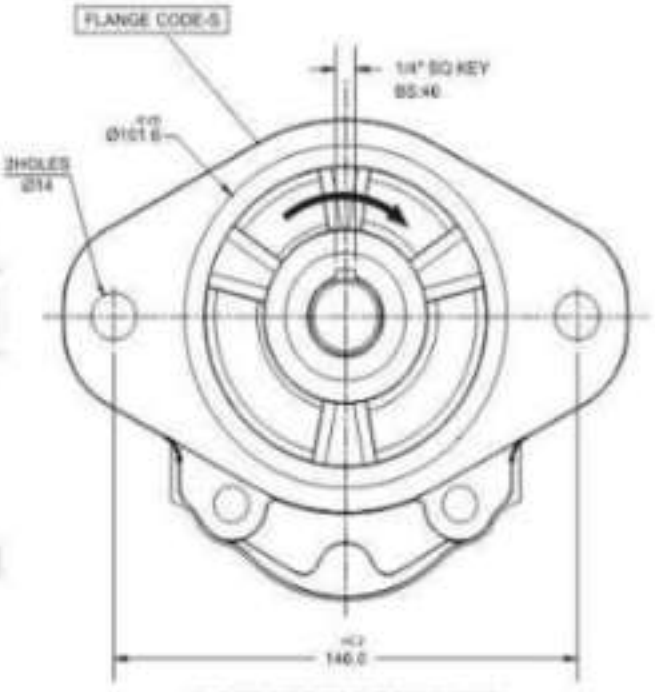
Pressures with ENCLO 68 oil at 50° C

PERFORMANCE

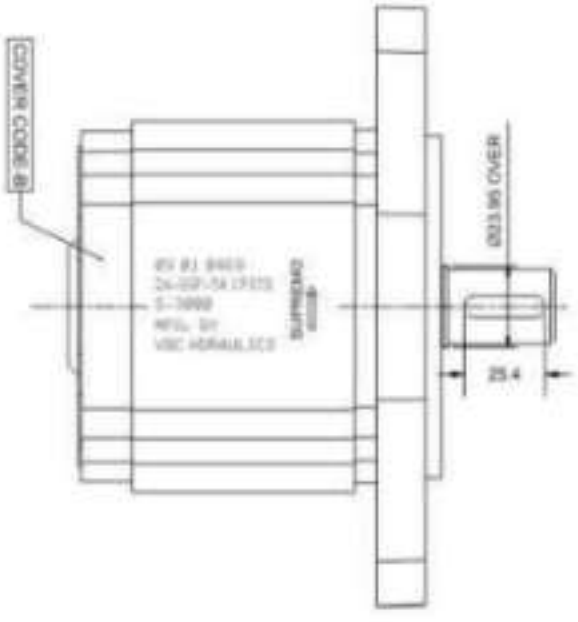


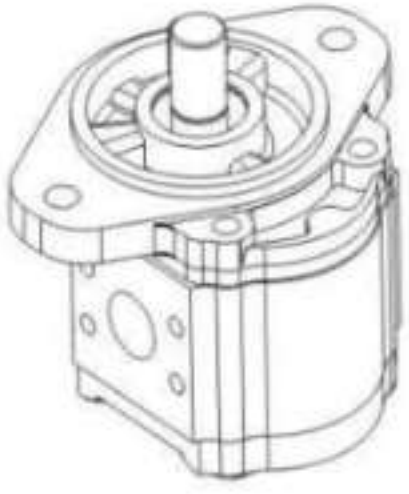






CLOCK WISE ROTATION SHOWN





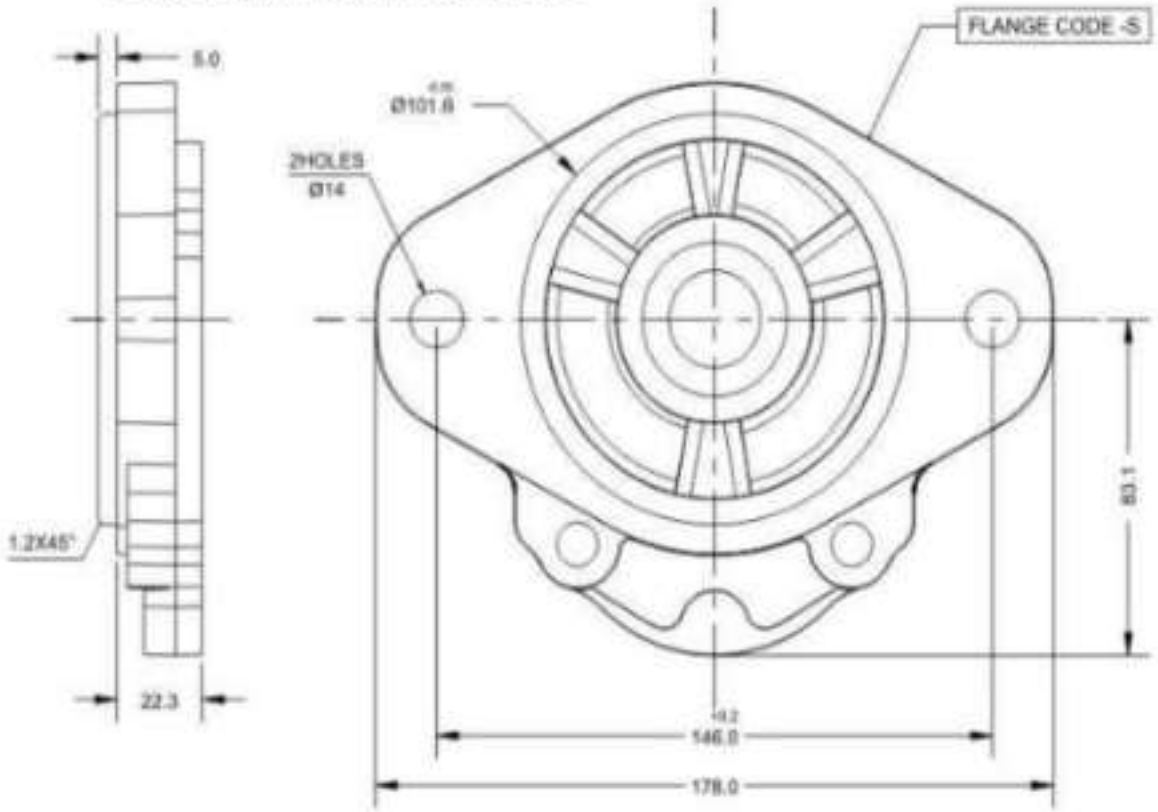
Pump Type	Dimension X -1.27	Dimension Y -0.25
SGP - 22	55.0	112.7
SGP - 32	57.5	117.5
SGP - 41	60.0	122.3
SGP - 47	68.7	140.0
SGP - 54	70.5	143.5

Pump Type	Dimension X -1.27	Dimension Y -0.25
SGP - 66	74.0	149.6
SGP - 71	75.2	152.7
SGP - 85	78.0	158.4
SGP - 100	75.5	155.8

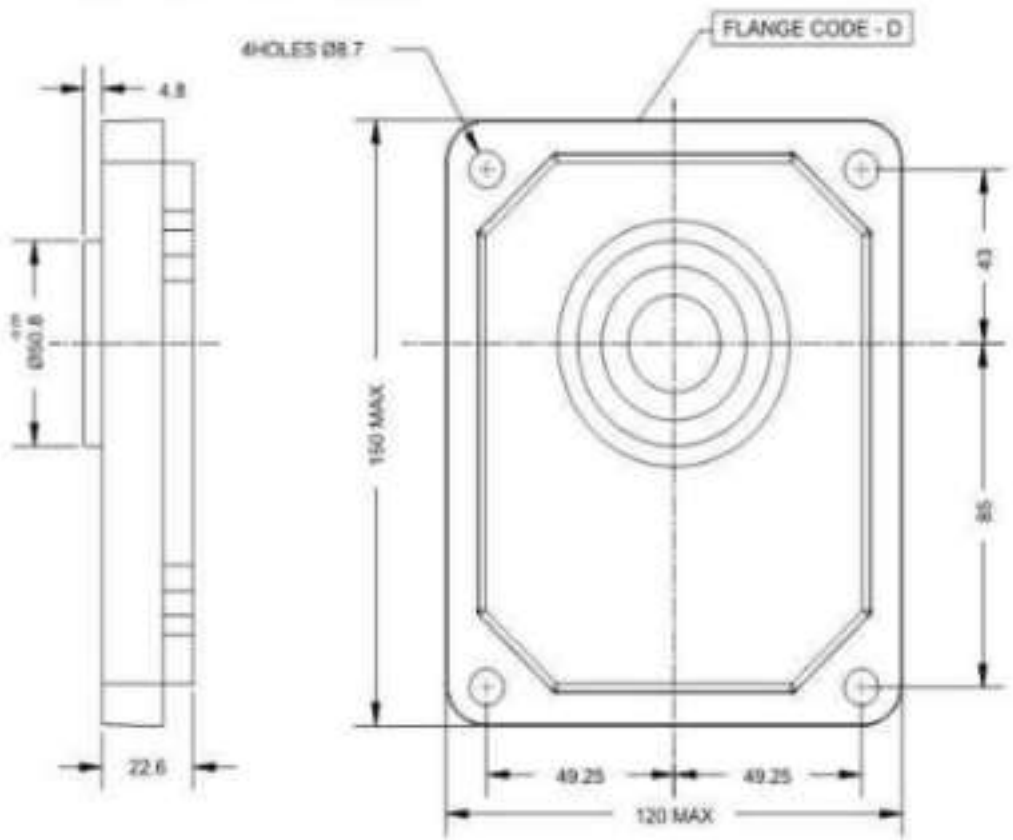
ALL DIMENSION ARE IN MM

MOUNTING FLANGE

2 BOLT SAE B MOUNTING FLANGE

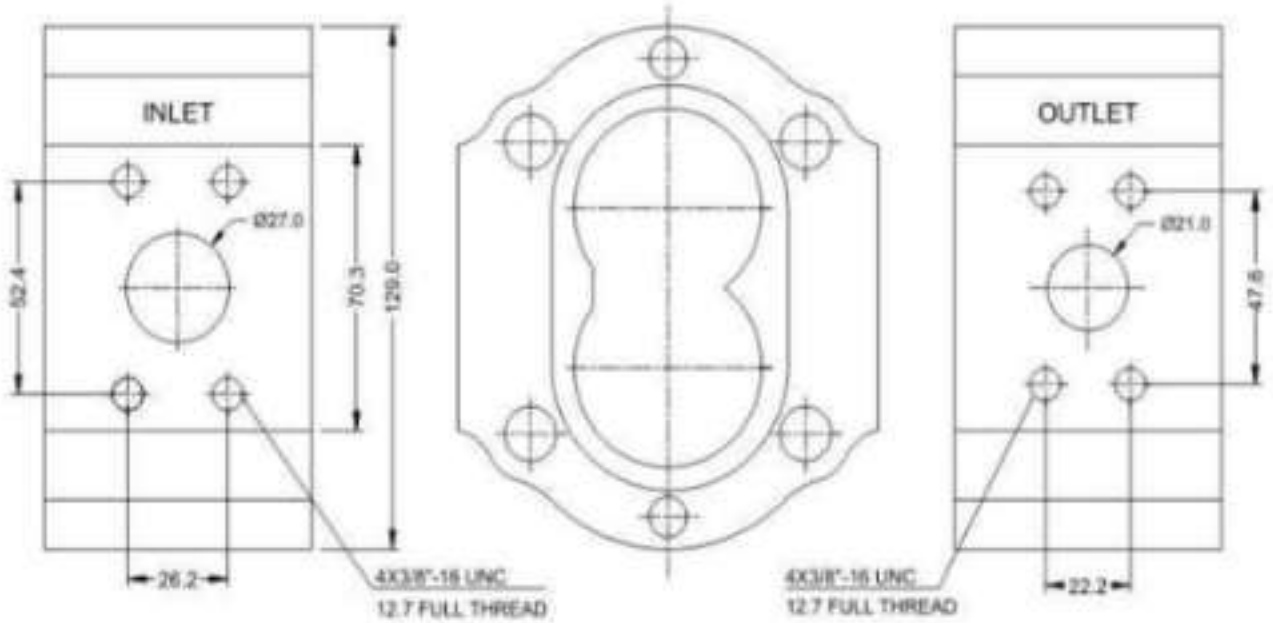


4 BOLT MOUNTING FLANGE

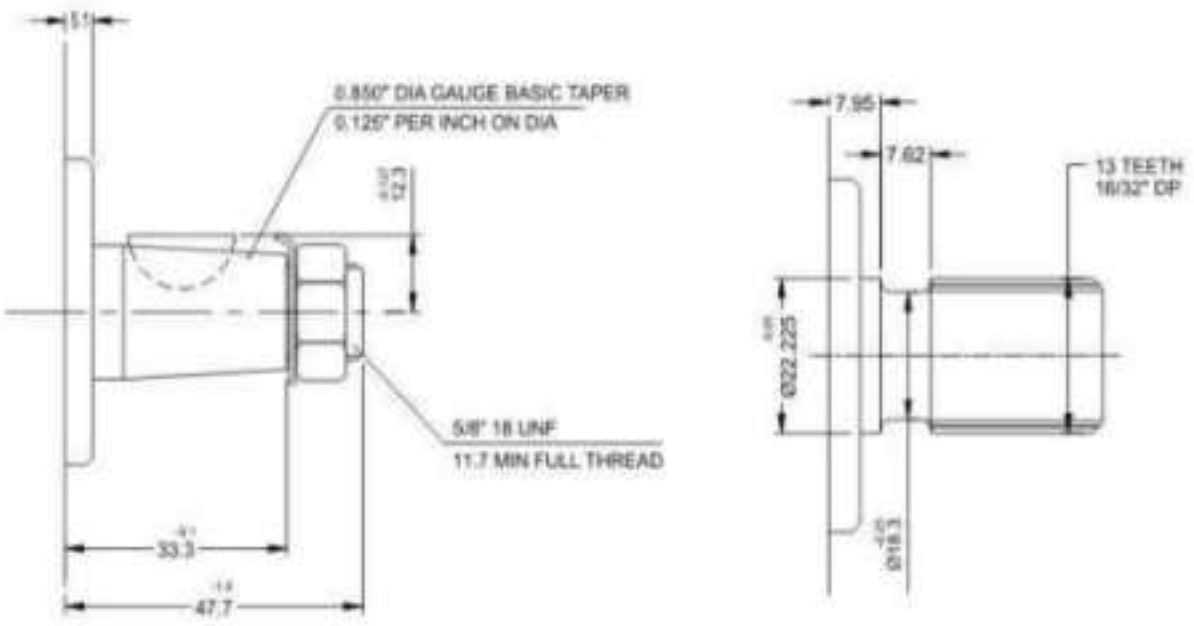


BODY PORT

CODE - S



DRIVE SHAFT



SHAFT CODE - T

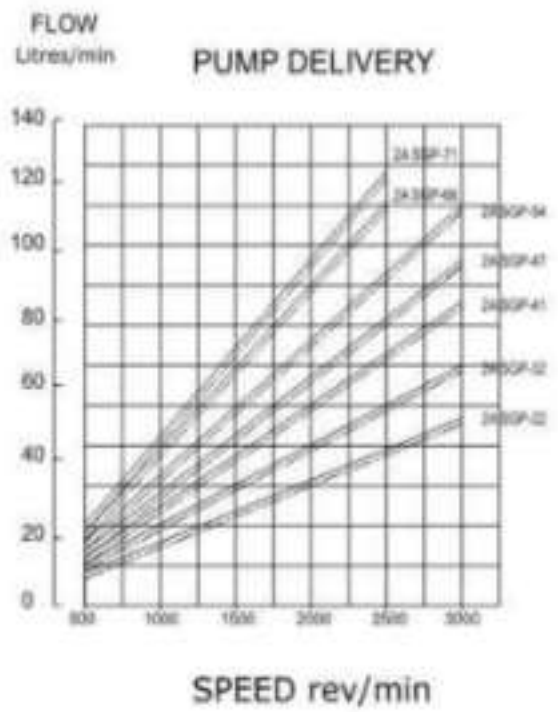
SHAFT CODE - S

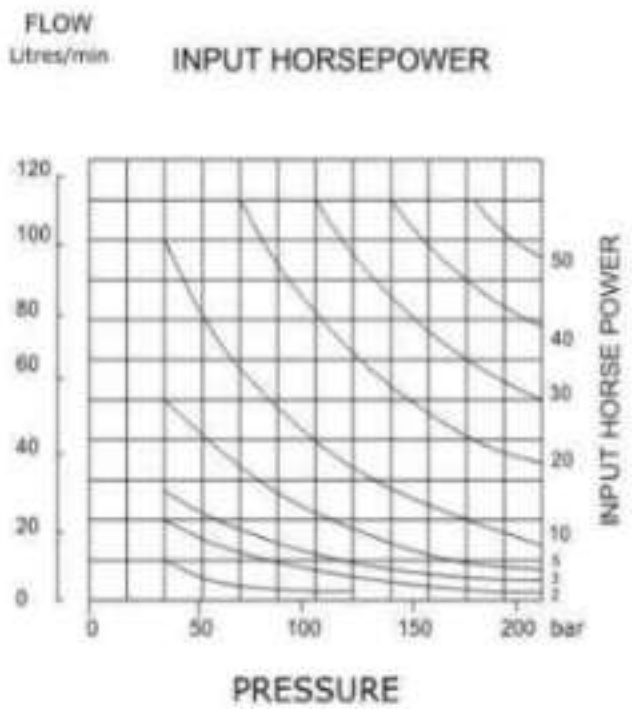
SPECIFICATION DATA

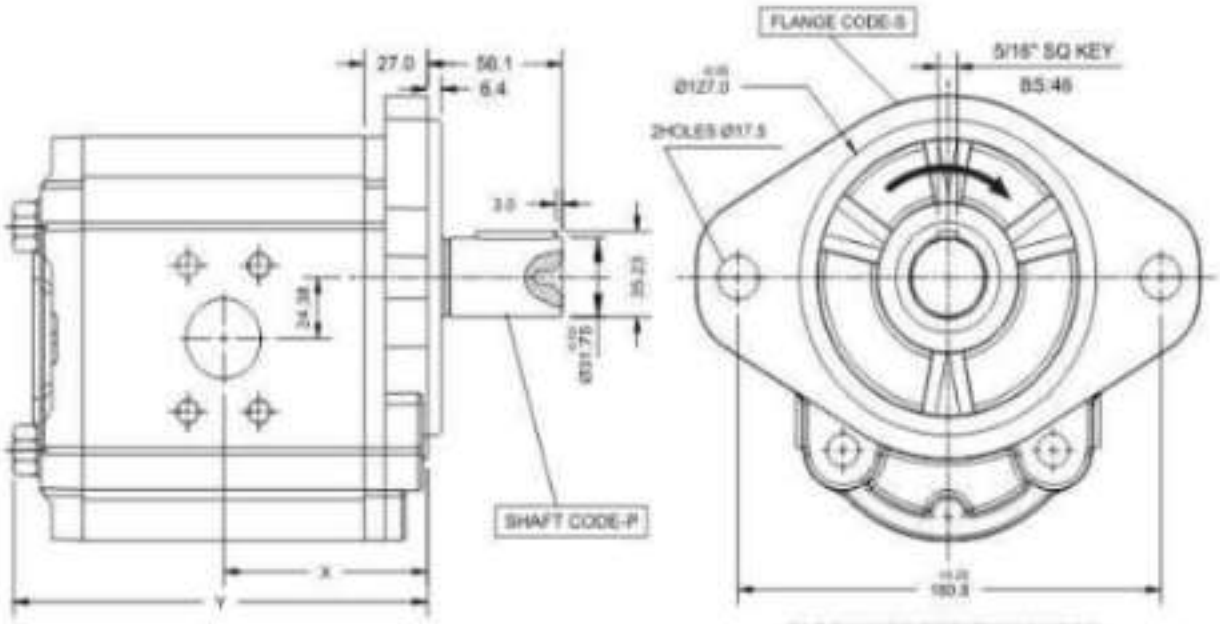
Pump Type	Theoretical Displacement	Nominal Delivery at 1450 rev/min.	Maximum Pressure	Max Speed at max Pressure rev / min.	Min Speed at max Continuous Pressure rev / min.	Inlet BSP Thread	Outlet BSP Thread	Weight in Kgs.
	cm^3 / rev	l / min	bar					
SGP - 22	16.67	22.7	207	3500	650	1"	3/4"	7.40
SGP - 32	22.73	32.0	207	3500	650	1"	3/4"	7.50
SGP - 41	28.79	41.0	207	3500	650	1"	3/4"	7.70
SGP - 47	33.74	47.7	207	3500	650	1.1/4"	3/4"	8.60
SGP - 54	37.88	54.5	207	3500	650	1.1/4"	3/4"	8.70
SGP - 66	45.68	66.5	207	3500	650	1.1/4"	3/4"	8.80
SGP - 71	49.40	71.8	170	2500	650	1.1/2"	3/4"	9.15
SGP - 85	59.14	85.6	170	2500	650	1.1/2"	1"	9.5
SGP - 100	66.67	100	150	2500	650	1.1/2"	1"	9.5

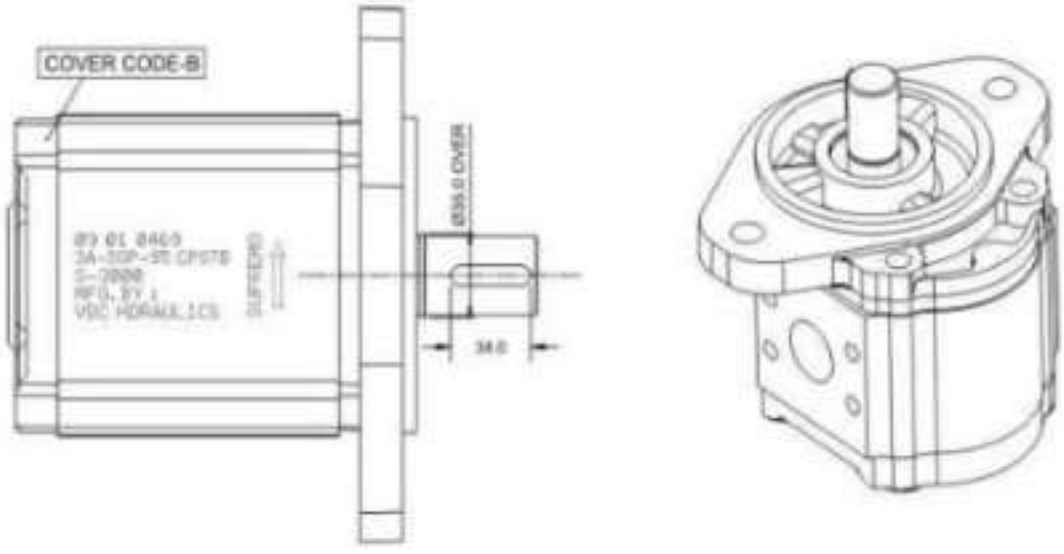
Pressures with ENCLO 68 oil at 50° C

PERFORMANCE CHART





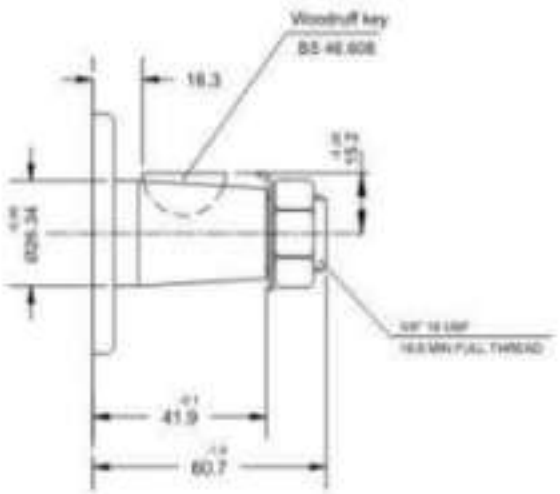




Pump Type	Dimension X -1.27	Dimension Y -0.25
SGP - 68	68.7	136.3
SGP - 81	71.2	141.3
SGP - 95	73.7	146.3
SGP - 113	76.7	152.3
SGP - 136	80.7	160.3
SGP - 150	83.2	165.3
SGP - 173	87.2	173.3
SGP - 225	97.2	193.3

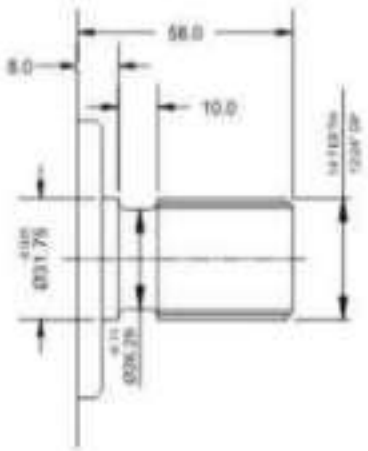
ALL DIMENSIONS ARE IN MM

TAPER SHAFT CODE - T



SHAFT CODE - T

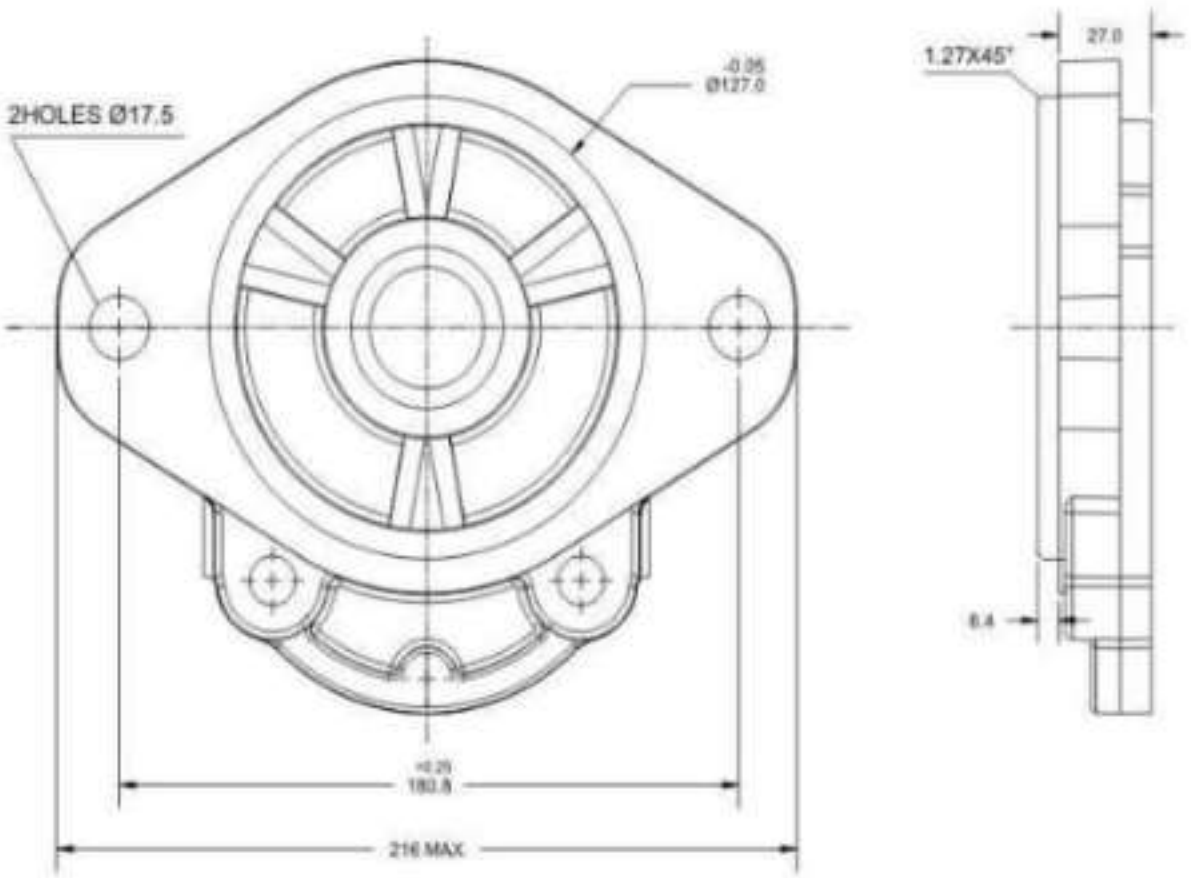
SPLINED SHAFT CODE - S



SHAFT CODE - S

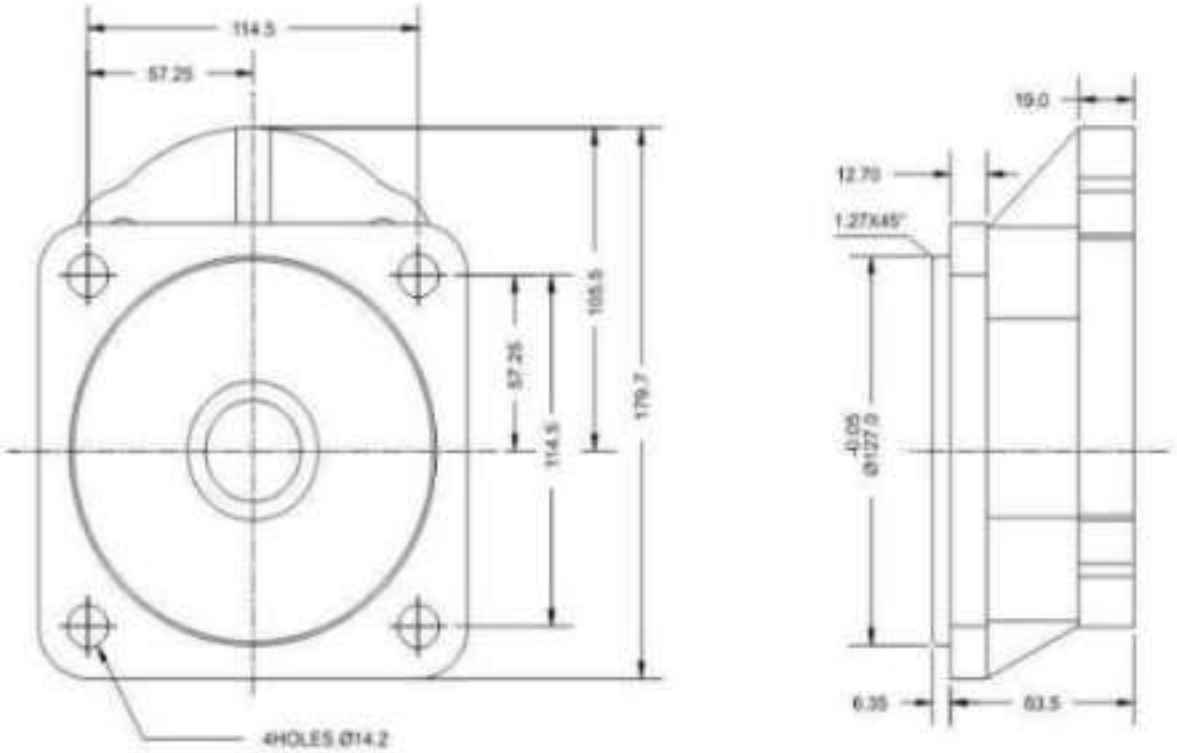
MOUNTING FLANGE

2-BOLT SAE C MOUNTING FLANGE CODE - S

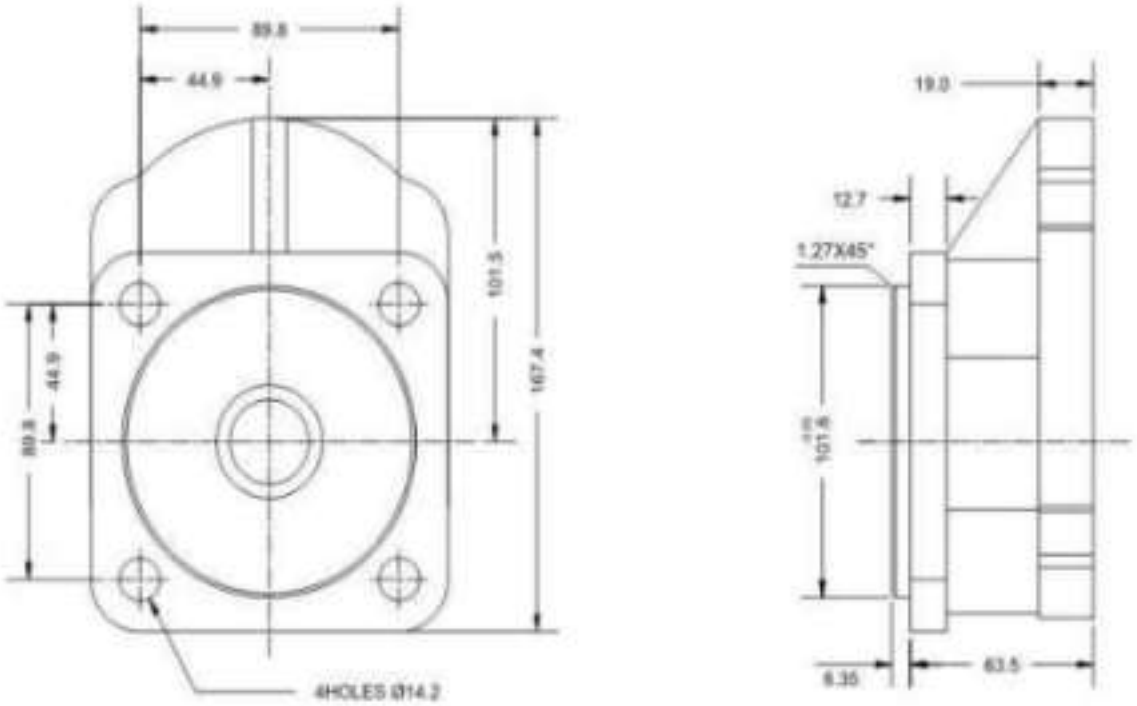


FLANGE CODE - S

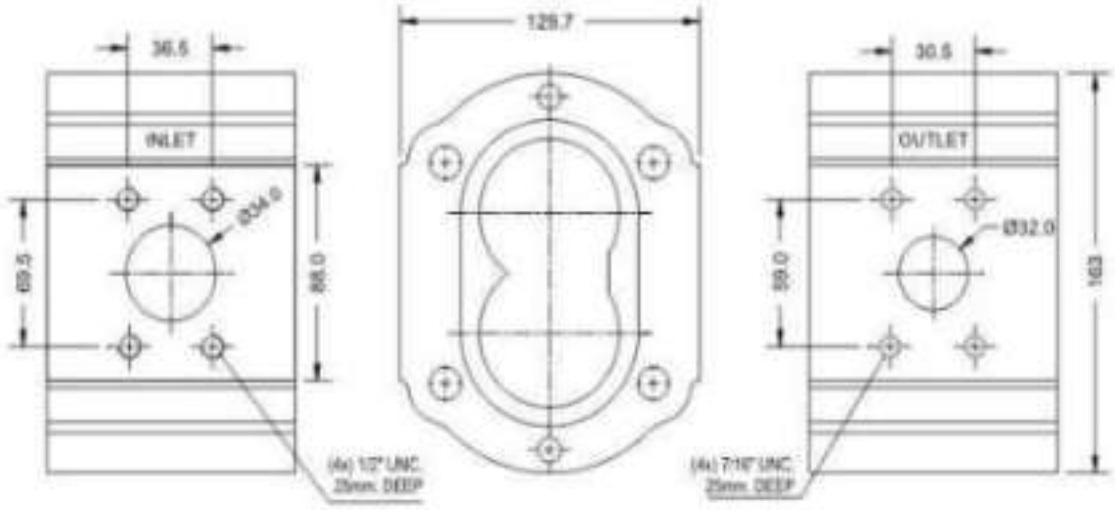
4-BOLT SAE C MOUNTING FLANGE CODE - C



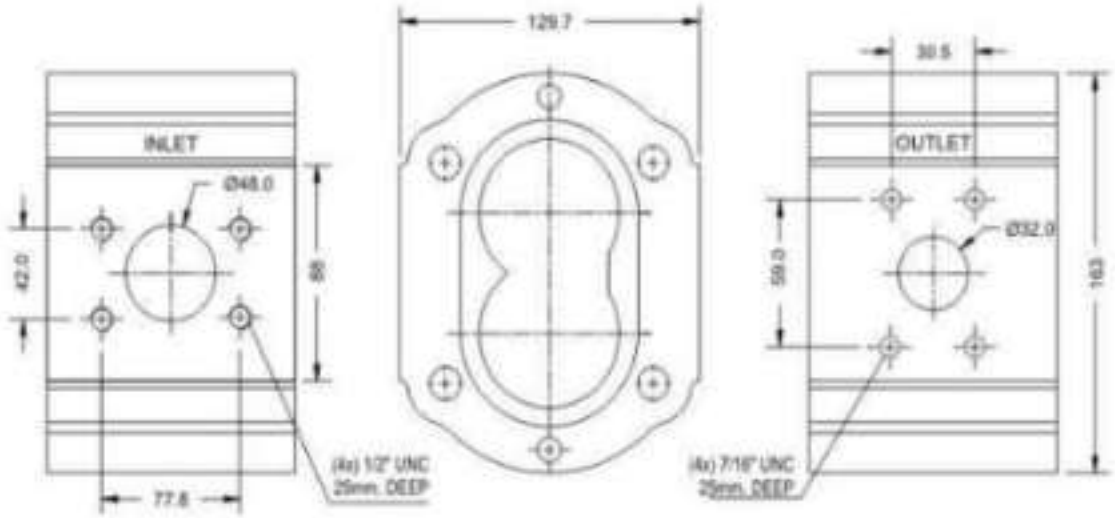
4-BOLT SAE B MOUNTING FLANGE CODE - B



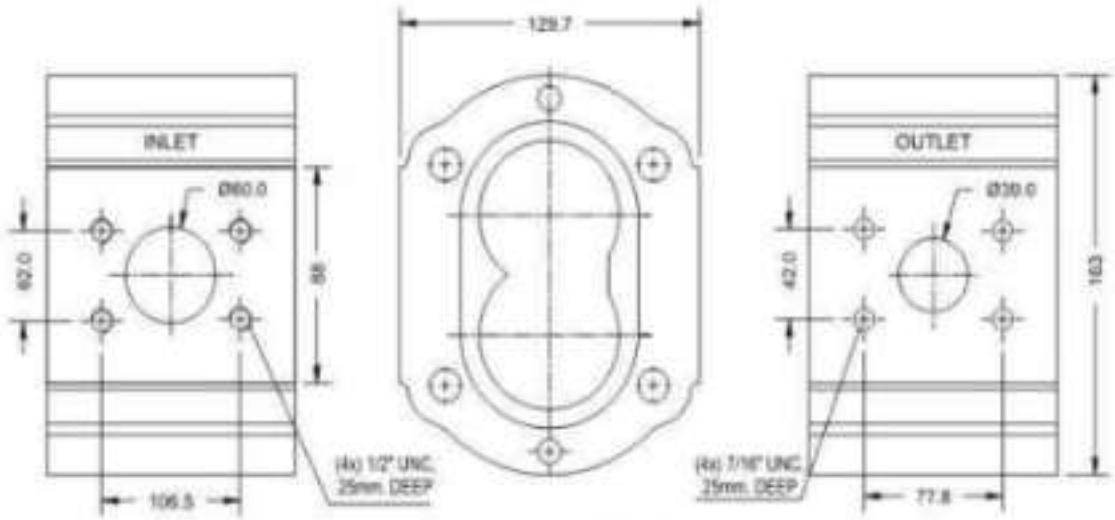
BODY PORT



PUMP TYPE SGP-68 & SGP-136



PUMP TYPE SGP-150 & SGP-173



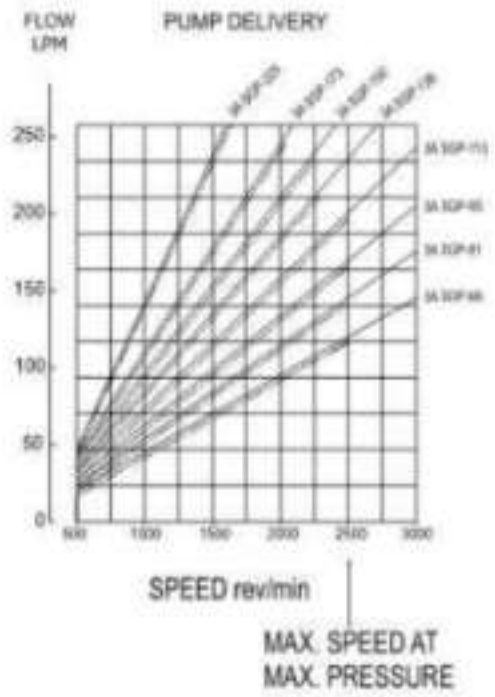
PUMP TYPE SGP-225

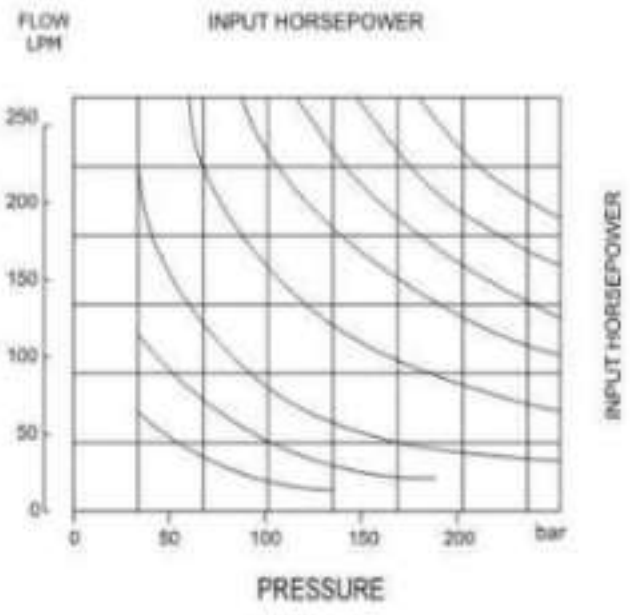
SPECIFICATION DATA

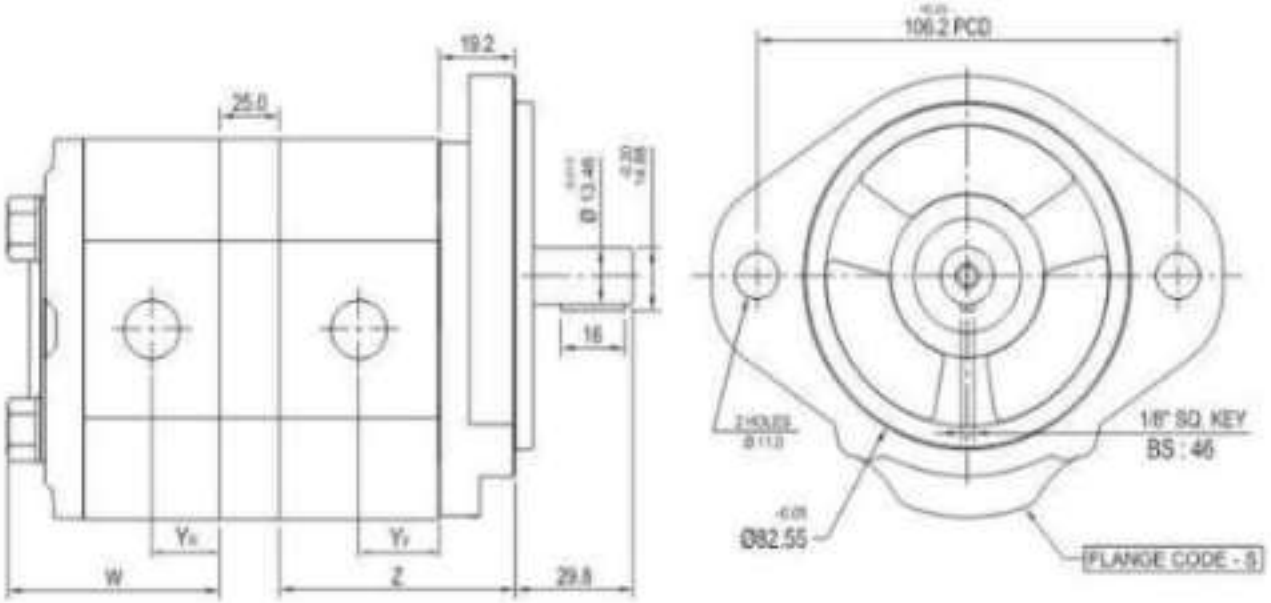
Pump Type	Theoretical Displacement	Nominal Delivery at 1450 rev/min.	Maximum Pressure	Max Speed at max Pressure rev / min.	Min Speed at max Continuous Pressure rev / min.	INLET BSP THREAD	OUTLET BSP THREAD	WEIGHT in kg
	cm^3 / rev	l / min	bar					
SGP - 68	47.07	68.0	207	2500	700	1.1/2"	1.1/4"	13.60
SGP - 81	56.17	81.5	207	2500	700	1.1/2"	1.1/4"	13.80
SGP - 95	65.23	95.5	207	2500	700	1.1/2"	1.1/4"	14.00
SGP - 113	77.15	113.5	207	2500	700	1.1/2"	1.1/4"	14.40
SGP - 136	92.03	136.0	170	2500	700	1.1/2"	1.1/4"	15.00
SGP - 150	101.71	150.0	160	2500	700	2"	1.1/4"	15.40
SGP - 173	116.78	173.0	140	2500	700	2"	1.1/4"	15.80
SGP - 225	151.32	227.0	140	2500	700	2.1/2" PIPE	1.1/2"	17.60

Pressures with ENCLO 68 oil at 50° C

PERFORMANCE CHART

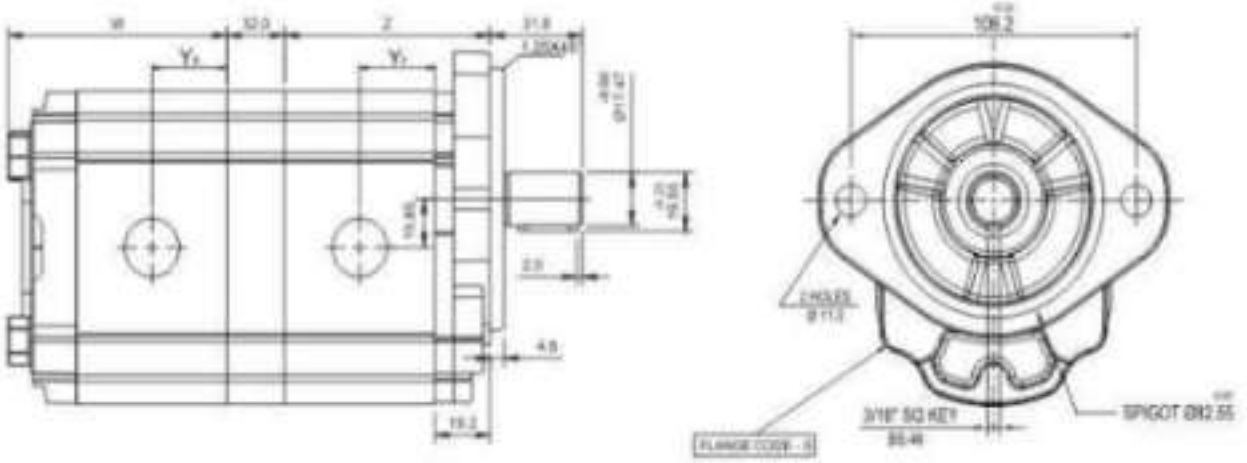






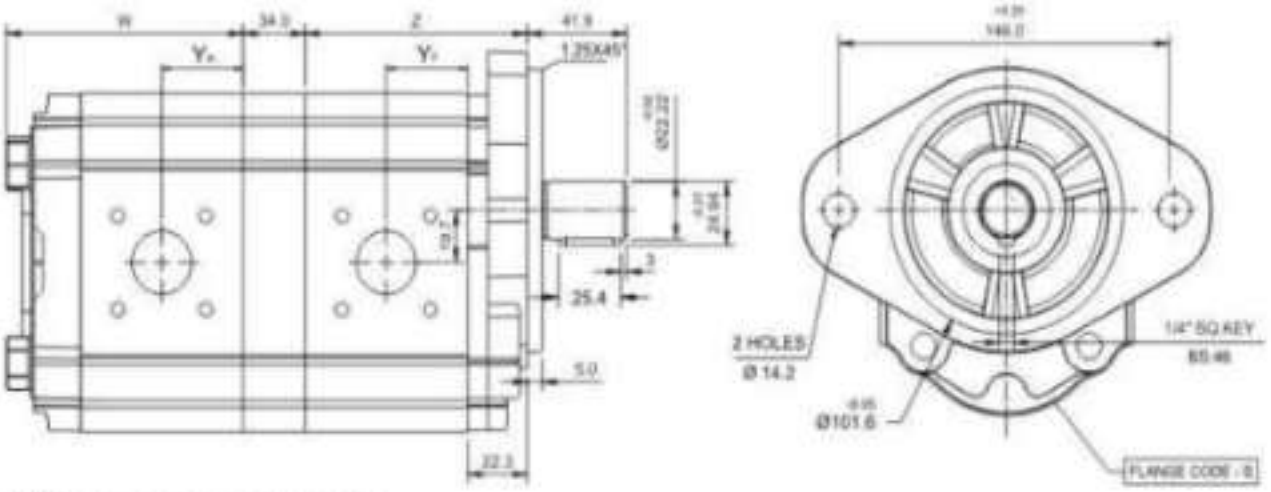
PUMP TYPE	DIMENSIONS			
	Z	Y FRONT	Y REAR	W
SGP - 6	65.80	23.30	23.30	66.80
- 5	65.80	23.30	22.55	65.30
- 4	65.80	23.30	21.80	63.80
- 3	65.80	23.30	20.80	61.80
- 2	65.80	23.30	20.15	60.50
- 0	65.80	23.30	19.05	58.30
SGP - 5	64.30	22.55	22.55	65.30
- 4	64.30	22.55	21.80	63.80
- 3	64.30	22.55	20.80	61.80
- 2	64.30	22.55	20.15	60.50
- 0	64.30	22.55	19.05	58.30
SGP - 4	62.80	21.80	21.80	63.80
- 3	62.80	21.80	20.80	61.80
- 2	62.80	21.80	20.15	60.50
- 0	62.80	21.80	19.05	58.30
SGP - 3	60.80	20.80	20.80	61.80
- 2	60.80	20.80	20.15	60.50
- 0	60.80	20.80	19.05	58.30
SGP - 2	59.50	20.15	20.15	60.50
- 0	59.50	20.15	19.05	58.30
SGP - 0	57.30	19.05	19.05	58.30

* all dimension are in mm unless specified



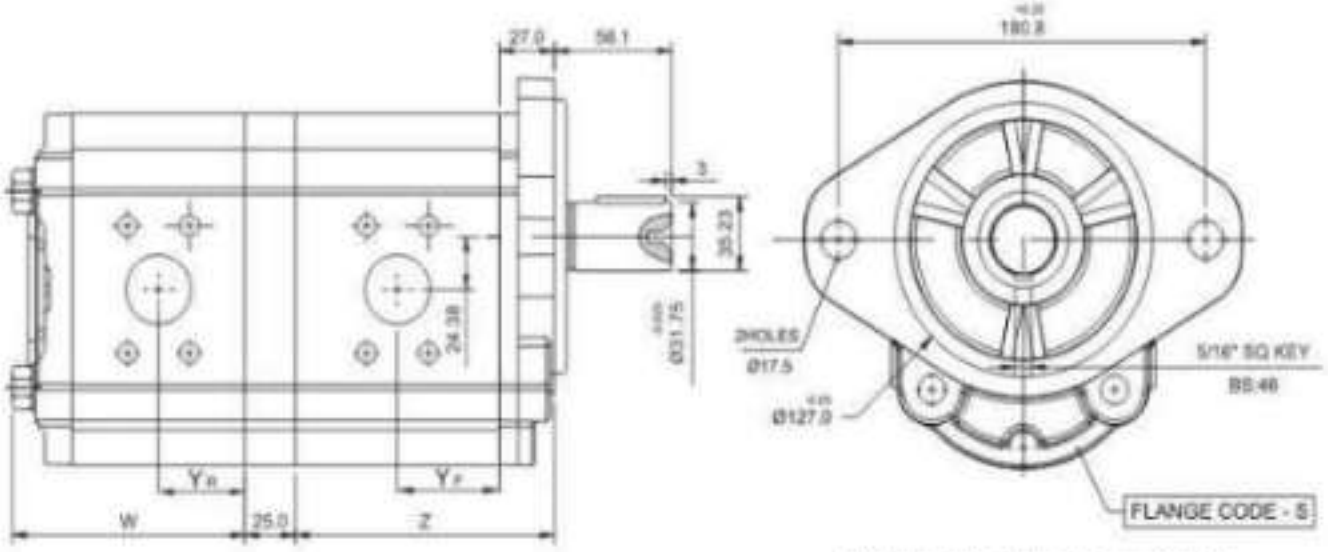
* All dimension are in mm unless specified

PUMP TYPE	DIMENSIONS			
	Z	Y FRONT	Y REAR	W
SGP - 40	107.25	44.03	44.03	111.9
- 32	107.25	44.03	40.53	104.9
- 27	107.25	44.03	38.53	100.9
- 23	107.25	44.03	37.03	97.9
- 20	107.25	44.03	35.53	94.9
- 16	107.25	44.03	26.53	76.9
- 12	107.25	44.03	25.03	73.9
- 09	107.25	44.03	23.26	70.3
SGP - 32	100.25	40.53	40.53	104.9
- 27	100.25	40.53	38.53	100.9
- 23	100.25	40.53	37.03	97.9
- 20	100.25	40.53	35.53	94.9
- 16	100.25	40.53	26.53	76.9
- 12	100.25	40.53	25.03	73.9
- 09	100.25	40.53	23.26	70.3
SGP - 27	96.25	38.53	38.53	100.9
- 23	96.25	38.53	37.03	97.9
- 20	96.25	38.53	35.53	94.9
- 16	96.25	38.53	26.53	76.9
- 12	96.25	38.53	25.03	73.9
- 09	96.25	38.53	23.26	70.3
SGP - 23	93.25	37.03	37.03	97.9
- 20	93.25	37.03	35.53	94.9
- 16	93.25	37.03	26.53	76.9
- 12	93.25	37.03	25.03	73.9
- 09	93.25	37.03	23.26	70.3
SGP - 20	90.25	35.53	35.53	94.9
- 16	90.25	35.53	26.53	76.9
- 12	90.25	35.53	25.03	73.9
- 09	90.25	35.53	23.26	70.3
SGP - 16	72.25	26.53	26.53	76.9
- 12	72.25	26.53	25.03	73.9
- 09	72.25	26.53	23.26	70.3
SGP - 12	69.25	25.03	25.03	73.9
- 09	69.25	25.03	23.26	70.3
SGP - 09	65.75	23.26	23.26	70.3



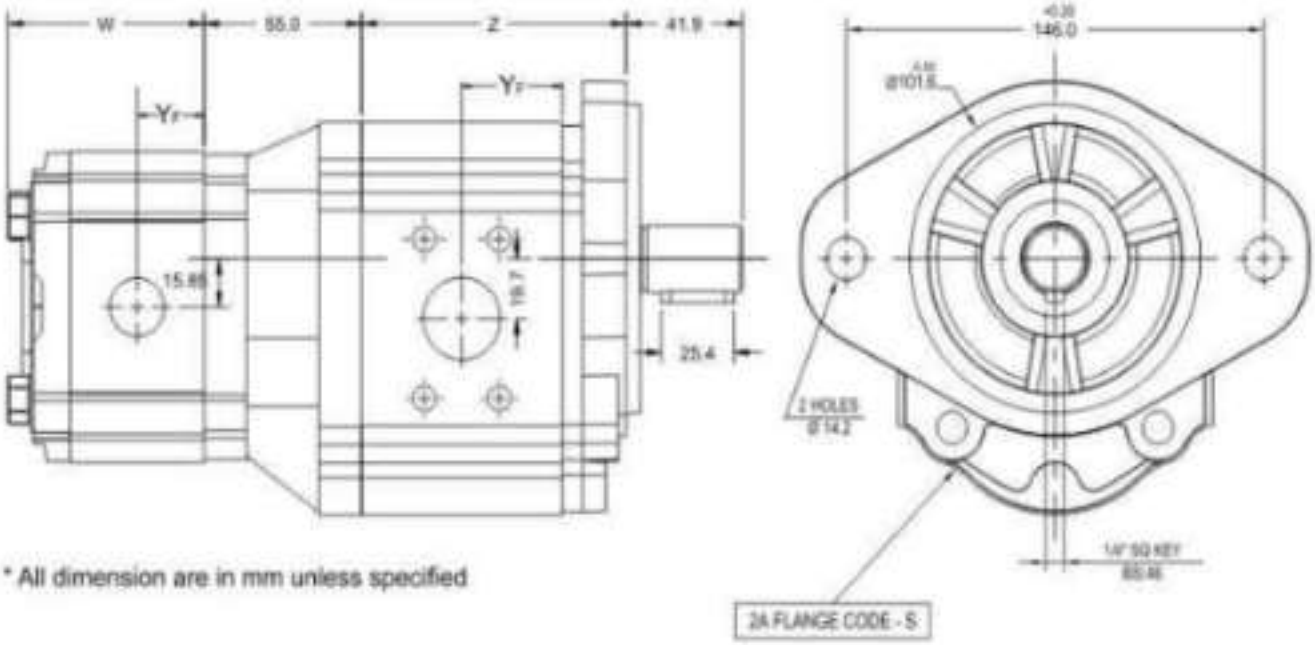
* All dimension are in mm unless specified

PUMP TYPE	DIMENSIONS			
	Z	Y FRONT	Y REAR	W
SGP - 100	128.4	53.03	53.03	131.1
- 66	128.4	53.03	51.53	128.1
- 54	128.4	53.03	48.03	121.1
- 47	128.4	53.03	46.28	117.6
- 41	128.4	53.03	37.53	100.1
- 32	128.4	53.03	35.03	95.1
- 22	128.4	53.03	32.53	90.1
SGP - 66	125.4	51.53	51.53	128.1
- 54	125.4	51.53	48.03	121.1
- 47	125.4	51.53	46.28	117.6
- 41	125.4	51.53	37.53	100.1
- 32	125.4	51.53	35.03	95.1
- 22	125.4	51.53	32.53	90.1
SGP - 54	118.4	48.03	48.03	121.1
- 47	118.4	48.03	46.28	117.6
- 41	118.4	48.03	37.53	100.1
- 32	118.4	48.03	35.03	95.1
- 22	118.4	48.03	32.53	90.1
SGP - 47	114.9	46.28	46.28	117.6
- 41	114.9	46.28	37.53	100.1
- 32	114.9	46.28	35.03	95.1
- 22	114.9	46.28	32.53	90.1
SGP - 41	97.4	37.53	37.53	100.1
- 32	97.4	37.53	35.03	95.1
- 22	97.4	37.53	37.53	100.1
SGP - 32	92.4	35.03	35.03	95.1
- 22	92.4	35.03	32.53	90.1
SGP - 22	87.4	32.53	32.53	90.1



* All dimension are in mm unless specified

PUMP TYPE	DIMENSIONS			
	Z	Y FRONT	Y REAR	W
SGP - 225	167.3	70.15	70.15	169.3
- 173	167.3	70.15	60.15	149.3
- 150	167.3	70.15	56.15	141.3
- 136	167.3	70.15	53.65	136.3
- 113	167.3	70.15	49.65	128.3
- 95	167.3	70.15	46.65	122.3
- 81	167.3	70.15	44.15	117.3
- 68	167.3	70.15	41.65	112.3
SGP - 173	147.3	60.15	60.15	149.3
- 150	147.3	60.15	56.15	141.3
- 136	147.3	60.15	53.65	136.3
- 113	147.3	60.15	49.65	128.3
- 95	147.3	60.15	46.65	122.3
- 81	147.3	60.15	44.15	117.3
- 68	147.3	60.15	41.65	112.3
SGP - 150	139.3	56.15	56.15	141.3
- 136	139.3	56.15	53.65	136.3
- 113	139.3	56.15	49.65	128.3
- 95	139.3	56.15	46.65	122.3
- 81	139.3	56.15	44.15	117.3
- 68	139.3	56.15	41.65	112.3
SGP - 136	134.3	53.65	53.65	136.3
- 113	134.3	53.65	49.65	128.3
- 95	134.3	53.65	46.65	122.3
- 81	134.3	53.65	44.15	117.3
- 68	134.3	53.65	41.65	112.3
SGP - 113	126.3	49.65	49.65	128.3
- 95	126.3	49.65	46.65	122.3
- 81	126.3	49.65	44.15	117.3
- 68	126.3	49.65	41.65	112.3
SGP - 95	120.3	46.65	46.65	122.3
- 81	120.3	46.65	44.15	117.3
- 68	120.3	46.65	41.65	112.3
SGP - 81	115.3	44.15	44.15	117.3
- 68	115.3	44.15	41.65	112.3
SGP - 68	110.3	41.65	41.65	112.3



* All dimension are in mm unless specified

PUMP TYPE	DIMENSIONS			
	Z	Y FRONT	Y REAR	W
SGP - 66 - 32	125.4	51.53	40.53	104.9
- 23	125.4	51.53	37.03	97.9
- 16	125.4	51.53	26.53	76.9
- 12	125.4	51.53	25.03	73.9
SGP - 54 - 32	118.4	48.03	40.53	104.9
- 23	118.4	48.03	37.03	97.9
- 16	118.4	48.03	26.53	76.9
- 12	118.4	48.03	25.03	73.9
SGP - 47 - 32	114.9	46.28	40.53	104.9
- 23	114.9	46.28	37.03	97.9
- 16	114.9	46.28	26.53	76.9
- 12	114.9	46.28	25.03	73.9

REQUIRED MOTOR HORSE POWER (AVERAGE VALUES)

PUMP TYPE	25 BAR	50 BAR	75 BAR	100 BAR	125 BAR	150 BAR	175 BAR	200 BAR
0A SGP - 0	0.5	0.5	0.5	0.5	0.5	0.6	0.8	0.9
0A SGP - 1	0.5	0.5	0.5	0.6	0.8	0.9	1.0	1.2
0A SGP - 2	0.5	0.5	0.6	0.8	1.0	1.2	1.4	1.6
0A SGP - 3	0.5	0.5	0.8	1.1	1.3	1.5	1.8	2.0
0A SGP - 4	0.5	0.7	1.0	1.4	1.7	2.0	2.4	2.7
0A SGP - 5	0.5	0.8	1.2	1.6	2.0	2.4	2.8	3.1
0A SGP - 6	0.5	0.9	1.4	1.8	2.3	2.8	3.2	3.7

PUMP TYPE	25 BAR	50 BAR	75 BAR	100 BAR	125 BAR	150 BAR	175 BAR	200 BAR
1A SGP - 07	0.5	1.0	1.6	2.2	2.7	3.3	3.8	4.4
1A SGP - 09	0.6	1.2	1.9	2.5	3.1	3.8	4.4	5.0
1A SGP - 12	0.9	1.7	2.5	3.4	4.2	5.0	5.9	6.7
1A SGP - 16	1.0	2.1	3.2	4.2	5.3	6.3	7.4	8.4
1A SGP - 20	1.3	2.5	3.8	5.0	6.3	7.6	8.9	10.0
1A SGP - 23	1.5	3.0	4.5	6.0	7.5	8.9	10.4	11.9
1A SGP - 27	1.7	3.4	5.1	7.0	8.5	10.2	11.9	13.6
1A SGP - 32	2.0	4.0	6.0	8.5	10.0	12.0	14.1	
1A SGP - 40	2.5	5.0	7.5	10.0	12.4			

PUMP TYPE	25 BAR	50 BAR	75 BAR	100 BAR	125 BAR	150 BAR	175 BAR	200 BAR
2A SGP - 022	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0
2A SGP - 032	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
2A SGP - 041	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0
2A SGP - 047	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0
2A SGP - 054	3.5	7.0	10.5	14.0	17.5	21.0	24.5	28.0
2A SGP - 066	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0
2A SGP - 071	4.5	9.0	13.5	18.0	22.5	27.0	31.5	
2A SGP - 100	5.5	11.0	16.5	22.0				

PUMP TYPE	25 BAR	50 BAR	75 BAR	100 BAR	125 BAR	150 BAR	175 BAR	200 BAR
3A SGP - 068	4	8	12	16	20	24	28	32
3A SGP - 081	5	10	15	20	25	30	35	40
3A SGP - 095	6	12	18	24	30	36	42	48
3A SGP - 113	7	14	21	28	35	42	48	56
3A SGP - 136	8	16	24	32	40	48	56	
3A SGP - 150	9	18	27	36	45	54		
3A SGP - 173	10	20	30	40	50			
3A SGP - 225	13	26	39	52				

PUMP CODIFICATION CHART

DIRECTION OF ROTATION & SHAFT SEAL

C	Clockwise Rotation Nitrile Shaft Seal
A	Anti Clockwise Rotation Nitrile Shaft Seal
V	Clockwise Rotation Viton Shaft Seal
U	Anti Clockwise Rotation Viton Shaft Seal
E	Clockwise Rotation Double Nitrile Shaft Seal
D	Anti Clockwise Rotation Double Nitrile Shaft Seal
G	Clockwise Rotation Double Shaft Seal (Nitrile & Viton)
F	Anti Clockwise Rotation Double Shaft Seal (Nitrile & Viton)

MOUNTING FLANGE

D	D Type - 4 Bolts
S	SAE A - 2 Bolt (STD profile)
B	SAE B
C	SAE C - 4 Bolt - 3A
P	SAE - 2 Bolt (3A Cast iron)
4	SAE A - 2 Bolt (STD profile)
5	SAE - 2 Bolt X Type - B.S.
0	Other - Refer Dwg.

Frame size

3	A	S	G	P	2	2	5	C	P	S	T	B

MODEL CODE

Drive Shaft

P	Parallel
T	Taper 1.8
K	Taper 1.5
S	STD. SAE Spline
G	Spline - 11 Teeth
D	Spline D1N
J	Spline - JIS
O	Others - Refer Dwg.

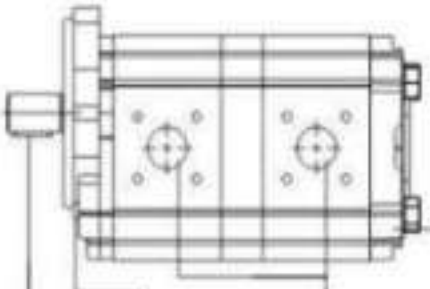
F	D Type - STD. Profile
S	SAE - STD Profile
T	Threaded - STD Profile
N	SAE - Cast iron
Y	Threaded - Cast iron
O	Others - Refer Dwg.

B	Standard
R	With Relief Valve
D	With Discharge
O	Others - Refer Dwg.

MINERAL OILS FOR USE WITH DTL GEAR PUMPS AND MOTORS

VISCOCITY GRADE (CST @ 40 DEG.C°)	32-46	68	100
SAE GRADE	10 W Range	20, 20 W Range	HEAVIER GRADES
AGIP	OSO 35	OSO 55	OSO 75
CALTEX	Rando HD 32 Rando HD 46 Rando HD AZ	Rando HD 68 Rando HD CZ	Rando HD 100 Rando HD 150
CASTROL	Hyspin AWS 32 Hyspin AWS 46 Hyspin AWH 32 Hyspin AWH 36 Hyspin VG 32 Hyspin VG 46 Deusol CRI 10 Deusol CRH 10 Castrol CRI 10 Castrol CRB 10 Deusol RX Super 10W Deusol RX Super 15W/40 Deusol CRX 10W/40 Castrol CRX 10W/40 Castrolite Agricastrol Multi 10W/30 Agricastrol 10 Agricastrol HDD 10 Agricastrol ATF Deusol TFA Dexron II Castrol TQ Dexron II Deusol TFM 33 Castrol TQF Deusol TFC 310	Hyspin AWS 68 Hyspin AWH 68 Hyspin VG 68 Deusol CRI 20 Deusol CRH 20 Castrol CHI 20 Castrol CRB 20 Deusol RX Super 20 Castrol GTX Agricastrol Multi 20w/30 Agricastrol 20 Agricastrol HDD 20 Deusol Multiplant Alpha SP 68 Alpha ZN 68	Hyspin AWS 100 Hyspin AWH 100 Hyspin VG 100 Deusol CRI 30 Deusol CRH 30 Castrol CRI 30 Castrol CRB 30 Deusol RX Super 30 Agricastrol 30 Agricastrol HDD 30 Deusol TFC 330 Alpha SP 100 Alpha ZN 100
ELF	Albatross 34 Albatross 55	Albatross 73	
ESSO	Nuto H32 Nuto H46 Nuto HP 32 Nuto HP 46 Teresso (Teresstic) 32 Teresso (Teresstic) 46 Esstic 32 Esstic 46 Univis HP 32 Univis HP 46 Esstor HD 10 Essolube HD 10W Essolube D3 10W Essolube HDX 10W Auto Trans. Fluid Glide Torque Fluid 47	Nuto H68 Nuto HP68 Teresso (Teresstic) 68 Esstic 68 Esstor HD 20 Essolube HD 20W Essolube D3 20W Essolube HDX 20W Torque Fluid 56	Nuto H100 Nuto H150 Nuto HP 100 Teresso (Teresstic) 100 Teresso (Teresstic) 150 Esstic 100 Esstic 150 Univis HP 100 Esstor HD 30 & 40 Essolube HD 30 Essolube D3 30 Essolube HDX 30 Torque Fluid 62 Gear Oil GP 80W Gear Oil GP 80W/90

VISCOCITY GRADE (CST @ 40 DEG.C°)	32-46	68	100
SAE GRADE	10 W Range	20, 20 W Range	HEAVIER GRADES
AGIP	OSO 35	OSO 55	OSO 75
MOBIL	DTE 24, DTE 25, DTE 13 DTE 15 DTE Oil Light DTE Oil Medium Vacuoline Oil 1405 Super 10W/40 Super 10W/50 Delvac Special 10W/30 Delvac 1210 Delvac 1310 Mobil ATF 200 Mobil ATF 210 Mobil ATF 220 Mobilfluid 423	DTE 26, DTE 16 DTE Oil Heavy Medium Vacuoline Oil 1409 Mobil Super 15W/40 Mobil Super 15W/50 Delvac Special 20W/50 Delvac Super Delvac 1220 Delvac 1320 Mobilfluid 98 Mobilfluid 316 Mobiland Universal Mobiland Super	DTE 18, DTE 19 DTE Oil Heavy Delvac 1230 Delvac 1240 Mobilfluid 422



ORDERING :-
PUMPS ARE ORDERED BY QUOTING APPROPRIATE CODE REFERENCES STATED IN THIS CHART.
THE CODING FORMS AN ABBREVIATED SPECIFICATION OF THE PUMP REQUIRED AND IS STAMPED IN THE PUMP BODY TO PROVIDE IDENTIFICATION.

PUMP SIZE (Ref. performance data)		ROTATION CODE	SHAFT CODE	FLANGE CODE	BODY PORT CODE (Ref. installation data)		COVER CODE	SHAFT SEAL CODE
FRONT SECTION	REAR SECTION	A-ANTICLOCKWISE C-CLOCKWISE	Ref. installation data	Ref. installation data	FRONT SECTION	REAR SECTION	Ref. installation data	

0A-SGP 00	0A-SGP 00
0A-SGP 01	0A-SGP 01
0A-SGP 02	0A-SGP 02
0A-SGP 03	0A-SGP 03
0A-SGP 04	0A-SGP 04
0A-SGP 05	0A-SGP 05
0A-SGP 06	0A-SGP 06
1A-SGP 09	1A-SGP 09
1A-SGP 12	1A-SGP 12
1A-SGP 16	1A-SGP 16
1A-SGP 20	1A-SGP 20
1A-SGP 23	1A-SGP 23
1A-SGP 27	1A-SGP 27
1A-SGP 32	1A-SGP 32
1A-SGP 40	1A-SGP 40
2A-SGP 22	2A-SGP 22
2A-SGP 32	2A-SGP 32
2A-SGP 41	2A-SGP 41
2A-SGP 47	2A-SGP 47
2A-SGP 54	2A-SGP 54
2A-SGP 66	2A-SGP 66
2A-SGP 100	2A-SGP 100
3A-SGP 68	3A-SGP 68
3A-SGP 81	3A-SGP 81
3A-SGP 95	3A-SGP 95
3A-SGP 113	3A-SGP 113
3A-SGP 136	3A-SGP 136
3A-SGP 150	3A-SGP 150
3A-SGP 173	3A-SGP 173
3A-SGP 225	3A-SGP 225

P - PARALLEL
T - TAPERED 1:8
K - TAPERED 1:5
S - SAE SPLINE
G - SPLINE 11 teeth
Q - QUILL DRIVE

F - DTY PORTS
S - SAE PORTS
T - THREADED PORTS

N - SINGLE NITRILE
V - SINGLE VITON
E - DOUBLE NITRILE
W - DOUBLE VITON

S - STANDARD
R - with relief valve

D - DOWTY 4 BOLTS
S - SAE 2 BOLTS
C - SAE 4 BOLTS
X - SAE A 2 BOLT QUILL DRIVE
H - 6 BOLTS
E - SAE B 2 BOLT QUILL DRIVE
O - OTHERS

TEMPERATURE RANGE °C			
Code	Normal	Max	Min.
N	0 To 80	100	-20
V	0 To 100	120	-20
E	0 To 80	100	-20
W	0 To 100	120	-20

Example (a) 2P - SGP 85 — C P S S B N

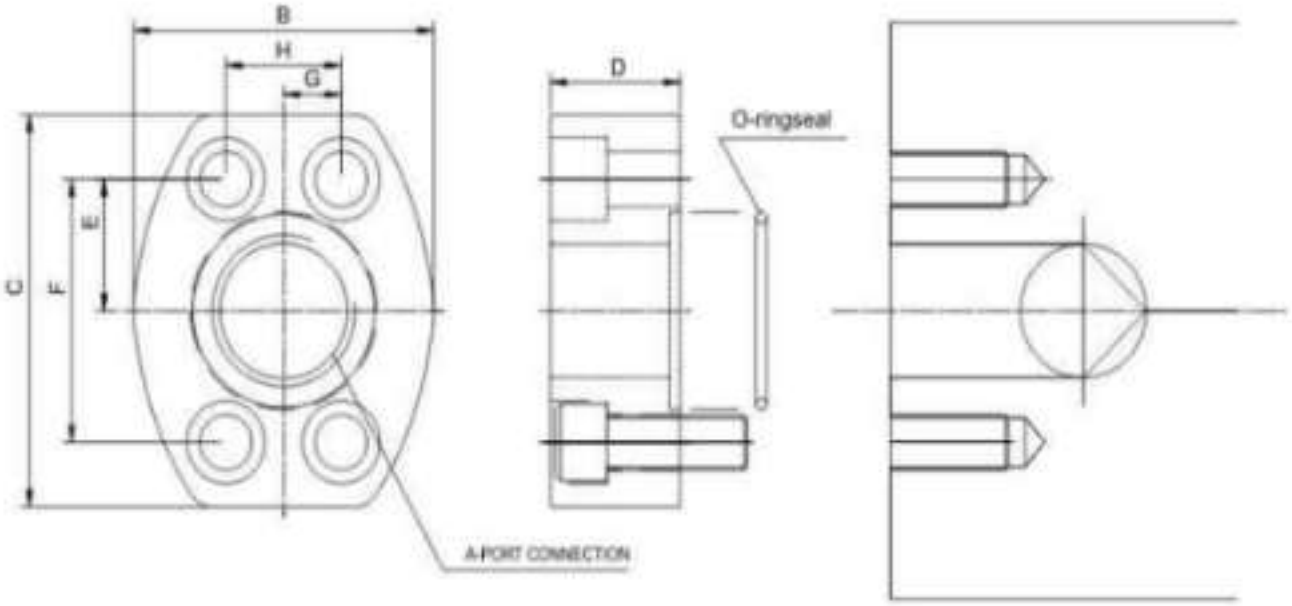
- Single pump type
- CLOCK WISE ROTATION
- PRELLEL SHAFT
- SAE 2 BOLT
- SAE PORTS
- STANDARD COVER
- SINGLE NITRILE SEAL

(b) 2P - SGP 85 - 2P - SGP 22 — C P S S S B N

OR 2P - 2P - SGP 85 - SGP 22 — C P S S S B N

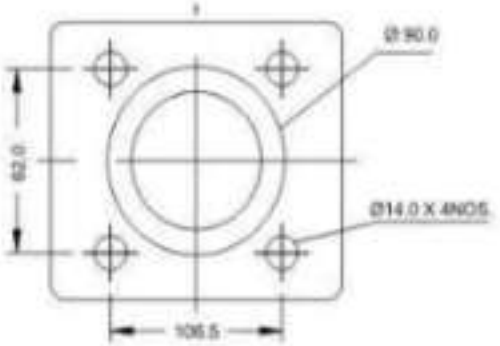
- TANDEM PUMP TYPE
- CLOCK WISE
- PARALLEL
- SAE 2 BOLT
- SAE PORTS - FRONTPUMP
- SAE PORTS - REARPUMP
- STANDARD COVER
- SINGLE NITRILE SEAL

NOTE :-
FOR DETAILS DIMENSIONS OF SHAFT, PORT, HOLES, FLANGE ETC. REF INSTALLATION DATA.

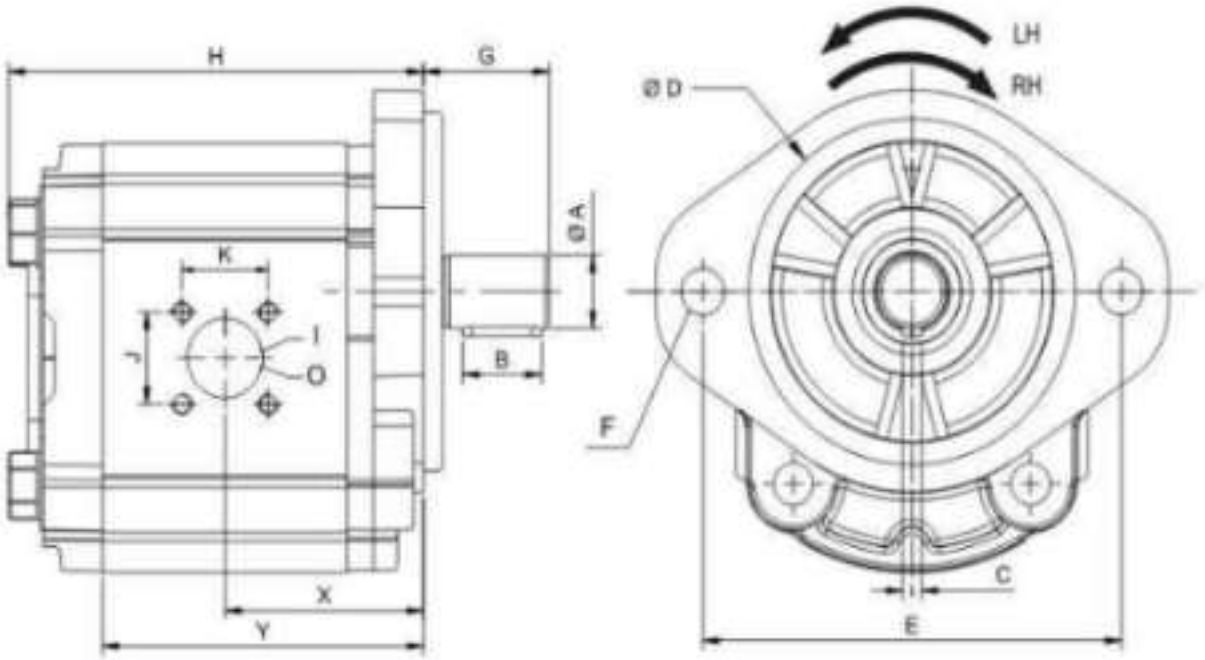


MODEL NO.	INLET								Approx. Weight Kg
	A THREAD	B	C	D	E	F	G	H	
2A SGP 22 to 41	1"BSP	68.25	76.00	25.0	26.20	52.40	13.10	26.20	0.40
2A SGP 47, 85	1.1/4"BSP	68.25	76.00	29.5	26.20	52.40	13.10	26.20	0.60
2A SGP 71, 100	1.1/2"BSP	65.00	89.00	29.5	34.75	69.50	18.25	36.50	0.90
3A SGP 68 to 136	1.1/2"BSP	75.00	99.00	29.5	34.75	69.50	18.25	36.50	0.90
3A SGP 150, 173	2"BSP	74.80	105.6	29.5	38.90	77.80	21.00	42.00	1.00
3A SGP 225	2.1/2"PIPE	110.0	136.0	38.5	53.25	106.5	31.00	62.00	1.50

MODEL NO.	OUTLET								Approx. Weight Kg
	A THREAD	B	C	D	E	F	G	H	
2A SGP 22 to 41	3/4"BSP	57.75	71.00	25.0	23.80	47.60	11.10	22.20	0.35
2A SGP 47, 85	3/4"BSP	57.75	71.00	25.0	23.80	47.60	11.10	22.20	0.35
2ASGP 71, 100	1"BSP	68.25	76.00	25.0	26.20	52.40	13.10	26.20	0.40
3A SGP 68 to 136	1.1/4"BSP	65.00	89.00	29.5	29.50	59.00	15.25	30.50	0.75
3A SGP 150, 173	1.1/4"BSP	65.00	89.00	29.5	29.50	59.00	15.25	30.50	0.75
3A SGP 225	1.1/2"PIPE	75.00	99.00	29.5	34.75	69.50	18.25	36.50	0.90



2A SGP 225 INLET
SPECIAL FLANGE



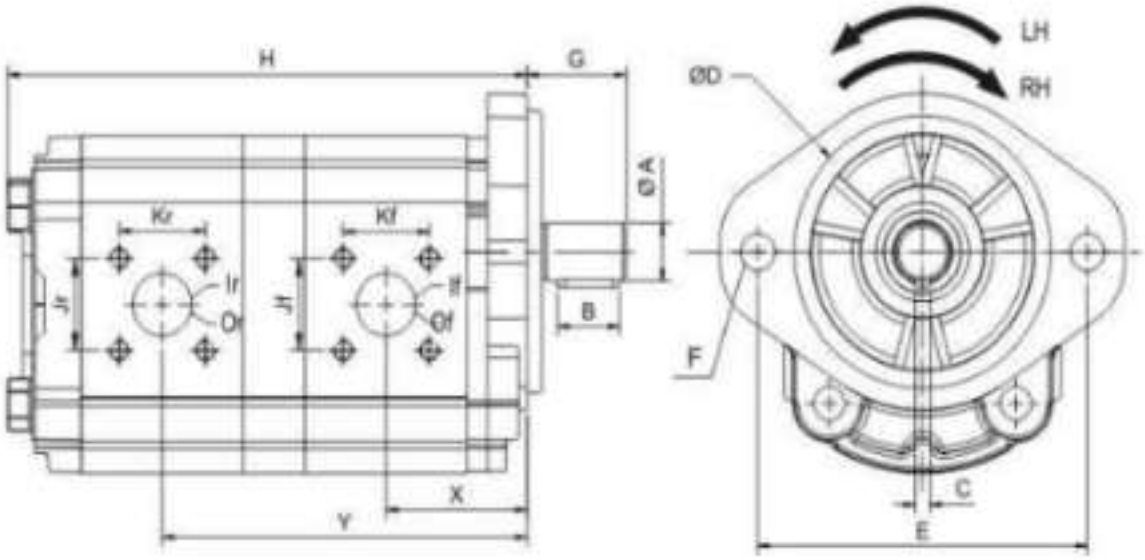
1. Customer:
2. Pump Model:
3. Flow (gpm/lpm):
4. Application:
5. Rated Speed (Rpm): Minimum Maximum
6. Working Pressure: Minimum Maximum
7. Direction of Rotation:
8. Oil used:
9. Oil seal requirement:
   Single seal
   Double seal
10. A - Drive shaft details:-
11. B - Type of key:-
12. C - Key Dimension:-
13. D - Spigot 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 in X:-
23. J - ctc of hole in Y:-

NOTE

Remarks/Suggestion :-

Modification if any :-

Imported pump details :-



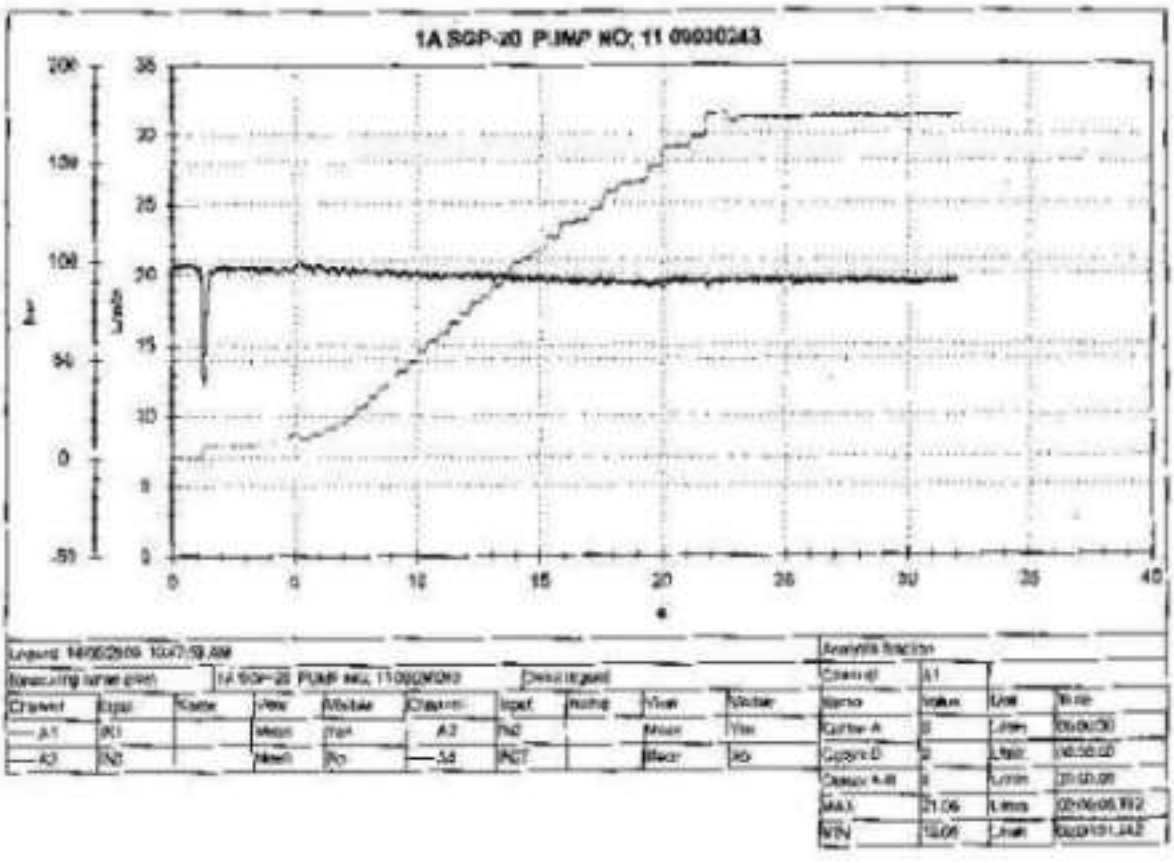
1. Customer:
2. Pump Model:
3. Flow (gpm/lpm):
4. Application:
5. Rated Speed (Rpm): Minimum Maximum
6. Working Pressure: Minimum Maximum
7. Direction of Rotation:
8. Oil used:
9. Oil seal requirement:
   Single seal
   Double seal
10. A - Drive shaft details:-
11. B - Type of key:-
12. C - Key Dimension:-
13. D - Spigot 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. X - Length as per dwg:-
20. If - Inlet port front pump:-
21. Of - Outlet port front pump:-
22. Kf - ctc of hole front pump in X:-
23. Jf - ctc of hole front pump in Y:-
24. Ir - Inlet port of rear pump:-
25. Or - Outlet port of rear pump:-
26. Kr - ctc of hole rear pump in X:-
27. Jr - ctc of hole rear pump in Y:-

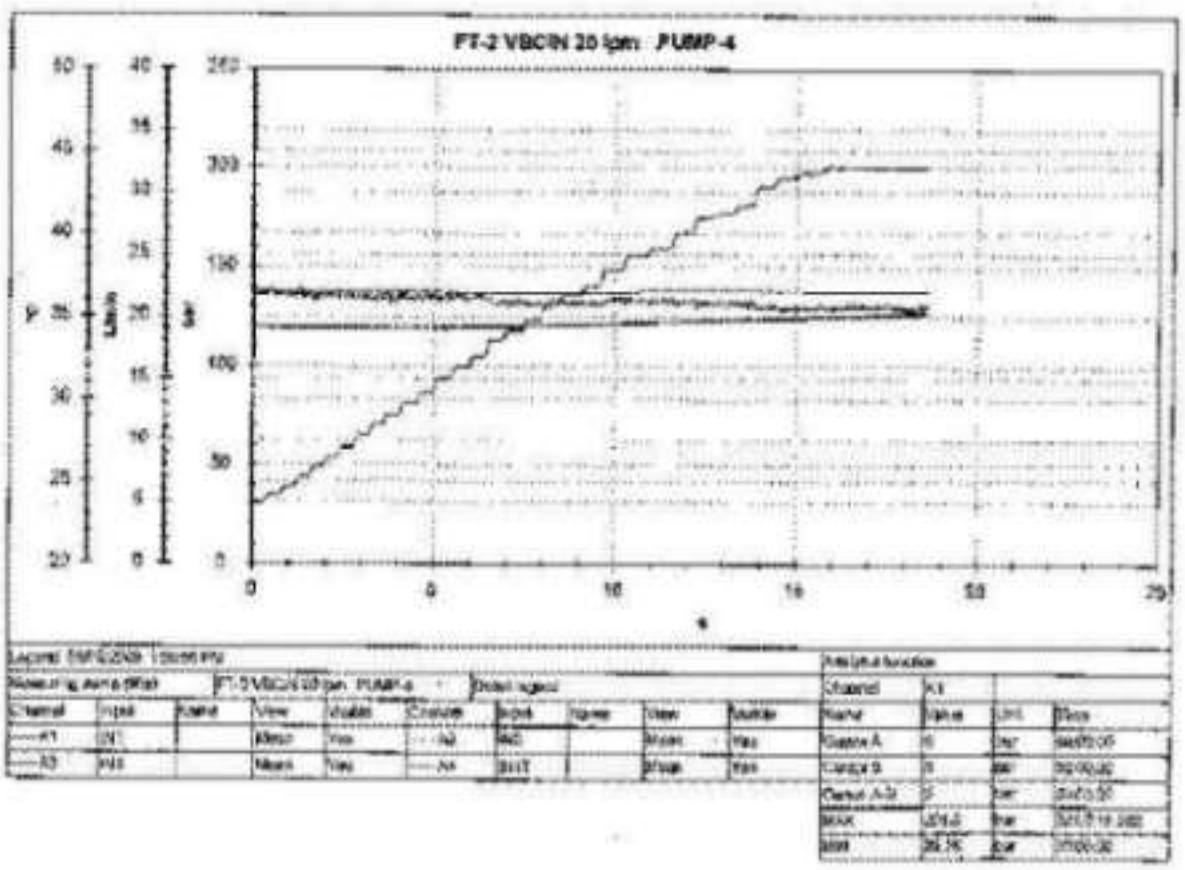
NOTE

Remarks/Suggestion :-

Modification if any :-

Imported pump details :-


1A SGP-20 PUMP NO; 11 09030243


FT-2 VBCIN 20 lpm PUMP-4

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