

3PE and 3ME

Aluminium gear pumps and motors

Technical Catalogue
and Dealer management



E0.130.0114.14.00-IMO



Company
with quality system
certified by DNV
UNI EN ISO 9001/2008



L'Azienda Salami Spa rappresenta un'eccellenza italiana nel settore della potenza idraulica applicata a macchine mobili e veicoli industriali.

E' stata fondata nel 1956 con precise linee guida che hanno condotto il marchio Salami a identificarsi come simbolo di **Garanzia e Affidabilità** nel proprio settore, in Italia e nel Mondo. Salami Spa è rimasta fedele nel tempo ai tre punti di forza dettati dal suo fondatore che hanno reso riconoscibile e grande il marchio Salami nel mondo: **Qualità, Innovazione, Servizio**. Attraverso le proprie sedi di Spagna, Francia, Stati Uniti d'America, Canada e ai suoi partner commerciali, distribuisce i propri prodotti mettendo al servizio del mondo intero l'eccellenza ingegneristica italiana.

In questo volume vi presentiamo la **nuova pompa in alluminio 3PE**, innovativa versione del Gruppo 3.

La pompa 3PE viene offerta nelle cilindrata da 21 a 75 cc/rev (da 1.26 a 4.48 cu.in/rev). E' inoltre in grado di raggiungere pressioni di picco fino a 300 bar (4350 psi).

I **due principali** vantaggi che offre questa pompa sono:

1. le **dimensioni compatte**, che ne consentono l'installazione anche sui moderni motori Tier 4
2. la **modularità** che consente di personalizzare il prodotto con la massima facilità

La prima parte del catalogo è dedicata alla descrizione tecnica delle pompe.

Nella seconda parte, denominata *Dealer management*, sono elencati i codici di ordinazione sia per le pompe singole che per i kit di trasformazione.

Per ogni versione pompa 3PE Salami offre i corrispondenti **motori unidirezionali e reversibili**.

Benvenuti nel team Salami.

Il Direttore Commerciale
Michele Piazza

The **Salami Company** is one of the best Italian engineering excellences in the field of fluid power applied to mobile applications.

It was founded in 1956 with specific guidelines that have led the brand to identify Salami as a symbol of **Warranty and Reliability** in its sector, in Italy and in the World.

Salami Hydraulics proudly manufactures in Italy and it has remained loyal in time to its three strengths dictated by its founder.

Quality, Innovation and Service have made the brand Salami recognizable and great in the world.

Through its offices in North America, Spain, France, together with its business partners, the company distributes its own products by putting the excellence of Italian engineering at the service of the whole world.

In this volume we present you the innovative version of the Salami Pump Group 3: the **new aluminium gear pump 3PE**.

We can offer you the 3PE pump in displacements from 21 to 75 cc / rev (1.26 at 4.48 cu.in /rev). It is also able to reach pressures up to 300 bar (4350 psi).

The **two main benefits** of this pump are:

- 1 . **compact dimensions**, which allow the installation even on modern engines Tier 4
- 2 . **modularity** that means an easiest customization of the products

The **first section** of the catalog is dedicated to the technical description of the pump.

The **second part**, called Dealer management, includes the order part numbers for both single pump and conversion kit.

For every version of 3PE pump, Salami provides the **corresponding one-way and reversible motors**.

Welcome into Salami Team.

Commercial Director
Michele Piazza

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The data on this catalogue refer to the standard product. The policy of Salami consist of a continuous improvement of its products. It reserves the right to change the specifications of the different products whenever necessary and without giving any information. If any doubts, please get in touch with our sales department.

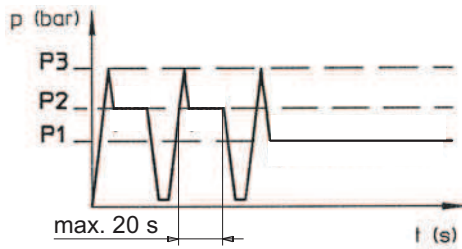
3PE - 3ME

Aluminium gear pumps and motors

Section A - Technical catalogue

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DEFINITION OF PRESSURES



P3 = Peak pressure
 P2 = Intermittent operating pressure
 P1 = Continuous operating pressure

GENERAL

- Superior performance and reliability in heavy-duty hydraulic application.
- Construction with large area, low-friction bushings provide strength, high efficiency, and long life in severe operating environments.
- The design includes an advanced bushing and seal configuration, which optimizes performance even in high temperature and low viscosity conditions.
- Double pump with common suction reduces mounting costs, allow for a small package size.

WORKING CONDITIONS

- Pump inlet pressure (absolute pressure)	0,7 to 2,5 bar 10 to 36 psi
- Minimum operating fluid viscosity ¹	12 mm ² / sec
- Max starting viscosity	800 mm ² / sec
- Suggested fluid viscosity range	17 - 65 mm ² / sec
- Fluid operating temperature range	- 15 to 85 °C
- Fluid operating temperature range with FPM seals(Viton) ...	- 20 to 110°C
- Hydraulic fluid	mineral oil

Important:

in case of assembling of pumps without shaft seals, you have to keep the value of min. suction pressure (0.7 bar (abs)) in the vane between pump and coupling too. Lower pressure can lead to suction of oil through the front flange (seat of the shaft without seal); this can damage seriously the pump.

1 - With reduction 80% of working pressure and at minimum speed.

Suggestion:

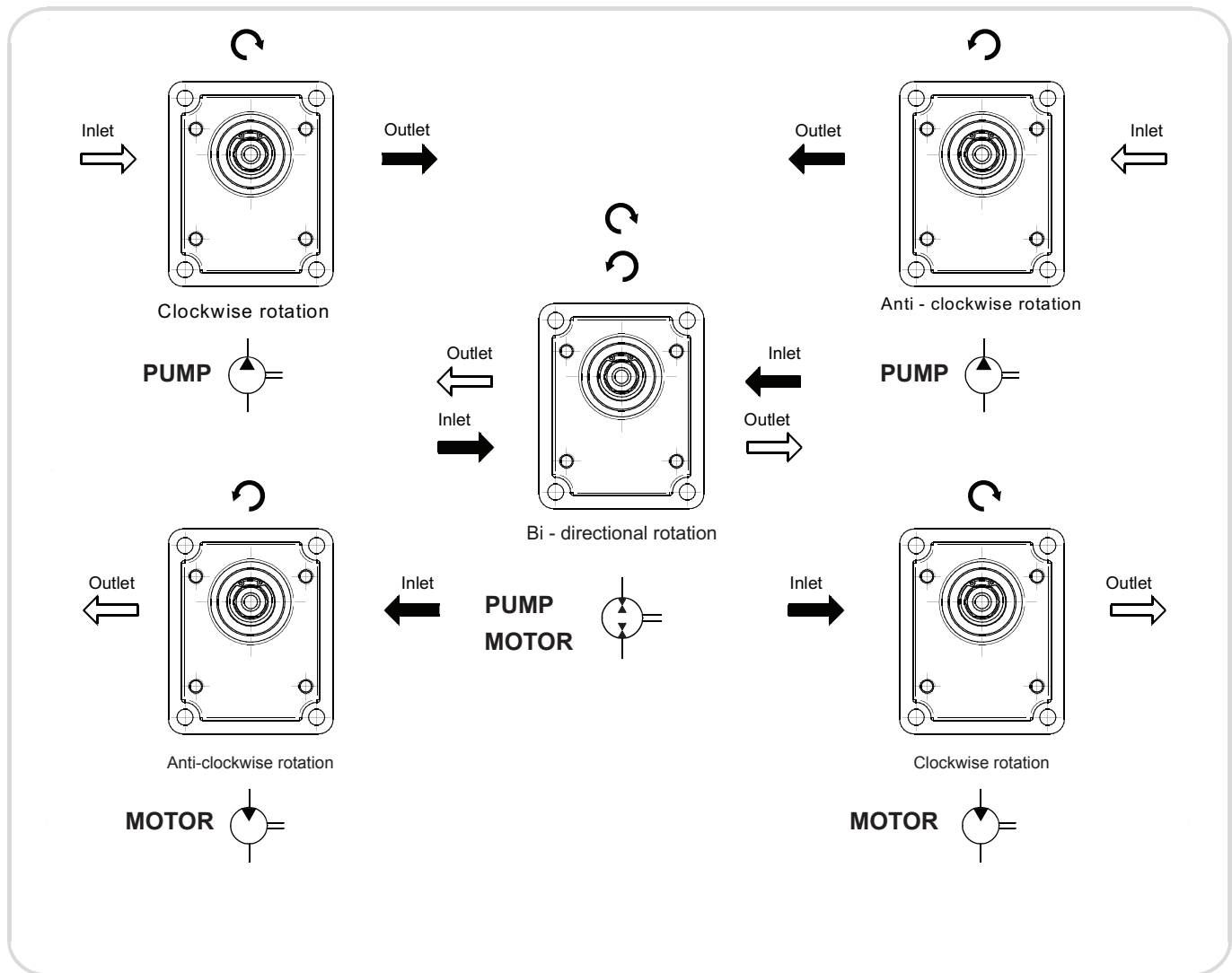
to have the best behaviour and duty life of the pump/motor, use a cooling system in order to keep the fluid temperature at 60°C and viscosity at 20 cSt. In addition to the recommended filtration index of page 3.



DRIVE SHAFTS

Radial and axial loads on the shafts must be avoided since they reduce the life of the unit.

DIRECTION VIEWED AT THE DRIVE SHAFT



HYDRAULIC PIPE LINE

To ensure favorable suction conditions it is important to keep pressure drop in suction pipe line to a minimum value (see WORKING CONDITIONS).

To calculate hydraulic pipe line size, the designer can use; as an approximate guide, the following fluid speed figures:

From 1 to 2 m/sec on suction pipe line
From 6 to 10 m/sec on pressure pipe line

From 3.28 to 6.36 ft/sec on suction pipe line
From 19.7 to 32.8 ft/sec on pressure pipe line

The lowest fluid speed values in pipe lines is recommended when the operating temperature range is high and/or for continuous duty.

The highest value is recommended when the temperature difference is low and/or for intermittent duty.



FILTRATION INDEX RECOMMENDED

Working pressure	> 200 bar - 2900 psi	< 200 bar - 2900 psi
Contamination class NAS 1638	9	10
Contamination class ISO 4406	19/18/15	20/19/16

FIRE RESISTENT FLUID

Type	Description	Max pressure	Max speed (rpm)	Temperature
HFB	oil emulsion with 40% water	130 bar/1880 psi	2500	3°C +65°C
HFC	Water glycol	180 bar/2600 psi	1500	-20°C +65°C
HFD	Phosphate esters		1750	-10°C +80°C

COMMON FORMULAS FOR PUMPS

$$C = \text{Input torque} = \frac{q \cdot \Delta p}{62.8 \cdot \eta_m} \text{ (Nm)}$$

$$P = \text{Input power} = \frac{q \cdot n \cdot \Delta p \cdot 10^{-3}}{600 \eta_m} \text{ (kW)}$$

$$Q = \text{Outlet flow} = \frac{q \cdot n \cdot \eta_v}{1000} \text{ (l/min)}$$

LEGENDA

Δp = Working pressure (bar)

q = Displacement (cm^3/rev)

n = Speed (min^{-1})

η_m = Mechanical eff. (0.92)

η_v = Volumetric eff. (0.95)

COMMON FORMULAS FOR MOTORS

$$\text{Input flow: } Q = \frac{V \cdot n}{1000 \cdot \eta_v} \text{ l/min}$$

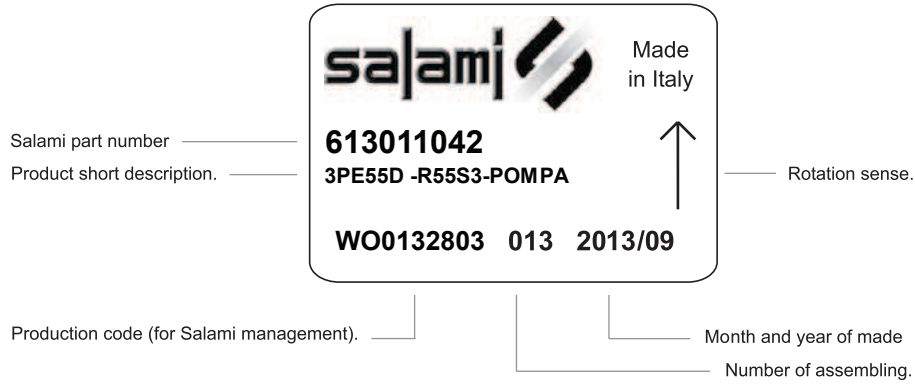
$$\text{Output torque: } M = \frac{V \cdot \Delta p \cdot \eta_m}{20 \cdot \pi} \text{ Nm}$$

$$\text{Output power: } P = \frac{M \cdot n}{9550} = \frac{Q \cdot \Delta p \cdot \eta_t}{600} \text{ kW}$$

V = Displacement cm^3/rev [in^3/rev]
 P_{out} = Outlet pressure bar [psi]
 P_{in} = Inlet pressure bar [psi]
 ΔP = $P_{out} - P_{in}$ (system pressure) bar [psi]
 n = Speed min^{-1} (rpm)
 η_v = Volumetric efficiency
 η_m = Mechanical efficiency
 η_t = Overall efficiency ($\eta_v \cdot \eta_m$)

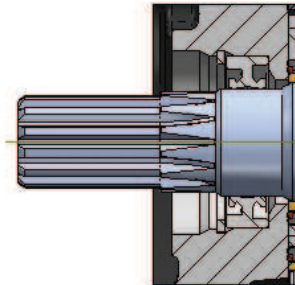


DESCRIPTION OF THE NEW PRODUCT IDENTIFICATION LABEL

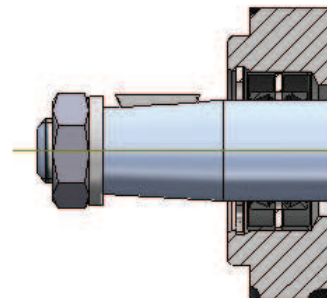


SHAFT SEAL DESIGN, PRESSURE AND MATERIAL AVAILABLE

Max pressure	3 bar (44 psi)
Material BUNA (NBR)	-15° C - 85° C
Material VITON (FPM)	-20° C - 110° C



With flange code S3, double lipped shaft seal

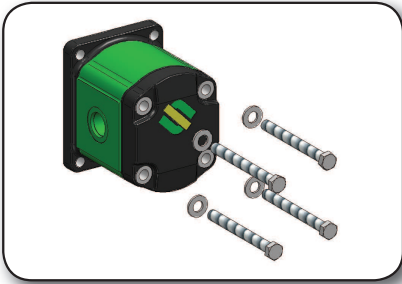


With flanges code P2, P3 and B6 two single lipped shaft seals

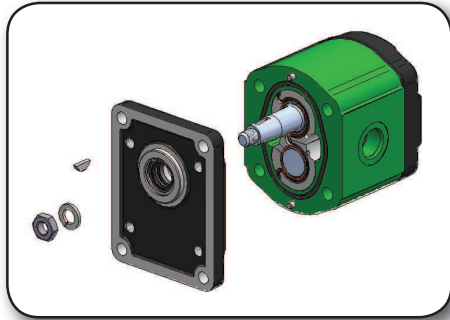
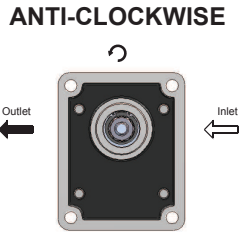
**GEAR PUMPS "E" SERIES
GEAR MOTORS "E" SERIES**

3PE - 3ME

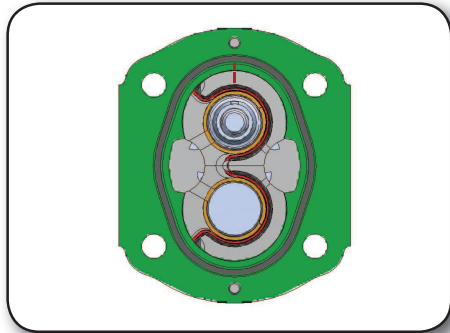
ROTATION CHANGE INSTRUCTION



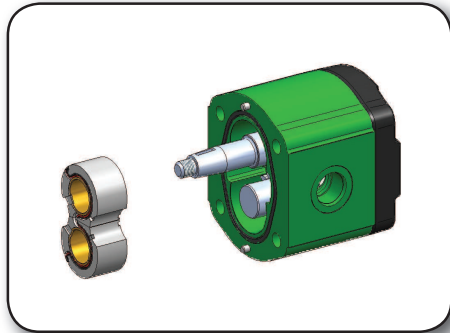
Step 1:
unscrew and take off the
4 assembling bolts.



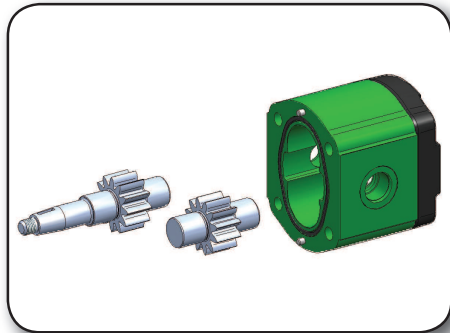
Step 2:
take off the front
flange, complete of
shaft seals.



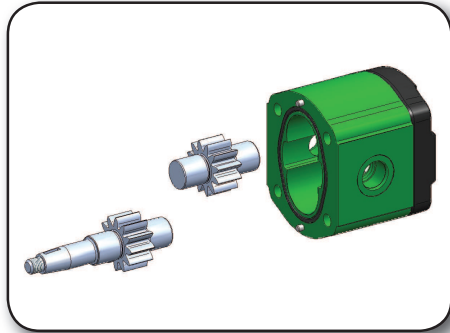
Step 3:
take note of the
assembling position of
the bronze thrust plate.
If necessary, you can
put a mark which help
you remembering the
position of the plate re-
lated to the body. This is
very important, because
at the end you must re-
assemble it in this way.



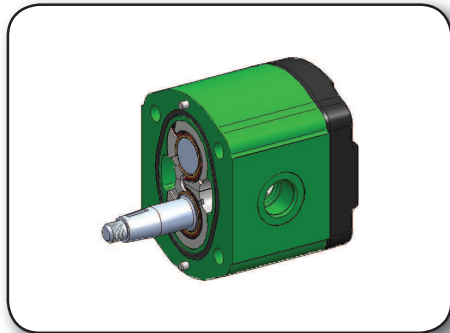
Step 4:
take off the thrust
plate.



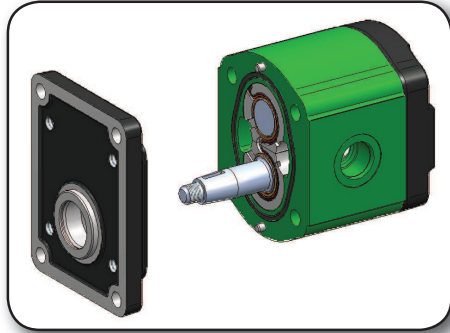
Step 5:
take off both the
shafts, drive and
driven.



Step 6:
reverse their position
and re-assemble
them.

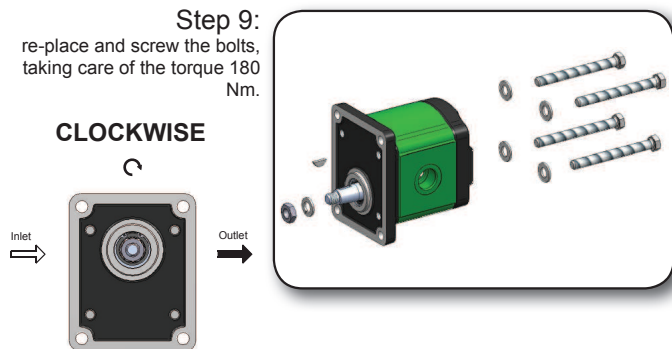


Step 7:
re-assemble the
thrust plate in the
same position it was
at the beginning.
Reference step 3.

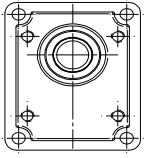
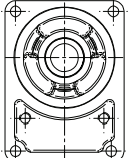
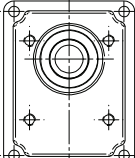
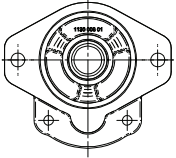



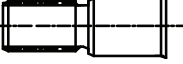

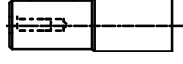
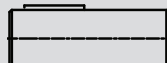
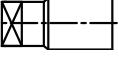


Step 8:
reverse and re-
assemble the front
flange.

THIS INSTRUCTION IS APPROPRIATE FOR BOTH,
UNIDIRECTIONAL PUMPS AND MOTORS.



SUGGESTED COMBINATIONS OF FLANGES AND SHAFTS AVAILABLE

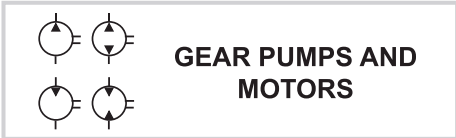
3P/ME	 CODE P2 - European stand.	 CODE B6 - German stand.	 CODE P3 - European stand. for 3,5PC	 CODE S3 - SAE B
 CODE 35 - Tapered 1:5		35B6		
 CODE 38 - Tapered 1:8	38P2			
 CODE 48 - Tapered 1:8 for 3,5PC			48P3	
 CODE 55 - SAE B 13T				55S3
 CODE 56 - SAE BB 15T				56S3
 CODE 87 - SAE B parallel				87S3
 CODE 88 - SAE BB parallel				88S3
 CODE 05 - Tang drive for electric motors		05B6		



**GEAR PUMPS "E" SERIES
GEAR MOTORS "E" SERIES**

3PE - 3ME

**Showed release with flange P2
and shaft 38**



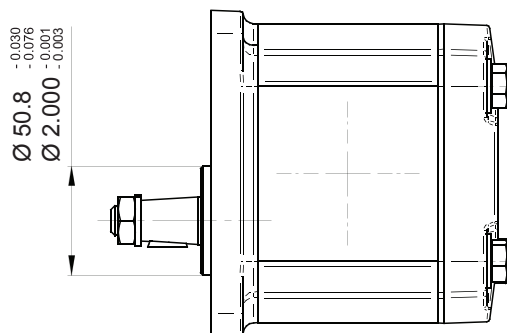
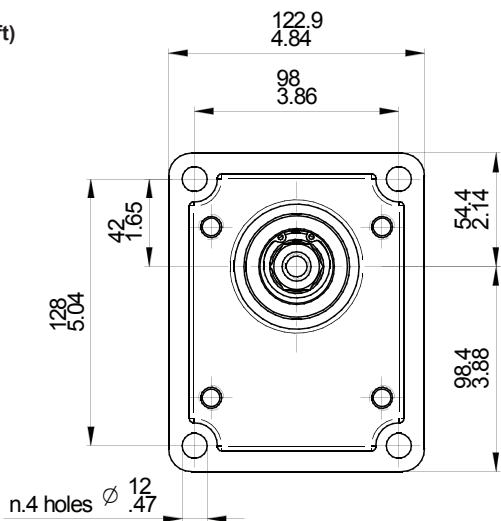
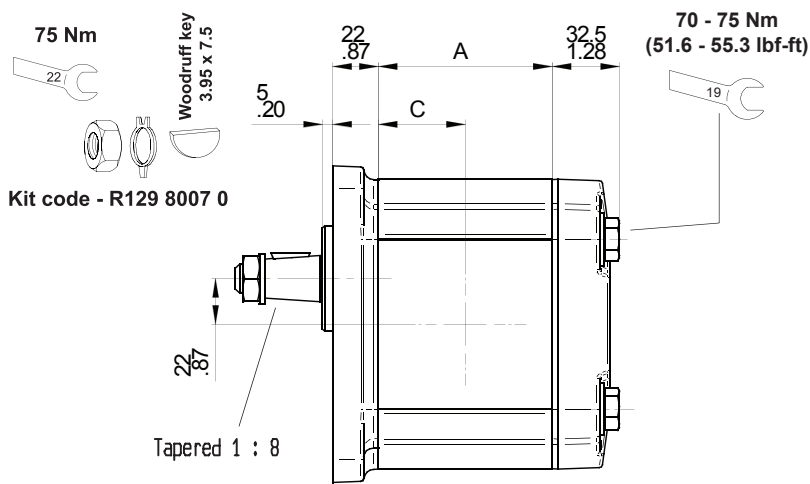
Performance carried out with oil viscosity at 16 cSt and oil temperature at 60°C.

TYPE		21*	27	33	38	46	55	65	75*
Displacements	cm ³ /rev	20,6	27	33,5	38,7	46,9	54,1	63,1	73,4
	cu.in./rev	1,26	1,65	2,04	2,36	2,86	3,3	3,85	4,48
Dimension A	mm	74	79	84	88	104	110	117	124
	in	2,91	3,11	3,31	3,46	4,09	4,33	4,61	4,88
Dimension C	mm	37	39,5	42	44	52	55	58,5	62
	in	1,46	1,56	1,65	1,73	2,05	2,17	2,30	2,44
Working pressure P1*	bar	250			240	250	220	200	180
	psi	3625			3480	3625	3190	2900	2610
Intermittent pressure P2	bar	280			260	270	240	220	200
	psi	4000			3770	3980	3480	3190	2900
Peak pressure P3	bar	300			275	280	250	240	220
	psi	4350			3980	4000	3625	3480	3190
Max. speed at P2	rpm	3000			2750		2500		
Min. speed at P1	rpm	600			500		400		
Weight	kg	8,6	8,9	9,1	9,4	10,1	10,5	10,8	11,2
	lbs	19,0	19,6	20,1	20,6	22,3	23,0	23,8	24,6

Displacements 21 and 75 are special release, please get in touch with sales dept.

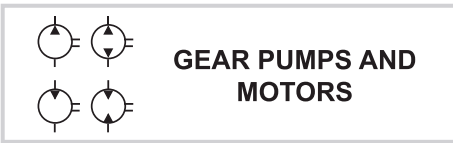
*For working conditions, using exclusively pressure P1, the value of max. speed must be reduced of 10%.

Anti-clockwise rotation pump.
In case of use as a motor, the same construction is a clockwise motor.



- AVAILABLE UNI-DIRECTIONAL OR BI-DIRECTIONAL
- PORT TYPES AND SIZES ON PAGE A10 - A11
- AVAILABLE ALSO WITH REAR PORTS, PAGE A12





**Showed release with flange P3 and shaft 48.
Interchangeable with 3.5PC**

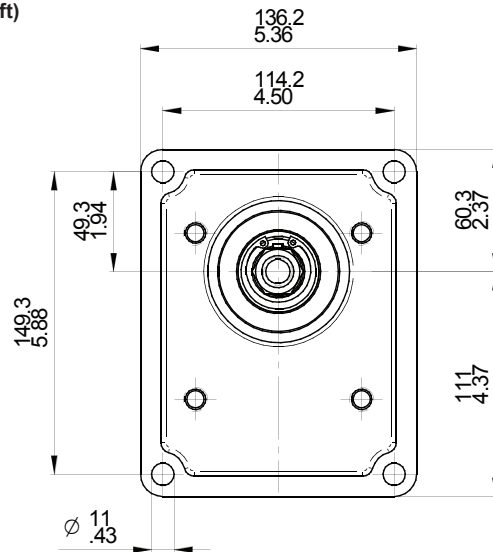
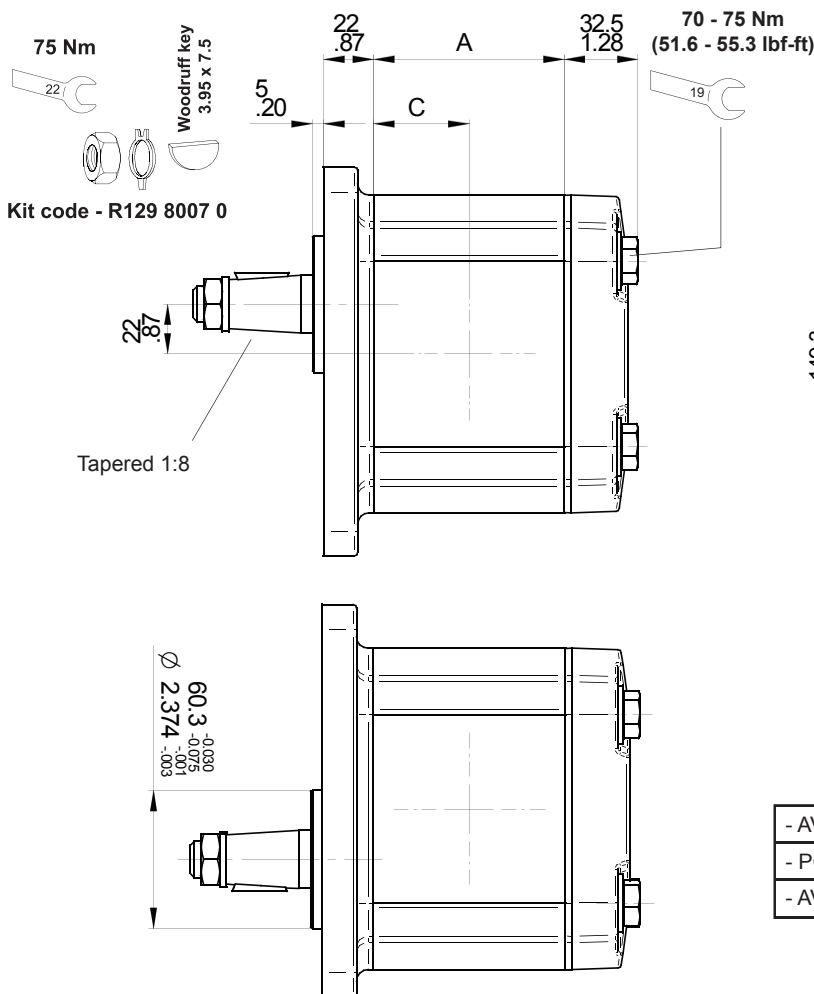
Performance carried out with oil viscosity at 16 cSt and oil temperature at 60°C.

TYPE		46	55	65	75*
Displacements	cm ³ /rev	46,9	54,1	63,1	73,4
	cu.in./rev	2,86	3,3	3,85	4,48
Dimension A	mm	104	110	117	124
	in	4,09	4,33	4,61	4,88
Dimension C	mm	52	55	58,5	62
	in	2,05	2,17	2,30	2,44
Working pressure P1*	bar	250	220	200	180
	psi	3625	3190	2900	2610
Intermittent pressure P2	bar	270	240	220	200
	psi	3980	3480	3190	2900
Peak pressure P3	bar	280	250	240	220
	psi	4000	3625	3480	3190
Max. speed at P2	rpm	2750		2500	
Min. speed at P1	rpm	500		400	
Weight	kg	10,1	10,5	10,8	11,2
	lbs	22,3	23,0	23,8	24,6

Displacement 75 is a special release, please get in touch with sales dept.

*For working conditions, using exclusively pressure P1, the value of max. speed must be reduced of 10%.

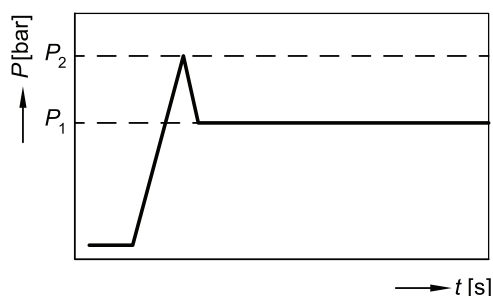
Anti-clockwise rotation pump.
In case of use as a motor, the same construction is a clockwise motor.



- AVAILABLE UNI-DIRECTIONAL OR BI-DIRECTIONAL
- PORT TYPES AND SIZES ON PAGE A10 - A11
- AVAILABLE ALSO WITH REAR PORTS, PAGE A12



DEFINITION OF PRESSURES



P_1 max. continuous pressure
 P_2 starting pressure (depending on the application, this must be taken into consideration when setting the pressure of the hydraulic system's pressure-relief valve).

WORKING CONDITIONS

3ME		21*	27	33	38	46	55	65	75*
Max. continuous pressure P_1	bar	250			240	250	220	200	180
	psi	3625			3480	3625	3190	2900	2610
Max. starting pressure P_1	bar	300			275	280	250	240	220
	psi	4350			3987,5	4060	3625	3480	3190
Min. rotational speed	rpm	600			500			400	
Max. rotational speed P_1		3000			2750			2500	
Motor outlet pressure P_{out}	bar								
Leakage-oil line pressure P_{drain}	psi								

Displacements 21 and 75 are special release, please get in touch with sales dept.

TECHNICAL DATA

- Minimum operating fluid viscosity 12 mm² / sec
- Permitted viscosity range 12 - 800 mm² / sec
- Recommended viscosity range 20 - 80 mm² / sec
- Permitted viscosity for starting 2000 mm² / sec
- Fluid operating temperature range -15 to 85 °C
- Fluid temperature range with FPM seals -20 to 110° C
- The standard fluids are all the mineral oil-based corresponding to DIN/ISO, for other fluids, please get in touch with our technical dept.

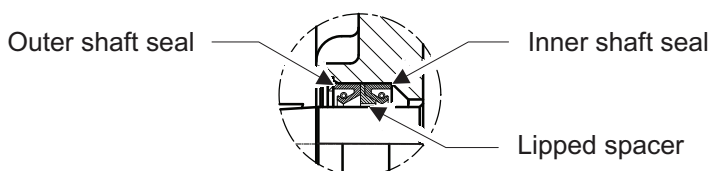
*) During the application of control systems or devices with critical counter-reaction, such as steering and brake valves, the type of filtration selected must be adapted to the sensitivity of these devices/systems.

Safety requirements pertaining to the whole systems are to be observed.

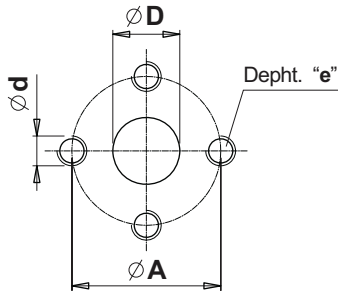
In the case of applications with frequent load cycles please consult us.

MOTOR ASSEMBLING FEATURES

All our standard motors have a double shaft seal, the one which faces the inner of the motor is reinforced by a lipped washer.



FLANGED PORTS



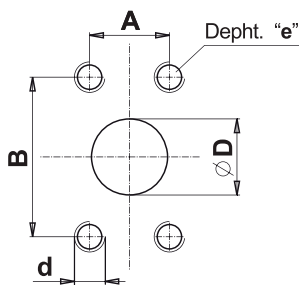
Type	OUTLET				INLET			
	INLET				OUTLET			
	ØD	ØA	d	e	ØD	ØA	d	e
From 21 to 55	27 (1.07")	51 (2.01")	M10	16 (0.63")	16 (0.63")	40 (1.57")	M8	16 (0.63")
From 65 to 75	33 (1.3")	62 (2.44")	M12	16 (0.63")	21 (0.83")	51 (2.01")	M10	16 (0.63")

MOTOR	INLET				OUTLET			
	ØD	ØA	d	e	ØD	ØA	d	e
From 21 to 55	16 0.63	40 1.57	M8	16 0.63	16 0.63	40 1.57	M8	16 0.63
From 65 to 75	21 0.83	51 2.01	M10	16 0.63	21 0.83	51 2.01	M10	16 0.63

PUMP	INLET				OUTLET			
	ØD	ØA	d	e	ØD	ØA	d	e
From 21 to 55	27 1.06	51 2.01	M10	16 0.63	27 1.06	51 2.01	M10	16 0.63
From 65 to 75	33 1.30	62 2.44	M12	16 0.63	33 1.30	62 2.44	M12	16 0.63

code P

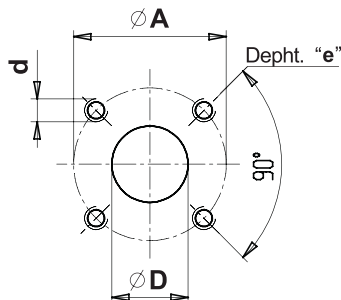
code S



TYPE	OUTLET					INLET				
	INLET					OUTLET				
	ØD	B	A	d	e	ØD	B	A	d	e
From 21 to 38	26 1,02	52,4 2,06	26,2 1,03	3/8 16 UNC	18 0,71	19 0,75	47,6 1,87	22,2 0,87	3/8 16 UNC	18 0,71
From 46 to 75	32 1,26	58,7 2,31	30,2 1,19	7/16 14 UNC	18 0,71	26 1,02	52,4 2,06	26,2 1,03	3/8 16 UNC	18 0,71

TYPE	OUTLET					INLET				
	INLET					OUTLET				
	ØD	B	A	d	e	ØD	B	A	d	e
From 21 to 38	26 1,02	52,4 2,06	26,2 1,03	M10	18 0,71	19 0,75	47,6 1,87	22,2 0,87	M10	18 0,71
From 46 to 75	32 1,26	58,7 2,31	30,2 1,19	M10	18 0,71	26 1,02	52,4 2,06	26,2 1,03	M10	18 0,71

code W



TYPE	OUTLET				INLET			
	INLET				OUTLET			
	ØD	ØA	d	e	ØD	ØA	d	e
Displ. 21	22	55	M8	13	19	55	M8	13
	0,87	2,17		0,51	0,75	2,17		0,51
From 27 to 75	27	55	M8	13	22	55	M8	13
	1,06	2,17		0,51	0,87	2,17		0,51

code B

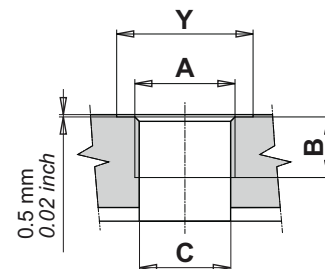


**GEAR PUMPS "E" SERIES
GEAR MOTORS "E" SERIES**

3PE - 3ME

THREADED PORTS

Type	OUTLET				INLET			
	INLET				OUTLET			
	A	B	C	Y	A	B	C	Y
From 21 to 38	G1	22 (0.87")	27 (1.06")	44 (1.73")	G1	22 (0.87")	27 (1.06")	44 (1.73")
From 46 to 75	G1"1/4	24 (0.94")	32.5 (1.28")	54 (2.12")	G1	22 (0.87")	27 (1.06")	44 (1.73")

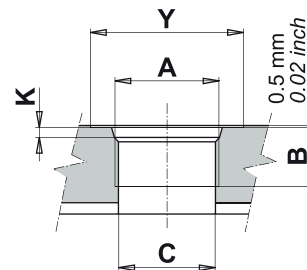


MOTOR	TYPE	INLET				OUTLET			
		A	B	C	Y	A	B	C	Y
From 21 to 75	G1	22 0.87	30.5 1.20	44 1.73	G1	22 0.87	30.5 1.20	44 1.73	

PUMP	TYPE	INLET				OUTLET			
		A	B	C	Y	A	B	C	Y
From 21 to 75	G1"1/4	24 0.94	37 1.46	54 2.13	G1"1/4	24 0.94	37 1.46	54 2.13	

code G
British standard pipe parallel (BSPP)

Type	OUTLET					INLET				
	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16 12 UN	19 (0.74")	25 (0.98")	49 (1.93")	3.3 (0.12")	1-1/16 12 UN	19 (0.74")	21 (0.83")	41 (1.16")	3.3 (0.12")
From 46 to 75	1-5/8 12 UN	19 (0.74")	27 (1.06")	58 (2.28")	3.3 (0.12")	1-5/16 12 UN	19 (0.74")	25 (0.98")	49 (1.93")	3.3 (0.12")



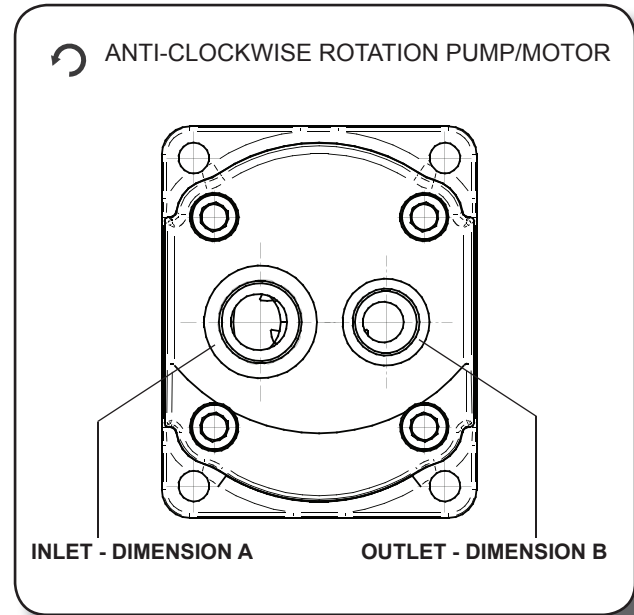
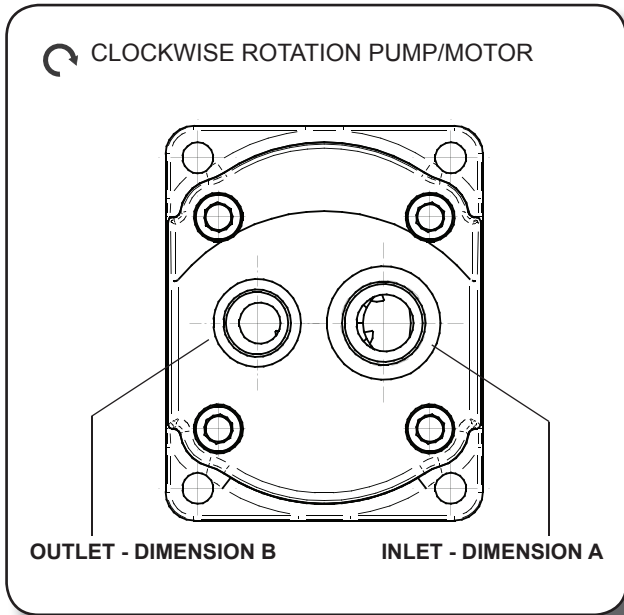
MOTOR	TYPE	INLET					OUTLET				
		A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-1/16 12 UN	19 0.75	21 0.83	41 1.61	3.3 0.13	1-1/16 12 UN	19 0.75	21 0.83	41 1.61	3.3 0.13	
From 46 to 75	1-5/16 12 UN	19 0.75	25 0.98	49 1.93	3.3 0.13	1-5/16 12 UN	19 0.75	25 0.98	49 1.93	3.3 0.13	

PUMP	TYPE	INLET					OUTLET				
		A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16 12 UN	19 0.75	25 0.98	49 1.93	3.3 0.13	1-5/16 12 UN	19 0.75	25 0.98	49 1.93	3.3 0.13	
From 46 to 75	1-5/8 12 UN	19 0.75	27 1.06	58 2.28	3.3 0.13	1-5/8 12 UN	19 0.75	27 1.06	58 2.28	3.3 0.13	

code R
SAE threaded (ODT)



RELEASE WITH REAR PORTS



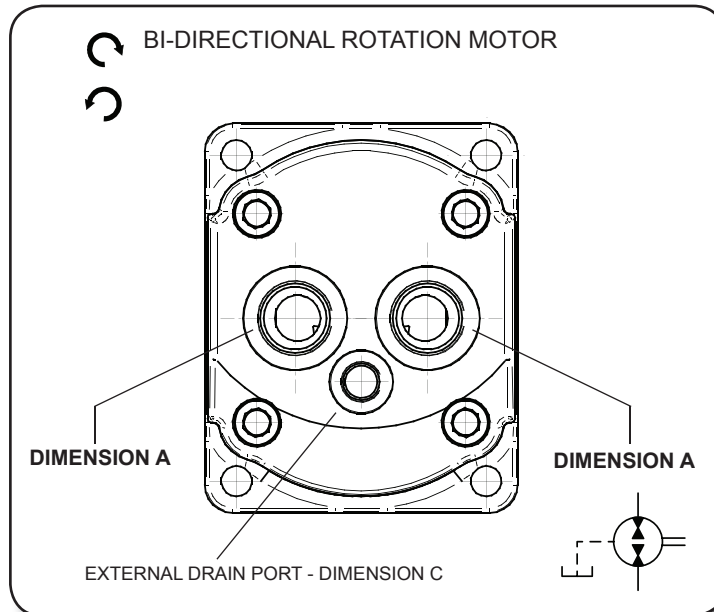
IN CASE OF USE AS A UNIDIRECTIONAL MOTOR:

- ANTI-CLOCKWISE PUMP BECOMES A CLOCKWISE MOTOR
 - CLOCKWISE PUMP BECOMES AN ANTICLOCKWISE MOTOR
- THE POSITION OF THE PORTS IS THE SAME BUT THE INLET BECOMES OUTLET AND VICEVERSA

A	B
G1"	G 3/4
1"-5/16-12 UN(SAE 16)	1"-1/16-12 UN(SAE 12)

code 1

For pumps with threaded rear ports, suitable up to 80 l/min delivery.



A	C
G 3/4	G 3/8
1"-1/16-12 UN(SAE 12)	9/16-18UNF-2B (SAE 6)

GEAR PUMPS "E" SERIES

3PE



In case of common inlet port, to avoid too high value of oil speed, 40l/min is the max. sucked flow for the downstream pump.

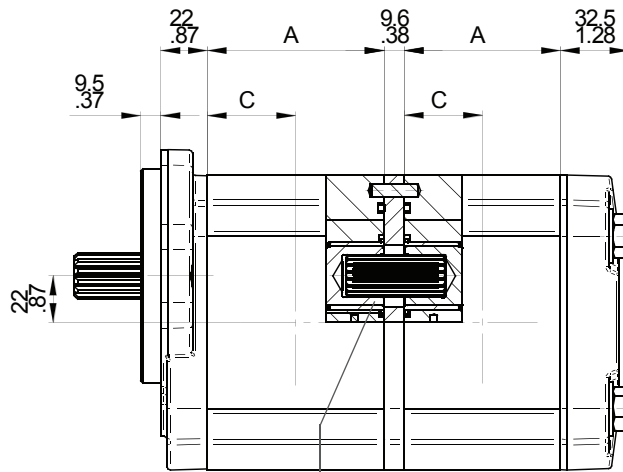


Showed release with flange S3 and shaft 55

Performance carried out with oil viscosity at 16 cSt and oil temperature at 60°C.

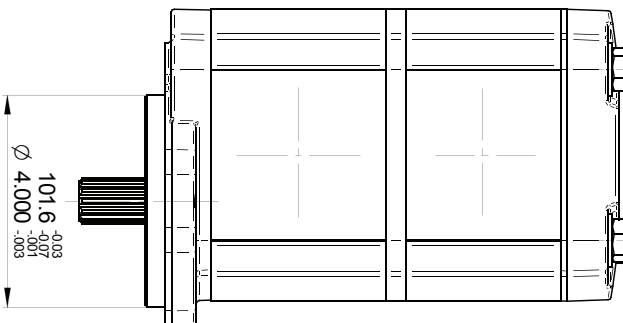
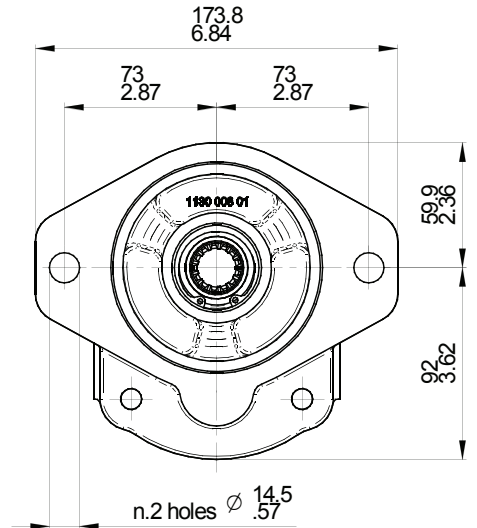
TYPE		21*	27	33	38	46	55	65	75*
Displacements	cm ³ /rev	20,6	27	33,5	38,7	46,9	54,1	63,1	73,4
	cu.in./rev	1,26	1,65	2,04	2,36	2,86	3,3	3,85	4,48
Dimension A	mm	74	79	84	88	104	110	117	124
	in	2,91	3,11	3,31	3,46	4,09	4,33	4,61	4,88
Dimension C	mm	37	39,5	42	44	52	55	58,5	62
	in	1,46	1,56	1,65	1,73	2,05	2,17	2,30	2,44
Working pressure P1*	bar	250			240	250	220	200	180
	psi	3625			3480	3625	3190	2900	2610
Intermittent pressure P2	bar	280			260	270	240	220	200
	psi	4000			3770	3980	3480	3190	2900
Peak pressure P3	bar	300			275	280	250	240	220
	psi	4350			3980	4000	3625	3480	3190
Max. speed at P2	rpm	3000			2750		2500		
Min. speed at P1	rpm	600			500		400		
Weight	kg	3,8	4,1	4,3	4,5	5,3	5,6	6,0	6,4
	lbs	8,4	9,0	9,5	10,0	11,7	12,4	13,2	14,0

*For working conditions, using exclusively pressure P1, the value of max. speed must be reduced of 10%.



Max. torque 280 Nm
(2480 lbf in)

75 - 80 Nm
(55.3 - 59 lbf-ft)

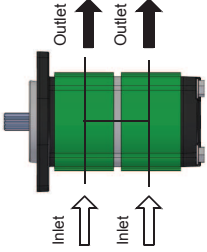


- PORT TYPES AND SIZES ON PAGE A9 - A10
- COMMON SUCTION PORT SIZE ON PAGE A15
- TO OBTAIN COMPLETE WEIGHT OF MULTIPLE PUMP YOU HAVE TO ADD THE SINGLE STAGE WEIGHT, YOU HAVE IN THE TABLE ABOVE, PLUS:
- WEIGHT OF THE FLANGE = 2.4 kg (5.3 lbs)
- WEIGHT OF THE MIDDLE PLATE = 0.9 kg (2 lbs)
THE MIDDLE PLATES CAN BE MORE THAN ONE.
- WEIGHT OF THE REAR COVER = 2.4 kg (5.3 lbs)

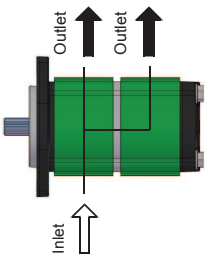


FOR REASON OF READABILITY, IN CASE OF INTENSIVE USE, WE CAN PROVIDE THE FOLLOWING TABLE AS A STANDALONE FILE.

In case of common suction configuration, we have to take care of the area of the common suction port to avoid cavitation. The suggested speed of the oil at suction line is 1.5 m/sec, using this table and according of which is the total flow which goes into the pump, you can obtain the value of the proper diameter (mm) and proper area (cm²).



In case of common suction configuration, we have to take care of the area of the common suction port to avoid cavitation. The suggested speed of the oil at suction line is 1.5 m/sec, using this table and according of which is the total flow which goes into the pump, you can obtain the value of the proper diameter (mm) and proper area (cm²).

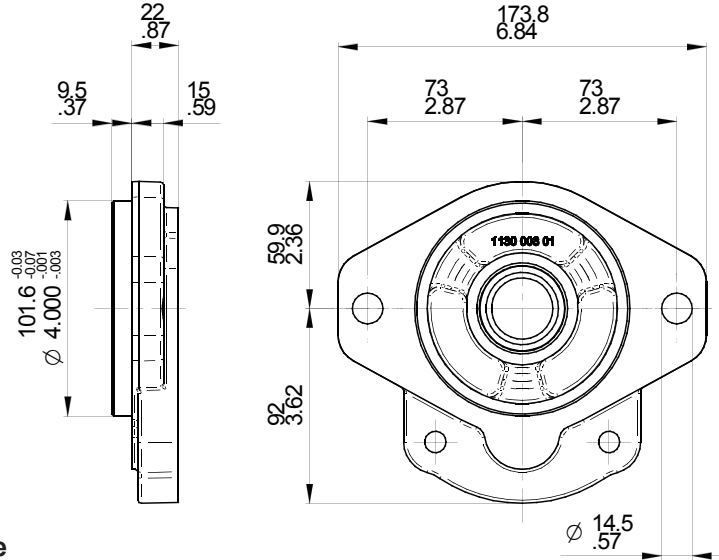


When needed, special bodies with an enlarged inlet port are available.

SPEED m/sec	FLOW - l/min																			PIPE INTERNAL DIAMETER - mm	PIPE INTERNAL AREA - cm ²																				
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190			200																			
SUCTION	0.5	20.6	29.1	35.7	41.2	46.0	50.4	54.5	58.2	61.8	65.1	68.3	71.3	74.2	77.0	79.7	82.4	84.9	87.4	89.8	92.1	3.3	5.0	6.7	8.3	10.0	11.7	13.3	15.0	16.7	18.3	20.0	21.6	23.3	25.0	26.6	28.3	30.0	31.6	33.3	35.0
	1	14.6	17.8	20.6	23.0	25.2	27.2	29.1	30.9	32.6	34.1	35.7	37.1	38.5	39.9	41.2	42.4	43.7	44.9	46.0	47.2	1.7	2.5	3.3	4.2	5.0	5.8	6.7	7.5	8.3	9.2	10.0	10.8	11.7	12.5	13.3	14.2	15.0	15.8	16.7	17.5
	1.3	12.8	15.6	18.1	20.2	22.1	23.9	25.5	27.1	28.6	29.9	31.3	32.6	33.8	35.0	36.1	37.2	38.3	39.4	40.4	41.4	1.3	1.9	2.6	3.2	3.8	4.5	5.1	5.8	6.4	7.0	7.7	8.3	9.0	9.6	10.2	10.9	11.5	12.2	12.8	13.4
BACK TO TANK	1.5	11.9	14.6	16.8	18.8	20.6	22.2	23.8	25.2	26.6	27.9	29.1	30.3	31.5	32.6	33.6	34.7	35.7	36.6	37.6	38.5	1.1	1.7	2.2	2.8	3.3	3.9	4.4	5.0	5.6	6.1	6.7	7.2	7.8	8.3	8.9	9.4	10.0	10.5	11.1	11.7
	1.8	10.9	13.3	15.3	17.2	18.8	20.3	21.7	23.0	24.3	25.5	26.6	27.7	28.7	29.7	30.7	31.6	32.6	33.4	34.3	35.2	0.9	1.4	1.9	2.3	2.8	3.2	3.7	4.2	4.6	5.1	5.6	6.0	6.5	6.9	7.4	7.9	8.3	8.8	9.3	9.7
	2	10.3	12.6	14.6	16.3	17.8	19.3	20.6	21.8	23.0	24.1	25.2	26.2	27.2	28.2	29.1	30.0	30.9	31.7	32.6	33.4	0.8	1.2	1.7	2.1	2.5	2.9	3.3	3.7	4.2	4.6	5.0	5.4	5.8	6.2	6.7	7.1	7.5	7.9	8.3	8.7
PRESSURE LINE	2.5	9.2	11.3	13.0	14.6	15.9	17.2	18.4	19.5	20.6	21.6	22.6	23.5	24.4	25.2	26.0	26.8	27.6	28.4	29.1	29.8	0.7	1.0	1.3	1.7	2.0	2.3	2.7	3.0	3.3	3.7	4.0	4.3	4.7	5.0	5.3	5.7	6.0	6.3	6.7	7.0
	3	8.4	10.3	11.9	13.3	14.6	15.7	16.8	17.8	18.8	19.7	20.6	21.4	22.2	23.0	23.8	24.5	25.2	25.9	26.6	27.2	0.6	0.8	1.1	1.4	1.7	1.9	2.2	2.5	2.8	3.1	3.3	3.6	3.9	4.2	4.4	4.7	5.0	5.3	5.6	5.8
	3.5	7.8	9.5	11.0	12.3	13.5	14.6	15.6	16.5	17.4	18.3	19.1	19.8	20.6	21.3	22.0	22.7	23.3	24.0	24.6	25.2	0.5	0.7	1.0	1.2	1.4	1.7	1.9	2.1	2.4	2.6	2.9	3.1	3.3	3.6	3.8	4.0	4.3	4.5	4.8	5.0
7	4	7.3	8.9	10.3	11.5	12.6	13.6	14.6	15.4	16.3	17.1	17.8	18.6	19.3	19.9	20.6	21.2	21.8	22.4	23.0	23.6	0.4	0.6	0.8	1.0	1.2	1.5	1.7	1.9	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.5	3.7	4.0	4.2	4.4
	4.5	6.9	8.4	9.7	10.9	11.9	12.8	13.7	14.6	15.3	16.1	16.8	17.5	18.2	18.8	19.4	20.0	20.6	21.2	21.7	22.2	0.4	0.6	0.7	0.9	1.1	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.6	2.8	3.0	3.1	3.3	3.5	3.7	3.9
	5	6.5	8.0	9.2	10.3	11.3	12.2	13.0	13.8	14.6	15.3	15.9	16.6	17.2	17.8	18.4	19.0	19.5	20.1	20.6	21.1	0.3	0.5	0.7	0.8	1.0	1.2	1.3	1.5	1.7	1.8	2.0	2.2	2.3	2.5	2.7	2.8	3.0	3.2	3.3	3.5
6	5.5	6.2	7.6	8.8	9.8	10.8	11.6	12.4	13.2	13.9	14.6	15.2	15.8	16.4	17.0	17.6	18.1	18.6	19.1	19.6	20.1	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2
	6	5.9	7.3	8.4	9.4	10.3	11.1	11.9	12.6	13.3	13.9	14.6	15.2	15.7	16.3	16.8	17.3	17.8	18.3	18.8	19.3	0.3	0.4	0.6	0.7	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.4	2.5	2.6	2.8	2.9
	6.5	5.7	7.0	8.1	9.0	9.9	10.7	11.4	12.1	12.8	13.4	14.0	14.6	15.1	15.6	16.2	16.7	17.1	17.6	18.1	18.5	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.2	1.3	1.4	1.5	1.7	1.8	1.9	2.0	2.2	2.3	2.4	2.6	2.7
7	7	5.5	6.7	7.8	8.7	9.5	10.3	11.0	11.7	12.3	12.9	13.5	14.0	14.6	15.1	15.6	16.0	16.5	17.0	17.4	17.8	0.2	0.4	0.5	0.6	0.7	0.8	1.0	1.1	1.2	1.3	1.4	1.5	1.7	1.8	1.9	2.0	2.1	2.3	2.4	2.5
	SPEED																				PIPE INTERNAL DIAMETER - mm	PIPE INTERNAL AREA - cm ²																			
	m/sec																																								

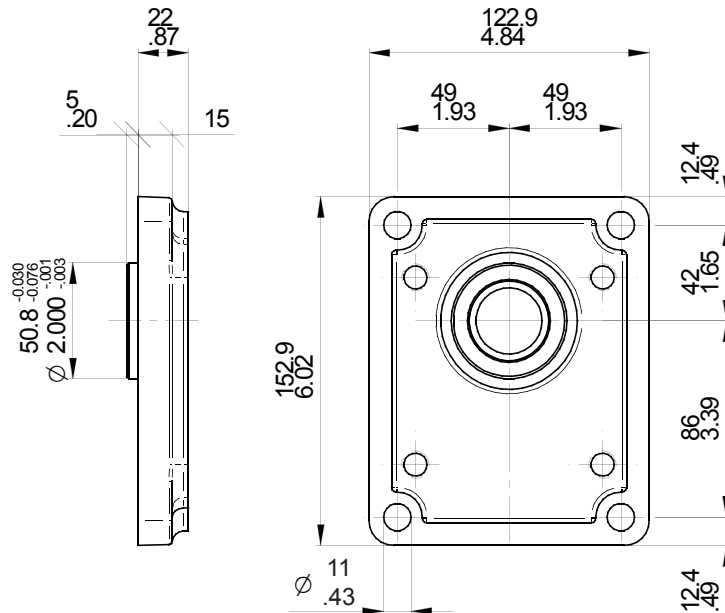


AVAILABLE FLANGES



SAE B mounting flange

S3	Available assembling shafts			
Splined	55	56		
Tapered				
Straight	87	88		

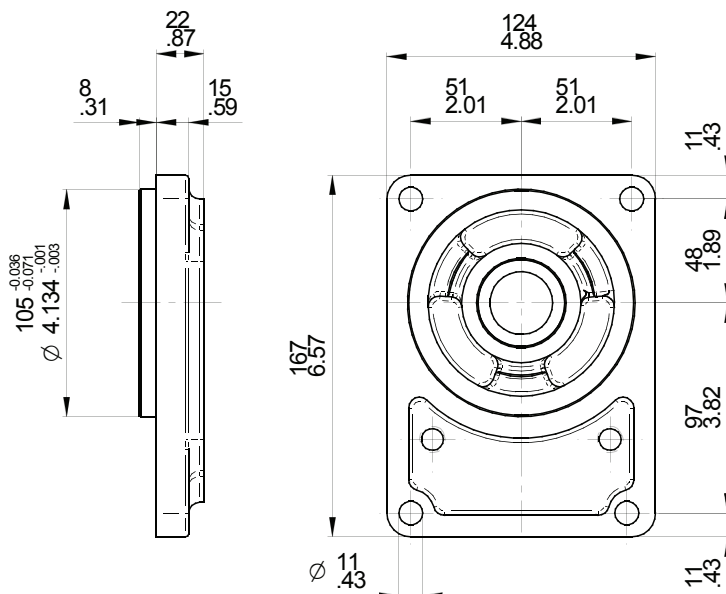


European standard mounting flange

P2	Available assembling shafts			
Splined				
Tapered	35	38		
Straight				

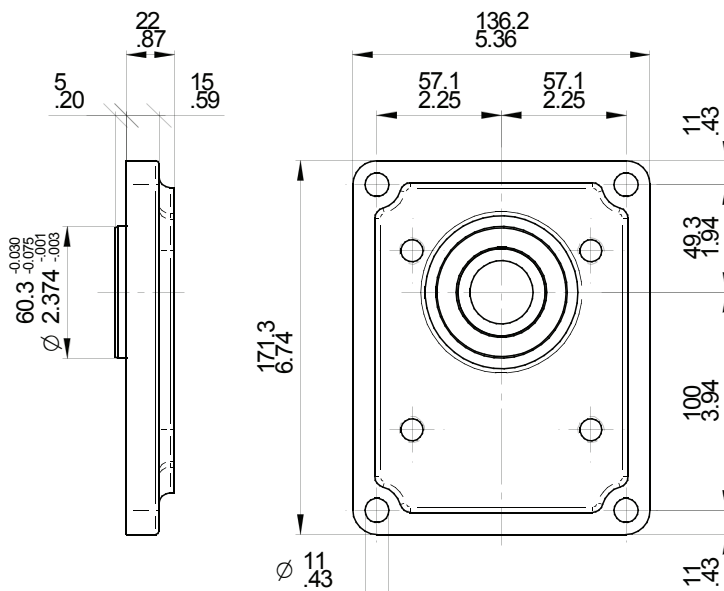


AVAILABLE FLANGES



German standard mounting flange

B0	Available assembling shafts			
Splined				
Tapered	35			
Tang	05			



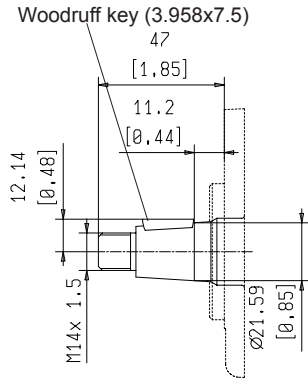
European standard mounting flange - GROUP 3.5 size

P3	Available assembling shafts			
Splined				
Tapered	48			
Straight				



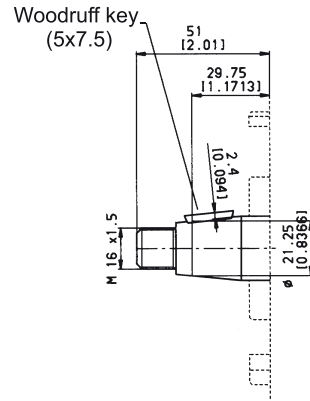
AVAILABLE SHAFTS

EUROPEAN TAPERED 1:8 Code 38



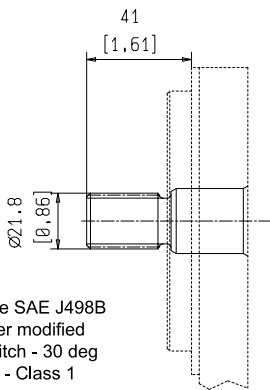
MAX 250 Nm (2213 lbf in)

EUROPEAN TAPERED 1:5 Code 35



MAX 260 Nm (2300 lbf in)

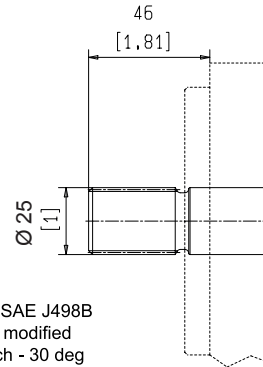
SAE "B" SPLINE Code 55



Ext. Involute Spline SAE J498B
with major diameter modified
13 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1

MAX 330 Nm (2921 lbf in)

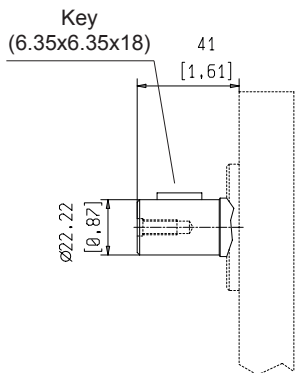
SAE "BB" SPLINE Code 56



Ext. Involute Spline SAE J498B
with major diameter modified
15 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1

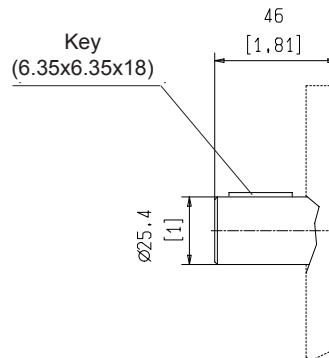
MAX 480 Nm (4250 lbf in)

SAE "B" STRAIGHT Code 87



MAX 220 Nm (1950 lbf in)

SAE "BB" STRAIGHT Code 88



MAX 320 Nm (2830 lbf in)



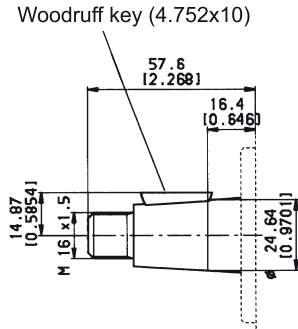
AVAILABLE SHAFTS

EUROPEAN TAPERED 1:8

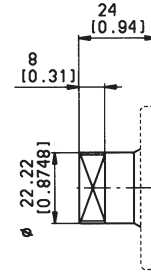
Code 48

TANG DRIVE FOR ELECTRIC MOTORS

Code 05



MAX 350 Nm (3100 lbf in)



MAX 180 Nm (1590 lbf in)

OUTRIGGER BEARING (for combined loads)

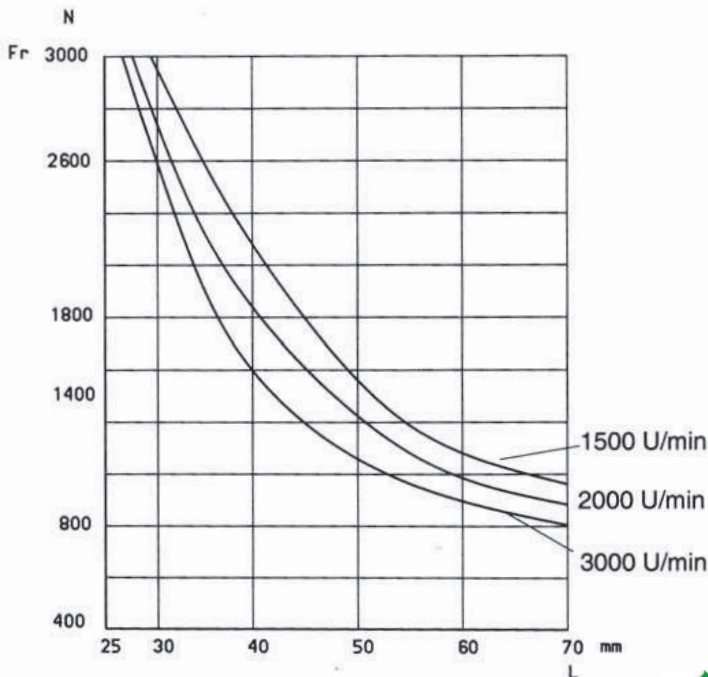
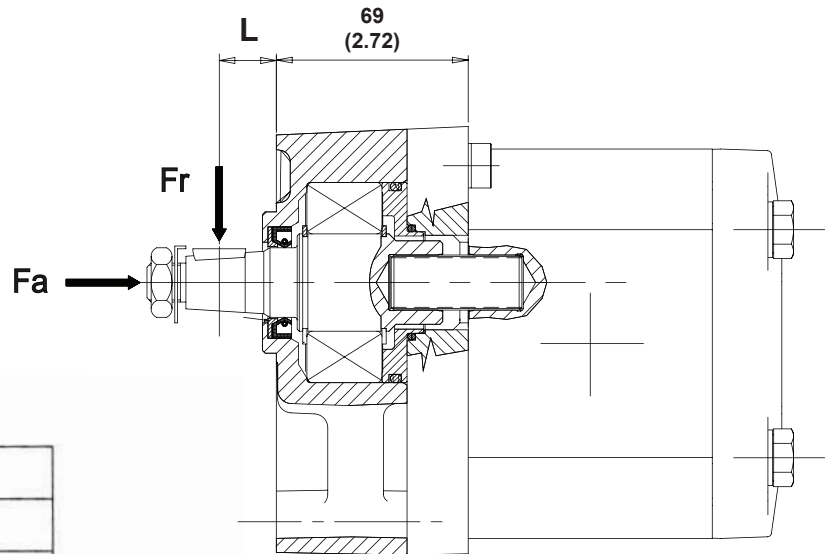
code CP

European standard mounting flange

In case of radial and/or axial load on the shaft, we suggest the use of this support.

The diagram below, shows the maximum radial load referring to a bearing life of 3000 hours.

Consider a maximum allowed axial load (F_a) in terms of 15% of the max. radial load (F_r).



To calculate the absorbed pump-torque or motor efficiency, please use the following formula:

$$C(Nm) = \frac{C_y \Delta p}{62.8}$$

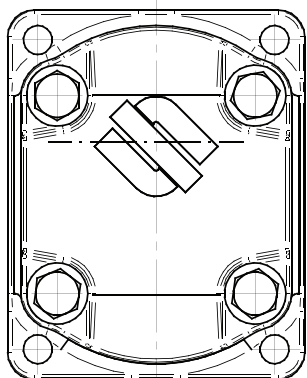
C_y = Displacement pump

Δp = Pressure (bar/psi)

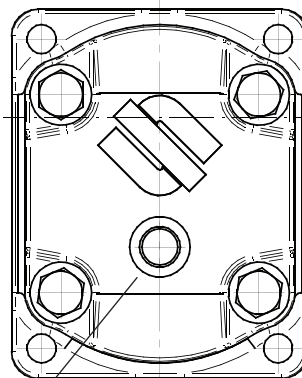


REAR COVERS

Cast iron standard cover for unidirectional pumps and motors.



Cast iron standard cover for reversible pumps and motors.



EXTERNAL DRAIN PORT - DIMENSION C

C
G 3/8
9/16-18UNF-2B (SAE 6)

3PE single pump with 2PE single or multiple

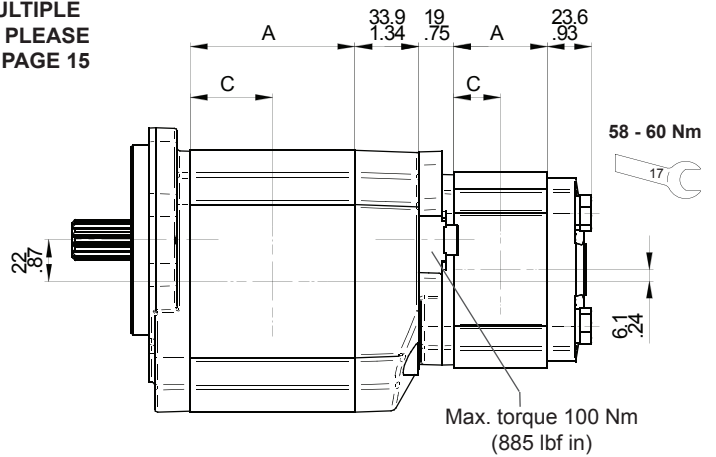


THE 2PE CAN BE ALSO MULTIPLE

Shown release with flange S3 and shaft 56



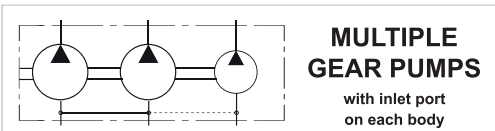
THE 2PE CAN BE ALSO MULTIPLE FOR THE COMMON INLET, PLEASE REFER TO THE TABLE OF PAGE 15



- PORT TYPES AND SIZES ON PAGE 10 - 11
- COMMON SUCTION PORT SIZE ON PAGE 14
- DIMENSION A SEE PAGES 7 OR 13
- DIMENSION C SEE PAGES 7 OR 13
- DIMENSIONS A AND C 2PE, SEE TABLE BELOW

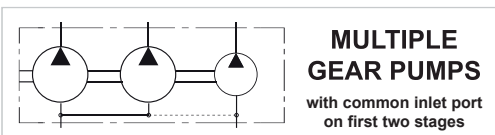
2PE type		3.2*	3.9*	4.5	6.5	8.3	10.5	11.3	12.5	13.8	16	19	22.5	26
Displacement	cm ³ /rev	3.2	3.9	4.6	6.5	8.2	10.6	11.5	12.7	13.8	16.6	19.4	22.9	25.8
	cu.in./rev	0.19	0.24	0.27	0.40	0.50	0.65	0.68	0.77	0.84	1.01	1.15	1.37	1.58
Dimension A	mm		47.1		49.95	52.8	56.3	59.6	63.5	67.5	75.6	81	86.8	
	in		1.83		1.97	2.07	2.22	2.35	2.5	2.65	2.97	3.19	3.42	
Dimension C	mm		23.55		25	26.4	28.15	29.8	31.75	33.75	37.80	40.5	43.4	
	in		0.93		0.98	1.04	1.11	1.17	1.25	1.33	1.49	1.59	1.71	

3PE multiple pump with 2PE single or multiple

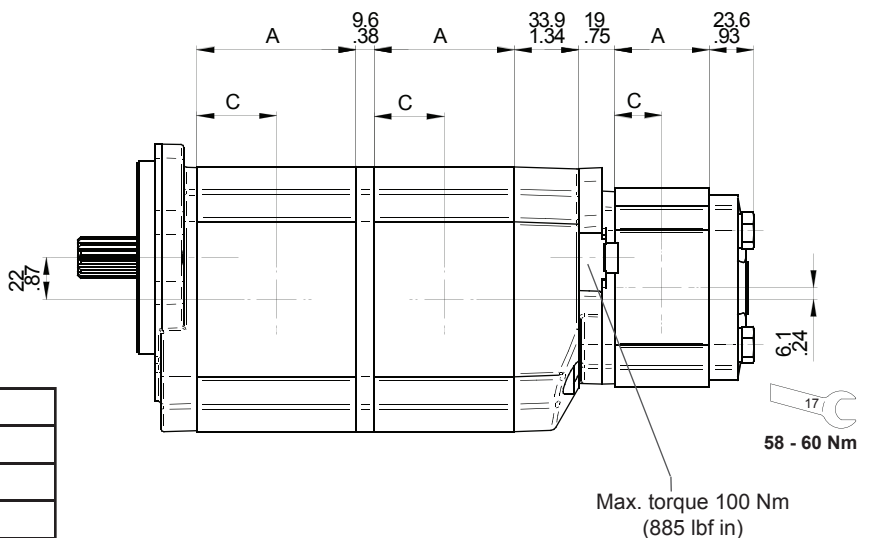


THE 2PE CAN BE ALSO MULTIPLE

Shown release with flange S3 and shaft 56



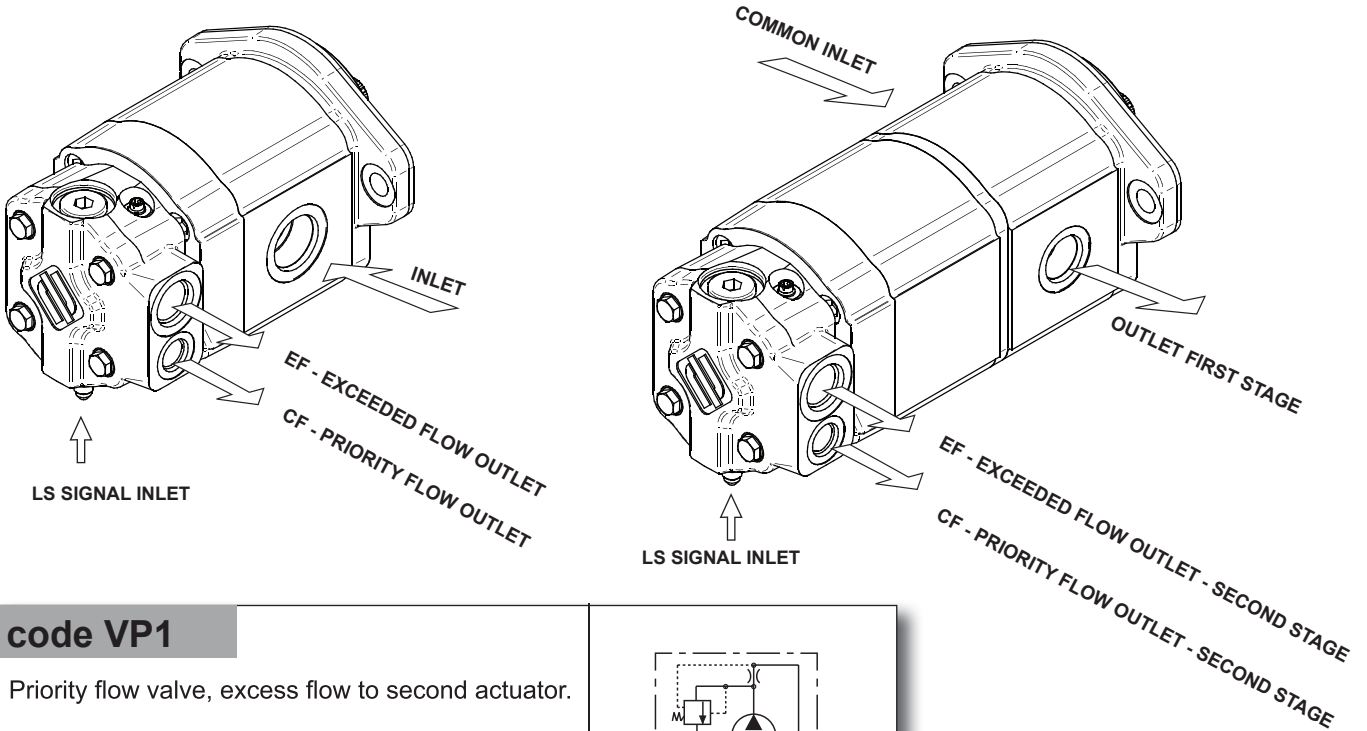
THE 2PE CAN BE ALSO MULTIPLE FOR THE COMMON INLET, PLEASE REFER TO THE TABLE OF PAGE 15



- PORT TYPES AND SIZES ON PAGE 10 - 11
- COMMON SUCTION PORT SIZE ON PAGE 14
- DIMENSION A SEE PAGES 7 OR 13
- DIMENSION C SEE PAGES 7 OR 13
- DIMENSIONS A AND C 2PE, SEE TABLE ABOVE



AVAILABLE CONFIGURATIONS WITH PRIORITY FLOW VALVE



code VP1
 Priority flow valve, excess flow to second actuator.

CF = Priority flow port
 EF = Excess flow port

code VPS1
 Priority flow valve, excess flow to second actuator with pressure relief valve on priority flow line.

CF = Priority flow port
 EF = Excess flow port

code VPD1
 Load sensing priority valve with dynamic signal without main relief valve

CF = Priority flow port
 EF = Excess flow port
 LS = Load sensing signal port

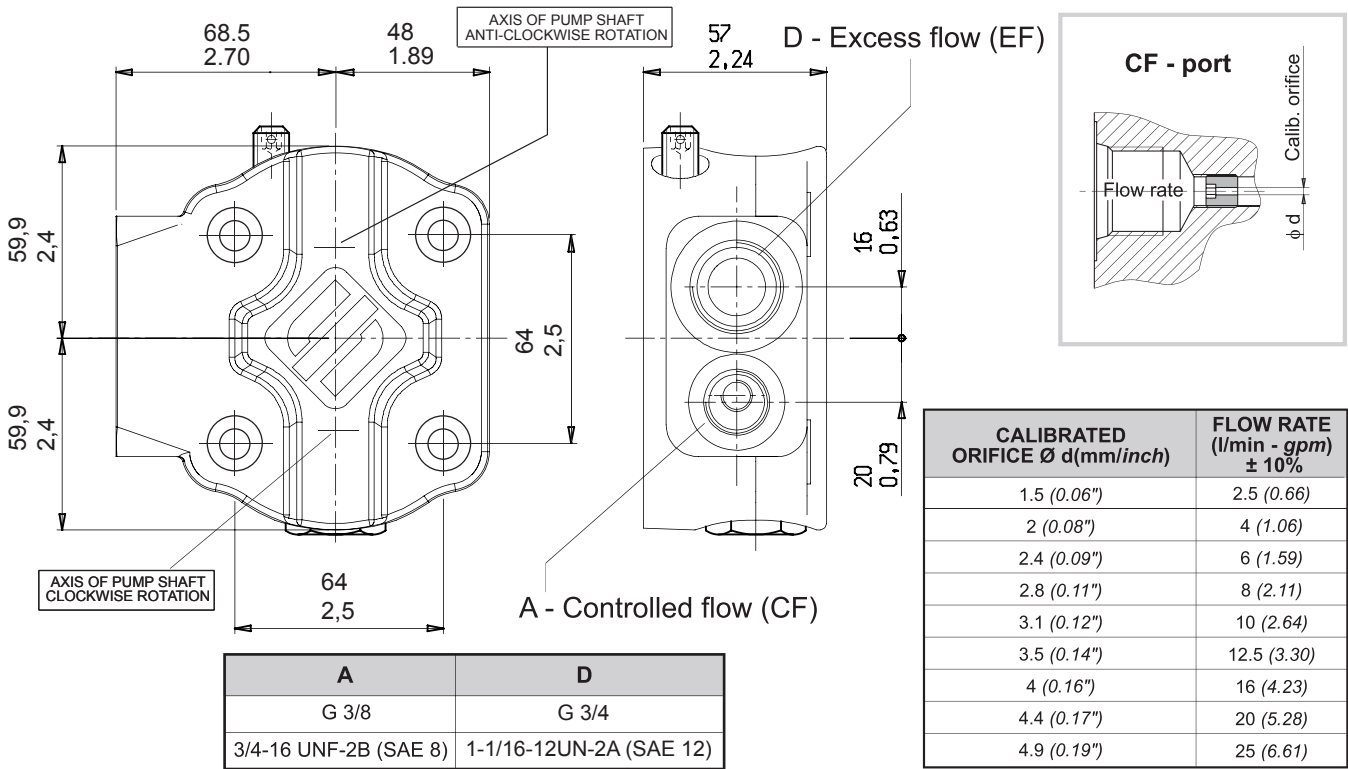
code VPDS1
 Load sensing priority valve with dynamic signal with main relief valve

CF = Priority flow port
 EF = Excess flow port
 LS = Load sensing signal port

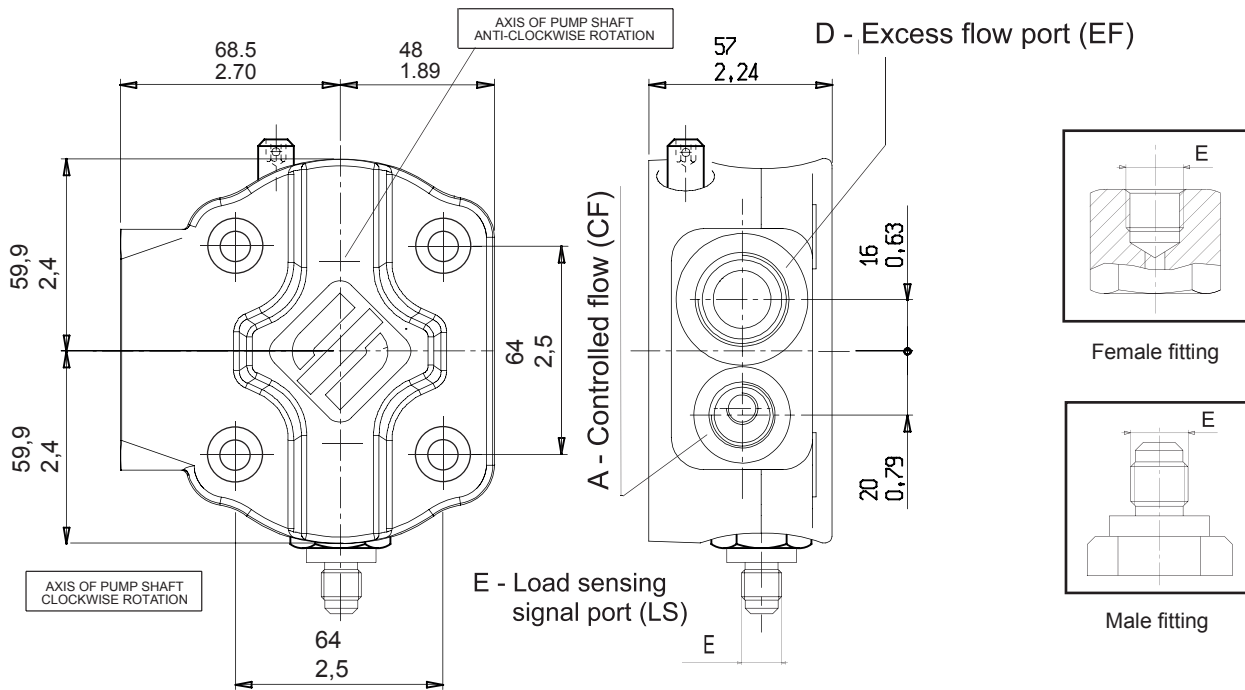
The double or triple pumps can be configured with priority flow valve too.
 The stage which has its flow divided into priority and exceeded flows is always the back one.



VP1 - VPS1 (FEATURES)



VPD1 - VPDS1 (FEATURES)

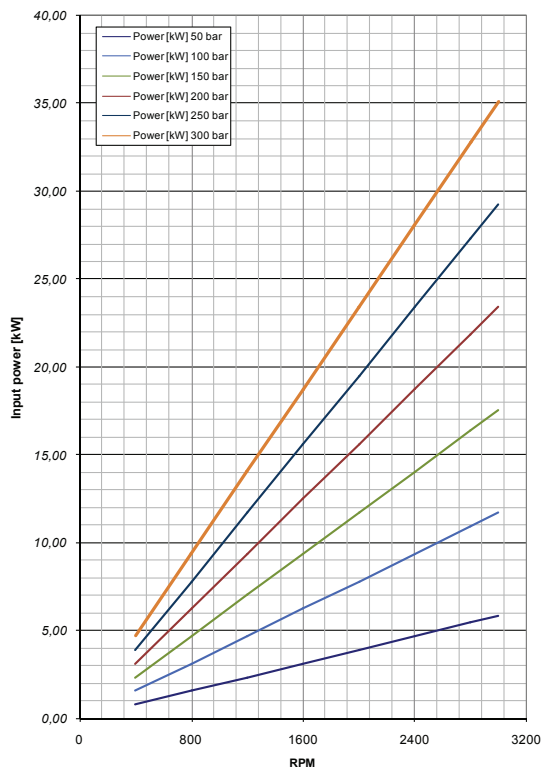
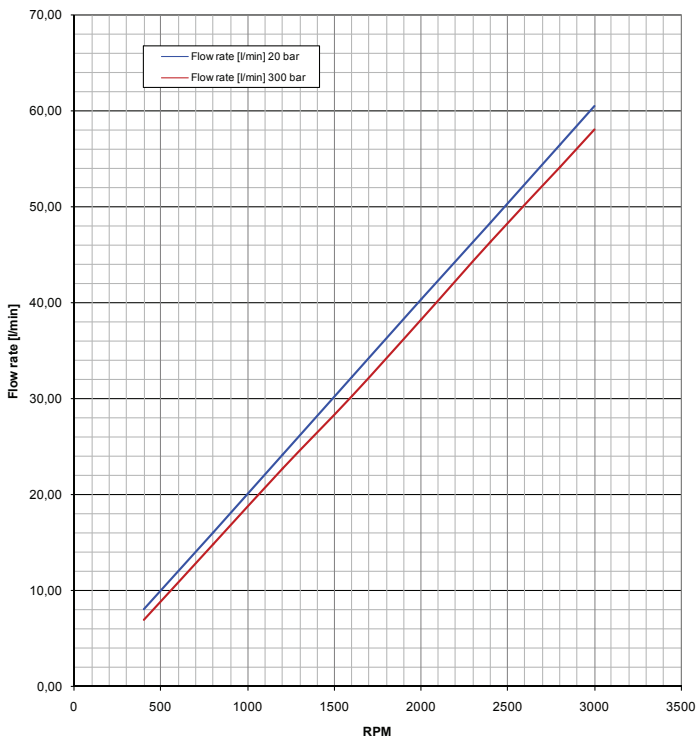


Minimum load sensing signal (LS) = 4 bar (28 psi)

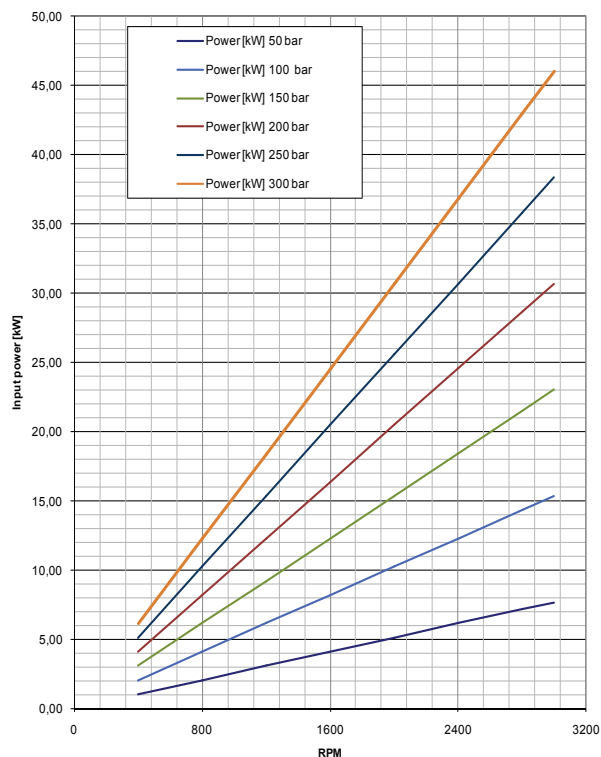
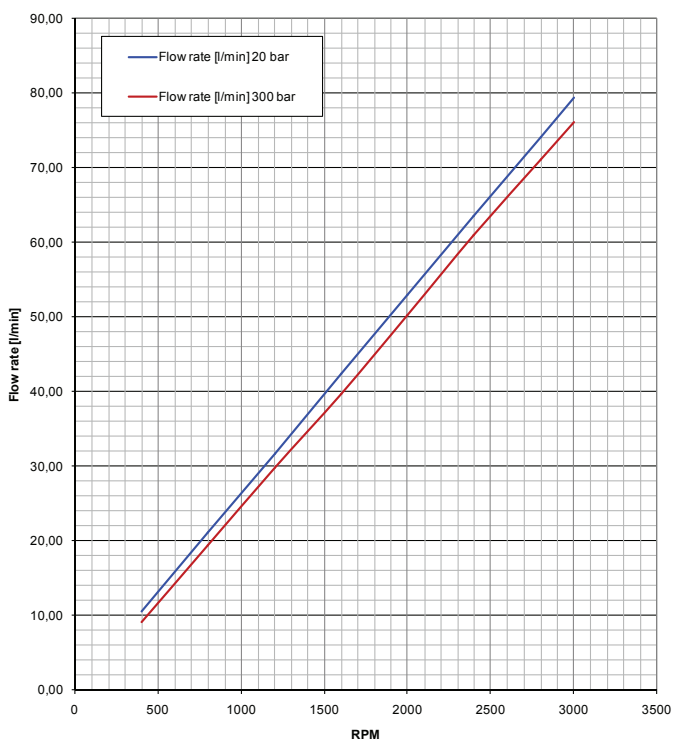
A	D	E
G 3/8	G 3/4	G 1/4
3/4-16 UNF-2B (SAE 8)	1-1/16-12UN-2A (SAE 12)	7/16-20 UNF-2B (SAE 4)



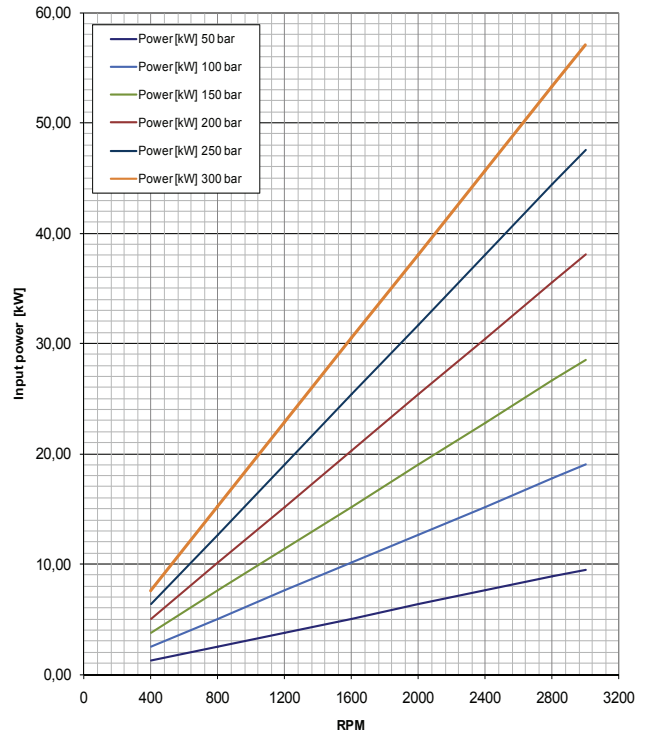
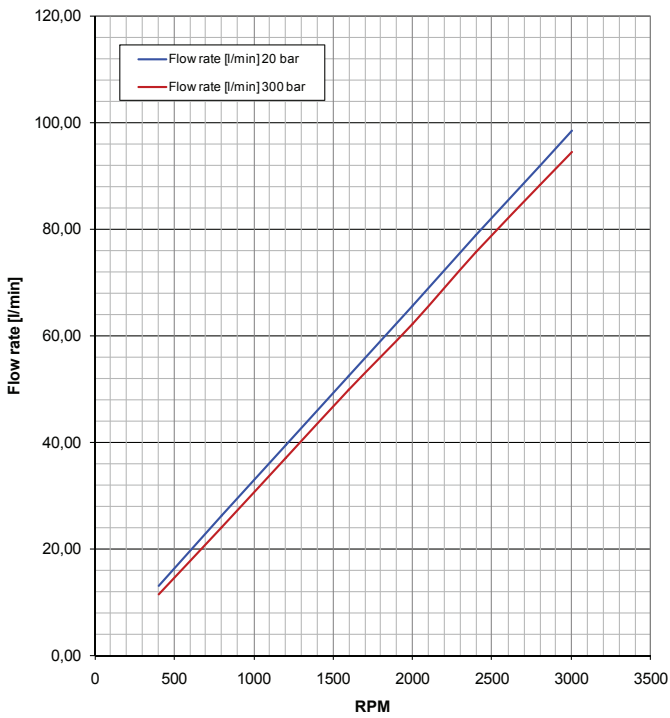
3PE - 21



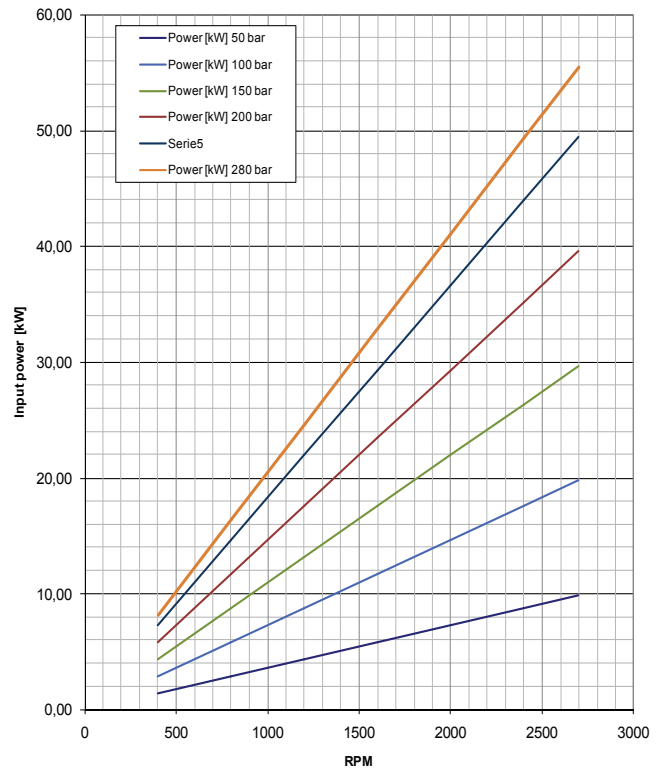
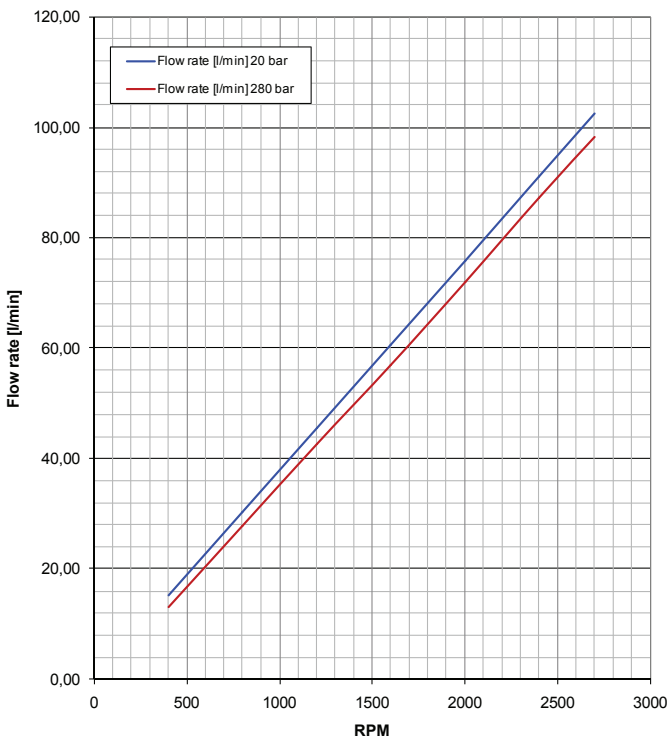
3PE - 27



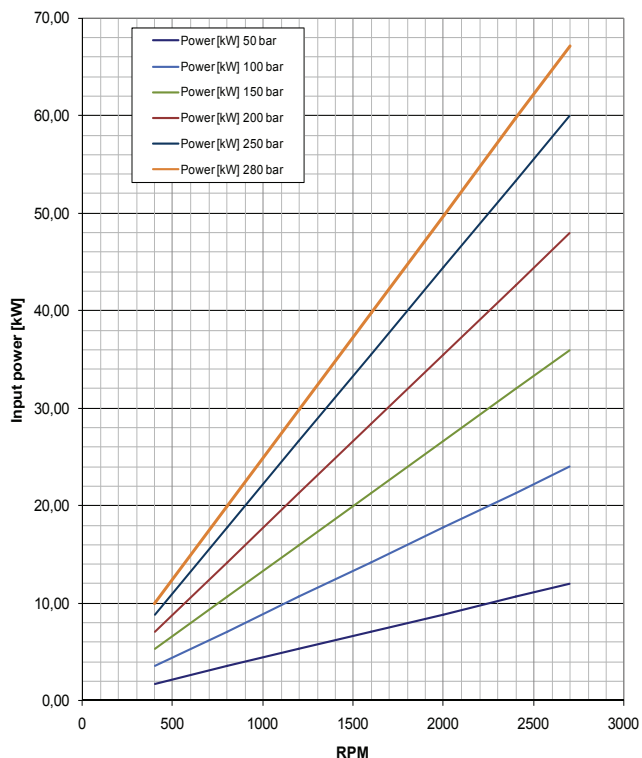
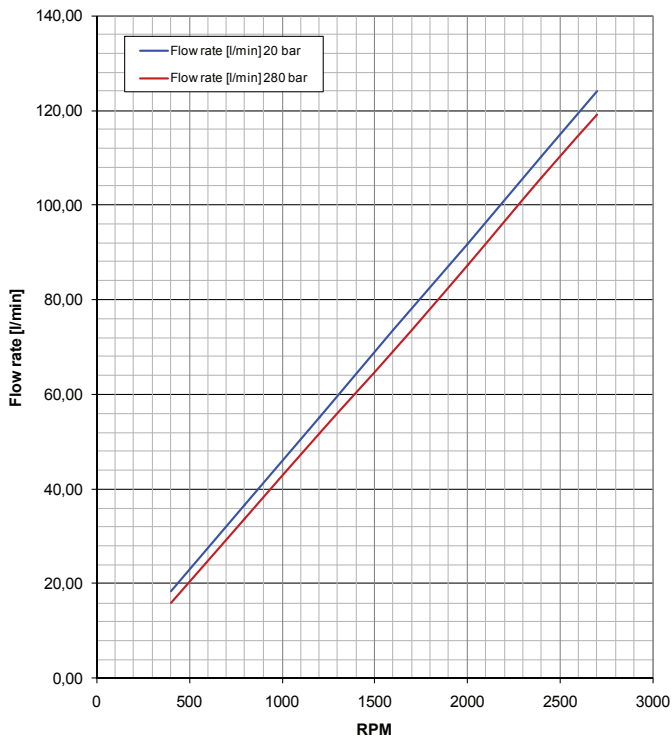
3PE - 33



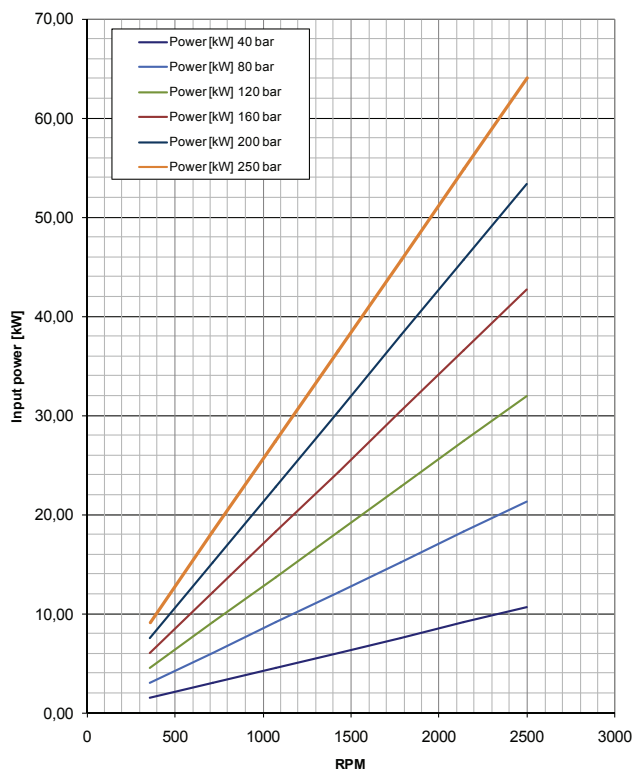
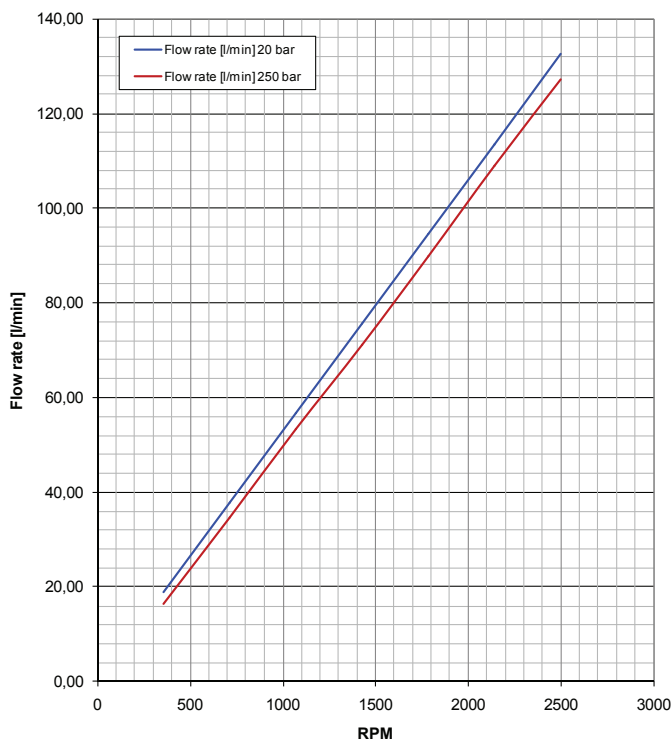
3PE - 38



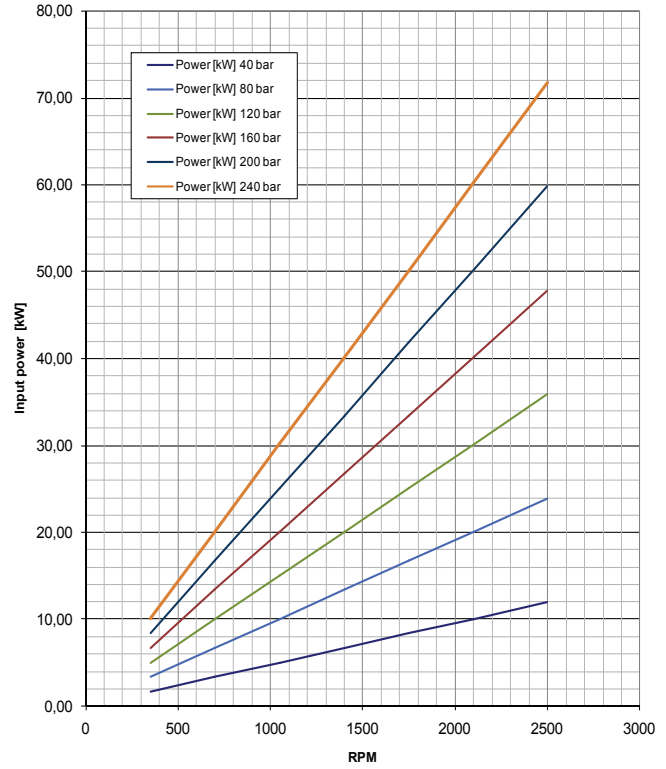
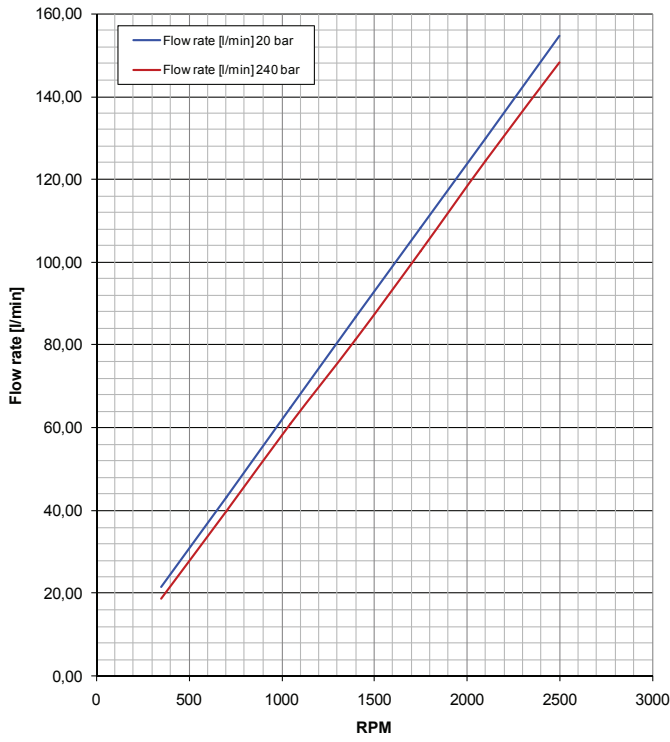
3PE - 46



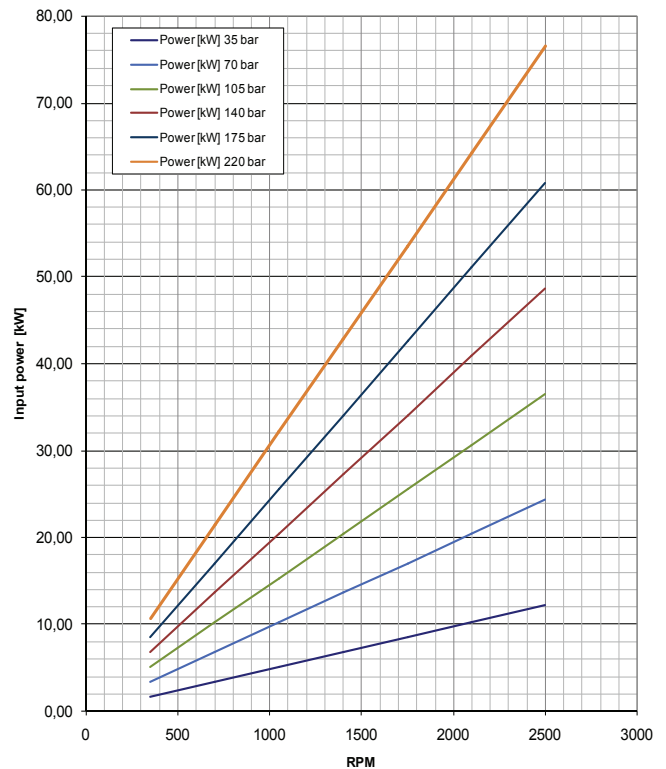
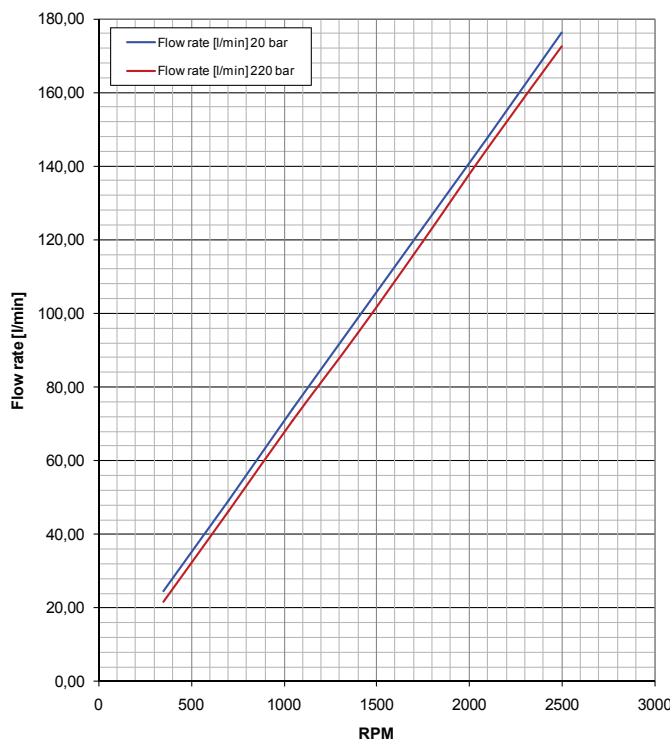
3PE - 55



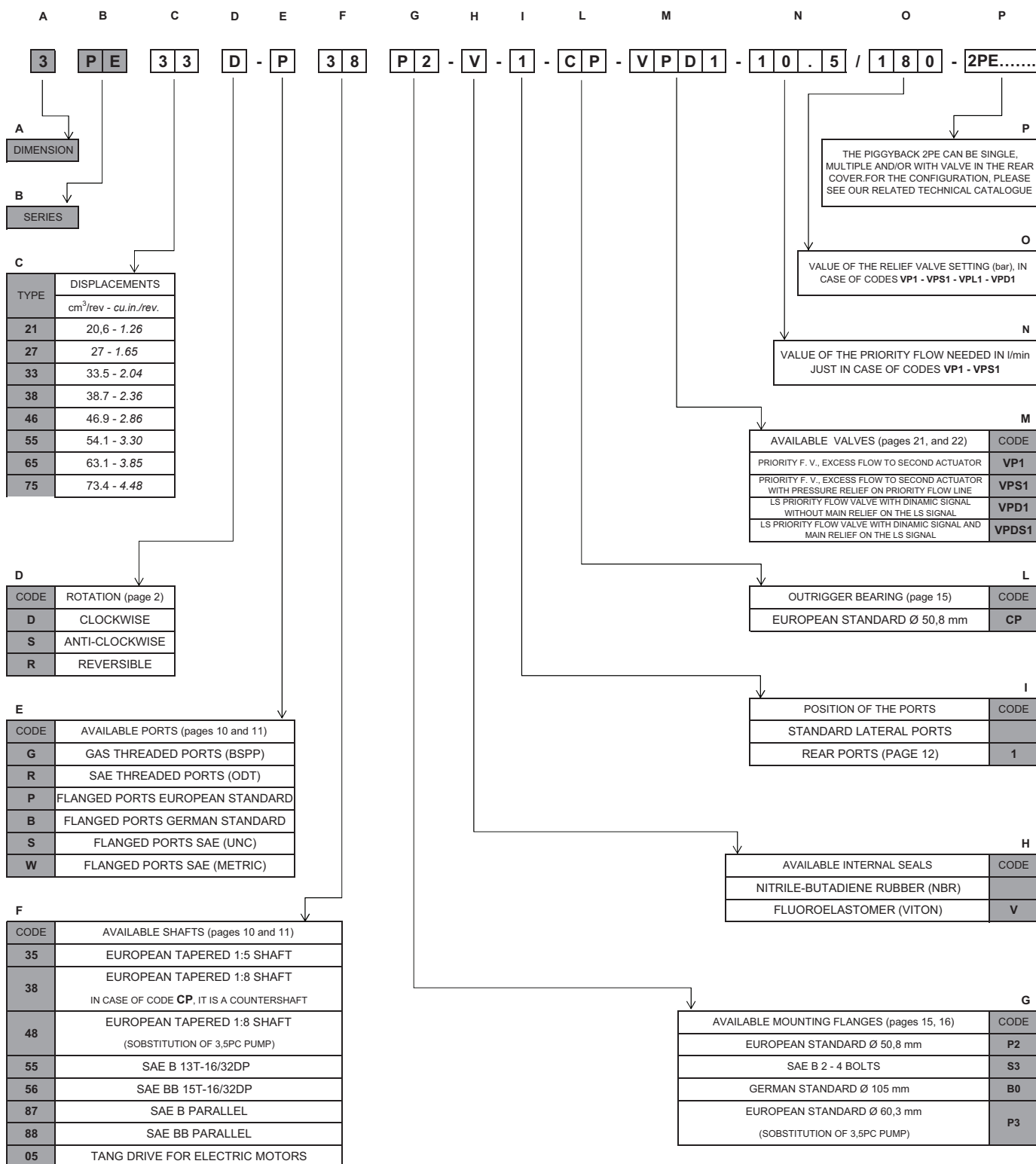
3PE - 65



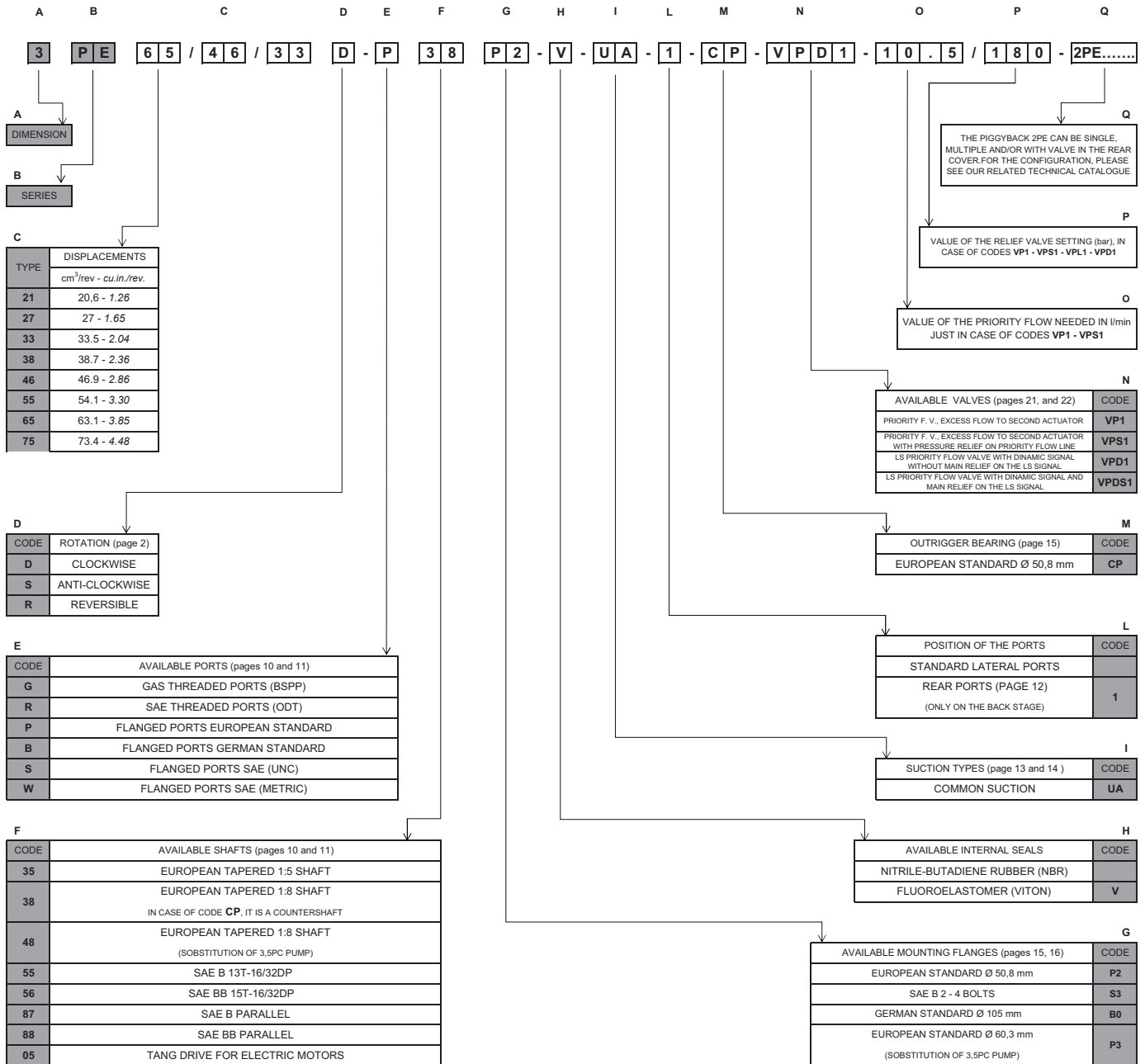
3PE - 75



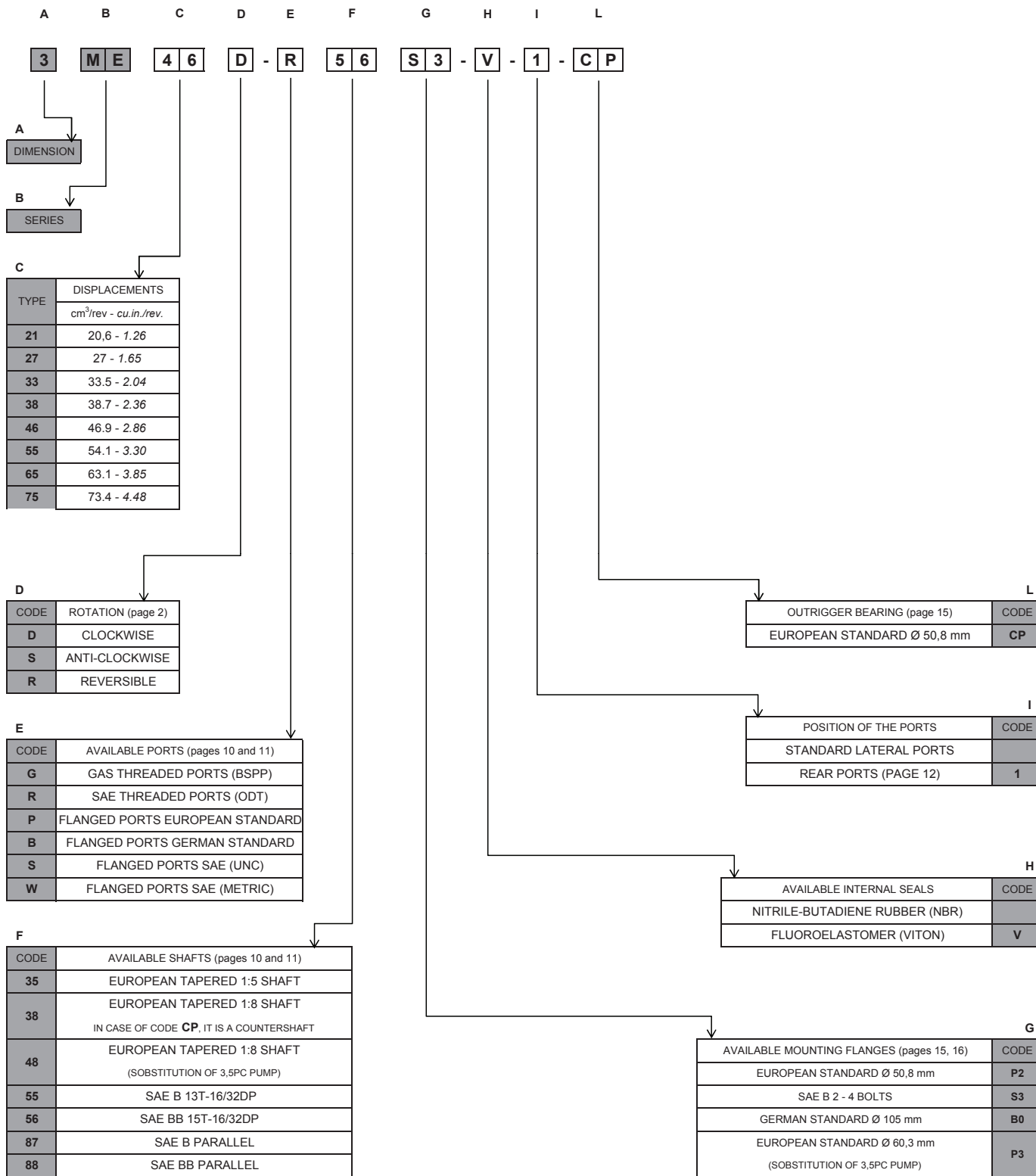
HOW TO ORDER 3PE SINGLE PUMP



HOW TO ORDER 3PE DOUBLE OR TRIPLE PUMP



HOW TO ORDER 3ME MOTOR



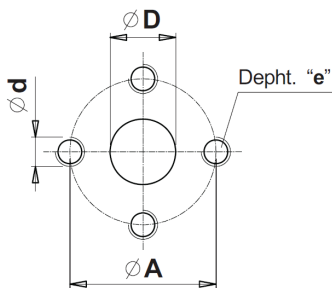
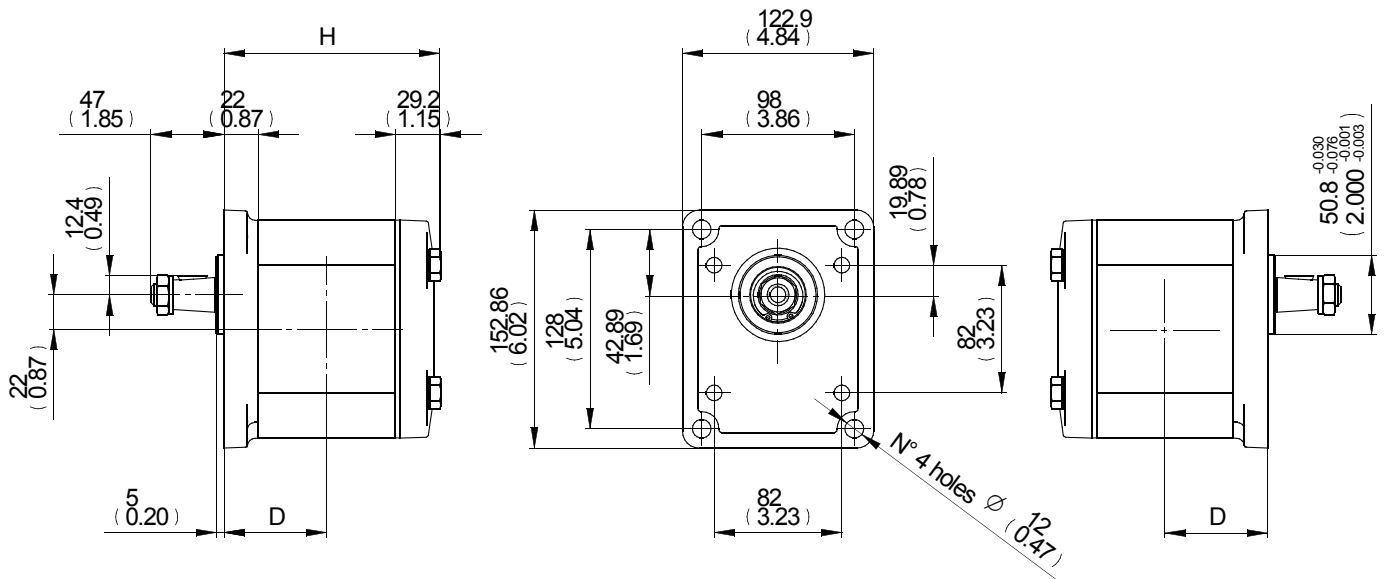
3PE

Aluminium gear pumps



Section B - Dealer management

E0.130.1213.05.00-IM00

P38P2 - Clockwise and anti-clockwise rotation codes

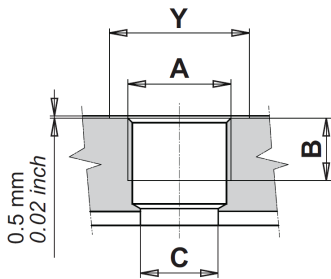
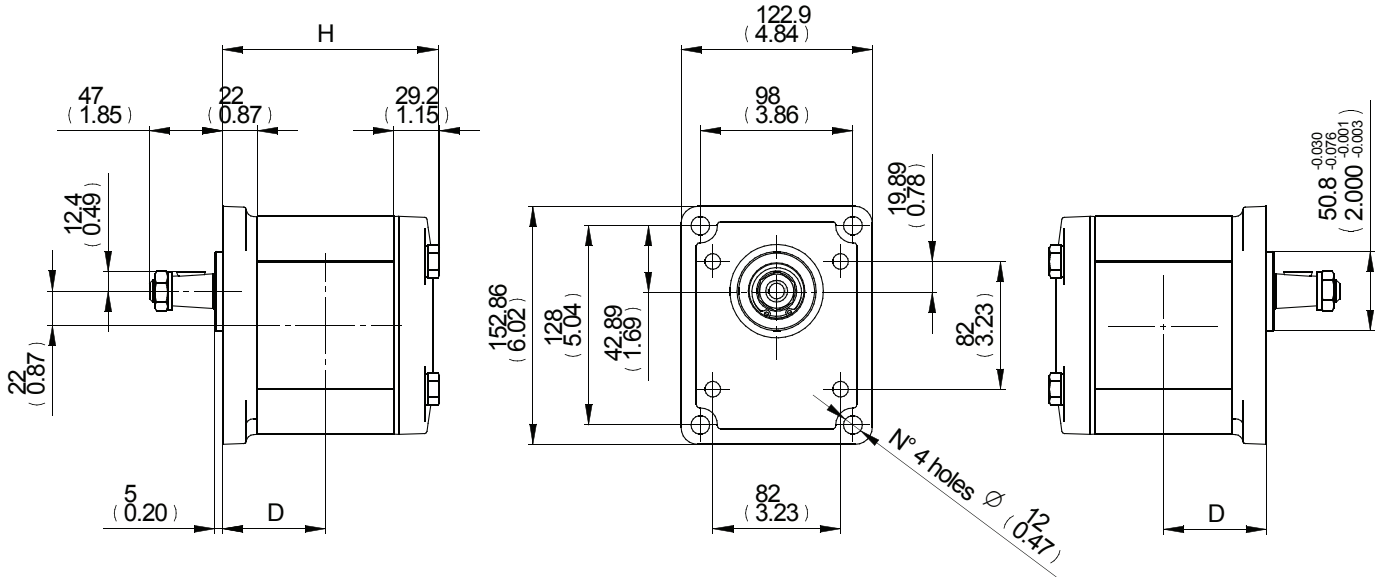


TYPE	INLET				OUTLET			
	$\varnothing D$	$\varnothing A$	d	e	$\varnothing D$	$\varnothing A$	d	e
From 21 to 55	27 1,06	51 2,01	M10	16 0,63	16 0,63	40 1,57	M8	16 0,63
From 65 to 75	33 1,30	62 2,44	M12	16 0,63	21 0,83	51 2,01	M10	16 0,63

DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
cm ³ /rev	cu.in./rev	mm	in	mm	in			
21	20,6	1,26	59	2,32	128,5	5,06	6130 1105 1	6130 1105 2
27	27	1,65	61,5	2,42	133,5	5,26	6130 1106 1	6130 1106 2
33	33,5	2,04	64	2,52	138,5	5,45	6130 1301 1	6130 1301 2
38	38,7	2,36	66	2,60	142,5	5,61	6130 1401 1	6130 1401 2
46	46,9	2,86	74	2,91	158,5	6,24	6130 1107 1	6130 1107 2
55	54,1	3,30	77	3,03	164,5	6,48	6130 1108 1	6130 1108 2
65	63,1	3,85	80,5	3,17	171,5	6,75	6130 1109 1	6130 1109 2
75	73,4	4,48	84	3,31	178,5	7,03	6130 1110 1	6130 1110 2



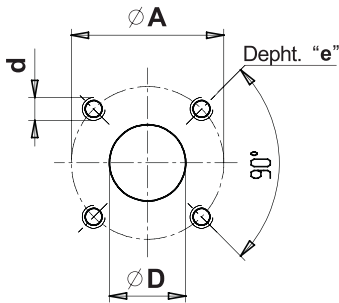
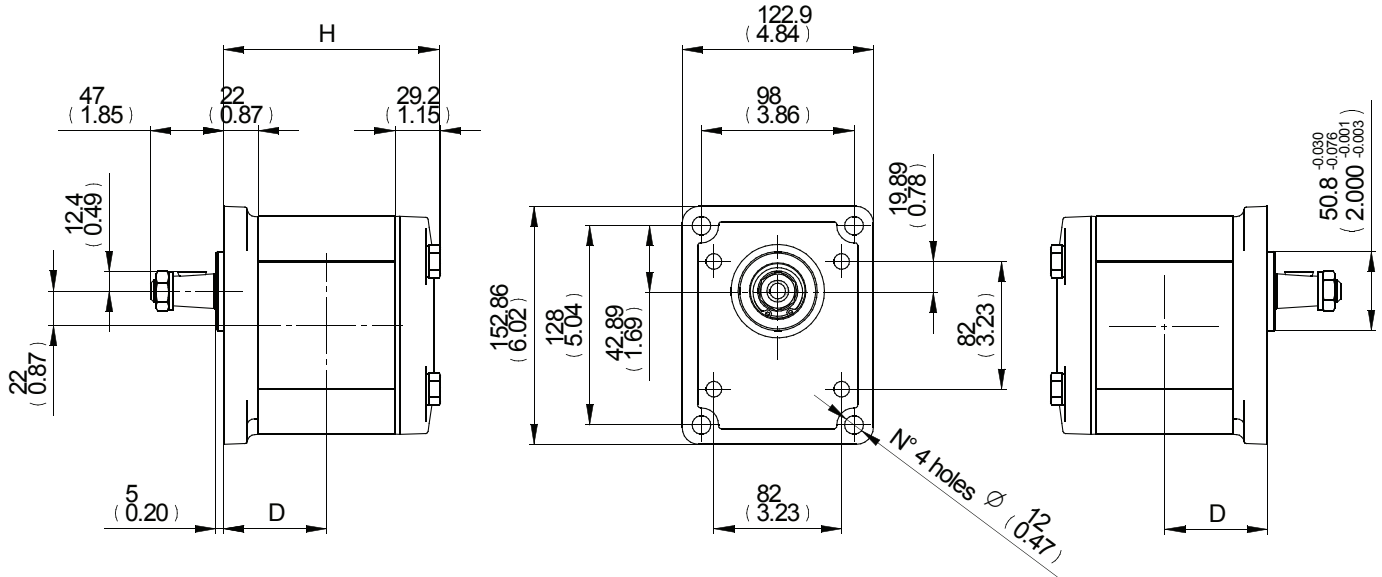
G38P2 - Clockwise and anti-clockwise rotation codes



TYPE	INLET				OUTLET			
	A	B	C	Y	A	B	C	Y
From 21 to 38	G1	22 0,87	30,5 1,20	44 1,73	G1	22 0,87	27 1,06	44 1,73
From 46 to 75	G1"1/4	24 0,94	37 1,46	54 2,13	G1	22 0,87	30,5 1,20	44 1,73

DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			cm ³ /rev	cu.in./rev	D	H		
		mm	in	mm	in			
21	20,6	1,26	59	2,32	128,5	5,06	6130 1201 1	6130 1201 2
27	27	1,65	61,5	2,42	133,5	5,26	6130 1202 1	6130 1202 2
33	33,5	2,04	64	2,52	138,5	5,45	6130 1203 1	6130 1203 2
38	38,7	2,36	66	2,60	142,5	5,61	6130 1204 1	6130 1204 2
46	46,9	2,86	74	2,91	158,5	6,24	6130 1205 1	6130 1205 2
55	54,1	3,30	77	3,03	164,5	6,48	6130 1206 1	6130 1206 2
65	63,1	3,85	80,5	3,17	171,5	6,75	6130 1207 1	6130 1207 2
75	73,4	4,48	84	3,31	178,5	7,03	6130 1208 1	6130 1208 2

B38P2 - Clockwise and anti-clockwise rotation codes

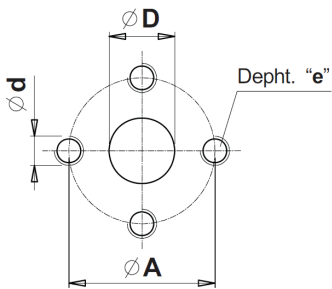
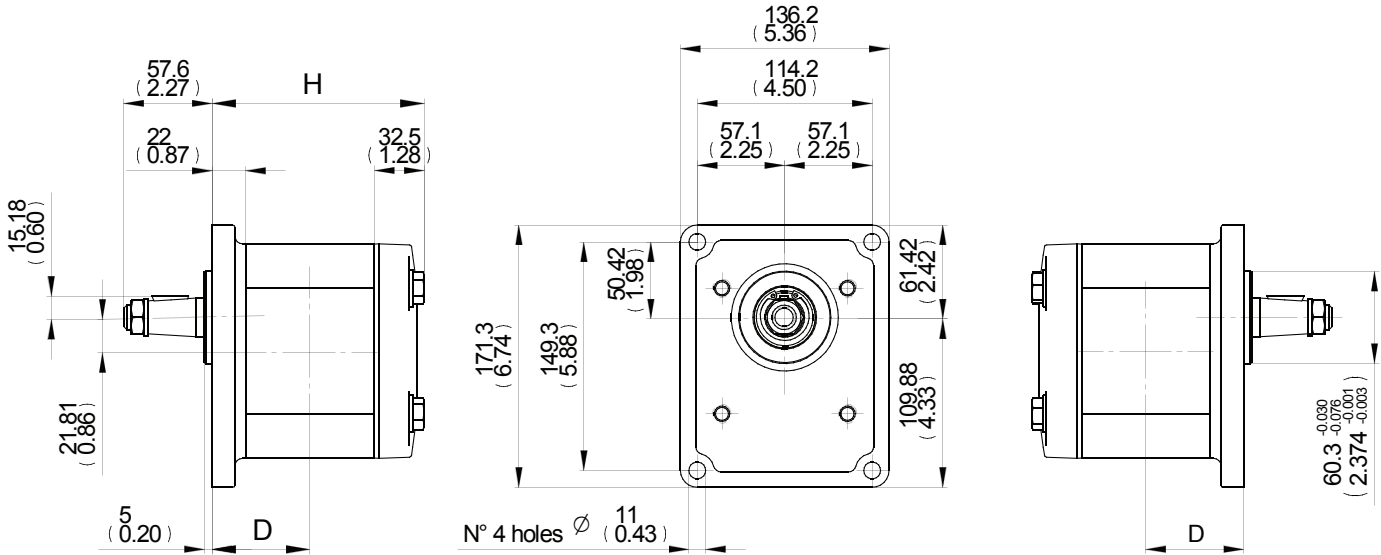


TYPE	INLET				OUTLET			
	Ø D	Ø A	d	e	Ø D	Ø A	d	e
Displ. 21	22 0,87	55 2,17	M8	13 0,51	19 0,75	55 2,17	M8	13 0,51
From 27 to 75	27 1,06	55 2,17	M8	13 0,51	22 0,87	55 2,17	M8	13 0,51

DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
cm ³ /rev	cu.in./rev	mm	in	mm	in			
21	20,6	59	2,32	128,5	5,06	6130 1211 1	6130 1211 2	
27	27	61,5	2,42	133,5	5,26	6130 1212 1	6130 1212 2	
33	33,5	64	2,52	138,5	5,45	6130 1213 1	6130 1213 2	
38	38,7	66	2,60	142,5	5,61	6130 1214 1	6130 1214 2	
46	46,9	74	2,91	158,5	6,24	6130 1215 1	6130 1215 2	
55	54,1	77	3,03	164,5	6,48	6130 1216 1	6130 1216 2	
65	63,1	80,5	3,17	171,5	6,75	6130 1217 1	6130 1217 2	
75	73,4	84	3,31	178,5	7,03	6130 1218 1	6130 1218 2	



P48P3 - Clockwise and anti-clockwise rotation codes

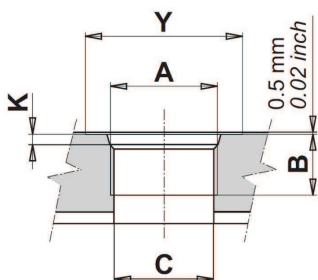
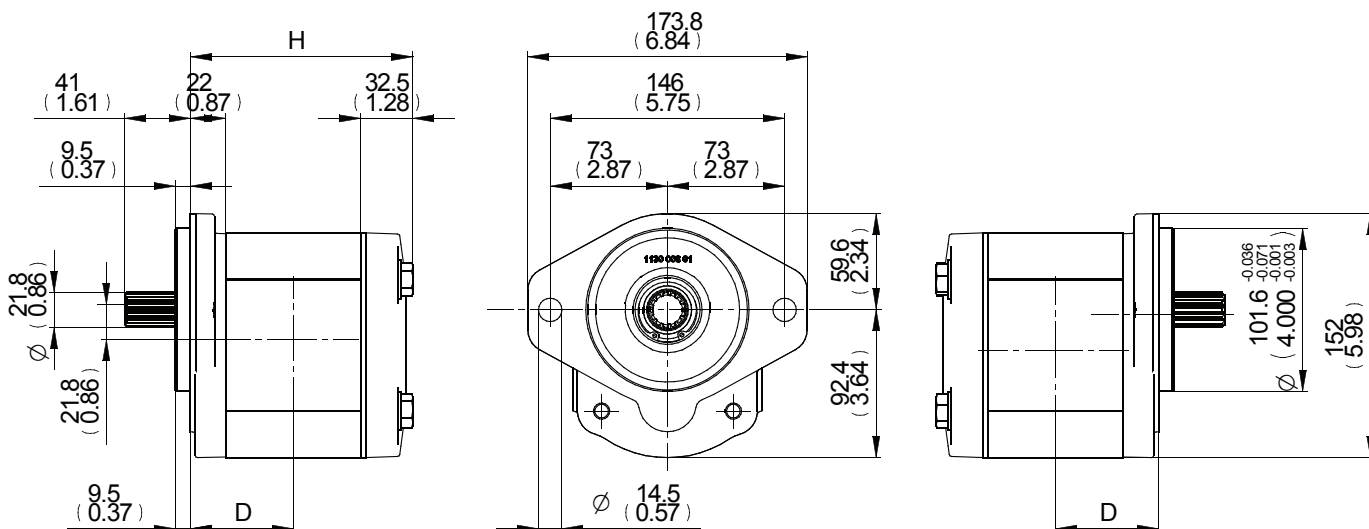


TYPE	INLET				OUTLET			
	$\varnothing D$	$\varnothing A$	d	e	$\varnothing D$	$\varnothing A$	d	e
From 21 to 55	27 1,06	51 2,01	M10	16 0,63	16 0,63	40 1,57	M8	16 0,63
From 65 to 75	33 1,30	62 2,44	M12	16 0,63	21 0,83	51 2,01	M10	16 0,63

DISPLACEMENT		DIMENSIONS					ANTI-CLOCKWISE	CLOCKWISE
		D		H				
		mm	in	mm	in	mm		
21	20,6	59	2,32	128,5	5,06	6130 1221 1	6130 1221 2	
27	27	61,5	2,42	133,5	5,26	6130 1222 1	6130 1222 2	
33	33,5	64	2,52	138,5	5,45	6130 1223 1	6130 1223 2	
38	38,7	66	2,60	142,5	5,61	6130 1224 1	6130 1224 2	
46	46,9	74	2,91	158,5	6,24	6130 1225 1	6130 1225 2	
55	54,1	77	3,03	164,5	6,48	6130 1226 1	6130 1226 2	
65	63,1	80,5	3,17	171,5	6,75	6130 1227 1	6130 1227 2	
75	73,4	84	3,31	178,5	7,03	6130 1228 1	6130 1228 2	



R55S3 - Clockwise and anti-clockwise rotation codes

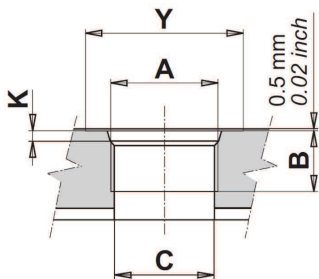
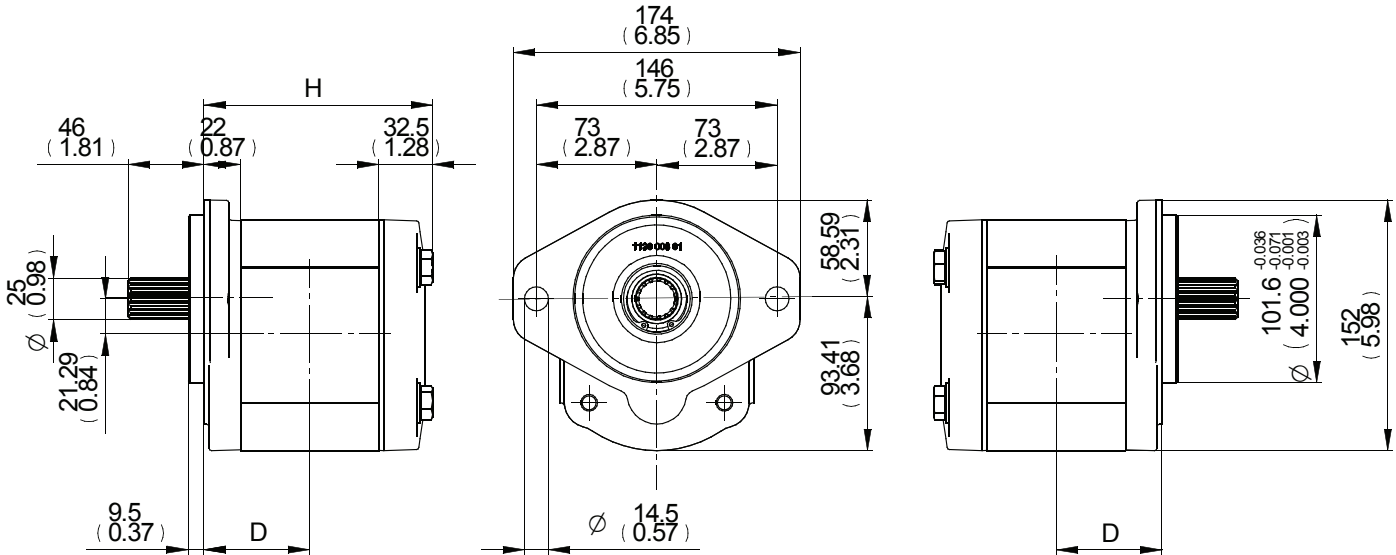


TYPE	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13	1-1/16 12 UN	19 0,75	21 0,83	41 1,61	3,3 0,13
From 46 to 75	1-5/8 12 UN	19 0,75	27 1,06	58 2,28	3,3 0,13	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13

DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
cm ³ /rev	cu.in./rev	mm	in	mm	in			
21	20,6	1,26	59	2,32	128,5	5,06	6130 1111 1	6130 1111 2
27	27	1,65	61,5	2,42	133,5	5,26	6130 1112 1	6130 1112 2
33	33,5	2,04	64	2,52	138,5	5,45	6130 1103 1	6130 1103 2
38	38,7	2,36	66	2,60	142,5	5,61	6130 1113 1	6130 1113 2
46	46,9	2,86	74	2,91	158,5	6,24	6130 7967 1	6130 7967 2
55	54,1	3,30	77	3,03	164,5	6,48	6130 1104 1	6130 1104 2
65	63,1	3,85	80,5	3,17	171,5	6,75	6130 1114 1	6130 1114 2
75	73,4	4,48	84	3,31	178,5	7,03	6130 1115 1	6130 1115 2



R56S3 - Clockwise and anti-clockwise rotation codes

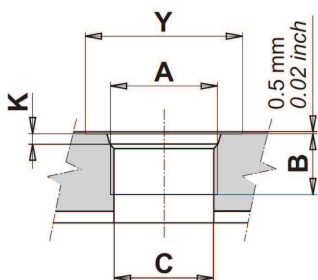
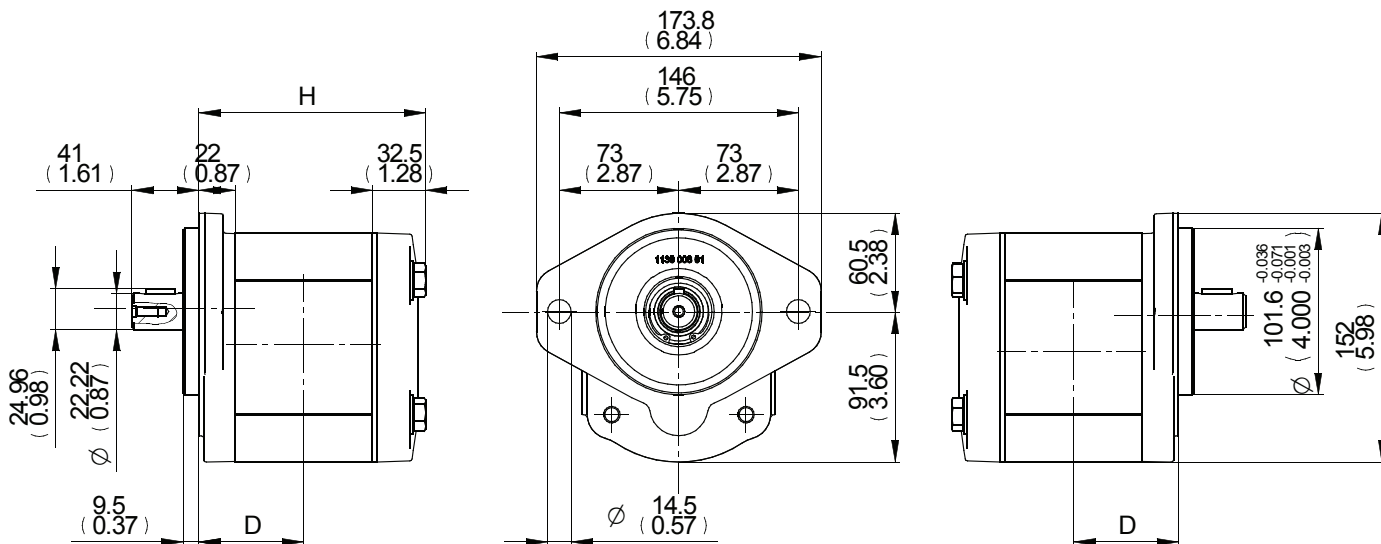


TYPE	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13	1-1/16 12 UN	19 0,75	21 0,83	41 1,61	3,3 0,13
From 46 to 75	1-5/8 12 UN	19 0,75	27 1,06	58 2,28	3,3 0,13	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13

DISPLACEMENT		DIMENSIONS					ANTI-CLOCKWISE	CLOCKWISE
		D		H				
		mm	in	mm	in	mm		
21	20,6	59	2,32	128,5	5,06	6130 1241 1	6130 1241 2	
27	27	61,5	2,42	133,5	5,26	6130 1242 1	6130 1242 2	
33	33,5	64	2,52	138,5	5,45	6130 1243 1	6130 1243 2	
38	38,7	66	2,60	142,5	5,61	6130 1244 1	6130 1244 2	
46	46,9	74	2,91	158,5	6,24	6130 1245 1	6130 1245 2	
55	54,1	77	3,03	164,5	6,48	6130 1246 1	6130 1246 2	
65	63,1	80,5	3,17	171,5	6,75	6130 1247 1	6130 1247 2	
75	73,4	84	3,31	178,5	7,03	6130 1248 1	6130 1248 2	



R87S3 - Clockwise and anti-clockwise rotation codes

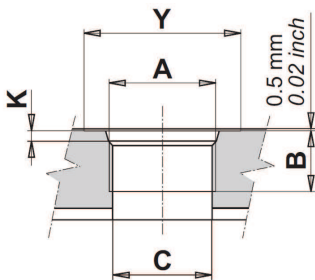
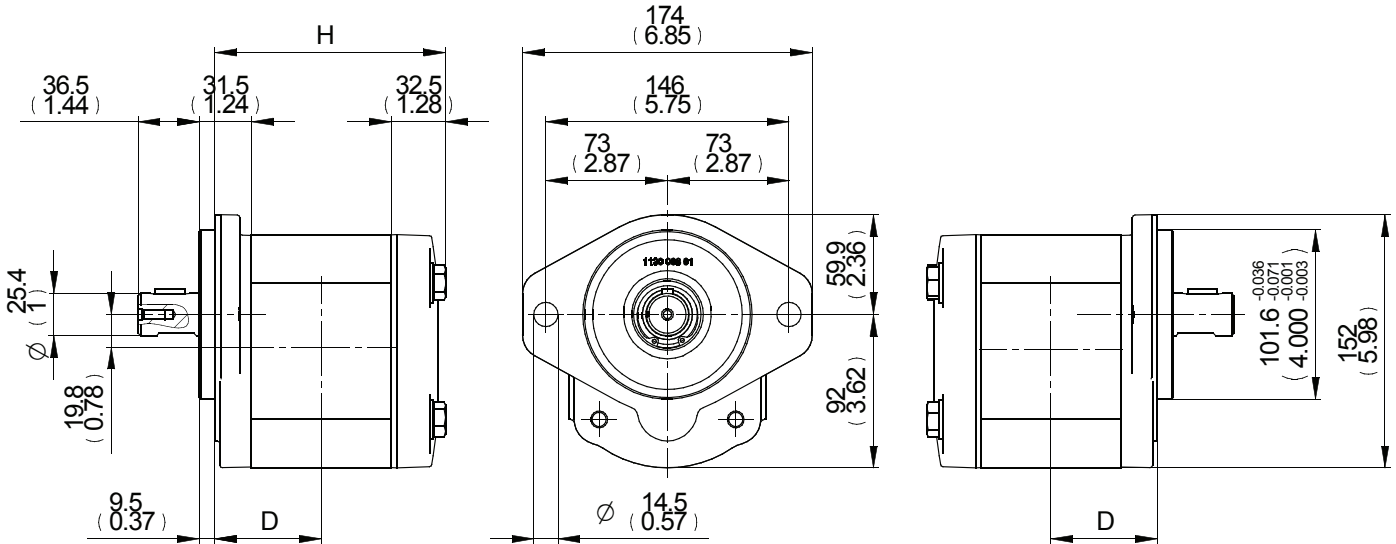


TYPE	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13	1-1/16 12 UN	19 0,75	21 0,83	41 1,61	3,3 0,13
From 46 to 75	1-5/8 12 UN	19 0,75	27 1,06	58 2,28	3,3 0,13	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13

DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
cm ³ /rev	cu.in./rev	mm	in	mm	in			
21	20,6	1,26	59	2,32	128,5	5,06	6130 1261 1	6130 1261 2
27	27	1,65	61,5	2,42	133,5	5,26	6130 1262 1	6130 1262 2
33	33,5	2,04	64	2,52	138,5	5,45	6130 1263 1	6130 1263 2
38	38,7	2,36	66	2,60	142,5	5,61	6130 1264 1	6130 1264 2
46	46,9	2,86	74	2,91	158,5	6,24	6130 1265 1	6130 1265 2
55	54,1	3,30	77	3,03	164,5	6,48	6130 1266 1	6130 1266 2
65	63,1	3,85	80,5	3,17	171,5	6,75	6130 1267 1	6130 1267 2
75	73,4	4,48	84	3,31	178,5	7,03	6130 1268 1	6130 1268 2



R88S3 - Clockwise and anti-clockwise rotation codes

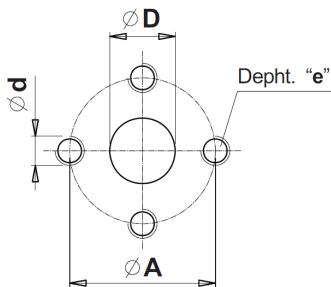
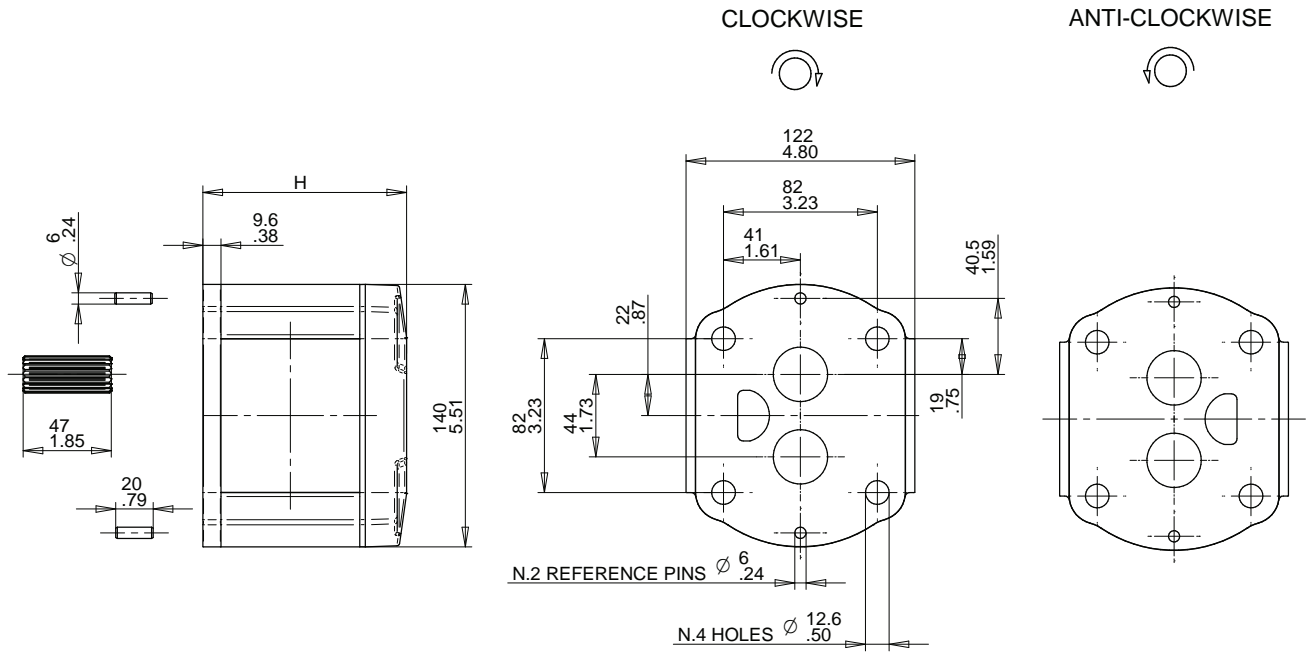


TYPE	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13	1-1/16 12 UN	19 0,75	21 0,83	41 1,61	3,3 0,13
From 46 to 75	1-5/8 12 UN	19 0,75	27 1,06	58 2,28	3,3 0,13	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13

DISPLACEMENT		DIMENSIONS					ANTI-CLOCKWISE	CLOCKWISE
		D		H				
		mm	in	mm	in			
21	20,6	59	2,32	128,5	5,06	6130 1281 1	6130 1281 2	
27	27	61,5	2,42	133,5	5,26	6130 1282 1	6130 1282 2	
33	33,5	64	2,52	138,5	5,45	6130 1283 1	6130 1283 2	
38	38,7	66	2,60	142,5	5,61	6130 1284 1	6130 1284 2	
46	46,9	74	2,91	158,5	6,24	6130 1285 1	6130 1285 2	
55	54,1	77	3,03	164,5	6,48	6130 1286 1	6130 1286 2	
65	63,1	80,5	3,17	171,5	6,75	6130 1287 1	6130 1287 2	
75	73,4	84	3,31	178,5	7,03	6130 1288 1	6130 1288 2	



P65R - Clockwise and anti-clockwise rotation codes

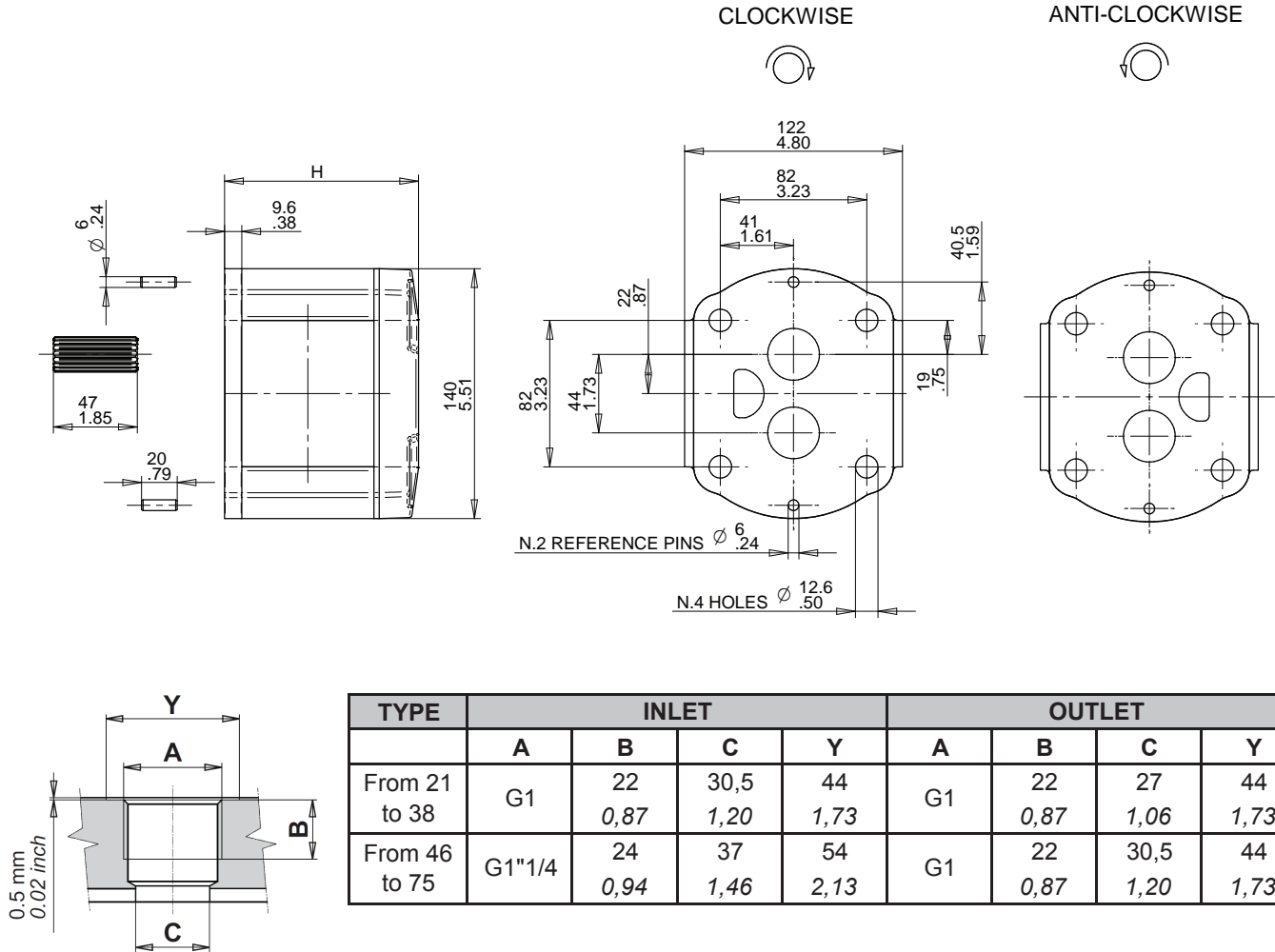


TYPE	INLET				OUTLET			
	ϕD	ϕA	d	e	ϕD	ϕA	d	e
From 21 to 55	27 1,06	51 2,01	M10	16 0,63	16 0,63	40 1,57	M8	16 0,63
From 65 to 75	33 1,30	62 2,44	M12	16 0,63	21 0,83	51 2,01	M10	16 0,63

	DISPLACEMENT		DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
	cm ³ /rev	cu.in./rev	mm	in	mm	in		
21	20,6	1,26	46,6	1,83	116,1	4,57	6130 300 01	6130 300 02
27	27	1,65	49,1	1,93	121,1	4,77	6130 300 11	6130 300 12
33	33,5	2,04	51,6	2,03	126,1	4,96	6130 300 21	6130 300 22
38	38,7	2,36	53,6	2,11	130,1	5,12	6130 300 31	6130 300 32
46	46,9	2,86	61,6	2,43	146,1	5,75	6130 300 41	6130 300 42
55	54,1	3,30	64,6	2,54	152,1	5,99	6130 300 51	6130 300 52
65	63,1	3,85	68,1	2,68	159,1	6,26	6130 300 61	6130 300 62
75	73,4	4,48	71,6	2,82	166,1	6,54	6130 300 71	6130 300 72



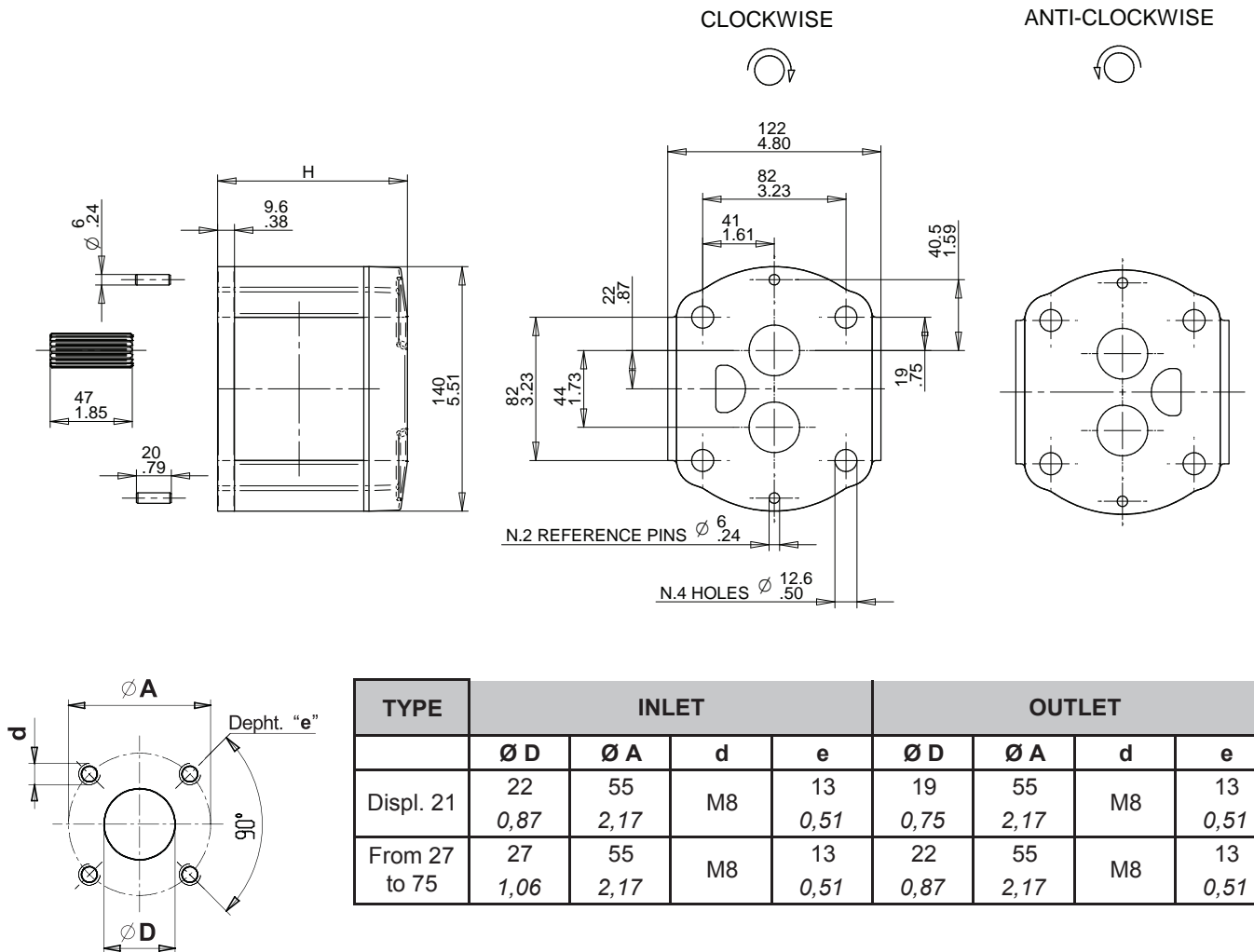
G65R - Clockwise and anti-clockwise rotation codes



	DISPLACEMENT		DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
	cm ³ /rev	cu.in./rev	mm	in	mm	in		
21	20,6	1,26	46,6	1,83	116,1	4,57	6130 310 01	6130 310 02
27	27	1,65	49,1	1,93	121,1	4,77	6130 310 11	6130 310 12
33	33,5	2,04	51,6	2,03	126,1	4,96	6130 310 21	6130 310 22
38	38,7	2,36	53,6	2,11	130,1	5,12	6130 310 31	6130 310 32
46	46,9	2,86	61,6	2,43	146,1	5,75	6130 310 41	6130 310 42
55	54,1	3,30	64,6	2,54	152,1	5,99	6130 310 51	6130 310 52
65	63,1	3,85	68,1	2,68	159,1	6,26	6130 310 61	6130 310 62
75	73,4	4,48	71,6	2,82	166,1	6,54	6130 310 71	6130 310 72



B65R - Clockwise and anti-clockwise rotation codes

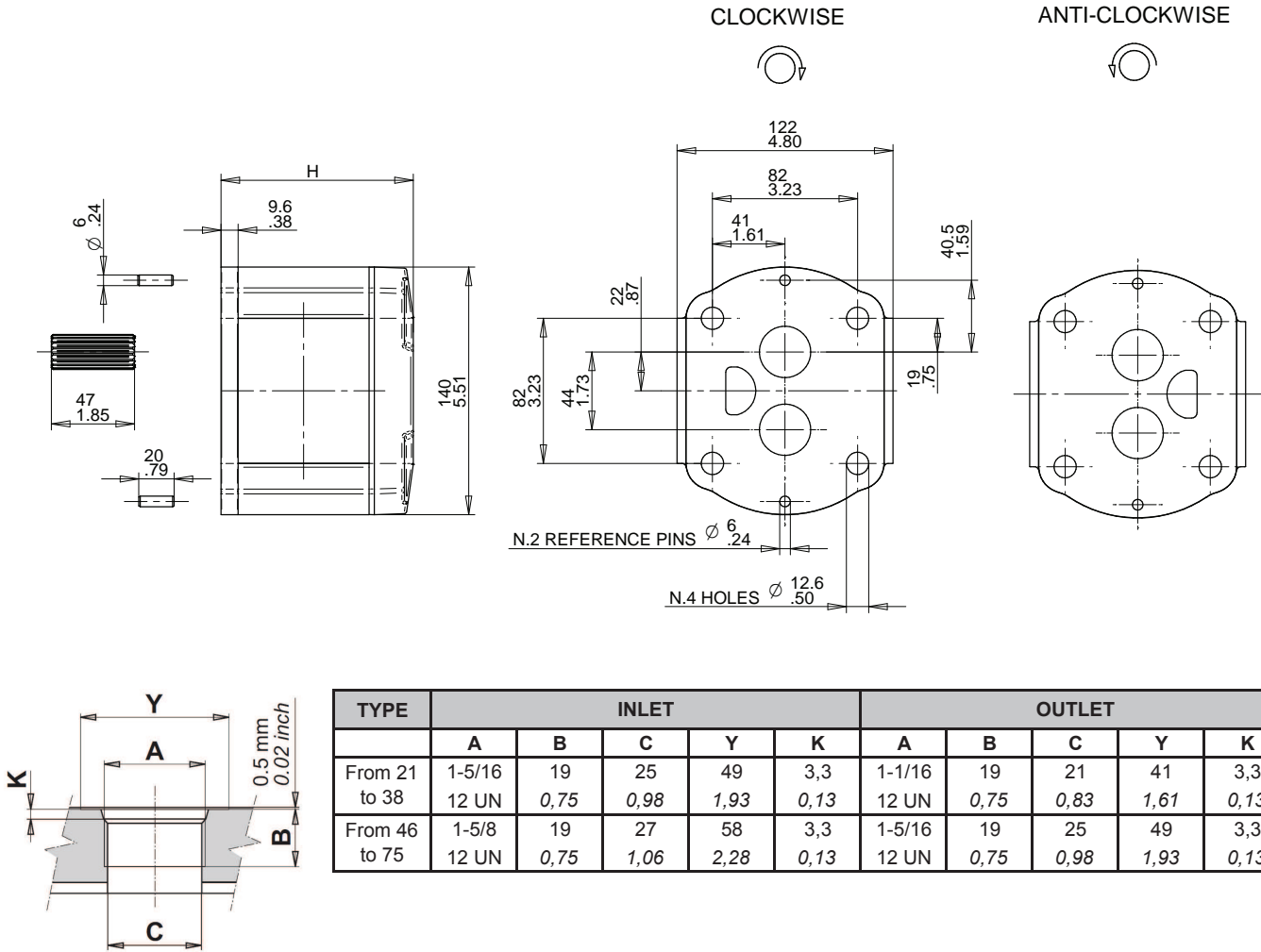


TYPE	INLET				OUTLET			
	Ø D	Ø A	d	e	Ø D	Ø A	d	e
Displ. 21	22 0,87	55 2,17	M8	13 0,51	19 0,75	55 2,17	M8	13 0,51
From 27 to 75	27 1,06	55 2,17	M8	13 0,51	22 0,87	55 2,17	M8	13 0,51

	DISPLACEMENT		DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
	cm ³ /rev	cu.in./rev	mm	in	mm	in		
21	20,6	1,26	46,6	1,83	116,1	4,57	6130 320 01	6130 320 02
27	27	1,65	49,1	1,93	121,1	4,77	6130 320 11	6130 320 12
33	33,5	2,04	51,6	2,03	126,1	4,96	6130 320 21	6130 320 22
38	38,7	2,36	53,6	2,11	130,1	5,12	6130 320 31	6130 320 32
46	46,9	2,86	61,6	2,43	146,1	5,75	6130 320 41	6130 320 42
55	54,1	3,30	64,6	2,54	152,1	5,99	6130 320 51	6130 320 52
65	63,1	3,85	68,1	2,68	159,1	6,26	6130 320 61	6130 320 62
75	73,4	4,48	71,6	2,82	166,1	6,54	6130 320 71	6130 320 72



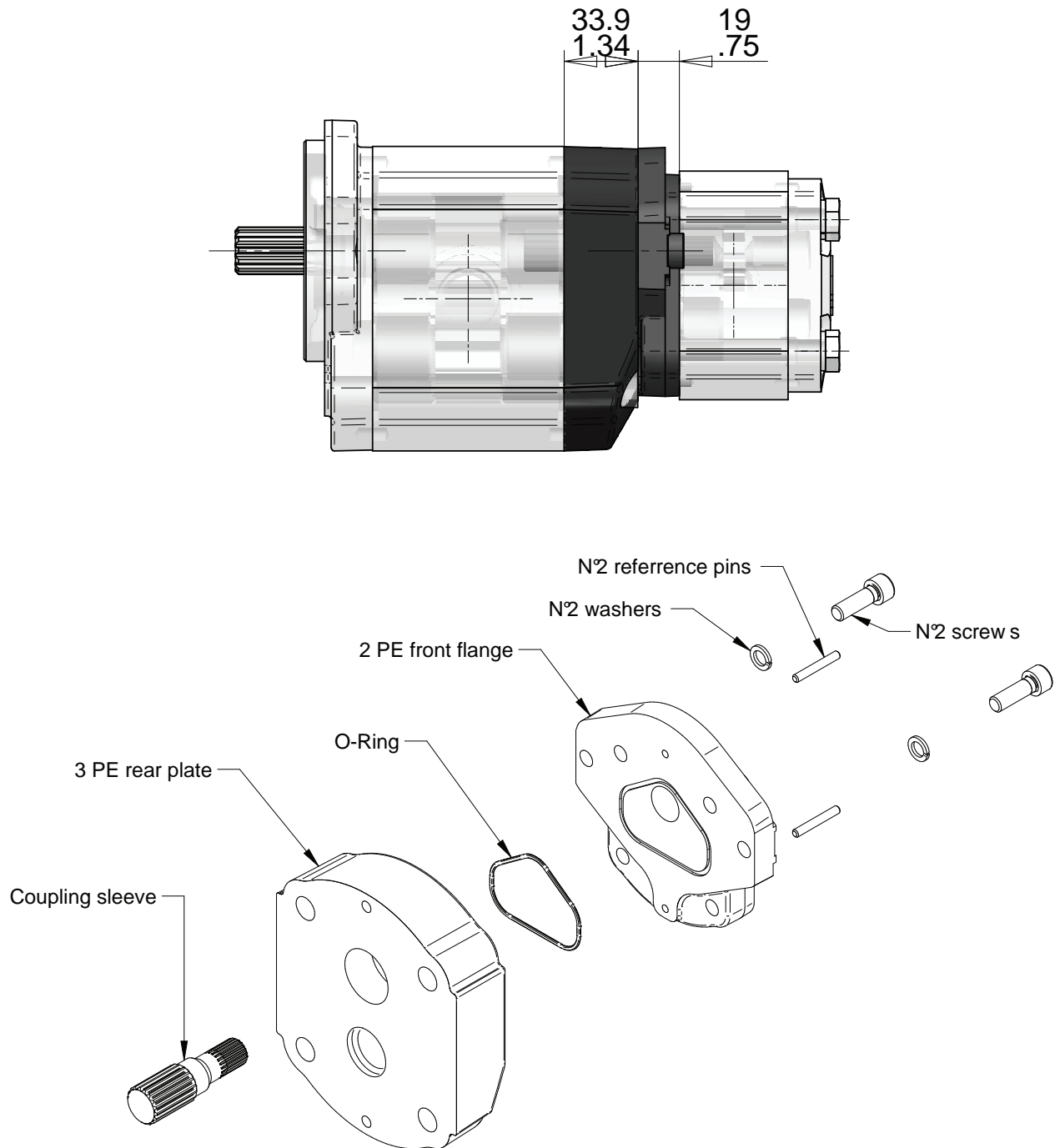
R65R - Clockwise and anti-clockwise rotation codes



	DISPLACEMENT		DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
	cm ³ /rev	cu.in./rev	mm	in	mm	in		
21	20,6	1,26	46,6	1,83	116,1	4,57	6130 330 01	6130 330 02
27	27	1,65	49,1	1,93	121,1	4,77	6130 330 11	6130 330 12
33	33,5	2,04	51,6	2,03	126,1	4,96	6130 330 21	6130 330 22
38	38,7	2,36	53,6	2,11	130,1	5,12	6130 330 31	6130 330 32
46	46,9	2,86	61,6	2,43	146,1	5,75	6130 330 41	6130 330 42
55	54,1	3,30	64,6	2,54	152,1	5,99	6130 330 51	6130 330 52
65	63,1	3,85	68,1	2,68	159,1	6,26	6130 330 61	6130 330 62
75	73,4	4,48	71,6	2,82	166,1	6,54	6130 330 71	6130 330 72



R130 9001 0 - Assembling kit 3PE/2PE



3130 1490 1 - Tie-rod code and cutting length instructions (3PE DOUBLE)

(an automated excel file is available for these calculations)

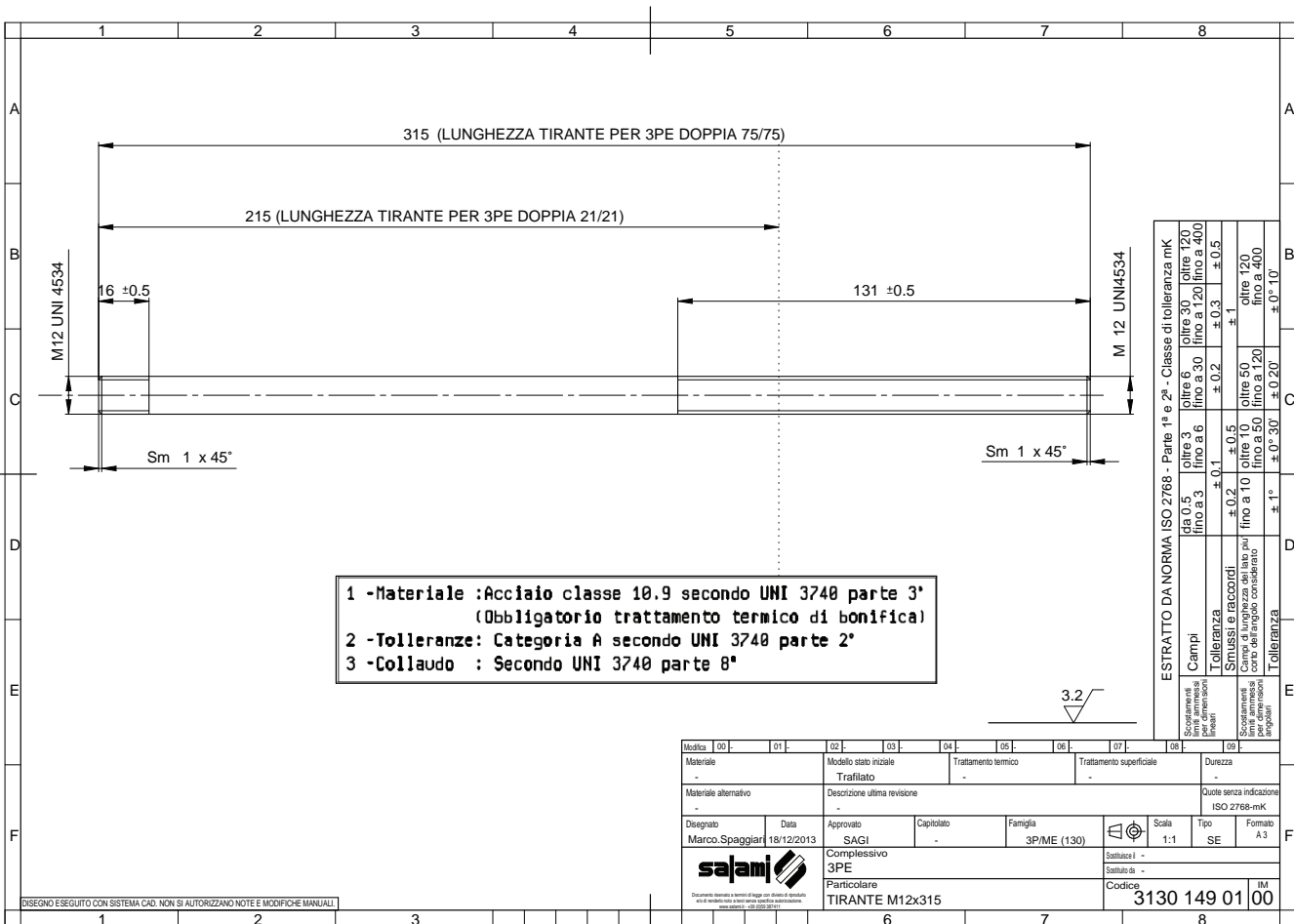
Tabella dati per calcolo lunghezze tiranti 3PE doppia

Table for the double 3PE tie-rod calculation

TYPE		21	27	33	38	46	55	65	75		
(A)	Dimension A lenght of the body (from the technical catalogue)	mm in	74 2,91	79 3,11	84 3,31	88 3,46	104 4,09	110 4,33	117 4,61	124 4,88	
(1)	Spessore filettato sulle flange Thickness of the flange threaded	mm in				19 0,75					
(2)	Spessore coperchio std. Thickness of the std. cover	mm in				22,5 0,89					
(3)	Spessore dado M12 UNI5588 Thickness of the nut M12 UNI5588	mm in				10 0,39					
(4)	Spessore rondella UNI6592 Thickness of the washer UNI6592	mm in				2,5 0,10					
(5)	Spessore piastra 3PE Thickness of the plate 3PE	mm in				9,6 0,38					
(6)	Lunghezza radice del tirante(fissa) Root thread end of tie-rod(fixed)	mm in				15 0,59					
(7)	Lunghezza fissa da aggiungere Fixed adding lenght on tie-rod	mm in				7 0,28					
			A 1 ST	A 2 ND	(2)	(3)	(4)	(5)	(6)	(7)	Tot.
Calcolo lunghezza tirante 3PE Tie rod length calculation 3PE		mm in	124 4,88	124 4,88	22,5 0,89	10 0,39	2,5 0,10	9,6 0,38	15 0,59	7 0,28	314,6 12,39

Esempi di lunghezze tiranti/Examples of tie-rod lengths

Doppia 3PE entrambe le cilindrate 21 cc/Double 3PE both displ. 21 cc - L tiranti = 214,6 mm
Doppia 3PE entrambe le cilindrate 75 cc/Double 3PE both displ. 75 cc - L tiranti = 314,6 mm



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