

# 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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#### E0.130.0114.14.00/IM00

The data on this catalogue refer to the standard product. The policy of Salami consists 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.





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# 3PE - 3ME

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## Aluminium gear pumps and motors

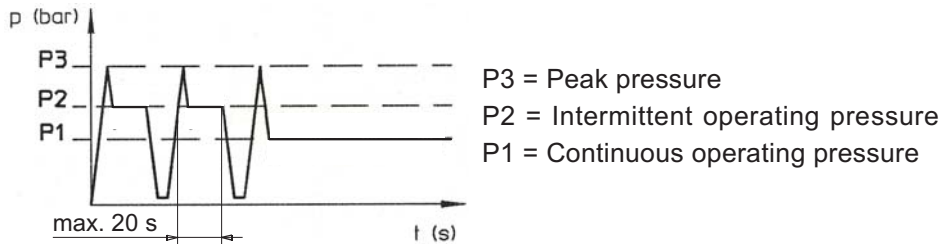
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### Section A - Technical catalogue

E0.130.0913.02.00-IM00



## DEFINITION OF PRESSURES



## 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 <sup>1</sup> .....	12 mm <sup>2</sup> / sec
- Max starting viscosity .....	800 mm <sup>2</sup> / sec
- Suggested fluid viscosity range .....	17 - 65 mm <sup>2</sup> / 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.

<sup>1</sup> - With reduction 80% of working pressure and at minimum speed.

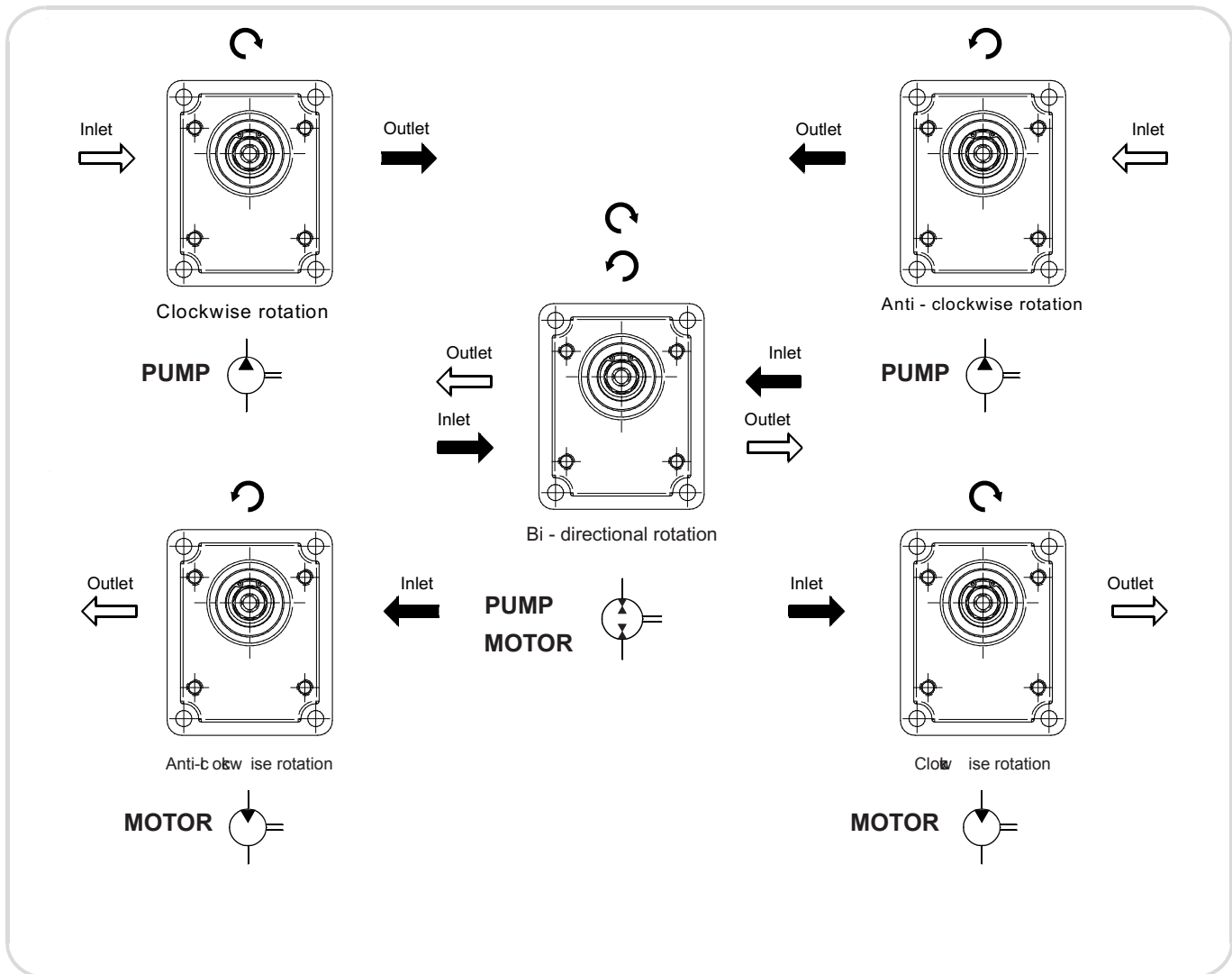
**Suggestion:**

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

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

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

**LEGENDA**

$\Delta p$  = Working pressure (bar)

q = Displacement (cm<sup>3</sup>/rev)

n = Speed (min<sup>-1</sup>)

$\eta_m$  = Mechanical eff. (0.92)

$\eta_v$  = Volumetric eff. (0.95)

**COMMON FORMULAS FOR MOTORS**

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

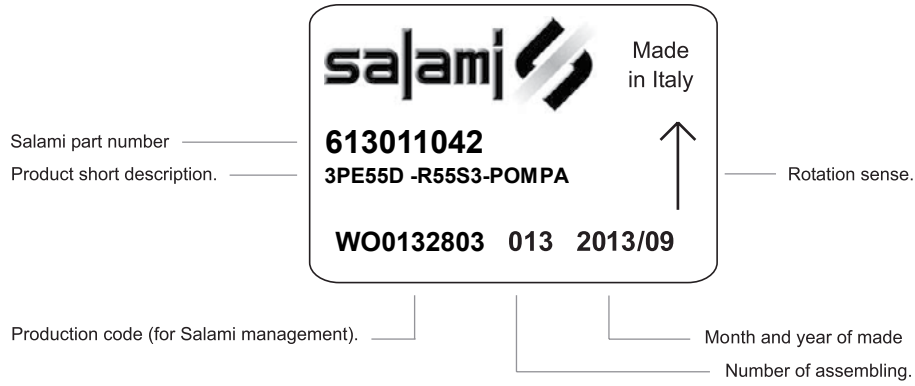
Output torque:  $M = \frac{V \cdot \Delta p \cdot \eta_m}{20 \cdot \pi}$  Nm

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

- V = Displacement cm<sup>3</sup>/rev [in<sup>3</sup>/rev]
- P<sub>out</sub> = Outlet pressure bar [psi]
- P<sub>in</sub> = Inlet pressure bar [psi]
- $\Delta P$  = P<sub>out</sub> - P<sub>in</sub> (system pressure) bar [psi]
- n = Speed min<sup>-1</sup> (rpm)
- $\eta_v$  = Volumetric efficiency
- $\eta_m$  = Mechanical efficiency
- $\eta_t$  = Overall efficiency ( $\eta_v \cdot \eta_m$ )

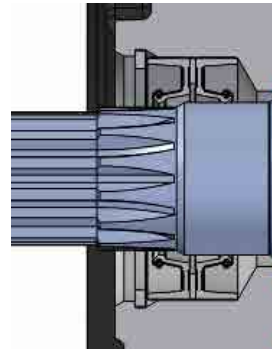


**DESCRIPTION OF THE NEW PRODUCT IDENTIFICATION LABEL**



**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

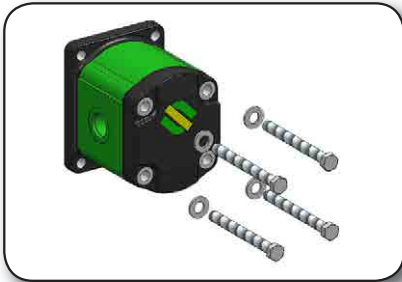




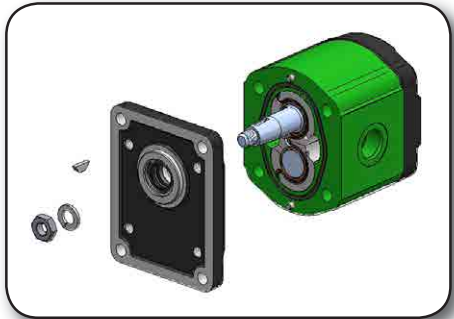
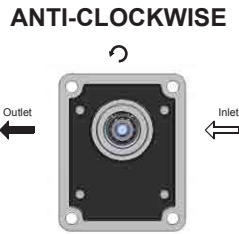
**GEAR PUMPS E " SERIES  
GEAR MOTORS E " SERIES**

**3PE - 3ME**

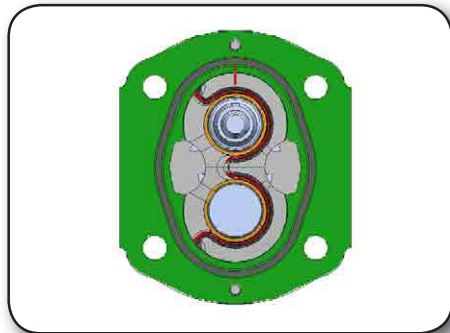
ROTATION CHANGE INSTRUCTION



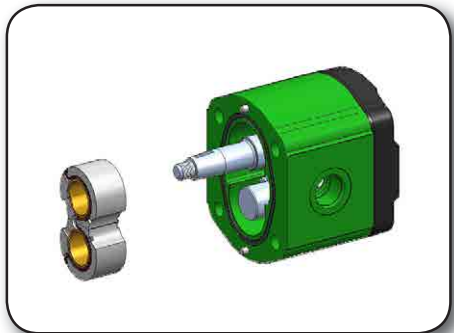
Step 1:  
unscrew and take off the 4 assembling bolts.



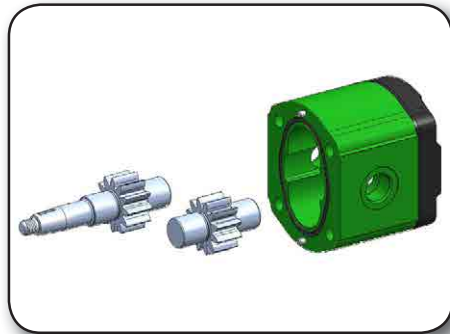
Step 2:  
take off the front flange, complete of shaft seals.



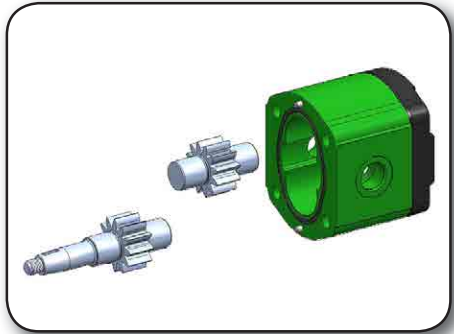
Step 3:  
take note of the assembling position of the bronze thrust plate. If necessary, you can put a mark which helps you remembering the position of the plate related to the body. This is very important, because at the end you must re-assemble it in this way.



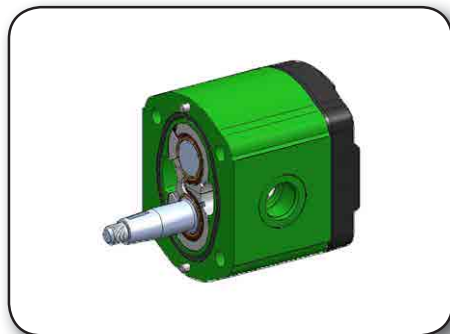
Step 4:  
take off the thrust plate.



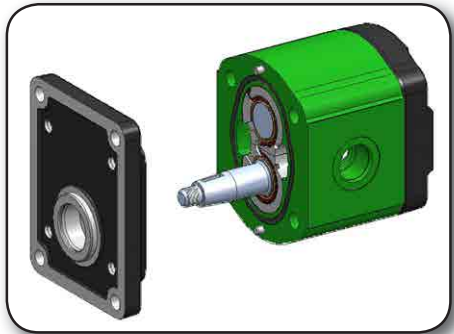
Step 5:  
take off both the shafts, drive and driven.



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



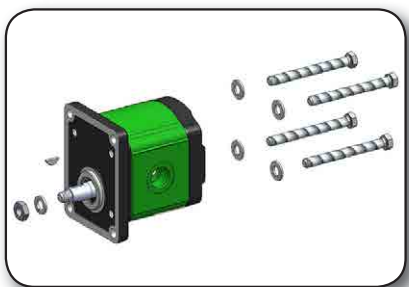
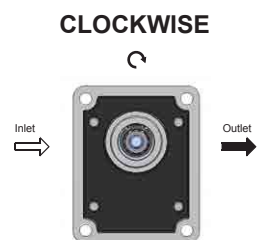
Step 7:  
re-assemble the thrust plate in the same position it was at the beginning. Reference step 3.



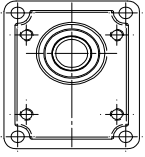
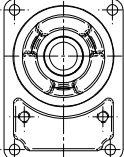
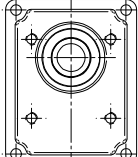
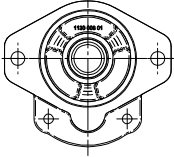





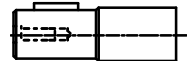
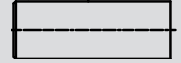
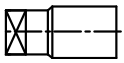
Step 8:  
reverse and re-assemble the front flange.

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

Step 9:  
re-place and screw the bolts, taking care of the torque 180 Nm.



## SUGGESTED COMBINATIONS OF FLANGES AND SHAFTS AVAILABLE

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

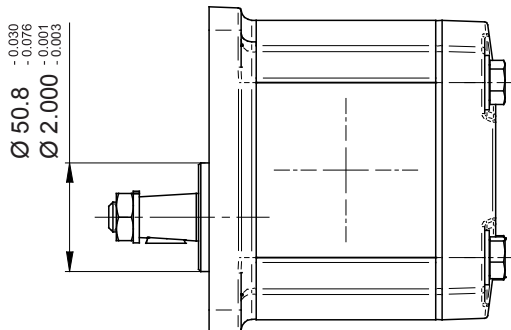
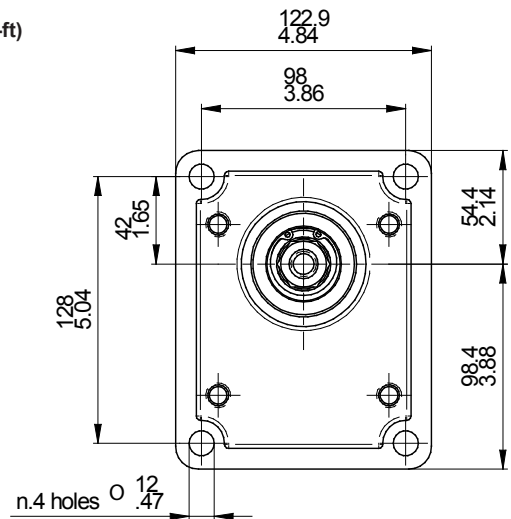
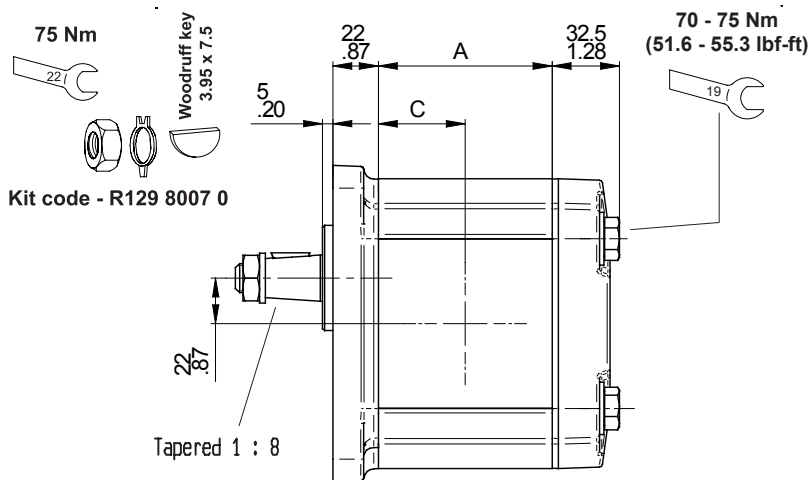
TYPE		21*	27	33	38	46	55	65	75*
Displacements	cm <sup>3</sup> /rev	20,6	27	33,5	38,7	46,9	54,1	63,1	73,4
	cu.in./rev	1,26	1,65	2,04	2,36	2,86	3,3	3,85	4,48
Dimension A	mm	74	79	84	88	104	110	117	124
	in	2,91	3,11	3,31	3,46	4,09	4,33	4,61	4,88
Dimension C	mm	37	39,5	42	44	52	55	58,5	62
	in	1,46	1,56	1,65	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%.

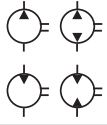
Anti-clockwise rotation pump.  
In case of use as a motor, the same orientation

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





## GEAR PUMPS AND MOTORS

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

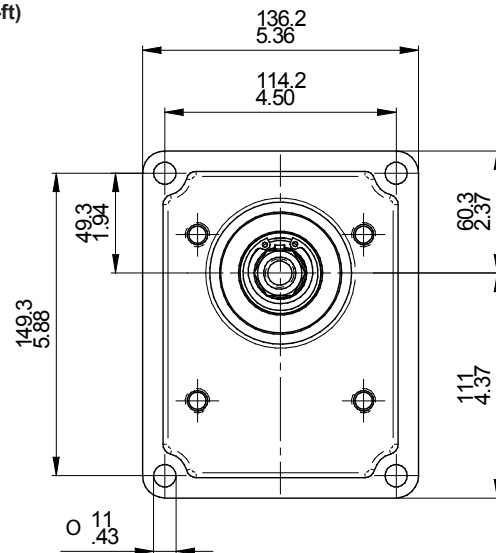
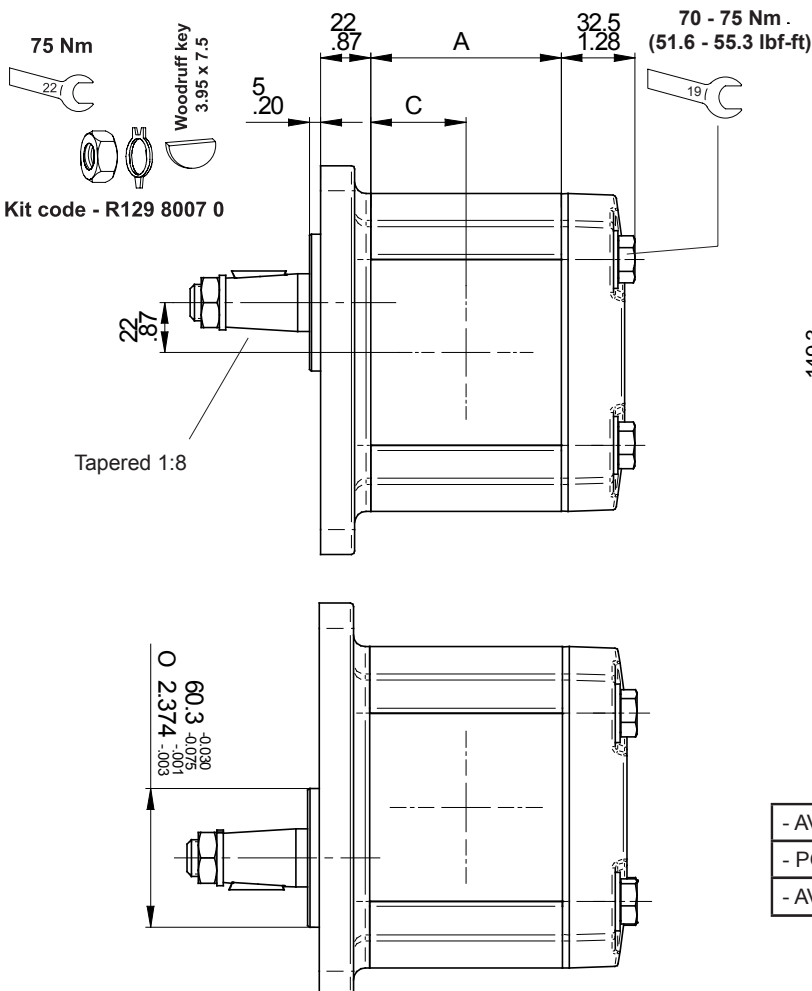
Performance carried out with oil viscosity at 16 cSt and oil temperature at 60°C.

TYPE		46	55	65	75*
Displacements	cm <sup>3</sup> /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%.

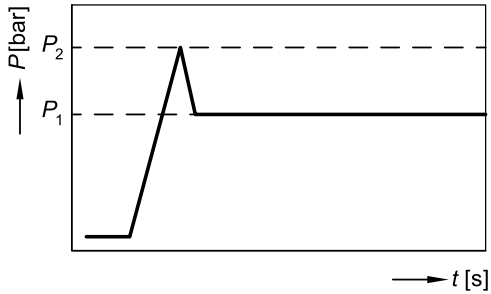
Anti-clockwise rotation pump.  
In case of use as a motor, the same orientation is a clockwise motor.



- 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

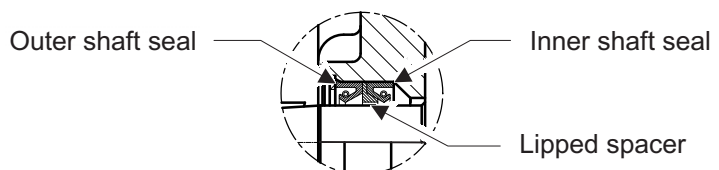
3ME		21*	27	33	38	46	55	65	75*
Max. continuous pressure $P_1$	bar	250			240	250	220	200	180
	psi	3625			3480	3625	3190	2900	2610
Max. starting pressure $P_1$	bar	300			275	280	250	240	220
	psi	4350			3987,5	4060	3625	3480	3190
Min. rotational speed	rpm	600			500		400		
Max. rotational speed $P_1$		3000			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.

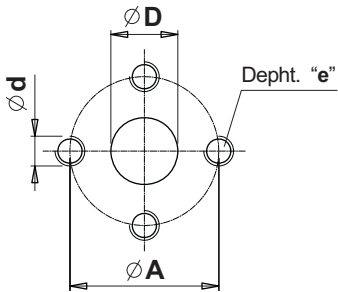
TECHNICAL DATA		
- Minimum operating fluid viscosity	12 mm <sup>2</sup> / sec	<p>*) During the application of control systems or devices with critical counter-reaction, such as steering and brake valves, the type of filtration selected must be adapted to the sensitivity of these devices/systems. Safety requirements pertaining to the whole systems are to be observed.                      In the case of applications with frequent load cycles please consult us.</p>
- Permitted viscosity range	12 - 800 mm <sup>2</sup> / sec	
- Recommended viscosity range	20 - 80 mm <sup>2</sup> / sec	
- Permitted viscosity for starting	2000 mm <sup>2</sup> / 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.		

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

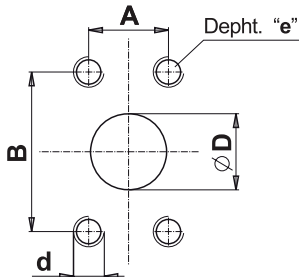


Type	OUTLET				INLET			
	INLET				OUTLET			
	ØD	ØA	d	e	ØD	ØA	d	e
From 21 to 55	27 (1.07")	51 (2.01")	M10	16 (0.63")	16 (0.63")	40 (1.57")	M8	16 (0.63")
From 65 to 75	33 (1.3")	62 (2.44")	M12	16 (0.63")	21 (0.83")	51 (2.01")	M10	16 (0.63")

Type	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")

code P

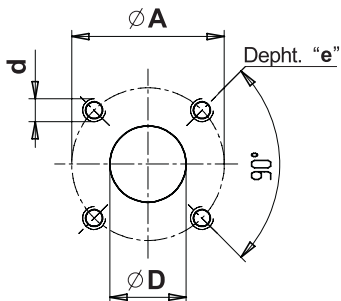
code S



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

code W

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



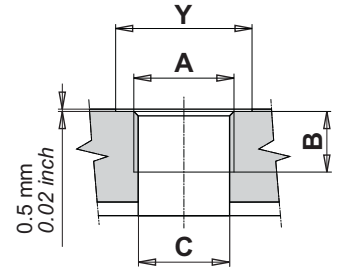
TYPE	OUTLET				INLET			
	INLET				OUTLET			
	Ø D	Ø A	d	e	Ø D	Ø A	d	e
Displ. 21	22	55	M8	13	19	55	M8	13
	0,87	2,17		0,51	0,75	2,17		0,51
From 27 to 75	27	55	M8	13	22	55	M8	13
	1,06	2,17		0,51	0,87	2,17		0,51

code B



**THREADED PORTS**

Type	OUTLET				INLET			
	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")

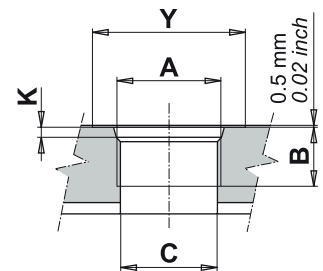


Type	INLET				OUTLET			
	A	B	C	Y	A	B	C	Y
From 21 to 75	G1	22 (0.87")	30.5 (1.2")	44 (1.73")	G1	22 (0.87")	30.5 (1.2")	44 (1.73")

British standard pipe parallel (BSPP)

**code G**

Type	OUTLET					INLET				
	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")



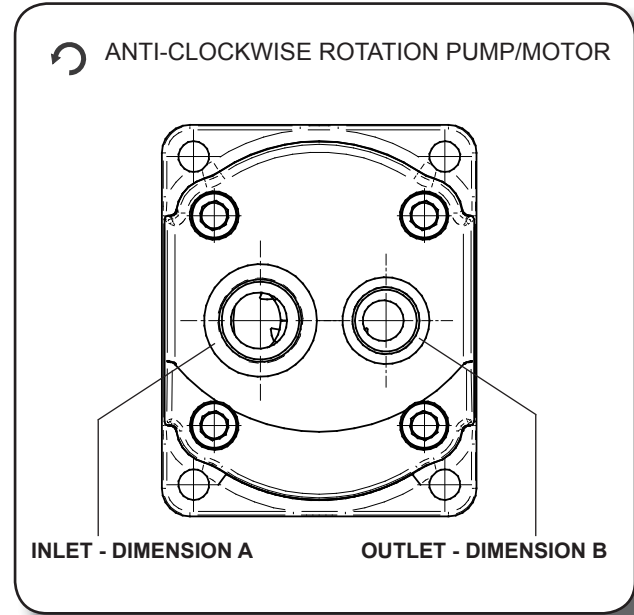
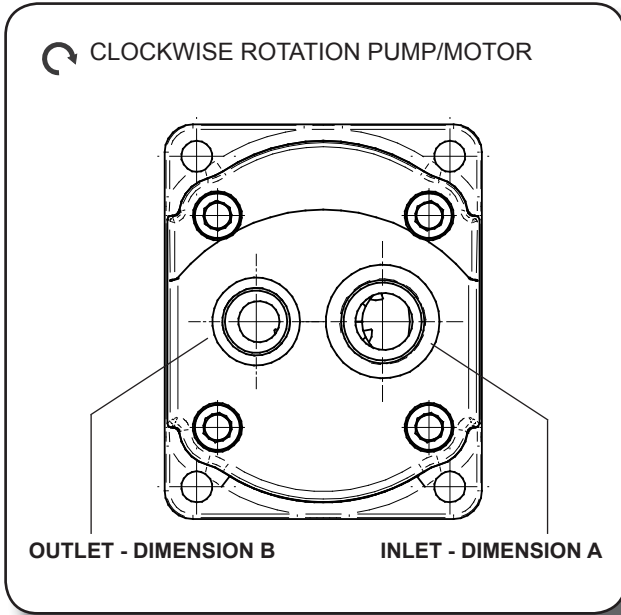
Type	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-1/16 12 UN	19 (0.74")	24.7 (0.97")	41 (1.16")	3.3 (0.12")	1-1/16 12 UN	19 (0.74")	24.7 (0.97")	41 (1.16")	3.3 (0.12")
From 46 to 75	1-5/16 12 UN	19 (0.74")	31 (1.22")	49 (1.93")	3.3 (0.12")	1-5/16 12 UN	19 (0.74")	31 (1.22")	49 (1.93")	3.3 (0.12")

SAE threaded (ODT)

**code R**



**RELEASE WITH REAR PORTS**

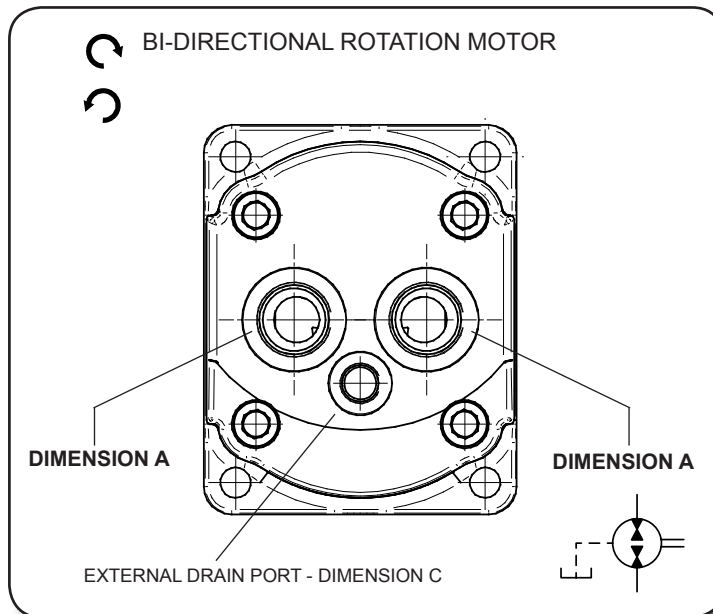


IN CASE OF USE AS A UNIDIRECTIONAL MOTOR:  
 • ANTI-CLOCKWISE PUMP BECOMES A CLOCKWISE MOTOR  
 • CLOCKWISE PUMP BECOMES AN ANTICLOCKWISE MOTOR  
 THE POSITION OF THE PORTS IS THE SAME BUT THE INLET BE-  
 COMES OUTLET AND VICEVERSA

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.

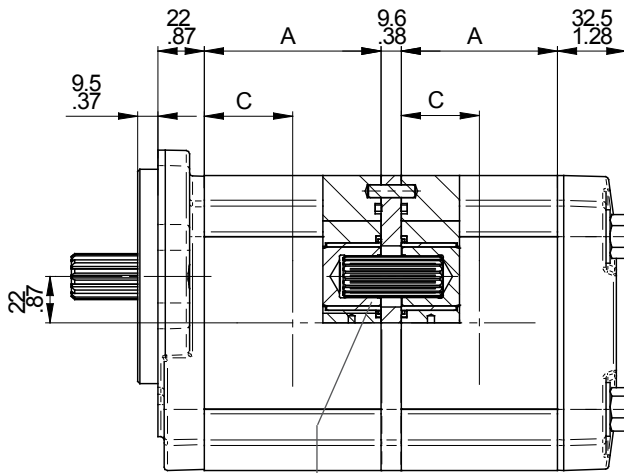


**Showed release with flange S3 and shaft 55**

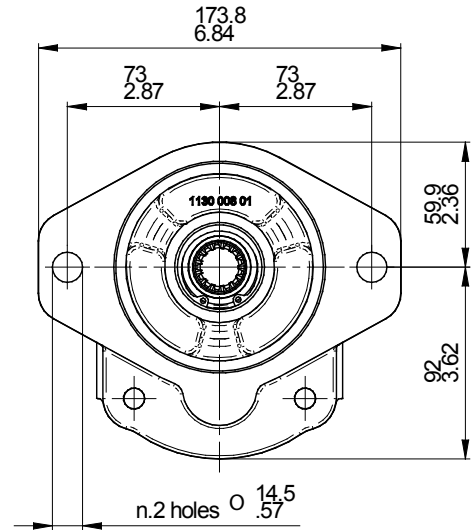
Performance carried out with oil viscosity at 16 cSt and oil temperature at 60°C.

TYPE		21*	27	33	38	46	55	65	75*
Displacements	cm <sup>3</sup> /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

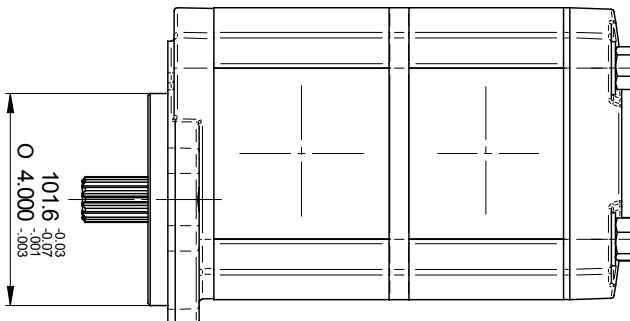
\*For working conditions, using exclusively pressure P1, the value of max. speed must be reduced of 10%.



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



Max. torque 280 Nm  
(2480 lbf in)

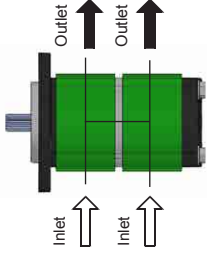


- PORT TYPES AND SIZES ON PAGE A9 - A10
- COMMON SUCTION PORT SIZE ON PAGE A15
- TO OBTAIN COMPLETE WEIGHT OF MULTIPLE PUMP YOU HAVE TO ADD THE SINGLE STAGE WEIGHT, YOU HAVE IN THE TABLE ABOVE, PLUS:
- WEIGHT OF THE FLANGE = 2.4 kg (5.3 lbs)
- WEIGHT OF THE MIDDLE PLATE = 0.9 kg (2 lbs)  
THE MIDDLE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

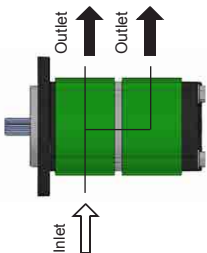
In case of common suction configuration, we have to take care of the area of the common suction port to avoid cavitation. The suggested speed of the oil at suction line is 1.5 m/sec, using this table and according of which is the total flow which goes into the pump, you can obtain the value of the proper diameter (mm) and proper area (cm<sup>2</sup>).



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 (cm<sup>2</sup>).

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 (cm<sup>2</sup>).

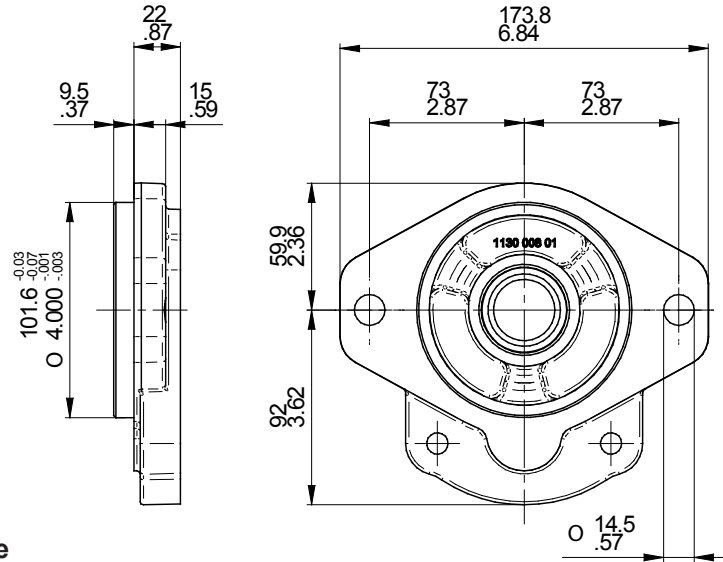
**When needed, special bodies with an enlarged inlet port are available.**



SPEED m/sec	FLOW - l/min																				
	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	82.4	84.9	87.4	89.8	92.1	
	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
		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
	1.3	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
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	
1.5	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	
	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	
1.8	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	
	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	
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	
	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	
2.5	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	
	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	
3	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	
	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	
3.5	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	
	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	
4	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	
	7.3	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	
4.5	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	
	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	
5	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	
	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	
5.5	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	
	6.2	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	
6	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	
	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	
6.5	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	
	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	
7	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	
	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	
SPEED m/sec	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	
	PIPE INTERNAL DIAMETER - mm																				
PIPE INTERNAL AREA - cm <sup>2</sup>																					

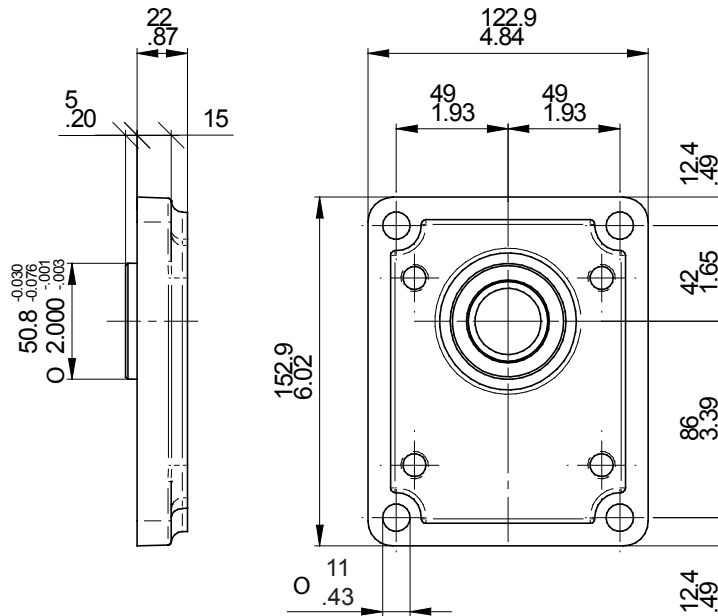


**AVAILABLE FLANGES**



**SAE B mounting flange**

S3	Available assembling shafts			
	Splined	55	56	
Tapered				
Straight	87	88		

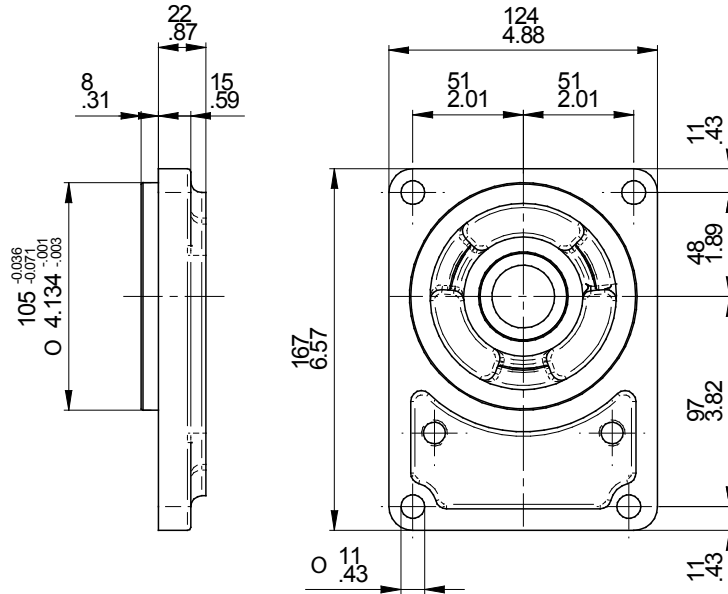


**European standard mounting flange**

P2	Available assembling shafts			
	Splined			
Tapered	35	38		
Straight				

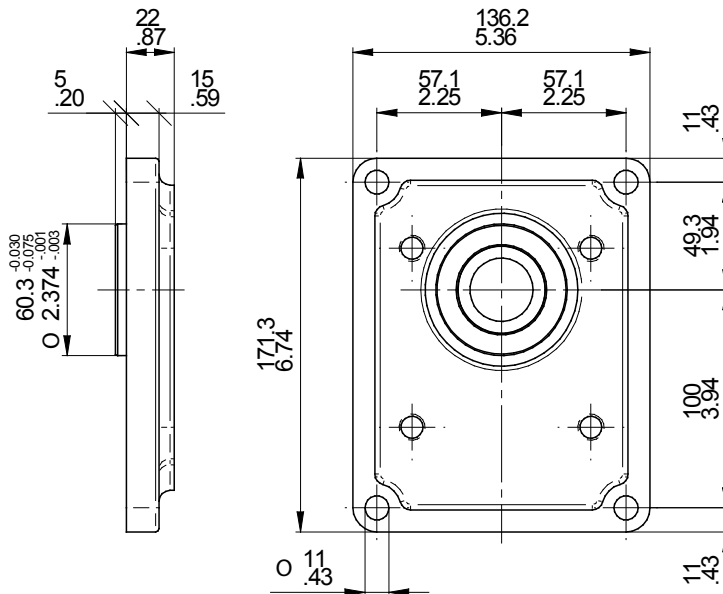


AVAILABLE FLANGES



German standard mounting flange

B0	Available assembling shafts			
Splined				
Tapered	35			
Tang	05			



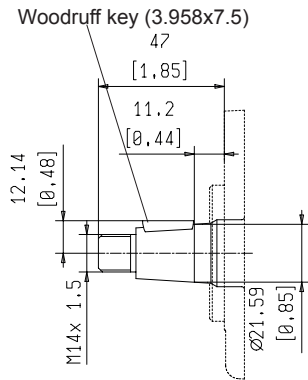
European standard mounting flange - GROUP 3.5 size

P3	Available assembling shafts			
Splined				
Tapered	48			
Straight				



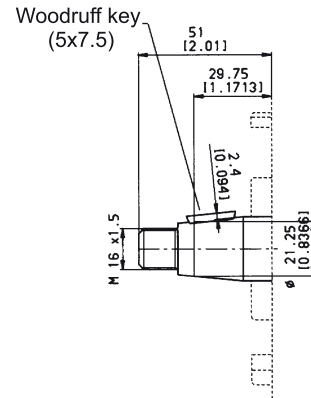
**AVAILABLE SHAFTS**

**EUROPEAN TAPERED 1:8** Code 38



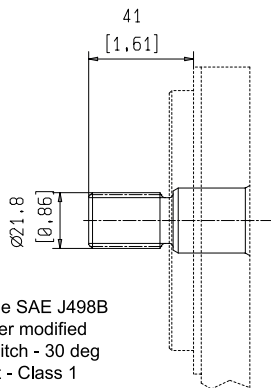
**MAX 250 Nm (2213 lbf in)**

**EUROPEAN TAPERED 1:5** Code 35



**MAX 260 Nm (2300 lbf in)**

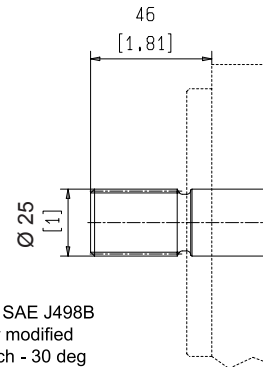
**SAE "B" SPLINE** Code 55



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)**

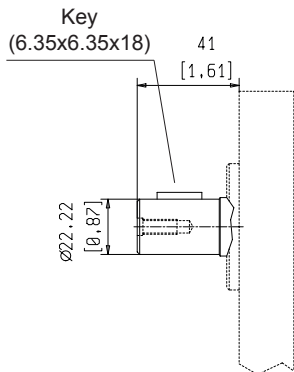
**SAE "BB" SPLINE** Code 56



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

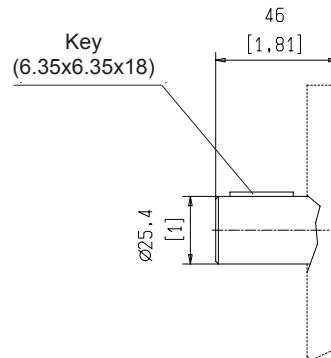
**MAX 480 Nm (4250 lbf in)**

**SAE "B" STRAIGHT** Code 87



**MAX 220 Nm (1950 lbf in)**

**SAE "BB" STRAIGHT** Code 88



**MAX 320 Nm (2830 lbf in)**



## AVAILABLE SHAFTS

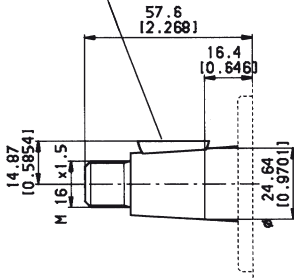
EUROPEAN TAPERED 1:8

Code 48

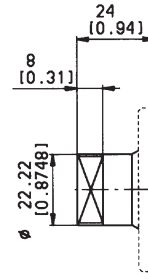
TANG DRIVE FOR ELECTRIC MOTORS

Code 05

Woodruff key (4.752x10)



MAX 350 Nm (3100 lbf in)



MAX 180 Nm (1590 lbf in)

## OUTRIGGER BEARING (for combined loads)

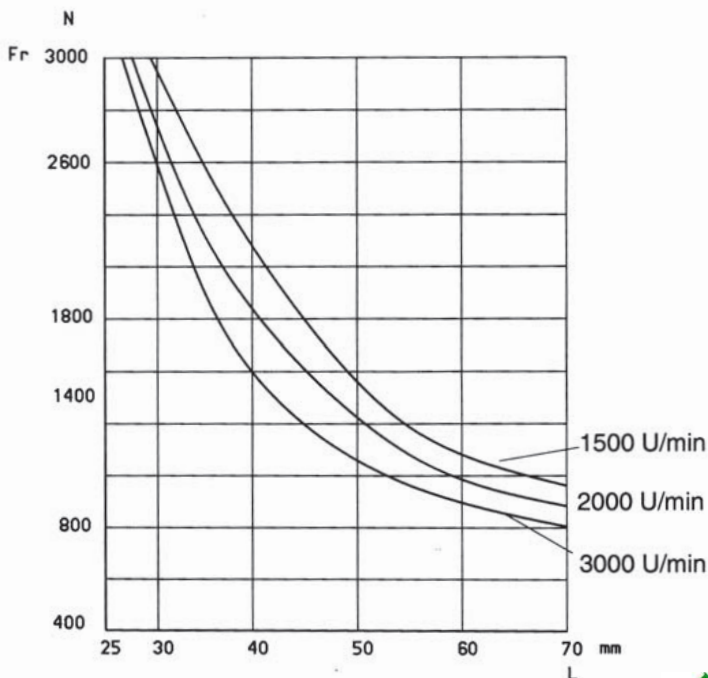
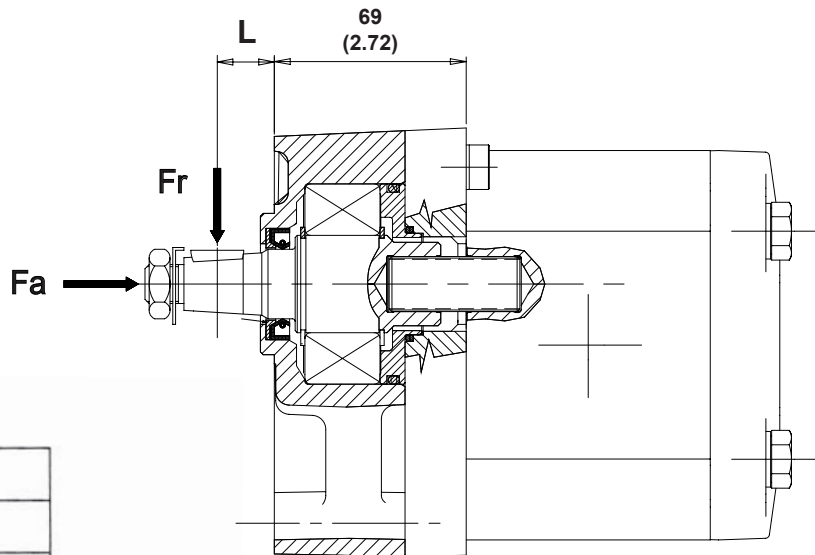
code CP

### 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 (**Fa**) in terms of 15% of the max. radial load (**Fr**).



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

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

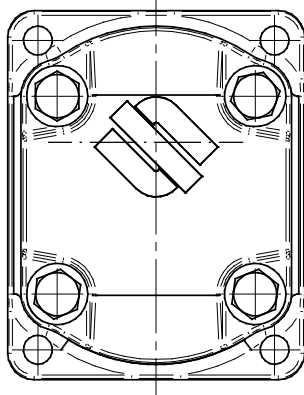
$C_y$  = Displacement pump

$\Delta p$  = Pressure (bar/psi)

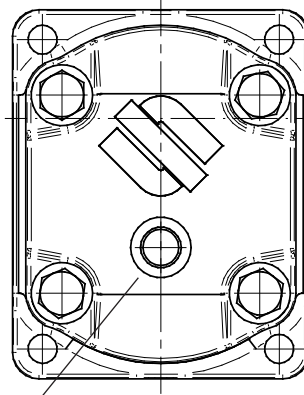


**REAR COVERS**

Cast iron standard cover for unidirectional pumps and motors.



Cast iron standard cover for reversible pumps and motors.



EXTERNAL DRAIN PORT - DIMENSION C

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



## 3PE single pump with 2PE single or multiple

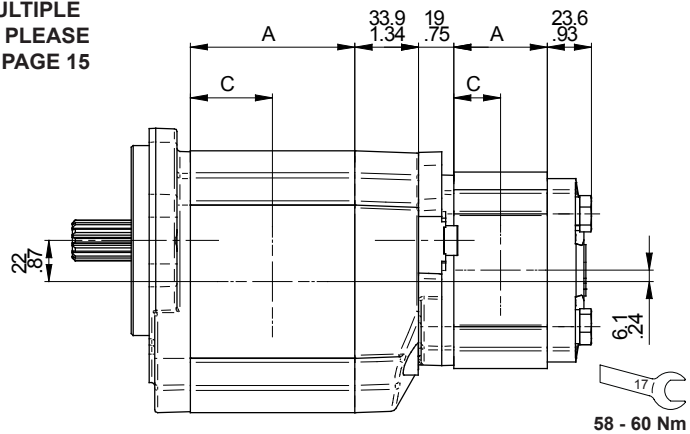


THE 2PE CAN BE ALSO MULTIPLE

Showed release with flange S3 and shaft 56



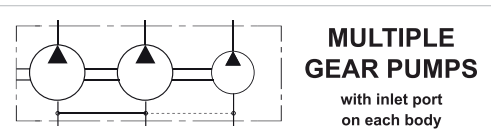
THE 2PE CAN BE ALSO MULTIPLE FOR THE COMMON INLET, PLEASE REFER TO THE TABLE OF PAGE 15



- 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

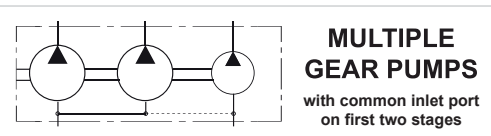
2PE type		3.2*	3.9*	4.5	6.5	8.3	10.5	11.3	12.5	13.8	16	19	22.5	26
Displacement	cm <sup>3</sup> /rev	3.2	3.9	4.6	6.5	8.2	10.6	11.5	12.7	13.8	16.6	19.4	22.9	25.8
	cu.in./rev	0.19	0.24	0.27	0.40	0.50	0.65	0.68	0.77	0.84	1.01	1.15	1.37	1.58
Dimension A	mm		47.1		49.95	52.8	56.3		59.6	63.5	67.5	75.6	81	86.8
	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

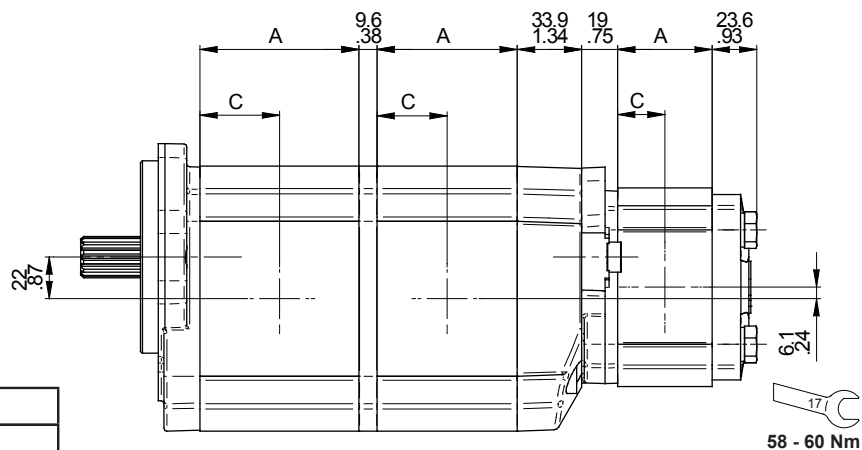


THE 2PE CAN BE ALSO MULTIPLE

Showed 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

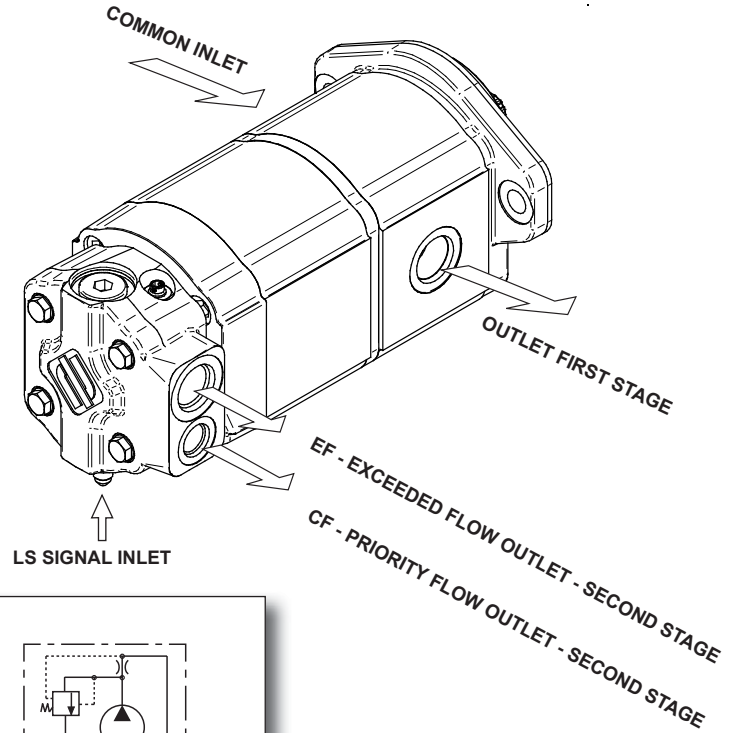
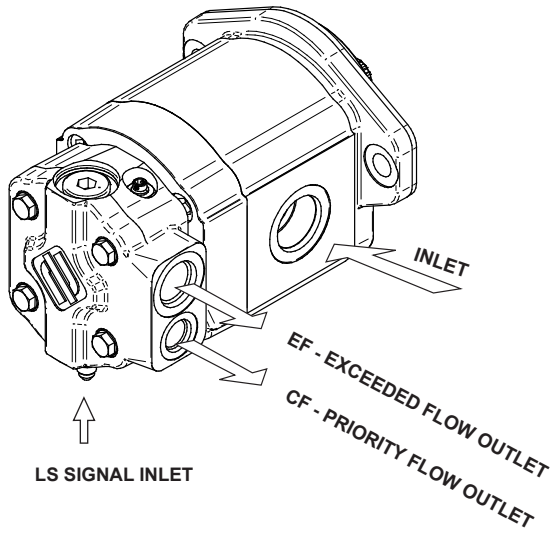


- PORT TYPES AND SIZES ON PAGE 10 - 11
- COMMON SUCTION PORT SIZE ON PAGE 14
- DIMENSION A SEE PAGES 7 OR 13
- DIMENSION C SEE PAGES 7 OR 13
- DIMENSIONS A AND C 2PE, SEE TABLE ABOVE



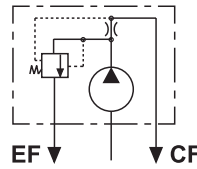


AVAILABLE CONFIGURATIONS WITH PRIORITY FLOW VALVE



**code VP1**

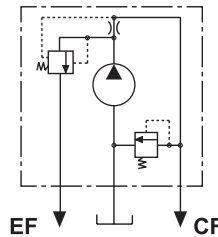
Priority flow valve, excess flow to second actuator.



CF = Priority flow port  
EF = Excess flow port

**code VPS1**

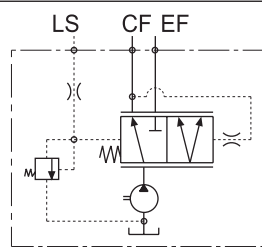
Priority flow valve, excess flow to second actuator with pressure relief valve on priority flow line.



CF = Priority flow port  
EF = Excess flow port

**code VPL1**

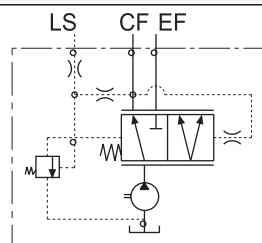
Load sensing priority valve with main relief valve



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

**code VDP1**

Load sensing priority valve with dynamic signal and main relief valve

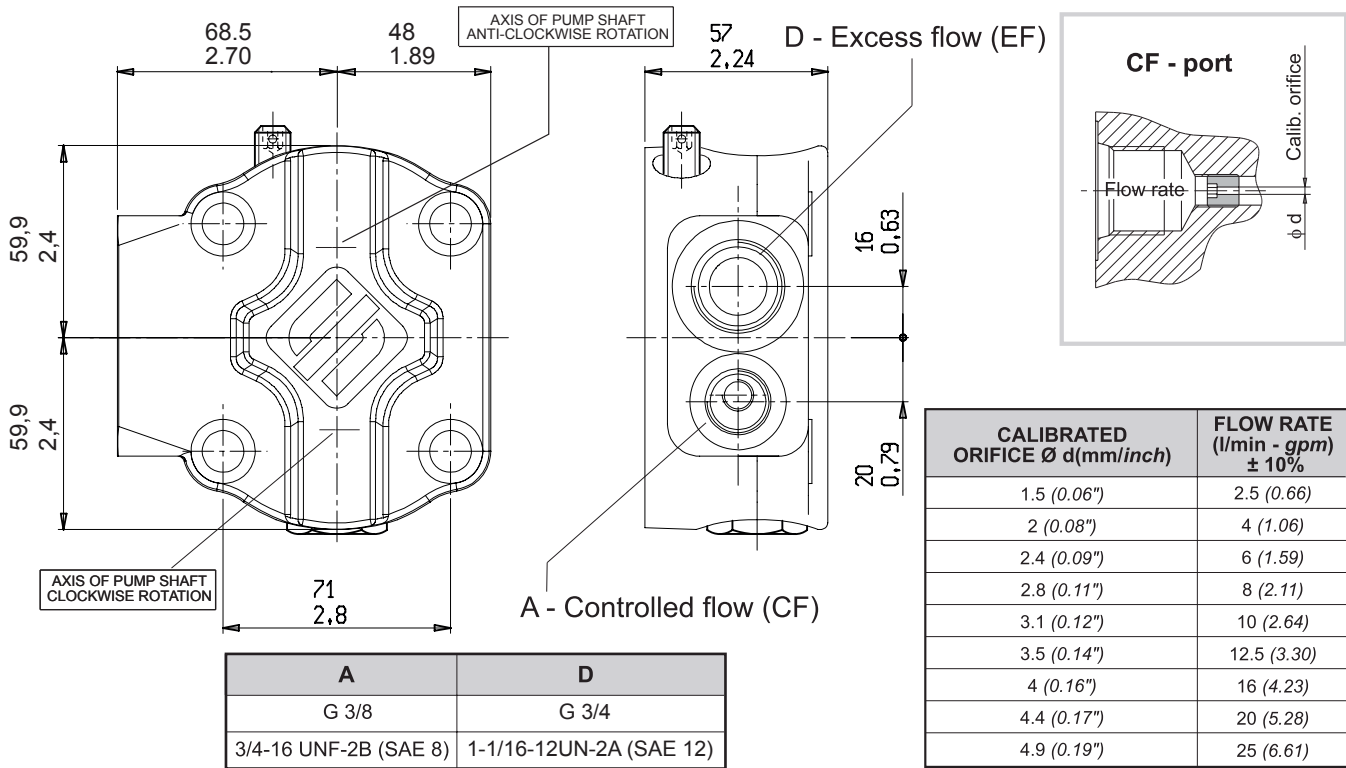


CF = Priority flow port  
EF = Excess flow port  
LS = Load sensing signal port

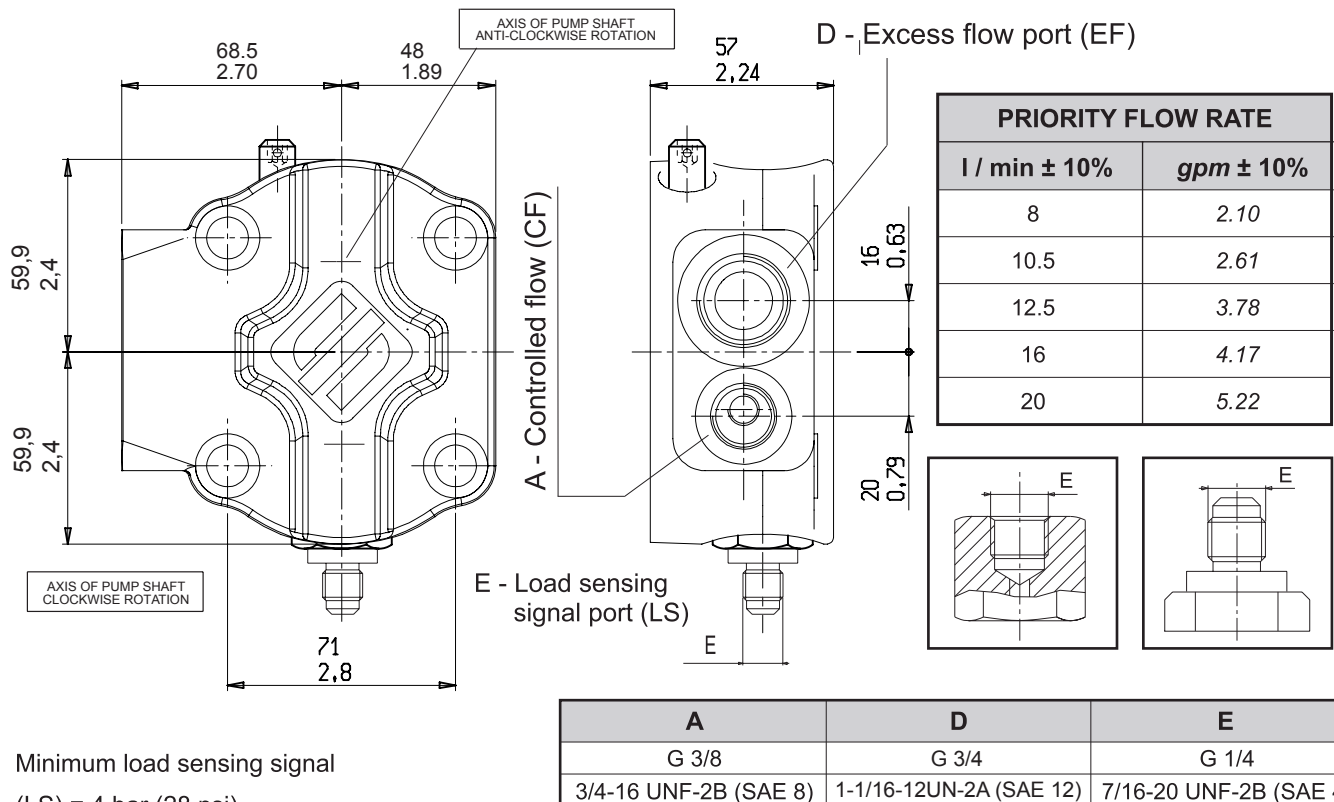
The double or triple pumps can be configured with priority flow valve too.  
The stage which has its flow divided into priority and exceeded flows is always the back one.



VP1 - VPS1 (FEATURES)



VPL1 - VPD1 (FEATURES)

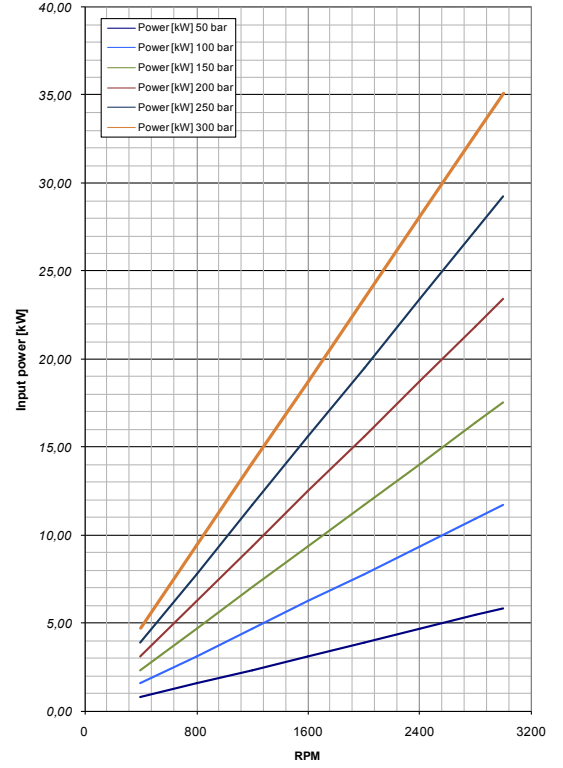
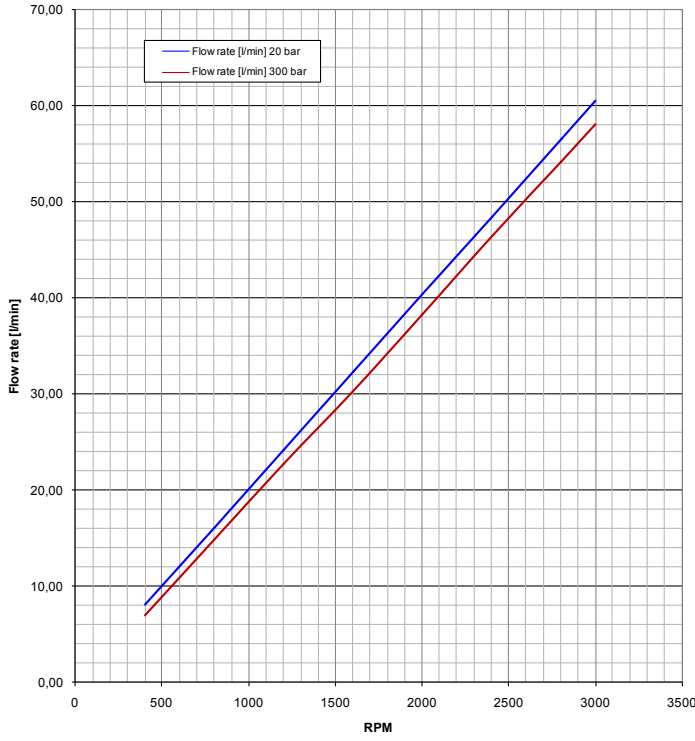


Minimum load sensing signal (LS) = 4 bar (28 psi)

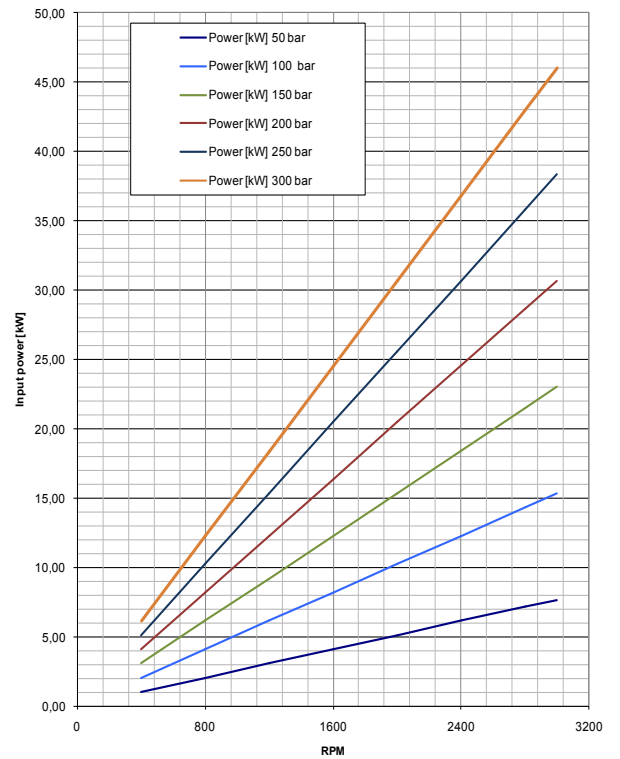
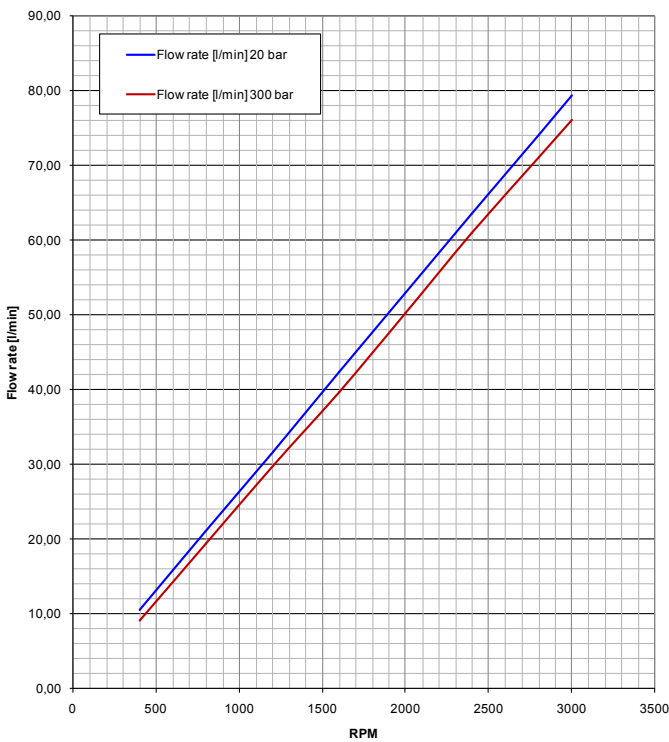
Side ports also availables. Please specify with note.



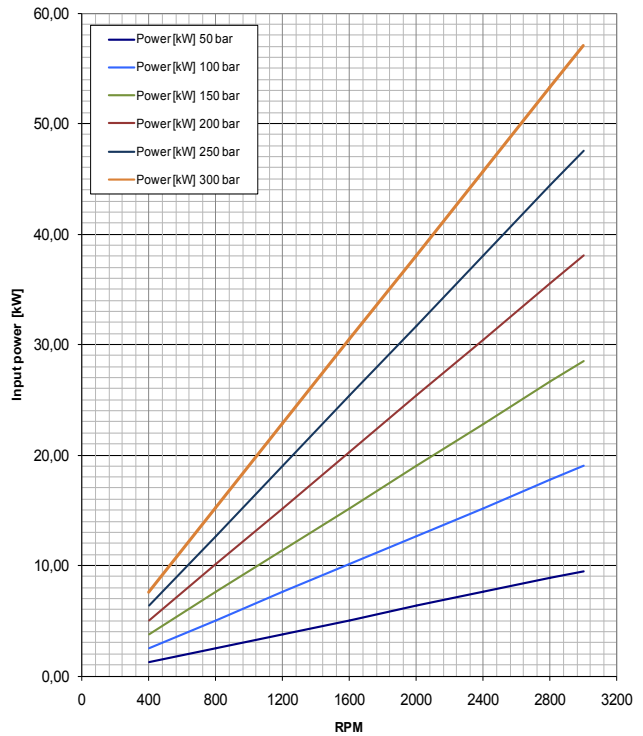
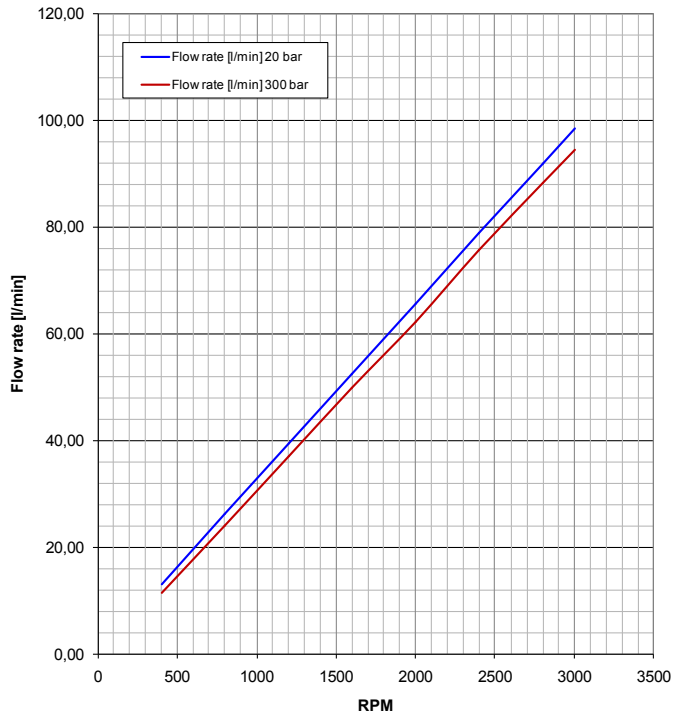
**3PE - 21**



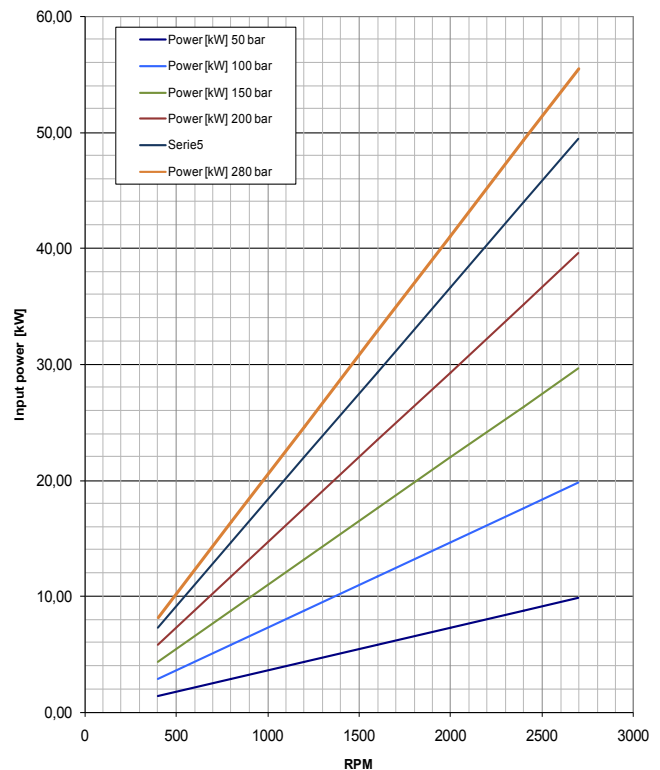
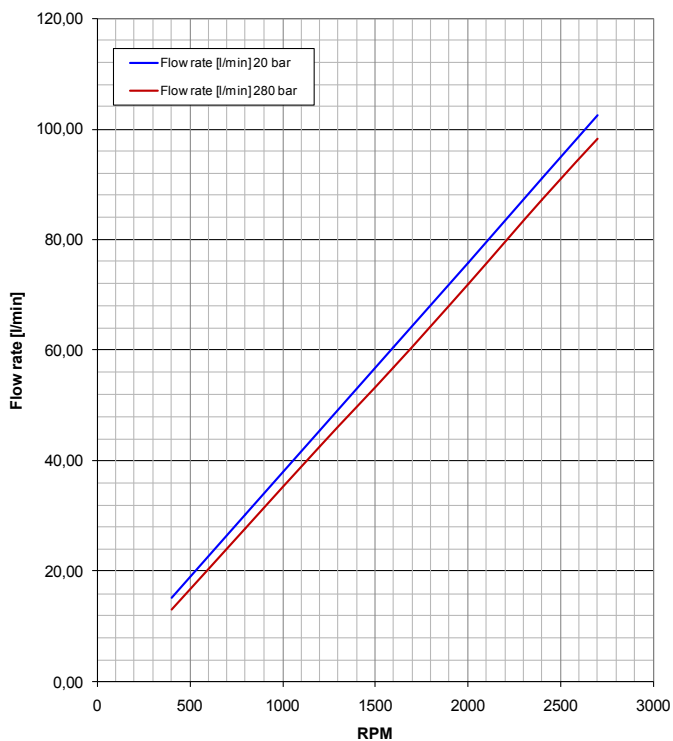
**3PE - 27**



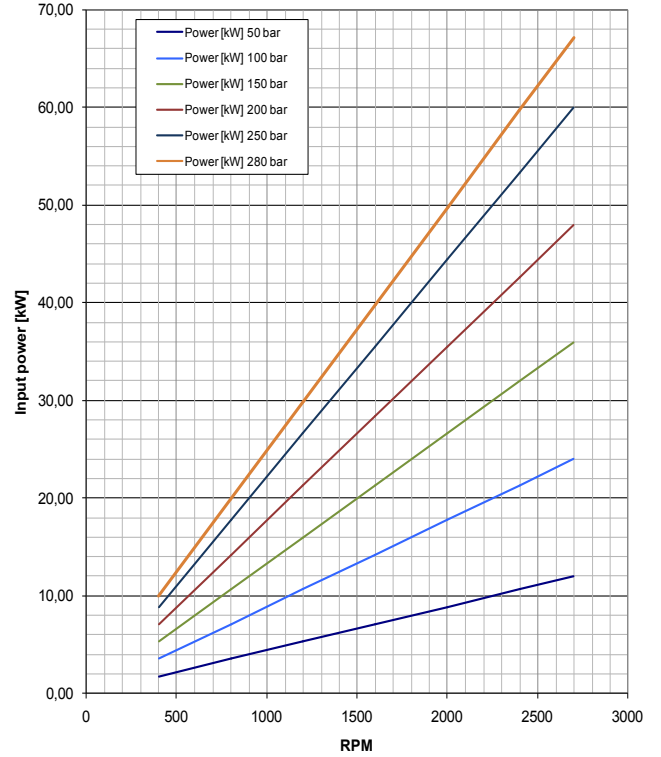
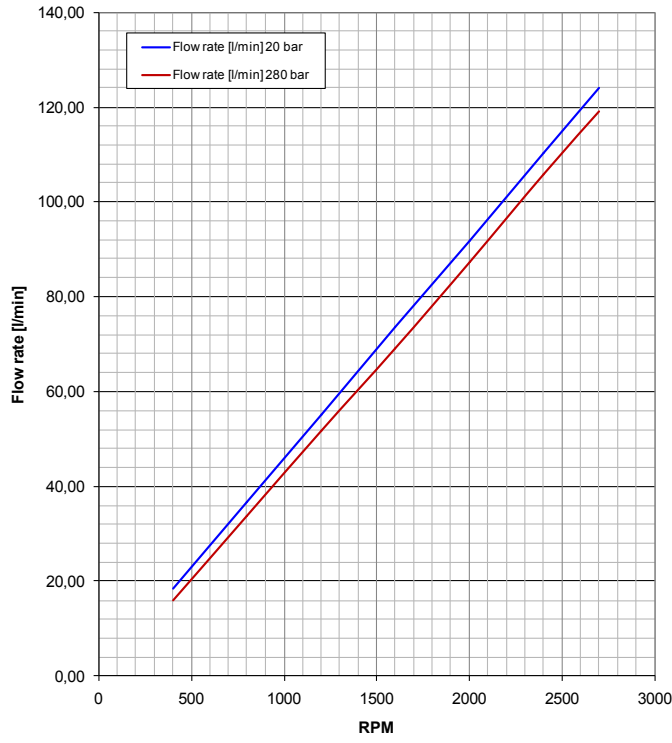
## 3PE - 33



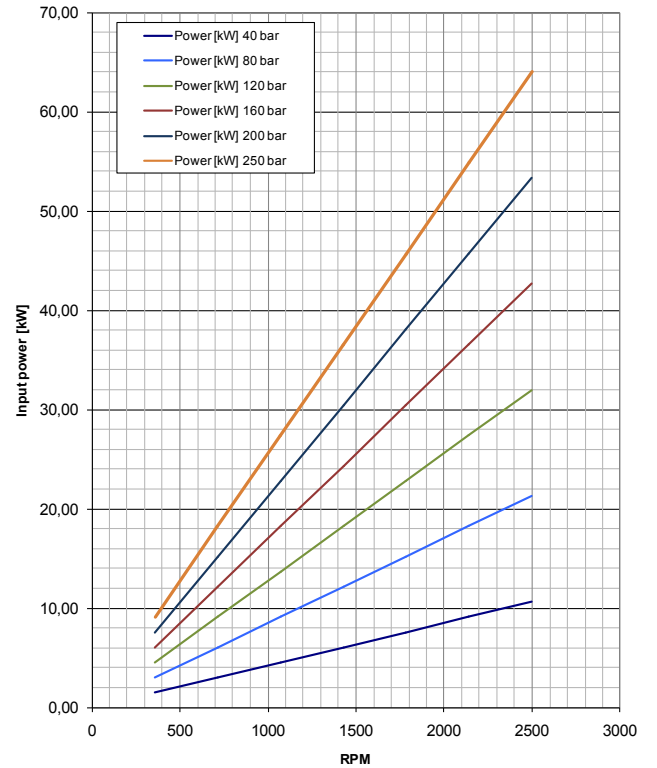
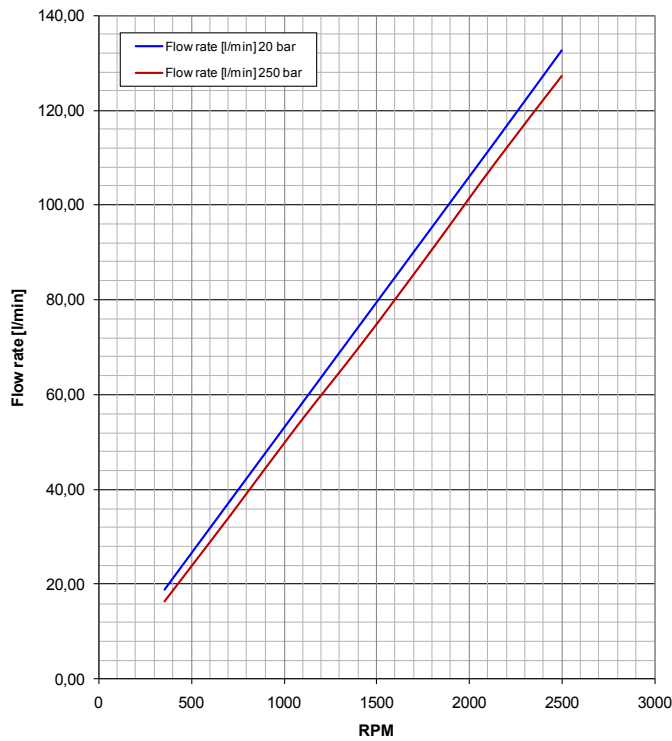
## 3PE - 38



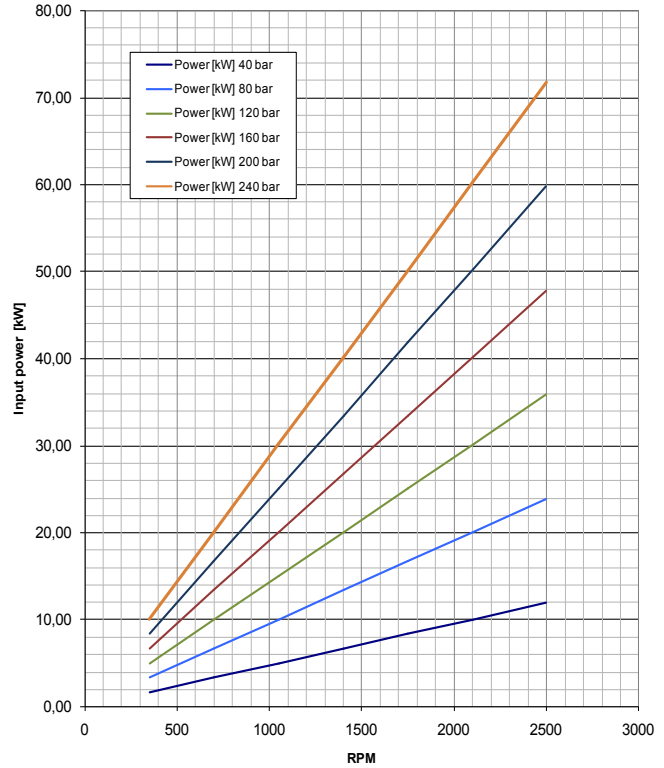
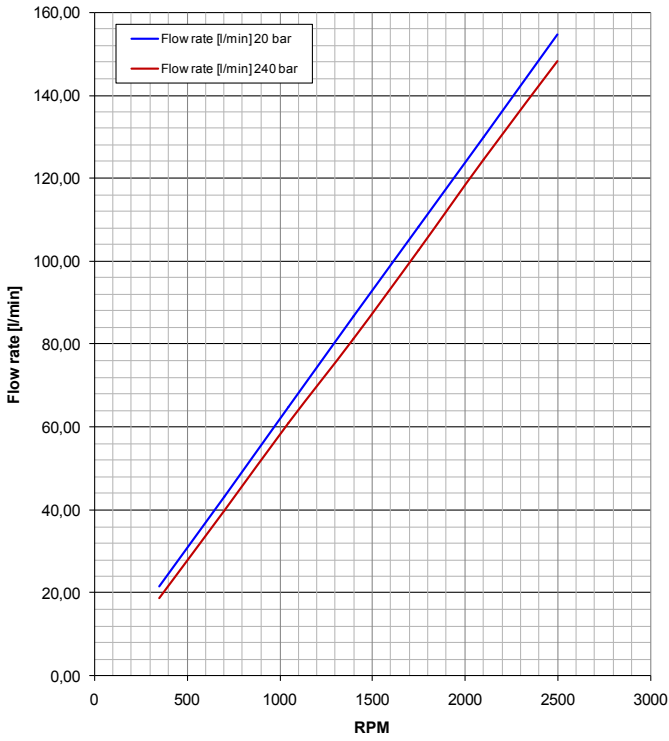
**3PE - 46**



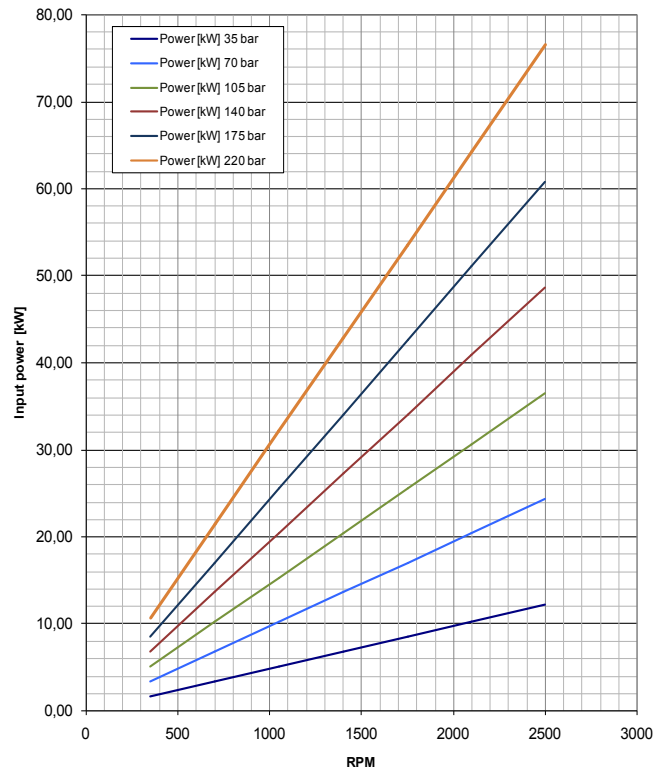
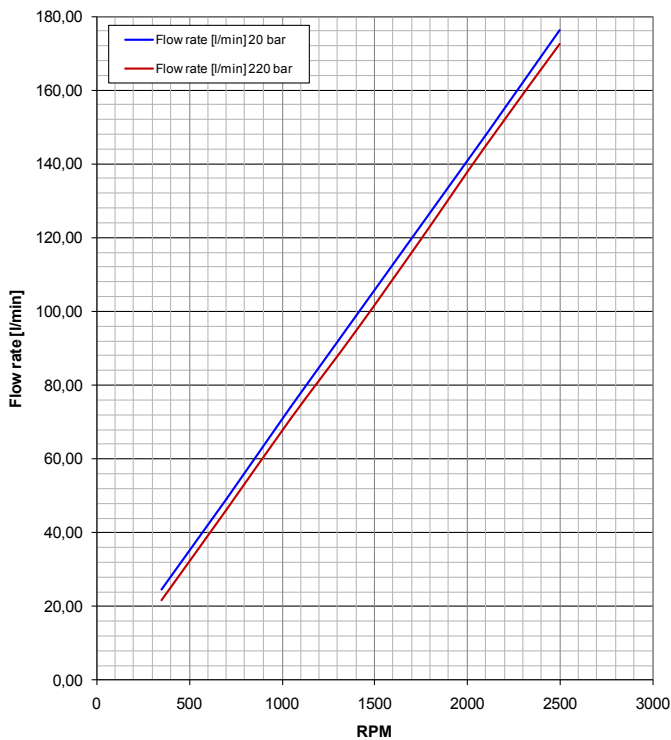
**3PE - 55**



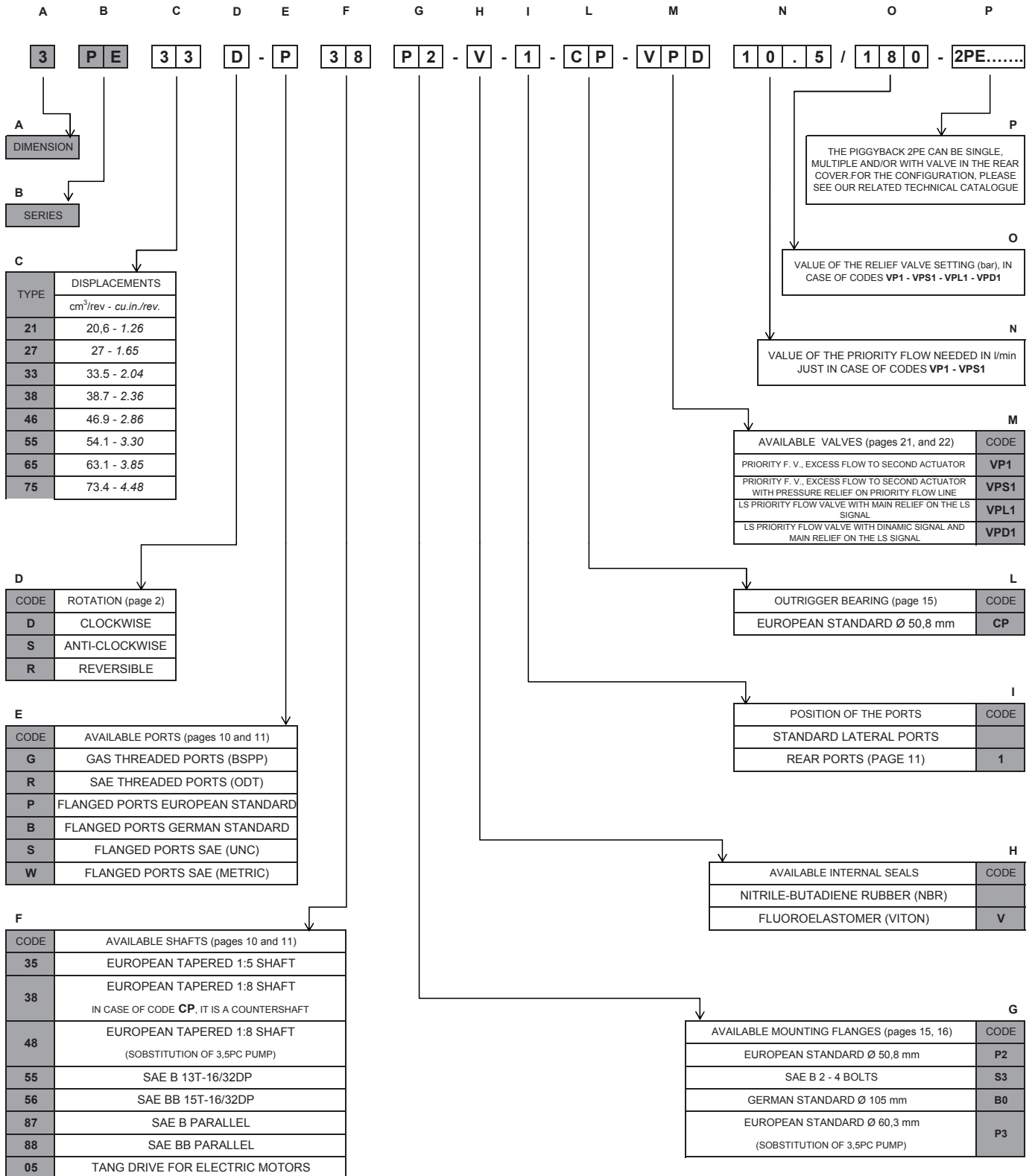
### 3PE - 65



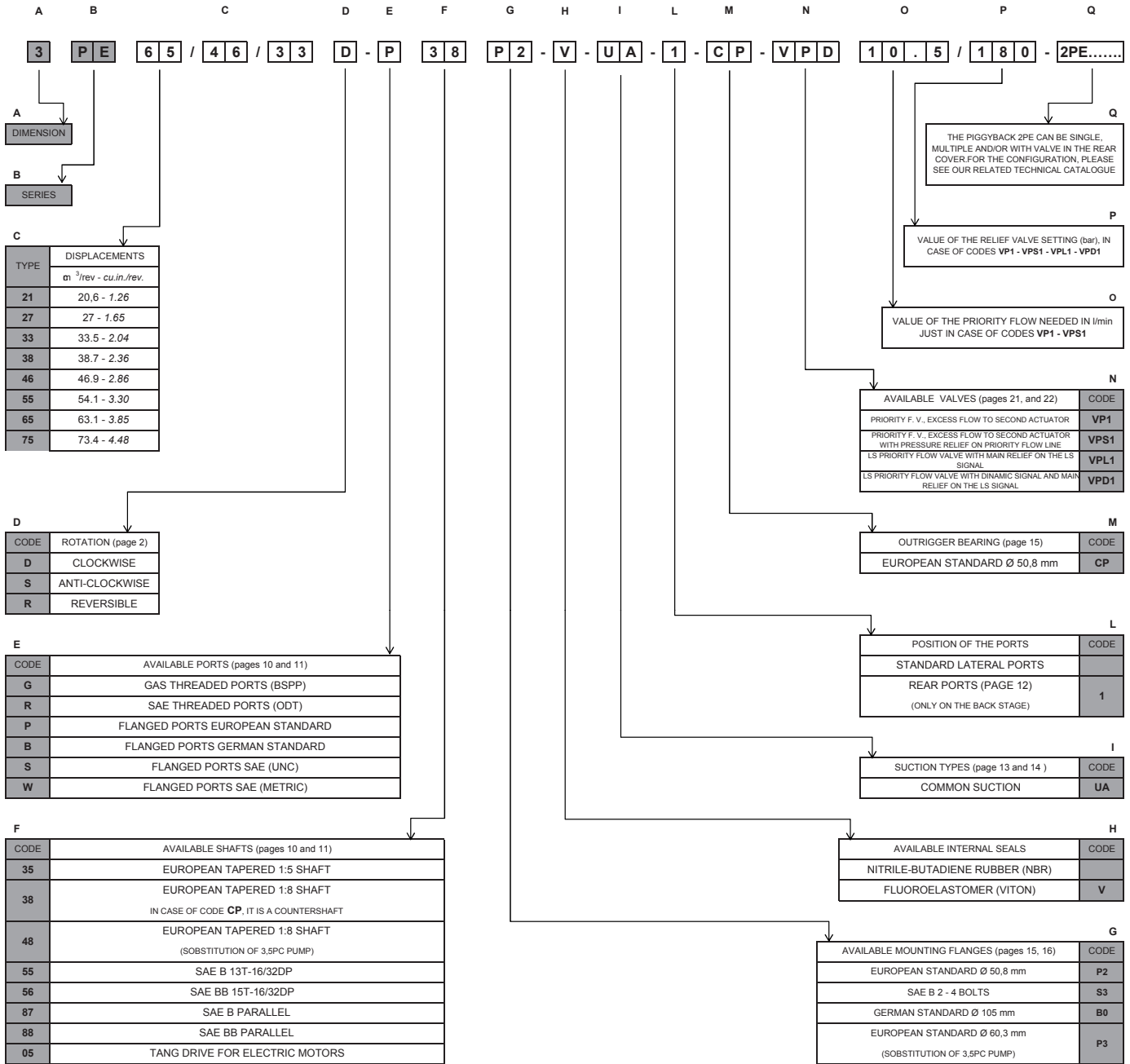
### 3PE - 75



HOW TO ORDER 3PE SINGLE PUMP

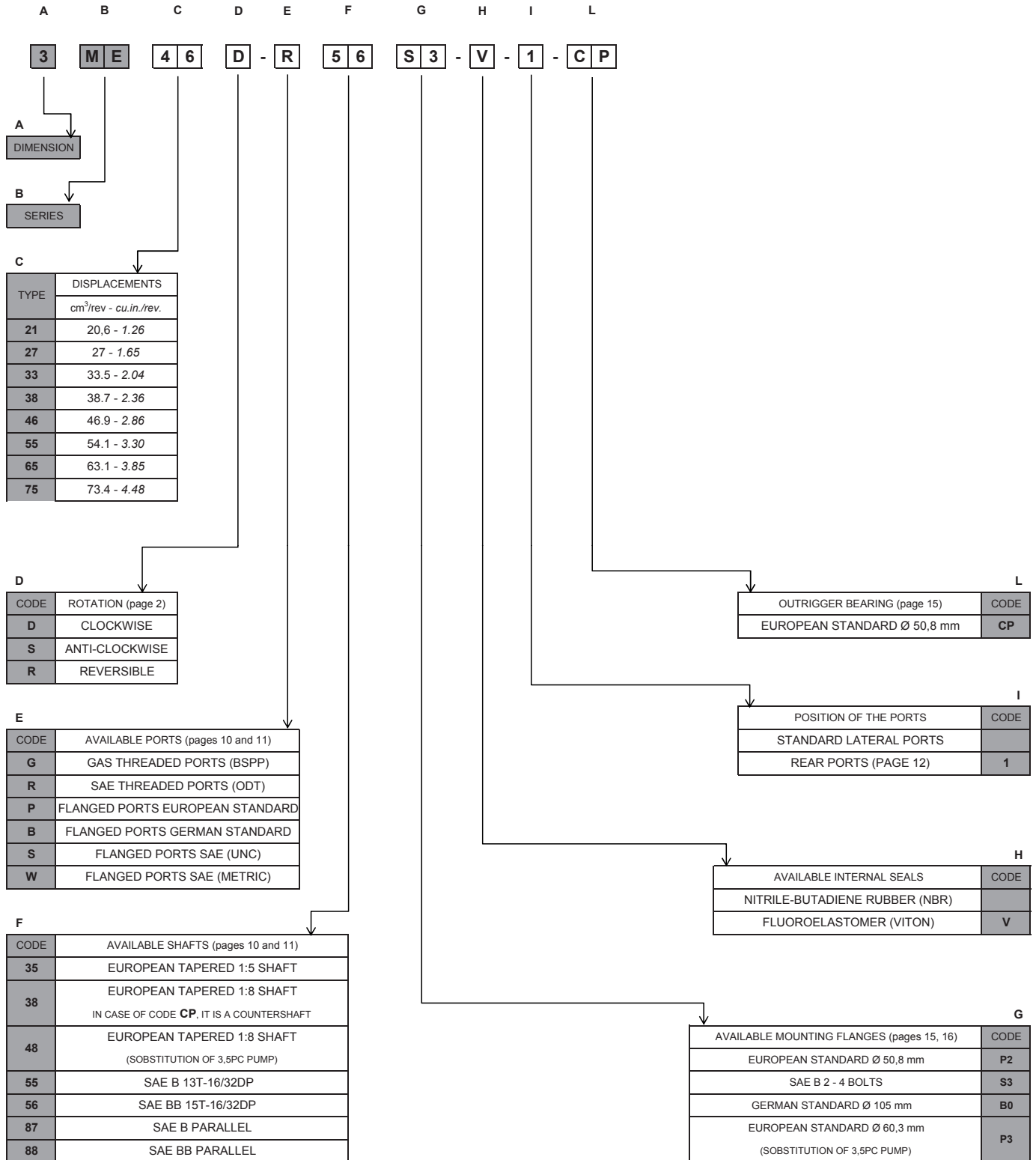


## HOW TO ORDER 3PE DOUBLE OR TRIPLE PUMP





HOW TO ORDER 3ME MOTOR





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# 3PE

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## Aluminium gear pumps

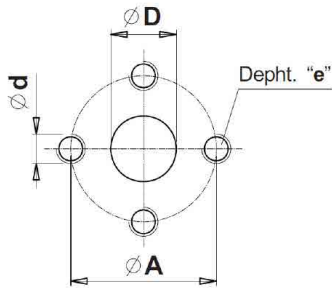
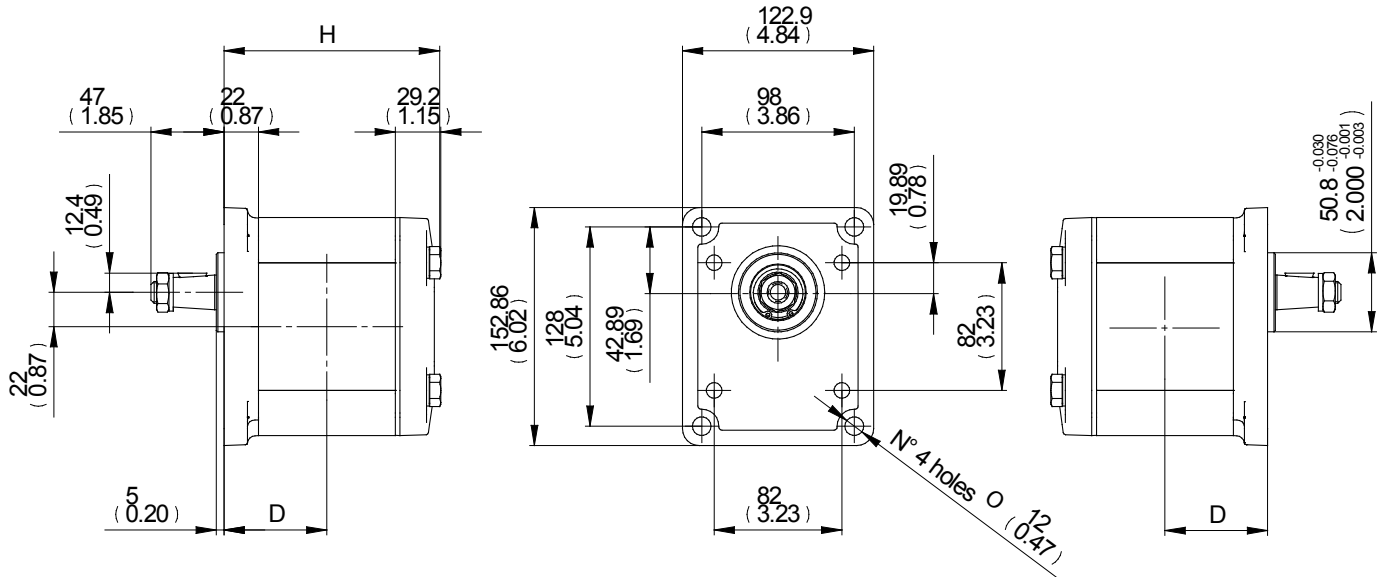
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### Section B - Dealer management

E0.130.1213.05.00-IM00



**P38P2 - Clockwise and anti-clockwise rotation codes**

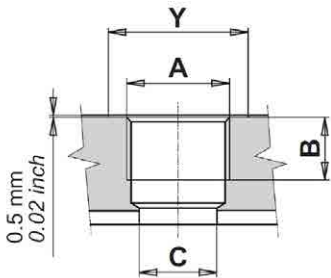
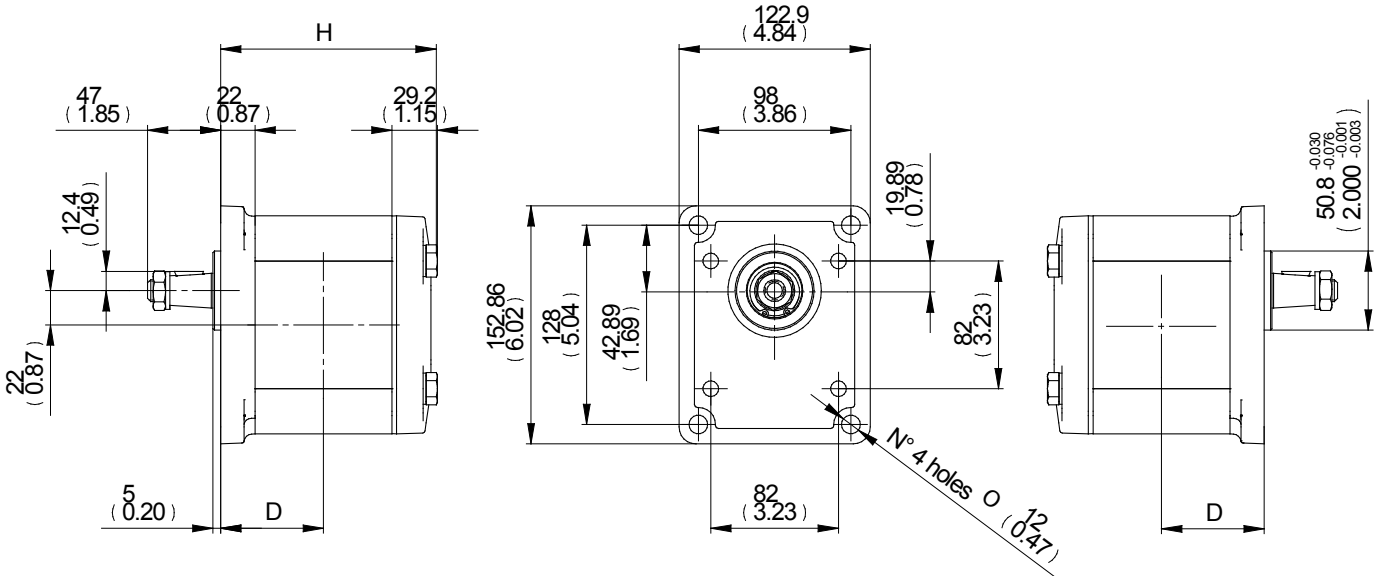


TYPE	INLET				OUTLET			
	$\varnothing D$	$\varnothing A$	d	e	$\varnothing D$	$\varnothing A$	d	e
From 21 to 55	27 1,06	51 2,01	M10	16 0,63	16 0,63	40 1,57	M8	16 0,63
From 65 to 75	33 1,30	62 2,44	M12	16 0,63	21 0,83	51 2,01	M10	16 0,63

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



G38P2 - Clockwise and anti-clockwise rotation codes

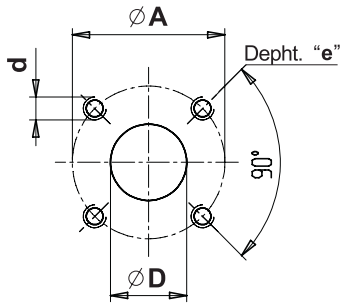
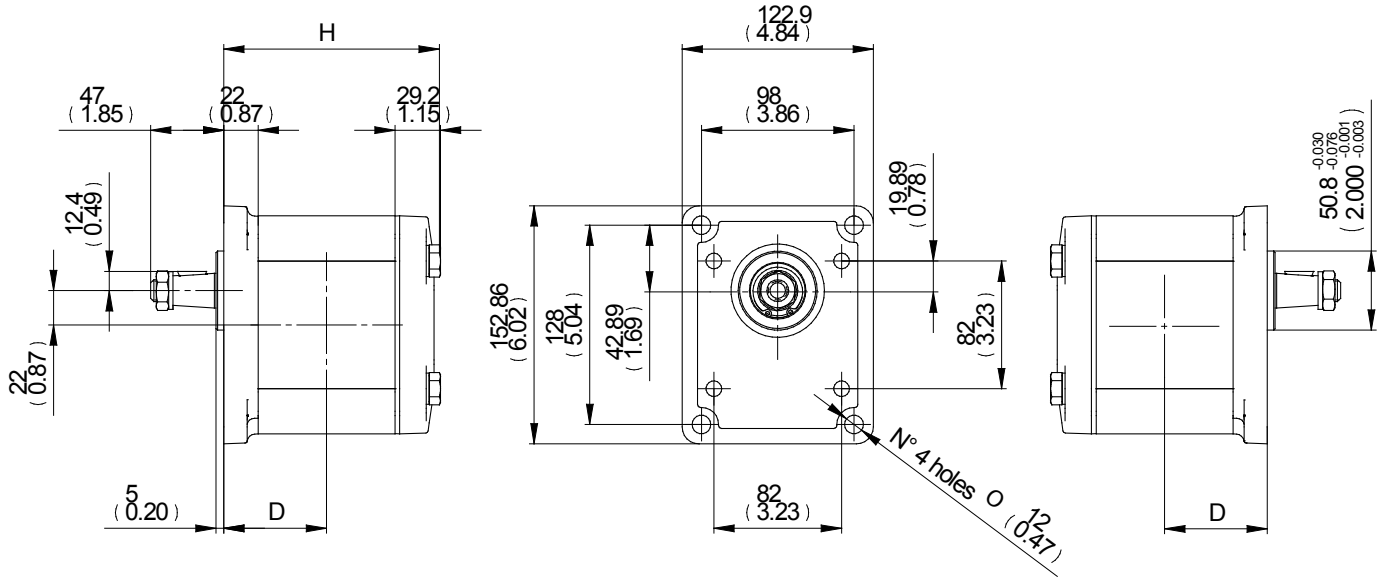


TYPE	INLET				OUTLET			
	A	B	C	Y	A	B	C	Y
From 21 to 38	G1	22 0,87	30,5 1,20	44 1,73	G1	22 0,87	27 1,06	44 1,73
From 46 to 75	G1"1/4	24 0,94	37 1,46	54 2,13	G1	22 0,87	30,5 1,20	44 1,73

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



B38P2 - Clockwise and anti-clockwise rotation codes

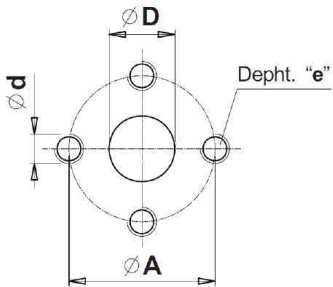
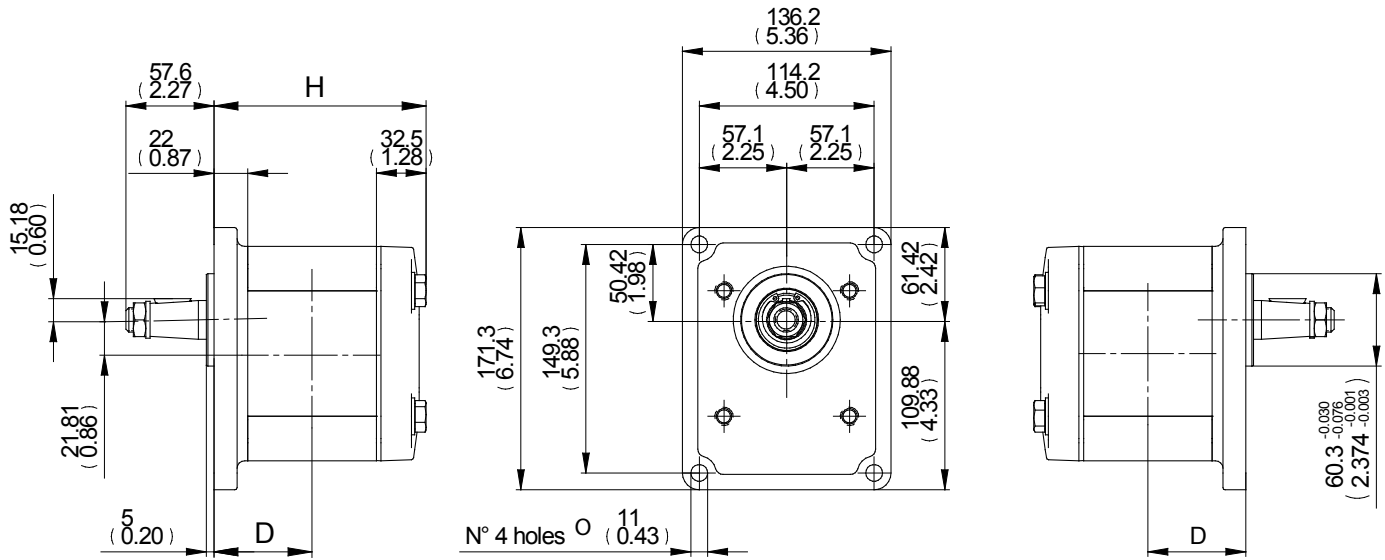


TYPE	INLET				OUTLET			
	$\varnothing D$	$\varnothing A$	d	e	$\varnothing D$	$\varnothing A$	d	e
Displ. 21	22	55	M8	13	19	55	M8	13
	0,87	2,17		0,51	0,75	2,17		0,51
From 27 to 75	27	55	M8	13	22	55	M8	13
	1,06	2,17		0,51	0,87	2,17		0,51

DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			cm <sup>3</sup> /rev	cu.in./rev	D	H		
		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



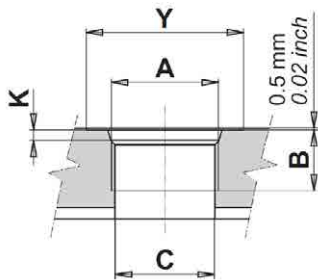
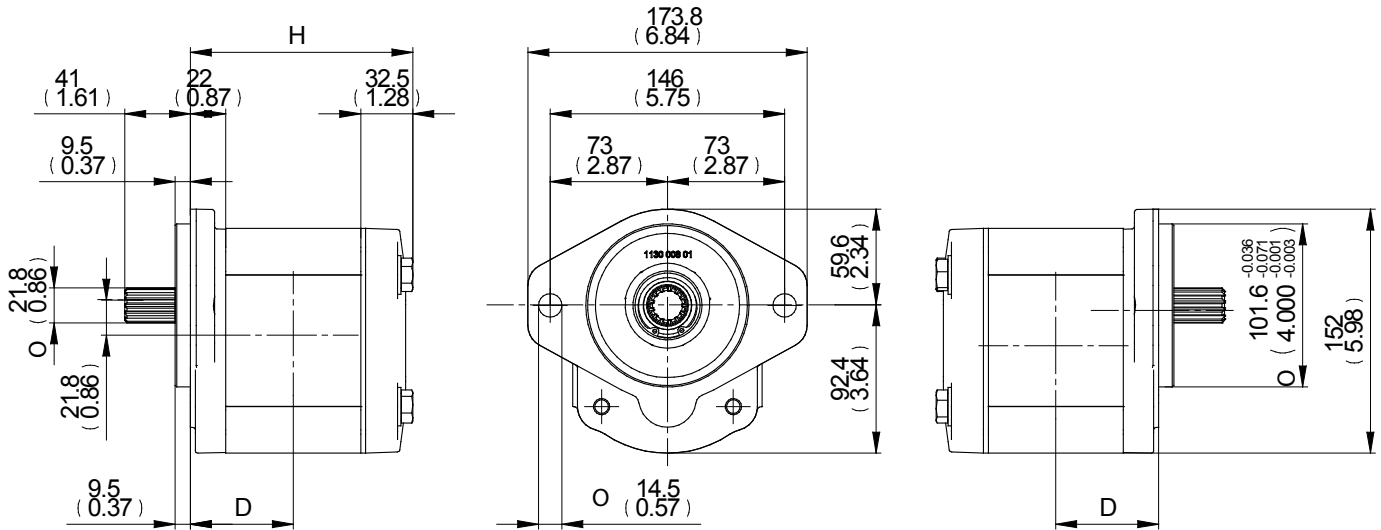
TYPE	INLET				OUTLET			
	$\varnothing D$	$\varnothing A$	d	e	$\varnothing D$	$\varnothing A$	d	e
From 21 to 55	27 1,06	51 2,01	M10	16 0,63	16 0,63	40 1,57	M8	16 0,63
From 65 to 75	33 1,30	62 2,44	M12	16 0,63	21 0,83	51 2,01	M10	16 0,63

DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
cm <sup>3</sup> /rev	cu.in./rev	mm	in	mm	in			
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**

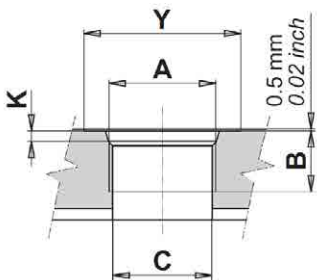
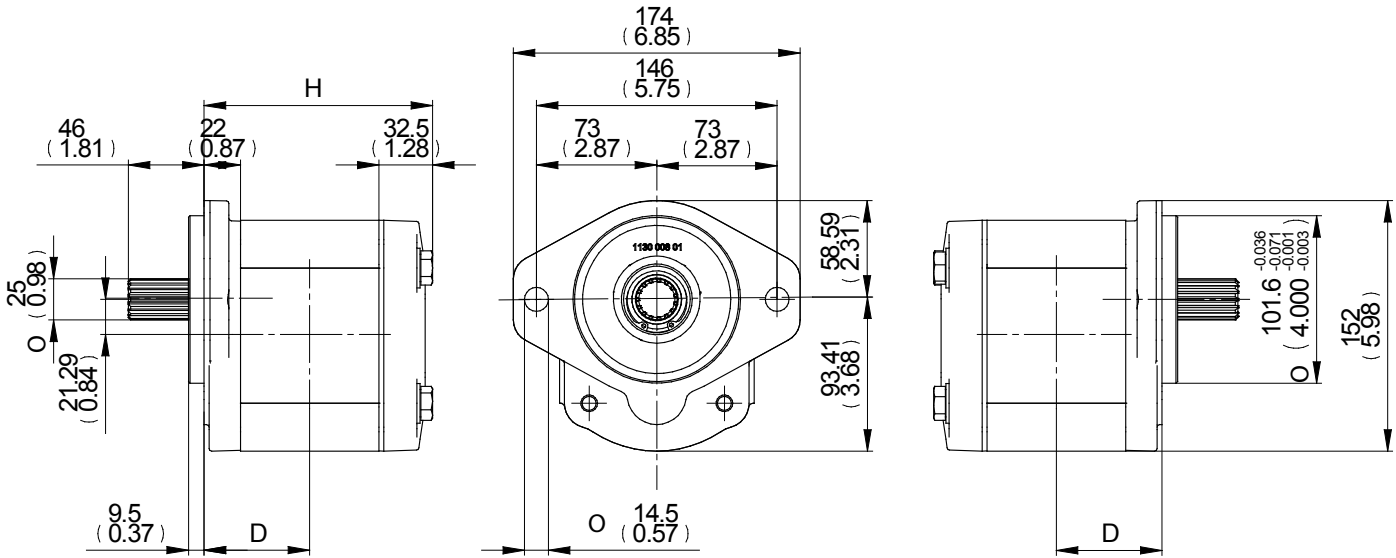


TYPE	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13	1-1/16 12 UN	19 0,75	21 0,83	41 1,61	3,3 0,13
From 46 to 75	1-5/8 12 UN	19 0,75	27 1,06	58 2,28	3,3 0,13	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13



DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
							D	H
			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

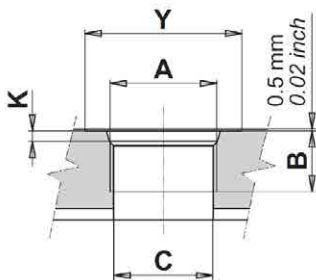
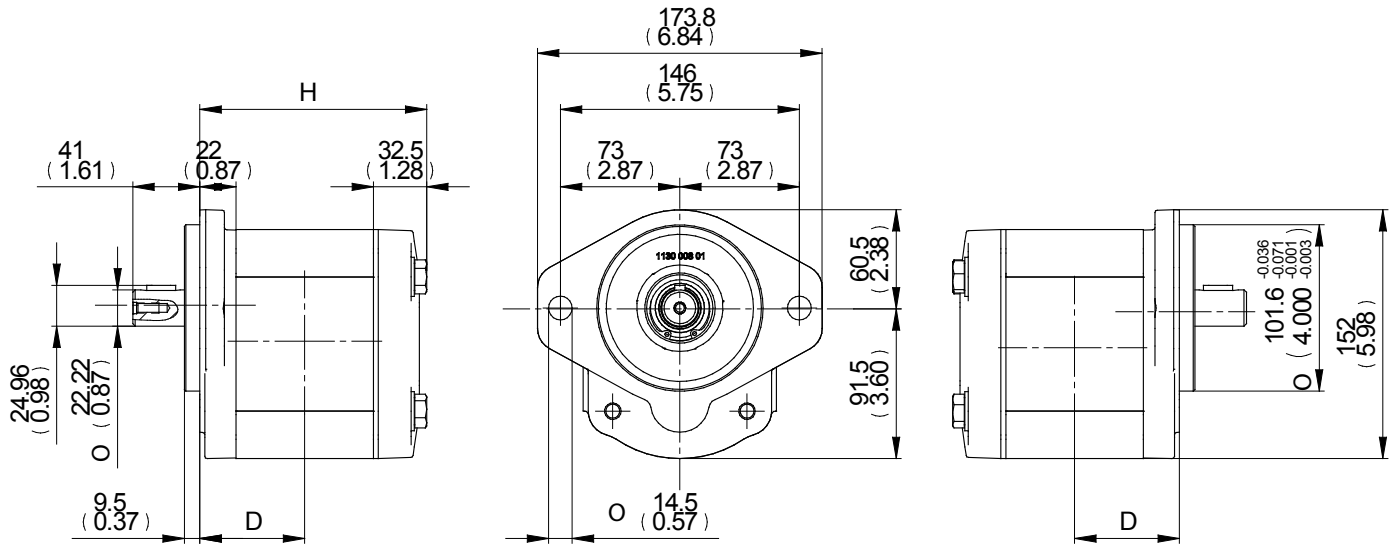


TYPE	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13	1-1/16 12 UN	19 0,75	21 0,83	41 1,61	3,3 0,13
From 46 to 75	1-5/8 12 UN	19 0,75	27 1,06	58 2,28	3,3 0,13	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13

DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
								
			D		H			
cm <sup>3</sup> /rev	cu.in./rev	mm	in	mm	in			
21	20,6	1,26	59	2,32	128,5	5,06	6130 1241 1	6130 1241 2
27	27	1,65	61,5	2,42	133,5	5,26	6130 1242 1	6130 1242 2
33	33,5	2,04	64	2,52	138,5	5,45	6130 1243 1	6130 1243 2
38	38,7	2,36	66	2,60	142,5	5,61	6130 1244 1	6130 1244 2
46	46,9	2,86	74	2,91	158,5	6,24	6130 1245 1	6130 1245 2
55	54,1	3,30	77	3,03	164,5	6,48	6130 1246 1	6130 1246 2
65	63,1	3,85	80,5	3,17	171,5	6,75	6130 1247 1	6130 1247 2
75	73,4	4,48	84	3,31	178,5	7,03	6130 1248 1	6130 1248 2



R87S3 - Clockwise and anti-clockwise rotation codes

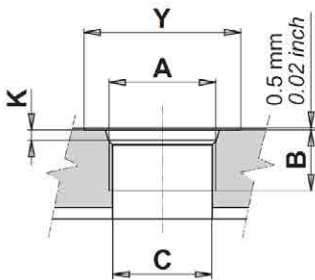
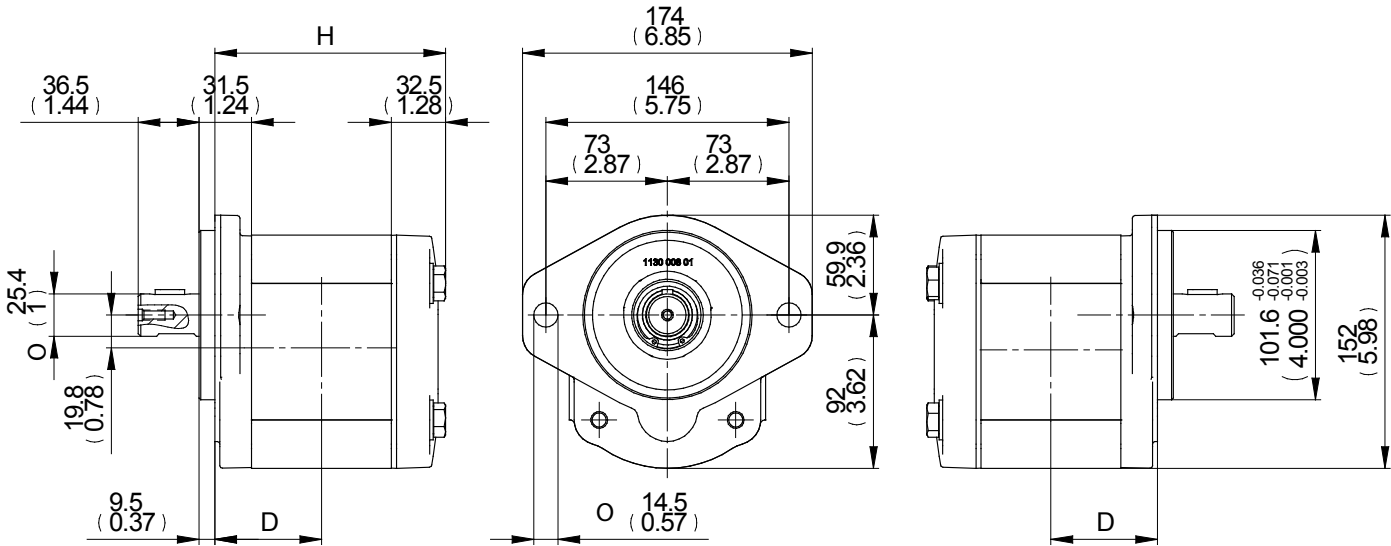


TYPE	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13	1-1/16 12 UN	19 0,75	21 0,83	41 1,61	3,3 0,13
From 46 to 75	1-5/8 12 UN	19 0,75	27 1,06	58 2,28	3,3 0,13	1-5/16 12 UN	19 0,75	25 0,98	49 1,93	3,3 0,13



DISPLACEMENT		DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE	
		D		H				
	cm <sup>3</sup> /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

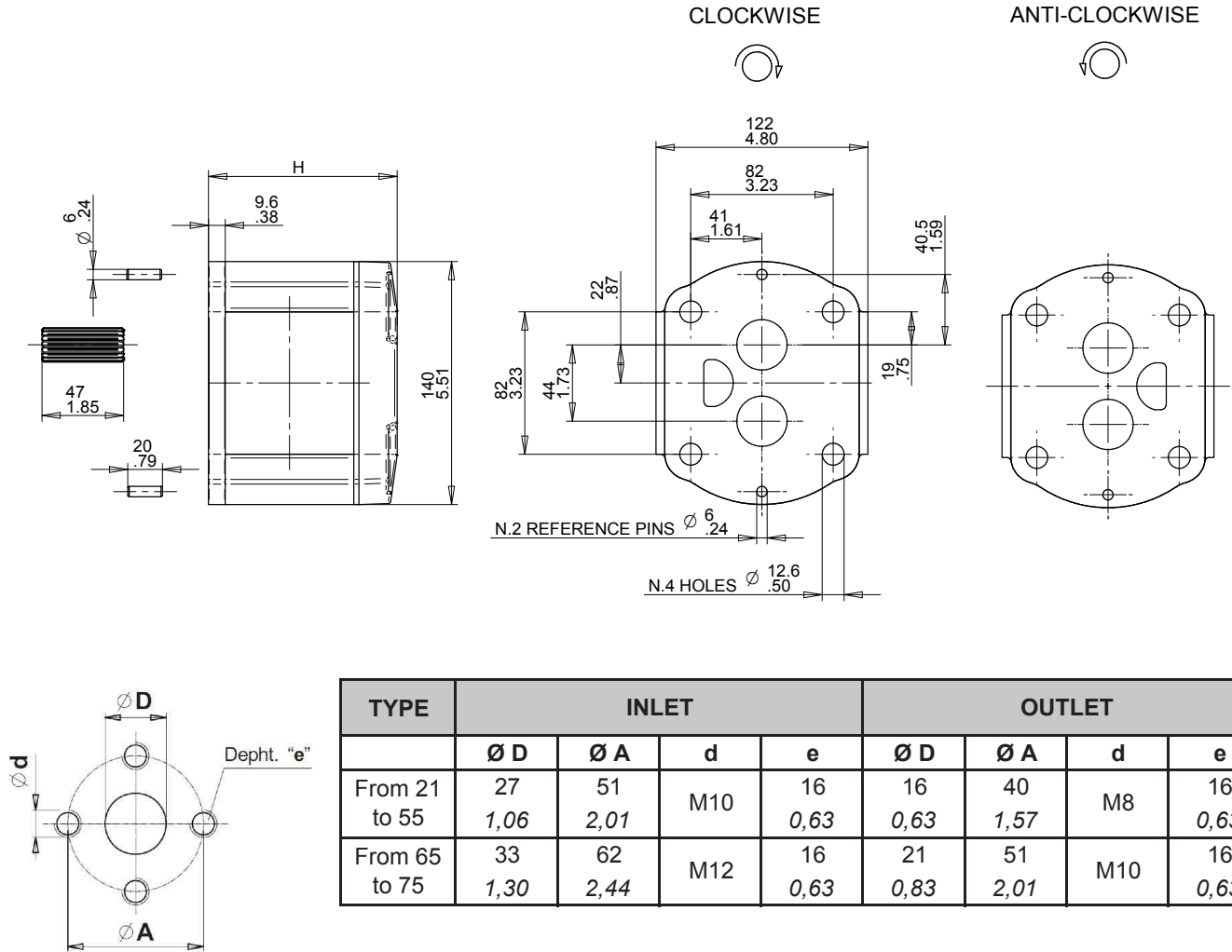


TYPE	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16	19	25	49	3,3	1-1/16	19	21	41	3,3
	12 UN	0,75	0,98	1,93	0,13	12 UN	0,75	0,83	1,61	0,13
From 46 to 75	1-5/8	19	27	58	3,3	1-5/16	19	25	49	3,3
	12 UN	0,75	1,06	2,28	0,13	12 UN	0,75	0,98	1,93	0,13

DISPLACEMENT			DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
								
			D		H			
cm <sup>3</sup> /rev	cu.in./rev	mm	in	mm	in			
21	20,6	1,26	59	2,32	128,5	5,06	6130 1281 1	6130 1281 2
27	27	1,65	61,5	2,42	133,5	5,26	6130 1282 1	6130 1282 2
33	33,5	2,04	64	2,52	138,5	5,45	6130 1283 1	6130 1283 2
38	38,7	2,36	66	2,60	142,5	5,61	6130 1284 1	6130 1284 2
46	46,9	2,86	74	2,91	158,5	6,24	6130 1285 1	6130 1285 2
55	54,1	3,30	77	3,03	164,5	6,48	6130 1286 1	6130 1286 2
65	63,1	3,85	80,5	3,17	171,5	6,75	6130 1287 1	6130 1287 2
75	73,4	4,48	84	3,31	178,5	7,03	6130 1288 1	6130 1288 2



P65R - Clockwise and anti-clockwise rotation codes



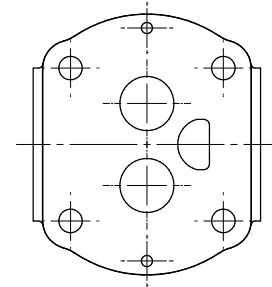
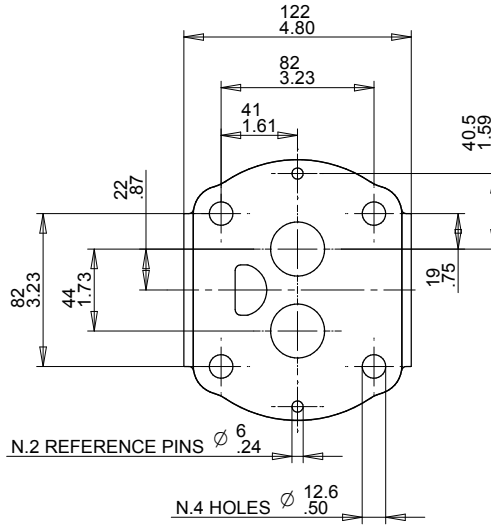
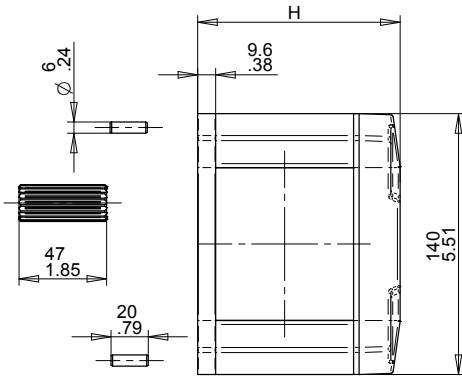
DISPLACEMENT		DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
		D		H			
cm <sup>3</sup> /rev	cu.in./rev	mm	in	mm	in		
21	20,6	46,6	1,83	116,1	4,57	6130 300 01	6130 300 02
27	27	49,1	1,93	121,1	4,77	6130 300 11	6130 300 12
33	33,5	51,6	2,03	126,1	4,96	6130 300 21	6130 300 22
38	38,7	53,6	2,11	130,1	5,12	6130 300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



G65R - Clockwise and anti-clockwise rotation codes

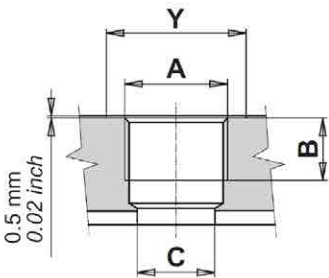
CLOCKWISE

ANTI-CLOCKWISE



N.2 REFERENCE PINS  $\phi 6.24$

N.4 HOLES  $\phi 12.6$

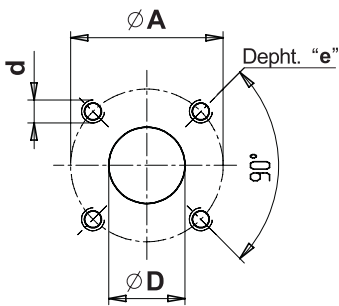
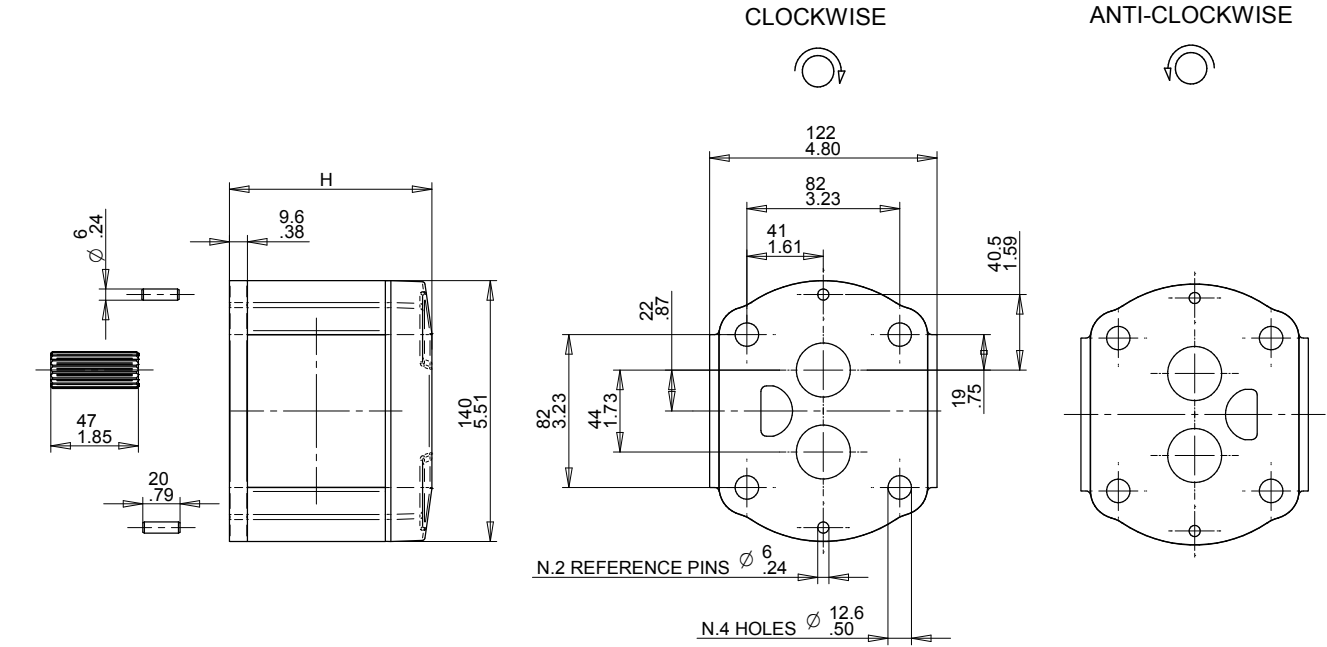


TYPE	INLET				OUTLET			
	A	B	C	Y	A	B	C	Y
From 21 to 38	G1	22 0,87	30,5 1,20	44 1,73	G1	22 0,87	27 1,06	44 1,73
From 46 to 75	G1"1/4	24 0,94	37 1,46	54 2,13	G1	22 0,87	30,5 1,20	44 1,73

	DISPLACEMENT		DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
	cm <sup>3</sup> /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			
	$\varnothing D$	$\varnothing A$	d	e	$\varnothing D$	$\varnothing A$	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

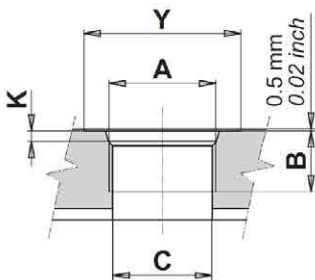
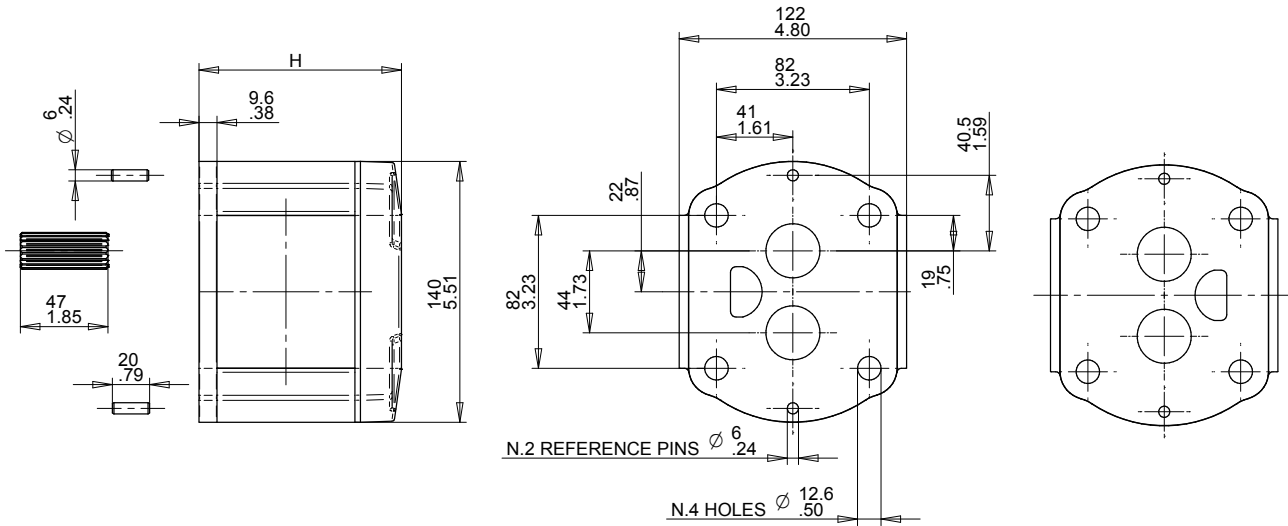
	DISPLACEMENT		DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
	cm <sup>3</sup> /rev	cu.in./rev	mm	in	mm	in		
21	20,6	1,26	46,6	1,83	116,1	4,57	6130 320 01	6130 320 02
27	27	1,65	49,1	1,93	121,1	4,77	6130 320 11	6130 320 12
33	33,5	2,04	51,6	2,03	126,1	4,96	6130 320 21	6130 320 22
38	38,7	2,36	53,6	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

CLOCKWISE

ANTI-CLOCKWISE



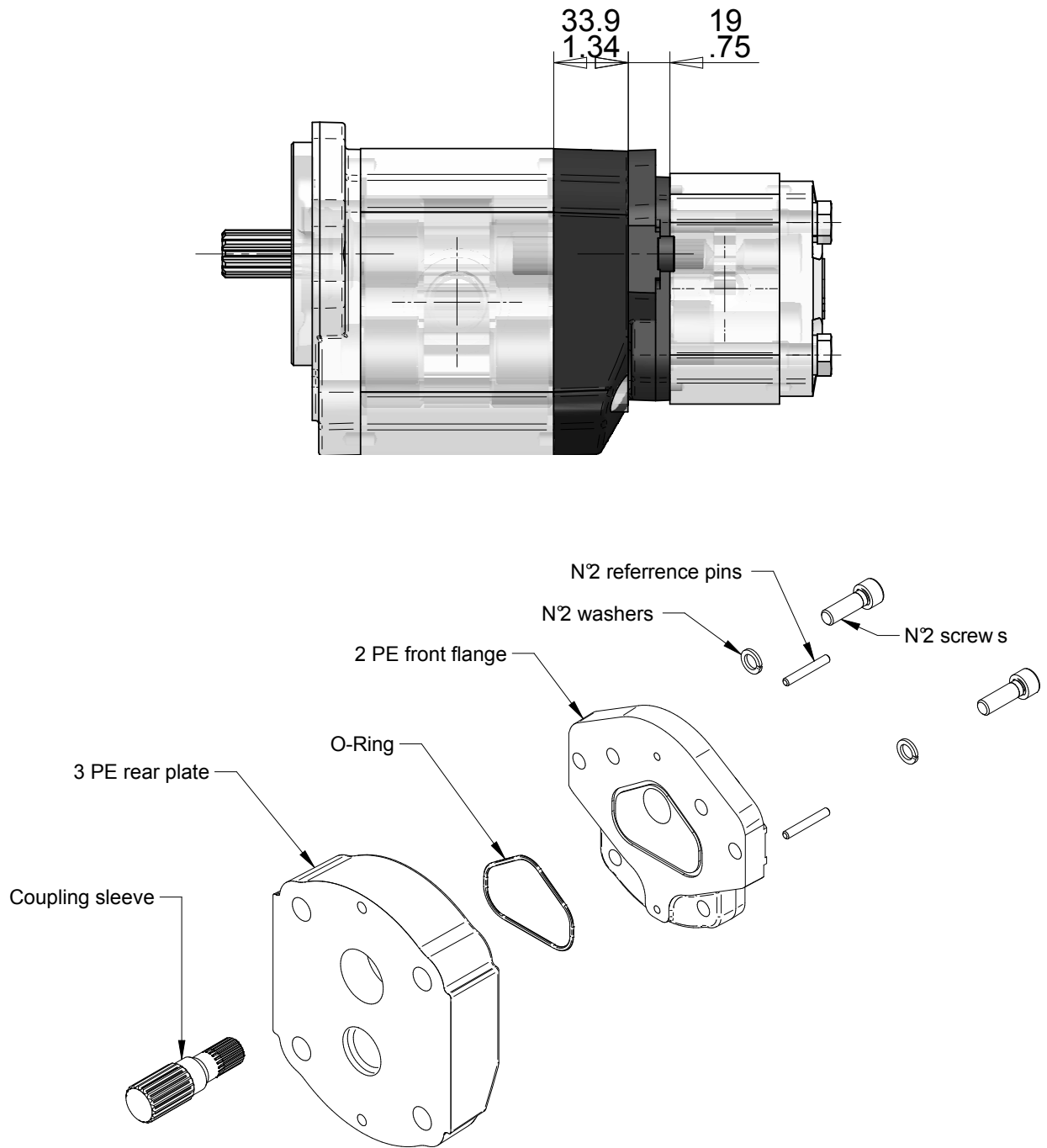
TYPE	INLET					OUTLET				
	A	B	C	Y	K	A	B	C	Y	K
From 21 to 38	1-5/16	19	25	49	3,3	1-1/16	19	21	41	3,3
	12 UN	0,75	0,98	1,93	0,13	12 UN	0,75	0,83	1,61	0,13
From 46 to 75	1-5/8	19	27	58	3,3	1-5/16	19	25	49	3,3
	12 UN	0,75	1,06	2,28	0,13	12 UN	0,75	0,98	1,93	0,13

	DISPLACEMENT		DIMENSIONS				ANTI-CLOCKWISE	CLOCKWISE
			D		H			
	cm <sup>3</sup> /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

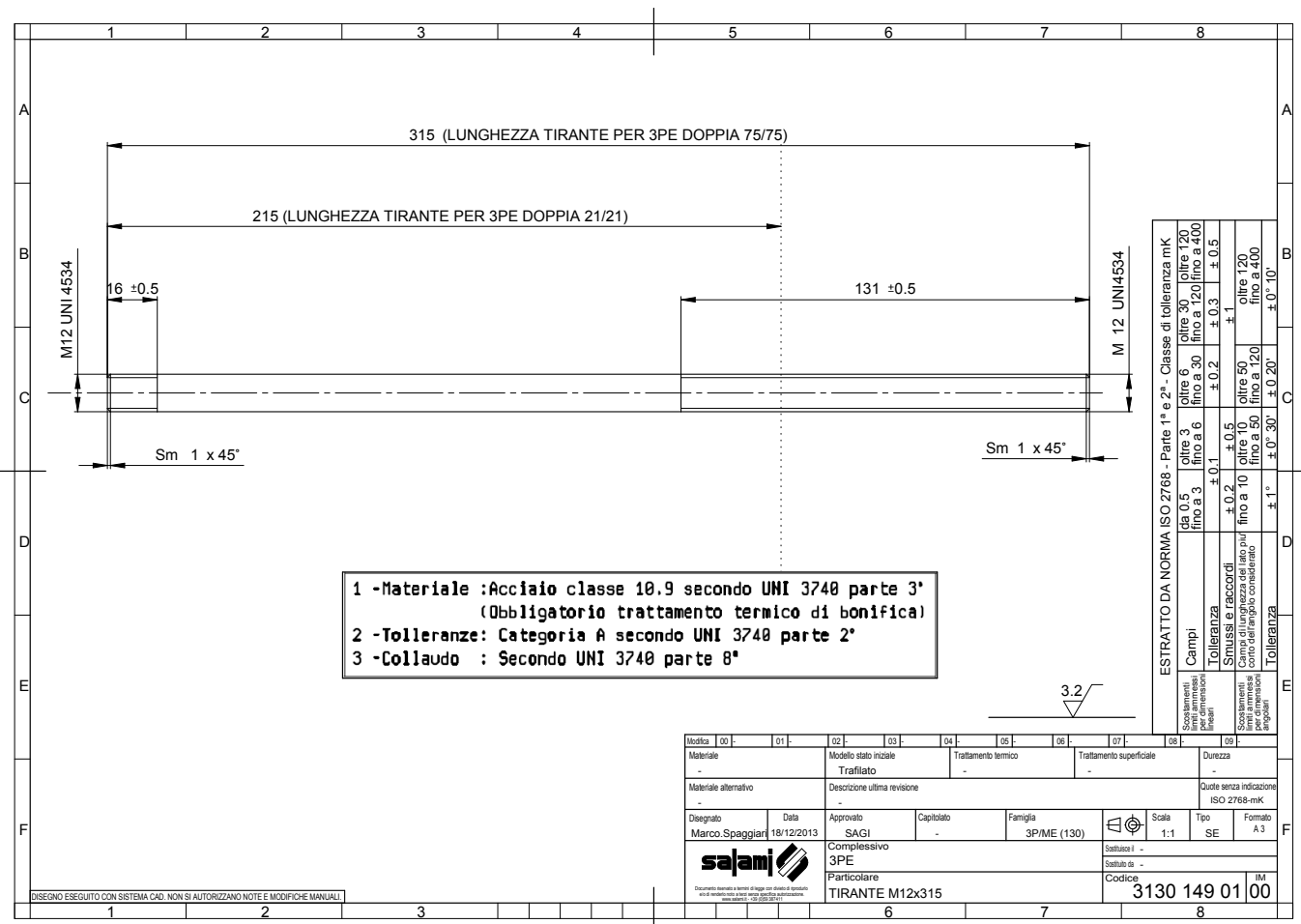
Table for the double 3PE tie-rod calculation

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 <i>Thickness of the flange threaded</i>	mm in					19 0,75					
(2)	Spessore coperchio std. <i>Thickness of the std. cover</i>	mm in					22,5 0,89					
(3)	Spessore dado M12 UNI5588 <i>Thickness of the nut M12 UNI5588</i>	mm in					10 0,39					
(4)	Spessore rondella UNI6592 <i>Thickness of the washer UNI6592</i>	mm in					2,5 0,10					
(5)	Spessore piastra 3PE <i>Thickness of the plate 3PE</i>	mm in					9,6 0,38					
(6)	Lunghezza radice del tirante(fissa) <i>Root thread end of tie-rod(fixed)</i>	mm in					15 0,59					
(7)	Lunghezza fissa da aggiungere <i>Fixed adding lenght on tie-rod</i>	mm in					7 0,28					
			A 1 <sup>ST</sup>	A 2 <sup>ND</sup>	(2)	(3)	(4)	(5)	(6)	(7)	Tot.	
Calcolo lunghezza tirante 3PE <i>Tie rod length calculation 3PE</i>			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 lenghts

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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