walvoil

MOTION BY PEOPLE

Titan Series

Gear Pumps & Motors

Titan POWER

PUMPS & MOTORS

Titan Series introduction

3TPW pump and 3TMW motor configurations

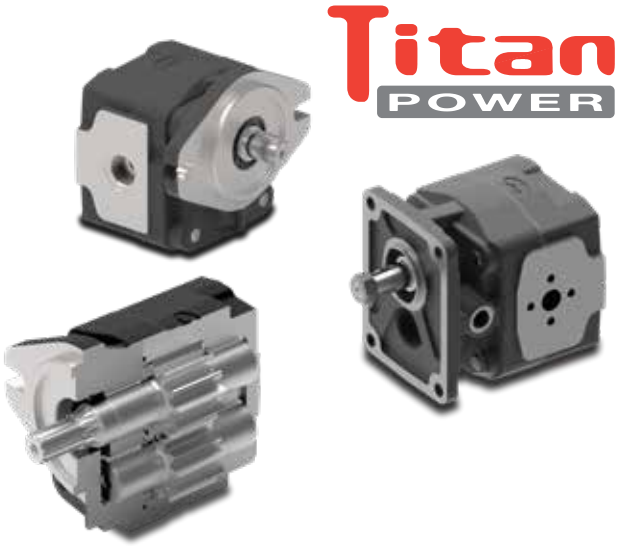
New range of 3TPW Cast Iron Pumps and 3TMW Cast Iron Motors.
These pumps and motors are particularly suitable for all applications where traditional aluminum pumps and motors are used at the limit of their performance; eg. for installation on mobile equipment intended for heavy duty operating cycles, where pressures or mechanical stresses are typically higher.

- Long life expectancy.
- High efficiencies.
- High pressure limits.
- Reduced number of components.
- Reduced overall dimension.

The **Titan** Series two-piece construction allows an increase in pressures with P1 up to 300 bar (*4350 psi*) pressure on a wide displacement range from 23.9 to 79.8 cm^3/rev (*1.46 to 4.87 in^3/rev*).
The **Titan** Series completes the cast iron pump range. Thanks to a wide range of integrated valves, this pump is suitable for mobile applications in Agricultural and Construction/Earth Moving sectors (Skid Steer Loaders, Telehandlers and Backhoe Loaders).

The main features are:

- FEMALE SPLINE Compact Tandem Capability
- SAE B, SAE C and EUR front flanges
- HIGHER SHAFT DIAMETER; Ø32 mm (*1.26 in*), up to 900 Nm (*664 lbft*) and up to up to 500 Nm (*369 lbft*) between stages
- NEW SHAFTS SAE S15, 16/32 inch keyed
- REVERSIBLE SEALING
- Special configurations for DEALERS



Additional information
This catalogue shows the product in the most standard configurations.
Please, contact Sales Dpt. for more detailed information or special requests.

WARNING!
All specifications of this catalogue refer to the standard product at this date. Walvoil, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications without notice.

WALVOIL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN INCORRECT USE OF THE PRODUCT.

1st edition May 2026

Content

Features

Working conditions

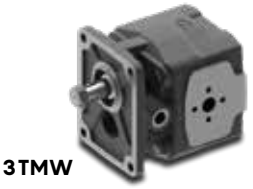
This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm²/s (*46 cSt*) viscosity at 40°C (*104°F*) temperature.

Displacement		from 23.9 to 79.8 cm³/rev - *from 1.46 to 4.87 in³/rev*
Max continuous pressure	up to	300 bar - *4350 psi*
Fluid		hydraulic mineral oil-based
Fluid temperature range	with NBR (buna N) seals	from -20 to +80 °C - *from -4 to +176 °F*
	with FPM (viton) seals	from -15 to +100 °C - *from +5 to +212 °F*
Viscosity	Recommended	from 15 to 92 mm²/s (*cSt*)
	Permitted for starting	2000 mm²/s (*cSt*)
Max level of contamination	Recommended for operating pressure > 150 bar *(2150 psi)*	20/18/15 ISO 4406 - *class 9 (NAS 1638)*
	Recommended for operating pressure < 150 bar *(2150 psi)*	21/19/16 ISO 4406 - *class 10 (NAS 1638)*

NOTE: for motor configuration please contact our Sales Department

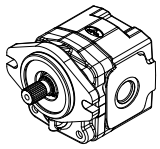
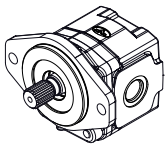
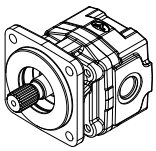
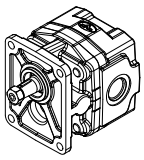
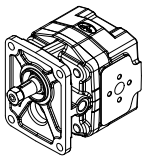
Displacement


3TPW


3TMW

Group 3TPW/3TMW	Displacement cm³/rev	Displacement *in³/rev*
230	23.9	*1.46*
280	28.0	*1.71*
320	32.2	*1.96*
390	39.7	*2.42*
430	43.8	*2.67*
470	47.9	*2.92*
520	52.0	*3.18*
560	56.8	*3.47*
600	60.9	*3.72*
650	65.0	*3.97*
710	71.6	*4.37*
790	79.8	*4.87*

Flanges range

Standard Flanges				
SAEB	SAEC2F	SAEC4F	EUR	EUR(DREN)
				

Shaft / flange combination

Shafts			Flanges			
Type	Description	Transmitted torque (max)	SAEB	SAEC2F	SAEC4F	EUR
10	Tapered 1:8	240 Nm - *178 lbft*	–	–	–	●
13	SAEB parallel shaft	200 Nm - *148 lbft*	●	●	–	–
S13	SAEB 13T splined	280 Nm - *207 lbft*	●	●	–	–
S13N	SAEB 13T splined NS (increased torque)	300 Nm - *221 lbft*	●	●	–	–
S14	SAEC 14T splined	900 Nm - *664 lbft*	●	●	–	–
S14L	SAEC 14T splined L (long)	900 Nm - *664 lbft*	–	–	●	–
S15	SAEBB 15T splined	400 Nm - *296 lbft*	●	●	–	–
S15L	SAEBB 15T splined L (long)	400 Nm - *296 lbft*	–	–	●	–

● = standard configuration – = non-standard configuration
NOTE: for more informations please see dedicated pages (from 24 to 26)

Technical informations

Hydraulic fluid

It is advisable to use hydraulic oils of mineral origin with anti-foaming, antiwear, anti-oxidant and anti-corrosion characteristics and rapid air removal properties and a high viscosity index;
- Recommended viscosity 15÷92 mm^2/s (*15÷92 cSt*)
- Start-up viscosity limit 2000 mm^2/s (*2000 cSt*)
- Max. operating viscosity 750 mm^2/s (*700 cSt*)

During normal operation, the oil temperature must be between 20°C (*68°F*) and 65°C (*149°F*) with limit values between -20°C (*-4°F*) and 80°C (*176°F*) with NBR seals and limit values between -15°C (*5°F*) and 100°C (*212°F*) with Viton seals.

Suction pressure

The allowed working pressure supplied must be in the range 0.7 - 2 bar (*10.2 - 29 psi*) [absolute].
For higher values (up to 30 bar / *435 psi*), it is necessary to use sealing ring for high pressures.
Particular attention must be given to the sizing of rigid or flexible pipes, avoiding disproportionate lengths, sudden variations in inner diameter or small curvature radius, in any case selecting pipe inner diameter that guarantee an oil speed between 0.6 m/s (*1.97 ft/s*) and 2 m/s (*6.56 ft/s*).

Filtration

In order to eliminate any oil impurity and to guarantee a longer duration of the pump, the system must be equipped with effective filtration, whose operation must be periodically checked.
The recommended filtration levels are as follows:
Δp < 150 bar (*2175 psi*):
21/19/16 (ISO 4406) - *class 10 (NAS 1638)*
150 bar (*2175 psi*) < Δp < 210 bar (*3050 psi*):
20/18/15 (ISO 4406) - *class 9 (NAS 1638)*
Δp > 210 bar (*3050 psi*):
19/17/14 (ISO 4406) - *class 8 (NAS 1638)*

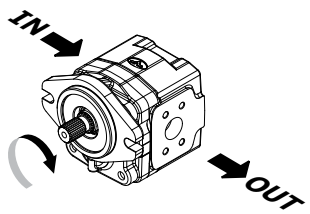
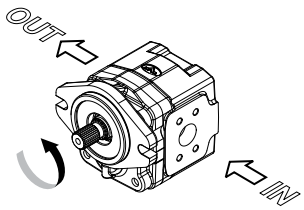
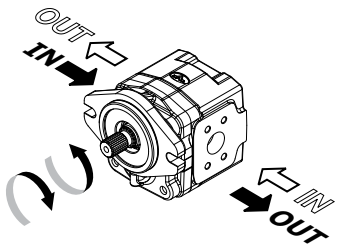
Installation notes

Before starting the system setting, some precautions are recommended:
- Check that the direction of rotation is consistent with the drive shaft one.
- Remove all dirt, chips and all foreign bodies from flanges connecting inlet and delivery ports.
- Protect the drive shaft sealing ring during pump painting; check that the contact area between ring and shaft is clean: dust or abrasive sediments could accelerate the wear and cause leakages.
- Check that there are no misalignments between the pump/motor shaft and the main shaft.
- Radial and/or axial loads on the pump shaft (such as when driving is carried out through pulleys or chains) are not admitted.
- The coupling joint between the spline shafts has to be properly lubricated, free to move axially and of a suitable length to cover both motor and pump shafts.

Notes:
- Do not start the system under load at low temperatures or after long stops.
- Check the whole system filling by bleeding off the whole air amount after few minutes of system working.
- Increase the pressure until you reach the operating values by keeping checked the fluid and the moving parts temperature and the rotation speed. Maintain the set values within the limits specified in this catalogue.

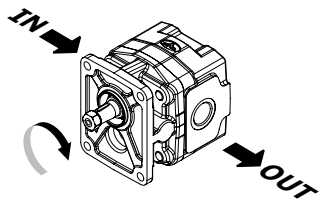
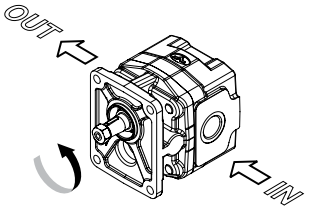
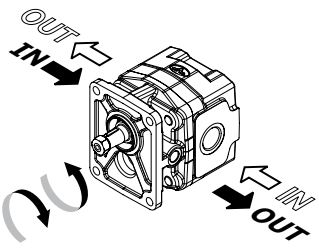
Pump wise rotation

The rotation wise is defined as **S** (counter-clockwise) or **D** (clockwise) by observing the shaft from the front.
In case of counter-clockwise rotation **S** the suction will be to the right of the drive shaft while the deliery will be to your left; the opposite will be for monodirectional pump right **D**. When ordering, it is necessary to specify the required rotation; direction or it is possible to modify the internal structure as illustrated on the next page (reversal).
X defines reversible pump rotation with internal drain.

D	Clockwise rotation	S	Counter-clockwise rotation	X	Reversible rotation
Suction - low pressure  **Delivery** - high pressure		**Delivery** - high pressure  **Suction** - low pressure		 	

Motor wise rotation

The rotation wise is defined by observing the shaft frontally: **S** (counter-clockwise) and **D** (clockwise).
In case of **S** counter-clockwise rotation , outlet port will be the left of the shaft while inlet port to its right; the opposite layout is used in case of **D** clockwise rotation.
When ordering please specify the required rotation wise of monodirectional motors, otherwise modify the internal assembly layout as indicated on the next page (otation reversal).
R defines reversible motor rotation with external drain.
X defines reversible pump rotation with internal drain.

D	Clockwise rotation	S	Counter-clockwise rotation	R	X	Reversible rotation
Inlet - high pressure  **Outlet** - low pressure		**Outlet** - low pressure  **Inlet** - high pressure				

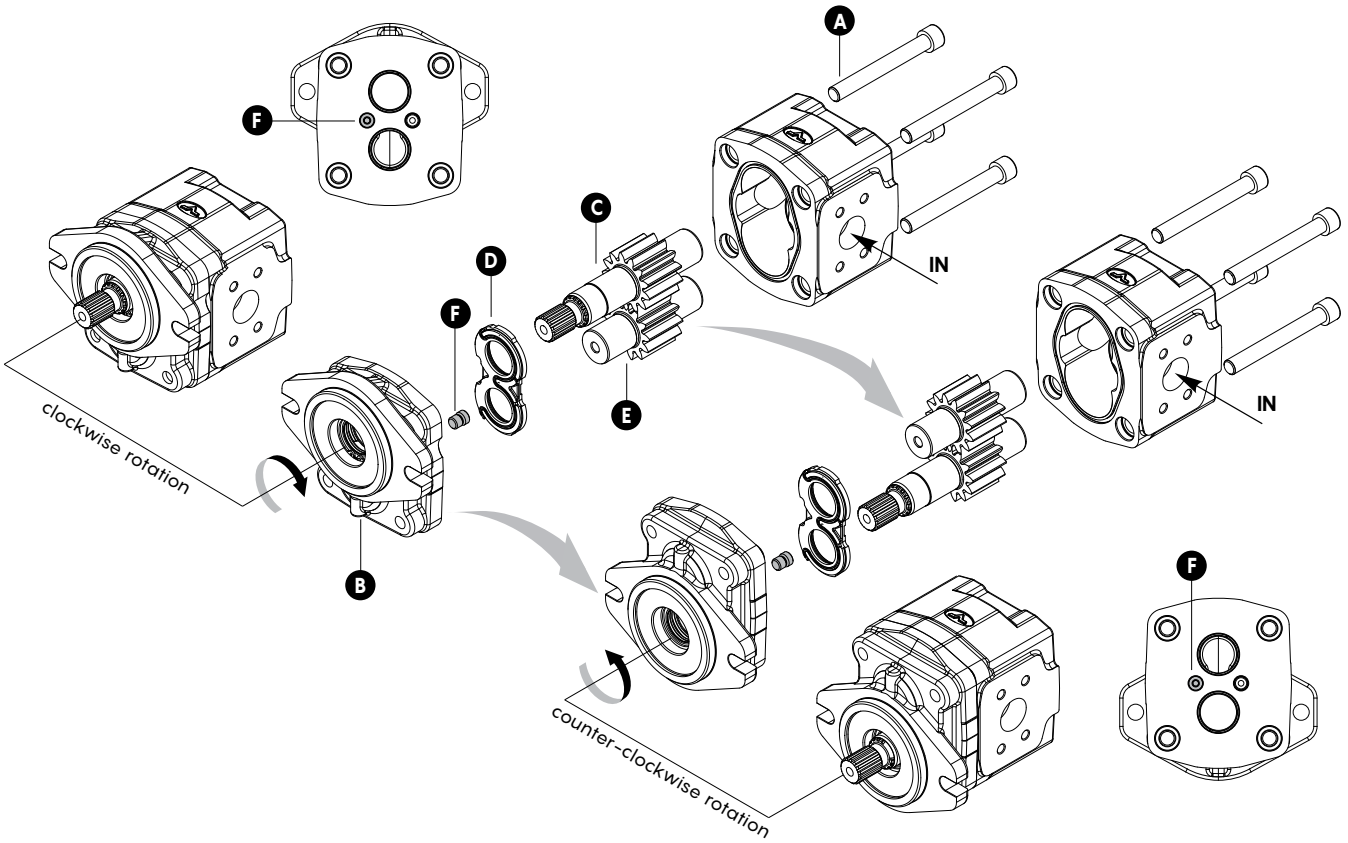
Definitions

Pump/motor rotation reversal

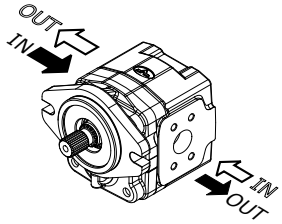
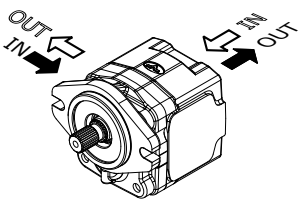
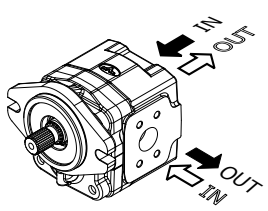
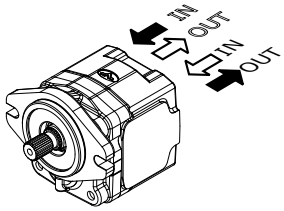
How to invert the wise rotation:

- Disassemble the pump by unscrewing the screws **A** (allen wrench 12) and remove the flange **B**.
- Pull off the driving gear **C** with the upper thrust plate kit **D**; the lower thrust plate kit must remain in place.
- Remove the driven gear **E** and insert it into the driving gear seat, insert the driving gear **C** in the other seat.
- Insert the upper thrust plate kit **D** in the previous position.
- Unscrew the plug **F** on the flange **B** and screw it into the other threaded hole, then assemble the flange by rotating it 180°.
- Reassemble the pump by tightening the screws **A** with a torque of 160 Nm (*118 lbft*).

NOTE: the rotation reversal procedure is not applicable to reversible motors.



Ports position

Available connection positions			
0	1	3	4
			

Clockwise rotation - **D**

Counter-clockwise rotation - **S**

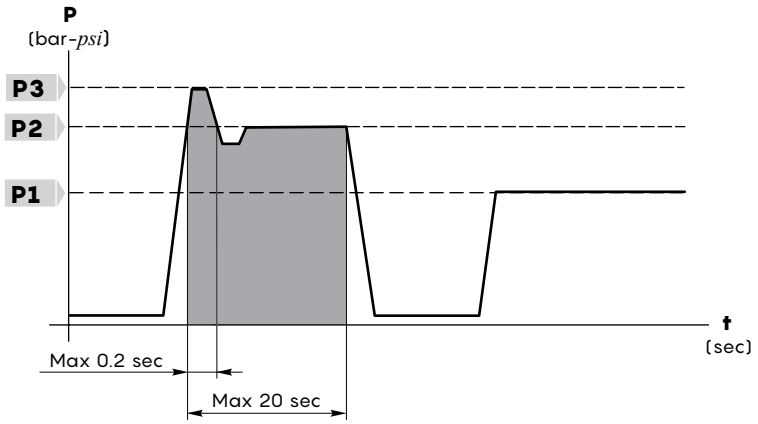
Operative parameters

Hydraulic measures		
Q	Flow	(l/min - *USgpm*)
M	Torque	(Nm - *lbft*)
P	Power	(kW - HP)
V	Displacement	(cm^3/rev - in^3/*rev*)
n	Speed	(rpm - min^{-1})
Δp	Pressure	(bar - *psi*)
η_v	Volumetric efficiency	
η_m	Mechanical efficiency	
η_t	Overall efficiency	

Conversion factor	
1 l/min	*0.2641 USgpm*
1 Nm	*8.851 lbin*
1 Nm	*0.7375 lbft*
1 N	*0.2248 lbf*
1 kW	*1.34 HP*
1 cm^3/rev	*0.061 in^3/rev*
1 bar	*14.5 psi*
1 mm	*0.0394 in*
1 kg	*2.205 lbs*

Working pressure definition

The pumps can be subjected to the P1, P2 or P3 pressures shown in the performance tables.
The following diagram illustrates the definitions and applicability by respecting the included rotation speed limits.

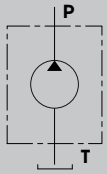
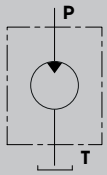
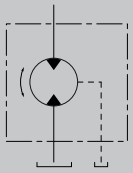


P3 Max peak pressure

P2 Max intermittent pressure

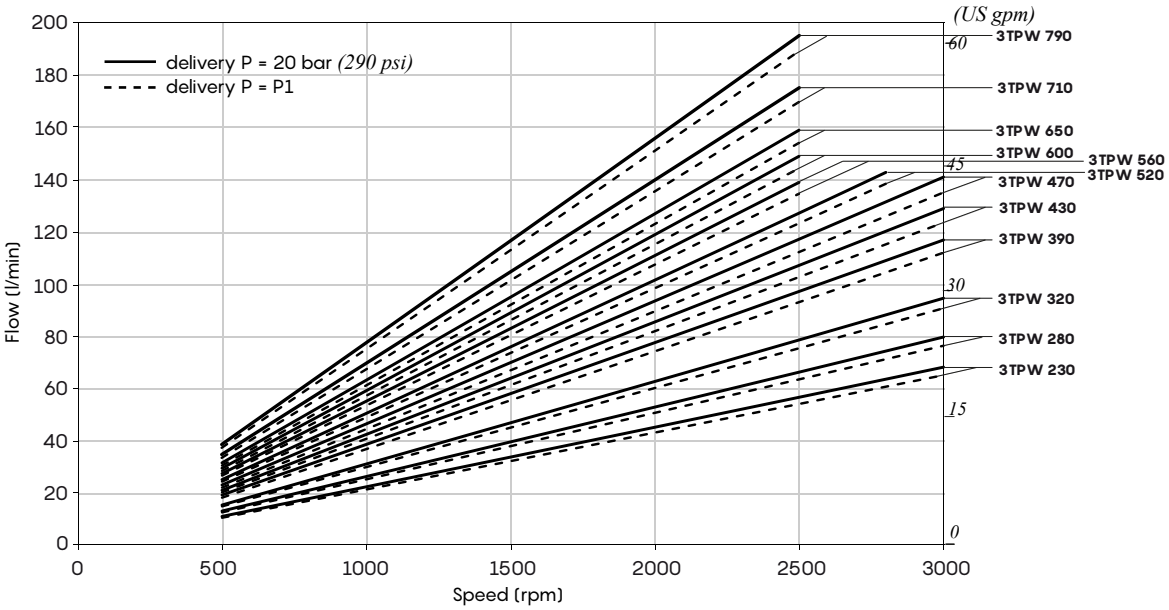
P1 Continuos max pressure

Pressure and rotation speed

Symbol	Type	Displacement		P1 Max continuous pressure		P2 Max intermittent pressure		P3 Max peak pressure		Rotation speed max	Rotation speed min
		cm³/rev	*in³/rev*	bar	*psi*	bar	*psi*	bar	*psi*	rpm	rpm
Unidirectional pump/motor type											
	**3TPW/3TMW 230**	23.9	*1.46*	300	*4350*	320	*4650*	330	*4780*	3000	500
	3TPW/3TMW 280	28.0	*1.71*	300	*4350*	320	*4650*	330	*4780*	3000	500
	3TPW/3TMW 320	32.2	*1.96*	300	*4350*	320	*4650*	330	*4780*	3000	500
	3TPW/3TMW 390	39.7	*2.42*	300	*4350*	320	*4650*	330	*4780*	3000	500
	3TPW/3TMW 430	43.8	*2.67*	300	*4350*	320	*4650*	330	*4780*	3000	500
	3TPW/3TMW 470	47.9	*2.92*	290	*4200*	310	*4490*	320	*4650*	3000	500
	3TPW/3TMW 520	52.0	*3.18*	290	*4200*	310	*4490*	320	*4650*	2800	500
	**3TPW/3TMW 560**	56.8	*3.47*	290	*4200*	310	*4490*	320	*4650*	2500	500
	3TPW/3TMW 600	60.9	*3.72*	270	*3910*	290	*4200*	300	*4350*	2500	500
	3TPW/3TMW 650	65.0	*3.97*	250	*3620*	270	*3910*	280	*4050*	2500	500
	3TPW/3TMW 710	71.6	*4.37*	230	*3330*	250	*3620*	260	*3770*	2500	500
	3TPW/3TMW 790	79.8	*4.87*	210	*3050*	230	*3330*	240	*3480*	2500	500
Reversible motor type											
	**3TMW 230**	23.9	*1.46*	300	*4350*	320	*4650*				
	3TMW 280	28.0	*1.71*	300	*4350*	320	*4650*				
	3TMW 320	32.2	*1.96*	300	*4350*	320	*4650*				
	3TMW 390	39.7	*2.42*	300	*4350*	320	*4650*				
	3TMW 430	43.8	*2.67*	300	*4350*	320	*4650*				
	3TMW 470	47.9	*2.92*	290	*4200*	310	*4490*				
	3TMW 520	52.0	*3.18*	290	*4200*	310	*4490*				
	3TMW 560	56.8	*3.47*	290	*4200*	310	*4490*				
	3TMW 600	60.9	*3.72*	270	*3910*	290	*4200*				
	3TMW 650	65.0	*3.97*	250	*3620*	270	*3910*				
	3TMW 710	71.6	*4.37*	230	*3330*	250	*3620*				
	3TMW 790	79.8	*4.87*	210	*3050*	230	*3330*				

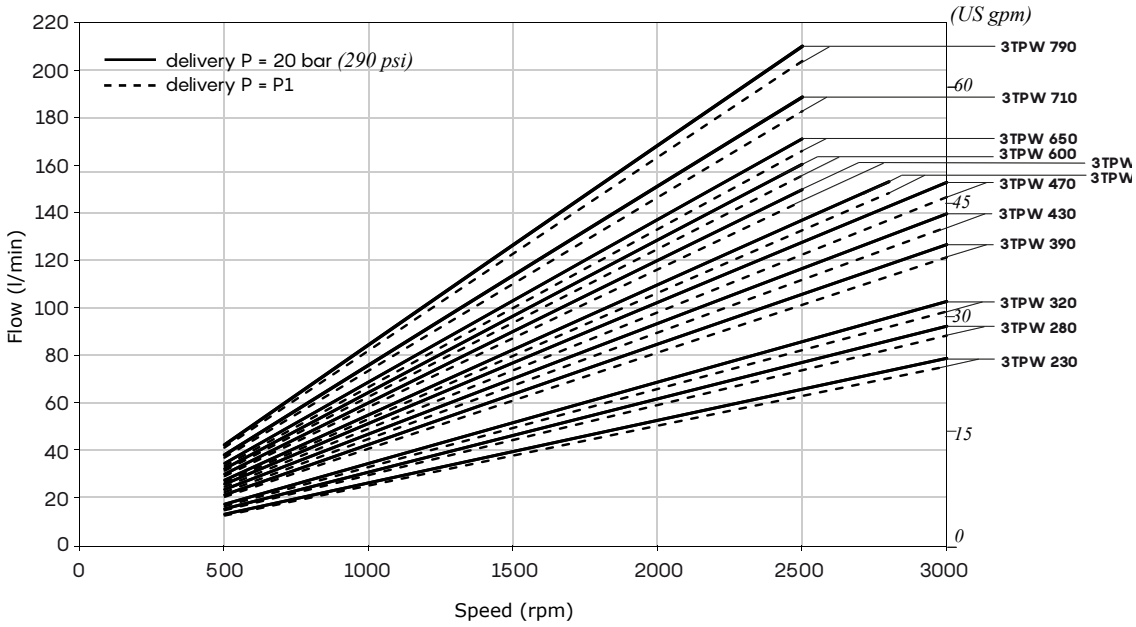
Flow and rotation speed

3TPW Pumps



Reference values*
$\eta_v \approx 0.97$
$\eta_m \approx 0.88$
$\eta_t = \eta_v \cdot \eta_m \approx 0.85$

3TMW Motors



Reference values*
$\eta_v \approx 0.96$
$\eta_m \approx 0.85$
$\eta_t = \eta_v \cdot \eta_m \approx 0.82$

Hydraulic measures		
Q =	$V \cdot \eta_v \cdot n / 1000$	(l/min)
	$V \cdot \eta_v \cdot n / 231$	*(USgpm)*
M =	$\Delta p \cdot V$ / $62.83 \cdot \eta_m$	(Nm)
	$\Delta p \cdot V$ / $2 \cdot 3.14 \cdot \eta_m$	*(lfb.in)*

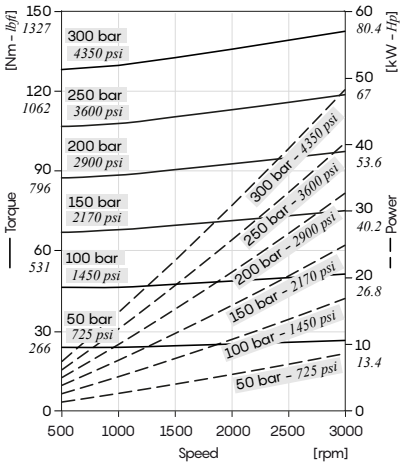
Hydraulic measures		
P =	$\Delta p \cdot V \cdot n$ / $600 \cdot 1000 \cdot \eta_t$	(kW)
	$\Delta p \cdot V \cdot n$ / $395934 \cdot \eta_t$	*(HP)*

NOTE: (*) ....@1500 rpm with ISO VG46 Oil @40°C *(104 °F)*

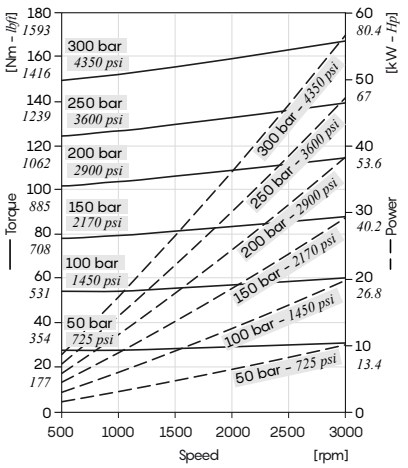
Torque and Power diagrams

3TPW pumps

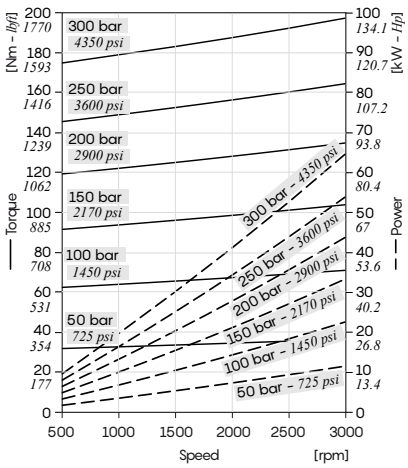
3TPW 230



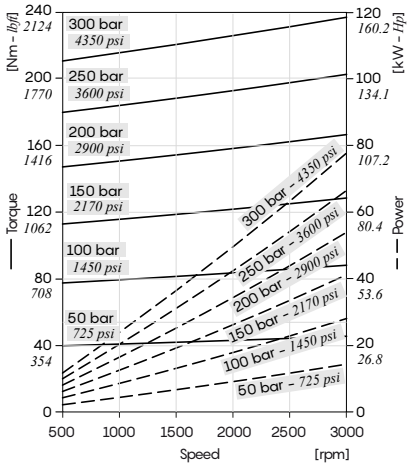
3TPW 280



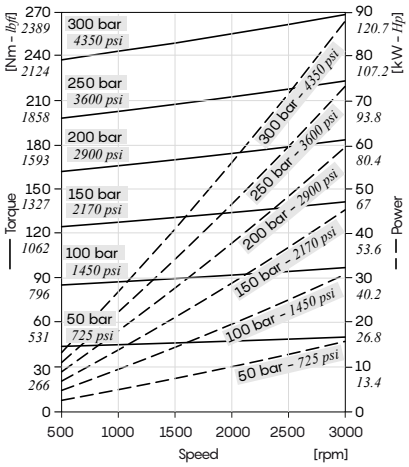
3TPW 320



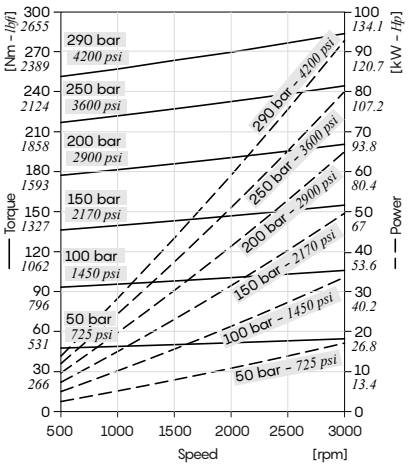
3TPW 390



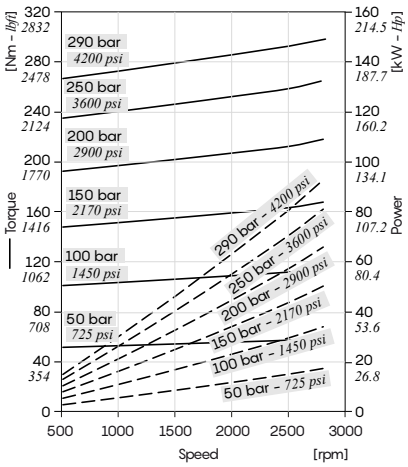
3TPW 430



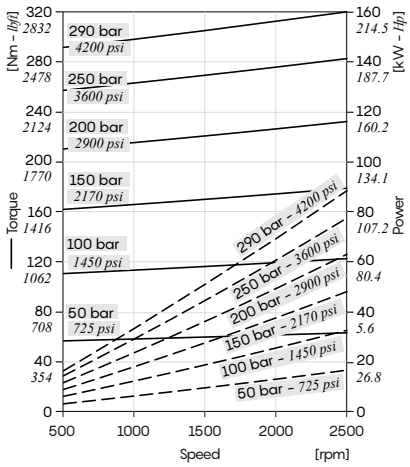
3TPW 470



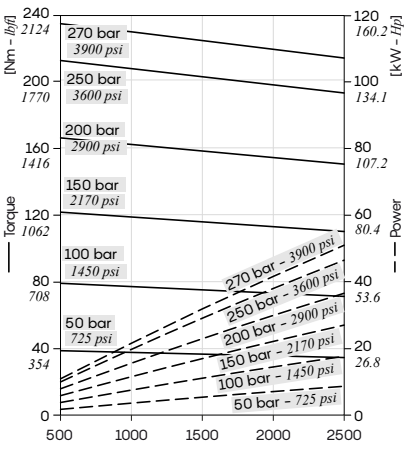
3TPW 520



3TPW 560



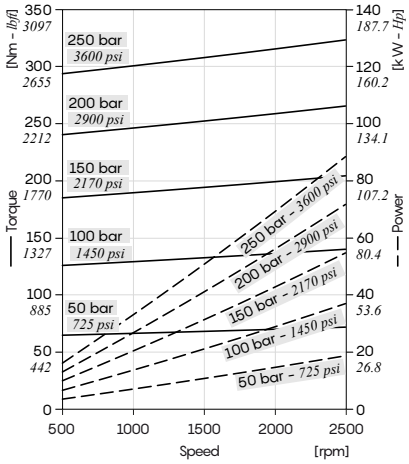
3TPW 600



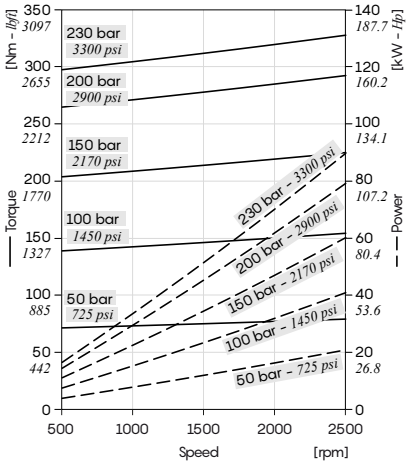
Torque and Power diagrams

3TPW pumps

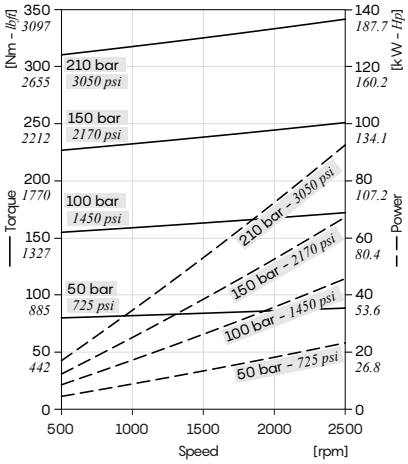
3TPW 650



3TPW 710

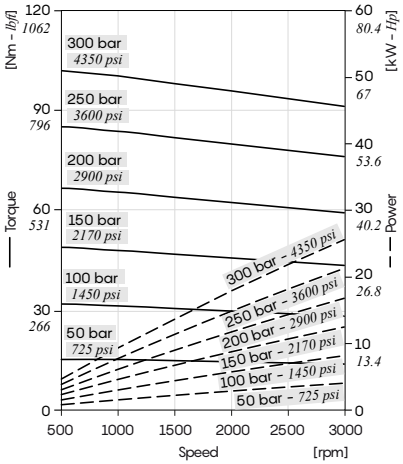


3TPW 790

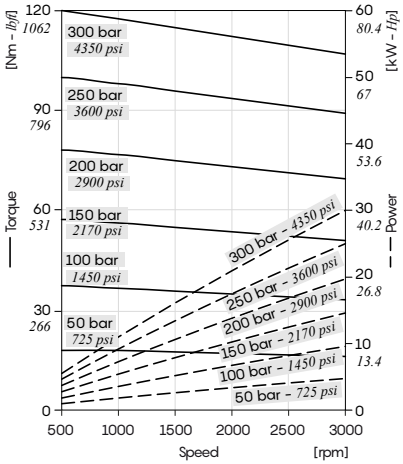


3TMW motors

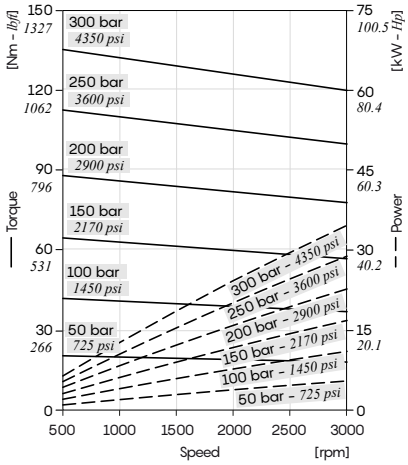
3TMW 230



3TMW 280



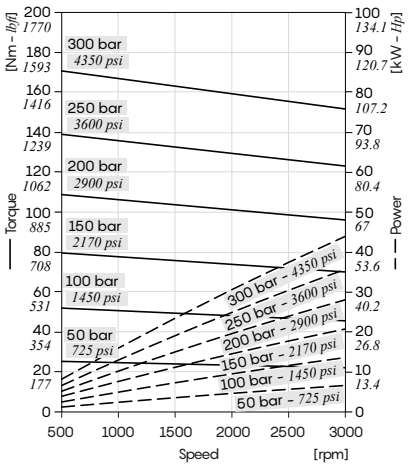
3TMW 320



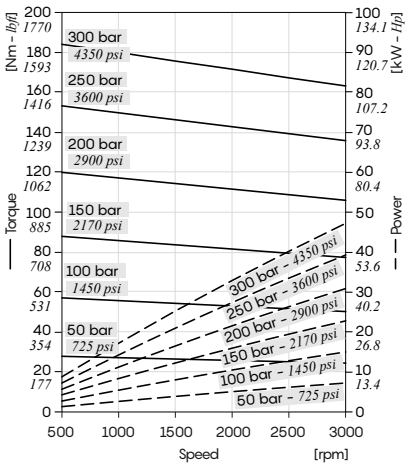
Torque and Power diagrams

3TMW motors

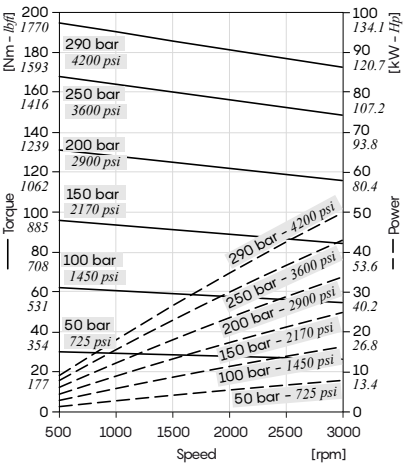
3TMW 390



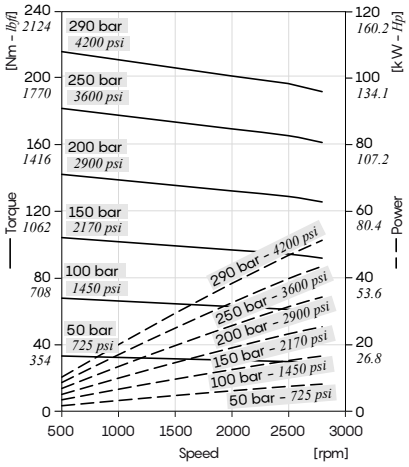
3TMW 430



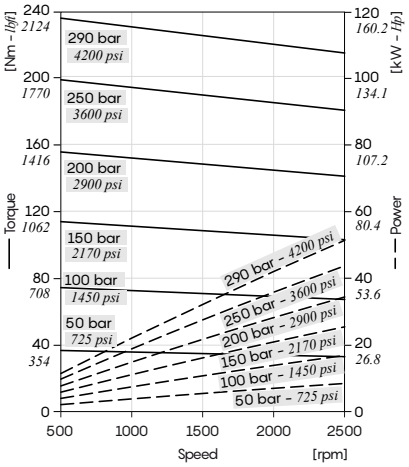
3TMW 470



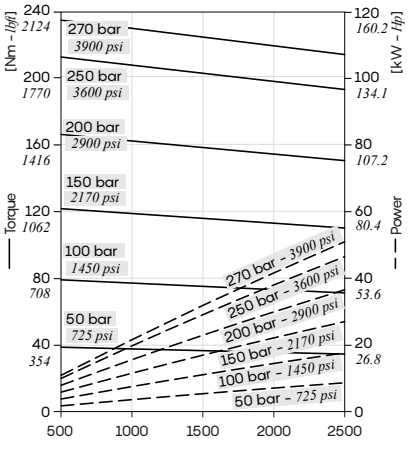
3TMW 520



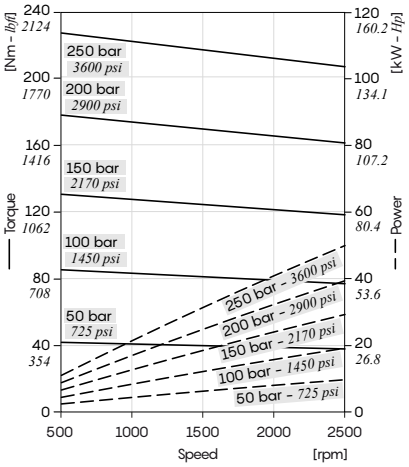
3TMW 560



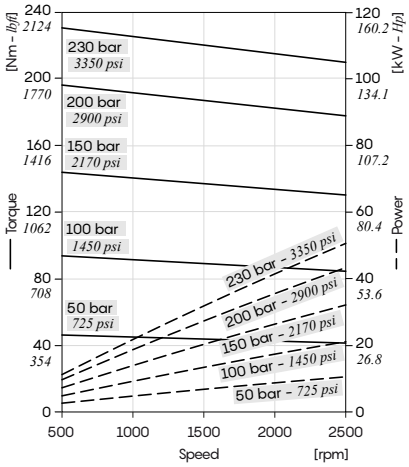
3TMW 600



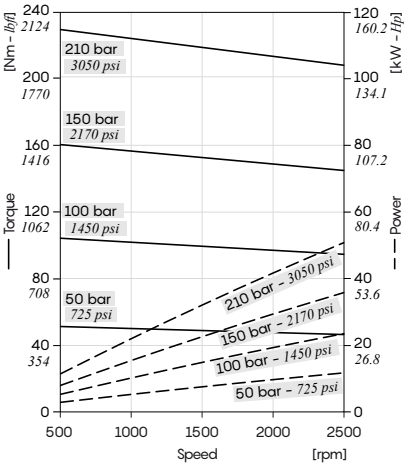
3TMW 650



3TMW 710



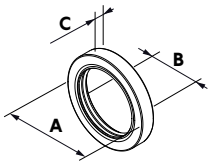
3TMW 790



Shaft sealing (main sealing)

Shaft seal configuration	Pressure code	
	B Pumps	K Motors
Without shaft seal	–	–
Standard: with shaft seal **Type 2: with double shaft seal (or shaft seal+dust seal)**	Max pressure up to 3 bar (*43.5 psi*) @ 500 rpm 0.7 bar (*10.1 psi*) @ 3000 rpm	Max pressure up to 30 bar (*435 psi*) @ 500 rpm 8 bar (*116 psi*) @ 3000 rpm

"–" = not available

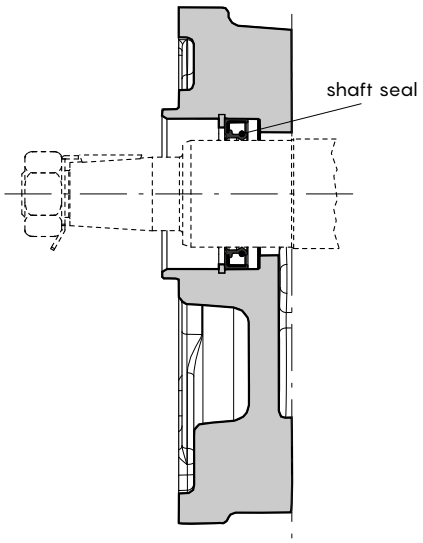


Shaft seals dimensions		
	mm	*in*
ØA	45	*1.77*
ØB	32	*1.26*
C	7	*0.276*

With shaft seal: standard flange kit

Flange example: EUR

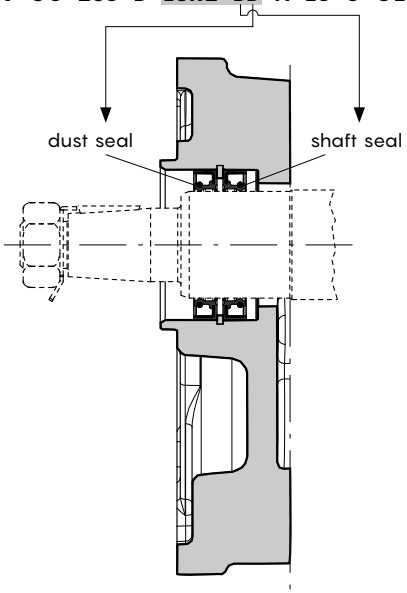
3TPW-G0-230-D-EUR-B-N-10-0-G1G34



With double shaft seal (or shaft seals+ dust seals)

Flange example: EUR

3TPW-G0-230-D-EUR2-BB-N-10-0-G1G34

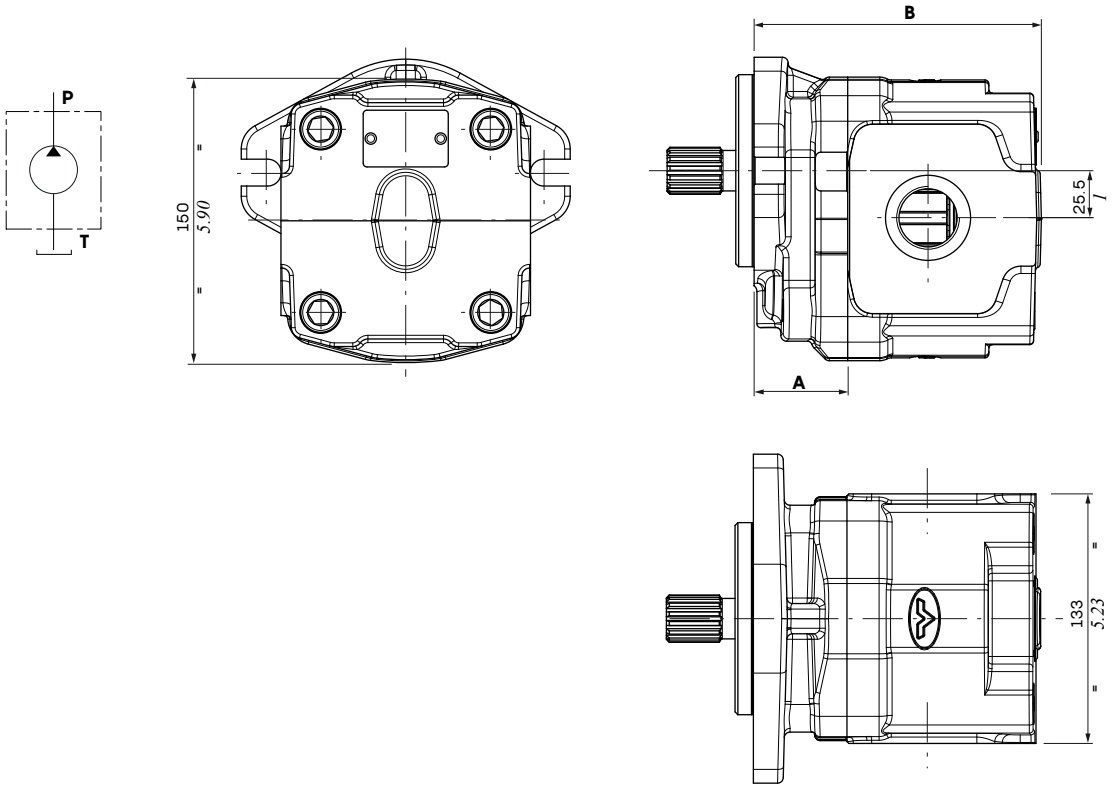


NOTES
NBR and FPM sealing types are available; for other materials and further information please contact our Sales Dpt.
High pressure shaft seal are available on request; please contact our Sales Dpt.

3TPW/3TMW main dimensional data

Pump description example

3TPW-G0-650-D-SAEB-B-N-S13-0-G114G1



	Flange type							
	Dimension A							
	EUR		SAEB		SAEC2F		SAEC4F	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*
	66	*1.33*	49.5	*1.95*	49.5	*1.95*	82	*3.23*

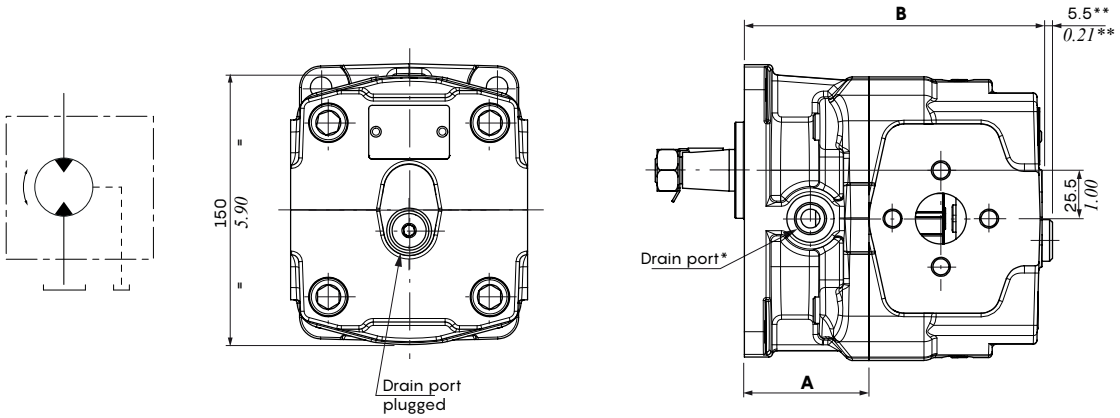
Displacement	Dimension B							
	EUR		SAEB		SAEC2F		SAEC4F	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*
230	144.5	*5.69*	128	*5.04*	128	*5.04*	160.5	*6.32*
280	147.5	*5.81*	131	*5.16*	131	*5.16*	163.5	*6.44*
320	150.5	*5.93*	134	*5.28*	134	*5.28*	166.5	*6.56*
390	156	*6.14*	139.5	*5.49*	139.5	*5.49*	172	*6.77*
430	159	*6.26*	142.5	*5.61*	142.5	*5.61*	175	*6.89*
470	162	*6.38*	145.5	*5.73*	145.5	*5.73*	178	*7.01*
520	165	*6.50*	148.5	*5.85*	148.5	*5.85*	181	*7.13*
560	168.5	*6.63*	152	*5.98*	152	*5.98*	184.5	*7.26*
600	171.5	*6.75*	155	*6.10*	155	*6.10*	187.5	*7.38*
650	174.5	*6.87*	158	*6.22*	158	*6.22*	190.5	*7.5*
710	179.5	*7.07*	163	*6.42*	163	*6.42*	195.5	*7.70*
790	185.5	*7.30*	169	*6.65*	169	*6.65*	201.5	*7.93*

NOTE: for flanges dimensions see pages 22/23.

3TPW/3TMW main dimensional data

Motor description example

3TMW-G0-430-R-EUR(DREND)-K-N-10-0-N27N27-DRENG38



(*): only for EUR flange
(**): referred to BSP thread

	Flange type							
	Dimension A							
	EUR		SAEB		SAEC2F		SAEC4F	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*
	66	*1.33*	49.5	*1.95*	49.5	*1.95*	82	*3.23*

Displacement	Dimension B							
	EUR		SAEB		SAEC2F		SAEC4F	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*
230	143	*5.63*	126.5	*4.98*	126.5	*4.98*	159	*6.26*
280	146	*5.75*	129.5	*5.10*	129.5	*5.10*	162	*6.38*
320	149	*5.87*	132.5	*5.22*	132.5	*5.22*	165	*6.50*
390	154.5	*6.08*	138	*5.43*	138	*5.43*	170.5	*6.72*
430	157.5	*6.20*	141	*5.55*	141	*5.55*	173.5	*6.83*
470	160.5	*6.32*	144	*5.67*	144	*5.67*	176.5	*6.95*
520	163.5	*6.44*	147	*5.79*	147	*5.79*	179.5	*7.07*
560	167	*6.57*	150.5	*5.93*	150.5	*5.93*	183	*7.20*
600	170	*6.69*	153.5	*6.04*	153.5	*6.04*	186	*7.32*
650	173	*6.81*	156.5	*6.16*	156.5	*6.16*	189	*7.44*
710	178	*7.01*	161.5	*6.36*	161.5	*6.36*	194	*7.64*
790	184	*7.24*	167.5	*6.59*	167.5	*6.59*	200	*7.87*

NOTE: for flanges dimensions see pages 22/23.

Ports threading and connections

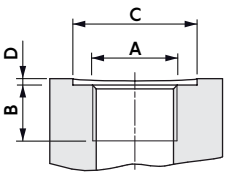
G (BSP) port threading

Displ.	Side ports - Rear drain				
	Pumps and unidir. motors		Reversible motors		
	LP**	HP**	LP**	HP**	DRAIN
230	G1	G34	G34	G34	G38
280	G1	G34	G34	G34	G38
320	G114	G1	G1	G1	G38
390	G114	G1	G1	G1	G38
430	G114	G1	G1	G1	G38
470	G114	G1	G1	G1	G38
520	G114	G1	G1	G1	G38
560	G114	G1	G1	G1	G38
600	G114	G1	G1	G1	G38
650	G114	G1	G1	G1	G38
710	G112	G1	G1	G1	G38
790	G112	G1	G1	G1	G38

(**) LP = Low presure / HP = High Pressure

	Thread dimension												
	A *	B		C (Ø)		D		LP**		HP**		DRAIN	
		mm	in	mm	in	mm	in	Nm	lbft	Nm	lbft	Nm	lbft
G38	G 3/8"	12	0.47	25	0.98	0.5	0.020	-	-	-	-	15	11
G34	G 3/4"	18	0.71	36	1.48	0.5	0.020	30	22	90	66.4	-	-
G1	G 1"	20	0.79	45	1.77	0.5	0.020	50	37	130	96	-	-
G114	G 1"1/4	20	0.79	60	2.36	0.5	0.020	60	44	170	125	-	-
G112	G1"1/2	22	0.87	60	2.36	0.5	0.020	70	51.5	210	155	-	-

(*) threading according to ISO 228/1 - (**) LP = Low presure / HP = High Pressure



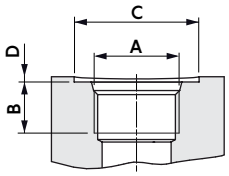
U (UN-UNF) port threading

Displ.	Side ports - Rear drain				
	Pumps and unidir. motors		Reversible motors		
	LP**	HP**	LP**	HP**	DRAIN
230	U16	U12	U12	U12	U06
280	U16	U12	U12	U12	U06
320	U20	U16	U16	U16	U06
390	U20	U16	U16	U16	U06
430	U20	U16	U16	U16	U06
470	U20	U16	U16	U16	U06
520	U20	U16	U16	U16	U06
560	U20	U16	U16	U16	U06
600	U20	U16	U16	U16	U06
650	U20	U16	U16	U16	U06
710	U20	U16	U16	U16	U06
790	U20	U16	U16	U16	U06

(**) LP = Low presure / HP = High Pressure

	Thread dimension												
	A *	B		C (Ø)		D		LP**		HP**		DRAIN	
		mm	in	mm	in	mm	in	Nm	lbft	Nm	lbft	Nm	lbft
U06	9/16-18 (SAE6)	13	0.51	23	0.91	0.5	0.020	-	-	-	-	15	11
U12	1 1/16-12 (SAE12)	20	0.79	41	1.61	0.5	0.020	40	30	120	88	-	-
U16	1 5/16-12 (SAE16)	20	0.79	49	1.97	0.5	0.020	60	44	170	125	-	-
U20	1 5/8-12 (SAE20)	20	0.79	58	2.28	0.5	0.020	70	51.5	200	147	-	-

(*) threading according to ISO 262 - ANSI B1.1 - (**) LP = Low presure / HP = High Pressure



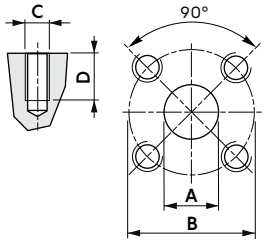
T (GERMAN flange) port connection

Displ.	Side ports - Rear drain				
	Pumps and unidir. motors		Reversible motors		
	LP**	HP**	LP**	HP**	DRAIN
230	T27	T19	T19	T19	G38
280	T27	T19	T19	T19	G38
320	T27	T19	T19	T19	G38
390	T27	T19	T19	T19	G38
430	T27	T19	T27	T27	G38
470	T27	T19	T27	T27	G38
520	T27	T19	T27	T27	G38
560	T27	T19	T27	T27	G38
600	T27	T19	T27	T27	G38
650	T27	T19	T27	T27	G38
710	T27	T19	T27	T27	G38
790	T27	T19	T27	T27	G38

(**) LP = Low presure / HP = High Pressure

	Thread dimension										
	A (Ø)		B (Ø)		C	D		LP**		HP**	
	mm	in	mm	in		mm	in	Nm	lbft	Nm	lbft
T19	19	0.75	55	2.17	M8	17	0.67	20	15	20	15
T27	27	1.06	55	2.17	M8	17	0.67	20	15	20	15

(**) LP = Low presure / HP = High Pressure
NOTE: for drain connection tightening torque see G port threading tables.



Ports threading and connections

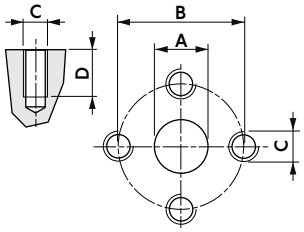
N (EUROPEAN flange) port connection

Displ.	Side ports - Rear drain				
	Pumps and unidir. motors		Reversible motors		
	LP**	HP**	LP**	HP**	DRAIN
230	N27	N19	N19	N19	G38
280	N27	N19	N19	N19	G38
320	N27	N19	N19	N19	G38
390	N27	N19	N19	N19	G38
430	N27	N19	N27	N27	G38
470	N27	N19	N27	N27	G38
520	N27	N19	N27	N27	G38
560	N27	N19	N27	N27	G38
600	N27	N19	N27	N27	G38
650	N27	N19	N27	N27	G38
710	N27	N19	N27	N27	G38
790	N27	N19	N27	N27	G38

(**) LP = Low presure / HP = High Pressure

	Thread dimension										
	A (Ø)		B (Ø)		C	D		LP**		HP**	
	mm	*in*	mm	*in*		mm	*in*	Nm	*lbft*	Nm	*lbft*
N13	13	*0.51*	30	*1.18*	M6	15	*0.59*	9.8	*7.2*	9.8	*7.2*
N19	19	*0.75*	40	*1.57*	M8	15	*0.59*	20	*15*	20	*15*

NOTE: for drain connection tightening torque see G port threading tables.(**)
LP = Low presure / HP = High Pressure



F port connection: dimensions according to SAE J518-1 / ISO 6162-1

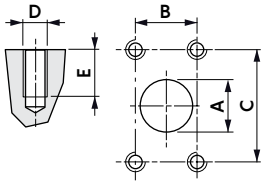
Port connection FU with UN-UNF screws and SAE drain port are available on request

Displ.	Side ports - Rear drain				
	Pumps and unidir. motors		Reversible motors		
	LP**	HP**	LP**	HP**	DRAIN
230	F25	F19	F19	F19	U6
280	F25	F19	F19	F19	U6
320	F32	F19	F19	F19	U6
390	F32	F19	F19	F19	U6
430	F32	F25	F25	F25	U6
470	F39	F25	F25	F25	U6
520	F39	F25	F25	F25	U6
560	F39	F32	F32	F32	U6
600	F39	F32	F32	F32	U6
650	F39	F32	F32	F32	U6
710	F39	F32	F32	F32	U6
790	F39	F32	F32	F32	U6

(**) LP = Low presure / HP = High Pressure

	Thread dimension												
	A (Ø)		B		C		D	E		LP**		HP**	
	mm	*in*	mm	*in*	mm	*in*		mm	*in*	Nm	*lbft*	Nm	*lbft*
F19	19	*0.78*	22.3	*0.88*	47.6	*1.87*	M10	18	*0.71*	30	*22*	30	*22*
F25	25	*0.98*	26.2	*1.03*	52.4	*2.06*	M10	18	*0.71*	30	*22*	30	*22*
F32	32	*1.26*	30.2	*1.19*	58.7	*2.31*	M10	18	*0.71*	30	*22*	30	*22*
F39	39	*1.54*	35.7	*1.41*	69.9	*2.75*	M12	23	*0.91*	42	*31*	42	*31*

NOTES: for drain connection tightening torque see U port threading tables.
(**) LP = Low presure / HP = High Pressure



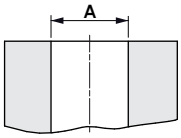
B port arrangement: only pre-drilling

This option is avalable only for pumps with G0D body configuration; see page 31.

Displacement	Side ports	
	Pumps and unidir. motors	
	LP**	HP**
230	B13	B19
280	B13	B19
320	B19	B27
390	B19	B27
430	B19	B27
470	B19	B27
520	B19	B27
560	B19	B27
600	B19	B27
650	B19	B33
710	B27	B33
790	B27	B33

(**) LP = Low presure / HP = High Pressure

	Bore dimension	
	A (Ø)	
	mm	*in*
B13	13	*0.51*
B19	19	*0.75*
B27	27	*1.06*
B33	33	*1.30*



Description composition

3TPW pump configuration example

																		5A		
			5A			5A												Suction port		Delivery port
			3			3				1		1	2		3			G114		G1
3TPW	-	G0	-	650	-	D	-	SAEB	-	B	-	N	-	S13	-	0	-			

Stage type
G0: standard body
G0V: body with valves arrangement
G0D: body with tandem arrangement

Displacement
230 - 280 - 320 - 390 - 430 - 470
520 - 560 - 600 - **650** - 710 - 790

Rotation direction
D: clockwise
S: counter-clockwise
X: reversible with internal drain

Standard flanges
SAEB - SAEC2F - SAEC4F - EUR
Flanges with double seal
SAEB2 - SAEC2F2 - SAEC4F2 - EUR2

Shaft O-ring seals
B: for pressure up to 3 bar - *43.5 psi*
BB: with shaft seal and dust seal; pressure up to 3 bar - *43.5 psi*

O-ring seals
N: NBR
V: FPM

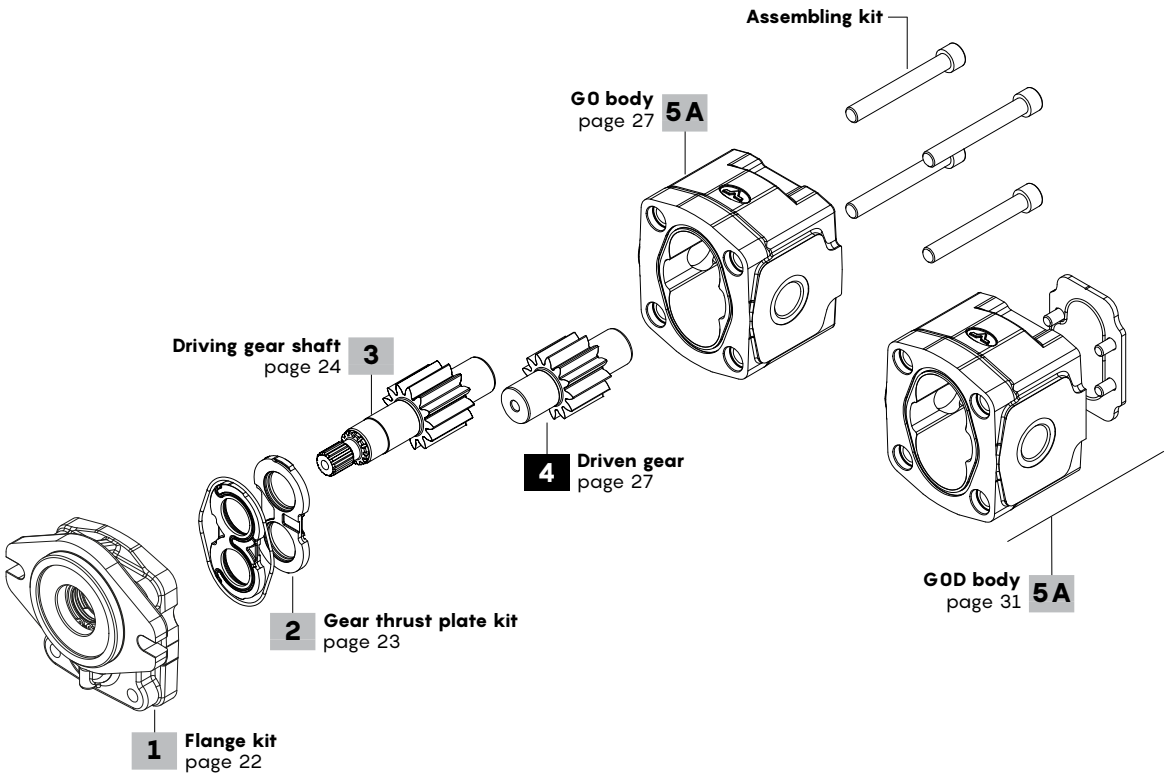
Shaft type
10: tapered 1:8
13: SAEB 7/8"
S13: SAEB 13T splined
S13N: SAEB 13T NS *
S14: SAEC 14T splined
S14L: SAEC 14T L
S15: SAEB 15T splined
S15L: SAEC 15T L

***NOTE (*)**: Available only for configuration with single shaft seal (see page 15)*

Connection position
0: side ports
1: left side and rear ports
3: right side and rear ports
4: rear ports

Connection type
G: BSP threading
U: UN-UNF threading
N: european flange
T: german flange
F: SAE J518-1 flange

***NOTE**: For dimensions see pages 18-19*



Description composition

3TMW motor configuration example

5B 5B 3 1 2 1 5B Suction port Delivery port 5B 1

3TMW - G0 - 600 - R - EUR (DREND) - K B - N - S13 - 0 - G1 G1 - DRENG38-<CVN>

Stage type
G0: standard body
G0V: with valves arrangement

Displacement
230 - 280 - 320 - 390
430 - 470 - 520 - 560
600 - 650 - 710 - 790

Rotation direction
D: clockwise
S: counter-clockwise
R: reversible
x: reversible with internal drain

Standard flanges
SAEB - SAEC2F - SAEC4F - EUR
Double seal arrangement
SAEB2 - SAEC2F2 - SAEC4F2 - EUR2

Shaft O-ring seals
B: for pressure up to 3 bar - *43.5 psi*
K: for pressure up to 30 bar - *435 psi*

Dust seals
B: for pressure up to 3 bar - *43.5 psi*
K: for pressure up to 30 bar - *435 psi*

O-ring type
N: NBR
V: FPM

Optional drain on flange: only for type EUR
(DREND): right side drain
(DRENS): left side drain
(DRENTAP): right and left drain plugged
***NOTE**: unless specified rear drain is assumed*

Connection type
G: BSP threading
U: UN-UNF threading
N: european flange
T: german flange
F: SAE J518-1 flange
***NOTE**: For dimensions see pages 18-19*

Drain port
DRENG38: G3/8 drain
DRENU10: SAE10 drain
NOTE: Unless otherwise specified (e.g. on the flange), the drain port is on the rear side

Connection position
0: side ports
1: left side and rear ports
3: right side and rear ports
4: rear ports

Shaft type
10: tapered 1:8
13: SAEB 7/8"
S13: SAEB 13T splined
S13N: SAEB 13T NS*
S14: SAEC 14T splined
S14L: SAEC 14T L
S15: SAEB 15T splined
S15L: SAEC 15T L
***NOTE (*)**: Available only for configuration with single shaft seal (see page 15)*

5B 6

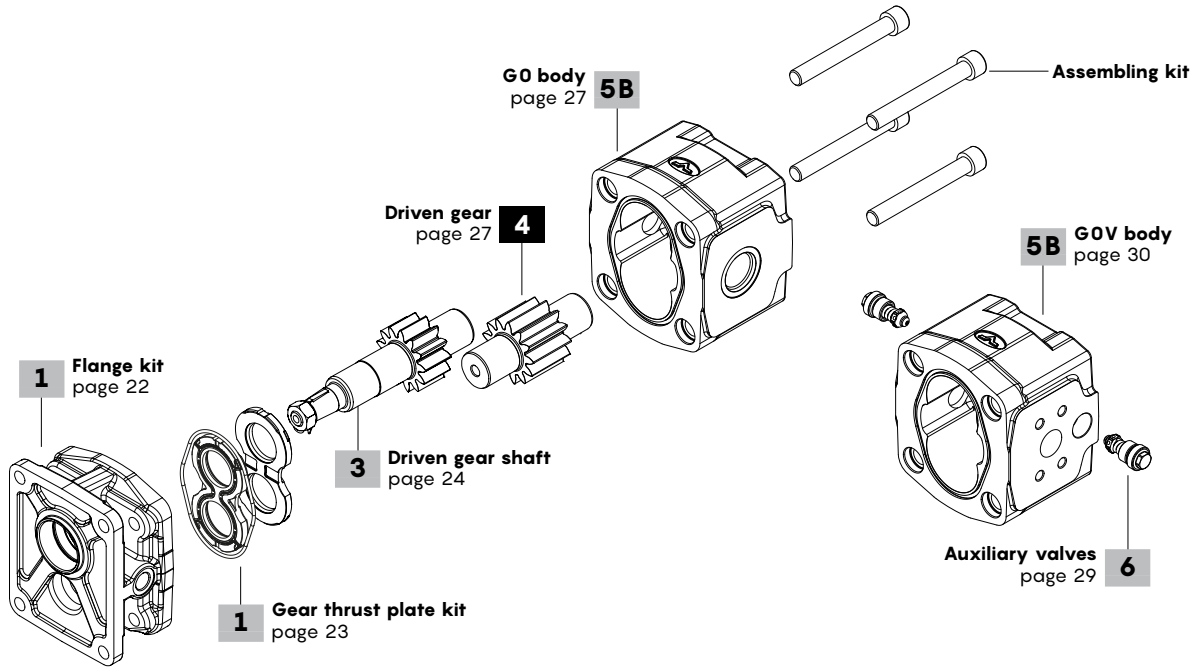
3TMW-G0V-600-R-EUR(DREND)-K-N-S13-0-G1G1-D U (160) \ S U (160)-DRENG38-<CVN>

Stage type
G0: standard body
G0V: with valves arrangement

Auxiliary valves position
D: valve on right rotation
S: valve on left rotation

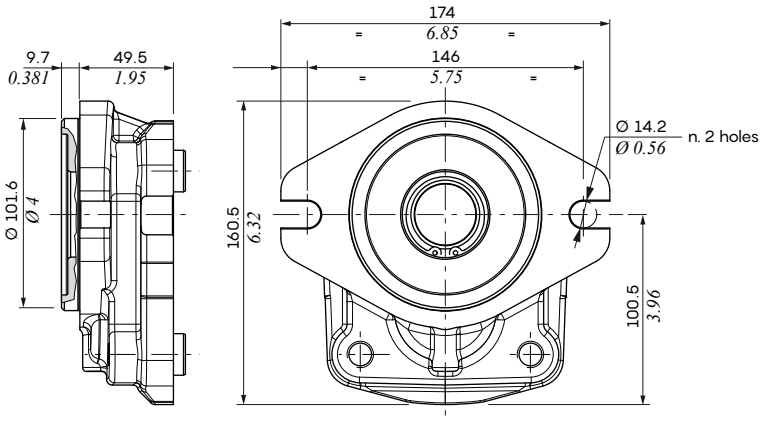
Auxiliary valves type
C: anticavitation valve
U: antishock+anticavitation valves

Auxiliary valves setting
specify the setting value in bar

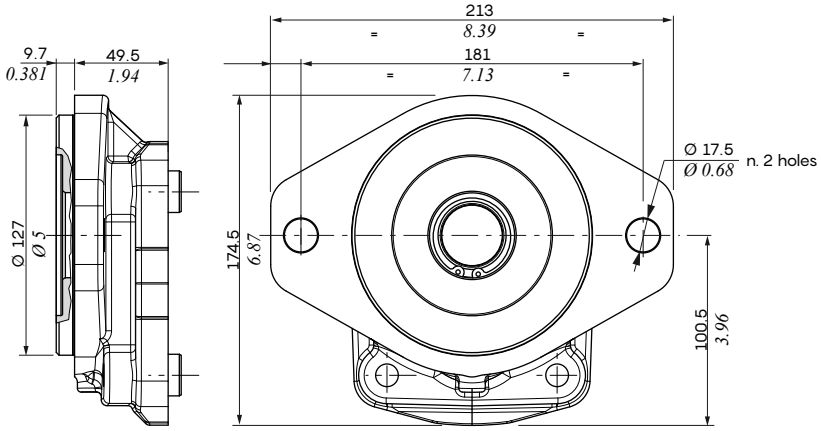


Flanges kits

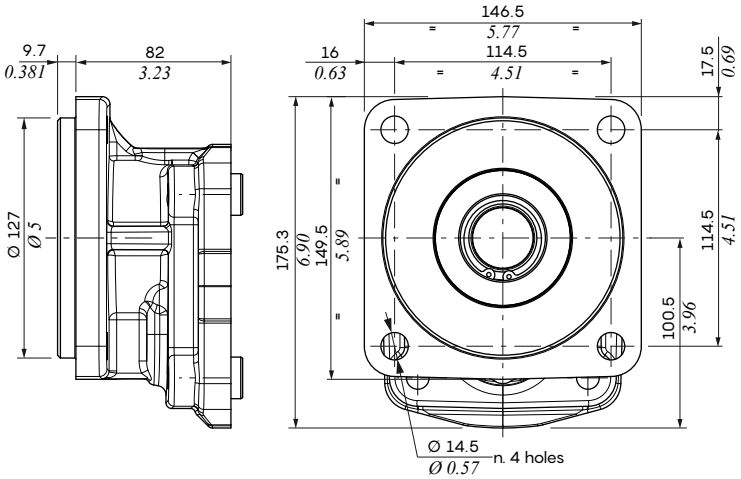
SAEB type dimensions



SAEC2F type dimensions

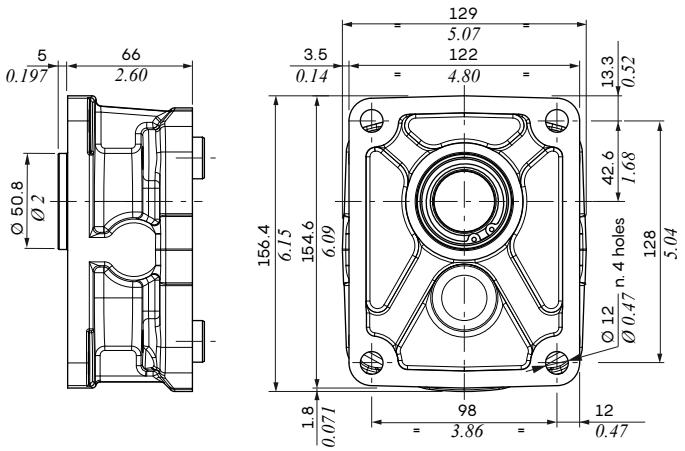


SAEC4F type dimensions



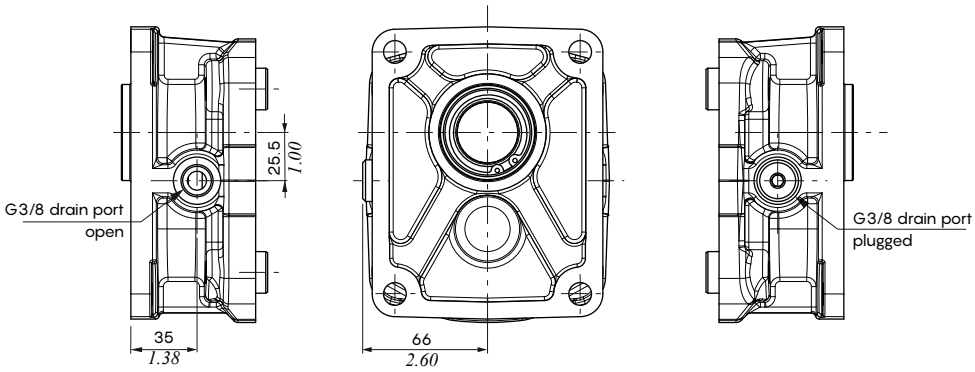
Flanges kits

EUR type dimensions

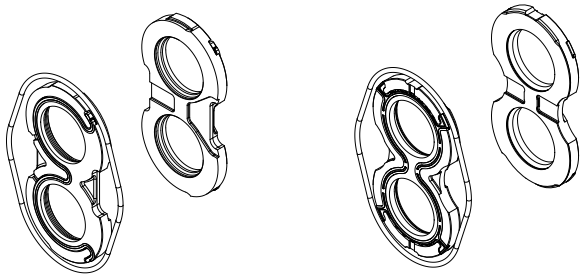


EUR(DREN) type dimensions

This configuration is available only for 3TMW motors; the position of the open port depends on the direction of rotation.
For dimensions see EUR flange.
The drain port is G3/8; for different threads contact Sales depertment.



Gear thrust plate kit



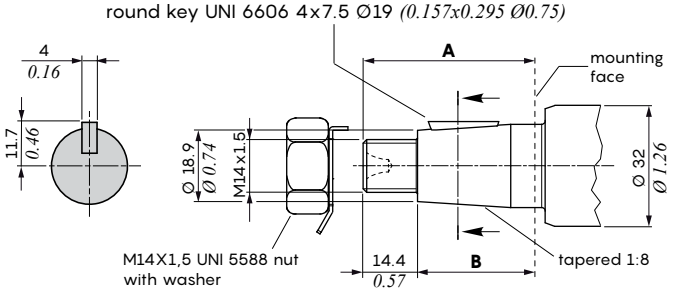
Seals material		Ordering codes	
		Pumps and unidirectional motors	Reversible motors
NBR	N	5GKR3T0000	5GKR3T1000
FPM	V	5GKR3T0001	5GKR3T1001

Driving gear shafts

Type 10: tapered 1:8 shaft

Shaft dimension				
Flange	A		B	
	mm	*in*	mm	*in*
EUR	47	*1.85*	32.6	*1.28*

round key UNI 6606 4x7.5 Ø19 *(0.157x0.295 Ø0.75)*



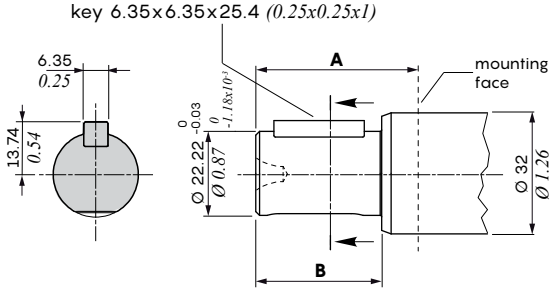
Ordering codes	
Displacement	Codes
230	010043359399
280	010043447099
320	010043359299
390	010043359199
430	010043359099
470	010043358999
520	010043358899
560	010043358799
600	010043358699
650	010043358599
710	010043358499
790	010043358399
Shaft locking kit	003BG-10

Max transmittable torque = 240 Nm - *178 lbft*
Nut tightening torque (M14x1.5) = 70 Nm - *51.6 lbft*

Type 13: SAEB 13 parallel shaft

Shaft dimension				
Flange	A		B	
	mm	*in*	mm	*in*
SAEB	41.2	*1.62*	33.3	*1.31*
SAEC2F	41.2	*1.62*	33.3	*1.31*

key 6.35x6.35x25.4 *(0.25x0.25x1)*

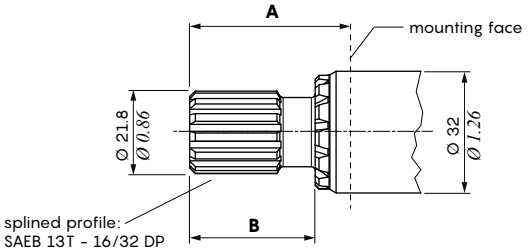


Ordering codes	
Displacement	Codes
230	010043439399
280	010043447199
320	010043439299
390	010043439199
430	010043439099
470	010043438999
520	010043438899
560	010043438799
600	010043438699
650	010043438599
710	010043438499
790	010043438399
Shaft key	010092715199

Max transmittable torque = 200 Nm - *148 lbft*

Type S13: SAEB 13T splined shaft

Flange	Shaft dimension A mm	A *in*	B mm	B *in*
SAEB	41	*1.60*	33	*1.30*
SAEC2F	41	*1.60*	33	*1.30*



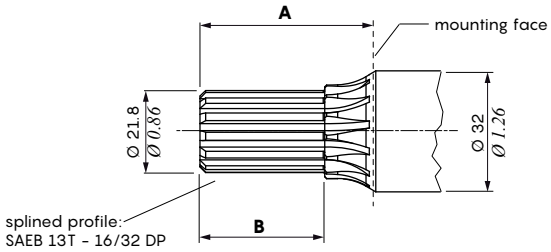
Max transmittable torque = 280 Nm - *207 lbft*

Ordering codes	
Displacement	**Codes**
230	010043354999
280	010043446599
320	010043354899
390	010043354799
430	010043354699
470	010043354599
520	010043354499
560	010043354399
600	010043354299
650	010043354199
710	010043354099
790	010043353999

Type S13N: SAEB 13T splined NS shaft (increased torque)

This shaft is available only for configuration with single shaft seal (see page 15).

Flange	Shaft dimension A mm	A *in*	B mm	B *in*
SAEB	41	*1.60*	33	*1.30*
SAEC2F	41	*1.60*	33	*1.30*



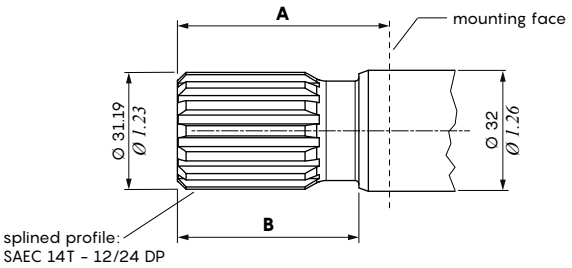
Max transmittable torque = 300 Nm - *221 lbft*

Ordering codes	
Displacement	**Codes**
230	010043360499
280	010043446699
320	010043360399
390	010043360299
430	010043360199
470	010043360099
520	010043359999
560	010043359899
600	010043359799
650	010043359699
710	010043359599
790	010043359499

Driving gear shafts

Type S14 - S14L (long): SAEC 14T splined shaft

Shaft dimension					
Shaft type	Flange	A		B	
		mm	*in*	mm	*in*
S14	SAEB	56	*2.20*	48	*1.89*
	SAEC2F	56	*2.20*	48	*1.89*
S14L	SAEC4F	56	*2.20*	48	*1.89*

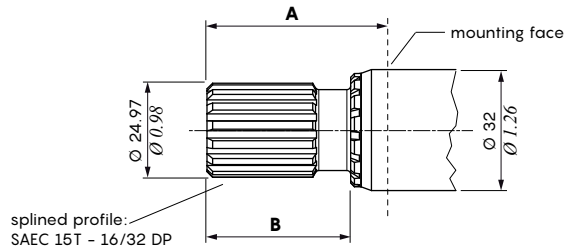


Ordering codes		
Displacement	Shaft type S14	Shaft type S14L
230	010043357199	010043358299
280	010043446899	010043446999
320	010043357099	010043358199
390	010043356999	010043358099
430	010043356899	010043357999
470	010043356799	010043357899
520	010043356699	010043357799
560	010043356599	010043357699
600	010043356499	010043357599
650	010043356399	010043357499
710	010043356299	010043357399
790	010043356199	010043357299

Max transmittable torque = 900 Nm - *664 lbft*

Type S15 - S15L (long): SAEC 15T splined shaft

Shaft dimension					
Shaft type	Flange	A		B	
		mm	*in*	mm	*in*
S15	SAEB	46	*1.81*	38	*1.50*
	SAEC2F	46	*1.81*	38	*1.50*
S15L	SAEC4F	46	*1.81*	38	*1.50*



Ordering codes		
Displacement	Shaft type S15	Shaft type S15L
230	010043356099	010043362599
280	010043439799	010043446799
320	010043355999	010043362499
390	010043355899	010043362399
430	010043355799	010043362299
470	010043355699	010043362199
520	010043355599	010043362099
560	010043355499	010043361999
600	010043355399	010043361899
650	010043355299	010043361799
710	010043355199	010043361699
790	010043355099	010043361599

Max transmittable torque = 400 Nm - *269 lbft*

Driven gears

Ordering codes					
Displacement	Codes	Displacement	Codes	Displacement	Codes
230	010053367399	**430**	010053367099	**600**	010053366699
280	010053439899	**470**	010053366999	**650**	010053366599
320	010053367299	**520**	010053366899	**710**	010053366499
390	010053367199	**560**	010053366799	**790**	010053366399

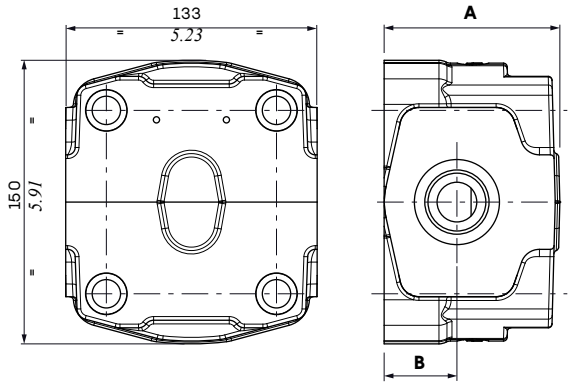
Standard bodies

Type G0

For ports dimensions see pages 18/19.

For pumps and unidirectional motors

Connection position 0 - side port

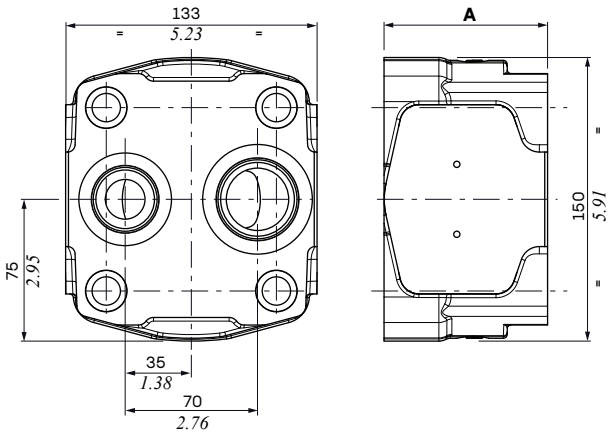


Body dimension and port position								
Displacement	A		B Available connection ports*					
			type G-U-F		type N		type T	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*
230	78.5	*3.09*	27	*1.06*	35	*1.38*	33	*1.30*
280	81.5	*3.21*	30	*1.18*	35	*1.38*	33	*1.30*
320	84.5	*3.33*	32	*1.26*	36	*1.42*	34	*1.34*
390	90	*3.54*	36	*1.42*	37	*1.45*	36	*1.41*
430	93	*3.66*	38.5	*1.52*	38	*1.50*	38.5	*1.51*
470	96	*3.78*	41	*1.61*	39	*1.54*	41	*1.51*
520	99	*3.90*	41	*1.61*	40	*1.57*	41	*1.61*
560	102.5	*4.04*	42.5	*1.67*	40	*1.57*	42.5	*1.67*
600	105.5	*4.15*	43.5	*1.71*	40	*1.57*	43.5	*1.71*
650	108.5	*4.27*	44.5	*1.76*	44	*1.73*	44.5	*1.76*
710	113.5	*4.47*	46	*1.81*	49	*1.93*	46	*1.81*
790	119.5	*4.70*	52	*2.05*	50	*1.97*	52	*2.05*

(*) **G** (BSP) - **U** (UN-UNF) - **F** (SAE flange) - **N** (European flange) **T** (German flange)

Connection position 4 - rear port

Only for potrting type **G** (BSP) - **U** (UN-UNF)



Body dimension	
Displacement	A
	mm / *in*
230	72 / *2.83*
280	75 / *2.95*
320	78 / *3.07*
390	83.5 / *3.29*
430	86.5 / *3.41*
470	89.5 / *3.52*
520	92.5 / *3.64*
560	96 / *3.78*
600	99 / *3.90*
650	102 / *4.02*
710	107 / *4.21*
790	113 / *4.45*

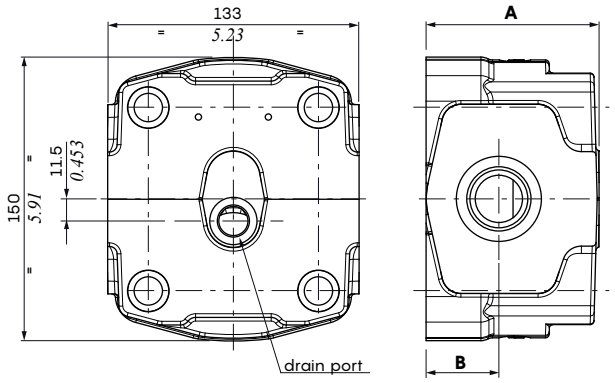
Standard bodies

Type G0

For ports dimensions see pages 18/19.

For reversible motors

Connection position 0 – side port



Displacement	Body dimension and port position							
	A		B					
			Available connection ports*					
			type G-U-F		type N		type T	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*
230	77	*3.03*	27	*1.06*	35	*1.38*	33	*1.30*
280	80	*3.15*	30	*1.18*	35	*1.38*	33	*1.30*
320	83	*3.27*	32	*1.26*	36	*1.42*	34	*1.34*
390	88.5	*3.48*	36	*1.42*	37	*1.46*	36	*1.42*
430	91.5	*3.60*	38.5	*1.52*	38	*1.50*	38.5	*1.52*
470	94.5	*3.72*	41	*1.61*	39	*1.54*	41	*1.61*
520	97.5	*3.84*	41	*1.61*	40	*1.57*	41	*1.61*
560	101	*3.98*	42.5	*1.67*	40	*1.57*	42.5	*1.67*
600	104	*4.09*	43.5	*1.71*	40	*1.57*	43.5	*1.71*
650	107	*4.21*	44.5	*1.75*	44	*1.73*	44.5	*1.76*
710	112	*4.41*	46	*1.81*	49	*1.93*	46	*1.81*
790	118	*4.65*	52	*2.05*	50	*1.97*	52	*2.05*

(*): **G** (BSP) - **U** (UN-UNF) - **F** (SAE flange) - **N** (European flange) - **T** (German flange)

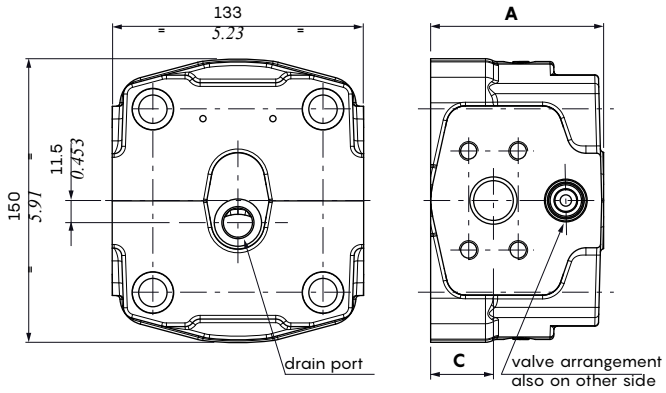
Special bodies

Type G0V - with auxiliary valves arrangement

Body with two valves arrangement, on left and right sides.
The G0V body is only available with F porting.

For reversible motors

Connection position 0 - side port



Displacement	Connection position 0 - side ports			
	A		C Available connection ports* type F	
	mm	*in*	mm	*in*
230	77	*3.03*	24.5	*0.96*
280	80	*3.15*	26.5	*1.04*
320	83	*3.27*	29.5	*1.16*
390	88.5	*3.48*	32	*1.26*
430	91.5	*3.60*	35	*1.38*
470	94.5	*3.72*	38	*1.50*
520	97.5	*3.84*	41	*1.61*
560	101	*3.98*	42.5	*1.67*
600	104	*4.09*	43.5	*1.71*
650	107	*4.21*	44.5	*1.75*
710	112	*4.41*	46	*1.81*
790	118	*4.65*	52	*2.05*

(*): **F** (SAE flange) - for diffrent connection contact Sales Department

Description example:

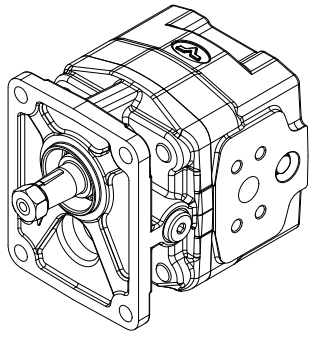
3TMW- G0V -390-R-EUR(DREND)-K-N-10-0-F19F19- D C \ S U (160) - DRENG38-<CVN>

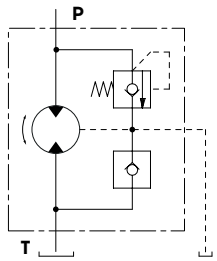
Stage type
G0V: with valves arrangement

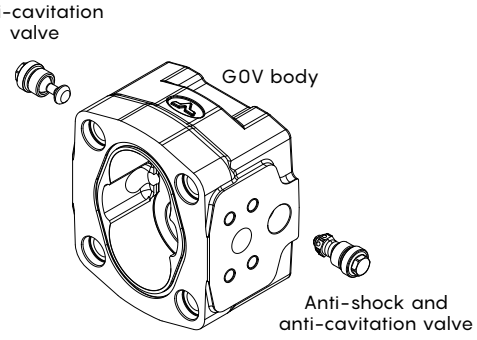
Auxiliary valves position
D: valve on clockwise rotation
S: valve on counter-clockwise rotation

Auxiliary valves type
C: anticavitation valve
U: antishock+anticavitation valves

Auxiliary valves setting
specify the setting value in bar







Special bodies

Type G0V - with auxiliary valves arrangement

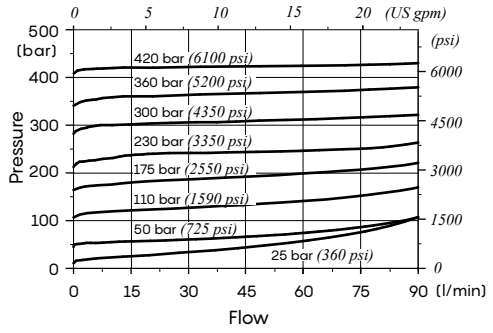
Valves ordering codes				
Valve type	**CODE**	**SYMBOL**	**DESCRIPTION**	**Tightening**
	XTAP522260F		Seat plug	Wrench 13 24 Nm *(17.7 lbft)*
TAP	XTAP522441* XTAP522441V**		Valve blanking plug	Wrench 13 24 Nm *(17.7 lbft)*
C	5KIT410000* 5KIT410000V**		Anti-cavitation valve	Wrench 13 24 Nm *(17.7 lbft)*
U(...) ⊤ setting (bar)	5KIT332...* 5KIT332...V** setting (bar)		Fixed setting anti-shock and anti-cavitation valves with pressure relief function **Setting** (bar - *psi*): 25 bar *(363 psi)* 30 bar *(435 psi)* 40 bar *(580 psi)* 50 bar *(725 psi)* 63 bar *(914 psi)* 80 bar *(1150 psi)* 100 bar *(1450 psi)* 110 bar *(1590 psi)* 125 bar *(1800 psi)* 140 bar *(2050 psi)* 150 bar *(2150 psi)* 160 bar *(2300 psi)* 175 bar *(2550 psi)* 190 bar *(2750 psi)* 200 bar *(2900 psi)* 210 bar *(3050 psi)* 220 bar *(3190 psi)* 230 bar *(3350 psi)* 240 bar *(3500 psi)* 250 bar *(3600 psi)* 260 bar *(3750 psi)* 270 bar *(3900 psi)* 280 bar *(4050 psi)* 290 bar *(4200 psi)* 300 bar *(4350 psi)* 310 bar *(4500 psi)* 320 bar *(4650 psi)* 340 bar *(4950 psi)* 360 bar *(5200 psi)* 400 bar *(5800 psi)* 420 bar *(6100 psi)*	Wrench 13 24 Nm *(17.7 lbft)*

NOTE: (*) code is referred to valve with NBR O-ring seals. (**) code is referred to valve with FPM O-ring seals.

Auxiliary valves characteristics

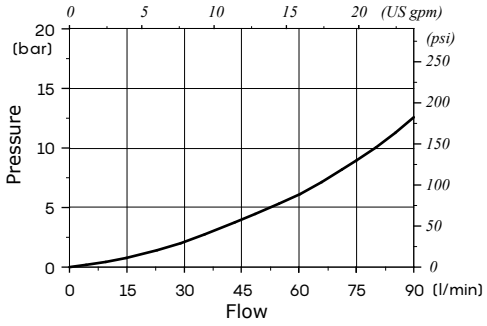
Anti-shock plus anti-cavitation valves setting example

(10 l/min - *2.6 Us gpm*)

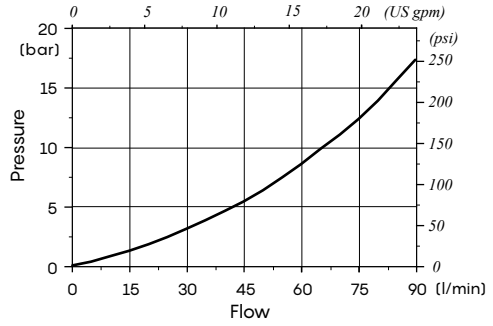


Anti-shock plus anti-cavitation valves pressure drop

(in anticavitation)



Anti-cavitation valve pressure drop

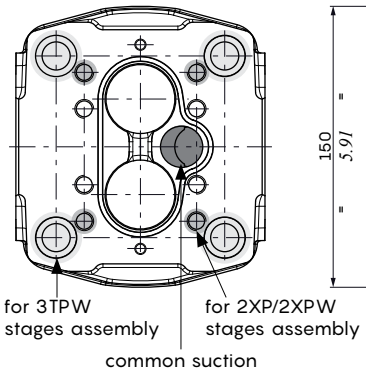


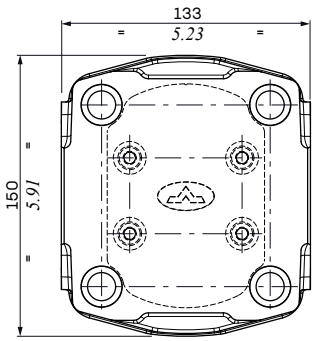
Type G0D - with tandem arrangement

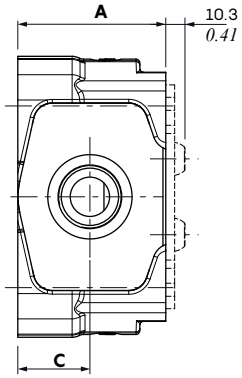
This body option is the solution if you need a single pump but you want to have the possibility of transforming it into a multiple pump with common suction.
The body is dedicate for clockwise (**D**) or counter-clockwise (**S**) rotation and it can be configured with type **B** connection (only with ports pre-drilling)
For ports dimensions see pages 18/19, except for type **N**; with this porting all ports are **N19** dimension.

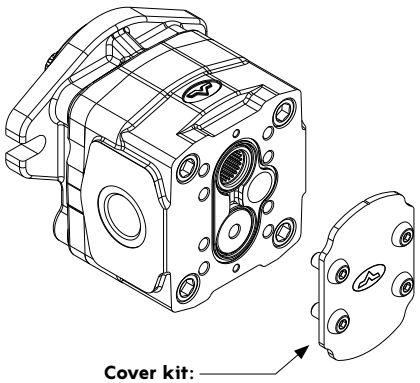
For pumps

Multiple stage arrangement









Cover kit:
Code: 5FLG32001
Allen wrench: 8
Tightening torque: 24 Nm *(17.7 lbft)*

Displacement	Connection position 0 - side ports									
	A		C							
			Available connection ports*							
			type G-U-F		type N		type T		type B	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*	mm	*in*
230	64.5	*2.54*	27	*1.06*	32	*1.26*	33	*1.30*	32	*1.26*
280	67.5	*2.66*	30	*1.18*	32	*1.26*	33	*1.30*	32	*1.26*
320	70.5	*2.78*	32	*1.26*	36	*1.42*	34	*1.34*	36	*1.42*
390	76	*2.99*	36	*1.42*	37	*1.46*	36	*1.42*	37	*1.46*
430	79	*3.11*	38.5	*1.52*	38	*1.50*	38.5	*1.52*	38	*1.50*
470	82	*3.23*	41	*1.61*	39	*1.54*	41	*1.61*	39	*1.54*
520	85	*3.35*	41	*1.61*	40	*1.57*	41	*1.61*	40	*1.57*
560	88.5	*3.48*	42.5	*1.67*	43	*1.69*	42.5	*1.67*	43	*1.69*
600	91.5	*3.60*	43.5	*1.71*	44	*1.73*	43.5	*1.71*	44	*1.73*
650	94.5	*3.72*	44.5	*1.75*	44	*1.73*	44.5	*1.75*	44	*1.73*
710	99.5	*3.92*	46	*1.81*	49	*1.93*	46	*1.81*	49	*1.93*
790	105.5	*4.15*	52	*2.05*	55	*2.17*	52	*2.05*	55	*2.17*

(*): **G** (BSP) - **U** (UN-UNF) - **F** (SAE flange) - **N** (European flange) - **T** (German flange)
B (ports arrangement, only initial bore)

Tandem pumps general informations

Walvoil allows tandem kit assembly in several different conditions.
As general indications:
- It is necessary to assemble the units from the largest to the smallest, in terms of power and torque required;
- Maximum rotation speed of multiple pump is equal to the unit with lowest maximum admissible speed.

When using and sizing a tandem pump there are two key points to consider:

1) Torque

Each tandem kit allows the transmission of maximum torque between stages. .
It is important to check that the maximum transmitted torque remains below the value allowed by each tandem kit and main shaft.
The torque M of each stage can be calculated with the formula:

$$M = \frac{\Delta p \cdot V}{62.83 \cdot \eta_m}$$

Δp is the maximum pressure created by the circuit on each stage, **V** is the displacement and η_m is the mechanical efficiency.
As example consider a triple pump with shaft type S13N 3TPW430/TK/3TPW320/TK/3TPW230.
The maximum pressure peaks that the system can produce at the same time are: 150 bar (*2150 psi*) ,200 bar (*29600 psi*), 120 bar (*1750 psi*)
In this working condition each required torque must be evaluated (an efficiency of 90% is considered).

Stage type	Working pressure		Torque		
	bar	*psi*	Formula	Nm	*lbft*
3TPW430	150	*2150*	$M1 = \frac{150 \cdot 43.8}{62.83 \cdot 0.9}$	116	*31.3*
3TPW320	200	*2600*	$M2 = \frac{200 \cdot 32.2}{62.83 \cdot 0.9}$	114	*18.8*
3TPW230	120	*1750*	$M3 = \frac{120 \cdot 23.9}{62.83 \cdot 0.9}$	51	*9.4*

The main shaft shall transmit a torque **M1+M2+M3** (281 Nm - *207 lbft*) which must be lower than the limit of shaft type S13N (300 Nm - *221 lbft*).
The first tandem kit shall transmit a torque **M2+M3** (165 Nm - *122 lbft*) which shall be lower than the limit of the kit TK (500 Nm - *73.8 lbft*); in this case it is acceptable.
The second tandem kit shall transmit a torque **M3** (51 Nm - *37.6 lbft*)which shall be lower than the limit of the kit TK (500 Nm - *73.8 lbft*); in this case it is acceptable.

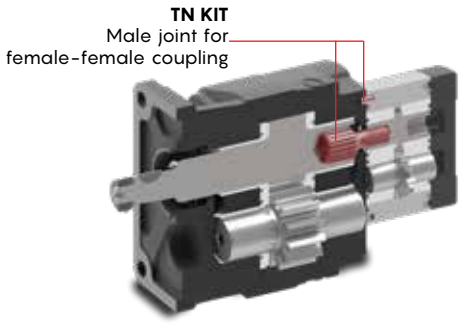
2) Suction

The tandem is always possible with separate suction; in this case each pump uses its own suction pipe.
A common suction feature is available with Walvoil gear pumps.

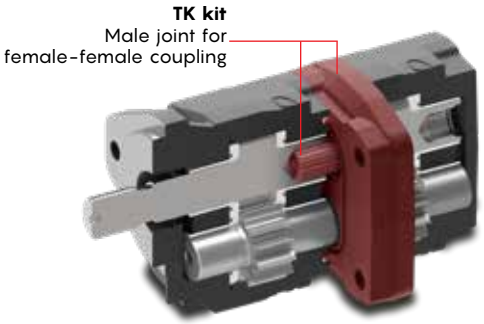
In the case of common suction, two main conditions must be met:
- Sizing of the common inlet.
  In the suction pipe it is recommended to have a cross section that ensures an oil speed between 0.6 and 2 m/s.
- Internal connection between stages.
  Each kit has a recommended maximum flow.
  For example, the **3TPW+2XP** double stage pump with **TN** tandem kit allows a max flow of 24 l/min (*6.3 US gpm*) shared between the stages. This value is provided for each tandem kit and is valid under recommended service conditions.

In case one of the 2 above conditions is not met the pump can cavitate, reducing the life of the components.

3TPW+2XP/2XPW common drain pumps tandem



3TPW+3TPW common drain pumps tandem



Tandem kits and bodies specifications

3TPW as primary stage, as 2X_ secondary stage

Xtreme Seriews pumps used as secondary stage.

3TPW + 2X_ tandem kits										
Primary stage + Secondary stage	Suction type	Kit type	CODE	Max. suction flow between stages		Max. transmittable torque		Drain connection	2nd stage shaft type	Note
				l/min	*US gpm*	Nm	*lbft*			
3TPW(G2-0)+2XP/2XPW	separate	TN	5GKTN3200	-	-	100	*73.8*	Si	18F	
3TPW(G0D)+2XP/2XPW	separate	TK	5GKTK3200	-	-	100	*73.8*	Si	18F	
3TPW(G2-0U)+2XP(LAU)	common	TN	5GKTN3200	28	*7.4*	100	*73.8*	Si	18F	Secondary 2XP stage without suction port
3TPW(G2-0U)+2XPW	common	TN	5GKTN3200	28	*7.4*	100	*73.8*	Si	18F	Secondary 2XPW stage with suction port plugged
3TPW(G0D)+2XP(LAU)	common	TK	5GKTK3201	23	*6.1*	100	*73.8*	Si	18F	Secondary 2XP stage without suction port
3TPW(G0D)+2XPW	common	TK	5GKTK3201	23	*6.1*	100	*73.8*	Si	18F	Secondary 2XPW stage with suction port plugged

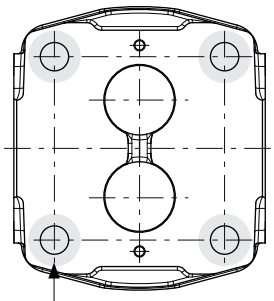
3TPW primary and secondary stage

Titan Series pumps can be used as primary and secondary stage.

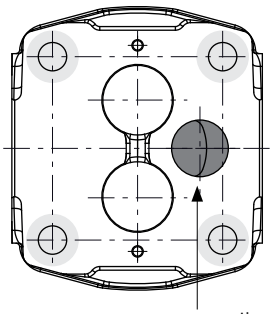
3TPW + 2X_ tandem kits										
Primary stage + Secondary stage	Suction type	Kit type	CODE	Max. suction flow between stages		Max. transmittable torque		Drain connection	2nd stage shaft type	Note
				l/min	*US gpm*	Nm	*lbft*			
3TPW(G3-0)+3TPW(G0)	separate	TN	5GKTK3300	-		500	*369*	Si	18F	
3TPW(G3-0U)+3TPW(G0)	common	TK	5GKTK3301	125	*33*	500	*369*	Si	18F	
3TPW(G0D)+3TPW(G0D)	common	TKD	5GKTK3302	70	*18,5*	500	*369*	Si	18F	2nd stage body fitted with spacer kit

Dedicated 3TPW primary stage tandem bodies

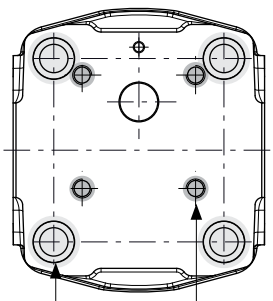
Type G3-0



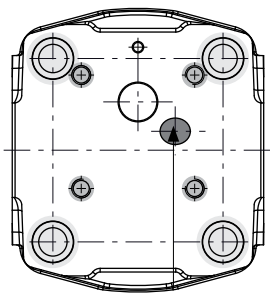
Type G3-0U



Type G2-0

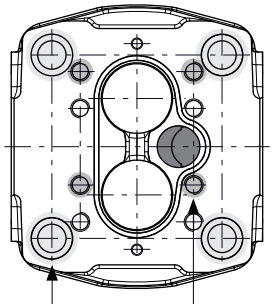


Type G2-0U

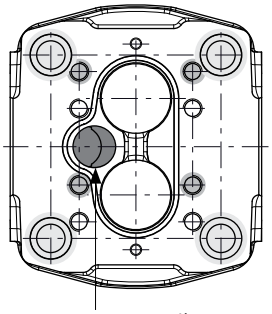


Type G0D

clockwise rotation

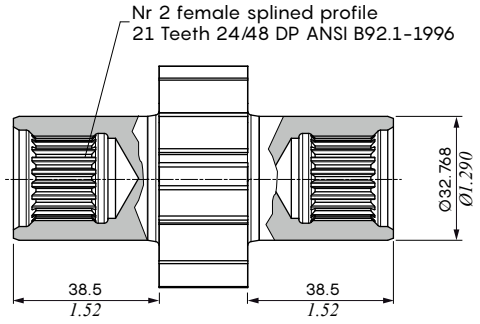


anti-clockwise rotation



3TPW second stage dedicated driving gears

Type 18F



Driving gear shaft kit			
Displacement	**Ordering codes**	**Displacement**	**Ordering codes**
230	010043353899	**520**	010043353399
280	010043447299	**560**	010043353299
320	010043353799	**600**	010043353199
390	010043353699	**650**	010043353099
430	010043353599	**710**	010043352999
470	010043353499	**790**	010043352899

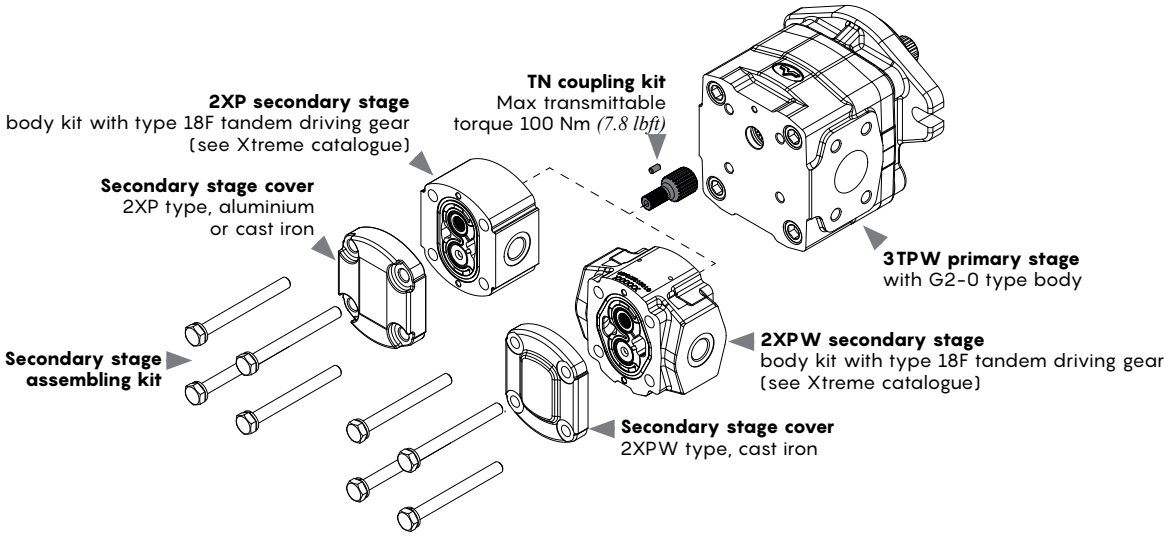
Max transmitted torque = 500 Nm - *369 lbft*

2XP/2XPW secondary stage

Separate suction

Type TN tandem

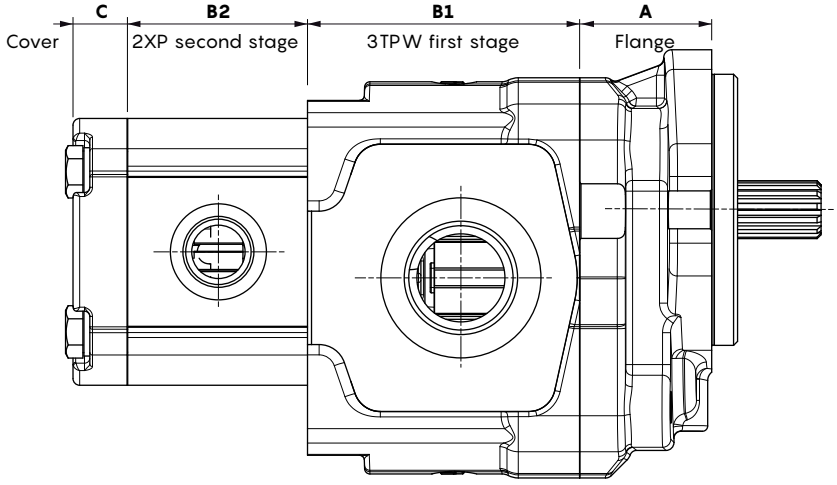
This tandem consists of the first stage type 3TPW with G2-0 body and second standard stage 2XP or 2XPW.
NOTE: In order to install TN coupling kit it's necessary to disassembly the 3TPW main shaft.



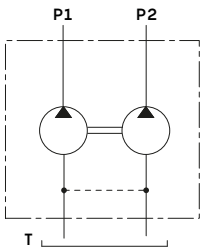
First stage | Second stage

Description examples: 3TPW-G2-650-D-SAEB-B-N-13-0-G114G1/2XP-A-140-0-G12G12

Stage body | Separate suction | Side suction and delivery ports



Hydraulic circuit



3TPW flange			3TPW (G2-0) body						2XP/2XPW body					
Type	A		Displ.	B1		Displ.	B1		Displ.	B2		Displ.	B2	
	mm	in		mm	in		mm	in		mm	in		mm	in
SAEB	49.5	1.95	230	72	2.83	520	92.5	3.64	040*	50.8	2	190	76.6	3.01
SAEC-2F	49.5	1.95	280	75	2.99	560	96	3.78	060*	54.1	2.13	220	81.6	3.21
SAEC-4F	82	3.23	320	78	3.07	600	99	3.90	080*	58.3	2.29	260	87.4	3.44
EUR	66	2.60	390	83.5	3.29	650	102	4.02	110	62.4	2.46	290	90.7	3.57
			430	86.5	3.41	710	107	4.21	140	67.4	2.65	310	95.8	3.77
			470	89.5	3.52	790	113	4.45	160	71.6	2.82			

2XP/2XPW cover			
Port configuration		C	
		mm	in
0	aluminium*	20.5	0.81
	cast iron	18	0.71
1 / 3 / 4	aluminium*	30	1.18
	cast iron	29	0.97

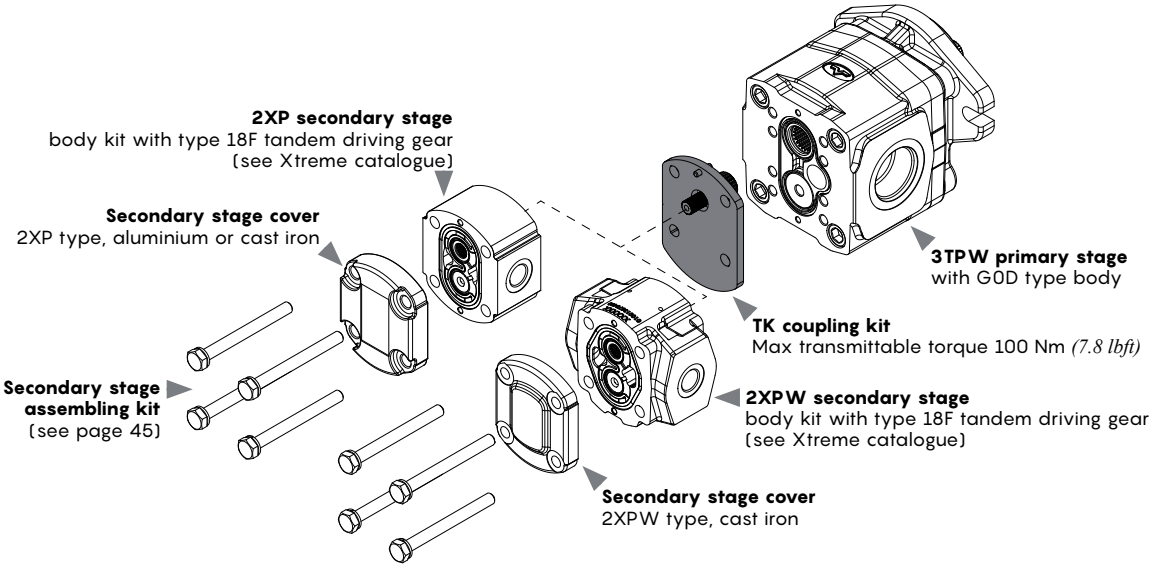
(*) available only for 2XP type pump

2XP/2XPW secondary stage

Seperate suction

Type TK tandem

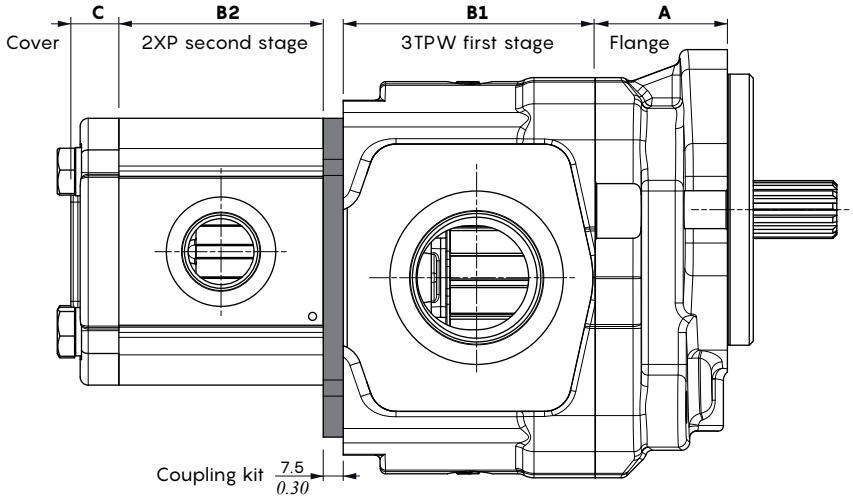
The configuration requires a tandem consisting of G0D type body for 3TPW first stage, the TK kit and standad second stage type 2XP or 2XPW.



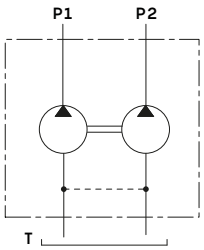
First stage — Second stage

Description example: 3TPW- G0D -650-D-SAEB-B-N-10- 0 -G114G1/ TK /2XP-A-140- 0 -G34G12

Stage body — Separate suction — Coupling kit — Side suction and delivery ports



Hydraulic circuit



3TPW flange		
Type	A	
	mm	*in*
SAEB	49.5	*1.95*
SAEC-2F	49.5	*1.95*
SAEC-4F	82	*3.23*
EUR	66	*2.60*

3TPW-G0D body					
Displ.	B1		Displ.	B1	
	mm	*in*		mm	*in*
230	64.5	*2.54*	520	85	*3.35*
280	67.5	*2.66*	560	88.5	*3.48*
320	70.5	*2.78*	600	91.5	*3.60*
390	76	*2.99*	650	94.5	*3.72*
430	79	*3.11*	710	99.5	*3.92*
470	82	*3.23*	790	105.5	*4.15*

2XP/2XPW body					
Displ.	B2		Displ.	B2	
	mm	*in*		mm	*in*
040*	50.8	*2*	190	76.6	*3.01*
060*	54.1	*2.13*	220	81.6	*3.21*
080*	58.3	*2.29*	260	87.4	*3.44*
110	62.4	*2.46*	290	90.7	*3.57*
140	67.4	*2.65*	310	95.8	*3.77*
160	71.6	*2.82*			

2XP/2XPW cover			
Port configuration		C	
		mm	*in*
0	aluminium*	20.5	*0.81*
	cast iron	18	*0.71*
1 / 3 / 4	aluminium*	30	*1.18*
	cast iron	29	*0.97*

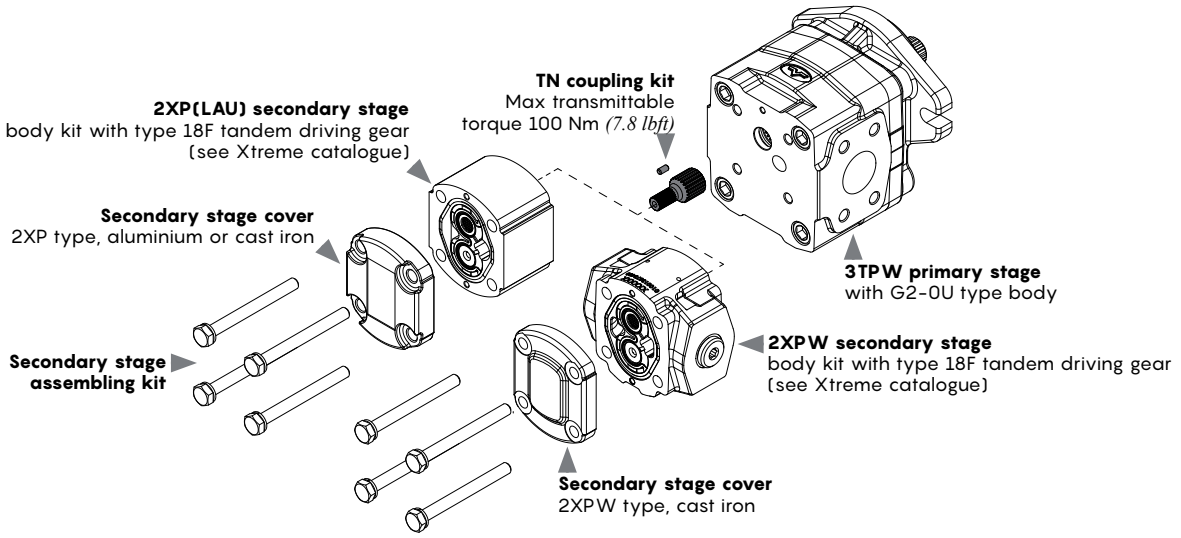
(*) available only for 2XP type pump

2XP/2XPW secondary stage

Common suction

Type TN tandem

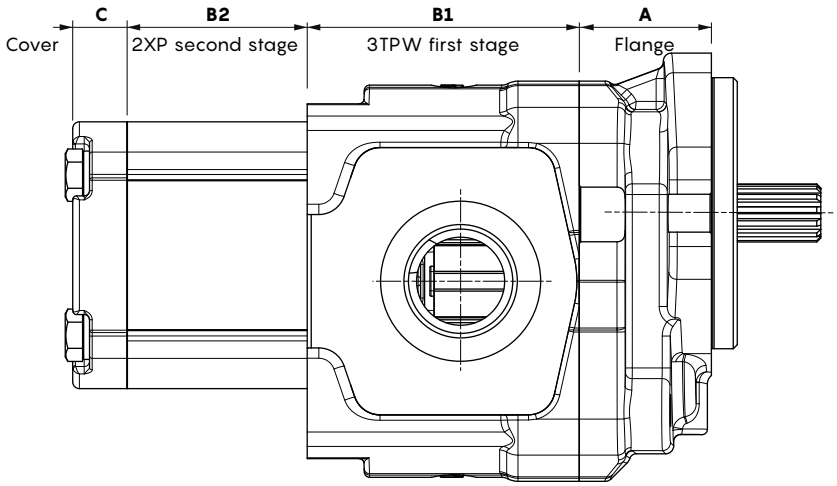
This tandem consists of the first stage type 3TPW with G2-0U body, TN couplig kit, and second stage 2XP with LAU type body or 2XPW standard; max flow approx up to 28 l/min (*7.4 US gpm*).
NOTE: In order to install TN coupling kit it's necessary to disassembly the 3TPW main shaft.



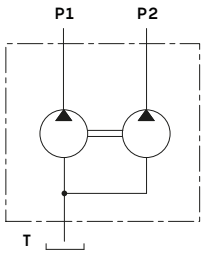
First stage — Second stage

Description example: 3TPW- G2 -650-D-SAEB-B-N-13- 0U -G114G1/2XP-A-140- 0M -G12

Stage body — Common suction — Only delivery port (side)



Hydraulic circuit



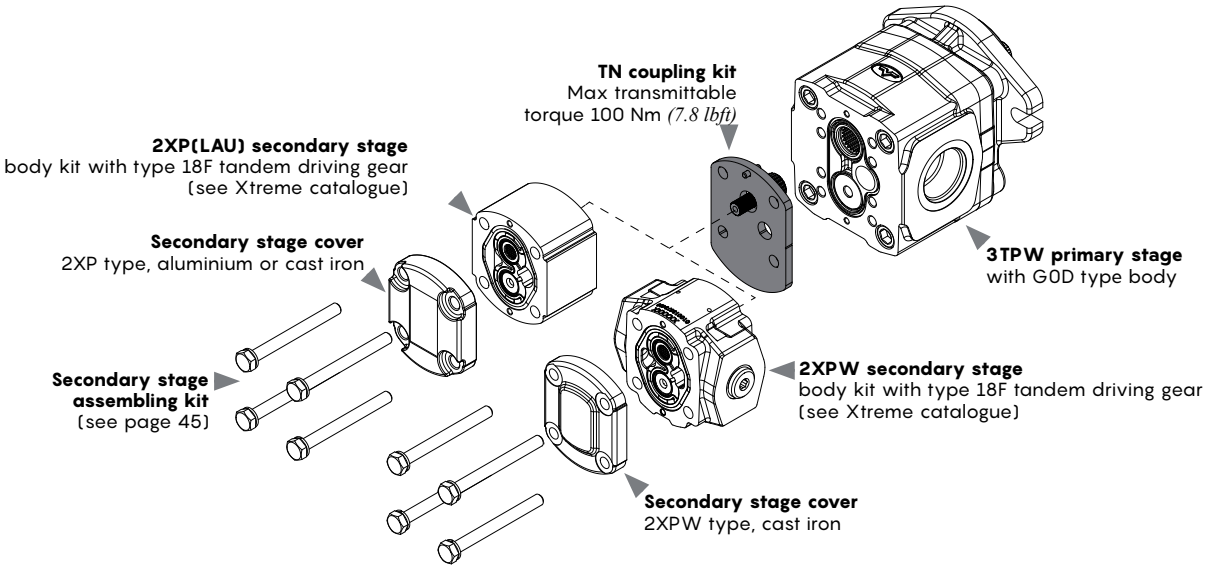
3TPW flange			3TPW(G2-0U) body						2XP(LAU)/2XPW body						2XP/2XPW cover			
Type	A		Displ.	B1		Displ.	B1		Displ.	B2		Displ.	B2		Port configuration		C	
	mm	*in*		mm	*in*		mm	*in*		mm	*in*		mm	*in*			mm	*in*
SAEB	49.5	*1.95*	**230**	72	*2.83*	**520**	92.5	*3.64*	**040***	50.8	*2*	**190**	76.6	*3.01*	**0**	aluminium*	20.5	*0.81*
SAEC-2F	49.5	*1.95*	**280**	75	*2.99*	**560**	96	*3.78*	**060***	54.1	*2.13*	**220**	81.6	*3.21*		cast iron	18	*0.71*
SAEC-4F	82	*3.23*	**320**	78	*3.07*	**600**	99	*3.90*	**080***	58.3	*2.29*	**260**	87.4	*3.44*	**1 / 3 / 4**	aluminium*	30	*1.18*
EUR	66	*2.60*	**390**	83.5	*3.29*	**650**	102	*4.02*	**110**	62.4	*2.46*	**290**	90.7	*3.57*		cast iron	29	*0.97*
			430	86.5	*3.41*	**710**	107	*4.21*	**140**	67.4	*2.65*	**310**	95.8	*3.77*				
			470	89.5	*3.52*	**790**	113	*4.45*	**160**	71.6	*2.82*	(*) available only for 2XP type pump						

2XP/2XPW secondary stage

Common suction

Type TK tandem

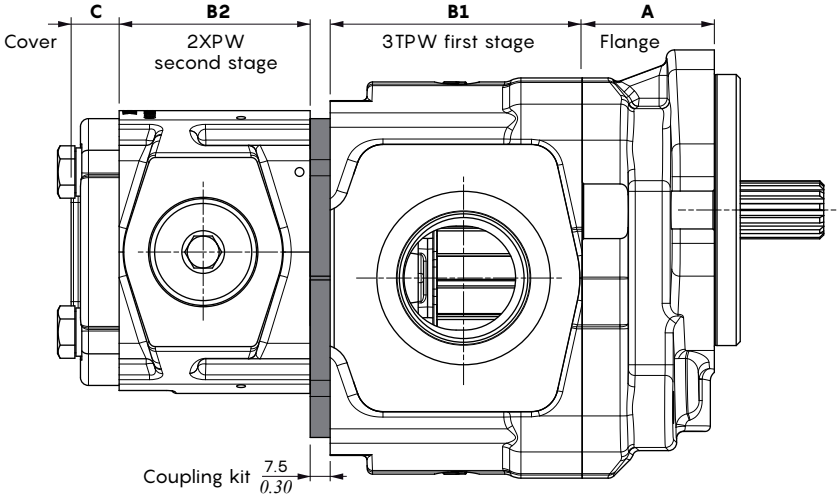
This tandem requires G0D type body with TKU kit and second stage type 2XP with LAU type body or 2XPW standard: max flow is 23 l/min (*6.1 US gpm*).



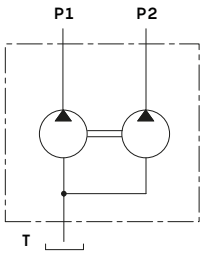
First stage — Second stage

Description example: 3TPW- G0D -650-D-SAEB-B-N-10- 0U -G114G1/ TK /2XPW-G-110- 0M -G12

Stage body — Common suction — Coupling kit — Only delivery port (side)



Hydraulic circuit



3TPW flange			3TPW-G0D body						2XP(LAU)/2XPW body						2XP/2XPW cover				
Type	A		Displ.	B1		Displ.	B1		Displ.	B2		Displ.	B2		Port configuration		C	
	mm	*in*		mm	*in*		mm	*in*		mm	*in*		mm	*in*			mm	*in*
SAEB	49.5	*1.95*	**230**	64.5	*2.54*	**520**	85	*3.35*	**040***	50.8	*2*	**190**	76.6	*3.01*	**0**	aluminium*	20.5	*0.81*
SAEC-2F	49.5	*1.95*	**280**	67.5	*2.66*	**560**	88.5	*3.48*	**060***	54.1	*2.13*	**220**	81.6	*3.21*		cast iron	18	*0.71*
SAEC-4F	82	*3.23*	**320**	70.5	*2.78*	**600**	91.5	*3.60*	**080***	58.3	*2.29*	**260**	87.4	*3.44*	**1 / 3 / 4**	aluminium	30	*1.18*
EUR	66	*2.60*	**390**	76	*2.99*	**650**	94.5	*3.72*	**110**	62.4	*2.46*	**290**	90.7	*3.57*		cast iron	29	*0.97*
			430	79	*3.11*	**710**	99.5	*3.92*	**140**	67.4	*2.65*	**310**	95.8	*3.77*				
			470	82	*3.23*	**790**	105.5	*4.15*	**160**	71.6	*2.82*							

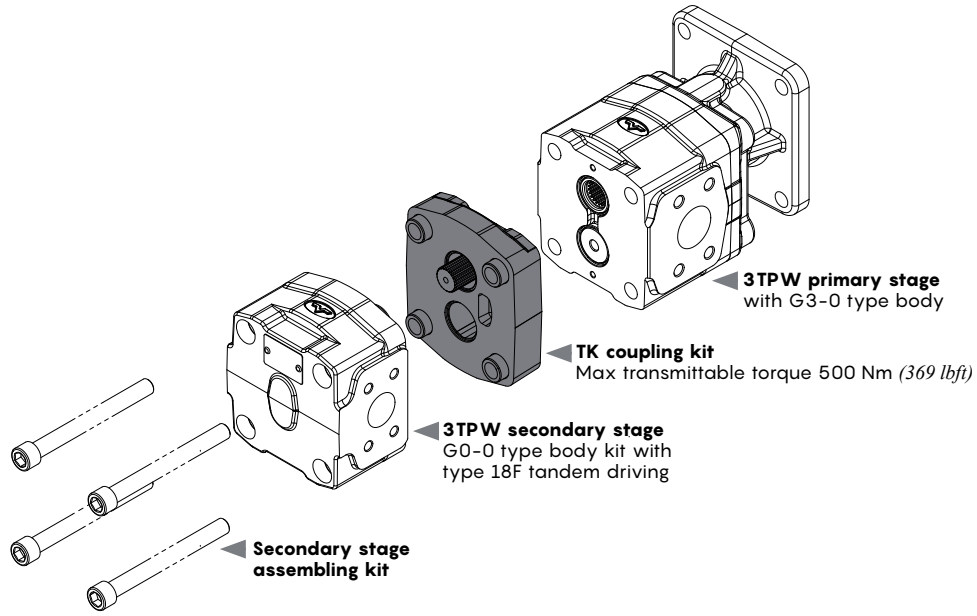
(*) available only for 2XP type pumpr

3TPW primary and secondary stage

Separate suction

Type TK tandem

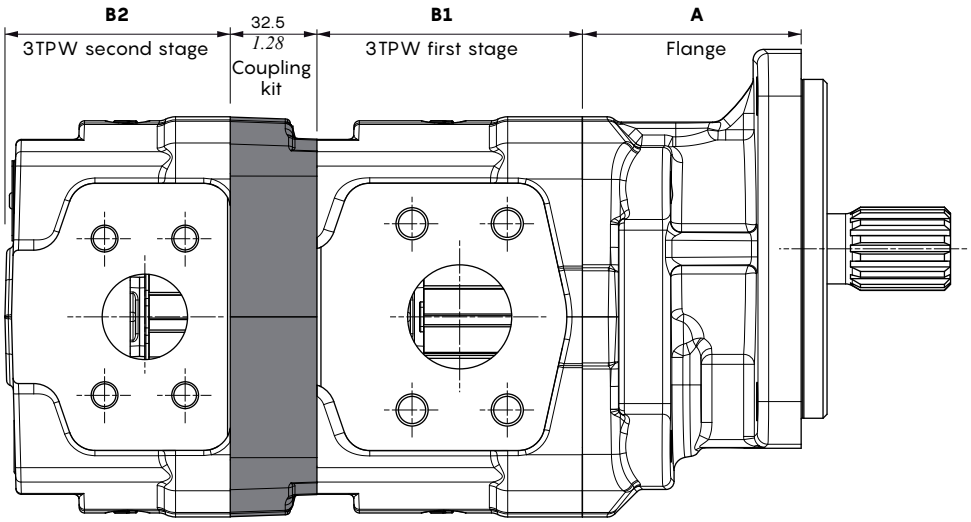
This tandem requires G3-0 type body for 3TPW first stage, G0 type body for 3TPW second stage and TK tandem kit between stages.



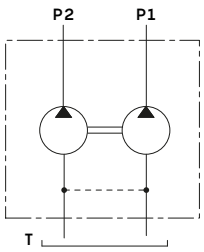
First stage — Second stage

Description example: 3TPW- G3 -710-D-SAEC4F-B-N-S14L- 0 -F39F32/ TK /3TPW- G0 -320- 0 -F3219

Stage body — Separate suction — Coupling kit — Stage body — Suction and delivery ports (side)



Hydraulic circuit



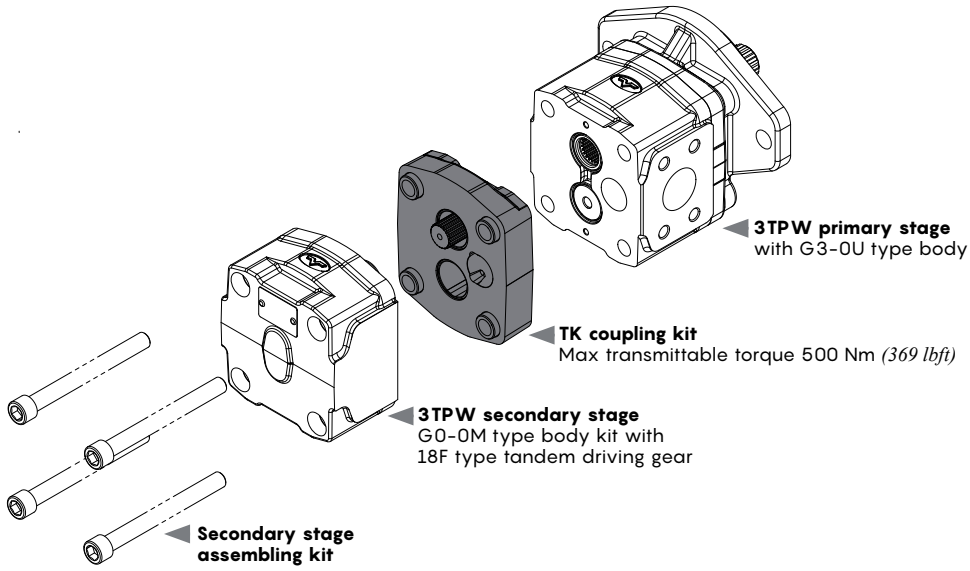
3TPW flange			3TPW(G3-0) body						3TPW-G0 body					
Type	A		Displ.	B1		Displ.	B1		Displ.	B2		Displ.	B2	
	mm	*in*		mm	*in*		mm	*in*		mm	*in*		mm	*in*
SAEB	49.5	*1.95*	**230**	64.5	*2.54*	**520**	85	*3.35*	**230**	78.5	*3.09*	**520**	99	*3.90*
SAEC-2F	49.5	*1.95*	**280**	67.5	*2.66*	**560**	88.5	*3.48*	**280**	81.5	*3.21*	**560**	102.5	*4.04*
SAEC-4F	82	*3.23*	**320**	70.5	*2.78*	**600**	91.5	*3.60*	**320**	84.5	*3.33*	**600**	105.5	*4.15*
EUR	66	*2.60*	**390**	76	*2.99*	**650**	94.5	*3.72*	**390**	90	*3.54*	**650**	108.5	*4.27*
			430	79	*3.11*	**710**	99.5	*3.92*	**430**	93	*3.66*	**710**	113.5	*4.47*
			470	82	*3.23*	**790**	105.5	*4.15*	**470**	96	*3.80*	**790**	119.5	*4.70*

3TPW primary and secondary stage

Common suction

Type TK tandem

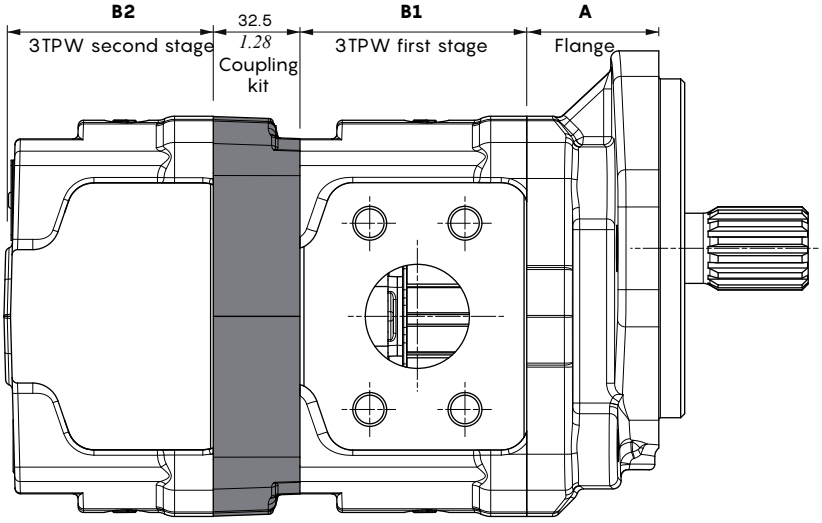
This tandem requires G3-0U type body for 3TPW first stage, G0-0M type body for 3TPW second stage and TK tandem kit between stages.: max flow is 125 l/min (*33 US gpm*).



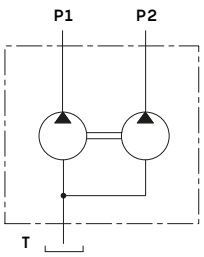
First stage — Second stage

Description example: 3TPW- G3 -710-D-SAEC4F-B-N-S14L- 0U -F39F32/ TK /3TPW- G0 -320- 0M -F19

Stage body — Common suction — Coupling kit — Stage body — Only delivery port (side)



Hydraulic circuit



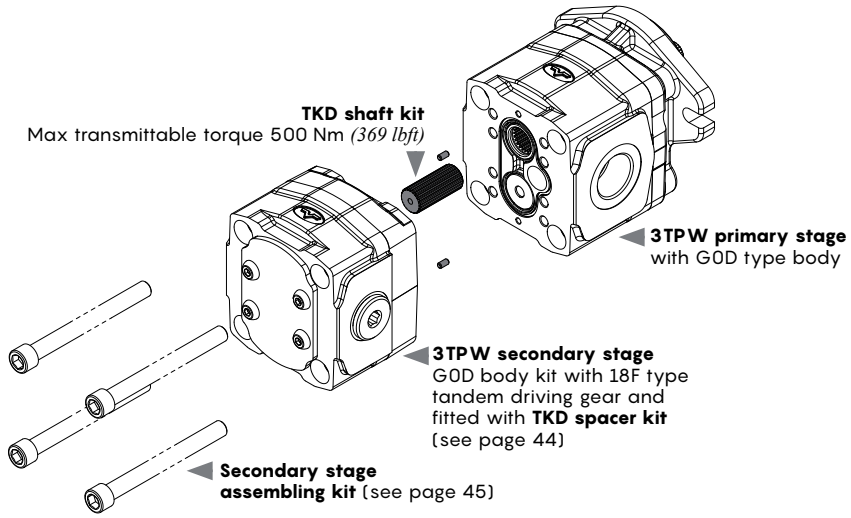
3TPW flange			3TPW(G3-0U) body						3TPW(G0-0M) body					
Type	A		Displ.	B1		Displ.	B1		Displ.	B2		Displ.	B2	
	mm	*in*		mm	*in*		mm	*in*		mm	*in*		mm	*in*
SAEB	49.5	*1.95*	**230**	64.5	*2.54*	**520**	85	*3.35*	**230**	78.5	*3.09*	**520**	99	*3.90*
SAEC-2F	49.5	*1.95*	**280**	67.5	*2.66*	**560**	88.5	*3.48*	**280**	81.5	*3.21*	**560**	102.5	*4.04*
SAEC-4F	82	*3.23*	**320**	70.5	*2.78*	**600**	91.5	*3.60*	**320**	84.5	*3.33*	**600**	105.5	*4.15*
EUR	66	*2.60*	**390**	76	*2.99*	**650**	94.5	*3.72*	**390**	90	*3.54*	**650**	108.5	*4.27*
			430	79	*3.11*	**710**	99.5	*3.92*	**430**	93	*3.66*	**710**	113.5	*4.47*
			470	82	*3.23*	**790**	105.5	*4.15*	**470**	96	*3.80*	**790**	119.5	*4.70*

3TPW primary and secondary stage

Common suction

Type TKD tandem

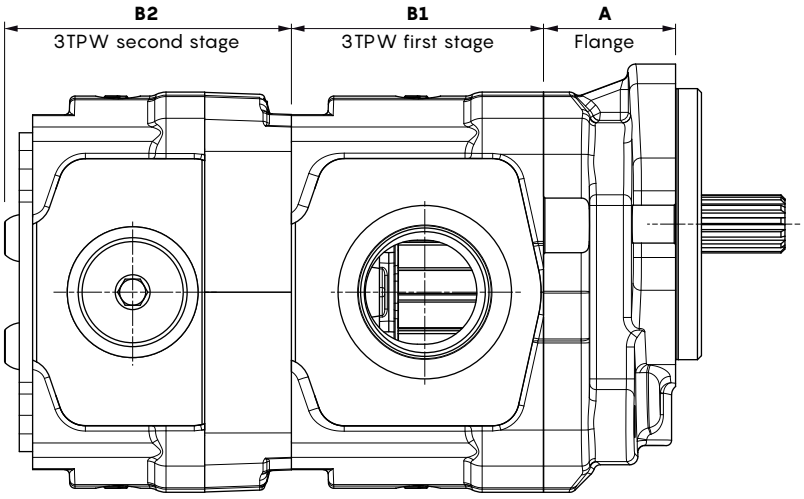
This tandem requires G0D type body for 3TPW first and second stages and TKD coupling kit.
The second stage is fitted with spacer kit (TKD spacer); max flow is 70 l/min (*18.5 US gpm*)
For detailed information please contact Sales Department.



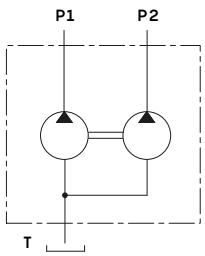
First stage — Second stage

Description example: 3TPW- **G0D** -600-D-SAEB-B-N-S14- **0U** -G112G1/ **TKD** /3TPW- **G0D** -390- **0M** -G1

- **G0D** (first stage): Stage body
- **0U**: Common suction
- **TKD**: Coupling kit
- **G0D** (second stage): Stage body
- **0M**: Only delivery port (side)

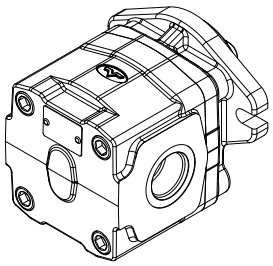


Hydraulic circuit



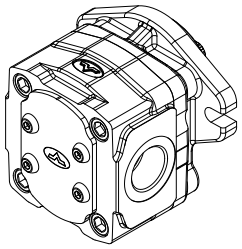
3TPW flange			3TPW-G0D body						3TPW-G0D body + spacer					
Type	A		Displ.	B1		Displ.	B1		Displ.	B2		Displ.	B2	
	mm	*in*		mm	*in*		mm	*in*		mm	*in*		mm	*in*
SAEB	49.5	*1.95*	**230**	64.5	*2.54*	**520**	85	*3.35*	**230**	107.5	*4.23*	**520**	128	*5.04*
SAEC-2F	49.5	*1.95*	**280**	67.5	*2.66*	**560**	88.5	*3.48*	**280**	110.5	*4.35*	**560**	131.5	*5.18*
SAEC-4F	82	*3.23*	**320**	70.5	*2.78*	**600**	91.5	*3.60*	**320**	113.5	*4.47*	**600**	134.5	*5.30*
EUR	66	*2.60*	**390**	76	*2.99*	**650**	94.5	*3.72*	**390**	119	*4.69*	**650**	137.5	*5.41*
			430	79	*3.11*	**710**	99.5	*3.92*	**430**	122	*4.80*	**710**	142.5	*5.61*
			470	82	*3.23*	**790**	105.5	*4.15*	**470**	125	*4.92*	**790**	148.5	*5.85*

Complete pumps ordering codes



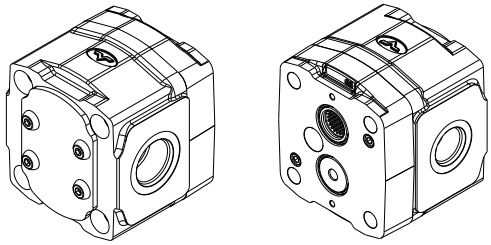
3TPW single stage pumps - Type G0 body					
Flange type	**Shaft type**	**Displacement**	**Code**	**Description**	**Notes**
SAEB	S13	230	1GP30010906	3TPW-G0-230-D-SAEB-B-N-S13-0-G1G34	- SAE flange ports - NBR seals - Type B shaft sealing - Clockwise rotation
		280	1GP30011110	3TPW-G0-280-D-SAEB-B-N-S13-0-G1G34	
		320	1GP30010907	3TPW-G0-320-D-SAEB-B-N-S13-0-F32F19	
		390	1GP30010908	3TPW-G0-390-D-SAEB-B-N-S13-0-F32F19	
		430	1GP30010909	3TPW-G0-430-D-SAEB-B-N-S13-0-F32F25	
		470	1GP30010910	3TPW-G0-470-D-SAEB-B-N-S13-0-F39F25	
		520	1GP30010911	3TPW-G0-520-D-SAEB-B-N-S13-0-F39F25	
		560	1GP30011294	3TPW-G0-560-D-SAEB-B-N-S13-0-F39F32	
		600	1GP30010913	3TPW-G0-600-D-SAEB-B-N-S13-0-F39F32	
		650	1GP30010914	3TPW-G0-650-D-SAEB-B-N-S13-0-G114G1	- BSP thread ports - Other features are the same of previous codes
		710	1GP30010915	3TPW-G0-710-D-SAEB-B-N-S13-0-G114G1	
		790	1GP30010916	3TPW-G0-790-D-SAEB-B-N-S13-0-G114G1	
EUR	10	230	1GP30011206	3TPW-G0-230-D-EUR-B-N-10-0-G1G34	- BSP thread ports - NBR seals - Type B shaft sealing - Clockwise rotation
		280	1GP30011207	3TPW-G0-280-D-EUR-B-N-10-0-G1G34	
		320	1GP30011208	3TPW-G0-320-D-EUR-B-N-10-0-G14G1	
		390	1GP30011079	3TPW-G0-390-D-EUR-B-N-10-0-G14G1	
		430	on request	3TPW-G0-430-D-EUR-B-N-10-0-G14G1	
		470	1GP30011209	3TPW-G0-470-D-EUR-B-N-10-0-G14G1	
		520	1GP30011210	3TPW-G0-520-D-EUR-B-N-10-0-G14G1	
		560	1GP30011054	3TPW-G0-560-D-EUR-B-N-10-0-G14G1	
		600	1GP30011211	3TPW-G0-600-D-EUR-B-N-10-0-G14G1	
		650	1GP30011201	3TPW-G0-650-D-EUR-B-N-10-0-G114G1	
		710	1GP30011212	3TPW-G0-710-D-EUR-B-N-10-0-G114G1	
		790	1GP30011053	3TPW-G0-790-D-EUR-B-N-10-0-G114G1	

Complete pumps ordering codes.



3TPW single stage pumps - Type G0D body					
Flange type	**Shaft type**	**Displacement**	**Code**	**Description**	**Notes**
SAEB	S13	230	1GP30011275	3TPW-G0D-230-D-SAEB-B-N-S15-0-F25F19	- SAE flange ports - NBR seals - Type B shaft sealing - Clockwise rotation
		280	1GP30011276	3TPW-G0D-280-D-SAEB-B-N-S15-0-F25F19	
		320	1GP30011277	3TPW-G0D-320-D-SAEB-B-N-S15-0-F32F19	
		390	1GP30011278	3TPW-G0D-390-D-SAEB-B-N-S15-0-F32F19	
		430	1GP30011279	3TPW-G0D-430-D-SAEB-B-N-S15-0-F32F25	
		470	1GP30011302	3TPW-G0D-470-D-SAEB-B-N-S15-0-F39F25	
		520	1GP30011281	3TPW-G0D-520-D-SAEB-B-N-S15-0-F39F25	
		560	1GP30011282	3TPW-G0D-560-D-SAEB-B-N-S15-0-F39F32	
		600	1GP30011274	3TPW-G0D-600-D-SAEB-B-N-S15-0-F39F32	
		650	on request	3TPW-G0D-650-D-SAEB-B-N-S15-0-G114G1	- BSP thread ports - Other features are the same of previous codes
		710	on request	3TPW-G0D-710-D-SAEB-B-N-S15-0-G114G1	
		790	on request	3TPW-G0D-790-D-SAEB-B-N-S15-0-G114G1	
SAEB	S13N	320	1GP30011062	3TPW-G0D-320-D-SAEB-B-N-S13N-0-G114G1	- BSP thread ports - NBR seals - Type B shaft sealing - Clockwise rotation
		430	1GP30011063	3TPW-G0D-430-D-SAEB-B-N-S13N-0-G114G1	
		520	1GP30011064	3TPW-G0D-520-D-SAEB-B-N-S13N-0-G114G1	
		600	1GP30011065	3TPW-G0D-600-D-SAEB-B-N-S13N-0-G114G1	
		710	1GP30011066	3TPW-G0D-710-D-SAEB-B-N-S13N-0-G114G1	
SAEB	13	230	1GP30011141	3TPW-G0D-230-D-SAEB-B-N-13-0-B19B13	- Port arrangement - NBR seals - Type B shaft sealing - Clockwise rotation
		280	1GP30011175	3TPW-G0D-280-D-SAEB-B-N-13-0-B19B13	
		320	1GP30011142	3TPW-G0D-320-D-SAEB-B-N-13-0-B27B19	
		390	on request	3TPW-G0D-390-D-SAEB-B-N-13-0-B27B19	
		430	1GP30011144	3TPW-G0D-430-D-SAEB-B-N-13-0-B27B19	
		470	on request	3TPW-G0D-470-D-SAEB-B-N-13-0-B27B19	
		520	1GP30011146	3TPW-G0D-520-D-SAEB-B-N-13-0-B27B19	
		560	1GP30011147	3TPW-G0D-560-D-SAEB-B-N-13-0-B27B19	
		600	1GP30011148	3TPW-G0D-600-D-SAEB-B-N-13-0-B27B19	
		650	1GP30011149	3TPW-G0D-650-D-SAEB-B-N-13-0-B19B13	
		710	1GP30011150	3TPW-G0D-710-D-SAEB-B-N-13-0-B19B13	
		790	1GP30011151	3TPW-G0D-790-D-SAEB-B-N-13-0-B19B13	
EUR	10	230	1GP30011119	3TPW-G0D-230-D-EUR-B-N-10-0-G1G34	- BSP thread ports - NBR seals - Type B shaft sealing - Clockwise rotation
		280	1GP30011058	3TPW-G0D-280-D-EUR-B-N-10-0-G1G34	
		320	1GP30011120	3TPW-G0D-320-D-EUR-B-N-10-0-G114G1	
		390	1GP30011060	3TPW-G0D-390-D-EUR-B-N-10-0-G114G1	
		430	1GP30011121	3TPW-G0D-430-D-EUR-B-N-10-0-G114G1	
		470	1GP30011059	3TPW-G0D-470-D-EUR-B-N-10-0-G114G1	
		520	1GP30011122	3TPW-G0D-520-D-EUR-B-N-10-0-G114G1	
		560	1GP30011123	3TPW-G0D-560-D-EUR-B-N-10-0-G114G1	
		600	1GP30011124	3TPW-G0D-600-D-EUR-B-N-10-0-G114G1	
		650	1GP30011125	3TPW-G0D-650-D-EUR-B-N-10-0-G114G1	
		710	1GP30011126	3TPW-G0D-710-D-EUR-B-N-10-0-G114G1	
		790	1GP30011061	3TPW-G0D-790-D-EUR-B-N-10-0-G114G1	

Secondary stage ordering codes

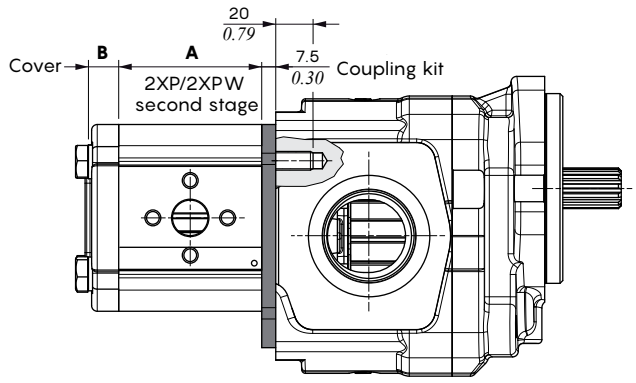


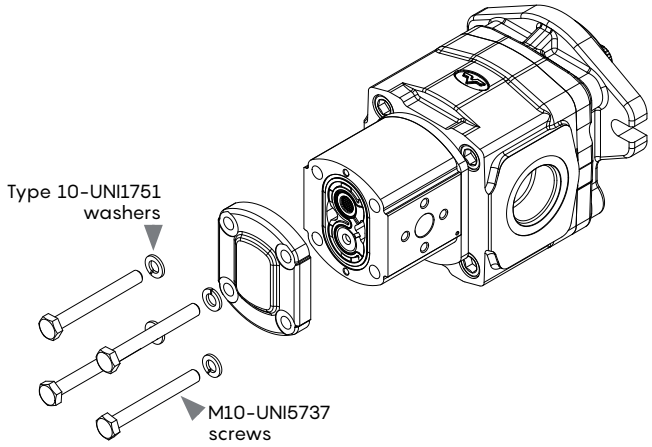
3TPW pumps secondary stage – Type G0D body				
Ports type	**Shaft type**	**Displacement**	**Code**	**Description**
BSP thread	18F	230	5GKBP3T012	3TPW-G0D-230-D-TKD-N-18F-0-G1G34 Stage
		280	5GKBP3T013	3TPW-G0D-280-D-TKD-N-18F-0-G1G34 Stage
		320	5GKBP3T014	3TPW-G0D-320-D-TKD-N-18F-0-G114G1 Stage
		390	5GKBP3T015	3TPW-G0D-390-D-TKD-N-18F-0-G114G1 Stage
		430	5GKBP3T016	3TPW-G0D-430-D-TKD-N-18F-0-G114G1 Stage
		470	5GKBP3T017	3TPW-G0D-470-D-TKD-N-18F-0-G114G1 Stage
		520	5GKBP3T018	3TPW-G0D-520-D-TKD-N-18F-0-G114G1 Stage
		560	5GKBP3T019	3TPW-G0D-560-D-TKD-N-18F-0-G114G1 Stage
		600	5GKBP3T020	3TPW-G0D-600-D-TKD-N-18F-0-G114G1 Stage
		650	5GKBP3T021	3TPW-G0D-650-D-TKD-N-18F-0-G114G1 Stage
		710	5GKBP3T022	3TPW-G0D-710-D-TKD-N-18F-0-G114G1 Stage
		790	5GKBP3T023	3TPW-G0D-790-D-TKD-N-18F-0-G114G1 Stage
SAE flange	18F	280	5GKBP3T073	3TPW-G0D-280-D-TKD-N-18F-0-F25F19 Stage
		320	5GKBP3T074	3TPW-G0D-320-D-TKD-N-18F-0-F32F19 Stage
		390	5GKBP3T075	3TPW-G0D-390-D-TKD-N-18F-0-F32F19 Stage
		430	5GKBP3T076	3TPW-G0D-430-D-TKD-N-18F-0-F32F19 Stage
		470	5GKBP3T077	3TPW-G0D-470-D-TKD-N-18F-0-F39F25 Stage
		520	5GKBP3T078	3TPW-G0D-520-D-TKD-N-18F-0-F39F25 Stage

Assembling screws ordering codes

The length of the screws indicated in the tables below refers to tandem pumps/motors configured with **G0D** body; for different configuration contact our Sales Department.
To correctly order the assembly screws it is necessary to calculate the tandem lenght as shown in the picture.

3TPW+2XP/2XPW tandem





2XP/2XPW body		
Displacement	A	
	mm	*in*
040*	50.8	*2*
060*	54.1	*2.13*
080*	58.3	*2.29*
110	62.4	*2.46*
140	67.4	*2.65*
160	71.6	*2.82*
190	76.6	*3.01*
220	81.6	*3.21*
260	87.4	*3.44*
290	90.7	*3.57*
310	95.8	*3.77*

2XP/2XPW cover (washer dimension included)			
Port configuration		B	
		mm	*in*
0	aluminium*	16.4	*0.65*
	cast iron	16.2	*0.64*
1 / 3 / 4	aluminium*	16.4	*0.65*
	cast iron	18.2	*0.72*

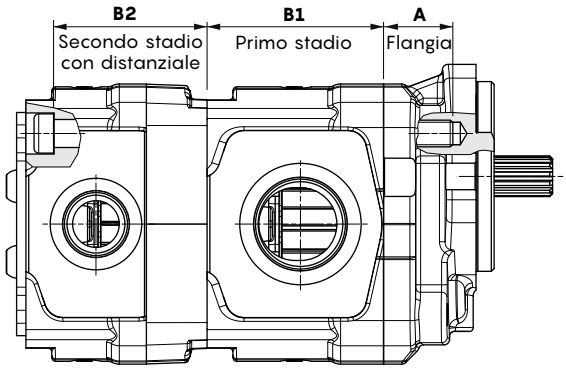
For special covers see Xtreme Series catalogue

(*) available only for 2XP type pump

UNI 5737-10.9 screws ordering codes	
Lenght mm *(in)*	**Code**
M10x85 *(3.35)*	107010085
M10x90 *(3.54)*	107010090
M10x95 *(3.74)*	107010095
M10x100 *(3.94)*	107010100
M10x105 *(4.13)*	107010105
M10x110 *(4.33)*	107010110
M10x115 *(4.53)*	107010115
M10x120 *(4.72)*	107010120
M10x125 *(4.92)*	107010125
M10x130 *(5.12)*	107010130
Type 10-UNI1751 washer	4RS2102201

Assembling screws ordering codes

3TPW+3TPW tandem



3TPW flange		
Type	A	
	mm	*in*
SAEB	37	*1.46*
SAEC-2F	37	*1.46*
SAEC-4F	33	*1.30*
EUR	26.2	*1.03*

3TPW-G0D bodies				
Displacement	B1		B2	
	mm	*in*	mm	*in*
230	64.5	*2.54*	82	*3.23*
280	67.5	*2.66*	85	*3.35*
320	70.5	*2.78*	88	*3.46*
390	76	*2.99*	93.5	*3.68*
430	79	*3.11*	96.5	*3.80*
470	82	*3.23*	99.5	*3.92*
520	85	*3.35*	102.5	*4.04*
560	88.5	*3.48*	106	*4.17*
600	91.5	*3.60*	109	*4.29*
650	94.5	*3.72*	112	*4.41*
710	99.5	*3.92*	117	*4.61*
790	105.5	*4.15*	123	*4.84*

UNI 5931-12.9 screws ordering codes	
Lenght mm *(in)*	Code
M14x175 (*6.89*)	4VT2721750
M14x180 (*7.09*)	4VT2721800
M14x185 (*7.28*)	4VT2721850
M14x190 (*7.48*)	4VT2721901
M14x195 (*7.68*)	4VT2721950
M14x200 (*7.87*)	4VT2722001
M14x205 (*8.07*)	4VT2722050
M14x210 (*8.27*)	4VT2722101
M14x215 (*8.46*)	4VT2722151
M14x220 (*8.66*)	4VT2722201
M14x225 (*8.86*)	4VT2722250
M14x230 (*9.06*)	4VT2722301
M14x235 (*9.25*)	4VT2722351
M14x240 (*9.45*)	4VT2722401
M14x245 (*9.65*)	4VT2722451
M14x250 (*9.84*)	4VT2722501
M14x255 (*10.04*)	4VT2722550
M14x260 (*10.24*)	4VT2722601

Product identification

Notes

WALVOIL NEL MONDO | WALVOIL WORLDWIDE

WALVOIL S.P.A.
DIREZIONE E COORDINAMENTO INTERPUMP GROUP S.P.A.
Sede principale, Filiali e Uffici di rappresentanza
Headquarters, Subsidiaries and Representative Offices

WALVOIL S.P.A. SEDE PRINCIPALE | HEADQUARTERS
Via Adige, 13/D . 42124 Reggio Emilia . Italy
TEL. +39 0522 932411
info@walvoil.com | www.walvoil.com

AUSTRALASIA | AUSTRALASIA

WALVOIL FLUID POWER AUSTRALASIA PTY LTD
6 Leonard Avenue . Toukley NSW 2263 . Sydney . Australia
TEL. +61 413 739 938
australasia@walvoil.com

BRASILE | BRAZIL

INTERPUMP HYDRAULICS BRASIL LTDA | WALVOIL DIVISION
Rua Gilberto de Zorzi, 525 . Bairro Forqueta 95115-730
Caxias do Sul (RS)
TEL. +55 54 3289 7000
infobrasil@walvoil.com

CANADA | CANADA

WALVOIL CANADA INC.
3100, Rue Jacob Jordan . Terrebonne . Qc J6X 4J6 . Canada
TEL. +1 450 477 1076 Ext:225
info@walvoilcanada.com | www.walvoilcanada.com

CINA | CHINA

WALVOIL FLUID POWER (DONGGUAN) CO. LTD
1st Floor, the Third Factory Area, Sijia, Shijie Town, Dongguan City
Guangdong province. China.
TEL. +86 769 81816189-8020
info@walvoil.com.cn | www.walvoil.com.cn

COREA DEL SUD | SOUTH KOREA

WALVOIL FLUID POWER KOREA LTD.
(17818)80-15, Oseongsandan 1Ro, Oseong-myun,
Pyeongtaek-si Gyeonggi-do
Republic of Korea 451-872
TEL. +82 31 682 6030
info@walvoil.co.kr | www.walvoil.co.kr

FRANCIA | FRANCE

WALVOIL FLUID POWER FRANCE
362 rue de La Jaunais . Vritz . 44540 Vallons-de-l'Erdre
TEL. +33 2 41 94 41 06
france@walvoil.com

INDIA | INDIA

WALVOIL FLUID POWER (INDIA) PVT. LTD.
No. 1, 2nd Cross, 2nd Main, KIADB Industrial Area, Attibele, Anekal Taluk
Bangalore - 562107.
TEL. +91 80 0614 24000
info@walvoil.co.in | www.walvoil.co.in

MESSICO | MEXICO

WALVOIL FLUID POWER MEXICO S.A. DE C.V.
Calle Julian Sepulveda Davila #109
CP. 66640 . Apodaca
Nuevo León . Mexico

U.S.A. | U.S.A.

WALVOIL FLUID POWER CORP. | HEADQUARTERS
4111 North Garnett Tulsa, OK 74116, USA
TEL. +1 918 858 7100
info@walvoilusa.com | www.walvoilusa.com

WALVOIL FLUID POWER CORP
1109, Technology Drive . Red Wing . MN 55066 . U.S.A.
TEL. +1 651 212 6400
info@walvoilusa.com | www.walvoilusa.com

D2WWEM03E
1st edition May 2026

A member of