
Pulsar - 2PSE

Low Noise Gear Pumps

Technical Brochure



E0.147.0421.11.00IM00

COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001:2015 =

salami 
FLUID POWER SYSTEMS [®]

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The data in this catalogue refers to the standard product. The policy of Salami S.p.A. 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 prior information.
If any doubts, please contact our sales department.

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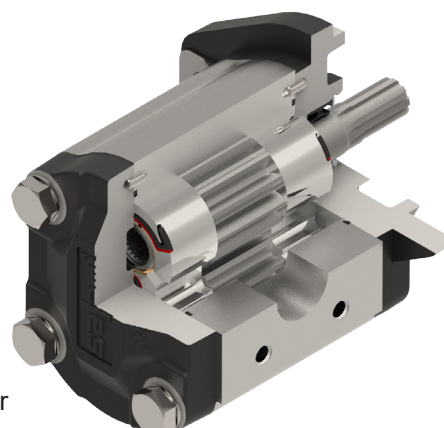
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Features

Pulsar Pump 2PSE is a Low Noise Salami gear pump is available with displacements from 4.6 cm³/rev to 26 cm³/rev (*from 0.27 cu.in/rev to 1.62 cu.in/rev*). Intermittent pressure up to 280 bar (4060 psi).

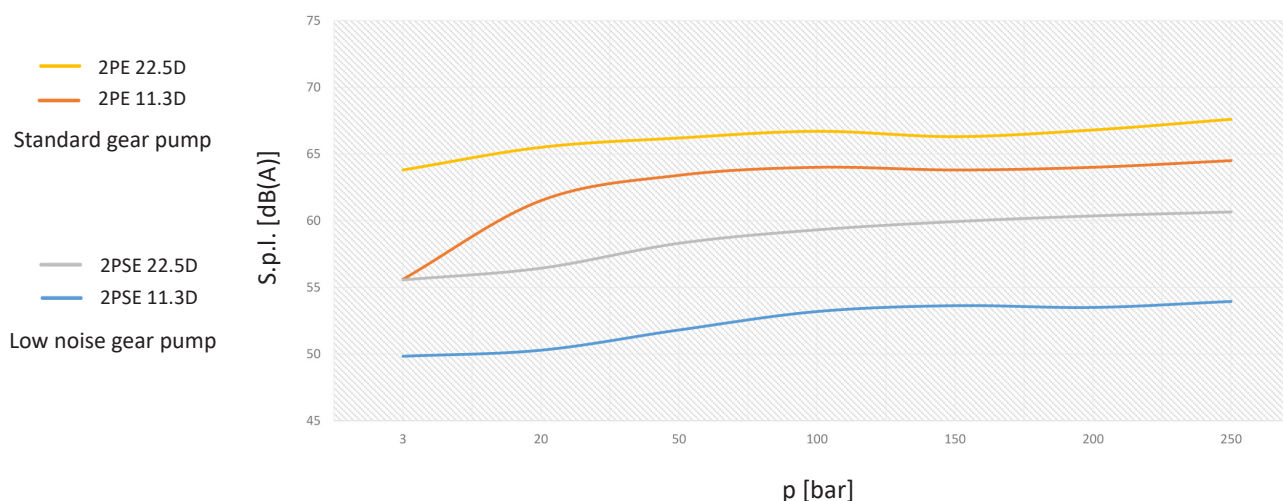
- Reduction of the flow pulsations of 80%.
- Reduction of the noise emissions by up to 7-9 dB(A) (average) compared to standard gear pumps.
- Vibration reduction
- Longer pump life
- Gear: Double flank engagement, tooth profile optimization to reduce relative sliding, specific heat treatment to minimize the gear deformation.
- Axial balancing bushings optimized to minimize the volume trapped during teeth engagement.
- High volumetric efficiency achieved by floating bushings and axial compensation.
- 12 teeth integral shaft: one piece, solid gear.
- Modular construction.
- Compact design.
- Aluminium gear housing, cast iron flanges and covers.
- Double shaft seal.
- Outrigger bearing available.
- Wide range of rear covers with built-in valves.
- Flanges: European, German, SAE A, SAE B.
- Ports: European, German and American standards.
- Shafts: European and American standards.
- Sharing the same gear housing, flanges and rear covers of 2PE pump.



Applications

- Hydraulic presses, Waste compactors, Forklifts, Drives for elevators/hoists, Farm vehicles, Municipal vehicles, Earthmoving machines, Hydraulic steering systems.

Noise Level Reduction

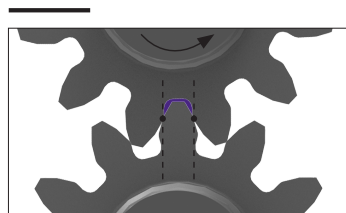
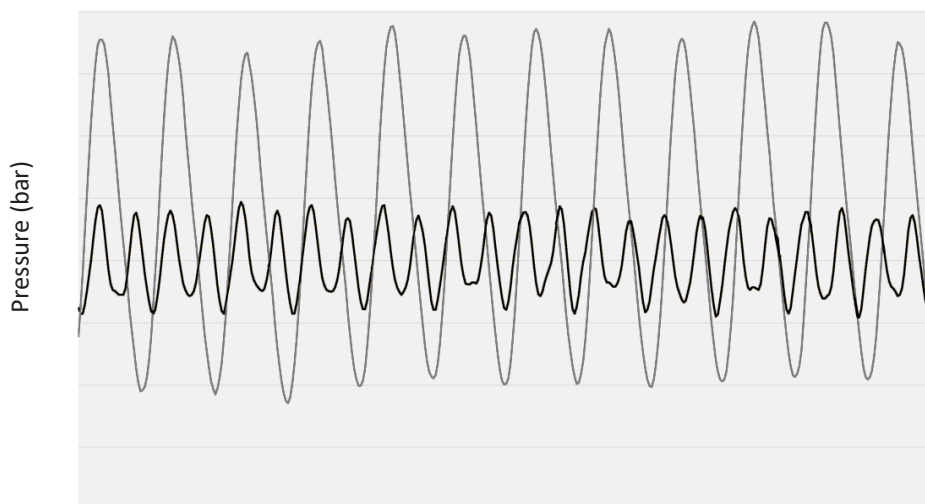


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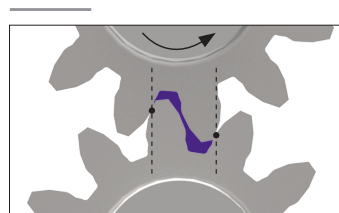


Features

Pressure Ripple Comparison



Low noise gear pump



Standard gear pump

Working Conditions

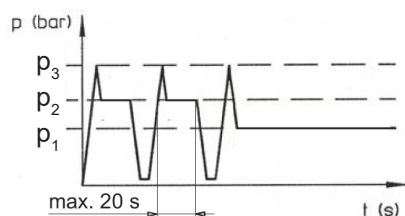
HYDRAULIC FLUID

Mineral oil according to DIN 51524, other hydraulic fluids on request.

Pump inlet pressure (absolute pressure)		0.8 to 1.5 bar (11.6 to 21.7 psi)
Viscosity	Minimum operating fluid viscosity	12 mm ² /sec
	Max starting viscosity	800 mm ² /sec
	Suggested fluid viscosity range	17 ÷ 65 mm ² /sec
Temperature	fluid operating temperature range	-25 ÷ 80 °C
	fluid operating temperature range with FPM seals (Viton)	-20 ÷ 110°C
	fluid operating temperature range with HNBR seals*	-30 ÷ 110°C

* Available on request

Definition of Pressures



p_3 = Peak pressure

p_2 = Intermittent operating pressure (1/3 of working time)

p_1 = Continuous operating pressure

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Single Unit



Displacements up to 26.6 cm³/rev - 1.62 cu.in./rev

TYPE	Displacement		Dimension A		Dimension C		Continuous pressure p ₁		Intermittent pressure p ₂		Peak pressure p ₃		Min. speed at p ₁	Max. speed at p ₂ **	Weight	
	cm ³ /rev	cu.in./rev	mm	in	mm	in	bar	psi	bar	psi	bar	psi	min ⁻¹		kg	lbs
2PSE - 3.2*	3.2	0.19	47.1	1.83	23.55	0.93	250	3625	280	4060	300	4350	600	4000	3.00	6.61
2PSE - 3.9*	3.9	0.24					250	3625	280	4060	300	4350	600	4000	3.05	6.72
2PSE - 4.5	4.6	0.27					250	3625	280	4060	300	4350	600	4000	3.10	6.83
2PSE - 6.5	6.5	0.4	49.95	1.97	25	0.98	250	3625	280	4060	300	4350	600	4000	3.50	7.72
2PSE - 8.3	8.2	0.5	52.8	2.07	26.4	1.04	250	3625	280	4060	300	4350	500	3500	3.60	7.94
2PSE - 10.5 ●	10.6	0.65	56.3	2.22	28.15	1.11	250	3625	280	4060	300	4350	500	3500	3.70	8.16
2PSE - 11.3	11.5	0.68	59.7	2.35	29.75	1.17	250	3625	280	4060	300	4350	500	3500	3.75	8.27
2PSE - 12.5 ●	12.7	0.77					250	3625	280	4060	300	4350	500	3500	3.78	8.33
2PSE - 13.8	13.8	0.84	63.5	2.5	31.75	1.25	250	3625	280	4060	300	4350	500	3500	3.86	8.51
2PSE - 16	16.6	1.01	67.5	2.65	33.75	1.33	250	3625	280	4060	300	4350	400	3000	4.00	8.82
2PSE - 19	19.4	1.15	75.6	2.97	37.80	1.49	220	3140	240	3480	260	3750	400	3000	4.18	9.22
2PSE - 22.5	22.9	1.37	81	3.19	40.5	1.59	200	2900	220	3140	240	3480	400	2750	4.29	9.46
2PSE - 26	26.6	1.62	86.8	3.42	43.4	1.71	180	2610	200	2900	220	3190	300	2500	4.54	10.1

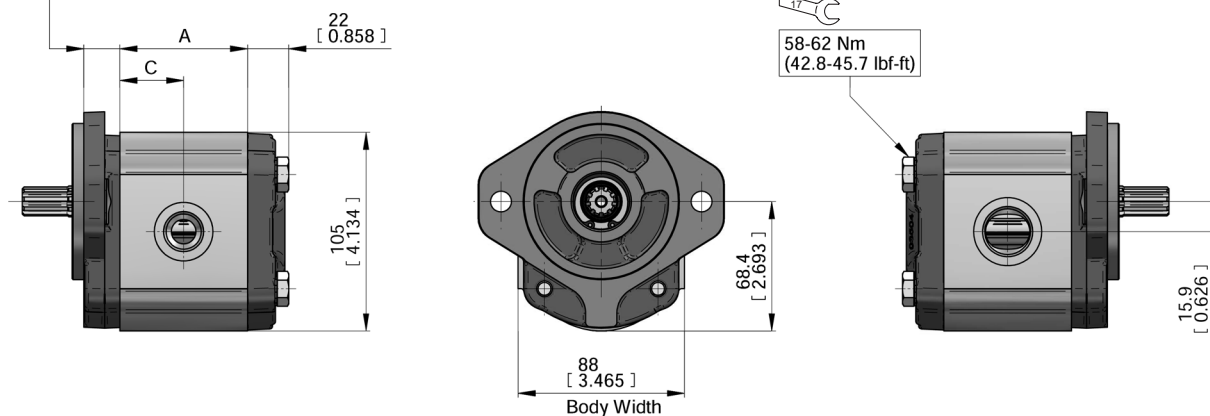
*= Available only as rear pump - ●= Available only for quantity

**=Max speed allowed with p₂ pressure working continuously at p₁, the max. speed must be reduced by 10%.

For flanges code:

P1-B1-S2-S3-S6, this dimension is 19 mm (0.75 in.)

B2-B3-B4-B5-K3-K4, this dimension is 16.5 mm (0.65 in.)



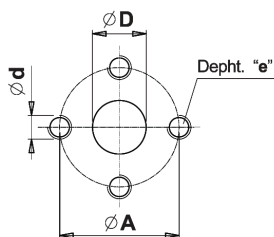
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Ports

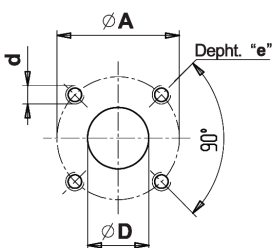


Flanged Port



P - European standard

TYPE	INLET				OUTLET			
	Ø D	Ø A	d	e	Ø D	Ø A	d	e
From 3.2 to 8.3	13 (0.51")	30 (1.19")	M6	13 (0.51")	13 (0.51")	30 (1.18")	M6	13 (0.51")
From 11.3 to 22.5	20 (0.79")	40 (1.57")	M8					
26	22 (0.87")							

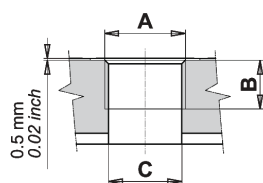


B - German standard

TYPE	INLET				OUTLET			
	Ø D	Ø A	d	e	Ø D	Ø A	d	e
From 3.2 to 22.5	20 (0.78")	40 (1.56")	M6	13 (0.51")	15 (0.59")	35 (1.38")	M6	13 (0.51")
26	22 (0.87")							

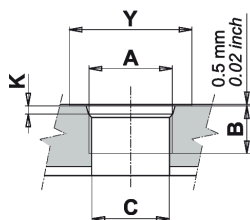


Threaded Port



G - GAS (BSPP)

TYPE	INLET			OUTLET		
	A	B	ØC	A	B	ØC
From 3.2 to 26	G3/4	16 (0.62")	20 (0.78")	G1/2	14 (0.54")	13 (0.51")



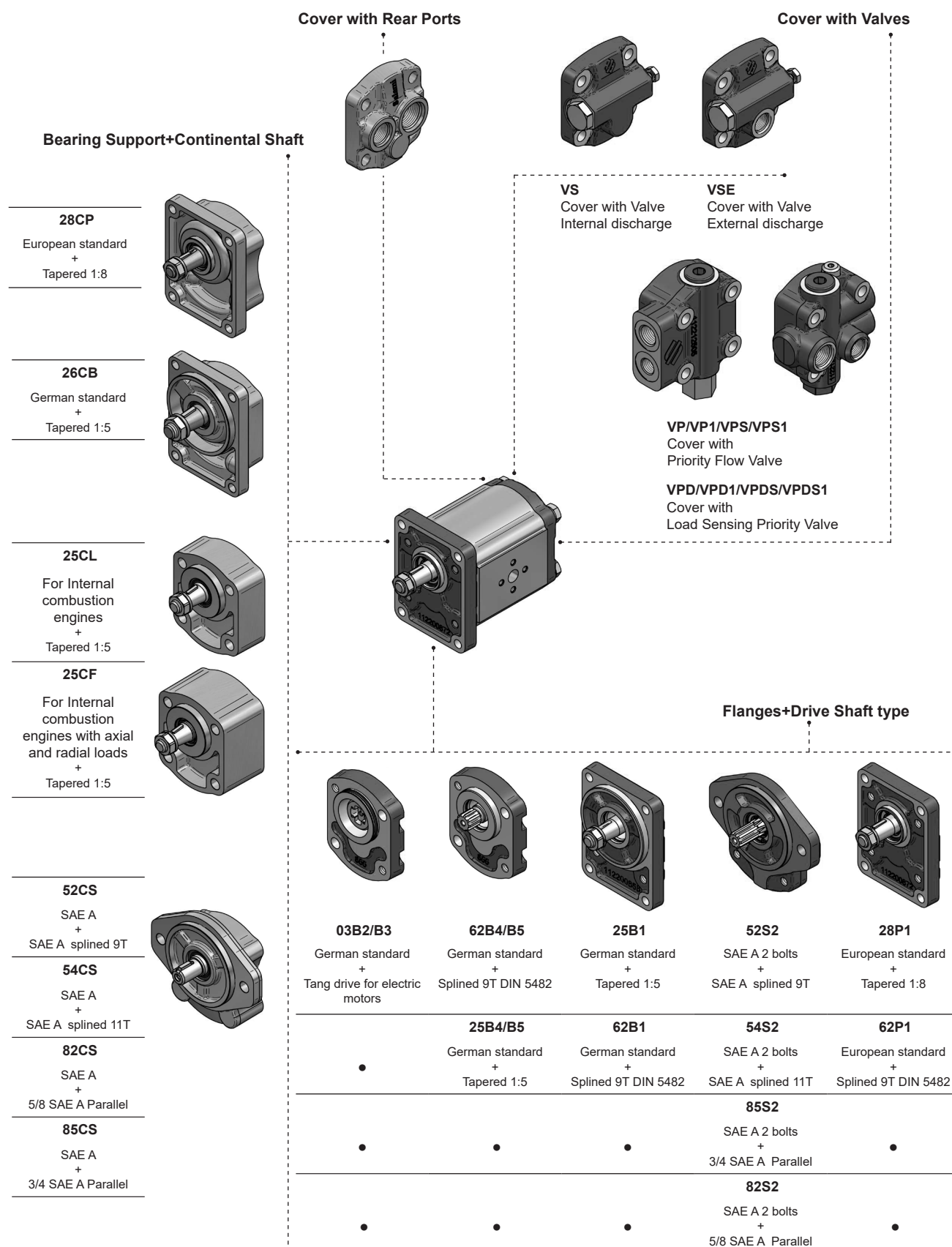
R - SAE (ODT)

TYPE	INLET					OUTLET				
	A	B	ØC	Y	K	A	B	ØC	Y	K
From 3.2 to 26	1-1/16-12 UN (SAE 12)	16 (0.62")	20 (0.78")	41 (1.61")	3.3 (0.12")	7/8-14 UNF (SAE 10)	14 (0.54")	13 (0.78")	34 (1.32")	2.5 (0.10")

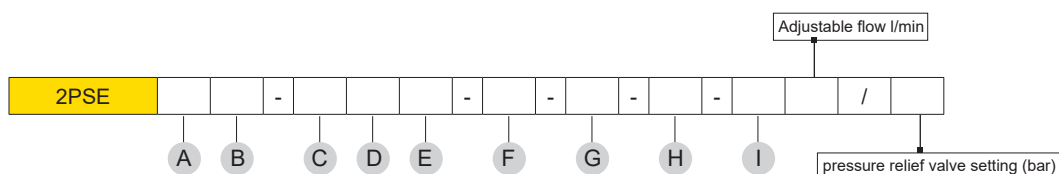
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Standard Configurations



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A	TYPE	DISPLACEMENTS	
	4.5	4.6 cm ³ /rev.	0.27 cu.in/rev.
	6.5	6.5 cm ³ /rev.	0.40 cu.in/rev.
	8.3	8.2 cm ³ /rev.	0.50 cu.in/rev.
	10.5	10.6 cm ³ /rev.	0.65 cu.in/rev.
	11.3	11.5 cm ³ /rev.	0.68 cu.in/rev.
	12.5	12.5 cm ³ /rev.	0.77 cu.in/rev.
	13.8	13.8 cm ³ /rev.	0.84 cu.in/rev.
	16	16.6 cm ³ /rev.	1.01 cu.in/rev.
	19	19.4 cm ³ /rev.	1.18 cu.in/rev.
	22.5	22.9 cm ³ /rev.	1.37 cu.in/rev.
	26	26.6 cm ³ /rev.	1.62 cu.in/rev.

B	ROTATION	CODE
	Clockwise	D
	Anti-clockwise	S

C	PORTS (page 5)	CODE
	Flanged ports european standard	P
	Flanged ports german standard	B
	Threaded ports GAS (BSPP)	G
	Threaded ports SAE (ODT)	R

D	► DRIVE SHAFT	CODE
	Tang drive for electric motors	03
	Tang drive	04
	Tapered 1:5	25
	Tapered 1:8	28
	SAE A splined 9T	52
	SAE A splined 10T	53
	SAE A splined 11T	54
	SAE B splined 13T (Coupling sleeve)	55
	DIN 5480 internal splined (only for rear pumps)	60
	9 teeth DIN 5482 splined	62
	5/8" SAE A parallel	82
	3/4" SAE A parallel	85
	Tapered 1:5 Continental shaft (Only for CB)	26

► See Technical Catalogue 2PE (E0.120.0219.02.00IM04)

I	► REAR COVERS	CODE
	Adjustable pressure relief valve-Internal discharge	VS
	Adjustable setting pressure relief valve-External discharge	VSE
	Priority flow valve with excess flow to 2nd actuator	VP-VP1
	Priority flow valve with excess flow to 2nd actuator with pressure relief valve	VPS-VPS1
	Load sensing priority valve with dynamic signal	VPD-VPD1
	Load sensing priority valve with dynamic signal and pressure relief valve	VPDS-VPDS1
	Electric unloading valve (12V)	EV1/EV3
	Electric unloading valve (24V)	EV2/EV4
	Pressure relief and electric unloading valves (12V)	EVS1/EVS3
	Pressure relief and electric unloading valves (24V)	EVS2/EVS4
	Pre-arranged for 1.5PE rear	PD1.5

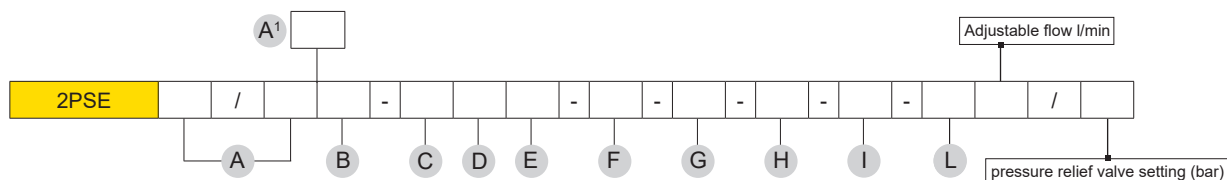
H	► OUTRIGGER BEARING	CODE
	For Internal combustion engines	CL
	For Internal combustion engines with axial and radial loads	CF
	SAE A	CS
	German standard	CB
	European standard	CP

G	PORTS POSITION	CODE
	Side ports (standard configuration)	-
	Rear ports	1

F	SEAL	CODE
	Buna standard (standard configuration)	-
	Viton	V

E	► MOUNTING FLANGES	CODE
	European standard	P1
	German standard Ø80	B1
	German standard Ø52	B2-B3
	German standard Ø50	B4-B5
	SAE A 2 bolts	S2
	SAE B 2 bolts	S3
	SAE A 2 bolts (with o-ring on the centering collar)	S6
	German standard with shaft seal Ø52	K3
	German standard with shaft seal Ø52	K4

Order example: 2PSE 19D, ports SAE (R), drive shaft (54), mounting flange (S2).
2PSE19D-R54S2



A	TYPE	DISPLACEMENTS	
	4.5	4.6 cm ³ /rev.	0.27 cu.in/rev.
	6.5	6.5 cm ³ /rev.	0.40 cu.in/rev.
	8.3	8.2 cm ³ /rev.	0.50 cu.in/rev.
	10.5	10.6 cm ³ /rev.	0.65 cu.in/rev.
	11.3	11.5 cm ³ /rev.	0.68 cu.in/rev.
	12.5	12.5 cm ³ /rev.	0.77 cu.in/rev.
	13.8	13.8 cm ³ /rev.	0.84 cu.in/rev.
	16	16.6 cm ³ /rev.	1.01 cu.in/rev.
	19	19.4 cm ³ /rev.	1.18 cu.in/rev.
	22.5	22.9 cm ³ /rev.	1.37 cu.in/rev.
	26	26.6 cm ³ /rev.	1.62 cu.in/rev.

A ¹	► COMBINATION WITH 2PE or 1.5PE
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B	ROTATION	CODE
	Clockwise	D
	Anti-clockwise	S

C	PORTS (page 5)	CODE
	Flanged ports european standard	P
	Flanged ports german standard	B
	Threaded ports GAS (BSPP)	G
	Threaded ports SAE (ODT)	R

D	► DRIVE SHAFT	CODE
	Tang drive for electric motors	03
	Tang drive	04
	Tapered 1:5	25
	Tapered 1:8	28
	SAE A splined 9T	52
	SAE A splined 10T	53
	SAE A splined 11T	54
	SAE B splined 13T (Coupling sleeve)	55
	DIN 5480 internal splined (only for rear pumps)	60
	9 teeth DIN 5482 splined	62
	5/8" SAE A parallel	82
	3/4" SAE A parallel	85
	Tapered 1:5 Continental shaft (Only for CB)	26

*UA-Common suction: number 1 - 2 or 3, correspond to the body where inlet is located.

► See Technical Catalogue 2PE (E0.120.0219.02.00IM04)

L	► REAR COVERS	CODE
	Adjustable pressure relief valve-Internal discharge	VS
	Adjustable setting pressure relief valve-External discharge	VSE
	Priority flow valve with excess flow to 2nd actuator	VP-VP1
	Priority flow valve with excess flow to 2nd actuator with pressure relief valve	VPS-VPS1
	Load sensing priority valve with dinamic signal	VPD-VPD1
	Load sensing priority valve with dinamic signal and pressure relief valve	VPDS-VPDS1
	Electric unloading valve (12V)	EV1/EV3
	Electric unloading valve (24V)	EV2/EV4
	Pressure relief and electric unloading valves (12V)	EVS1/EVS3
	Pressure relief and electric unloading valves (24V)	EVS2/EVS4
	Pre-arranged for 1.5PE rear	PD1.5

I	► OUTRIGGER BEARING	CODE
	For Internal combustion engines	CL
	For Internal combustion engines with axial and radial loads	CF
	SAE A	CS
	German standard	CB
	European standard	CP

H	PORTS POSITION	CODE
	Side ports (standard configuration)	-
	Rear ports	1

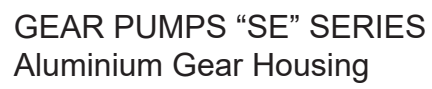
G	SUCTION PORTS	CODE
	Common Inlet	UA*
	Separated stages	AS

F	SEAL	CODE
	Buna standard (standard configuration)	-
	Viton	V

E	► MOUNTING FLANGES	CODE
	European standard	P1
	German standard Ø80	B1
	German standard Ø52	B2-B3
	German standard Ø50	B4-B5
	SAE A 2 bolts	S2
	SAE B 2 bolts	S3
	SAE A 2 bolts (with o-ring on the centering collar)	S6
	German standard with shaft seal Ø52	K3
	German standard with shaft seal Ø52	K4

Order example: 2PSE 19D, ports SAE (R), drive shaft (54), mounting flange (S2).
2PSE19/19D-R54S2

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