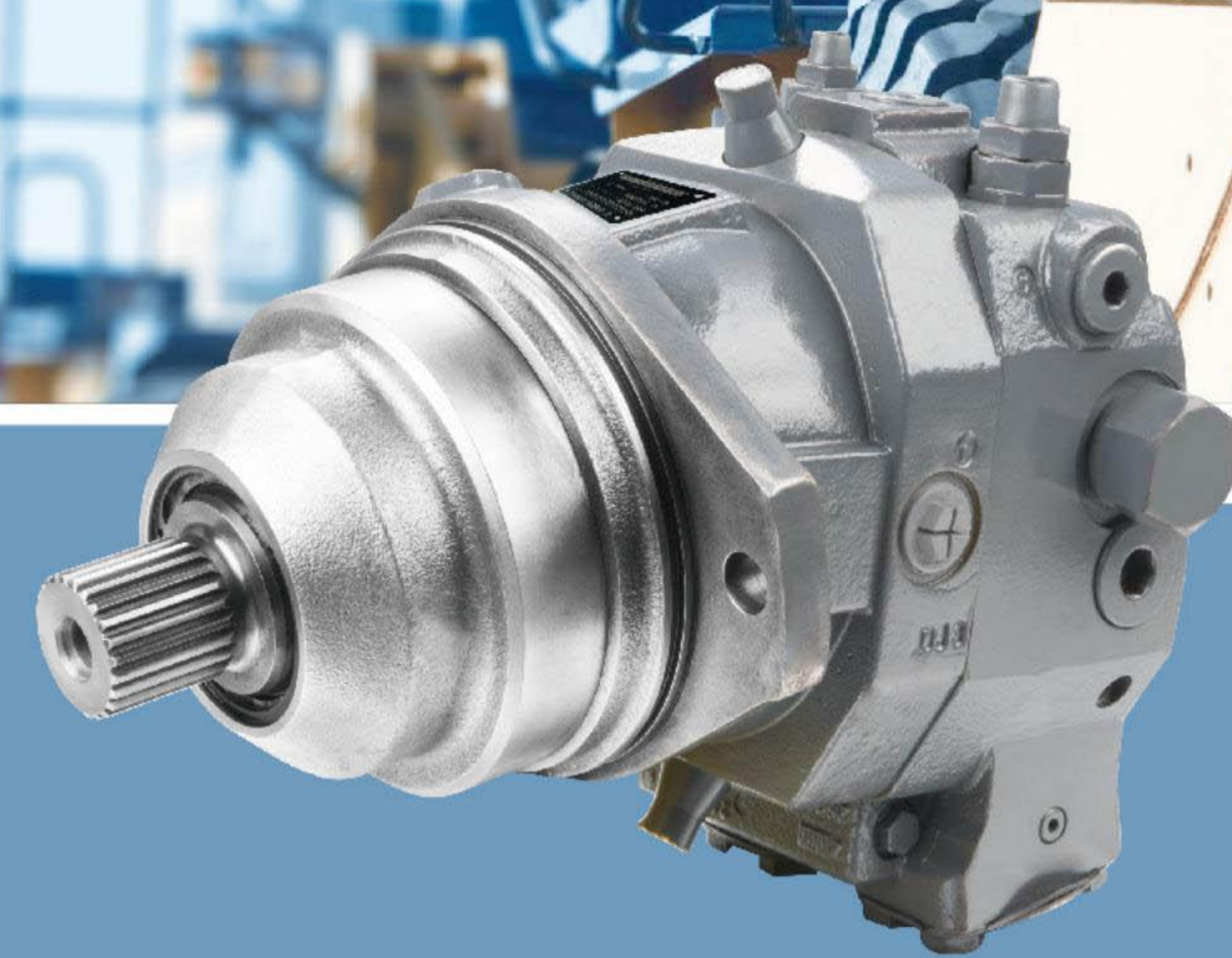


ZP6VE

Variable plug-in motor

- Sizes (ml/r): 28...250
- Nominal pressure (bar): 400bar
- Maximum pressure (bar): 450bar



- Effective range of adjustment for hydrostatic transmission
- 2nd controls and adjustments with various controls
- Increasing the maximum output speed at a smaller Angle saves money by using a smaller pump Without multi-ratio gear drive
- High power density
- High external axial load is allowed
- Installation position is not fixed
- High efficiency
- Excellent starting characteristics
- Small moment of inertia

Ordering Code / Standard Program

ZP6V	E			/	6	3	W	-	V						
01	02	03	04		05	06	07	08	09	10	11	12	13	14	15

Axial piston unit							Operating mode								
01	Bent-axis design, variable						ZP6V	02	Plug-in motor						E

Size															
03	< Geometric displacement, $V_{g\max}$ cm ³						28	55	80	107	160	250			

Control device										28	55	80	107	160	250		
Proportional control, hydraulic	Incremental pressure control	10bar HD1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	HD1
		25bar HD2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	HD2
Two-point control, hydraulic		HZ	-	-	-	-	-	-	-	-	-	-	-	-	●	HZ	
		HZ1	●	-	-	-	-	-	-	-	-	-	-	-	●	HZ1	
		HZ2	-	●	●	●	●	●	●	●	●	●	●	●	-	●	HZ3
Proportional control electrical	Voltage control	12V EP1	●	●	●	●	●	●	●	○	○	○	○	○	○	○	EP1
		24V EP2	●	●	●	●	●	●	●	●	○	○	○	○	○	○	EP2
Two-point control electrical	Voltage control	12V EZ1	●	-	-	-	-	-	-	●	●	●	●	●	●	●	EZ1
		24V EZ2	●	-	-	-	-	-	-	●	●	●	●	●	●	●	EZ2
		12V EZ3	-	●	●	●	●	●	●	-	-	-	-	-	-	-	EZ3
		24V EZ4	-	●	●	●	●	●	●	-	-	-	-	-	-	-	EZ4
Automatic control High pressure dependent,	with minimum pressure increase with pressure increase	HA1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	HA1
		HA2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	HA2
Automatic control, speed related	with minimum pressure increase	HA3	-	●	●	●	●	●	●	-	-	-	-	-	-	-	HA3 ¹⁾
		DA	-	-	-	-	-	-	-	-	-	-	-	-	●	DA	
electric travel direction valve +Vg max Electric switching (24V) Pst/PHD=5/100		DA3	●	●	●	●	●	●	●	-	-	-	-	-	-	DA3	

Pressure control (only for HD)		
04	without pressure control (without ID)	
	with pressure control	D

HA Pressure control/override (only for HA)		
04	Without pressure control/override	
	Override of the HA1 and HA2 controls, hydraulic remote controlled, proportional	T

Series	
05	6

Index	
06	3

Direction of rotation		
07	Viewed on drive shaft	bidirectional W

Setting range for displacement l ²										28	55	80	107	160	250			
08	$V_{q\max}=0$ to $0,8V_{q\max}$ (without code)		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	$V_{g\max}=C$ to $0,4V_{g\max}$		-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	1
	$V_{q\max}>0,4V_{q\max}$ to $0,8V_{q\max}$		-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	2

Ordering Code / Standard Program

ZP6V	E			/	6	3	W	-	V						
01	02	03	04		05	06	07	08	09	10	11	12	13	14	15

Sealing material										28	55	80	107	160	250	Drive shaft					
09	FKM (fluoroelastomer) shaft seal		●	●	●	●	●	●	●	V	10		Spined shaft		●	-	●	-	●	-	A
												DIN 5480		-	●	-	●	-	●	-	Z

Mounting flange										28	55	80	107	160	250			
11	Specially made-2 holes(standard)		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	L
	pecially made-4 holes(standard)		-	-	-	-	-	-	-	-	-	-	-	-	-	●	-	M
	improved 2 holes flange		-	-	-	-	-	-	-	-	-	-	-	-	●	-	-	U

Working port										0	●	●	●	●	●	●	●	020
12	SAE working ports A and B lateral, opposite, metric thread		7	●	●	●	●	●	●	●	●	●	●	●	●	●	●	027
	Oil port connector with built-in brake valve (with brake valve) and 2nd valve 22 (port A,B: SAE on the side, the same side)		1	-	●	●	●	●	●	●	●	●	●	●	●	-	-	221
			2	-	●	●	●	●	●	●	●	●	●	●	●	-	-	222
	Oil port connector for mounting brake valve		0	-	-	-	-	-	-	-	-	-	-	-	-	●	-	080
			8	-	-	-	-	-	-	-	-	-	-	-	-	●	-	088

Valve										Flushing and boost-pressure valve, mounted		without		0
												with		7
										brake release valve (control pressure for brake release)		Internal oil passage		1
												External piping		2
										with brake valve				8

Speed sensing control										28	55	80	107	160	250			
13	without(without code)		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D
	For installing speed sensing controls		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Beginning of control										Port plate 02, 08		at $V_{g\max}$ (standard for HA)		●	●	●	●	●	●	A
												at $V_{g\max}$ (standard for HD,HZ,EP,EZ,DA)		●	●	●	●	●	●	B
14	Port plate 22		at $V_{g\max}$ (standard for HA3)		-	●	●	●	●	●	●	●	●	●	-	-	B			
			at $V_{g\max}$ (standard for HZ3)		-	●	●	●	●	●	●	●	●	●	●	-	-	B		

Ordering code of brake valve (only for port plate 22)										15		9-bit code, (Given by BHY in the design of the internal actuating valve)			
-------------------------------------------------------	--	--	--	--	--	--	--	--	--	----	--	--------------------------------------------------------------------------	--	--	--

- 1)It is only possible to connect with the oil port plate 22 (built-in brake valve)
- 2)Notice: $V_{g\max}$ and $V_{q\max}$ can be stepless only within a given range. Please specify the setting range when place order: $V_{g\max}=...cm^3, V_{q\max}=...cm^3$
- 3)Possible only when connected with variable modes HZ3 and HA3

Filtration of the hydraulic fluid

Finer filtration improves the cleanliness level of the hydraulic fluid, which increases the service life of the axial piston unit.

In order to ensure the normal operation of axial plunger element, a cleanliness level of at least NAS 1638, to 9, ISO/DIS 4406 to 18/15 are to be maintained

when oil temperature is high, a cleanliness level of at least NAS 1638 to 8 and ISO/DIS 4406 to 17/14 are required.

If the cleanliness can not reach the requirement, please contact us

Installation position

Any installation position, in the first start and normal operation, ensure that the motor housing is full of oil.

Data sheet (Theoretical value, round value and η_{mh} and η_v are not considered)

Operation pressure range

Max. pressure at port A and B

Sizes		28... 160	250
Nominal pressure	bar	400	350
Peak pressure	bar	450	400

(Pressure specification, see DIN 24312)

Sum of pressure at port A and B can not be

more than 700 bar

Flow direction

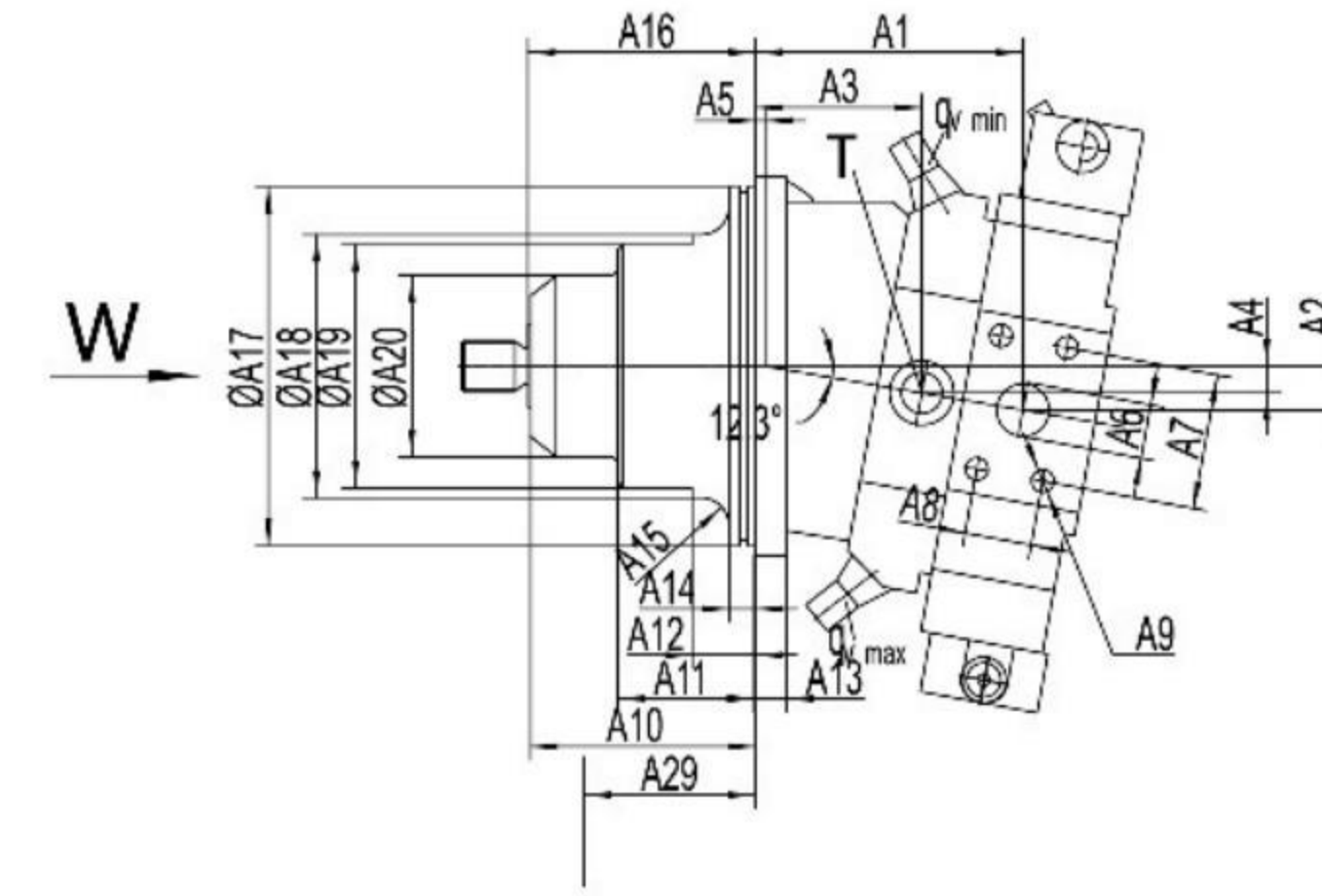
Clockwise	Counterclockwise
A to B	B to A

Size			28	55	80	107	160	250
Geometric displacement 1)	$V_{g\ max}$	cm ³	28.1	54.8	80	107	160	250
	V_{g0}	cm ³	0	0	0	0	0	0
Maximum rotational speed (in compliance with maximum permissible inlet flow)	$n_{\max\ at\ V_{g\ max}}$	rpm	5550	4450	3900	3550	3100	2500
	$n_{\max\ at\ V_{g\ max}}$	rpm	8750	7000	6150	5600	4900	3300
	V_{g1}	cm ³	18	35	51	68	101	190
	$n_{\max\ at\ V_{g0}}$	rpm	10450	8350	7350	6300	5500	3300
Maximum permissible flow	$Q_{V\ max}$	L/min	156	244	312	380	469	625
Equivalent torque	$T_k\ at\ V_{g\ max}$	Nm/bar	0.446	0.87	1.27	1.70	2.54	3.98
Max. torque	$T_{\max\ at\ V_{g\ max}^2}$	Nm	179	349	509	681	1019	1391
Filling capacity		L	0.5	0.75	1.2	1.5	2.4	3.0
Moment of inertia of the rotary group	J	kgm ²	0.0014	0.0042	0.0080	0.0127	0.0253	0.061
Weight approx.	with port plate 02	kg	16	26	34	45	67	90
	with port plate 22	kg	—	35	43	53	72	—

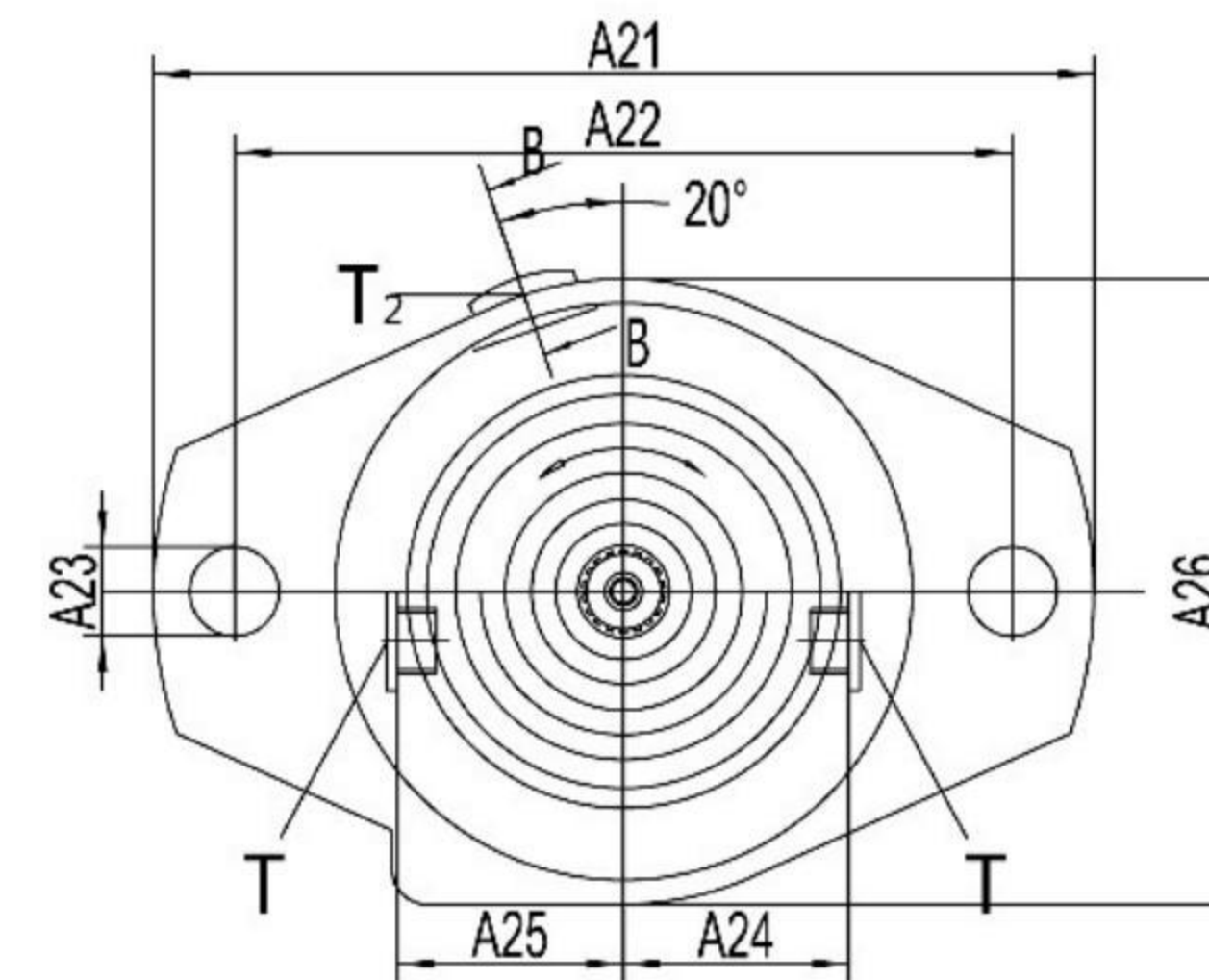
1)The minimum and maximum displacement can be steplessly varied

2)Sizes 28... 160; $\Delta p=400$ bar; Sizes 250; $\Delta p=350$ bar

Port plate 02 (working port A, B lateral)



View W (Sizes 28...160)



Port

Size 28... 160

A,B Working port 420 bar (6000 psi) high pressure series

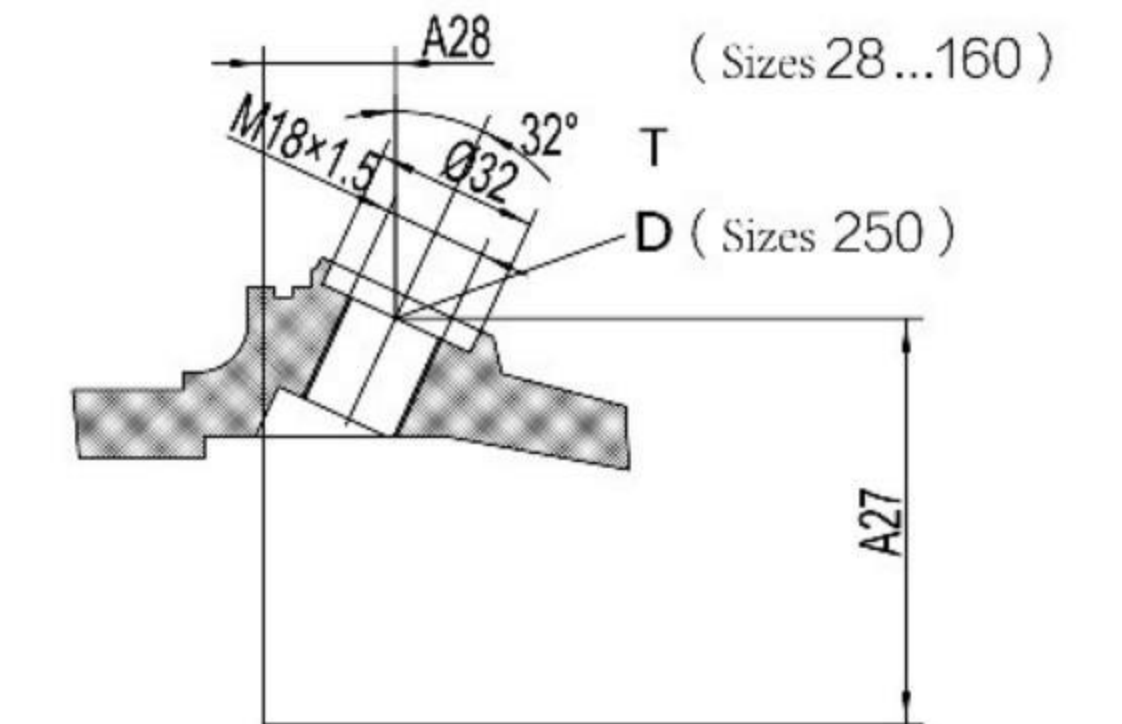
T Drain port (one plugged)

T2 Speed sensor interface (only for type D)

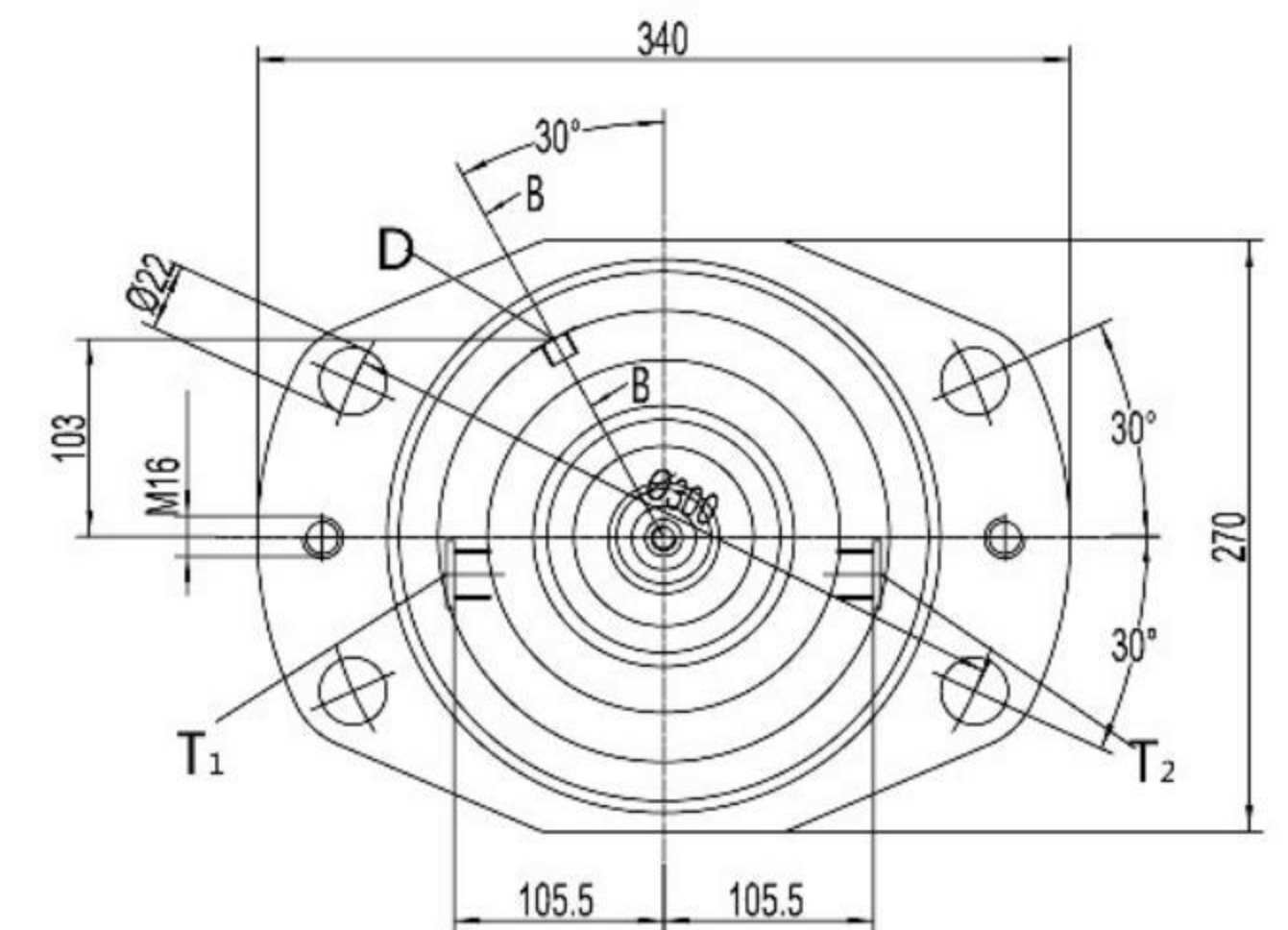
Sizes	Working port A,B	Drain port T	Speed sensor interface T ₂
28	SAE 3/4"	M18X1.5	M18X1.5
55	SAE 3/4"	M18X1.5	M18X1.5
80	SAE 1"	M18X1.5	M18X1.5
107	SAE 1"	M18X1.5	M18X1.5
160	SAE 1 1/4"	M26X1.5	M18X1.5

B-B Profile map

Only for type D (For the speed sensor) Otherwise without thread



View W (Size 250)



Size 250

A,B Working port 420 bar (6000 psi) high pressure series

T1,T2 Drain port (one plugged)

D Speed sensor interface (only for type D)

Sizes	Working port A,B	Drain port T	Speed sensor interface T ₂
250	SAE 1 1/4"	M22X1.5	M18X1.5

Standard flange **L** (Sizes 28–160) **M** (Size 250)

Sizes	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14
28	91	20	47	10	3	19	50.8	23.8	M10; Deep17	88	54	—	14	15
55	123	24	77	14	15	19	50.8	23.8	M10; Deep17	91	50	22	16	15
80	130	28	78	16	5.5	25	57.2	27.8	M12; Deep17	109.5	65	30	18	15
107	137	30	84	18	3.2	25	57.2	27.8	M12; Deep17	121.8	72	35	18	15
160	171	34	109	20	17.5	32	66.7	31.8	M14; Deep17	122	67	29	20	15
250	204	44	103	20	18.5	32	66.7	31.8	M14; Deep17	—	—	—	25	14

Sizes	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28	A29	O 1)
28	R10	89	135-0.025	110	—	86	188	160	13.5	62.5	62.5	142	63.4	14.6	64	126x4
55	R6	92	160-0.025	139	132	104	235	200	17	72.5	72.5	166	79.5	8.5	59	150x4
80	R10	110.5	190-0.029	151	143	116	260	224	21	78.5	78.5	198	88.4	12	79	180x4
107	R12	122.8	200-0.029	168	160	132	286	250	21	86.5	86.5	210	97.2	12.3	82	192x4
160	R5	123	200-0.025	188	180	146	286	250	21	98.5	98.5	208	104	10.5	83	192x4
250	—	133.5	260h8	230	—	—	—	—	—	—	—	119	21.5	83.5	250x5	

Fit flange **U** (Size 107)

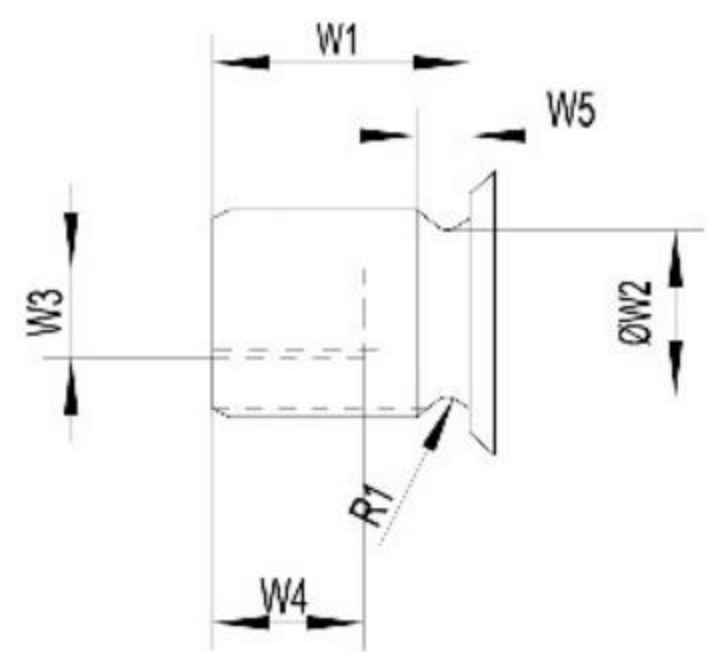
Size	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14
107	150	30	96	18	15.5	25	57.2	27.8	M12;17deep	109.5	59.7	22.7	18	15

Size	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28	A29	O 1)
107	R8	110.5	190 -0.025	168	160	132	260	22.4	22	86.5	86.5	198	91.5	13.8	70	180X4

O -ring is not included in delivery

Shaft ends

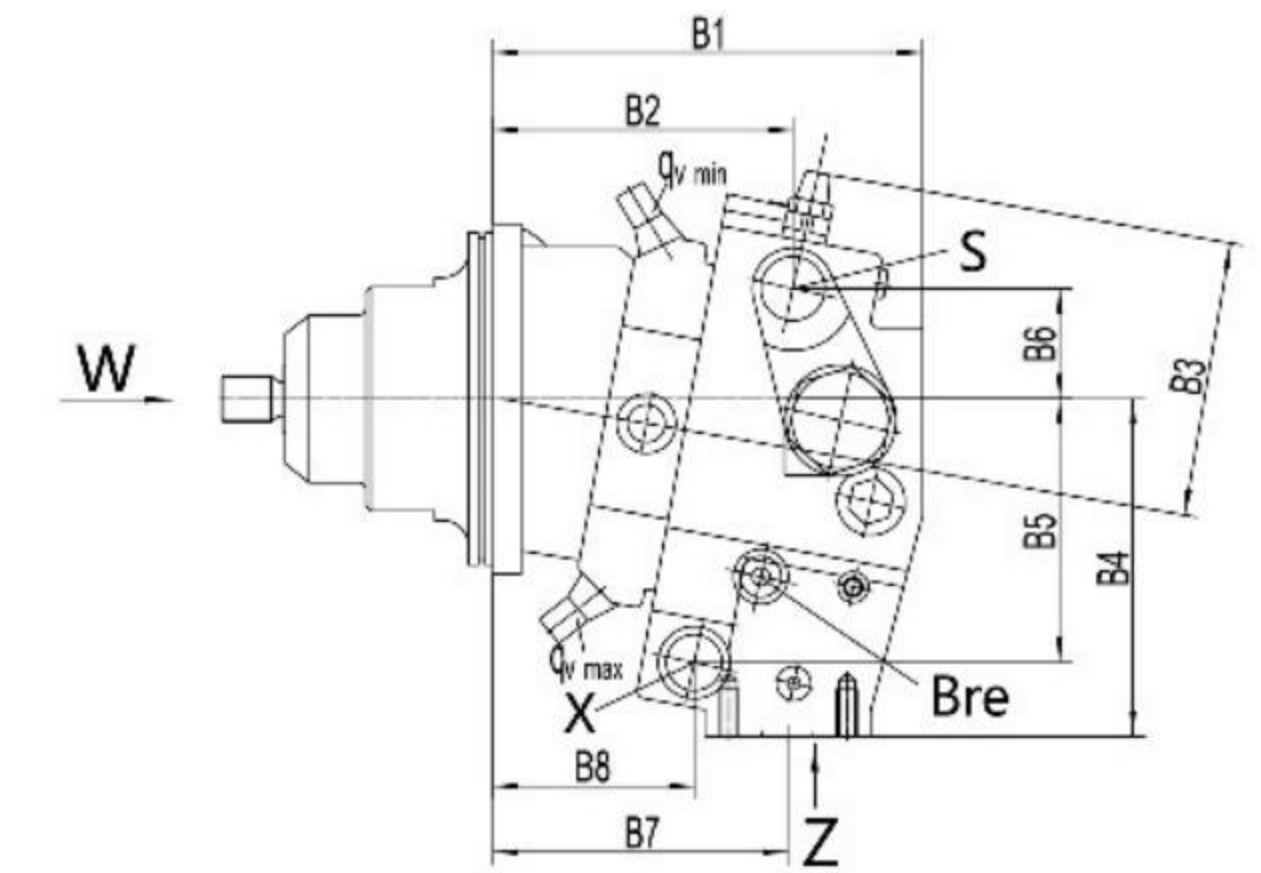
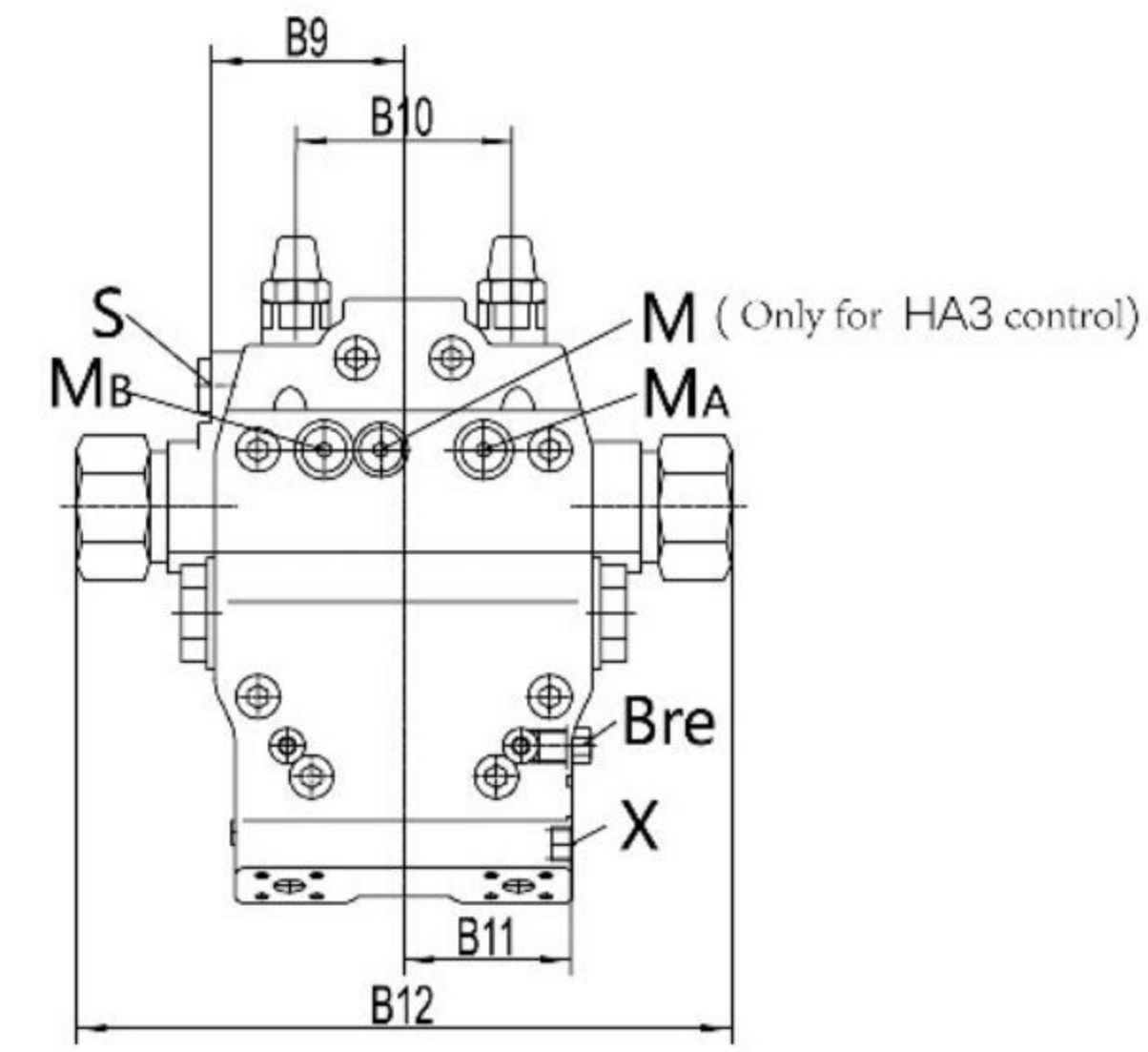
Splined DIN 5480



Size	Shaft extension	W1	ΦW2	W3	W4	W5	R1
28	A (W30X2X30X14X9g)	35	24.6	M10	22	8	1.6
55	Z (W30X2X30X14X9g)	35	24.6	M12	28	8	1.6
80	A (W40X2X30X18X9g)	45	34.6	M16	36	8	2.5
107	Z (W40X2X30X18X9g)	45	34.6	M12	28	8	2.5
160	A (W50X2X30X24X9g)	55	44.6	M16	36	11	4
250	Z (W50X2X30X24X9g)	58	45	M18	36	9	2.5

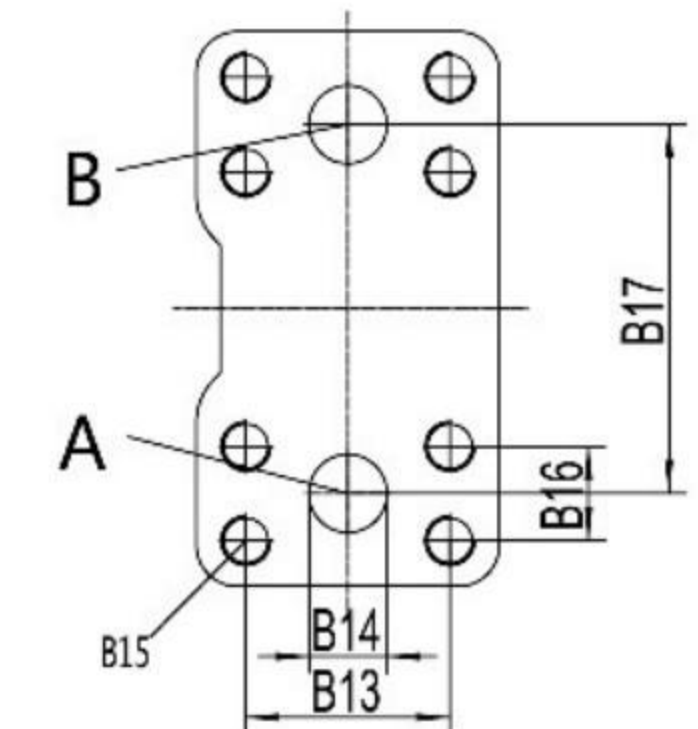
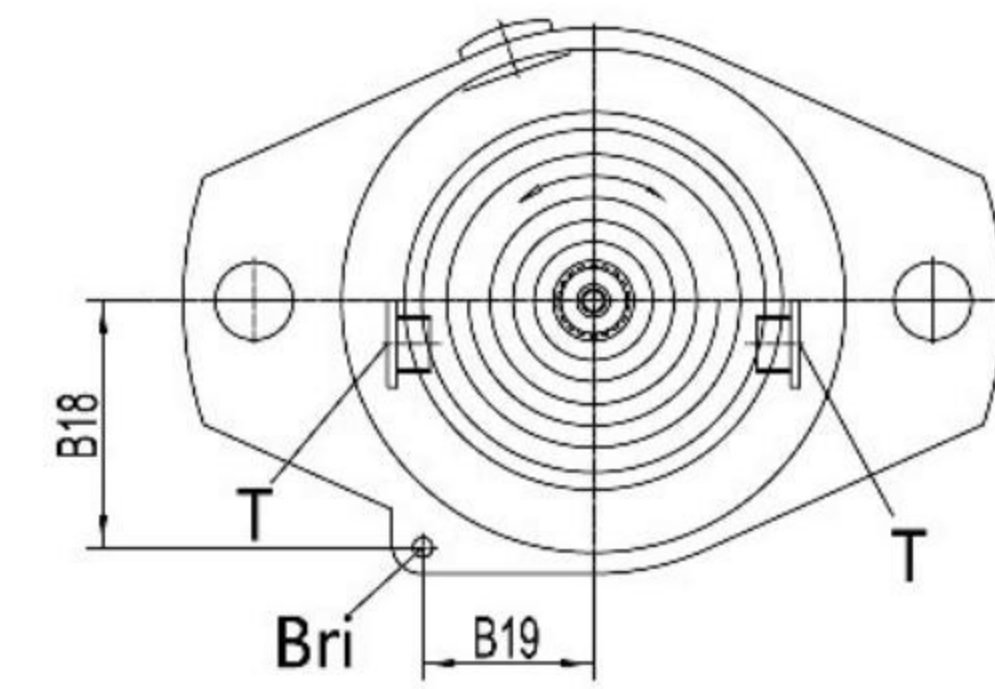
With built-in brake valve, oil plate (22)

when operate ZP6VE with built-in brake valve, notice RC 91 606-P



View W

View Z



Ports

A,B	working port 420 bar (6000 psi) high pressure series	
T	drain port (plug one port)	
S	Oil filling port	
X	control pressure ports (open HZ3 and HA3T , plug HA3)	M14X1.5
MA, MB	Measuring port	M14X1.5
M	Measuring port, pressure control (only for HA3)	M10X1
Bre	External brake (open for 222)	M14X1.5
Bri	oil outlet for internal brake (No outlet, with U flange)	φ4

Size	working port A,B	T leakage port;	port S
55	SAE 3/4"	M18X1.5	M22X1.5
80	SAE 1"	M18X1.5	M22X1.5
107	SAE 1"	M18X1.5	M22X1.5
160	SAE 1 1/4"	M26X1.5	M27X2

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19
55	192	144	127	144	117	37	133	91	83	85	64	259	50.8	19	M10; Deep17	23.8	80	74	51
80	198	150	136	162	132	40	138	93	83	90	69	259	57.2	25	M12; Deep17	27.8	86	90	53
107	202	161	139	172	143	40	144	99	85	96	70	259	57.2	25	M12; Deep17	27.8	86	96	58
160	240	195	152	197	162	47	177	128	102	108	78	259	66.7	32	M14; Deep19	31.8	94	94	65