

ZHANPENG HYDRAULIC

Components developing and manufacturing

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COMPANY PROFILE



ZHANPENG
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Zhanpeng Hydraulic Technology Co., Ltd started 30 years ago, covers 1200 square meters with more than 70 staffs and 60 plus advanced equipments based in Ningbo, Zhejiang China. We provide multi-discipline hydraulic components to engineering industial clients. We have extensive stock of hydraulic parts as well as custon-build hydraulic components to your specific requiremenets. Bulk production takes 15 days, sampling takes 3 months. Our company fosters an innovative problem-solving environment that presents fast and flexible responses to client needs. Since 1993 Zhanpeng has been building long term relationships with customers through a commitment to on-time and on-budge delivery of services. Most of our assignments are repeat business or come through referrals. We recognize that even though superior customer service is more than desirable, customer service alone cannot replace technical ability and experience in the consulting engineering field. As such, investment in personnel training and professionall development is another high priority.



GM-ShiWenke

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ZP10VO Series 53

Axial piston variable pump

- Size(ml/r): 28 / 45 / 60/ 72 / 85 / 100
- Nominal pressure(bar): 320 / 320 / 280 / 320 / 280 / 320
- Maximum pressure(bar): 350 / 350 / 320 / 350 / 320 / 350



Open circuit

- Variable pump with axial piston rotary group in swashplate design for hydrostatic drives in open circuit.Flow is proportional to drive speed and displacement.
- The flow can be infinitely varied by adjusting the swashplate angle.
- Stable bearing for long service life
- High permissible drive speed
- Favorable power-to-weight ratio-compact dimensions
- Low noise
- Excellent suction characteristics
- Electro-hydraulic pressure control
- Power control
- Electro-proportional swivel angle control
- short control response times

Type code series 53

ZP10V	O			/	53		/	V					
01	02	03	04		05	06		07	08	09	10	11	12

Axial piston unit	28	45	60	72	85	100	
01	•	•	•	•	•	•	ZP10V

Operating code	
02	Pump, open circuit O

Size							
03	Displacement	28	45	60	72	85	100

Control device					
04	Pressure controller	hydraulic			DR
	with flow controller	hydraulic	X-T Open	with flushing function	DRF
				without flushing function	DRS
	with pressure cut-off	hydraulic	X-T Plugged		DRSC
				remote controlled	
		electric	negative control	U = 12V	ED71
				U = 24V	ER72
		electric	positive control	U = 12V	ED71
	U = 24V			ER72	
	Power control with pressure cut-off	hydraulic	Beginning of control from	10 to 35 bar	LA5D
				36 to 70 bar	LA6D
				71 to 105 bar	LA7D
106 to 140 bar				LA8D	
141 to 230 bar				LA9D	
remote control	hydraulic	Beginning of control	See LA.D	LA.DG	
Flow control X-T plugged	hydraulic	Beginning of control	See LA.D	LA.DS	
	Negative control	Beginning of control	See LA.D	LA.S	

Series							
05	•	•	•	•	•	•	53

Direction of rotation			
06	Viewed on drive shaft	clockwise	R
		counter-clockwise	L

Sealing material		
07	FKM (Fluoroelastomer)	V
	NBR (Natrilie butadiene rubber)	P

Drive shaft								
08	Splined shaft ANSI B92.1a	Standard shaft						S
		similar to shaft" S " however for higher torque						R
		reduced diameter, limited suitability for through drive						U
		similar to shaft " U " however for higher torque						W

Mounting flange									
09	ISO 3019-1 (SAE)	2-hole	•	•	•	•	•	•	C
		4-hole	—	—	•	•	•	•	D

ZP10V	O			/	53		-	V					
01	02	03	04		05	06		07	08	09	10	11	12

Working port														28	45	60	72	85	100
10	SAE flange ports,Metric			rear			Not for through drive			●	●	●	●	●	●	●	●	●	11
	SAE flange ports,Metric			laterally opposite			for through drive			●	●	●	●	●	●	●	●	●	12
	SAE flange ports, UNC			at side, offset 90°			Not for through drive			●	●	●	●	●	●	●	●	●	61
	SAE flange ports, UNC			laterally opposite			for through drive			●	●	●	●	●	●	●	●	●	62

Through drive											
11	Flange ISO 3019-1		Hub for splined shaft								
	Diameter		Diameter		28	45	60	72	85	100	
			without through drive		●	●	●	●	●	●	N00
	82-2 (A)	5/8 in	9T 16/32 DP		●	●	●	●	●	●	K01
		3/4 in	11T 16/32 DP		●	●	●	●	●	●	K52
	101-2 (B)	7/8 in	13T 16/32 DP		●	●	●	●	●	●	K68
		1 in	15T 16/32 DP		—	●	●	●	●	●	K04
	127-4 (C)	1 1/4 in	14T 12/24 DP		—	—	●	●	●	●	K15
		1 1/2 in	17T 12/24 DP		—	—	—	—	●	●	K16

Connector for solenoids														28	45	60	72	85	100
12	Without connector (without solenoid, only for hydraulic controls, without signs)						●	●	●	●	●	●	●						
	DEUTSCH-molded connector,2-pin,without suppressor diode(for electric control)						●	●	●	●	●	●	●	P					

● Available — Not available ▲ On request

Notice
In addition to the type code, pls specify the relevant technical data when placing your order.

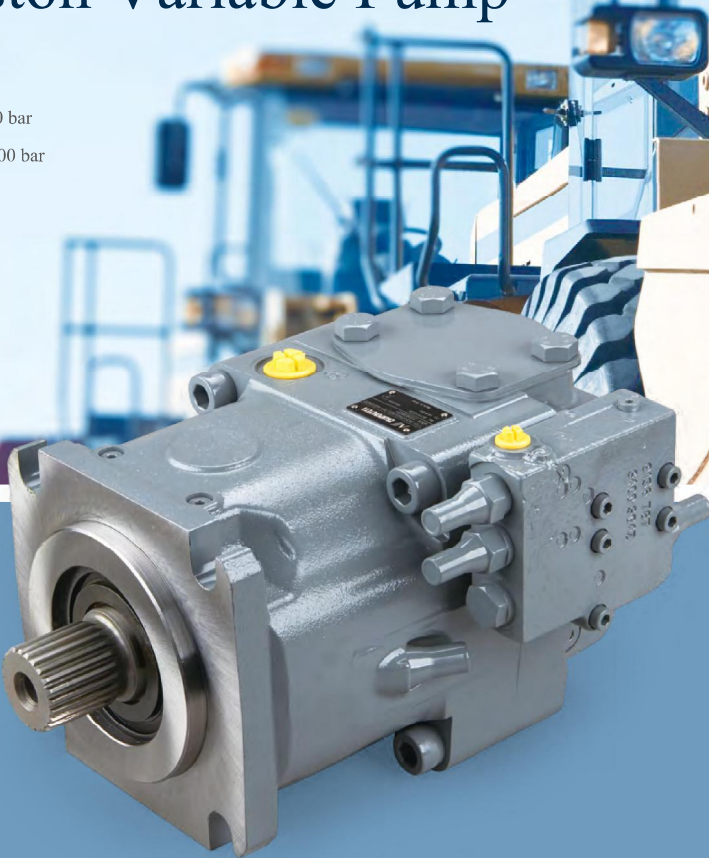
Technical data

Size		NG		28	45	60	72	85	100	
Geometric displacement - Per revolution		V _{g max}	cm ³	28	45	60	72	85	100	
Maximum rotational speed	at V _{g max}	n nom	rpm	3000	2600	2600	2600	2500	2300	
	at V _g < V _{g max}	n max perm	rpm	3600	3120	3140	3140	3000	2500	
Flow	at n _{nom} and V _{g max}	q _v	l/min	84	117	163	187	212	230	
	at n _E =1500rpm	q _{vE}	l/min	42	68	95	108	128	150	
Power	at n _{nom} , V _{g max} and Δ p=250 bar	P	KW	35	49	68	77	89	96	
	at n _E =1500 rpm	P _E	KW	18	28	39	45	53	62	
Torque	at V _{g max} and Δ p=250 bar	T	Nm	111	179	250	286	338	398	
	at V _{g max} and Δ p=100 bar	T	Nm	45	72	100	114	135	159	
Rotary stiffness fdrive shaft	S	c	Nm/rad	22300	37500	65500	65500	143000	143000	
	R	c	Nm/rad	26300	41000	69400	69400	152900	-	
	U	c	Nm/rad	16700	30000	49200	49200	102900	102900	
	W	c	Nm/rad	19900	34400	54000	54000	117900	117900	
	P	c	Nm/rad	-	-	-	-	-	-	
Moment of inertia of the rotary group			J _{rw}	kgm ²	0.0017	0.003	0.0056	0.0056	0.012	0.012
Maximum angular acceleration			α	rad/s ²	5500	4000	3300	3300	2700	2700
Case volume		V	l	0.3	0.5	0.8	0.8	1	1	
Weight without through drive(approx.)			m	kg	20	24	24	28	28	36
Weight with through drive(approx.)					24	30	30	36	36	43.5

ZP11V(L)O

Axial Piston Variable Pump

- Size(ml/r): 28-260
- Nominal pressure (bar): 350 bar
- Maximum pressure (bar): 400 bar



- Open circuit
- Variable axial piston pump of swashplate design for hydrostatic drives in open circuit hydraulic system.
 - Designed primarily for use in mobile applications.
 - The pump operates under self-priming conditions, with tank pressurization, or with an optional built-in charge pump.(impeller)
 - A comprehensive range of controloptions is available matching any application requirement.
 - Power control option is externally adjustable, even when the pump is running.
 - The through drive is suitable for adding gear pumps and axial piston pumps up to the same,i.e.100% through drive.
 - The output flow is proportional to the drive speed and infinitely variable between qV_{min} and qV_{max} =0

ZP11V	L	O	145	LRDS	/	1	1	R	N	Z	D	12	N00
01	02	03	04	05		06	07	08	09	10	11	12	13

Axial piston unit

01	Swashplate design	ZP11V
----	-------------------	-------

Charge pump

	28	40	60	75	85	95	115	125	130	145	165	190	260
02	Without charge pump	●	●	●	●	●	●	●	●	●	●	●	●
	With charge pump	-	-	-	-	-	-	-	●	●	●	●	L

Operation

03	Pump, open circuit	O
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Size

04	Displacement	28	40	60	75	85	95	115	125	130	145	165	190	260
----	--------------	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----

Control device

05	Power controller	LR
	Pressure controller	DR
	Pressure control with load sensing	DRS
	Power control with load sensing and constant pressure control	LRDS
	Hydraulic stroke limiter control (negative characteristic)	LRH1/5
	Hydraulic stroke limiter control (Positive characteristic)	LRH2/6
	Electric stroke limiter control	LRU1/2
	Pressure control, remote controlled	DRG
	Electric control with proportional solenoid	EP

Series

06		1
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Through drive

	Flange SAE J744i)	Hub for splined shaft	28	40	60	75	85	95	115/125	130	145/165	190	260	
	-	-	●	●	●	●	●	●	●	●	●	●	●	N00
13	82-2 (A)	5/8in 9T 16/32DP (A)	●	●	●	●	●	●	●	●	●	●	●	K01
		3/4in 11T 16/32DP (A-B)	▲	▲	▲	●	●	▲	▲	●	●	▲	▲	K52
	101-2 (B)	7/8in 13T 16/32DP (B)	●	●	●	●	●	●	●	●	●	●	●	K02
		1in 15T 16/32DP (B-B)	●	●	●	●	●	●	●	●	●	●	●	K04
		W35 2×30×16×9g	●	●	●	●	●	●	●	●	●	●	●	K79
	127-2 (C)	1 1/4in 14T 12/24DP (C)	-	-	●	●	●	●	●	●	●	●	●	K07
		1 1/2in 17T 12/24DP (C-C)	-	-	-	-	-	-	-	●	●	●	●	K24
		W30 2×30×14×9g	-	-	●	●	●	●	●	●	●	●	●	K80
		W35 2×30×16×9g	-	-	●	●	●	●	●	●	●	●	●	K61
	152-4 (D)	1 1/4in 14T 12/24DP (C)	-	-	-	●	●	●	●	●	●	●	●	K86
		1 3/4in 13T 8/16DP (D)	-	-	-	-	-	-	-	●	●	●	●	K17
		W40 2×30×18×9g	-	-	-	●	●	●	●	●	●	●	●	K81
		W45 2×30×21×9g	-	-	-	-	-	-	-	●	●	●	●	K82
		W50 2×30×24×9g	-	-	-	-	-	-	-	●	●	●	●	K83
		1 3/4in 13T 8/16DP (D)	-	-	-	-	-	-	-	-	●	●	●	K72
	165-4 (E)	W50 2×30×24×9g	-	-	-	-	-	-	-	-	-	●	●	K84
		W60 2×30×28×9g	-	-	-	-	-	-	-	-	-	-	●	K67
			-	-	-	-	-	-	-	-	-	-	●	

● available - not available ▲ on request

Index

07	28-130	0
	145-260	1

Direction of rotation

08	Viewed on drive shaft	Clockwise	R
		Counter-clockwise	L

Sealing material

09	NBR(Natrilite butadiene rubber)	N
	FKM (Fluoroelastomer)	V

Drive shaft

10	Splined shaft DIN 5480for single and combination pump	Z
	Parallel keyed shaftDIN 6885	P
	Splined shaft ANSIB92.1a-1979	S
		T

Mounting flange

11	SAE J744-2hole	C
	SAE J744-4hole	D
	SAE J617 (SAE 3)	G

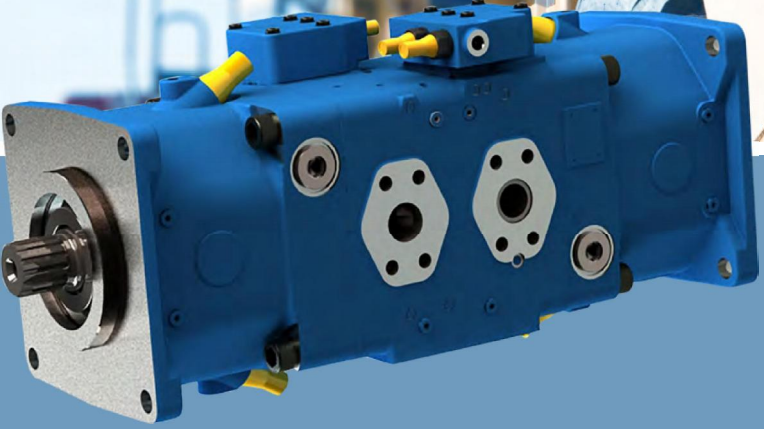
Working port

12	SAE pressure and suction port at side, opposite, metric fastening thread	12
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ZP20VO

Axial piston variable double pump

- Size(ml/r): 60,95...520
- Nominal pressure (bar): 250/315
- Maximum pressure(bar): 350/400



Open circuit

- Variable pump with two axial piston rotary groups in swashplate design for use hydrostatic drives in an open circuit .
- For use in mobile and stationary applicataions.
- The pump consists of proven components of the ZP11VO/ZP10VO53/ZP4VSO variable pumps. The pump operates under self-priming condition, with tank pressurisation or with charge pump.
- Output flow is proportional to drive speed and pump displacement and is steplessly variable between maximum and zero displacement.
- Setting of the constant power control is possible via external adjustment,even when the unit is operating(only with power control)
- The pump is available with a through drive to mount a gear pump or a second axial piston pump.
- A wide variety of controls are available.
- The flow can be continuously changed with closed loop control.

ZP20V					/	10		-					
01	02	03	04	05		06	07		08	09	10	11	12

Axial piston unit

01	Swashplate design, Variable (Back to back design)	ZP20V
----	---	-------

Charge pump (Impeller)

		60	95	190	260	520
02	Without charge pump	●	●	-	-	●
	With charge pump	-	-	●	●	-

Operation

03	Double pump, Open circuit	O
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Size

04	Displacement	60	95	190	260	520
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Control device

		60	95	190	260	520
05	See ZP10VO/53	●	-	-	-	-
	See ZP11VO/11	-	●	●	●	-
	See ZP 4VSO	-	-	-	-	●

Series

06	Series 1, Index 0	10
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Direction of rotation

07	Viewed on shaft end	clockwise	R
		counter-clockwise	L

Seals

08	NBR(nitril-caoutchouc) shaft seal ring in FKM (fluor-caoutchouc)	●	●	●	●	-	N
	FKM(fluor-caoutchouc)	-	-	-	-	●	V

Drive shaft

		60	95	190	260	520
09	Splined shaft DIN5480	-	●	●	●	●
	Splined shaft ANSI B92.1a-1976	●	●	-	-	-
	Parallel keyed shaft, DIN 6885	-	-	-	-	●

Mounting flange

		60	95	190	260	520
10	SAE J744-4hole	●	●	●	●	-
	Based on SAE J617 suitable for flywheel housing of the combustion engine	-	●	●	-	-
	ISO 3019-2-8hole	-	-	-	-	●

Working port

		60	95	190	260	520
11	Two working port and one suction port at side, opposite (fastening thread metric)	●	●	●	●	-
	At the site two working port each , opposite and one suction port displaced by 90°	-	-	-	-	●

Boost pump and through drive

		60	95	190	260	520
12	without boost pump, without through drive	●	●	●	●	-
	without boost pump, with through drive	-	-	-	-	-
	82-2(A)	5/8 in 9T 16/32DP	●	●	●	-
		3/4 in 11T 16/32DP	●	-	-	-
	101-2 (B)	7/8 in 13T 16/32DP	-	●	●	-
		1 in 15T 16/32DP	●	●	●	-
	127-2 (C)	7/8 in 13T 16/32DP	●	-	-	-
		1 1/4 in 14T 12/24DP	-	●	●	●

● available - not available ▲ on request

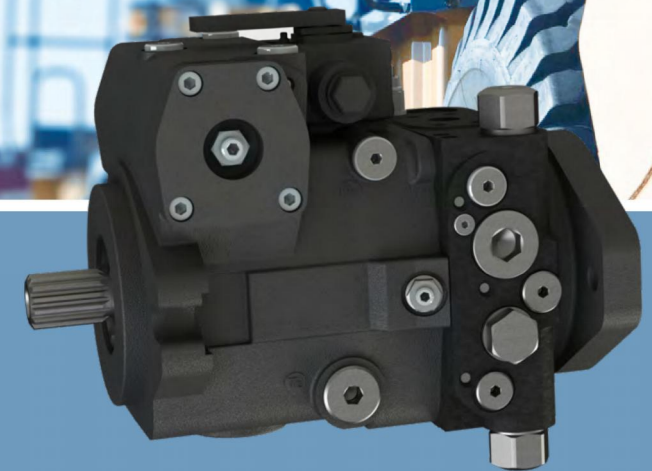
Table of values (theoretical values, without efficiencies η_{th} and values rounded)

Size	Without charge pump						
	with charge pump		60	95	190	260	520
Displacement	V _{g max}	cm ³	60	93.8	192.7	260	520
	V _{g min}	cm ³	0	0	0	0	0
Speed, at V _{g max}	n _{max}	min ⁻¹	2700	2350	2500	2300	1450
Speed max, at V _g ≤ V _{g max}	n _{max}	min ⁻¹	3200	2780	2500	2300	1720
Flow, at n _{max} ≤ V _{g max}	q _{max}	L/min	2x162	2x220	2x482	2x598	2x754
Power, at q _{max} and Δ p = 350 bar	P _{max}	kW	135	257	562	698	880
DisplaceTorque at V _{g max} at long-term (Δ p = 350 bar) max,per, short term (Δ p = 400 bar)	T _{max}	Nm	477	1045	2147	2897	5793
	T _{max}	Nm	602	1194	2454	3310	6621
Moment of inertia(of the rotating parts)	J	kgm ²	0.0113	0.00346	0.0604	0.0912	0.0912
Mass approx	m	kg	44		217	281	640

ZP4VG Series 32

Axial piston variable pump

- Size 28 to 125
- Nominal pressure 400 bar
- Maximum pressure 450 bar
- Closed circuit



- Integrated auxiliary pump for boost and pilot oil supply
- Flow direction changes when the swashplate is moved through the neutral position
- High-pressure relief valves with integrated boost function
- With adjustable pressure cut-off as standard
- Boost-pressure relief valve
- Through drive for mounting of further pumps up to same size
- Large variety of controls
- Swashplate design

ZP4V	G			D					f	32		-	N										
01	02	03	04	05	06	07	08	09		10	11		12	13	14	15	16	17	18	19	20	21	22

Axial piston unit

01	Swashplate design, variable, nominal pressure 400 bar, maximum pressure 450 bar	ZP4V
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Operating mode

02	Pump, closed circuit	G
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Size (NG)

03	Geometric displacement	28	40	56	71	90	125	180	250
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Control device

[illegible][illegible][illegible]

Stroking chamber pressure port		28	40	56	71	90	125	180	250
08	Without stroking chamber pressure port X ₃ ,X ₄ (without code)	●	●	●	●	●	●	●	●
	Stroking chamber pressure port X ₃ ,X ₄	●	●	●	●	●	●	●	T

DA control valve			NV	HD1	HW	DG	DA	EP	EZ	28.250
09	Without DA control valve		●	●	●	●	-	●	●	NV
	DA control valve, fixed setting		-	●	●	●	●	●	-	HD1
	DA control valve, mechanically adjustable, with position lever	direction of actuation, clockwise	-	●	●	●	●	●	-	HD3
		counter-clockwise	-	●	●	●	●	●	-	HW
	DA control valve, fixed setting and hydraulic inch valve mounted, control with brake fluid		-	-	-	-	-	-	-	DG
	DA control valve, fixed setting, ports for pilot control device		-	●	●	●	●	-	-	DA1
	DA control valve, fixed setting and hydraulic inch valve mounted, control with hydraulic fluid, mineral oil-based		-	-	-	-	●	-	-	EZ2

[illegible]

Series

10	Series 3, index 2	32
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Direction of rotation

Direction of rotation		28...250		
11	Viewed on drive shaft	clockwise	●	R
		counter-clockwise	●	L

Sealing material

12	NBR (nitrile rubber), shaft seal made of FKM (fluorocarbon rubber)	N
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[illegible]

Mounting flange		28	40	56	71	90	125	180	250
14	SAE J744-2hole	●	●	●	-	-	-	-	C
	SAE J744-4hole	-	-	-	-	-	-	●	D
	SAE J744-2+4hole	-	-	-	●	●	●	-	F

Working port (port plate)				28	40...180	250	
15	SAE working port A and B, top and bottom		suction port S bottom	-	●	-	02
			suction port S at top	-	○	-	03
	SAE working port A and B, top and bottom	right	suction port S bottom	●	-	●	10
		left	suction port S at top	○	-	○	13

Boost pump			28	40	56	71	90	125	180	250
16	Without integrated boost pump	without through drive	●	●	●	●	●	●	●	N00
		with through drive	●	●	●	●	●	●	●	K
	Integrated boost pump	without through drive	●	●	●	●	●	●	●	F00
		with through drive	●	●	●	●	●	●	●	F

Through drive			28	40	56	71	90	125	180	250	
17	Flange SAE J744 _s)	Hub for splined shaft									
	82-2 (A)	5/8 in 9T 16/32DP _s)	●	●	●	●	●	●	●	01	
	101-2(B)	7/8 in 13T 16/32DP _s)	●	●	●	●	●	●	●	02	
		1 in 15T 16/32DP _s)	●	●	●	●	●	●	●	04	
	127-2(C)	1 in 15T 16/32DP _s)	-	●	-	-	-	-	-	09	
		1 1/4 in 14T 12/24DP _s)	-	-	●	●	●	●	●	07	
	152-2/4(D)	W35 2x30x16x9g _s)	-	-	-	-	●	-	-	-	73
		1 3/4 in 13T 8/16DP _s)	-	-	-	-	-	●	●	●	69
	165-4(E)	1 3/4 in 13T 8/16DP _s)	-	-	-	-	-	-	●	●	72

2P4V	G			D					/	32		-	N										
01	02	03	04	05	06	07	08	09		10	11		12	13	14	15	16	17	18	19	20	21	22

High-pressure relief valve				Setting range Δp_{10}				28	40	56	71	90	125	180	250	
18	High-pressure relief valve, pilot operated	100...420 bar	with bypass	-	-	-	●	●	●	●	●	●	●	●	●	1
			without bypass	●	●	●	●	●	●	●	●	●	●	●	●	3
	High-pressure relief valve direct operated, fixed setting	270...420 bar	with bypass	●	●	●	-	-	-	-	-	-	-	-	-	5
			without bypass	●	●	●	-	-	-	-	-	-	-	-	-	4
		100...250 bar	with bypass	●	●	●	-	-	-	-	-	-	-	-	-	6

Filtration boost circuit/external boost pressure supply			28	40	56	71	90	125	180	250	
19	Filtration in the boost pump suction line (filter not included in the scope of supply)		●	●	●	●	●	●	●	●	S
	Filtration in the boost pump pressure line		●	●	●	●	●	●	●	●	D
	Ports for external boost circuit filtration (F _E and F _{E2})	with cold start valve	-	●	●	●	●	●	●	-	K
	Attachment filter with cold start valve, withoutcontamination indicator		-	●	●	●	●	●	●	-	F
	Attachment filter with cold start valve, with following types ofcontamination indicators:	window type	-	●	●	●	●	●	●	-	P
		electrical signal - DEUTSCH connector	-	●	●	●	●	●	●	-	B
		electrical signal - Hirschmann connector	-	▲	▲	▲	▲	▲	▲	-	L
		light and electrical signal - Hirschmann connector	-	▲	▲	▲	▲	▲	▲	-	M
External boost pressure supply (version without integrated boost pump– N00, K ₀₀₀)		●	●	●	●	●	●	●	●	E	

Swivel angle sensor				28	40	56	71	90	125	180	250	
20	Without swivel angle sensor (without code)			●	●	●	●	●	●	●	●	
	Electric swivel angle sensor mounted			●	●	●	●	●	●	●	●	R

Connector for solenoids			28	40	56	71	90	125	180	250	
21	DEUTSCH connector molded, 2-pin	without suppressor diode	●	●	●	●	●	●	●	●	P
		with suppressor diode (only for EZ and DA)	○	○	○	○	○	○	○	○	Q
	HIRSCHMANN connector, without suppressor diode		▲	▲	▲	▲	▲	▲	▲	▲	H

Standard/special version				
22	Standard version	without code		
		equipped with connection components or connecting pump		-K
	without code			-S
		equipped with connection components or connecting pump		-SK

1)Standard for combination pump - 1st pump: Shaft Z

2)Standard for combination pump - 1st pump: Shaft S

3)2-2 bolt: 4-4 bolt

4)Hub for splined shaft according to ANSI B92.1a-1976

5)Hub for splined shaft according to DIN 5480

● =Available ○ = On request ▲ =Not suitable for new projects - =Not available

■ -Preferred

R1710 Series

Axial piston fixed pump

- Sizes(ml/r): 23-107
- Nominal pressure(bar):350bar
- Maximum pressure(bar): 400bar
- Bent-Axis design
- Open circuit



- Flange and shaft designed for direct mounting on the power take-off of commercial vehicles
- Weight-optimized thanks to diecast aluminum housing
- No case drain line necessary
- Reduced noise
- Straight forward adjustment of direction of drive
- Excellent suction performance
- High total efficiency
- Long service life

Ordering code

R1710		L	W	K0	E8	1	
01	02	03	04	05	06	07	08

Axial piston unit

01	Bent-axis design, fixed, nominal pressure 350bar, maximum pressure 400bar, for commercial vehicles (truck)	R1710
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Sizes

02	Displacement	23	32	45	63	80	90	107	125
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Direction of rotation

03	Counter-clockwise	L
	Clockwise	R

Sealing material

04	FKM (fluorocautchouc), including the 2 shaft seal rings in FKM	W
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Mounting flange

05	Special flange ISO 7653-1985 (for trucks)	K0
----	---	----

Drive shaft

06	Splined shaft similar to DIN ISO 14 (for trucks)	E8
----	--	----

Service line port

07	Threaded ports A and S at rear	1
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Cover thread

08	Pipe thread	G
	Metric thread	M
	Add Bypass valve	S

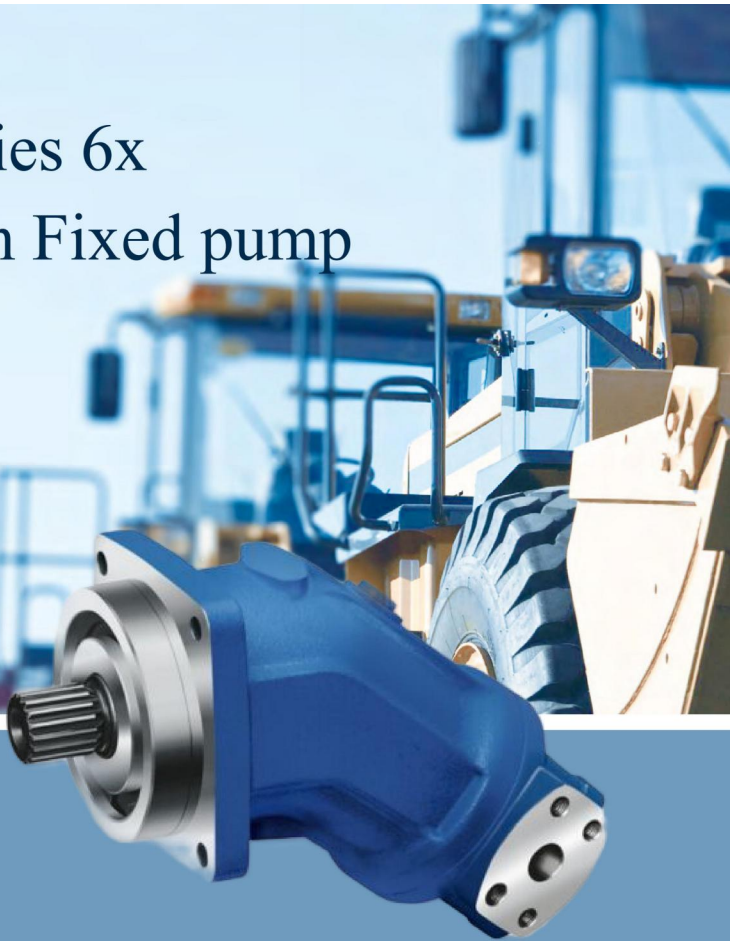
Technical data

Size	NG		23	32	45	63	80	90	107	125
Displacement	V_g	cm ³	22.9	32	45.6	63	80.4	90	106.7	125
Speed maximum	$n_{nom(2)}$	rpm	3050	2750	2650	2200	2150	2150	2000	1750
	$n_{max(3)}$	rpm	4300	3900	3800	3200	3100	3100	2800	2500
Flow	at n_{nom}	q_v	l/min	70	88	121	139	173	194	219
Power	at n_{nom} and $\Delta p = 350$ bar	P	kW	41	51	71	81	101	113	128
Torque	at $\Delta p = 350$ bar	T	Nm	127	178	254	351	448	501	594

ZP2FO Series 6x

Axial piston Fixed pump

- Size (ml/r): 10–200
- Nominal pressure (bar): 400bar
- Maximum pressure (bar): 450bar
- Open circuit



Open circuit

- Fixed pump with axial tapered piston rotary group of bent-axis design for hydrostatic drives in an open circuit.
- For use in mobile and stationary applications.
- The flow is proportional to the drive speed and displacement.
- The drive shaft bearings are designed for the bearing service life requirements usually encountered in these areas.
- High power density
- Small dimensions / High total efficiency
- Economical design / One-piece tapered piston with piston rings for sealing

ZPA2F		O	/	6				-	V			
01	02	03	04	05	06	07			08	09	10	11

Axial piston unit

01	Bent-Axial design, Fixed	ZP2F
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Series

05	6
----	---

Drive shaft bearing

		5-200	250-500	
02	Standrad bearing	●	●	
	Long-life bearing	-	●	L

Index

06	NG10 to 180	1
	NG200	3
	NG5 and 250 to 1000	0

Opearating mode

03	Pump,Open circuit	O
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Direction of rotation

07	Viewed on shaft drive	clockwise	R
		counter-clockwise	L

Size

04	Displacement	5	10	12	16	23	28	32	45	56
		63	80	90	107	125	160	180	200	250

Seals

08	FKM(fluor-caoutchouc)	V
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Drive shaft

		5	10	12	16	23	28	32	45	56	63	80	90	107	125	160	180	200	250	
09	Splined shaft DIN5480	-	●	●	-	●	●	●	-	●	●	●	-	●	●	●	●	-	●	A
		-	●	●	-	●	●	-	-	●	-	●	-	●	-	-	-	-	-	Z
	Parallel keyed shaft DIN6885	●	●	●	●	●	●	●	-	●	●	●	●	●	●	●	●	●	●	B
		-	●	●	-	●	●	-	●	●	-	●	-	●	-	-	-	-	-	P

Mounting flanges

10	ISO 3019-2	4 hole	5 to 250	
			●	B

Port plates for service lines

		5	10-16	23-250	
11	SAE flange port A/B at side and SAE flange port S at rear	-	-	●	05
	Threaded port A/B at side and threaded port S at rear	-	●	-	06
	SAE flange ports A/B and S at rear	-	-	-	11
	Threaded ports A/B and S at side	●	-	-	07

Standard /special version

12	Standard version (Without code)	
	Standard version with installation variants,e.g. T ports against standard open or closed	-Y
	Special version	-S

ZP6VM

Axial piston fixed motor

- Sizes(ml/r): 28-355
- Nominal pressure(bar): 400bar
- Maximum pressure(bar): 450bar
- Open and closed circuits



- The motor ZP6VM is bent-axis design and designed to be used in open and closed circuits.
- Designed primarily for use in mobile applications.
- A comprehensive range of control options is available matching any high rotation speed and torque requirement. Displacement vary between V_{gmax} to $V_{gmin} = 0$
- Output speed is up to the motor displacement and pump volume.
- The output torque increases with the pressure difference between the high-pressure side and the low-pressure side and with increasing displacement.
- Hydrostatic transmission is possible over a wide control range.
- Cost savings can be achieved by eliminating the gear transmission mechanism and using a smaller pump .
- Compact, robust motor with long service life.
- Has high power density.
- Has good starting characteristics.
- Low swing torque.

	ZP6V			M				/	63	W		–	V							–	
01	02	03	04	05	06	07	08		09	10	11		12	13	14	15	16	17	18	19	20

Hydraulic fluid

01	Mineral oil and HFD. HFD for size 250 to 1000 only in conjunction with long-life bearings "L" (without code)	E
	HFB,HFC,hydraulic fluid	

Axial piston unit

02	Bent-axis design, variable	ZP6V
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Drive shaft bearing

03	Standard bearings (without code)	●	●	●	L
	Long-life bearing	-	●	●	

Operatinng mode

04	Motor	M
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Size

05	Geometric displacement	28	55	80	107	140	160	200	250	355
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Control device

[illegible]

Pressure control/override (only for HD, EP)

07	Without pressure control/override		●	●	●	●	●	●	●	●	
	Pressure control	fixed setting	●	●	●	●	●	●	●	●	D
		Hydraulic override, two-point	●	●	●	●	●	●	●	●	E
		Hydraulic remote control, proportional		—	—	—	—	—	—	●	G

● = Available ○ = On request △ = Not for new project - = Not for new project ■ = Priority

1) standard with version D (sizes 250 to 1000)

	01	02	03	04	05	06	07	08		09	10	11		12	13	14	15	16	17	18	19		20
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20		

Overrides for the HA1 and HA2 control

[illegible]

Series

09	Series 6, index 3	63	10	Viewed on drive shaft, bidirectional	W
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Setting ranges for displacement 2)

	$V_{g,max}=0$ to $0.7V_{g,max}$ (without code)	●	●	●	●	●	●	-	-	
11	$V_{g,min}=0$ to $0.4 V_{g,max}$ $V_{g,max}=V_{g,max}$ to $0.8V_{g,max}$	-	-	-	-	-	-	●	●	1
	$V_{g,min}>0.4V_{g,max}$ to $0.8V_{g,max}$ $V_{g,max}=V_{g,max}$ to $0.8V_{g,max}$	-	-	-	-	-	-	●	●	2

Sealing material

12	FKM (fluoroelastomer)	V
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Drive shaft

13	Splined shaft DIN 5480	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805	810	815	820	825	830	835	840	845	850	855	860	865	870	875	880	885	890	895	900	905	910	915	920	925	930	935	940	945	950	955	960	965	970	975	980	985	990	995	1000	1005	1010	1015	1020	1025	1030	1035	1040	1045	1050	1055	1060	1065	1070	1075	1080	1085	1090	1095	1100	1105	1110	1115	1120	1125	1130	1135	1140	1145	1150	1155	1160	1165	1170	1175	1180	1185	1190	1195	1200	1205	1210	1215	1220	1225	1230	1235	1240	1245	1250	1255	1260	1265	1270	1275	1280	1285	1290	1295	1300	1305	1310	1315	1320	1325	1330	1335	1340	1345	1350	1355	1360	1365	1370	1375	1380	1385	1390	1395	1400	1405	1410	1415	1420	1425	1430	1435	1440	1445	1450	1455	1460	1465	1470	1475	1480	1485	1490	1495	1500	1505	1510	1515	1520	1525	1530	1535	1540	1545	1550	1555	1560	1565	1570	1575	1580	1585	1590	1595	1600	1605	1610	1615	1620	1625	1630	1635	1640	1645	1650	1655	1660	1665	1670	1675	1680	1685	1690	1695	1700	1705	1710	1715	1720	1725	1730	1735	1740	1745	1750	1755	1760	1765	1770	1775	1780	1785	1790	1795	1800	1805	1810	1815	1820	1825	1830	1835	1840	1845	1850	1855	1860	1865	1870	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075	2080	2085	2090	2095	2100	2105	2110	2115	2120	2125	2130	2135	2140	2145	2150	2155	2160	2165	2170	2175	2180	2185	2190	2195	2200	2205	2210	2215	2220	2225	2230	2235	2240	2245	2250	2255	2260	2265	2270	2275	2280	2285	2290	2295	2300	2305	2310	2315	2320	2325	2330	2335	2340	2345	2350	2355	2360	2365	2370	2375	2380	2385	2390	2395	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2460	2465	2470	2475	2480	2485	2490	2495	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2560	2565	2570	2575	2580	2585	2590	2595	2600	2605	2610	2615	2620	2625	2630	2635	2640	2645	2650	2655	2660	2665	2670	2675	2680	2685	2690	2695	2700	2705	2710	2715	2720	2725	2730	2735	2740	2745	2750	2755	2760	2765	2770	2775	2780	2785	2790	2795	2800	2805	2810	2815	2820	2825	2830	2835	2840	2845	2850	2855	2860	2865	2870	2875	2880	2885	2890	2895	2900	2905	2910	2915	2920	2925	2930	2935	2940	2945	2950	2955	2960	2965	2970	2975	2980	2985	2990	2995	3000	3005	3010	3015	3020	3025	3030	3035	3040	3045	3050	3055	3060	3065	3070	3075	3080	3085	3090	3095	3100	3105	3110	3115	3120	3125	3130	3135	3140	3145	3150	3155	3160	3165	3170	3175	3180	3185	3190	3195	3200	3205	3210	3215	3220	3225	3230	3235	3240	3245	3250	3255	3260	3265	3270	3275	3280	3285	3290	3295	3300	3305	3310	3315	3320	3325	3330	3335	3340	3345	3350	3355	3360	3365	3370	3375	3380	3385	3390	3395	3400	3405	3410	3415	3420	3425	3430	3435	3440	3445	3450	3455	3460	3465	3470	3475	3480	3485	3490	3495	3500	3505	3510	3515	3520	3525	3530	3535	3540	3545	3550	3555	3560	3565	3570	3575	3580	3585	3590	3595	3600	3605	3610	3615	3620	3625	3630	3635	3640	3645	3650	3655	3660	3665	3670	3675	3680	3685	3690	3695	3700	3705	3710	3715	3720	3725	3730	3735	3740	3745	3750	3755	3760	3765	3770	3775	3780	3785	3790	3795	3800	3805	3810	3815	3820	3825	3830	3835	3840	3845	3850	3855	3860	3865	3870	3875	3880	3885	3890	3895	3900	3905	3910	3915	3920	3925	3930	3935	3940	3945	3950	3955	3960	3965	3970	3975	3980	3985	3990	3995	4000	4005	4010	4015	4020	4025	4030	4035	4040	4045	4050	4055	4060	4065	4070	4075	4080	4085	4090	4095	4100	4105	4110	4115	4120	4125	4130	4135	4140	4145	4150	4155	4160	4165	4170	4175	4180	4185	4190	4195	4200	4205	4210	4215	4220	4225	4230	4235	4240	4245	4250	4255	4260	4265	4270	4275	4280	4285	4290	4295	4300	4305	4310	4315	4320	4325	4330	4335	4340	4345	4350	4355	4360	4365	4370	4375	4380	4385	4390	4395	4400	4405	4410	4415	4420	4425	4430	4435	4440	4445	4450	4455	4460	4465	4470	4475	4480	4485	4490	4495	4500	4505	4510	4515	4520	4525	4530	4535	4540	4545	4550	4555	4560	4565	4570	4575	4580	4585	4590	4595	4600	4605	4610	4615	4620	4625	4630	4635	4640	4645	4650	4655	4660	4665	4670	4675	4680	4685	4690	4695	4700	4705	4710	4715	4720	4725	4730	4735	4740	4745	4750	4755	4760	4765	4770	4775	4780	4785	4790	4795	4800	4805	4810	4815	4820	4825	4830	4835	4840	4845	4850	4855	4860	4865	4870	4875	4880	4885	4890	4895	4900	4905	4910	4915	4920	4925	4930
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Mounting flange

[illegible]

Port plate for working line 2)

				0	25	50	100	150	200	250	300	
15	SAE working ports A and B at rear		01	0	●	●	●	●	●	●	●	010
				7	●	●	●	●	●	●	●	017
	SAE working ports A and B lateral, opposite		02	0	●	●	●	●	●	●	●	020
				7	●	●	●	●	●	●	●	027
	SAE working ports A and B lateral, opposite + rear		15	0	–	–	–	–	–	●	●	150
	Port plate with 1-stage pressure relief valves for mounting a counterbalance valve	BVD	37	08	–	–	–	●	–	–	–	–
BVE					38	–	●	●	●	●	●	●
		38	–		–	–	●	●	●	●	–	–

Valve

without valve	0	Flushing and boost-pressure valve, mounted	7	Countbalance valve mounted	8
---------------	---	--	---	----------------------------	---

Speed sensor

16	Without speed sensor	●	●	●	●	●	●	●	●	0
	Prepared for HDD speed sensor	–	▲	▲	▲	▲	▲	▲	●	F
	HDD speed sensor mounted	–	▲	▲	▲	▲	▲	▲	●	H
	Prepared for DSM/DSA speed sensor	●	●	●	●	●	●	○	○	U
		●	●	●	●	●	●	○	○	V

	ZP6V		M					/	63	W		-	V						-		
01	02	03	04	05	06	07	08		09	10	11		12	13	14	15	16	17	18	19	20

Swivel angle sensor		28	55	80	107	140	160	200	250	355	
17	Without swivel angle sensor without code	●	●	●	●	●	●	●	●	●	
	Optical swivel angle sensor	-	-	-	-	-	-	-	●	●	V
	Electric swivel angle sensor	-	-	-	-	-	-	-	●	●	E

Connector for solenoids		28 to 200	250 to 1000	
18	Without connector (without solenoid, with hydraulic control only) (sizes 250 to 1000)	●	-	0
	DEUTSCH molded connector, 2-pin - without suppressor diode	●	-	P
	HIRSCHMANN connector - without suppressor diode (without code)	-	●	

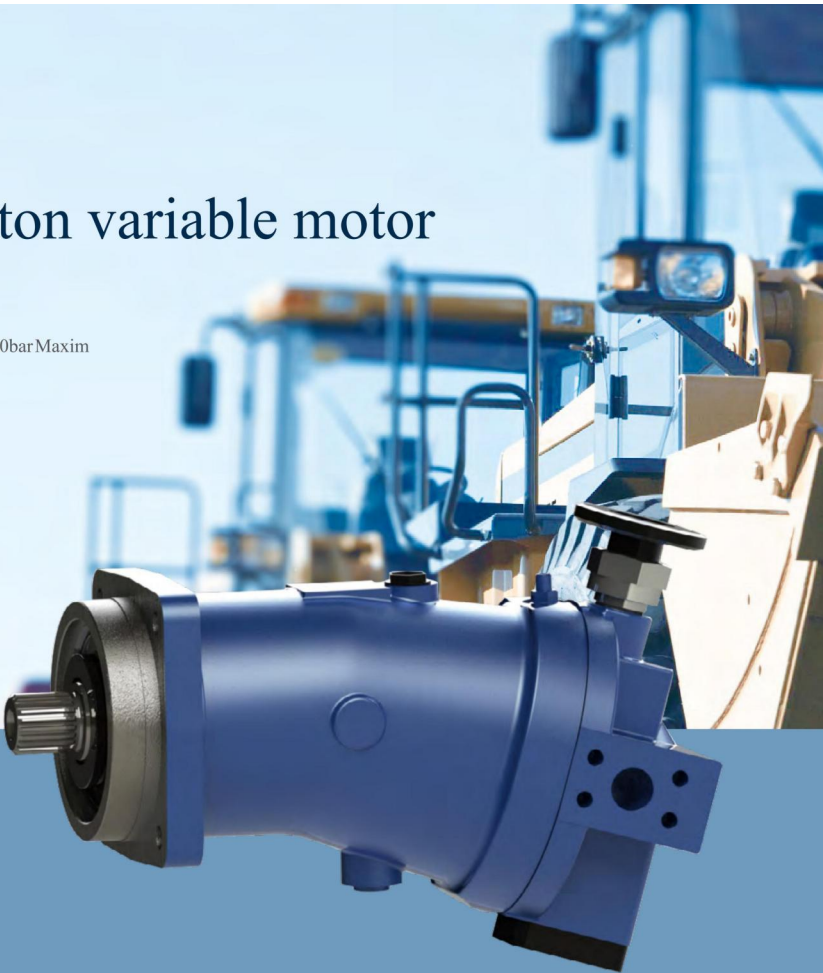
Beginning of control		28	55	80	107	140	160	200	250	355	
19	at V _{gmin} (standard for HA)(standard for HA)	●	●	●	●	●	●	●	●	●	A
	at V _{gmax} (standard for HD, HZ, EP, EZ, DA)	●	●	●	●	●	●	●	●	●	B

Standard / Special version			
20	Standard version		
	Standard version with installation variants, e.g. T ports open and closed contrary to standard		-Y
	Special version		-S

ZP6V

Axial piston variable motor

- Sizes(ml/r): 28...160
- Nominal pressure(bar): 350bar Maxim
- um pressure(bar): 400bar



- Effective range of adjustment for hydrotatic 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

ZP6V	80	HA2	2	F	Z	2	—	039
01	02	03	04	05	06	07	08	09

Motor								
01	Variable motor							ZP6V

Size								
02	< Displacement V_{gmax} cm ³	28	55	80	107	160		

Structure				28	55	80	107	160	
03	Hydraulic variable	Control pressure difference	$\Delta p=1\text{MPa}$	●	●	●	●	●	HD1
		With constant pressure control	$\Delta p=1\text{MPa}$	●	●	●	●	●	HD1D
		Control pressure difference	$\Delta p=2.5\text{MPa}$	●	●	●	●	●	HD2
		With constant pressure control	$\Delta p=1\text{MPa}$	●	●	●	●	●	HD2D
	Hydraulically controlled two-speed variable	Control start	0.2-2MPa	●	●	●	●	●	HS1
		Control start	0.5-5MPa	●	●	●	●	●	HS2
	Automatic controlhigh pressure related	Constant pressure	0.2-2MPa	●	●	●	●	●	HA1
		Without overtravel control	0.5-5MPa	●	●	●	●	●	HA1H
		With overtravel control		●	●	●	●	●	HA1H
		Pressure increase	$\Delta p=10\text{MPa}$	●	●	●	●	●	HA2
		Without override		●	●	●	●	●	HA2H
		With override		●	●	●	●	●	HA2H
		Hydraulic control speed related		●	●	●	●	●	DA
		Electric 2-speed control		●	●	●	●	●	ES1,ES2
		Electrical control with proportional solenoid		●	●	●	●	●	EP1,EP2
		Mooring control		●	●	●	●	●	MO
		Manual control with handwheel	Without pressure increase	●	●	●	●	●	MA

Sizes		
04	Size 28-255	2
	Size 500	1

Shaft end		
06	Keyed parallel shaft GB 1096-79	P
	Splined shaft DIN 5480	Z
	Splined shaft GB 3487.1-83	S

For crane products (one-way throttle valve)		
08		—

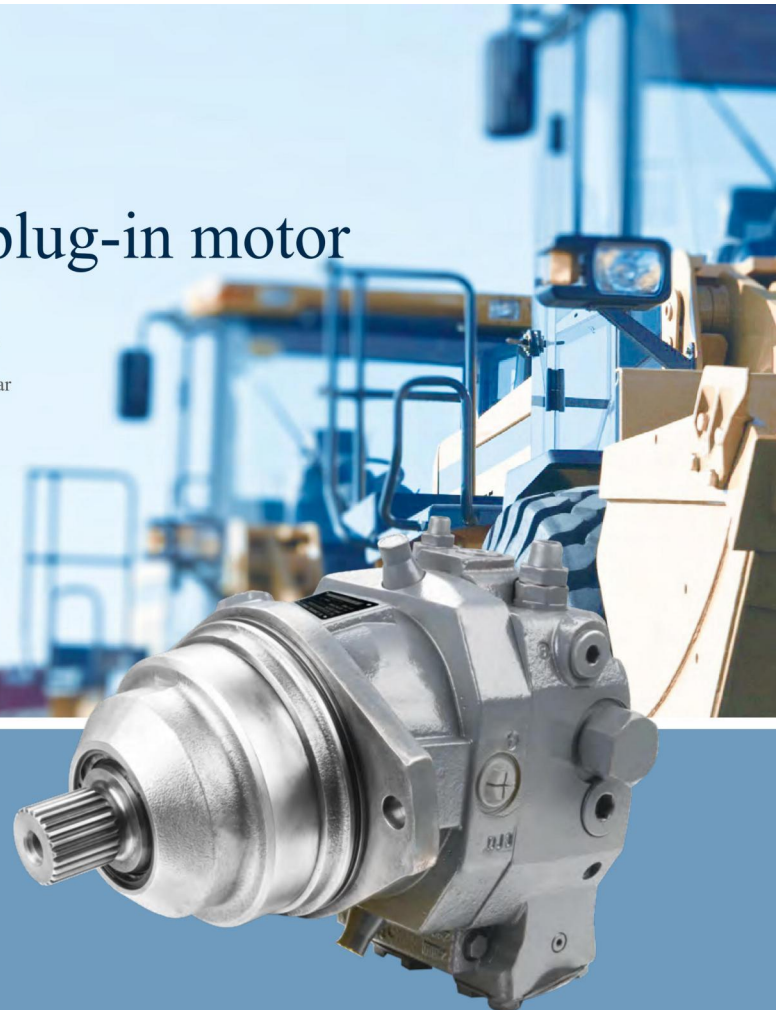
Min. displacement			
09	$V_{gmin}=39\text{ml/r}$		039

Order example: **ZP6V80HD12FZ2-39**
Axial piston variable motor ZP6V, size 80, with hydraulic control, $\Delta p=1\text{MPa}$, series2,
SAE flange connections on side, splined shaft, assembly type 2, min. displacement $V_{gmin}=39\text{ml/r}$

ZP6VE

Variable plug-in motor

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



- Effective range of adjustment for hydrostatic transmission
- 2ed 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

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

Axial piston unit

01	Bent-axis design, variable	ZP6V	Operating mode	02	Plug-in motor	E
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Size

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

Control device

04	Proportional control , hydraulic	Incremental pressure control	10bar HD1	●	●	●	●	●	●	HD1	
			25bar HD2	●	●	●	●	●	●	HD2	
	Two-point control, hydraulic		HZ	—	—	—	—	—	●	HZ	
			HZ1	●	—	—	—	—	●	—	HZ1
			HZ2	—	●	●	—	●	●	—	HZ3
	Propotional 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 related	with minimum pressure increase with pressure increase with minimum pressure increase	HA1	●	●	●	●	●	●
	HA2	●			●	●	●	●	●	HA2	
	HA3	—			●	●	●	●	—	HA3 ₁)	
Automatic control, speed related		DA	—	—	—	—	—	●	DA		
Electric travel direction valve +V _{g max} Electric switching (24V) P _{se} /P _{iso} =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 ³⁾

	28	55	80	107	160	250
08	$V_{g,max}=0$ to $0.8V_{g,max}$ (without code)	●	●	●	●	—
	$V_{g,max}=C$ to $0.4V_{g,max}$	—	—	—	—	●
	$V_{g,max}>0.4V_{g,max}$ to $0.8V_{g,max}$	—	—	—	—	●

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

Sealing material

09	FKM	(fluoroclastomer/ shaft seal)	28	55	80	107	160	250	●	●	●	●	●	●	V
----	-----	----------------------------------	----	----	----	-----	-----	-----	---	---	---	---	---	---	---

Drive shaft

10	Splined shaft	●	—	●	—	●	—	A
	DIN 5480	—	●	—	●	—	●	Z

Mounting flange

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

Working port

12	SAE working ports A and B lateral, opposite, metric thread	0	●	●	●	●	●	●	020
		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)	●	●	●	●	●
	For installing speed sensing controls	●	●	●	●	●

Beginning of control

14	Port plate 02, 08	at $V_{g,min}$ (standard for HA)	●	●	●	●	●	●	A
		at $V_{g,min}$ (standard for HD,HZ,EP,EZ,DA)	●	●	●	●	●	●	B
	Port plate 22	at $V_{g,min}$ (standard for HA3)	—	●	●	●	●	—	B
		at $V_{g,min}$ (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)

●Available - Not available ○Preparing

2)Noticed: $V_{g,min}$ and $V_{g,max}$ can be stepless only within a given range

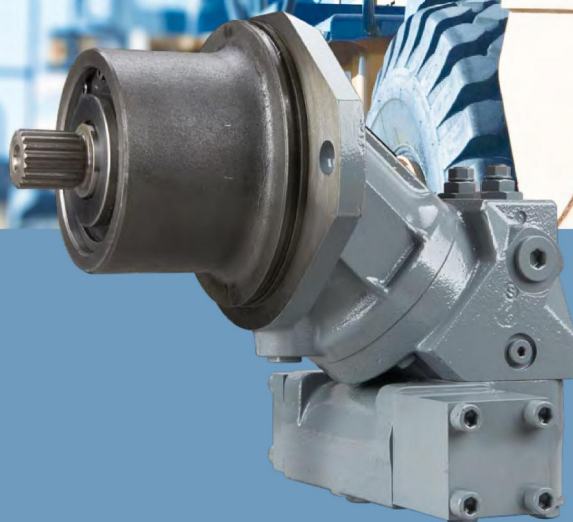
Please specify the setting range when place order: $V_{g,min}=...cm^3$, $V_{g,max}=...cm^3$

3)Possible only when connected with variable models HZ3 and HA3

ZP2FE

Fixed Plug-In Motor

- Size(ml/r): 28-180
- Nominal pressure(bar): 350bar
- Maximum pressure(bar): 400 bar



Fixed plug-in motor with axial tapered piston rotary group of bent-axis design, for hydrostatic drives in open and closed circuits

- Far-reaching integration in mechanical gearbox due to recessed mounting flange located in center of the case (extremely space-saving construction)
- Small dimensions
- The output torque increases with the pressure differential between the high-pressure and the low-pressure side. The output speed is dependent on the flow of the pump and the displacement of the motor
- High total efficiency
- Easy to install, simply plug into the mechanical gearbox

ZHP ZHANPENG HYDRAULIC
HYDRAULIC COMPONENTS DEVELOPING AND MANUFACTURING

Ordering Code/Standard Program

ZP2F		E	125	W	6	1	V	Z	L	100
01	02	03	04	05	06	07	08	09	10	11

Axial piston unit

01	Bent-axis design, fixed									ZP2F
----	-------------------------	--	--	--	--	--	--	--	--	------

Drive shaft bearing

28 to 180

02	Standard bearing (without code)	●	L
	Long-life bearing	—	

Mounting

03	plug-in									E
----	---------	--	--	--	--	--	--	--	--	---

Sizes

04	Geometric displacement	28	32	45	56	63	80	90	107	125	160	180
----	------------------------	----	----	----	----	----	----	----	-----	-----	-----	-----

Direction of rotation

05	Viewed on drive shaft, bidirectional									W
----	--------------------------------------	--	--	--	--	--	--	--	--	---

Series

06										6
----	--	--	--	--	--	--	--	--	--	---

Structure

07	28 to 180									I
----	-----------	--	--	--	--	--	--	--	--	---

Seals

08	FKM (fluor-caoutchouc)									V
----	------------------------	--	--	--	--	--	--	--	--	---

Drive shafts

28 32 45 56 63 80 90 107 125 160 180

09	Splined shaft DIN 5480	●	●	—	●	●	●	●	●	●	●	●	A
		●	—	●	●	—	●	—	●	—	●	—	Z

Mounting flanges

28 to 180

10	ISO 3019-2	2 hole	●	L
		4 hole	—	M

		28	32	45	56	63	80	90	107	125	160	180	
11	SAE flange ports A and B at bear	01	0	—	—	—	—	—	—	—	—	—	010
			7	—	—	—	—	—	—	—	—	—	017
			0	—	—	—	—	—	—	—	—	—	020
	SAE flange ports A and B at side opposite	02	7	—	—	—	▲	▲	▲	●	●	●	027
			9	—	—	—	●	●	●	—	—	—	029
			0	●	●	●	●	●	●	●	●	●	100
	SAE flange ports A and B at bottom	10	7	—	—	—	—	—	—	—	—	—	107
			1	—	—	—	—	—	●	●	●	●	171
			8	●	●	●	●	●	●	●	●	●	178
	Port plate with 1-level pressure-relief valves and MZD for mounting a counterbalance	17	—	—	—	—	—	—	●	●	●	●	181
			18	—	—	—	—	—	●	●	●	●	188
			1	●	●	●	●	●	●	●	●	●	191
	Port plate with pressure-relief valves	19	2	●	●	●	●	●	●	●	●	●	192

Valve

	Without valve	0
	Pressure-relief valve(without pressure boost facility)	1
	Pressure-relief valve (with pressure boost facility)	2
	Flushing and boost pressure valve, mounted	7
	Counterbalance valve BVD/BVE mounted	8
	Flushing and boost pressure valve, integrated	9

● Available — Not available ▲ On request

ZPAA2FM Series 6x

Axial piston fixed motor

- All-purpose high pressure motor
- Size(ml/r): 23-180
- Nominal pressure(bar): 400bar
- Maximum pressure(bar): 450bar
- Open and close circuits



- High power density
- Very high total effectivity
- High starting efficiency
- Working ports SAE flange or thread
- Optional with integrated pressure relief valve
- Optional with mounted additional valve: counterbalance valve(BVD/BVE), flush and boost-pressure valve
- Bent-axis design

Ordering Code / Standard Program

ZPAA2F		M	/	6	W	–	V					
01	02	03	04	06	07	08	09	10	11	12	13	

Axial piston

01	Bent-axis design, fixed	ZPAA2F
----	-------------------------	--------

Drive shaft bearing

		10-180	250
02	Standard bearing (without code)	●	●
	Long-life bearing	–	●
			L

Operating mode

03	Motor	M
----	-------	---

Size

05	23	28	32	80	90	107	125	160	180
----	----	----	----	----	----	-----	-----	-----	-----

Series

06	6
----	---

Index

07	1
----	---

Direction of rotation

08	Viewed on drive shaft, bidirectional	W
----	--------------------------------------	---

Seal material

09	FKM (fluoroelastomer)	V
----	-----------------------	---

Drive shaft

		23	28	32	80	90	107	125	160	180	
10	Splined shaft to SAE J744 (ANSI B92.1a)	●	●	●	●	●	●	●	●	●	S
		–	–	–	–	–	–	–	–	–	U
	Parallel keyed shaft DIN 6885	●	●	●	●	●	●	●	●	●	B
		●	●	●	●	●	●	●	●	●	P

Mounting flange

11	SAE J744	4hole	●	D
----	----------	-------	---	---

Working ports

			23	28-32	80-90	107-125	160-180	
12	SAE working ports A and B at rear	51	0	●	●	●	●	510
	SAE working ports A and B at side, opposite	52	0	●	●	●	●	520
			7	●	●	●	●	527
	Threaded ports A and B at side, opposit	53	0	●	●	–	–	530
	Threaded ports A and B at side and at rear	54	0	●	●	–	–	540
	SAE working ports, A and B at bottom	60	0	–	–	●	●	600
	Port plate with pressure relief valves for mounting a counterbalance valve	17	1	–	–	●	●	171
								178
		18	8	–	–	●	●	181
		18						188
	Port plate with pressure relief valves	19	1	–	–	●	●	191
			2	–	–	●	●	192

Speed sensors

		23-32	80-90	107-125	160	180
13	Without speed sensor (without code)	●	●	●	●	●
	Prepared for HDD speed sensor	–	–	–	–	–
	HDD speed sensor mounted	–	–	–	–	–
	Prepared for DSA speed sensor	●	●	●	●	●
	Speed sensor DSA mounted	●	●	●	●	●

Valve

12	Without valve	0
	Pressure-relief valves (without pressure boost facility)	1
	Pressure-relief valves (with pressure boost facility)	2
	Flushing and boost pressure valve mounted	7
	Counterbalance valve BVD/BVE mounted	8

● = Available ○ = On Request – = Not Available

ZP4-15

Load-sensing control block in sandwich plate design

- Size: 15
- Nominal pressure: 350 bar
- Maximum flow: 150L/min



- Flow control independent of load pressure
- Sandwich plate design
- Type of actuation: mechanical, hydraulic, electrohydraulic (switching, proportional or with on-board electronics)
- High repetitive accuracy and low hysteresis
- The flow can be adjusted by the travel limiter
- The flow pressure of each actuator port can be adjusted
- LS pressure limitation-adjustable per consumer port, external pressure setting per consumer post possible, electro-proportional per section

ZHANPENG HYDRAULIC
HYDRAULIC COMPONENTS DEVELOPING AND MANUFACTURING

Ordering Code/Standard Program

First plate

5	ZP4-15-2X	J	275
01	02	03	04

Total number of spool axes

01	= 5	5 spool axes
----	-----	--------------

Order code

02	Diameter 15
----	-------------

Application system

03	= J	Closed (for variable pump)
	= P	Open (for fixed pump)

Main relief valve

04	= Q	Without main relief valve
	= 275	With main relief valve, number is pressure (Bar) 3-digit number

Directional valves

S	180	M	180	J	080-080	H				H320 H320
01	02	03	04	05	06	07	08	09	10	

Pressure compensator

01	= S	With pressure compensator, with load holding function
	= T	With pressure compensator, without load holding function
	= C	Without pressure compensator, with load holding function

LS pressure relief and housing variant (Port A)

02	= 180	Pressure 180bar(3-digit number)
	= Z	Without LS pressure relief valve
	= Q	With threaded plug

Spool type

03	= M	Valve with gauge port
	= Z	Valve without gauge port

LS pressure relief and housing variant (Port B)

04	= 180	Pressure 180bar(3-digit number)
	= Z	Without LS pressure relief valve
	= Q	With threaded plug

Spool type

05	= J	
	= E	
	= Q	

Flow

06	= 070-070	Actuator A 70L/min B 70L/min
----	-----------	------------------------------

Control

07	= H	Hydraulic
	= M	Mechanical
	= W2	Electrohydraulically proportional

End plate

LAY	V	01	Additional information
01	02	03	

End plate

01	= LA	With LS unloading
	= LAY	With LS unloading Internal pilot oil supply
	= LAX	With LS unloading External pilot oil supply
	= LZ	Without LS unloading
	= LZY	Without LS unloading Internal pilot oil supply
	= LZX	Without LS unloading External pilot oil supply

Sealing material

02	=V	FKM(fluoroelastomer)
----	----	----------------------

Pipe thread line connections

03	=01	Inches according to ISO228/1
----	-----	------------------------------

Order code sample

SZP4-15-2XJ275

1. SQMQJ040-040W21H320H320

2. S100M190J100-100HH320H320

3. SQMQJ040-050W41H320H280

4. SQMQJ100-100HH300H300

5. S230M230E100-100W41H250H250LAYV

01

Electromagnet

08	= 1	24V (AMP 2pin)
	= 3	12V (AMP 2pin)
	= 8	24V (DEUTSCH)
	= 9	12V (DEUTSCH)

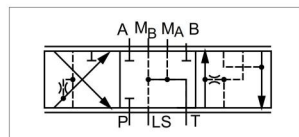
Actuation B side

09	= -	standard cover
	= K	Hand lever position 60°
	= L	Hand lever position 0°
	= K	Hand lever position -60°

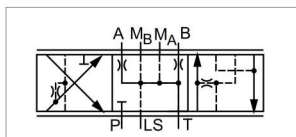
Secondary valves for consumer ports A and B

10	=H180H220	With secondary valves	Pressure at side A 180
			Pressure at side B 220
	= Q	threaded plug	
	= E	Feed valve	

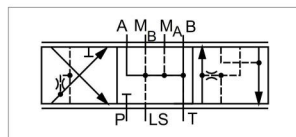
Control spool



E Hydraulic cylinder as consumer



Q Application with defined residual opening, consumer port unloaded in neutral position

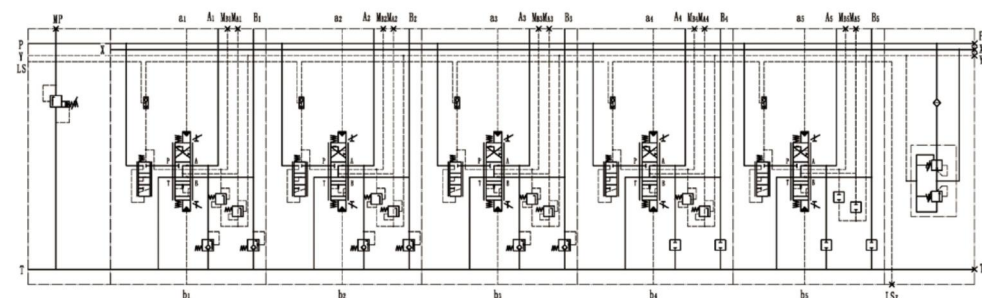


J Hydraulic motors as consumers

Spool type	Pressure compensator	Flow, L/min				
E, J, Q		150-150	120-120	080-080	050-050	032-032
	S	130-130	100-100	070-070	045-045	028-028
	C	110-110	085-085	060-060	040-040	025-025
	T	175-175	145-145	110-110	080-080	045-045

Spool type	Pressure compensator	Flow, L/min			
E, J, Q		150-120	120-080	080-050	050-032
	S	130-100	100-070	070-045	045-028
	C	110-085	085-060	060-040	040-025
	T	175-146	145-110	110-080	080-045

► Hydraulic circuit diagram 5ZP4-15



Port size:
P, T = G1"
P1, T1, A1-A5, B1-B5, LS, LSZ, MP, X, Y, a, b = G3/4"

Performance data
Nominal pressure: 350 bar
Nominal flow: 150L/min
Nominal diameter: 15mm

Example

- Variable pump max. 200L/min
- Three-fold control block with 3 directional valves
- Hydraulic operation
- Closed center, lateral, with primary pressure relief valve, sent to 250 bar

Ordering codes

3	ZP4-15-2X /J250
---	-----------------

directional valves

1st spool axis

- With pressure compensator, without load holding function
 - With 1 LS pressure relief valve for consumer ports A and B 200 bar
 - Spool symbol J, Flow in A and B 190L/min
 - Type of actuation: hydraulic
 - Secondary valves: Pressure/feed valve, consumer port A and B 320 bar
- ### 2 nd and 3 rd spool axis
- with pressure compensator, with load holding function
 - with LS pressure relief valve for consumer port A 180 bar, consumer port B 120 bar
 - Spool symbol E. Flow in 85L/min
 - Type of actuation: hydraulic
 - Secondary valves: Pressure/feed valve, consumer port A and B 320 bar

1st spool axis

T	200M=	J	190-190	H	-	H320	H320
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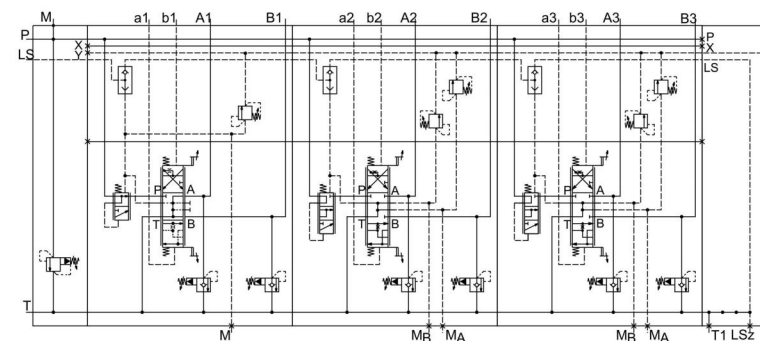
2nd spool axis

S	180M120	E	085-085	H	-	H320	H320
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3rd spool axis

S	180M120	E	085-085	H	-	H320	H320
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LA	V	01
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► Example of ordering code: ZP4-15 control block with three directional valves

ZP4 - 4567 - 2 0 / 3 ZP4 - 15

control block number
Series (2X)

Total number of spool axes
Series amendment status

Example

- Variable pump max. 200L/min
- One actuator with priority
- One slave actuator
- Electro-hydraulic actuation

Short type, diversionplate

-Diversion plate

directional valves

- 1st spool axis (Priority actuator)
- With pressure compensator, without load holding function
- Without LS pressure relief valve bore
- Spool symbol E, Flow in A and B 175L/min
- Type of actuation: electrohydraulically proportional. With Junior Timer, 2-pin (AMP) 24 V
- Overriding hand lever (revolving)
- Secondary valves bores plugged

Inlet

- Closed center, central, with primary pressure relief valve, set to 300 bar
- With priority valve (dynamic), set to 250 bar

2 nd and 3 rd spool axis

- with pressure compensator, with load holding function
- with LS pressure relief valve for consumer port A 270 bar, consumer port B 300 bar
- With electro-proportional pressure limitation, 210 bar (decreasing characteristic curve)
- Spool symbol E. Flow in A and B 90 L/min
- Type of actuation: digital OBE
- Overriding hand lever (revolving)
- Secondary valve bores plugged

End plate

- With internal LS unloading and pilot oil supply

Ordering codes

2	ZP4-15-2X / LU
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1st spool axis

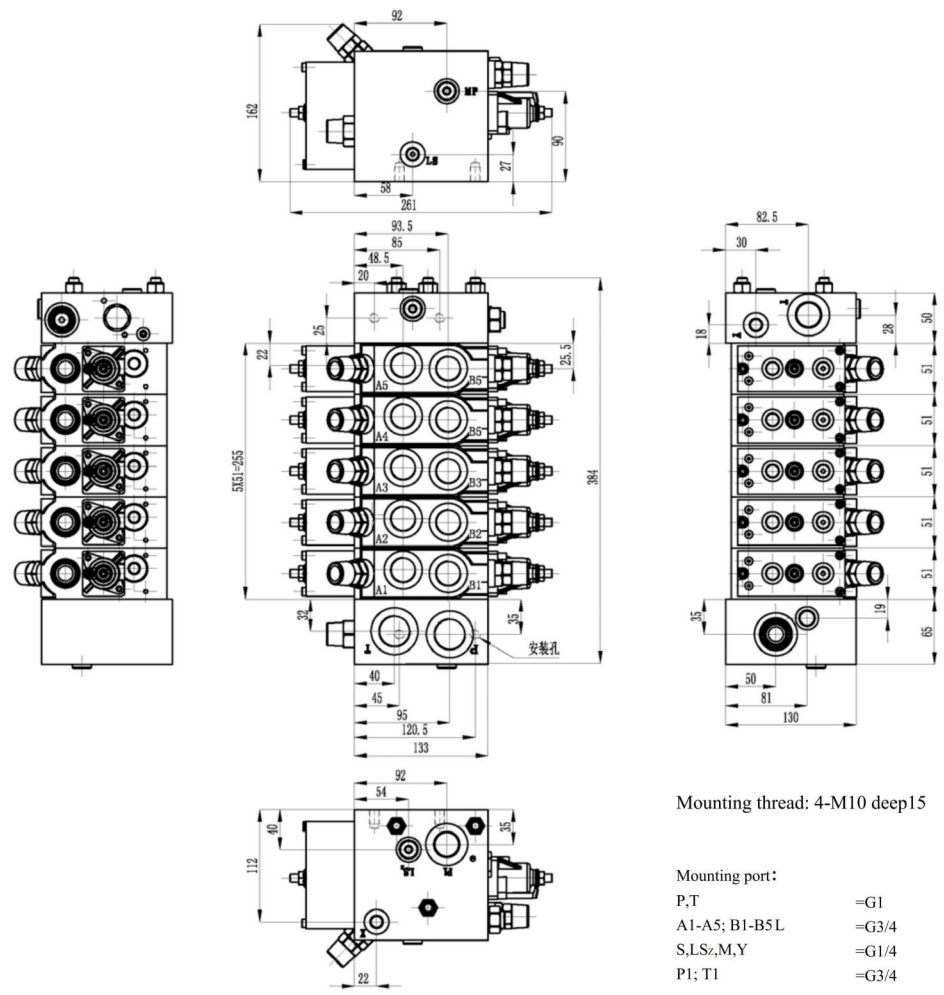
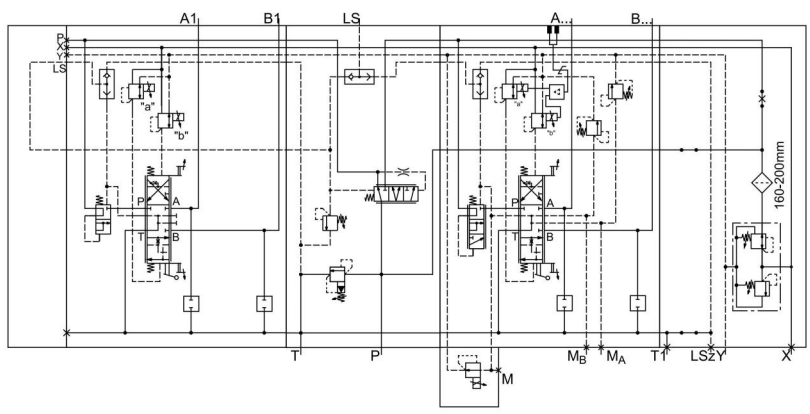
C	ZZZ	E	175-175	W2	1	K	Q	Q
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VZ	300	B	250
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2ed spool axis

S	270 L 300	E	090-090	AAQ	K	Q	Q
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LAY	V	01
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Mounting thread: 4-M10 deep15

Mounting port:
P,T =G1
A1-A5; B1-B5L =G3/4
S,LSz,M,Y =G1/4
P1; T1 =G3/4