



1.5

HVS(E) SERIES

FLOW SHARING VALVE

HVSE:

Nominal size	04	09	12	18	25
Rated pressure(bar)	250/270	320/350	320/350	320/350	350/400
Pump/actuator side					
Rated flow(L/min)	40	90	120	180	300

Benefits:

- High efficiency
- Less volume, lighter weight
- Precise controllability
- Low pressure drop, less fuel consumption
- Comfort and coordination



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Features

1. System:

Load pressure independent flow distribution

- Boom and Arm anti-drop valve (except for HVSE 04)
- Regeneration capability (except for HVSE 04 and HVSE 09)
- Low control pressure, $\Delta P=15\text{bar}$
- Adjustable priority order of each movement
- Hydraulic pilot control

2. Structure

- Sandwich plate of design

3. Pressure

- LS relief valve
- Secondary pressure relief valve

4. Flow

- Load pressure compensated
- High repeatability accuracy
- Low hysteresis

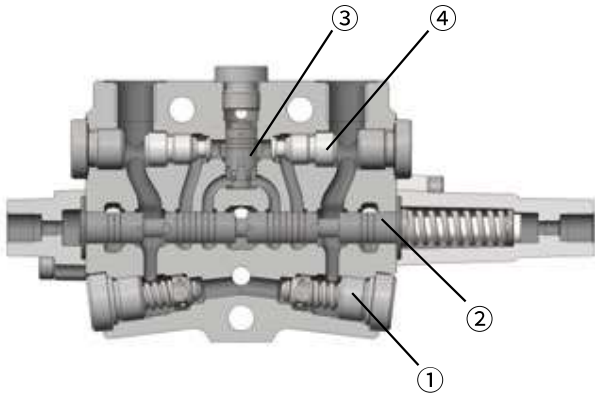
5. Applications



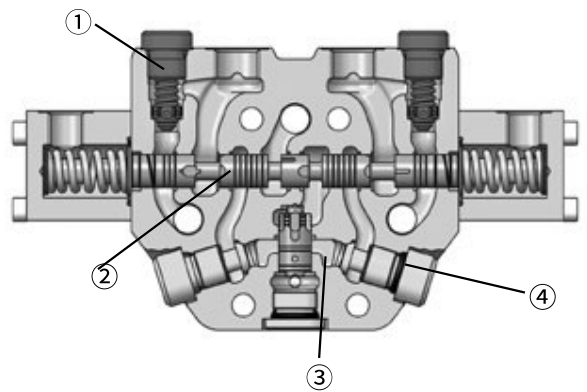
Excavators
0.8-18 ton

Section view

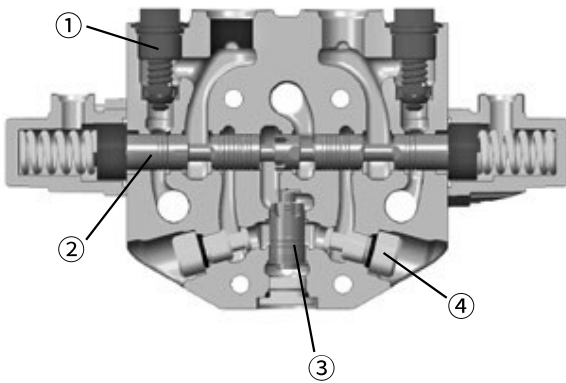
• HVSE 04



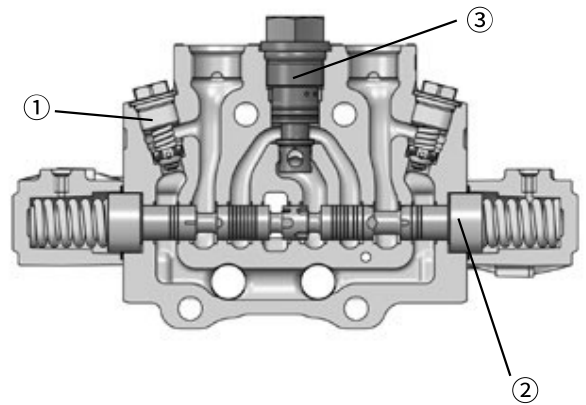
• HVSE 09



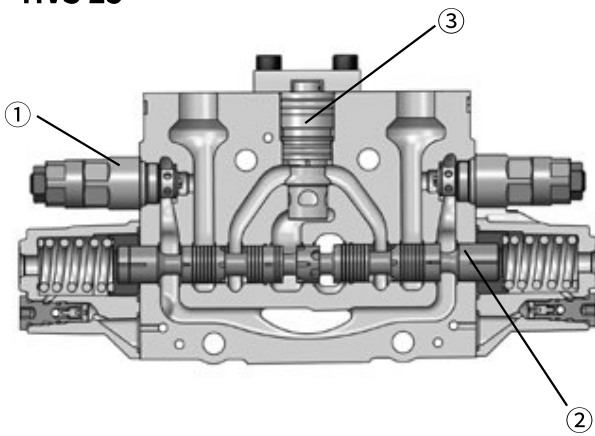
• HVSE 12



• HVSE 18



• HVS 25



- 1. Relief valve
- 2. Spool
- 3. Compensator valve
- 4. Load check valve

Technical data

General

Structure	Sandwich plate design				
Connection type	ISO 1179-1		JIS B2351-1		
Mass (kg)	Nominal Size				
	04(10 blocks)	09(8 blocks)	12(8 blocks)	18(8 blocks)	25(8 blocks)
	16.5kg	22kg	48kg	67kg	198.5kg
Unit dimensions (mm)	305×210.6×94.2	350×220×112	450×278×138	498×326×172	394×239×721.5

Hydraulic

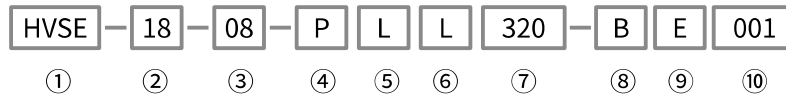
Nominal Size		04	09	12	18	25
Rated flow	Q (L/min)	40 ($\Delta P=15\text{bar}$)	90 ($\Delta P=15\text{bar}$)	120 ($\Delta P=15\text{bar}$)	180 ($\Delta P=15\text{bar}$)	300 ($\Delta P=15\text{bar}$)
	P /LS (bar)	250	320	320	320	350
Max. operating pressure at port	A/B (bar)	270	350	350	350	400
	T (bar)	30				
	TS (bar)	Less than 3				
Pilot pressure	a/b (bar)	Less than 35				

Using environment

Hydraulic fluid	Mineral oil (HL, HLP) according to DIN 51524. Other hydraulic fluids, such as HEES (Synthetic Ester) according to VDMA 24568.
Hydraulic fluid temperature range(°C)	-20 to +90
Viscosity range ν (mm ² /s)	10 to 380
Maximum permissible degree of contamination of the pressure fluid cleanliness class to ISO 4406 (C)	Class 20/18/15, we therefore recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$

(For applications outside above mentioned parameters, please consult our sales dept.)

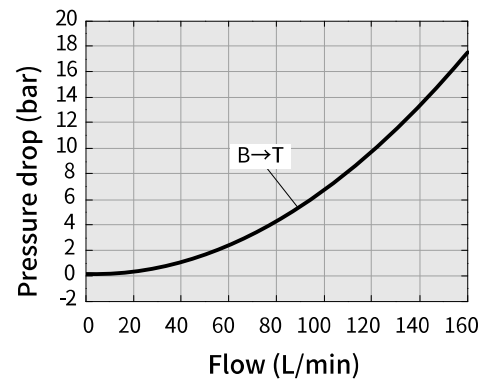
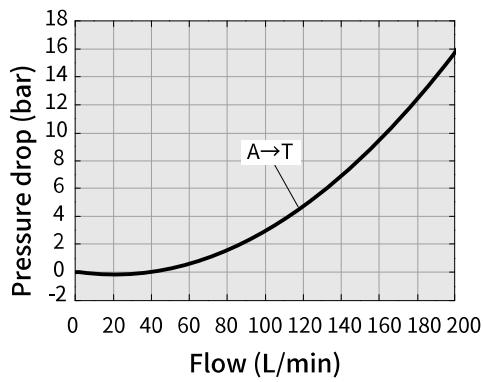
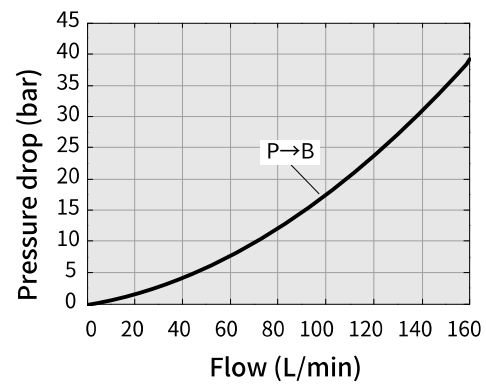
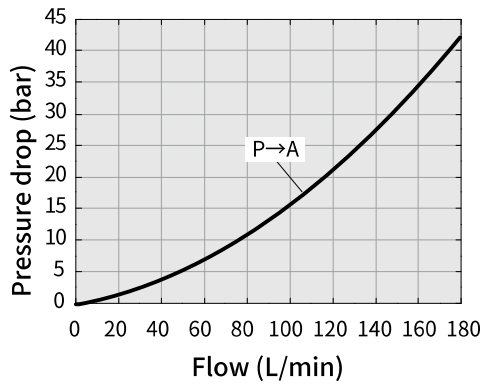
Ordering code



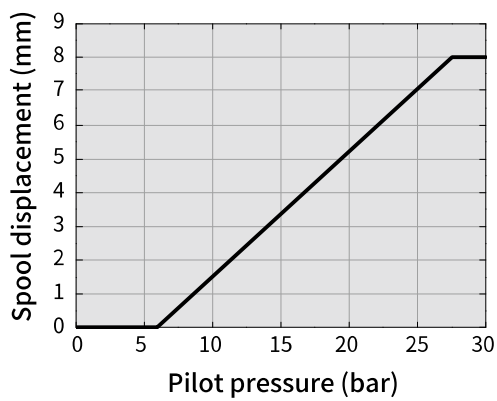
① Structure	HVSE	(Size 04/09/12/18) Sandwich plate design, post pressure compensated
	HVS	(Size 25) Sandwich plate design, post pressure compensated
② Nominal size	04	40 lpm (10.58 gpm)
	09	90 lpm (23.8 gpm)
	12	120 lpm (31.7 gpm)
	18	180 lpm (47.5 gpm)
	25	300 lpm (79.25 gpm)
③ Number of blocks	08	It can be increased or reduced according to the requirements of customers.
④ Pump relief valve	P	Without pump relief valve (with LS pressure relief valve)
⑤ Boom anti-drift valve	Blank	Without boom anti-drift valve
	L	With boom anti-drift valve
⑥ Arm anti-drift valve	O	Without arm anti-drift valve
	L	With arm anti-drift valve
⑦ Max. pressure in bar	320	(Size 04/09/12/18) 320bar, adjustable via the LS pressure relief valve
	350	(Size 25) 350bar, adjustable via the LS pressure relief valve
⑧ Circuit types	B	Closed center (Please refer to "Characteristic curves")
⑨ Connection dimensions types	E	English (BSP Pipe thread) (Please refer to "Port Connection")
	M	Other connection versions please contact us.
⑩ Design code	001	

Characteristic curves Hydraulic oil : ISO VG46, T=50°C

• Pressure drop characteristic curve



• Pilot pressure control curve



(*): Characteristic curves used the test results of HVSE 18 for example.

Hydraulic diagram

• HVSE 04

- LS relief valve
- LS constant flow valve

Inlet block



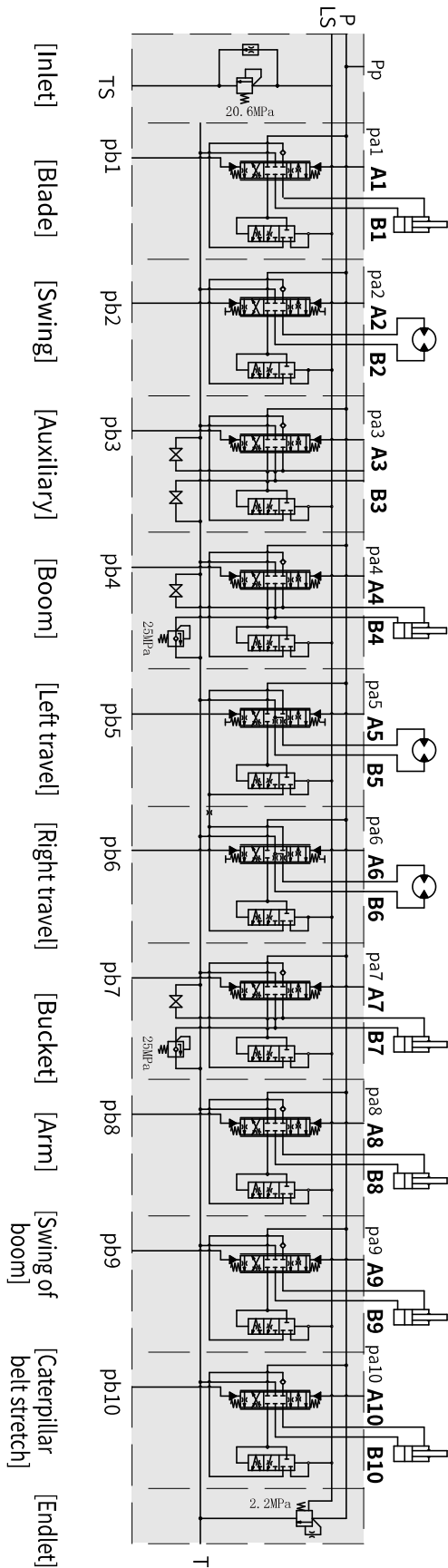
If need to adjust the order of the blocks, please consult us.

- Unload valve

Inlet block

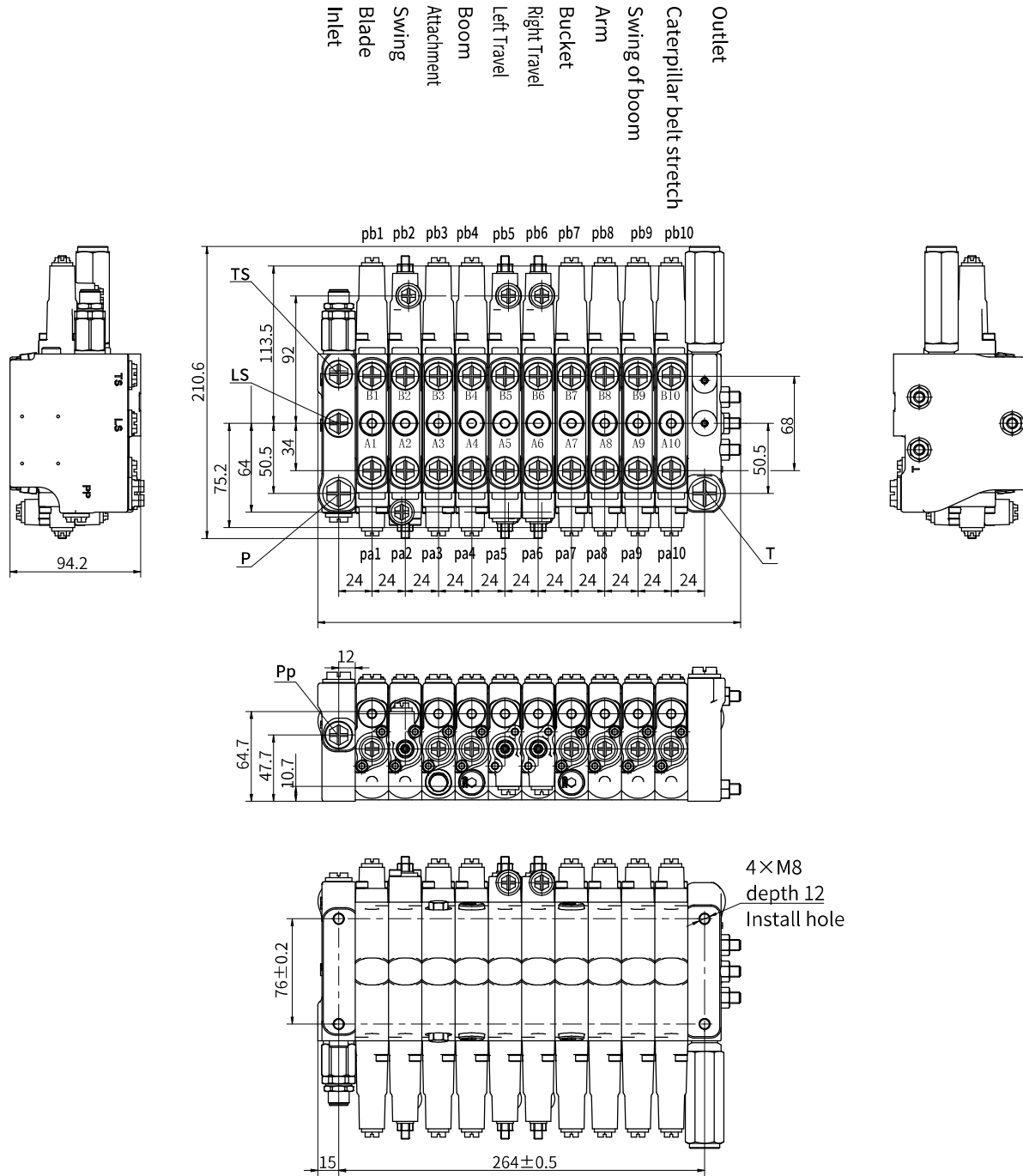
Middle blocks

End block



Unit dimensions

• HVSE 04



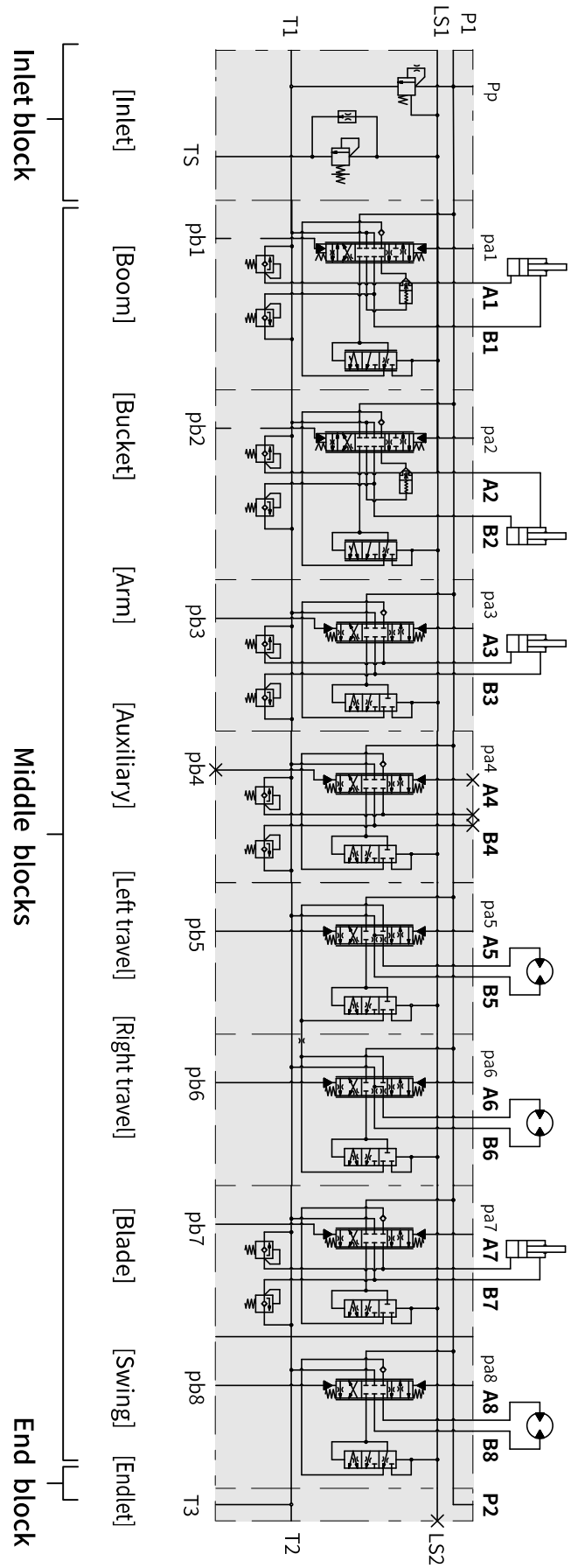
01

Hydraulic diagram

• HVSE 09

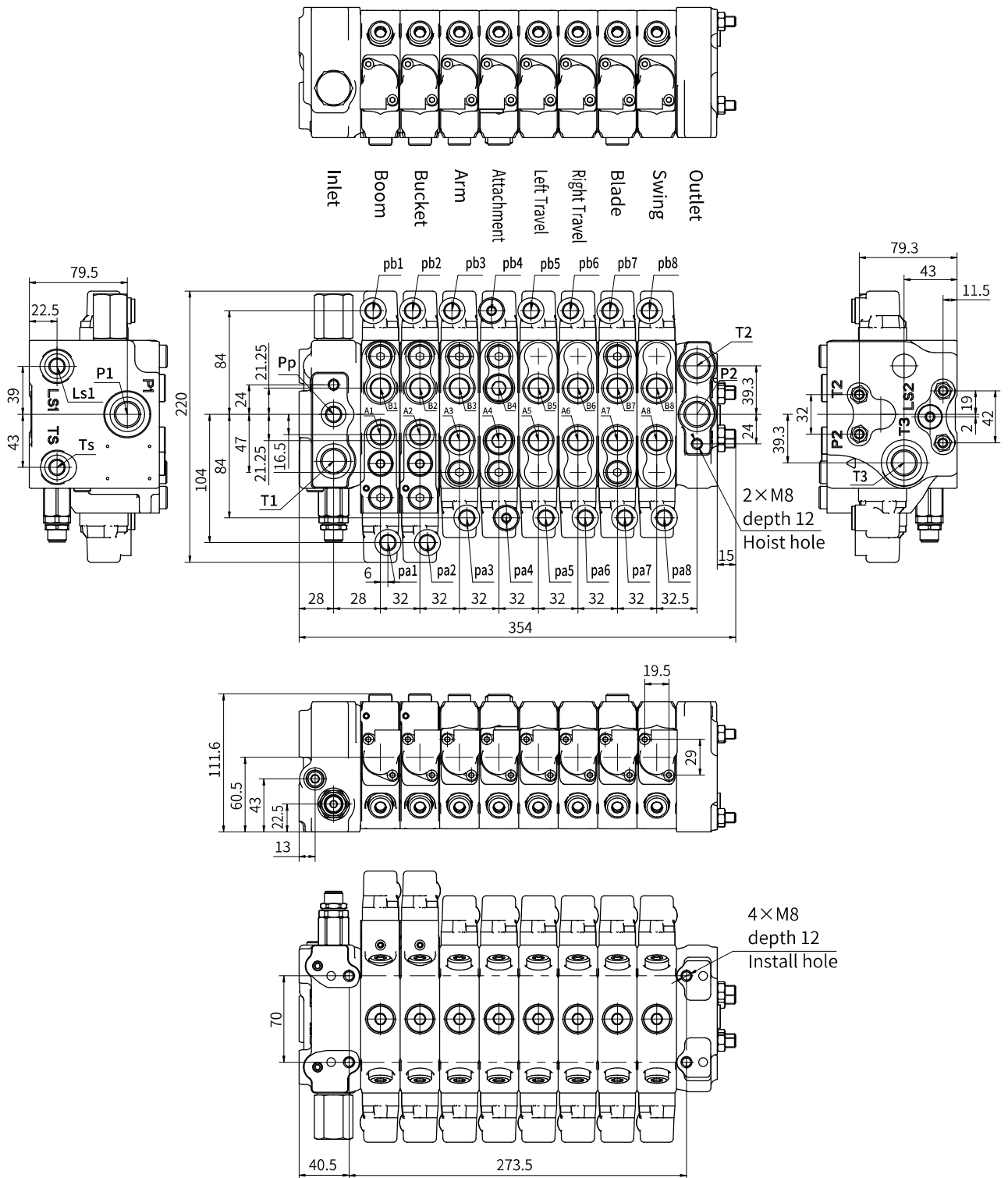
- Unload valve
- LS relief valve
- LS constant flow valve

If need to adjust the order of the blocks, please consult us.



Unit dimensions

• HVSE 09

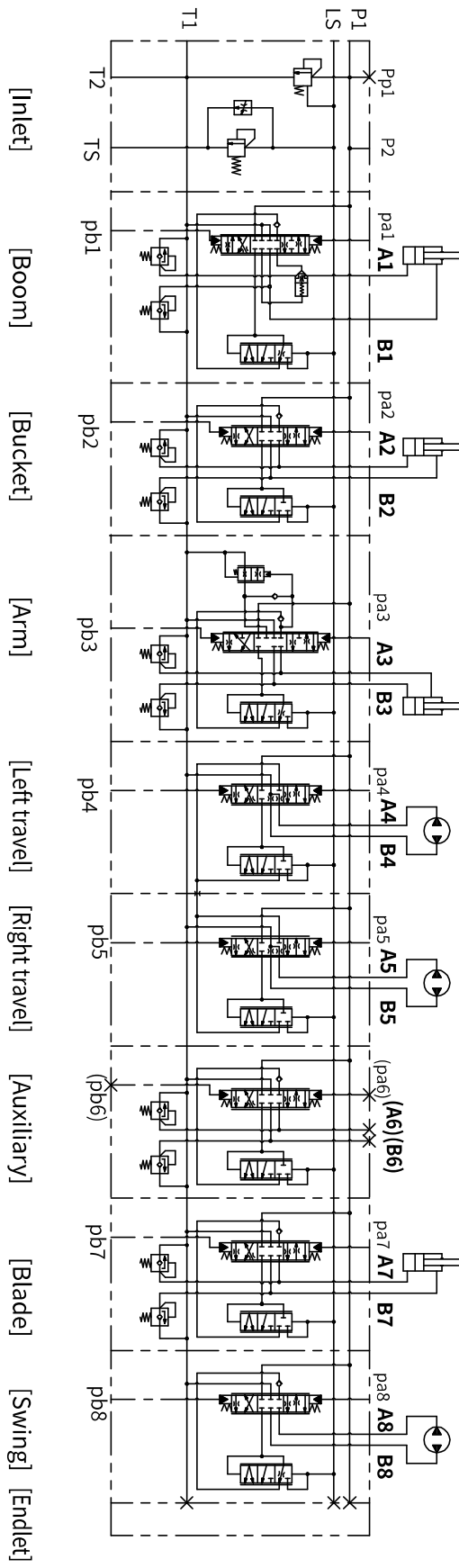


01

Hydraulic diagram

• HVSE 12

- Unload valve
- LS relief valve
- LS constant flow valve



Inlet block

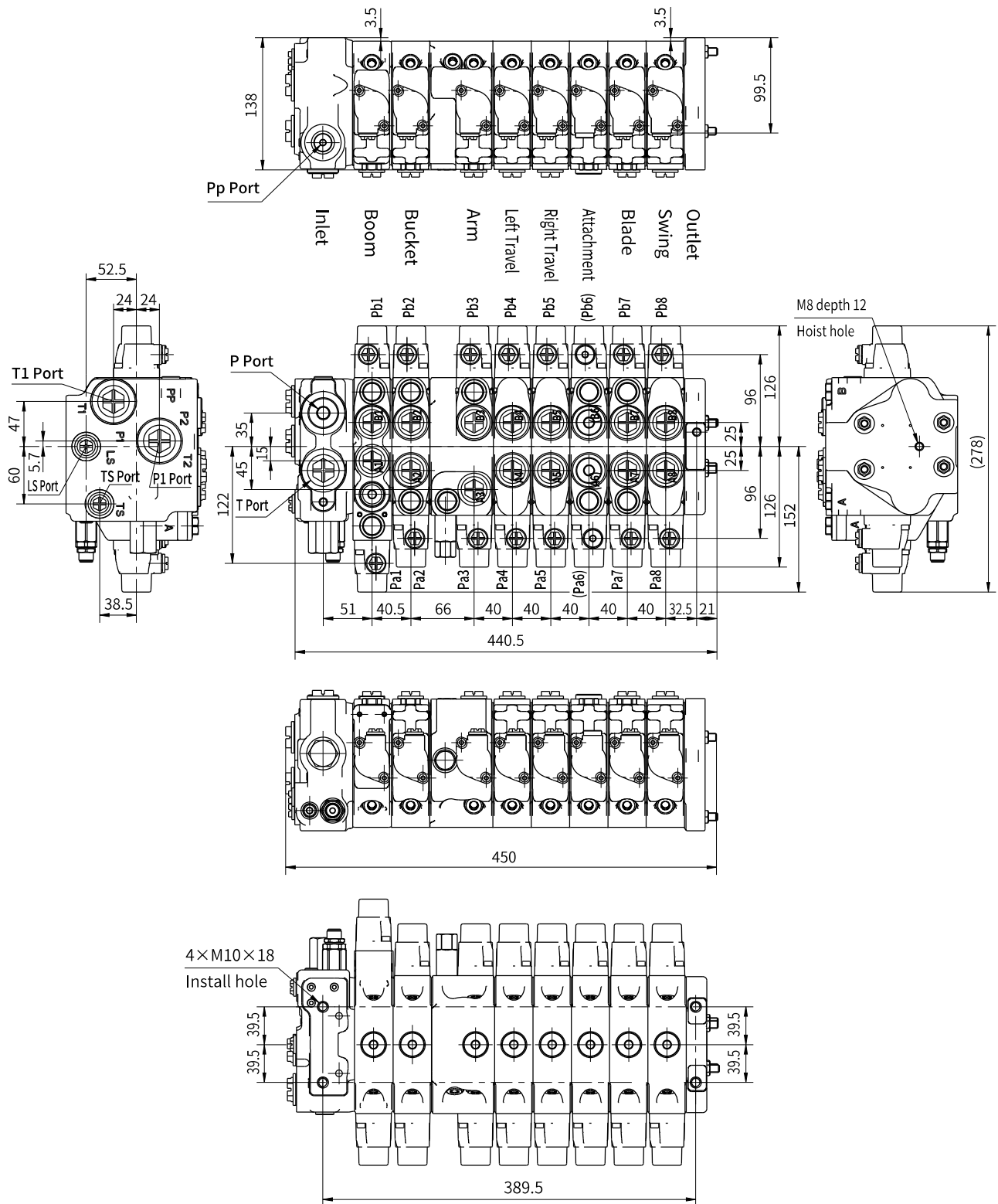
Middle blocks

End block

If need to adjust the order of the blocks, please consult us.

Unit dimensions

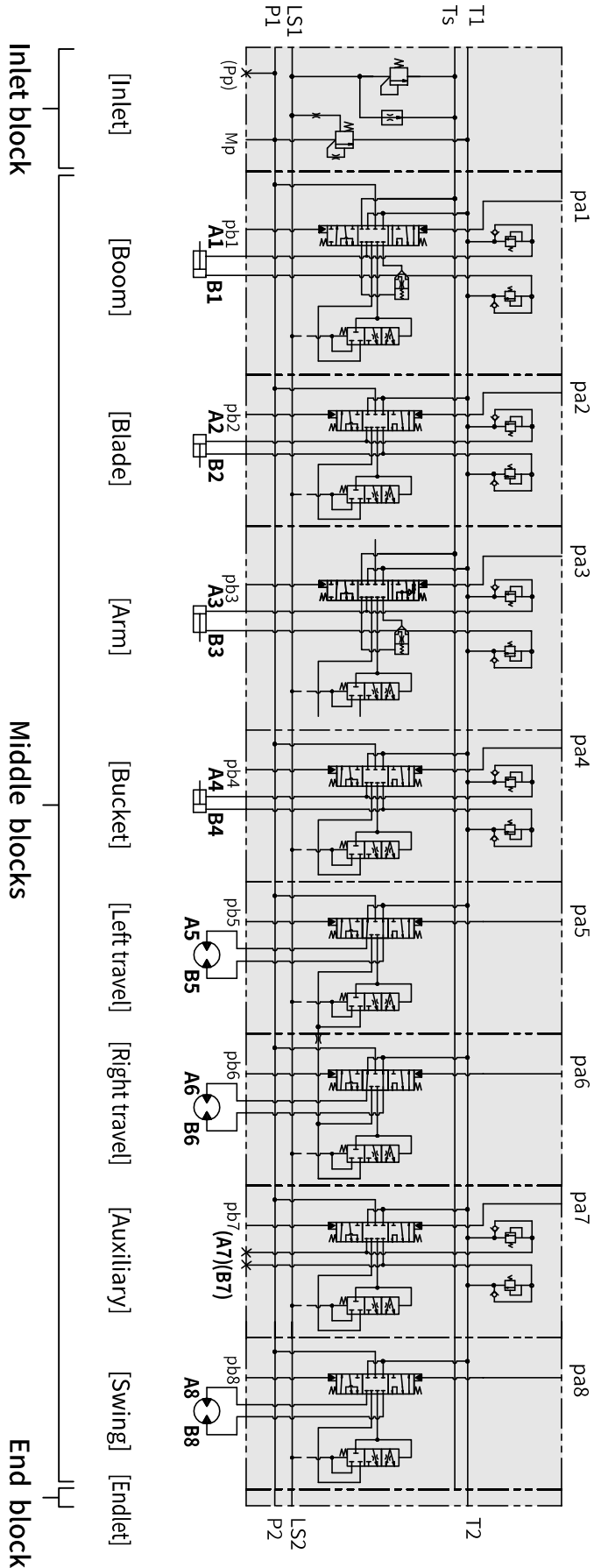
• HVSE 12



01

Hydraulic diagram

• HVSE 18



Inlet block

- Unload valve
- LS relief valve
- LS constant flow valve

Middle blocks

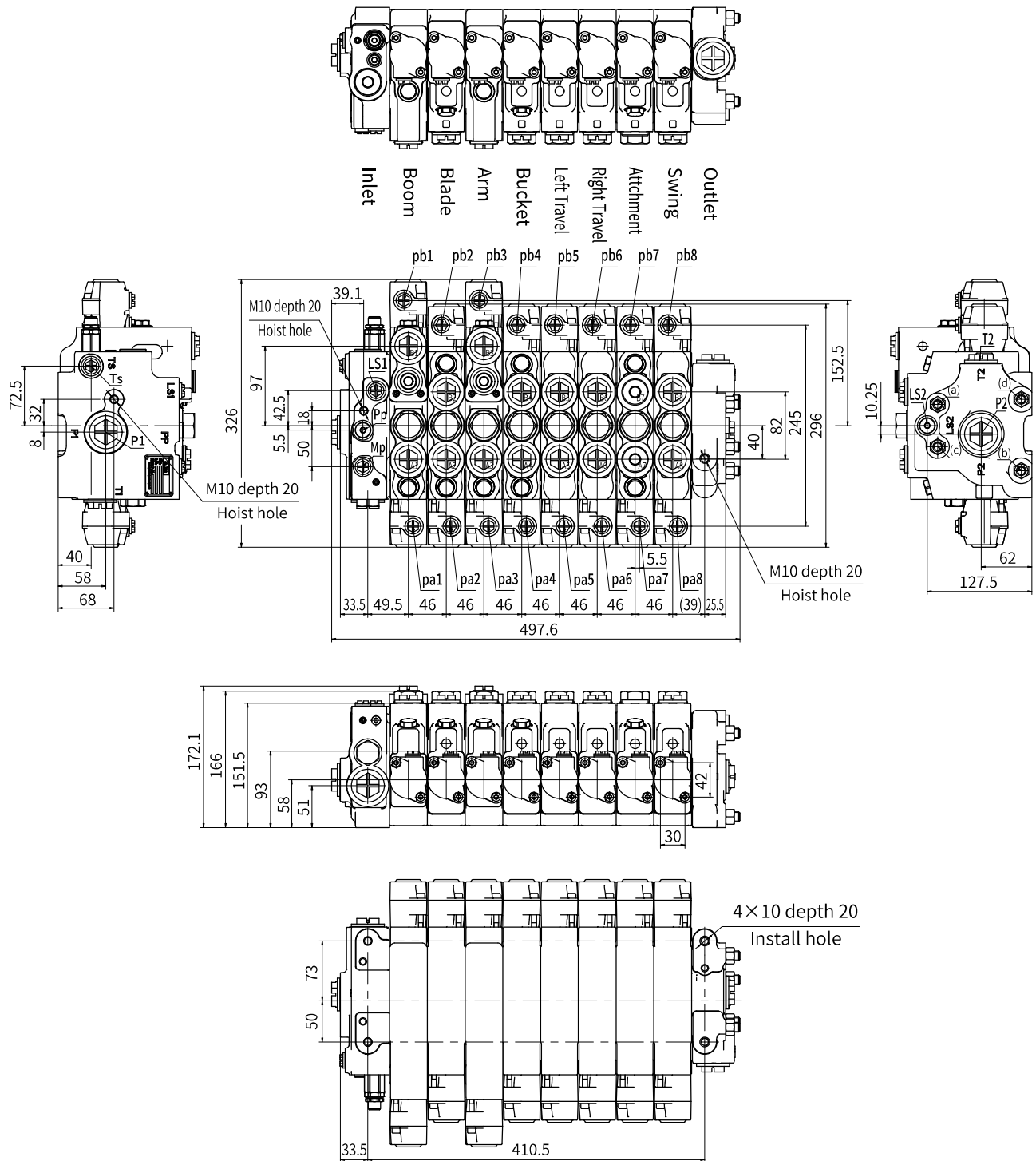
- [Inlet]
- [Boom]
- [Blade]
- [Arm]
- [Bucket]
- [Left travel]
- [Right travel]
- [Auxiliary]
- [Swings]
- [Endlet]

End block

If need to adjust the order of the blocks, please consult us.

Unit dimensions

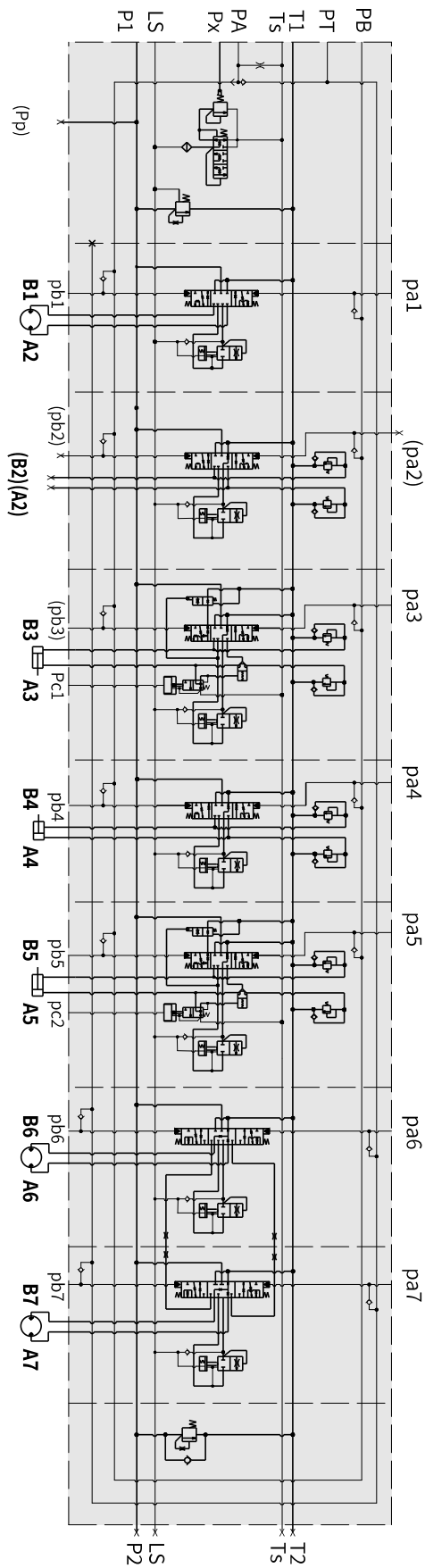
• HVSE 18



01

Hydraulic diagram

• HVS 25



Inlet block

Inlet block

- Unload valve
- LS constant flow valve

Middle blocks

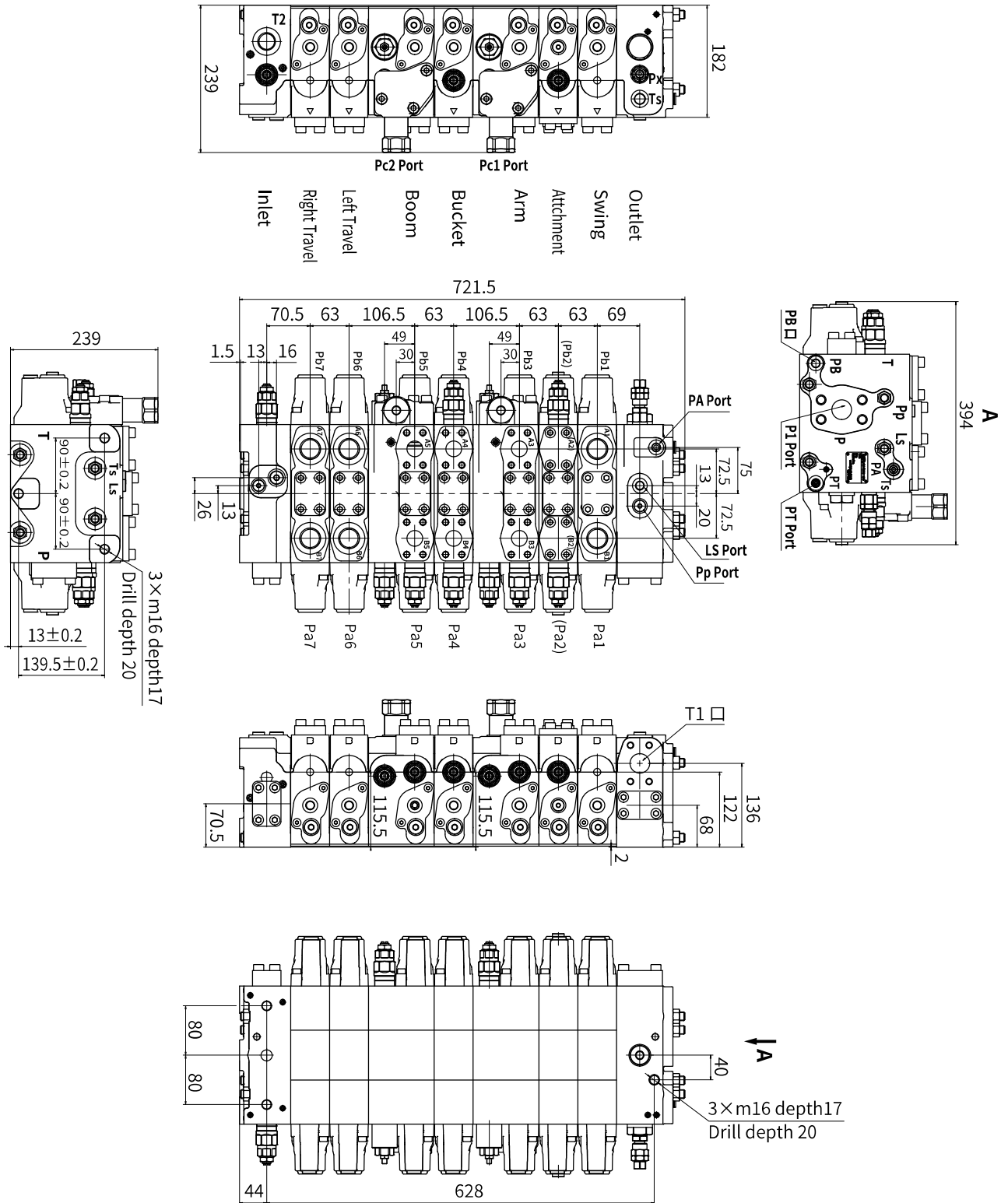
End block

- (Pump relief valve, optional)

If need to adjust the order of the blocks, please consult us.

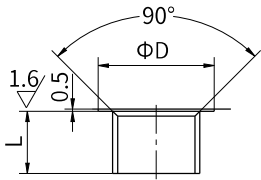
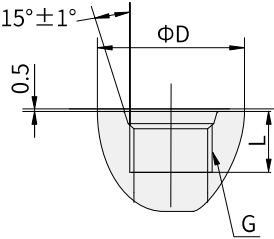
Unit dimensions

• HVS 25



01

Port connection

	HVSE04	Port ISO 1179-1		Thread	ΦD	L	
		P, T	Inlet port Outlet port	G3/8	28	12	
		A / B LS Ts Pp	Work port Load sense port TS Port Pp Port	G1/4	20	12.5	
		a / b	Pilot port	G1/8	15	8.5	
	HVSE09	Port ISO 1179-1		Thread	ΦD	L	
		P, T1, T2, T3	Inlet port Outlet port	G1/2	28	15	
		A / B	Work port	G3/8	23	12.5	
		a / b LS1, LS2 TS1, TS2 Pp	Pilot port Load sense port TS Port Pp Port	G1/4	20	12.5	
		HVSE12	Port JIS B2351-1		Thread	ΦD	L
			P, T	Inlet port Outlet port	G3/4	45	20
A / B			Work port	G1/2	34	16	
a / b LS Ts Pp			Pilot port Load sense port TS Port Pp Port	G1/4	24	12	
HVSE18		P, T	Inlet port Outlet port	G1	51	21	
		A / B	Work port	G3/4	45	20	
		a / b LS Ts Pp	Pilot port Load sense port TS Port Pp Port	G1/4	24	12	
		HVS25	A2, B2, A3, B3, A7, B7	Work port	G1	51	21
T2			Outlet port	G3/4	45	20	
Ts			TS Port	G3/8	28	12	
a / b LS Pp, Px Pc1, Pc2 PA PB PT	Pilot port Load sense port Pp Port, Px Port Pc1, Pc2 Port PA Port PB Port PT Port		G1/4	24	12		

Port connection

	HVS25	Port SAE J518		Nominal flange size	ΦD	L1	L2
		(A1), (B1), A4, B4, A5, B5, A6, B6, P1, (P2)	Inlet port Work port	1'	25.4	52.4	26.2
		T1	Outlet port	1-1/4'	31.8	58.7	30.2

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