1.1

# **HVSH** SERIES

## OPEN CENTER CONTROL DIRECTIONAL VALVE

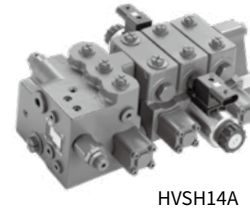
**HVSH :**

| | | | | |
|---|---|---|---|---|
| Nominal size | 14 | 14A | 16D | 20 |
| Rated flow(L/min) | 70 | 30/70 | 80 | 160 |
| Max. pressure(bar) | 315 | 315 | 315 | 315 |
| Control electric voltage (VDC) | 12/24 | 12/24 | 12 | - |

### Benefits:

- Low pressure drop, more energy-efficient
- Sandwich plate structure, flexible adjustment
- Emergency valve, prevent misuse
- Small and light

HVSH14



HVSH14A

HVSH16D

## Contents

# Features

## 1. System

Open center, used for quantitative pump system.

## 2. Structure

·Sandwich plate of design（HVSH14，HVSH14A，HVSH16D，HVSH20）

## 3. Control

·Electro-hydraulic control（HVSH14，HVSH14A）

·Manual contro（HVSH14，HVSH14A，HVSH16D，HVSH20）

·Hydraulic operation（HVSH14，HVSH20）



## 4. Applications

Hooklift

Wrecker

Sweeper

Compression vehicle

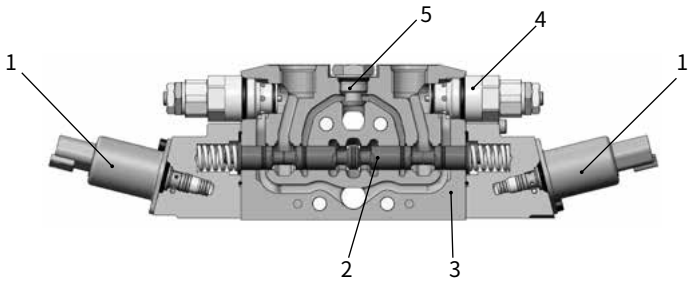
Rice harvester

Backhoe loaders

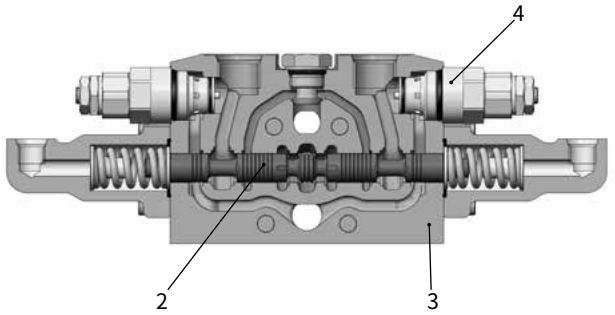
Tractor

## Section view

**· HVSH14 Electro-hydraulic control -W**



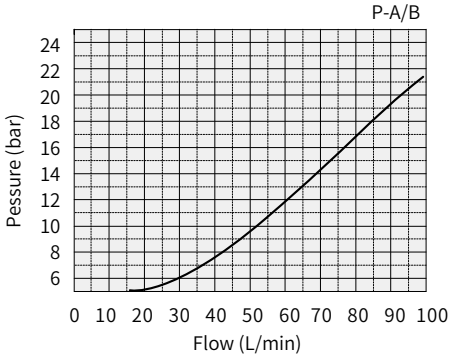

**· HVSH14 Hydraulic operation -H**

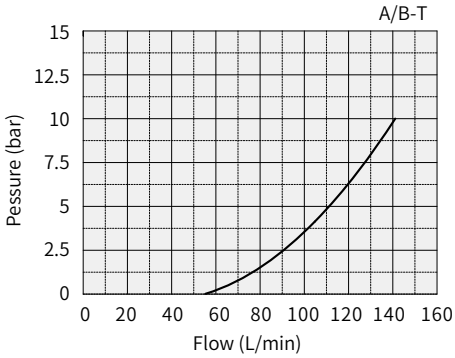


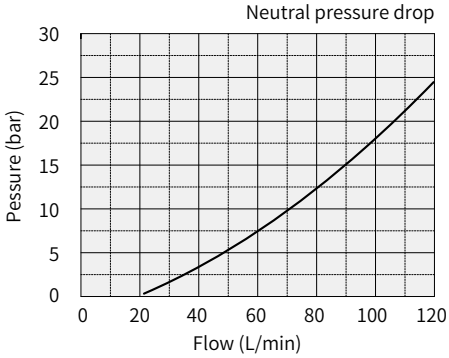

1 Solenoid Valve
2 Spool
3 Valve block
4 Relief valve
5 Check valve
6 Single and double acting switching valve
7 Plug

## Characteristic curves

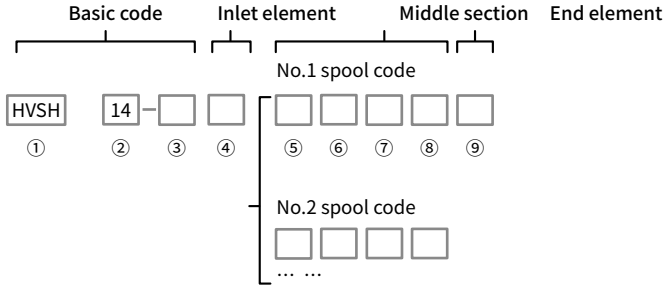
**·Pressure drop characteristic curve (HVSH14)**



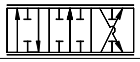
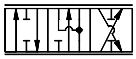



## Ordering code



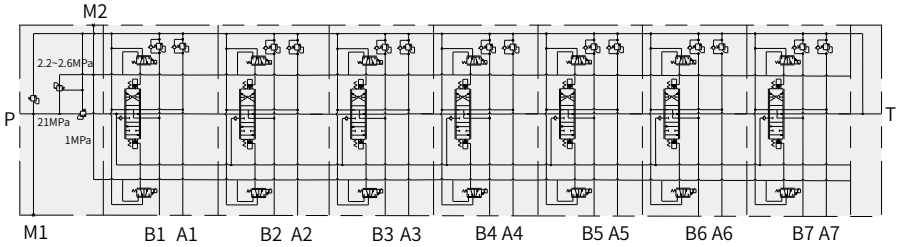



**Ordering details:** HVSH14 - 02 - P220 - [ EG150QH / JQG150M / JQG150H ] -N

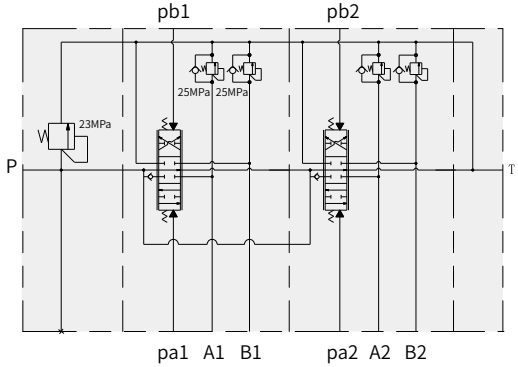
| | | | |
|---|---|---|---|
| **Basic code** | ① Structure | HVSH | Sandwich plate design |
| | ② Nominal size | | 14 |
| | ③ Number of directional middle sections | | 01-07 |
| **Inlet element** | ④ Main reief valve | P*** | With main relief valve, setting pressure, 3- digits, bar |
| | | Q | Without main relief valve |
| **Middle directional section** | ⑤ Spool function | E | O Type  |
| | | J | Y Type  |
| | ⑥ Relief valve at A side | G*** | With relief valve, setting pressure, 3- digits, bar |
| | | Q | With plug |
| | ⑦ Relief valve at B side | G*** | With relief valve, setting pressure, 3- digits, bar |
| | | Q | With plug |
| | ⑧ Operation type | W21 | Electro hydraulic proportional control, 24V (not compatible with other control types) |
| | | W23 | Electro hydraulic proportional control, 12V (not compatible with other control types) |
| | | W41 | Electro hydraulic switch control, 24V (not compatible with other control types) |
| | | W43 | Electro hydraulic switch control, 12V (not compatible with other control types) |
| | | H | Hydraulic operation |
| Endlet section | ⑨ carry-over function | N | Without carry over |
| * | Other request | Further requirement in the clear text | |

# Hydraulic diagram

## ·HVSH14 Electro-hydraulic control -W

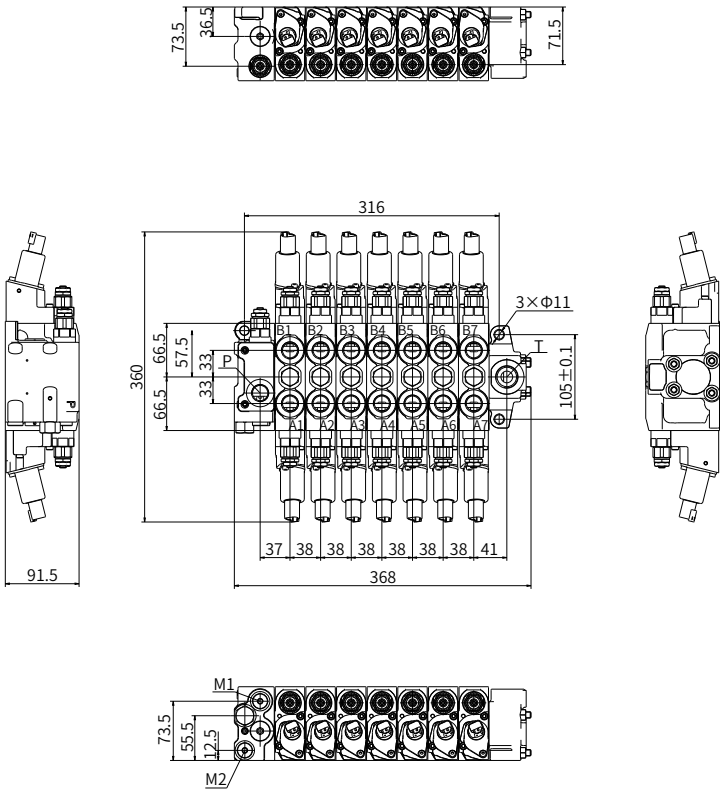



## ·HVSH14 Hydraulic operation -H



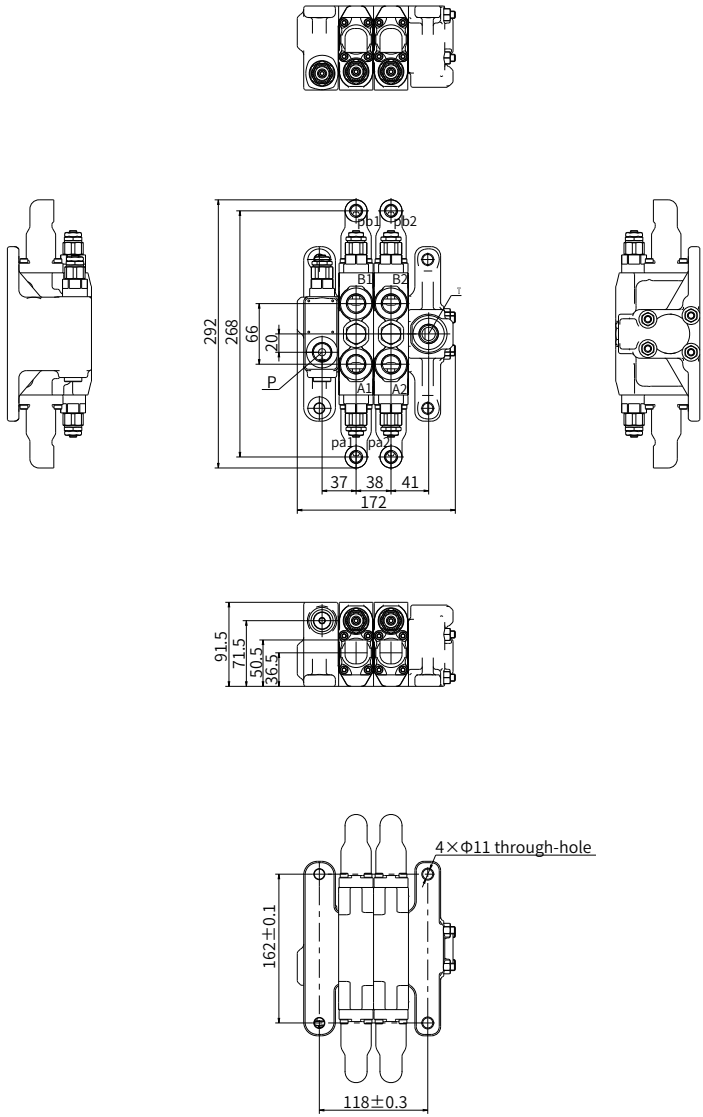
# Unit dimensions

## ·HVSH14 Electro-hydraulic control



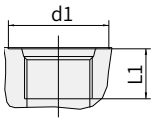
# Unit dimensions

## ·HVSH14 Hydraulic operation -W



# Port connection

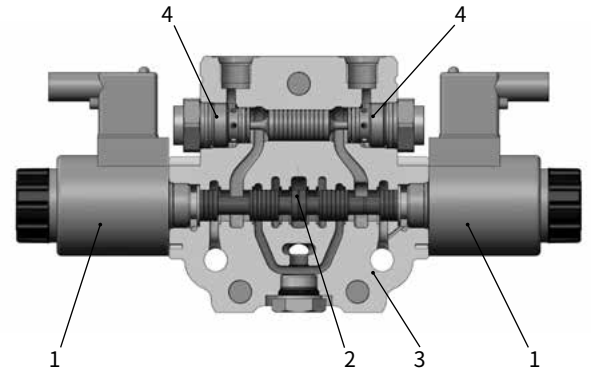
## ·HVSH14



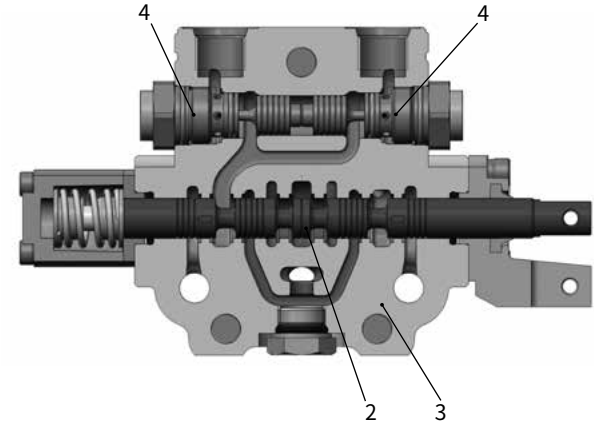

| | Port JIS B 2351 | | Thread | d1 | L1 |
|---|---|---|---|---|---|
| **HVSH14** | P | Inlet port | G1/2 | 34 | 16 |
| | T | Outlet port | G3/4 | 43 | 17 |
| | A/B | Work port | G1/2 | 34 | 16 |
| | pa/pb | Pilot port | G1/4 | 24 | 15 |
| | M1 | Other oil orifice | G1/4 | 24 | 15 |

## Section view

**·HVSH14A Electromagnetic direct thrust -W**

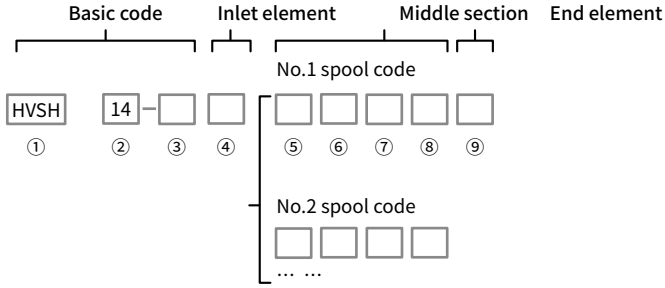



**·HVSH14A Manual contro -M0**



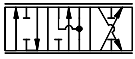

1 Electromagnet
2 Spool
3 Valve block
4 Check valve

## Ordering code



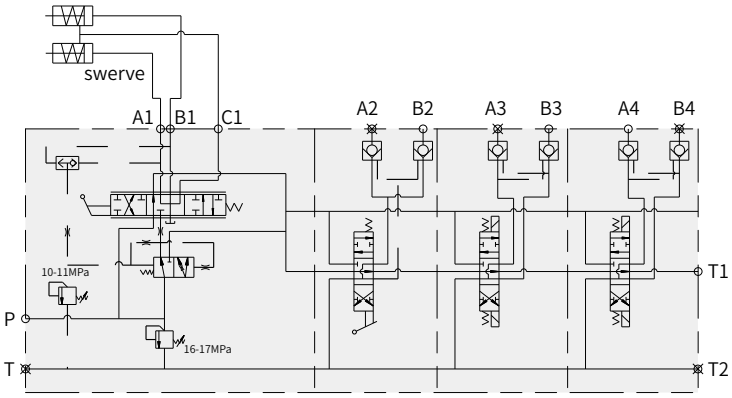



**Ordering details:** HVSH14A - 03 - P220 - [ EG150QM1 / JLLW41 / JLLW41 ] - N

| | | | |
|---|---|---|---|
| **Basic code** | ① Structure | HVSH | Sandwich plate design |
| | ② Nominal size | | 14A |
| | ③ Number of directional middle sections | | 01-07 |
| **Inlet element** | ④ Main reief valve | P*** | With main relief valve, setting pressure, 3- digits, bar |
| **Middle directional section** | ⑤ Spool function | Q | No main safety valve |
| | | E | E Type  |
| | | J | J Type  |
| | ⑥ Relief valve at A side | G*** | With relief valve, setting pressure, 3- digits, bar |
| | | Q | With plug |
| | | L | Hydraulic lock (A and B should be selected at the same time) |
| | ⑦ Relief valve at B side | G*** | With relief valve, setting pressure, 3- digits, bar |
| | | Q | With plug |
| | | L | Hydraulic lock (A and B should be selected at the same time) |
| | ⑧ Operation type | W41 | Electric switch control, 24V (Maximum flow: 30L/min) |
| | | W43 | Electric switch control, 12V (Maximum flow: 30L/min) |
| | | M0 | Manual contro (No handle, standard spring reset, maximum flow: 70L/min) |
| Endlet section | ⑨ carry-over function | N | Without carry over |
| * | Other request | Further requirement in the clear text | |

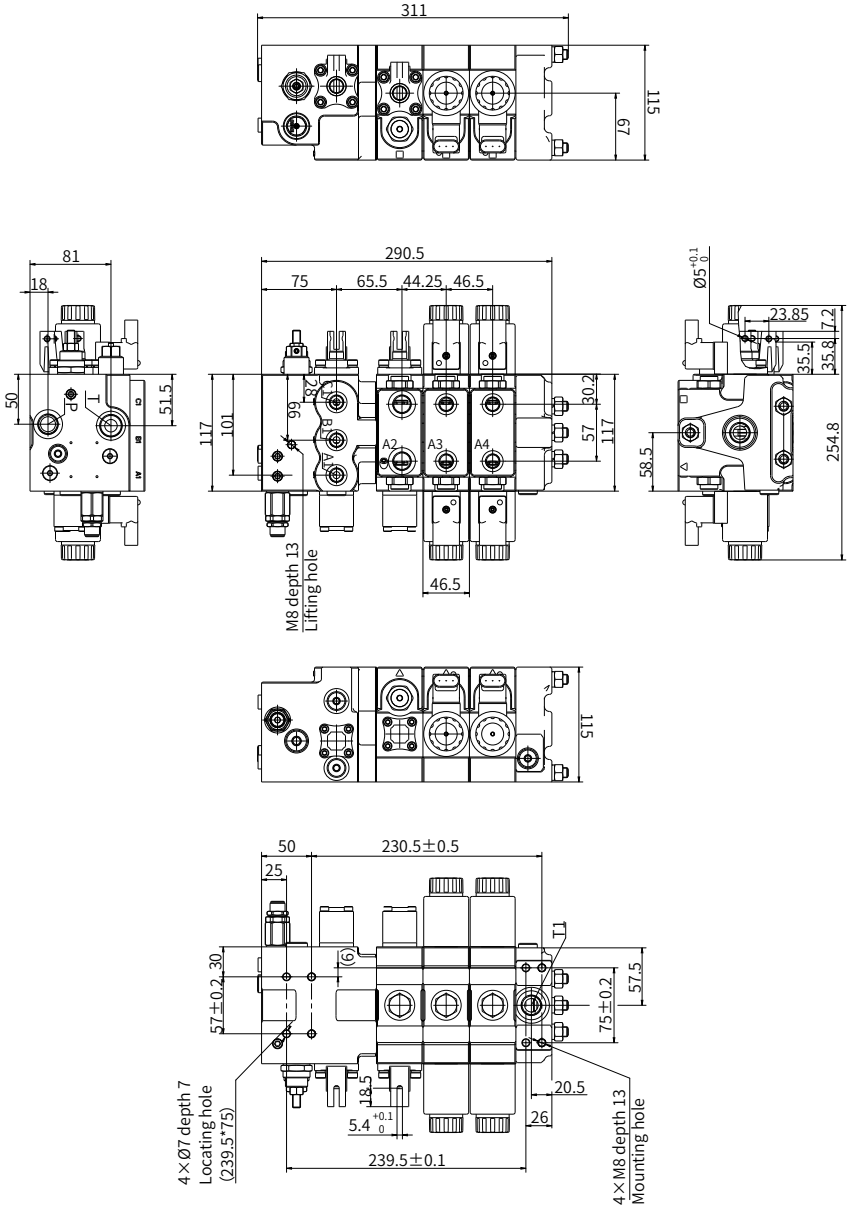
# Hydraulic diagram

## ·HVSH14A



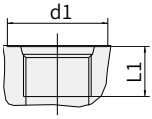
# Unit dimensions

## ·HVSH14A



# Port connection

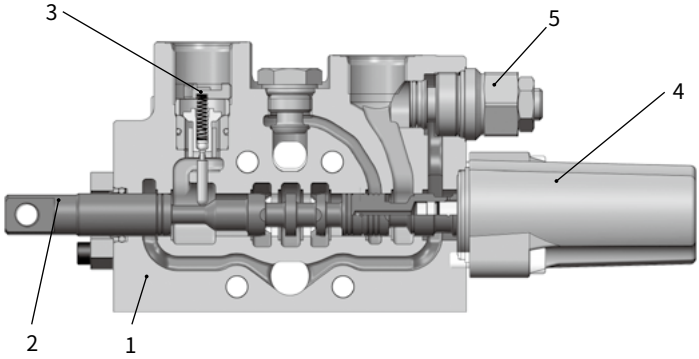
## ·HVSH14A



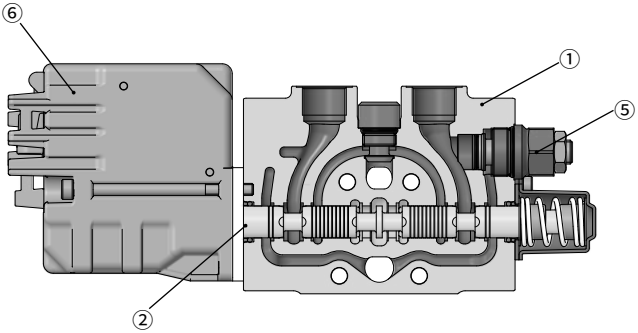

| | Port ISO 6149 | | Thread | d1 | L1 |
|---|---|---|---|---|---|
| **HVSH14A** | P | Inlet port | M20*1.5 | 29 | 14.5 |
| | T | Outlet port | M22*1.5 | 34 | 15.5 |
| | T1，T2 | | M20*1.5 | 29 | 14.5 |
| | A/B | Work port | M14*1.5 | 21 | 11.5 |
| | | | | 27 | 14.5 |

## Section view

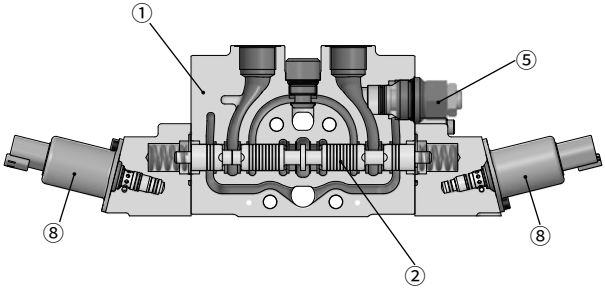
**· HVSH16D Mechanical elevator-L**




**· HVSH16D CAN bus motor control-E**



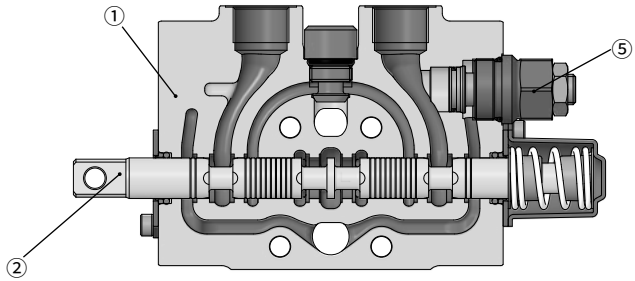

**· HVSH16D Electrohydraulic control -W**



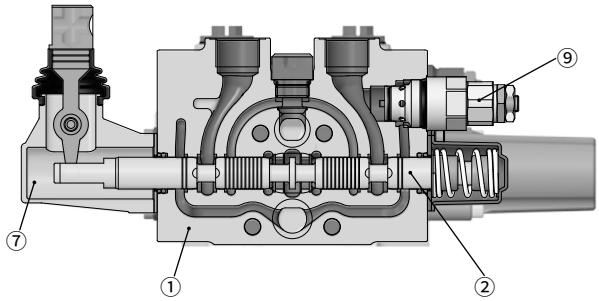

1 Valve block
2 Spool
3 Mechanical holding valve
4 Rise positioning + automatic reset
5 Single and double acting switching valve
6 Bus motor
7 Handle components
8 End cap components
9 Safety valve

## Section view

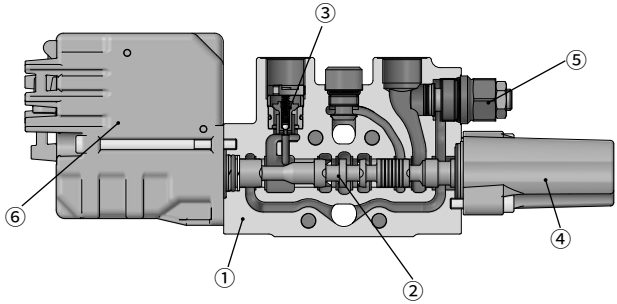
**·HVSH16D Mechanical elevator -M0**




**·HVSH16DMechanical elevator -M2**



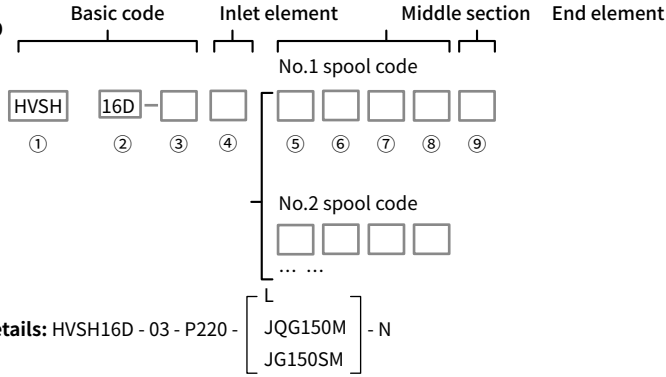

**·HVSH16D CAN bus motor lifting -C**




1 Valve block
2 Spool
3 Mechanical holding valve
4 Rise positioning + automatic reset
5 Single and double acting switching valve
6 Bus motor
7 Handle components
8 End cap components
9 Safety valve

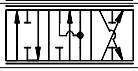
## Ordering code

**·HVSH16D**



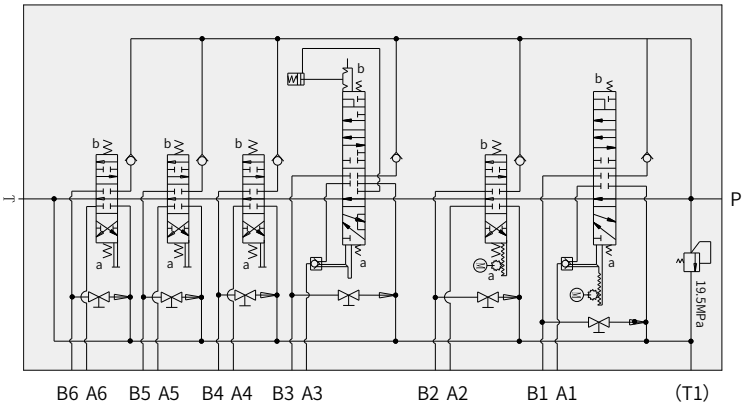

01

**Ordering details:** HVSH16D - 03 - P220 - [ L / JQG150M / JG150SM ] - N

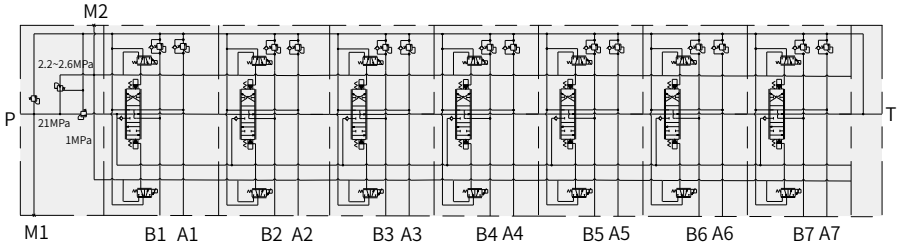
| | | | |
|---|---|---|---|
| Basic code | ① Structure | HVSH | Sandwich plate design |
| | ② Nominal size | | 16D |
| | ③ Number of directional middle sections | | 01-07 |
| Inlet element | ④ With mechanical holding valve and floating position | P*** | With main relief valve, setting pressure, 3- digits, bar |
| | | Q | Without main relief valve |
| Hoist | ⑤ Lifting function (Note: need to be next to the first link) | C | CAN bus motor lifting<br>Electrical connectors, Delphi Metri Pack 150.2 |
| | | L | Mechanical lifter<br>·Lift positioning + automatic reset function<br>·Floating positioning function. |
| Ordinary middle directional section | ⑥ Spool function | E | E Type  |
| | | J | J Type  |
| | ⑦ Relief valve at A side | G*** | With relief valve, setting pressure, 3- digits, bar |
| | | Q | With plug (mutually exclusive with C manipulation type) |
| | ⑧ Relief valve at B side | G*** | With relief valve, setting pressure, 3- digits, bar |
| | | Q | With plug (mutually exclusive with C manipulation type) |
| | | S | Single and double action switching |
| | ⑨ Operation type | E | CAN bus motor control |
| | | W21 | Electro hydraulic proportional control, 24V (not compatible with other control types) |
| | | W23 | Electro hydraulic proportional control, 12V (not compatible with other control types) |
| | | W41 | Electro hydraulic switch control, 24V (not compatible with other control types) |
| | | W43 | Electro hydraulic switch control, 12V (not compatible with other control types) |
| | | M0 | Manual control (No handle, standard spring reset) |
| | | M2 | Manual control (With handle, standard spring reset) |
| Endlet section | ⑩ carry-over function | N | No carry over |
| | | C | Carrying over (mutually exclusive with W manipulation type) |
| | | Z | Electro-hydraulic lift taillink |
| * | Other request | Further requirement in the clear text | |

# Hydraulic diagram

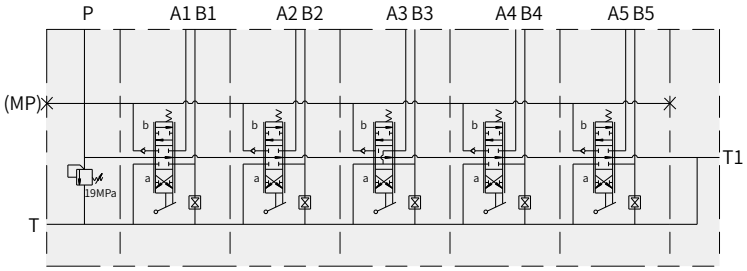
**·HVSH16D CAN bus motor control-E, Mechanical Control-M1, CAN Bus Motor Elevator-C, Mechanical Elevator-L**




**·HVSH16D Electrohydraulic control -W**

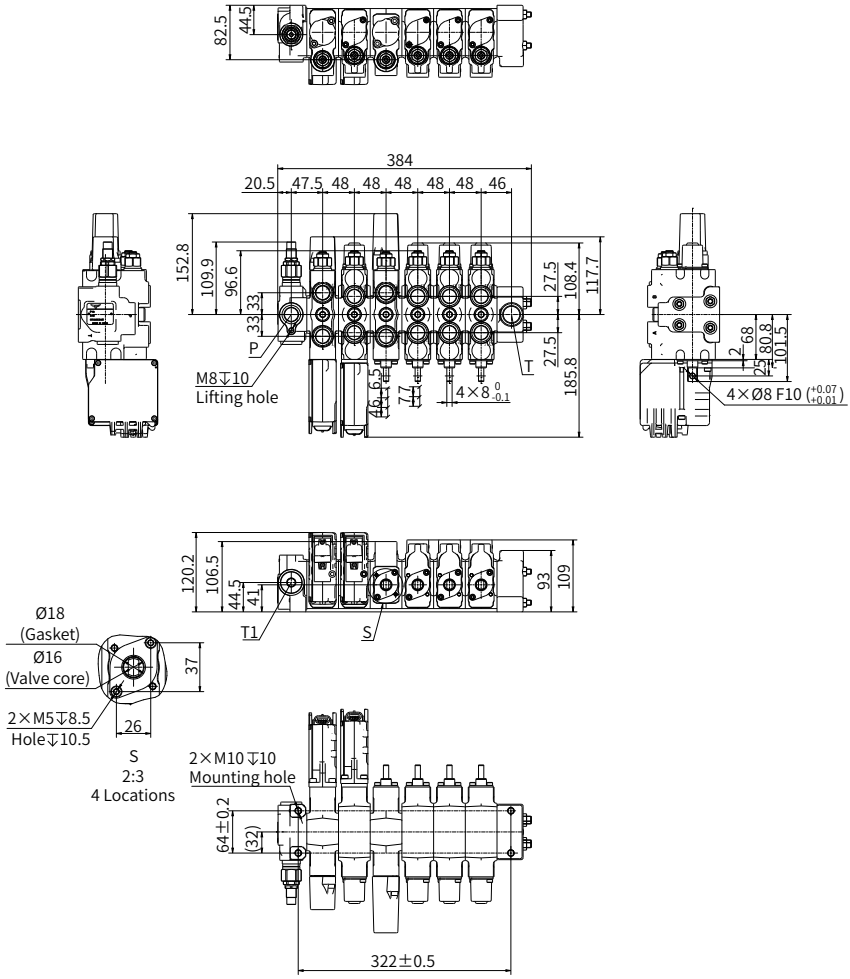



**·HVSH16DMechanical elevator -M2**



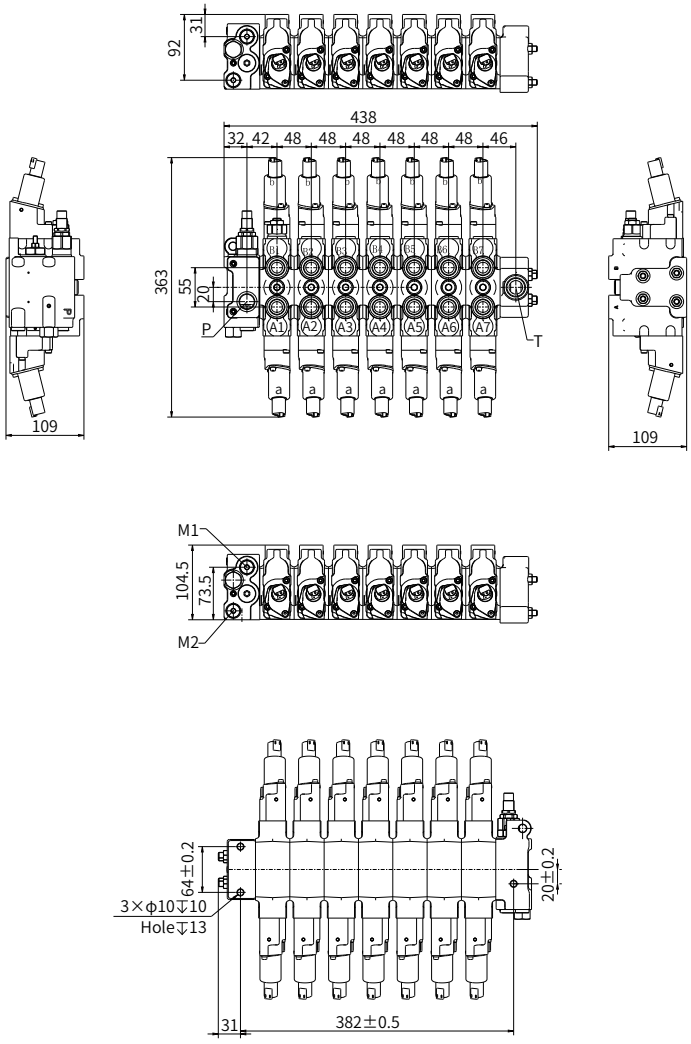
# Unit dimensions

## ·HVSH16D Bus Motor Control-E, Mechanical Control-M1, CAN Bus Motor Elevator-C, Mechanical Elevator-L



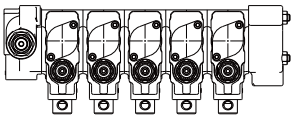
# Unit dimensions

## ·HVSH16D Electro hydraulic Control-W

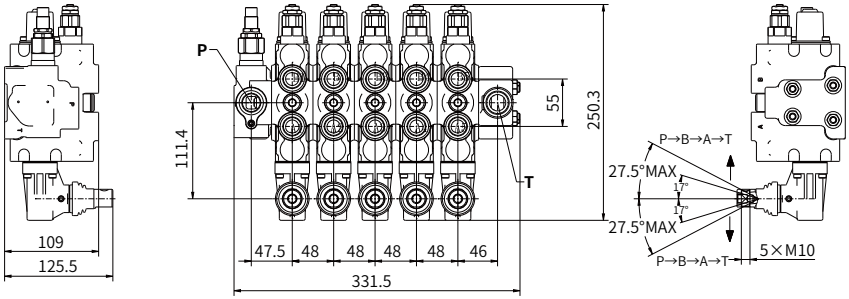


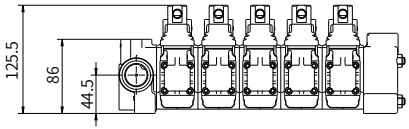
# Unit dimensions

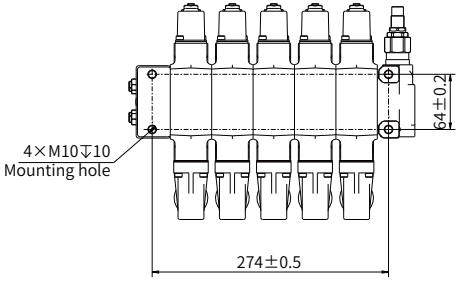
## ·HVSH16D Mechanical Control -M2





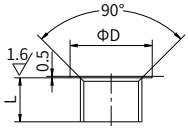


# Port connection

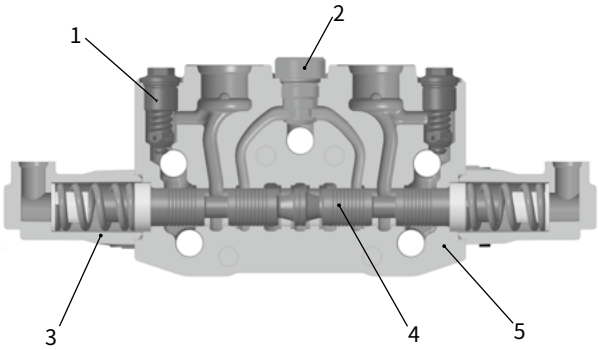
## ·HVSH16D



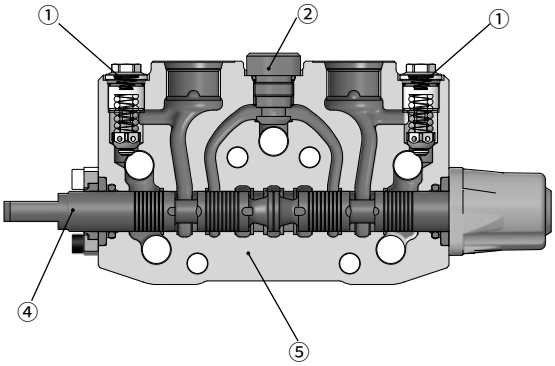

| | Port ISO 9974 | | Thread | ΦD | L |
|---|---|---|---|---|---|
| HVSH16D | P | Inlet port | M22*1.5 | 28 | 14 |
| | A / B | Work port | M22*1.5 | 28 | 14 |
| | T | Outlet port | M27*2 | 33 | 16 |

## Section view

### · HVSH20 Hydraulic operation -H



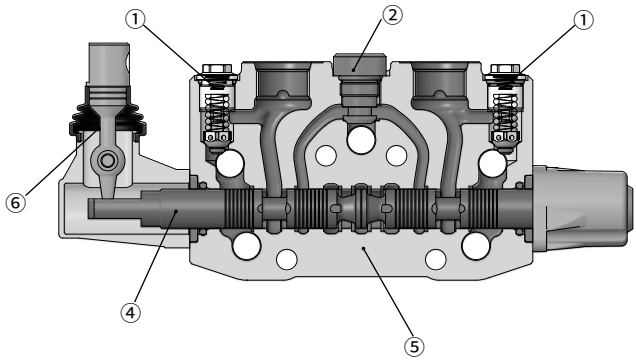

### · HVSH20 Mechanical control - M0



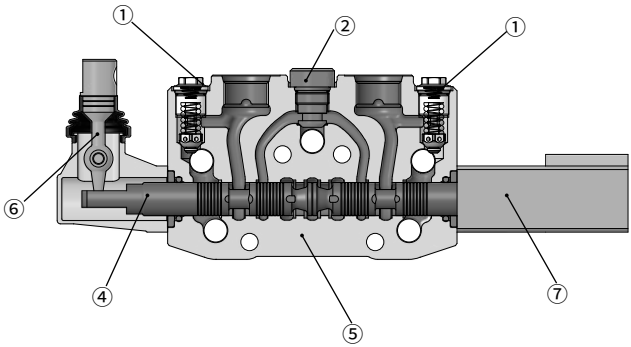

1 Relief valve
2 Check valve
3 Hydraulic control end cap component
4 Spool
5 Valve block
6 Handle components
7 Pneumatic control cylinders

## Section view

### ·HVSH20 Mechanical control - M2



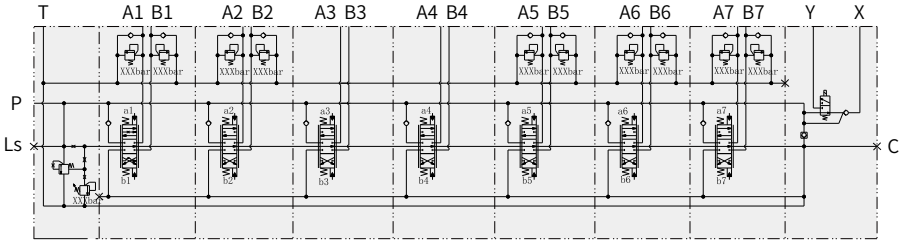

### ·HVSH20 Pressure control with handle emergency -PM



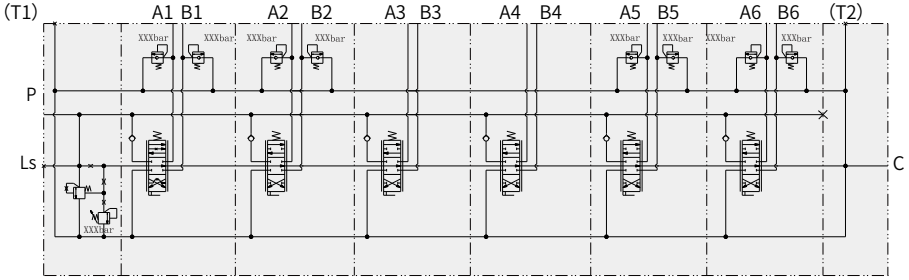

1 Relief valve
2 Check valve
3 Hydraulic control end cap component
4 Spool
5 Valve block
6 Handle components
7 Pneumatic control cylinders

# Hydraulic diagram

## · HVSH20 Hydraulic operation -H

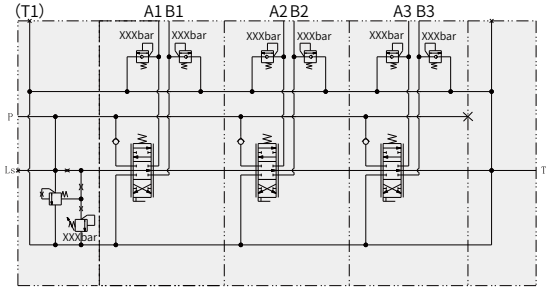



## · HVSH20 Mechanical control -M0

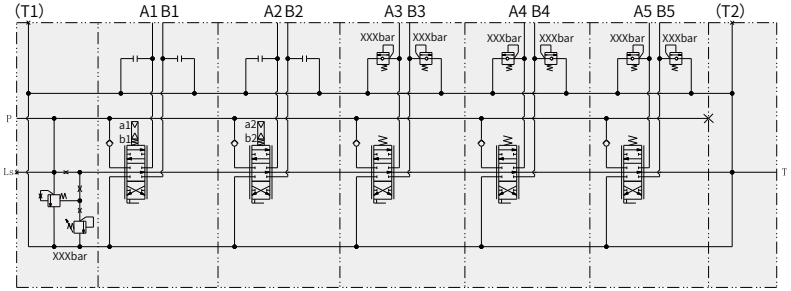


# 原理图

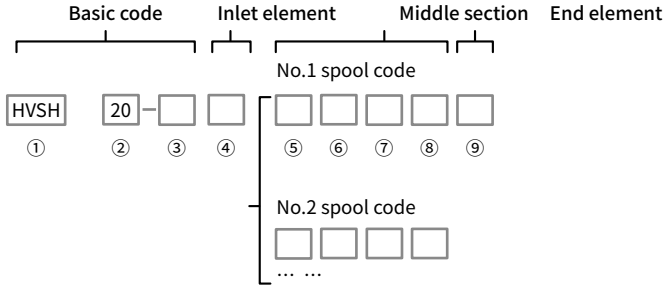
## ·HVSH20 Mechanical control -M2




## ·HVSH20 Pressure control with handle emergency -PM

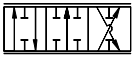
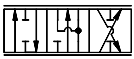


## Ordering code



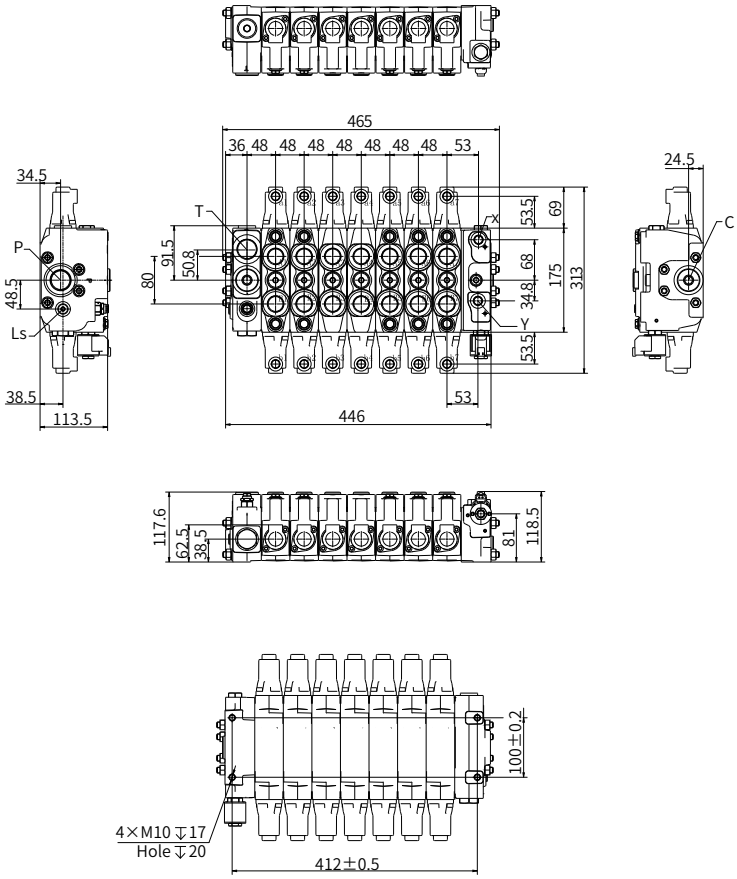



**Ordering details:** HVSH20 - 02 - P220 - [ EG150QH / JQG150M0 ] -K

| | | | |
|---|---|---|---|
| **Basic code** | ① Structure | HVSH | Sandwich plate design |
| | ② Nominal size | | 20 |
| | ③ Number of directional middle sections | | 01-07 |
| **Inlet element** | ④ Main reief valve | P*** | With main relief valve, setting pressure, 3- digits, bar |
| | | Q | Without main relief valve |
| **Middle directional section** | ⑤ Spool function | E | O Type  |
| | | J | Y Type  |
| | ⑥ Relief valve at A side | G*** | With relief valve, setting pressure, 3- digits, bar |
| | | Q | Without relief valve |
| | ⑦ Relief valve at B side | G*** | With relief valve, setting pressure, 3- digits, bar |
| | | Q | Without relief valve |
| | ⑧ Operation type | H | Hydraulic operation |
| | | M0 | Manual control (No handle, standard spring reset) |
| | | M2 | Manual control (With handle, standard spring reset) |
| | | PM | Emergency pressure control with handle |
| Endlet section | ⑨ External control solenoid valve | N | Without carry over |
| | | C | Carry over |
| | | K | Equipped with external control solenoid valve (without carry over) |
| * | Other request | Further requirement in the clear text | |

# Unit dimensions

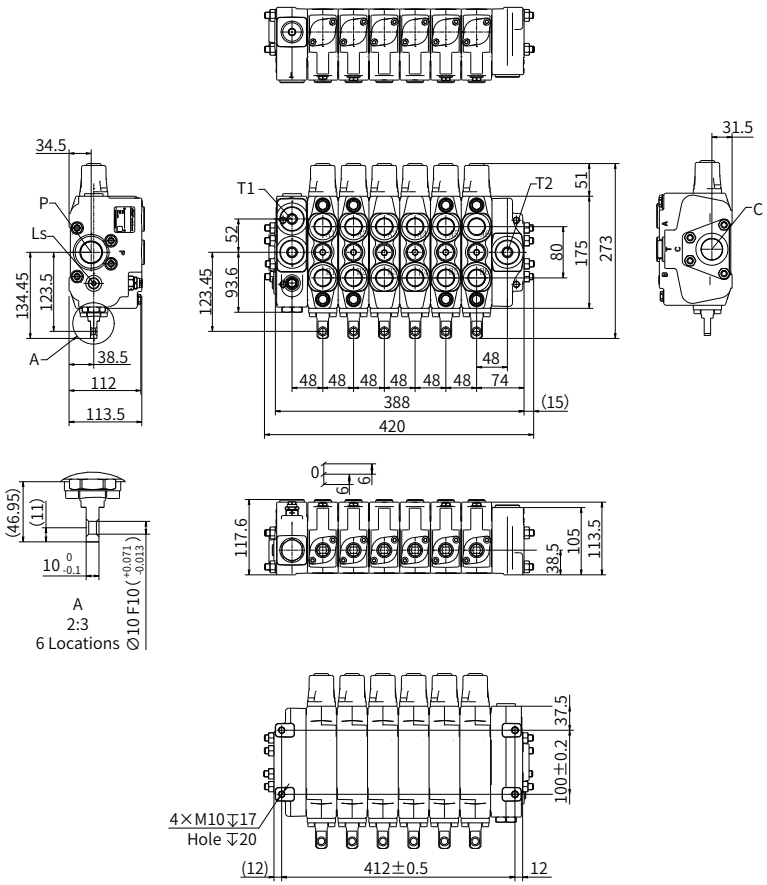
## ·HVSH20 Hydraulic operation H



01

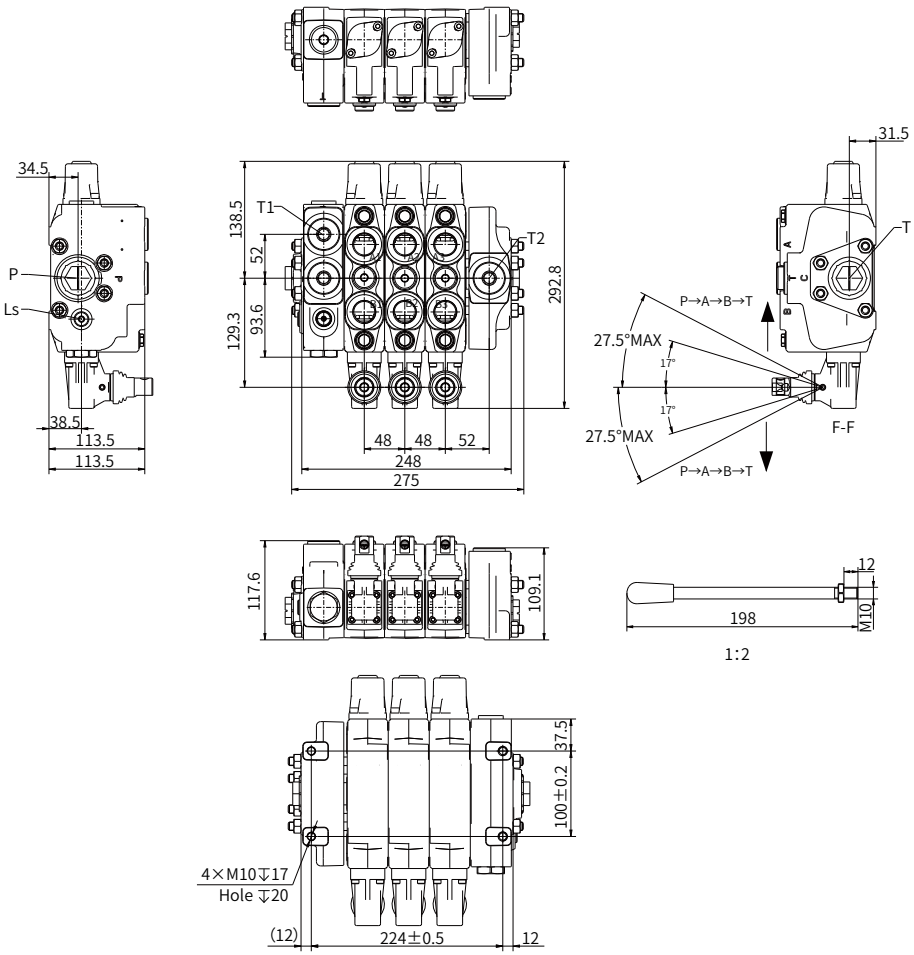
# Unit dimensions

## ·HVSH20 Mechanical control -M0



# Unit dimensions

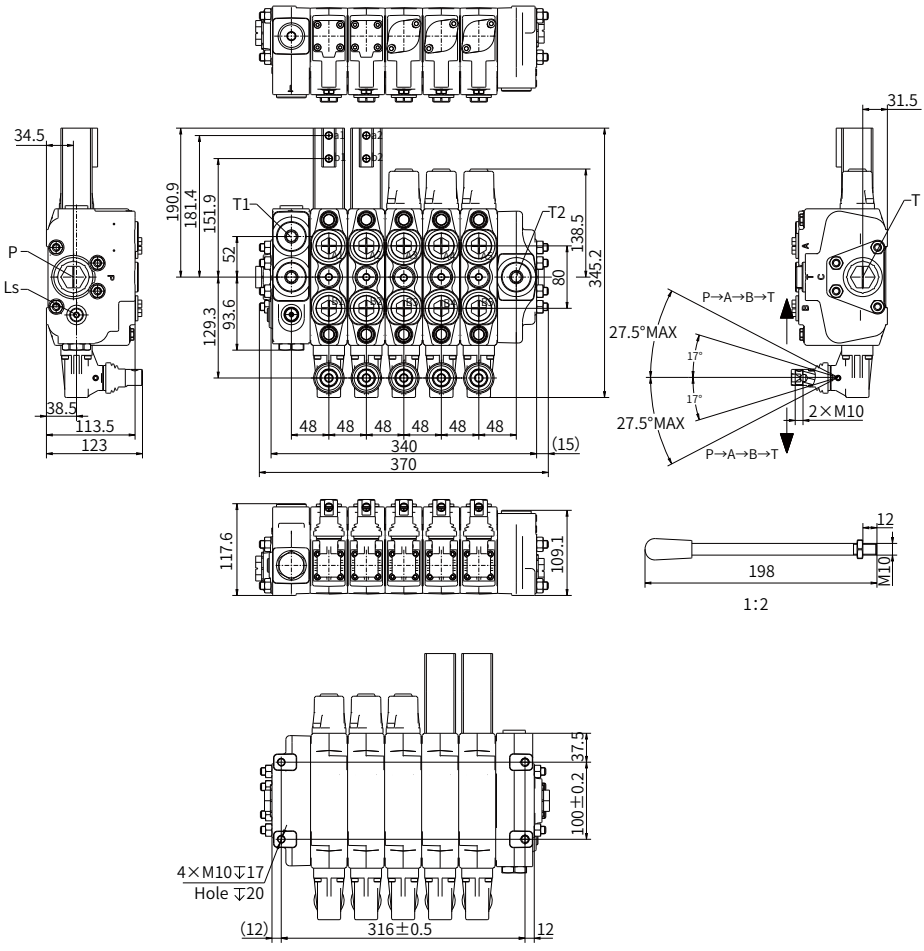
## ·HVSH20 Mechanical control -M2



01

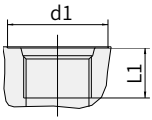
# Unit dimensions

## ·HVSH20 Emergency pressure control with handle -PM



# Port connection

## ·HVSH20




| | Port ISO 11926 | | Thread | d1 | L1 |
|---|---|---|---|---|---|
| HVSH20 | P/T/C | Inlet port | 1-5/16-12UN | 49 | 19 |
| | A/B | Work port | 1-1/16-12UN | 41 | 19 |
| | Pa/Pb | Pilot port | 9/16-18UNF | 25 | 12.7 |
| | a/b | Pneumatic pilot port | 1/8"NPT | - | - |
| | X/Y/LS | Other orifice | 9/16-18UNF | 25 | 12.7 |