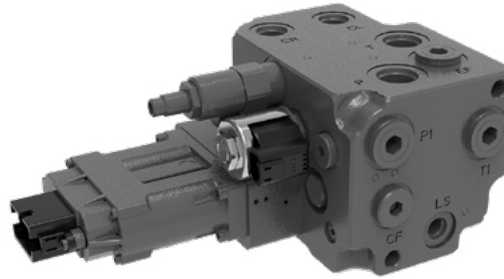
5.1

HSQD

ELECTRO HYDRAULIC UNMANNED STEERING VALVE

Maximum flow (L/min)	80
Maximum pressure (bar)	280



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Features

1. Advantage

High integration and compact structure; High control accuracy and precise flow control; High security and high level of intelligence; Modular design, multiple control modes to choose from; Provided a flexible and reliable chassis steering solution for autonomous driving and automated machinery, while balancing operational comfort and energy-saving requirements.

2. Applications

Wide body vehicle

Tractor

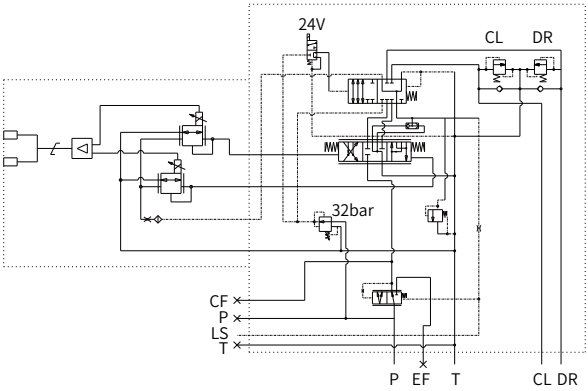
Heavy forklift

Technical data

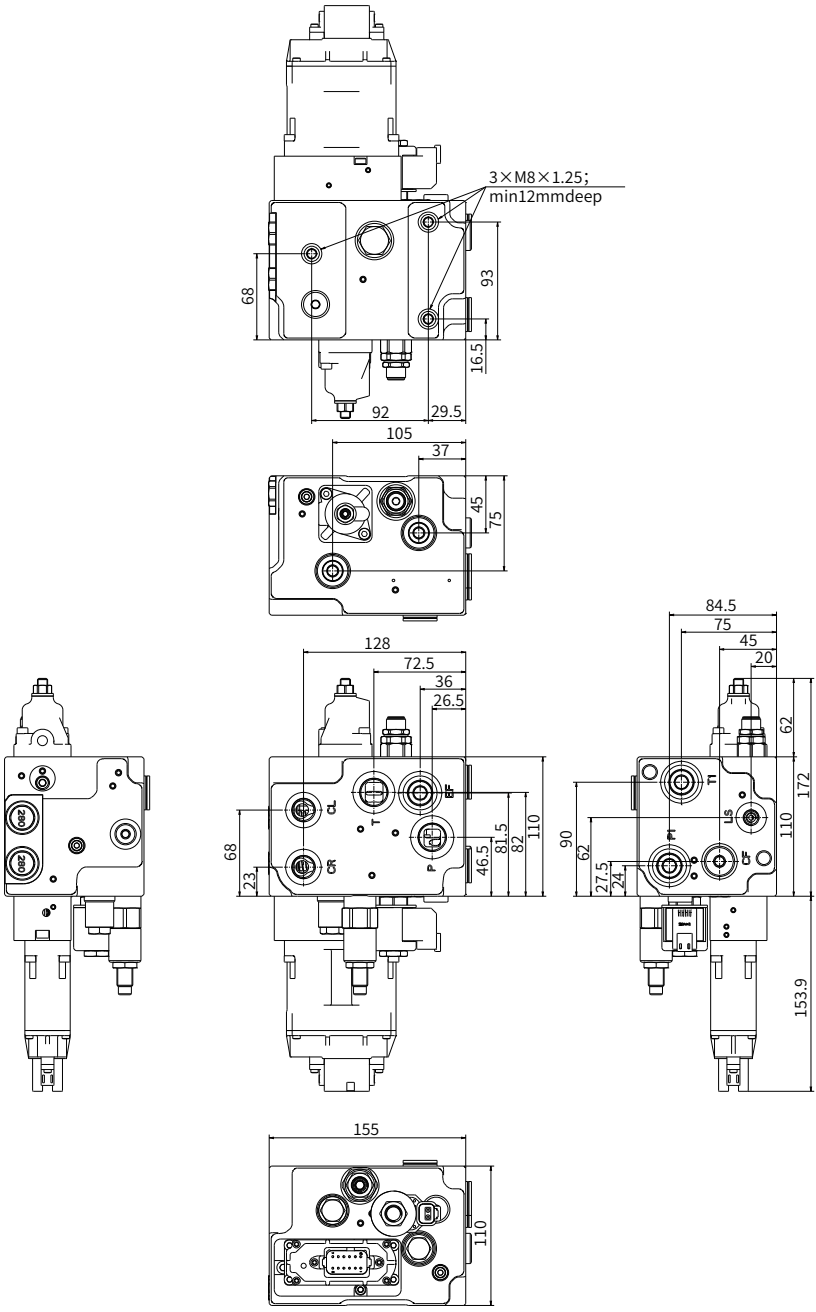
General

Turning flow（L/min)	⩽ 80
Maximum steering pressure （bar)	280
Weight（kg)	15
Control mode	Electric ratio/CAN bus

Hydraulic diagram



Unit dimensions



Unit dimensions

Port dimensions

Port	Port name	Standard	Port specification
P, P1	Inlet port	ISO 6149-1	M22×1.5
CF	Steering priority port	ISO 6149-1	M18×1.5
P1, T1	Return port	ISO 6149-1	M22×1.5
CL, CR	outlet port	ISO 6149-1	M18×1.5
LS	LS port	ISO 6149-1	M12×1.5

On-board electronics: OBE

The internal closed loop positon control configuration of the OBE control cover makes the valve spool achieve the desired postion with accuracy levels approaching the performance of a servo- valve, by continuously comparing the set-point of a remote control device (poteniometer, joystick , machine management system) with the feedback signal generated by a high precision hall effect position transducer.

Choice between different types of control:

1 - Analog control (0 – 5V), with following auxiliary signals available:
- spool postion feedback
- 5V for external potentiometer or joystick

2 - CANbus control (J1939 or CANopen protocols)

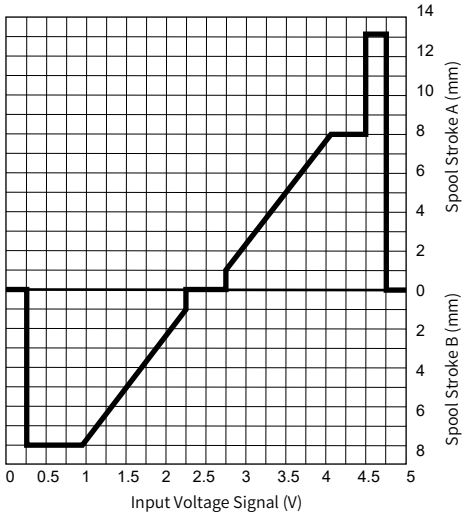
SPOOL STROKE A

When the input voltage signal fed to the MLT-FD5 actuator is maintained within 2.25 and 2.75V, the directional valve spool is at rest (Neutral Dead Band). When Vin = 2.75V, the spool steps up from NEUTRAL to MINIMUM FLOW control position. A linear ramp from MIN. to MAX. spool stroke will follow by increasing Vin from 2.75 to 4.1V. At Vin = 4.50V, the spool is brought into its FLOAT POSITION, if present. By decreasing the input voltage from 4.1 to 2.75V, the spool stroke is linearly reduced and after the oil flow is fully shut-off, a step-down from MINIMUM FLOW to NEUTRAL position takes place.

SPOOL STROKE B

Same as for STROKE A, by varying Vin from 2.25 to 0.9V, the spool will go from NEUTRAL to MAX. STROKE in the opposite direction.

Spool Stroke (mm) VS Input Voltage Signal (Volt DC)



ALARM / FAIL - SAFE MODE

An input voltage variation beyond the calibration range (<0.25V or >4.75V) will bring the system into an ALARM mode, urging the spool to return to its NEUTRAL position until Vin is brought back to its nominal control range.

On-board electronics: OBE

Technical data

Hydraulic specifications:

Max. supply pressure: 35 bar

Min. supply pressure: 12bar

Max. back pressure: 1.5bar

Pilot flow requirement: 0.2 L/min

Filtration: 18/15(ISO 4406)

Electrical specifications:

Operating valtage: 10-30VDC

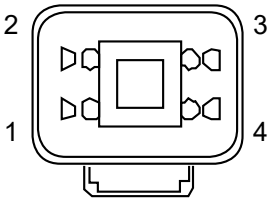
Max,. current consumption: 750mA

Analog input impedance: >40kOhm

Analog input signal: 0-5 V

Protection class: IP67

Connector pinout (Front view)



D/A0

1. + Power Supply
2. Do not Connect
3. Control Signal
4. - Power Supply (GND)

D/A5

1. + Power Supply
2. + 5V Aux. Supply voltage
3. Control Signal
4. - Power Supply (GND)

D/AF

1. + Power Supply
2. Sensor Feedback Output
3. Control Signal
4. - Power Supply (GND)

D/C0

1. + Power Supply
2. CANL
3. CANH
4. - Power Supply (GND)