



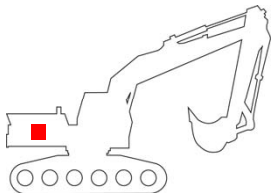
1 General

In many hydraulic applications, high return pressures cause unnecessary energy loss or even loss of power. An additional direct relief in the tank using 3/3 directional control valves, these losses can be minimized to a great extent.

1.1 Applications

3/3 directional control valves are used, e.g. on hydraulic excavator to connect the return lines of hydraulic tools to the tank bypassing the main control valve. In applications such as shear operations, this is often required to achieve proper functionality of the equipment. A noticeable increase in power is also achieved.

2 Mounting Location (Recommendation)



The 3/3 directional control valve should be installed close to the hydraulic tools between the return line and an additional tank line.

It can also be assembled as bypass near to the main control valve.

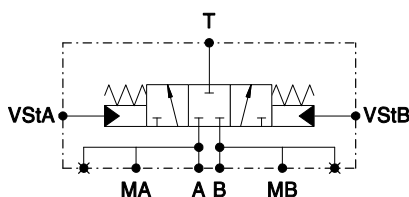
3 Function

The 3/3 directional control valve is hydraulically pilot controlled and opens connection A or connection B to the tank respectively. In neutral position, connections A and B are closed.

4 Characteristics

- Simple design
- Hydraulically pilot controlled
- Low pressure loss

5 Hydraulic Diagram



Connections:

A Inlet
B Inlet
T Outlet

6 Technical Data

6.1 General

Installation position:	Any
Weight:	
137.901.001.9	6 kg
138.901.001.9	8 kg
139.904.001.9	14,8 kg
Maximum input pressure:	420 bar
Recommended pilot control pressure (valve fully operated):	>10 bar, <50 bar
Connections and designations:	

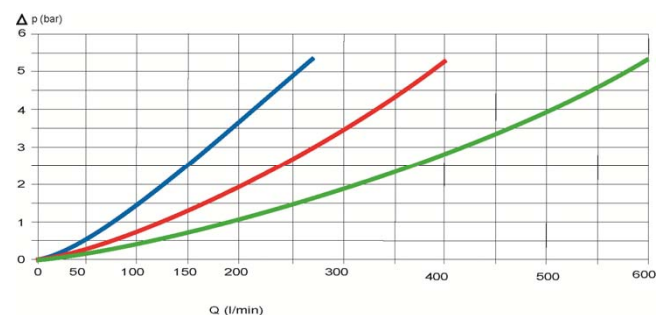
137.901.001.9	A,B,T= G1" ISO1179-1 VStA, VStB, MA, MB = G1/4 ISO 1179-1
138.901.001.9	A,B,T= G1 1/4" ISO1179-1 VStA, VStB, MA, MB = G1/4 ISO 1179-1
139.904.001.9	A,B,T= SAE 1 1/2" ISO1179-1 VStA, VStB, MA, MB = G1/4 ISO 1179-1

6.2 Hydraulics

Input volume flow:	
137.901.001.9	250 l/min
138.901.001.9	400 l/min
139.904.001.9	550 l/min
Hydraulic fluid:	Mineral oil (HL, HLP) conforming with DIN 51524, other fluids upon request

Hydraulic fluid temperature range:	-20 – +80 °C
Environmental temperature:	< +50 °C
Viscosity range:	2.8 – 500 mm ² /s
Contamination grade:	Filtering conforming with NAS 1638, class 9, with minimum retention rate $\beta_{10} > 75$

6.3 Pressure Loss



A → T

6.4 Standards

The following standards are to be observed because of the surface temperatures on the valve surfaces:

- EN 563
Temperatures on surfaces that can be touched.
- EN 982
Safety-technical requirements for fluid-technical systems and their components.

D33-NA 3/3 Directional Control Valve

13X.90X.001.9



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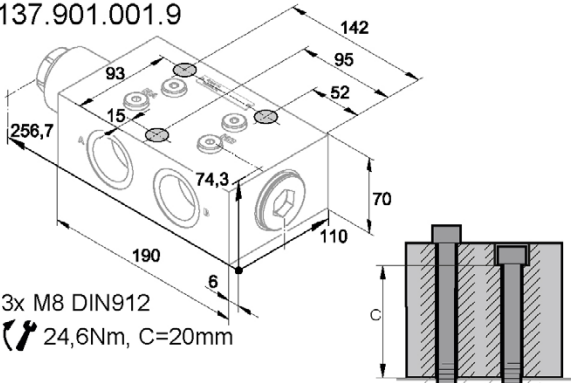
7 Installation

General Information

- Observe all installation and safety information of the construction machine manufacturer.
- Only technically permitted changes are to be made on the construction machine.
- The user has to ensure that the device is suitable for the respective application.
- Application exclusively for the range of application specified by the manufacturer.
- Before installation or deinstallation, the hydraulic system is to be depressurized.
- Settings are to be made by qualified personnel only.
- Opening is only to be performed with the approval of the manufacturer, otherwise the warranty is invalid.
- No responsibility is taken for the correctness of these installation recommendations, the functionality and the technical details of the construction machine must be checked.

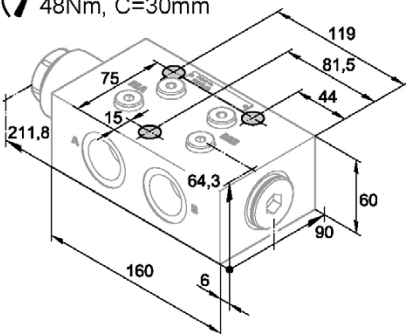
7.1 Installation

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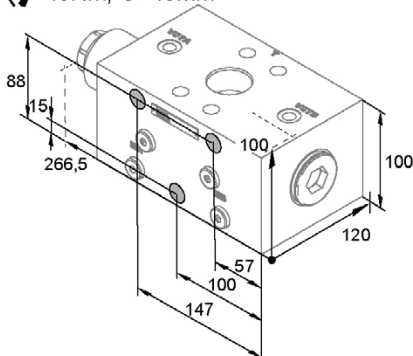


3x M8 DIN912
24,6Nm, C=20mm

138.901.001.9 3x M10 DIN912
48Nm, C=30mm

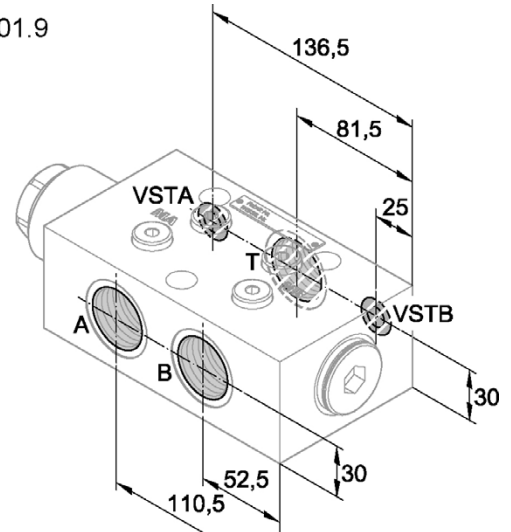


139.904.001.9 3x M10 DIN912
48Nm, C=40mm

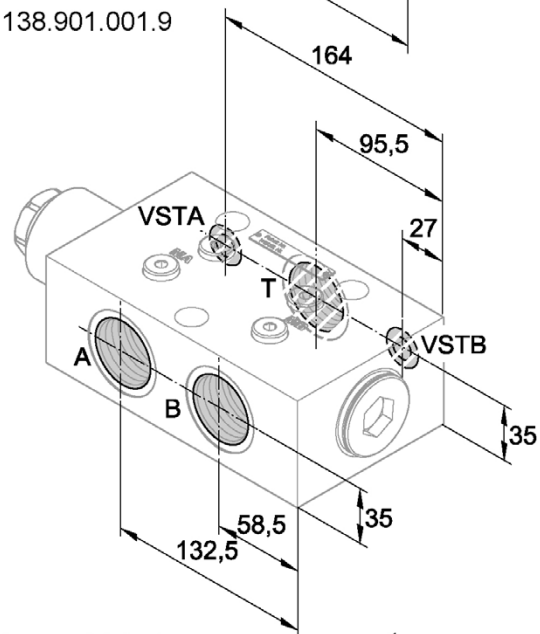


7.2 Connection Dimension

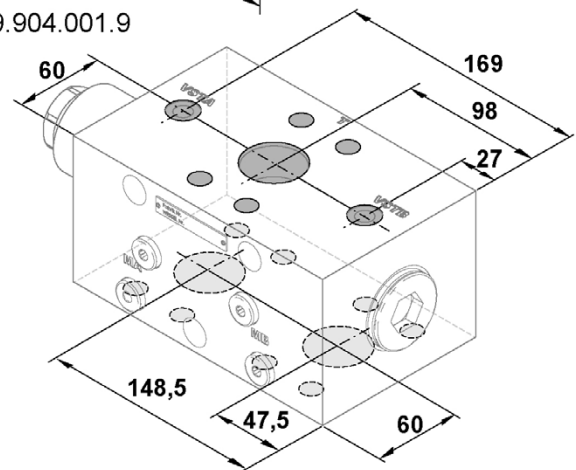
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139.904.001.9





7.3 Connection Recommendations



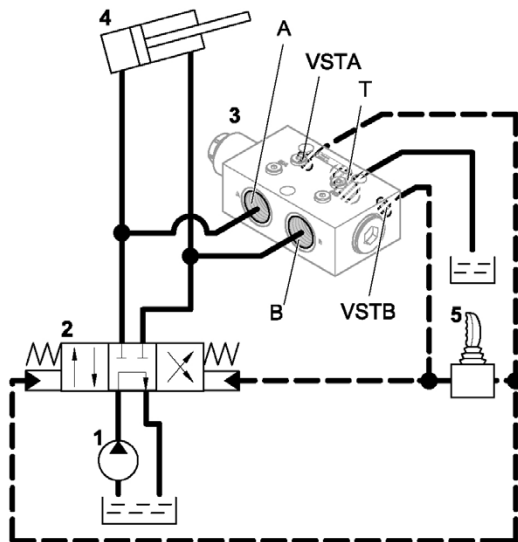
CAREFUL

Hydraulic hoses are not to come into contact with the directional control valve because otherwise they are subject to thermal damage.

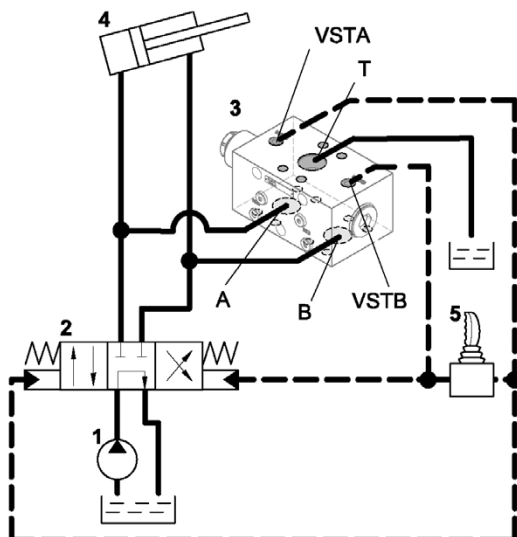
Ensure that standards EN 563 and EN 982 are observed.

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138.901.001.9



139.904.001.9



- 1 Pump
- 2 Main control
- 3 Return line relief valve
- 4 New function
- 5 Pilot control unit

Tightening torque		
137.901.001.9		
MA,MB	G1/4 ISO1179-1	55 Nm
A, B, T	G1 ISO1179-1	310 Nm
VSTA, VSTB	G1/4 ISO1179-1	55 Nm
138.901.001.9		
MA,MB	G1/4 ISO1179-1	55 Nm
A, B, T	G1 ¼ ISO1179-1	450 Nm
VSTA, VSTB	G1/4 ISO1179-1	55 Nm
139.904.001.9		
MA,MB	G1/4 ISO1179-1	55 Nm
A, B, T	SAE 1 ½ ISO6162	210 Nm Strength class 8,8
VSTA, VSTB	G1/4 ISO1179-1	55 Nm



Attention: Tightening torques must be observed.
Torque wrench needed.