

Mobile Technology Hoist Stabilisation Unit HSE2-16...

1. DESCRIPTION

1.1. APPLICATIONS

In mobile hydraulics, such as:

- Wheel loaders
- Material handling machines

1.2. GENERAL

The HSE2-16 is a hoist suspension unit for use in wheel loaders or similar vehicles.

The hoist stabilisation unit HSE 2-16 reduces vehicle pitching.

The load bearing line is linked to one or several hydraulic accumulators via a control valve. The accumulator(s) act as a hydro-pneumatic spring and as such decouple the source of the oscillation from the rest of the vehicle, and therefore from the driver.

The accumulator should be sized in consultation with Hydac in order to achieve the optimum overall system.

1.2. ADVANTAGES

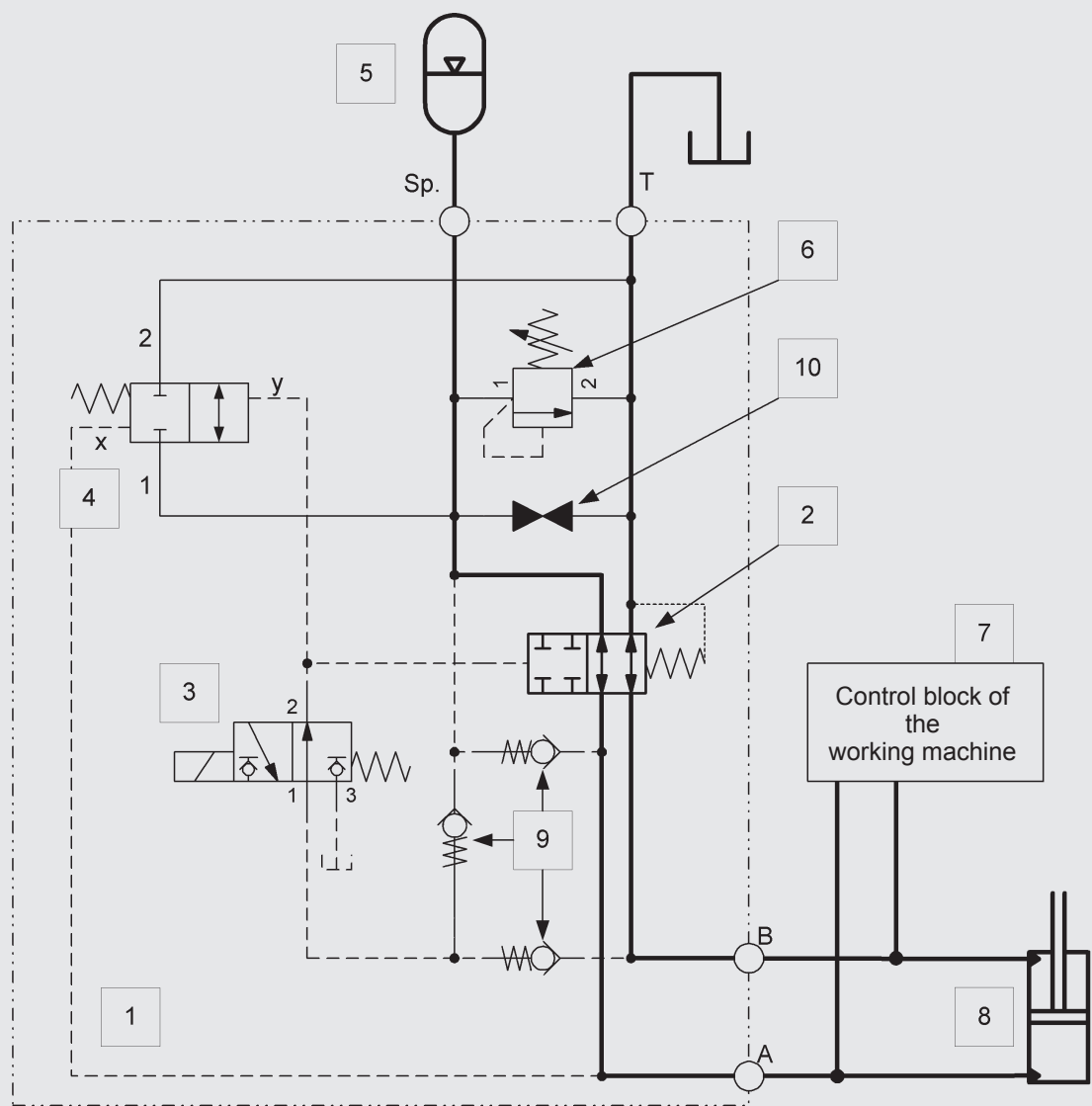
- Higher transport and driving speeds
- Greater handling capacity
- More stable steering behaviour
- Shorter braking distances
- Greater comfort
- Lower mechanical stresses
- Lower downtimes
- Compliance with Health & Safety at Work directives
- Accumulator pressure always at load level
- No movement of the hoist when the suspension is connected



2. TECHNICAL SPECIFICATIONS

2.1. GENERAL		
Installation position		Arbitrary
Ambient temperature		-20 °C to +60 °C
Weight		approx. 22 kg
2.2 HYDRAULIC SPECIFICATIONS		
Operating pressure	Port A, B	max. 400 bar
	Port Sp	max. 400 bar
	Port T	max. 30 bar abs. (min. 20 bar delta p required)
Flow rate, all ports		300 at 5 bar (see curve at Point 4)
Operating fluid		Mineral oil (HL, HLP) to DIN 51524; other fluids on request
Temperature range of operating fluid		-20 °C to +80 °C
Viscosity range		10 to 380 mm²/s
Contamination class (max. permitted)		ISO 4406 (c) class 20/18/15
2.3 ELECTRICAL SPECIFICATIONS		
Control voltage (DC)		12 V or 24 V
Power consumption (solenoid)		18 W

CIRCUIT DIAGRAM



2.4. FUNCTION

2.4.1 Design

The HSE consists basically of a housing block (1), containing:

Valve piston (2)

3/2 Directional valve (3), solenoid-operated

Pressure equalization valve (4)

Pressure relief valve (6)

Check valves (9)

Emergency pressure release valve (10)

2.4.2 Function

The check valves (9) ensure that the highest pressure at any one time is available to the control circuit.

With valve (3) in the deenergised position, the valve piston (2) is held in the closed position by the control pressure which breaks the connection from the hoist unit to the accumulator and to the tank.

In this condition, the pressure equalization valve (4) is also unloaded. This valve equalizes the pressure in the working line on the piston side and the pressure of the accumulator. If the accumulator pressure exceeds the working line pressure, the excess accumulator pressure is relieved to tank.

This prevents unintentional hoisting movements when the suspension is connected.

If valve (3) is activated then the valve piston (2) is unloaded and it is opened by the spring.

Now the piston side of the hoist unit cylinder is connected to the accumulator and the rod side of the hoist unit cylinder is connected to the tank.

The pressure relief valve (6) protects the accumulator (5) from excessively high pressures. The pressure setting of this valve must be lower than the permitted working pressure of the accumulator subject to the permitted load ratio for the type of accumulator used (see 2.4.3).

2.4.3 Installation

The total accumulator volume is based on the geometric parameters of the hoist cylinder, its connection and the required characteristics of the suspension. Hydac specialists will advise on sizing having regard to well-established Hydac accumulators (diaphragm or piston accumulators).

2.4.4 Switching off the machine for maintenance



Important:

The safety requirements of the vehicle must be observed.

The hoist unit must be secured to prevent it from falling down before maintenance work begins.

The emergency drain plug (10) allows the connected accumulators to be relieved on the oil side.

2.4.5 Legal requirements and safety advice

Hydraulic accumulators are required for the HSE.

If there is the risk in certain machine operating situations that the permitted max. pressure of the connected accumulators may be exceeded, then a pressure relief valve must be installed without fail. This device can be a requirement of legal and official regulations.

The HSE is fitted with a pressure relief valve and in the event of damage, this must only be replaced with an identical valve!

With regard to the vehicle, national and international regulations may apply!

Overall responsibility lies with the vehicle manufacturer!



Important:

Under no circumstances must any welding be carried out on or in the vicinity of the block.

The same applies to all valves and accumulators.

3. MODEL CODE

(also order example)

HSE2 - 16 A - 330 - 24 - DT - N 01 - A - 0

HSE Generation

Nominal size
16 = NG16

Type
accumulator is charged from
working circuit (standard)

Accumulator pressure relief
Example 1: 090 = 90 bar
Example 2: 330 = 330 bar

Supply voltage
12 = 12 V DC
24 = 24 V DC

Electrical connection
DG = to EN 175301
DT = Junior Timer; 2 pole; radial
DU = Junior Timer; 2 pole; axial
DN = Deutsch connector

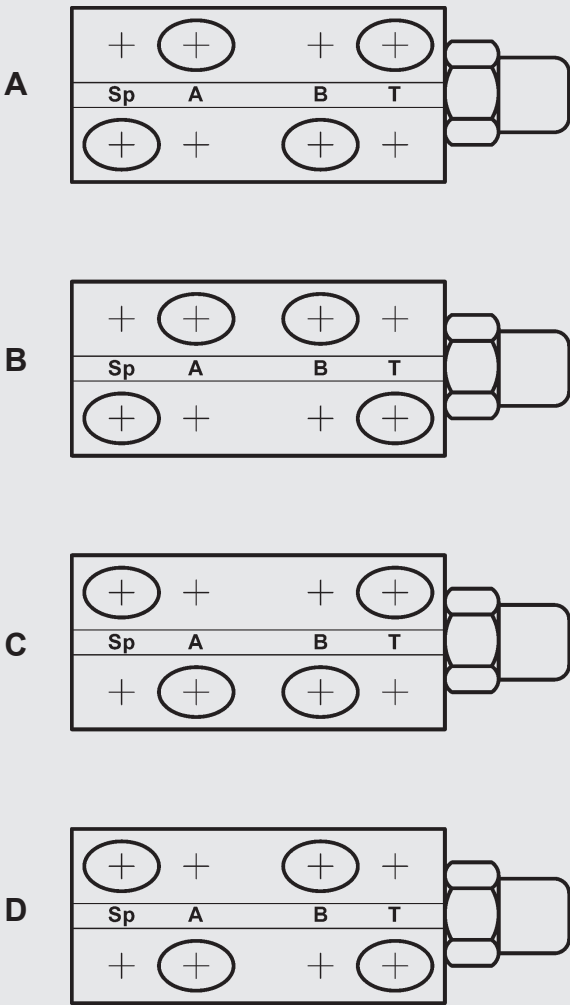
Seal material
N = NBR
0 = Further details to be given in full

Line connection
01 = G1" pipe thread to ISO 1179-1 (standard model)
02 = SAE 3/4" – 6000 psi to ISO 6162-1/-2
(only line options A and D)
03 = UNF 1 5/16"-12 to ISO 11926

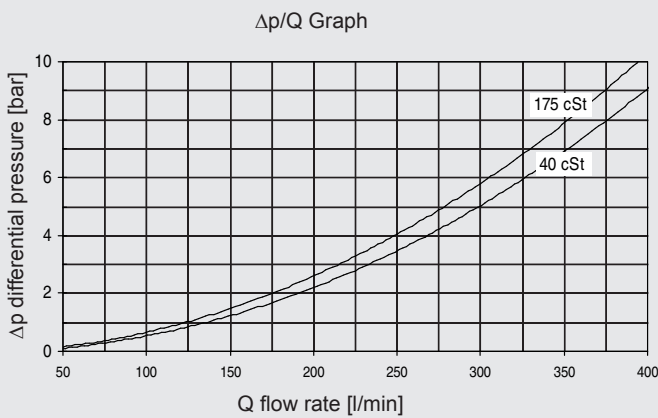
Line connection options (see also Point 3.1)
A
B
C
D

Supplementary details to be given in full
0 = no supplementary details

3.1 LINE CONNECTION OPTIONS

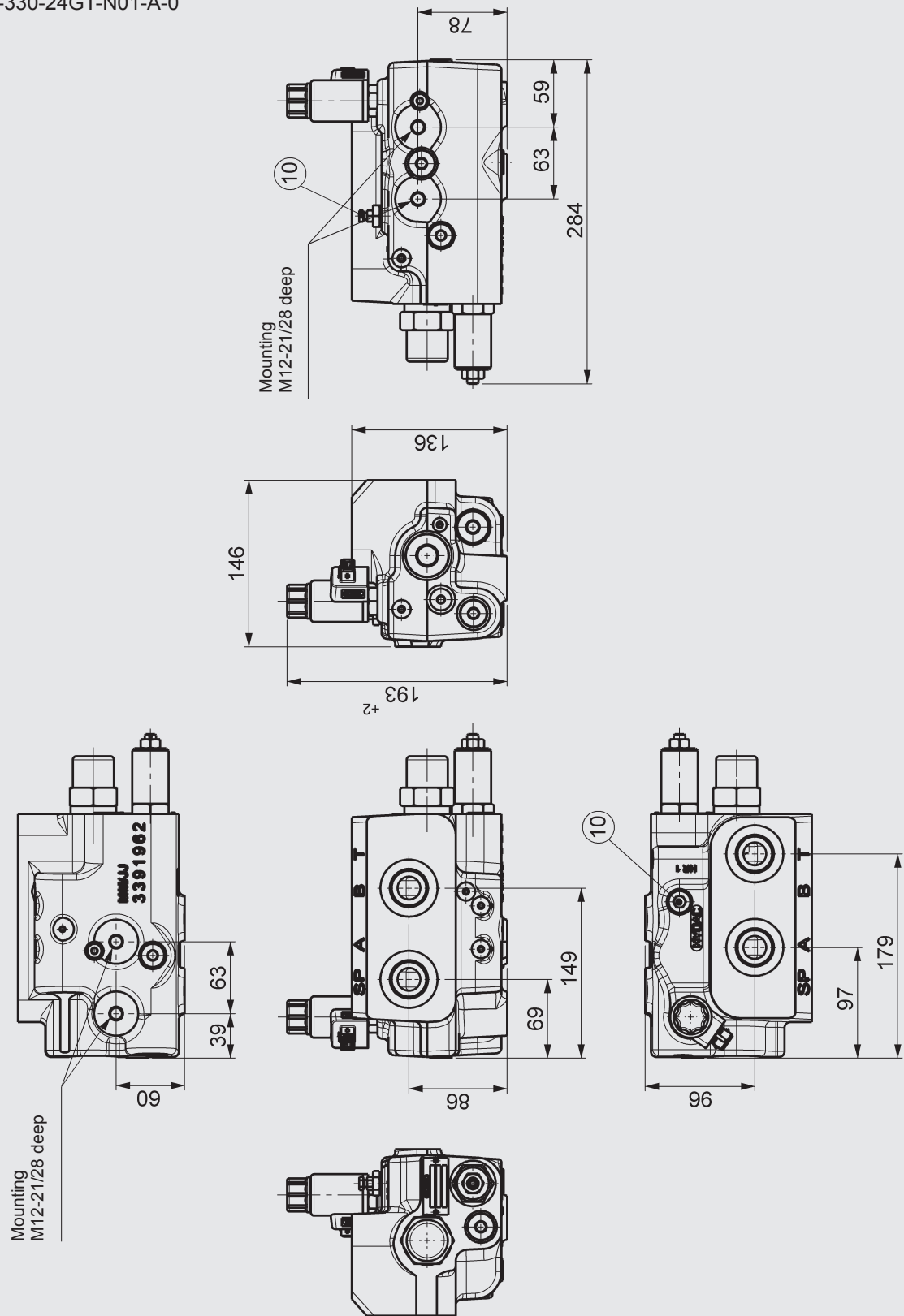


4. GRAPHS



5. DIMENSIONS

Model shown (according to model code):
HSE2-16A-330-24GT-N01-A-0



6. NOTE

The information in this brochure relates to the operating conditions and applications described. For applications or operating conditions not described, please contact the relevant technical department. Subject to technical modifications.