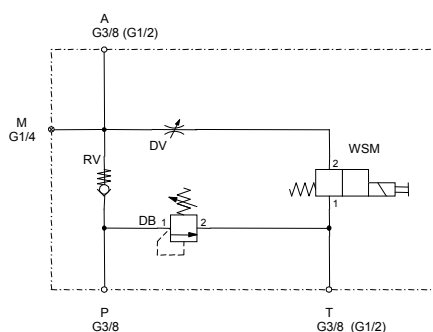




## Lift-lowering manifold HSB-Z-030 and -040 with load-dependent speed control for lift-lowering applications

### SYMBOL



**Q<sub>max</sub> = 40 l/min**  
**P<sub>max</sub> = 350 bar**

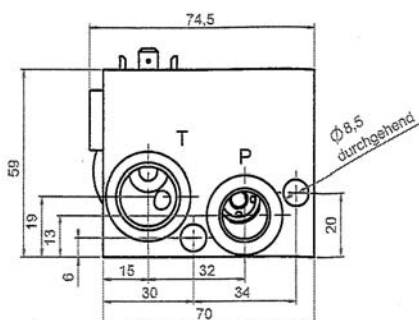
The operating pressure and the flow rate are dependent on the built-in solenoid poppet valve:

Symbol Y, Z = 40 l/min / 350 bar

Symbol V = 20 l/min / 350 bar

Symbol W = 19 l/min / 250 bar

### INTERFACE



### FEATURES

- Application: for simple, load dependent lift-lowering controls e.g. scissor lifts, small forklifts and walky stackers
- Load dependent lowering of the lifted load via 2/2 solenoid poppet valve, combined with adjustable needle valve
- HSB manifolds for the lift-lowering hydraulics are tailored to the complex and varied demands of the lifting technology sector
- Permitted load is safeguarded by a built-in pressure relief valve
- Built-in check valve prevents uncontrolled lowering
- Flange-mounting onto a subplate is possible
- The 2/2 solenoid poppet valve includes an emergency lowering cable-pull type manual override (self-resetting), (optional with plastic knob Part-No. 6019472 for manual operation)

### SPECIFICATIONS

Operating pressure:	max. 350 bar
Nominal Flow:	max. 40 l/min
Fluids:	Hydraulic oil to DIN 51524 Part 1 and 2
Media operating temp. range:	-20°C up to +100°C
Ambient temperature range:	-20°C up to +60°C
Viscosity range:	10 – 400 mm <sup>2</sup> /s is recommended
Filtration:	Class 21/19/16 according to ISO4406 or cleaner
Ports 030:	A, P, T: G 3/8" M: G 1/4"
Ports 040:	A, T: G 1/2" M: G 1/4" P: G 3/8"
Mounting:	2x M8 10.9, torque 20 Nm pipe connection or flange-mounted onto subplate (Part 3510081 NBR)
Material:	steel, zinc-plated
Weight:	2.5 kg incl. valves

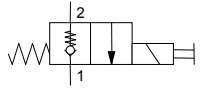
### Electrical data: (solenoid poppet valve)

Type of voltage:	DC solenoid, AC voltage is rectified using a bridge rectifier built-in the coil
Nominal current at 20° C:	0.8A at 24 V DC, 30 Ohm 0.1A at 230 V AC, 2137 Ohm
Voltage tolerance:	+/- 15 % of nominal voltage
Response time:	100% ED Continuous up to 115% of nominal voltage at 60°C ambient temperature

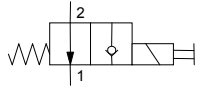
**Standard models**  
 HSB-Z-030-350V-24DG  
 HSB-Z-040-350V-24DG  
 other types on request

**Part No.**  
 3327182  
 3327274

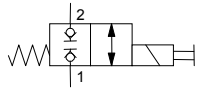
**Available solenoid poppet valves:**



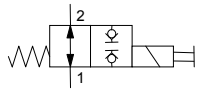
WSM06020Z-01J  
 See brochure 5.943.3



WSM06020Y-01M  
 See brochure 5.947.2



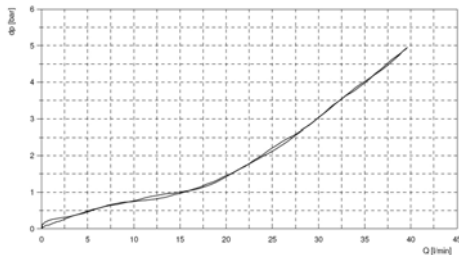
WSM06020W-01M  
 See brochure 5.949.2



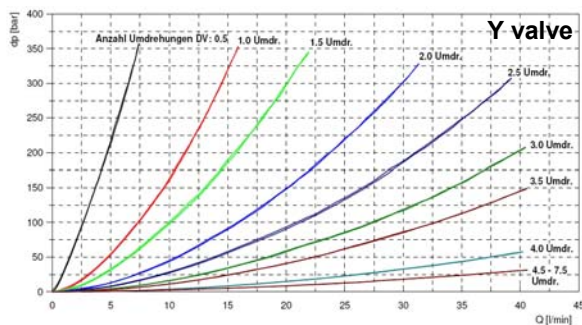
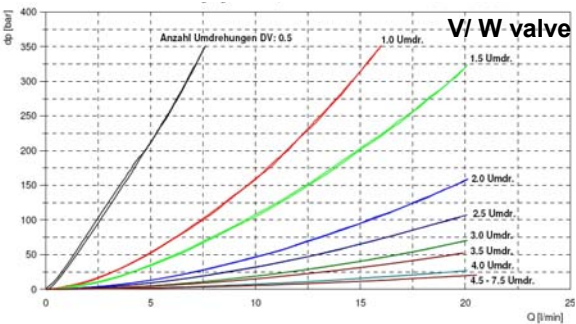
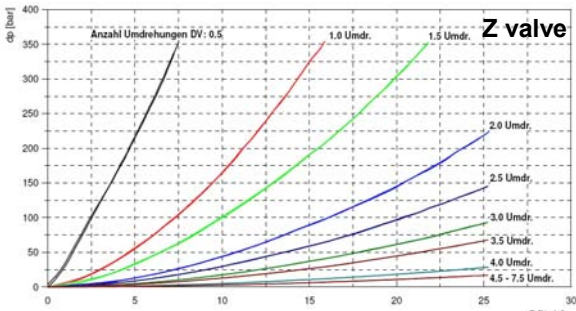
WSM06020V-01M  
 See brochure 5.949.1

**PERFORMANCE**

**dp-Q curve from P to A (lifting)**



**dp-Q curves from A to T (lowering)**



**MODEL CODE**

HSB - Z - 030 - 250 V 200 - 230 AG - Z4

**Lift-lowering manifold**

**Symbol solenoid poppet valve (WSM)**  
 Z = normally closed ( s. adjacent chart)  
 (other symbols V, W, Y s. brochure WSM06020...)

**Type**  
 030 = Standard, Ports A, P, T = 3/8", M = 1/4"  
 040 = Standard, Ports A, T = 1/2", P = 3/8", M = 1/4"

**Pressure range**  
 250 = 250 bar (solenoid poppet valve symbol W)  
 350 = 350 bar (solenoid poppet valve symbols V, Y, Z)  
 other pressure ranges on request

**Adjustment option for pressure relief valves (DB)**  
 V = adjustable by tool  
 other adjustment options on request

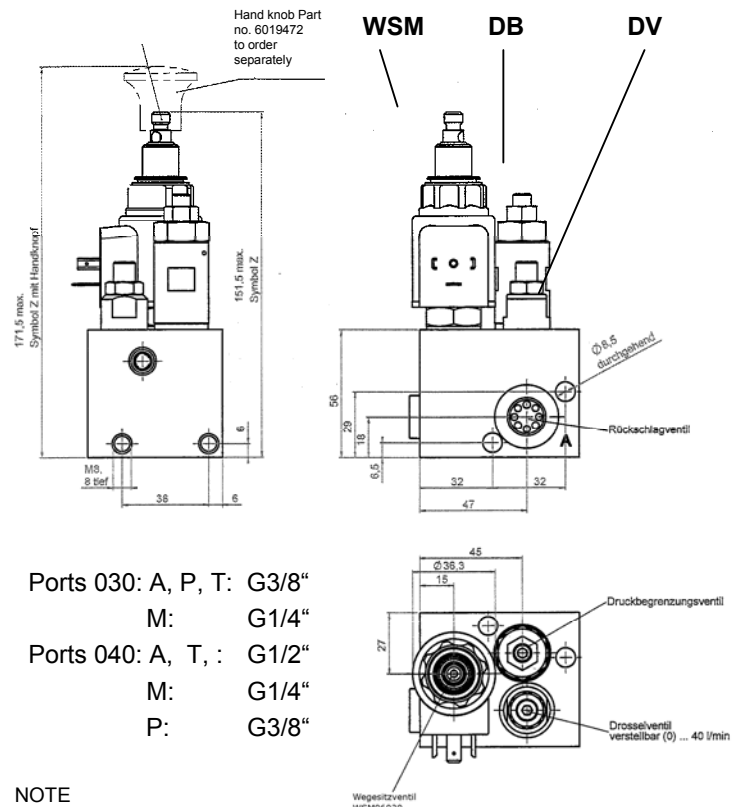
**Pressure setting of pressure relief valve (DB)**  
 omission = no pressure setting  
 200 = pressure setting on request (currently 210, 240, 250 bar)

**Nominal voltage of solenoid poppet valve (WSM)**  
 230 = 230 Volt AC  
 24 = 24 Volt DC

**Coil connector**  
 DG = DIN connector to EN 175301-803 (DC)  
 AG = DIN connector to EN 175301-803 (AC)  
 other connectors on request

**Female connector**  
 omission = none  
 Z4 = Female connector for DIN connector (supplied loose)

**DIMENSIONS**



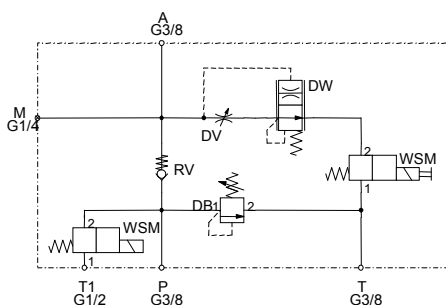
**NOTE**  
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## Lift-lowering manifold HSB-Z-020 with load independent speed control and circuit valve for lift-lowering applications

### SYMBOL

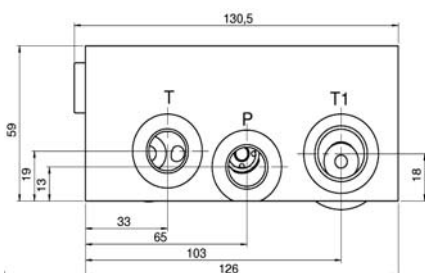


**Q<sub>max</sub> = 40 l/min**  
**P<sub>max</sub> = 350 bar**

The operating pressure and the flow rate are dependent on built-in solenoid poppet valve:

Symbol Y, Z = 40 l/min / 350 bar  
Symbol V = 20 l/min / 350 bar  
Symbol W = 19 l/min / 250 bar

### INTERFACE



### FEATURES

- Application: for load independent lift-lowering controls e.g. scissor lifts, small forklifts and walky stackers
- Load independent lowering of the lifted load via 2/2 solenoid poppet valve, combined with flow control valve
- Additional valve for switching to unpressurized flow when using a fixed displacement pump
- HSB manifolds for the lift-lowering hydraulics are tailored to the complex and varied demands of the lifting technology sector
- Permitted load is safeguarded by a built-in pressure relief valve
- Built-in check valve prevents uncontrolled lowering
- The 2/2 solenoid poppet valve includes an emergency lowering cable-pull type manual override (self-resetting), (optional with plastic knob Part-No. 6019472 for manual operation)

### SPECIFICATIONS

Operating pressure:	max. 350 bar
Nominal Flow:	max. 40 l/min
Fluids:	Hydraulic oil to DIN 51524 Part 1 and 2
Media operating temp. range:	-20°C up to +100°C
Ambient temperature range:	-20°C up to +60°C
Viscosity range:	10 – 400 mm <sup>2</sup> /s is recommended
Filtration:	Class 21/19/16 according to ISO4406 or cleaner
Ports:	A, P, T: G 3/8" M: G 1/4" T1: G 1/2"
Mounting:	2x M8 10.9, torque 20 Nm pipe connection or flange-mounted onto subplate (Part 3510081 NBR)
Material:	steel, zinc-plated
Weight:	3.0 kg incl. valves

### Electrical data: (solenoid poppet valve)

Type of voltage:	DC solenoid, AC voltage is rectified using a bridge rectifier built-in the coil
Nominal current at 20° C:	1.5A at 12 V DC 0.8A at 24 V DC, 30 Ohm 0.1A at 230 V AC, 2137 Ohm
Voltage tolerance:	+/- 15 % of nominal voltage
Response time:	100% ED Continuous up to 115% of nominal voltage at 60°C ambient temperature

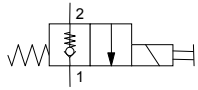
## Standard models

HSB-Z-Y-020-350V-24DG-Z4  
other types on request

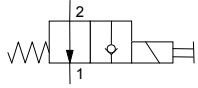
## Part No.

3284426

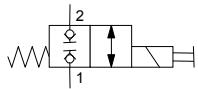
## Available solenoid poppet valves for lowering:



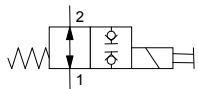
WSM06020Z-01J  
See brochure 5.943.3



WSM06020Y-01M  
See brochure 5.947.2

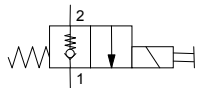


WSM06020W-01M  
See brochure 5.949.2

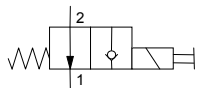


WSM06020V-01M  
See brochure 5.949.1

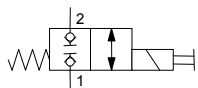
## Available solenoid poppet valves for circuit:



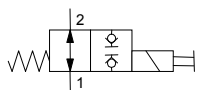
WSM06020Z-01J  
See brochure 5.943.3



WSM06020Y-01M  
See brochure 5.947.2



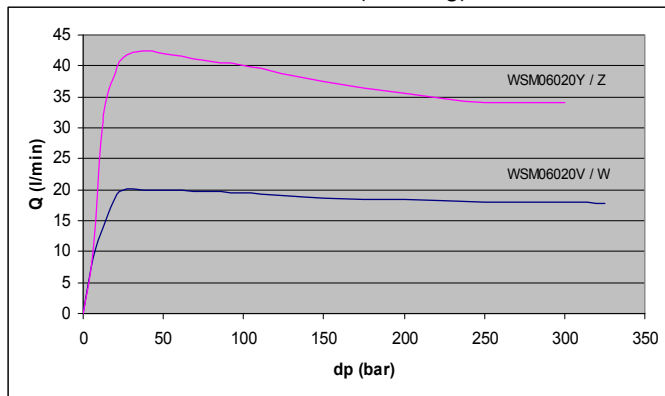
WSM06020W-01M  
See brochure 5.949.2



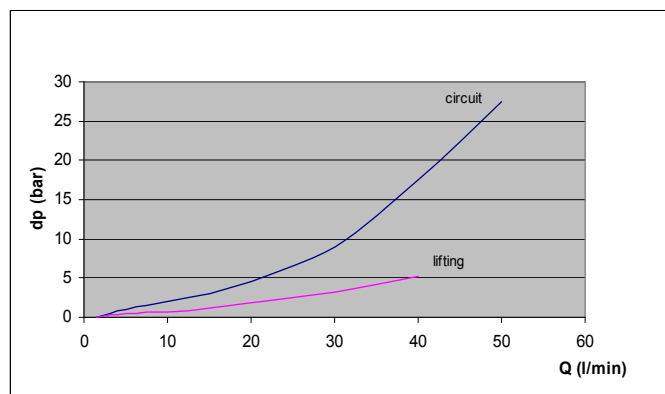
WSM06020V-01M  
See brochure 5.949.1

## PERFORMANCE

Flow control curve from A to T (lowering)



dp-Q curve from P to A (lifting)  
dp curve P to T1 (circuit)



## MODEL CODE

HSB - Z - Y - 020 - 250 V 200 - 230 AG - Z4

**Lift-lowering manifold** \_\_\_\_\_

**Symbol solenoid poppet valve (lowering)**  
Z = normally closed ( s. adjacent chart)  
(other symbols V, W, Y s. brochure WSM06020)

**Symbol solenoid poppet valve (circuit)**  
Y = normally open ( s. adjacent chart)  
(other symbols V, W, Z s. brochure WSM06020...)

**Type** \_\_\_\_\_  
020 = Standard with NBR seals

**Pressure range** \_\_\_\_\_  
250 = 250 bar (solenoid poppet valve Symbol W)  
350 = 350 bar (solenoid poppet valve symbols V, Y, Z)  
other Pressure ranges on request

**Adjustment option for pressure relief valves (DB)** \_\_\_\_\_  
V = adjustable by tool  
other adjustment options on request

**Pressure setting of pressure relief valve (DB)** \_\_\_\_\_  
omission = no pressure setting  
200 = pressure setting on request

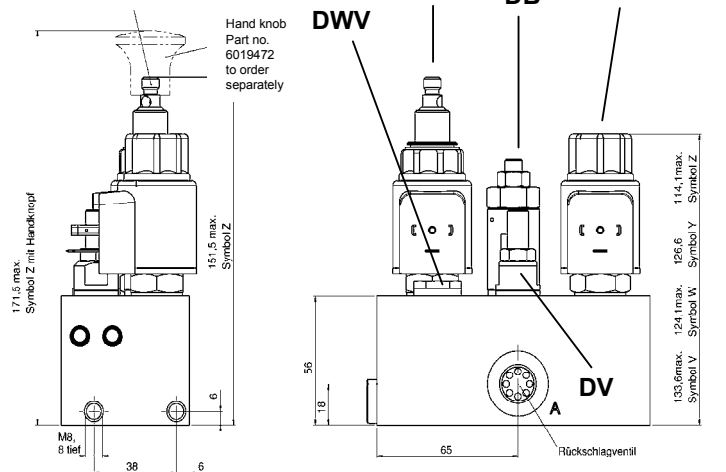
**Nominal voltage solenoid poppet valve (WSM)** \_\_\_\_\_  
230 = 230 Volt AC  
24 = 24 Volt DC

**Coil connector** \_\_\_\_\_  
DG = DIN connector to EN 175301-803 (DC)  
AG = DIN connector to EN 175301-803 (AC)

**Female connector** \_\_\_\_\_  
omission = none  
Z4 = Female connector for DIN connector (supplied loose)

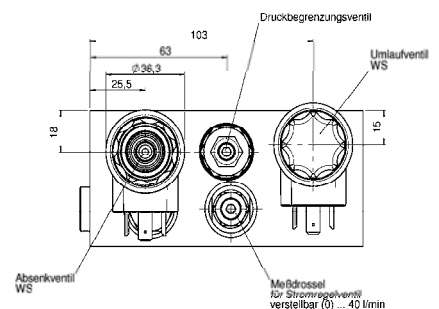
## DIMENSIONS

Symbol Z - Manual override  
Actuation by pulling and holding



### Ports:

A, P, T: G3/8"  
M: G1/4"  
T1: G1/2"



### NOTE

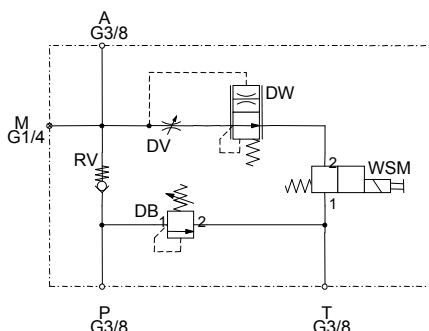
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## Lift-lowering manifold HSB-Z-010 with load independent speed control for lift-lowering applications

### SYMBOL



**Q<sub>max</sub> = 40 l/min**  
**P<sub>max</sub> = 350 bar**

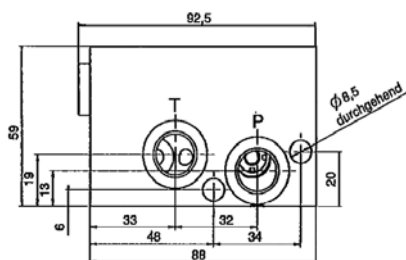
The operating pressure and the flow rate are dependent on built-in solenoid poppet valve:

Symbol **Y, Z** = 40 l/min / 350 bar

Symbol **V** = 20 l/min / 350 bar

Symbol **W** = 19 l/min / 250 bar

### INTERFACE



### FEATURES

- Application: for load independent lift-lowering controls e.g. scissor lifts, small forklifts and walky stackers
- Load independent lowering of the lifted load via 2/2 solenoid poppet valve, combined with flow control valve
- HSB manifolds for the lift-lowering hydraulics are tailored to the complex and varied demands of the lifting technology sector
- Permitted load is safeguarded by a built-in pressure relief valve
- Built-in check valve avoids uncontrolled lowering
- Flange-mounting onto a subplate is possible
- The 2/2 solenoid poppet valve includes an emergency lowering cable-pull type manual override (self-resetting), (optional with plastic knob Part-No. 6019472 for manual operation)

### SPECIFICATIONS

Operating pressure:	max. 350 bar
Nominal Flow:	max. 40 l/min
Fluids:	Hydraulic oil to DIN 51524 Part 1 and 2
Media operating temp. range:	-20°C up to +100°C
Ambient temperature range:	-20°C up to +60°C
Viscosity range:	0 – 400 mm <sup>2</sup> /s is recommended
Filtration:	Class 21/19/16 according to ISO4406 or cleaner
Ports:	A, P, T: G 3/8" M: G 1/4"
Mounting:	2x M8 10.9, torque 20 Nm pipe connection or flange-mounted onto subplate (Part 3510081 NBR)
Material:	steel, zinc-plated
Weight:	3.0 kg incl. valves

### Electrical data: (solenoid poppet valve)

Type of voltage:	DC solenoid, AC voltage is rectified using a bridge rectifier built-in the coil
Nominal current at 20° C:	1.5A at 12 V DC 0.8A at 24 V DC, 30 Ohm 0.1A at 230 V AC, 2137 Ohm
Voltage tolerance:	+/- 15 % of nominal voltage
Response time:	100% ED Continuous up to 115% of nominal voltage at 60°C ambient temperature

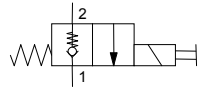
## Standard models

HSB-Z-010-250V-230AG-Z4  
 HSB-Z-010-250V-24DG-Z4  
 HSB-Z-010-350V-230AG-Z4  
 HSB-Z-010-350V-24DG-Z4  
 other types on request

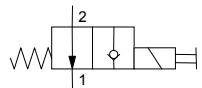
## Part No.

3355029  
 3355025  
 3355026  
 3279410

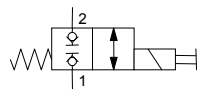
## Available solenoid poppet valves:



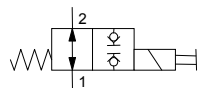
WSM06020Z-01J  
 See brochure 5.943.3



WSM06020Y-01M  
 See brochure 5.947.2



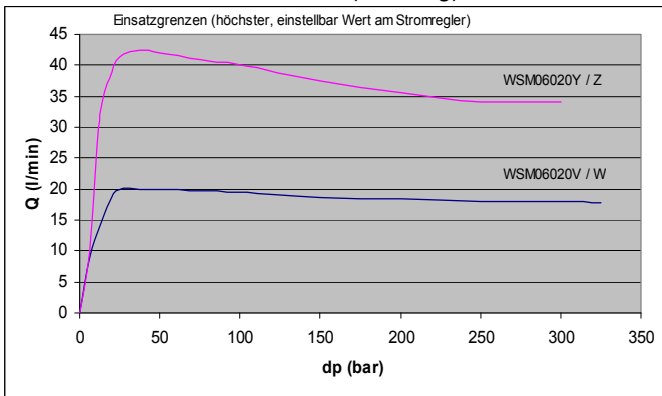
WSM06020W-01M  
 See brochure 5.949.2



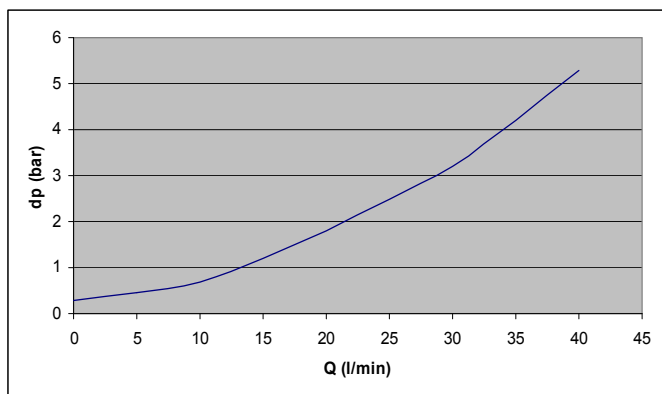
WSM06020V-01M  
 See brochure 5.949.1

## PERFORMANCE

### Flow control curve from A to T (lowering)



### Dp-Q curve from P to A (lifting)



## MODEL CODE

HSB - Z - 010 - 250 V 200 - 230 AG - Z4

**Lift-lowering manifold** \_\_\_\_\_

**Symbol solenoid poppet valve (WSM)** \_\_\_\_\_  
 Z = normally closed ( s. adjacent chart)  
 (other symbols V, W, Y s. brochure WSM06020...)

**Type** \_\_\_\_\_  
 010 = Standard with NBR seals

**Pressure range** \_\_\_\_\_  
 250 = 250 bar (solenoid poppet valve Symbol W)  
 350 = 350 bar (solenoid poppet valve symbols V, Y, Z)  
 other Pressure ranges on request

**Adjustment option for pressure relief valves (DB)** \_\_\_\_\_  
 V = adjustable by tool  
 other adjustment options on request

**Pressure setting of pressure relief valve (DB)** \_\_\_\_\_  
 omission = no pressure setting  
 200 = pressure setting on request

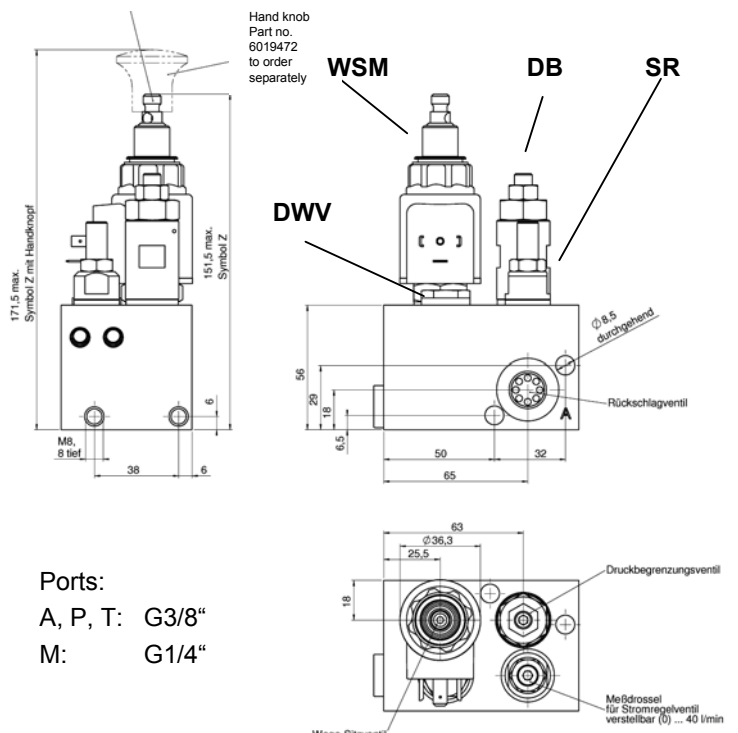
**Nominal voltage solenoid poppet valve (WSM)** \_\_\_\_\_  
 230 = 230 Volt AC  
 24 = 24 Volt DC

**Coil connector** \_\_\_\_\_  
 DG = DIN connector to EN 175301-803 (DC)  
 AG = DIN connector to EN 175301-803 (AC)  
 other connectors on request

**Female connector** \_\_\_\_\_  
 omission = none  
 Z4 = Female connector for DIN connector (supplied loose)

## DIMENSIONS

Symbol Z Manual override  
 Actuation by pulling and holding



### Ports:

A, P, T: G3/8"  
 M: G1/4"

### NOTE

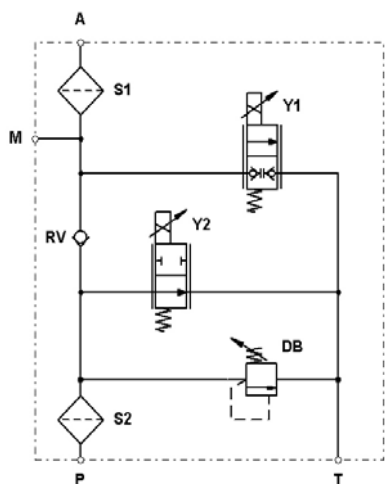
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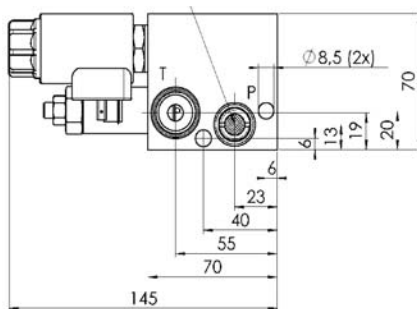
## Lift-lowering manifold HSB-P-010 with load independent, proportional speed control for lift-lowering applications

### SYMBOL



**Q<sub>max</sub> = 25 l/min**  
**P<sub>max</sub> = 250 bar**

### INTERFACE



### FEATURES

- Application: for load independent lift-lowering controls e.g. scissor lifts, small forklifts and walky stackers
- Load independent and sensitive lowering of the lifted load via proportional flow control valves
- HSB manifolds for the lift-lowering hydraulics are tailored to the complex and varied demands of the lifting technology sector
- Permitted load is safeguarded by a built-in pressure relief valve
- Built-in check valve avoids uncontrolled lowering
- Flange-mounting onto a subplate is possible
- Emergency lowering integrated in proportional valve Y1

### SPECIFICATIONS

Operating pressure:	max. 250 bar
Nominal Flow:	max. 25 l/min
Fluids:	Hydraulic oil to DIN 51524 Part 1 and 2
Media operating temp. range:	-20°C up to +100°C
Ambient temperature range:	-20°C up to +40°C
Viscosity range:	10 – 400 mm <sup>2</sup> /s is recommended
Filtration:	Class 18/16/13 according to ISO4406 or cleaner
Ports:	A, T: G 1/2" M: G 1/4" P: G 3/8"
Mounting:	pipe connection or flange-mounted onto subplate (see interface)
Material:	steel, zinc-plated
Weight:	2.5 kg incl. valves

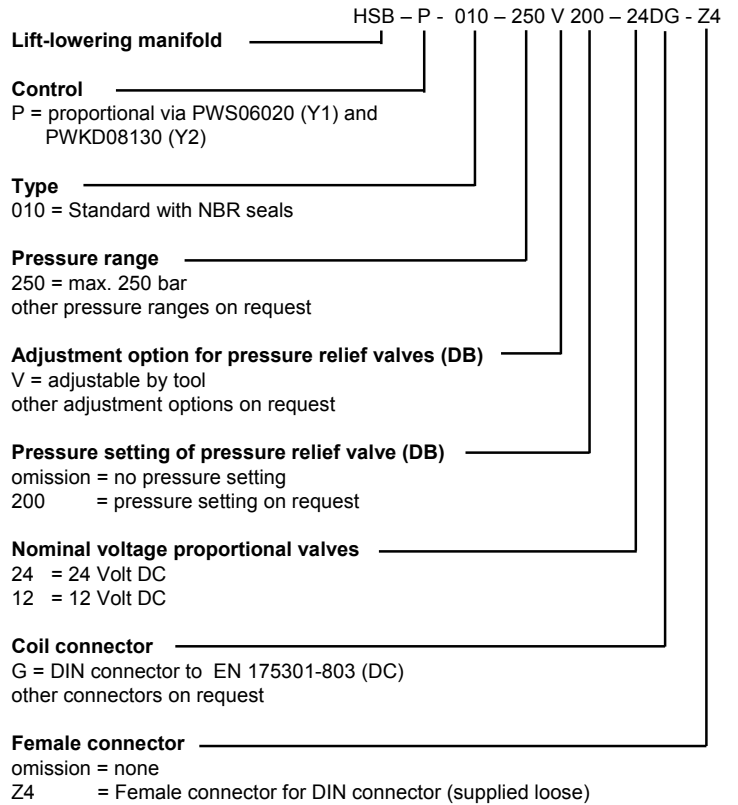
### Electronics: (Proportional valves)

Nominal voltage:	24 Volt (optional 12 Volt)
Coil resistance R20:	14.2 Ohm +/- 0.71 Ohm
PWM frequency:	150 – 250 Hz
Control current:	0 – 1300 mA (Prop. poppet valve Y1) 0 – 900 mA (Prop. spool valve Y2)
Dead current:	approx. 200 mA (Prop. poppet valve Y1) approx. 100 mA (Prop. spool valve Y2)

**Standard models**  
 HSB-P-010-250V-DG24  
 other types on request

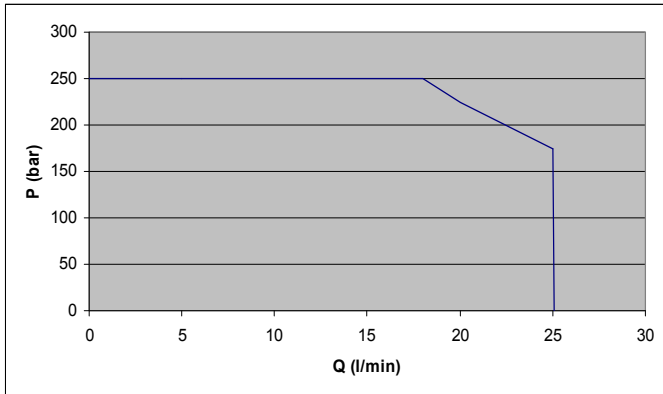
**Part No.**  
 3026635

**MODEL CODE**

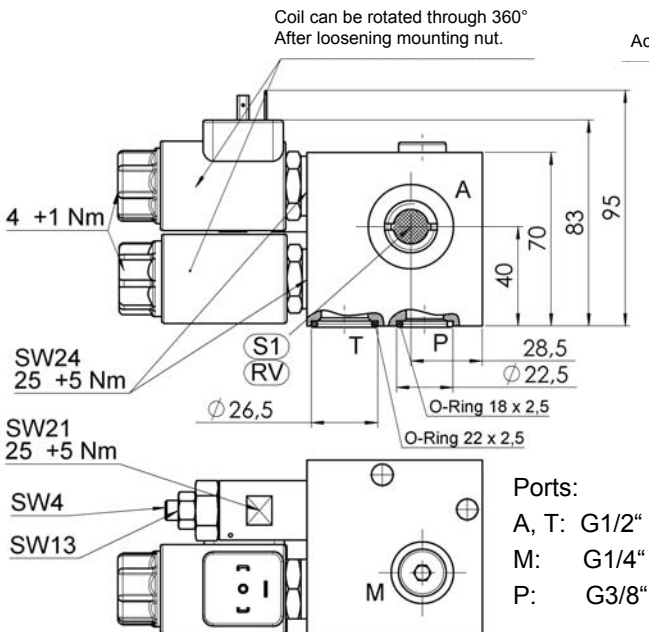


**PERFORMANCE**

Switching performance P to A



**DIMENSIONS**



**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.

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