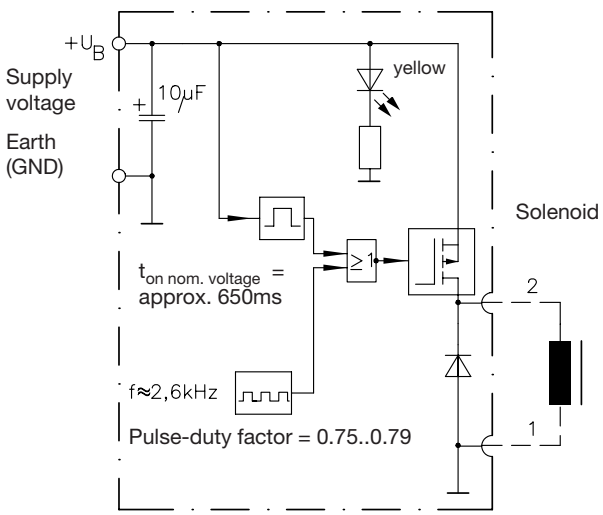
Solenoid plug with economy circuit type MSD 4 P55 for 24 V DC

for directional valves with single lift solenoid operation G 24

1. General

The final power of a solenoid when energized is higher than the power required to hold the valve in a shifted position. By using economy circuitry it is possible to reduce the final power of the solenoid by reducing the voltage that is applied to the coil. Reduction of this voltage will decrease the heat generated thus extending the life of the solenoid coil. Applications where this circuit could be used are: solenoids that remain in a continuously energized state with short breaks; area's with high ambient temperatures; directional valve banks where adjacent valves will be energized at the same time. In general, due to the lower temperature, increased reliability and longer solenoid life is achieved.

Coding for diagram



2. Description of operation

The field voltage which is fully connected when switched on is reduced after a certain delay and the valve is then supplied with only approx. 80% of the voltage. When the circuit is live, this is indicated by a yellow LED.

3. Specification

3.1 General features

Order designation	Economy circuit type MSD 4 P 55
Nomenclature	Solenoid socket with economy circuit for 24 V DC
Condition when supplied	See sect. 4.
Connection	per DIN 43 650 Form A, 2-pole
Cable inlet	Pg 9 DIN 46 320 for sheath external diameter 4...8 mm
Connecting cables	Recommended wire cross section 2x1.5 mm^2
Protect. category I EC 70 (CO) 13	IP 65 when plugged in and fully tightened down
	Attention: Always use the enclosed flat seal when fitting the solenoid socket !
Position for installation	Any
Mass (weight)	approx. 30 g
Ambient temperature	-20° ... +50°C

Attention: This economy plug isn't suited for for double and reverse lift solenoids type MD and MU (D 7055 / D 6460) or twin solenoid (D 7785 A)

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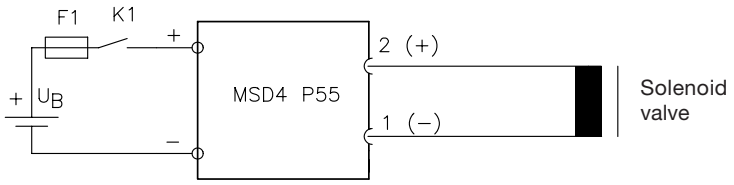
3.2 Electrical features

Supply voltage	U_B	19 ... 29 V DC; **Attention:** no protection for reversed polarity
Ripple factor	w	max. 10% (supply voltage has to be adequately smoothed)
Output:		
Min. start voltage	U	U_B - 0.8 V
Max. start current	I_A	1.5 A
Max. economy current	I_H	1.2 A
Reponse time (ON)	t_{on}	No delay. For response time of the valve connected see 24 V DC version in the respective pamphlet
Reponse time (OFF)	t_{off}	Delay in switch off and drop time, depending on valve type, in part considerably longer than shown in the respective pamphlet
Holding voltage [1]		0.75..0.79 U_B permanently set
Conversion time [2]	t	approx. 600 - 750 ms permanently set
Pulse repetition rate of PWM end stage	f_{pulse}	≈ 2.6 kHz
Max. permissible operation frequency		0.1 Hz

[1] Sustaining voltage is the voltage at the valve solenoids in the steady condition

[2] Conversion time is the time from switching on until conversion to restricted voltage

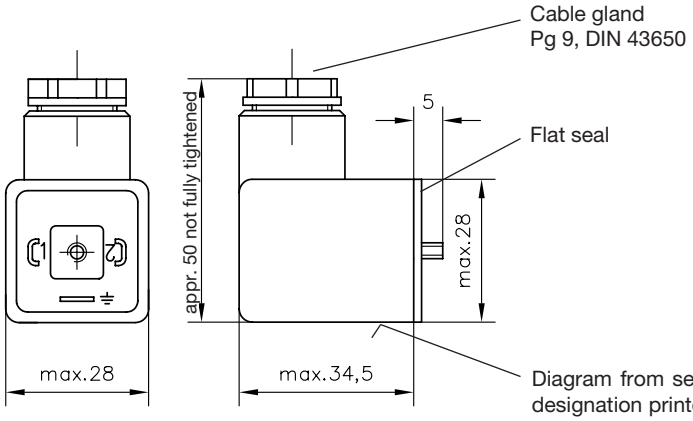
Circuitry example



F1 = fuse 1.6 A mT

4. Dimensions

Coding per DIN 43650 A
Casing transcluent



Condition on delivery:
The economy circuit plug is supplied as an individual element. HAWE does not undertake preassembly with any valve for which it is intended which may be ordered at the same time. The valve and economy circuit unit must be listed separately in the order.

All dimensions are in mm, subject to change without notice !

5. Fitting instructions

Special care must be taken regarding correct polarity when connecting cables.
Attention:
Use the flat seal supplied when fitting!