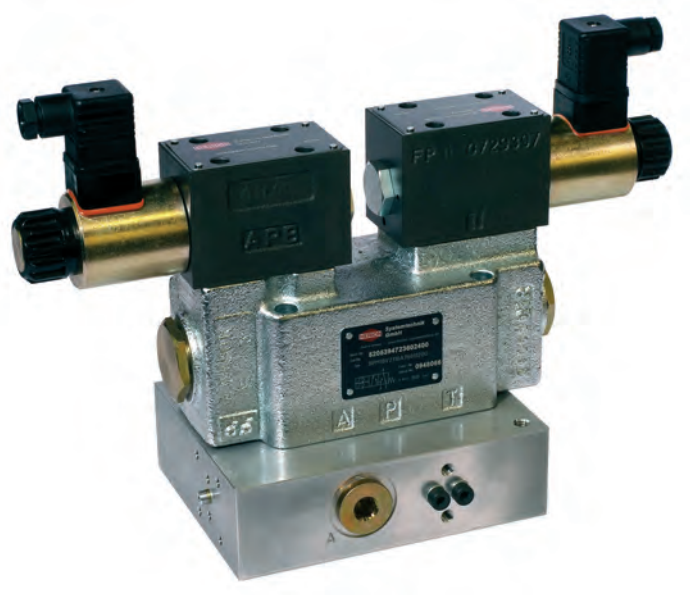
HERION Systemtechnik GmbH

Hydraulic Press Safety Valve
Sizes 10 and 16

Without electric monitoring
Safe and reliable switching
Short switching times
Flanged mounting
Mounting position optional
Various possibilities of connection
No residual pressure
Plug-in type electrical connections
Easy return to service after faulty switching
Safe to EN 692



General parameters

Symbol:
See "Design and operation"

Design:
Piston valve, indirectly actuated

Type of mounting:
Flange, HERION interface

Line connection:
Subplate

Mounting position:
Optional

Flow direction:
P to A and A to T

Ambient temperature range ϑ_u [°C]:
-20 to +50

Operating pressure range p_e max. [bar]:
to 160

Pressure fluid temperature ϑ_u max. [°C]:
70

Viscosity range ν [mm²/s]:
12...500

Flow volume Q [i/min]:
See characteristic curves

Overlap Üt:
positive

Filtration [µm]:
25 or finer

Seals:
Perbunan (Viton on request)

Relative duty cycle ED_{rel} [%]:
100

Electrical connection:
Connector Pg 11 to DIN 43650

Solenoid enclosure and electric connection to DIN 40050:
IP54

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Hydraulic Press Safety Valve Sizes 10 and 16

Technical Data

Press safety valve

Type designation	Size	Weight	Leakage oil volume Valve not actuated	Valve actuated	Control volume	Switching time (on)	Switching time (off)	Number of switching per hour	Rated voltage U_n Standard voltages (Special voltages on request)		Current draw P_{20} Inrush		Holding		Cat. No.
DN		[kg]	Q_L [cm³/min]	Q_L [cm³/min]	V_{St} [cm³/min]	te [ms]	ta [ms]	z [1/h]	[V]	[V] [Hz]	[W]	[VA]	[W]	[VA]	
BPM 10V...	10	9.5	200	500	3.5	64	17	15000	24		32.7		32.7		5205394.7236
BPM 10S...	10	9.5	200	500	3.5	35	15	3600		120 60 230 50		130		50	5203036.7224
BPM 16V...	16	26	250	600	6	67	14	15000	24		32.7		32.7		5205395.7236
BPM 16S...	16	26	250	600	6	35	20	3600		120 60 230 50		130		50	5203037.7224

Subplate

Type designation		Size	Interface	Line connection	Number of line connections			Interface for pressure switch	Interface for 2- way valve	Weight m	Cat. No.
		DN			P	A	T			[kg]	
PPM 10 A4002100											
	BPM 10V...	10	HERION	R1/2	2	2	2	yes	yes	2.8	1451003
	BPM 10S...	10	HERION	R1/2	1	1	1	no	no	2.8	2840082
PPM 16A5003100											
	BPM 16V...	16	HERION	R3/4	2	2	2	yes	yes	6	1451110
	BPM 16S...	16	HERION	R3/4	-	-	-	-	-	-	-

Type code

Press safety valve

B	PM	10	V	21	10	A	76	001	2	0	0
1	2	3	4	5	6	7	8	9	10	11	12

1 Equipment group: **B** – Control block

2 Operating characteristics: **PM** – Press safety valve for mechanical

3 DN: **10**, **16**

4 Actuation: **S** – AC solenoid, pressure-sealed, without manual override; **V** – DC solenoid, pressure-sealed, without manual override

5 Control mode: **21** – Pilot S 6, internal control oil inlet, internal control oil outlet

6 Electrical connection: **10** – Plug-in type connector on solenoid to DIN 43650

7 Line connection: **A** – Subplate, HERION interface

8 Operating pressure: **76** – 160 bar

9 Code No.: **007** – DN 16; **011** – DN 10 Hydraulically monitored

10 Engineering version: **1** – (with DN 16); **2** – (with DN 10)

11 Additional data: **0** – Standard design

12 Sealing material: **0** – Perbunan; **V** – Viton

Subplate

P	PM	10	A	4	001	1	0	0
1	2	3	4	5	6	7	8	9

1 Equipment group: **P** – Subplate

2 Operating characteristics: **PM** – Press safety valve for mechanical presses

3 DN: **10**, **16**

4 Connection pattern: **A** – HERION dimensions

5 Line connection: **4** – G 1/2" (DN 10); **5** – G 3/4" (DN 16)

6 Code No.: **002** – No connections on rear side, no connections for pressure switch and 2/2 directional valve. Connections for PSV DN 10 only; **003** – Standard design for PSV DN 10 and DN 16

7 Engineering version: **1**

8 Additional data: **0** – Standard design

9 Sealing material: **0** – Perbunan; **V** – Viton

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Design

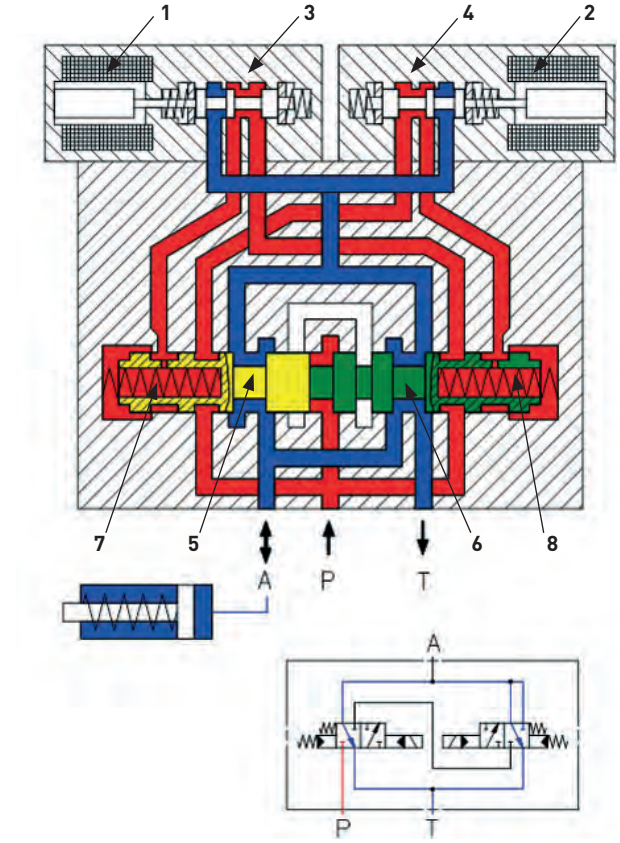
Device consisting of two pilot operated 4/2 directional control valves.

Application

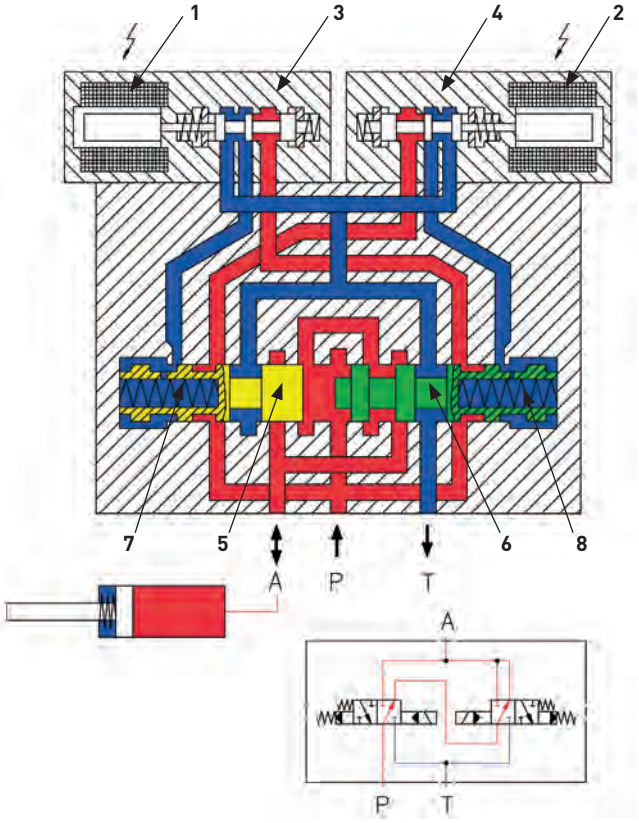
Press safety valve for control of hydraulically actuated clutch/brake combinations and brakes.

Design and operation

Rest position



Switching position



The press safety valve (PSV) mainly serves for control of hydraulically actuated clutch/brake combinations. For reasons of safety it must be ensured that in case of failure of one component

a) the press cannot start inadvertantly
b) the disengagement and braking of the press is effected safety.

Safety rule require that each switching be monitored for accurate function. Up to now the cyclic monitoring has been carried out by electric switches. This new valve, however monitors itself hydraulically: In case of a faultive switching the valve is automatically locked. This guarantees a safe disengagement of the combination or prevents a possible engagement.

In rest position the solenoids 1 and 2 of the pilot valves 3 and 4 are de-energized. Pistons 5 and 6 are held in center position by the combined action of hydraulic press and the forces of springs 7 and 8.

Pressure port P is closed. Working port A is connected with tank port T.

In switching position, solenoids 1 and 2 of pilot valves 3 and 4 are energized. Pistons 5 and 6 are relieved on the spring side. As the pump pressure is building up, they are pressed outwards contrary to the force of spring 7 and 8.

Pump port P is now connected with working port A. Connections A-T and P-T are blocked.

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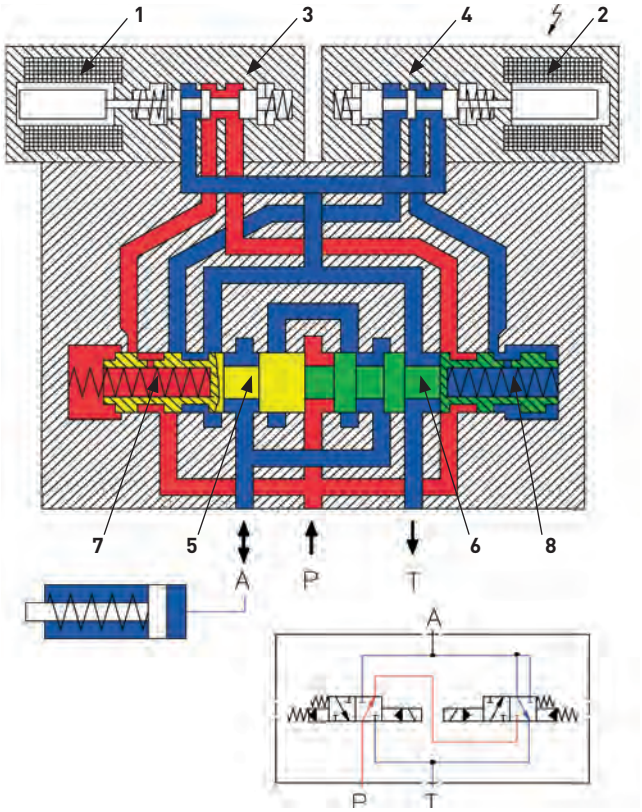
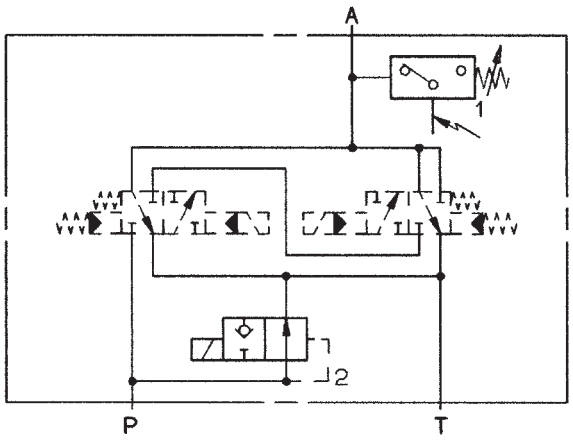
Design and operation

Faulty switching position



Subplate



Faultive switching may be caused e.g. by failure of power supply, breaking of a spring or slicking of a piston.

In the faulty switching shown, solenoid 1 is energized, solenoid 2 de-energizd. Piston 6 is pressurized by hydraulic oild on the spring side. This causes both pistons to move beyond the center position to the left end positions.

Pump port P is closed. Working port A is connected with tank port T. This means that there is no residual pressure between P and A.

In order to shift the vale back to its rest position, the pump port P must be connected with the tank port T.

The subplate serves as a base onto which the press safety valve is flanged. This subplate can be equipped with the following units:

1. **Pressure switch**
   In order to make trouble shooting easier, a pressure switch can be used. it is flanged onto the subplate without any additional piping.
2. **2/2-directional control valve**
   This valve can be used for electric pressure relief of the system. It can also be flanged onto the subplate without any additional piping.

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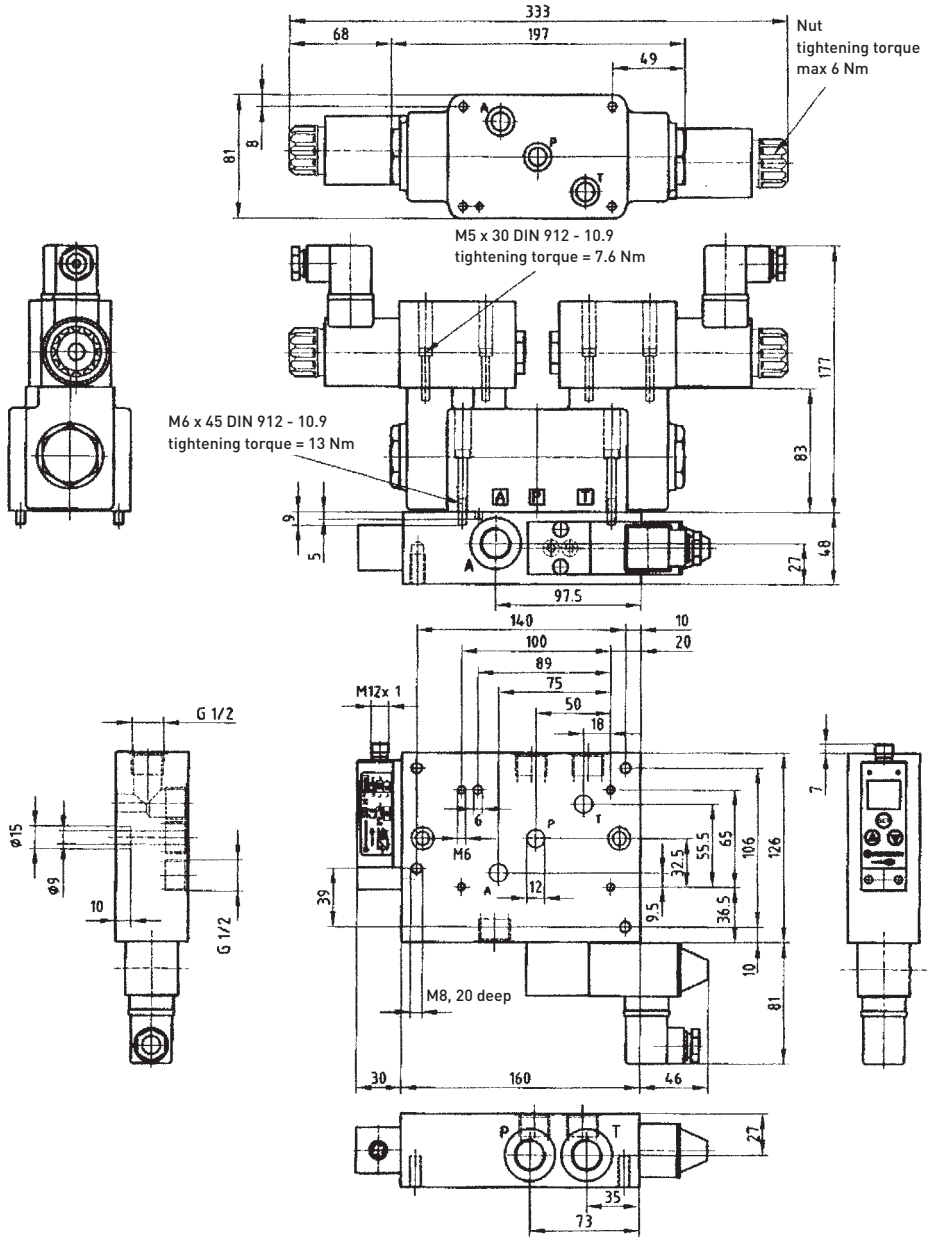
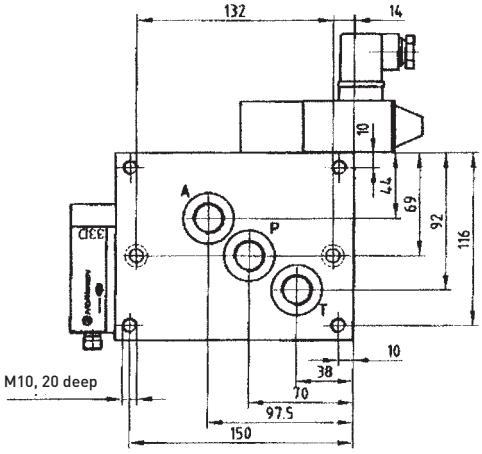
Dimensional drawing BPM 10



Subplate



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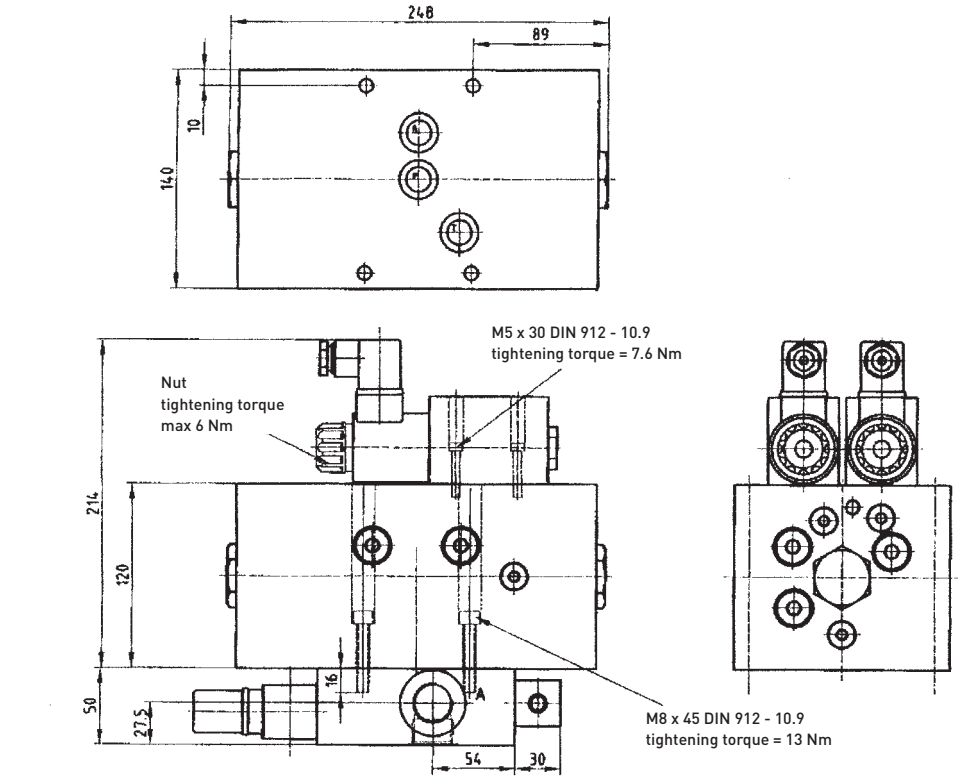
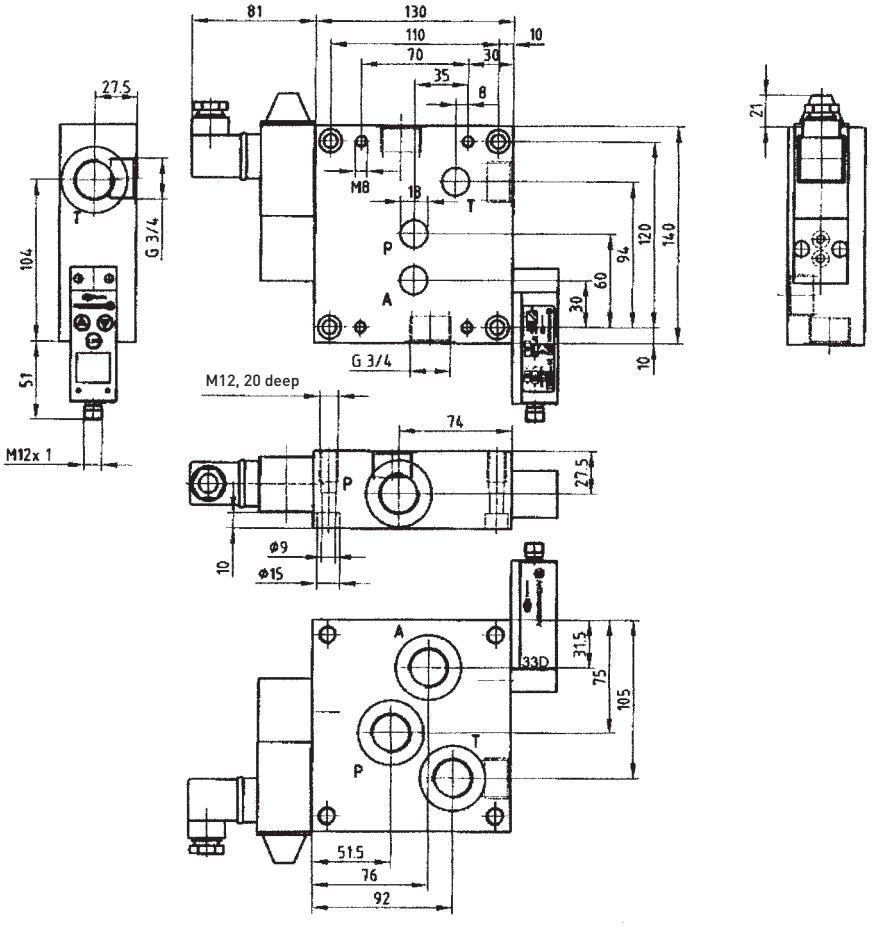
Dimensional drawing BPM 16





Subplate

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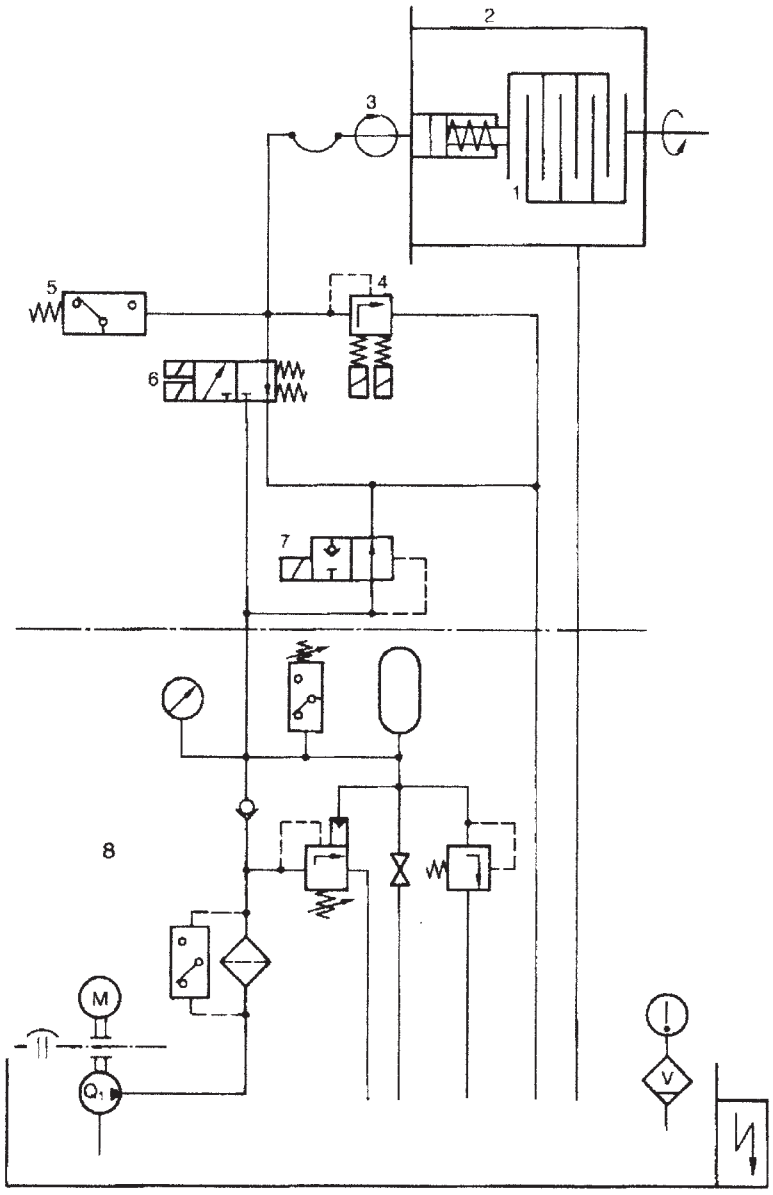
Connection diagram (example)



1 Clutch/brake assembly
2 Housing
3 Oil supply
4 Damping component
5 Pressure switch
6 PSV
7 2/2-directional control valve
8 Hydraulic power pack

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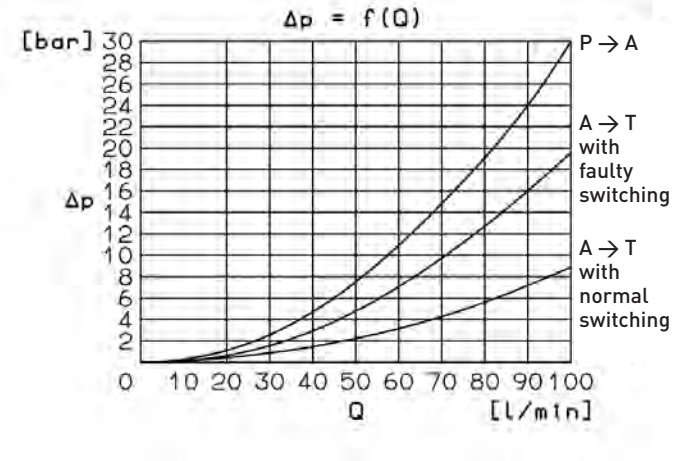
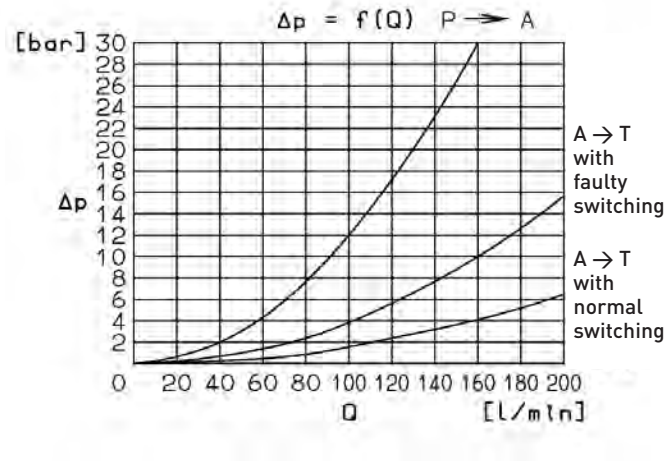
Hydraulic Press Safety Valve Sizes 10 and 16

Characteristic curves DN 10

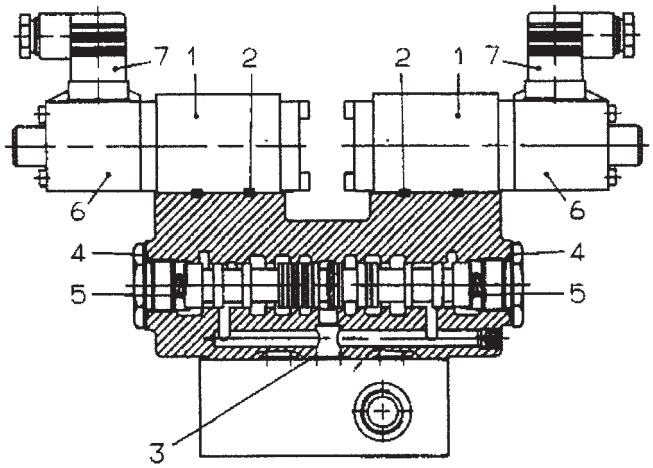


Characteristic curves DN 16



Spare parts PSV 10

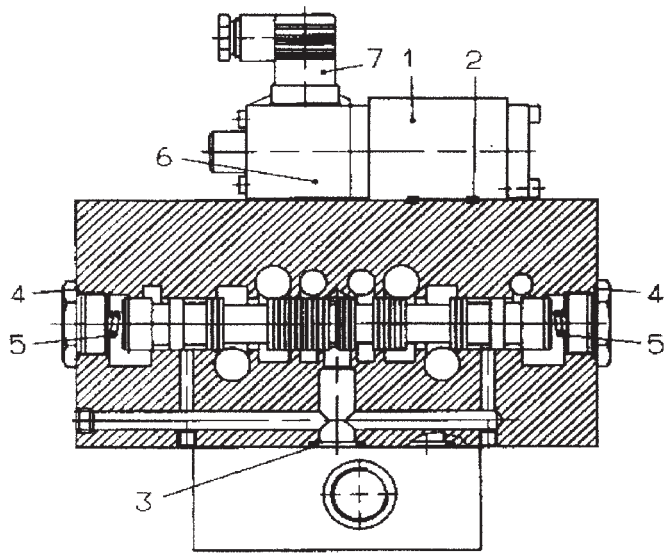
Press safety valve B PM 10 V 10 A...



Part	Qty.	Designation	Cat. No.
1	2	Pilot valve assly with solenoid VDC Pilot valve assly with solenoid VAC	52052497224 52053937236
2	8	O-ring	0701252
3	3	O-ring	0701256
4	2	O-ring	0701264
5	2	Spring	0723440
6	2	Solenoid AC Solenoid DC	7224 7236
7	2	Connector	0657859
8	4	Mounting bolts	0700413

Spare parts PSV 16

Press safety valve B PM 16 V 10 A...



Part	Qty.	Designation	Cat. No.
1	2	Pilot valve assly with solenoid VDC Pilot valve assly with solenoid VAC	52052497224 52053937236
2	8	O-ring	0701252
3	3	O-ring	0701292
4	2	O-ring	0701266
5	2	Spring	0723320
6	2	Solenoid AC Solenoid DC	7224 7236
7	2	Connector	0657859
8	4	Mounting bolts	0700443

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Safety instructions

- In situations involving DC voltage-actuated solenoids, avoid using free-wheeling diodes as far as possible to attenuate the interrupting voltage (disconnection times will be prolonged).
- The electrical data of the valves and the press control system must be in concordance.
- The overall control system of the press must comply with DIN 692.
- The valve solenoids must be connected to the control circuit by separate lines.
- The valve solenoids must be connected to the control circuit by separate lines.
- Only suitably trained and experienced personnel may install our product and put it into operation.
- Operation is exclusively permissible within the characteristic technical data.
- Carry out function test after installation has been completed.
- Horizontal mounting position.
- If, in conjunction with the press safety valve, an orifice is used for damping the clutch, it must be ensured that any penetration into the (P) port of the valve is prevented (e.g. by positive fit).
- For safety reasons no other components must be mounted between the valve and clutch or brake.
- Special maintenance is unnecessary.
- Repairs must only be carried out by the valve manufacturer or by qualified personnel trained by the valve manufacturer.
- Important for use at presses:
  The combination with the electrical press control must meet the DIN EN ISO 13849-1 requirements.
  All liability is denied for unauthorized modification of the units, installation or usage not in accordance with the manual, the local safety regulations and the principles of DIN EN ISO 13849-1.

Europäisch notifizierte Stelle
Kenn-Nummer 0393

Deutsche Gesetzliche Unfallversicherung

Fachausschuss Maschinenbau, Hebezeuge, Hütten- und Walzwerksanlagen
Prüf- und Zertifizierungsstelle im BG-PRÜFZERT

Bescheinigung
Nr. MHHW 01 123
vom 25.02.2010

BG-Prüfbescheinigung

Name und Anschrift des Bescheinigungsinhabers (Auftraggeber)	HERION SYSTEMTECHNIK GMBH Untere Talstr. 65 71263 Weil der Stadt
Name und Anschrift des Herstellers:	- siehe oben -
Produktbezeichnung:	Pressensicherheitsventil
Typ:	BPM10V2110A76011200 (Gleichspannung) BPM16V2110A76007100 (Gleichspannung) BPM10S2110A76006200 (Wechselspannung) BPM16S2110A76006100 (Wechselspannung)
Bestimmungsgemäße Verwendung:	Einbau nach Herstellerangaben und Anforderungen der DIN EN 692
Prüfgrundlage:	• Prüfgrundsätze für die Prüfung und Zertifizierung von Pressen (GS-MHHW-01), Ausgabe 08.2007 • DIN EN ISO 13849-1:2008 „Sicherheit von Maschinen-Sicherheitsbezogene Teile von Steuerungen- Teil 1: Allgemeine Gestaltungsleitsätze" • DIN EN ISO 13849-2:2008 „Sicherheit von Maschinen-Sicherheitsbezogene Teile von Steuerungen- Teil 2:Validierung" • DIN EN 692:2009 „Werkzeugmaschinen - Mechanische Pressen - Sicherheit"
Zugehöriger Prüfbericht:	Nr. 004/2010 vom 22.02.2010
Bemerkungen:	Bei entsprechender Applikation wird für die Sicherheitsfunktion „Hubsteuerung von mechanischen Pressen" („Druckaufbau von „P" nach „A" und Druckabbau von „A" nach „T") das Performance Level „e" nach DIN EN ISO 13849-1 erreicht. Einbau nach Herstellerangaben und Anforderungen der DIN EN 692. ● Folgebescheinigung zu der Prüfnr. 01 122 v. 18.12.01 + Prüfnr.01 123 v. 18.12.01 ●

Das geprüfte Baumuster entspricht den in § 4 Absatz 1 des Geräte- und Produktsicherheitsgesetzes genannten Anforderungen. Das Baumuster entspricht somit auch den einschlägigen Bestimmungen der Richtlinie 2006/42/EG (**Maschinen**).
Der Bescheinigungsinhaber ist berechtigt, das umseitig abgebildete BG-Zeichen an den mit dem geprüften Baumuster übereinstimmenden Produkten anzubringen, gegebenenfalls mit dem unter 'Bemerkungen' genannten Zusatz.

Diese Bescheinigung wird spätestens ungültig am: **30.09.2014**

Weiteres über die Gültigkeit, eine Gültigkeitsverlängerung und andere Bedingungen regelt die Prüf- und Zertifizierungsordnung vom September 2008.

(Dipl.-Ing. Heinke)

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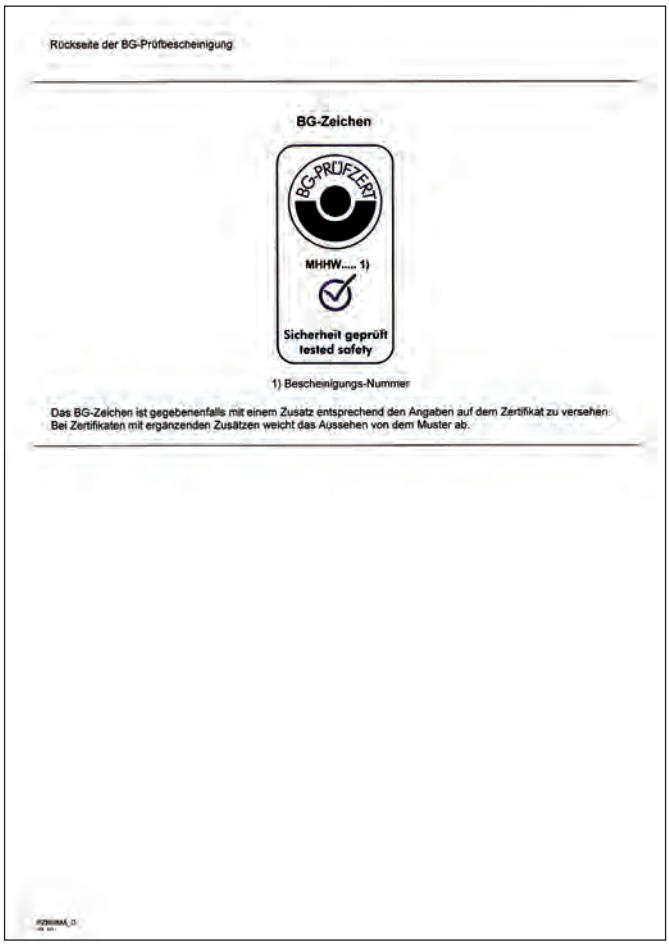
Zeichen der Prüf- und Zertifizierungsstelle



Rückseite der BG-Prüfbescheinigung

BG-Zeichen

BG-PRÜFZERT
MHHW..... 1)
Sicherheit geprüft
tested safety

1) Bescheinigungs-Nummer

Das BG-Zeichen ist gegebenenfalls mit einem Zusatz entsprechend den Angaben auf dem Zertifikat zu versehen.
Bei Zertifikaten mit ergänzenden Zusätzen weicht das Aussehen von dem Muster ab.

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