

Pressure-limiting valve, with component approved type CMVX

Product documentation



Directly controlled

Operating pressure p_{\max} :

500 bar

Flow rate Q_{\max} :

28 lpm



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1 Overview of safety valve with unit approval type CMVX

The component-approved safety valve type CMVX 2 protects pressurized hydraulic systems against overloading in accordance with the Pressure Equipment Directive. The valve must not be used as an operating pressure-limiting valve. It is not designed for frequent response.

The valve is designed as a direct-acting spring-loaded cone-seated valve.

Features and advantages

- Operating pressures up to 500 bar
- Easily produced mounting hole

Intended applications

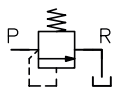
- Safety valve for accumulators in oil-hydraulic systems, taking account of the following regulations:
 - Pressure Equipment Directive 2014/68/EU
 - Industrial Safety Regulation dated 1.6.2015 /
Use of Work Equipment Directive 2009/104/EC
 - AD 2000 Code, data sheets A2 and S5, latest release



Safety valve with unit approval type CMVX

2 Available versions

Circuit symbol



Unit coding

CMVX 2 C - 300

2.2 "Pressure range"

2.1 "Basic type and size"

2.1 Basic type and size

Type	Description	Pressure setting p_{\max} (bar)	Flow rate Q_{\max} (l/min)
CMVX 2	Screw-in valve	500	28

! NOTICE

The max. flow rate and the permissible pressure setting depend on the selected pressure range see Chapter 2.2, "Pressure range".

2.2 Pressure range

Type	Pressure range	Pressure setting range $p_{\min} - p_{\max}$ (bar)	Flow rate Q_{\max} (l/min)	Component coding	Cone, seat and cone and seat (mm)
CMVX 2	G	20 ... 40	15	TÜV.SV.20 - 983.4.F.15. ...	4
	F	41 ... 65	18	TÜV.SV.20 - 983.4.F.18. ...	
	F	66 ... 90	23	TÜV.SV.20 - 983.4.F.23. ...	
	E	91 ... 110	20	TÜV.SV.20 - 983.4.F.20. ...	
	E	111 ... 130	22	TÜV.SV.20 - 983.4.F.22. ...	
	E	131 ... 170	28	TÜV.SV.20 - 983.4.F.28. ...	
	C	171 ... 200	16	TÜV.SV.20 - 983.4.F.16. ...	
	C	201 ... 260	20	TÜV.SV.20 - 983.4.F.20. ...	
	C	261 ... 350	28	TÜV.SV.20 - 983.4.F.28. ...	
	B	351 ... 395	12	TÜV.SV.20 - 983.4.F.12. ...	
	B	396 ... 430	16	TÜV.SV.20 - 983.4.F.16. ...	
	B	431 ... 500	20	TÜV.SV.20 - 983.4.F.20. ...	

! NOTICE

The maximum operating pressure of the system should be at least 25% lower than the pressure setting on the safety valve.

3 Parameters

3.1 General data

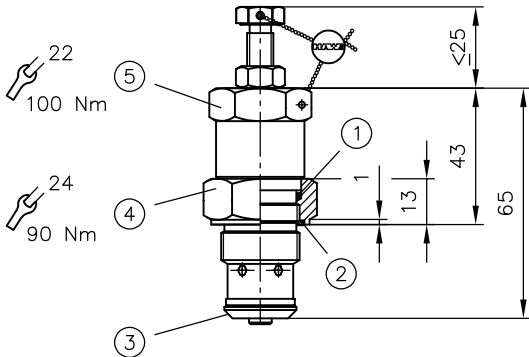
Designation	Direct-acting safety valve
Design	Cone-seated design
Model	Screw-in valve
Material	Steel; gas-nitrided valve housing, electro-galvanised sealing nut and connection block, Hardened and ground functional inner parts;
Basis block requirements	<ul style="list-style-type: none"> ▪ Yield strength: $R_{p0} \geq 245$ MPa ▪ Minimum wall thickness: 5 mm
Attachment	Screwed into self-manufactured manifold body and locked. see Chapter 5.2.2, "Screwing in the screw-in valve"
Tightening torque	see Chapter 4, "Dimensions"
Installation position	Any
Ports/connections	<ul style="list-style-type: none"> ▪ P = pressure-side connection ▪ R = reflux (depressurised)
Flow direction	P → R
Hydraulic fluid	Hydraulic fluid, according to DIN 51 524 Parts 1 to 3; ISO VG 10 to 68 according to DIN ISO 3448 Also suitable for biologically degradable hydraulic fluids type HEPG (polyalkylene glycol) and HEES (synthetic ester) at operating temperatures up to approx. +70°C.
Operating viscosity	12 ... 230 mm ² /s
Cleanliness level	ISO 4406 <u>21/18/15...19/17/13</u>
Temperatures	Environment: approx. -40 ... +80 °C, hydraulic fluid: -20 ... +80 °C, ensure the correct viscosity range. Biologically degradable hydraulic fluids: note manufacturer specifications. With consideration for the seal compatibility, not above +70°C.
Static overload capacity	2 x p _{max}

3.2 Weight

Screw-in valve	Type	
	CMVX 2	= 160 g

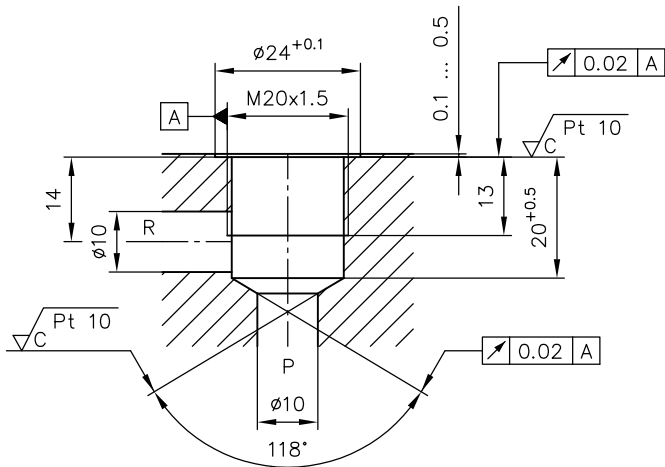
4 Dimensions

All dimensions in mm, subject to change.



- 1 O-ring 17.17x1.78 AU 90 Sh
- 2 KANTSEAL DKAR00016-N90 DRV 100138-NB 650
- 3 Sealing edge
- 4 Sealing nut
- 5 Valve housing

Mounting hole



NOTICE
Basis block requirements, see [Chapter 3, "Parameters"](#)

5 Installation, operation and maintenance information

Observe the document B 5488 "General operating instructions for assembly, commissioning, and maintenance."

5.1 Intended use

This product is intended exclusively for hydraulic applications (fluid technology).

The user must observe the safety measures and warnings in this document.

Essential requirements for the product to function correctly and safely:

- ▶ All information in this documentation must be observed. This applies in particular to all safety measures and warnings.
- ▶ The product must only be assembled and put into operation by specialist personnel.
- ▶ The product must only be operated within the specified technical parameters described in detail in this document.
- ▶ All components must be suitable for the operating conditions when using an assembly.
- ▶ The operating instructions for the components, assemblies and the specific complete system must also always be observed.

If the product can no longer be operated safely:

1. Remove the product from operation and mark it accordingly.
 - ✓ It is then not permitted to continue using or operating the product.

5.2 Assembly information

The product must only be installed in the complete system with standard and compliant connection components (screw fittings, hoses, pipes, fixtures etc.).

The product must be shut down correctly prior to disassembly (in particular in combination with hydraulic accumulators).



DANGER

Sudden movement of the hydraulic drives when disassembled incorrectly

Risk of serious injury or death

- ▶ Depressurise the hydraulic system.
- ▶ Perform safety measures in preparation for maintenance.

5.2.1 Manifold block

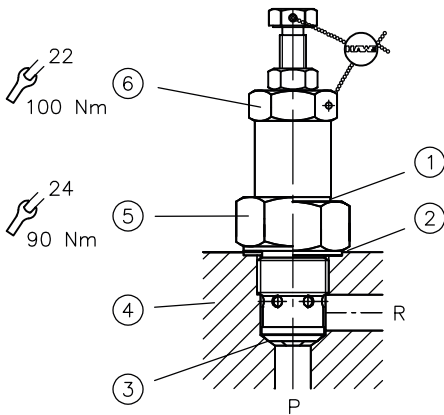
When designing the manifold block, the flow direction (see [Chapter 2, "Available versions"](#)) must be heeded. The limit values for pressure and flow rate in the table according to [Chapter 2, "Available versions"](#) apply for the depressurised reflux to the tank. When designing the manifold block into which the CMVX 2 is to be screwed, the flow resistance of the return duct (R) is therefore to be kept as low as possible as it counts towards the valve pressure. It should therefore be ensured that the R duct is sufficiently dimensioned and, as far as possible, channelled back to the oil tank of the system directly and without numerous detours. In the lowest p_{\min} range of 20 and 91 bar for each of the valves CMVX 2 G and E, and with full utilisation of the $Q_{\text{permitted}}$ values, it is recommended that you do not connect the R duct to the general reflux of the hydraulic circuit if higher reflux resistances are to be expected there. Instead it should be guided back separately and not under pressure.

5.2.2 Screwing in the screw-in valve

Particular care must be taken when installing the valves. The provisions of the Pressure Equipment Directive must be observed. Regular inspections are governed by the national regulations on safety valves and systems.

The flow direction must always be adhered to.

In order to protect it against external damage, the valve must be installed in a safe position or a suitable protective device must be fitted.



- 1 Stopper
- 2 Locking
- 3 Sealing edge
- 4 Basic body
- 5 Lock nuts and sealing nuts
- 6 Valve

1. Before screwing in the valve, loosen the lock nut and sealing nut all the way to the travel stop.
2. Screw in the valve and tighten to the specified torque. The metallic sealing of the inlet to the outlet is formed between the facial sealing edge of the valve and the shoulder of the stepped hole in the basic body.
3. Tighten lock nut and sealing nut to specified torque.

5.2.3 Creating the mounting hole

see Chapter 4, "Dimensions"

5.3 Operating instructions

Observe product configuration and pressure/flow rate.

The statements and technical parameters in this document must be strictly observed.

The instructions for the complete technical system must also always be followed.

! NOTICE

- ▶ Read the documentation carefully before usage.
- ▶ The documentation must be accessible to the operating and maintenance staff at all times.
- ▶ Keep documentation up to date after every addition or update.

! CAUTION

Overloading components due to incorrect pressure settings.

Risk of minor injury.

- Pay attention to the maximum operating pressure of the pump, valves and fittings.
- Always monitor the pressure gauge when setting and changing the pressure.

Purity and filtering of the hydraulic fluid

Fine contamination can significantly impair the function of the product. Contamination can cause irreparable damage.

Examples of fine contamination include:

- Swarf
- Rubber particles from hoses and seals
- Dirt due to assembly and maintenance
- Mechanical debris
- Chemical ageing of the hydraulic fluid

! NOTICE

New hydraulic fluid from the manufacturer may not have the required purity.

Damage to the product is possible.

- ▶ Filter new hydraulic fluid to a high quality when filling.
- ▶ Do not mix hydraulic fluids. Always use hydraulic fluid that is from the same manufacturer, of the same type, and with the same viscosity properties.

For smooth operation, pay attention to the cleanliness level of the hydraulic fluid (cleanliness level see Chapter 3, "Parameters").

Additionally applicable document: [D 5488/1 Oil recommendations](#)

5.4 Maintenance information

The valve is sealed and must not be opened by the operator.

Check regularly (at least once a year) by visual inspection whether the hydraulic connections are damaged. If external leakages are found, shut down and repair the system.

Clean the surface of the device regularly (at least once a year) (dust deposits and dirt).



Industrie Service

CERTIFICATE

The Certification Body of
TÜV SÜD Industrie Service GmbH,
a Notified Body of the Pressure Equipment Directive (PED),

certifies that

HAWE Hydraulik SE
Einsteinring 17
85609 Aschheim / München, Germany

with the production plant
83679 Sachsenkam, Tegernseer Weg 5

implemented, operates and maintains a quality
assurance system as described in the Pressure Equipment
2014/68/EU Annex III, Module D

for the scope of

**Production of directly acting spring loaded safety valves
for hydraulic fluids**

acc. to EU-Type examinations – production type (specified in attachment)

The audit with the report number Q-IS-ESA12-MUC-PED-149835-001-22
proves that the quality assurance system fulfils the PED requirements.

The manufacturer is authorized to provide the pressure equipment
produced within the scope of the assessed quality assurance system with
the following Notified Body number:

CE 0036

Certificate No.: DGR-0036-QS-843-22

valid until August 11th, 2025
provided that annual surveillance audits have been performed successfully

Filderstadt, July 27th, 2022

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TÜV SÜD Industry Services · PED-QA-Certification Body · Germany

TÜV®



Industrie Service

ZERTIFIKAT

gültig bis: 17.02.2030

CERTIFICATE

valid until: 17.02.2030

EU-Baumusterprüfung (Modul B) - Baumuster - nach Richtlinie 2014/68/EU

EU Type examination (module B) - production type - according to Directive 2014/68/EU

Zertifikat-Nr.: Z-IS-AN1-MAN-20-02-2804846-14093915

Certificate No.:

Name und Anschrift des Herstellers: HAWE Hydraulik SE

Name and address of manufacturer:

Einsteinring 17
DE-85609 Aschheim

Hiermit wird bescheinigt, dass das unten genannte Baumuster die Anforderungen der Richtlinie 2014/68/EU erfüllt.

We herewith certify that the type mentioned below meets the requirements of the Directive 2014/68/EU.

CE 0036

Prüfbericht Nr.:

Evaluation report No.:

P-IS-AN1-MAN-20-02-2804846-14093915

Geltungsbereich:

Scope of examination:

Hydraulik-Sicherheitsventile des Typs CMVX 2,
Druckbereiche G-B,
Einstelldrücke 20 bis 500 bar

Fertigungsstätte:

Manufacturing plant:

HAWE Hydraulik SE

Tegenseer Weg 5
DE-83679 Sachsenkam

Mannheim, 18.02.2020

(Ort, Datum)

(Place, date)

Echtheitsprüfung durch App TÜV SÜD Verify
Verification of Certificate by TÜV SÜD App Verify

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Notified Body, No. 0036
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Zertifizierungsstelle für Druckgeräte

Dipl.-Ing. R. Brinkmann



ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ CERTIFICADO ◆ CERTIFICAT

References

Additional versions

- Pressure-limiting valve, with unit approval type MV .X: D 7000 TUV
- Pressure limiting valve type MV, SV and DMV: D 7000/1
- Pressure-limiting valve (installation kit) type MV: D 7000 E/1
- Pressure valve type CMV, CMVZ, CSV and CSVZ: D 7710 MV
- Pressure-limiting valve, pilot-controlled type DV, DVE and DF: D 4350

