



2.12

**Products for
Explosion hazardous Environment**

Non-electric valves for explosion hazardous environment

The following **manually and mechanically actuated valves** are available for the use in explosion hazardous environment in zone 1 and 2, gas and dust atmosphere, zone 1, 2, 21, 22:

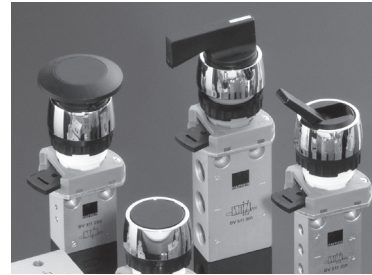
Type	product description
BV 311 301 EX	2.1.1.4
BV 511 301 EX	2.1.2.2
BA 311 301 EX	2.2.1
BA 511 301 EX	2.2.2
BA 22_	2.2.3

The products are marked:

⊕ II2G/D c T6 -10° C ≤ Ta ≤ 50° C

Delivery contains a manual as well as a declaration of conformity.

A declaration of the manufacturer that the actuation elements BA 22_ do not require a certification can be supplied on request. For the use in dust atmosphere we recommend the use of a dust protection cap.



The following **pneumatically actuated valves** are available for the use in explosion hazardous environment in zone 1 and 2, gas and dust atmosphere, zone 1, 2, 21, 22:

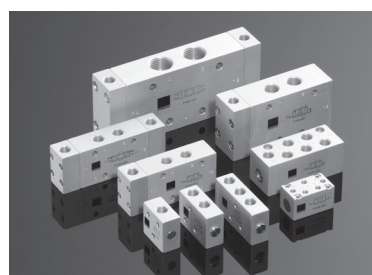
Types	Product description
P 310 502 EX	2.4.1.1
P 310 501 EX, P 310 701 EX, P 310 801 EX	2.4.1.2
P 310 101 EX, P 310 121 EX	2.4.1.3
P 320 502 EX	2.4.1.5
P 320 501 EX, P 320 701 EX, P 320 801 EX	2.4.1.6
P 320 101 EX, P 320 121 EX	2.4.1.7
P 510 502 EX	2.4.2.1
P 510 501 EX, P 510 701 EX, P 510 801 EX	2.4.2.2
P 510 101 EX, P 510 121 EX	2.4.2.3
P 520 502 EX	2.4.2.5
P 520 501 EX, P 520 701 EX, P 520 801 EX	2.4.2.6
P 520 101 EX, P 520 121 EX	2.4.2.7
P 53_ 501 EX, P 53_ 701 EX, P 53_ 801 EX	2.4.3.1
P 53_ 101 EX, P 53_ 121 EX	2.4.3.2
PN 310 701 EX, PN 310 121 EX	2.8.2.1
PN 510 701 EX, PN 510 121 EX, PN 520 701 EX, PN 520 121 EX	2.8.2.2
PN 531 701 EX, PN 531 121 EX	2.8.2.3

The products are marked:

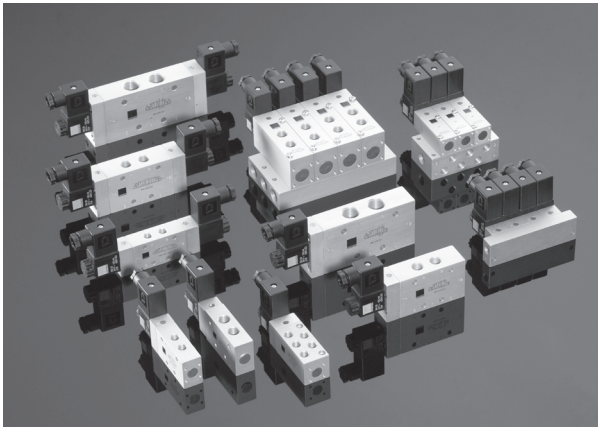
⊕ II2G/D c T6 -10° C ≤ Ta ≤ 50° C

Delivery contains a manual as well as a declaration of conformity.

ATEX-certified pneumatically actuated valves for low-temperature applications as well as stainless steel products are available on request.



Solenoid valves for explosion hazardous environment – Standard temperature range



The solenoid valves of the MH and MNH series can be offered for explosion hazardous environment. Solenoid valves can be used in zone 1 and 2, gas and dust atmosphere, zone 1, 2, 21, 22.

The following protection classes are available:

Encapsulation (Ex m T4)

Marking on valve Ex II2G/D c T4 $-10^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$
II3G/D c T5 $-10^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$

Coils are described on page 2.12.3.1.

Further coils variants on request: Coils for Ex na-systems, CSA / FM certified coils.

Intrinsically safe (Ex ia T6)

marking on valve Ex II2G/D c T6 $-10^{\circ}\text{C} \leq T_a \leq 50^{\circ}\text{C}$

Coil is described on page 2.12.3.2.

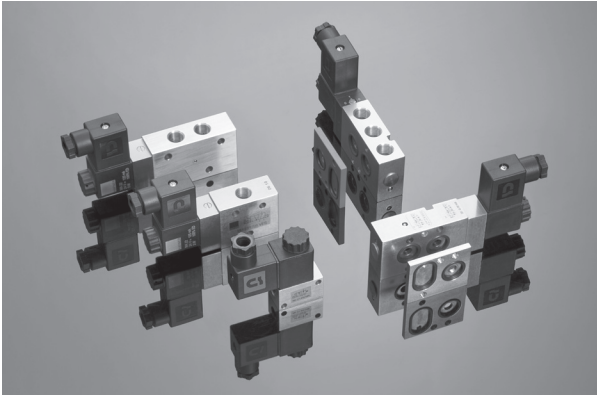
Please notice: Maximum operating pressure for valves with Ex ia solenoid system is 8 bar!

The following **solenoid valves** are available for the use in explosion hazardous environment:

Types	Product description
MH 311 012 Ex m, MH 311 012 Ex ia, MH 311 015 Ex m, MH 311 015 Ex ia	2.5.1.1.2
MH 311 013 Ex m, MH 311 013 Ex ia, MH 311 017 Ex m, MH 311 017 Ex ia	2.5.1.1.4
MH 312 Ex m, MH 315 Ex ia	2.5.1.2.2
MH 310 501 Ex m, MH 310 501 Ex ia, MOH 310 501 Ex m, MOH 310 501 Ex ia	2.5.1.1.10
MH 310 701 Ex m, MH 310 701 Ex ia, MOH 310 701 Ex m, MOH 310 701 Ex ia	2.5.1.1.10
MH 310 801 Ex m, MH 310 801 Ex ia, MOH 310 801 Ex m, MOH 310 801 Ex ia	2.5.1.1.10
MH 310 101 Ex m, MH 310 101 Ex ia, MOH 310 101 Ex m, MOH 310 101 Ex ia	2.5.1.1.11
MH 310 121 Ex m, MH 310 121 Ex ia, MOH 310 121 Ex m, MOH 310 121 Ex ia	2.5.1.1.11
MH 320 501 Ex m, MH 320 501 Ex ia, MH 320 701 Ex m, MH 320 701 Ex ia, MH 320 801 Ex m, MH 320 801 Ex ia	2.5.1.1.14
MH 320 101 Ex m, MH 320 101 Ex ia, MH 320 121 Ex m, MH 320 121 Ex ia	2.5.1.1.15
MH 510 501 Ex m, MH 510 501 Ex ia, MH 510 701 Ex m, MH 510 701 Ex ia, MH 510 801 Ex m, MH 510 801 Ex ia	2.5.2.1.3
MH 510 101 Ex m, MH 510 101 Ex ia, MH 510 121 Ex m, MH 510 121 Ex ia	2.5.2.1.4
MH 520 501 Ex m, MH 520 501 Ex ia, MH 520 701 Ex m, MH 520 701 Ex ia, MH 520 801 Ex m, MH 520 801 Ex ia	2.5.2.1.9
MH 520 101 Ex m, MH 520 101 Ex ia, MH 520 121 Ex m, MH 520 121 Ex ia	2.5.2.1.10
MH 53_ 501 Ex m, MH 53_ 501 Ex ia, MH 53_ 701 Ex m, MH 53_ 701 Ex ia, MH 53_ 801 Ex m, MH 53_ 801 Ex ia	2.5.3.1.2
MH 53_ 101 Ex m, MH 53_ 101 Ex ia, MH 53_ 121 Ex m, MH 53_ 121 Ex ia	2.5.3.1.3
MNH 310 701 Ex m, MNH 310 701 Ex ia, MNH 310 711 Ex m, MNH 310 711 Ex ia	2.8.1.1.1
MNH 310 121 Ex m, MNH 310 121 Ex ia	2.8.1.1.2
MNH 510 701 Ex m, MNH 510 701 Ex ia, MNH 510 711 Ex m, MNH 510 711 Ex ia	2.8.1.2.1
MNH 510 121 Ex m, MNH 510 121 Ex ia	2.8.1.2.2
MNH 520 701 Ex m, MNH 520 701 Ex ia, MNH 520 121 Ex m, MNH 520 121 Ex ia,	2.8.1.2.3
MNH 350 701 Ex m, MNH 350 Ex ia	2.8.1.3
MNH 53_ 701 Ex m, MNH 53_ 701 Ex ia, MNH 531 121 Ex m, MNH 531 121 Ex ia	2.8.1.4

Delivery contains valve with the appropriate operator system, coil, manual and declaration of conformity.

Solenoid valves for explosion hazardous environment – Stainless steel



Solenoid valves made from stainless steel can be offered for explosion hazardous environment. Solenoid valves can be used in zone 1 and 2, gas and dust atmosphere, zone 1, 2, 21, 22.

Stainless steel products for low temperature environment are also available with mechanical ATEX. Valves carry the suffix ... VES TT Ex ia. Currently only available with intrinsically safe solenoid systems.

The following protection classes are available:

Encapsulation (Ex m T4)

Marking on valve Ex II2G/D c T4 -10° C ≤ Ta ≤ 50° C
II3G/D c T5 -10° C ≤ Ta ≤ 50° C

Coils are described on page 2.12.3.1.
Further coils variants on request: Coils for Ex na-systems.

Intrinsically safe (Ex ia T6)

Marking on valve Ex II2G/D c T6 -10° C ≤ Ta ≤ 50° C

Coil is described on page 2.12.3.2.
Please notice: Maximum operating pressure for valves with Ex ia solenoid system is 8 bar!

Intrinsically safe low temperature (Ex ia T6)

Marking on valve Ex II2G/D c T6 -40° C ≤ Ta ≤ 50° C

Coil is described on page 2.12.3.2.
Please notice: Maximum operating pressure for valves with Ex ia solenoid system is 8 bar!

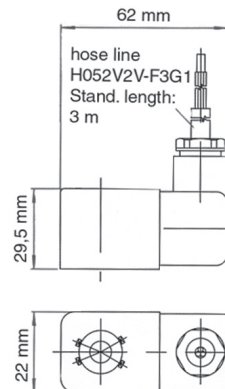
The following **solenoid valves** are available for the use in explosion hazardous environment:

Type	* Low temperature	Product description
MH 311 015 VES Ex m, MH 311 015 VES Ex ia	MH 311 015 VES TT Ex ia	2.10.2.1
MH 310 701 VES Ex m, MH 310 701 VES Ex ia	MH 310 701 VES TT Ex ia	2.10.2.2
MOH 310 701 VES Ex m, MOH 310 701 VES Ex ia	MOH 310 701 VES TT Ex ia	2.10.2.2
MH 510 701 VES Ex m, MH 510 701 VES Ex ia	MH 510 701 VES TT Ex ia	2.10.2.3
MH 520 701 VES Ex m, MH 520 701 VES Ex ia	MH 520 701 VES TT Ex ia	2.10.2.3
MNH 310 701 VES Ex m, MNH 310 701 VES Ex ia	MNH 310 701 VES TT Ex ia	2.10.3.1
MNH 510 701 VES Ex m, MNH 510 701 VES Ex ia	MNH 510 701 VES TT Ex ia	2.10.3.2
MNH 520 701 VES Ex m, MNH 520 701 VES Ex ia	MNH 520 701 VES TT Ex ia	2.10.3.2
MNH 350 701 VES Ex m, MNH 350 701 VES Ex ia	MNH 350 701 VES TT Ex ia	2.10.3.1

Delivery contains valve with the appropriate operator system, coil, manual and declaration of conformity.

Ex II 2G EEx m II T4/IEC Ex m II T4 Ex II 2D IP65 T130° C/IP65 DIP A21 T130° C

When this solenoid system is used in combination with „ATEX certified“ mechanical components conforming EN 13463-1:2001 and PrEN 13463-5:2000, the entire valve can be used in explosive hazardous environment zone 1 and 21.



ATEX approved encapsulated coils for gas and dust explosion-hazardous environment.

The standard cable length is 3 meter, others on request.

Voltage tolerance: -10...+10 %

Relative duty cycle: 100 %

Temperature range: -20°...+50° C

Insulation class of insulating materials according to DIN VDE 0580: F

Protection with mounted plug-in connector according to IEC 529: IP 65

Moulding material: Thermoplastic

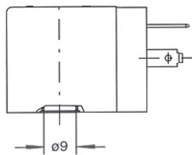
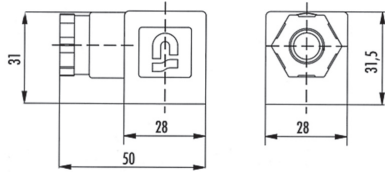
The ATEX approval is only valid as long as the associated components are used.

These coils are approved according to EN 50 028 resp. DIN VDE 0170/0171, part 9 by the Physikalisch-Technische-Bundesanstalt (PTB). For additional information see „Specification for Electronic Devices“ DIN VDE 0580.

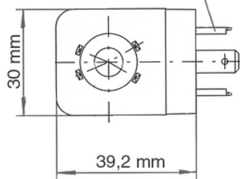
Type	Operating press.	Power consumption	Temperature class
MA 22 EEx M II T4 24=	max. 10 bar	5,0 Watt	T4 (135° C)
MA 22 EEx M II T4 110~	max. 10 bar	4,5 VA	T4 (135° C)
MA 22 EEx M II T4 230~	max. 10 bar	5,1 VA	T4 (135° C)

Ex II 2G Ex ia IIC T6 Ex II 2D Ex tD A21 IP65 T 80° C

When this solenoid system is used in combination with „ATEX certified“ mechanical components conforming EN 13463-1:2001 and PrEN 13463-5:2000, the entire valve can be used in explosive hazardous environment zone 1 and 21.



Electrical connection
DIN EN 175301-803A/ISO 4400



ATEX approved intrinsic safety coil and connector for gas and dust explosion-hazardous environment. System with IEC approval available on request. Electrical connection according to DIN EN 175301-803-A / ISO 4400.

General data:

Relative duty cycle:	100 %
Insulation class of insulating materials according to DIN VDE 0580:	F
Protection with connector according to EN 60529:	IP 65
Moulding material:	Epoxy
Coil:	
Electrical characteristics:	21,6... 28 V DC >37 mA final temperature rise 18 K 275 Ohm +/- 8 %
Temperature range:	-40°... +50° C

Barrier:

Electrical characteristics:	21,6... 28 V DC
Admissible peak value:	28 V DC 115 mA 1,6 W

As the coil is 30 mm wide, a spacer plate called „ZPN 5“ has to be used, in case of combination with our Namur valve series 700.

Our ST 30 ATEX is an ATEX approved connector, especially designed for being used in combination with the intrinsic safety coil. For dust approval (zone 21), this original connector has to be used.

Delivery includes connector, flat nitril gasket and fixing screw (zinc-plated steel). Form according to A - ISO 4400, no LED, no varistor, operating voltage 0 – 250 V, max. current 10 A, cable diameter 6 – 8 mm.

The ATEX approval is only valid as long as the associated components are used. These coils are approved according to EN 50 020 resp. DIN VDE 0170/0171, part 5 by the Physikalisch-Technische-Bundesanstalt (PTB). For additional information see „Specification for Electronic Devices“ DIN VDE 0580.