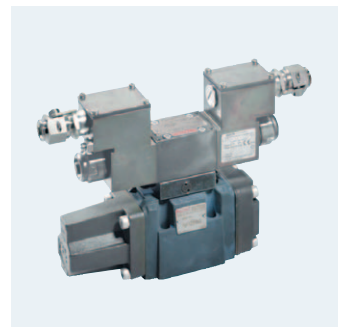


Explosion protected hydraulic products

Product overview industrial and mobile hydraulics



Recognizing hazards and categorizing them correctly

Legal directives such as 94/9/EC (ATEX) in Europe or NEC/CEC in the USA and Canada as well as other national and international regulations define the intended application of operating resources in areas that pose a potential explosion hazard. The place of use and zoning as well as the ignition protection type and equipment protection level determine the requirements for components, units and devices. To this end, Rexroth offers you a wide variety of certified hydraulic and electric drive products.



Classification of operating resources using the ATEX directive as an example

Zoning

The ATEX directive calls for a risk assessment to be conducted by the operator or a commissioned external party as the first step. The relevant standards differentiate between areas subject to gas explosions caused by solvents or other process vapors, for example, and areas subject to dust explosions as are found in the food and wood industries. The frequency with which these potentially explosive atmospheres arise defines the correlation with a standardized zone which, in turn, dictates the level of protection required. Every zone is assigned an equipment category.

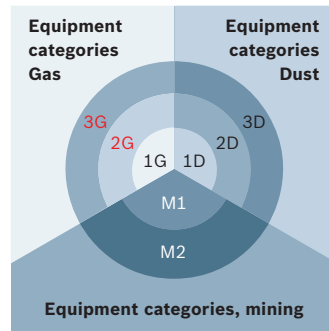
Equipment group and category

Our products are assigned to equipment groups and categories in line with the regulations specified by the ATEX directive and intended use applications. Underground operation (mining) and the above-ground installation are assigned equipment group I. All other areas with an explosion risk are assigned equipment group II. In addition to the equipment groups that fall under the ATEX directive, equipment is also assigned to a specific equipment category in line with the EN 60079 series of standards and the subsequent area of application.

- Equipment category 1 (1G/1D)–Very high level of protection
- Equipment category 2 (2G/2D)–High level of protection
- Equipment category 3 (3G/3D)–Normal level of protection

Ignition protection types

Appropriate technical measures in accordance with assigning the area in question to a representative explosion category ensure that no ignition source can develop. Several technical options exist for realizing explosion protection for an electrical device. ATEX defines ignition protection types such as flameproof encapsulation, pressurized encapsulation, intrinsic safety, and cast encapsulation and assigns them to the area of application and zone.



◀ Rexroth offers a wide variety of certified products for different hazard zones and equipment categories

Explosive area Gas	Frequency	Equipment group	Equipment category	Area of application	Level of protection
Zone 0	Continuous, frequent, long-term	II	1G	Gases, vapors, fog/mist	Ga Very high level of protection
Zone 1	Occasional	II	2G	Gases, vapors, fog/mist	Gb High level of protection
Zone 2	Seldom, short time frame, at malfunction	II	3G	Gases, vapors, fog/mist	Gc Normal level of protection

Explosive area Dust	Frequency	Equipment group	Equipment category	Area of application	Level of protection
Zone 20	Continuous, frequent, long-term	II	1D	Dusts	Da Very high level of protection
Zone 21	Occasional	II	2D	Dusts	Db High level of protection
Zone 22	Seldom, short time frame, at malfunction	II	3D	Dusts	Dc Normal level of protection

Explosive area Mining	Frequency	Equipment group	Equipment category	Area of application	Level of protection
Mining	Continuous	I	M1	Methane, coal dust	Ma Very high level of protection
Mining	Frequent	I	M2	Methane, coal dust	Mb High level of protection

Temperature classes, temperature limits

The ignition temperature of a combustible gas or liquid is the lowest temperature at which the gas/air or vapor/air ignition event occurs. The highest surface temperature of an operating resource must therefore always be lower than the ignition temperature of the surrounding atmosphere. The maximum permissible surface temperature of operating resources assigned to equipment group I depends on the accumulation of coal dust (with/without coal dust deposits).

Temperature classes T1 to T6 were introduced for electrical operating resources of equipment group II used in areas subject to gas and vapor explosions. Every operating re-source is assigned a respective temperature class based on its maximum surface temperature. For electrical operating resources of equipment group II used in areas subject to dust explosions, the maximum surface temperature is specified as a temperature value in °C. The maximum surface temperature of the operating resource must not exceed the ignition temperature of a layer of dust or a cloud of combustible dust.

Operating resources that correspond to a higher temperature class can also be used for applications with a lower temperature class in the same way that equipment with a high level of protection can likewise be used in areas with a lower level of protection (e.g. equipment category 1 in the vicinity of application areas aligned with equipment categories 2 and 3).

Non-electrical equipment

Non-electrical equipment is also subject to the requirements defined by the explosion protection directive. Rexroth has carried out and documented an ignition risk assessment i.a.w. DIN EN 13463-1 for these product series and thus meets the basic health and safety requirements defined by explosion protection directive 94/9/EC.



Conformity assessment procedures

Different procedures for verifying the standardized characteristics and properties of operating resources are prescribed depending on the level of equipment protection. For example, when stricter requirements apply, type testing routines must be carried out externally, whereas a conformity assessment made by the manufacturer is sufficient in cases involving less strict requirements. Rexroth makes its assessments in full accordance with operative requirements.

Category n. 94/9/EC	Type of product	Procedure	Document filing
IM1 II1G II1D	Electrical or non-electrical	EC type testing by a notified body	Rexroth and at notified body with confirmation
IM2 II2G II2D	Electrical	EC type testing by a notified body	Rexroth and at notified body with confirmation
IM2 II2G II2D	Non-electrical	Conformity assessment by manufacturer	Rexroth and at notified body
II3G II3D	Electrical or non-electrical	Conformity assessment by manufacturer	Rexroth

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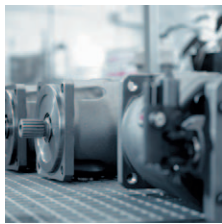
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Cylinders

CDH2...XC, CSH2...XE



- ▶ Series H2
- ▶ Component series 3X
- ▶ Nominal pressure 250 bar [25 MPa]

Features

- ▶ Standards: DIN 24333, ISO 6022
- ▶ 6 types of mounting
- ▶ Piston diameter (\varnothing AL): 40 ... 320 mm
- ▶ Piston rod diameter (\varnothing MM): 25 ... 220 mm
- ▶ Stroke lengths up to 6 m

Product description

Series CDH2...XC and CSH2...XE are mill type differential cylinders for applications also under extreme conditions. They are suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 17335-X

Technical data

Variant			CDH2...XC (without position measurement system)	CSH2...XE (with position measurement system)
Device group and category according to directive 94/9/EC			II 2G, II 2D	II 3G, II 3D
Type of protection for II.G			c T4	Ex e T4
Type of protection for II.D			c T135 °C	Ex tc T135 °C
Ambient temperature range			-20 ... +80	-20 ... +40
Nominal pressure	p_{nom}	bar	250	250
Piston diameter	D	mm	40 ... 320	40 ... 320
Piston rod diameter	D	mm	25 ... 220	25 ... 220

Cylinders

CGH2...XC



- ▶ Series H2
- ▶ Component series 3X
- ▶ Nominal pressure 250 bar [25 MPa]

Features

- ▶ 3 types of mounting
- ▶ Piston diameter (\varnothing AL): 40 ... 320 mm
- ▶ Piston rod diameter (\varnothing MM): 25 ... 220 mm
- ▶ Stroke lengths up to 6 m

Product description

Series CGH2...XC are mill type double-acting cylinders for applications also under extreme conditions. They are suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 17335-X

Technical data

Device group and category according to directive 94/9/EC			II 2G, II 2D
Type of protection for II.G			c T4
Type of protection for II.D			c T135 °C
Ambient temperature range			-20 ... +80
Nominal pressure	p_{nom}	bar	250
Piston diameter	D	mm	40 ... 320
Piston rod diameter	D	mm	25 ... 220

Directional seat valves, direct operated, with solenoid actuation

M-.SE 6 ...XD



- ▶ Size 6
- ▶ Component series 6X
- ▶ Maximum operating pressure 420 bar
- ▶ Maximum flow 12 l/min

Features

- ▶ 3/2- or 4/2-way version
- ▶ Porting pattern according to DIN 24340-A6
- ▶ Blocked port is tight
- ▶ Safe switching with longer standstill periods under pressure
- ▶ Manual override
- ▶ Type of protection "d" (flameproof enclosure)
- ▶ Valve housing and solenoid are galvanized

Product description

The valve type M-.SE 6 ...XD is a direct operated directional seat valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. The valve solenoid is also certified according to IECEx.

Directional seat valves connect or isolate the connections by lowering or raising a sealing element (poppet, ball). The blocking is leakage-free.

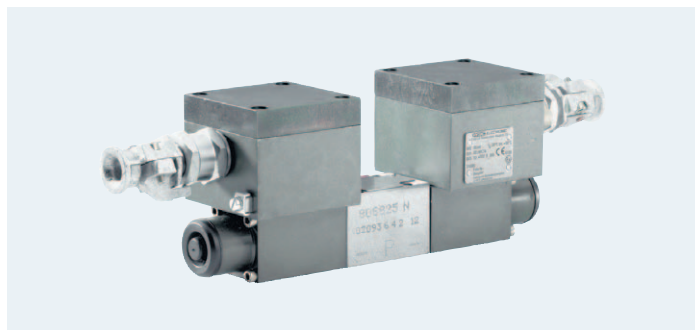
More detailed information:

Data sheet 22047-XD-B2

Technical data

Operating pressure	p_{max}	bar	420
Flow	q_{Vmax}	l/min	12
Device group and category according to directive 94/9/EC			I M2, II 2G
Type of protection valve solenoid for I M2			Ex d I Mb
Type of protection valve solenoid for II 2G			Ex d IIC T4 Gb
Standard for explosion protection			EN 60079-0:2009 / EN 60079-1:2007
Ambient temperature range	9	° C	-20 ... +80
Hydraulic fluid temperature range	9	° C	-15 ... +80

Directional spool valves, direct operated, with solenoid actuation WE 6 ../.B..XD



- ▶ Size 6
- ▶ Component series 6X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 60 l/min

Features

- ▶ 4/3-, 4/2- or 3/2-way version
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ High-power solenoids
- ▶ Wet-pin DC solenoids in hydraulic fluid
- ▶ Manual override
- ▶ Type of protection "d" (flameproof enclosure)
- ▶ Valve housing and solenoids are galvanized

Product description

The valve type WE 6 ../.B..XD is a direct operated directional spool valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. The valve solenoids are also certified according to IECEx.

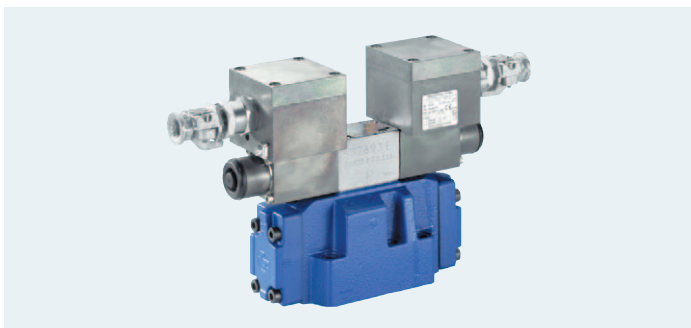
More detailed information:

Data sheet 23178-XD-B2

Technical data

Operating pressure	p_{\max}	bar	315
Flow	$q_{V\max}$	l/min	60
Device group and category according to directive 94/9/EC			I M2, II 2G
Type of protection valve solenoid for I M2			Ex d I Mb
Type of protection valve solenoid for II 2G			Ex d IIC T4 Gb
Standard for explosion protection			EN 60079-0:2009 / EN 60079-1:2007
Ambient temperature range	9	° C	-20 ... +80
Hydraulic fluid temperature range	9	° C	-20 ... +80

Directional spool valves, pilot operated, with electro-hydraulic actuation H-4WEH...XD



- ▶ Sizes 10, 16, 25, 32
- ▶ Component series 4X, 6X, 7X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 1100 l/min

Features

- ▶ 4/2- or 4/3-way version
- ▶ Porting pattern according to DIN 24340-A and ISO 4401
- ▶ Spring centering, spring end position or hydraulic end position
- ▶ Switching time adjustment
- ▶ Manual override
- ▶ Type of protection "d" (flameproof enclosure)

Product description

The valve type H-4WEH...XD is a pilot operated directional spool valve with electro-hydraulic actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. The valve solenoids are also certified according to IECEx.

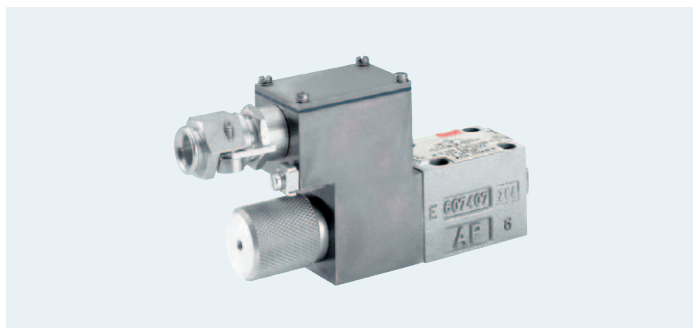
More detailed information:

Data sheet 24751-XD-B2

Technical data

Size			10	16	25	32
Operating pressure	p_{\max}	bar	350	350	350	350
Flow	$q_{V\max}$	l/min	160	300	650	1100
Device group and category according to directive 94/9/EC						I M2, II 2G
Type of protection valve solenoid for I M2						Ex d I Mb
Type of protection valve solenoid for II 2G						Ex d IIC T4 Gb
Standard for explosion protection						EN 60079-0:2009 / EN 60079-1:2007
Ambient temperature range	ϑ	° C				-20 ... +80
Hydraulic fluid temperature range	ϑ	° C				-20 ... +80

Directional seat valves, direct operated, with solenoid actuation M-.SED 6...XE



- ▶ Size 6
- ▶ Component series 1X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 25 l/min

Features

- ▶ 3/2- or 4/2-version
- ▶ Porting pattern according to DIN 24340-A6
- ▶ Blocked port is tight
- ▶ Safe switching with longer standstill periods under pressure
- ▶ Solenoid coil can be rotated by 90°
- ▶ Manual override
- ▶ Type of protection "e" (increased safety)
- ▶ Valve housing and solenoid are galvanized

Product description

The valve type M-.SED 6 ...XE is a direct operated directional seat valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. The valve solenoid is also certified according to IECEx. Directional seat valves connect or isolate the connections by lowering or raising a sealing element (poppet, ball). The blocking is leakage-free.

More detailed information:

Data sheet 22049-XE-B2

Technical data

Operating pressure	p_{\max}	bar	350
Flow	$q_{V\max}$	l/min	25
Device group and category according to directive 94/9/EC			II 2G
Type of protection valve solenoid			Ex e mb IIC T4 Gb
Standard for explosion protection			EN 60079-7:2007 / EN 60079-18:2009
Ambient temperature range	9	° C	-20 ... +70
Hydraulic fluid temperature range	9	° C	-20 ... +80

Directional seat valves, direct operated, with solenoid actuation M-.SEW 6...XE



- ▶ Size 6
- ▶ Component series 3X
- ▶ Maximum operating pressure 420 bar
- ▶ Maximum flow 25 l/min

Features

- ▶ 2/2-, 3/2- or 4/2-way version
- ▶ Porting pattern according to DIN 24340-A6
- ▶ Blocked port is tight
- ▶ Safe switching with longer standstill periods under pressure
- ▶ Solenoid coil can be rotated by 90°
- ▶ Manual override
- ▶ Type of protection "e" (increased safety)
- ▶ Valve housing and solenoid are galvanized

Product description

The valve type M-.SEW 6 ...XE is a direct operated directional seat valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. The valve solenoid is also certified according to IECEx. Directional seat valves connect or isolate the connections by lowering or raising a sealing element (poppet, ball). The blocking is leakage-free.

More detailed information:

Data sheet 22058-XE-B2

Technical data

Operating pressure	p_{max}	bar	420
Flow	q_{Vmax}	l/min	25
Device group and category according to directive 94/9/EC			II 2G
Type of protection valve solenoid			Ex e mb IIC T4 Gb
Standard for explosion protection			EN 60079-7:2007 / EN 60079-18:2009
Ambient temperature range	9	° C	-20 ... +70
Hydraulic fluid temperature range	9	° C	-20 ... +80

Directional seat valves, direct operated, with solenoid actuation M-.SEW 10...XE



- ▶ Size 10
- ▶ Component series 1X
- ▶ Maximum operating pressure 420 bar
- ▶ Maximum flow 40 l/min

Features

- ▶ 3/2- or 4/2-way version
- ▶ Porting pattern according to DIN 24340-A10 and ISO 4401-05-04-0-05
- ▶ Blocked port is tight
- ▶ Safe switching with longer standstill periods under pressure
- ▶ Solenoid coil can be rotated by 90°
- ▶ Manual override
- ▶ Type of protection "e" (increased safety)
- ▶ Valve housing and solenoid are galvanized

Product description

The valve type M-.SEW 10 ...XE is a direct operated directional seat valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. The valve solenoid is also certified according to IECEx. Directional seat valves connect or isolate the connections by lowering or raising a sealing element (poppet, ball). The blocking is leakage-free.

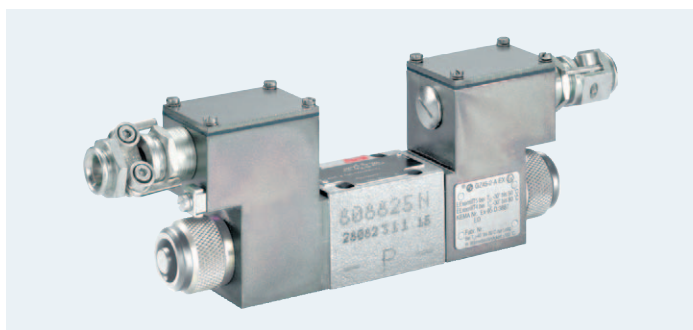
More detailed information:

Data sheet 22075-XE-B2

Technical data

Operating pressure	p_{max}	bar	420
Flow	q_{Vmax}	l/min	40
Device group and category according to directive 94/9/EC			II 2G
Type of protection valve solenoid			Ex e mb IIC T4 Gb
Standard for explosion protection			EN 60079-7:2007 / EN 60079-18:2009
Ambient temperature range	9	° C	-20 ... +70
Hydraulic fluid temperature range	9	° C	-20 ... +80

Directional spool valves, direct operated, with solenoid actuation WE 6 ../.E..XE



- ▶ Size 6
- ▶ Component series 6X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 70 l/min

Features

- ▶ 4/3-, 4/2- or 3/2-way version
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ High-power solenoids
- ▶ Wet-pin DC solenoids in hydraulic fluid
- ▶ Solenoid coil can be rotated by 90°
- ▶ Manual override
- ▶ Type of protection "e" (increased safety)
- ▶ Valve housing and solenoids are galvanized

Product description

The valve type WE 6 ../.E..XE is a direct operated directional spool valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. The valve solenoids are also certified according to IECEx.

More detailed information:

Data sheet 23178-XE-B2

Technical data

Operating pressure	p_{\max}	bar	350
Flow	$q_{V\max}$	l/min	70
Device group and category according to directive 94/9/EC			II 2G
Type of protection valve solenoid			Ex e mb IIC T4 Gb
Standard for explosion protection			EN 60079-7:2007 / EN 60079-18:2009
Ambient temperature range	θ	° C	-20 ... +70
Hydraulic fluid temperature range	θ	° C	-20 ... +80

Directional spool valves, pilot operated, with electro-hydraulic actuation H-4WEH...XE



- ▶ Sizes 10, 16, 25, 32
- ▶ Component series 4X, 6X, 7X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 1100 l/min

Features

- ▶ 4/2- or 4/3-way version
- ▶ Porting pattern according to DIN 24340-A and ISO 4401
- ▶ Spring centering, spring end position or hydraulic end position
- ▶ Switching time adjustment
- ▶ Manual override
- ▶ Type of protection "e" (increased safety)

Product description

The valve type H-4WEH...XE is a pilot operated directional spool valve with electro-hydraulic actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. The valve solenoids are also certified according to IECEx.

More detailed information:

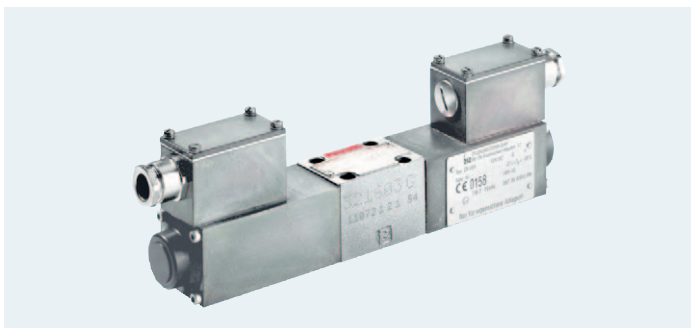
Data sheet 24751-XE-B2

Technical data

Size			10	16	25	32
Operating pressure	p_{\max}	bar	350	350	350	350
Flow	$q_{V\max}$	l/min	160	300	650	1100
Device group and category according to directive 94/9/EC						II 2G
Type of protection valve solenoid						Ex e mb IIC T4 Gb
Standard for explosion protection						EN 60079-7:2007 / EN 60079-18:2009
Ambient temperature range	9	° C				-20 ... +70
Hydraulic fluid temperature range	9	° C				-20 ... +80

Directional spool valves, direct operated, with solenoid actuation

WE 6 ../.B..X



- ▶ Size 6
- ▶ Component series 5X
- ▶ Maximum operating pressure 210 bar
- ▶ Maximum flow 20 l/min

Features

- ▶ 4/3-, 4/2- or 3/2-way version
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ Wet-pin DC solenoids in hydraulic fluid
- ▶ Manual override
- ▶ Type of protection "i" (intrinsically safe)
- ▶ Valve housing and solenoids are galvanized

Product description

The valve type WE 6 ../.B..X is a direct operated directional spool valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC and optionally corresponds to device group I or II. The valve solenoids are also certified according to IECEx.

More detailed information:

Data sheet 23177-XH-B2

Technical data

Version			WE 6 ../.B..XM...	WE 6 ../.B..XH...
Device group and category according to directive 94/9/EC			I M2	II 2G
Type of protection valve solenoid			Ex ib I Mb	Ex ib IIC T6 Gb
Standard for explosion protection			EN 60079-0:2009 / EN 60079-11:2007	EN 60079-0:2009 / EN 60079-11:2007
Operating pressure	p_{max}	bar	210	210
Flow	q_{Vmax}	l/min	20	20
Ambient temperature range	θ	° C	-20 ... +50	-20 ... +50
Hydraulic fluid temperature range	θ	° C	-20 ... +80	-20 ... +80

Directional seat valves, direct operated, with solenoid actuation E-.SE 6 ...X, W-.SE 6 ...X



- ▶ Size 6
- ▶ Component series 6X
- ▶ Maximum operating pressure 420 bar
- ▶ Maximum flow 4 l/min

Features

- ▶ 3/2- or 4/2-way version
- ▶ For hydraulic fluids oil in water (type E...) and/or water (type W...)
- ▶ Porting pattern according to DIN 24340-A6
- ▶ Blocked port is tight
- ▶ Safe switching with longer standstill periods under pressure
- ▶ Manual override
- ▶ Type of protection "i" (intrinsically safe)
- ▶ Valve housing and solenoid are galvanized

Product description

The valve type E(W)-.SE 6 ...X is a direct operated directional seat valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC and optionally corresponds to device group I or II. The valve solenoid is also certified according to IECEx.

Directional seat valves connect or isolate the connections by lowering or raising a sealing element (poppet, ball). The blocking is leakage-free.

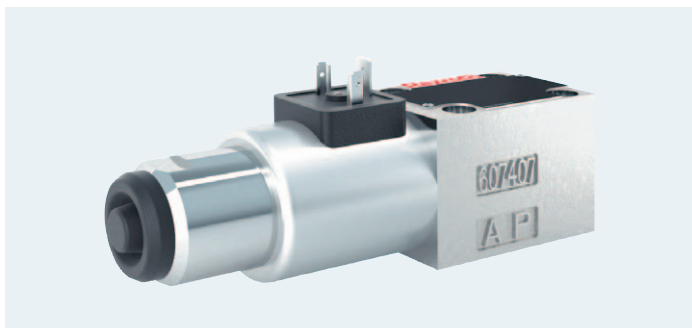
More detailed information:

Data sheet 22047-XH-B2

Technical data

Version			E(W)-.SE 6 ../.B..XM...	E(W)-.SE 6 ../.B..XH...
Device group and category according to directive 94/9/EC			I M2	II 2G
Type of protection valve solenoid			Ex ib I Mb	Ex ib IIC T6 Gb
Standard for explosion protection			EN 60079-0:2009 / EN 60079-11:2007	EN 60079-0:2009 / EN 60079-11:2007
Operating pressure	p_{max}	bar	420	420
Flow	q_{Vmax}	l/min	4	4
Ambient temperature range	θ	° C	-20 ... +50	-20 ... +50
Hydraulic fluid temperature range	θ	° C	+5 ... +50	+5 ... +50

Directional seat valves, direct operated, with solenoid actuation M-.SED 6...XN



- ▶ Size 6
- ▶ Component series 1X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 25 l/min

Features

- ▶ 3/2- or 4/2-way version
- ▶ Porting pattern according to DIN 24340-A6
- ▶ Blocked port is tight
- ▶ Safe switching with longer standstill periods under pressure
- ▶ Solenoid coil can be rotated by 90°
- ▶ Manual override
- ▶ Type of protection "n" (not igniting)
- ▶ Valve housing and solenoid are galvanized

Product description

The valve type M-.SED 6 ...XN is a direct operated directional seat valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. Directional seat valves connect or isolate the connections by lowering or raising a sealing element (poppet, ball). The blocking is leakage-free.

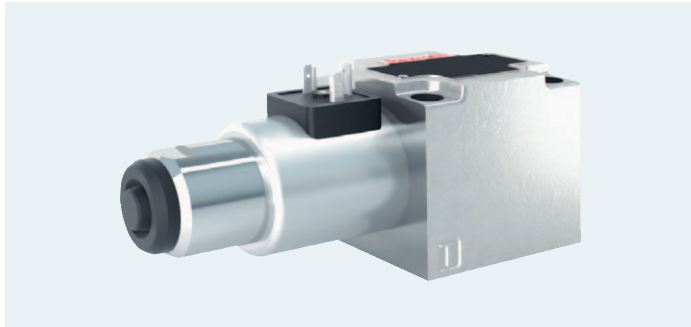
More detailed information:

Data sheet 22049-XN-B2

Technical data

Operating pressure	p_{\max}	bar	350
Flow	$q_{V\max}$	l/min	25
Device group and category according to directive 94/9/EC			II 3G, II 3D
Type of protection valve solenoid for II 3G			Ex nA IIC T3 Gc
Type of protection valve solenoid for II 3D			Ex tc IIIC T140 °C Dc IP65
Standard for explosion protection			EN 60079-15:2010 / EN 60079-31:2009
Ambient temperature range	9	° C	-20 ... +50
Hydraulic fluid temperature range	9	° C	-20 ... +80

Directional seat valves, direct operated, with solenoid actuation M-.SED 10...XN



- ▶ Size 10
- ▶ Component series 1X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 40 l/min

Features

- ▶ 3/2- or 4/2-way version
- ▶ Porting pattern according to ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-D05
- ▶ Blocked port is tight
- ▶ Safe switching with longer standstill periods under pressure
- ▶ Solenoid coil can be rotated by 90°
- ▶ Manual override
- ▶ Type of protection "n" (not igniting)
- ▶ Valve housing and solenoid are galvanized

Product description

The valve type M-.SED 10 ...XN is a direct operated directional seat valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC. Directional seat valves connect or isolate the connections by lowering or raising a sealing element (poppet, ball). The blocking is leakage-free.

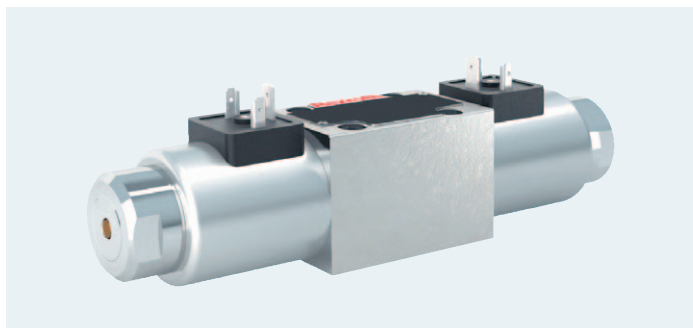
More detailed information:

Data sheet 22045-XN-B2

Technical data

Operating pressure	p_{max}	bar	350
Flow	q_{Vmax}	l/min	40
Device group and category according to directive 94/9/EC			II 3G, II 3D
Type of protection valve solenoid for II 3G			Ex nA IIC T3 Gc
Type of protection valve solenoid for II 3D			Ex tc IIIC T140 °C Dc IP65
Standard for explosion protection			EN 60079-15:2010 / EN 60079-31:2009
Ambient temperature range	9	° C	-20 ... +50
Hydraulic fluid temperature range	9	° C	-20 ... +80

Directional spool valves, direct operated, with solenoid actuation WE 6 ../.E..XN



- ▶ Size 6
- ▶ Component series 6X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 80 l/min

Features

- ▶ 4/3-, 4/2- or 3/2-way version
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ High-power solenoids
- ▶ Wet-pin DC solenoids in hydraulic fluid
- ▶ Solenoid coil can be rotated by 90°
- ▶ Manual override
- ▶ Type of protection "n" (not igniting)
- ▶ Valve housing and solenoids are galvanized

Product description

The valve type WE 6 ../.E..XN is a direct operated directional spool valve with solenoid actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

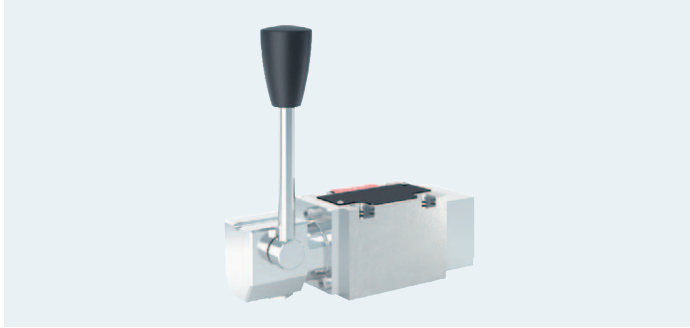
Data sheet 23178-XN-B2

Technical data

Operating pressure	p_{\max}	bar	350
Flow	$q_{V\max}$	l/min	80
Device group and category according to directive 94/9/EC			II 3G, II 3D
Type of protection valve solenoid for II 3G			Ex nA IIC T3 Gc
Type of protection valve solenoid for II 3D			Ex tc IIIC T140 °C Dc IP65
Standard for explosion protection			EN 60079-15:2010 / EN 60079-31:2009
Ambient temperature range	9	° C	-20 ... +50
Hydraulic fluid temperature range	9	° C	-20 ... +80

Directional spool valves, direct operated, with manual actuation

WMM 6 ...XC



- ▶ Size 6
- ▶ Component series 5X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 60 l/min

Features

- ▶ 4/3-, 4/2- or 3/2-way version
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ Type of protection "c" (design safety)

Product description

The valve type WMM 6 ...XC is a direct operated directional spool valve with manual actuation. It controls start, stop and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC.

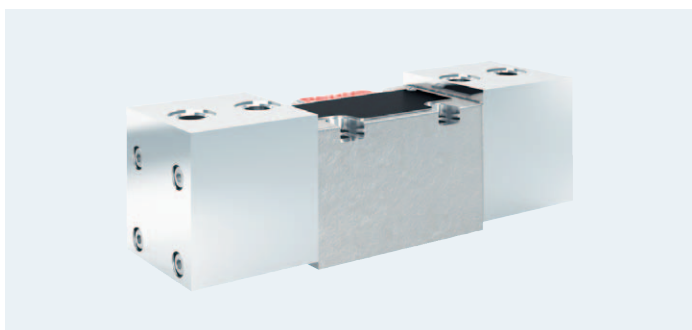
More detailed information:

Data sheet 22280-XC-B2

Technical data

Operating pressure	p_{\max}	bar	315
Flow	$q_{V\max}$	l/min	60
Device group and category according to directive 94/9/EC			IM2, II 2G, II 2D, II 3G, II 3D
Type of protection valve			c
Standard for explosion protection			EN 13463-5:2004-03
Ambient temperature range	9	° C	-30 ... +80
Hydraulic fluid temperature range	9	° C	-30 ... +80

Directional spool valves, direct operated, with fluidic actuation WP 6...XC, WH 6...XC



- ▶ Size 6
- ▶ Component series 5X (WH)
- ▶ Component series 6X (WP)
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 60 l/min

Features

- ▶ 4/3-, 4/2- or 3/2-way version
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ Types of actuation:
 - Pneumatic (WP)
 - Hydraulic (WN)
- ▶ Type of protection "c" (design safety)

Product description

The valves of type WP 6...XC and WH 6...XC are direct operated directional spool valves with pneumatic or hydraulic actuation. They control start, stop and direction of a flow and are suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 22282-XC-B2

Technical data

Operating pressure	p_{max}	bar	315
Flow	q_{Vmax}	l/min	60
Device group and category according to directive 94/9/EC			IM2, II 2G, II 2D, II 3G, II 3D
Type of protection valve			c
Standard for explosion protection			EN 13463-5:2004-03
Ambient temperature range	9	° C	-30 ... +80
Hydraulic fluid temperature range	9	° C	-30 ... +80

Pressure relief valves, pilot operated DB...5X/...XC



- ▶ Size 10, 20, 30
- ▶ Component series 5X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 650 l/min

Features

- ▶ Porting pattern according to ISO 6264-A
- ▶ Adjustment type rotary knob
- ▶ Type of protection "c" (design safety)

Product description

The valve type DB...5X/...XC is a pilot operated pressure relief valve for subplate mounting or pipeline installation. It is used to limit the operating pressure and is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 25802-XC-B2

Technical data

Size			10	20	30
Operating pressure	p_{\max}	bar	350	350	350
Flow	$q_{V\max}$	l/min	250	500	650
Device group and category according to directive 94/9/EC					IM2, II 2G, II 2D
Type of protection valve					c
Standard for explosion protection					EN 13463-5: 2001-01
Ambient temperature range	9	° C			-20 ... +80
Hydraulic fluid temperature range	9	° C			-20 ... +80

Pressure reducing valves, direct operated

DR 6 DP...XC, ZDR 6 D...XC



- ▶ Size 6
- ▶ Component series 5X (type DR 6)
- ▶ Component series 4X (type ZDR 6)
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 60 l/min

Features

- ▶ Type DR 6 (for subplate mounting):
Porting pattern according to DIN 24340-A6 (standard) and ISO 4401-03-02-0-05, 5 pressure ratings
- ▶ Type ZDR 6 (sandwich plate valve):
Porting pattern according to DIN 24340-A6, 4 pressure ratings
- ▶ Adjustment type as rotary knob
- ▶ Check valve, optional
- ▶ Type of protection "c" (design safety)

Product description

The valves of type DR 6 DP...XC and ZDR 6 D...XC are direct operated pressure reducing valves. They are used to keep the output pressure (actuator pressure, secondary pressure) at a constant value that lies below the variable pressure in the main circuit (inlet pressure, primary pressure). They are suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 26564-XC-B2

Technical data

Version			DR 6 DP...XC	ZDR 6 D...XC
Operating pressure	p_{\max}	bar	315	315
Flow	$q_{V\max}$	l/min	60	50
Device group and category according to directive 94/9/EC				IM2, II 2G
Type of protection valve				c
Standard for explosion protection				EN 13463-5:2004-03
Ambient temperature range	9	° C		-30 ... +80
Hydraulic fluid temperature range	9	° C		-30 ... +80

Safety valves, direct operated DBDH...XC...E



- ▶ Size 6, 10, 20, 30
- ▶ Component series 1X
- ▶ Maximum operating pressure 630 bar

Features

- ▶ Adjustment type rotary knob
- ▶ Type of protection "c" (design safety)

Product description

The valve type DBDH...XC...E is a direct operated pressure relief valve as screw-in cartridge valve, for subplate mounting or pipeline installation. It is used to limit the operating pressure and is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 25010-XC-B2

Technical data

Size			6	10	20	30
Operating pressure	p_{\max}	bar	400	630	400	400
Flow	$q_{V\max}$	l/min	52	140	165	300
Device group and category according to directive 94/9/EC			IM2, II 2G, II 2D			
Type of protection valve			c			
Standard for explosion protection			EN 13463-5:2004-03			
Ambient temperature range	9	° C	-30 ... +80			
Hydraulic fluid temperature range	9	° C	-15 ... +60			

Throttle check valves

Z2FS 6...XC



- ▶ Size 6
- ▶ Component series 4X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 80 l/min

Features

- ▶ Sandwich plate valve
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ Setscrew with lock nut and protective cap
- ▶ For supply or discharge throttling
- ▶ Type of protection "c" (design safety)

Product description

The valve type Z2FS 6...XC is a throttle check valve in sandwich plate design. It is used for the main or pilot flow limitation of one or two actuator ports and is suitable for use in an explosive atmosphere according to directive 94/9/EC.

Two throttle check valves aligned symmetrically to each other limit flows in one direction and allow free return flow in the opposite direction.

More detailed information:

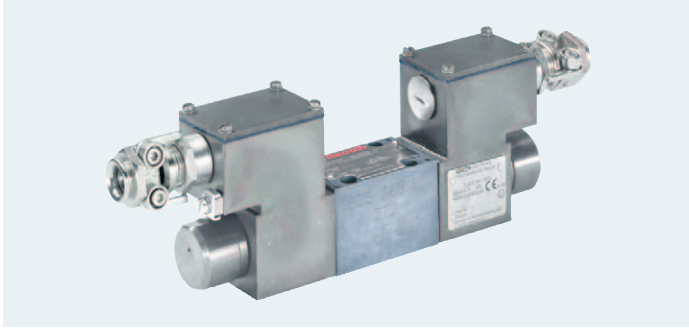
Data sheet 27506-XC-B2

Technical data

Operating pressure	p_{\max}	bar	315
Flow	$q_{V\max}$	l/min	80
Device group and category according to directive 94/9/EC			IM2, II 2G, II 2D
Type of protection valve			c
Standard for explosion protection			EN 13463-5:2004-03
Ambient temperature range	9	° C	-30 ... +80
Hydraulic fluid temperature range	9	° C	-30 ... +80

Proportional directional valves, direct operated, without electrical position feedback

4WRA 6 ../..XE



- ▶ Size 6
- ▶ Component series 2X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 22 l/min

Features

- ▶ 4/2- or 4/3-version
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ Seawater-resistant
- ▶ Solenoid coil can be rotated by 90°
- ▶ Type of protection "e" (increased safety)

Product description

The valve type 4WRA 6 ../..XE is a direct operated proportional directional valve with solenoid actuation. It controls size and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

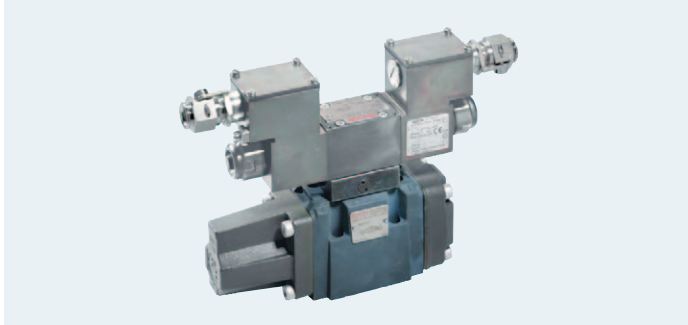
Data sheet 29055-XE-B2

Technical data

Operating pressure	p_{\max}	bar	315
Flow	$q_{V\max}$	l/min	22
Device group and category according to directive 94/9/EC			II 2G
Type of protection valve solenoid			Ex e mb IIC T4 Gb
Standard for explosion protection			EN 60079-7:2007 / EN 60079-18:2009
Ambient temperature range	9	° C	-20 ... +60
Hydraulic fluid temperature range	9	° C	-20 ... +80

Proportional directional valves, pilot operated, without electrical position feedback

4WRZ ...XE



- ▶ Size 10, 16, 25, 32
- ▶ Component series 7X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 1600 l/min

Features

- ▶ 4/2- or 4/3-way version
- ▶ Porting pattern according to ISO 4401
- ▶ Seawater-resistant
- ▶ Solenoid coil can be rotated by 90°
- ▶ Type of protection "e" (increased safety)

Product description

The valve type 4WRZ...XE is a pilot operated proportional directional valve with solenoid actuation. It controls size and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC.

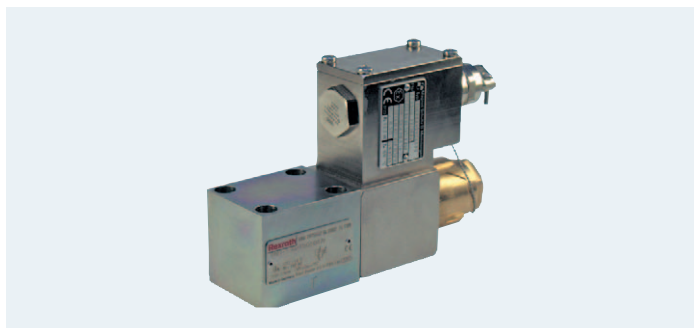
More detailed information:

Data sheet 29115-XE-B2

Technical data

Size			10	16	25	32
Operating pressure	p_{\max}	bar	315	350	350	350
Flow	$q_{V\max}$	l/min	170	460	870	1600
Device group and category according to directive 94/9/EC						II 2G
Type of protection valve solenoid						Ex e mb IIC T4 Gb
Standard for explosion protection						EN 60079-7:2007 / EN 60079-18:2009
Ambient temperature range	9	° C				-20 ... +60
Hydraulic fluid temperature range	9	° C				-20 ... +80

Proportional pressure relief valves, direct operated DBET...XE



- ▶ Size 6
- ▶ Component series 6X
- ▶ Maximum operating pressure 420 bar
- ▶ Maximum flow 2 l/min

Features

- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ Seawater-resistant
- ▶ Type of protection "e" (increased safety)

Product description

The valve type DBET...XE is a direct operated proportional pressure relief valve with solenoid actuation in seat design. It is used to limit a system pressure and is suitable for use in an explosive atmosphere according to directive 94/9/EC.

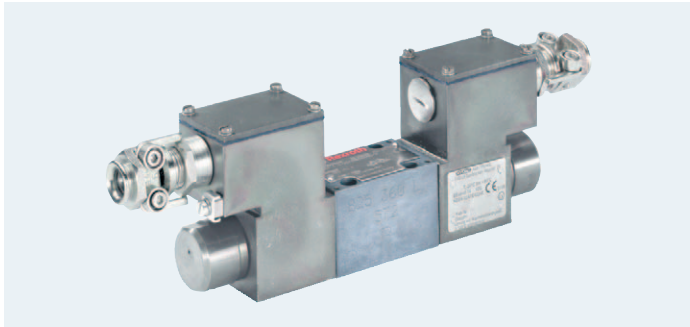
More detailed information:

Data sheet 29162-XE-B2

Technical data

Operating pressure	p_{\max}	bar	420
Flow	$q_{V\max}$	l/min	2
Device group and category according to directive 94/9/EC			II 2G, II 2D
Type of protection valve solenoid for II 2G			Ex e mb IIT4
Type of protection valve solenoid for II 2D			Ex tD A21 T130 °C IP67
Standard for explosion protection			EN 60079-7:2003 / EN 60079-18:2004 / prEN 61241-0:2005 / EN 61241-1:2005
Ambient temperature range	9	° C	-20 ... +70
Hydraulic fluid temperature range	9	° C	-15 ... +80

Proportional pressure reducing valve in 3-way version 3DREP 6 ../..XE...



- ▶ Size 6
- ▶ Component series 2X
- ▶ Maximum operating pressure 100 bar
- ▶ Maximum flow 15 l/min

Features

- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ Seawater-resistant
- ▶ Solenoid coil can be rotated by 90°
- ▶ Type of protection "e" (increased safety)

Product description

The valve type 3DREP 6 ../..XE is a direct operated proportional directional valve with solenoid actuation. It controls size and direction of a flow and is suitable for use in an explosive atmosphere according to directive 94/9/EC.

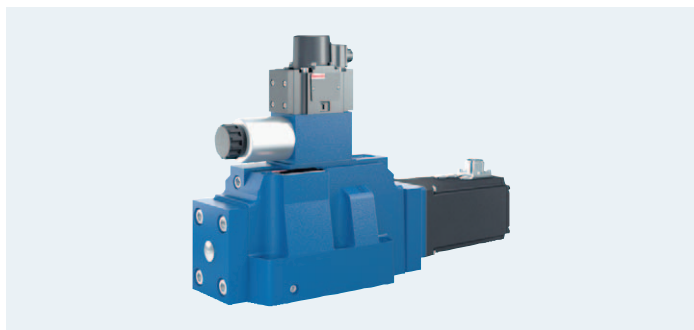
More detailed information:

Data sheet 29184-XE-B2

Technical data

Operating pressure	p_{\max}	bar	100
Flow	$q_{V\max}$	l/min	15
Device group and category according to directive 94/9/EC			II 2G
Type of protection valve solenoid			Ex e mb IIC T4 Gb
Standard for explosion protection			EN 60079-7:2007 / EN 60079-18:2009
Ambient temperature range	θ	° C	-20 ... +60
Hydraulic fluid temperature range	θ	° C	-20 ... +80

Directional control valves, pilot operated, with electrical position feedback 4WRD...XN



- ▶ Size 10, 16, 25, 27, 32, 35
- ▶ Component series 5X
- ▶ Maximum operating pressure 350 bar
- ▶ Maximum flow 3000 l/min

Features

- ▶ 4/3-way version
- ▶ Porting pattern according to ISO 4401
- ▶ Electrical position feedback of the main spool
- ▶ 2-stage servo pilot control valve
- ▶ Type of protection "n" (not igniting)

Product description

The valve type 4WRD...XN is a 3-stage directional control valve with solenoid actuation. It is suitable for the position, velocity, pressure and force control with high requirements on the dynamics and the response sensitivity. It is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 29094-XN-B2

Technical data

Size			10	16	25	27	32	35
Operating pressure	p_{\max}	bar	315	350	350	210	350	350
Flow	$q_{V\max}$	l/min	170	460	870	1000	1600	3000
Device group and category according to directive 94/9/EC								II 3G
Type of protection								Ex nA II T5X without directional sandwich plate valve Ex nA II T3X with directional sandwich plate valve
Standard for explosion protection								EN 60079-0:2006 / EN 60079-15:2005
Ambient temperature range	9	° C						-20 ... +60
Hydraulic fluid temperature range	9	° C						-20 ... +80

Directional servo valves, with mechanical position feedback

4WS2EM 6...XN



- ▶ Size 6
- ▶ Component series 2X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 48 l/min

Features

- ▶ 4/3-way version
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ 2-stage servo valve with mechanical feedback
- ▶ Dry control motor, no contamination of the solenoid gaps by the hydraulic fluid
- ▶ Can also be used as 3-way version
- ▶ Variants SO100 and SO102 with special spool
- ▶ Type of protection "n" (not igniting)

Product description

The valve type 4WS2EM 6...XN is a directional servo valve with solenoid actuation. It is suitable for the position, velocity, pressure and force control with very high requirements on the dynamics and the response sensitivity. It is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

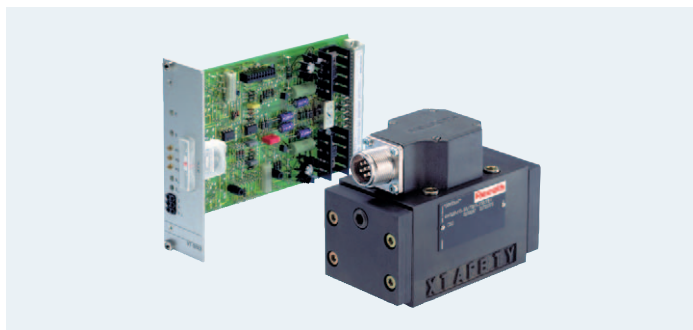
Data sheet 29564-XN-B2, SO100: 29564-XN-100-B2, SO102: 29564-XN-102-B2

Technical data

Operating pressure	p_{\max}	bar	210/315
Flow	$q_{V\max}$	l/min	48
Device group and category according to directive 94/9/EC			II 3G, II 3D
Type of protection for II 3G			Ex nA II T5X
Type of protection for II 3D			Ex tD A22 IP 65 TX
Standard for explosion protection			EN 60079-0:2006 / EN 60079-15:2005 / EN 61241-0:2006 / EN 61241-1:2004
Ambient temperature range	θ	° C	-30 ... +80
Hydraulic fluid temperature range	θ	° C	-15 ... +80

Directional servo valves, with mechanical position feedback

4WS2EM 10...XN



- ▶ Size 10
- ▶ Component series 5X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 180 l/min

Features

- ▶ 4/3-way version
- ▶ Porting pattern according to 4401-05-05-0-05
- ▶ 2-stage servo valve with mechanical feedback
- ▶ Dry control motor, no contamination of the solenoid gaps by the hydraulic fluid
- ▶ Can also be used as 3-way version
- ▶ Variants SO100, SO102 and SO114 with special spool
- ▶ Type of protection "n" (not igniting)

Product description

The valve type 4WS2EM 10...XN is a directional servo valve with solenoid actuation. It is suitable for the position, velocity, pressure and force control with very high requirements on the dynamics and the response sensitivity. It is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 29583-XN-B2, SO100: 29583-XN-100-B2, SO102: 29583-XN-102-B2, SO114: 29583-XN-114-B2

Technical data

Operating pressure	p_{max}	bar	210/315
Flow	q_{Vmax}	l/min	180
Device group and category according to directive 94/9/EC			II 3G, II 3D
Type of protection for II 3G			Ex nA II T5X
Type of protection for II 3D			Ex tD A22 IP 65 TX
Standard for explosion protection			EN 60079-0:2006 / EN 60079-15:2005 / EN 61241-0:2006 / EN 61241-1:2004
Ambient temperature range	9	° C	-30 ... +80
Hydraulic fluid temperature range	9	° C	-15 ... +80

Directional servo valves, with mechanical position feedback

4WS2EM 10...XH



- ▶ Size 10
- ▶ Component series 5X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 180 l/min

Features

- ▶ 4/3-way version
- ▶ Porting pattern according to 4401-05-05-0-05
- ▶ 2-stage servo valve with mechanical feedback
- ▶ Dry control motor, no contamination of the solenoid gaps by the hydraulic fluid
- ▶ Can also be used as 3-way version
- ▶ Variants SO100, SO102 and SO104 with special spool
- ▶ Type of protection "ia" (intrinsically safe)

Product description

The valve type 4WS2EM 10...XH is a directional servo valve with solenoid actuation. It is suitable for the position, velocity, pressure and force control with very high requirements on the dynamics and the response sensitivity. It is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 29583-XH-B2, SO100: 29583-XH-100-B2, SO102: 29583-XH-102-B2, SO114: 29583-XH-104-B2

Technical data

Operating pressure	p_{max}	bar	210/315
Flow	q_{Vmax}	l/min	180
Device group and category according to directive 94/9/EC			II 1G
Type of protection			Ex ia IIC T4 Ga
Standard for explosion protection			EN 60079-0:2009 / EN 60079-11:2007
Ambient temperature range	9	° C	-20 ... +60
Hydraulic fluid temperature range	9	° C	-15 ... +60

Load-sensing manifolds in sandwich plate design

M4-12 ...XC



- ▶ Size 12
- ▶ Component series 2X

Features

- ▶ Load pressure-independent flow control
- ▶ Up to 20 directional valve elements
- ▶ Operation by means of hand lever or hydraulically
- ▶ Type of protection "c" (design safety)

Product description

The manifold type M4-12 ...XC is designed in sandwich plate design. The directional valves are proportional valves according to the load-sensing principle. The manifold is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

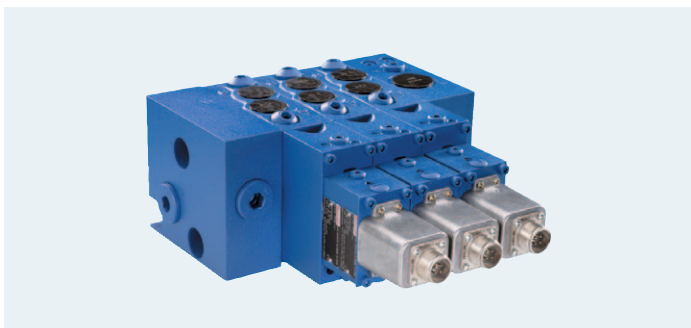
Data sheet 64276-X-B2

Technical data

Nominal pressure, on the pump side	p	bar	350
Nominal pressure, on the actuator side	p	bar	420
Flow, on the pump side	q_{Vmax}	l/min	200
Flow, on the actuator side	q_{Vmax}	l/min	130
Device group and category according to directive 94/9/EC			IM2, II 2G, II 2D
Type of protection for IM2			cX Mb
Type of protection for II 2G			cX T4 Gb
Type of protection for II 2D			cX T110 °C Db
Standard for explosion protection			EN 13463-5:2011
Ambient temperature range	ϑ	° C	-20 ... +80
Hydraulic fluid temperature range	ϑ	° C	-20 ... +80

Load-sensing manifolds in sandwich plate design

M4-12 ...XH



- ▶ Size 12
- ▶ Component series 2X

Features

- ▶ Load pressure-independent flow control
- ▶ Up to 20 directional valve elements, a maximum of 6 thereof with servo control
- ▶ Operation by means of servo valve control
- ▶ Type of protection "ia" (intrinsically safe)

Product description

The manifold type M4-12 ...XH is designed in sandwich plate design. The directional valves are proportional valves according to the load-sensing principle. The manifold is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 64276-X-B2

Technical data

Nominal pressure, on the pump side	p	bar	350
Nominal pressure, on the actuator side	p	bar	420
Flow, on the pump side	q_{Vmax}	l/min	200
Flow, on the actuator side	q_{Vmax}	l/min	130
Device group and category according to directive 94/9/EC			IM2, II 2G, II 2D
Type of protection for IM2			Ex ia I Mb
Type of protection for II 2G			Ex ia IIB T4 Gb
Type of protection for II 2D			Ex tb IIIC T110 °C Db
Standard for explosion protection			DIN EN 60079-0:2010 / DIN EN 60079-11:2012 / DIN EN 60079-31:2010
Ambient temperature range	ϑ	° C	-20 ... +80
Hydraulic fluid temperature range	ϑ	° C	-20 ... +80

Load-sensing manifolds in sandwich plate design

M4-15 ...XC



- ▶ Size 15
- ▶ Component series 2X

Features

- ▶ Load pressure-independent flow control
- ▶ Up to 18 directional valve elements
- ▶ Operation by means of hand lever or hydraulically
- ▶ Type of protection "c" (design safety)

Product description

The manifold type M4-15 ...XC is designed in sandwich plate design. The directional valves are proportional valves according to the load-sensing principle. The manifold is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 64283-X-B2

Technical data

Nominal pressure, on the pump side	p	bar	350
Nominal pressure, on the actuator side	p	bar	420
Flow, on the pump side	q_{Vmax}	l/min	300
Flow, on the actuator side	q_{Vmax}	l/min	200
Device group and category according to directive 94/9/EC			IM2, II 2G, II 2D
Type of protection for IM2			cX Mb
Type of protection for II 2G			cX T4 Gb
Type of protection for II 2D			cX T110 °C Db
Standard for explosion protection			EN 13463-5:2011
Ambient temperature range	ϑ	° C	-20 ... +80
Hydraulic fluid temperature range	ϑ	° C	-20 ... +80

Load-sensing manifolds in sandwich plate design

M4-15 ...XH



- ▶ Size 15
- ▶ Component series 2X

Features

- ▶ Load pressure-independent flow control
- ▶ Up to 18 directional valve elements, a maximum of 6 thereof with servo control
- ▶ Operation by means of servo valve control
- ▶ Type of protection "ia" (intrinsically safe)

Product description

The manifold type M4-15 ...XH is designed in sandwich plate design. The directional valves are proportional valves according to the load-sensing principle. The manifold is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 64283-X-B2

Technical data

Nominal pressure, on the pump side	p	bar	350
Nominal pressure, on the actuator side	p	bar	420
Flow, on the pump side	q_{Vmax}	l/min	300
Flow, on the actuator side	q_{Vmax}	l/min	200
Device group and category according to directive 94/9/EC			IM2, II 2G, II 2D
Type of protection for IM2			Ex ia I Mb
Type of protection for II 2G			Ex ia IIB T4 Gb
Type of protection for II 2D			Ex tb IIIC T110 °C Db
Standard for explosion protection			DIN EN 60079-0:2010 / DIN EN 60079-11:2012 / DIN EN 60079-31:2010
Ambient temperature range	ϑ	° C	-20 ... +80
Hydraulic fluid temperature range	ϑ	° C	-20 ... +80

Axial piston variable displacement pumps

A4VSO...A



- ▶ Size 40 ... 250
- ▶ Series 10, 11, and 30
- ▶ Peak pressure 400 bar
- ▶ Maximum displacement for single pumps: 250 cm³
- ▶ Pump combinations are possible according to data sheet 92050

Features

- ▶ Swash plate design
- ▶ Good suction behavior
- ▶ Low noise level
- ▶ Long life cycle
- ▶ Short control times
- ▶ Type of protection "c" (design safety)

Product description

The variable displacement pump type A4VSO...A is suitable for hydrostatic drives in the open circuit. The flow is proportional to the drive speed and to the displacement and increases upon adjustment of the swash plate from zero to its maximum value.

The pump is suitable for use in an explosive atmosphere according to directive 94/9/EC.

More detailed information:

Data sheet 92050-01-X-B2

Technical data

Size			40	71	125	180	250
Displacement	$V_{g,max}$	cm ³	40	71	125	180	250
Series			10/11	10/11	30	30	30
Nominal pressure	p_{nom}	bar					350
Peak pressure	p_{max}	bar					400
Device group and category according to directive 94/9/EC							II 3G
Type of protection							c IIC T4
Standard for explosion protection							DIN EN 13463-1, -5
Hydraulic fluid temperature range	ϑ	° C					-20 ... +80

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