



Installation guideline Explosion Isolation Ball Valve REDEX® Ball

Function

Basic (open)

Ball valve closed
(explosion successfully decoupled)

- The ball valve closes by means of a pneumatic rotary drive
- Connection options for pneumatic control for use as a process ball valve or for function test
- Pressure resistant design
- Flame and pressure barrier
- Limiters in the housing stop the ball
- Position indication (open/close) by switches (mechanical or inductive)
- Connection flanges according to EN 1092-1 nominal pressure PN10 or PN6 or according to ASME B16.5 Class 150 (ANSI)
- Junction box on the ball valve for electrical connection
- The control unit including pressure and/or infrared detectors are designed/equipped and supplied by our distributors or rather system providers

Certification

Protection system:

Ex D

FSA 23 ATEX 1727 X

Zone inside:

Ex II 1D Ex h IIIB T85°C Da

Zone outside:

Ex II 2D Ex h IIIB T85°C Db

The release for a zone 2 outside (gases) depends on the individual configuration



Intended use

Function	Installation position
explosion isolation in duct pipes for organic dusts, double acting	any installation position

Technical data

		Nominal diameter			
		DN50	DN65	DN80	DN100
EC-type examination certificate		FSA 23 ATEX 1727 X			
Maximum explosion pressure in the vessel at 20°C	P _{red, max} [barg]	2			
Maximum explosion pressure on the explosion isolation ball valve	P _{ex, max} [barg]	19.6			
control pressure without pressure booster	[barg]	6.2...7.0	6.2...7.0	8.2...8.5	8.2...8.5
control pressure with pressure booster	[barg]	3.5...6.2	3.5...6.2	4.5...8.2	4.5...8.2
Closing time	[ms]	< 35	< 35	< 45	< 45
Maximum allowed process temperature	[°C]	80	80	80	80
Organic dusts St1 and St2		KSt ≤ 300 bar*m/s			
Installation distance	L _{min} [m]	4*)	4*)	6*)	6*)
	L _{max} [m]	20**)	20**)	20**)	20**)

*) The minimum installation distance is only applicable if using an optical and a pressure sensor at the same time and if the inherent time of the control unit is ≤ 2.7 ms

**) Depending on the design of the explosion pressure relief, high explosion pressures can occur in the pipeline. The pipeline between the source of explosion and the ball valve must be appropriately designed by the system supplier. In the range between 12m and 20m, a pressure shock resistance of 6 barg is recommended for the pipeline, as this has been successfully tested in the EC-type examination.

***) If the compressed air supply at the installation site cannot generate the specified control pressure, an optionally available pressure booster must be used.

The EC-type examination was carried out with corn starch (MIT = 360°C and MIE = 3 mJ with inductivity).

From a mathematical point of view, this results in a MESG: ≥ 1.37 mm, but in fact the ball is sealed to the housing without any gaps.

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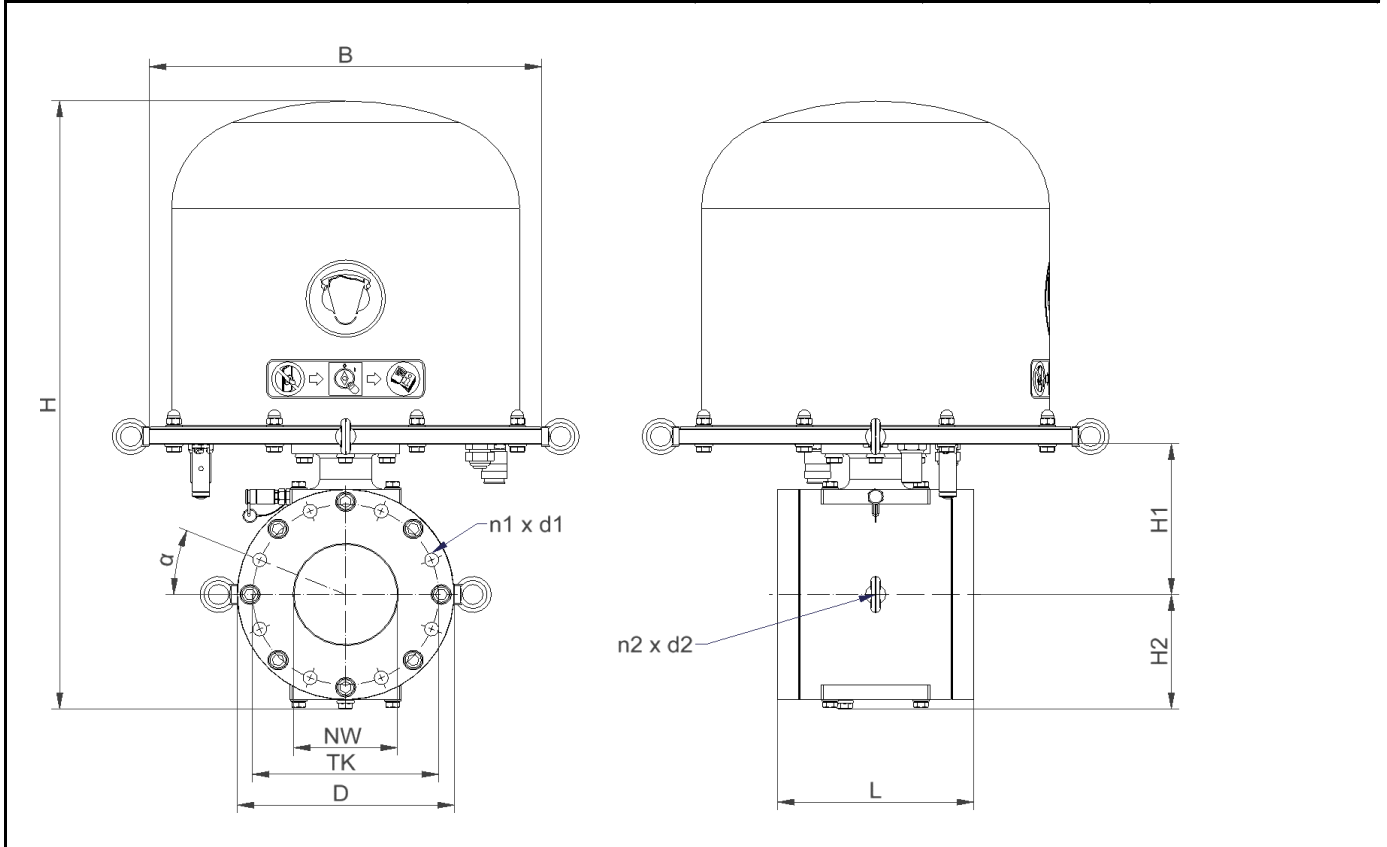
Requirements on the installation situation

Installation situation	Requirements and notes
Installation	The explosion protection ball valve must be accommodated in the pipeline in such a way that stresses on the housing are prevented as far as possible. Attention must be paid, for example, to the consideration of misalignment and length tolerances as well as thermal expansion during the process. A possible measure for this would be the integration of a compensator for the pipeline. Due to the risk of injury, the REDEX® Ball must not be mounted directly on the end of a pipe. The subsequent pipe length therefor must be at least 850 mm, unless other protective measures for operator safety in accordance with ISO 13857 have been taken.
Process pressure in the pipe	The ball valve can be used in pipelines with negative process pressure of up to -0.5 barg and positive process pressure of up to 6 barg.
Liquid substances in the pipe	The ball valve must not be used in pipelines in which liquid media flow through the pipeline. The ball valve was developed exclusively for dust.
Cleaning from outside	The ball valve may be cleaned from the inside and outside with water (no high pressure), automated cleaning (CIP) of the ball valve is not intended. The housing has a protection class IP65.
Support structure	It is recommended to support the ball valve independently of the pipeline (depending on their strength and support). To do this, use the threads provided in the housing. The additional support should be able to carry twice the weight of the ball valve.
Ambient temperature <+5°C	At ambient temperatures <+5°C there is a risk that the air duct components will freeze and the ball can no longer move freely. Appropriate countermeasures must be taken.
Requirements for control pressure	Filtered compressed air at least according to ISO 8573-1:2010 [4:2:4], Required control pressure 6.2 to 7 bar (DN50-65) / 8.2 to 8.5 bar (DN80-100). If the control pressure is between 3.5 and 6.2 bar (DN50-DN65) or 4.5 and 8.2 bar (DN80-DN100), a pressure booster must be used, so that the above installation distances can be achieved. See also table above. The pressure booster is available as an optional extra from RICO.
Maintenance area	Sufficient free space must be allowed for to access the ball valve during maintenance. We recommend planning an inspection hatch in the pipeline before and after the ball valve or an intermediate piece of pipe that can be easily removed.
Electrical connection	The intended cable diameter for customer-supplied connection is 10-14 mm. The connection terminals are designed for a cable cross-section of 0.5...2.5 mm ² .
System integrator	The ball valve is an incomplete machine in the sense of machinery directive 2006/42/EG. The system supplier is responsible for the correct design of the sensors (detection) and programming of the control.

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Dimensions

Dimensions [mm]		Nominal diameter			
		DN50	DN65	DN80	DN100
Length	L	150	170	180	190
Diameter of the drive unit	B	380	380	380	380
Height of the installation	H	564	564	606	606
Partial height	H1	129	129	150	150
Partial height	H2	93	93	114	114
Quantity of threads	n2	6	6	6	6
Thread size	d2	M8	M8	M8	M8
Outer diameter flange	D	168	168	210	210
Thread depth	t1	16	25	16	20
Weight (net)	kg	45	46.8	60.5	58.5
Connecting flange according EN 1092-1 PN6					
Pitch circle diameter	TK	110	130	150	170
Pitch circle offset	α	45°	45°	45°	45°
Quantity of the threads	n1	4	4	4	4
Dimension of the threads	d1	M12	M12	M16	M16
Connecting flange according EN 1092-1 PN10					
Pitch circle diameter	TK	125	145	160	180
Pitch circle offset	α	45°	22.5°	22.5°	22.5°
Quantity of the threads	n1	4	8	8	8
Dimension of the threads	d1	M16	M16	M16	M16
Connecting flange according ASME B16.5 Class 150 (ANSI)					
Pitch circle diameter	TK	120.7	139.7	152.4	190.5
Pitch circle offset	α	45°	45°	45°	22.5°
Quantity of the threads	n1	4	4	4	8
Dimension of the threads	d1	5/8" - 11 UNC	5/8" - 11 UNC	5/8" - 11 UNC	5/8" - 11 UNC



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