


Valves

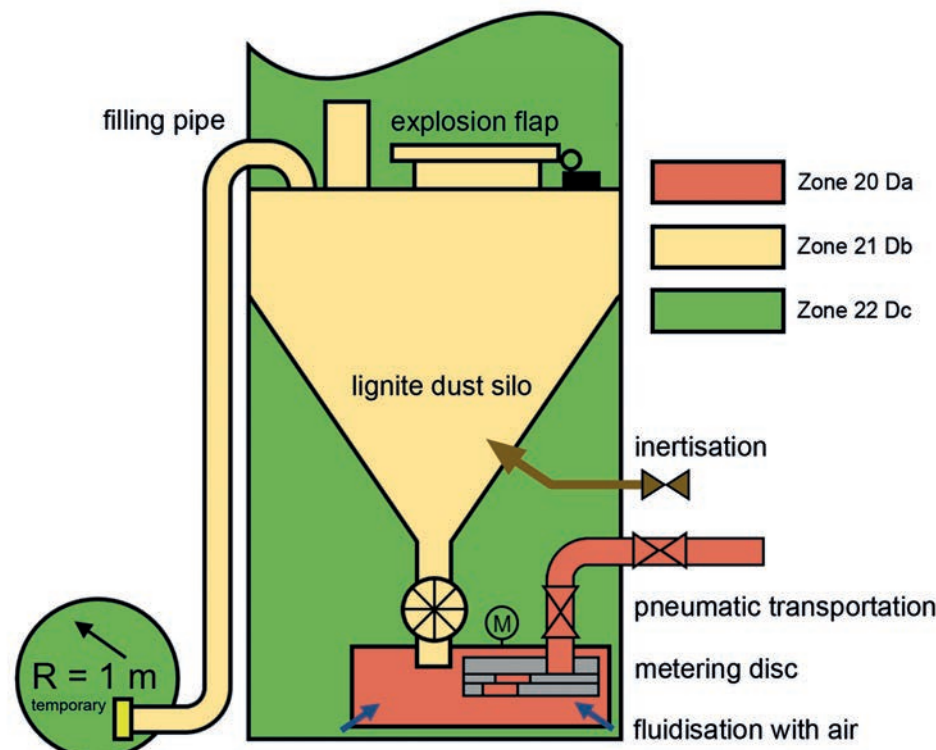
for explosion hazardous environment

With JOYNER you have a partner with many years of experience in the field of explosion-proof products. Benefit from our extensive product range and numerous special solutions. With our selection guide for solenoid valves, you can quickly and easily find the right JOYNER Ex-valve for your application.

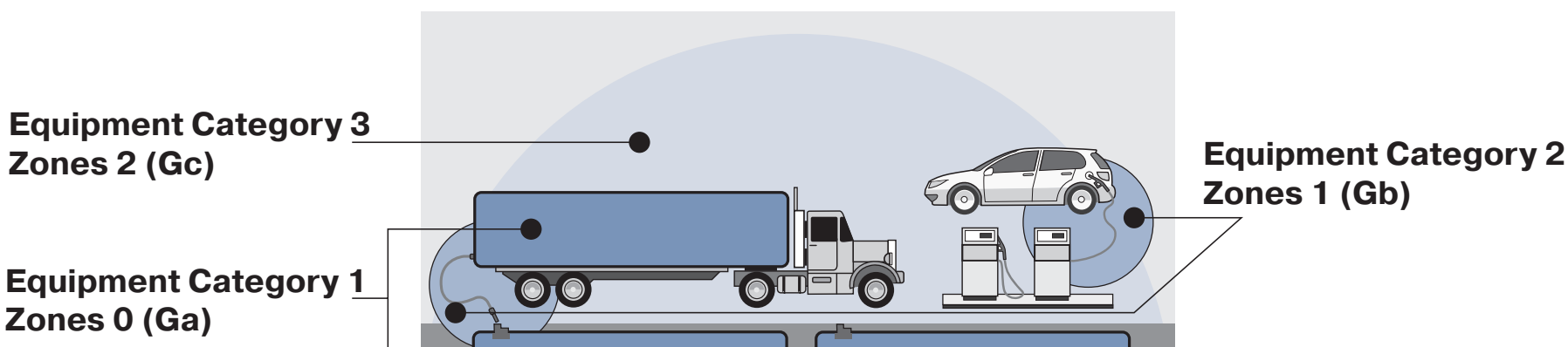
Example marking of an Ex-product

CE  II		2G / 2D		Ex m		IIC / IIIC		T6		Gb / Db		X		
Product group		Category / Zones		Ignition protection			Explosion group		Temperature class			Protection Level		
Group		Category	Zone	Type	JOYNER Typnr.	Product Labeling	Dust		Class	Temperature range of the mix	Max. surface temperature	Zone		
I	Products for mining applications. Not part of JOYNER product range.	1	Very high level of protection and very high level of safety. Not part of JOYNER product range.	0 (Ga) 20 (Da)	Increased safety	e	ec	ec	IIC: Conductive dust IIIB: Non-conductive dust IIIA: Combustible lint	↑	T1	≥ 450°C	450°C	Ga, Gb and Gc for gases
					Intrinsically safe	i	ia	ia*			T2	≥ 300 - 450°C	300°C	
					Encapsulation	m	m	mb			T3	≥ 200 - 300°C	200°C	
II	All other products for explosion hazardous environment.	2	High level of protection and therefore a high level of safety.	1 (Gb) 21 (Db)	Increased safety / Encapsulation	e m	e mb	e mb	Typical gas IIC: Hydrogen IIB: Ethylene IIA: Propane	↑	T4	≥ 135 - 200°C	135°C	Da, Db and Dc for dusts
					Encapsulation / Flameproof	d m	dm	db mb			T5	≥ 100 - 135°C	100°C	
		3	Normal level of protection and therefore increased level of safety.	2 (Gc) 22 (Dc)	Flameproof	d	d	db	Gases and dust-gas mixtures have different ignition capabilities. These are differentiated groups IIA, IIB and IIC, according to IEC 60079-1A and IEC 60079-3. The danger increases from group A to C.	↑	T6	≥ 85 - 100°C	85°C	Equipment Protection Level (EPL) according to IEC 60079. Specification similar to zones according to 2014/34/EU (ATEX).
					Protection by housing (only dust)	t		tb						
					Constructional safety (non-electrical devices)	h	(valve body)	h						
		Measured [hours/year] in which there is a risk of explosion.												
		Equipment categories according to EU Directive 2014/34/EU (ATEX): • Zones 0, 1 and 2 for gases • Zones 20, 21 and 22 for dusts												

Example dust atmosphere



Example gas atmosphere



The marking of electrical and non-electrical equipment has the same structure. A distinction is only made in the type of ignition protection.










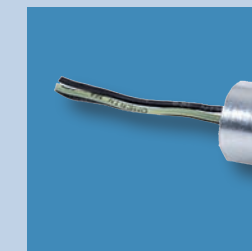
Electrical part:
solenoid coil and operator system

Non-electrical part:
valve body

Many JOYNER valves are available with SIL3 certificate, for low temperature and in stainless steel.



Overview of the JOYNER Ex-range

	Non-electric Valves		Electric Valves (Solenoid Valves)							
	Ignition protection									
	h	Ex ec	Ex ia 1.6W	Ex ia 0.7W	Ex m	Ex e mb	Ex dm	Ex d	Ex m CSA /FM	
	Constructional safety	Increased safety	Intrinsically safe	Intrinsically safe	Encapsulation	Increased safety / encapsulation	Encapsulation / flameproof	Flameproof	Encapsulation	
										
Approval / Certificate	ATEX	✓	✓	✓	✓	✓	✓	✓	✓	-
	IECEX	-	-	✓	✓	✓	✓	-	✓	-
	CSA/FM	-	-	-	-	-	-	-	-	✓
	UKCA	-	✓	-	-	-	-	-	-	-
	CCC	-	-	on request	-	on request	-	-	on request	-
Zone	1 (Gb)	-	✓	✓	✓	✓	✓	✓	✓	Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III, Class I, Division 2, Groups A, B, C, D. Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, T5, T6; C-encapsulation/explosion-proof Class I, Zone 1; AEx m II T4, T5 to 60 °C, dust-ignition-proof for Class II/III, Division I, Groups E, F and G; T4, T5 to 60 °C. Nonincendive Class I, Division 2, Groups A, B, C, D, T4, T5 to 60 °C. Suitable for Class II, III, Division 2, Groups E, F, G, T4, T5 to 60 °C. The current standards can be found in the certificates.
	21 (Db)	-	✓	-	✓	✓	✓	✓	✓	
	2 (Gc)	✓	✓	✓	✓	✓	✓	✓	✓	
	22 (Dc)	✓	✓	✓	✓	✓	✓	✓	✓	
Category		3G/D 2G/D	3G/D	2G/D	2G/D	2G/D	2G/D	2G/D	2G/D	
Temperature class		T6 (includes T1-T5)	T5 (includes T1-T4)	T6 (includes T1-T5)	T6 (includes T1-T5)	T4 (includes T1-T3)	T6 (includes T1-T5)	T5 (includes T1-T4)	T6 (includes T1-T5)	T4 (includes T1-T3)
Explosion group		IIC and IIIC	IIC and IIIC	IIC and IIIC	IIC and IIIC	IIC and IIIC	IIC and IIIC	IIC and IIIC	IIC and IIIC	
Product Group		II (not included)	II (not included)	II (not included)	II (not included)	II (not included)	II (not included)	II (not included)	II (not included)	
Temperature ranges		-50 °C - +50 °C (higher on request)	-10 °C - +50 °C	-40 °C - +50 °C	-10 °C - +50 °C	-20 °C - +50 °C	-40 °C - +50 °C	-20 °C - +50 °C	-40 °C - +50 °C	-20 °C - +60 °C
Electrical connection		-	Plug for 6 - 8 mm cable excl. connector	Plug for 6 - 8 mm cable incl. connector	Plug for 3.5 - 6 mm cable incl. connector	Encapsulated cable 3 metre standard (other lengths on request)	Junction box M20x1.5 Plug for 6 - 13 mm	Junction box M20x1.5 Plug for 6 - 8 mm	Junction box M20x1.5 or 1/2" NPT Cable gland not included	Conduit 1/2" NPT 60 cm strands
IP protection class		-	IP 65	IP 65	IP 65	IP 65	IP 65 (IP 67 optional)	IP 66	IP 67	IP 65
Power consumption		-	3.0 Watts (24DC) 5 VA (24AC, 110AC, 230AC)	1.6 Watts (24DC)	0.7 Watts (24DC)	5.0 Watts (24DC) 4.6 VA (24AC) / 4.5 VA (110AC) 5.1 VA (230 AC)	4.8 Watts (24, 110, 230) same coil for DC and AC	3.0 Watts (12DC, 24DC) 4.8 VA (24AC, 110AC, 230AC)	2.0 Watts (24DC) 3.0 VA (110AC, 230AC)	4.5 Watts (12DC) / 4.6 Watts (24DC) 6.8 VA (110AC) / 7.7 VA (220AC, 240AC)

Selection guide - Find your JOYNER Ex-system

