EXPLOSIONPROOF SOLENOIDS

Product Index



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(£*)	Identification			VI
(C.X)	Equipment groups and temperature classes / Certificates - Products			VII-VIII
IEC IECEX	Standards (CENELEC - CEN standards)		see section	
· · · · · · · · · · · · · · · · · · ·	Types of protection	«General & En	gineering Informati	on <u>************************************</u>
_	Ex d (flameproof), ATEX-IECEx :			
3/2	Operators, aluminium (LPKF) or stainless steel (WSLPKF) II2G Ex db IIB+H2 Gb T6T4, II2D Ex tb IIIC Db IP66/IP67		LPKF WSLPKF	1
2/2	Operators, aluminium (NF) or stainless steel (WSNF) II 2G Ex db IIC T6T4 Gb, II 2D Ex tb IIIC Db IP66/67		NF/WSNF	3
3/2 NC	Solenoid valves, direct operated, aluminium body, with LPKF type operator II2G Ex db IIB+H2 Gb T6T4, II2D Ex tb IIIC Db IP66/IP67	ISO 15218 (CNOMO, size 30)	<u>314</u>	5
B/2 NC-5/2-5/3 NAMUR	Solenoid valves, pilot operated, aluminium body (LPKF-WSLPKF-NF-WSNF-374/NK)	1/4-1/2	551-553	<u>3/2</u> <u>5/2-5/3</u> <u>NAMUR</u>
3/2 NC-5/2 NAMUR	Solenoid valves, pilot operated, brass body (LPKF-WSLPKF-NF-WSNF)	1/4	551	<u>3/2</u> <u>5/2</u> NAMUR
3/2 NC-5/2-5/3 NAMUR	Solenoid valves, pilot operated, stainless steel body (LPKF-WSLPKF-NF-WSNF-314/LPKF)	1/4-1/2	551-553	<u>3/2</u> <u>5/2-5/3</u> NAMUR
3/2 U	Solenoid valves, direct operated, brass or stainless steel body II 2 G Ex db IIC Gb T6T4, II 2 D Ex tb IIIC Db IP67	1/4-1/2 (NPT)	327 ⁽¹⁾	Process Industry



Product Index - EXPLOSIONPROOF SOLENOIDS

Function	Description	Pipe connections	Series	Page	
	Ex m (encapsulated), ATEX-IECEx :				
2/2-3/2	Operators, moulded coil (EM5-MXX) Il 2G Ex mb IIC T5T3 Gb, II 2D Ex mb IIIC 100°C200°C Db IP67		<u>PV</u>	7	
3/2 NC-5/2-5/3 NAMUR	 Solenoid valves, pilot operated, aluminium body (PV) 	1/4-1/2	551-553	3/2 5/2-5/3 NAMUR	
3/2 NC-5/2 NAMUR	Solenoid valves, pilot operated, brass body (PV)	1/4	551	3/2 5/2 NAMUR	
3/2 NC-5/2-5/3 NAMUR	Solenoid valves, pilot operated, stainless steel body (PV)	1/4-1/2	551-553	<u>3/2</u> <u>5/2-5/3</u> <u>NAMUR</u>	
	Ex e mb (increased safety/encapsulated), ATEX-IECEx :				
3/2	Operator, increased safety/encapsulated II 2G Ex e mb IIC T4 Gb, II 2D Ex tb IIIC T135°C Db IP67		WBLP	9	
2/2-3/2	Operators, increased safety/encapsulated (M6-MXX-M12) II 2G Ex eb mb IIC T6T3 Gb, II 2D Ex tb IIIC T85°CT200°C Db IP66/67		EM/WSEM	11	
3/2 NC-5/2-5/3 NAMUR	Solenoid valves, pilot operated, aluminium body (EM/WSEM)	551-553	<u>3/2</u> <u>5/2-5/3</u> <u>NAMUR</u>		
3/2 NC-5/2 NAMUR	Solenoid valves, pilot operated, brass body (EM/WSEM)	551	<u>3/2</u> <u>5/2</u> <u>NAMUR</u>		
3/2 NC-5/2-5/3 NAMUR	Solenoid valves, pilot operated, stainless steel body (EM/WSEM)	1/4-1/2	551-553	3/2 5/2-5/3 NAMUR	
	Ex ia (intrinsically safe), ATEX-IECEx :				
3/2	Operator, aluminium (LI) II 1G Ex ia IIC T6 Ga, II 2D Ex tb IIIC T85°C Db IP66/IP67 Operator, stainless steel (WSLI) II 1G Ex ia IIC T6 Ga, II 2D Ex tb IIIC T85°C Db IP66/IP67		LI WSLI	13	
3/2 NC	 Solenoid valves, direct operated, plastic body, pad mount, ISO 15218 (CNOMO, size 15) II 1 G Ex ia IIC T6T4 Ga, II 1 D Ex ia IIIC T85°C T135°C Da 		302	15	
3/2 NC	 Solenoid valves, direct operated, aluminium body, pad mount, ISO 15218 (CNOMO, size 30) II 1G Ex ia IIC T6 Ga, II 2D Ex ib IIIC T85°C Db IP67 		195/LISC	19	
3/2 NC	Solenoid valves, direct operated, brass or stainless steel body II 2G Ex ia IIC T6 Gb, II 2D Ex tb IIIC T85°C Db IP66/67	1/4	327	NFIS WSNFIS	
3/2 NC-5/2-5/3 NAMUR	Solenoid valves, pilot operated, aluminium body (LI-302-195/LISC-630/piezotronic)	551-553	3/2 5/2-5/3 NAMUR		
3/2 NC-5/2 NAMUR	Solenoid valves, pilot operated, brass body (LI-WSLI-302-630/piezotronic)	551	3/2 5/2 NAMUR		
3/2 NC-5/2-5/3 NAMUR	Solenoid valves, pilot operated, stainless steel body (LI-WSLI-195/LISC)	1/4-1/2	551-553	3/2 5/2-5/3 NAMUR	
	Ex nA (non-sparking protection), ATEX :				
2/2 NC 3/2 NC-NO-U	Solenoid valves, direct operated, plastic body, pad mount, ISO 15218 (CNOMO, size 15) II 3G Ex nA IIC T6T4 Gc, II 3D Ex tc IIIC IP65 T85°CT135°C Dc		302	23	



Product Index - EXPLOSIONPROOF SOLENOIDS

Function	Description	Pipe connections	Series	Page	
	Dust applications, ATEX:				
	moulded coils types with connectors II 3 GD Ex ec IIC T4 Gc and Ex tc IIIC T115°C Dc IP65X (solenoid valves) II 3 GD Ex ec IIC T4 Gc and Ex tc IIIC T110°C Dc IP65X (Dust Collector System	ns)	<u>SG</u>	25	
	Constructional safety ATEX:				
3/2 NC-5/2-5/3 NAMUR	Air operated valves, aluminium body II 2GD IIB or IIC	1/4-1/2	551-553	<u>3/2</u> 5/2-5/3 <u>NAMUR</u>	
3/2 NC-5/2 NAMUR	Air operated valves, stainless steel body II 2GD IIB or IIC	1/4-1/2	551-553	<u>3/2</u> 5/2 <u>NAMUR</u>	
2/2 - 3/2	• Pressure operated valves II 2 GD c IIB T4 T135°C / II 2 D c T135°C II 3 GD c T4 T135°C		290/390	Pressure Operated Valves [2/2 (www.asco.com) - 3/2 (www.asco.com)]	
2/2 - 3/2	Pressure operated valves II 2G Ex h IIC T* Gb II 2D Ex h IIIC T*°C Db		298/398	Pressure Operated Valves [2/2 (www.asco.com) - 3/2 (www.asco.com)]	
2/2 - 3/2	• Pressure operated valves II 2 GD c T6		287/387	Pressure Operated Valves [2/2 (www.asco.com) - 3/2 (www.asco.com)]	
2/2 - 3/2	• Pressure operated valves II 2 GD c T6 T85°C / II 3 GD c T85°C X		AD	Pressure Operated Valves [2/2 (www.asco.com) - 3/2 (www.asco.com)]	
	Other types of protection and national standards:				
2/2-3/2	Operators, encapsulated, NEMA (EF)	Te	EF	EF/EV	
	Accessories:				
	Cable glands, ATEX		<u>882</u>	27	

Hazardous Areas - EXPLOSIONPROOF SOLENOIDS

SOME HISTORY

The classification of hazardous areas into zones established the level of protection required for electrical equipment installed in explosive gas and dust atmospheres.

The two following standards define the areas:

IEC-EN 60079-10-1: Classification of areas, explosive gas atmospheres

IEC-EN 60079-10-2: Classification of areas, combustible dust atmospheres

The selection and construction of electrical installations is defined by standard IEC-EN 60079-14.

DEFINITION OF A PLACE WHERE A POTENTIALLY EXPLOSIVE ATMOSPHERE MAY OCCUR

The classification of an installation into distinct zones has two objectives (according to ATEX 1999/92/EC):

- To define the categories of equipment used in the zones indicated, provided they are suitable for gases, vapours or mists and/or dusts.
- To classify hazardous places into zones to prevent ignition sources and be able to select the correct electrical and non-electrical equipment accordingly. The zones are defined on the basis of the occurrence of explosive gaseous or dusty atmospheres.

GAS GROUPS

Group II: Equipment intended for use in places with an explosive gas atmosphere other than mines susceptible to firedamp.

Group I: Equipment intended for use in mines susceptible to firedamp.

	Zone	Category (ATEX 2014/34/EU)	Presence of explosive atmospheres
	zone 0	1 G (1)	Continuous, frequent or for long periods
Group II	zone 1	2 G	Intermittent in normal operation (likely)
	zone 2	3 G	Occasional or for short periods (never in normal operation)
Group I	i	M1 ⁽¹⁾	Presence (methane, dust)
(mines)		M2	Risk of presence (methane, dust)

DUST GROUPS (IEC 60079-0)

Group III: Equipment intended for use in places with an explosive dust atmosphere other than mines susceptible to firedamp.

	Zone	Category (ATEX 2014/34/EU)	Presence of explosive atmospheres
	zone 20	1 D (1)	Continuous, frequent or for long periods (air/cloud of combustible dust)
Group III	zone 21	2 D	Intermittent in normal operation
	zone 22	3 D	Occasional or for short periods

The classification of the installation is **the responsibility of the user.** He must individually evaluate each installation to determine the differences between them.

Separate assessments must be made for places with potentially explosive atmospheres caused by gases or vapours and for those caused by dusts.

EQUIPMENT PROTECTION LEVELS - EPLs

In normal circumstances the effect of the EPLs will be to retain the normal zone/equipment protection relationship. If, however, the risk is considered especially severe, then the required EPL for the zone may be increased. Similarly, if the risk is deemed to be especially small or negligible, the EPL may be reduced from the norm.

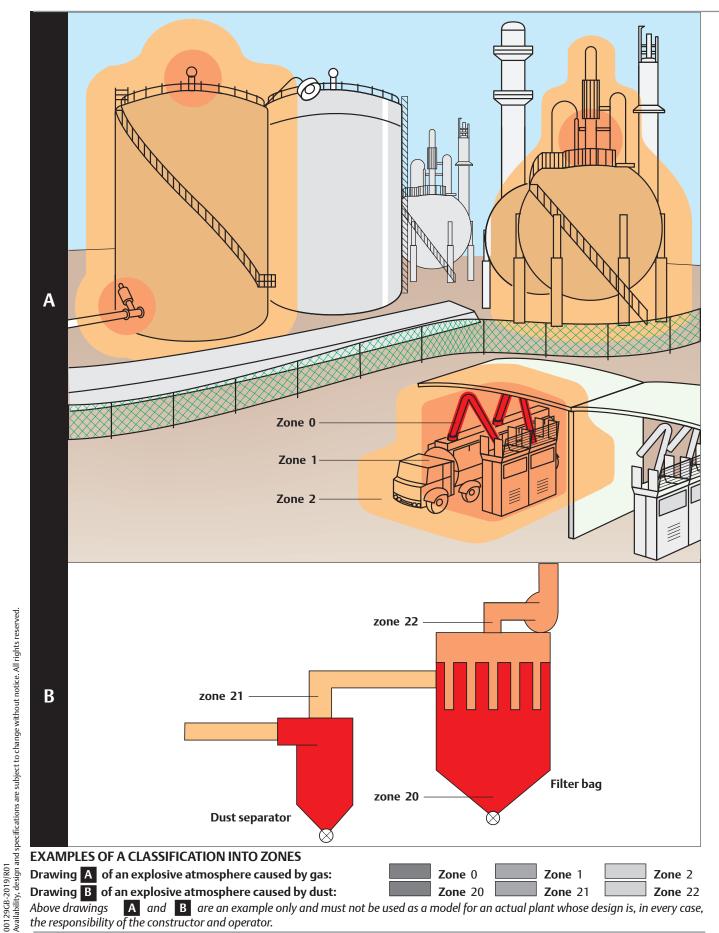
The following table shows the normal relationship between EPL and zone/category (without supplementary risk assessment).

Equipment Protection Level (EPL)	Normal Applicable Zone(s)	Category (2014/34/EU)
Ga	0 (and 1 and 2)	1G
Gb	1 (and 2)	2G
Gc	2	3G
Da	20 (and 21 and 22)	1D
Db	21 (and 22)	2D
Dc	22	3D
Ma / Mb	mines	M1 / M2

⁽¹⁾ G = gas; D = dust; M = mines



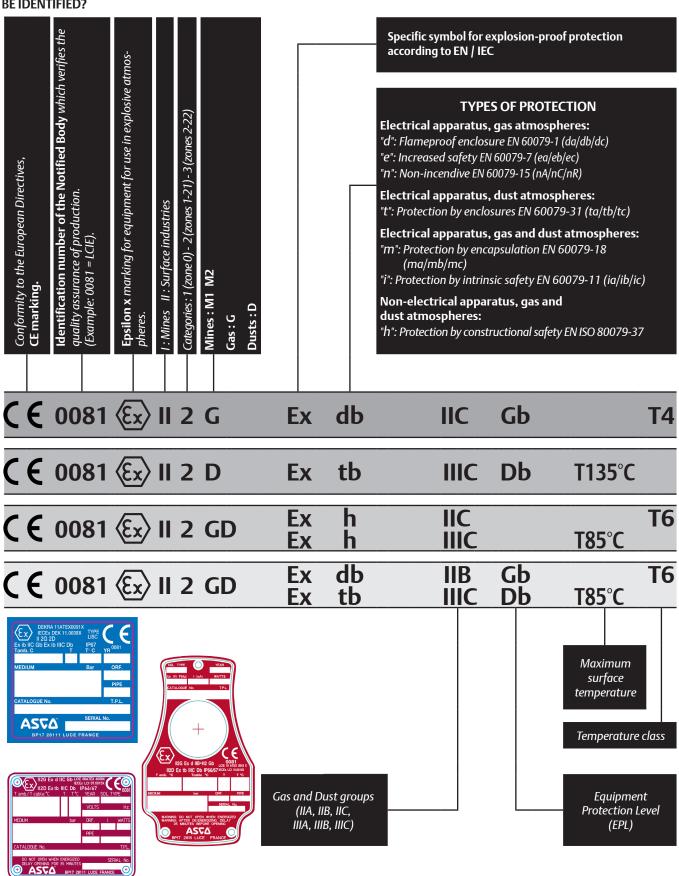
Hazardous Areas - EXPLOSIONPROOF SOLENOIDS



EMERSON

Identification - EXPLOSIONPROOF SOLENOIDS

HOW CAN ATEX, EN-IEC 60079-0 AND EN ISO 80079-36 APPROVED APPARATUS FOR USE IN EXPLOSIVE ATMOSPHERES BE IDENTIFIED?



Equipment Groups and Temperature Classes - EXPLOSIONPROOF SOLENOIDS

CLASSIFICATION OF GASES INTO EXPLOSION GROUPS

Group I: Electrical equipment intended for use in the underground parts of mines, and to those parts of surface installations of such mines, likely to become endangered by firedamp and/or combustible dust.

Group II: Electrical equipment intended for use in other places likely to become endangered by explosive atmospheres (surface industries).

For the types of protection "d" and "i", group II is subdivided into IIA, IIB, IIC. Electrical apparatus certified for IIB may be used in applications requiring apparatus to be certified for group IIA. Electrical apparatus certified for IIC may be used in applications requiring apparatus to be certified for groups IIA and IIB.

For example the "d" and "i" types of protection are respectively subdivided according to the Maximum Experimental Safe Gap (MESG) and to the Minimum Igniting Current (MIC).

Electrical apparatus certified for **IIB** may be certified for use with a gas belonging to group **IIC**. In this case, the identification is supplemented with the chemical symbol or the name of the gas (example: Ex d IIB + H_2 according to EN 60079-0 and EN 60079.1). The table below indicates the groups to which some gas mixtures belong:

					Temperature class					
Gro	ups	Gas	Ignition temperature (1) (°C)		T2	Т3	T4	T5	T6	
	ı	methane (firedamp)								
		acetone	540	•						
		acetic acide	485	•						
		ammonia	630	•						
		ethane	515	•						
		methylene chloride	556	•						
		methane (CH₄)	537	•						
	Α	carbon monoxyde	605	•						
	_ ^	propane	470	•						
		n-butane	365		•					
ll ll		n-butyl	370		•					
		n-hexane	240			•				
		acetaldehyde	140				•			
		ethyl ether	160				•			
		ethyl nitrite	90						•	
	_	ethylene	425		•					
	B	ethyl oxyde	429-440		•					
		hydrogen sulfide	270			•				
		acetylene (C ₂ H ₂) carbon disulphide (CS ₂) hydrogen (H ₂)	305		•					
	C	carbon disulphide (CS ₂)	102						•	
		hydrogen (H₂)	560	•						

⁽¹⁾ Temperature of a hot surface able to ignite a gas mixture.

The ignition temperature of the gas mixture must be higher than the maximum surface temperature. In practice, a 10 to 20% safety margin is observed between the ignition temperature and the rated nameplate temperature.

The ignition temperature of a cloud of dust is generally between 300 and 700°C. At 150 to 350°C, the ignition temperature of a layer of dust is far below that of a dust cloud. A burning dust layer can initiate a dust explosion if brought in contact with a combustible dust cloud, so these values must be taken into account to limit the risk.

TEMPERATURE CLASS

The temperature classification is based on the maximum surface temperature of equipment. That is the highest temperature any part of or the entire surface of an electrical device can reach under the most unfavourable operating conditions capable of igniting a surrounding explosive atmosphere.

Group I: Temperature ≤ 150°C or ≤ 450°C according to coal dust accumulation on equipment

Group II: Equipment must be classified and marked:

- preferably with the temperature class (T classification)
- defined by the surface temperature or,
- · limited to the specified flammable gases or dusts for which it is approved, if necessary (and marked accordingly).

Temperature class	Maximum surface temperature (°C)	Ignition temperature (1) (°C)
T1	450	>450
T2	300	> 300
T3	200	> 200
T4	135	> 135
T5	100	> 100
T6	85	>85



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Identification - EXPLOSIONPROOF SOLENOIDS

CLASSIFICATION OF DUSTS INTO EXPLOSION GROUPS (IEC 60079-0)

Group III: Electrical equipment intended for use in places with an explosive dust atmosphere other than mines susceptible to firedamp.

Group III is subdivided into IIIA (combustible flyings), IIIB (non-conductive dust) and IIIC (conductive dust).

Combustible dust: Finely divided solid particles, $500 \mu m$ or less in nominal size, which may be suspended in air, may settle out of the atmosphere under their own weight, may burn or glow in air, and may form explosive mixtures with air at atmospheric pressure and normal temperatures.

Non-conductive dust: Combustible dust with electrical resistivity greater than $10^3 \Omega$.m Conductive dust: Combustible dust with electrical resistivity equal to or less than $10^3 \Omega$.m

Combustible dust	Ignition temperature (1) (°C)	Self-ignition temperature of dust layers (°C)
Starch	440	290
Aluminium	530	280
Cotton	560	350
Cereals	420	290
Magnesium	610	410
Soybean	500	245
Sulphur	280	280
Tabacco	450	300

The maximum surface temperature must be identified and suitable for the specified type of dust present (equipment marked for zone 21). In order to prevent the ignition of dusty atmospheres, the maximum surface temperature needs to be limited. It must not exceed:

Asco

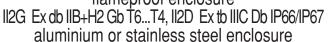
^{- 2/3} of the auto-ignition temperature of the specified cloud of dust,

⁻ the auto-ignition temperature of a 5 mm layer of dust minus 75°C.



OPERATORS

for potentially explosive atmospheres flameproof enclosure









FEATURES

· Explosionproof operator for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EC type examination certificate no.: LCIE 10 ATEX 3043X IECEx Certificate of Conformity no.: IECEx LCI 10.0010X

- · Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards IEC and EN: 60079-0, 60079-1 and 60079-31
- Easy electrical installation by means of a screw terminal coil
- Enclosure provided with a 1/2 NPT threaded entry hole for a broad range of cable entries
- Ingress protection degree IP67 NEMA 4/4X
- A wide range of valves can be supplied with the operator

CONSTRUCTION

LPKF Solenoid enclosure Aluminium, cataphorese black painting

WSLPKF Stainless steel (AISI 316L)

Bonnet Stainless steel LPKF

> **WSLPKF** Stainless steel (AISI 316L)

Cover screws Stainless steel Core, core tube and plugnut Stainless steel

Seals VMQ FPM Upper disc Lower disc **NBR**

Nameplate Stainless steel

Coil connection Embedded screw terminals Safety code II2G Ex db IIB+H2 Gb T6...T4

II2D Ex tb IIIC Db T85°C...T135°C IP66/IP67

ELECTRICAL CHARACTERISTICS

DC (=): 24V - 48V Standard voltages

AC (~): 24V - 48V - 115V - 230V / 50 Hz

TEMPERATURE CLASSIFICATION TABLES AC solenoids (~) DC solenoids (=)

	sol	eno	id s	size maximum ambient °C (1) (5)				(1) (5)
Pn					su	rface te	mperatu	ire
(watt)			M6		T6 85°C	T5 100°C	T4 135°C	
insulation class F (155°C) 100% E.D.								
-			-		-	-	-	-
2,4 (2) (4)			•		40	65	80	-

	solenoid size				maximum ambient °C (1) (5)			
Pn					su	surface temperature		
(watt)			M6		T6 85°C	T5 100°C	T4 135°C	
insulation class F (155°C) 100% E.D.								
0,5 (3)			•		60	-	-	-
2,1 (4)			•		40	-	80	-

Check the wattage compatibility with the product selected.

- (1) The minimum allowable ambient temperature is -40°C for the operator. Actual temperature range can be limited depending on valve operation limits.
- (2) AC (~): rectified coil construction.

(3) 24 V DC value.

- (4) Maximum cold wattage.
- (5) For the layout of the control circuit, see the installation and maintenance instructions at: www.asco.com

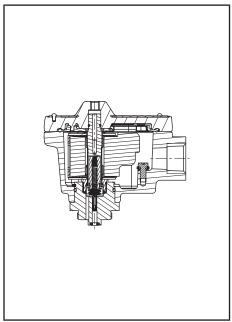
CONNECTIONS

- Any IECEx-ATEX approved cable entry device can be fitted in the 1/2" NPT threaded entry hole
- Internal and external earthing connection
- The operator can be rotated through 360° to select the most favourable position for cable entry

OPTIONS

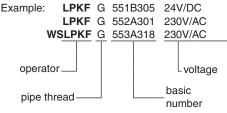
· Brass nickel plated cable gland





ORDERING INFORMATION

A valve supplied with the explosionproof operator will be identified with prefix LPKF or WSLPKF before the catalogue number.



₹



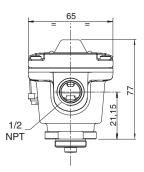
DIMENSIONS (mm), **WEIGHT** (kg)

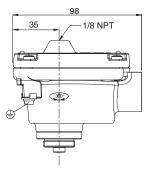


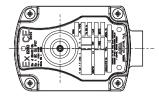


TYPE LPKF Prefix "LPKF" Solenoid

Aluminium, epoxy coated IEC, EN: 60079-1, 60079-31 II2G Ex db IIB+H2 Gb T6...T4 - II2D Ex tb IIIC Db IP66/IP67



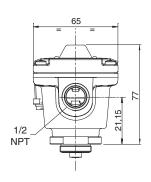


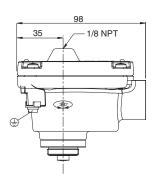


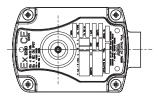


TYPE WSLPKF Prefix "WSLPKF" Solenoid Stainless steel, epoxy coated IEC, EN: 60079-1, 60079-31

II2G Ex db IIB+H2 Gb T6...T4 - II2D Ex tb IIIC Db IP66/IP67







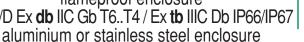
prefix	weight		
LPKF	0,55		
WSLPKF	1,16		



OPERATORS

flameproof enclosure

II 2G/D Ex db IIC Gb T6..T4 / Ex tb IIIC Db IP66/IP67 for potentially explosive atmospheres









FEATURES

• Explosionproof operator for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EC type examination certificate no.: LCIE 00 ATEX 6008 X IECEx Certificate of Conformity no.: IECEx LCI 07.0015X

- Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards EN-IEC 60079-0, EN-IEC 60079-1 and EN-IEC 60079-31
- · Easy electrical installation by means of a screw terminal coil
- Enclosure provided with a 1/2 NPT threaded entry hole (M20 x 1,5 in option) for a broad range of cable entries
- Ingress protection degree IP66/67
- A wide range of valves can be supplied with the operator

CONSTRUCTION

Solenoid enclosure NF Chromated aluminium, epoxy coated

WSNF Stainless steel (AISI 316L)

NF Steel (zinc plated) **Bonnet**

WSNF Stainless steel (nickel plated)

Stainless steel Core, core tube and plugnut all Shading coil all Copper or silver Nameplate NF Stainless steel

WSNF Stainless steel

DC (=) solenoids

Coil connection all Embedded screw terminals

Fasteners & screws Stainless steel all

IECEx / (II 2G Ex db IIC Gb T6..T4 Safety code IECEx / ⟨Ex⟩ II 2D Ex tb IIIC 85°C..135°C Db IP66/67

ELECTRICAL CHARACTERISTICS

Standard voltages DC (=): 24V - 48V

AC (~): 24V - 48V - 115V - 230V(3) / 50 Hz (Other voltages and 60 Hz on request)

TEMPERATURE CLASSIFICATION TABLES

AC (~) solenoids solenoid size

10,0 (2)

13,4 (2)

14,1 (2

15,4

16,5

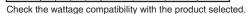
20,5

28,0

10,5

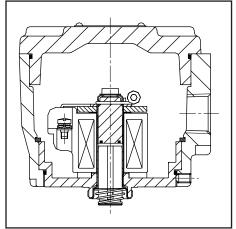
	sol	eno	id s	ize	maxi	imum ar	nbient °	C (1)		
Pn					su	rface te	mperatu	ire		
(watt)	XXIVI	M12			T6 85°C	T5 100°C	T4 135°C	T3 200°C		
insula	tior	ı cla	ıss	F/H	(155°C	C/180°C	2) 100%	6 E.D.		
1,85(2)(3)		•			75	80				_
3,7 (2)		•			60	75	100			
5,8 (2)		•			60	75	100			
10,0 (2)	•				40	60	75		Н	
10,0 (2)		•			40	60	100			
10,5	•				25	40	60			
13,4 ⁽²⁾	•				40	60	75		П	
14,1 ⁽²⁾		•			40	60	90		П	
15,4		S C 133 C 200 C 133 C 200 C 135 C 200 C								
16,5		•			40	60	75			
16,7	•					25	40			
20,0		•				25	40			
20,5	•						25		-	
00.0		_					0.5			

	SO	eno	id s	ize	maximum ambient °C (1)							
Pn					surface temperature							
(watt)	XXIVI	M12			T6 85°C	T5 100°C	T4 135°C	T3 200°C				
insulation class F/H (155°C/180°C) 100% E.D.												
1,8		•			75	80						
3,6		•			60	75	100					
5,7		•			60	75	100					
10,0		•			40	60	100					
11,2	•				40	60	75					
14,0		•			40	60	90					
16,8		•			40	60	75					
19,7	•				25	40	60					
23,0		•			25	40	60					
26,6		•			25	40	60					
29,5		•				25	40					
36.2		•				25	40					



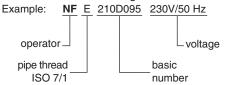
- (1) The minimum allowable ambient temperature is -60°C for the operator. Actual temperature range can be limited depending on valve operation limits.
- (2) AC (~): rectified coil construction.
- (3) 230 V AC does not exist (Pn 1,85 W).





ORDERING INFORMATION

A valve supplied with the explosionproof operator will be identified with prefix NF or WSNF before the catalogue number.



A valve supplied with the explosion proof operator will be identified with electrical interface FN, FS, FT or FU in the 15-digit product code.

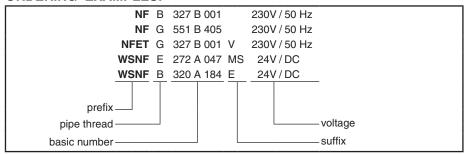
15-DIGIT PRODUCT CODE E 262 K 232 FN V00 H1 Voltage -Thread class connection Product series Revision letter Options Valves version Electrical interface -FN = NFFS = WSNF FT = NFET FU = WSNFET

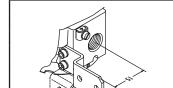


OPTIONS

• Operators for mining, I M2 Ex d I, contact us

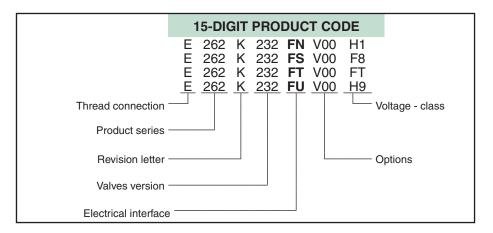
ORDERING EXAMPLES:





MOUNTING BRACKET

Bracket kit no. C139824 contains: Stainless steel 304 SS screws and bracket



CONNECTIONS

- Any ATEX approved cable entry device can be fitted in the 1/2 NPT threaded entry hole (M20 x 1.5 in option). Refer to the nameplate for identification of the maximum cable temperature
- Internal and external earthing connection
- The operator can be rotated through 360° to select the most favourable position for cable entry

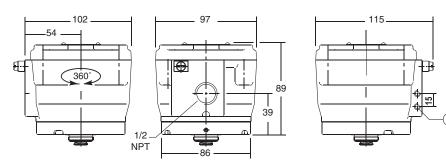
DIMENSIONS (mm), **WEIGHT** (kg) □



II 2G Ex db IIC Gb, II 2D Ex tb IIIC Db IP66/67



TYPE NF-WSNF Prefix "NF", "WSNF" Solenoid / Electrical interface FN/FS/FT/FU Aluminium, stainless steel (NF, epoxy coated) EN-IEC 60079-1 and EN-IEC 60079-31



series	weight
NF	1,4
WSNF	2,7

(1) 2 mounting holes M5, depth 9 mm



SOLENOID VALVES

for potentially explosive atmospheres flameproof enclosure

II2G Ex db IIB+H2 Gb T6..T4, II2D Ex tb IIIC Db IP66/IP67 aluminium enclosure, ISO 15218 (CNOMO, size 30) interface



NC



3/2 Series 314

FEATURES

 Explosion proof operator for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EC type examination certificate no.: LCIE 10 ATEX 3043X IECEx Certificate of Conformity no.: IECEx LCI 10.0010X

- Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards IEC and EN: 60079-0, 60079-1 and 60079-31
- · Easy electrical installation by means of a screw terminal coil
- Enclosure provided with a 1/2 NPT threaded entry hole for a broad range of cable entries
- A wide range of valves can be supplied with the CNOMO size 30 solenoid pilot interface



Differential pressure See «SPECIFICATIONS» [1 bar =100 kPa]

Flow See «SPECIFICATIONS»

Pneumatic base ISO 15218 (CNOMO E06.05.80, size 30)

Response time 70 - 140 ms

fluids (*)	temperature range (TS)	seal materials (*)
air or inert gas	- 25°C to +60°C	NBR (nitrile) FPM (fluoroelastomer) VMQ (silicone)



Solenoid enclosure	Aluminium, cataphorese black painting
Cover screws	Stainless steel
Nameplate	Aluminium

MATERIALS IN CONTACT WITH FLUID (*) Ensure that the compatibility of the fluids in contact with the materials is verified									
Body Aluminium, black painting									
Core, core tube and plugnut	Stainless steel								
Springs	Stainless steel								
Seals	VMQ								
Upper disc	FPM								
Lower disc	NBR								



Gas	II2G Ex db IIB+H2 Gb T6T4
Dust	II2D Ex tb IIIC Db T85°CT135°C IP66/IP67

ELECTRICAL CHARACTERISTICS

Coil insulation class	F
Coil connection	Embedded screw terminals
Electrical enclosure protection	IP67 (EN 60529)
Standard voltages	DC (=): 24V - 48V
(Other voltages on request)	AC (~): 24V - 48V - 115V - 230V/50-60 Hz

TEMPERATURE CLASSIFICATION TABLES

AC solenoids (~)

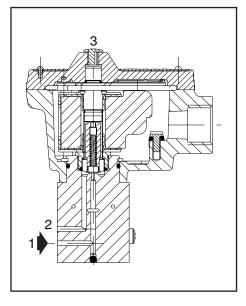
			· /						
		solenoid	maximur	n ambien	t °C (1) (4)				
	Pn (2)(3)	size	surface temperature						
	(2)(0)		Т6	T5	T4				
Un	(watt)	M6	85°C	100°C					
(V)	insu	ation clas	ss F (155	°C) 100	% E.D.				
24	5,4	•	40	-	60				
48	5,8	•	40	-	60				
115	7,1	•	-	40	60				
230	7,4	•	-	40	60				

DC solenoids (=)

		Pn		solenoid size		n ambien ce tempe								
		(wa	att)		Т6	T5	Т4							
ı	Un	hot/	cold	M6		100°C								
-	_					insulation class F (155°C) 100% E.D.								
	(V)	ir	nsulati	on class I) 100%	E.D.							
	(V)	ir 5,9	nsulati	1		40	E.D. 60							

- (1) The minimum allowable ambient temperature is -25°C for the operator. Actual temperature range can be limited depending on valve operation limits.
- (2) Rectified coil construction.
- (3) Maximum cold wattage.
- (4) For the layout of the control circuit, see the installation and maintenance instructions at: www.asco.com





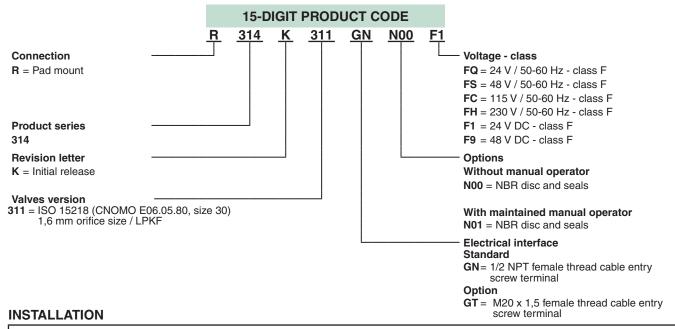
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SPECI	FICAT	IONS						I	15-DIGIT PF	RODU	CT C	ODE		
		flo	ow		operating pre			voltage code						
Ι.	orifice	coefficient Kv		differential (bar)				S				Z	모	
pipe	size			max.		(PS)		Ö	brass	무	포	V/50 Hz		, ,
size		1 → 2	2→3	min.	air, inert	gas (*)	a g	ens (/20	48 V/50 Hz	≥	V/50	N/DC
	(mm)	(m³/h) (l/min)	(m³/h) (l/min)		~	=	thread	dimensions type (1)		24 V/50 I	48	115	230 V/50	48
					WITHOU	JT MANUA	L OPERATOR							
NC - I	Vormal	ly closed, NI	BR seal and	disc										
1/4	1,6	0,08 1,3	0,05 0,8	0	10	10	pad mount	01	R314K311GNN00	FQ	FS	FC	FH F	1 F9
	WITH MAINTAINED MANUAL OPERATOR													
NC - I	Normal	ly closed, NI	BR seal and	disc										
1/4	1,6	0,08 1,3	0,05 0,8	0	10	10	pad mount	01	R314K311GNN01	FQ	FS	FC	FH F	1 F9

⁽¹⁾ For dimensions, see drawing(s) for each construction type on the following page(s).

^(*) Ensure that the compatibility of the fluids in contact with the materials is verified.



- The solenoid valves can be mounted in any position without affecting operation
- The solenoid valves are supplied with mounting screws
- Mounting on valve or single, non-joinable subbase with ISO 15218 (CNOMO, size 30) interface
- Installation/maintenance instructions are included with each valve

OPERATOR CONNECTION

- Any ATEX approved cable entry device can be fitted in the 1/2" NPT threaded entry hole (M20 x 1.5, in option); supplied without cable gland
- Internal and external earthing connection
- The operator can be rotated through 360° to select the most favourable position for cable entry

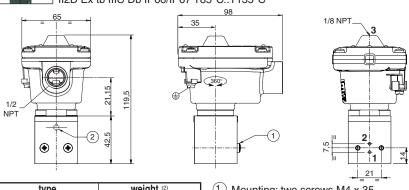
DIMENSIONS (mm), **WEIGHT** (kg)





TYPE 01 Electrical interface "GN" IEC, EN: 60079-1, 61241-1 II2G Ex db IIB+H2 Gb T6..T4

II2D Ex tb IIIC Db IP66/IP67 T85°C..T135°C



weight (2) type 0,7

1 Mounting: two screws M4 x 35

(2) Manual operator location

(2) Without cable gland.

All leaflets are available on: www.asco.com



OPERATORS

for potentially explosive atmospheres encapsulated, II 2G Ex **mb** IIC T5..T3 Gb / II 2D Ex **mb** IIIC T100°C..T200°C Db IP67 moulded enclosure with integrated cable







FEATURES

 Explosion proof operator for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EC type examination certificate no.: BAS 98 ATEX 2168 X IECEx Certificate of Conformity no.: IECEX SIR 06.109X

- Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards EN-IEC 60079-0 and EN-IEC 60079-18
- · Easy electrical installation with moulded-in supply cable, 2 m long
- Ingress protection degree IP67
- The operators are designed for installation on a wide range of valves

CONSTRUCTION

Solenoid enclosure
Core tube
Plugnut
Shading coil
Nameplate

Epoxy encapsulated
Stainless steel
Stainless steel
Copper or silver
Polyester

Safety code IECEx / ऒ II 2G Ex mb IIC T5..T3 Gb IECEx / ऒ I2D Ex mb IIIC 100°C ..200°C Db IP67

ELECTRICAL CHARACTERISTICS

Standard voltages DC (=): 24V - 48V

(Other voltages and 60 Hz on request) AC (~): 24V - 48V - 115V - 230V / 50 Hz

TEMPERATURE CLASSIFICATION TABLES

AC solenoids (~) DC solenoids (=)

	sol	eno	id s	ize	maximum ambient °C (1)							
Pn					surface temperature							
(watt)	EM2	EMXX			T6 85°C	T5 100°C	T4 135°C	T3 200°C				
in	insulation class F (155°C) 100% E.D.											
2,5	•				-	-	60	65				
4,0 (2)	•				-	-	60	65				
4,05		•			-	-	-	65				
6,3 (3)	•				-	-	-	65				
10,5		•			-	-	-	65				
ir	sul	atic	on c	las	s F (15	5°C) 1	0% E.C	D				
10,0	•				-	-	-	65				

	sol	eno	id s	ize	maxi	imum ar	nbient °	C (1)		
Pn					su	rface te	mperatu	ıre		
(watt)	EM5	EMXX			T6 85°C	T5 100°C	T4 135°C	T3 200°C		
insulation class F (155°C) 100% E.D.										
1,7		•			65	-	-	-		
3,0 (4)	•				-	40	60	60		
6,9 (5)	•				-	-	-	40		
11,2		•			-	-	65	70		
19,7		•			-	-	40	70		
insulation class F (155°C) 10% E.D.										
15,0	•				-	-	-	40		
22,0	•				-	-	-	40		

Check the wattage compatibility with the product selected.

- (2) AC series 189 189 banjo 256/356 (1/8-1/4) 551 integrated pilot 238 (3/8 to 1)
- (3) AC series 552/553
- ⁽⁴⁾ DC series 189 189 banjo 551 integrated pilot
- (5) DC series 552 553 256/356 1/8-1/4 238 (3/8 to 1)

CONNECTIONS

 The solenoid can be rotated through 360° to select the most favourable position for the cable.

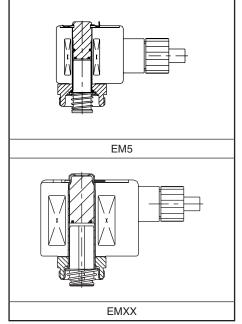
ORDERING INFORMATION ON EXCEPTIONS

- PV + 18901..., for series: 189 - 189 banjo Example: PV 18901001 230V/50 Hz PV 18901010 24V/DC PV 18901032 230V/50 Hz PV 18901047 24V/DC

 PV + TPL number 20787, for series: 551 integrated pilot - 238 (floating diaphragm, 3/8 to 1, catalogue nos. including the letterD...) - 256/356 1/8

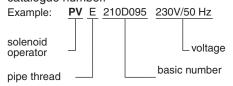
	,	. ,		
nple:	PVX	G551A005	24V/DC	20787
	PVX	G551A006	48V/DC	20787
	PVX	G551A017	24V/50 Hz	20787
	PVX	G551A018	48V/50 Hz	20787
	PVX	G551A001	115V/50 Hz	20787
	PVX	E238D001	230V/50 Hz	20787
	PVX	E238D008	24V/DC	20787
	PVX	3256A002VMS	24V/DC	20787
	PVX	356A002VMS	230V/50 Hz	20787





ORDERING INFORMATION (See Ordering Information on Exceptions)

A valve with the explosion proof operator will be identified with the prefix PV before the catalogue number.



A valve supplied with the explosion proof operator will be identified with electrical interface A7 in the 15-digit product code.



Electrical interface
A7 = PV

without notice. All

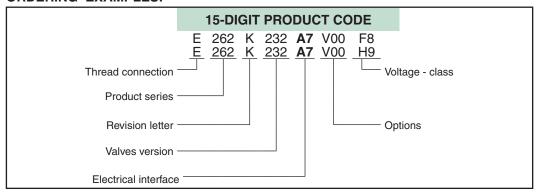
are subject to change

Exam

⁽¹⁾ Allowable minimum ambient temperature: -40°C. Actual temperature range may be limited depending on valve operation limits.



ORDERING EXAMPLES:

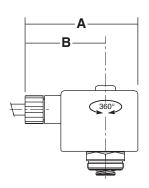


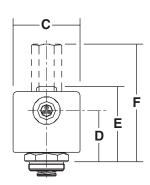
DIMENSIONS (mm), **WEIGHT**





TYPE PV
Prefix "PV" solenoids / Electrical interface A7
Epoxy coated EN-IÉC 60079-18 II 2G Ex mb IIC Gb - II 2D Ex mb IIIC Db IP67





size	Α	В	С	D	Е	F	weight (1)
EM5	60	45	29	21	38,5	66	0,113
EMXX	75	53,5	44,5	33,6	49,4	77,3	0,348

ASVΔ

OPERATORS

for potentially explosive atmospheres increased safety/encapsulation II 2G Ex e mb IIC T4 Gb, II 2D Ex tb IIIC T135°C Db IP67 moulded enclosure







FEATURES

 Explosion proof operator for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EU type examination certificate no.: LCIE 12 ATEX 3005 X IECEX Certificate of Conformity no.: IECEX LCI 12.0002X

- Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards EN-IEC 60079-0, EN-IEC 60079-7, EN-IEC 60079-18 and EN-IEC 60079-31
- · Easy electrical installation by means of a screw terminal coil
- · Peak voltage suppression standard for DC executions
- The coil winding is fitted with a thermal fuse (in AC/DC) which will trip in case of
 excessive temperature due to prolonged overvoltage or a blocked core and cause
 the valve to de-energise and fail-safe
- Enclosure provided with integral strain relief for cable with an O.D. of 7 to 8,5 mm
- Ingress protection degree IP67
- · A wide range of valves can be supplied with the operator

CONSTRUCTION

Solenoid enclosure PBT

Cable gland PA 66, M20 x 1,5 Nameplate Polyester

Coil connection

Safety code

Embedded screw terminals

II 2G Ex e mb IIC T4 Gb

II 2D Ex tb IIIC T 135°C Db IP67

ELECTRICAL CHARACTERISTICS

Standard voltages DC (=): 24V - 48V

AC (~): 24V-48V-115V-230V / 50 Hz

24V-48V-100V-115V-200V-230V / 50-60(1) Hz

(1) For the 256/356 & 238 series the MOPD may be reduced at 60 Hz, please contact your local Sales office.

TEMPERATURE CLASSIFICATION TABLES

AC (~) solenoids

DC (=) solenoids

		solenoid size				maximum ambient °C (1)					
P	'n				surface temperature						
(wa	att)	WBLP				T4 135°C					
	insulation class F (155°C) 100% E.D.										
3,	5 (2)	•				65					

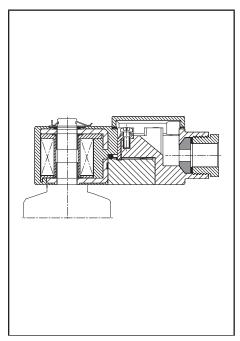
	solenoid size				maximum ambient °C (2)				
Pn					surface temperature				
(watt)	WBLF				T4 135°C				
ir	insulation class F (155°C) 100% E.D.								
4	•				65				

Check the wattage compatibility with the product selected.

CONNECTIONS

- Internal and external earthing connection
- The operator can be rotated through 360° to select the most favourable position for cable entry

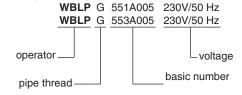




ORDERING INFORMATION

A valve supplied with the explosion proof operator will be identified with prefix WBLP before the catalogue number.

Example:



²⁾ The minimum allowable ambient temperature is -40°C for the operator. Actual temperature range can be limited depending on valve operation limits.



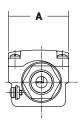
DIMENSIONS (mm), WEIGHT (kg)

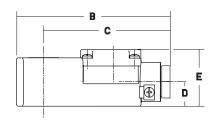




TYPE WBLP

Prefix "WBLP" solenoids EN-IEC 60079-7, EN-IEC 60079-18 and EN-IEC 60079-31 II 2G Ex e mb IIC T4 Gb, II 2D Ex tb IIIC T135°C Db IP67







prefix	Α	В	С	D	E	weight
WBLP	37	98	81,5	15	35,2	0,18



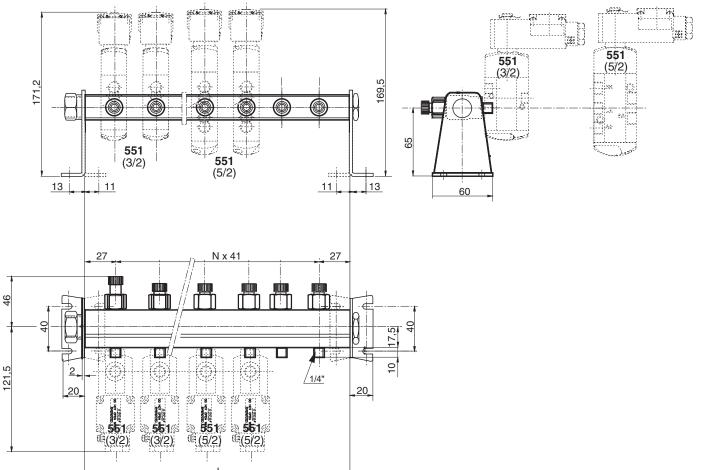
ACCESSORIES

Supply rail with pressure isolation valves Aluminium Inlet G 1/2, outlets G 1/4



		supply rail for «n» valves with end pieces and low 65 mm mounting brackets									
number of outlets	4	6	8	10	12	15					
catalogue number	88100970	88100971	(1)	(1)	(1)	(1)					
L (mm)	177	259	341	423	505	628					

(1) Contact us.





OPERATORS

for potentially explosive atmospheres increased safety/encapsulation II2 G Ex **eb mb** II T6..T3 Gb, II2 D Ex **tb** IIIC T85°C.. T200°C Db IP66/67, steel or stainless steel enclosure





Series EM WSEM

FEATURES

 Explosion proof operator for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EC type examination certificate no.: **KEMA 98 ATEX 2542 X**IECEx Certificate of Conformity no.: **IECEx KEM 08.0002X**

- Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards EN-IEC 60079-0, EN-IEC 60079-7, EN-IEC 60079-18 and EN-IEC 60079-31
- Easy electrical installation by means of a screw terminal coil
- Peak voltage suppression standard for DC executions
- Enclosure provided with integral strain relief for cable with an o.d. of 7 to 12 mm
- Ingress protection degree IP66/67
- A wide range of valves can be supplied with the operator

CONSTRUCTION

Solenoid enclosure

Cable gland
Core, core tube and plugnut
Shading coil
Nameplate
Coil connection
Safety code

EM Zinc plated steel (epoxy coated) WSEM Stainless steel, AISI 316

PA, M20 x 1,5 Stainless steel Copper or silver Polyester

Embedded screw terminals
II 2G Ex eb mb IIC T6..T3 Gb
II 2D Ex tb IIIC 85°C..200°C Db IP66/67



Standard voltages

(Other voltages and 60 Hz on request)

DC (=): 24V - 48V

DC (=) solenoids

AC (~): 24V - 48V - 115V - 230V / 50 Hz

TEMPERATURE CLASSIFICATION TABLES

AC (~) solenoids

sol	eno	id s	ize	max	imum ar	nbient °	C (1)			
				surface temperature						
9М	XXIVI	M12		T6 85°C	T5 100°C	T4 135°C	T3 200°C			
insulation class F (155°C) 100% E.D.										
		•		60	75					
	•			40	55					
		•		40	55					
		•		40	55	75				
		•			40	75	-			
•							40			
•							40			
	•						40			
		•				40	65			
	•						40			
	•						40			
		•					40			
		•					40			
		•					40			
	Me os	soleno XXW	solenoid s WXW Sulation cl	sulation class	Solenoid size	Solenoid size	Solenoid size			

	sol	eno	id s	ize	max	maximum ambient °C (1)				
Pn					su	rface te	mperatu	ıre		
(watt)		MXX				T5 100°C				
insulation class F (155°C) 100% E.D.										
1,3			•		60	75				
1,7		•			40	55				
1,8			•		40	55				
3,6			•		40	55	75			
5,7			•			40	75	-		
9,7	•							40		
10,0			•				40	65		
11,2		•						40		
14,0			•					40		
15,3	•							40		
16,8			•					40		
19,7			•					40		

Check the wattage compatibility with the product selected.

(1) The minimum allowable ambient temperature is -40°C for the operator. Actual temperature range can be limited depending on valve operation limits.

(2) AC (~): rectified coil construction.

CONNECTIONS

- Internal and external earthing connection
- The operator can be rotated through 360° to select the most favourable position for cable entry

OPTIONS

- Brass nickel plated or stainless steel cable gland
- Conduit hub, 1/2 NPT, M20 x 1,5, 3/4 NPT or M25 x 1,5 in aluminium or stainless steel
- Special moulded-in solid state components for peak voltage suppression and/or rectification (four-diode bridge)





ORDERING INFORMATION

A valve supplied with the explosionproof operator will be identified with prefix EM or WSEM before the catalogue number.

Example: WSEM E 210D095 230V/50 Hz

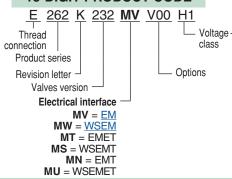
EM E 210D095 230V/50 Hz

operator voltage

pipe thread basic
number

A valve supplied with the explosion proof operator will be identified with electrical interface MV, MW, MT, MS, MN or MU in the 15-digit product code.

15-DIGIT PRODUCT CODE



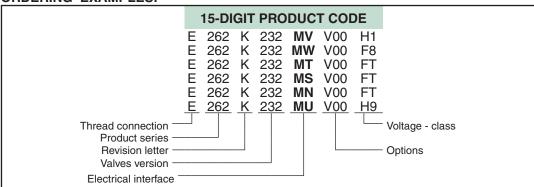
MU = WSEMET

All leaflets are available on: www.asco.com

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ORDERING EXAMPLES:



DIMENSIONS (mm), **WEIGHT** (kg)



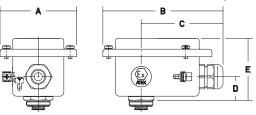




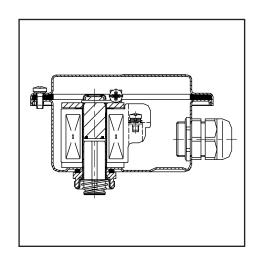
TYPE EM/WSEM

Prefix "EM"/"WSEM" solenoids / Electrical interface MV/MW/MT/MS/MN/MU Pull-type solenoid operator Metal enclosure, epoxy coated or stainless steel EN-IEC 60079-7, EN-IEC 60079-18 and EN-IEC 60079-31

II 2G Ex eb mb IIC Gb, II 2D Ex tb IIIC Db IP66/67



series/size	Α	В	С	D	E	weight
EM/WSEM-M6	77	120	82	26	64	0,48
EM/WSEM-MXX	77	120	82	23	62	0,55
EM/WSEM-M12	77	120	82	21	65	0,67



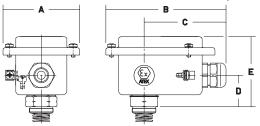




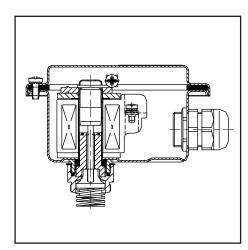
TYPE EM/WSEM

Prefix "EM"/"WSEM" solenoids / Electrical interface MV/MW/MT/MS/MN/MU Push-type solenoid operator

Metal enclosure, epoxy coated or stainless steel EN-IEC 60079-7, EN-IEC 60079-18 and EN-IEC 60079-31 II 2G Ex eb mb IIC Gb, II 2D Ex tb IIIC Db IP66/67



series/size	Α	В	С	D	E	weight
EM/WSEM-M6	77	120	82	25	63	0,50
EM/WSEM-MXX	77	120	82	31	69	0,59
EM/WSEM-M12	77	120	82	30	73	0,70



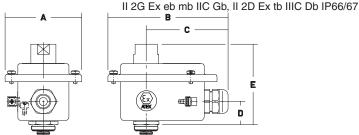




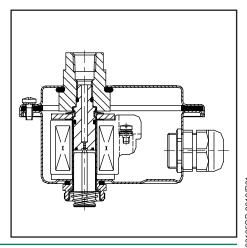
TYPE EM/WSEM

Prefix "EM"/"WSEM" solenoids / Electrical interface MV/MW/MT/MS/MN/MU Pull-type solenoid operator

Metal enclosure, epoxy coated or stainless steel EN-IEC 60079-7, EN-IEC 60079-18 and EN-IEC 60079-31



series/size	Α	В	С	D	E	weight
EM/WSEM-MXX	77	120	82	23	80	0,68



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OPERATORS

intrinsically safe II 1G Ex ia IIC T6 Ga, II 2D Ex tb IIIC T85°C Db IP66/IP67

aluminium or stainless steel enclosure







FEATURES

Explosionproof operator for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EC type examination certificate no.: LCIE 09 ATEX 3054 X IECEx Certificate of Conformity no.: IECEx LCI 09.0022X

- Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards IEC and EN: 60079-0, 60079-11 and 60079-31
- Easy electrical installation by means of a screw terminal coil
- Enclosure provided with a cable gland for unarmoured cable with an o.d. of 6 to 12 mm

Ingress protection degree IP67

- For solenoid operator type WSLI for use in mines susceptible to firedamp, group I: see "Options"
- A wide range of valves can be supplied with the operator

CONSTRUCTION

Solenoid enclosure Aluminium, cataphorese black painting

> WSLI Stainless steel (AISI 316L)

Bonnet Ш Stainless steel

> Stainless steel (AISI 316L) WSLI

Cover screws Stainless steel Core, core tube and plugnut Stainless steel

Seals **VMQ** Upper disc **FPM** Lower disc **NBR**

Nameplate Stainless steel

Coil connection Embedded screw terminals

Cable gland Polyamide (PA), 1/2 NPT (cable Ø 7-12 mm)

LI (1) / WSLI (1) Safety code

II 2D Ex tb IIIC T85°C Db IP66/IP67

Tor use in zone 0 locations, see the installation conditions given in the I&M instructions.

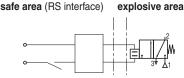
ELECTRICAL CHARACTERISTICS

Coil insulation class

Standard voltages DC (=): 24V

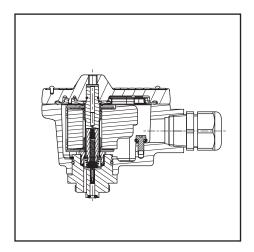
voltage (U _n)	power ratings (Pn)		typical functional ratings		3	operator ambient	type
(max. ripple 10%)	hot/cold =	I (ON) min.	U _(ON) min.	20°C	max. T6	temperature range (TS)	(4)
(V)	(W)	(mA)	(V)	(Ω)	(Ω)	(°C) (2)	
24	0.5	32	12.5	288	354	-40 to +60	01

		safety parameters							
P	'n	U _i = (DC)	I,	P,	L,	C,			
(\	V)	(V)	(mA)	(W)	(H)	(μF)	ĺ		
0	.5	32	500	1.5	0	0	l		



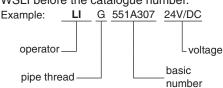
Example of use with a Zener barrier installed in a non-hazardous zone

$C \in$

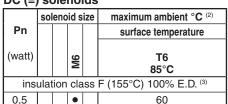


ORDERING INFORMATION

A valve supplied with the intrinsically safe operator will be identified with prefix LI or WSLI before the catalogue number.



TEMPERATURE CLASSIFICATION TABLES DC (=) solenoids



Check the wattage compatibility with the product selected.

(2) The minimum allowable ambient temperature is -40°C for the operator. Actual temperature range can be limited depending on valve operation limits. -35°C max. with polyamide cable gland.

(3) This intrinsically safe valve must be connected to a specific, approved power supply (safety barrier or interface) located in a safe area. See list of safety barriers/interfaces on page 2.

(4) Refer to the dimensional drawings on the following page.

CONNECTIONS

- · Internal and external earthing connection
- The operator can be rotated through 360° to select the most favourable position for
- Electrical connection between solenoid valve and barrier/interface with cable type A or B according to EN 50039



OPTIONS

Cable glands (Nickel-plated brass): unarmoured cable, catalogue number 88200011 / armoured cable, catalogue number 88200014

RECOMMENDED INTERFACES

Located in safe areas, these interfaces allow to feed the intrinsically safe solenoid valves located in explosive areas.

This equipment must be ordered from its respective manufacturers, specifying that they are intended to feed intrinsically safe solenoid

LI / WSLI: II 1G Ex ia IIC T6 Ga, II 2D Ex tb IIIC T85°C Db IP66/IP67

INTERFACES							
manufacturer	modul	1G/2G T6 IIC					
ABB		10S	X				
Bartec		2105/1000	X				
Dartoo	07-7331-2		X				
GEORGIN		701002	x				
0.201101	BXNE7	(0100E	X				
	D1040Q-2	D1049S	X				
G.M. International	D1042Q-2	D5048S	X				
	D1043Q-2	D5049S	X				
	D1048S	- MTI 770	X				
l MTI	MTL 722+ MTL 728+	MTL 779	X				
IVIIL	MTL 728P+	<u>MTL 4524S</u>	<u>^</u>				
		L2-Ex1	X				
	KFD2-SI	^					
	KFD2-SL	X					
5 ,	KFD2-S	x					
Pepperl	KFD2-SI	X					
+	KCD0-SD	X					
Fuchs	KFD0-SD2	x					
	LB-2103	FB-2203	x				
	LB-2105	FB-2205	x				
	LB-2112	FB-2212	X				
	MACX MCR-EX-S		Х				
PHOENIX	MACX MCR-EX-S		X				
CONTACT	PI-EX-S	D-24-48	Х				
		D-21-60	Х				
	9475/12-04-11	9175/20-14-11	X				
	9475/12-04-21	9176/10-14-00	X				
	9475/12-04-31	9176/20-14-00	x				
	9475/32-04-12 9475/32-04-22	9175/10-16-11	X				
Stahl	9475/32-04-22	9175/20-16-11	X				
	94/3/32-04-72	9176/10-16-00	X				
		9176/20-16-00	X				
	9001/01-28		X				
	9002/13-28	30-110-001	Х				

INTERFACES						
manufacturer	module type	1G/2G T6 IIC				
	MK72-S09-Ex0/24VDC	Х				
Turck	MC72-41Ex-T/24VDC	X				
	MC72-44Ex-T	Х				
	6ES7132-7RD11-0AB0 2 ways	Х				
Siemens	6ES7132-7RD21-0AB0	X				
Siemens	6ES7132-7GD10-0AB0 2 ways	х				
	6ES7132-7GD20-0AB0	Х				

ZENER BARRIERS							
Bartec	07-7331-	07-7331-2301/1001					
	SB-	3722	Х				
	SB-	2420	X				
CEAG	SB-	3729	X				
	SB-	3728	X				
	SB-	0728	X				
	BZG	BZG728+					
GEORGIN	BZG	X					
GEORGIN	BZG	X					
	BZG2	X					
MTL	MTL 722	MTL 728P	Х				
IVIIL	MTL 728	MTL 779	X				
Pepperl +	Z	728	X				
1 11	Z7:	28.H	X				
Fuchs	Z72	Z728.CL					
	9001/01-1	9001/01-199-150-101					
Stahl	9001/01-2	9001/01-280-085-101					
Jiaili	9001/01-2	80-100-101	X				
	9001/01-2	80-110-101	Х				

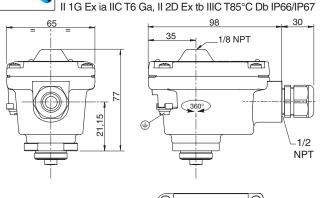
In accordance with the zone classification and the national legislation of each country, apply the certification procedures for the connection of IS-rated products with associated equipment. All information subject to change without notice. All responsibility for the use of products from other suppliers and the possible modifications of their characteristics is disclaimed.

DIMENSIONS (mm), **WEIGHT** (kg)





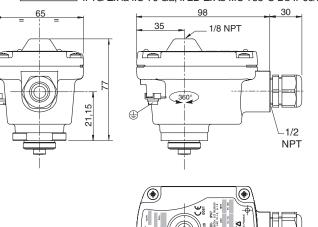
TYPE LI Prefix "LI" Solenoid Aluminium, cataphorese black painting IEC and EN: 60079-11, 60079-31



NATIONAL STATES	(A)
weight	
0,56	



TYPE WSLI Prefix "WSLI" Solenoid Stainless steel IEC and EN: 60079-11, 60079-31 II 1G Ex ia IIC T6 Ga, II 2D Ex tb IIIC T85°C Db IP66/IP67





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1,17

prefix LI

WSLI

MINI-SOLENOID VALVES

intrinsically safe Intrinsically safe

II 1 G Ex ia IIC T6 to T4 Ga, II 1 D Ex ia IIIC T85°C to T135° Da ISO 15218 (CNOMO, size 15) interface direct operated, pad mounting body, connector size 15





CE



FEATURES

• Mini-low consumption valves (0,25 W/0,5 W) for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU EC type examination certificate no.: INERIS 03 ATEX 0249X

IECEx Certificate of Conformity no.: IECEx INE 10.0002X

- Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards IEC and EN: 60079-0, 60079-11 and 60079-26
- The valve's Ex ia protection allows it to be installed in explosive atmospheres up to zone 0 or 20. It can be used in the chemical, oil and pharmaceutical industries, or in processing and packaging plants for flammable products (paints, solvents)
- Compact, monobloc pilot valve with spade plug. Connection according to DIN 43650, form C, 9,4 mm pin spacing
- Version with integrated display and electrical protection. LED visible from 3 sides

GENERAL

Differential pressure 0 - 8 bar [1 bar = 100 kPa]

Pneumatic base ISO 15218 (CNOMO E06.36.120N, size 15)

Connection Subbase Response time 20 ms

fluids (*)	temperature range (TS)	seal materials (*)
air or inert gas filtered (50 μm), without condensate,	0°C to + 40°C (0,25 W)	NBR (nitrile)
dew point: -20°C	- 10°C to + 40°C (0,5 W)	FPM (fluoroelastomer)

MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

Body PARA

Internal parts POM, PET, stainless steel and brass

Seals NBR, FPM Pneumatic interface seal

OTHER MATERIALS

Thermoplastic PET

ELECTRICAL CHARACTERISTICS SAFETY CODE

II 1 G Ex ia IIC T6 to T4 Ga
II 1 D Ex ia IIIC T 85°C to T135°C Da Coil insulation class

Connector Spade plug (cable Ø 4-6 mm) **Connector specification** DIN 43650, 9,4 mm, form C **Electrical safety IEC 335**

Electrical enclosure protection Moulded IP65 (EN 60529)

Standard voltages DC (=): $12V - 24V^{(2)}(0.25 \text{ W} = 24 \text{ V only})$

	power ratings		typical f	ambient				
voltage (U _n)	(Pn)(†)	I (ON) min.	U	U _(MAX)	U		temperature	
(max. ripple 10%)	hot/cold =	with LED	min.	recom- mended	turn off	turn off	range (TS)	type (3)
(V)	(W)	(mA)	(V)	(V)	(V)	(mA)	(°C) (1)	
LP1 "24V"	0,25	20	12,2	28	3,3	7	0 to +40/50/60	
LP1 "12V"	0,5	33	11,9	23	3,3	10	-10 to +40/50/60	01
LP1 "24V"	0,5	25	16,4	28	5,7	7	-10 10 +40/50/60	

(*) Nominal power ratings of standard versions (with LED indicator and electrical protection)

PNEUMATIC CNOMO interface

Dn	safety parameters						
Pn	U _i = (DC)	I,	P,	L,	C,		
(W)	(V)	(mA)	(W)	(mH)	(μF)		
0,25/0,5	28	300	1,6	0	0		

Example of use with a safe area (RS interface)	Zener barrier ir cable	explosive area
o		□ , , , , , , , , , , , , , , , , , , ,

TEMPERATURE CLASSIFICATION TABLES DC (=)

TEMPERATURE CEASSII ICATION TABLES DC (=)								
		maxim	num ar	nbien				
Pi		surf	ace te	mpera				
	Т	6	Т	T5 T4				
(watt)	85	°C	100)°C	135°C			
	12V	24V	12V	24V	12V	24V		
Insulation (class	F (15	5°C)	100%	6 E.D.	(2)		
1,6	38	33	50	48	60	60	single solenoid valve	
1,0	-	-	44	40	60	60	solenoid valve mounted in serie	

(1) Minimum ambient temperature: 0°C (0,25 W) / -10°C (0,5W)

(2) Coil designed for permanent duty within maximum ambient temperature limits. The solenoid valve must be connected to a special certified electrical supply unit installed in a non-dangerous zone. List of safety barrier manufacturers on the following page.

(3) Refer to the dimensional drawings on the page 4.



SPECIFICATIONS

		flo	ow					basic catalogue number		
orifice size	at 6,3 I/min (icient (v	operating pressure differential (bar)		power coil (W)	with impulse /maintained manual operator		
					min.	max. (PS)		=		
(mm)	1 → 2	2 → 3	1 → 2	2 → 3		(=)	(=)			
3/2 NC - no	3/2 NC - normally closed (With LED and protection)									
0,6	4	11	0,04	0,16	0	8	0,25	30215311 IAD		
0,6	11	20	0,21	0,44	0	8	0,5	30215106 IAD		

When ordering, please specify in addition to the basic catalogue number:

- voltage:

0,25 W: 24 V DC

0,5 W: 12 V DC or 24 V DC

Examples: with connector DIN 43650, 9,4 mm: 30215311IAD 24V DC

with connector DIN 43650, 9,4 mm: **30215106**IAD 12V DC with connector DIN 43650, 9,4 mm: **30215106**IAD 24V DC

OPTIONS

Solenoid valves without LED and electrical protection (0.5 W only)

INSTALLATION

- The solenoid valves can be mounted in any position without affecting operation
- Solenoid valve supplied with mounting screws and mounting pad seal(s)
- Electrical connection between solenoid valve and barrier/interface with cable type A or B according to EN 50039
- Installation on single subbase (3 x M5), brass body, catalogue number 30300001
- Versions with spade-plug connector type ISO 15217/DIN 43650 form C with 8 mm spacing or M12 connection: contact us
- Installation/maintenance instructions are included with each valve

See the list for compatible interfaces and barriers.

This list is for reference only and the user must take into account the cables and the actual supply voltages for the barriers.

The operating conditions are calculated as follows:

$$I_{_{l}} \text{ (mA)} = \frac{[\ \textbf{V}_{_{S}} - 1,2 - 0,002\ (\textbf{R}_{_{b}} + \textbf{R}_{_{l}})\]\ x\ 1000}{(\textbf{R}_{_{c}} + \textbf{R}_{_{l}} + \textbf{R}_{_{b}})} + 2$$

0,5 W: 12 V or 24 V with LED

$$I_{l} (mA) = \frac{[V_{s} - 1,2 - 0,003 (R_{b} + R_{l})] \times 1000}{(R_{o} + R_{l} + R_{b})} + 3$$

This value and the maximum barrier/interface current (if it is non-linear) must be greater than 33 mA (12 V with LED), 25 mA (24 V with LED, 0,5 W), 20 mA (24 V with LED, 0,25 W).

I, (mA) Min. supply current of the product

 $\mathbf{R}_{\mathbf{k}}(\Omega)$ Max. barrier resistance

Ta (°C) Max. ambient temperature

 $\mathbf{R}_{i}^{a}(\Omega)$ Max. resistance of connecting cables

 $\mathbf{V}_{\epsilon}^{\cdot}$ (V) Min. no-load voltage of barrier/interface

 $\mathbf{R}_{\mathbf{c}}(\Omega)$ Max. coil resistance:

12 V with LED =
$$\frac{288 (T_a + 234 + 10)}{254} / 24 \text{ V with LED} = \frac{563 (T_a + 234 + 10)}{254}$$



COMPATIBLE BARRIERS AND INTERFACES

The 12 V DC and 24 V DC solenoid valves are compatible with the barriers listed in the table below. 0,5 W: The index (1) indicated the 12 V DC versions that are compatible with the 24 V DC barriers.

Located in safe areas, these barriers and interfaces allow to feed the intrinsically safe solenoid valves located in explosive areas. This equipment must be ordered from its respective manufacturers, specifying that they are intended to feed intrinsically safe solenoid valves: 302 1....IA., II 1 G Ex ia IIC T6 to T4 Ga, II 1D Ex ia IIIC T85°C to T135°C Da.

0,5									
INTERFACES									
302 Ex ia									
		002 27 10							
manufacturer	module type	12 V with LED	24 V with LED						
ABB	DO910S	Х	Х						
	NAEV30-DO2C-A230-0	X							
	NAEV30-DO2C-A115-0	X							
	NAEV30-DO2H-C024-0	X							
AP3	NAEV30-DO4H-C024-0	X							
	NAEV30-DI2-DO1C-A230-0	X							
	NAEV30-DI2-DO1C-A115-0	X							
	NAEV30-DI2-DO1H-C024-0	Х							
Bartec	07-7331-2105/1000	X							
	07-7331-2301/1100	X							
	LB-2101								
	LB-2103								
	LB-2105	X							
CEAG	LB-2112	X	X						
	FB-2201								
	FB-2203	X							
	FB-2205	X							
	FB-2212	X	X						
G.M.	D1040Q-2	X							
international	D1042Q-2	X	X						
	D1043Q-2 815-DO-04	X							
MTL	4021S	X	X						
	KFD2-SD-Ex1.17	X X							
	KFD2-SD-Ex1.36	X	X						
	KFD2-SD-Ex1.48	X (1)	Χ						
	KFD2-SD-Ex1.48.90A	X ⁽¹⁾							
	KFD2-SL-Ex1.48	X ⁽¹⁾							
Pepperl	KFD2-SL-Ex1.48.90A	X ⁽¹⁾							
+	KFD2-SL2-Ex1	X ⁽¹⁾	х						
Fuchs	KFD2-SL2-Ex1.B	X ⁽¹⁾	X						
Fucils	KFD2-SL2-Ex1.LK	X ⁽¹⁾	X						
	KFD2-SL2-Ex2	X (1)	x						
İ	KFD2-SL2-Ex2.B	X (1)	X						
	KFD2-VD-Ex1.1560	X							
	KFD2-VD-Ex1.1835	X	х						
	9475/12-04-11	X	^						
Stahl	9475/12-04-21	X	х						
""	9475/12-04-31	X							
	MK72-S01-Ex	X							
	MK72-S09-Ex0/24VDC	X							
	MK72-S10-Ex0/24VDC	X							
Turck	MC72-41Ex-T/24VDC	X							
	MC72-42Ex-T/24VDC		х						
	MC72-44Ex-T	Х							
	MC72-43Ex-T		Х						
Ciomono	ET200IS double	Х	Х						
Siemens	6ES7132-7RD20-OAB0	Х							

ZENER BARRIERS									
		302 Ex ia							
manufacturer	module type	12 V with LED	24 V with LED						
	SB-3722	Х							
	SB-0722								
CEAG	SB-2420	Х	Х						
CEAG	SB-3729	Х	Х						
	SB-3728	Х	Х						
	SB-0728	Х							
	MTL 722	Х							
MTL	MTL 728	Х	Х						
IVIIL	MTL 728P	Х	Х						
	MTL 779	X	Х						
Pepperl	Z728	X	Х						
+	Z728.H	Х	Х						
Fuchs	Z728.CL	Х	Х						
	9001/01-199-150-101	Х							
	9001/01-280-075-101								
Stahl	9001/01-280-085-101	Х	Х						
	9001/01-280-100-101	Х	Х						
	9001/01-280-110-101	Х	Х						
EMERSON	DELTA V		Х						

For other compatible barriers and interfaces, please ask our product support.

In accordance with the zone classification and the national legislation of each country, apply the certification procedures for the connection of IS-rated products with associated equipment. All information subject to change without notice. All responsibility for the use of products from other suppliers and the possible modifications of their characteristics is disclaimed.

Not compatible

(1) Compatible with 24 V DC

		0,
	INTERFACES	
		302 Ex ia
manufacturer	module type	24 V with LED
ABB	DO910S	Х
EMERSON (EPM)	DELTA V	Х
MTL	815-DO-04	Х
	6E S7132-5SB00-OAB0	Х
	6E S7132-5SB00-OAB0 2 way	Х
	6E S7132-7RD00-OAB0	Х
Siemens	6E S7132-7RD10-OAB0	Х
	6E S7132-7RD10-OAB0 2 way	Х
	6ES7132-7RD20-OAB0	Х
	6E S7132-7RD20-OAB0 2 way	Х
	9475/12-04-11	Х
	9475/12-04-21	Х
Stahl	9475/12-04-31	Х
	9475/12-08-51	Х
	9475/12-08-61	Х

W									
	INTERFACES								
manufacturer	module type	24 V with LED							
Turck	DO040Ex	Х							
	FB 2201	Х							
	FB 2202	Х							
	FB 2203	Х							
	FB 2204	Х							
Pepperl	FB 2205	Х							
i oppon	FB 2212	Х							
T	FB 6210B	X							
Fuchs	FB 6211B	Х							
	FB 6212B	Х							
	FB 6213B	Х							
	FB 6214B	Х							
	FB 6215B	Х							

For other compatible barriers and interfaces, please ask our product support.

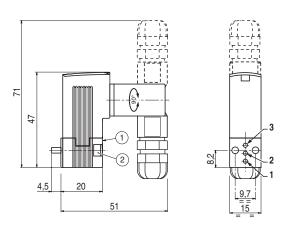


DIMENSIONS (mm), **WEIGHT** (kg)





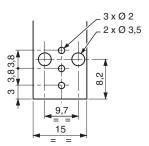
TYPE 01 IEC 335 / DIN 43650 EN/IEC 60079-11/26 II 1 G Ex ia IIC T6 to T4 Ga II 1 D Ex ia IIIC T85°C to T135°C Da



type	weight (1)
01	0,052

- (1) Manual operator location
- 2 Mounting: 2 M3 x 20 screws

Pneumatic base: ISO 15218 (CNOMO E06.36.120N, size 15)

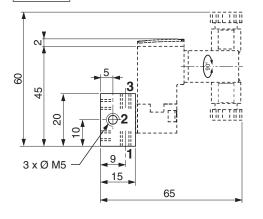


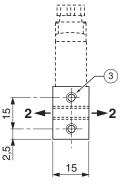
(1) Including connector.



Single subbase

Brass





Mounting: 2 holes M3, depth 4,5

Orifice (2) can be connected on the left or on the right of the subbase.

material	catalogue number	weight (1)
brass	30300001	0,034

(1) subbase alone



SOLENOID VALVES

intrinsically safe II 1G Ex ia IIC T6 Ga, II 2D Ex ib IIIC T85°C Db IP67 ISO 15218 (CNOMO, size 30) interface direct operated, pad mounting body



NC 7 195





Low consumption valves for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EC type examination certificate no.: DEKRA 11 ATEX 0091 X

IECEX Certificate of Conformity no.: IECEX DEK 11.0038X

Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards IEC and EN: 60079-0 and

The valve's Ex ia protection allows it to be installed in explosive atmospheres up to zone 1. It can be used in the chemical, oil and pharmaceutical industries, or in processing and packaging plants for flammable products (paints, solvents)

Compact, monology for valve with spade plug connection according to ISO 4400

EN 175301-803, form A (3 pins)

This solenoid valve can be mounted as operator onto valve 551-553 series SIL3 capable (EXIDA approval)

GENERAL

2 - 10 bar [1 bar = 100 kPa] See «SPECIFICATIONS» C = 3 x 10⁻¹⁰ m³/s.Pa (sonic conductance) **Differential pressure Flow**

conforming to ISO 6358

b = 0.4 (critical pressure ratio)

Pneumatic base ISO 15218 (CNOMO E06.05.80N, size 30)

Response time

fluids (*)	temperature range (TS)	seal materials (*)		
air or inert gas dry, filtered (50 µm), without conden- sate, dew point: -20°C	-40°C to +65°C	FPM (fluoroelastomer)		



*) Ensure that the compatibility of the fluids in contact with the materials is verified

Body Aluminium Internal parts, core tube Stainless steel Seals Subbase PA or zamak

OTHER MATERIALS

Coil Thermoplastic resin

ELECTRICAL CHARACTERISTICS

Coil insulation class

SAFETY CODE (1)

II 1G Ex ia IIC T6 Ga
II 2D Ex ib IIIC T 85°C Db IP67

1) For use in zone 0 locations, see the installation conditions given in the I&M instructions.
Spade plug (cable Ø 6-8 mm)
ISO 4400 / EN 175301-803, form A

explosive area

Connector **Connector specification**

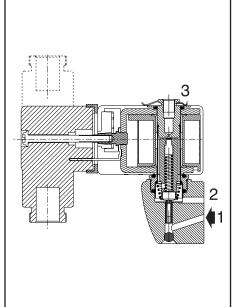
Electrical safety
Electrical enclosure protection IEC 335

Moulded IP65 (EN 60529) DC (=): 12V .. 24V Standard voltages

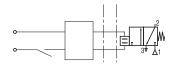
- · · · · · · · · · · · · · · · · · · ·		- ()					
voltage (U_)	typic	al functional rat	R	operator	type		
(max. ripple 10%)	l _(ON) min.	U _(ON) min.	P _(ON) min.	20°C	ambient ty temperature range (TS)		
(V)	(mA)	(V)	(W)	(Ω)	(°C) (1)		
24	36	12,8	0,46	240	-40 to +65	01	

safe area (RS interface)





safety parameters								
$\begin{bmatrix} \mathbf{U}_{i} \\ = (DC) \end{bmatrix} \mathbf{I}_{i} \mathbf{P}_{i} \mathbf{L}_{i}$								
(V)	(mA)	(W)	(H)	(μF)				
30	300	1,6	0	0				



Example of use with a Zener barrier installed in a non-hazardous zone

TEMPERATURE CLASSIFICATION TABLES DC (=)

Pi	maximum ambient °C (1)						
l	surface temperature						
(watt)	T6 85°C						
Insulation class F (155°C) 100% E.D. (2)							
1.6	6 65						

- (1) The minimum allowable ambient temperature is -40°C
- (2) This intrinsically safe valve must be connected to a specific, approved power supply (safety barrier or interface) located in a safe area. See list of safety barriers/interfaces on page 2.
- (3) Refer to the dimensional drawings on the following page.

SPECIFICATIONS

	pipe	orifice		flo at 6 bar		coefficient		operating pressure differential (bar)		power coil	catalogue number
	size	Si	ze		(ANR)	Kv max. (PS) (W) without man			without manual operator		
١		1 → 2	2 → 3	""""	(71111)	(l/n	nin)	min.	air (*)		manda manda oporator
1		(mm)	(mm)	1 → 2	2 → 3	1 → 2	2 → 3		=	=	=
	NC - Normally closed										
	pad mounting	0,5	0,7	8	15	0,11	0,26	2	10	0,46	19500036



SUBBASES

pipe size	designation	safety code	catalogue number
6/6 polyamide subba	ases		
instant fittings (1)	single subbase (instant fittings OD 4 mm)	35300069	
Zamak subbases			
G 1/8 (1), tapped	laterally-connected single subbase	II 2 GD c Ta 50°C T 85°C (T6)	35300047

⁽¹⁾ These subbases can be mounted on omega rail to EN 50022 using 2 clips (clips sold in packs of 10, catalogue number: 33400036).

OPTIONS

• Joinable subbases

INSTALLATION

- The solenoid valves can be mounted in any position without affecting operation
- Solenoid valve supplied with mounting screws
- Pipe connections G 1/8 have standard thread according to ISO 228/1
- Electrical connection between solenoid valve and barrier/interface with cable type A or B according to EN 50039
- Installation/maintenance instructions are included with each valve

RECOMMENDED INTERFACES

Located in safe areas, these interfaces allow to feed the intrinsically safe solenoid valves located in explosive areas. This equipment must be ordered from its respective manufacturers, specifying that they are intended to feed intrinsically safe solenoid valves 19500036/LISC: II 1G Ex ia IIC T6 Ga, II 2D Ex ib IIIC T85°C Db IP67

	INTERFACES	
manufacturer	module type	IIC / IIIC
Bartec	07-7331-2301/1001	Х
ABB	DO910S	х
GEORGIN	BXNE711002	Х
acortain	BXNE71100E	Х
	D1040Q-2	Х
	D1042Q-2	Х
G.M. International	D1048S	Х
a.ivi. iritorriatioriai	D1049S	X
	D5048S	X
	D5049S	Х
MTI	MTL5522	X
MTL	MTL5521	X
	MTL4524S	X
	KFD2-SD-Ex1.36 KFD2-SL2-Ex1	X
	KFD2-SL2-EX1 KFD2-SL2-Ex1.B	↓ î î :
	KFD2-SL2-EX1.B KFD2-SL2-Ex1.LK	X
Pepperl		x
	KFD2-SL2-Ex2 KFD2-SL2-Ex2.B	·
+ Fuchs	KCD0-SD-Ex1.1245	 -
ruciis	KFD0-SD2-Ex2.1245	 -
	HIC2871	
	LD 0440	x
	FB-2212	^
	6ES7132-7RD11-0AB0 2 ways	X
	6ES7132-7RD22-0AB0 2 ways	X
	6ES7132-7GD10-0AB0 2 ways	X
Siemens	6ES7132-7GD20-0AB0 2 ways	X
Olomono	ET200IS double	×
	6ES7132-7RD10-OAB0 2 ways	X
	6ES7132-7RD20-OAB0 2 ways	×
	9475/12-04-11	Х
	9475/12-04-21	Х
	9475/22-04-21	Х
	9475/32-04-12	X
	9475/32-04-22	Х
Stahl	9475/32-04-72	X
	9175/10-14-11	X
	9175/20-14-11	Х
	9176/10-14-00	Х
	9176/20-14-00	Х
	9001/01-280-100-101	Х
Tural	MC72-41Ex-T/24VDC	Х

ZENER BARRIERS					
manufacturer	module type	IIC / IIIC			
	SB-3722	Х			
CEAG	SB-2420	х			
CEAG	SB-3729	Х			
	SB-3728	Х			
	MTL 728	Х			
MTL	MTL 728P	Х			
	MTL 779	х			
Donnord .	Z728	Х			
Pepperl + Fuchs	Z728.H	х			
Fucils	Z728.CL	х			
	9001/01-280-085-101	Х			
Stahl	9001/01-280-100-101	х			
	9001/01-280-110-101	Х			

In accordance with the zone classification and the national legislation of each country, apply the certification procedures for the connection of IS-rated products with associated equipment.

All information subject to change without notice. All responsibility for the use of products from other suppliers and the possible modifications of their characteristics is disclaimed.

ORDERING EXAMPLES:

,	19500036 . 1224	V/DC
basic number—		voltage

MC72-44Ex-T

750-535

Turck

WAGO



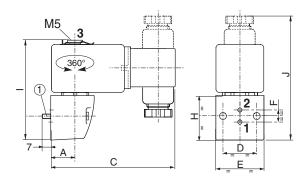
DIMENSIONS (mm), **WEIGHT** (kg) □





TYPE 01 Spade plug IEC 335 / DIN 43650 II 1G Ex ia IIC T6 Ga II 2D Ex ib IIIC T85°C Db IP67

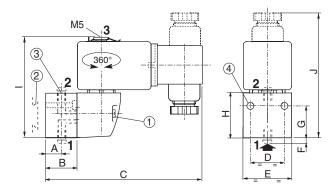
19500036





TYPE 02 Single instant fitting subbase Polyamide

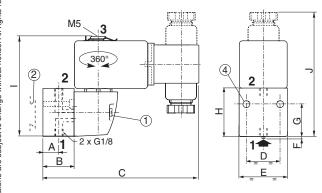
35300069





TYPE 03 Single subbase Zamak

35300047



	type	catalogue number	Α	В	С	D	E	F	G	Н	I	J	weight (2)
	01	19500036	15,5	-	79	21	30	7,5	15	30	63	75	0,22
9	02	35300069	13	20	99	23	33	4	22,5	30	67	80	0,20
	03	35300047	15	25	104	21	31	3,5	30	36	70	83	0,20

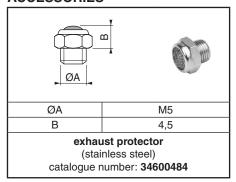
- (1) Mounting: two CM 4 x 35 screws
- 2 Adaptable clips
- (3) Instant-fitting connection for OD 4 mm tube
- (4) Two dia. 3,5 mm securing holes

01056GB-2017/R01 Availability, design and specifications are subject to change without notice. All rights reserved.

(2) Incl. coil(s) and connector(s).



ACCESSORIES





MINI-SOLENOID VALVES

non-sparking protection II 3G Ex **nA** IIC T6..T4 Gc, II 3D Ex tc IIIC IP65 T85°C..T135°C Dc ISO 15218 (CNOMO, size 15) interface

direct operated, pad mounting body, connector size 15

NO

U

CE



FEATURES

Mini-low consumption valves for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EC type examination certificate no.: INERIS 10 ATEX 3016X

Compliance with the Essential Health and Safety Requirements has been assured by compliance with European Standards EN 60079-0, EN 60079-15 and EN 60079-31

Compact, monobloc solenoid pilot valve with spade-plug connector type DIN 43650, form C with 9,4 mm spacing

Version without integrated LED and electrical protection Universal version for vacuum operation (3/2 way)

GENERAL

See «SPECIFICATIONS» [1 bar = 100 kPa] Differential pressure Pneumatic base ISO 15218 (CNOMO E06.36.120N, size 15) Connection Subbase

Response time 8 - 15 ms

fluids (*)	temperature range (TS)	seal materials (*)
air or inert gas	05°C to : 40°C (LD0) (1)	NBR (nitrile)
filtered at 50 µm, lubricated or not	- 25°C to + 40°C (LP2) (1)	FPM (fluoroelastomer)



MATERIALS IN CONTACT WITH FLUID

(*) Ensure that the compatibility of the fluids in contact with the materials is verified

Body

POM, PET, stainless steel and brass Internal parts

Seals NBR (disc), FPM (others)

Pneumatic interface seal

OTHER MATERIALS

Coil Thermoplastic PET

Enclosure with PVC cable PP (polypropylene) glass-fibre reinforced

ELECTRICAL CHARACTERISTICS

SAFETY CODE Coil insulation class

II 3D Ex tc IIIC IP65 T 85°C..T 135°C Dc

Connector Spade plug (2m cable length) DIN 43650, 9,4 mm, form C **Connector specification** IEC 335 Electrical safety

Electrical enclosure protection

Moulded IP65 (EN 60529) Standard voltages DC (=): 24V AC (~): Contact us (Other voltages on request)

		For versions with LED indicator and electrical protection:
-		Contact us
	tvpe (4)	(2) The minimum allowable ambient temperature is -25°C. Actu
	.,,,,,	tampagatura yanga aan ba limitad dananding an yalua anayatian

-25°C, Actual temperature range can be limited depending on valve operation

(3) Voltage: -15% / +20%

co	ils	power ratings	max. am	max. ambient temperature °C (2)				
	voltages	hot/cold	su	rface temperat	ure	type (4)		
ranges	voitages	=	T6	T5	T4	type		
Tanges	=	(W)	85°C	100°C	135°C			
LP2 (3)	24	1 / 1,2	40	55	60	01		

(4) Refer to the dimensional drawings on the following page.

SPECIFICATIONS

		flo	w			na proceliro			basic catalo	gue number	
orifice at 6 bar coeffi		cient operating pressure differential (bar)		power	manual operator						
3126	l/min ((ANR)	K	v	unieren	liai (Dai)	ranges	imp	ulse	main	tained
(mm)					min.	max. (PS)		~	=	~	=
	1 → 2	2 → 3	1 → 2	2 → 3							
2/2 NC -	2/2 NC - Normally closed (Without LED and protection)										
1,5	39	-	0,50	-	0	3	LP2	-	30211022NAD	-	30211023NAD
3/2 NC -	normall	y close	d (With	out LED	and prote	ction)					
0,6	11	20	0,11	0,26	0	10	LP2	-	30211109NAD	-	30211110NAD
0,8	17	28	0,22	0,35	0	8	LP2	-	30211112NAD	-	30211113NAD
1,1	32	51	0,35	0,50	0	5	LP2	-	30211118NAD	-	30211119NAD
1,5	39	53	0,50	0,56	0	3	LP2	-	30211124NAD	-	30211125NAD
	3 → 2	2 → 1	3 → 2	2 → 1							
3/2 NO -	normall	ly open	(Withou	ut LED a	and protect	ion)					
0,8	20	17	0,26	0,20	0	8	LP2	-	30211130NAD	-	-
1	28	32	0,35	0,35	0	5	LP2	-	30211136NAD	-	-
1,5	53	39	0,56	0,50	0	2	LP2	-	30211142NAD	-	-
	1 ↔ 2	2 ↔ 3	1 ↔ 2	2 ↔ 3							
3/2 U - uı	niversal	(Witho	ut LED	and pro	tection)						
0,8	17	20	0,20	0,26	0	6	LP2	-	30211148NAD	-	30211149NAD

When ordering, please specify, in addition to the basic catalogue number, the type of current: voltage

Examples: 24V DC: 30211009NAD 24V DC



OPTIONS AND ACCESSORIES

- Seals and disc made of FPM (fluoroelastomer)
- Version without manual operator
- Version with pneumatic-electric interface

INSTALLATION

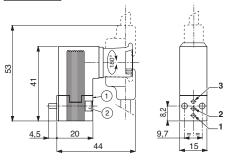
- The solenoid valves can be mounted in any position without affecting operation
- Pre-wired connector, supplied and certified with the product (DIN 43650, 9,4 mm, form C, with 2 m cable length). For connection, only use the connector supplied with the product
- Solenoid valve supplied with mounting screws and mounting pad seal(s)
- Installation/maintenance instructions are included with each valve

DIMENSIONS (mm), **WEIGHT** (kg)





TYPE 01 IEC 335 / DIN 43650 **IP65**

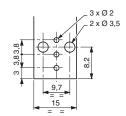


- 1 Manual operator location
- 2 2 mounting screw M3 x 20

		connection				
fun	ction	1	2	3		
2/2 w	ay					
	NC	Р	U	-		
3/2 w	3/2 way					
	NC	Р	U	Е		
	NO	Е	U	Р		
universal	MIX	P2	U	P1		
unive	SEL	U 2	Р	U 1		
P: Pressure U: Outlet						

P: Pressure E: Exhaust

Subbase mounting surface: ISO 15218 (CNOMO E06.36.120N, size 15)



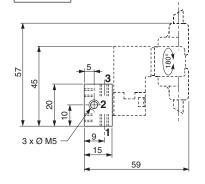
weight (1)
0.14
5,

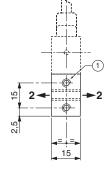
(1) with connector.



Single subbase

Aluminium or brass





1 Mounting: 2 holes M3, depth 4,5

Orifice (2) can be connected on the left or on the right of the subbase.

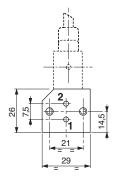
material	catalogue number	weight (1)
aluminium	88263002	0,011
brass	30300001	0,034

(1) subbase alone



Adapter CNOMO size 30 (only for NC version) Aluminium

9



(2) Mounting: 2 screws M4 x 10 (supplied)

catalogue number	weight (2)
88263001	0,018

(2) adapter alone

ASCO™ OPERATORS

FOR POTENTIALLY EXPLOSIVE ATMOSPHERES

II 3 GD Ex ec IIC T4 Gc Ex tc IIIC T115°C Dc IP65X / II 3 GD Ex ec IIC T4 Gc Ex tc IIIC T110°C Dc IP65X MOULDED COILS TYPES WITH CONNECTORS

SERIES SG

- Explosionproof operator for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU
 Compliance with the Essential Health and Safety Requirements has been assured by compliance with the European Standards EN 60079-0, EN 60079-7 and EN 60079-31
 The assembly consisting of the coil and connector has IP65 protection
 The operators are designed for installation on a wide range of valves
 Available series: 189-189 banjo-190-238-256-262-263-314-356-541 Ed. compact 542-543-551-553-355 [Duct Collector Systems (DCS)]

- 541 compact-542-543-551-553-353-355 [Dust Collector Systems (DCS)]

Construction	
Coil	Epoxy encapsulated
Connector enclosure	Glass-fibre filled PA
Connector specification	F (AC/DC)
size 22 (11 mm)	EN 175301-803 industry standard form B
size 30 (18 mm)	ISO 4400 / EN 175301-803, form A
Core tube & Plugnut	Stainless steel
Nameplate	Polyester
Safety code	SG (solenoid valves):
	(☑) II 3 GD, Ex ec IIC T4 Gc
	Ex tc IIIC T115°C Dc IP65X
	SG (Dust Collector Systems):
	Ex tc IIIC T110°C Dc IP65X
Seals	FPM o-ring, EPDM gasket



		_
Electrical characteristics		
(Other voltages and 60 Hz on request)	DC (=): 12V - 24V - 48V - 110V	
	AC (~): 24V - 48V - 115V - 230V / 50 Hz	
Coil insulation class	F (AC/DC)	
	Size 22	Size 30
Number of contacts	2 + common earth	2 + common earth
Distance between contacts	11 mm	18 mm
Connector	Spade plug (cable Ø 4,5-7 mm)	Spade plug (cable Ø 4,5-10 mm)
Electrical safety	IEC 335	IEC 335
Electrical enclosure protection	IP65 (EN 60529)	IP65 (EN 60529)
Number of wires (with cable)	$3 \times 1,5 \text{ mm}^2$	$3 \times 1,5 \text{ mm}^2$

	max. AC power (W)	max. DC power (W)
SG	17,1	11,6
SG (2)	10.1	22.6

Temperature classification tables

	temperature classification	surface temperature	min. ambient temperature	max. ambient temperature	E.D. ⁽¹⁾
SG	T4	115°C	-10°C	+50°C	100%
SG (2)	T4	110°C	-10°C	+60°C	10%

⁽¹⁾ Duty factor.

Ordering examples A valve with the explosion proof operator will be identified:

	Series 189, 189 banjo, 190, 541, 541 compac	et, 542, 543	Series 238 (3	/8 to 1), 256, 356, 551 (into	regrated pilot), 553, 353 (DCS)
(2 to		With cabl	e gland conne	ctor	
x SG	SG 54100883.230/			SG E238D	
lg Perjora	SG 19000006. 24/				B002VMS . 115 / 50-60
re a	SG 18900001.230/			SG G353A	,
ag g	<u>SG</u> 18900047.230/	50-60		<u>SG</u> <u>G551/</u>	A001MS . 230 / 50-60
with the be catalog	option code for ATEX		option code		
with - cata	compliance (prefix) —		complian		
	solenoid valve	voltage		ioid valve	voltage
	catalogue number ————	voitage	basio	c number ————	voitage
a		Series	262, 263, 314		
he cod		15-DIGIT	PRODUCT CO	DE	
t i i i		E 262 K	232 SG V0	0 F1	
£5.5		<u>E</u> <u>263</u> <u>K</u>	232 SG V0	<u>0 F8</u>	
io Se	Thread connection —	_		Voltage - class	
it ac	Product series —			voitage class	
ter Mil	Revision letter —			Options	
5-i	Valves version —				
_	Electrical interface –				

⁽²⁾ For Dust Collector Valves (DCS).

SG

ASCO™ OPERATORS

Installation

- The package consists of the solenoid valve, the coil (installed) and the connector (not installed)
- The coil is provided with an earthing connection
- · Additional protection is necessary to protect the coil against mechanical stress and UV radiation
- Easy connection with spade plug connector
- Installation/maintenance instructions are included with each coil
- The spare part coil is always delivered with the connector in a unique reference

Dimensions (mm), Weight (kg) □





TYPE 01 Coil + connecteur taille 22 (11 mm) EN 175301-803 standard industriel forme B

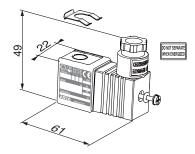
Séries (XM5): 189, 189 banjo, 256, 238 (3/8..1), 353 (DCS), 355B6 (DCS), 356, 541, 541 compact, 542, 543, 551

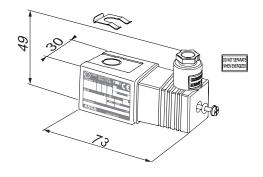


TYPE 02

Coil + connector size 30 (18 mm) ISO 4400 / EN 175301-803, form A IP65

Series (C25): 190, 238 (3/8..1), 256 (1/4), 356 (1/4), 541, 542, 543, 553







TYPE 03

Coil + connector size 30 (18 mm) ISO 4400 / EN 175301-803, form A

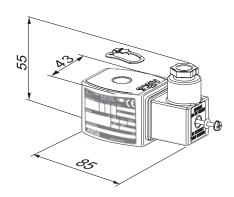
Series (M6 II): 262, 263, 314, 353 (DCS), 355B8 (DCS)

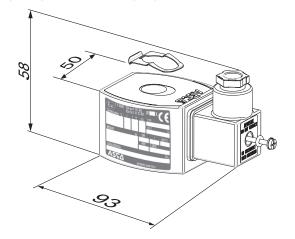


TYPE 04

Coil + connector size 30 (18 mm) ISO 4400 / EN 175301-803, form A

Series (MXX-II) 262, 263, 314, 353 (DCS)





type	weight (kg)
XM5	0,092
C25	0,156
M6-II	0,286
MXX-II	0,376

ASCO



CABLE GLANDS

for potentially explosive atmospheres flaméproof enclosure II 2 G Ex db IIC Gb, II 2 D Ex tb IIIC Db for armoured and unarmoured cables, 1/2 NPT - 3/4 NPT





Series 882

FEATURES

· Explosionproof material intended for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU

EU type examination certificate no.: INERIS 12 ATEX 0032 X IECEx Certificate of Conformity no.: IECEx INE 12.0025 X

· Compliance with the Essential Health and Safety Requirements has been assured by compliance with the International and European Standards EN-IEC 60079-0, EN-IEC 60079-1 and EN-IEC 60079-31

Cable glands for armoured and unarmoured cables can be fitted to Ex d operators

GENERAL

Protection, unarmoured cable

Protection, armoured cable

1/2 NPT IP68 (10 bar), on outer sheath

IP68 (10 bar),

I.D. 7 to 12 mm

on outer/inner sheath

0 to 1,25 mm armour I.D. 7 to 12 mm

I.D. 13,5 to 20,5 mm O.D. 10 to 16 mm

Armoured cable

Unarmoured cable

IP68 (10 bar), on outer sheath IP68 (10 bar), on outer/inner sheath

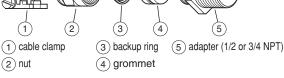
3/4 NPT

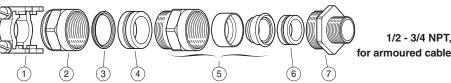
I.D. 10 to 16 mm

O.D. 13,5 to 21 mm I.D. 10 to 15,5 mm

1/2 - 3/4 NPT, for unarmoured cable

1/2 - 3/4 NPT,





(4) grommet (internal sealing)

(7) adapter (1/2 or 3/4 NPT)

(2) nut (5) armour clamp

(3) backup ring (6) grommet (external sealing)

CONSTRUCTION

1 cable clamp

Adapter Nickel-plated brass

Grommet **NBR**

Breaker piece Stainless steel

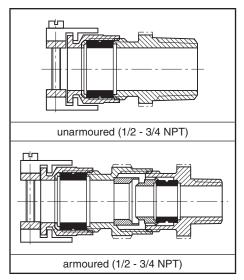
SAFETY CODE

(x) II 2 G Ex db IIC Gb II 2 D Ex tb IIIC Db

SPECIFICATIONS

	cable			catalogue number			
pipe size	outer diameter	inner diameter	type	unarmoured cable	armoured cable		
3120	(mm)	(mm)		unannoured cable			
1/2 NPT and 3/4	1/2 NPT and 3/4 NPT versions						
1/2 NPT	-	7 to 12	01	88200011	-		
1/2 INF I	10 to 16	7 to 12	02	-	88200014		
	-	10 to 16	01	88200007	-		
3/4 NPT	-	13,5 to 20,5	01	88200010	-		
	13,5 to 21	10 to 15,5	02	-	88200013		

CE



00138GB-2019/R01 Availability, design and specifications are subject to change without notice.



ACCESSORIES

- 3/4 NPT to 1/2 NPT reducer, catalogue number: 88200012
- Other cable glands on request

INSTALLATION

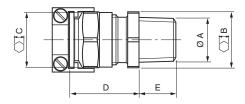
• The cable gland can be supplied pre-installed on Ex d enclosure

DIMENSIONS (mm), **WEIGHT** (kg)



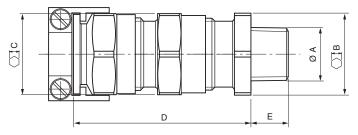


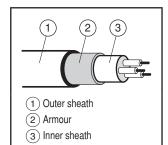
TYPE 01 1/2 - 3/4 NPT Unarmoured cable





TYPE 02 1/2 - 3/4 NPT Armoured cable





type	Ø A	В	С	D	Е	weight
	1/2 NPT	24	19	27,5	16	0,04
01	3/4 NPT (1)	30	24	32	16	0,055
	3/4 NPT (2)	30	30	26,5	16	0,07
02	1/2 NPT	24	24	51	22	0,09
	3/4 NPT	30	30	57	22	0,17

⁽¹⁾ Catalogue number: 88200007 ⁽²⁾ Catalogue number: 88200010