

FEATURES

- Full 316 stainless steel construction, suitable for high corrosive environments
- NACE compliant including the solenoid enclosure internals
- Fullfilling the latest relevant ATEX and IECEx standards for both Gas & Dust
- Passed Lloyds register type approval vibration test 1&2 (IEC 60068-2-6)
- Easy electrical connection by means of screw terminals
- Peak voltage suppression diodes are standard in DC solenoids
- The flameproof Ex db enclosure is provided with a 1/2 NPT or M20 x 1,5 threaded entry hole for a broad range of cable glands
- The Ex ia enclosure is standard supplied with a blue Ex e plastic cable gland and the Ex eb mb in metal
- Ingress protection degree IP66 & IP67

CONSTRUCTION

Solenoid enclosure	AISI 316L SS
Bonnet	AISI 316L SS
Core & tube	Stainless steel
Springs & plugnut	Stainless steel
Nameplate	AISI 316L SS
Coil connection	AISI 316L SS
Fasteners & screws	AISI 316L SS

SAFETY CODE

WSCR	II 2G Ex db IIC Gb T6..T3 (gas)
	II 2D Ex tb IIIC Db IP66/67 85°C to 200°C (dust)

WSCREM

II 2G Ex eb mb IIC Gb T6..T3 (gas)
II 2D Ex tb IIIC Db IP66/67 85°C to 200°C (dust)

WSCRIS

II 2G Ex ia IIC Gb T6 (gas)
II 2D Ex tb IIIC Db IP66/67 85°C (dust)

ELECTRICAL CHARACTERISTICS

Standard voltages*:

DC (=): 24V - 48V

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

(Other voltages and 60 Hz on request)

* Intrinsically Safe construction only 24V/DC

NOTE: Refer to page 3 for more detailed electrical characteristics information.

TEMPERATURE CLASSIFICATION TABLES

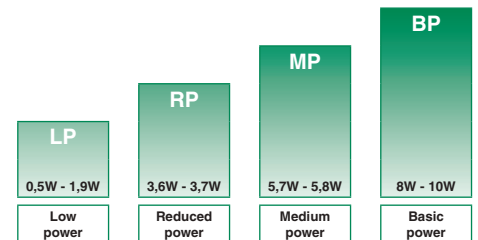
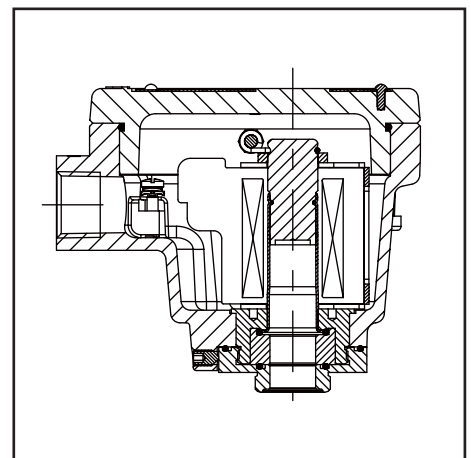
The minimum allowable ambient temperature is -60°C⁽¹⁾ for the operator.
Select the requested "T" classification from the temperature classification tables,
respecting the maximum ambient temperature and cold (20°C)
electrical holding power values.

AC (~) or DC (=) Full wave rectified

surface temperature		ambient/medium ⁽²⁾ temperature	power level		cable temperature	
D	G		(W)		(°C)	
		(°C)	Ex db	Ex eb mb	Ex db	Ex eb mb
T80°C	T6	25	8,5	8,5	60	60
		40	6,0	6,0	65	65
		60	3,0	3,0	75	75
T95°C	T5	25	11,5	11,5	70	70
		40	8,5	8,5	75	75
		60	5,0	5,0	80	80
		75	3,0	3,0	90	90
T130°C	T4	25	19,5	19,5	85	85
		40	16,0	16,0	90	90
		60	11,5	11,5	100	100
		75	8,5	8,5	110	110
T195°C	T3	100	4,5	6,0	120	115
		25	27,0	27,0	100	105
		40	23,0	23,0	110	110
		60	18,0	18,0	115	115
		75	15,0	15,0	125	125
		100	9,5	11,5	135	130

⁽¹⁾ -40°C for the Intrinsically Safe construction WSCRIS

⁽²⁾ Make sure that the selected ambient temperature does not exceed the allowable valve temperature characteristics as specified on the appropriate valve catalogue sheets.



POWER LEVELS - cold electrical holding values (watt)

DC (=) WSCRIS solenoids; Ex ia

power level (watt)	insulation class	maximum ambient ⁽¹⁾ temp. "T" classification		
		T6 (G) 85°C (D)	T5 (G) 100°C (D)	T4 (G) 135°C (D)
Low power (LP)				
0,5	H	60°C	-	-

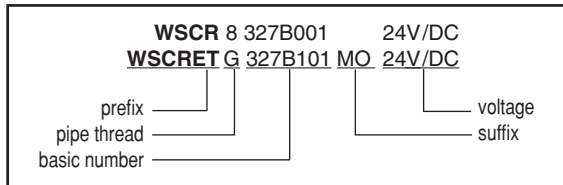
PREFIX TABLE

prefix							description	power level			
1	2	3	4	5	6	7		LP	RP	MP	BP
W	S	C	R				Flameproof 316L SS (EN/IEC 60079-0+1+31)*	●	●	●	●
W	S	C	R	E	M		Increased Safety / Encapsulated 316L SS (EN/IEC 60079-0+7+18+31)*	●	●	●	●
W	S	C	R	I	S		Intrinsically Safe 316L SS (EN/IEC 60079-0+11+31)*	●	-	-	-
			E	T			Threaded conduit/hole (M20 x 1,5)	●	●	●	●
			T				Threaded conduit (1/2" NPT)	●	●	●	●

● Available feature

* ATEX solenoids are also approved according to EN 13463-1 (non electrical valves)

ORDERING EXAMPLES VALVES:



PRODUCT SELECTION GUIDE

(The selection can only be made in conjunction with the appropriate valve catalogue sheet)

STEP 1

Select basic valve catalogue number, including pipe thread identification letter from one of the specification tables on the separate catalogue pages.

Example: 8327B102

STEP 2

Select voltage. Refer to standard voltages on page 1.

Example: 24V/DC

STEP 3

Select solenoid prefix (combination). Refer to the prefix table on this page and respect the indicated power level, cold electrical holding values and "T" classification mentioned on page 1.

NOTE: Make sure that the ambient temperature does not exceed the allowable valve temperature characteristics.

Example WSCR:

60°C ambient

Basic Power (BP) 8W

II 2G Ex db IIC Gb T4

II 2D Ex tb IIIC Db IP66/67 T135°C

STEP 4

Final catalogue / ordering number.

Example:

WSCR 8327B102 24V/DC

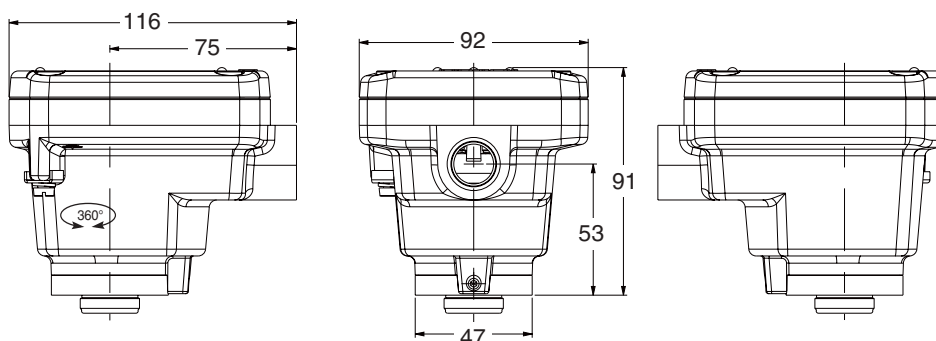
ADDITIONAL OPTIONS

- Special moulded-in solid state components for peak voltage suppression and/or AC (~) rectification
- Cable glands (Flameproof cable entry devices for cable 8,5-16 mm or 9-12 mm) refer to section 14

INSTALLATION

- Multi language installation/maintenance instructions are included with each valve
- The solenoid operators can be mounted in any position without affecting operation
- Any Ex db IIC approved cable entry device can be fitted in the 1/2" NPT (M20 x 1,5 as an option) threaded entry hole, refer to the nameplate for identification of the maximum cable temperature
- The WSCREM solenoids are fitted with stainless steel cable gland for cables with o.d. from 7,2 to 11,7 mm
- The WSCRIS solenoids are supplied with plastic blue cable gland for cables with o.d. from 7 to 12 mm
- Internal and external earthing connection terminals
- The operator can be rotated 360° to select the most favourable position for cable entry

DIMENSIONS (mm), WEIGHT (kg)



prefix	weight
WSCR*	2,25 kg
WSCREM*	
WSCRIS*	

* Without cable gland

SAFETY PARAMETERS

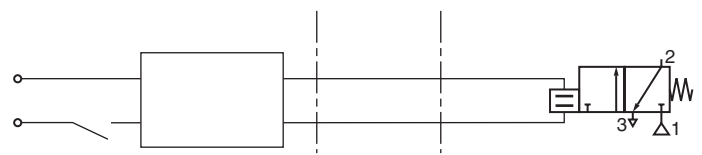
prefix option	safety parameters				
	U_i	I_i	P_i	L_i	C_i
	= (DC) (V)	(mA)	(W)	(mH)	(μF)
Low power (LP)					
WSCRIS	< 32	500	1,5	0	0

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 operators:

WSCRIS : II1G Ex ia IIC T6 Ga, II 2D Ex tb IIIC T85°C Db IP66/67

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



BARRIERS / INTERFACES		
manufacturer	module type	1G/2G T6 IIC
Bartec	17-1834	x
MTL	MTL7728+	x
	MTL7787+	x
	MTL5521	x
	MTL5523	x
	MTL5524	x
Pepperl + Fuchs	MTL5525	x
	KCD2-SLD-Ex1.1245	x
	KFD2-SL2-Ex1	x
	KFD2-SL2-Ex2	x
	KFD2-SL2-Ex1.B	x
	KFD2-SL2-Ex2.B	x
	KFD2-SL2-Ex1.LK	x
	KFD0-SD2-Ex1.1045	x
	KFD0-SD2-Ex2.1045	x
	KFC0-SD2-Ex1.1245	x
Turck	KFC0-SD2-Ex2.1245	x
	DO40Ex	x
	MK72-S19-EX0/24VDC	x

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.

ELECTRONIC ENHANCED "IS" SOLENOID

Normal operating voltage	24 Volts, DC +/-10%
Maximum allowable "off" state current to the valve must be	< 1 mA
Maximum capacitor charge time	2 seconds
Minimum time between cycles	2 seconds
Minimum drop current to reset electronic coil	2 mA

Important: A minimum series resistance of 200 Ohms is required in wiring if a safety barrier is not used

ELECTRICAL CHARACTERISTICS

Standard voltages

DC (=) : 24V nominal

A minimum current of 32 mA is necessary for optimal performance. The minimum series resistance required is 200 Ohms. The nominal value of the resistance of the R_{coil} is 32 Ohms (at 20°C).

Intrinsically Safe Coil Calculations

The following application information will allow the calculation of the loop current for the ASCO intrinsically safe solenoid.

Definitions:

V_{supply} = The supply voltage to the barrier.

$T_{ambient}$ = The ambient temperature in degrees C.

$R_{barrier}$ = The maximum barrier end to end resistance.

R_{loop} = The maximum resistance in lead wire

R_{coil} = The resistance of the solenoid coil at $T_{ambient}$

$$R_{coil} = 32 \Omega \frac{(T_{amb} + 234)}{254}$$

I_{loop} = Loop current in the circuit:

$$I_{loop} = \frac{(V_{supply} - 3.2)}{(54 + R_{coil} + R_{loop} + R_{barrier})}$$

This current must always be greater than or equal to 32mA for proper operation of the solenoid valve.

