A

Products in this catalogue are identified by an **alphanumerical** or **numerical** identification system

ALPHANUMERICAL CATALOGUE NUMBERS

		E	**290**A385		
SC		B	**262**C220		
SC	X(1)	S	**272**A017	TPL	20655
WP		E	**030**B013	E MBMO	

prefix
pipe thread
series no.
basic number
suffix
TPL no.

(1) The prefix X is always associated with the TPL (temporary parts list) number

PREFIX - Electrical characteristics, connectors etc.

prefix							description
1	2	3	4	5	6	7	
C	F	S	C				Solenoid with connector DIN 43650, 9,4 mm, pilot 302
C	F	V	T				Solenoid with connector M12, LED and protection, pilot 302
E	F						Explosionproof - NEMA 3, 4, 6, 7, 9
E	V						Explosionproof - NEMA 3, 4, 6, 7, 9 - 316 SS
W	B	L	P				Increased safety / encapsulation - moulded enclosure ATEX-IECEx
E	M						Encapsulated ATEX-IECEx
		E	T				Threaded conduit / ext. thread (M20 x 1.5)
				H	T		Class H - high temperature , +80°C ambient temp.
L	P	K	F				Flameproof - Alum. ATEX-IECEx
N	F						Flameproof - Alum. ATEX-IECEx
P	V						Encapsulated ATEX-IECEx
S	C						Solenoid with spade plug connector
		T					Threaded conduit / ext. thread (1/2" NPT)
W	P						Waterproof IP67 - metal enclosure
L	I						Intrinsically safe - Alum. enclosure ATEX-IECEx
N	F			I	S		I.S. with Aluminium IP67 enclosure ATEX-IECEx
W	S						Waterproof IP67 - 316 SS enclosure
W	S	E	M				Encapsulated ATEX, 316 SS enclosure
W	S	L	I				Intrinsically safe - 316L enclosure ATEX-IECEx
W	S	L	P	K	F		Flameproof - 316L SS ATEX-IECEx
W	S	N	F				Flameproof - 316L SS ATEX-IECEx
W	S	N	F	I	S		I.S. with 316 SS IP67 enclosure ATEX-IECEx
						X	Other special constructions *

* If prefix X is used, always specify Temporary Parts List (TPL) number

The catalogue number appears on the product label:



SUFFIX - Seal materials, manual operator etc. (under the "options" column in the SPECIFICATIONS table)

suffix							description
1	2	3	4	5	6	7	
	C	O					Epoxy coating on all external surfaces
E							EPDM (ethylene-propylene)
N							Oxygen service (CR (chloroprene)
N	V						FPM (fluoroelastomer) parts cleaned for oxygen service
H	W						Diaphragm for hot water service
J							CR (chloroprene / neoprene)
			L	T			Low temperature
	M	B					Mounting bracket
			M	O			Impulse or maintained manual operator
			M	S			Maintained manual operator
		P					Dry gas, non-lubricated air construction
		Q					Long life construction
	S	L					Certifiied IEC 61508 Functional Safety data
T							PTFE (polytetrafluoroethylene)
V							FPM (fluoroelastomer)
			V	M			Primary vacuum
			V	H			Secondary vacuum

TPL (temporary parts list) number - always associated with the prefix X **(under "options" in the catalogue)**

TPL	description
20547	Version for external pilot air supply (series 551-553)
20655	Manual operator with pushbutton (series 272-374)
20674	LED and protection (prefix CFSC)
23012	2 Mounting holes øM4, 7 mm depth (stainless steel body, series 370)

NUMERICAL CATALOGUE NUMBERS

165	0	0088	210555
109	0	0040	970517

series no.
type of standard material
serial number
option code

OPTION CODES (under "options" in the catalogue)

option	description
210555	Protective cover mounted on valves 1/2-3/4-DN15-20 (series 165-166)
210556	Protective cover mounted on valves 1-1 1/4-DN25-32 (series 165-166)
210557	Protective cover mounted on valves 1 1/2-2-DN40-50 (series 165-166)
210558	Protective cover mounted on valves DN65-80 (series 165)
260657	2 explosionproof switches, 1 contact, -20°..+80°C, DN15..32 (series 165-166)
260658	2 explosionproof switches, 1 contact, -20°..+80°C, DN40..80 (series 165-166)
260660	2 explosionproof switches, 2 contacts, -20°..+80°C, DN15..32 (series 165-166)
260661	2 explosionproof switches, 2 contacts, -20°..+80°C, DN40..80 (series 165-166)
260663	2 explosionproof switches, 1 contact, -55°..+82°C, DN15..32 (series 165-166)
260664	2 explosionproof switches, 1 contact, -55°..+82°C, DN40..80 (series 165-166)
970509	Oxygen service (series 165 except for DN65 to 80, series 166)
970517	Oxygen service (series 108-109)
970523	Valve body degreased during assembly (series 165-166)

The catalogue number appears on the product label:



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How to use the product's catalogue number (on the label) to find the product characteristics:

ALPHANUMERICAL CATALOGUE NUMBER (with prefix)

example: solenoid valve SC**E238**D006



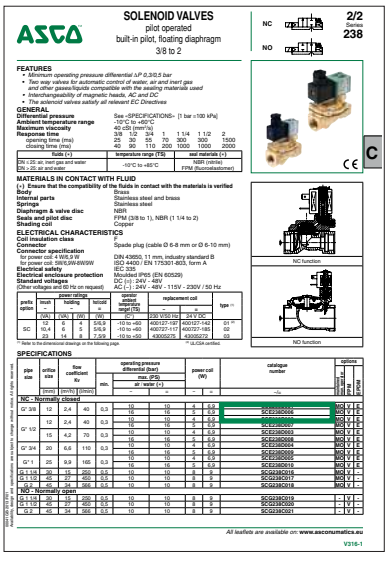
➜ Use the **Catalogue Number Index** (page V001) to:

. Locate the sequence number **E238**
. Locate the prefix **SC**
. Find the full catalogue number **SCE238D006**
. Identify the page number **V316-1**

238913-117	● V1100-
SCE238D001	V316-1
SCE238D002	V316-1
SCE238D003	V316-1
SCE238D004	V316-1
SCE238D005	V316-1
SCE238D006	V316-1
SCE238D007	V316-1
SCE238D008	V316-1
SCE238D009	V316-1
SCE238D010	V316-1
SCG238C016	V316-1
SCG238C017	V316-1
SCG238C018	V316-1
SCG238C019	V316-1

page

➜ Consult page **V316-1**



ALPHANUMERICAL CATALOGUE NUMBER (without prefix)

example: pressure-operated valve **E290**A385



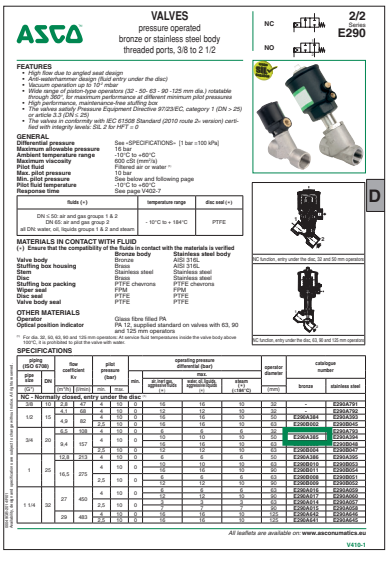
➜ Use the **Catalogue Number Index** (page V001) to:

. Locate the sequence number **E290**
. Find the full catalogue number **E290A385**
. Identify the page number **V410-1**

S290B229	V420-2
S290A230	V420-2
S290A231	V420-2
S290A259	V420-2
E290A384	V410-1
E290A385	V410-1
E290A386	V410-1
E290A387	V410-2
E290A388	V410-2
E290A389	V410-2
E290A390	V410-2
E290A391	V410-2
E290A392	V410-2
E290A393	V410-1
E290A394	V410-1

page

➜ Consult page **V410-1**



NUMERICAL CATALOGUE NUMBER

example: solenoid valve **109**00040



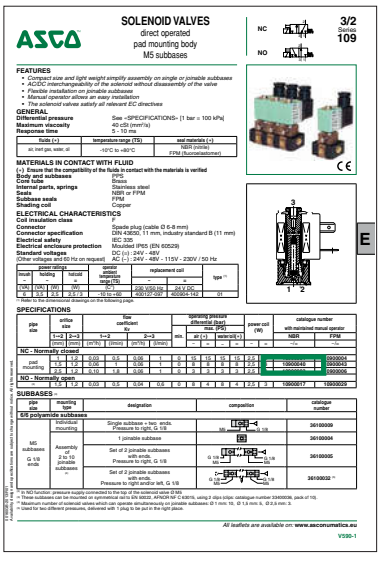
➜ Use the **Catalogue Number Index** (page V001) to:

. Locate the series number **109**
. Find the full catalogue number **10900040**
. Identify the page number **V590-1**

10900003	V590-1
10900004	V590-1
10900006	V590-1
10900017	V590-1
10900029	V590-1
10900040	V590-1
10900043	V590-1
123664-017	V572-1
12600013	V905-23-1
12600014	V905-23-1
12600017	V905-23-1
12600018	V905-23-1
12600019	V905-23-1
12600020	V905-23-1

page

➜ Consult page **V590-1**



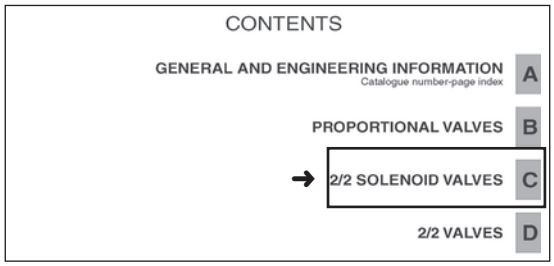
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A

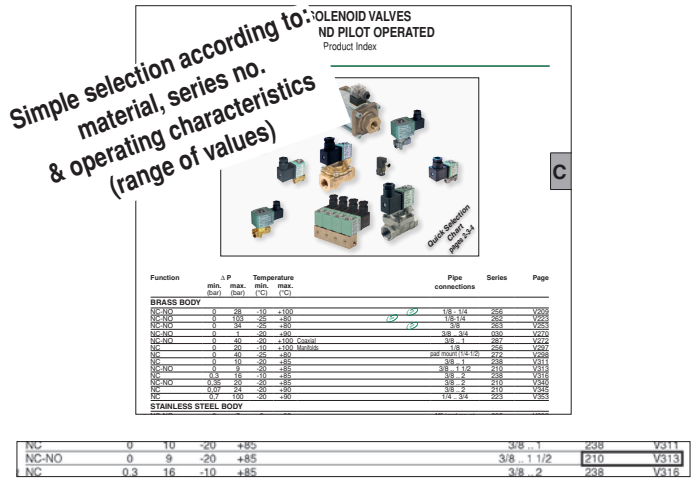
If you know the valve function:

Example: solenoid valve 2/2 NC

➜ Consult the page:
Solenoid valves 2/2, **section C**



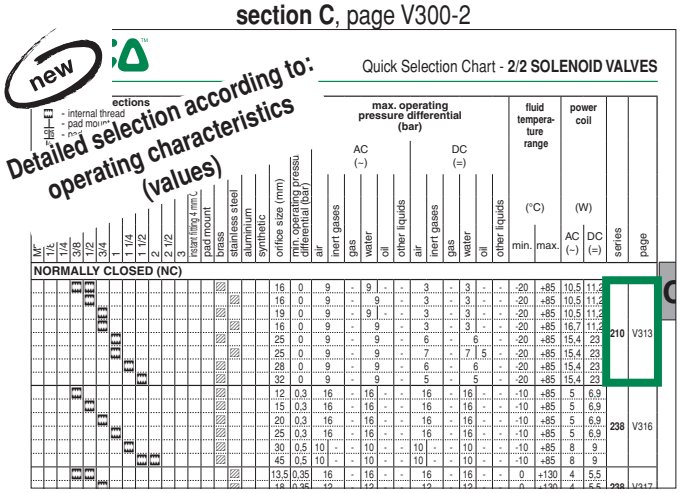
➜ Consult the **Product Index of section C**, page V300-1



NC	0	10	-20	+85		3/8 .. 1	238	V311
NC-NO	0	9	-20	+85		3/8 .. 1 1/2	210	V313
NC	0.3	16	-10	+85		3/8 .. 2	238	V316

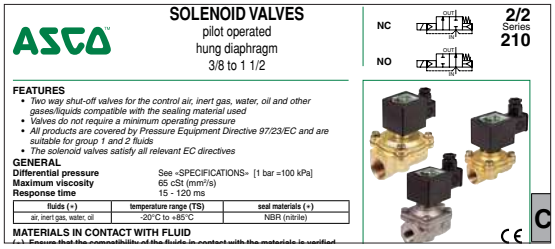
page

or ➜ Consult the **Quick Selection Chart section C**, page V300-2



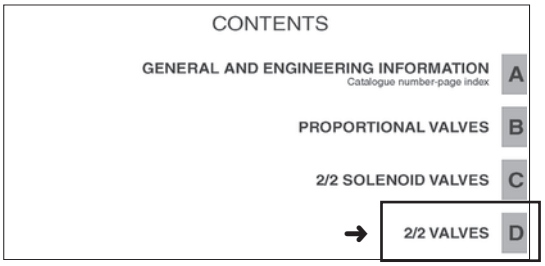
page

➜ Consult page **V313-1**

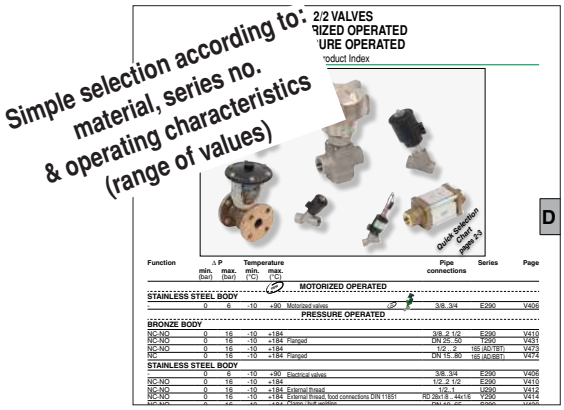


Example: pressure-operated valve 2/2 NC

➜ Consult the page:
Pressure-operated valves 2/2, **section D**



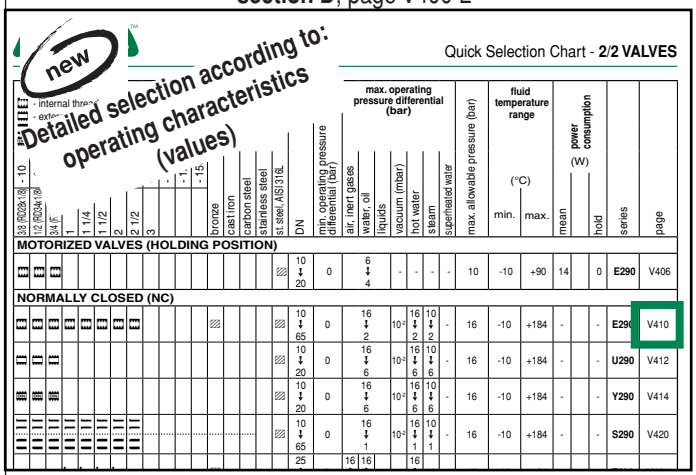
➜ Consult the **Product Index of section D**, page V400-1



STAINLESS STEEL BODY								
NC-NO	0	16	-10	+184		1/2..2 1/2	E290	V410
NC-NO	0	16	-10	+184	External thread	1/2..1	U290	V412

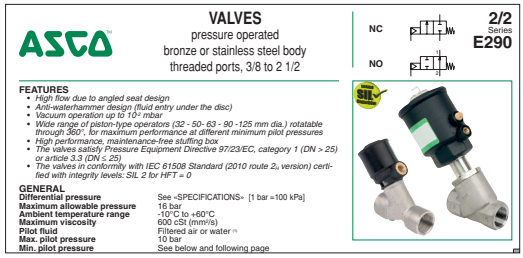
page

or ➜ Consult the **Quick Selection Chart section D**, page V400-2



page

➜ Consult page **V410-1**



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SOLENOID VALVES WITH CONNECTOR

Ordering example (alphanumerical catalogue number)



\+ 2 mounting holes øM4, depth 7 mm + voltage/frequency (AC) or voltage (DC)

full catalogue number: **SCXE370A031**

TPL: **23012**

230V/AC 50 Hz

Ordering example (numerical catalogue number)



\+ oxygen service + voltage/frequency (AC) or voltage (DC)

full catalogue number: **10900040**

option code: **970517**

24V/DC

PRESSURE-OPERATED VALVES

Ordering example (piston-type valve)



=



\+



full catalogue number: **E290A384**

solenoid pilot valve: **18900032**

Ordering example (diaphragm-type valve)



=



\+



\+ guard mounted on valve



full catalogue number: **16500088**

solenoid pilot valve: **E314K151S1N01F8**

option code: **210555**

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Example: You have selected a 2/2 NC series **262** solenoid valve (from **section C**) and would like to choose a solenoid for this valve for use in explosive atmosphere zones 1-21, protection type “em”.

➜ Product page **V235-1** (standard solenoid valve)

ves

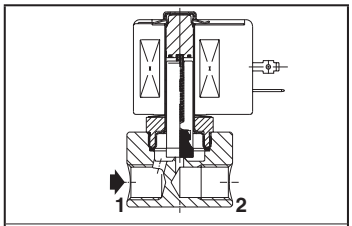
IONS» [1 bar =100 kPa]

seal materials (∗)
NBR (nitrile)
UR (cast urethane)

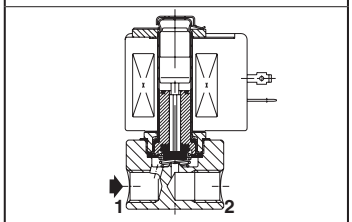
t with the materials is verified
AISI 303 SS



C



NC function



NO function

e Ø 6-10 mm)
75301-803, form A

N 60529)
V
V - 115V - 230V / 50 Hz

replacement coil ~ /50 Hz	replacement coil = 24 V DC	type (1)
25-117	400325-142	01
25-217	400325-242	01
25-117	400425-142	02
25-217	-	02
-	400425-342	02

ure r) S) ∗) oil (∗) =	~	=	power coi (W) ~	=	coil power: 11.2W DC catalogue number:	options maintained man. operator	FPM	EPDM	CR	PTFE
5	35	35	6	9,7	SCB262C080	-	V	E	J	T
8	11	8	6	9,7	SCB262C086	MO	V	E	J	T
4	8	4	6	9,7	SCB262C007	-	V	E	J	T
,5	10	3	10,5	11,2	SCB262C220	-	V	E	J	T
7	6,5	1,7	10,5	11,2	SCB262C225	-	V	E	J	T

➜ Consult the Ⓔx Quick Selection Chart, **Section C,** page **V200/V300-5**

. **in the rows**: locate the series number **262** and the coil power **11,2 W**
. **in the columns**: locate ATEX zones 1-21 and protection type “e mb”
. **at the row/column intersection**: find the ATEX-compatible solenoids (identified by the logo Ⓔx)
. and identify the ATEX page number **V1047-1**

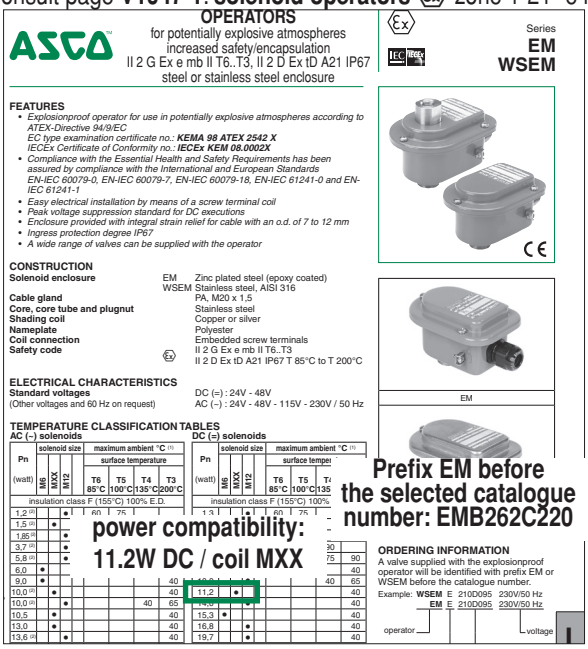
ASCO™ Quick Selection Chart - **POTENTIALLY EXPLOSIVE ATM**

zones 1-21
protection type “Ex e mb”

page	series	operators (See Explosionproof Solenoids section)	power coil (W) AC (~)	power coil (W) DC (=)	dusts zone 22: 3 D Ex tc — V1068 (IIIC T115°C Dc IP65X) — SG (XM5) — SG (C25)	zones 2 - 22: 3 G Ex nA 3 D Ex tc — V1061 (IIC T6..T4 Gc / IIIC IP65 T85°C..T135°C Dc) — 302	zones 1 - 21: 2 G Ex d 2 D Ex tb — V1010 (IIC Gb T6..T4 / IIIC Db IP67) — NF (MXX) — NF (M12) — WSNF (MXX) — WSNF (M12)	2 G Ex e mb 2 D Ex tD — V1047 (IIC T6..T3 / Ex tD A21) — EM (M6) — EM (MXX) — EM (M12) — WSEM (M6) — WSEM (MXX) — WSEM (M12)	2 G Ex mb 2 D Ex mD — V1035 (IIC T6..T3 / 21 IP67) — PV (EM5) — PV (EMXX)
V209	256		4						6,9
			5	6,9	Ⓔx				4
				7	Ⓔx				6,9
V235	262		6	9,7				Ⓔx	
			9	-				Ⓔx	
			-	19,3				12,5	
			10,5	11,2			Ⓔx	Ⓔx	Ⓔx
				19,7			Ⓔx	Ⓔx	Ⓔx
			8,1	-					

series 262
power: 11,2W

➜ Consult page **V1047-1**: **solenoid operators** Ⓔx zone 1-21 “e mb”



ASCO™

OPERATORS
for potentially explosive atmospheres
increased safety/encapsulation
II 2 G Ex e mb II T6..T3, II 2 D Ex tD A21 IP67
steel or stainless steel enclosure

Series
EM
WSEM

FEATURES
- *Explosionproof operator for use in potentially explosive atmospheres according to ATEX-Directive 94/9/EC*
  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, EN-IEC 61241-0 and EN-IEC 61241-1*
- *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 IP67*
- *A wide range of valves can be supplied with the operator*

CONSTRUCTION

Solenoid enclosure	EM	Zinc plated steel (epoxy coated)
	WSEM	Stainless steel, AISI 316
Cable gland		PA, M20 x 1.5
Core, core tube and plugnut		Stainless steel
Shading coil		Copper or silver
Nameplate		Polyester
Coil connection		Embedded screw terminals
Safety code	Ⓔx	II 2 G Ex e mb II T6..T3 II 2 D Ex tD A21 IP67 T 85°C to T 200°C

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

Pn (watt)	solenoid size MG	MXX	M12	maximum ambient °C (1) surface temperature T6 85°C	T5 100°C	T4 135°C	T3 200°C
insulation class F (155°C) 100% E.D.							
1,2 (2)		•		60	75		
1,5 (2)		•					
1,85 (2)		•					
3,7 (2)		•					
5,8 (2)		•					
6,0	•						
9,0	•						
10,0 (2)		•				40	65
10,0 (2)			•			40	65
10,5	•					40	65
13,0	•					40	65
13,6 (2)		•				40	65

DC (=) solenoids

Pn (watt)	solenoid size MG	MXX	M12	maximum ambient °C (1) surface temper T6 85°C	T5 100°C	T4 135
insulation class F (155°C) 100%						
1,3		•		60	75	
1,5		•				
2,3		•				
3,0		•				
5,3		•				
6,0	•					
9,0	•					
11,2		•				40
15,3	•					40
16,8		•				40
19,7		•				40

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

power compatibility:
11.2W DC / coil MXX

Prefix EM before the selected catalogue number: EMB262C220

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CATALOGUE NUMBER IDENTIFICATION
How to select a product for use in potentially explosive atmospheres

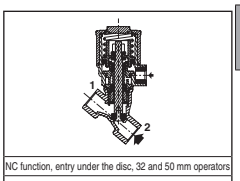
Example: You have selected a series **290** pressure-operated valve 2/2 NC (from **section D**) and would like to use it in explosive atmosphere zone 22.

➜ Product page **V410-1** (standard pressure-operated valve)

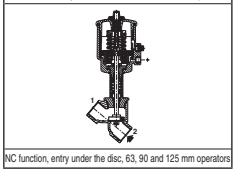
VALVES
pressure operated
bronze or stainless steel body
threaded ports, 3/8 to 2 1/2

NC
NO
2/2
Series
E290





NC function, entry under the disc, 32 and 50 mm operators



NC function, entry under the disc, 63, 90 and 125 mm operators

D

angled seat design
er design (fluid entry under the disc)
n up to 10^{-2} mbar
ston-type operators (32 - 50- 63 - 90 -125 mm dia.) rotatable
maximum performance at different minimum pilot pressures
e, maintenance-free stuffing box
y Pressure Equipment Directive 97/23/EC, category 1 (DN > 25) (≤ 25)
nformity with IEC 61508 Standard (2010 route 2_H version) certi-
levels: SIL 2 for HFT = 0

	See «SPECIFICATIONS» [1 bar =100 kPa]
pressure	16 bar
e range	-10°C to +60°C
	600 cSt (mm²/s)
	Filtered air or water (1)
	10 bar
	See below and following page
e	-10°C to +60°C
	See page V402-7

ds (*)	temperature range	disc seal (*)
d gas groups 1 & 2 nd gas group 2 s groups 1 & 2 and steam	- 10°C to + 184°C	PTFE

NTACT WITH FLUID
mpatibility of the fluids in contact with the materials is verified

	Bronze body	Stainless steel body
	Bronze	AISI 316L
g	Brass	AISI 316L
	Stainless steel	Stainless steel
	Brass	Stainless steel
g	PTFE chevrons	PTFE chevrons
	FPM	FPM
	PTFE	PTFE
	PTFE	PTFE

LS

	Glass fibre filled PA
ator	PA 12, supplied standard on valves with 63, 90 and 125 mm operators

nd 125 mm operators: At service fluid temperatures inside the valve body above pilot the valve with water.

ow icient v	pilot pressure (bar)		operating pressure differential (bar) min.	max. air, inert gas, aggressive fluids (*)	max. water, oil, liqu aggressive liq (*)	operator		catalogue ess steel
(l/min)	min.	max.						
ed, entry under the disc (1)								
47	4	10	0	16	16	10	32	- E290A791
68	4	10	0	12	12	10	32	E290A792
82	4	10	0	16	16	10	50	E290A384 E290A393

catalogue number selected: E290A384

➜ Consult page **V436: pressure-operated valves** ⟨Ex⟩

➜ Consult the ⟨Ex⟩ Quick Selection Chart, **Section D,** page **V400-4**

. **in the rows**: locate the series number **E290**
. **in the columns**: locate ATEX zone 22
. **at the row/column intersection**: find the ATEX-compatible products (identified by the logo ⟨Ex⟩)
. and identify the ATEX page number **V436**

ASCO Quick Selection Chart - **POTENTIALLY EXPLOSIVE ATI**

PRESSURE OPERATED VALVES

page	series	DN	group II dusts zone 22	gas zone 2 IIA	gas zone 2 IIB	gas zone 2 IIC	dusts zone 21	gas zone 1 IIA	gas zone 1 IIB	gas zone 1 IIC	dust
SERIES 290 VALVES ATEX 94/9/EC (see page V436)											
V410	E290	10 → 25	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩		⟨Ex⟩	⟨Ex⟩		
V412	E290	10 → 20	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩		
V414	series	10 → 20	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩		
V420	E290	10 → 65	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩		
V431		25 → 50	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩		
V438	(ISO 15218, CNOMO size 15, pilot interface)	10 → 20	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩	⟨Ex⟩		

ATEX page

TEX 94/9/EC
CCESSORIES
psive atmospheres
0 and 390

2/2 - 3/2
Series
290 - 390

ly explosive atmospheres in accordance with ATEX-Directive 94/9/EC,
uirements has been assured by compliance with European Standards EN
as and paint coating industries etc.

classification (zones)										
	category 2					category 3				
	dusts	gas IIA	gas IIB	gas IIC	safety code	dusts	gas IIA	gas IIB	gas IIC	safety code
	21	1	1	-	⟨Ex⟩ II 2 GD c IIB T4 T135°C	22	2	2	2	⟨Ex⟩ II 3 GD c T4 T135°C
	21	1	1	-		22	2	2	2	
	21	1	1	-	⟨Ex⟩ II 2 GD c IIB T4 T135°C	22	2	2	2	⟨Ex⟩ II 3 GD c T4 T135°C
	21	-	-	-	⟨Ex⟩ II 2 D c T135°C	22	2	2	2	⟨Ex⟩ II 3 GD c T4 T135°C

D

suffix to be added to the valve's catalogue number (1)	
category 2	category 3
GD2	GD3

esigned for use in zones 1 and 21 (category 2), catalogue number: **E290B010GD2**

see page	catalogue page

Suffix GD3 behind the selected catalogue number: E290A384 GD3

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