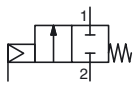
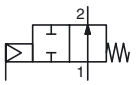
VALVES

pressure operated
bronze body
threaded ports, 1/2 to 2

NC 

NO 

2/2
Series
165
(AD/TBT PN16)

FEATURES

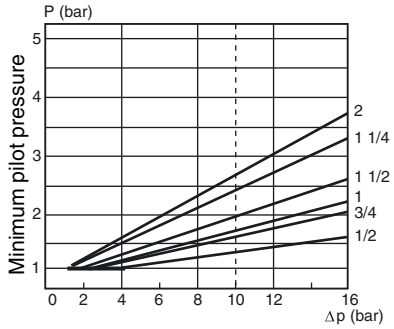
- *Differential-action valve for high-pressure fluid control at reduced piloting pressure*
- *Heavy-duty valve recommended for demanding applications*
- *Available with several accessories and options to handle the majority of industrial applications*
- *The valves satisfy Pressure Equipment Directive 97/23/EC, category 1 (DN > 25) or article 3.3 (DN ≤ 25)*

GENERAL

fluids (✳)	temperature range	disc seal (✳)
air and gas groups 1 & 2 water, oil, liquids groups 1 & 2 and steam	- 10°C to + 184°C	PTFE

Differential pressure 0 to 16 bar [1 bar =100 kPa]
Steam 0 to 10 bar
Maximum allowable pressure 16 bar
Ambient temperature range -5°C to +60°C
Maximum viscosity 5000 cSt (mm²/s)
Response time See overleaf
Pilot fluid Water, air, filtered
Max. pilot pressure 10 bar
Min. pilot pressure See graphs (lower pressure: see Options)

NC



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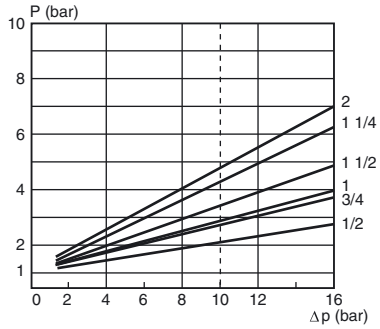
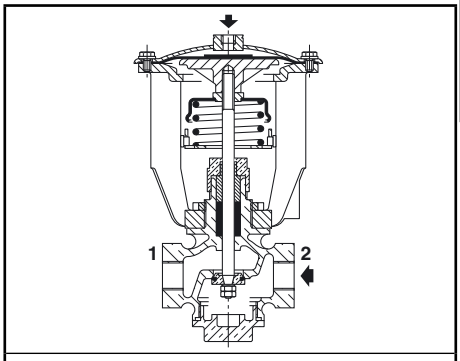
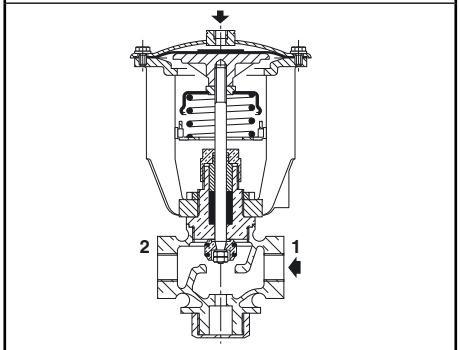




NC function



NO function

D

MATERIALS IN CONTACT WITH FLUID

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

Valve body Bronze
Stem Stainless steel
Disc Brass
Stuffing-box seal Braided PTFE
Disc seal PTFE
Valve body seal FPM
Plug body Brass or bronze

OTHER MATERIALS

Diaphragm (operator) NBR
Bonnet (operator) Steel

SPECIFICATIONS

piping (ISO 6708)		flow coefficient Kv		maximum allowable pressure	pilot pressure (bar)		NC normally closed		NO normally open	
pipe size	DN									
(G*)		(m³/h)	(l/min)	(bar)	min.	max.	catalogue number	reference	catalogue number	reference
1/2	15	4,5	75	16	❇	10	**16500087**	2503-TBT	**16500101**	2503-TBT-NO
3/4	20	7,2	120	16	❇	10	**16500088**	2504-TBT	**16500102**	2504-TBT-NO
1	25	12	200	16	❇	10	**16500089**	2505-TBT	**16500103**	2505-TBT-NO
1 1/4	32	18	300	16	❇	10	**16500090**	2506-TBT	**16500104**	2506-TBT-NO
1 1/2	40	31,8	530	16	❇	10	**16500091**	2507-TBT	**16500105**	2507-TBT-NO
2	50	39	650	16	❇	10	**16500092**	2508-TBT	**16500106**	2508-TBT-NO

❇ The minimum pilot pressure varies according to the differential pressure across the valve. See pilot graphs above.

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OPTIONS AND ACCESSORIES

- Guard mounted on valves, 1/2 - 3/4: catalogue number **210555** / 1 - 1 1/4: catalogue number **210556** / 1 1/2 - 2: catalogue number **210557**
- Valves DN 15 to 50 to ATEX 94/9/EC for categories 2 (II 2 GD c T6 T85°C) and 3 (II 3 GD c T6 T85°C X)
- Dry IP66 contacts
- 2 explosionproof switches with contacts for potentially explosive atmospheres to ATEX:

switch ambient temperature range	number of contacts	catalogue number	
		DN 15..32	DN 40..50
-20°C to +80°C	1	**260657**	**260658**
-20°C to +80°C	2	**260660**	**260661**
-55°C to +82°C	1	**260663**	**260664**

- Inductive M18 switch, IP66
- Inductive M18 switch, intrinsically safe to ATEX, II 1 GD EEx ia IIC T6 IP66 T85°C
- Manual override on the bonnet of the operator
- Accessories for adjustable response time (flow control, quick exhaust etc.)
- Anti-waterhammer device available with air-oil exchanger
- Backpressure applications possible by off-setting the yoke and using a reinforced spring
- Low pressure control (min. 1 bar) by off-setting the yoke
- Other types of stuffing-boxes are available depending on the nature of the fluid used
- Modifications for special environments (cold, hot, aggressive, marine etc.)
- Oxygen service, catalogue number **970509**, pressure/temperature limited to 15 bar / + 60°C
- Valve body degreased during assembly, catalogue number **970523**

INSTALLATION

- The valves can be mounted in any position, except with the operator downwards
- Be sure to observe the direction of fluid flow (NC from 2 to 1 ; NO from 1 to 2)
- Pipe connections (G*) have standard combination thread according to ISO 228/1 and ISO 7/1. Pipe connection (G) has standard thread according to ISO 228/1

SPARE PARTS KITS

DN	spare parts kit no.				guard catalogue number
	stem and disc unit		stuffing-box unit	NBR diaphragm	
	NC	NO			
15	**97701319**	**97701351**	**97701320**	**97700017**	**88200035**
20	**97701321**	**97701352**	**97701320**	**97700017**	**88200035**
25	**97701322**	**97701353**	**97701320**	**97700018**	**88200036**
32	**97701323**	**97701354**	**97701324**	**97700018**	**88200036**
40	**97701325**	**97701355**	**97701324**	**97700019**	**88200037**
50	**97701326**	**97701356**	**97701327**	**97700019**	**88200037**

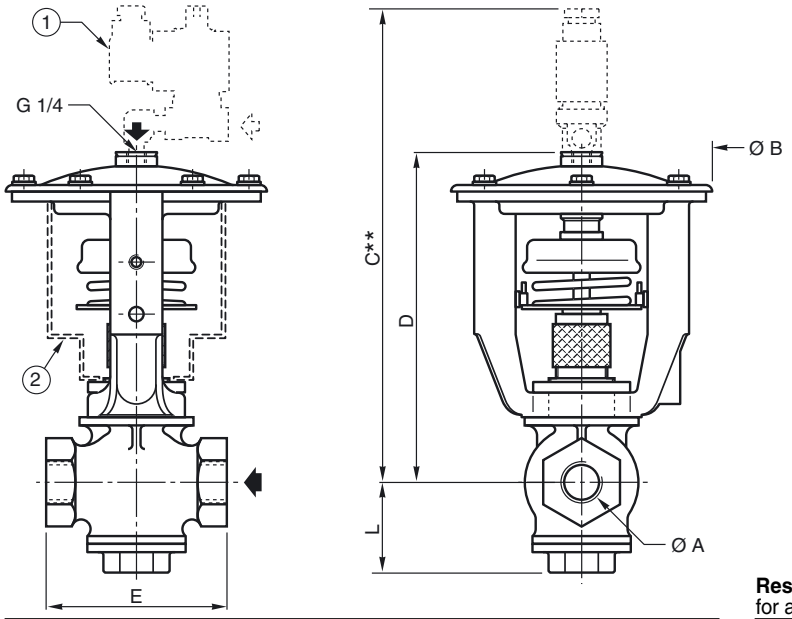
ORDERING EXAMPLES:

16500087
16500087 **210555**
basic number — options

ORDERING EXAMPLES KITS:

97701319
97700017
basic number

DIMENSIONS (mm), WEIGHT (kg)



ØA (G*)	ØB	C**		D		E	L		weight (1)
		NC	NO	NC	NO		NC	NO	
1/2	127	284	290	165	171	68	39	46	3,5
3/4	127	289	292	170	173	84	44	51	4
1	156	306	307	187	188	92	48	56	5
1 1/4	156	311	314	192	193	110	55	61	5,5
1 1/2	200	343	344	224	225	125	60	66	10
2	200	353	352	234	233	145	70	82	12

(1) Weight of valve without pilot.
** Maximum value given for reference and related to choice of electric pilot.

Response time (in sec.)
for a valve with NC function

ØA (G*)	pilot fluid (6 bar)			
	air		water	
	O	C	O	C
1/2	0,3	1	0,7	2
3/4	0,3	1	0,7	2
1	0,4	1,5	1,5	4
1 1/4	0,4	1,5	1,5	4
1 1/2	0,6	2,5	3	9
2	0,6	2,5	3	9

(1) Solenoid pilot valves: see V480
(2) Guard available as accessory, supplied separately or mounted on valve

- Response time is directly related to the Kv of the solenoid pilot valve. The time indicated at opening (O) and closing (C) of the valve is determined by a pilot (dia. 3 mm) with a Kv of 3,5.
- For an NO valve: swap the values of O and F.
- Consult us for shorter cycle times.

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