BOA® -CVE Valves

For automation of type series
BOA-SuperCompact®
BOA-Compact®
BOA-Compact® EKB
BOA-Control® IMS

PN 6/10/16
DN 15-200

Applications

- Automated variant of type series:
  - BOA-SuperCompact® as per Type Series Booklet 7113.1
  - BOA-Compact® as per Type Series Booklet 7112.1
  - BOA-Compact® EKB as per Type Series Booklet 7112.11
  - BOA-Control® IMS as per Type Series Booklet 7128.1
- Depending on the valve type, for hot water, air-conditioning systems and drinking water
- Not suitable for fluids containing mineral oils, steam or fluids liable to attack EPDM and uncoated cast iron, for example in open cooling circuits.
- Other fluids on request

Design

Valve

- Straight-way valves PN 6-16 for flange connections to DIN EN 1092-2 in short or DN face-to-face length
- Nominal diameters: DN 15 to DN 200
- k_{vs} values: 3 to 700 m^3/h
- Rangeability 1:100
- EPDM-lined control valve plug
- Stem seal made of EPDM
- Marking to DIN EN19 (ISO 5209)

Actuators

(technical data refers to basic configuration)

- Configurable, microprocessor-controlled actuators

Supply voltage	24V AC
Valve setpoint	2 – 10 V DC
Actual-position feedback value	2 – 10 V DC
Actuator characteristics	linear (VDI/VDE 2173)
Leakage rate	0.05 % k_{vs}

- Open/Stop/Closed actuation

Supply voltage	230 V AC
Actual-position feedback value	2 limit switches

Leage rate A to DIN EN 12266-1, drop-tight

Operating data

• Fluid temperature:	–10 to +120 °C,
except for BOA-Compact® EKB	–10 to +80 °C
• Pressure range:	depending on variant up to Δp_s = 16 bar
• Ambient temperature:	0 to 50 °C

Materials

- Die-cast actuator housing with plastic cover
- Valve body made of lamellar graphite cast iron EN-GJL-250
- For further details, see table of materials

Standard scope of supply

- Actuator in basic configuration
- Actuator mounted and tested at the factory

Variants

- Actuator configured to match the order specification (acc. to the configuration table on page 15)
- Integrated process controller
- Power back-up (rechargeable battery pack)
- Heating of the motor space

Other applicable documentation

- Operating Instructions for continuous actuators: 7520.8
- Operating Instructions for Open/Stop/Closed actuation 7520.82
- Chemical Resistance Chart: 7112.2
- Type Series Booklet BOA-SuperCompact®: 7113.1
- Type Series Booklet BOA-Compact®: 7112.1
- Type Series Booklet BOA-Compact® EKB: 7112.11
- Type Series Booklet BOA-Control® IMS: 7128.1
- Valve Selector 0570.31

The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 97/23/EC (PED) for fluids in Group 2.

TÜV CERT PED 97/23/EC

CE

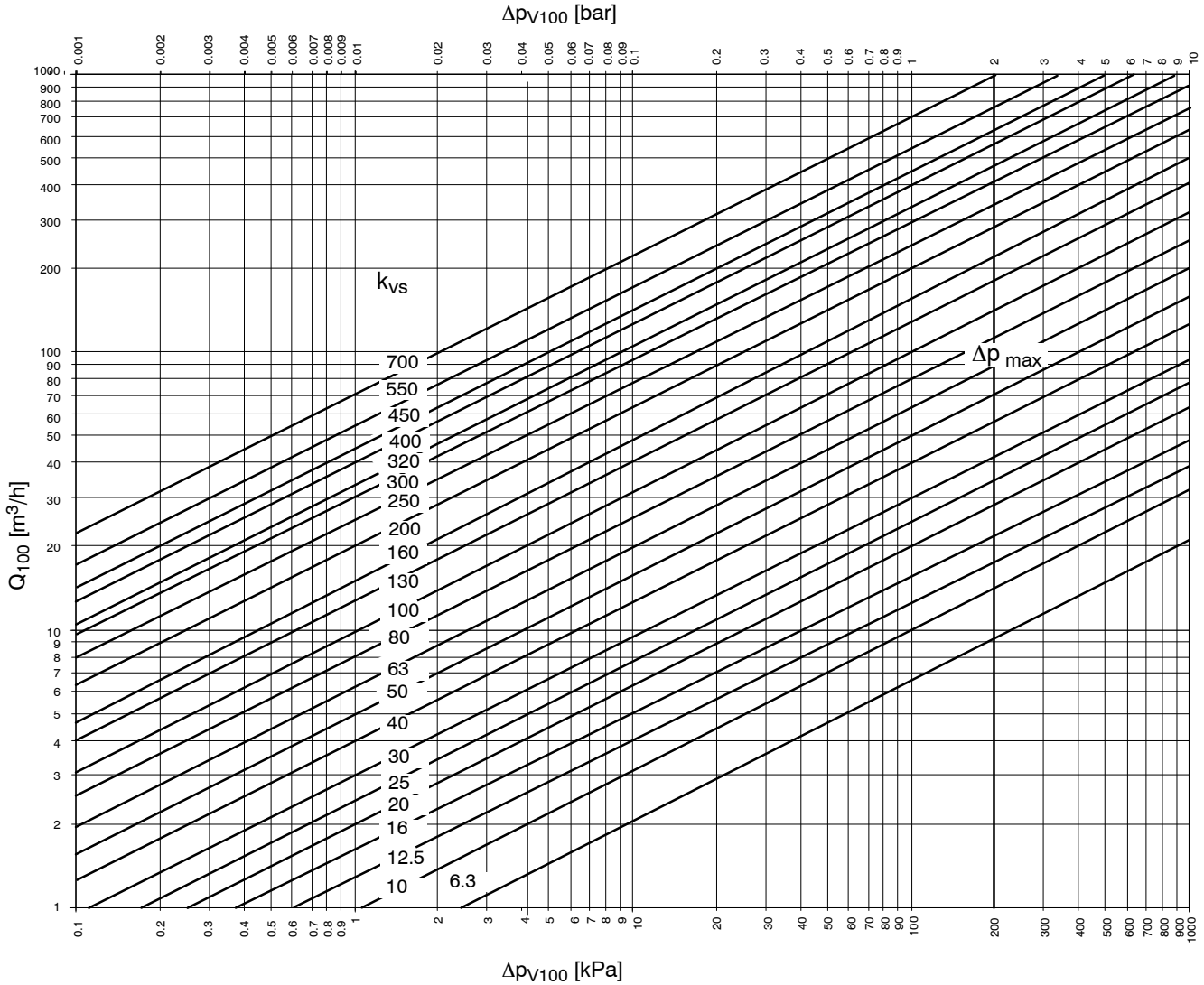
KSB

Test and operating pressures

Nominal pressure PN	Nominal diameter DN	Shell/body pressure test with water P10, P11 bar [1])	Max. permissible operating pressures bar [2])
6	15-200	9	6
16	15-200	24	16

[1]) DIN EN 12266-1 (P10, P11)
[2]) Fluid temperature up to 120 °C, for EKB up to 80°C

kvs values / Flow characteristics



100 kPa = 1 bar = 10 mWs
Δp_{max} = maximum permissible differential pressure across the valve's control path(an exception is control towards the atmosphere: Δp max = 0.3*(p1-pv) for water)
Δpv_{100} = differential pressure across open BOA®-CVE valve
Q_{100} = nominal volume flow rate
Please note: A maximum flow velocity of 2 - 3 m/s in the pipe cross-section should not be exceeded.
For BOA-CVE Control® IMS 2 m/s (limit of BOATRONIC measuring range).

Valve / actuator combinations

BOA®-CVE control valves are available for the following leakage rates without extra charge:

- **Leakage rate 0.05 % of k_{vs}**
- **Leakage rate 0.01 % of k_{vs}**
- **Leakage rate A, drop-tight, to DIN EN 12266-1**

The following tables can be used to select a suitable actuator as a function of the required closing pressure, leakage rate and k_{VS} value.

Valve / actuator combinations based on actuator stroke to Kvs for leakage rate 0.05% of Kvs

Type	DN	Selected kvs value	Actuator stroke	Actuator type Δ Ps_{max*} for leakage rate 0.05% of Kvs in bar				
BOA-Compact®	15	3	5	EA-B 12				
BOA-Compact® EKB	15	6.3	8					
BOA-Control® IMS	15	9	16	11 bar				
BOA-SuperCompact®	20	6.3	7	EA-B 12				
BOA-Compact®	20	10	10					
BOA-Compact® EKB	20	16	16	11 bar				
BOA-Control® IMS	20	20	19					
	25	6.3	7	EA-B 12				
	25	10	10					
	25	16	16	11 bar				
	25	20	19					
	32	16	12	EA-B 12	EA-C 20			
	32	20	16					
	32	25	20	9 bar	14 bar			
	32	30	27					
	40	25	14	EA-B 12	EA-C 20	EA-C 40		
	40	30	17					
	40	40	21	7.5 bar	10.5 bar	16 bar		
	40	50	30					
	50	40	15	EA-B 12	EA-C 20	EA-C 40	EA-C 80	
	50	50	19					
	50	63	23	5 bar	7 bar	13 bar	16 bar	
	50	80	32					
	65	63	21		EA-C 20	EA-C 40	EA-C 80	
	65	80	26					
	65	100	32		6 bar	10 bar	16 bar	
	65	130	43					
	80	100	24		EA-C 20	EA-C 40	EA-C 80	
	80	130	29					
	80	160	38		5 bar	8 bar	13.5 bar	
	80	180	47					
	100	160	28			EA-C 40	EA-C 80	EA-C 120
	100	200	34					
	100	250	42			5 bar	8 bar	13 bar
	100	300	57					
	125	200	31			EA-C 40	EA-C 80	EA-C 120
	125	250	38					
	125	320	48			3 bar	6 bar	10 bar
	125	400	61					
	150	250	33				EA-C 80	EA-C 120
	150	320	42					
	150	400	50				4 bar	7 bar
	150	450	60					
	200	400	37					EA-C 120
	200	550	48					
	200	700	62					5 bar

Δp_{smax*} = maximum permissible closing pressure at leakage rate 0.05% of Kvs in bar

Valve / actuator combinations based on actuator stroke to Kvs for leakage rate 0.01% of Kvs

Type	DN	Selected kvs value	Actuator stroke	Actuator type ΔPs_{max*} for leakage rate 0.01% of Kvs in bar				
BOA-Compact® BOA-Compact® EKB BOA-Control® IMS	15	3	5	EA-B 12				
	15	6.3	8	10 bar				
	15	9	16					
BOA-SuperCompact® BOA-Compact® BOA-Compact® EKB BOA-Control® IMS	20	6.3	7	EA-B 12				
	20	10	10	10 bar				
	20	16	16					
	20	20	19					
	25	6.3	7	EA-B 12				
	25	10	10	10 bar				
	25	16	16					
	25	20	19					
	32	16	12	EA-B 12	EA-C 20			
	32	20	16	8 bar	13 bar			
	32	25	20					
	32	30	27					
	40	25	14	EA-B 12	EA-C 20	EA-C 40		
	40	30	17	6.5 bar	9.5 bar	16 bar		
	40	40	21					
	40	50	30					
	50	40	15	EA-B 12	EA-C 20	EA-C 40	EA-C 80	
	50	50	19	4 bar	6 bar	12 bar	16 bar	
	50	63	23					
	50	80	32					
	65	63	21		EA-C 20	EA-C 40	EA-C 80	
	65	80	26		5 bar	9 bar	16 bar	
	65	100	32					
	65	130	43					
	80	100	24		EA-C 20	EA-C 40	EA-C 80	
	80	130	29		4 bar	7 bar	12.5 bar	
	80	160	38					
	80	180	47					
	100	160	28			EA-C 40	EA-C 80	EA-C 120
	100	200	34			4 bar	7 bar	12 bar
	100	250	42					
	100	300	57					
	125	200	31			EA-C 40	EA-C 80	EA-C 120
	125	250	38			2.5 bar	5 bar	9 bar
	125	320	48					
	125	400	61					
	150	250	33				EA-C 80	EA-C 120
	150	320	42				3 bar	6 bar
	150	400	50					
	150	450	60					
	200	400	37					EA-C 120
	200	550	48					4 bar
	200	700	62					

Δp_{smax*} = maximum permissible closing pressure at leakage rate 0.01% of Kvs in bar

Valve / actuator combinations based on actuator stroke to Kvs for leakage rate A to DIN EN 12266-1

Type	DN	Selected kvs value	Actuator stroke	Actuator type Δ Ps_{max*} for leakage rate A (drop-tight) to DIN EN 12266-1				
BOA-Compact® BOA-Compact® EKB BOA-Control® IMS	15	3	5	EA-B 12				
	15	6.3	8	8 bar				
	15	9	16					
BOA-SuperCompact® BOA-Compact® BOA-Compact® EKB BOA-Control® IMS	20	6.3	7	EA-B 12				
	20	10	10	8 bar				
	20	16	16					
	20	20	19					
	25	6.3	7	EA-B 12				
	25	10	10	8 bar				
	25	16	16					
	25	20	19					
	32	16	12	EA-B 12	EA-C 20			
	32	20	16	6 bar	11 bar			
	32	25	20					
	32	30	27					
	40	25	14	EA-B 12	EA-C 20	EA-C 40		
	40	30	17	4 bar	7.5 bar	15 bar		
	40	40	21					
	40	50	30					
	50	40	15	EA-B 12	EA-C 20	EA-C 40	EA-C 80	
	50	50	19	2 bar	4 bar	9 bar	16 bar	
	50	63	23					
	50	80	32					
	65	63	21		EA-C 20	EA-C 40	EA-C 80	
	65	80	26		3 bar	7 bar	14 bar	
	65	100	32					
	65	130	43					
	80	100	24		EA-C 20	EA-C 40	EA-C 80	
	80	130	29		2 bar	5.5 bar	10.5 bar	
	80	160	38					
	80	180	47					
	100	160	28			EA-C 40	EA-C 80	EA-C 120
	100	200	34			2.5 bar	5 bar	10 bar
	100	250	42					
	100	300	57					
	125	200	31			EA-C 40	EA-C 80	EA-C 120
	125	250	38			1 bar	3 bar	8 bar
	125	320	48					
	125	400	61					
	150	250	33				EA-C 80	EA-C 120
	150	320	42				1 bar	5 bar
	150	400	50					
	150	450	60					
	200	400	37					EA-C 120
	200	550	48					3 bar
	200	700	62					

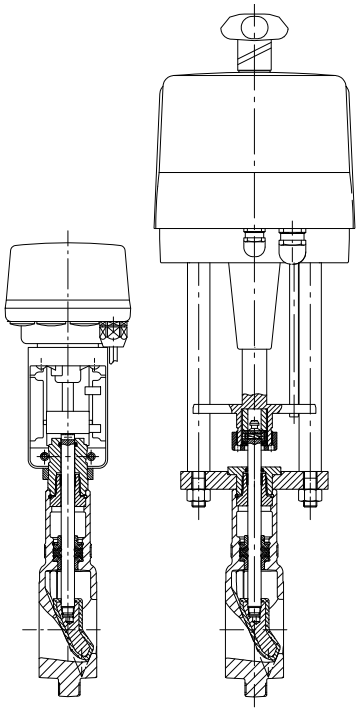
Δp_{smax*} = maximum permissible closing pressure at leakage rate A (drop-tight) to DIN EN 12266-1 in bar

Overview of actuator models

Limit switches force-dependent in closing direction and travel-dependent in opening direction. On Open/Stop/Closed actuators, limit switch (only EA-C 20 to 120/230V 3-point) in closing and opening direction.

EA-B12
Programmed at delivery to match required operating data. Adaptation to the valve.
Operating data storage in fail-safe memory. After a power failure, operation is continued in accordance with the operating data.
Automatic coupling of valve stem with manual stem locking arrangement
Stroke indication via moveable clips. Maximum stroke is established automatically.
Pre-assembled power supply cable, manual adjustment via socket head cap screw

EA-C ...
Programmed at delivery to match required operating data.
Adaptation to the valve.
Operating data storage in fail-safe memory.
After a power failure, operation to operating data is continued.
Actuator and valve coupled via thick torque-transmitting disc
Stroke indication on adhesive scale sticker
Integrated process controller (EA-C20 to EA-C120) optional. (Parameterisation set required.)
All other actuators with terminal box or printed circuit board
Manual adjustement via handwheel



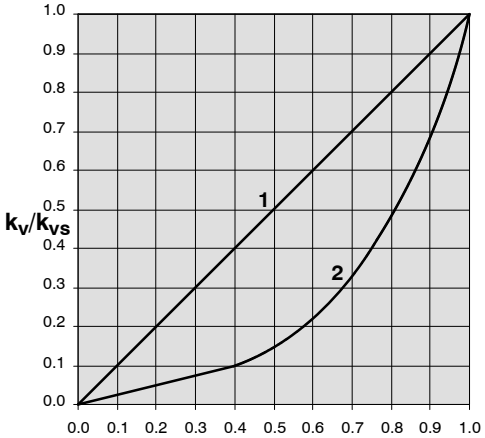
EA-B 12 EA-C ...

	continuous		**Open/Stop/Closed**
Actuation:	select	0-10 V	24 V AC
		2-10 V	230 V AC
		4-20 mA	-
Actual-position feedback:	select	0-10 V	230 V AC with two additional limit switches 24 V AC see "continuous"
		2-10 V	
		4-20 mA	
Supply voltage:	24 V AC		24 V AC
	230 V AC		230 V AC
Actuating time:	selectable in increments		fixed
Actuator characteristics:	linear		-
	equal-percentage		-
Leakage rate:	0.05 %		-
	0.01 %		-
	Leakage rate A to DIN 12266-1		Leakage rate A to DIN EN 12266-1
Accessories:	Process controller		-
	Power back-up (rechargeable battery pack)		-
	Actuator heating		Actuator heating

Actuating time between 25 s and 165 s depending on Kvs value (stroke).
The actuators are CE-marked.

Actuator characteristics

The basic actuator configuration runs on a linear characteristic.



Option 1 (basic parameter setting)
linear
Option 2 (customer specification)
equal-percentage

Process controller for for EA-C... continuous-action actuator

(only EA-C20 to EA-C120)

The EA-C... actuator can be equipped with an integrated process controller, which may be used as a constant-variable controller for an independent control loop. Typical applications:

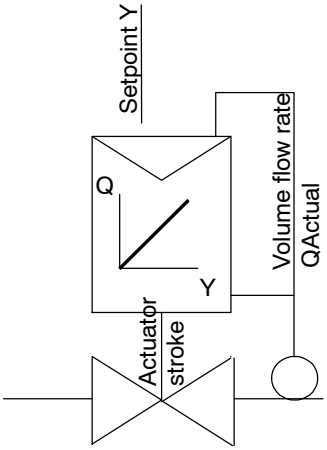
- Constant-temperature control
- Volume flow rate control

The controller is of the proportional-integral type. Its control parameters can be configured at the site by using parameterisation set No. 46001269. The setpoint and the sensor signal must have the same measuring range.

The sensor used must supply an active signal, e.g 4...20 mA or 0/2 to 10 V. The setpoint can be set externally via an active signal or it can be set internally to a default value.
An alternative option is to use a BOA-CVE Control® IMS valve with BOATRONIC M 420.

For additional data please refer to Type Series Booklet 7128.18.

Volume flow control unit



Valve unit projection / installation instructions

- Flow through BOA®-CVE control valves should be in the direction of the embossed arrow on the valve body.
- In heating systems, the valves should preferably be installed in the return line, which is characterised by lower temperatures. This will prolong the stem seal's service life.
- Water quality requirements to VdTÜV – TCh 1466.
- Recommendation: A strainer should be fitted upstream of the valve to improve the valve's functional reliability.

Electrical connection shall be effected in accordance with the applicable local regulations for electrical installations and the equipment wiring and/or power supply circuit diagrams shown on page 9.

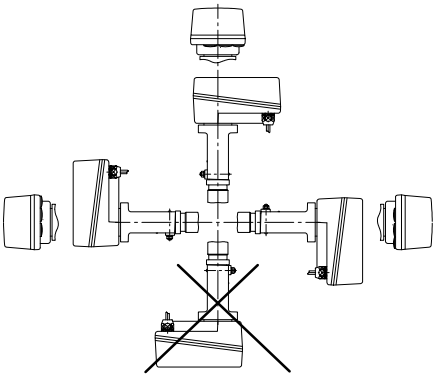
The safety instructions and requirements for the protection of persons and equipment shall always be complied with.

The permissible temperatures shall be observed; see Technical data.

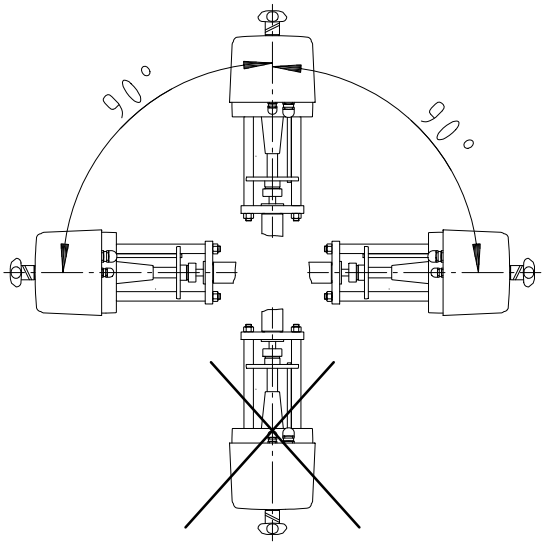
Service work on the valve unit:
Switch off the pump and disconnect it from the supply mains. Close the pipeline's shut-off valve, release the pressure in the pipework and let the unit cool down completely. If required, disconnect the electrical connections from the terminals.

Installation positions

Type: EA-B 12



Type: EA-C 20
to EA-C 120 and EA-C Open/Stop/Closed



Technical data

Technical data - valve

Functional data	PN class	PN 6 / PN 10 / PN 16, depending on the type series
	Valve characteristic 0 ... 100 %	linear, optimised opening process
	Leakage rate	Optional 0 ... 0.05 % of the k_{vs} value, VDI/ VDE 2173 0 ... 0.01 % of the k_{vs} value, VDI/ VDE 2173 Leakage rate A, drop-tight, to DIN EN 12266-1
	Permissible pressure	6 or 16 bar, depending on the type series
	Flange connections	PN 6, PN 10, PN 16 to DIN EN 1092-2
	Fluid temperature exception BOA-CVE Compact EKB:	-10...+120 °C -10...+80 °C

Technical data - actuators

Type of actuator		**EA-B12**	**EA-C20...120 continuous**	**EA-C 20...120 Open/Stop/Closed**
Power supply	Supply voltage	24 V AC ± 20%	24 V AC ± 10% 230 V AC ± 10%	230 V AC% ± 10%
	Max. power input	7 VA	100 VA	100 VA
Functional data	Max. actuation force	1200 N	2000 N / 4000 N / 8000 N / 12000 N	2000 N / 4000 N / 8000 N / 12000 N
	Max. actuator stroke	20 mm	50 mm to 65 mm (for 12KN actuators)	50 mm to 65 mm (for 12KN actuators)
	Standard actuating time depending on the programmed stroke	90s / 135s / 165s	25s / 45s / 90s / 135s / 165s	-
	Speed	EA-B12 0.12 - 0.22mm/s	EA-C 20..40 0.45 - 0.9 mm/s EA-C 80 0.3 - 0.6 mm/s EA-C 120 0.3 - 0.6 mm/s	EA-C 20...80 0.5 mm/s EA-C 120 0.6 mm/s
Signal inputs	Voltage	0/2 - 10 V DC	0/2 - 10 V DC	
	Input resistance	100 kΩ	100 kΩ	
	Current	4 - 20 mA	4 - 20 mA	
	Input resistance		100 kΩ	
	Binary input (Open/Stop/Closed)	24 V AC	24 V AC	230 V AC
Signal outputs	Voltage	0/2 - 10 V DC	0/2 - 10 V DC	
	Current load	max 1 mA	max 1 mA	
	Current		4 - 20 mA	
Type of enclosure		IP 54 to EN 60 529	IP 65 to EN 60 529	IP 65 to EN 60 529
Environmental conditions	Operation			
	Temperature	0 ... +50 °C	-20...+60 °C	-20...+60 °C
	Humidity	5 ... 95 % rH	5...95 % rH	5...95 % rH
	Storage			
	Temperature	-20...+80 °C	-20...+80 °C	-20...+80 °C
	Humidity	5...95 % rH	5...95 % rH	5...95 % rH
Standards and codes	Conformity with EC standards: EC Electromagnetic Compatibility Directive EC Low Voltage Directive	2004/108/EC 2006/95/EC		
Dimensions		See outline drawings		
Power supply cable		1 m, 5 x 0.75 mm^2	Terminal box max 2.5 mm^2	Printed circuit board max 2.5 mm^2

Electrical connection

Terminal configuration EA-B12/24

Continuous-action actuation

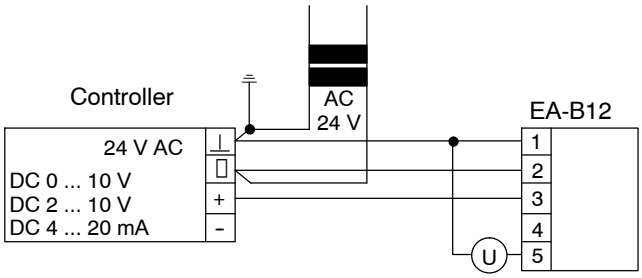
	AC	
1	⊥	24 V (Ground for Y and U)
2	~	24 V
3	Y	DC setpoint (0/2 – 10 V) 4-20 mA, ohmic resistance 500Ω
4		
5	U	Actual-position feedback value (DC 0...10 V, DC 2...10 V)

Open/Stop/Closed actuation

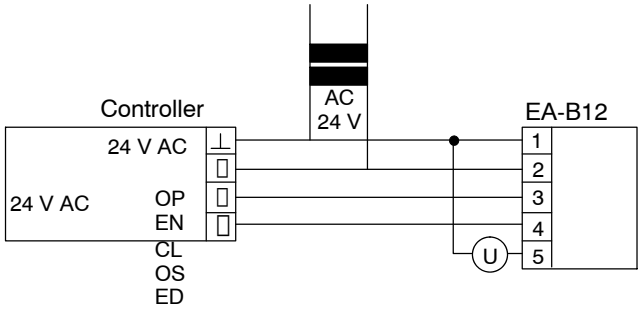
	AC	
1	⊥	24 V (Ground for $Y_{1/2}$ and U)
2	~	24 V
3	Y1	Actuating signal OPEN (24 VAC)
4	Y2	Actuating signal CLOSED (24 VAC)
5	U	Actual-position feedback value (DC2...10 V)

Terminal wiring diagram EA-B12/24

Continuous-action actuation



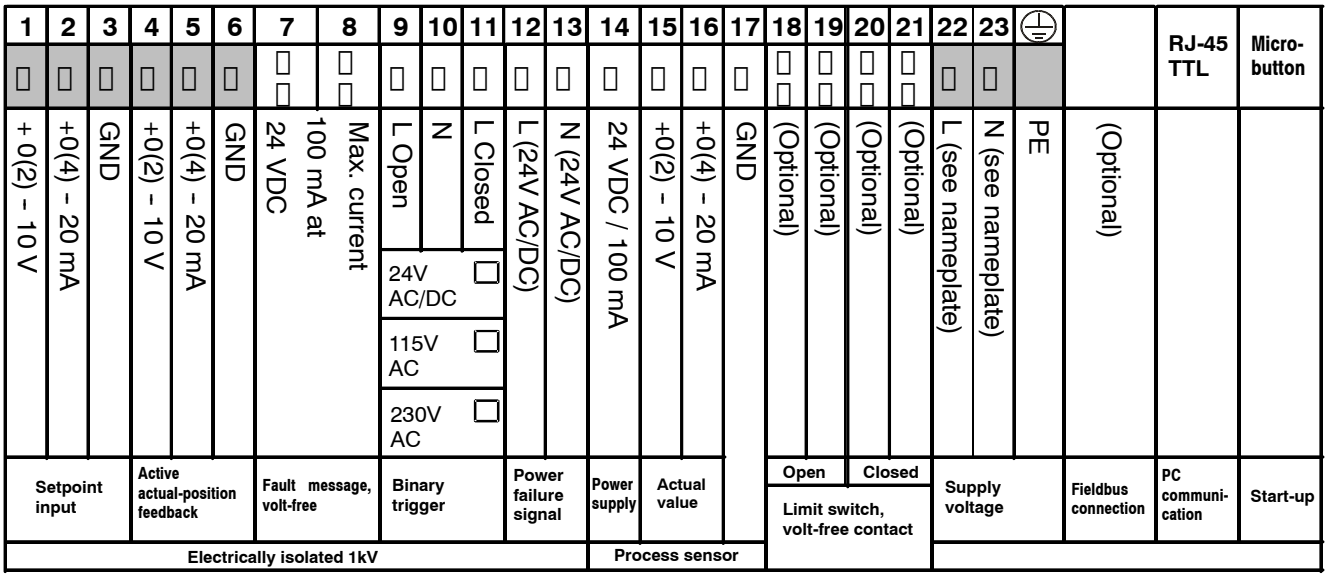
Open/Stop/Closed actuation



Terminal configuration EA-C 20...120 24 V AC with terminal box

Supply voltage 24 V AC

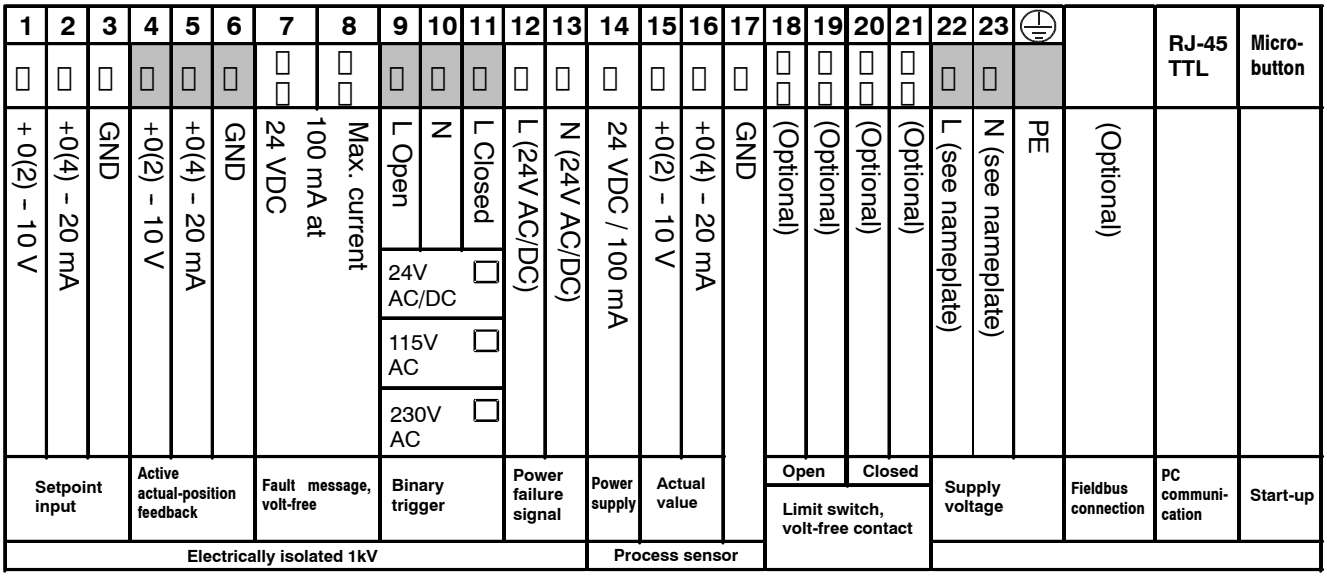
Continuous-action actuation 24 V AC



Terminal configuration EA-C 20...120 24 V AC with terminal box

Power supply 24 V AC

Open/Stop/Closed acuation 24 V AC



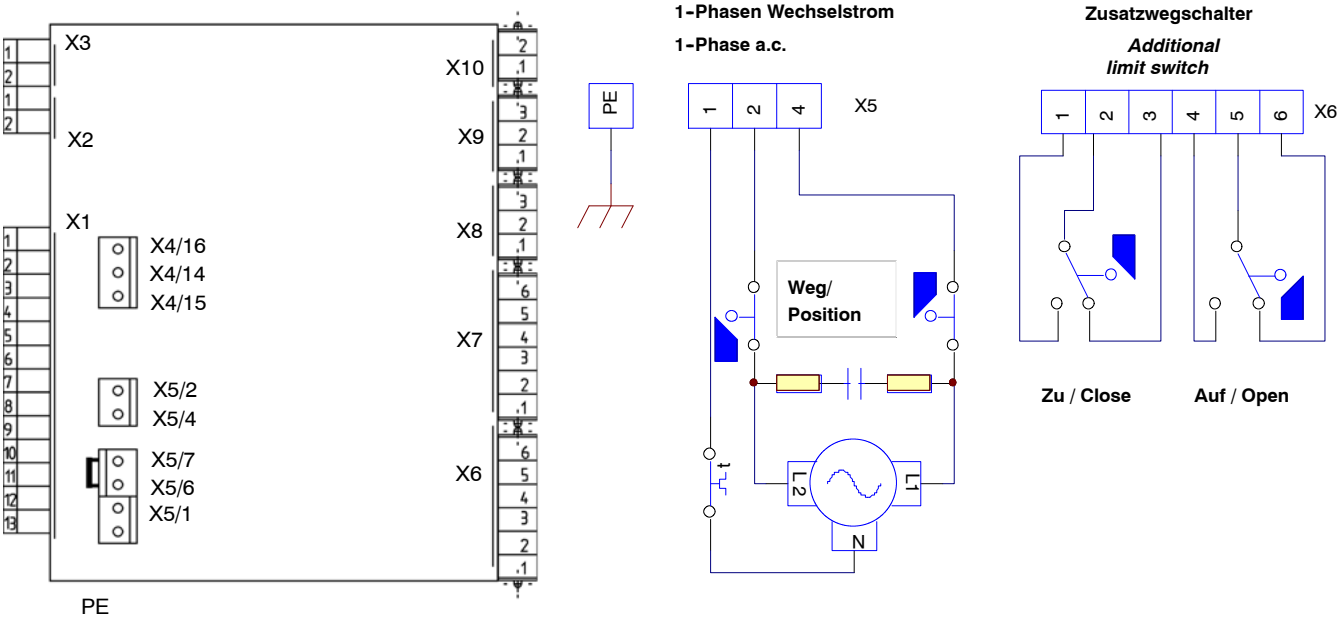
Terminal configuration EA-C20....120 230 V AC

Power supply 230 V AC

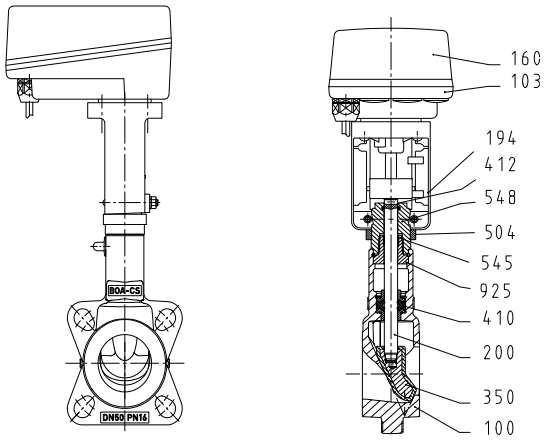
Continuous-action actuation

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			RJ-45 TTL	Micro-button
□	□	□	□	□	□	□□	□□	□	□	□	□	□	□	□	□	□	□□	□□	□□	□□	□	□				
+ 0(2) - 10 V	+0(4) - 20 mA	GND	+0(2) - 10 V	+0(4) - 20 mA	GND	24 VDC	100 mA at Max. current	L Open	N	L Closed	L (24V AC/DC)	N (24V AC/DC)	24 VDC / 100 mA	+0(2) - 10 V	+0(4) - 20 mA	GND	(Optional)	(Optional)	(Optional)	(Optional)	L (see nameplate)	N (see nameplate)	PE	(Optional)		
								24V AC/DC □																		
								115V AC □																		
								230V AC □																		
Setpoint input			Active actual-position feedback			Fault message, volt-free		Binary trigger			Power failure signal		Power supply	Actual value			Open		Closed		Supply voltage			Fieldbus connection	PC communi-cation	Start-up
																	Limit switch, volt-free contact									
Electrically isolated 1kV													Process sensor													

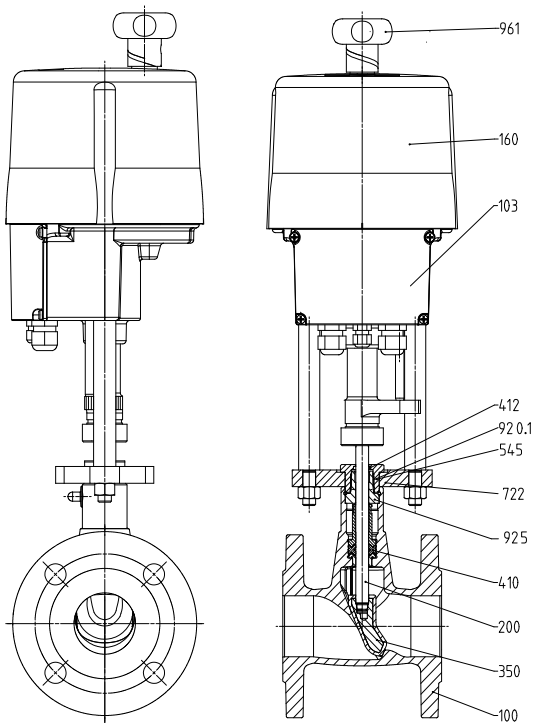
Open/Stop/Closed actuation



X1 = Internal wiring
X2 = Internal wiring
X3 = Internal wiring
X4 = Potentiometer 1
X5/1 = neutral
X5/2 = Motor phase to open the valve
X5/4 = Motor phase to close the valve
X5/6 and X5/7 = Thermal circuit breaker as volt-free contact
X6 = Additional limit switch
X7 = Not assigned
X8 = Heating resistance
X9 = Potentiometer 2
PE = Earth conductor connected to the housing



DN 15-50
with actuator type: EA-B 12

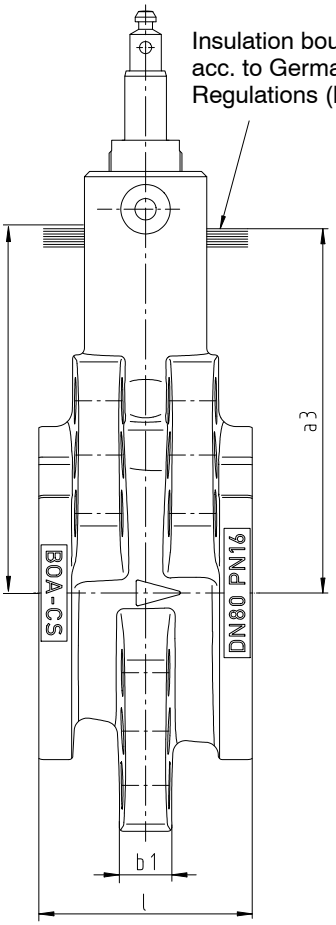


DN 32-200
with actuator type: EA-C...

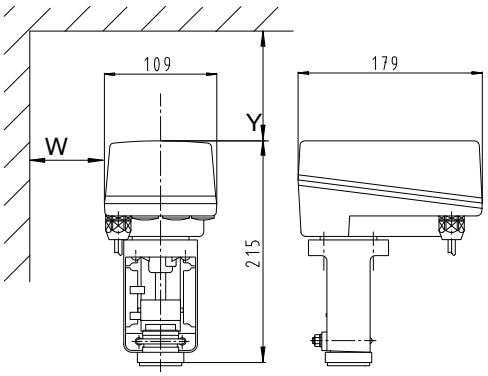
Part No.	Description	Material
100	Body	EN-GJL-250
103	Actuator housing	Aluminium
160	Actuator cover	Plastic/aluminium
194	Bracket	Aluminium
200	Stem	Stainless steel
350	Valve plug	Cast iron / EPDM
410	Profile joint	Elastomer EPDM
412	O-ring	Elastomer NBR
504	Spacer ring	Galvanised steel
545	Bearing bush	Steel / PTFE
548	Actuator bush	Galvanized steel
722	Top flange	Steel
920.1	Union nut	Galvanised steel
925	Stem nut	Galvanised steel
961	Emergency handwheel	Plastic

Dimensions

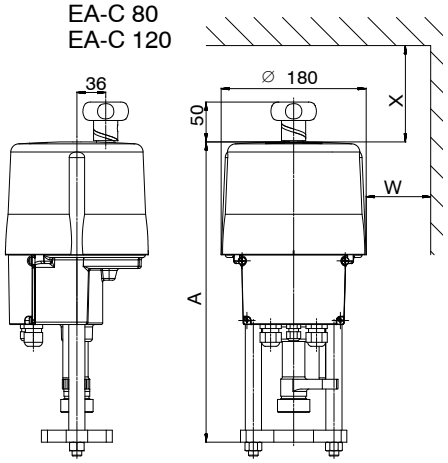
Insulation boundary
acc. to German Heating Systems
Regulations (HeizAnlV 12/94)



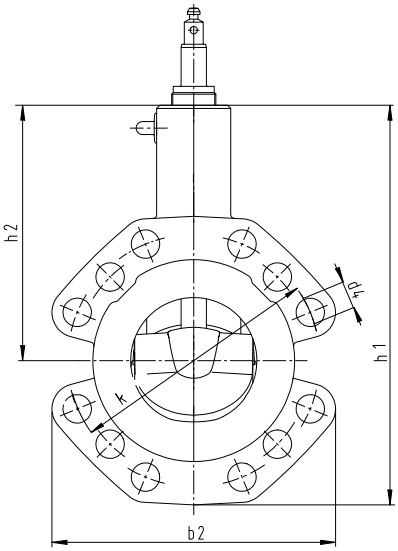
Type: EA-B 12



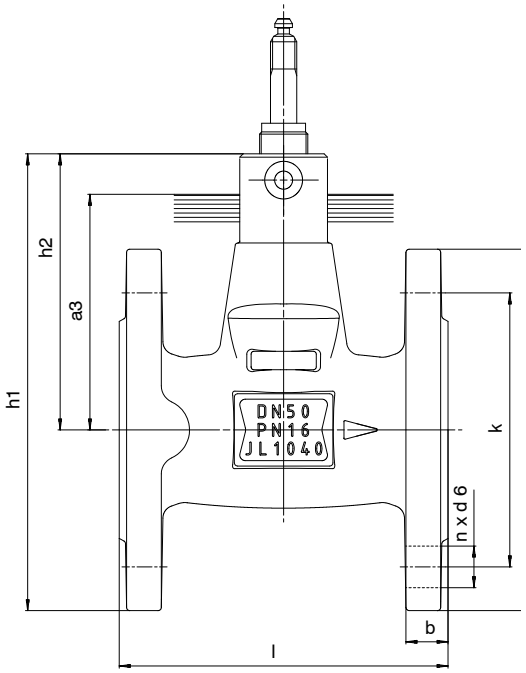
Type: EA-C 20
EA-C 40
EA-C 80
EA-C 120



BOA-CVE SuperCompact®



BOA-CVE Compact®
BOA-CVE Compact® EKB
BOA-CVE Control® IMS



Dimensions BOA-CVE SuperCompact®

Dimensions (mm)					PN 6		PN 10		PN 16								**Weight of the valve** in kg (approx.)
DN	l	h_1	h_2	a_3	k	n x d_4	k	n x d_4	k	n x d_4	b_1	b_2	x	y	A	w	EA-C...
20 [1])	25	129	87	72.5	65	4 x 11	75	4 x 14	75	4 x 14	13	85	120	150	215	100	0.75
25 [1])	25	129	87	72.5	75	4 x 11	85	4 x 14	85	4 x 14	13	85	120	150	215	100	
32	32	163	112	85	90	4 x 14	100	4 x 18	100	4 x 18	16	103	120	150	369	100	1.5
40	40	166	112	95	100	4 x 14	110	4 x 18	110	4 x 18	16	110	120	150	369	100	2.0
50	50	186	126	107.5	110	4 x 14	125	4 x 18	125	4 x 18	20	120	120	150	374	110	3.0
65	65	233	166	125	130	4 x 14	145	4 x 18	145	4 x 18	24	135	120	–	374	120	5.0
80	80	254	162	140	150	4 x 18	160	8 x 18	160	8 x 18	20	180	120	–	374	140	7.5
100	100	303	200	160	170	4 x 18	180	8 x 18	180	8 x 18	20	203	120	–	474	150	10.5
125	125	365	248	175	200	8 x 18	210	8 x 18	210	8 x 18	23	230	120	–	474	170	15.0
150	150	397	262	192.5	225	8 x 18	240	8 x 22	240	8 x 22	23	266	120	–	474	180	21.0
200	See table "Dimensions BOA-CVE Compact®, BOA-CVE Compact® EKB and BOA-CVE Control® IMS"																

[1]) DN 20 + DN 25 = one valve size DN 20/25

Mating dimensions - Standards

Counterflanges to DIN EN 1092-2 PN 6, PN 10 or PN 16,
Flange facing: Type B, for ex. DIN EN 1092-2-40-16-B

Dimensions BOA-CVE Compact®, BOA-CVE Compact® EKB, BOA-CVE Control® IMS

	Dimensions (mm)									**Flange**					**Weight**
PN	DN	l	h1	h2	a3	x	y	A	w	D	b	k	n	d6	kg
6	15	115	156	99	50	120	150	215	100	80	12	55	4	11	1.7
	20	120			55	120	150	215	100	90	14	65			2.1
	25	125			65	120	150	215	100	100		75			2.3
	32	130	179	115	75	120	150	369	100	120	16	90		14	3.8
	40	140			85	120	150	369	100	130		100			4.3
	50	150	189	126	95	120	150	374	110	140		110			4.9
	65	170	252	166	112.5	120	–	374	120	160		130			7.7
	80	180		167	135	120	–	374	140	190	18	150		19	10.9
	100	190	298	209	155	120	–	474	150	210		170			13.7
	125	200	373	248	170	120	–	474	170	240	20	200	8		20.0
	150	210	386	261.5	182.5	120	–	474	180	265		225			25.5
	200	230	693	405	220	230	–	521	200	340	30	280			67.0
16	15	115	156	99	57.5	120	150	215	100	95	14	65	4	14	2.3
	20	120			62.5	120	150	215	100	105	16	75			2.7
	25	125			72.5	120	150	215	100	115		85			3.0
	32	130	179	115	85	120	150	369	100	140	18	100		19	4.8
	40	140			95	120	150	369	100	150		110			5.5
	50	150	189	126	107.5	120	150	374	110	165	20	125			6.9
	65	170	252	166	125	120	–	374	120	185		145			10.0
	80	180		167	140	120	–	374	140	200	22	160	8		12.5
	100	190	298	209	160	120	–	474	150	220	24	180			16.1
	125	200	373	248	175	120	–	474	170	250	26	210			25.1
	150	210	386	261.5	192.5	120	–	474	180	285		240		23	30.0
	200	230	693	405	220	230	–	521	200	340	30	295	12		67.0

Actuator weights in kg

EA-C	**continuous actuation 24 V AC**	**continuous actuation 230 V AC**	**Open/Stop/Closed acuation 230 V AC**
2000 N	6.0 kg	7.0 kg	7.0 kg
4000 N	6.0 kg	7.0 kg	7.0 kg
8000 N	9.0 kg	10.0 kg	10.0 kg
12000 N	10.0 kg	11.0 kg	11.0 kg

EA-B	**continuous actuation 24 V AC**
1200 N	1.5 kg

Configuration table

If you complete the configuration table below, this will help us configure the right BOA®-CVE valve model to suit your system requirements. **The data to be given about your system and the control valve are absolutely required to select the right valve for you**. As a rule, the actuator is delivered with the standard settings. If you wish to specify other properties, please tick these in the Customer specification check boxes.

Customer:

Customer number:

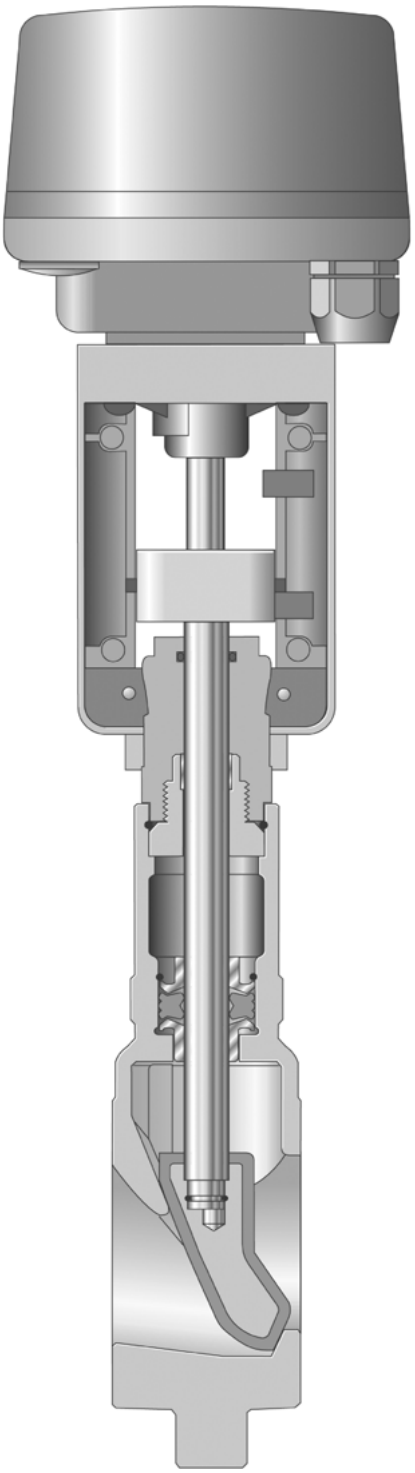
Project:

Customer's system data						**Comments**
Nominal volume flow rate	m^3/h		☐			
Fluid temperature	°C		☐			
Kv value	m^3/h		☐			
Valve data		**Nominal diameter DN**	**Pressure class PN**		See page 2	
Valve type	BOA-SuperCompact®	☐	6/10/16 bar ☐			From DN 200 see BOA-Compact®
	BOA-Compact®	☐	6 bar ☐	16 bar ☐		
	BOA-Control® IMS	☐	16 bar ☐			
	BOA-Compact® EKB	☐	10/16 bar ☐			From DN 200 see BOA-Compact®
Acutator function / supply voltage	continuous - 24 V AC	please go to **A**	☐		**Standard**	
	continuous - 230 V AC	please go to **A**	☐			
	O/S/C – 24 V AC	please go to **B**	☐			
	O/S/C – 230 V AC	please go to **C**	☐			
Leakage rate	0.05 % KVs		☐		See page 3	Standard value for continuous actuation
	0.01 % KVs		☐		See page 4	
	Leakage rate A (to DIN EN 12266-1)		☐		See page 5	Fixed value Open/Stop/ Closed actuation
Closing pressure Δ_{psmax}	bar		☐		See page 3-5	
Differential pressure in control mode Δ_{pmax}	bar		☐			
Flow velocity	m/sec		☐			
Kvs value	m^3/h		☐		See page 2	

Actuator data		**Customer specification [1]**			**Standard setting**	**Comments**
		A Option **"continuous"**	**B** Option **"O/S/C 24 V AC"**	**C** Option **"O/S/C 230V AC"**	For **"continuous"** actuators only	
Acutator characteristics	linear	☐	X	X	X	*) The exact value depends on the Kvs value (stroke in mm) selected, see page 3, and the travel velocity of the acutator, see page 8
	equal-percentage	☐				
Actuating time	Fast (25-45 sec) *)	☐	☐			
	Medium (approx. 90 sec) *)	☐	☐			
	Slow (135-165 sec) *)	☐	☐		X	
Valve setpoint	DC 2 – 10 V	☐			X	
	DC 0 – 10 V	☐				
	4 – 20 mA	☐				
Actual-position feedback value	DC 2 – 10 V	☐	☐		X	For EA-C actuators all actual-position feedback values are possible. For EA-B actuators only 2-10 V DC
	DC 0 – 10 V	☐	☐			
	4 – 20 mA	☐	☐			
Feedback via 2 limit switches				In scope of supply		
Accessories						
Process controller only for EA-C actuators with continuous actuation (not retrofittable)		☐				Fitted and pre-set in the factory
Programming tool for EA-C actuators (required for process controllers) Ident No. 46001269		☐				Serves to adjust controller parameters at the site
Actuator heating		☐	☐	☐		Only for EA-C actuators
Rechargeable battery pack		☐	☐			Only for EA-C actuators, not for O/S/C 230 V

[1]) For configuration to customer specification, please tick the appropriate boxes.
Fields with a dark grey background are**"mandatory"** fields. If no information is entered, your enquiry cannot be processed.
Fields with a light grey background are**"optional"** fields. If no information is entered, we will use the standard settings for your order.

Product features – to our customers' benefit



Micro-processor controlled
Your benefits
- Self-monitoring
- Synchronisation after power failure
- Reliable operation

Parameterisable run time
Your benefits
- Adjustment of run time to system conditions
- Ideal adjustment to regulating area

Linear or equal percentage valve characteristic parameterisable
Your benefits
- Adaptation of control curve without exchange of components
- Economical and flexible
- Optimum system operation

Hydraulically favourable flow passage
Your benefits
- Minimum flow noise
- Low pressure losses
- Low operating costs

Body in short or DN face-to-face length
Your benefits
- Little space required in the system
- Savings in shipping costs
- Easy to install

Parameterisable actuating signal
Your benefits
- Suitable for combination with all control systems
- Adaptation without exchanging any components

Parameterisable k_{VS} value
Your benefits
- 4 k_{VS} values for each nominal diameter
- Variation of k_{VS} value without exchanging components
- No mechanical adjustment required
- Economical and flexible

Optimised soft-seat function
Your benefits
- Compensates any deformation of the valve plug
- Optimum opening behaviour right from the first drop
- Precise flow rate control in every operating point

Fully EPDM-lined throttling valve plug
Your benefits
- Control and shut-off function in one valve
- Leakage rate A to DIN EN 12266-1
- Accurate valve characteristic
- Corrosion-proof valve plug

7520.1/8-10 01.02.2008

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