

Bälz-electrodyn - control valves in stainless steel

1. The Baelz control valve family with bodies in stainless steel of motorized and pneumatic control valves

All baelz control valves have 3 main components:

- the specific valve body with a mobile trim, flanged ends balanced or unbalanced single seated.
- an actuator: electric motorized actuator, pneumatic operated diaphragm actuator.
- a yoke with a coupling to fit the valve spindle to the actuator spindle.

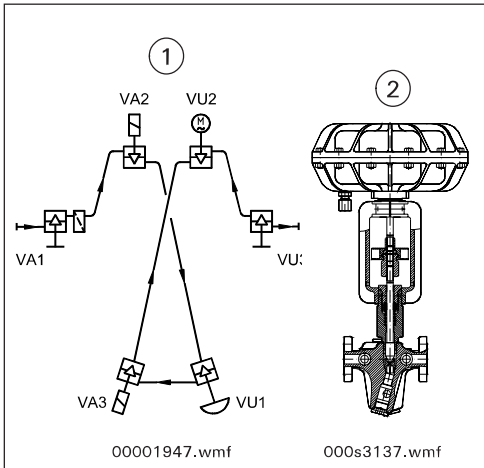


Fig. 1
baelz 185 schematic baelz 185-373-P21

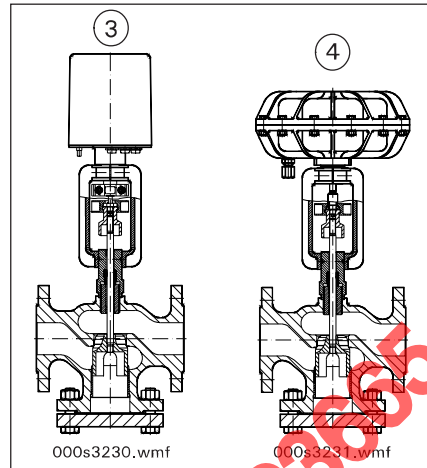


Fig. 2
baelz 340-ES-373-E07
baelz 340-ES-373-P21

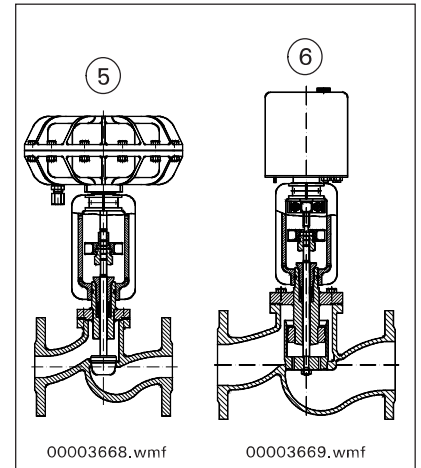


Fig. 3
baelz 344-VA-373-P21
baelz 344-EM-VA-373-E07

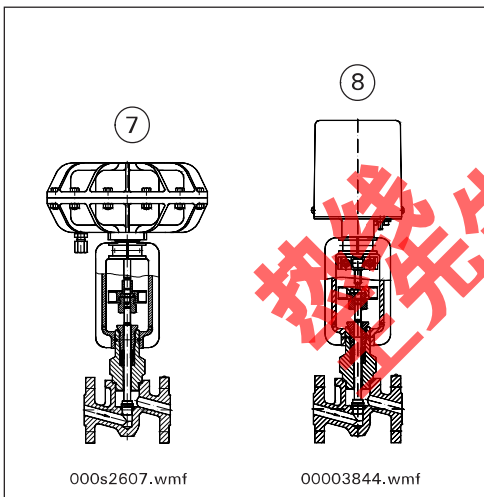


Fig. 4
baelz 356-373-P21 baelz 356-373-E07

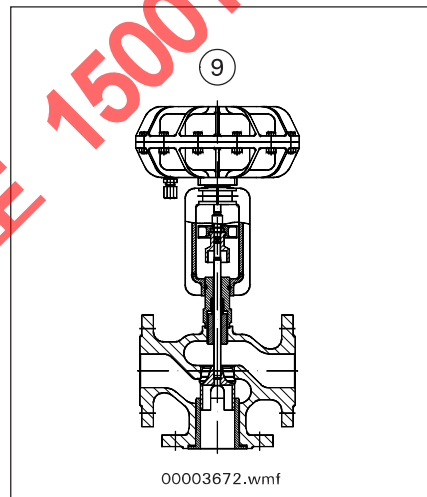


Fig. 5
baelz 347-ES-373-P21

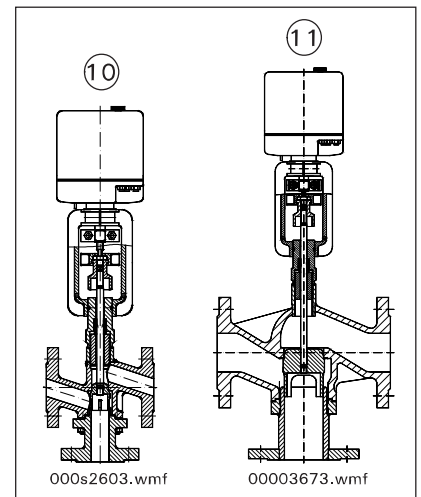


Fig. 6
baelz 353-373-E02
baelz 354-373-E02

Fig. 1	185-VA ND 15 + 25 X20Cr13 - 1.4021	Fig. 4	356-MS ND 15-25 X6CrNiMoTi17-12-2 - 1.4571
Fig. 2	340-ES ND 25 + 50 GX3CrNiMo13-4 - 1.4313	Fig. 5	347-ES ND 25 + 50 GX3CrNiMo13-4 - 1.4313
Fig. 3	344-VA ND 32-150 344-EM-VA ND 50-125 GX5CrNiMo19-11 - 1.4408 X6CrNiMoTi17-12-2 - 1.4571	Fig. 6	353 ND 15-25 354 ND 32-125 X6CrNiMoTi17-12.2 - 1.4571 GX5CrNiMo19-11 - 1.4408

Those valves can be supplied in different stainless steel materials and with one of the following leakage classes according to DIN IEC 534; II (0,5% Kvs); III (0,1% Kvs); IV (0,01% Kvs), V (0,0005% Kvs).

Bälz-electrodyn - control valves in stainless steel

2. Summary of linear electric and pneumatic actuators 373-E and 373-P

baelz 373-EXX XX: 06, 07, 40, 60, 88			baelz 373-EXX XX: 11, 13			baelz 373-PXX XX: 21, 22, 31, 32, 41		
standard motorized actuators that remain in their position in case of power failure for open - stop - close or 4 - 20 mA or on - off operation			spring return motorized actuators that either close or open in case of power failure; only for valves ND 15 - ND 125 with yoke S21			pneumatic actuators air - to - open or air - to - close for max. 6 bar air signal pressure; for strokes up to 66 mm		
type	thrust	stroke speed	type, trust, stroke speed	type	diaph. surface	thrust		
373-E06	2000 N	6 mm / min.	baelz 373-E11 / E13-D	373-P21	240 cm ²	1020 - 7590 N		
373-E07	2000 N	6 + 18 mm / min.	2000 N, 6 + 17 mm / min.	373-P22	240 cm ²	1846 - 3692 N		
373-E40	4000 N	20 mm / min.	baelz 373-E11 / E13-Z	373-P31	620 cm ²	2480 - 10560 N		
373-E60	9000 N	18 mm / min.	2000 N, 6 + 17 mm / min.	373-P32	620 cm ²	2201 - 8115 N		
373-E88	10000 N	22 mm / min.		373-P41	1250 cm ²	3765 - 31920 N		

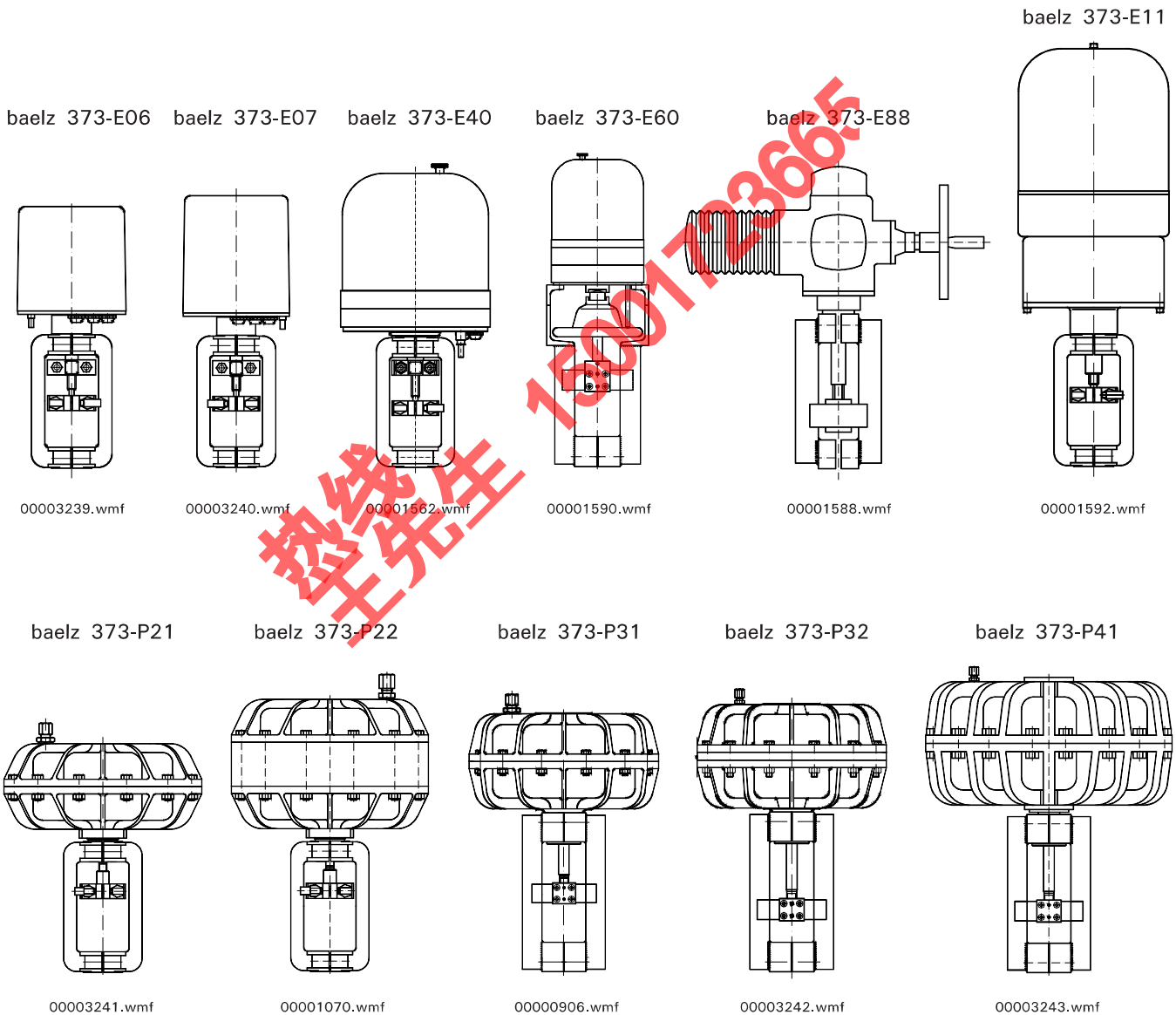


Fig. 7 electric + pneumatic baelz actuators

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Bälz-electrodyn - control valves in stainless steel

3. How to mount an electrical actuator on a baelz valve

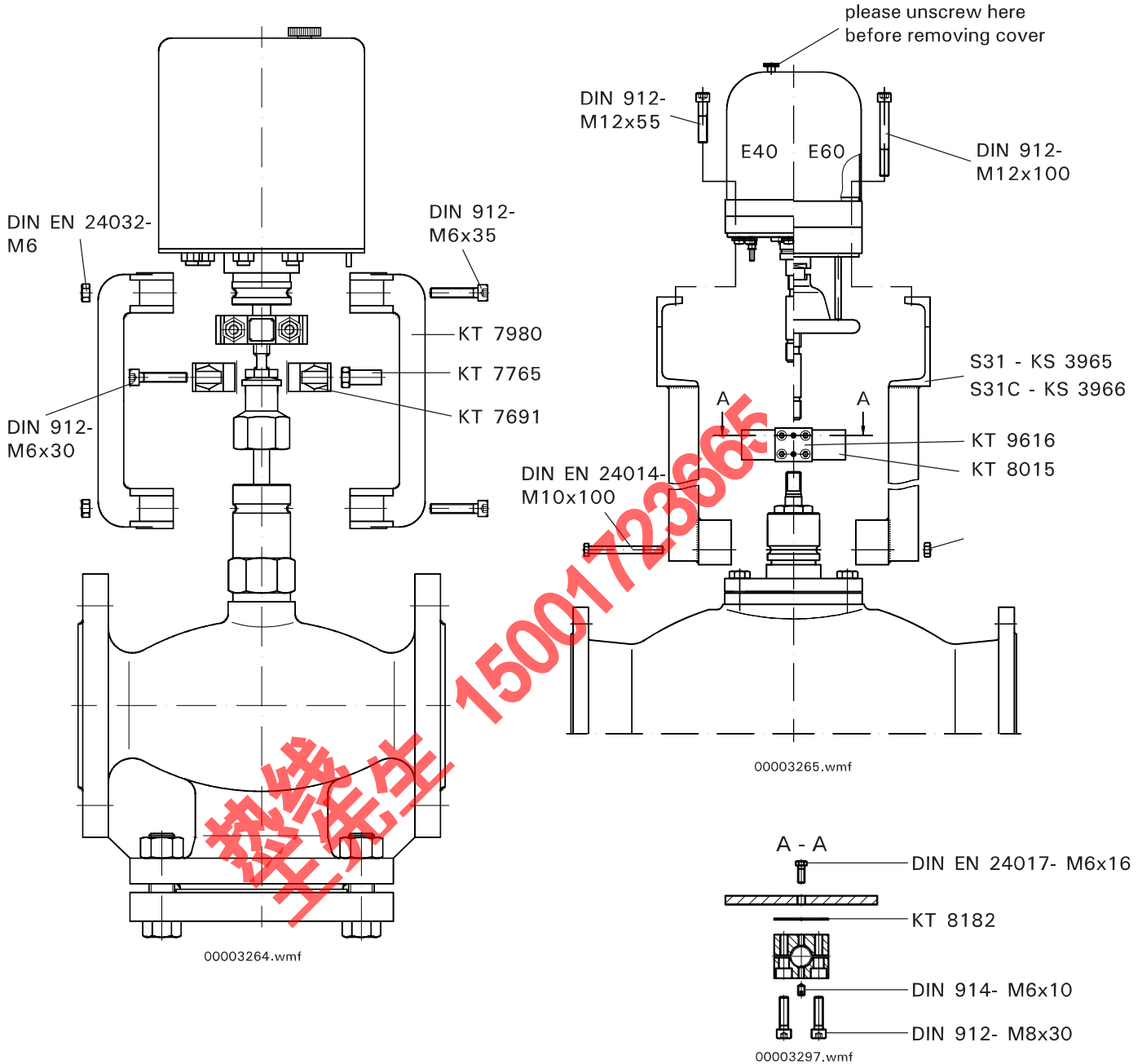


Fig. 8
 mounting an actuator baelz 373-E06-S21
 on a valve baelz 340-B
 ND 15 - ND 125

Fig. 9
 mounting an actuator baelz 373-E40-S31
 and baelz 373-E60-S31 on a valve baelz 340-BB
 ND 150 - ND 300

Bälz-electrodyn - control valves in stainless steel

4. How to mount a pneumatic actuator on a baelz valve

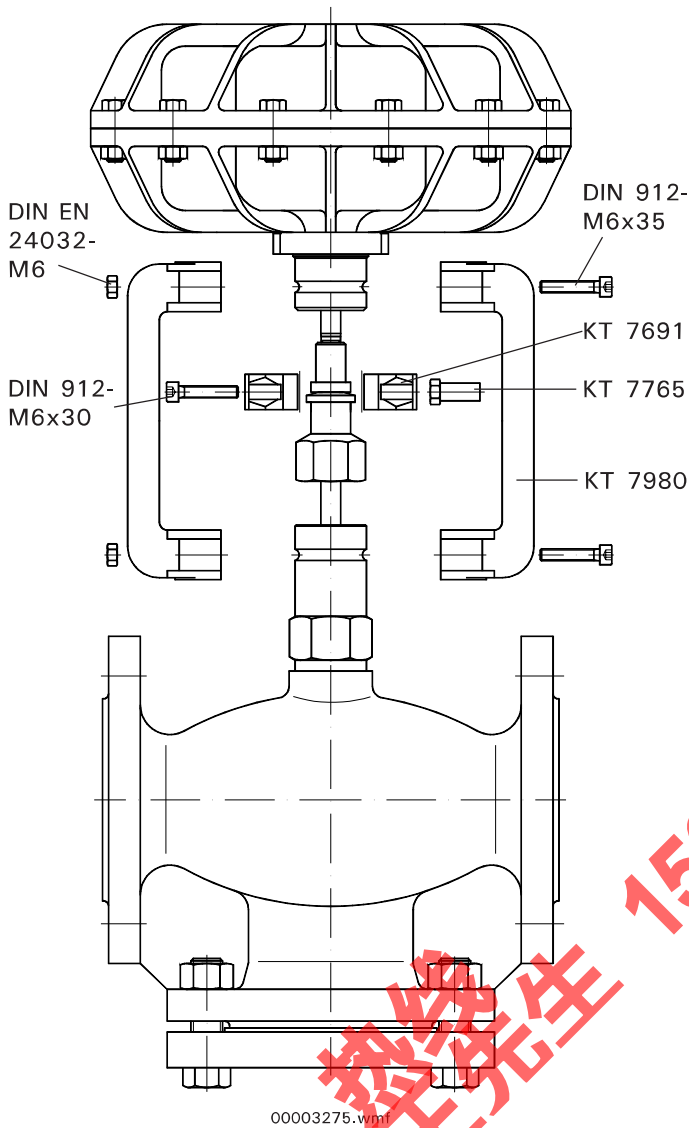


Fig. 10
mounting of a pneumatic actuator baelz 373-P21 on a valve baelz 340-B

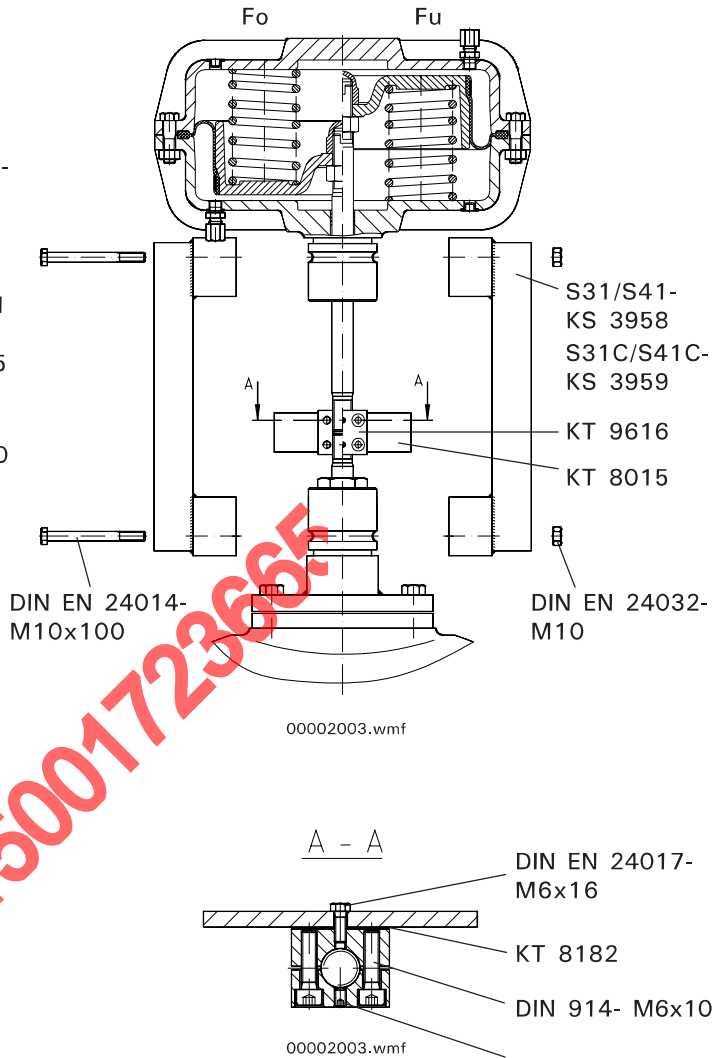


Fig. 11
mounting of a pneumatic actuator baelz 373-P31 on a valve baelz 340-BB

Bälz-electrodyn - control valves in stainless steel

5. Valve serie baelz 185-VA completely in stainless steel

Checklist:
 ND: 15 + 25
 NP: 16 / 25 / 40
 special body:
 completely stainless steel
 temperatures:
 min.: -10°C
 max.: +240°C
 speciality: incorporated
 strainer; 2 manual
 valve pilots baelz 260st

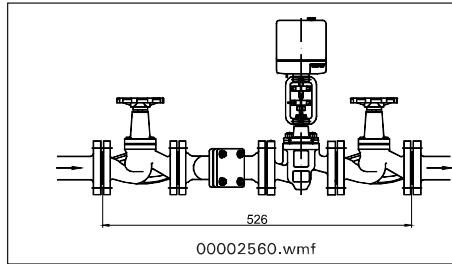


Fig. 12
 conventional pipe work with 4 units
 face - to - face length: 526 mm

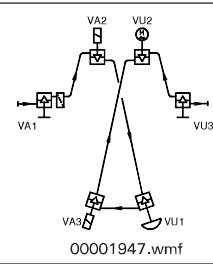


Fig. 13
 baelz 185 pipe work, 1 unit instead
 of 4 face - to - face length: 130 mm

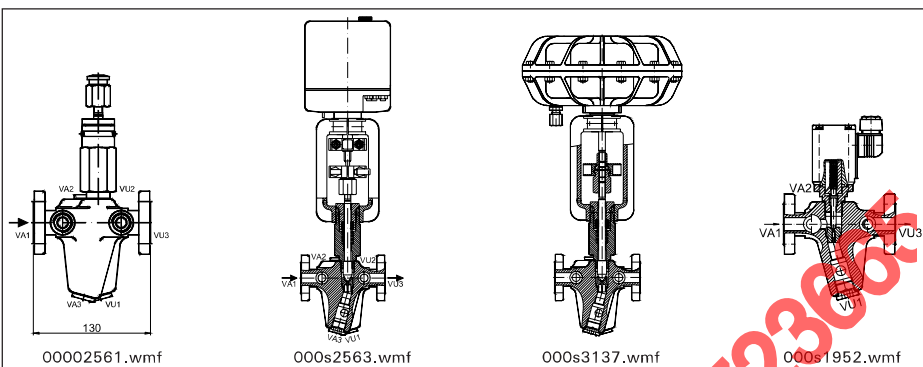


Fig. 14
 body lay - out ND 15 baelz 185-373-E02 motorized valve baelz 185-373-P21 pneumatic valve baelz 185-266st solenoid valve

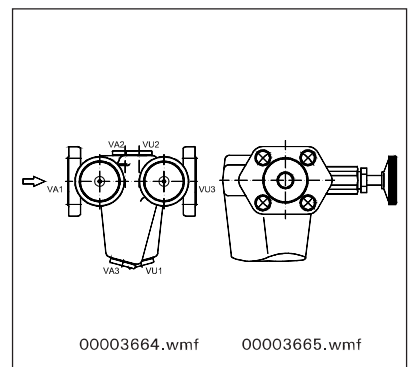


Fig. 15
 baelz 185-260st-260st
 with 2 manual valve pilots
 (to clean strainer)

Text for quotations + orders:

2-way multi-purpose control valve with electric or with pneumatic actuator and i/p positioner, with incorporated strainer

baelz 185-VA-373-XX ND 15, NP 40

Kvs = 0.025 / 0.04 / 0.1 / 0.12 / 0.16 / 0.3 / 0.6 / 1.0 / 1.2 / 1.4

with parabolic plug; Kvso = 0.004%

body material: stainless steel X20Cr13 – 1.4021

trim in stainless steel; stuffing box: V-rings in PTFE

max. 240°C/40 bar; stroke: 16 mm

flow m³/h or kg/h; pressure drop Δp_{100} = bar

max. allowable differential pressure Δp_0 = 40 bar

with motorized actuator for open – stop – close control

baelz 185-VA-373-E07-20-18-S21-230

Order No.: 185-002 + 373-E07-20-18-301

with motorized actuator for control signal 0...10 V or 4...20 mA

baelz 185-VA-373-E07-20-18-S21-Fg5kΩ-230-1020-230-M

Order No.: 185-002 + 373-E07-20-18-411 + 1020-051 + 1020-151-M230/115

with pneumatic actuator and i/p positioner

baelz 185-VA-373-P21-6-Fo-86/IP6000-M

Order No.: 185-002 + 373-P21-017 + 86-002

Supplement completely in stainless steel baelz 185-VA

Short presentation of all electric and pneumatic actuators see BPE 18



Fig. 16
 185-E07-1.JPG
 baelz 185 with 373-E07-260st

ND	15										25			
Kvs	0,025	0,04	0,10	0,12	0,16	0,3	0,6	1,0	1,2	1,4	1,4	2,0	3,0	5,0

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Bälz-electrodyn - control valves in stainless steel

6. Valve serie baelz 340-ES-AS and 340-ES-MS in stainless steel

Checklist:

ND: 25 + 50
 NP: 16 / 25 / 40
 body:
 GX3CrNiMo13-4 (1.4313)
 temperatures:
 min.: -10°C
 max.: +240°C or
 +350°C type K
 for hot oil / bellows type:
 type K-SS: 350°C
 spindle Ø: 10 mm

Text for quotations + orders:

2-way control valve in stainless steel
baelz 340-ES-AS NP 16/25/40
 without actuator
 body material : GX3CrNiMo13-4 - 1.4313
 internal parts in contact with the medium
 : X6CrNiMoTi17-12-2 - 1.4571
 stuffing box : V-rings in PTFE
 NP 16 max. : 240°C/14 bar-120°C/16 bar
 NP 40 max. : 240°C/35 bar-120°C/40 bar
 stroke : ND 15 – 25: 12 mm
 ND 32 – 125: 22 mm
 flow :
 pressure drop
 Δp_{100} : bar
 max. allowable differential pressure
 Δp_0 : bar

ND	25	50
Kvs	9	36

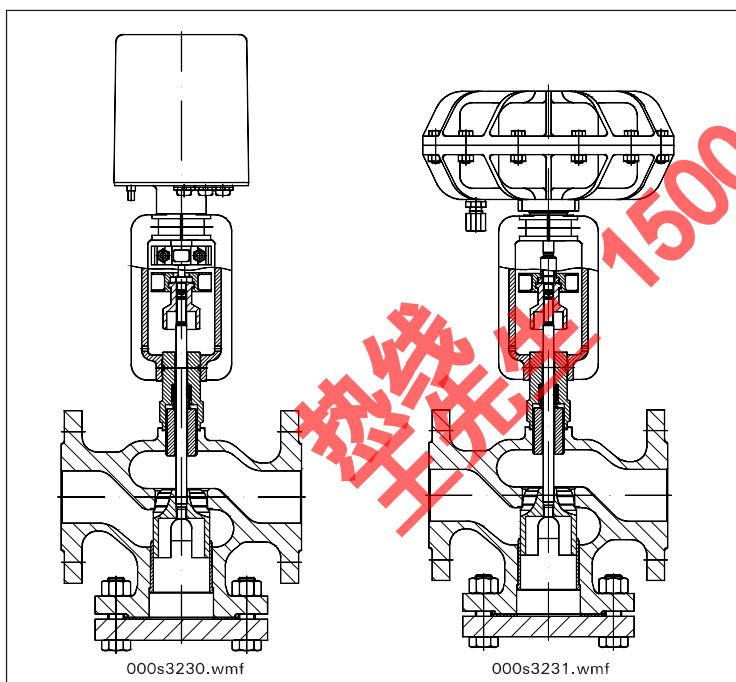


Fig. 17
 baelz 340-ES with 373-E07 baelz 340-ES with 373-P21



340-ES-E11-DN50.JPG

Fig. 18
 baelz 340-ES with 373-E11

Short presentation of all electric and pneumatic actuators see BPE 18

Bälz-electrodyn - control valves in stainless steel

7. Valve serie baelz 344-VA and 344-EM-VA 2-way valve completely in stainless steel

Checklist: 344-VA
 ND: 32 - 150
 NP: 16 / 25 / 40
 standard body:
 GX5CrNiMo19-11 (1.4408)
 temperatures:
 min.: -10°C
 max.: +240°C
 spindle Ø: 10 mm
 S 21: ND 32 - 125
 spindle Ø: 22 mm
 S 31 / 41: ND 150

Checklist: 344-EM-VA
 ND: 50 - 125
 NP: 16 / 25 / 40
 standard body:
 GX5CrNiMo19-11 (1.4408)
 temperatures:
 min.: -10°C
 max.: +225°C
 spindle Ø: 10 mm



344-VA-K-SS-P21.JPG

Fig. 19
 baelz 344-VA-K-SS
 with 373-P21

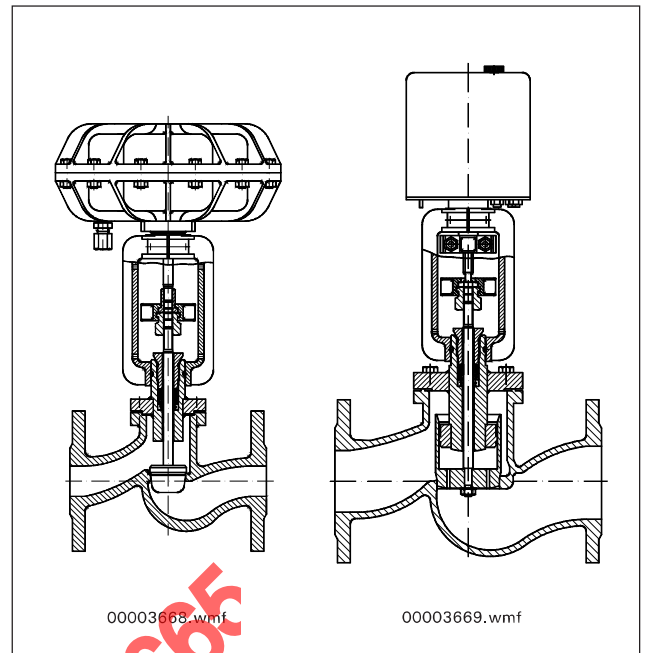


Fig. 20
 baelz 344-VA-373-P21 baelz 344-EM-VA-373-E07

Text for quotations + orders:

**2-way control valve in stainless steel
 baelz 344-VA**

without actuator
 body material : GX5CrNiMo19-11 - 1.4408
 internal parts in contact with the medium : X6CrNiMoTi17-12-2 - 1.4571
 stuffing box : V-rings in PTFE
 NP 16 max. : 240°C/10 bar - 100°C/13,5 bar
 20°C/16 bar
 NP 25 max. : 240°C/15,5 bar - 100°C/21,5 bar
 20°C/25 bar
 NP 40 max. : 240°C/25 bar - 100°C/34 bar
 20°C/40 bar
 stroke : ND 32 - 125 : 22 mm
 ND 150 : 44 mm
 flow :
 pressure drop
 Δp_{100} : bar
 max. allowable differential pressure
 Δp_0 : bar

Short presentation of all electric and pneumatic actuators see BPE 18

Text for quotations + orders:

**balanced 2-way control valve in stainless steel
 baelz 344-EM-VA**

without actuator
 for liquid fluids
 body material : GX5CrNiMo19-11 - 1.4408
 internal parts in contact with the medium : X6CrNiMoTi17-12-2 - 1.4571
 stuffing box : V-rings in PTFE
 water:
 NP 16 max. : 225°C/10,5 bar - 100°C/13,5 bar
 20°C/16 bar
 NP 25 max. : 225°C/16 bar - 100°C/21,5 bar
 20°C/25 bar
 NP 40 max. : 225°C/26 bar - 100°C/34 bar
 20°C/40 bar
 steam:
 NP 16 max. : 150°C/3,5 bar
 stroke : ND 50 - 125 : 22 mm
 flow :
 pressure drop
 Δp_{100} : bar
 max. allowable differential pressure
 Δp_0 : bar

ND	32	40	50	65	80	100	125	150
Kvs	15	25	39	63	92	136	215	315

Bälz-electrodyn - control valves in stainless steel

8. Valve serie baelz 356

standard 2-way control valve 356 NP 16 / 25 / 40

Checklist:

ND 15 - 25
 NP 16 / 25 / 40
 in stainless steel 1.4571
 temperatures:
 min.: -10°C
 max.: 240°C / max.: 350°C type K

Short presentation of all
 electric and pneumatic
 actuators see BPE 18

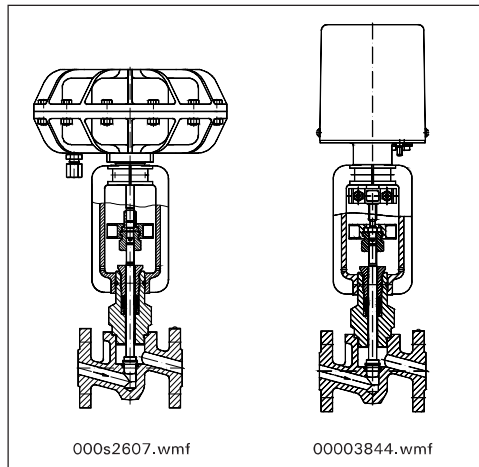


Fig. 21

baelz 356-373-P21 baelz 356-373-E07



356-DN25-P21.JPG

Fig. 22
 baelz 356 with 373-P21



356-DN15-E07-2.JPG

Fig. 23
 baelz 356 with 373-E07

Bälz-electrodyn - control valves in stainless steel

Text for quotations + orders:

We recommend to install ahead of each control valve a strainer baelz 70200.

2-way control valve with electric or with pneumatic actuator and i/p positioner baelz 356-373-XX

with parabolic equal percentage plug

Kvso = 0.004%

body material:

stainless steel X6CrNiMoTi 17-12-2 – 1.4571 (baelz 356-MS)

trim in stainless steel

stuffing box: V-rings in PTFE

NP 16: max. 240°C/13.2 bar or max. 120°C/16 bar

NP 40: max. 240°C/30 bar or max. 120°C/40 bar

stroke: ND 15 – 25: 16 mm

flow m³/h or kg/h of steam/water/....

pressure drop $\Delta p_{100} = \dots\dots\dots$ bar

max. allowable differential pressure $\Delta p_0 = \dots\dots\dots$ bar

ND	15	20	25
Kvs	3,8	6,5	9,3

Control valve type 356-373-XX			NP 16/25/40 with motorized actuator XX = 373-E07-20-18-S21-230		
ND	stroke [mm]	Kvs [m ³ /h]	NP	Δp_0 max. [bar]	Order No.
15	16	3.8	16/25/40	16/25/40	356-2001
20	16	6.5	16/25/40	16/25/40	356-2011
25	16	9.3	16/25/40	16/25/40	356-2021

Control valve type 356-373-XX			NP 16 with pneumatic actuator XX = 373-P21-YY-Fo-S21-86/IP6000-M			NP 40 with pneumatic actuator XX = 373-P21-YY-Fo-S21-86/IP6000-M		
ND	stroke [mm]	Kvs [m ³ /h]	YY	Δp_0 max. [bar]	Order No.	YY	Δp_0 max. [bar]	Order No.
15	16	3.8	06	16	356-2531	12	40	356-2631
20	16	6.5	06	16	356-2541	12	40	356-2641
25	16	9.3	06	16	356-2551	12	40	356-2651

Supplement for potentiometer 5 k Ω and sequence amplifier baelz 1020-230-M for baelz 373-E07

to receive a positioning signal 0-10 V or 4-20 mA

Supplement for potentiometer 5 k Ω and sequence amplifier baelz 1020-230-M for baelz 373-E40

to receive a positioning signal 0-10 V or 4-20 mA

Supplement for potentiometer 5 k Ω and sequence amplifier baelz 1020-230-M for baelz 373-E11

to receive a positioning signal 0-10 V or 4-20 mA

Supplement for 3-way solenoid valve baelz 268/2-230-M for baelz 373-P21

Supplement for air pressure reduction set baelz 54298-¼"-M

Supplement for feedback potentiometer 0-5 k Ω : baelz 373-E07-Fg-5k Ω

baelz 373-E40-Fg-5k Ω

baelz 373-E11-Fg-5k Ω

Supplement for spring return actuator baelz 373-E11-20-17 with 2000 N instead of baelz 373-E07

Bälz-electrodyn - control valves in stainless steel

9. Valve serie baelz 342-ES-AS, 342-ES-MS, 347-ES-AS, 347-ES-MS in stainless steel

Checklist:

ND: 25 + 50
 NP: 16 / 25 / 40
 body:
 GX3CrNiMo13-4 (1.4313)
 temperatures:
 min.: -10°C
 max.: +240°C or
 +350°C type K
 for hot oil / bellows type:
 type K-SS: 350°C
 spindle Ø: 10 mm
 342: 3-way valve,
 3rd-way B not tight
 347: 3-way, 3rd-way B tight

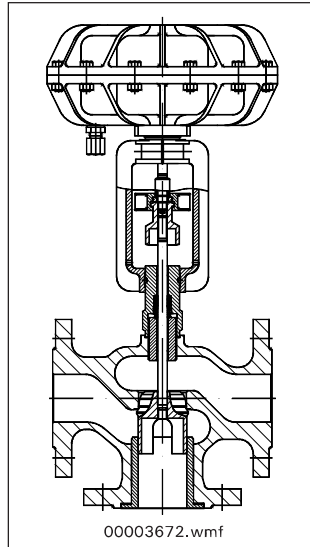


Fig. 24
 baelz 347-ES-373-P21

Text for quotations + orders:

3-way control valve in stainless steel
baelz 342-ES-AS NP 16/25/40

without actuator

body material : GX3CrNiMo13-4 - 1.4313

internal parts in contact with the medium

: X6CrNiMoTi17-12-2 - 1.4571

stuffing box : V-rings in PTFE

NP 16 max. : 240°C/14 bar - 120°C/16 bar

NP 40 max. : 240°C/35 bar - 120°C/40 bar

trough-way (A-AB): Kvso: 0.004%

angle-way (B-AB): Kvso: 2%

stroke : ND 15 – 25 : 12 mm

ND 32 – 125 : 22 mm

flow :

pressure drop Δp_{100} : bar

max. allowable differential pressure for mixing valve

(2 inlets / 1 outlet) Δp_o : bar

max. allowable differential pressure for diverting valve

(1 inlet / 2 outlets) Δp_o : bar

ND	25	50
Kvs	9	36



347-B-ES-DN50-P21.JPG

Fig. 25
 baelz 347-ES with 373-P21

Short presentation of all electric and pneumatic actuators see BPE 18

Bälz-electrodyn - control valves in stainless steel

10. Valve serie baelz 353 and 354

Stainless steel 3-way valve baelz 353 and 354

Checklist: 353
 ND: 15 - 25
 NP: 16 / 25 / 40
 standard body:
 X6CrNiMoTi17-12-2 (1.4571)
 temperatures:
 min.: -10°C
 max.: +240°C
 spindle Ø: 10 mm

Checklist: 354-VA
 ND: 32 - 125
 NP: 16 - 40
 standard body:
 GX5CrNiMo19-11 (1.4408)
 temperatures:
 min.: -10°C
 max.: +240°C
 spindle Ø: 10 mm



354-E40-DN125.JPG

Fig. 26
 baelz 354-373-E40

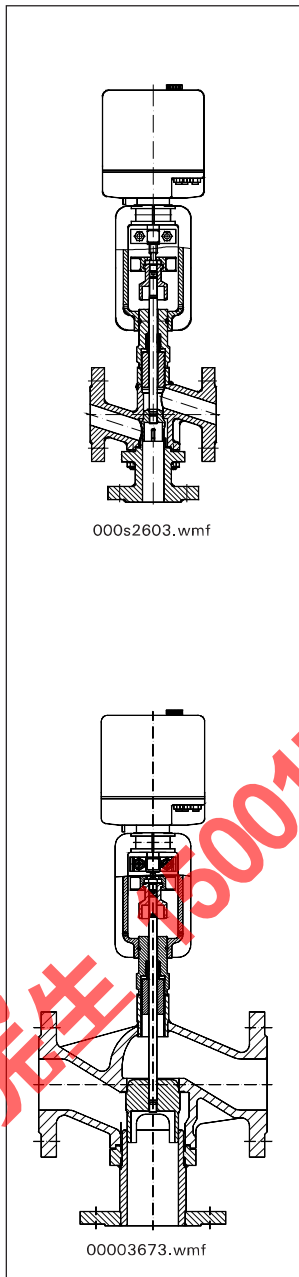


Fig. 27
 baelz 353-373-E02
 baelz 354-373-E02

Text for quotations + orders:

**3-way control valve in stainless steel
 baelz 353 NP 16/25/40**

without actuator
 body material : X6CrNiMoTi17-12-2 - 1.4571
 internal parts : stainless steel
 stuffing box : V-rings in PTFE
 temp./pressure : max. 240°C/30 bar - 120°C/40 bar
 trough-way (A-AB) and
 angle-way (B-AB) Kvso: 0.004%
 stroke : 12 mm
 flow :
 pressure drop Δp_{100} : bar
 max. allowable differential pressure for mixing valve
 (2 inlets / 1 outlet) Δp_o : bar
 max. allowable differential pressure for diverting valve
 (1 inlet / 2 outlets) Δp_o : bar

Text for quotations + orders:

**3-way control valve in stainless steel
 baelz 354-VA NP 10 - 40**

without actuator
 body material : GX5CrNiMo19-11 - 1.4408
 internal parts : stainless steel
 stuffing box : V-rings in PTFE
 NP 16 max. : 240°C/10 bar - 100°C/13,5 bar
 20°C/16 bar
 NP 25 max. : 240°C/15,5 bar - 100°C/21,5 bar
 20°C/25 bar
 NP 40 max. : 240°C/25 bar - 100°C/34 bar
 20°C/40 bar
 trough-way (A-AB) and
 angle-way (B-AB) Kvso: 0.004%
 stroke : ND 32-125 : 22 mm
 flow :
 pressure drop Δp_{100} : bar
 max. allowable differential pressure for mixing valve
 (2 inlets / 1 outlet) Δp_o : bar
 max. allowable differential pressure for diverting valve
 (1 inlet / 2 outlets) Δp_o : bar

ND	15	20	25	32	40	80	65	80	100	125
Kvs	5,6	6,3	9	16	25	36	63	105	130	200

Short presentation of all electric and pneumatic actuators see BPE 18

Bälz-electrodyn - control valves in stainless steel

**11. Control valve completely in stainless steel valve body, yoke and actuator
baelz 356-VA-K-373-PG-M02 DN 25 ANSI 300**

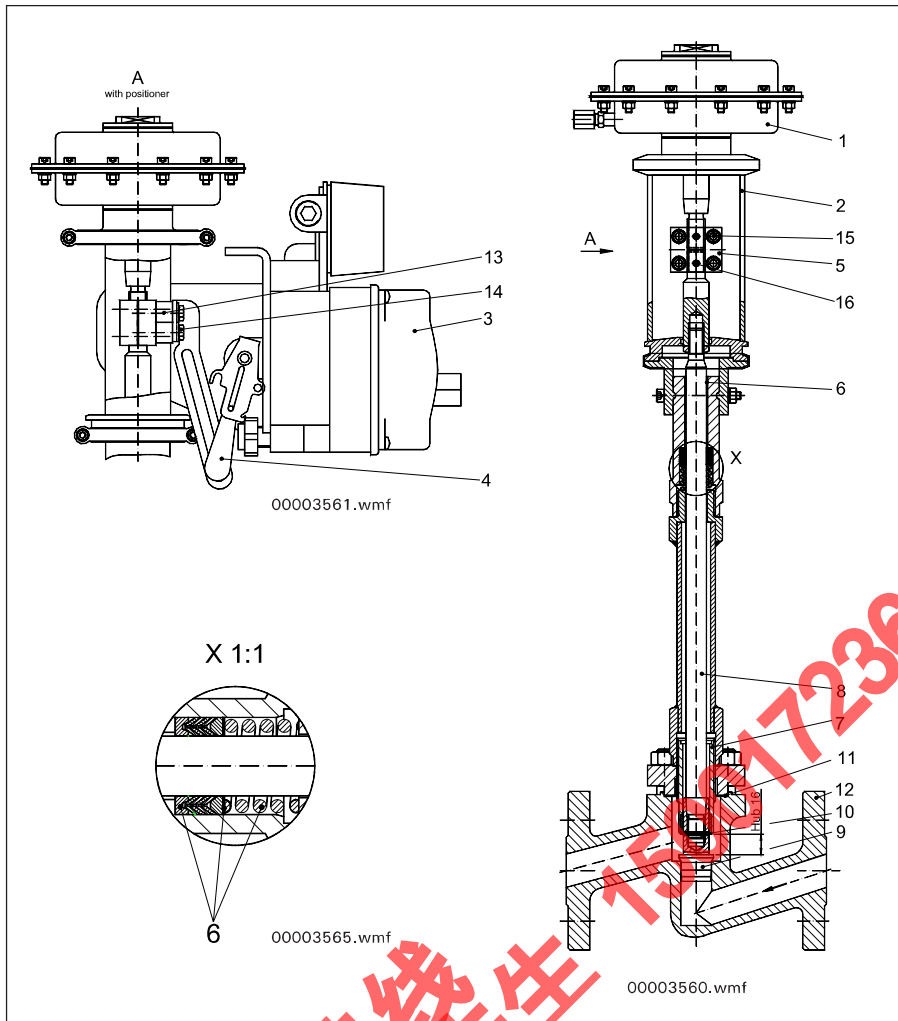


Fig. 28
baelz 356-VA-K-373-PG-M02

Fig. 29
baelz 356-VA-K-373-PG-M02

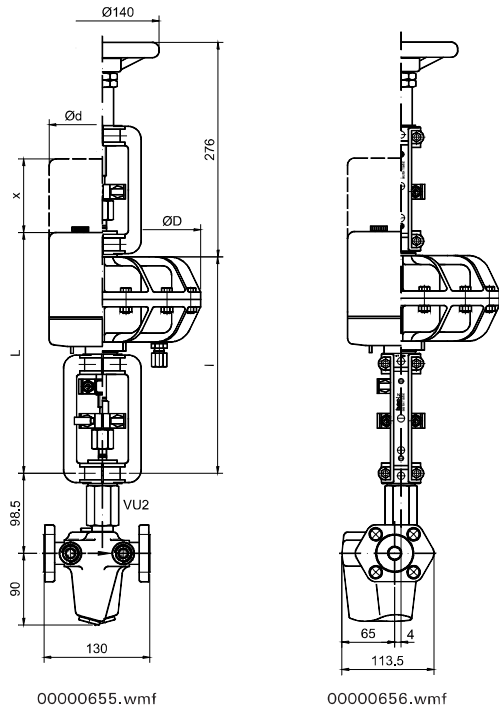
1. Pneumatic actuator baelz 373-PG-M02-6-Fo	050304
2. Yoke	050305
3. Positioner	050308
4. Mounting parts for positioner	050309
5. Coupling	KT 26024
6. PTFE-packing for spindle Ø 16 mm	ETZ 340-05
7. Screwed union	KS 5141
8. Spindle	KT 26028
9. Plug	KT 26027
10. Spring dowel sleeve	DIN EN 28752 - Ø3 x 18
11. Sealing	KT 26033
12. Valve body	050303
13. 2 x shell	KT 26036
14. 2 x hexagon screw with disk	M6 x 20 / Ø8.4
15. 4 x filister-head screw	M6 x 20
16. 2 x threaded pin	M5 x 6

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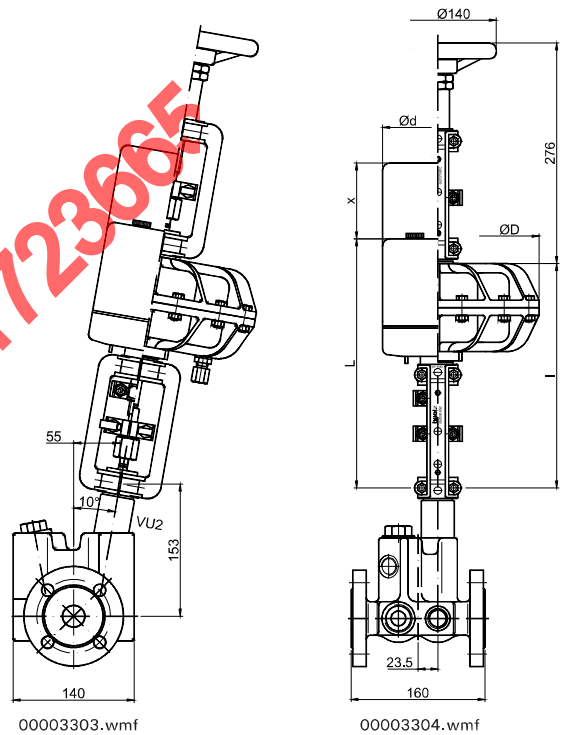
Bälz-electrodyn - control valves in stainless steel

12. Dimensions

baelz 185 DN 15

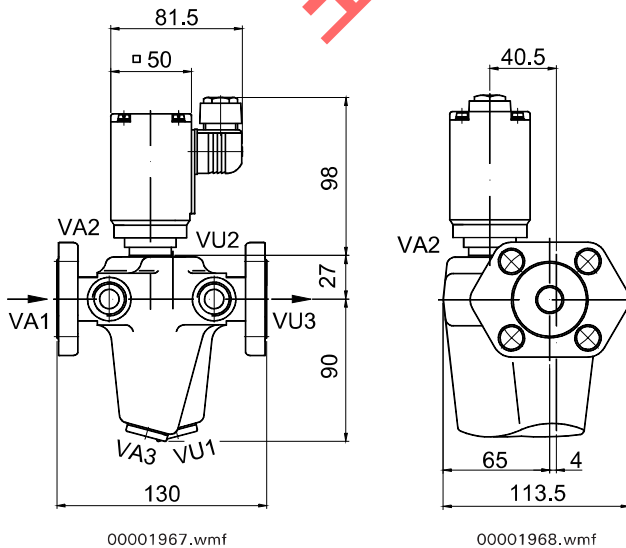


baelz 185 DN 25



Actuator baelz 373...	L	x	Ø d	l	Ø D
	mm				
E 02	293	90	129		
E 06	296	130	129		
E 07	317	145	129		
E 11	499	180	183		
E 40	391	185	184		
P 21			268	242	
P 21 V6			304	242	
P 22			322	242	

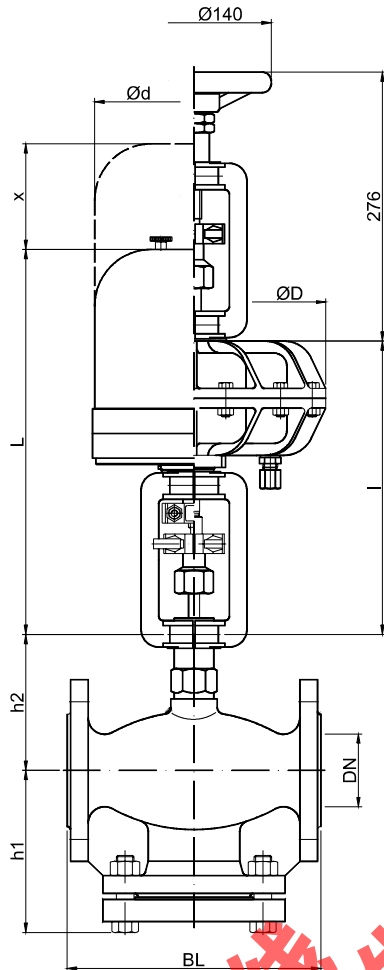
baelz 185-266st DN 15



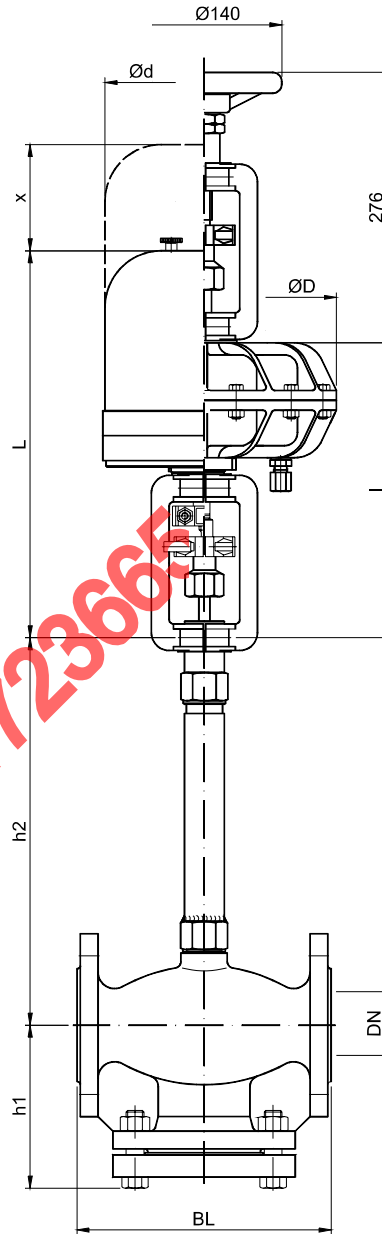
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Bälz-electrodyn - control valves in stainless steel

baelz 340-ES DN 15 - 125



baelz 340-ES-K DN 15 - 125
baelz 340-ES-K-SS DN 15 - 125



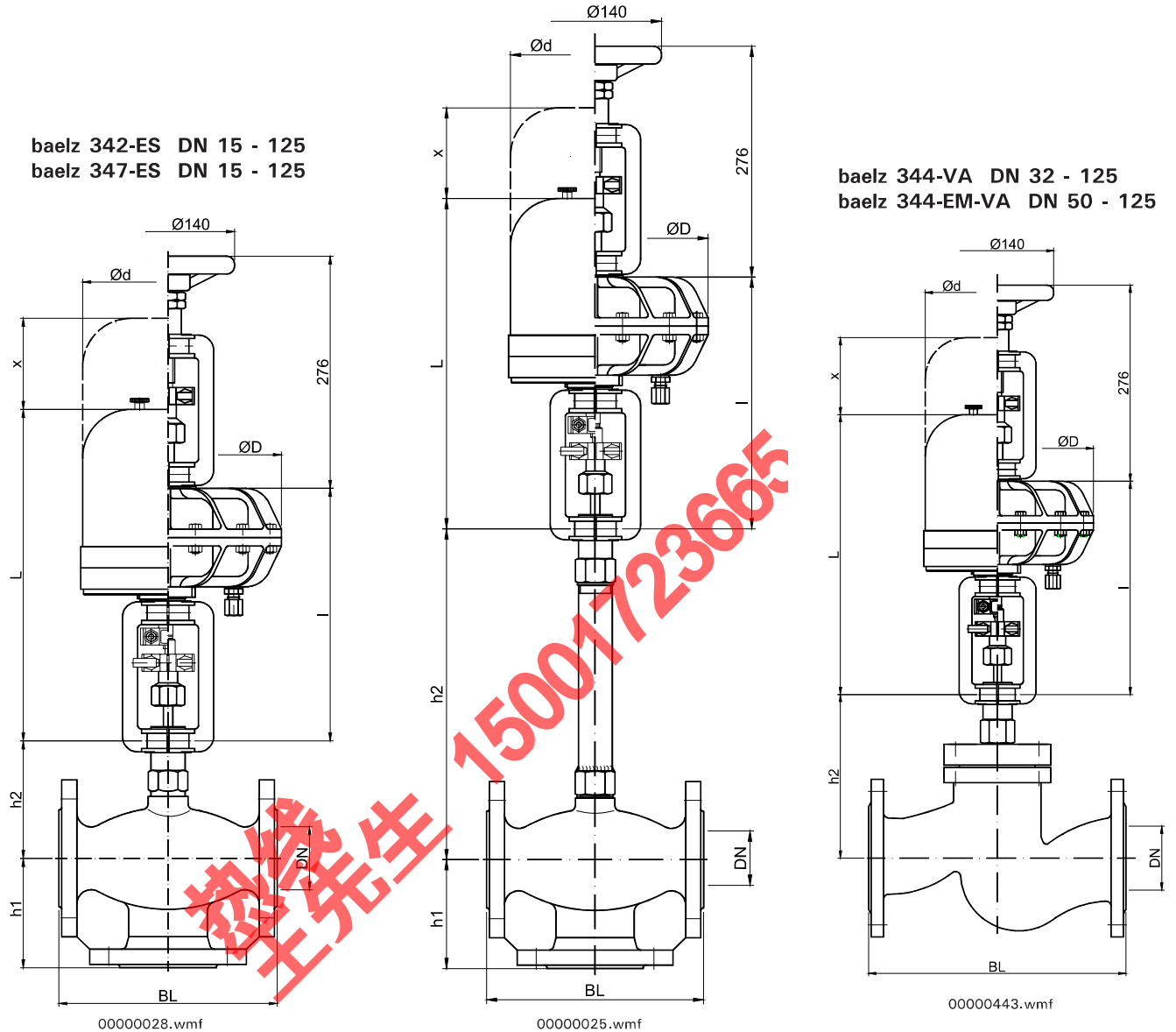
DN	BL	h 1	h 2 340-ES	h 2 340-ES-K / -ES-K-SS
mm				
15	130	101	105	231
20	150	103	105	231
25	160	113	105	231
32	180	130	104	283
40	200	135	114	281
50	230	147	124	277
65	290	159	144	269
80	310	166	154	269
100	350	189	169	262
125	400	243	189	252

Actuator baelz 373...	L	x	Ø d	l	Ø D
mm					
E 02	293	90	129		
E 06	296	130	129		
E 07	317	145	129		
E 11	499	180	183		
E 40	391	185	184		
P 21				268	242
P 21 V6				304	242
P22				322	242

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Bälz-electrodyn - control valves in stainless steel

baelz 342-ES-K DN 15 - 125
 baelz 342-ES-K-SS DN 15 - 125
 baelz 347-ES-K DN 15 - 125
 baelz 347-ES-K-SS DN 15 - 125



00000028.wmf

00000025.wmf

00000443.wmf

DN	BL	h 1	h 2 342-ES 347-ES	h 2 342-ES-K / -ES-K-SS 347-ES-K / -ES-K-SS	h 2* 344-VA / -EM-VA
mm					
15	130	75	105	231	
20	150	75	105	231	
25	160	85	105	231	
32	180	100	104	283	145
40	200	105	114	281	155
50	230	115	124	277	174
65	290	125	144	269	184
80	310	130	154	269	189
100	350	150	169	262	208
125	400	200	189	252	227

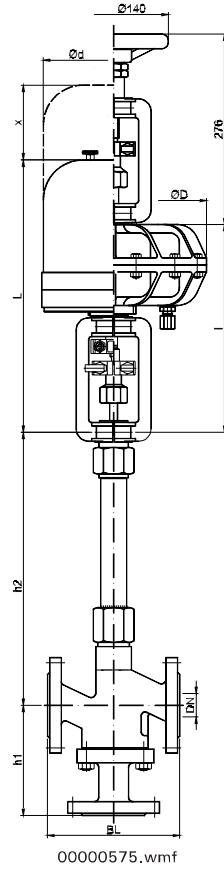
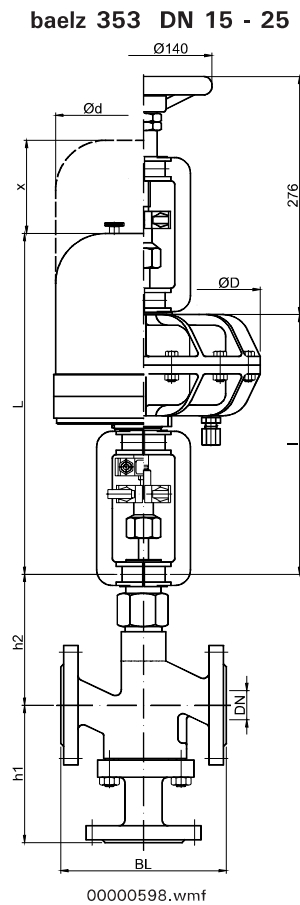
*reserved to change dimensions

Actuator baelz 373...	L	x	Ø d	l	Ø D
mm					
E 02	293	90	129		
E 06	296	130	129		
E 07	317	145	129		
E 11	499	180	183		
E 40	391	185	184		
P 21				268	242
P 21 V6				304	242
P22				322	242

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Bälz-electrodyn - control valves in stainless steel

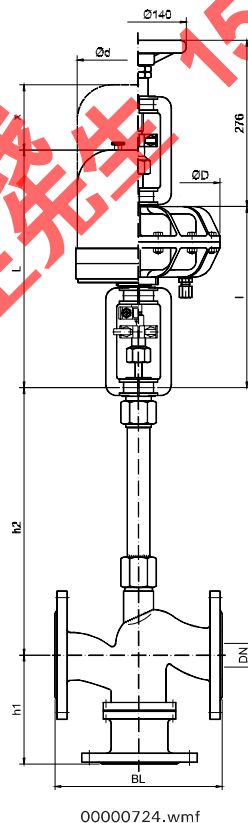
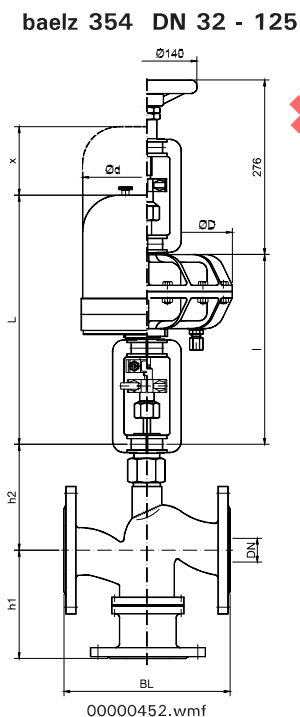
baelz 353-K DN 15 - 25



DN	BL	h 1	h 2 353	h 2 353-K
mm				
15	130	111	104	262
20	150	111	104	262
25	160	111	114	272

Actuator baelz 373...	L	x	Ø d	l	Ø D
	mm				
E 02	293	90	129		
E 06	296	130	129		
E 07	317	145	129		
E 11	499	180	183		
E 40	391	185	184		
P 21				268	242
P 21 V6				304	242
P 22				322	242

baelz 354-K DN 32 - 125



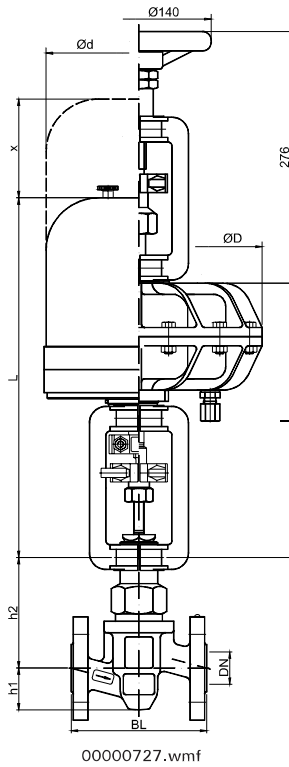
DN	BL	h 1*	h 2* 354	h 2* 354-K
mm				
32	180	160	145	381
40	200	160	145	381
50	230	170	150	386
65	290	180	154	390
80	310	190	157	393
100	350	200	165	401
125	400	220	175	411

*reserved to change dimensions

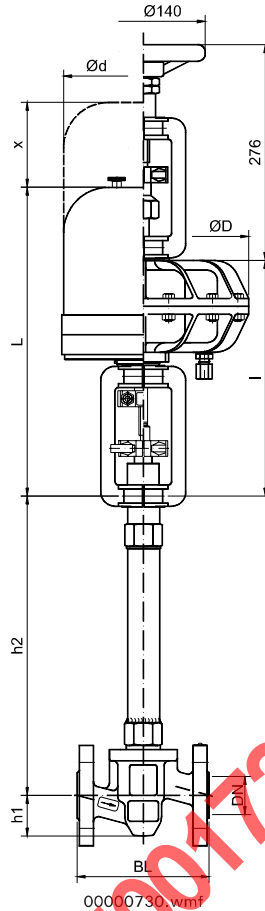
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Bälz-electrodyn - control valves in stainless steel

baelz 356 DN 15 - 25



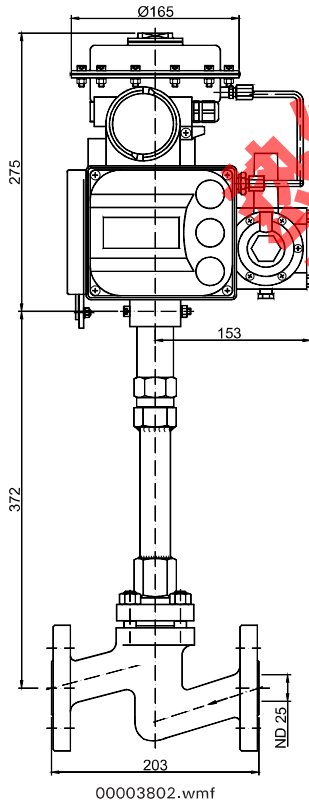
baelz 356-K DN 15 - 25



DN	BL	h 1	h 2 356	h 2 356-K
mm				
15	130	40	106	331
20	150	45	106	331
25	160	55	106	331

Actuator baelz 373...	L	x	Ø d	l	Ø D
mm					
E 02	293	90	129		
E 06	296	130	129		
E 07	317	145	129		
E 11	499	180	183		
E 40	391	185	184		
P 21				268	242
P 21 V6				304	242
P 22				322	242

baelz 356 DN 25 ANSI 300 with actuator 373-PG-M02



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