

CE3F80A-163U44

### HIGHLIGHTS

- Suitable in building and process engineering for various mediums 0...+200°C (with stuffing box or stem seal with stainless steel bellow up to +350°C)
- Suitable for water with antifreeze compounds down to -10°C<sup>α</sup>
- EN 1349 – seat-leakage IV L1 (≤ 0.01% of kvs-value)
- Microprocessor controlled
- Automatic self-calibration on start up

### DESCRIPTION

The motorized 2- or 3-way cast iron control valves, type CE, are suitable for the control of hot and chilled water (0...+200°C) in HVAC systems control of heating plants with hot water, steam, oil, acids or lye.

When combined with stuffing box or stem seal with stainless steel bellow (optional), the CE.. control valves can be used with medium temperatures up to +350°C.

The CE3F.. control valves are used as a mixing or diverting valve, and are made up of a valve and a motor set. The selection of the motor set is depending on the valve size, power supply, control signal and differential pressure allowed.

(<sup>α</sup>) When used in applications with water (with antifreeze compounds) down to -10°C, an additional stem heater must be ordered separately ( T-HH-ZV64-.. ).

TECHNICAL SPECIFICATIONS	CE2F..	CE3F..
Form	Two-way	Three-way
Diameter nominal	DN 15 – DN 300	DN 15 – DN 300
Pressure rating	PN 40	PN 40
Flow characteristic	A→AB equal % (≤DN50) A→AB eq.% mod (≥DN65)	A→AB equal % (≤DN40) B→AB linear A→AB eq.% mod (≥DN50) B→AB linear
Stroke	DN 15 – 40 : 20mm DN 50 – 65 : 30mm DN 80 – 100 : 50mm DN 125 – 150 : 60mm DN 200 – 300 : 80mm <sup>1)</sup>	DN 15 – 40 : 20mm DN 50 – 65 : 30mm DN 80 – 100 : 50mm DN 125 – 150 : 60mm DN 200 – 300 : 80mm <sup>1)</sup>
Rangeability	≥ 50:1	≥ 50:1
Function	two-way valve	mixing or diverting valve
Connection type	Flanges acc. EN 1092-2 type 21	
Face to face dimension	Acc. EN 558-1 basic series 1	
Leakage rate	EN 1349 - seat-leakage IV L1 ( ≤ 0.01% of kvs-value )	
Material		
Body	Cast steel GS-C25N (1.0619+N)	
Plug	CrNi-steel 1.4057	
Stem	CrMo-steel 1.4122	
Stem sealing	Fluoraz® O-rings 0..+200°C	hot water, steam, oil, acids, lye
	EPDM O-rings 0..+180°C	chilled and hot-water with max. 50% antifreeze and anti-corrosive compounds: glycol, ethyl alcohol glycol, mono ethyl alcohol, ethyl, methyl alcohol, glycerin, antifrogen® N+L
	FKM O-rings 0..+200°C	media based on mineral oil
	Graphite Packing 0..+350°C <sup>2)</sup>	hot water, steam, oil, acids, lye

<sup>1)</sup> with M300(Y) actuators strokes may vary (for details see next pages).

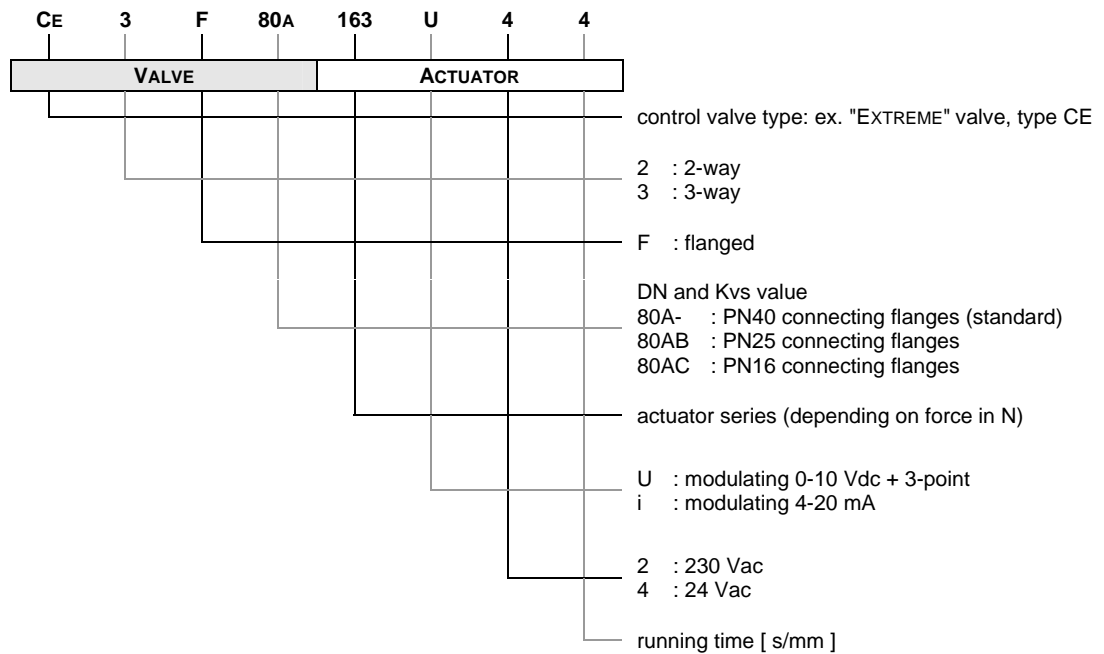
<sup>2)</sup> only in combination with stuffing box or stem seal with stainless steel bellow.



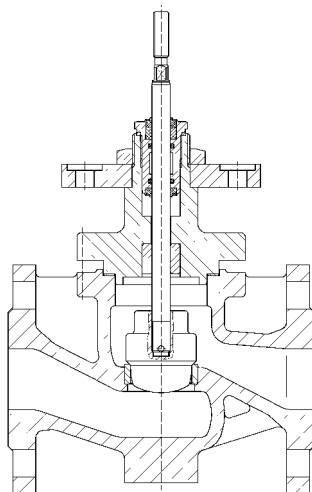
## PRODUCT KEY

The product identification key contains all essential data defining the unique features of the valve / actuator combination.

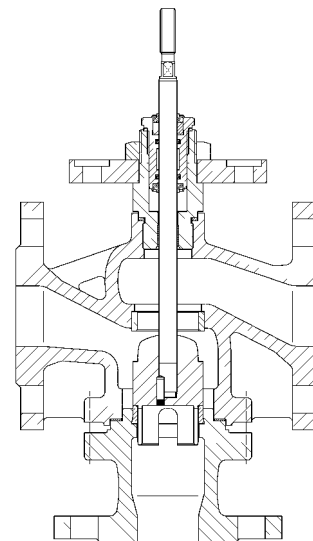
Example : type CE3F80A-163U44



## VALVE CONSTRUCTION



CE2F..

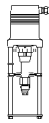
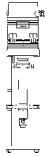
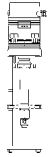


CE3F..



**VALVE ACTUATOR RANGE FOR CE2F.. CONTROL VALVES ≤ DN 150**

**ACTUATOR SERIES**

	163..	253..	503..
			
FORCE [N]	1600	2500	5000

Note • for detailed information on CE.. valves ≥DN200, see next pages



**TECHNICAL DATA MOTORIZED TWO WAY VALVES CE2F..**

DN			15	20	25	32	40	50	65	80	100	125	150	
kvs-value [m³/h]	A	4 <sup>L</sup>		6.3 <sup>L</sup>	10	16	25	40	63	100	160	250	400	
	B		2.5	5 <sup>S/L</sup>	8 <sup>S/L</sup>	12.5 <sup>S</sup>	20 <sup>S</sup>	31.5 <sup>S</sup>	50 <sup>S</sup>	80 <sup>S</sup>	125 <sup>S</sup>	200 <sup>S</sup>	315 <sup>S</sup>	
	C		1.6	4 <sup>L</sup>	6.3 <sup>L</sup>	10 <sup>L</sup>	16 <sup>L</sup>	25 <sup>L</sup>	40 <sup>L</sup>	63 <sup>L</sup>	100 <sup>L</sup>	160	250	
	D		1.25	2.5 <sup>S/L</sup>	5 <sup>S/L</sup>	8 <sup>S/L</sup>	12.5 <sup>S/L</sup>	20 <sup>S/L</sup>	31.5 <sup>S/L</sup>	50 <sup>S/L</sup>	80 <sup>S/L</sup>	125 <sup>S/L</sup>	200 <sup>S/L</sup>	
	E		1.0											
	F		0.63											
	G		0.4											
	H		0.25											
	I		0.16											
Stroke	mm	20				30				50		60		
163U44 163U24 163i44 163i24	t <sup>1)</sup> s	120				180								
	Δp <sub>s</sub>	kPa	2400	4000	2400	2050	1250	750	450	300				
253U42 253i42 253U22 253i22	t <sup>1)</sup> s	100				150				250				
	Δp <sub>s</sub>	kPa	4000	4000	4000	3550	2200	1400	860	540	370	210		
503U42 503i42 503U22 503i22	t <sup>1)</sup> s	100				150				250		300		
	Δp <sub>s</sub>	kPa	4000	4000	4000	4000	4000	3150	1950	1250	880	540	290	190

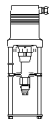
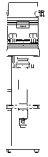
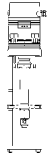
100 kPa = 1 bar = 10 Mws  
 Δp<sub>s</sub>: Closing pressure

<sup>1)</sup> Actuating time freely adjustable, presetting is marked with \*  
<sup>L)</sup> Available with perforated plug  
<sup>S)</sup> Special Kvs-value

Specialized periphery integrator in HVAC



**VALVE ACTUATOR RANGE FOR CE3F.. CONTROL VALVES ≤ DN 150**

	ACTUATOR SERIES		
	163..	253..	503..
			
FORCE [N]	1600	2500	5000

Note • for detailed information on CE.. valves ≥DN200, see next pages



**TECHNICAL DATA MOTORIZED THREE WAY VALVES CE3F..**

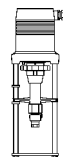
DN		15	20	25	32	40	50	65	80	100	125	150
kvs-value [m³/h]	A	4	6.3	10	16	25	40	63	100	160	250	400
	B	2.5	5	8	12.5	20	31.5	50	80	125	200	315
	C		4 <sup>S</sup>	6.3 <sup>S</sup>	10 <sup>S</sup>	16 <sup>S</sup>	25 <sup>S</sup>	40 <sup>S</sup>	63 <sup>S</sup>	100 <sup>S</sup>	160 <sup>S</sup>	250 <sup>S</sup>
	D		2.5 <sup>S</sup>	5 <sup>S</sup>	8 <sup>S</sup>	12.5 <sup>S</sup>	20 <sup>S</sup>	31.5 <sup>S</sup>	50 <sup>S</sup>	80 <sup>S</sup>	125 <sup>S</sup>	200 <sup>S</sup>
Stroke	mm	20					30		50		60	
163U44 163U24 163i44 163i24	t <sup>1)</sup>	120					180					
	s	80*					120*					
253U42 253i42 253U22 253i22	Δp <sub>s</sub>	2400	2400	2050	1250	750	450	300				
	kPa											
503U42 503i42 503U22 503i22	t <sup>1)</sup>	100					150		250			
	s	50*					75*		125*			
503U42 503i42 503U22 503i22	Δp <sub>s</sub>	4000	4000	3550	2200	1400	860	540	370	210		
	kPa											
503U42 503i42 503U22 503i22	t <sup>1)</sup>	100					150		250		300	
	s	50*					75*		125*		150*	
503U42 503i42 503U22 503i22	Δp <sub>s</sub>	4000	4000	4000	4000	3150	1950	1250	880	540	290	190
	kPa											

100 kPa = 1 bar = 10 mWS  
 Δp<sub>s</sub>: Closing pressure

<sup>1)</sup> Actuating time freely adjustable, presetting is marked with \*  
<sup>L)</sup> Available with perforated plug  
<sup>S)</sup> Special Kvs-value



**TECHNICAL DATA VALVE ACTUATOR SERIES 163..**



ACTUATOR TYPE		163U44	163U24	163i44	163i24
Actuating time at 50 Hz <sup>1)</sup>	s/mm	6 · 4*	6 · 4*	6 · 4*	6 · 4*
Actuating thrust	kN	1.6	1.6	1.6	1.6
Stroke	mm	max. 30	max. 30	max. 30	max. 30
Power supply	VAC	24 ±10%	230 +6% -10%	24 ±10%	230 +6% -10%
Power supply <sup>4)</sup>	VDC	24 ±10%	-	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12	6	12
Input signal <sup>2)</sup>		• 3-point, or • 0(2)...10 VDC (77 kOhm)		0(4)...20 mA (0.5 kOhm)	
Output signal <sup>2)</sup>		0...10 VDC max. 8 mA min.1200 Ohm	0...10 VDC max. 8 mA min.1200 Ohm	0...10 VDC max. 8 mA min.1200 Ohm	0...10 VDC max. 8 mA min.1200 Ohm
Hysteresis <sup>3)</sup>	V	0.15* · 0.5	0.15* · 0.5	0.15* · 0.5	0.15* · 0.5

Enclosure protection:	IP 54
Resolution:	electric mechanical
Operating mode:	S3-50% ED c/h 1200
End position switch-off:	load-dependent
Ambient temperature:	0...+50°C
Weight:	3.2 kg
	≤ 0.04 VDC
	≤ 0.05 mm
	EN 60034-1

**Actuator alternatives and accessories**

- Voltage: 115 VAC
- Position switch unit <sup>5)</sup>: 2 switches, potential free, infinitely adjustable  
 Rated load: 8 A / 250 VAC  
 8 A / 30 VDC  
 Turn-on voltage: max. 400 VAC  
 max. 125 VDC
- Enclosure protection: IP 65
- Output signal <sup>5)</sup>: X=0(4)...20 mA
- Distance pillars, traverse and all screws located on exterior made of stainless steel
- EEx protected actuator available on request

<sup>1)</sup> Actuating time freely adjustable, presetting is marked with \*

<sup>2)</sup> Invertible input and output signal

<sup>3)</sup> Freely adjustable

<sup>4)</sup> Please state when ordering, which kind of direct-current

1. smooth direct current or

2. rectified alternating voltage

<sup>5)</sup> Position switch unit and output signal not in combination

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**TECHNICAL DATA VALVE ACTUATOR SERIES 253..**



ACTUATOR TYPE		253U42	253U22	253i42	253i22
Actuating time <sup>1)</sup>	s/mm	5 · 2.5*	5 · 2.5*	5 · 2.5*	5 · 2.5*
Actuating thrust	kN	2.5	2.5	2.5	2.5
Stroke	mm	max. 60	max. 60	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%	24 ±10%	230 +6% -10%
Power supply <sup>2)</sup>	VDC	24 ±10%	-	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 40	max. 50	max. 40	max. 50
Input signal <sup>3)</sup>		• 3-point, or • 0(2)...10 VDC (77 kOhm)		0(4)...20 mA (0.5 kOhm)	
Output signal <sup>3)</sup>		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis <sup>4)</sup>	V	0.05 · 0.15* · 0.3 · 0.5	0.05 · 0.15* · 0.3 · 0.5	0.05 · 0.15* · 0.3 · 0.5	0.05 · 0.15* · 0.3 · 0.5

Enclosure protection:	IP 54	
Resolution:	electric	≤ 0.04 VDC
	mechanical	≤ 0.04 mm
Operating mode:	S3-50% ED c/h 1200	EN 60034-1
End position switch-off:	load-dependent	
Ambient temperature:	0...+50°C	
Weight:	253.. (24V)	7.0 kg
	253.. (230V)	8.2 kg

**Actuator variant and accessories**

- Voltage: 115 VAC
- Position switch unit: 2 switches (WE1/WE2), potential free, infinitely adjustable  
 Rated load: 8 A / 250 VAC  
 8 A / 30 VDC  
 Turn-on voltage: max. 400 VAC  
 max. 125 VDC
- Enclosure protection: IP 65
- Output signal: X=0(4)...20 mA
- Distance pillars, traverse and all screws located on exterior made of stainless steel

<sup>1)</sup> Actuating time freely adjustable, presetting is marked with \*

<sup>2)</sup> Please state when ordering, which kind of direct-current

1. smooth direct current or  
 2. rectified alternating voltage

<sup>3)</sup> Invertible input and output signal

<sup>4)</sup> Freely adjustable

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**TECHNICAL DATA VALVE ACTUATOR SERIES 503..**



ACTUATOR TYPE		503U42	503U22	503i42	503i22
Actuating time <sup>1)</sup>	s/mm	5 · 2.5*	5 · 2.5*	5 · 2.5*	5 · 2.5*
Actuating thrust	kN	5.0	5.0	5.0	5.0
Stroke	mm	max. 60	max. 60	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%	24 ±10%	230 +6% -10%
Power supply <sup>2)</sup>	VDC	24 ±10%	-	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 40	max. 50	max. 40	max. 50
Input signal <sup>3)</sup>		• 3-point, or • 0(2)...10 VDC (77 kOhm)		0(4)...20 mA (0.5 kOhm)	
Output signal <sup>3)</sup>		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis <sup>4)</sup>	V	0.05 · 0.15* · 0.3 · 0.5	0.05 · 0.15* · 0.3 · 0.5	0.05 · 0.15* · 0.3 · 0.5	0.05 · 0.15* · 0.3 · 0.5

Enclosure protection:	IP 54
Resolution:	electric ≤ 0.04 VDC mechanical ≤ 0.04 mm
Operating mode:	S3-50% ED c/h 1200 EN 60034-1
End position switch-off:	load-dependent
Ambient temperature:	0...+50°C
Weight:	503.. (24V) 7.0 kg 503.. (230V) 8.2 kg

**Actuator variant and accessories**

- Voltage: 115 VAC
- Position switch unit: 2 switches (WE1/WE2), potential free, infinitely adjustable  
 Rated load: 8 A / 250 VAC  
 8 A / 30 VDC  
 Turn-on voltage: max. 400 VAC  
 max. 125 VDC
- Enclosure protection: IP 65
- Output signal: X=0(4)...20 mA
- Distance pillars, traverse and all screws located on exterior made of stainless steel

<sup>1)</sup> Actuating time freely adjustable, presetting is marked with \*

<sup>2)</sup> Please state when ordering, which kind of direct-current

1. smooth direct current or

2. rectified alternating voltage

<sup>3)</sup> Invertible input and output signal

<sup>4)</sup> Freely adjustable





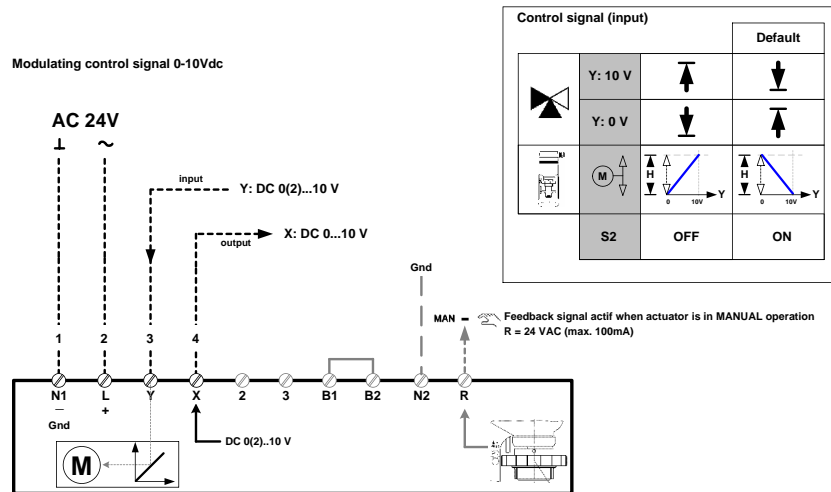
**ELECTRICAL WIRING**

**AC 24 VOLT MODULATING CONTROL SIGNAL 0-10VDC**



163U44

253U42 / 503U42



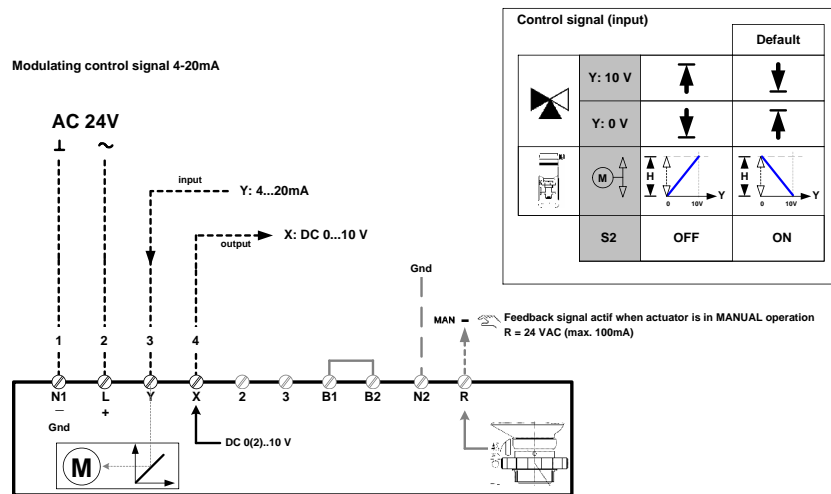
B1/B2 connection of a binary signal (DI)

**AC 24 VOLT MODULATING CONTROL SIGNAL 4-20mA**



163i44

253i42 / 503i42



B1/B2 connection of a binary signal (DI)

N2 is the zero potential for the „X“, „Y“ and „R“ signals.

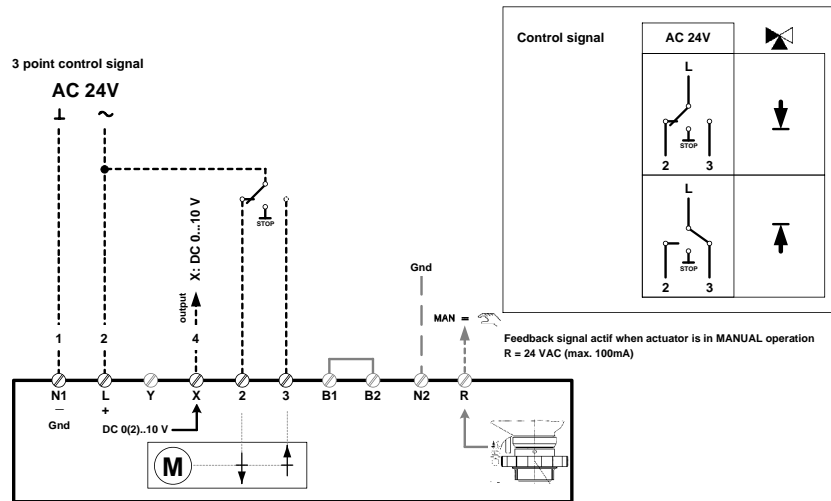
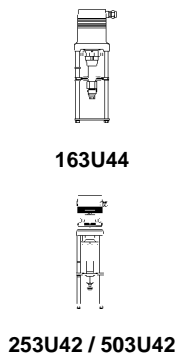
- 24 VAC(DC) : it is recommended to connect N2 in case of actuators in 24 VAC(DC) design.





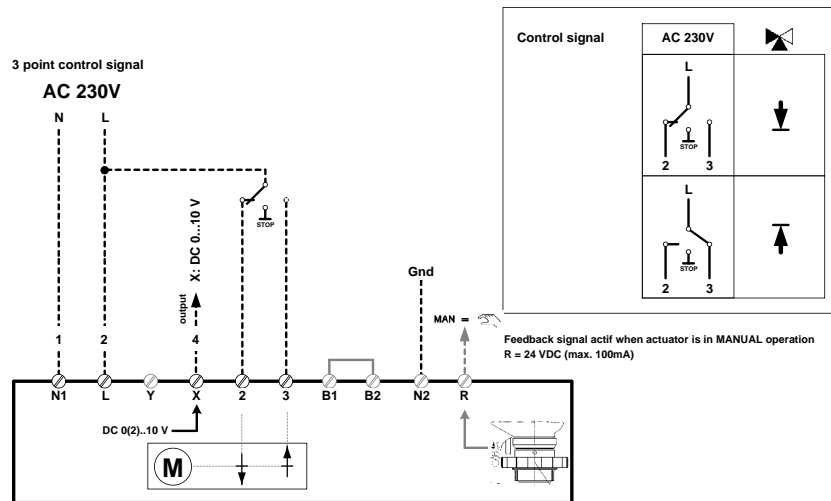
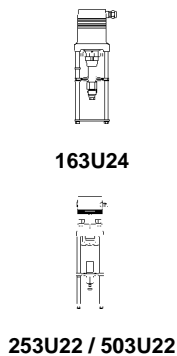
**ELECTRICAL WIRING**

**AC 24 VOLT 3-POINT CONTROL SIGNAL**



B1/B2 connection of a binary signal (DI)

**AC 230 VOLT 3-POINT CONTROL SIGNAL**



B1/B2 connection of a binary signal (DI)

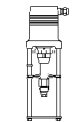
N2 is the zero potential for the „X“, „Y“ and „R“ signals.

- 24 VAC(DC) : it is recommended to connect N2 in case of actuators in 24 VAC(DC) design.
- 230 VAC : if the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be used by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.



**ELECTRICAL WIRING**

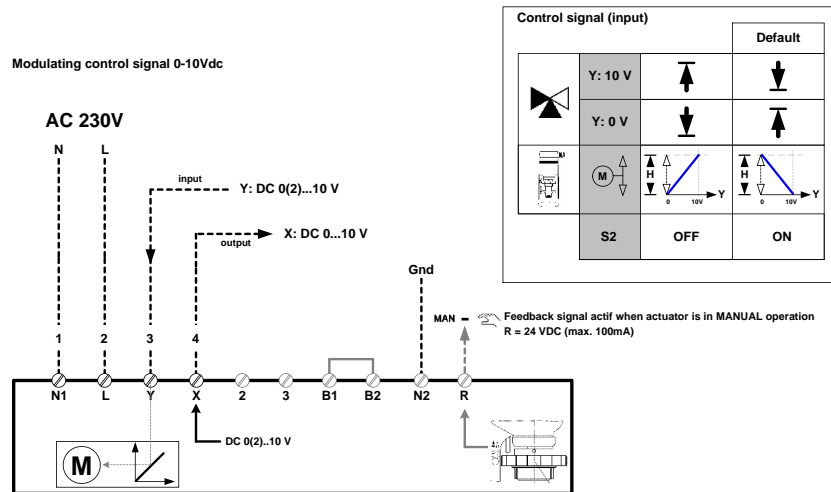
**AC 230 VOLT MODULATING CONTROL SIGNAL 0-10VDC**



163U24



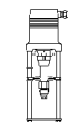
253U22 / 503U22



Control signal (input)		Default	
	Y: 10 V	↑	↓
	Y: 0 V	↓	↑
	↑	↑	↓
	↓	↓	↑
S2	OFF	ON	

B1/B2 connection of a binary signal (DI)

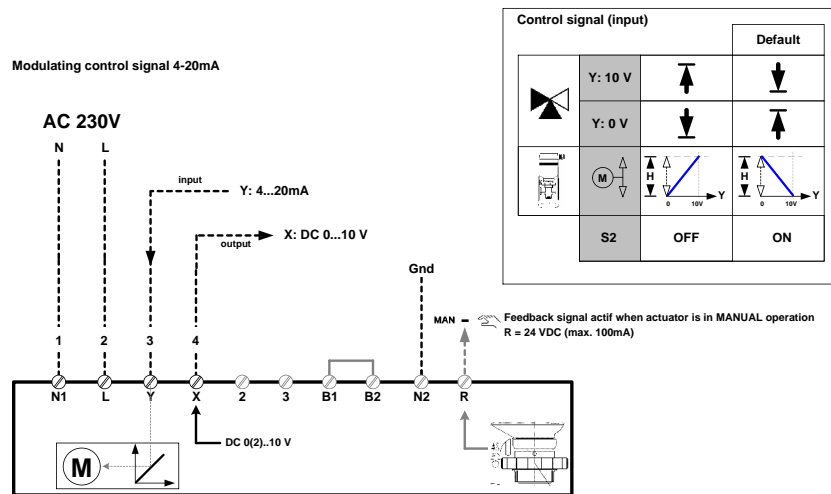
**AC 230 VOLT MODULATING CONTROL SIGNAL 4-20mA**



163i24



253i22 / 503i22



Control signal (input)		Default	
	Y: 10 V	↑	↓
	Y: 0 V	↓	↑
	↑	↑	↓
	↓	↓	↑
S2	OFF	ON	

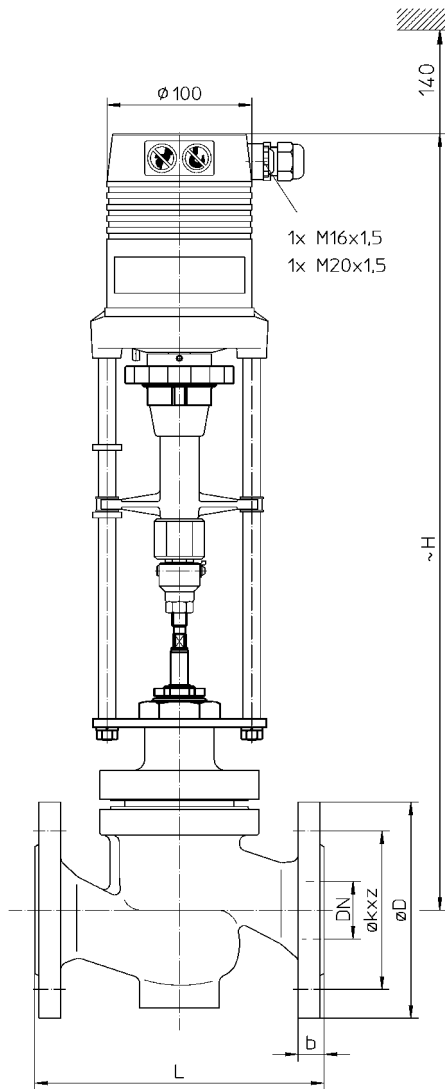
B1/B2 connection of a binary signal (DI)

N2 is the zero potential for the „X“, „Y“ and „R“ signals.

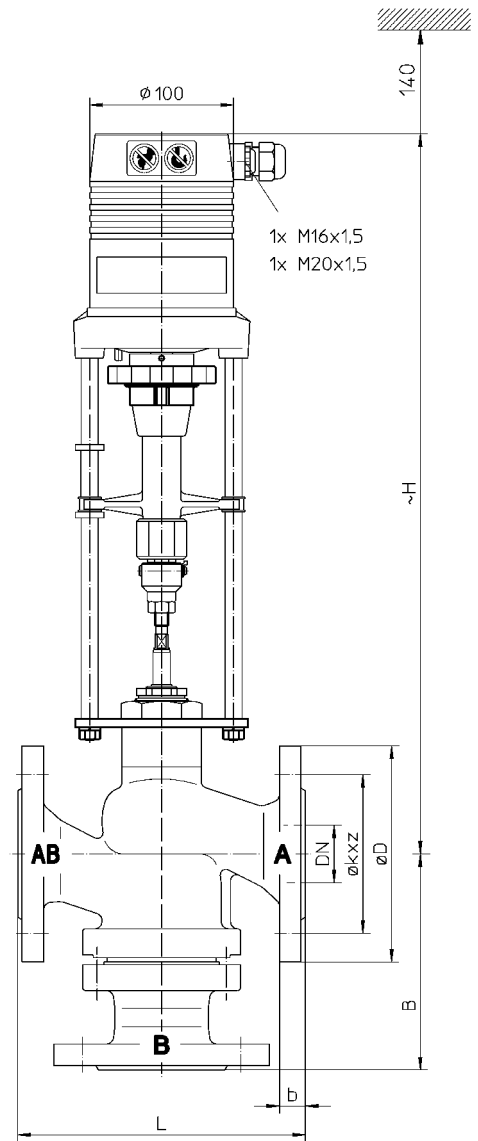
- 230 VAC : if the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.



DRAWING



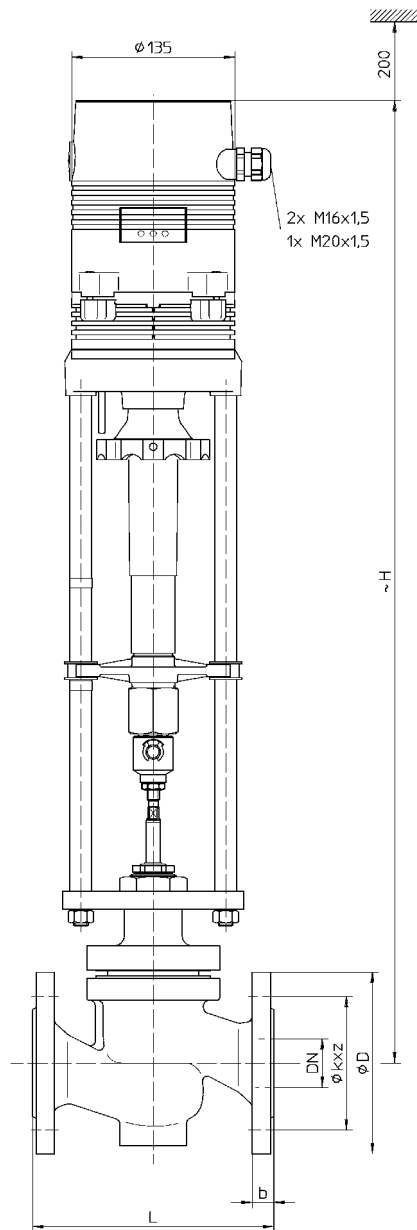
CE2F.. with series 163..



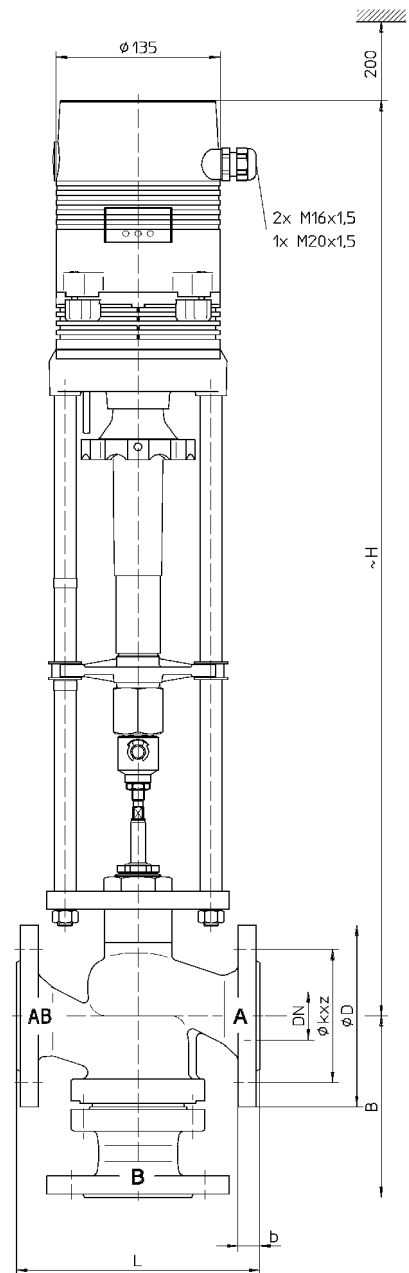
CE3F.. with series 163..



DRAWING



**CE2F.. with series 253..**  
**CE2F.. with series 503..**



**CE3F.. with series 253..**  
**CE3F.. with series 503..**

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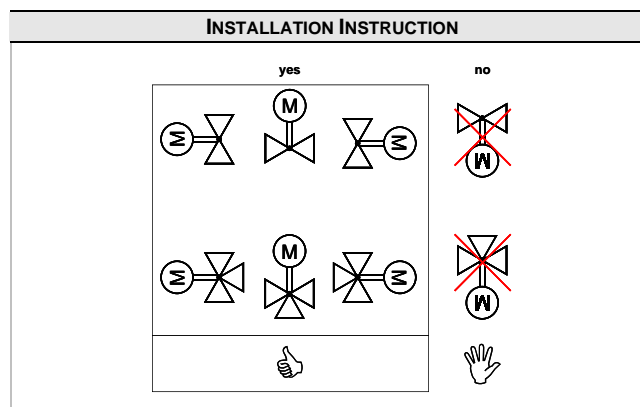
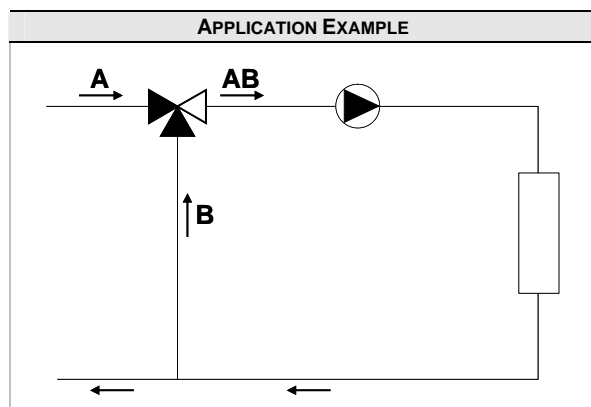


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**DIMENSIONS / WEIGHTS**

DN		15	20	25	32	40	50	65	80	100	125	150		
L	mm	130	150	160	180	200	230	290	310	350	400	480		
B	mm	130	130	130	150	150	160	170	215	215	260	280		
PN 16	∅ D	mm	95	105	115	140	150	165	185	200	220	250	285	
	∅ k	mm	65	75	85	100	110	125	145	160	180	210	240	
	z	mm	4x ∅14			4x ∅18			8x ∅18			8x ∅22		
	b	mm	16	18	18	18	18	20	18	20	20	22	22	
PN 25	∅ D	mm	95	105	115	140	150	165	185	200	235	270	300	
	∅ k	mm	65	75	85	100	110	125	145	160	190	220	250	
	z	mm	4x ∅14			4x ∅18			8x ∅18		8x ∅22	8x ∅26		
	b	mm	16	18	18	18	18	20	22	24	24	26	28	
PN 40	∅ D	mm	95	105	115	140	150	165	185	200	235	270	300	
	∅ k	mm	65	75	85	100	110	125	145	160	190	220	250	
	z	mm	4x ∅14			4x ∅18			8x ∅18		8x ∅22	8x ∅26		
	b	mm	16	18	18	18	18	20	22	24	24	26	28	
H	163.. 24 VAC	CE2F..	mm	537	537	537	552	552	562	572				
		CE3F..	mm	497	497	502	512	512	522	537				
	163.. 230 VAC	CE2F..	mm	562	562	562	577	577	587	597				
		CE3F..	mm	522	522	527	537	537	547	562				
	253.. 24 VAC 230 VAC	CE2F..	mm	795	795	795	810	810	820	830	845	890		
		CE3F..	mm	755	755	760	770	770	780	795	825	855		
	503.. 24 VAC 230 VAC	CE2F..	mm	795	795	795	810	810	820	830	845	890	915	940
		CE3F..	mm	755	755	760	770	770	780	795	825	855	860	880
m	163.. 24 VAC 230 VAC	CE2F..	kg	11	12	14	17	18	23	31				
		CE3F..	kg	12	13	15	20	21	26	37				
	253.. 24 VAC	CE2F..	kg	14.4	15.4	17.4	20.4	21.4	26.4	37.4	45.4	60.4		
		CE3F..	kg	15.4	16.4	18.4	23.4	24.4	29.4	40.4	52.4	65.4		
	253.. 230 VAC	CE2F..	kg	15.6	16.6	18.6	21.6	22.6	27.6	35.6	46.6	61.4		
		CE3F..	kg	16.6	17.6	19.6	24.6	25.6	30.6	41.6	53.6	66.4		
	503.. 24 VAC	CE2F..	kg	14.4	15.4	17.4	20.4	21.4	26.4	37.4	45.4	60.4	74.4	109.4
		CE3F..	kg	15.4	16.4	18.4	23.4	24.4	29.4	40.4	52.4	65.4	86.4	128.4
503.. 230 VAC	CE2F..	kg	15.6	16.6	18.6	21.6	22.6	27.6	35.6	46.6	61.4	75.6	110.6	
	CE3F..	kg	16.6	17.6	19.6	24.6	25.6	30.6	41.6	53.6	66.4	87.6	129.6	

Note • for detailed information on CE.. valves ≥DN200, see next pages.



Valve trim could be damaged by dirt in the pipe system.  
 Therefore we recommend the installation of strainers.

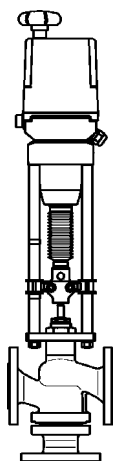
### Valve alternatives and accessories

for two-way and three-way valves:

- Housing connecting flanges with groove acc. to EN 1092-1 type D  
 with socket acc. to EN 1092-1 type F  
 with spigot acc. to EN 1092-1 type E
- Body and plug seat grounded in, EN 1349 – seat-leakage IV-S1 L1 ( $\leq 0.0005\%$  of kvs-value)
- Plug with soft sealing made of NBR, EPDM, PTFE ; EN 1349 – seat-leakage VI G1 (tight sealing)
- Stuffing box with 100 mm extension  $-10^{\circ}\text{C} \dots +350^{\circ}\text{C}$
- Stem heater (T.HH.ZV64-...) :  
 24 VAC, 50 Hz  
 $P_{\text{max.}} \approx 200 \text{ VA}$   
 $P_{\text{N}} \approx 45 \text{ VA}$   
 S1 100% ED  
 IP 54
- Transformer for stem heater: 230/24 VAC, 50 Hz
- Stem seal with stainless steel bellow:  $-10^{\circ}\text{C} \dots +350^{\circ}\text{C}$   
 Stuffing box made of graphite
- Epoxy resin special varnish as a corrosion resistant in case of condensed water, max.  $80^{\circ}\text{C}$
- Technical silicon free version, max.  $180^{\circ}\text{C}$
- Oil and fat free for oxygen application

for two-way valves:

- Screwed seat made of 1.4122, unhardened or hardened
- Housing seat SKWAM plated or Stellite 6 plated
- Perforated plug made of 1.4057, unhardened or hardened
- Balanced plug, max. operating temperature  $200^{\circ}\text{C}$



CE3F100A-08U21

### HIGHLIGHTS

- Suitable in building and process engineering for various mediums 0...+200°C (with stuffing box or stem seal with stainless steel bellow up to +350°C)
- Suitable for water with antifreeze compounds down to -10°C<sup>α</sup>
- EN 1349 – seat-leakage IV L1 (≤ 0.01% of kvs-value)
- Free reversible motor and gear
- Manual override with a disengagement feature

### DESCRIPTION

The motorized 2- or 3-way cast iron control valves, type CE, are suitable for the control of hot and chilled water (0...+200°C) in HVAC systems control of heating plants with hot water, steam, oil, acids or lye.

When combined with stuffing box or stem seal with stainless steel bellow (optional), the CE.. control valves can be used with medium temperatures up to +350°C.

The CE3F.. control valves are used as a mixing or diverting valve, and are made up of a valve and a motor set. The selection of the motor set is depending on the valve size, power supply, control signal and differential pressure allowed.

(\*) When used in applications with water (with antifreeze compounds) down to -10°C, an additional stem heater must be ordered separately ( T-HH-ZV64-.. ).

TECHNICAL SPECIFICATIONS		CE2F..	CE3F..
Form		Two-way	Three-way
Diameter nominal		DN 65 – DN 300	DN 65 – DN 300
Pressure rating		PN 40	PN 40
Flow characteristic		A→AB equal % (≤DN50)	A→AB equal % (≤DN40) B→AB linear
		A→AB eq.% mod (≥DN65)	A→AB eq.% mod (≥DN50) B→AB linear
Stroke	08.. ( 8 kN )	DN 65 : 30mm	DN 65 : 30mm
	10.. ( 10 kN )	DN 80 – 100 : 50mm	DN 80 – 100 : 50mm
	12.. ( 12 kN )	DN 125 – 150 : 60mm	DN 125 – 150 : 60mm
		DN 200 – 300 : 80mm	DN 200 – 300 : 80mm
	315.. (15kN)	DN 125 – 150 : 60mm	DN 125 – 150 : 60mm
	320.. (20kN)	DN 200 (15kN) : 75mm	DN 200 (15kN) : 75mm
	325.. (25kN)	DN 200 : 80mm DN 250 – 300 : 90mm	DN 200 : 80mm DN 250 – 300 : 90mm

All other valve characteristics conforming page 1.





**VALVE ACTUATOR RANGE FOR CE2F.. CONTROL VALVES DN65 ... DN300**

	ACTUATOR SERIES					
	08..	10..	12..	315..	320..	325..
FORCE [N]	8000	10000	12000	15000	20000	25000



**TECHNICAL DATA MOTORIZED TWO WAY VALVES CE2F..**

DN		65	80	100	125	150	200	200	250	250	300	300
kvs-value m³/h	A	63	100	160	250	400	630	630	800	1000	1250	1600
	B	50 <sup>S</sup>	80 <sup>S</sup>	125 <sup>S</sup>	200 <sup>S</sup>	315 <sup>S</sup>	500 <sup>S</sup>	500 <sup>S</sup>	630 <sup>L</sup>	800	1000 <sup>L</sup>	1250
	C	40 <sup>L</sup>	63 <sup>L</sup>	100 <sup>L</sup>	160	250	400	400	500 <sup>L</sup>	630	800	1000
	D	31.5 <sup>S/L</sup>	50 <sup>S/L</sup>	80 <sup>S/L</sup>	125 <sup>S/L</sup>	200 <sup>S/L</sup>	315 <sup>S/L</sup>	315 <sup>S/L</sup>	400 <sup>L</sup>	500 <sup>L</sup>	630 <sup>L</sup>	800
Stroke	mm	30	50	60	75	80	90	80	90	80	90	
08M.. 08U..	t	s	35	55	65	85						
	Δp <sub>s</sub>	kPa	1800	1300	800	450	300	150				
10M.. 10U..	t	s	50	80	95	125						
	Δp <sub>s</sub>	kPa	2150	1500	950	500	350	200				
12M.. 12U..	t	s	65	105	125	165				165		
	Δp <sub>s</sub>	kPa	2750	1900	1200	650	450	250	150		100	
315M.. 315U..	t <sup>1)</sup>	s			165	205						
	Δp <sub>s</sub>	kPa			960	670	370					
320M.. 320U..	t <sup>1)</sup>	s			155		205		225		225	
	Δp <sub>s</sub>	kPa			80		105		120		120	
325M.. 325U..	t <sup>1)</sup>	s			1400	980	540		340		240	
	Δp <sub>s</sub>	kPa			155		205		225		225	
325M.. 325U..	t <sup>1)</sup>	s			80		105		120		120	
	Δp <sub>s</sub>	kPa			1800	1250	690		440		310	

100 kPa = 1 bar = 10 mWS  
 Δp<sub>s</sub>: Closing pressure

<sup>1)</sup> Please state the actuating time  
<sup>L)</sup> Available with perforated plug  
<sup>S)</sup> Special Kvs-value



**VALVE ACTUATOR RANGE FOR CE3F.. CONTROL VALVES DN65 ... DN300**

	ACTUATOR SERIES					
	08..	10..	12..	315..	320..	325..
FORCE [N]	8000	10000	12000	15000	20000	25000



**TECHNICAL DATA MOTORIZED THREE WAY VALVES CE3F..**

DN		65	80	100	125	150	200	200	250	250	300	300
kvs-value m <sup>3</sup> /h	A	63	100	160	250	400	630	630	800	1000	1250	1600
	B	50	80	125	200	315	500	500	630	800	1000	1250
	C	40 <sup>S</sup>	63 <sup>S</sup>	100 <sup>S</sup>	160 <sup>S</sup>	250 <sup>S</sup>	400 <sup>S</sup>	400 <sup>S</sup>	500	630	800	1000
	D	31.5 <sup>S</sup>	50 <sup>S</sup>	80 <sup>S</sup>	125 <sup>S</sup>	200 <sup>S</sup>	315 <sup>S</sup>	315 <sup>S</sup>	400	500	630	800
Stroke	mm	30	50	50	60	60	75	80	80	90	80	90
08M.. 08U..	t	s	35	55	65			85				
	Δp <sub>s</sub>	kPa	1800	1300	800	450	300	150				
10M.. 10U..	t	s	50	80	95			125				
	Δp <sub>s</sub>	kPa	2150	1500	950	500	350	200				
12M.. 12U..	t	s	65	105	125			165			165	
	Δp <sub>s</sub>	kPa	2750	1900	1200	650	450	250	150		100	
315M.. 315U..	t <sup>1)</sup>	s			165	205						
	Δp <sub>s</sub>	kPa			960	670	370					
320M.. 320U..	t <sup>1)</sup>	s			155			205		225		225
	Δp <sub>s</sub>	kPa			80			105		120		120
325M.. 325U..	t <sup>1)</sup>	s			1400	980		540		340		240
	Δp <sub>s</sub>	kPa			1800	1250		690		440		310

100 kPa = 1 bar = 10 mWS

Δp<sub>s</sub>: Closing pressure

<sup>1)</sup> Please state the actuating time

<sup>1)</sup> Available with perforated plug

<sup>S)</sup> Special Kvs-value



**TECHNICAL DATA VALVE ACTUATOR SERIES 08..**



ACTUATOR TYPE		08M21	08U21	08i21
Actuating time	s/mm	1	1	1
Actuating thrust	N	8.000	8.000	8.000
Stroke	mm	20, 30, 40, 50, 60, 80	20, 30, 40, 50, 60, 80	20, 30, 40, 50, 60, 80
Power supply	VAC	230 +6% -10%	230 +6% -10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%	50/60 ±5%
Power consumption	VA	70	77	77
Input signal <sup>1)</sup>		3-point	0...10 VDC 100 kOhm	0(4)...20 mA <sup>2)</sup> 100 Ohm
Output signal		-	0...10 VDC max. 10 mA min. 1200 Ohm	0(4)...20 mA <sup>2)</sup> max. 680 Ohm

Enclosure protection:	IP 54		
Two auxiliary switches (adj.):	max. rated load	resistive load :	10 A / 120-250 Vac
		inductive load :	5 A
Operating mode:	S3-50% ED c/h 1200	EN 60034-1	
End position switch-off:	2-way valves	extending actuator spindle :	load-dependent
	3-way valves	retracting actuator spindle :	travel (WE-S3) and load-dependent
Ambient temperature:	0...+50°C		
Weight:	08..	10.0 kg	
	10..	20.0 kg	
	12..	20.0 kg	

<sup>1)</sup> Invertible input signal

<sup>2)</sup> Please state when ordering !



**TECHNICAL DATA VALVE ACTUATOR SERIES 10..**



ACTUATOR TYPE		10M21	10U21	10i21
Actuating time	s/mm	1.5	1.5	1.5
Actuating thrust	N	10.000	10.000	10.000
Stroke	mm	20, 30, 40, 50, 60, 80	20, 30, 40, 50, 60, 80	20, 30, 40, 50, 60, 80
Power supply	VAC	230 +6% -10%	230 +6% -10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%	50/60 ±5%
Power consumption	VA	70	77	77
Input signal <sup>1)</sup>		3-point	0...10 VDC 100 kOhm	0(4)...20 mA <sup>2)</sup> 100 Ohm
Output signal		-	0...10 VDC max. 10 mA min. 1200 Ohm	0(4)...20 mA <sup>2)</sup> max. 680 Ohm

Enclosure protection:	IP 54		
Two auxiliary switches (adj.):	max. rated load	resistive load :	10 A / 120-250 Vac
		inductive load :	5 A
Operating mode:	S3-50% ED c/h 1200	EN 60034-1	
End position switch-off:	2-way valves	extending actuator spindle :	load-dependent
	3-way valves	retracting actuator spindle :	travel (WE-S3) and load-dependent
Ambient temperature:	0...+50°C		
Weight:	08..	10.0 kg	
	10..	20.0 kg	
	12..	20.0 kg	

<sup>1)</sup> Invertible input signal

<sup>2)</sup> Please state when ordering !



**TECHNICAL DATA VALVE ACTUATOR SERIES 12..**



ACTUATOR TYPE		12M22	12U22	12i22
Actuating time	s/mm	2	2	2
Actuating thrust	N	12.000	12.000	12.000
Stroke	mm	20, 30, 40, 50, 60, 80	20, 30, 40, 50, 60, 80	20, 30, 40, 50, 60, 80
Power supply	VAC	230 +6% -10%	230 +6% -10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%	50/60 ±5%
Power consumption	VA	70	77	77
Input signal <sup>1)</sup>		3-point	0...10 VDC 100 kOhm	0(4)...20 mA <sup>2)</sup> 100 Ohm
Output signal		-	0...10 VDC max. 10 mA min. 1200 Ohm	0(4)...20 mA <sup>2)</sup> max. 680 Ohm

Enclosure protection:	IP 54		
Two auxiliary switches (adj.):	max. rated load	resistive load :	10 A / 120-250 Vac
		inductive load :	5 A
Operating mode:	S3-50% ED c/h 1200	EN 60034-1	
End position switch-off:	2-way valves	extending actuator spindle :	load-dependent
	3-way valves	retracting actuator spindle :	travel (WE-S3) and load-dependent
Ambient temperature:	0...+50°C		
Weight:	08..	10.0 kg	
	10..	20.0 kg	
	12..	20.0 kg	

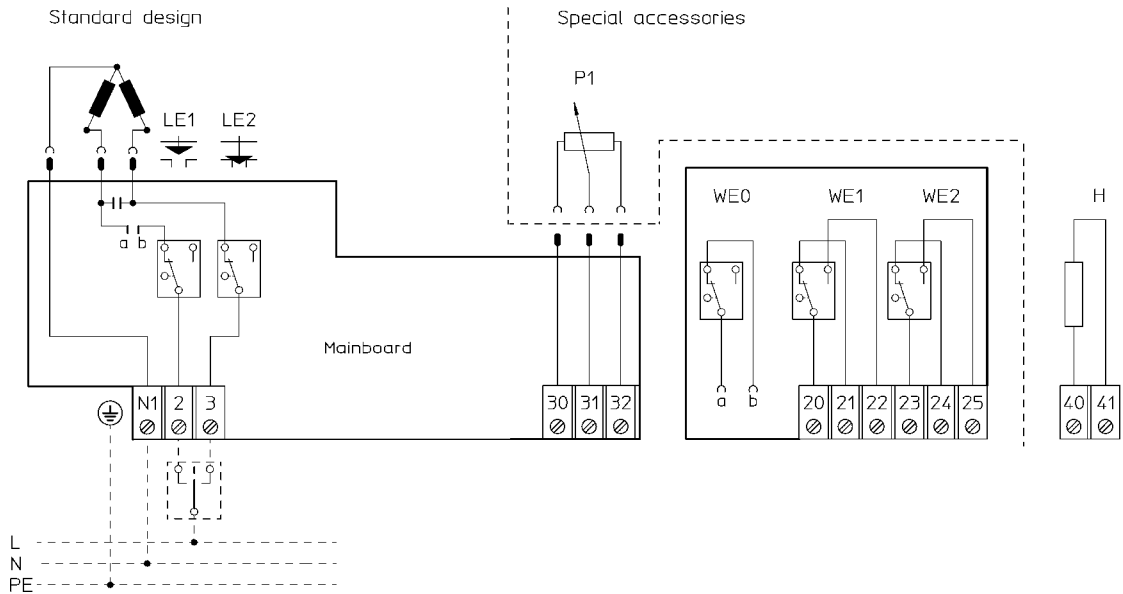
<sup>1)</sup> Invertible input signal

<sup>2)</sup> Please state when ordering !

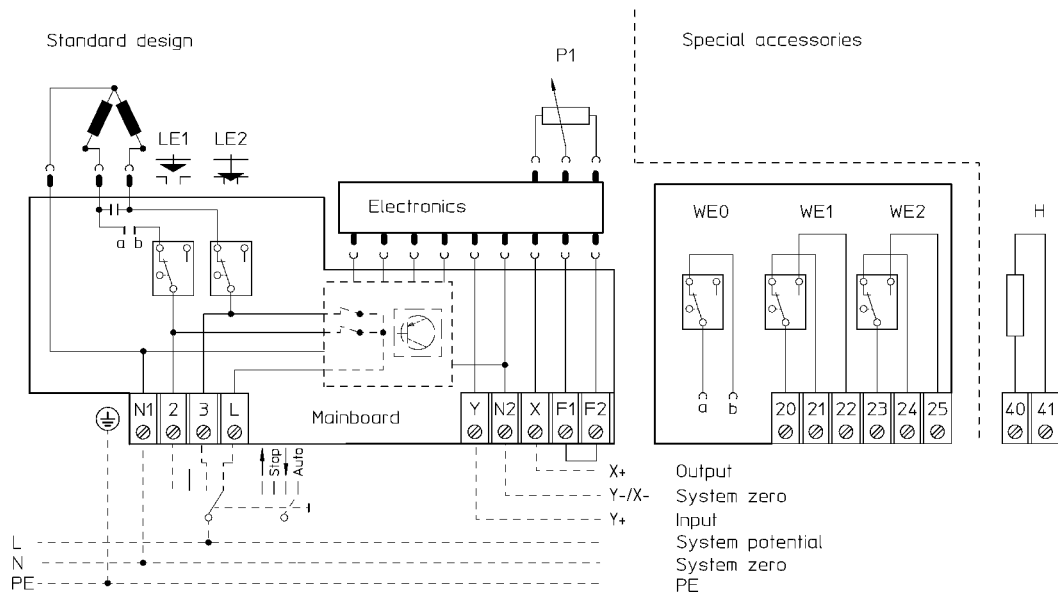


**ELECTRICAL WIRING 08.. / 10.. / 12..**

**3 POINT CONTROL**



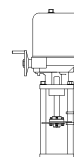
**MODULATING CONTROL**



F1/F2 Connection of a binary signal



**TECHNICAL DATA VALVE ACTUATOR SERIES 315..**



ACTUATOR TYPE		315M21	315U21	315i21
Actuating time	s/mm	1.5	1.5	1.5
Actuating thrust	N	15.000	15.000	15.000
Stroke	mm	max. 75	max. 75	max. 75
Power supply	VAC	230 ±10%	230 ±10%	230 ±10%
Frequency	Hz	50/60 ±5%	50/60 ±5%	50/60 ±5%
Power consumption	VA	150	180	180
Input signal <sup>1)</sup>		3-point	0(2)...10 VDC 10 kOhm	0(4)...20 mA 0.5 kOhm
Output signal		-	0(2)...10 VDC max. 20 mA min. 500 Ohm	0(4)...20 mA max. 500 Ohm

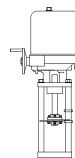
Enclosure protection:	IP 65		
Limit switches (motor):	max. rated load	resistive load :	10 A
		inductive load :	5 A
Operating mode:	S4-30% ED c/h 600	EN 60034-1	
End position switch-off:	2-way valves	extending actuator spindle :	load-dependent
	3-way valves	retracting actuator spindle :	travel (WE-S3) and load-dependent
Ambient temperature:	0...+60°C		
Weight:	315..	17.0 kg	
	320..	22.0 kg	
	325..	22.0 kg	

<sup>1)</sup> Invertible input signal





**TECHNICAL DATA VALVE ACTUATOR SERIES 320..**



ACTUATOR TYPE		320M21		320U21		320i21	
		1.2	2.4	1.2	2.4	1.2	2.4
Actuating time <sup>1)</sup>	s/mm						
Actuating thrust	N	20.000		20.000		20.000	
Stroke	mm	max. 90		max. 90		max. 90	
Power supply	VAC	230 ±10%		230 ±10%		230 ±10%	
Frequency	Hz	50/60 ±5%		50/60 ±5%		50/60 ±5%	
Power consumption	VA	240	170	260	190	260	190
Input signal <sup>2)</sup>		3-point		0(2)...10 VDC 10 kOhm		0(4)...20 mA 0.5 kOhm	
Output signal		-		0(2)...10 VDC max. 20 mA min. 500 Ohm		0(4)...20 mA max. 500 Ohm	

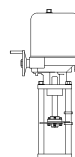
Enclosure protection:	IP 65		
Limit switches (motor):	max. rated load	resistive load :	10 A
		inductive load :	5 A
Operating mode:	S4-30% ED c/h 600	EN 60034-1	
End position switch-off:	2-way valves	extending actuator spindle :	load-dependent
	3-way valves	retracting actuator spindle :	travel (WE-S3) and load-dependent
Ambient temperature:	0...+60°C		
Weight:	315..	17.0 kg	
	320..	22.0 kg	
	325..	22.0 kg	

<sup>1)</sup> On request running time of 2.4 s/mm available (3-point version 170 VA ; modulating version 190 VA )

<sup>2)</sup> Invertible input signal



**TECHNICAL DATA VALVE ACTUATOR SERIES 325..**



ACTUATOR TYPE		325M21		325U21		325i21	
		1.2	2.4	1.2	2.4	1.2	2.4
Actuating time <sup>1)</sup>	s/mm						
Actuating thrust	N	25.000		25.000		25.000	
Stroke	mm	max. 90		max. 90		max. 90	
Power supply	VAC	230 ±10%		230 ±10%		230 ±10%	
Frequency	Hz	50/60 ±5%		50/60 ±5%		50/60 ±5%	
Power consumption	VA	240	170	260	190	260	190
Input signal <sup>2)</sup>		3-point		0(2)...10 VDC 10 kOhm		0(4)...20 mA 0.5 kOhm	
Output signal		-		0(2)...10 VDC max. 20 mA min. 500 Ohm		0(4)...20 mA max. 500 Ohm	

Enclosure protection:	IP 65		
Limit switches (motor):	max. rated load	resistive load :	10 A
		inductive load :	5 A
Operating mode:	S4-30% ED c/h 600	EN 60034-1	
End position switch-off:	2-way valves	extending actuator spindle :	load-dependent
	3-way valves	retracting actuator spindle :	travel (WE-S3) and load-dependent
Ambient temperature:	0...+60°C		
Weight:	315..	17.0 kg	
	320..	22.0 kg	
	325..	22.0 kg	

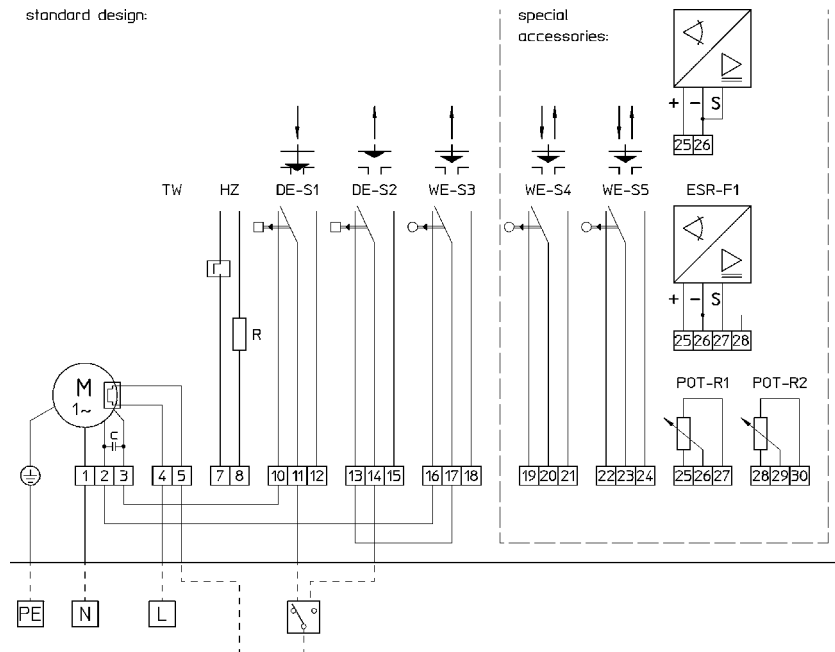
<sup>1)</sup> On request running time of 2.4 s/mm available (3-point version 170 VA ; modulating version 190 VA )

<sup>2)</sup> Invertible input signal

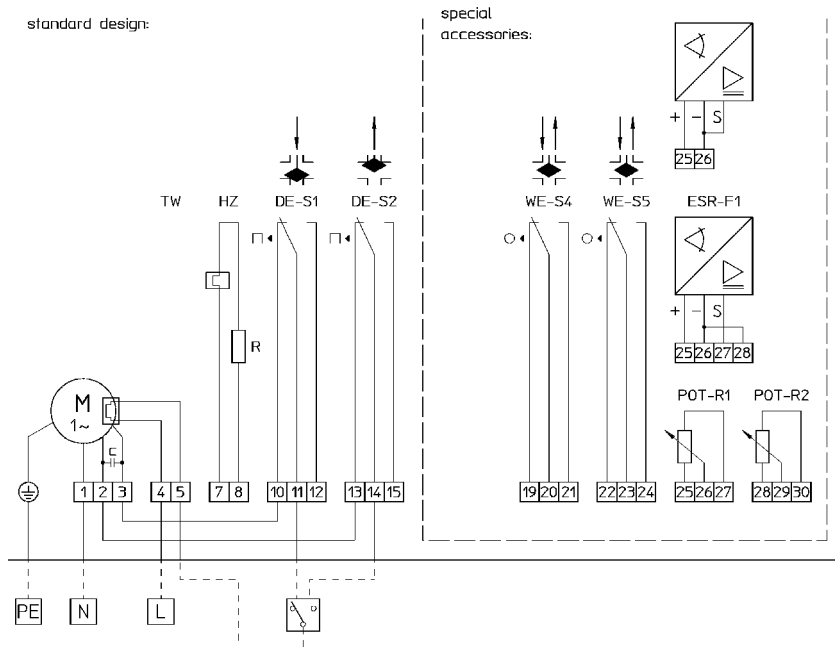


**ELECTRICAL WIRING**

**2-WAY VALVES – 3 POINT CONTROL**



**3-WAY VALVES - 3 POINT CONTROL**



Specialized periphery integrator in HVAC

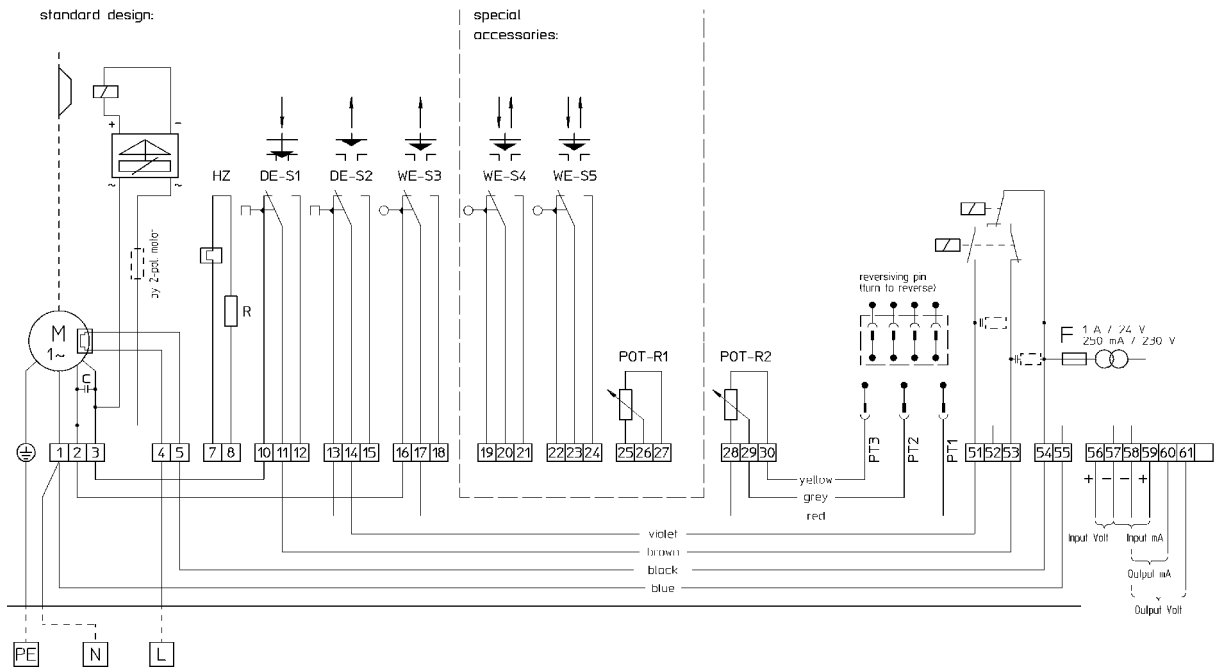
PN40



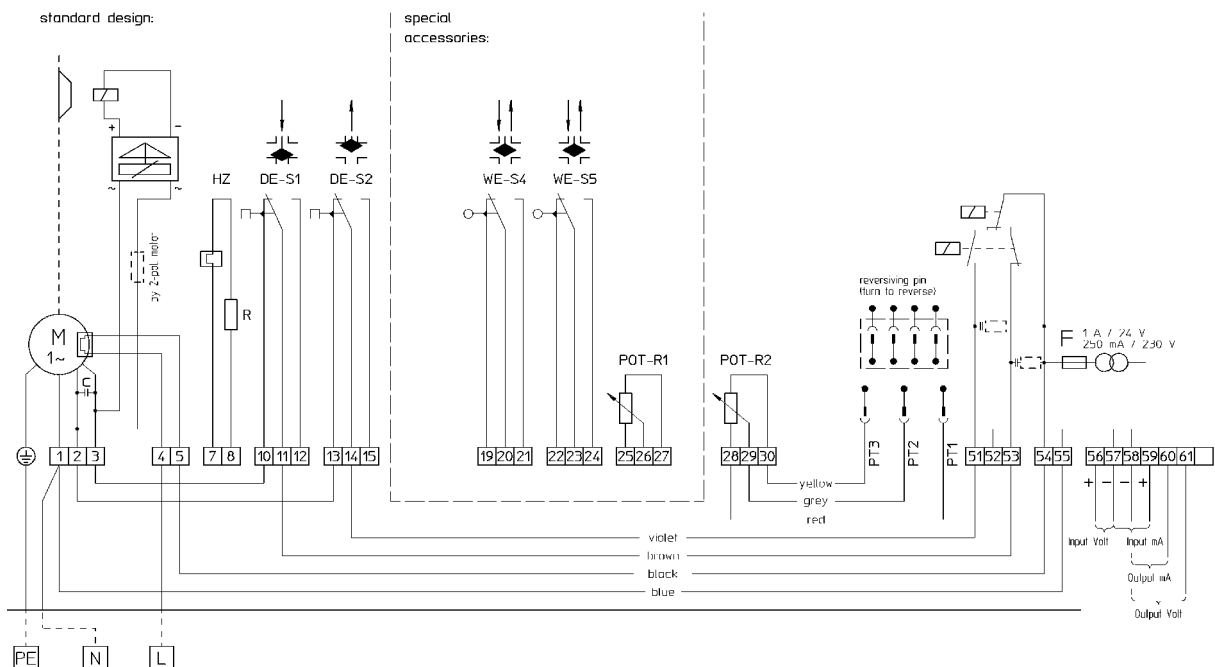
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**ELECTRICAL WIRING**

**2-WAY VALVES - MODULATING CONTROL**

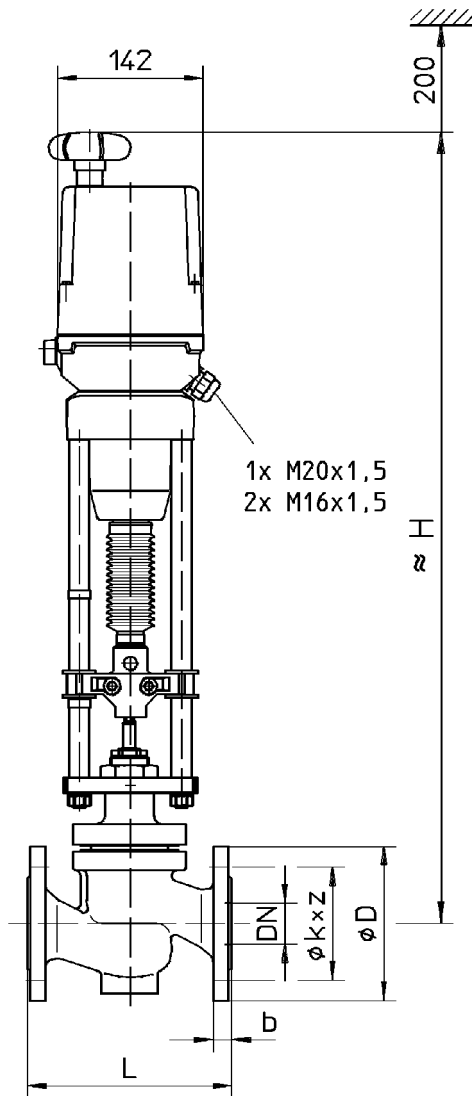


**3-WAY VALVES - MODULATING CONTROL**

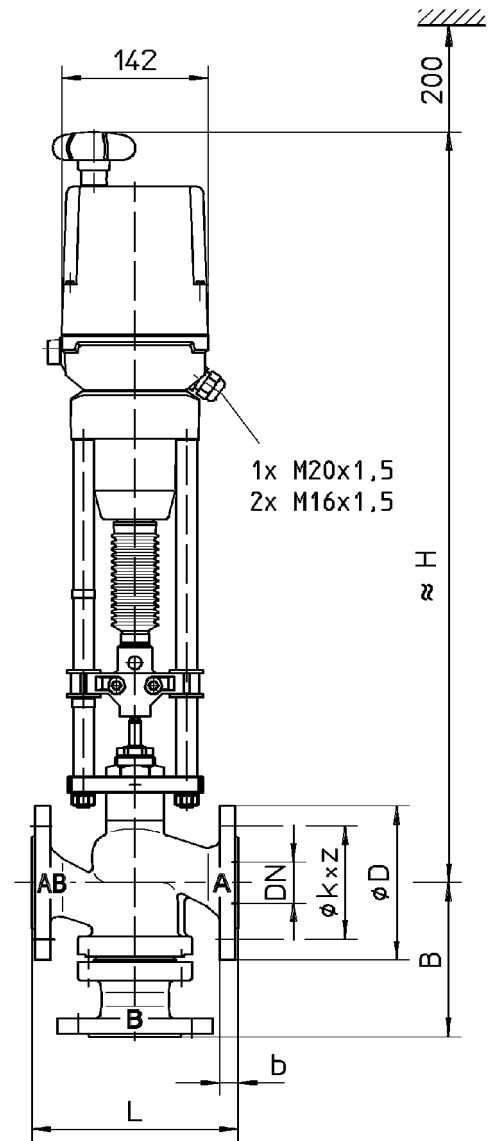




DRAWING



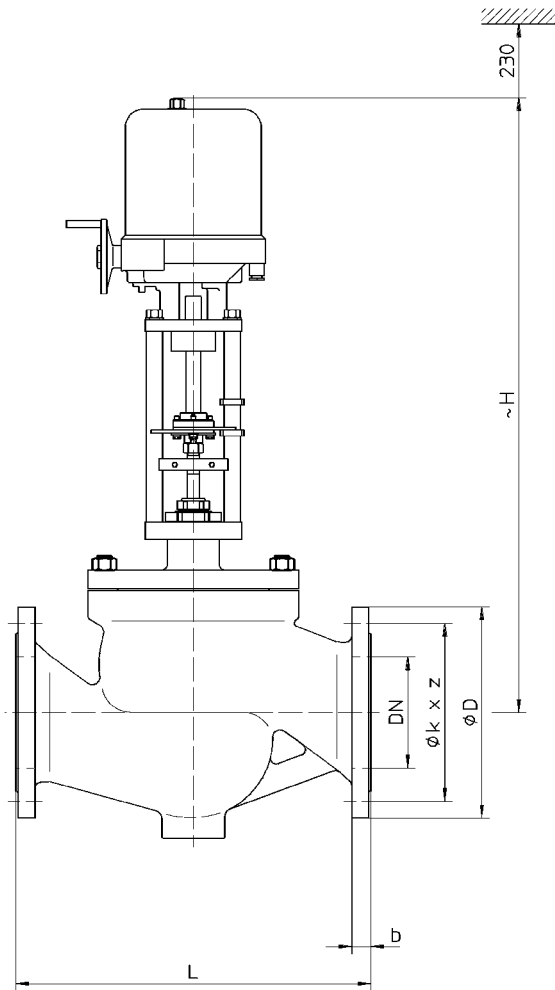
CE2F.. with series 08..  
 CE2F.. with series 10..  
 CE2F.. with series 12..



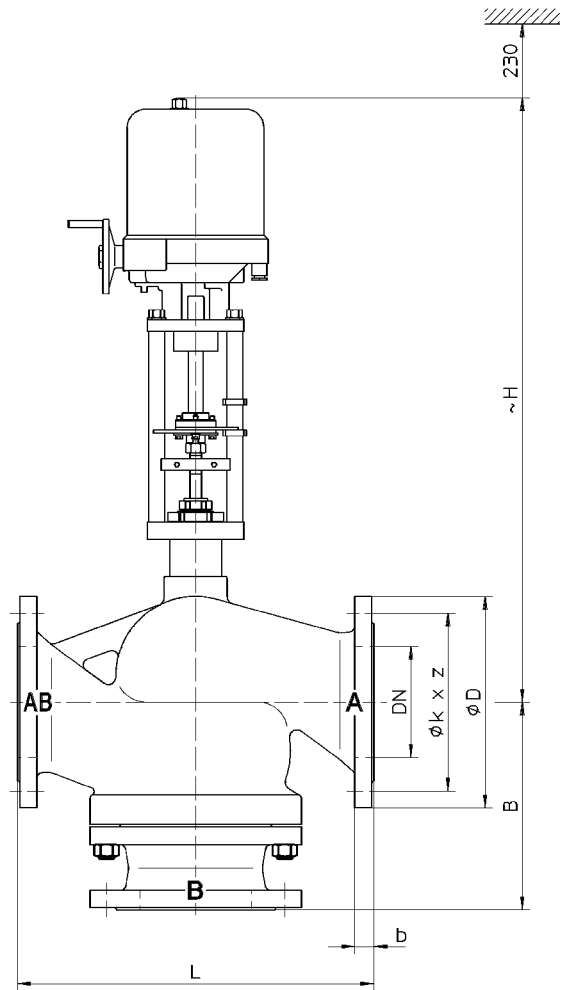
CE3F.. with series 08..  
 CE3F.. with series 10..  
 CE3F.. with series 12..



DRAWING



**CE2F.. with series 315..**  
**CE2F.. with series 320..**  
**CE2F.. with series 325..**



**CE3F.. with series 315..**  
**CE3F.. with series 320..**  
**CE3F.. with series 325..**

Specialized periphery integrator in HVAC

PN40



flanged

DIMENSIONS / WEIGHTS												
DN			65	80	100	125	150	200	250	300		
L	mm		290	310	350	400	480	600	730	850		
B	mm		170	215	215	260	280	400	450	550		
PN 16	∅ D	mm	185	200	220	250	285	340	405	460		
	∅ k	mm	145	160	180	210	240	295	355	410		
	z	mm	4x ∅18	8x ∅18			8x ∅22	12x ∅22	12x ∅26			
	b	mm	18	20	20	22	22	24	26	28		
PN 25	∅ D	mm	185	200	235	270	300	360	425	485		
	∅ k	mm	145	160	190	220	250	310	370	430		
	z	mm	8x ∅18		8x ∅22	8x ∅26		12x ∅26	12x ∅30	16x ∅30		
	b	mm	22	24	24	26	28	30	32	34		
PN 40	∅ D	mm	185	200	235	270	300	375	450	515		
	∅ k	mm	145	160	190	220	250	320	385	450		
	z	mm	8x ∅18		8x ∅22	8x ∅26		12x ∅30	12x ∅33	16x ∅33		
	b	mm	22	24	24	26	28	34	38	42		
H	08.. 10..	CE2F	mm	790	810	855	910	935	1000			
		CE3F	mm	760	790	820	855	875	985			
	12..	CE2F	mm	790	810	855	910	935	1000	1055	1115	
		CE3F	mm	760	790	820	855	875	985	1035	1080	
	315..	CE2F	mm				815	840	905			
		CE3F	mm				760	780	890			
	320.. 325..	CE2F	mm				900	925	990	1045	1105	
		CE3F	mm				885	905	980	1030	1085	
	m	08.. 10..	CE2F	kg	37	48	68	77	112	270		
			CE3F	kg	43	55	63	89	131	310		
12..		CE2F	kg	37	48	68	77	112	270	365	470	
		CE3F	kg	43	55	63	89	131	310	425	550	
315..		CE2F	kg				84	119	277			
		CE3F	kg				96	138	317			
320.. 325..		CE2F	kg				89	124	282	377	482	
		CE3F	kg				101	143	322	437	562	



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