

CX3F80A-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^α
- EN 1349 – seat-leakage IV L1 ($\leq 0.01\%$ of kvs-value)
- Microprocessor controlled
- Automatic self-calibration on start up

DESCRIPTION

The motorized 2- or 3-way spheroidal graphite control valves, type CX, 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 CX.. control valves can be used with medium temperatures up to +350°C.

The CX3F.. 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.

(^α) 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	CX2F..	CX3F..
Form	Two-way	Three-way
Diameter nominal	DN 15 – DN 300	DN 15 – DN 300
Pressure rating	PN 25	PN 25
Flow characteristic	A→AB equal % ($\leq$ DN50) A→AB eq.% mod ($\geq$ DN65)	A→AB equal % ($\leq$ DN40) B→AB linear A→AB eq.% mod ($\geq$ 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 ¹⁾	DN 15 – 40 : 20mm DN 50 – 65 : 30mm DN 80 – 100 : 50mm DN 125 – 150 : 60mm DN 200 – 300 : 80mm ¹⁾
Rangeability	$\geq 50:1$	$\geq 50:1$
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 ($\leq 0.01\%$ of kvs-value)	
Material		
Body	Spheroidal graphite GGG-40.3 (EN-JS1024)	
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 ²⁾	hot water, steam, oil, acids, lye

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

²⁾ only in combination with stuffing box or stem seal with stainless steel bellow.



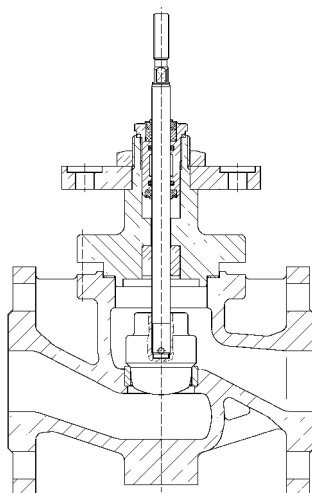
PRODUCT KEY

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

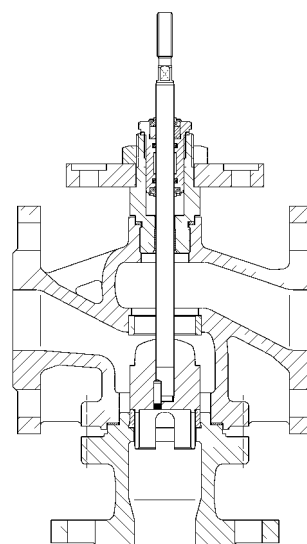
Example : type CX3F80A-163U44

Cx	3	F	80A	163	U	4	4
VALVE				ACTUATOR			
control valve type: ex. "INDUSTRIAL" valve, type Cx							
2 : 2-way							
3 : 3-way							
F : flanged							
DN and Kvs value							
80A- : PN25 connecting flanges (standard)							
80AB : PN16 connecting flanges							
actuator series (depending on force in N)							
U : modulating 0-10 Vdc + 3-point							
i : modulating 4-20 mA							
2 : 230 Vac							
4 : 24 Vac							
running time [s/mm]							

VALVE CONSTRUCTION



CX2F..

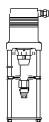
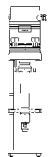


CX3F..



VALVE ACTUATOR RANGE FOR CX2F.. CONTROL VALVES ≤ DN 150

ACTUATOR SERIES

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

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



TECHNICAL DATA MOTORIZED TWO WAY VALVES CX2F..

DN			15	15	20	25	32	40	50	65	80	100	125	150			
kvs-value m³/h			4 ^L 2.5 1.6 1.25 1.0 0.63 0.4 0.25 0.16	6.3 ^L 5 ^{S/L} 4 ^L 2.5 ^{S/L}	10 8 ^{S/L} 6.3 ^L 5 ^{S/L}	12.5 ^S 10 ^L 8 ^{S/L}	25 20 ^S 16 ^L 12.5 ^{S/L}	40 31.5 ^S 25 ^L 20 ^{S/L}	63 50 ^S 40 ^L 31.5 ^{S/L}	100 80 ^S 63 ^L 50 ^{S/L}	160 125 ^S 100 ^L 80 ^{S/L}	250 200 ^S 160 125 ^{S/L}	400 315 ^S 250 200 ^{S/L}				
Stroke			mm			20						30		50		60	
163U44	t ¹⁾	s	120						180								
163U24			80*						120*								
163i44		Δp _s	kPa														
163i24				2400	2500	2400	2050	1250	750	450					300		
253U42	t ¹⁾	s	100						150		250						
253i42			50*						75*		125*						
253U22		Δp _s	kPa	2500	2500	2500	2500	2200	1400	860	540	370			210		
253i22																	
503U42	t ¹⁾	s	100						150		250		300				
503i42			50*						75*		125*		150*				
503U22		Δp _s	kPa	2500	2500	2500	2500	2500	2500	1950	1250	880	540	290	190		
503i22																	

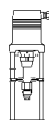
100 kPa = 1 bar = 10 Mws

Δp_s: Closing pressure

¹⁾ Actuating time freely adjustable, presetting is marked with *

^{L)} Available with perforated plug

^{S)} Special Kvs-value


VALVE ACTUATOR RANGE FOR CX3F.. CONTROL VALVES ≤ DN 150
ACTUATOR SERIES
163..

253..

503..


FORCE [N]

1600

2500

5000

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


TECHNICAL DATA MOTORIZED THREE WAY VALVES CX3F..

DN			15	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 ^S	6.3 ^S	10 ^S	16 ^S	25 ^S	40 ^S	63 ^S	100 ^S	160 ^S	250 ^S
	D				2.5 ^S	5 ^S	8 ^S	12.5 ^S	20 ^S	31.5 ^S	50 ^S	80 ^S	125 ^S	200 ^S
Stroke		mm	20						30		50		60	
163U44	t ¹⁾	s	120						180					
163U24			80*						120*					
163i44	Δp _s	kPa	2400		2400	2050	1250	750	450	300				
163i24														
253U42	t ¹⁾	s	100						150		250			
253i42			50*						75*		125*			
253U22	Δp _s	kPa	2500		2500	2500	2200	1400	860	540	370	210		
253i22														
503U42	t ¹⁾	s	100						150		250		300	
503i42			50*						75*		125*		150*	
503U22	Δp _s	kPa	2500		2500	2500	2500	2500	1950	1250	880	540	290	190
503i22														

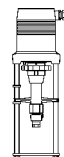
100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

¹⁾ Actuating time freely adjustable, presetting is marked with *

¹⁾ Available with perforated plug

^{S)} Special Kvs-value

TECHNICAL DATA VALVE ACTUATOR SERIES 163..


ACTUATOR TYPE		163U44	163U24	163i44	163i24
Actuating time at 50 Hz ¹⁾	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 ⁴⁾	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 ²⁾		• 3-point, or • 0(2)...10 VDC (77 kOhm)		0(4)...20 mA (0.5 kOhm)	
Output signal ²⁾		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 ³⁾	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

Actuator alternatives and accessories

- Voltage: 115 VAC
- Position switch unit ⁵⁾: 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 ⁵⁾: X=0(4)...20 mA
- Distance pillars, traverse and all screws located on exterior made of stainless steel
- EEx protected actuator available on request

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ Invertible input and output signal

³⁾ Freely adjustable

⁴⁾ Please state when ordering, which kind of direct-current

1. smooth direct current or

2. rectified alternating voltage

⁵⁾ Position switch unit and output signal not in combination


TECHNICAL DATA VALVE ACTUATOR SERIES 253..


ACTUATOR TYPE		253U42	253U22	253i42	253i22
Actuating time ¹⁾	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 ²⁾	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 ³⁾		• 3-point, or • 0(2)...10 VDC (77 kOhm)		0(4)...20 mA (0.5 kOhm)	
Output signal ³⁾		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 ⁴⁾	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

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ Please state when ordering, which kind of direct-current

1. smooth direct current or

2. rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable


TECHNICAL DATA VALVE ACTUATOR SERIES 503..


ACTUATOR TYPE		503U42	503U22	503i42	503i22
Actuating time ¹⁾	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 ²⁾	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 ³⁾		• 3-point, or • 0(2)...10 VDC (77 kOhm)		0(4)...20 mA (0.5 kOhm)	
Output signal ³⁾		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 ⁴⁾	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 mechanical
Operating mode:	S3-50% ED c/h 1200
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

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ Please state when ordering, which kind of direct-current

1. smooth direct current or

2. rectified alternating voltage

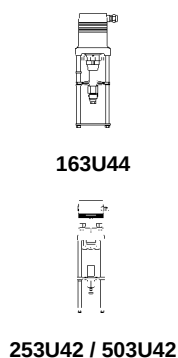
³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

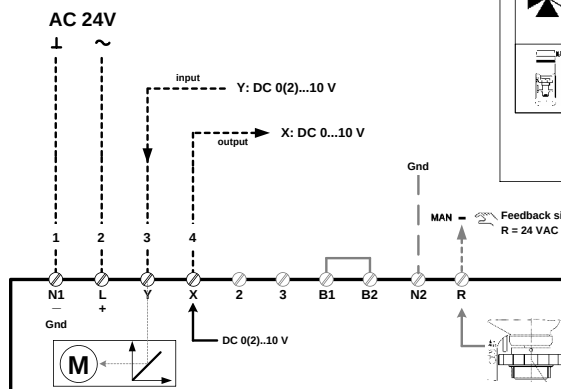


ELECTRICAL WIRING

AC 24 VOLT MODULATING CONTROL SIGNAL 0-10VDC



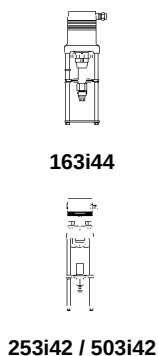
Modulating control signal 0-10Vdc



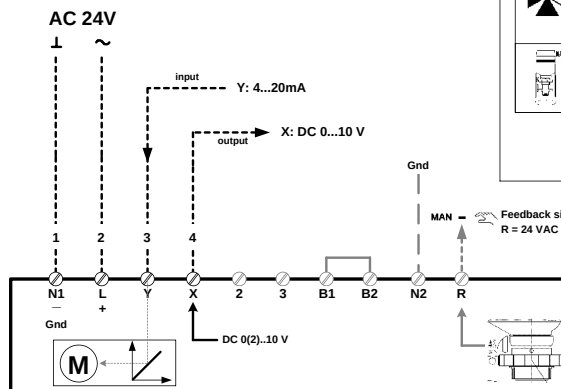
Control signal (input)		Default	
	Y: 10 V		
	Y: 0 V		
	S2	OFF	ON

B1/B2 connection of a binary signal (DI)

AC 24 VOLT MODULATING CONTROL SIGNAL 4-20mA



Modulating control signal 4-20mA



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

B1/B2 connection of a binary signal (DI)

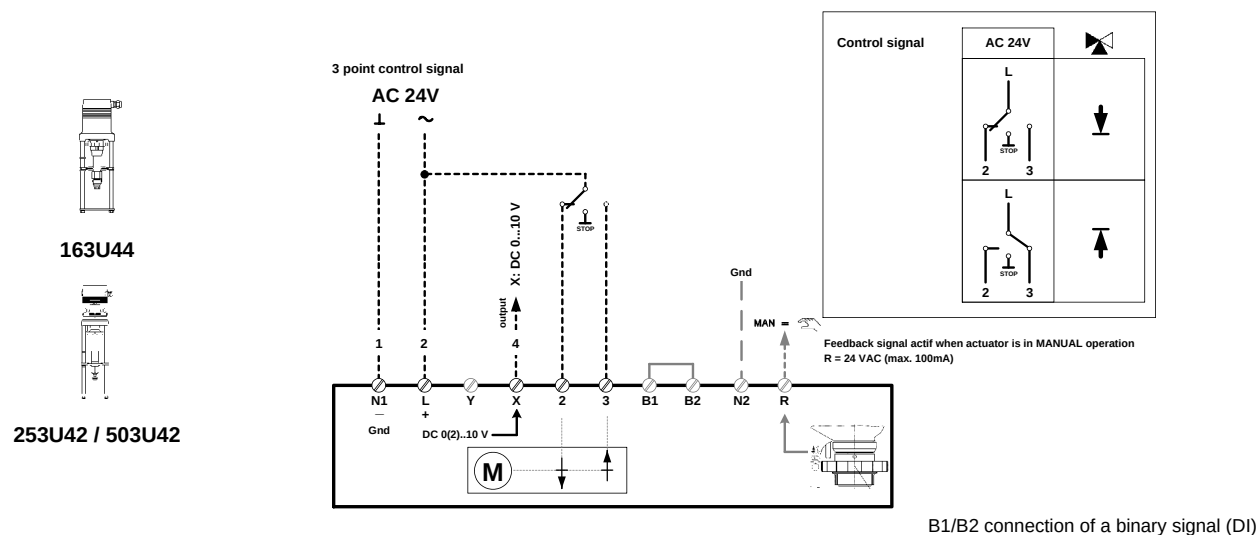
N2 is the zero potential for the „X“, „Y“ and „R“ signals.

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

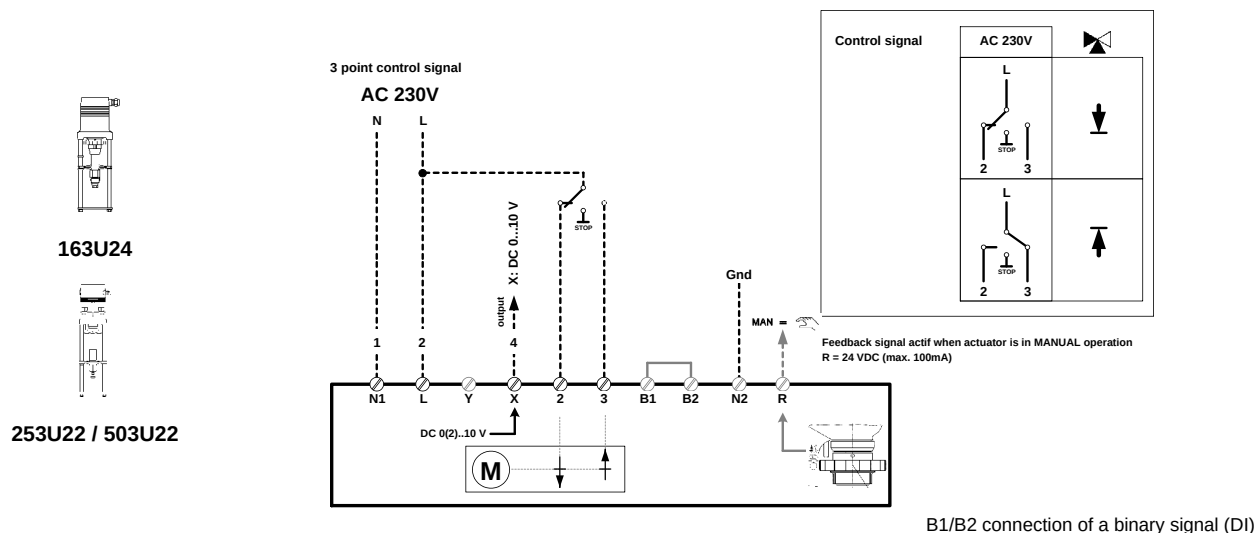


ELECTRICAL WIRING

AC 24 VOLT 3-POINT CONTROL SIGNAL



AC 230 VOLT 3-POINT CONTROL SIGNAL



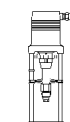
N2 is the zero potential for the „X“, „Y“ and „R“ signals.

- 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

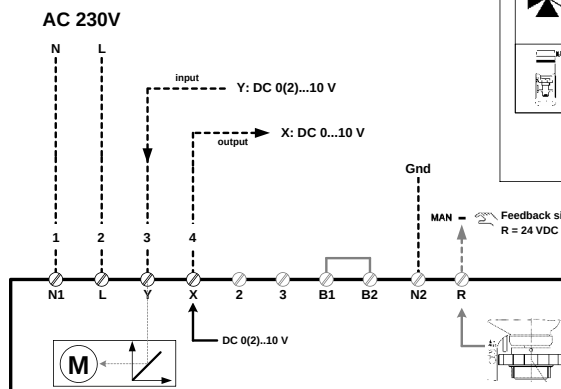


163U24



253U22 / 503U22

Modulating control signal 0-10Vdc

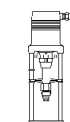


Control signal (input)		Default	
	Y: 10 V	↑	↓
	Y: 0 V	↓	↑
	Y: 0 V	↓	↑
	Y: 10 V	↑	↓
S2	OFF	ON	ON

Feedback signal actif when actuator is in MANUAL operation
R = 24 VDC (max. 100mA)

B1/B2 connection of a binary signal (DI)

AC 230 VOLT MODULATING CONTROL SIGNAL 4-20mA

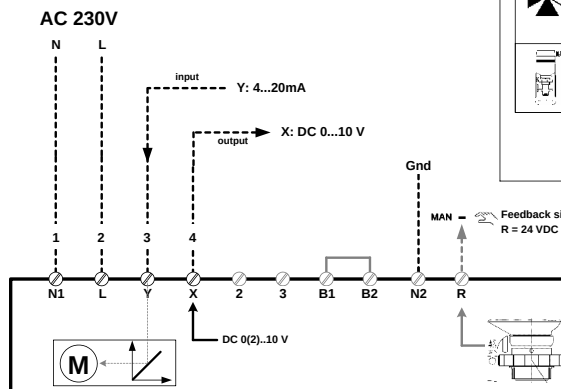


163i24



253i22 / 503i22

Modulating control signal 4-20mA



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

Feedback signal actif when actuator is in MANUAL operation
R = 24 VDC (max. 100mA)

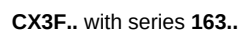
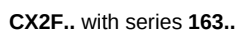
B1/B2 connection of a binary signal (DI)

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.

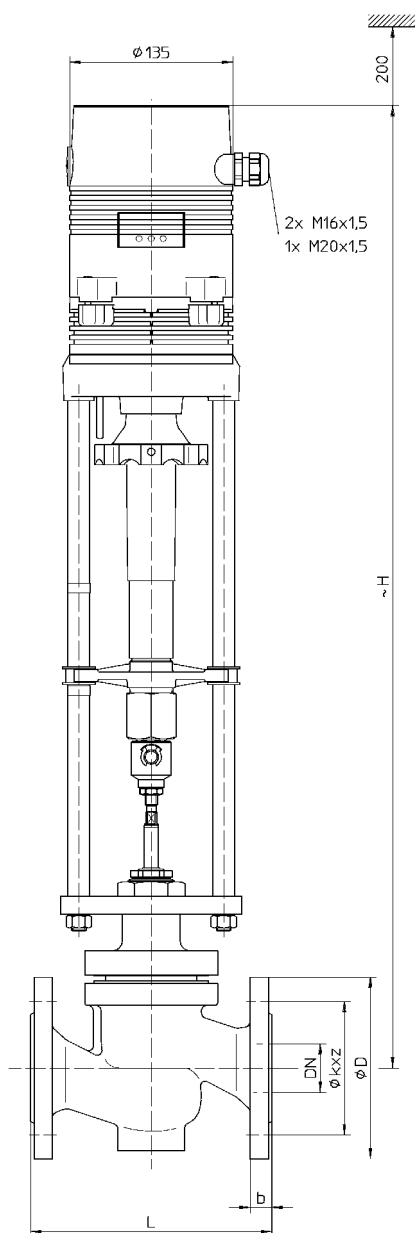


DRAWING

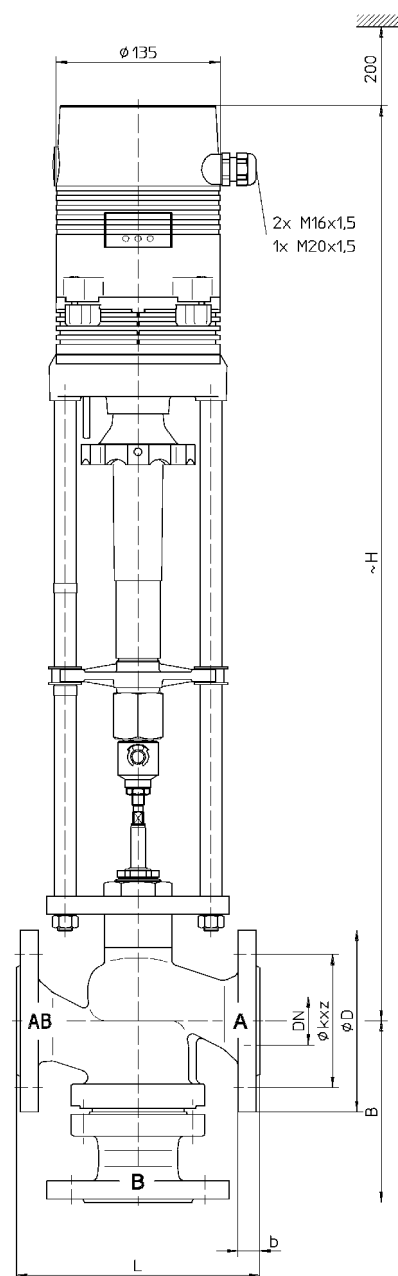




DRAWING



CX2F.. with series 253..
CX2F.. with series 503..



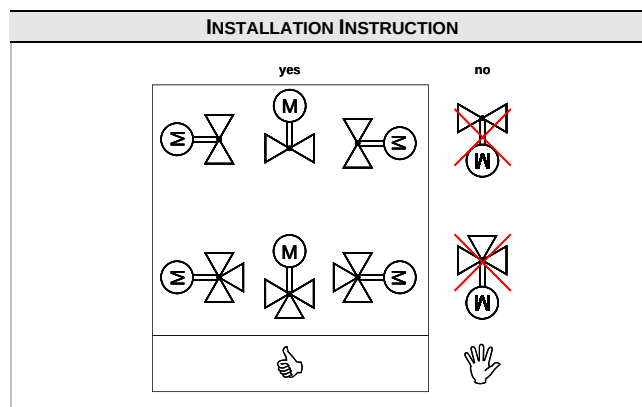
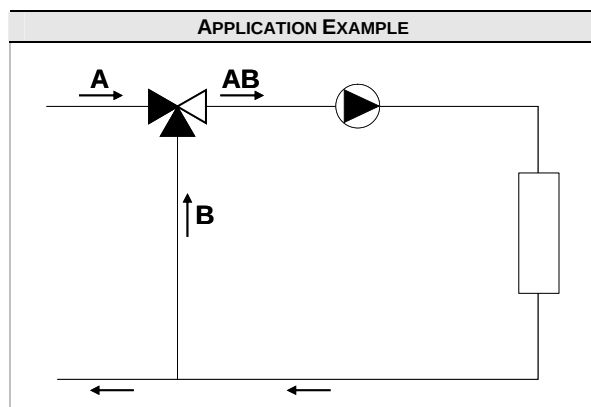
CX3F.. with series 253..
CX3F.. with series 503..



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	Ø D	mm	95	105	115	140	150	165	185	200	220	250
	Ø k	mm	65	75	85	100	110	125	145	160	180	210
	z	mm	4x Ø14			4x Ø18			8x Ø18			8x Ø22
	b	mm	16	18	18	18	18	20	20	20	22	24
PN 25	Ø D	mm	95	105	115	140	150	165	185	200	235	270
	Ø k	mm	65	75	85	100	110	125	145	160	190	220
	z	mm	4x Ø14			4x Ø18			8x Ø18		8x Ø22	8x Ø26
	b	mm	16	16	18	18	18	20	20	20	22	24
H	163.. 24 VAC	CX2F..	mm	537	537	537	552	552	562	572		
		CX3F..	mm	497	497	502	512	512	522	537		
	163.. 230 VAC	CX2F..	mm	562	562	562	577	577	587	597		
		CX3F..	mm	522	522	527	537	537	547	562		
	253.. 24 VAC	CX2F..	mm	795	795	795	810	810	820	830	845	890
		CX3F..	mm	755	755	760	770	770	780	795	825	855
	503.. 24 VAC	CX2F..	mm	795	795	795	810	810	820	830	845	890
		CX3F..	mm	755	755	760	770	770	780	795	825	855
m	163.. 24 VAC	CX2F..	kg	8	10	11	12	15	17	21		
		CX3F..	kg	9	10	12	14	16	20	24		
	253.. 24 VAC	CX2F..	kg	11.4	13.4	14.4	15.4	18.4	20.4	24.4	37.4	49.4
		CX3F..	kg	12.4	13.4	15.4	17.4	19.4	23.4	27.4	41.4	52.4
	253.. 230 VAC	CX2F..	kg	12.6	14.6	15.6	16.6	19.6	21.6	25.6	38.6	50.6
		CX3F..	kg	13.6	14.6	16.6	18.6	20.6	24.6	28.6	42.6	53.6
	503.. 24 VAC	CX2F..	kg	11.4	13.4	14.4	15.4	18.4	20.4	24.4	37.4	49.4
		CX3F..	kg	12.4	13.4	15.4	17.4	19.4	23.4	27.4	41.4	52.4
	503.. 230 VAC	CX2F..	kg	12.6	14.6	15.6	16.6	19.6	21.6	25.6	38.6	50.6
		CX3F..	kg	13.6	14.6	16.6	18.6	20.6	24.6	28.6	42.6	53.6
		CX2F..	kg								68.4	100.4
		CX3F..	kg								80.4	111.4
		CX2F..	kg								69.6	101.6
		CX3F..	kg								81.6	112.6

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



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

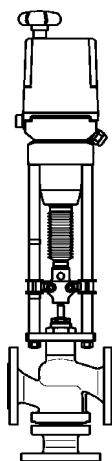
Valve alternatives and accessories

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 $-10^{\circ}\text{C}...+350^{\circ}\text{C}$
- Stem heater (T.HH.ZV64-...) :
24 VAC, 50 Hz
 $P_{\text{max.}} \approx 200 \text{ VA}$
 $P_N \approx 45 \text{ VA}$
S1 100% ED
IP 54
- Transformer for stem heater: 230/24 VAC, 50 Hz
- Stem seal with stainless steel bellow: $-10^{\circ}\text{C}...+350^{\circ}\text{C}$
Stuffing box made of graphite
- Epoxy resin special varnish as a corrosion resistant in case of condensed water, max. 80°C
- Technical silicon free version, max. 180°C
- Oil and fat free for oxygen application

for two-way valves:

- Screwed seat made of 1.4122, unhardened or hardened
- Perforated plug made of 1.4057, unhardened or hardened
- Balanced plug, max. operating temperature 200°C



CX3F100A-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 ^α
- EN 1349 – seat-leakage IV L1 ($\leq 0.01\%$ of kvs-value)
- Free reversible motor and gear
- Manual override with a disengagement feature

DESCRIPTION

The motorized 2- or 3-way spheroidal graphite control valves, type CX, 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 CX.. control valves can be used with medium temperatures up to +350°C.

The CX3F.. 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.

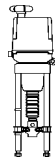
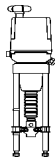
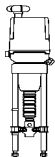
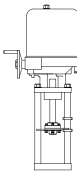
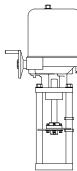
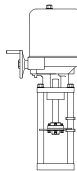
(^α) When used in applications with water (with antifreeze compounds) down to -10°C, an additional stem heater must be ordered separately (T-HH-ZV64-..).

TECHNICAL SPECIFICATIONS		CX2F..	CX3F..
Form		Two-way	Three-way
Diameter nominal		DN 65 – DN 300 ¹⁾	DN 65 – DN 300 ¹⁾
Pressure rating		PN 25 ¹⁾	PN 25 ¹⁾
Flow characteristic		A→AB eq.% mod (≥DN65)	A→AB eq.% mod (≥DN65)
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 200 : 80mm
		DN 250 – 300 : 90mm	DN 250 – 300 : 90mm

All other valve characteristics conforming page 1.

¹⁾ Due to material limitations the valves DN200, DN250, DN300 can only be rated PN16 !

VALVE ACTUATOR RANGE FOR CX2F.. 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 CX2F..

DN			65	80	100	125	150	200 ²⁾	200 ²⁾	250 ²⁾	250 ²⁾	300 ²⁾	300 ²⁾
kvs-value m ³ /h	A		63	100	160	250	400	630	630	800	1000	1250	1600
	B		50 ^S	80 ^S	125 ^S	200 ^S	315 ^S	500 ^S	500 ^S	630 ^L	800	1000 ^L	1250
	C		40 ^L	63 ^L	100 ^L	160	250	400	400	500 ^L	630	800	1000
	D		31.5 ^{S/L}	50 ^{S/L}	80 ^{S/L}	125 ^{S/L}	200 ^{S/L}	315 ^{S/L}	315 ^{S/L}	400 ^L	500 ^L	630 ^L	800
Stroke	mm		30	50	60	75	80	90	80	90	80	90	90
08M.. 08U..	t	s	35	55	65		85						
	Δp _s	kPa	1800	1300	800	450	300	150					
10M.. 10U..	t	s	50	80	95		125						
	Δp _s	kPa	2150	1500	950	500	350	200					
12M.. 12U..	t	s	65	105	125		165					165	
	Δp _s	kPa	2750	1900	1200	650	450	250	150			100	
315M.. 315U..	t ¹⁾	s				165	205						
						100	115						
	Δp _s	kPa				960	670	370					
320M.. 320U..	t ¹⁾	s				155		205		225			225
						80		105		120			120
	Δp _s	kPa				1400	980	540		340			240
325M.. 325U..	t ¹⁾	s				155		205		225			225
						80		105		120			120
	Δp _s	kPa				1800	1250	690		440			310

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

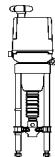
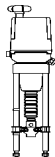
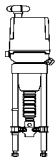
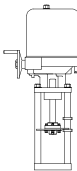
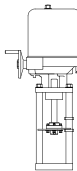
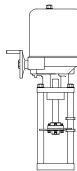
¹⁾ Please state the actuating time

²⁾ PN16

¹⁾ Available with perforated plug

^{S)} Special Kvs-value

VALVE ACTUATOR RANGE FOR CX3F.. 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 CX3F..

DN			65	80	100	125	150	200 ²⁾	200 ²⁾	250 ²⁾	250 ²⁾	300 ²⁾	300 ²⁾
kvs-value m ³ /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 ^S	63 ^S	100 ^S	160 ^S	250 ^S	400 ^S	400 ^S	500	630	800	1000
	D		31.5 ^S	50 ^S	80 ^S	125 ^S	200 ^S	315 ^S	315 ^S	400	500	630	800
Stroke		mm	30	50		60		75	80		90	80	90
08M.. 08U..	t	s	35	55		65			85				
	Δp _s	kPa	1800	1300	800	450	300		150				
10M.. 10U..	t	s	50	80		95			125				
	Δp _s	kPa	2150	1500	950	500	350		200				
12M.. 12U..	t	s	65	105		125			165			165	
	Δp _s	kPa	2500	1900	1200	650	450		250	150		1900	
315M.. 315U..	t ¹⁾	s				165	205						
						100	115						
	Δp _s	kPa				960	670	370					
320M.. 320U..	t ¹⁾	s				155		205		225			225
						80		105		120			120
	Δp _s	kPa				1400	980	540		340			240
325M.. 325U..	t ¹⁾	s				155		205		225			225
						80		105		120			120
	Δp _s	kPa				1800	1250	690		440			310

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

¹⁾ Please state the actuating time

²⁾ PN16

³⁾ Available with perforated plug

⁵⁾ 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 ¹⁾		3-point	0...10 VDC 100 kOhm	0(4)...20 mA ²⁾ 100 Ohm
Output signal		-	0...10 VDC max. 10 mA min. 1200 Ohm	0(4)...20 mA ²⁾ 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	

¹⁾ Invertible input signal

²⁾ 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 ¹⁾		3-point	0...10 VDC 100 kOhm	0(4)...20 mA ²⁾ 100 Ohm
Output signal		-	0...10 VDC max. 10 mA min. 1200 Ohm	0(4)...20 mA ²⁾ 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	

¹⁾ Invertible input signal

²⁾ 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 ¹⁾		3-point	0...10 VDC 100 kOhm	0(4)...20 mA ²⁾ 100 Ohm
Output signal		-	0...10 VDC max. 10 mA min. 1200 Ohm	0(4)...20 mA ²⁾ 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	

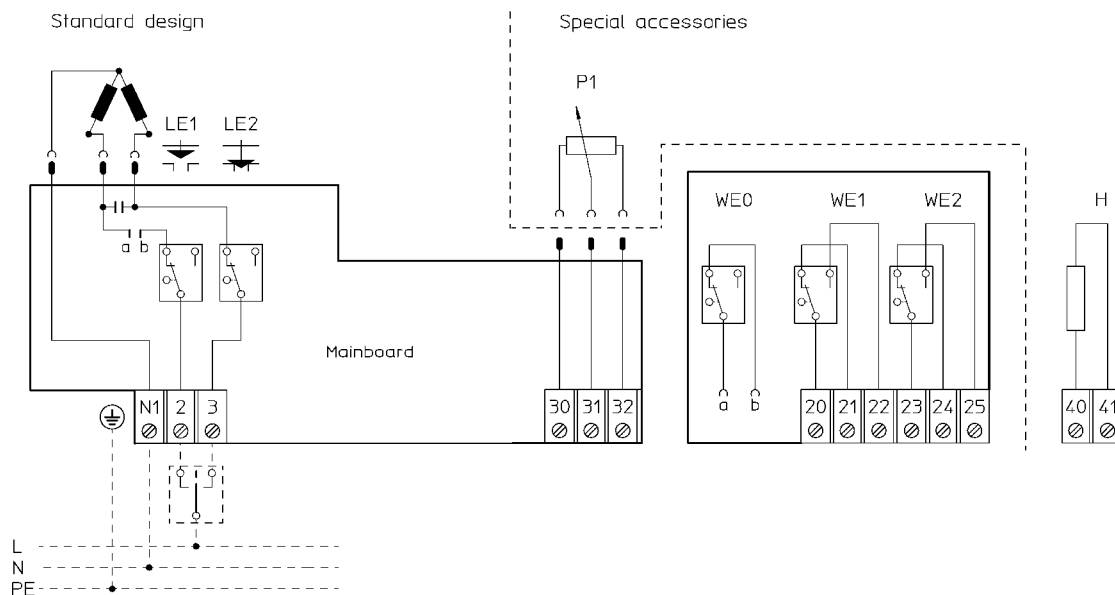
¹⁾ Invertible input signal

²⁾ Please state when ordering !

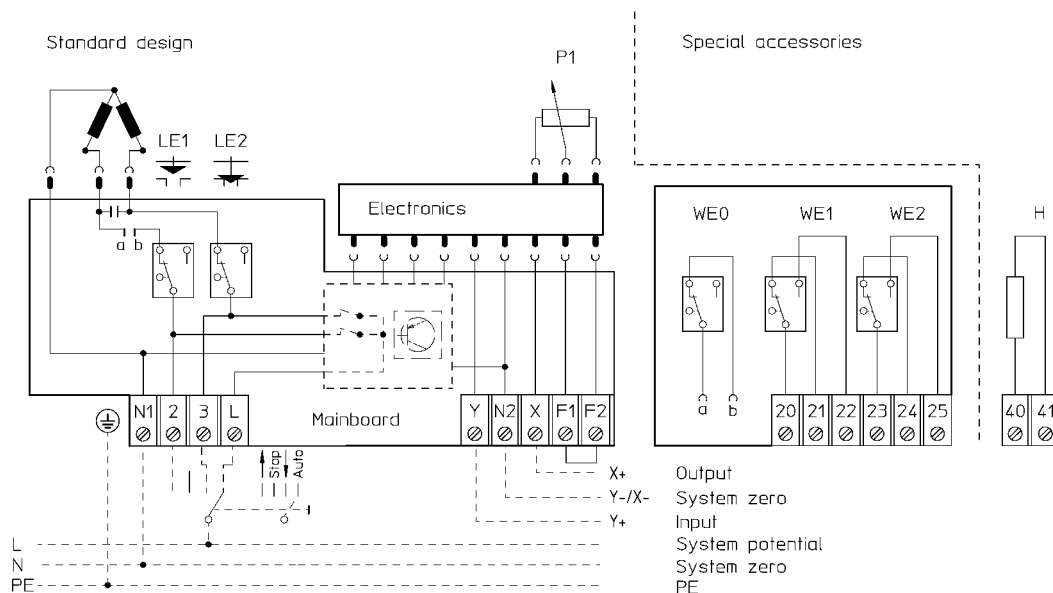


ELECTRICAL WIRING 08.. / 10.. / 12..

3 POINT CONTROL

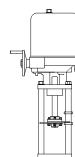


MODULATING CONTROL



F1/F2 Connection of a binary signal

TECHNICAL DATA VALVE ACTUATOR SERIES 315..

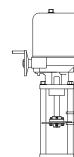


ACTUATOR TYPE		315M21	315U21	315i21
Actuating time	s/mm	1.5	1.5	1.5
Actuating thrust	N	15.000	15.000	15.000
Stroke	mm	max. 75	max. 75	max. 75
Power supply	VAC	230 ±10%	230 ±10%	230 ±10%
Frequency	Hz	50/60 ±5%	50/60 ±5%	50/60 ±5%
Power consumption	VA	150	180	180
Input signal ¹⁾		3-point	0(2)...10 VDC 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	

¹⁾ Invertible input signal

TECHNICAL DATA VALVE ACTUATOR SERIES 320..

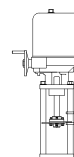


ACTUATOR TYPE		320M21		320U21		320i21	
Actuating time ¹⁾	s/mm	1.2	2.4	1.2	2.4	1.2	2.4
Actuating thrust	N	20.000		20.000		20.000	
Stroke	mm	max. 90		max. 90		max. 90	
Power supply	VAC	230 ±10%		230 ±10%		230 ±10%	
Frequency	Hz	50/60 ±5%		50/60 ±5%		50/60 ±5%	
Power consumption	VA	240	170	260	190	260	190
Input signal ²⁾		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	

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

²⁾ Invertible input signal

TECHNICAL DATA VALVE ACTUATOR SERIES 325..


ACTUATOR TYPE		325M21		325U21		325i21	
Actuating time ¹⁾	s/mm	1.2	2.4	1.2	2.4	1.2	2.4
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 ²⁾		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	

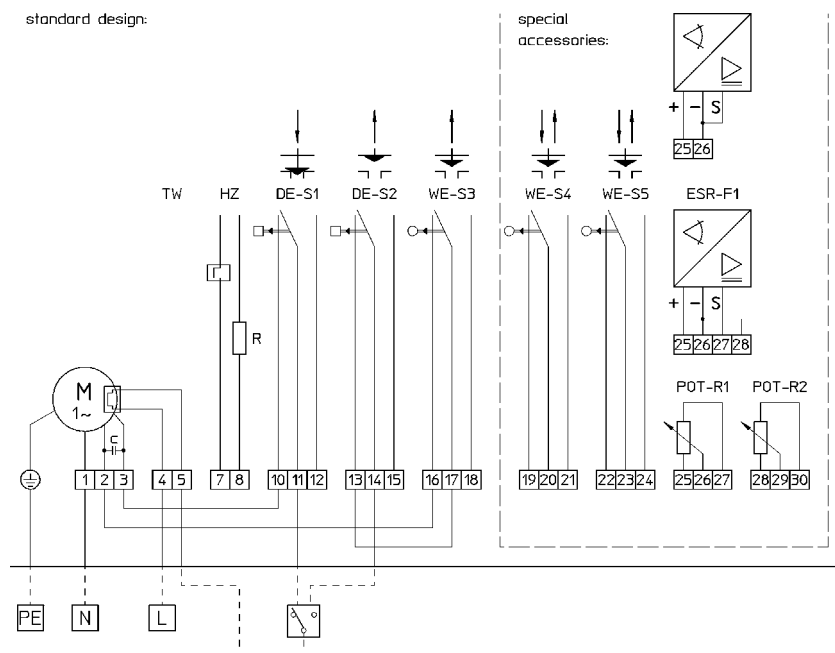
Enclosure protection:	IP 65		
Limit switches (motor):	max. rated load	resistive load :	10 A
		inductive load :	5 A
Operating mode:	S4-30% ED c/h 600	EN 60034-1	
End position switch-off:	2-way valves	extending actuator spindle :	load-dependent
	3-way valves	retracting actuator spindle :	travel (WE-S3)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

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

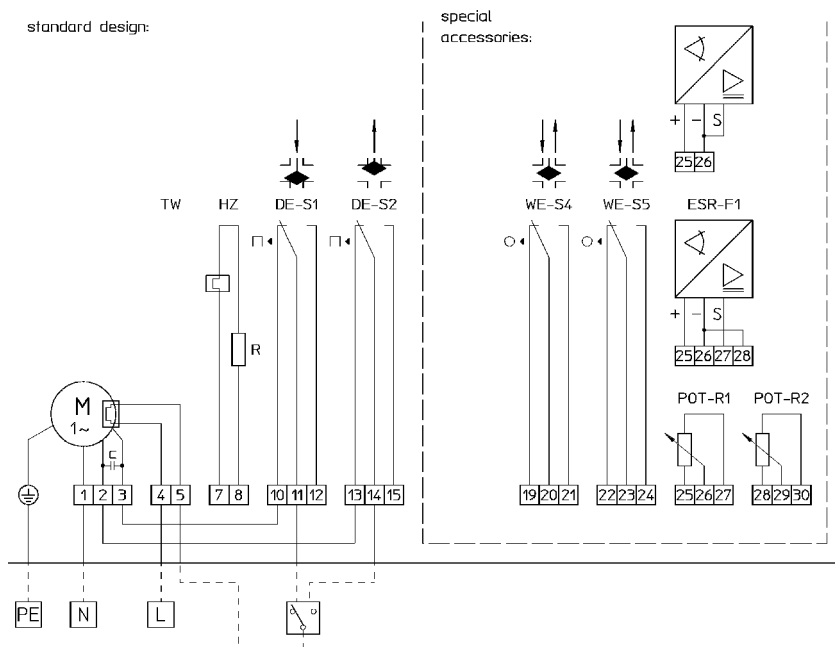
²⁾ Invertible input signal

ELECTRICAL WIRING

2-WAY VALVES – 3 POINT CONTROL



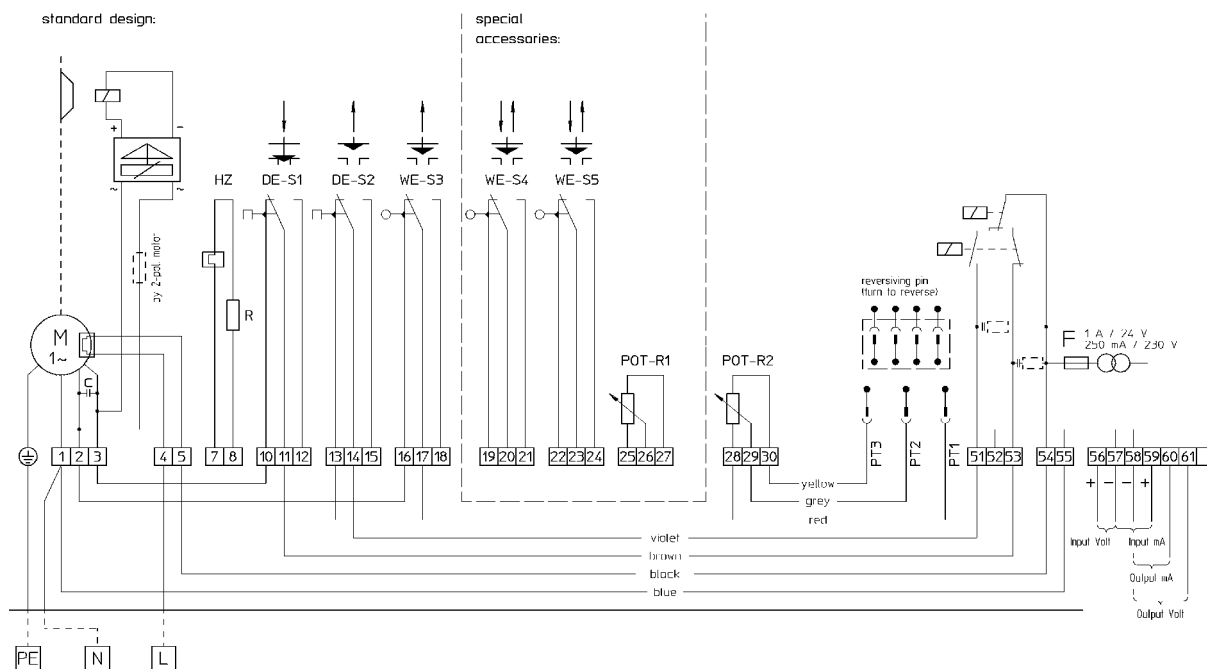
3-WAY VALVES - 3 POINT CONTROL



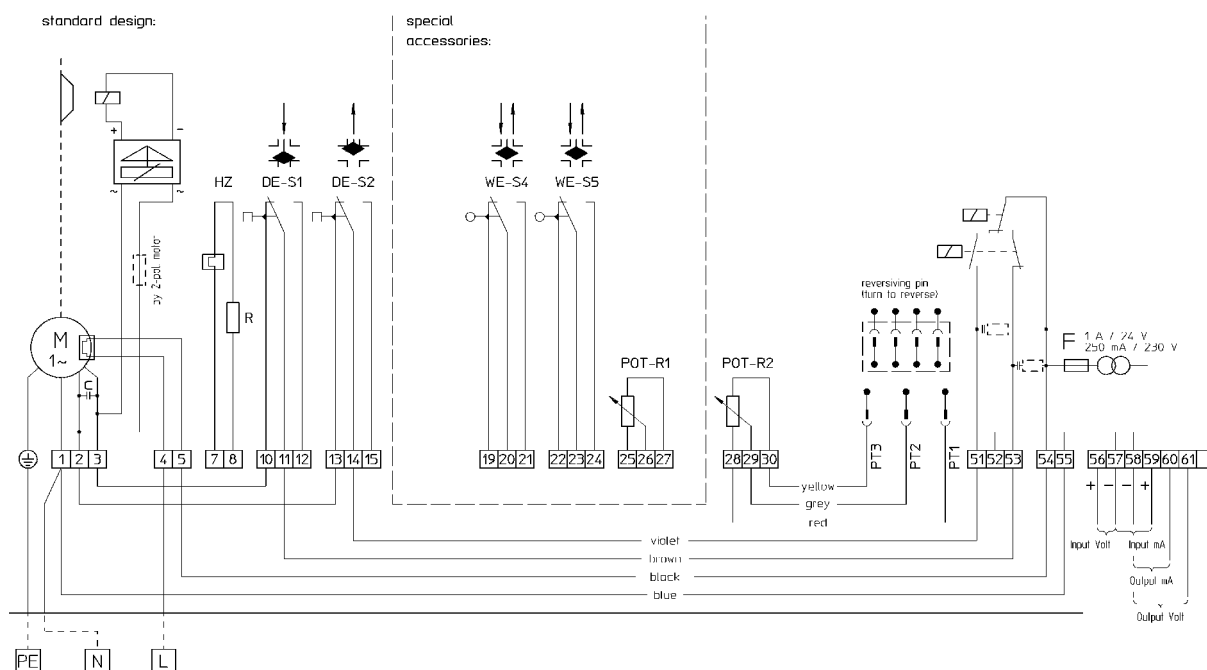


ELECTRICAL WIRING

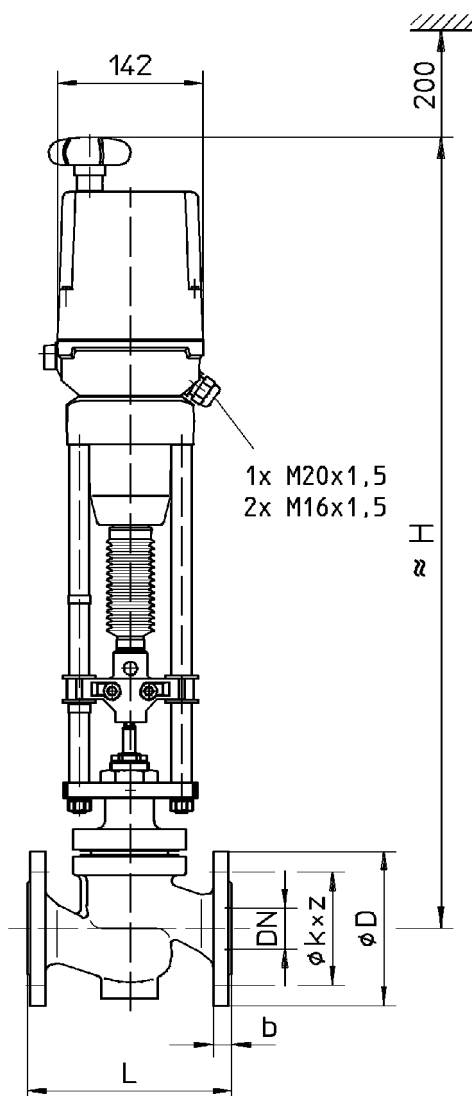
2-WAY VALVES - MODULATING CONTROL



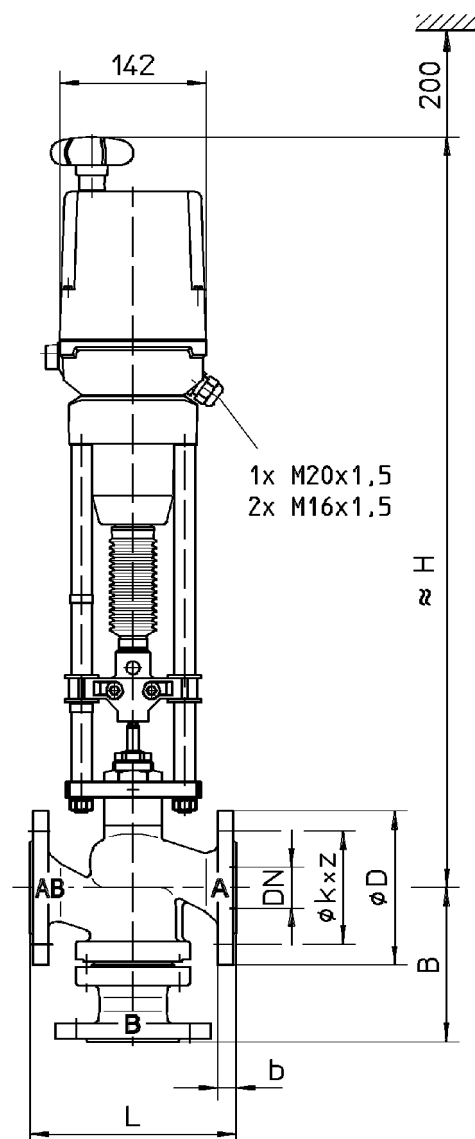
3-WAY VALVES - MODULATING CONTROL



DRAWING



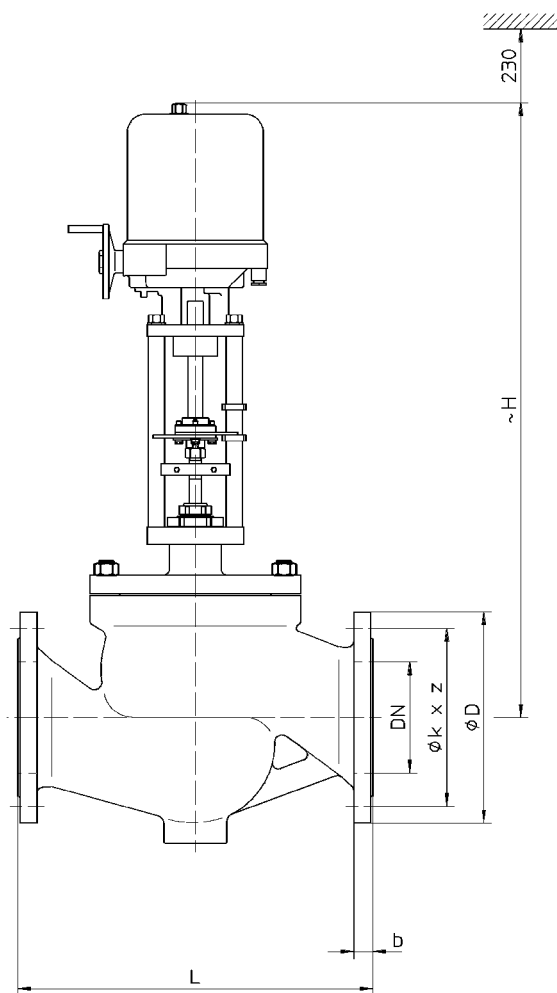
CX2F.. with series 08..
CX2F.. with series 10..
CX2F.. with series 12..



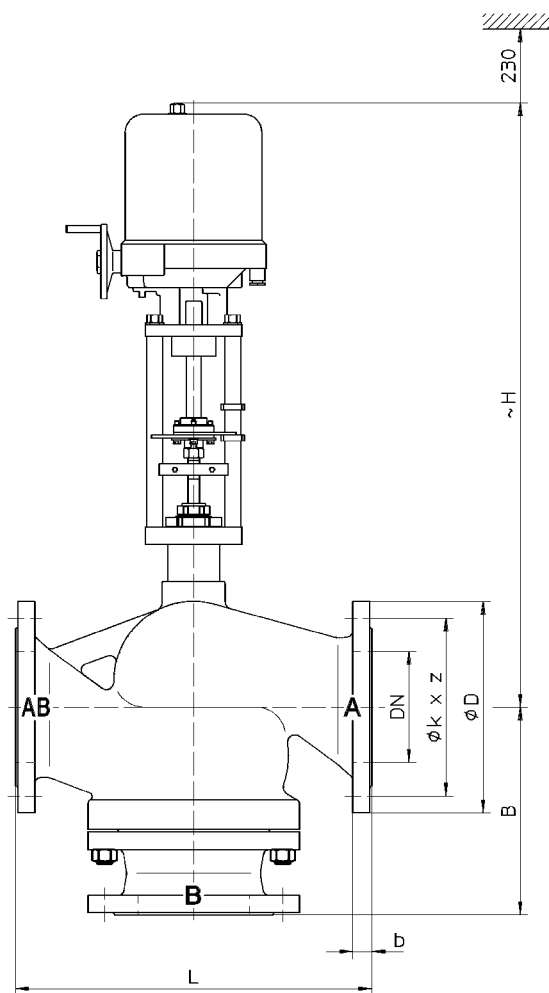
CX3F.. with series 08..
CX3F.. with series 10..
CX3F.. with series 12..



DRAWING



CX2F.. with series 315..
CX2F.. with series 320..
CX2F.. with series 325..



CX3F.. with series 315..
CX3F.. with series 320..
CX3F.. with series 325..



DIMENSIONS / WEIGHTS

DN			65	80	100	125	150	200 ¹⁾	250 ¹⁾	300 ¹⁾	
L			mm	290	310	350	400	480	600	730	850
B			mm	170	215	215	260	280	400	450	550
PN 16	Ø D	mm	185	200	220	250	285	340	405	460	
	Ø k	mm	145	160	180	210	240	295	355	410	
	z	mm	4x Ø18	8x Ø18			8x Ø22	12x Ø22	12x Ø26		
	b	mm	20	20	22	24	24	30	32	32	
PN 25	Ø D	mm	185	200	235	270	300				
	Ø k	mm	145	160	190	220	250				
	z	mm	8x Ø18		8x Ø22	8x Ø26					
	b	mm	20	20	22	24	24				
H	08.. 10..	CX2F	mm	790	810	855	910	935	1000		
		CX3F	mm	760	790	820	855	875	985		
	12..	CX2F	mm	790	810	855	910	935	1000	1055	1115
		CX3F	mm	760	790	820	855	875	985	1035	1080
	315..	CX2F	mm				815	840	905		
		CX3F	mm				760	780	890		
	320.. 325..	CX2F	mm				900	925	990	1045	1105
		CX3F	mm				885	905	980	1030	1085
m	08.. 10..	CX2F	kg	27	40	52	71	103	240		
		CX3F	kg	30	44	55	83	114	280		
	12..	CX2F	kg	27	40	52	71	103	240	300	390
		CX3F	kg	30	44	55	83	114	280	345	450
	315..	CX2F	kg				78	110	247		
		CX3F	kg				90	121	287		
	320.. 325..	CX2F	kg				83	115	252	312	402
		CX3F	kg				95	126	292	357	462

¹⁾ PN16



Specialized periphery integrator in HVAC

PRODUCT DATASHEET
MOTORIZED 2- OR 3-WAY CONTROL VALVES
TYPE CX..

PN25



flanged





Specialized periphery integrator in HVAC

PRODUCT DATASHEET
MOTORIZED 2- OR 3-WAY CONTROL VALVES
TYPE CX..

PN25



flanged