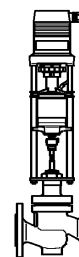


Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
MC253SE/24 • MC253SE/230



**BR225
BR240S
BR240E**

Features

- Control valves with fail-safe function in HVAC systems and industrial plants (district heating) for water, condensate and steam 0...+200°C
- For controlling temperature of district heating plants, cooling coils, steam humidifiers etc., with automatic closing or opening on power failure or safety contact.
- actuator with electrical manual override operation
- Microprocessor controlled with automatic self-calibration on start up

Technical data valve

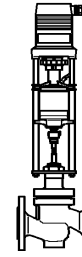
Series	BR225/240S/240E			
Form	Two-way			
Diameter nominal	DN 15 – DN 100			
Pressure rating	PN 16	PN 25	PN 40	PN 40
Body	Spheroidal graphite	EN-JS1024	Cast steel 1.0619+N	Stainless steel 1.4408
Plug		CrNi-steel 1.4057		CrNi-steel 1.4571
Stem		CrMo-steel 1.4122		CrNi-steel 1.4571
Characteristics	\leq DN 50: equal % \geq DN 65: equal % mod.			
Stroke mm	20 (DN 15 – DN 40) 30 (DN 50 – DN 65) 40 (DN 80 – DN 100)			
Rangeability	\geq 100:1			
Connection type	Flanges acc. EN 1092-2 type 21		Flanges acc. EN 1092-1 type 21	
Pressure, Temp.	Acc. EN 1092 part 2		Acc. EN 1092 part 1	

Series	BR225/240S/240E with balanced plug			
Form	Two-way			
Diameter nominal	DN 32 – DN 100			
Pressure rating	PN 16	PN 25	PN 40	PN 40
Body	Spheroidal graphite	EN-JS1024	Cast steel 1.0619+N	Stainless steel 1.4408
Plug		CrNi-steel 1.4057		CrNi-steel 1.4571
Stem		CrMo-steel 1.4122		CrNi-steel 1.4571
Characteristics	\leq DN 50: equal % \geq DN 65: equal % mod.			
Stroke mm	20 (DN 32 – DN 40) 30 (DN 50 – DN 65) 40 (DN 80 – DN 100)			
Rangeability	\geq 100:1			
Connection type	Flanges acc. EN 1092-2 Typ 21		Flanges acc. EN 1092-1 Typ 21	
Pressure, temp.	Acc. EN 1092 Teil 2		Acc. EN 1092 Teil 1	

Face to face dimension: acc. EN 558-1 basic series 1

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**BR225
 BR240S
 BR240E**

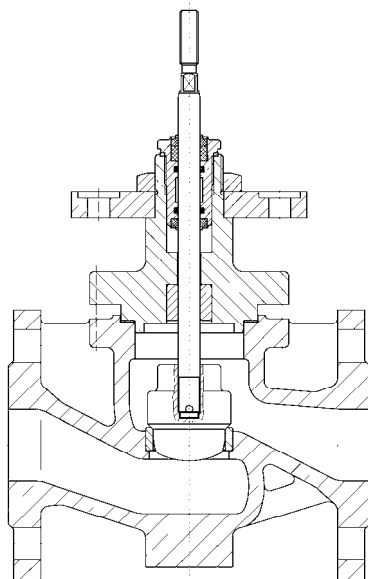
Leakage rate: acc. EN 1349 – seat leakage IV L1 ($\leq 0.01\%$ of kvs-value)

Stem sealing: O-Ring made of EPDM 0...+180°C chilled and hot-water
 O-Ring made of Fluoraz[®] 0...+200°C chilled and hot-water, condensate and steam

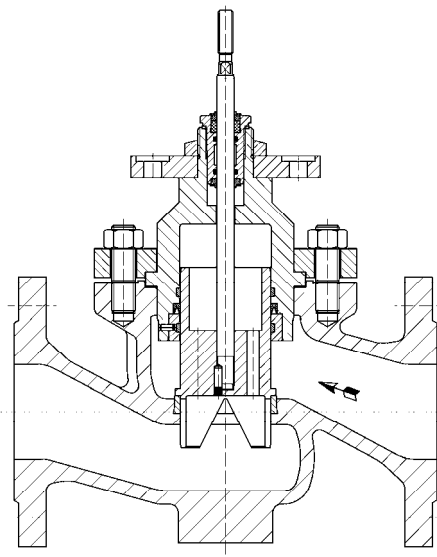
Valve variant and accessories

- 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
- Screwed seat: for valves made of spheroidal graphite and cast steel made of 1.4122,
 unhardened or hardened
 for valves made of stainless steel made of 1.4571
- Perforated plug: for valves made of spheroidal graphite and cast steel made of 1.4057,
 unhardened or hardened
 for valves made of stainless steel made of 1.4571
- 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)
- technical silicon free version, max. 180°C
- Balanced plug, max. operating temperature 200°C

Drawing



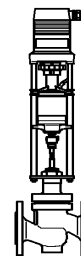
BR225/240S/240E



BR225/240S/240E with balanced plug

Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
MC253SE/24 • MC253SE/230



BR225
BR240S
BR240E

Technical data MC103SE

Type		MC103SE/24	MC103SE/230
Actuating time ¹⁾	s/mm	6 · 4*	6 · 4*
Fail-safe time	s/mm	approx 0.1	approx 0.1
Actuating thrust	kN	1.0	1.0
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 25	max. 20
Input signal ²⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ²⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ³⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Type		MC253SE/24	MC253SE/230
Actuating time ¹⁾	s/mm	5 · 2.5*	5 · 2.5*
Fail-safe time	s/mm	approx 0.1	approx 0.1
Actuating thrust	kN	2.5	2.5
Stroke	mm	max. 40	max. 40
Power supply	VAC	24 ±10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 50	max. 80
Input signal ²⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ²⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ³⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Enclosure protection: IP 54

Fail-safe function: stem extended on power failure (TÜV-tested)

Resolution: electric 0.04 VDC
mechanical 0.05 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

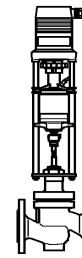
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ Invertible input and output signal

³⁾ Freely adjustable

Flanged connection
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With electric actuators with fail-safe function
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BR225
 BR240S
 BR240E

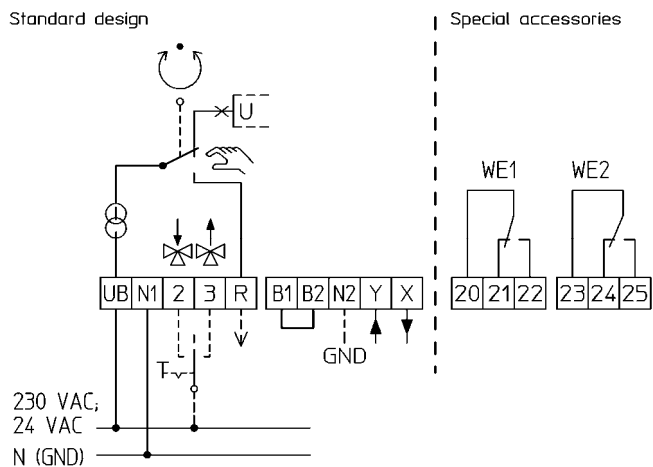
End position switch-off:	load-dependent	
Ambient temperature:	0...+60°C	
Weight:	MC103SE	5.0 kg
	MC253SE	13.0 kg

Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit ¹⁾: 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
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Circuit diagram



R Feedback signal in „Manual“ mode of operation
 R=24 VAC max.100 mA for actuators in 24 VAC design
 R=24 VDC max. 35 mA for actuators in 230 VAC design, resistance of load > 480 Ohm

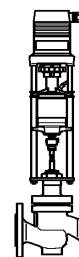
N2 Zero potential of the „X“, „Y“ and „R“ signals.
 If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection 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.

B1/B2 Connection of a binary signal (e.g. frost protection)

¹⁾ Position switch unit and output signal not in combination

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 MC103SE/24 • MC103SE/230
 MC253SE/24 • MC253SE/230



**BR225
 BR240S
 BR240E**

Technical data valve with actuator

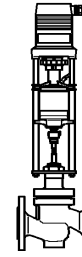
DN		15		20	25	32	40	50	65 ¹⁾	80	100 ¹⁾								
kvs-value	m ³ /h	4 ^L	2.5	6.3 ^L	10	16	25	40	63										
			1.6	5 ^{S/L}	8 ^{S/L}	12.5 ^S	20 ^S	31.5 ^S	50 ^S										
			1.25	4 ^L	6.3 ^L	10 ^L	16 ^L	25 ^L	40 ^L										
			1.0	2.5 ^{S/L}	5 ^{S/L}	8 ^{S/L}	12.5 ^{S/L}	20 ^{S/L}	31.5 ^{S/L}										
			0.63								100	160							
			0.4								80 ^S	125 ^S							
	0.25								63 ^L	100 ^L									
	0.16								50 ^{S/L}	80 ^{S/L}									
Stroke	mm	20					30			40									
MC103SE/24	Actuating time	s		120															
		s		80*															
MC103SE/230	Fail-safe time	s		~ 2															
		Closing pressure	kPa		1250	3500	1250	1050	600	350									
MC253SE/24	Actuating time		s		100					150		200							
		s		50*					75*		100*								
MC253SE/230	Fail-safe time	s		~ 2					~ 3		~ 4								
		Closing pressure	kPa		4000	4000	4000	3700	2300	1500	900	560	350	200					
MC103SE/24	Actuating time		s		Valves with balanced plug					120									
		s		80*															
MC103SE/230	Fail-safe time	s		Valves with balanced plug						~ 2									
		Closing pressure	kPa							1800	1600								
MC253SE/24	Actuating time		s						Valves with balanced plug					100		150		200	
		s												50*		75*		100*	
MC253SE/230	Fail-safe time	s		Valves with balanced plug										~ 2		~ 3		~ 4	
		Closing pressure	kPa											4000	4000	4000	4000	4000	4000

100 kPa = 1 bar = 10 mWS
 The closing pressure is limited by the nominal pressure

¹⁾ PN 16 or PN25-40
^{L)} Available with perforated plug
^{S)} Special kvs-value

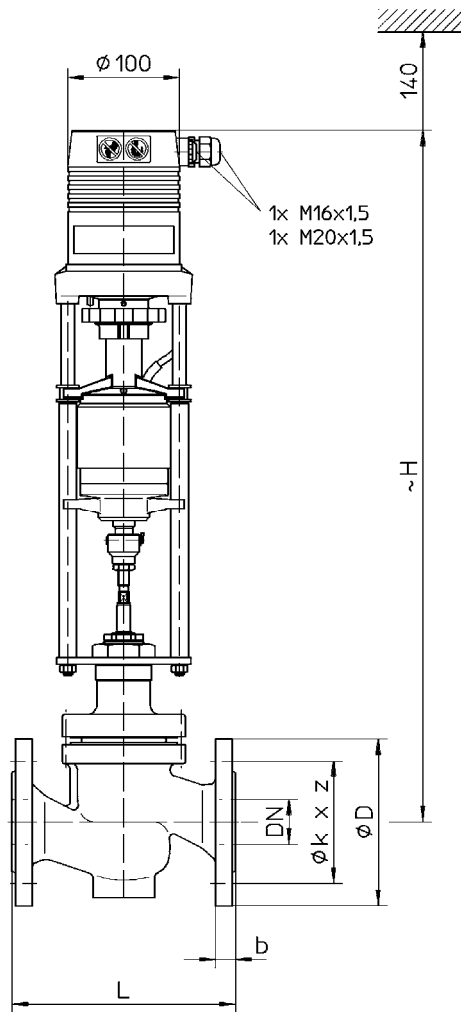
Flanged connection
 PN 16 – 40
 Spheroidal graphite
 Cast steel
 Stainless steel

With electric actuators with fail-safe function
 MC103SE/24 • MC103SE/230
 MC253SE/24 • MC253SE/230



**BR225
 BR240S
 BR240E**

Drawing



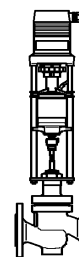
MC103SE
 MC253SE

Installation instruction:

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

Flanged connection
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 Spheroidal graphite
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With electric actuators with fail-safe function
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 MC253SE/24 • MC253SE/230



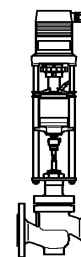
**BR225
 BR240S
 BR240E**

Dimension

DN		15	20	25	32	40	50	65	80	100	
L	mm	130	150	160	180	200	230	290	310	350	
	∅ D	95	105	115	140	150	165	185	200	220	
	∅ k	65	75	85	100	110	125	145	160	180	
	z	4x ∅14			4x ∅18				8x ∅18		
	b	16	16	18	18	18	20	20	20	22	
PN 16	∅ D	95	105	115	140	150	165	185	200	235	
	∅ k	65	75	85	100	110	125	145	160	190	
	z	4x ∅14			4x ∅18				8x ∅18		
	b (Spheroidal graph.)	16	16	18	18	18	20	20	20	22	
	b (Cast steel / stainless steel)	16	18	18	18	18	20	22	24	24	
H	MC103 SE/24	604	604	604	616	616					
	MC103 SE/230	629	629	629	641	641					
	MC253 SE	855	855	855	867	867	877	888	903	949	
	MC103 SE/24 balanced plug				639	639					
	MC103 SE/230 balanced plug				664	664					
	MC253 SE balanced plug				890	890	903	914	928	974	
	mm										

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 MC253SE/24 • MC253SE/230



**BR225
 BR240S
 BR240E**

Weight

PN16 / PN25

DN		15	20	25	32	40	50	65	80	100	
m	MC103SE	kg	10	12	13	14	17				
	MC253SE	kg	18	20	21	22	25	26	30	43	55
	MC103SE	balanced plug	kg			15	18				
	MC253SE	balanced plug	kg			23	26	27	31	43	59

PN40

DN		15	20	25	32	40	50	65	80	100	
m	MC103SE	kg	13	14	16	19	20				
	MC253SE	kg	21	22	24	27	28	33	41	51	66
	MC103SE	balanced plug	kg			20	21				
	MC253SE	balanced plug	kg			28	29	34	42	54	70