FCE

Control Valve

- Complete package for general purpose applications
- Special design for modulating
- Quick maintenance and easy trim exchange
- Low friction seat seal
- Blow-out proof stem design
- ANSI Class150 and DIN PN16
- Strong and compact pneumatic actuator
- Smart and robust positioner with display
- No pilot air consumption after reaching the set point
- m-tech provides fully engineered sizing protocolls upon request

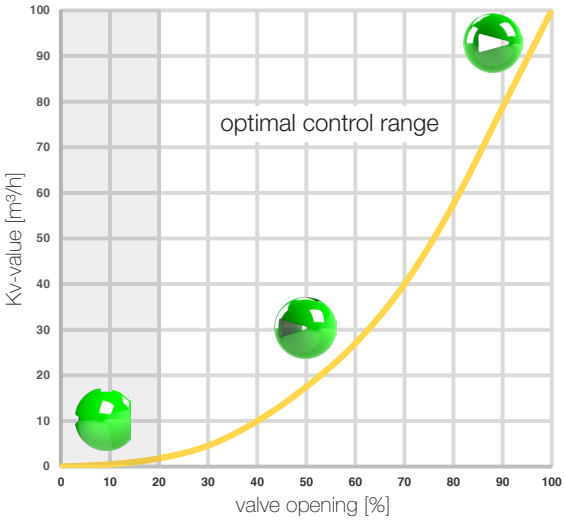
This high end equipment, as a Final Control Element, is used to control conditions such as flow, pressure, temperature and level by fully or partially opening or closing in response to signals received from the process controller.
FCE control valve from m-tech consists of a Top Entry style valve body with pneumatic actuator and smart positioner, all in a compact and rugged package to ensure the best solution for any demanding control application where both excellent control characteristic and long lifetime are required.

Technical data

Pressure range	16 bar / Class150
Process connections:	Flanges ANSI Class150 and DIN PN16 acc. to ANSI B16.5
Nominal diameter	DN15 to DN65 (½" to 2½")
Body Material	Stainless steel
Trim and stem	Hard chrome coated stainless steel
Seat seal	TFM
Temperature range	-10°C to +150°C (+10°F to +300°F)
Leak rate	Class VI acc. to IEC 534-4/EN 1349
Actuator design	Pneumatic quarter turn actuator
Actuator function	Normally close (NC) or Double acting (DA)
Ambient temperature	0°C to +60°C (+32°F to 140°F)
Type of protection	IP65/IP67 acc. to EN60529
Operating voltage	24 V DC +/-10% (5W power consumption)
Set point setting	0/4 to 20mA and 0 to 5/10V
Analogue feedback	4-20 mA, 0-20mA, 0-10 V, 0-5V
Binary input	Galvanically isolated, 0-5 V = log "0", 10-30 V = log "1"
Pilot air ports	Threaded ports G ¼
Pilot media	Neutral gases, air acc. to DIN ISO 8573-1 / 5-7 bar (2-6,9 psi)

Version June 2016

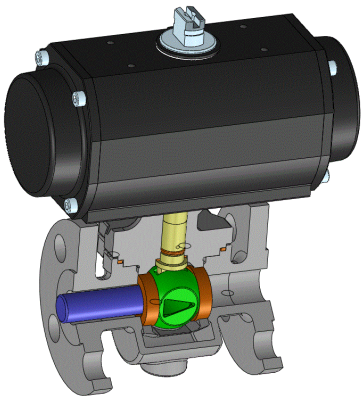
Flow coefficient (Kv) and function



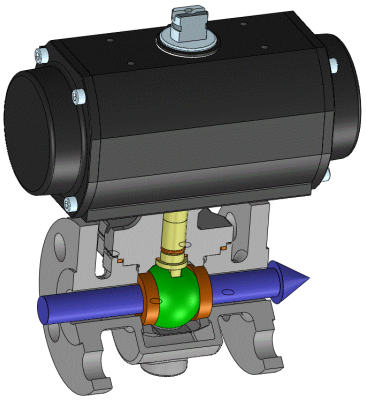
Kv-value [m³/h]

Valve opening	DN15	DN20	DN25	DN40	DN50	DN65
(%)	½”	¾”	1”	1½”	2”	2½”
100	4,2	7,0	14,0	37,0	43,0	54,5
90	3,6	6,5	12,5	26,5	34,0	42,0
80	3,1	5,0	9,0	19,5	25,0	30,0
70	2,3	3,5	6,0	13,0	16,5	21,5
60	1,7	2,0	3,5	9,0	11,5	15,5
50	1,1	1,5	2,0	5,3	7,5	9,3
40	0,6	0,7	1,1	2,9	4,8	5,3
30	0,2	0,3	0,3	1,4	2,0	2,0
20	0,05	0,05	0,1	0,5	0,8	0,4
0	0,0	0,0	0,0	0,0	0,0	0,0

aprox. equal percentage 50:1

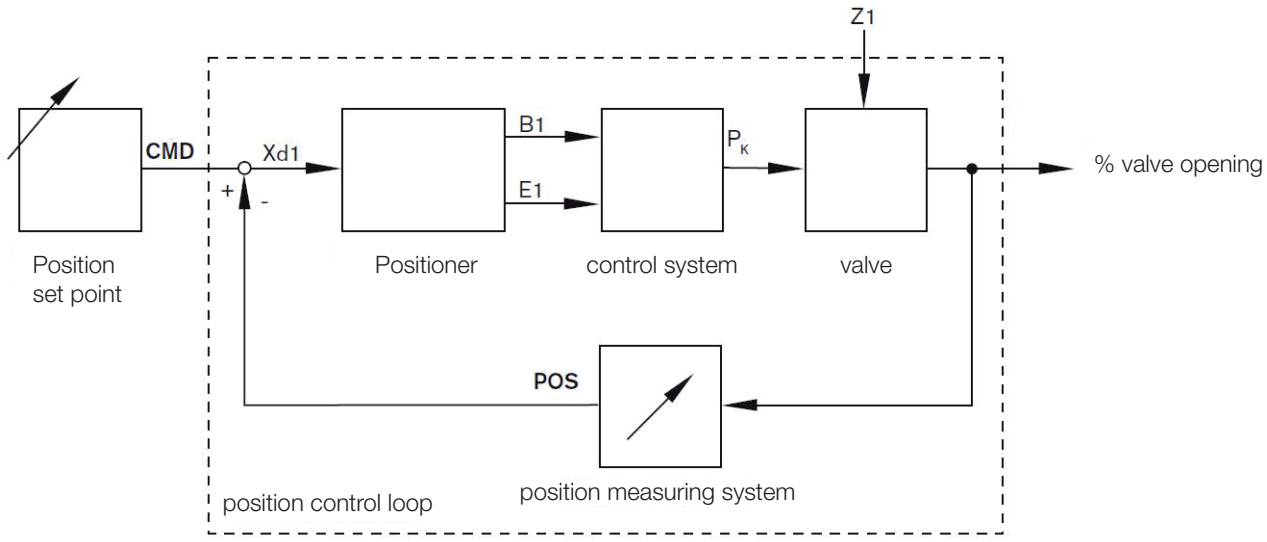


◆ closed position

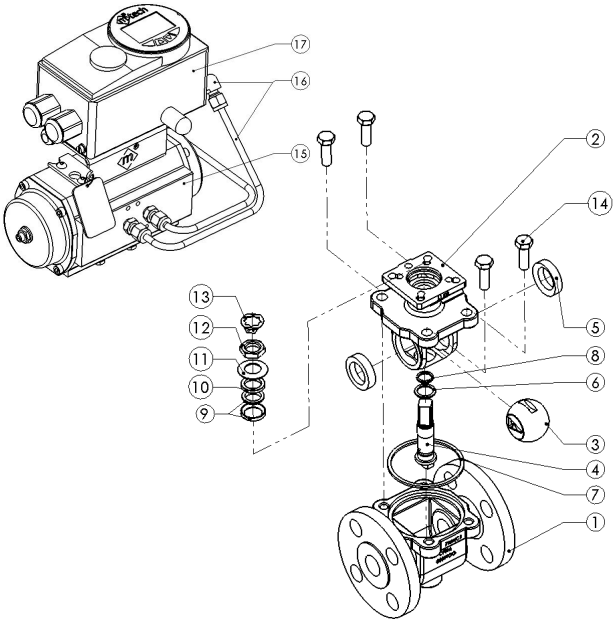


◆ open position

Signal flow plan

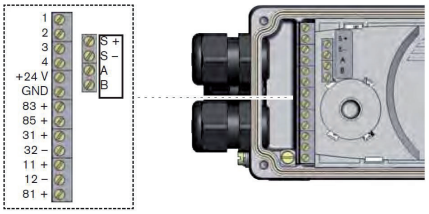


Material specifications



Position	Description	Material
1	Body Flange	CF8M / 1.4408
2	Bonnet	CF8M / 1.4408
3	V-Ball	SS 316
4	Stem	SS 316
5	Seat	TFM
6	Thrust washer	TFM
7	Gasket	TFM
8	O-ring	VITON (FPM)
9	Stem packing	TFM
10	Space washer	SS 304
11	Disc washer	SS 301
12	Stem nut	SS 304
13	Nut stop	SS 304
14	Bonnet bolts	Grade B8
15	Pneumatic actuator	Anodized aluminium
16	Pneumatic tubing and connections	SS 316
17	Digital electro-pneumatic positioner	Aluminium plastic-coated

Electrical connections



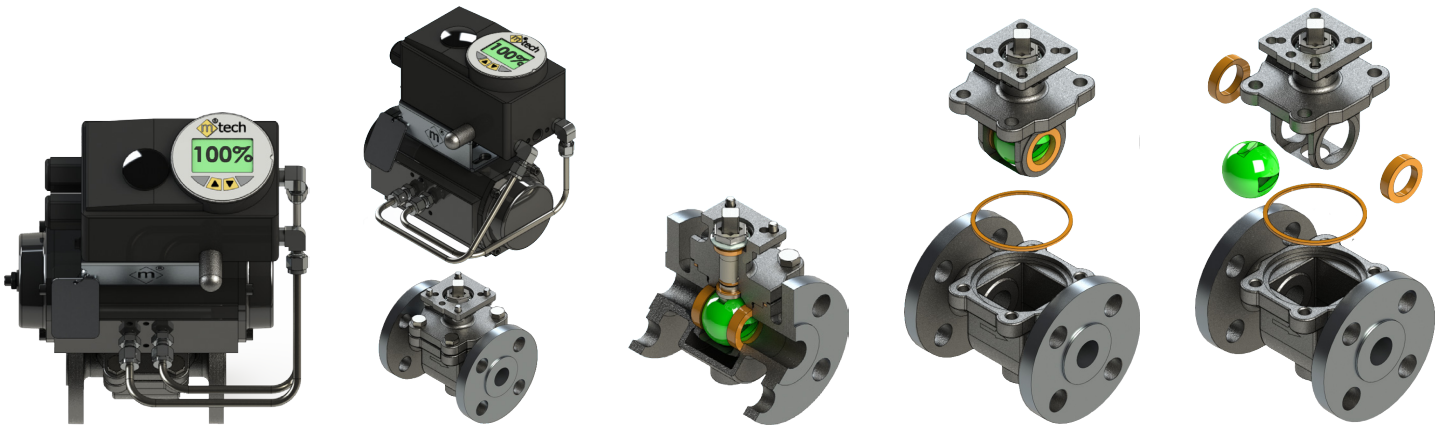
- Cable gland connection

Terminal	Configuration	External circuitry / signal level
11+	Setpoint +	11+ ——— + (4-20 mA or 0-10 V) Completely galvanically separated
12-	Setpoint GND	12- ——— GND
81+	Binary input +	81+ ——— + 0...5 V (log. 0) / 10...30 V (log.1)
+24 V	Operating voltages +	+24 V ——— 24 V DC ± 10 %
GND	Operating voltages GND	GND ——— max. residual ripple 10 %

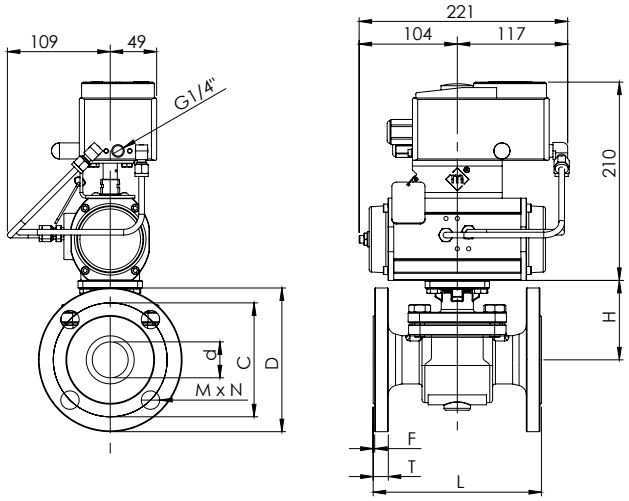
- Analogue feedback / binary output

Terminal	Configuration	External circuitry / signal level
83+	Binary output 1	83+ ——— 24 V / 0 V, NC / NO Obtained at GND operating voltages (GND clamps)
85+	Binary output 2	85+ ——— 24 V / 0 V, NC / NO Obtained at GND operating voltages (GND clamps)
31+	Analogue feedback +	31+ ———→ + (0/4-20 mA or 0-5/10 V) Completely galvanically separated
32-	Analogue feedback GND	32- ———→ GND

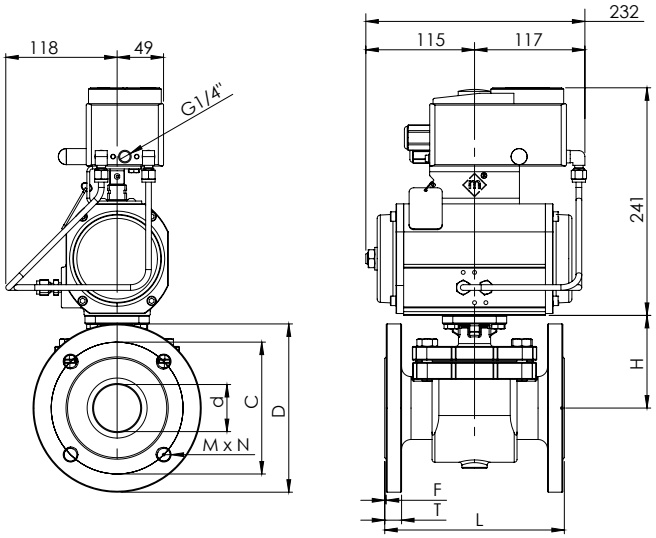
Trim exchange and maintenance



Dimensions



◆ Actuator S5 NC/DA



◆ Actuator S10 NC/DA

ANSI Class 150 / ANSI B16.5 / DIN EN 558-1 Series 3

DN	inch.	d	H	L	D	C	M	N	T	F	Actuator
15	½”	15	65	108	88,9	60,5	16	4	11,2	1,6	S5NC/S5DA
20	¾”	19,5	65	117	98,5	69,9	16	4	11,2	1,6	S5NC/S5DA
25	1”	19,5	65	127	108	79,5	16	4	11,2	1,6	S5NC/S5DA
40	1 ½”	32	75,5	165	127	98,5	16	4	14,3	1,6	S10NC/S5DA
50	2”	38	80,5	178	152,4	120,7	19	4	15,9	1,6	S10NC/S5DA
65	2 ½”	46	98	190	177,8	139,7	19	4	17,8	1,6	S10NC/S10DA

PN16 / DIN EN 1092 / DIN EN 558-1 Series 1

DN	inch.	d	H	L	D	C	M	N	T	F	Actuator
15	½”	15	65	130	95	65	14	4	16	2	S5NC/S5DA
20	¾”	19,5	65	150	105	75	14	4	18	2	S5NC/S5DA
25	1”	19,5	65	180	115	85	14	4	18	2	S5NC/S5DA
40	1 ½”	32	75,5	200	150	110	18	4	18	3	S10NC/S5DA
50	2”	38	80,5	230	165	125	18	4	20	3	S10NC/S5DA
65	2 ½”	46	98	290	185	145	18	8	20	3	S10NC/S10DA

Options with this valve type

- Flange or thread end connections
- Normally closed or double acting actuator function
- Positioner without display
- Positioner with Profibus DPV1 or DeviceNet
- Other options and materials on request

Ordering code system

Ordering code system

1	2	3	4	5	6	7	8	9	10	11	12	13	-	
F	C	E	1	5	A	D	R	D	A	0	5	1	-	...

Serie

Size	
Code 4-5	
mm	inch
15	1/2"
20	3/4"
25	1"
40	1 1/2"
50	2"
65	2 1/2"

Connections	
Code 7	Norm
A	ANSI Class150 Flanges
D	DIN PN16 Flanges
G	ISO 228 Threads

Actuator	
Code 9-10	Actuation
NC	Normally Closed
NO	Normally Opened
DA	Double Acting

Positioner	
Code 13	Type
1	without display
2	with display

Other options
Defined by m-tech
Code 6
Trim version
Code 8
Sealing material

Code 11-12	
Actuator size	
05	S5
10	S10

Working conditions for engineered sizing

media				
	min.	standard	max.	units
flow rate, q				
media temperature, T1				
inlet pressure, P1				
outlet pressure, P2				