



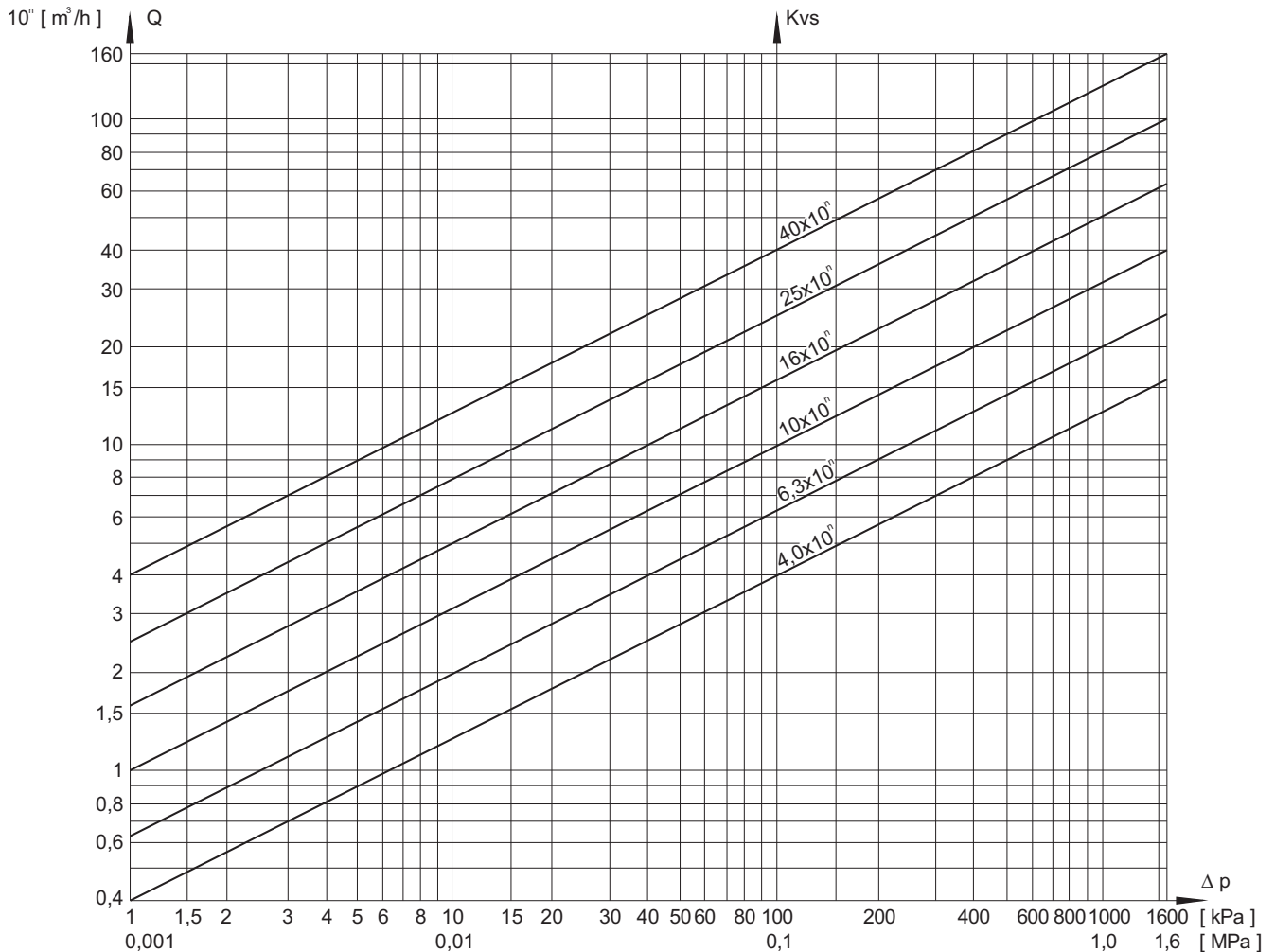
02 - 05.1
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CONTROL VALVES

G 45



Diagram for the valve Kvs value specification according to the required flow rate of water Q and the valve differential pressure Δp

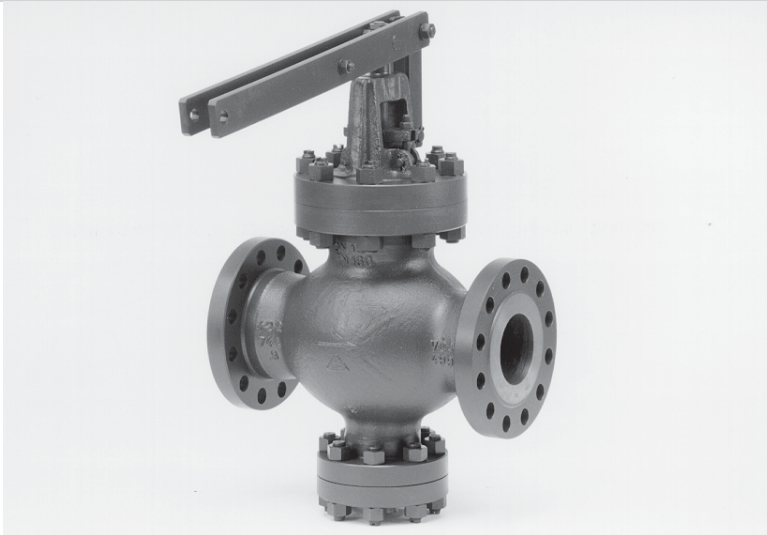


The diagram serves to specify the valve Kvs value regarding to the required flow rate of water at a given differential pressure. It can be also used for finding out the differential pressure value of the existing valve in behaviour with the flow rate. The diagram applies to water with the density of 1000 kg/m³.

For the value $Q = q \cdot 10^n$, it is necessary to calculate with $Kvs = k \cdot 10^n$. Example: water flow rate of $16 \cdot 10^{-1} = 1,6 \text{ m}^3/\text{hour}$ corresponds to $Kv = 2,5 = 25 \cdot 10$ when differential pressure 40kPa.

Valve complete specification No. for ordering G45

		X XX	X X X	- X XXX	/ XXX	- XXX
1. Valve	Control valve	G				
2. Series	Control valve, lever-actuated, double-seated with extended outlet	45				
3. Flow direction	Straight-through		1			
4. Connection	Flanged		1			
	Weld ends		2			
5. Actuating	Adjusted for remote control		5			
6. Material	Alloy steel 1.7357			2		
	Carbon steel 1.0619			5		
7. Nominal pressure PN	Acc. to the valve execution				XXX	
8. Max. operating temp. °C	Acc. to the valve execution					XXX
9. Nominal size DN	Acc. to the valve execution					XXX



G 45 115 ...

Lever
control valves

DN 150 to 400
PN 16 to 100

Description

The valve is double-seated, lever-actuated designed to be actuated with an electric or a pneumatic actuator possibly with an electric or a hydraulic cylinder. It is also possible to use linear or rotative actuator. Its control plug is always designed according to the parameters specified in the order and according to the required type of flow characteristic.

The valves can be delivered with lever actuators of the following producer: ZPA Pečky - Modact MPS, Modact Control MPS and Modact Variant MPR, possibly with linear actuators ZPA Pečky, Regada Prešov and rotative actuators Auma or Schiebel. The connection stem between the valve lever and the actuator is not a subject of the delivery unless it is ordered.

Application

The valve serves as a control, reducing or by-pass element with indirect, possibly with direct actuating. The max. permissible operating pressures acc. to EN 12 516-1 see page 14 of this catalogue. The intention to use the valve for higher temperatures must be agreed upon with the producer. The control valve's proper function depends on the sizing and execution of the control station, therefore the valve design and its specification is recommended to be carried out together with the producer.

Process media

The valves are designed to regulate the flow and pressure of liquids, possibly of vapours and gases e.g. water, steam and other media compatible with material of material of the valve inner parts. The valve max. differential pressure value is 4,0 MPa with respect to the pressure nominal and concrete conditions of operation (ratio p_1 / p_2 , creation of cavitation, above critical flow etc.)

Installation

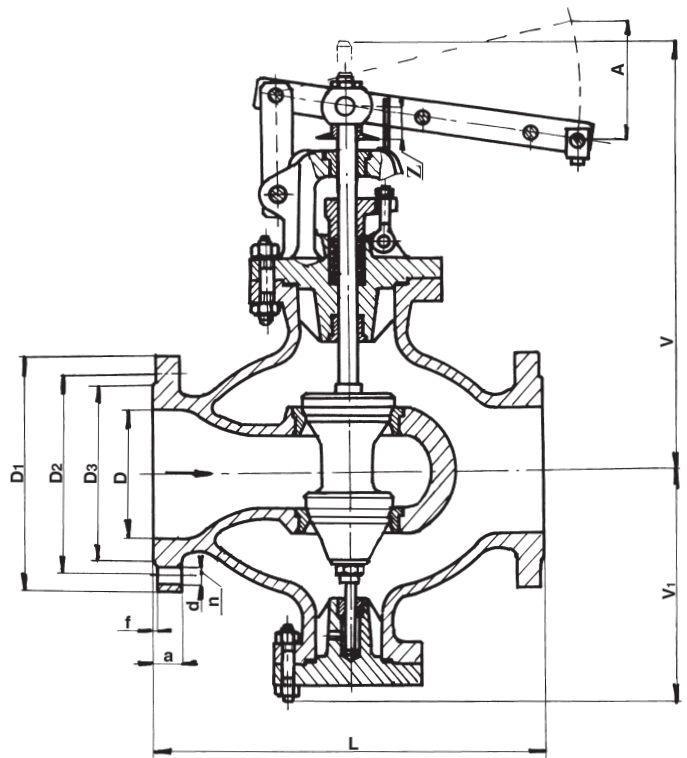
The valve can be piped only in a horizontal pipeline with vertically positioned stem and the valve lever positioned up above the valve body. The medium flow direction shall correspond to the arrows indicated on the valve body. The lever is mounted on the right side from the medium flow direction unless it is required otherwise.

Technical data							
Series	G 45 115 240	G 45 115 2100	G 45 115 516	G 45 115 525	G 45 115 540	G 45 115 564	G 45 115 5100
Type of valve	Lever control valve, flanged, straight-through, double-seated						
Nominal size range	200	150	200, 300, 400	200, 400	200, 400	150	150
Nominal pressure	40	100	16	25	40	64	100
Body material	Alloy steel 1.7357			Cast steel 1.0619			
Operating temp. range	-20 to 550 °C			-20 to 400 °C			
Connection*	ČSN 13 1213	ČSN 13 1215	ČSN 13 1211	ČSN 13 1212	ČSN 13 1213	ČSN 13 1214	ČSN 13 1215
Type of trim	seat / seat cage - contoured plug						
Flow characteristic	Linear, equal-percentage acc. to ČSN EN 60 534-1 (4/1997)						
Flow area range F_s [cm ²]	17 - 200	10 - 110	17 - 408	17 - 408	17 - 408	10 - 110	10 - 110
Kvs values range	76,5 - 900	45 - 495	76,5 - 1836	76,5 - 1836	76,5 - 1836	45 - 495	45 - 495
Leakage rate	Class III acc. to ČSN EN 1349 (5/2001)						

*) mentioned ČSN are from 1963. After the agreement with the producer, it is possible to make the connection acc. to ČSN 13 1060 (7/1995) or ČSN EN 1092-1 (4/2002).

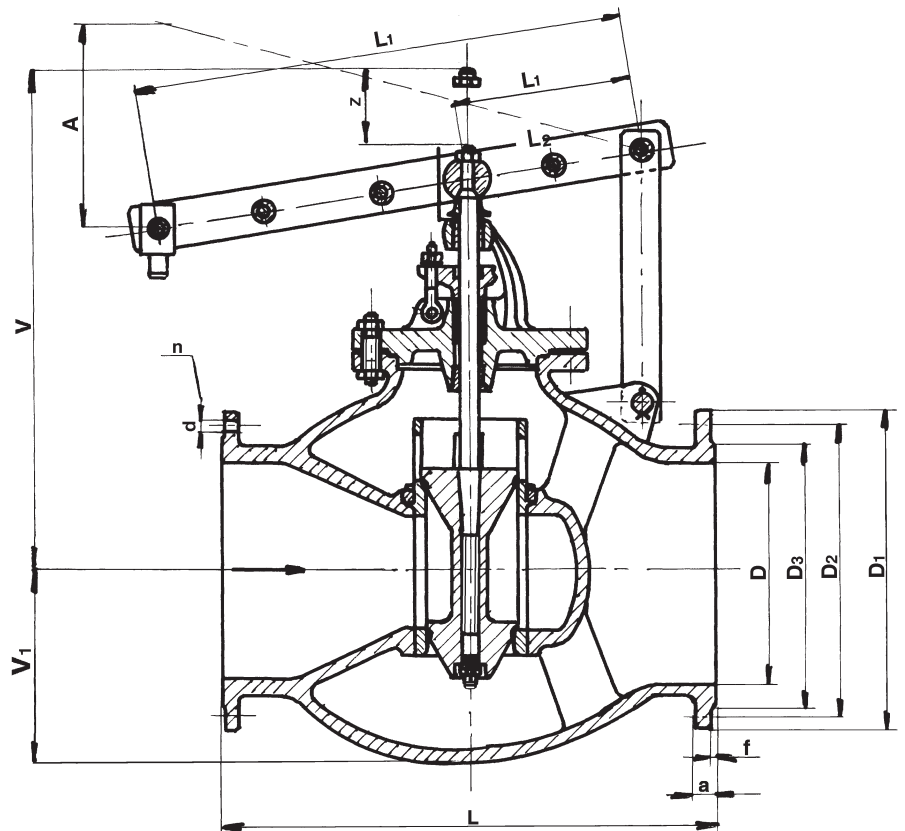
Dimensions and weights for the type G 45 115 DN 150 to 300

Type		G 45 115 516		G 45 115 525	G 45 115 240 G 45 115 540	G 45 115 564	G 45 115 2100 G 45 115 5100
DN	[mm]	200	300	200	200	150	150
D	[mm]	200	300	200	200	150	150
L	[mm]	600	850	600	600	600	600
~V	[mm]	680	930	680	680	660	660
~V ₁	[mm]	360	500	360	360	360	360
D ₁	[mm]	335	460	360	375	340	350
D ₂	[mm]	295	410	310	320	280	290
D ₃	[mm]	268	378	278	280	240	250
A	[mm]	270	270	270	270	280	280
f	[mm]	3	4	3	3	3	3
a	[mm]	24	28	30	34	36	44
d	[mm]	23	27	27	30	33	33
n	[mm]	12	12	12	12	8	12
Fs	[cm ²]	17-200	40-250	17-200	17-200	10-110	10-110
Kvs	[m ³ /h]	76,5-900	180-1125	76,5-900	76,5-900	45-495	45-495
m	[kg]	380	600	380	380	400	420



Dimension and weights for type G 45 115 DN 400

Type		G 45 115 516	G 45 115 525	G 45 115 540
DN	[mm]	400	400	400
D	[mm]	400	400	400
L	[mm]	900	900	900
L ₁	[mm]	856	856	856
L ₂	[mm]	306	306	306
~V	[mm]	910	910	910
~V ₁	[mm]	360	360	360
D ₁	[mm]	580	610	655
D ₂	[mm]	525	550	585
D ₃	[mm]	490	505	535
A	[mm]	280	280	280
f	[mm]	4	4	4
a	[mm]	50	50	50
d	[mm]	30	33	40
n	[mm]	16	16	16
Fs	[cm ²]	80-408	80-408	80-408
Kvs	[m ³ /h]	360-1836	360-1836	360-1836
m	[kg]	1023	1023	1023





G 45 125 ...

Lever control valves

DN 300
PN 40

Description

The valve is double-seat, lever-actuated, designed to be actuated with an electric actuator, possibly with an electric or a hydraulic cylinder. It is also possible to use linear or rotative actuator. Its control plug is always designed according to the parameters specified in the order and according to the required type of flow characteristic. The valves can be delivered with lever actuators of the following producer: ZPA Pečky - Modact MPS, Modact Control MPS and Modact Variant MPR, possibly with linear actuators ZPA Pečky, Regada Prešov and rotative actuators Auma or Schiebel. The connection stem between the valve's lever and the actuator is not a subject of the delivery unless it is ordered.

Application

The valve serves as a control, reduction or a by-pass valve with indirect or direct actuating. The max. permissible operating pressures acc. to EN 12 516-1 see page 14 of this catalogue. The intention to use the valve for higher temperatures must be agreed upon with the producer. The control valve proper function depends on the sizing and execution of the control station, therefore the valve design and its specification is recommended to be carried out together with the producer.

Process media

The valves are designed to regulate the flow and pressure of liquids, possibly of vapours and gases e.g. water, steam and other media compatible with material of the valve inner parts. The valve max. differential pressure value is 4,0 MPa with respect to the pressure nominal and concrete conditions of operation (ratio p_1 / p_2 , creation of cavitation, above critical flow etc.)

Installation

The valve can be piped only in a horizontal pipeline with vertically positioned stem and the valve lever positioned up above the valve body. The medium flow direction shall correspond to the arrows indicated on the valve body. The lever is mounted on the right side from the medium flow direction unless it is required otherwise.

Technical data

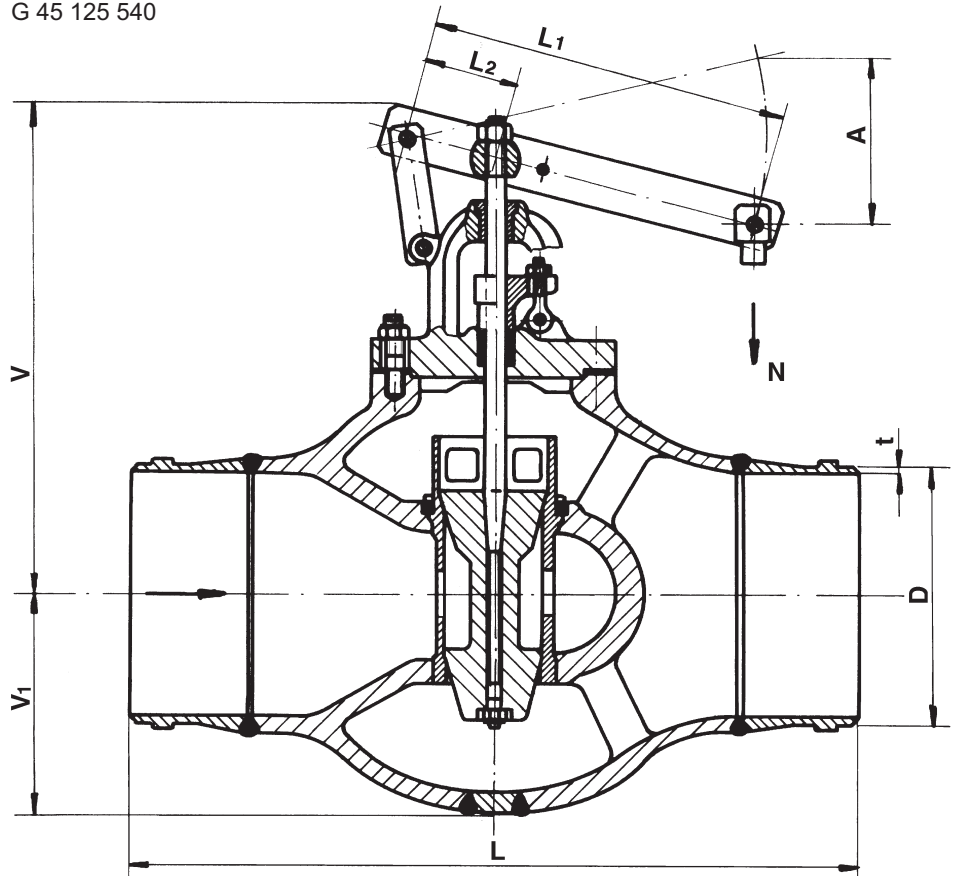
Series	G 45 125 240	G 45 125 540
Type of valve	Control valve, flanged, straight-through, double-seated	
Nominal size	300	
Nominal pressure	40	
Body material	Alloy steel 1.7357	Carbon steel 1.0619
Process media temp. range	-20 to 450 °C	-20 to 400 °C
Connection *)	ČSN 13 1070 (1984)	
Type of trim	seat - contoured plug	
Flow characteristic	Linear, equal-percentage acc. to ČSN EN 60 534-1 (4/1997)	
Flow area range F_s [cm ²]	40 - 175	
Kvs value range	180 - 787,5	
Leakage rate	Class III acc. to ČSN EN 1349 (5/2001)	

*) After the agreement with the producer, it is possible to make the connection acc. to the valid ČSN 13 1075 (3/1991) or ČSN EN 12 627 (8/2000)

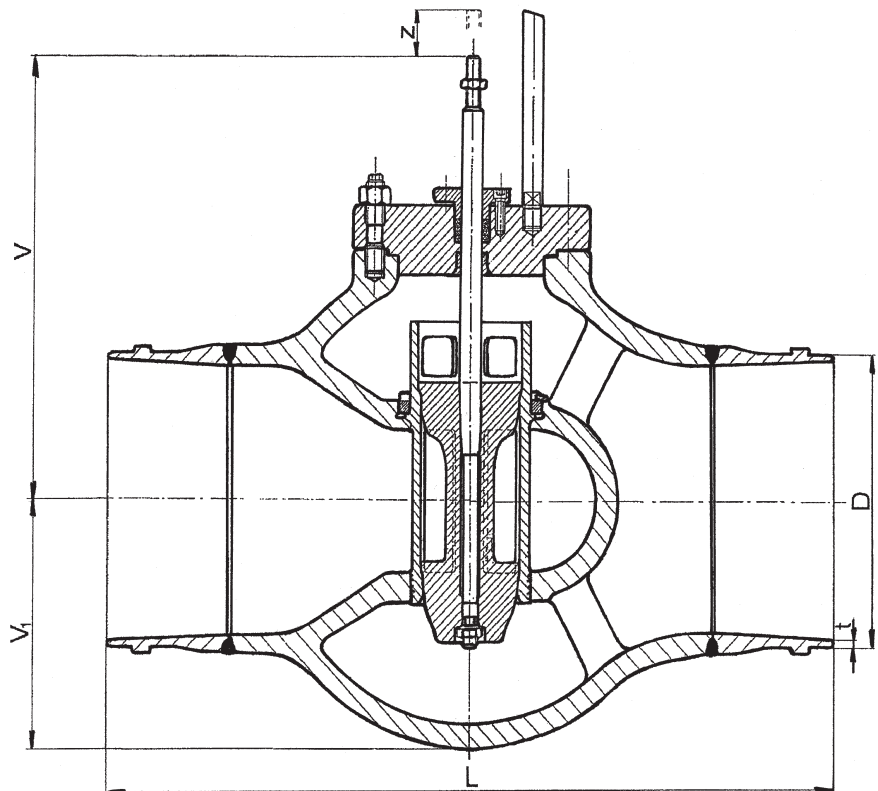
Dimensins and weights for G 45 125 DN 300

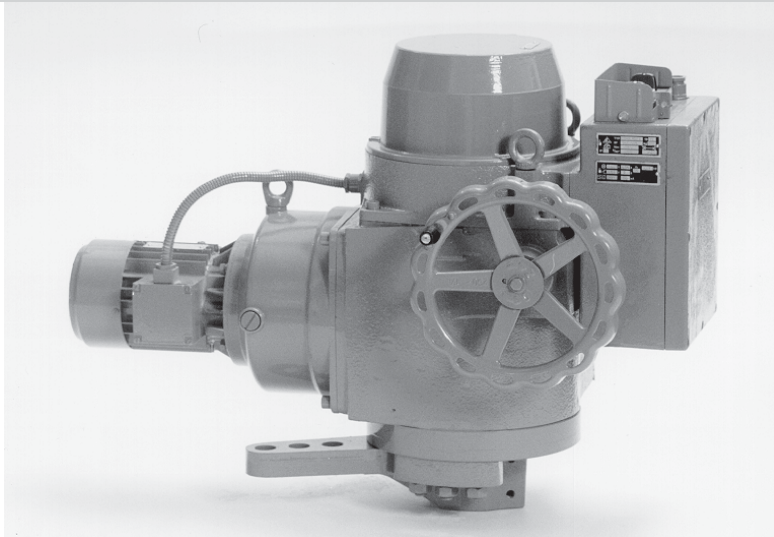
Type		G 45 125 540	G 45 125 240
DN	[mm]	300	300
D	[mm]	324	324
L	[mm]	900	900
~V	[mm]	660	494
~V ₁	[mm]	265	265
t	[mm]	8	8
L ₁	[mm]	440	---
L ₂	[mm]	110	---
A	[mm]	240	---
z	[mm]	---	60
Fs	[cm ²]	40-175	40-175
Kvs	[m ³ /h]	180-787,5	180-787,5
m	[kg]	375	300

G 45 125 540



G 45 125 240





Electric actuator ZPA Pečky

Modact MPS
Modact MPS Control

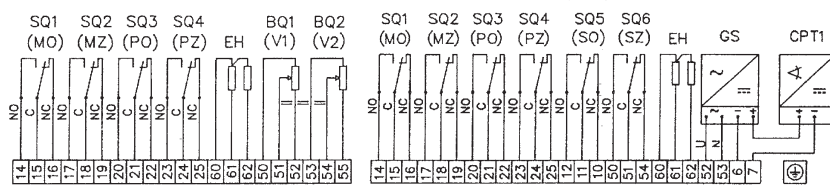
Technical data		
Type	Modact MPS	Modact MPS Control
Voltage	3 x 230 V / 400 V ± 6%	
Frequency	50 Hz	
Motor power	see specification table	
Control	2-position or 3-position	
Torgue range	160 to 1250 Nm	
Travel range	60° až 160°	
Enclosure	IP 55	
Process media max. temp.	acc. to used valve	
Ambient temp. range	-25 to 55 °C	
Ambient humidity range	10 - 100 % with condensation	
Weight	max. 120 kg	

Wiring diagram of actuator Modact MPS

Execution - terminal board

Position transmitter: resistance 2x100 Ohm

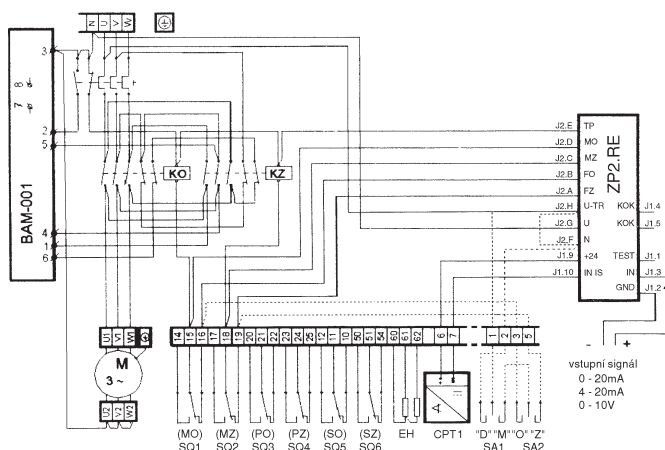
Position transmitter: capacity CPT 1 1/A 4 - 20 mA



- SQ1 (MO) torque switch in "opening" direction
- SQ2 (MZ) torque switch in "closing" direction
- SQ3 (PO) limit switch in "opening" direction
- SQ5 (PZ) limit switch in "closing" direction
- SQ4 (SO) signalisation switch in "opening" direction
- SQ6 (SZ) signalisation switch in "closing" direction
- EH heaters 2x TR551 10k/A
- CPT1 capacity position transmitter CPT1/A4 - 20 mA

Wiring diagram of actuator Modact MPS Control

With current transmitter, built-in contactor combination, heat relay, positioner ZP2.RE and dynamic brake BAM-001.



- BAM-001 dynamic brake
- KO contactor in "opening" direction
- KZ contactor in "closing" direction
- F heat relay
- SA1 control switch "local-remote"
- SA2 switch "open - close"
- BQ1, BQ2 position transmitter 2x 100 W
- ZP2.RE micro-computer positioner
- GS power supply source for current transmitter 230V/24V
- M1- one-phase motor
- M3- inductive, three-phase motor
- C motor capacitor
- T mains transformer
- S terminal board
- Z plug "KBNS"

Specification for actuators Modact MPS and Modact MPS Control

Basic equipment: 1 electromotor 2 heaters
 2 torque switches MO, MZ 2 signalisation switches SO, SZ - for actuators with CPT 1/A
 2 limit switches PO, PZ and actuators without any transmitter

Basic technical data:									
Type	Tripping torque setting range [Nm]	Running time [s/90°]	Elektromotor			Oil filling [l]	Weight [kg]	Specification No.	
			Motor power [W]	Current to motor I _n [A]	Current to motor I _z [A]			basic	additional
MPS 32/16	160 - 320	16	180	0,57	1,82	3,4	70	52 262	XX1X
MPS 32/32		32							XX2X
MPS 32/63		63							XX3X
MPS 32/120		120							XX4X
MPS 63/16	320 - 630	16	180	0,57	1,82	10	120	52 263	XX1X
MPS 63/32		32							XX2X
MPS 63/63		63							XX3X
MPS 63/120		120							XX4X
MPS 125/16	630 - 1250	16	370	1,05	3,25	10	120	52 264	XX1X
MPS 125/32		32							XX2X
MPS 125/63		63							XX3X
MPS 125/120		120							XX4X

Execution, electric connection
 via terminal board 6XXX
 With conector KBSN (for Modact MPS only) 7XXX

Operating travel - mechanically connected with controlled element
 with lever and flange with stops
60° X1XX
90° X2XX
120° X3XX
160° X4XX

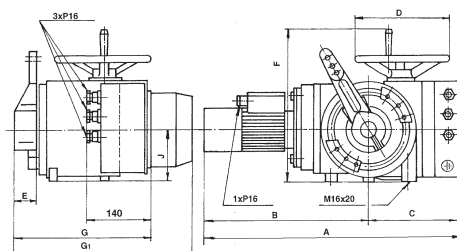
Additional equipment for actuators Modact MPS
 Resistance position transmitter 2 x 100 Ohm XXX1
 Execution without any position transmitter XXX0
 Current pos. transmitter CPT 1/A 4-20 mA with built-in power supply generator XXX7
 Current pos. transmitter CPT 1/A 4-20 mA wo. built-in power supply generator XXX9

Additional equipment for actuators Modact MPS Control	Completely equipped with positioner and brake BAM		Without positioner, with brake BAM and reversible contactors		Without positioner and brake BAM, with reversible contactors	
	with BMO	without BMO	without BMO		without BMO	
Without position transmitter	---	---	XXXC	XXXL	XXXG	XXXR
Resistance position transmitter 2 x 100 Ohm	---	---	XXXD	XXXM	XXXH	XXXS
CPT 1/A 4-20 mA with built-in power supply generator	---	---	XXXE	XXXN	XXXJ	XXXT
CPT 1/A 4-20 mA without built-in power supply generator	XXXA	XXXB	XXXF	XXXP	XXXK	XXXU

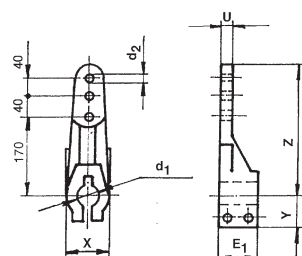
Dimensions of actuator Modact MPS and Modact MPS Control

	52 262	52 263	52 264
A	620	712	731
B	386	460	479
C	234	252	
D	∅200	∅250	
E	62	82	
E ₁	60	80	
F	346	420	
G	340	445	
G ₁	456	562	
J	120	145	
K	70	100	
L	90	110	
M	140	200	
N	41	60	
O	∅14	∅18	
S	56	70	
T	4	7	
U	25	30	
X	65	80	
Y	41	55	
Z	273	278	
d	∅40 h 8	∅50 h 8	
d ₁	∅40 H 7	∅50 H 7	
d ₂	3x∅20H8	3x∅25H8	
b	12 P9	16 P9	
h	8	10	
e	35	43,8	

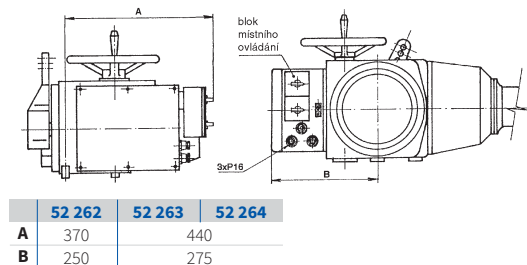
Modact MPS



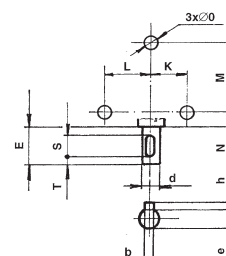
Lever

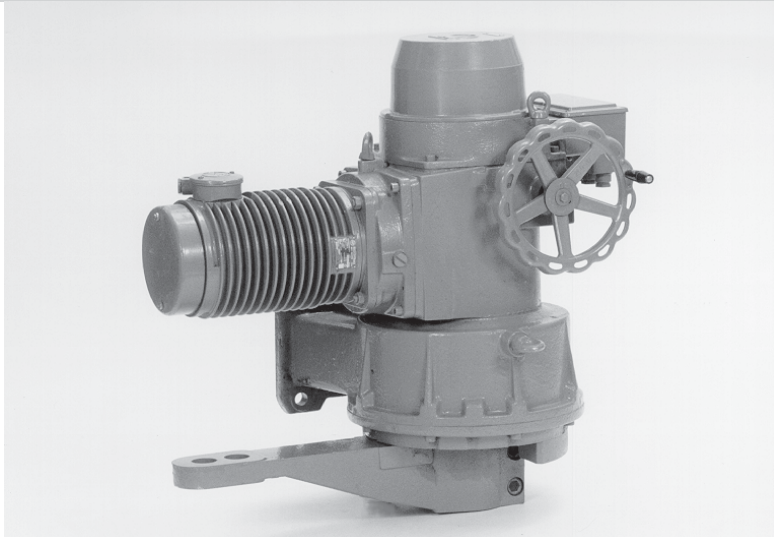


Modact MPS Control



Base board - holes





Electric actuator ZPA Pečky

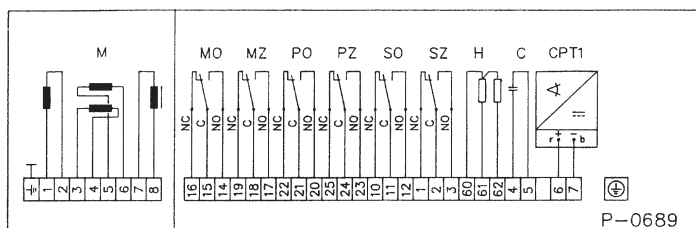
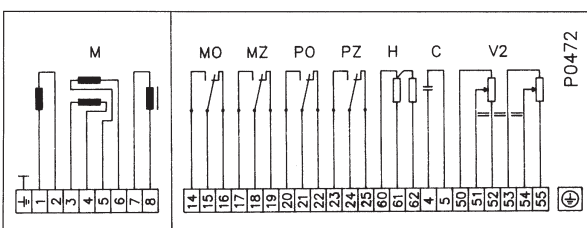
Modact Variant MPR

Technical data	
Type	Modact Variant MPR
Voltage	230 V ± 6%
Frequency	50 Hz
Motor power	50 W
Control	continuous
Torque range	250 to 4000 Nm
Travel range	60° to 160°
Enclosure	IP 55
Process media max. temp.	acc. to used valve
Ambient temp. range	-25 to 55 °C
Ambient humidity range	10 - 100 % with condensation
Weight	max. 282 kg

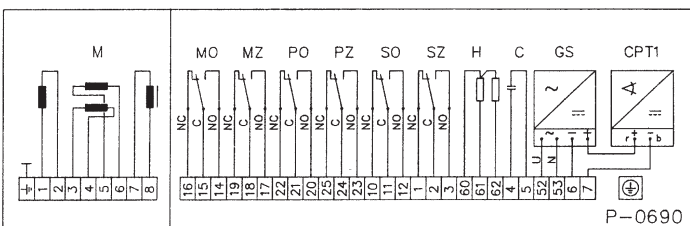
Wiring diagram of actuator

Position transmitter: resistance2x100 Ohm

With current transmitter CPT1/A, without built-in power supply source



With current transmitter CPT1/A with built-in power supply source



- MO torque switch in "opening" direction
- MZ torque switch for "closing" direction
- PO limit switch in "opening" direction
- PZ limit switch in "closing" direction
- SO signalisation switch in "opening" direction
- SZ signalisation switch in "closing" direction
- H heaters
- CPT1 capacity position transmitter CPT1/A4 - 20 mA
- V2 resistance position transmitter 2x100 W
- GS power supply source for current transmitter 230V/24V
- M induction, two-phase motor
- C capacitor
- S terminal board

Specification of actuator Modact Variant MPR

Typ	Nominal torque [Nm]	Max. torque [N/m]	Running time range [s/90°]	Electromotor			Oil filling [kg]	Weight [kg]	Specification No.	
				[W]	[μF]	BF/ŘF [A]			basic	additional
MPR 25-40	250-400	1400	10-19	50	8	0,6/0,6	4,4	104	52 222	XX0X
MPR 40-63	400-630	1750	14-30							XX1X
MPR 63-100	630-1000	2650	30-55							XX2X
MPR 100-200	1000-2000	4550	50-80	50	8	0,6/0,6	4,4	282	52 223	XX0X
MPR 160-300	1600-3000	5950	73-138							XX1X
MPR 250-400	2500-4000	8940	130-195							XX2X

Execution, electrical connection

Via terminal board

With conector KBSN

Operating level

60° for 52 222	67,5° for 52 223	X1XX
90° for 52 222	90° for 52 223	X2XX
120° for 52 222	112,5° for 52 223	X3XX
160° for 52 222	157° for 52 223	X4XX
90° for 52 222; direct connect.		X5XX

Additional electric equipment

V2	Execution without position transmitter	XXX1
	Position resistance transmitter 2 x 100 Ohm	XXX0
CPT1+GS	Position current transmitter CPT 1/A 4-20 mA with built-in power supply source	XXX7
CPT1	Position current transmitter CPT 1/A 4-20 mA wo. built-in power supply source	XXX9

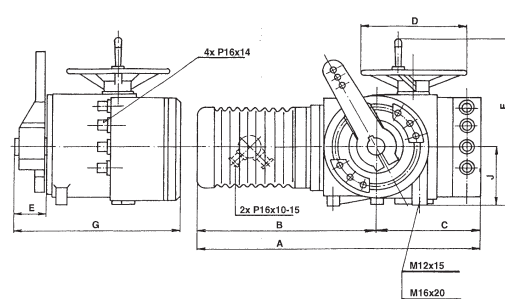
Stem

with single stem	For export only	XXXX/3
with double stem	For export only	XXXX/4

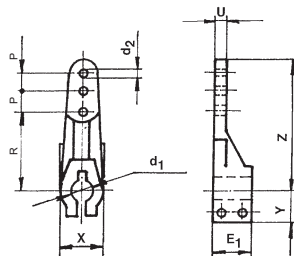
Dimensions of Modact MPS, Modact MPS Control

	52 222	52 223
A	782	793
B	517	548
C	265	220
D	∅250	∅300
E	85	123
E ₁	80	120
F	420	560
G	555	750
J	145	260
K	100	185
L	110	-
M	200	200
N	57	33
O	∅18	∅22
P	40	55
R	170	400
S	70	180
T	7	11
U	30	36
X	80	130
Y	55	80
Z	278	490
d	∅50 h 8	∅90 h 8
d ₁	∅40 h 7	∅90 h 7
d ₂	3x∅25H8	3x∅40h8
b	16 P9	25 P9
h	10	14
e	43,8	81,3

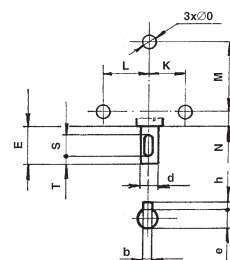
Modact Variant MPR 52 222



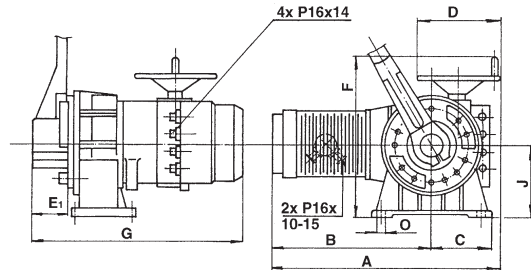
Lever



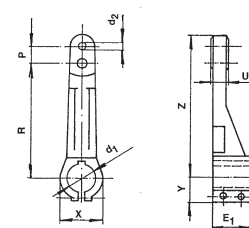
Base board - holes



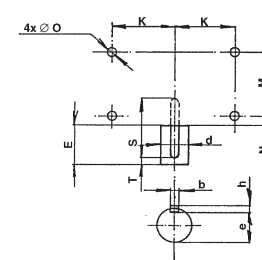
Modact Variant MPR 52 223

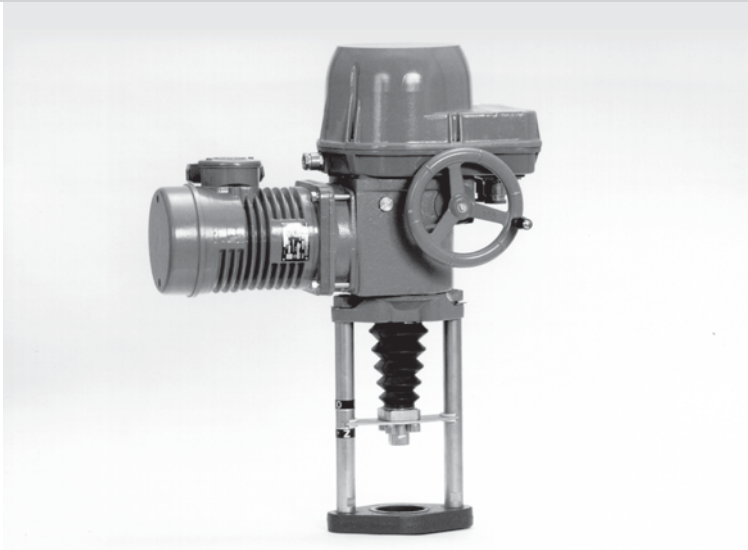


Lever



Base board - holes





Electric actuator Regada

Modact MTR

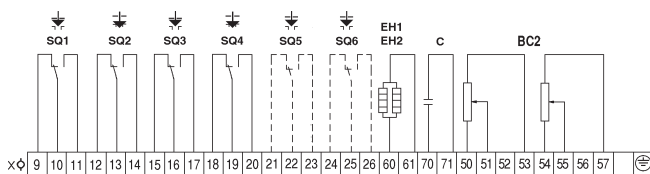
Technical data	
Type	Modact MTR
Marking in valve spec. No.	EPD
Voltage	230 V AC
Frequency	50 Hz
Power consumption	16 or 25 W
Control	3-position (or continuous with regulator NOTREP)
Nominal force	16, 25 kN
Stroke	12,5 to 100 mm
Enclosure	IP 55 / IP 67
Process medium max. temp.	acc. to used valve
Ambient temperature range	-25 to 55 °C
Ambient humidity range	90 %
Weight	27 to 31 kg

→ **Note:** Specifications and technical data are for information only.
Detailed technical informations can be found in producer's data sheet or on the website www.regada.sk

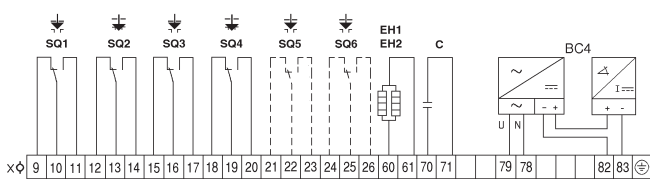
Wiring diagram of actuator

Execution - terminal board

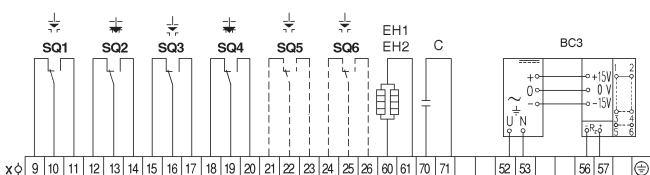
With resistance transmitter 2x100 Ω



With current transmitter CPT1/A, without built-in power supply source

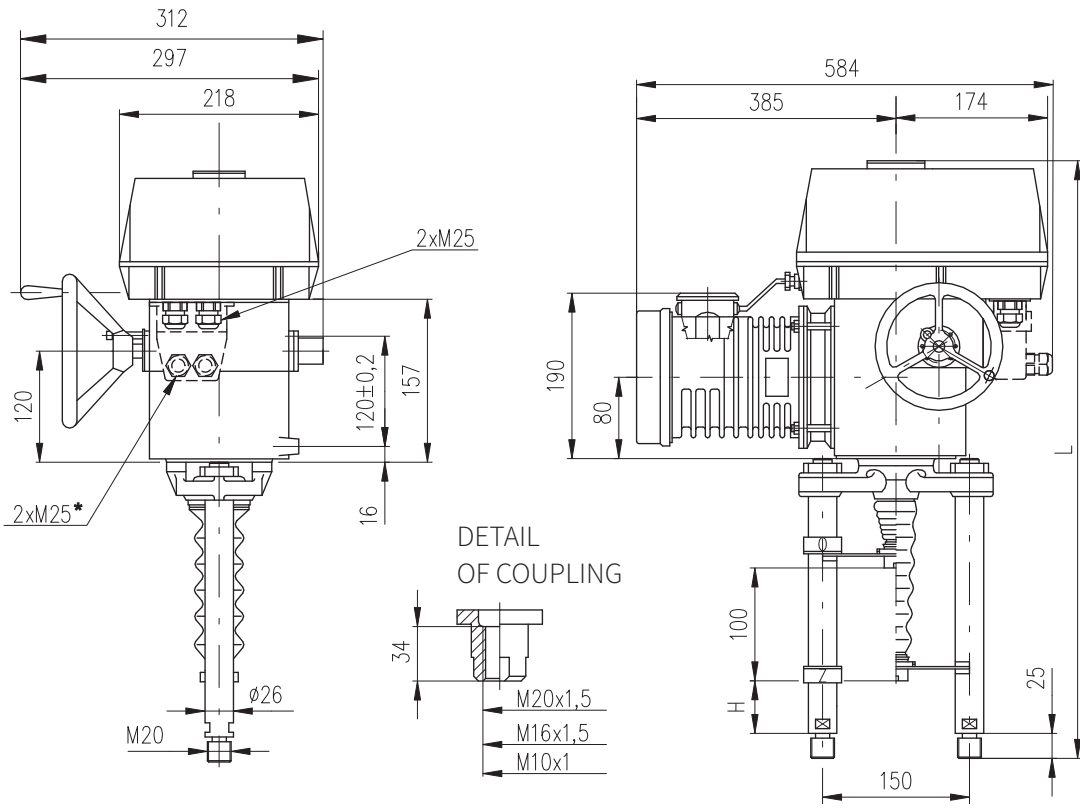


With current transmitter CPT1/A with built-in power supply source



- SQ1 (MO) power switch in "opening" direction
- SQ2 (MZ) power switch in "closing" direction
- SQ3 (PO) limit switch in "opening" direction
- SQ4 (PZ) limit switch in "closing" direction
- SQ5 (SO) signalisation switch in "opening" direction
- SQ6 (SZ) signalisation switch in "closing" direction
- EH1, EH2 heaters 2 x TR 551 10k/A
- BC2 resistance position transmitter 2 x 100 W
- BC3 inductive position transmitter (0) 4 - 20 mA; 0 - 5 mA
- BC4 capacity position transmitter 4 - 20 mA
- C capacitor
- X terminal board

Dimensional drawing of Modact MTR



*only for version with connector

	with acme thread			with ball bolt		
Columns ČT	130	378	707	130	400	729
Columns UNL	74	320	649	74	344	673

Specification of Modact MTR actuator

Electric actuator MTR, linear										52 420.	X	X	X	X	/	X	X	
Execution CX - as standard (-25 C to 55 C), connection via terminal board										0								
Execution T2 - tropical (-25 C to 55 C, 100% condensation), connection via terminal board										6								
Travel [mm]										16	2							
										25	3							
										32	4							
										40	5							
										63	6							
Linear unit with acme thread Tr 26x5																		
Nominal linear force ¹⁾	6300	Operating power	4000 - 6300	Nominal speed	32	Operating speed	38 - 32	Maximal linear force ²⁾	19000	0								
	4000		2500 - 4000		50		60 - 50		13000	1								
	10000		6300 - 10000		32		38 - 32		30000	2								
	6300		4000 - 6300		50		60 - 50		20000	3								
Linear unit with ball bolt K 25x5																		
Nominal linear force ¹⁾	16000	Operating power	10000 - 16000	Nominal speed	32	Operating speed	38 - 32	Maximal linear force ²⁾	39000	4								
	10000		6300 - 10000		50		60 - 50		30000	5								
	25000		10000 - 25000		32		38 - 32		55000	6								
	16000		10000 - 16000		50		60 - 50		40000	7								
	10000		6300 - 10000		63		75 - 63		39000	8								
	6300		4000 - 6300		100		120 - 100		29000	9								
Transmitter										Without transmitter			0					
										Resistance		2 x 100 Ω	1					
												1 x 2000 Ω	2					
												2 x 2000 Ω	3					
												1 x 2000 Ω + 1x100 Ω	4					
										Inductive [mA]		(0) 4 - 20	5					
												0 - 5	6					
										Capacity [mA]		4 - 20 (with its generator)	7					
4 - 20 (without its generator)	8																	
Special mechanical connection										Columns UNL			7					
										Columns Č. Třebová			8					
										2 signalisation switches SQ5, SQ6								P

1) Switching-off linear force is set to nominal value with tolerance of + 30 %.

2) Measured linear force with motor running into short-circuit state with voltage of 230 V on position controller.

Maximal permissible pressures acc. to EN 12 516-1 [MPa]

Material	PN	Temperature [°C]							
		200	250	300	350	400	450	500	550
Cast steel 1.0619	16	1.14	1.04	0.94	0.88	0.84	---	---	---
	25	1.78	1.62	1.47	1.37	1.32	---	---	---
	40	2.84	2.60	2.35	2.19	2.11	---	---	---
	63	4.48	4.09	3.71	3.45	3.33	---	---	---
	100	7.11	6.50	5.89	5.48	5.28	---	---	---
Alloy steel 1.7357	40	3.47	3.57	3.33	3.09	2.89	2.67	2.23	0.88
	100	9.34	8.93	8.32	7.71	7.22	6.67	5.57	2.21



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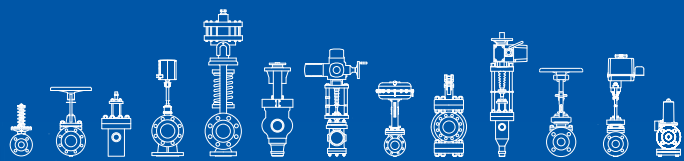
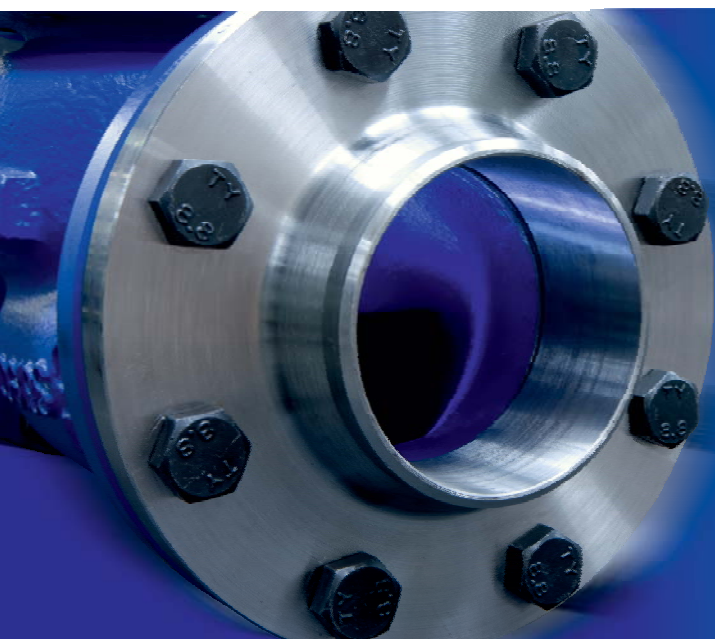
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