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CONTROL VALVES

G 47

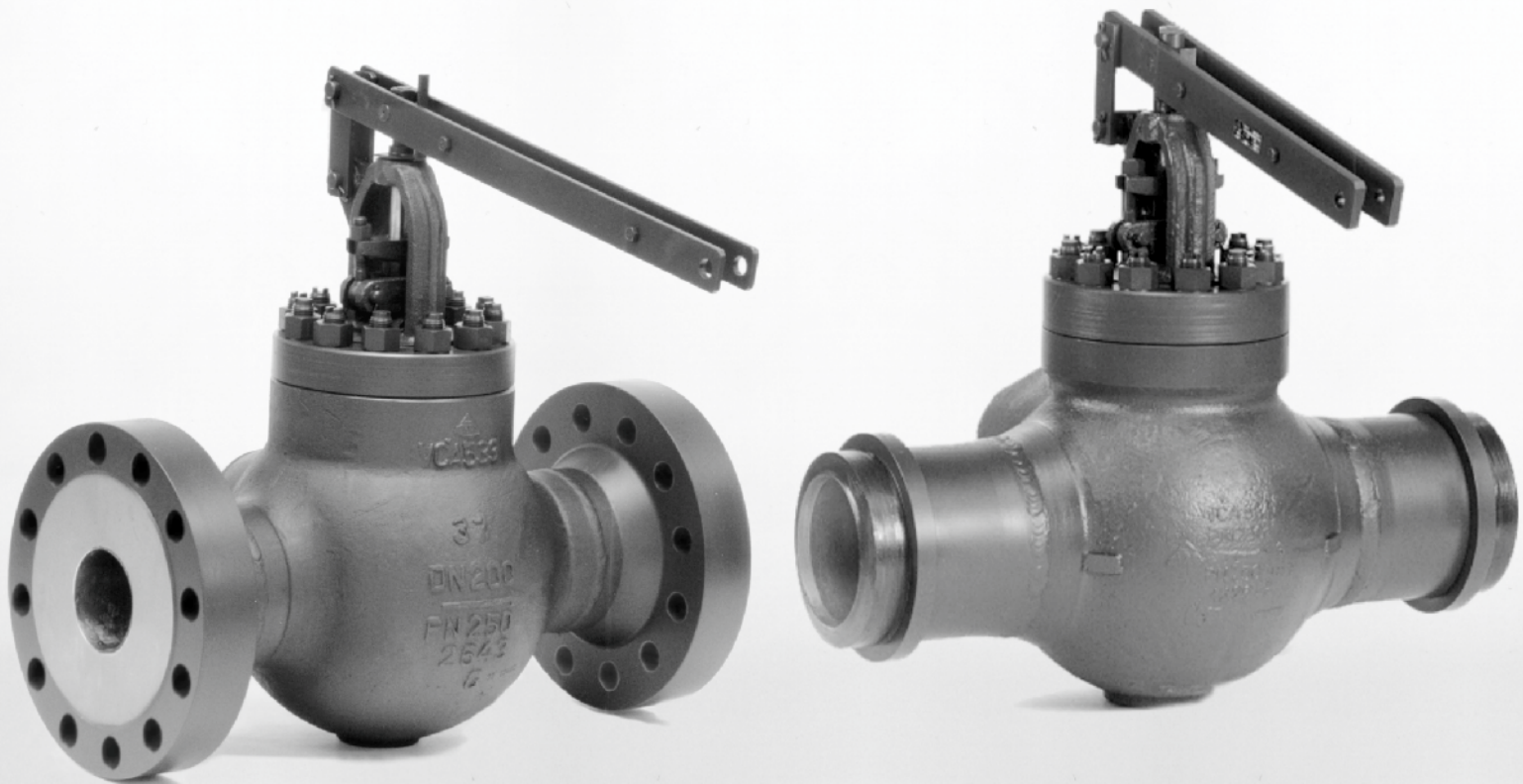
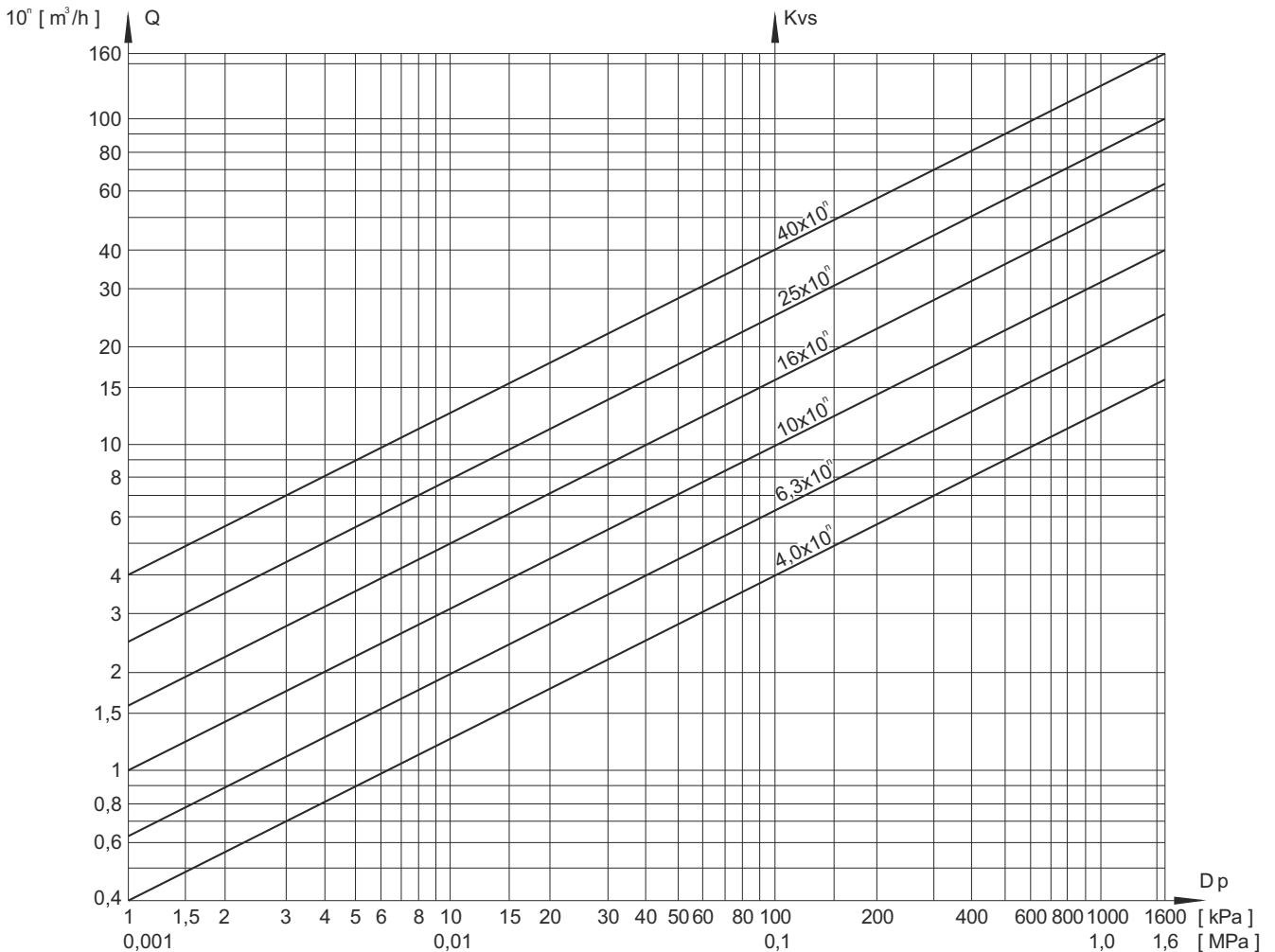


Diagram for the valve Kvs value specification according to the required flow rate of water Q and the valve differential pressure Δp

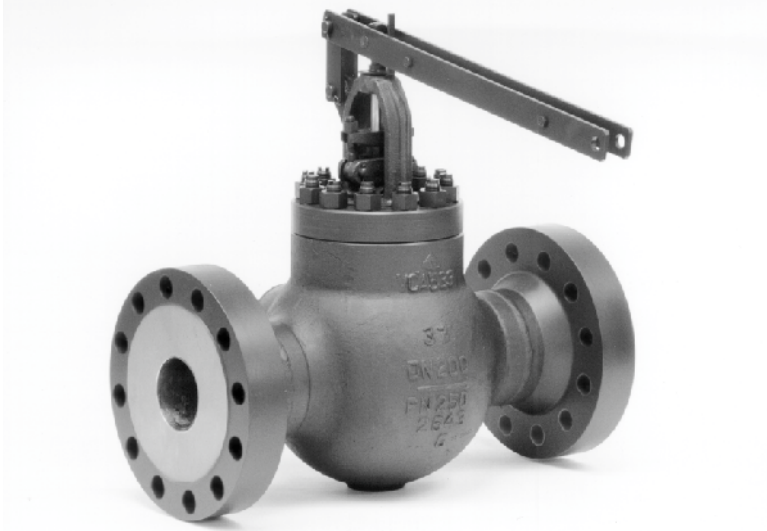


The diagram serves to specify the valve Kvs value regarding to the required flow rate of water at a given differential pressure. It can be also used for finding out the differential pressure value of the existing valve in behaviour with the flow rate. The diagram applies to water with the density of 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 G47

		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	47				
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 47 115 ...

Lever control valves

DN 150, 200, 250
PN 250

Data

The valve is piston type equipped with control cage, lever- actuated designed to be actuated with an electric actuator. Its control cage is always designed according to the parameters specified in the order and according to the requested type of flow characteristic.

The valves can be supplied with the following actuators of the following producer: ZPA Pečky - Modact MPS, Modact Control MPS and Modact Variant MPR. The control of the actuators is 3-position or continuous with signal of 4-20 mA or 0-10 V. 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, reduction or bypass element with indirect actuating. The max. permissible operating pressures acc. to EN 12 516-1 see page 11 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 1,5 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 in a horizontal pipeline with vertically positioned stem and the valve lever up positioned above the valve body. The medium flow direction shall coincide with 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.

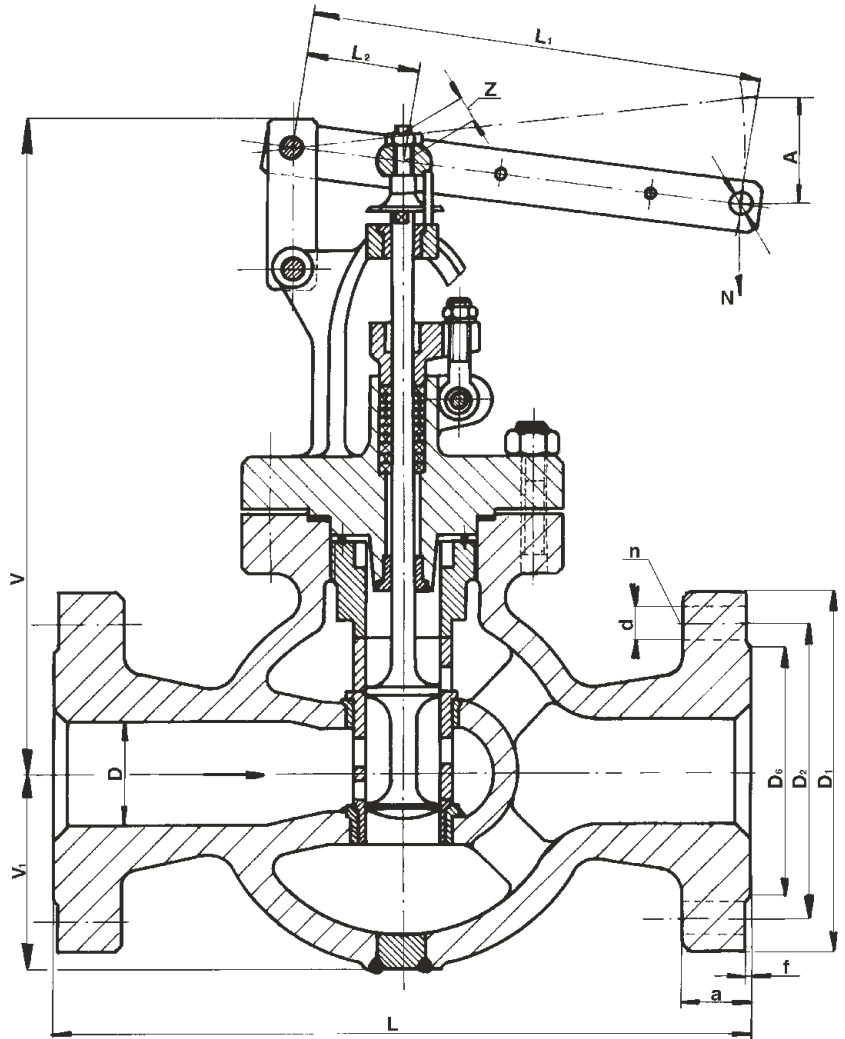
Technical data

Series	G 47 115 5250
Type of valve	Control valves (feeding), flanges, straight-through
Nominal size	150, 200, 250
Nominal pressure	250
Body material	Carbon steel 1.0619
Process media temp. range	-20 to 400 °C
Connection *)	ČSN 13 1217
Type of trim	Cage - double-piston plug
Flow characteristic	Linear, equal-percentage acc. to ČSN EN 60 534-1 (4/1997)
Flow area range F_s [cm²]	5 - 112
Kvs value range	15 - 336
Leakage rate	Class II 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 of valves G 47 115

Type	G 47 115 5250					
DN [mm]	150	200	250			
L [mm]	750	950	950			
L₁ [mm]	480	840	480	840	530	636
L₂ [mm]	120	120	106			
~V [mm]	700	700	718			
~V₁ [mm]	210	252	250			
D [mm]	115	163	201			
D₁ [mm]	390	485	585			
D₂ [mm]	320	400	490			
D₆ [mm]	240	305	375			
A [mm]	152	266	152	266	240	288
f [mm]	3	3	3			
a [mm]	70	85	100			
d [mm]	36	42	48			
n [mm]	12	12	16			
Stroke [mm]	38	38	48			
Fs [cm ²]	5-92	5-92	10-112			
Kvs [m ³ /h]	15-276	15-276	30-336			
m [kg]	420	625	870			





G 47 125 ...

Lever control valves

DN 125 to 300
PN 125 to 500

Description

The valve is piston type equipped with control cage, lever- actuated designed to be actuated with an electric actuator. They can be actuated even with linear or rotative actuator. Its control cage is always designed according to the parameters specified in the order and according to the requested type of flow characteristic.

The valves can be supplied with the following actuators of the following producers: ZPA Pečky - Modact MPS, Modact Control MPS and Modact Variant MPR and ZPA Křižík Prešov - Modact Variant MTR, 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, reduction or bypass element with indirect operating. The max. permissible operating pressures acc. to EN 12 516-1 see page 11 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 feeding pressure to a steam boiler. The valve max. differential pressure value is 1,5 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 may be piped only in a horizontal pipeline with vertically positioned stem and lever positioned above the valve body. The medium flow direction shall coincide with the arrows indicated on the valve body.

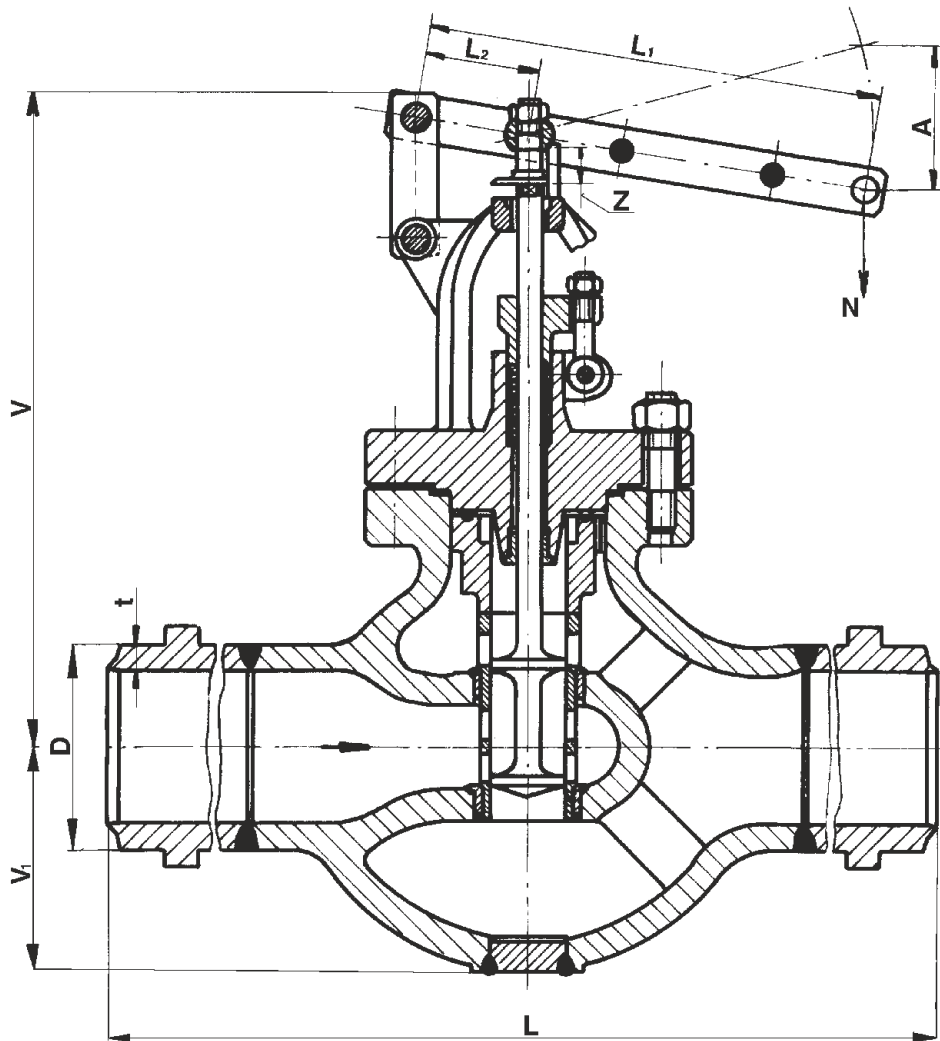
Technical data

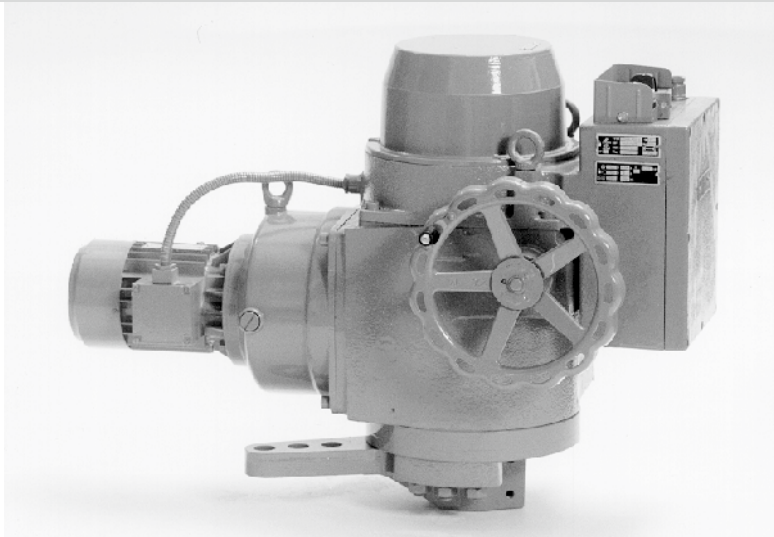
Series	G 47 125 2160	G 47 125 2250	G 47 125 2320	G 47 125 2500	G 47 125 5125	G 47 125 5160	G 47 125 5250
Type of valve	Control valves (feeding), weld ends, straight-through						
Nominal size	200	125	150, 200, 250, 300	300	150	200	150, 200 250
Nominal pressure	160	250	320	500	125	160	250
Body material	Alloy steel 1.7357				Cast steel 1.0619		
Process media temp. range	-20 to 575 °C				-20 to 400 °C		
Connection *)	ČSN 13 1070						
Type of trim	Cage - double-piston plug						
Flow characteristic	Linear, equal-percentage acc. to ČSN EN 60 534-1 (4/1997)						
Flow area range F_s [cm ²]	10 - 92	3,6 - 48	10 - 145	40 - 145	3,5 - 92	3,5 - 92	5 - 112
Kvs value range	30 - 276	10,8 - 144	30 - 435	120 - 435	10,5 - 276	10,5 - 276	15 - 336
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)

Dimensions and weights of valves G 47 125

Type		G 47 125 2160		G 47 125 2320			G 47 125 2250		G 47 125 5125		G 47 125 5160		G 47 125 5250	
		DN	[mm]	DN	[mm]	DN	[mm]	DN	[mm]	DN	[mm]	DN	[mm]	DN
DN	[mm]	200	150	200	250	300	125	150	200	150	200	250		
D	[mm]	219	159	219	273	324	133	159	219	159	219	273		
L	[mm]	900	1120	900	1050	1050	800	976	1120	976	1120	1050		
L ₁	[mm]	530	530	530	500	500	530	480	480	480	480	530		
L ₂	[mm]	106	106	106	125	125	106	120	120	120	120	106		
~V	[mm]	800	700	800	782	782	668	700	700	700	700	720		
~V ₁	[mm]	250	250	250	275	275	175	250	250	250	250	250		
A	[mm]	240	240	240	248	248	155	152	152	152	152	240		
t	[mm]	20	28	25	36	32	18	10	28	22	28	36		
Stroke	[mm]	48	48	48	62	62	31	38	38	38	38	48		
Fs	[cm ²]	10-92	10-92	10-92	40-145	40-145	3,6-48	3,5-92	3,5-92	3,5-92	3,5-92	10-112		
Kvs	[m ³ /h]	30-276	30-276	30-276	120-435	120-435	10,8-144	10,5-276	10,5-276	10,5-276	10,5-276	30-336		
m	[kg]	630	471	650	890	950	400	441	625	451	517	916		





Electric actuator ZPA Pečky

Modact MPS
Modact MPS Control

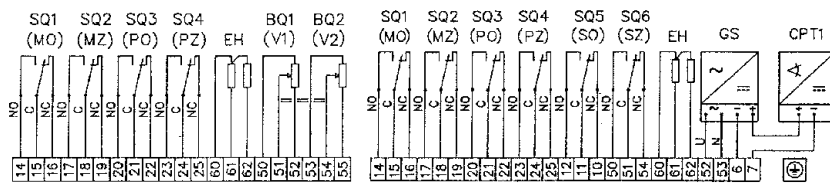
Technical data		
Type	Modact MPS	Modact MPS Control
Voltage	3 x 230 V / 400 V ± 6%	
Frequency	50 Hz	
Motor power	see specification table	
Control	2-position or 3-position	
Torgue range	160 to 1250 Nm	
Travel range	60° to 160°	
Enclosure	IP 55	
Process media max. temp.	acc. to used valve	
Ambient temp.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

Wiring diagram of actuator Modact MPS

Execution - terminal board

Position transmitter: resistance 2x100 Ohm

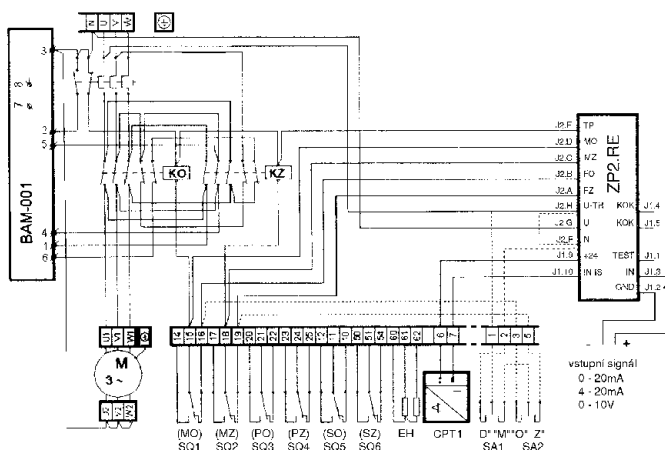
Position transmitter: capacity CPT 1 1/A 4 - 20 mA



- 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 In [A]	Current to motor Iz [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	370	1,05	3,25	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

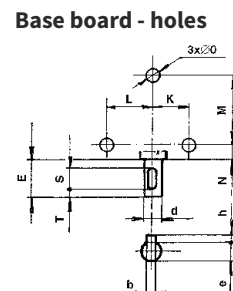
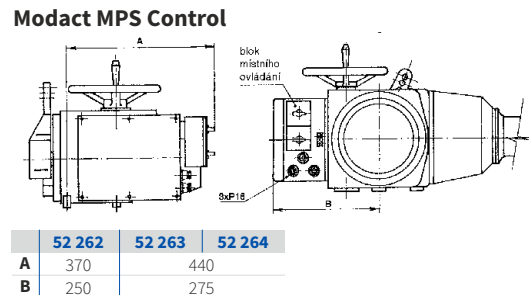
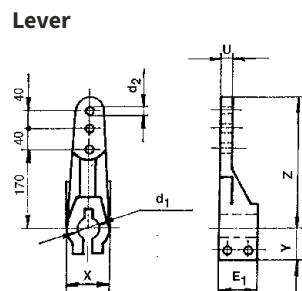
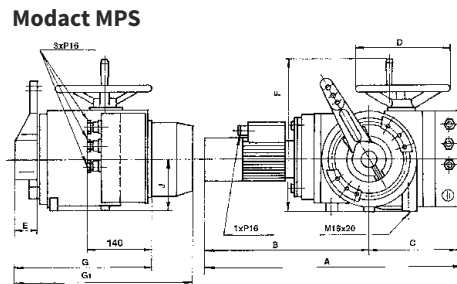
Operating travel - mechanically connected with controlled element	with lever and flange with stops	60°	X1XX
		90°	X2XX
		120°	X3XX
		160°	X4XX

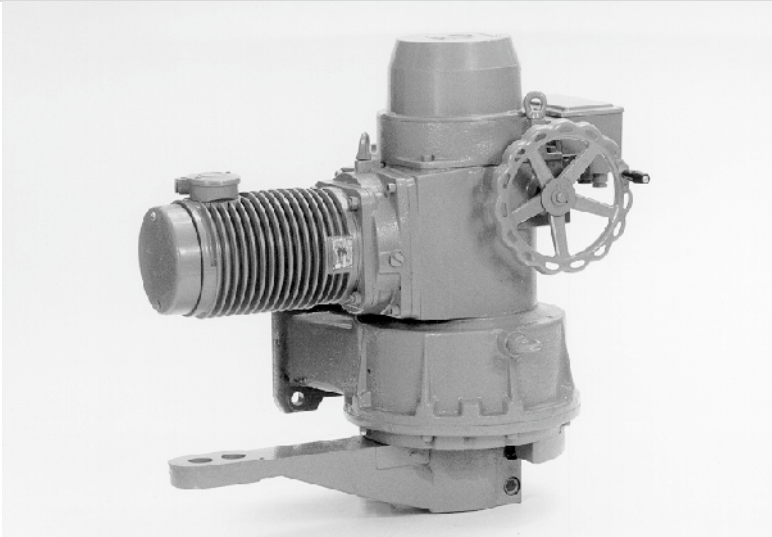
Additional equipment for actuators Modact MPS	Resistance position transmitter 2 x 100 Ohm	XXX1
	Execution without any position transmitter	XXX0
	Current pos. transmitter CPT 1/A 4-20 mA with built-in power supply generator	XXX7
	Current pos. transmitter CPT 1/A 4-20 mA wo. built-in power supply generator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





Electric actuator ZPA Pečky

Modact Variant MPR

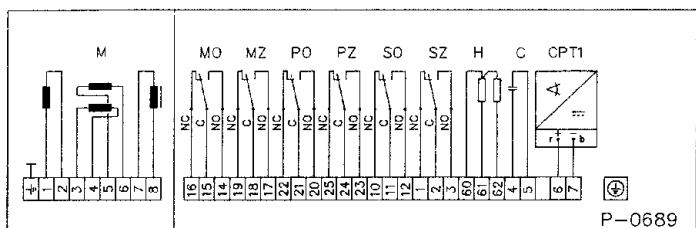
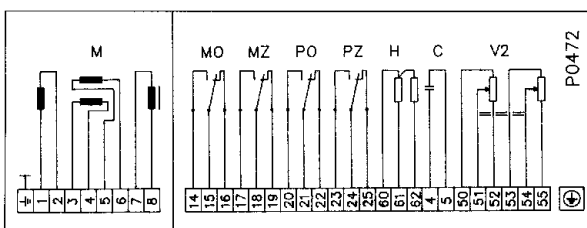
Technical data

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

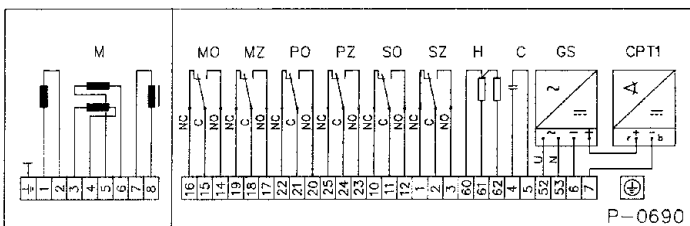
Wiring diagram of actuator

Position transmitter: resistance 2x100 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]	[mF]	BF/RF [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	6XXX
With conector KBSN	7XXX

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

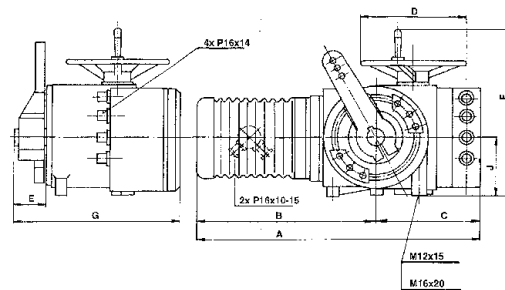
Stem

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

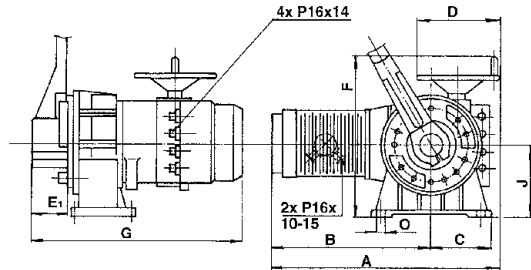
Dimensions of Modact MPS, Modact MPS Control

	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

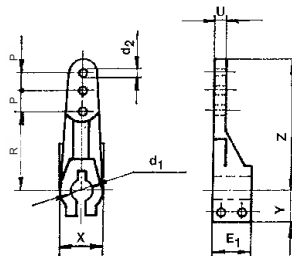
Modact Variant MPR 52 222



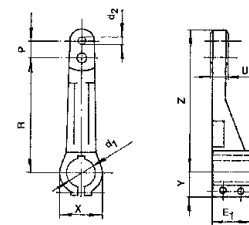
Modact Variant MPR 52 223



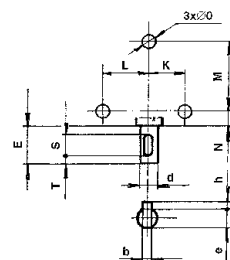
Lever



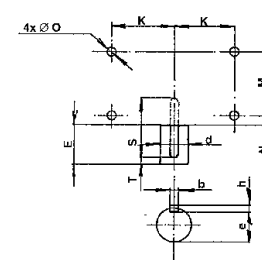
Lever



Base board - holes



Base board - holes



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	125	8.9	8.1	7.3	6.8	6.6	---	---	---
	160	11.4	10.4	9.4	8.8	8.4	---	---	---
	250	17.8	16.2	14.7	13.7	13.2	---	---	---
Alloy steel 1.7357	160	14.9	14.3	13.3	12.3	11.5	10.7	8.9	3.5
	250	23.3	22.3	20.8	19.3	18	16.7	13.9	5.5
	320	29.8	28.6	26.6	24.6	23.0	21.4	17.8	7.0
	500	46.6	44.6	41.6	38.6	36.0	33.4	27.8	11.0



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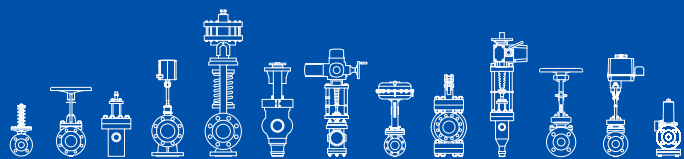
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