



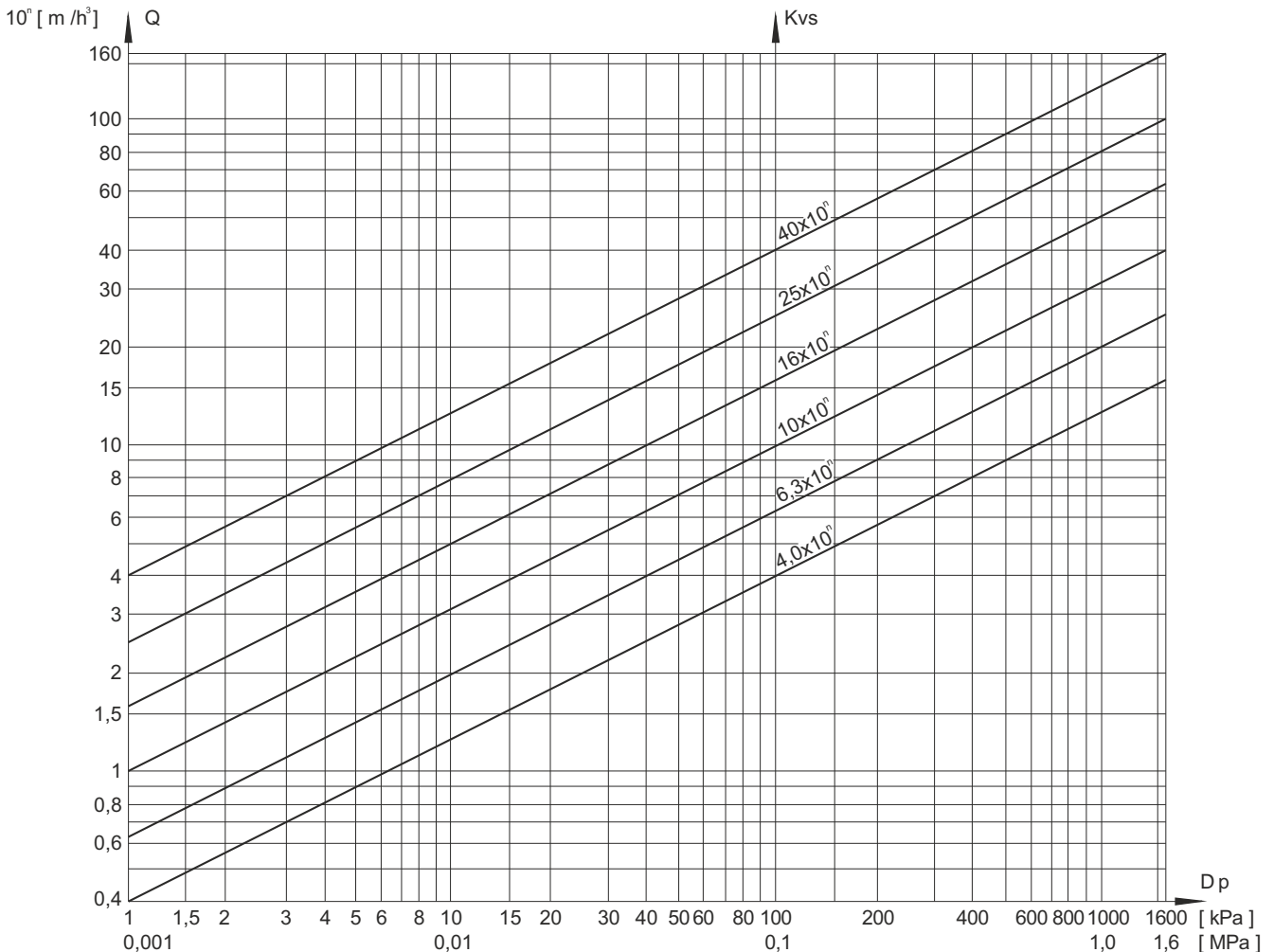
02 - 05.5
09.20.GB

CONTROL VALVES STARTING

G 93



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/m^3 . For the value $Q = q \cdot 10^0$, it is necessary to calculate with $Kvs = k \cdot 10^0$. Example: water flow rate of $16 \cdot 10^0 = 1,6 \text{ m}^3/\text{hour}$ corresponds to $Kv = 2,5 = 25 \cdot 10$ when differential pressure 40kPa.

Valve complete specification No. for ordering G 93

		X XX	X X X	- X XXX	/ XXX	- XXX	- XXX
1. Valve	Control valve	G					
2. Series	Control valve, starting	93					
3. Flow direction	Angle	2					
	Angle with two inlets	3					
4. Connection	Weld ends	2					
5. Actuating	Adjusted for remote control	5					
6. Material	Alloy steel 1.7357			2			
	Other material after agreement			9			
7. Nominal pressure PN	Acc. to the valve execution			XXX			
8. Max. operating temperature °C	Acc. to the valve execution				XXX		
9. Nominal size DN (inlet)	Acc. to the valve execution					XXX	
10. Nominal size DN (outlet)	If different from input DN						XXX

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

Material	PN	Temperature [°C]							
		200	250	300	350	400	450	500	550
Alloy steel 1.7357	400	40	40	40	37.26	34.14	31.56	24.97	10.46



G 93

Control valve starting

DN 150
PN 400

Description

The valve is single-seated, angle, welding ends. Control mechanism with a multi-stage pressure reduction is made by special control cage with holes and cross section grooves and two plugs. Main piston plug, which is a part of the valve stem, provides media flow control and ensures also a tightness when the valve is closed. Internal perforated plug reduces the pressure drop at stroke begins to prevent wear of sealing surfaces. Valve is equipped by a Chesterton stuffing box, type "Live Loading".

The valves are supplied with the actuators ZPA Pečky - Modact MON. On the basis of the customer's requirements, it is possible to supply the valve with the connection acc. to ISO 5210 with the actuators such as AUMA, Schiebel and so on. The actuator is mounted to the valve with the aid of adapter ZPA Pečky.

Application

The valves serves as a control valve applicable to where it is necessary to change the flow water pressure from its maximum value to minimum or vice versa. The max. operating pressures correspond to EN 12 516-1 see page 3 of this catalogue. The possible use for higher temperature must be agreed upon with the producer.

Process media

The valve is designed to control the flow and pressure of water and steam. The valve max. differential pressure is 20,0 MPa with respect to the concrete conditions of operation (ratio p_1 / p_2 , creation of cavitation, above critical flow etc.)

Installation

The valve can be installed only in a vertical position with the nut for the connection to the actuator being positioned up above the valve body. The valve should be piped the way so that the medium flow coincides with the arrows indicated on the valve body. With regard to the valve's dismantling, it is recommended to leave a clear space of up to 500 mm above the valve for easy approach. For safe operation, it is necessary so that there would be no bends or elbows piped at least 2000 mm behind the valve.

Technical data

Series		G 93		
Type of valve	Control valve (starting), weld ends, angle			
Nominal size	150			
Nominal pressure PN	400			
Body material ¹⁾	Alloy steel 1.7357			
Weld ends material ¹⁾	Alloy steel 1.7335			
Process media temperature range	-20 to 550 °C			
Connection ²⁾	ČSN EN 12 627			
Face to face and connection ends dimensions	According to customer requirements			
Type of trim	Special cage - piston type plug + internal perforated plug Multi-step reduction			
Flow characteristic	Linear	Equal-percentage		
Kvs values [m ³ / hod ²]	60	100	190	250
Leakage rate	Class V. acc. to ČSN EN 1349 (5/2001)			
Packing	Graphite - Live Loading			

Dimensions and weights of valve G 93 225 2400

Dimensions table

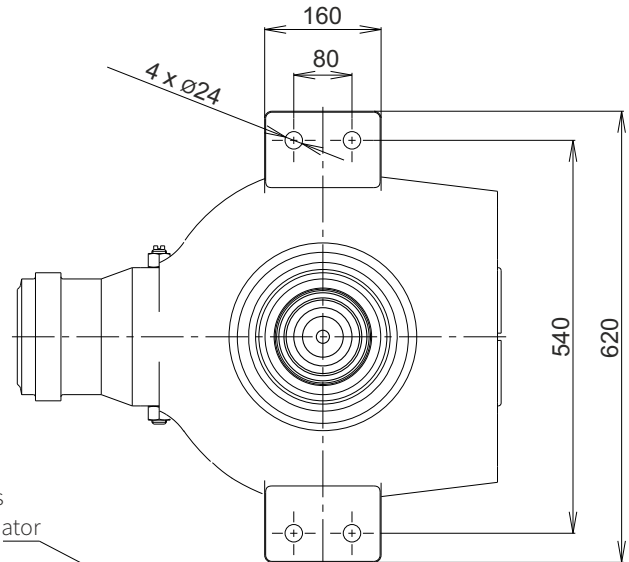
(for standard version DN 150 inlet/ DN 150 outlet)

Dimensions of weld ends

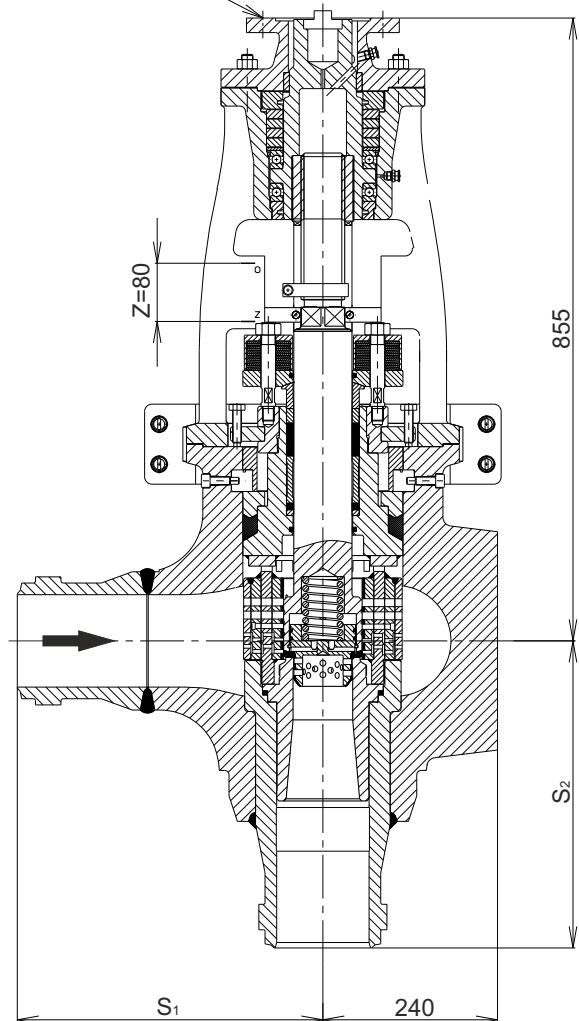
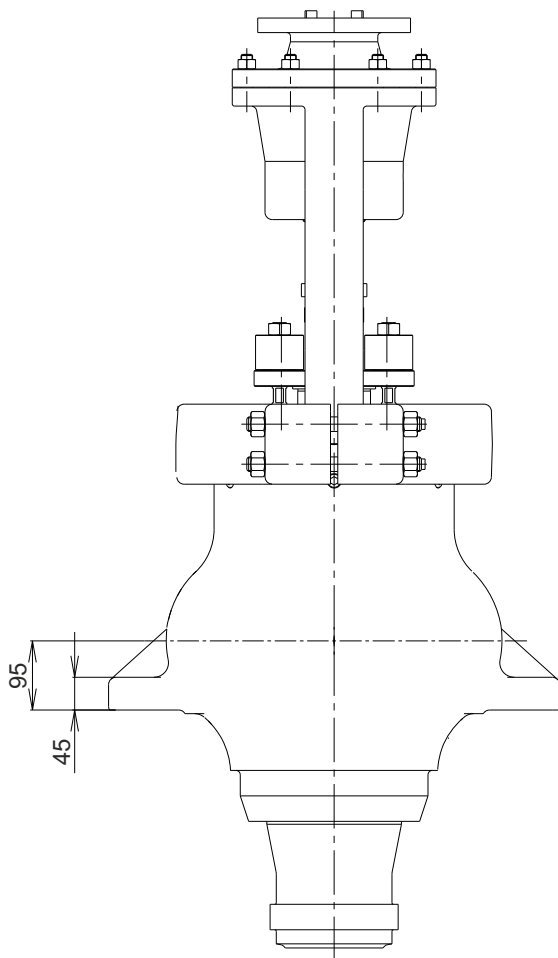
according to input parameters and customer requirements

type	S1	S2
G 93 225 2400	420	420

Weight of the valve is 630 kg



dimensions
acc. to actuator



Dimensions and weights of valve G 93 325 2400

Dimensions table

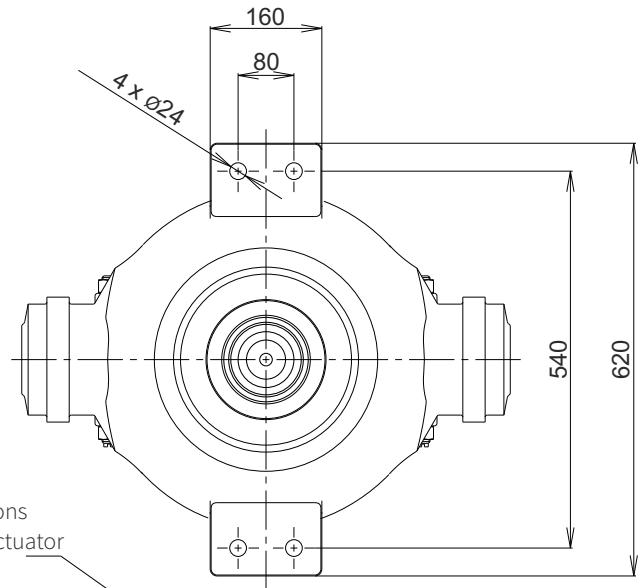
(for standard version DN 150 inlet / DN 150 outlet)

Dimensions of weld ends

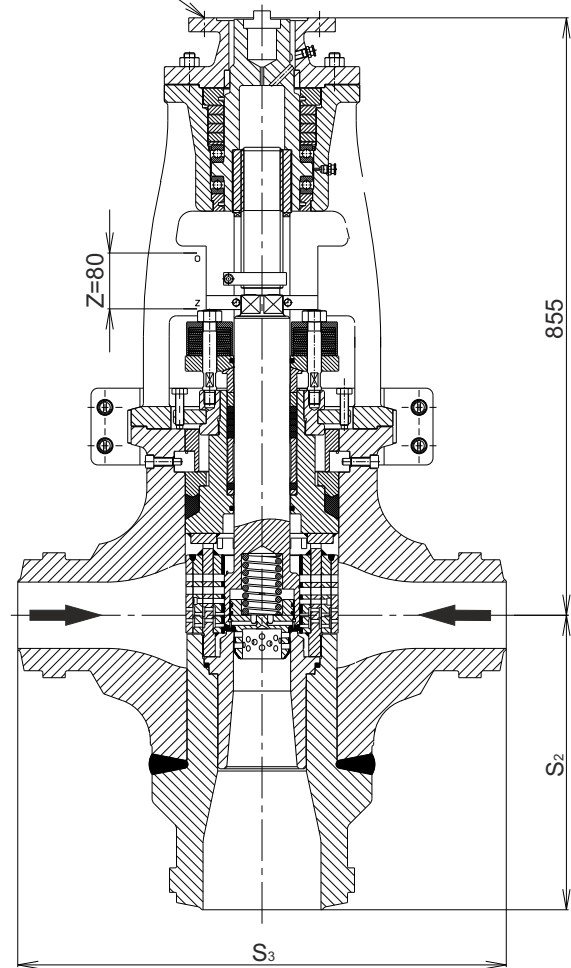
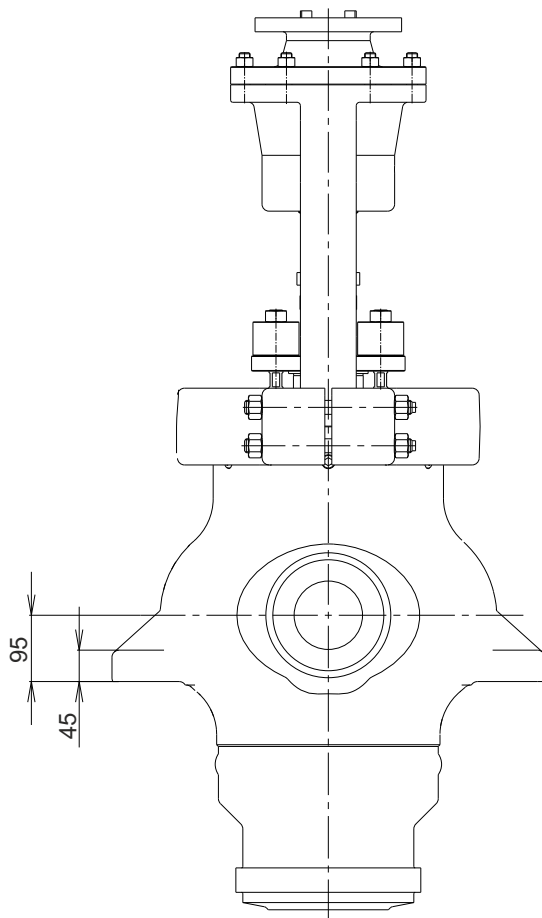
according to input parameters and customer requirements

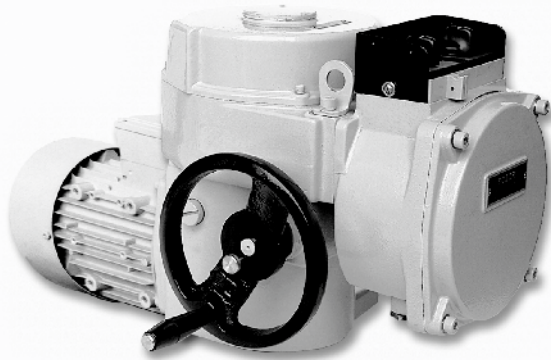
type	S2	S3
G 93 225 2400	420	700

Weight of the valve is 650 kg



dimensions
acc. to actuator





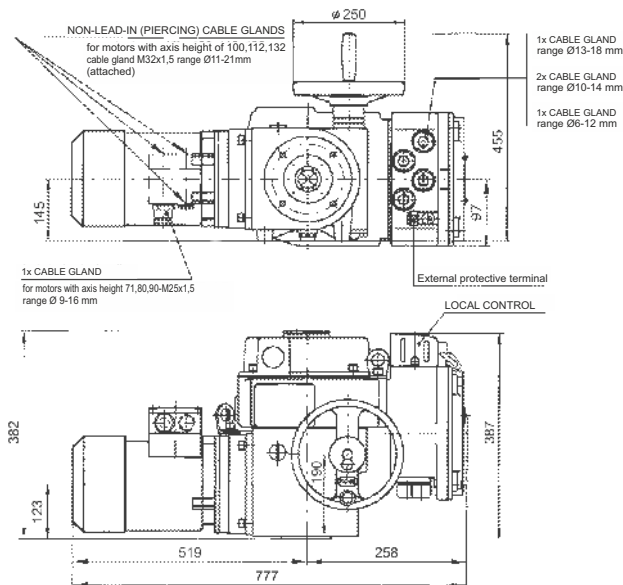
Electric actuators ZPA Pečky

Modact MON
Modact MON Control

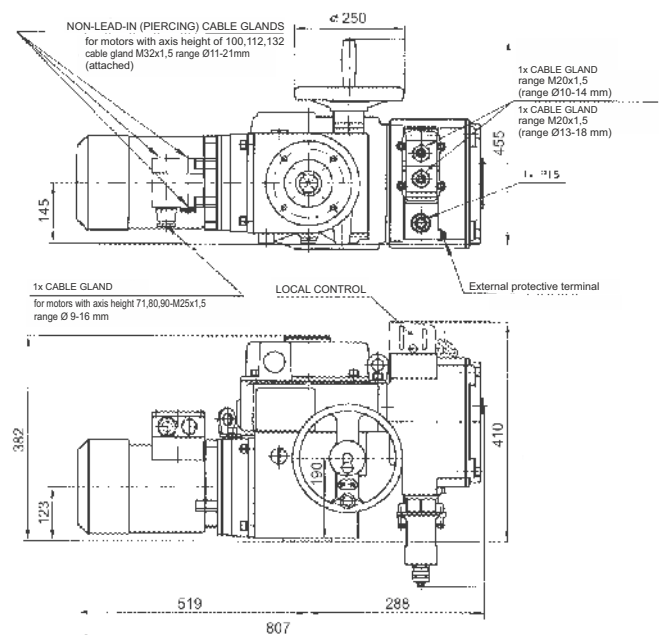
Technical data		
Type	52 034 MON	52 034 MON Control
Voltage	3x 230/400 V	
Frequency	50 Hz	
Motor power	viz specifikační tabulka	
Control	3-point or continuous	
Torque range	320 - 630 Nm	
Running speed	see specification table	
Enclosure	IP 55	
Process medium max. temperature	acc. to used valve	
Ambient temperature range	acc. to ČSN 33 2000-3, třídy AA7, AB7, AC1, AD5, AE5, AF2, AG2, AH2, Ak2, AL2, AM2, AN2, AP3, BA4, BC3	
Working mode	load S2 acc. to ČSN EN 60 034-1	
Weight	100 kg	

Dimensions of actuators

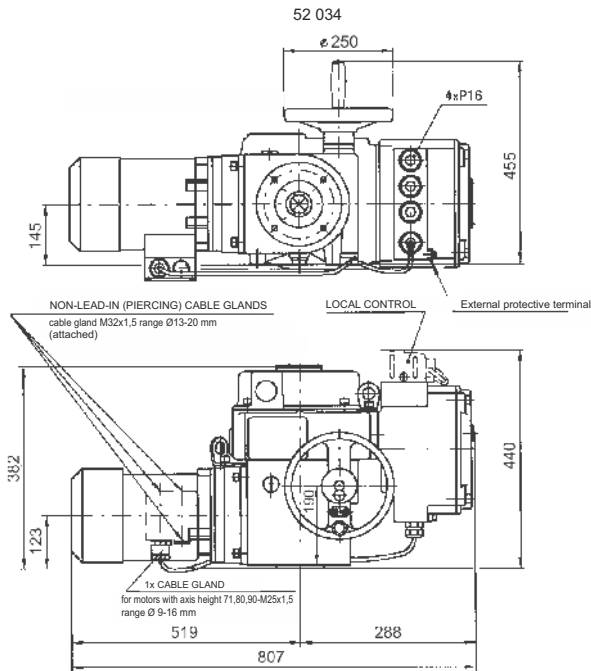
DIMENSIONAL DRAWING OF ACTUATORS MODACT MON
52 034 EXECUTION WITH TERMINAL BOARD



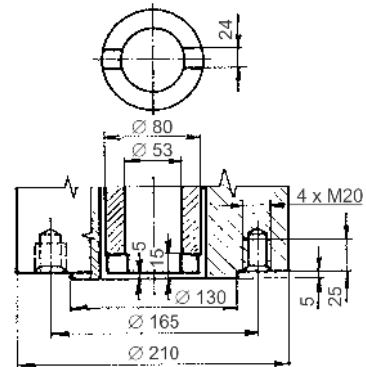
DIMENSIONAL DRAWING OF ACTUATORS MODACT MON
52 034 EXECUTION WITH CONECTOR



DIMENSIONAL DRAWING OF ACTUATORS MODACT MON CONTROL



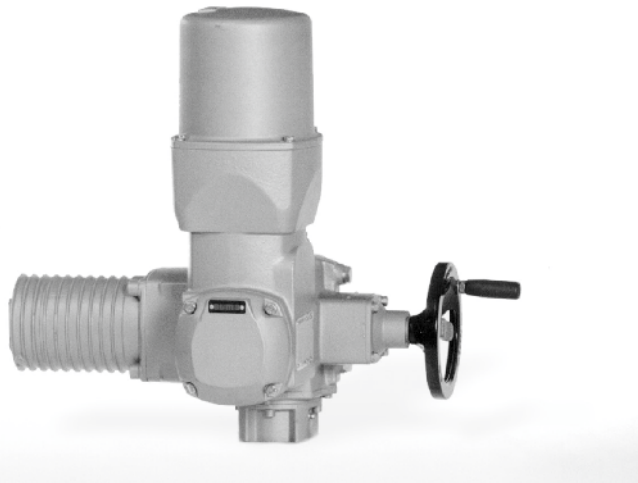
Output shaft type c



Specification of actuator Modact MON									XX XXX	X	X	X	X	X			
Connection dimensions	Output shaft type C	Via terminal board															
		With connector															
Local control, position indicator		Without local control, without position indicator															
Resistance transmitter or execution without transmitter		Local position indicator															
		Local control															
		Local control and position indicator															
		Local control for Modact MON Control															
Capacity transmitter CPT 1/A		Local control and position indicator for Modact MON Control															
		Without local control, without position indicator															
		Local control															
Local control for actuators Modact MON Control																	
Type marking	Moment		Running speed (1/min.)	Operation stroke (ot)	Electromotor				52 034	0	1	2	3				
	Tripping (Nm)	Driving (Nm)			Power (kW)	RPM (1/min.)	I _n (400V) (A)	I _z /I _n (-)									
MON630/900-16	320÷630	900	16	2÷240	1,50	705	3,90	3,7									
MON630/835-20		835	20		1,50	925	3,90	4,2									
MON630/945-35		945	35		2,20	1420	4,70	5,5									
MON630/1000-63		1000	63		4,00	1440	8,20	6,5									
Signalization, position transmitter, blinker																	
Only for actuators Modact MOP	Without signalisation, position transmitter and blinker													0			
	Position transmitter													1			
	Signalization switches													2			
	Signalization switches and position transmitter													3			
	Blinker													4			
	Position transmitter, blinker													5			
	Signalization switches and blinker													6			
Signalization switches, position transmitter, blinker													7				

the table continues on next page

			XX XXX	X	X	X	X	X	
Signalization, position transmitter, blinker									
Only for actuators Modact MOP Control	Complete equipment Sch P-0781	Position transmitter						A	
		Signalization switches and position transmitter						B	
		Position transmitter, blinker						C	
		Signalization switches, position transmitter and blinker						D	
	Without positioner	Without signalization, without posit. transmitter and blinker							E
		Position transmitter							F
		Signalization switches							G
		Signalization switches and position transmitter							H
		Blinker							I
		Position transmitter, blinker							J
		Signalization switches, blinker							K
		Signalization switches, position transmitter and blinker							L
	Without positioner and brake BAM	Without signalization, without position transm. and blinker							M
		Position transmitter							N
		Signalization switches							O
		Signalization switches and position transmitter							P
		Blinker							R
		Position transmitter, blinker							S
Signalization switches, blinker								T	
Signalization switches, position transmitter and blinker							U		
This mark is valid for the the types of the actuators								N	



Electric actuators

Auma

**SAR
16.1**

Technical data	
Type	SAR 16.1
Voltage	400 V
Frequency	50 Hz
Motor power	see specification table
Control	3-point or with signal 4 - 20 mA
Nominal torque	500 - 1000 Nm
Stroke	see specification table
Enclosure	IP 67
Process medium max. temperature	acc. to used valve
Ambient temperature range	-25 to 60 °C
Ambient humidity limit	100 %
Weight	75 - 86 kg

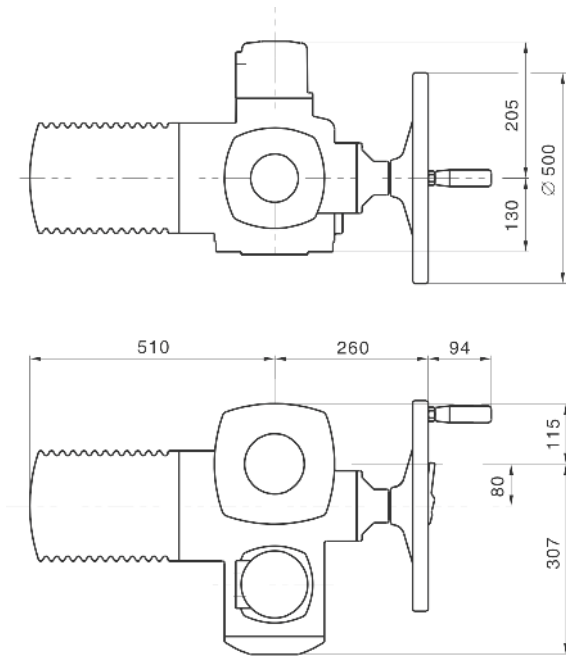
Specification of Auma actuators					
Type		SA	X	XX.X	
Function	control	SA	R		
Actuator size	16.1			16.1	
Output shaft drive C - flange F16					
Output speed	Tripping torque	SAR 16.1	500-1000 Nm	Motor power [kW]	SAR 16.1
					0,75
					0,75
					1,50
					1,50
					3,00
					3,00
					5,50
					5,50

Accessories

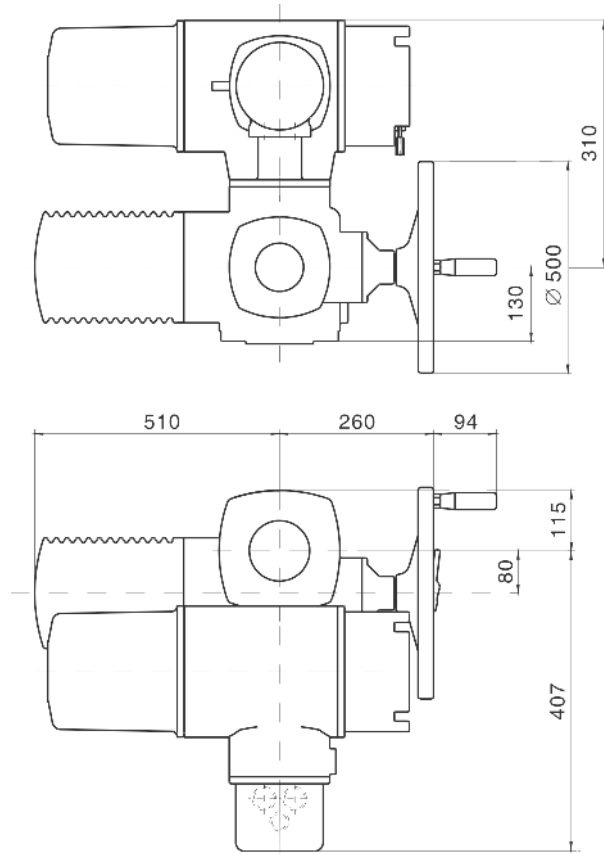
- 2 TANDEM switches
- Gearing for signalisation of position
- Mechanical position indicator
- Potentiometer 1x200 Ω
- Electronic position transmitter RWG (potentiometer included), 4 - 20 mA, 2-wire
- Electronic position transmitter RWG (potentiometer included), 4 - 20 mA, 3/4-wire
- Inductive position transmitter IWG, 4 - 20 mA
- AUMATIC - for continuous control (specification of accessories acc. to catalogue of producer)
- AUMA MATIC - for continuous control (specification of accessories acc. to catalogue of producer)

Dimensions of actuators Auma

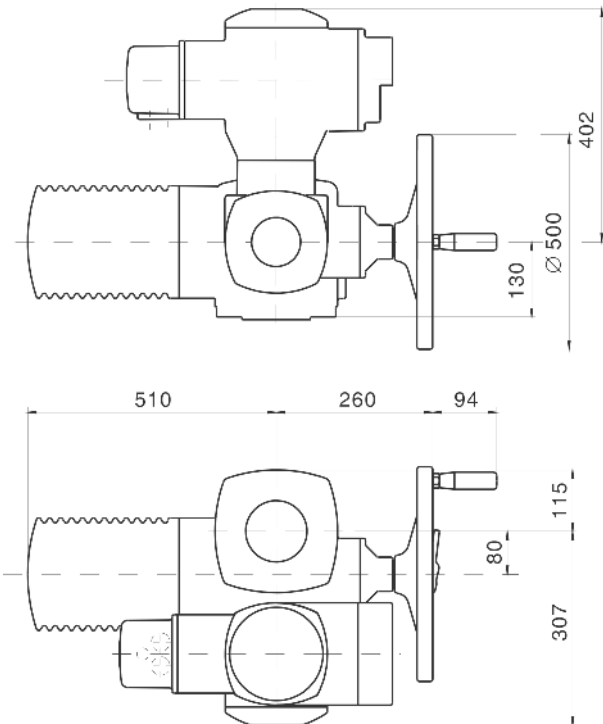
Normal version



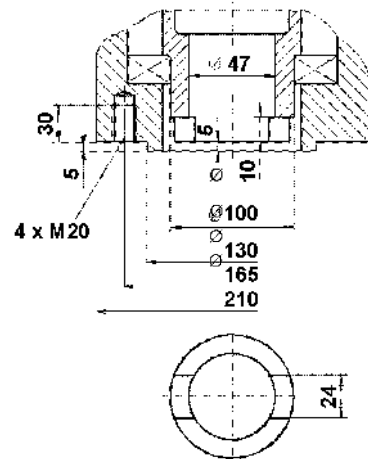
Version AUMATIC



Version AUMA MATIC



Output drive shaft C





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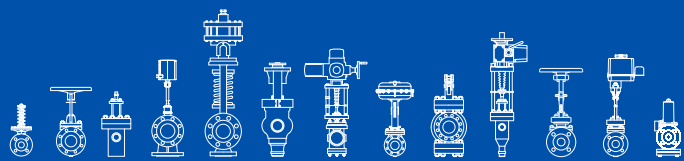
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