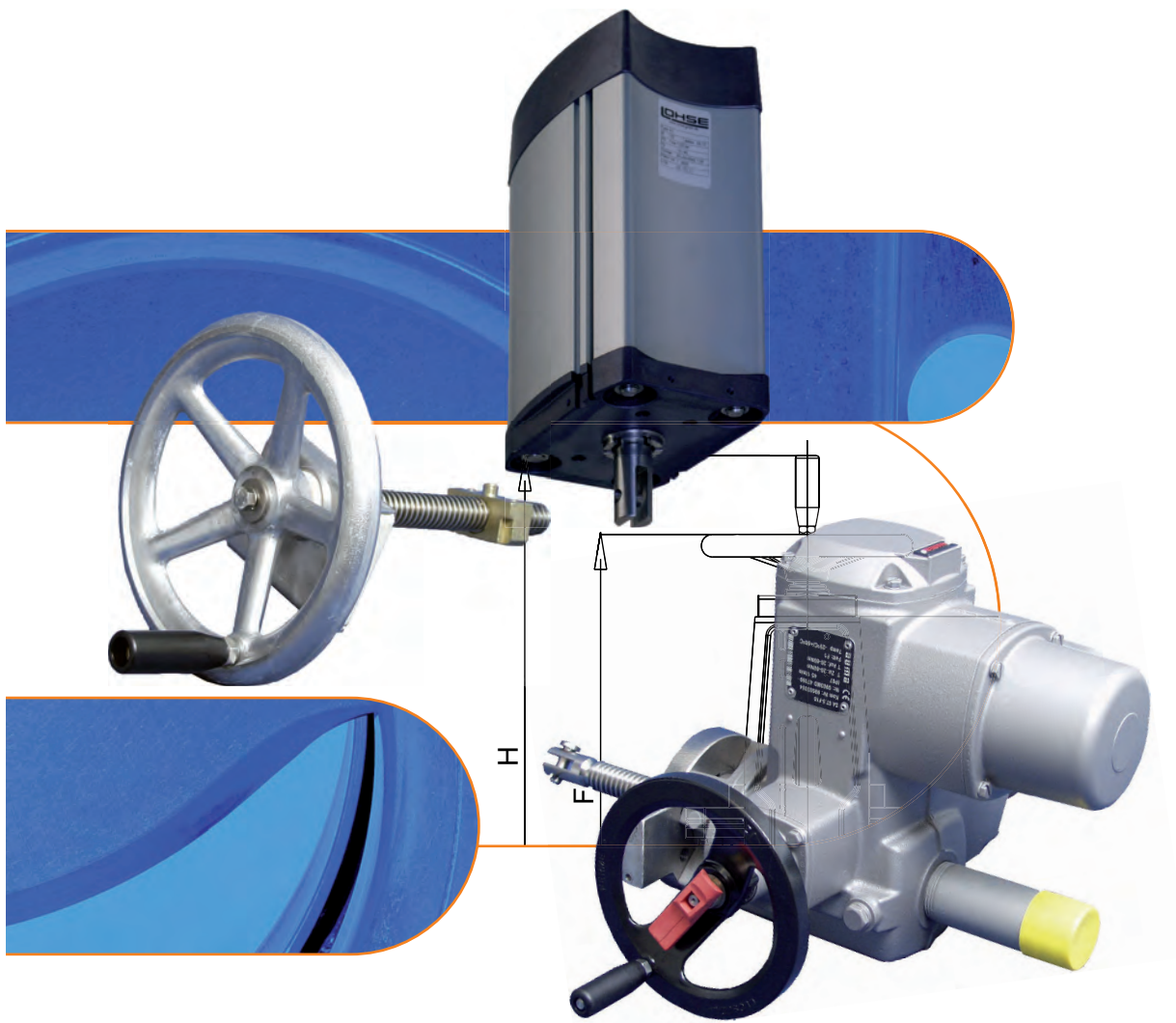


Operating elements - the LOHSE modular system

Operating Elements for LOHSE Valves



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Operating elements - the LOHSE modular system

All LOHSE COMPACT-valves comprise the following **main groups**:

- valve body type
- operating elements type Hns, H, P, E, K, GK or X

All elements are interchangeable for any given size. Thereby the connections of brackets as well as the coupling of actuator and valve plate will be removed and fixed again after the exchange. No removal of incorporated valve body (notice safety rules – pipes must be pressureless).

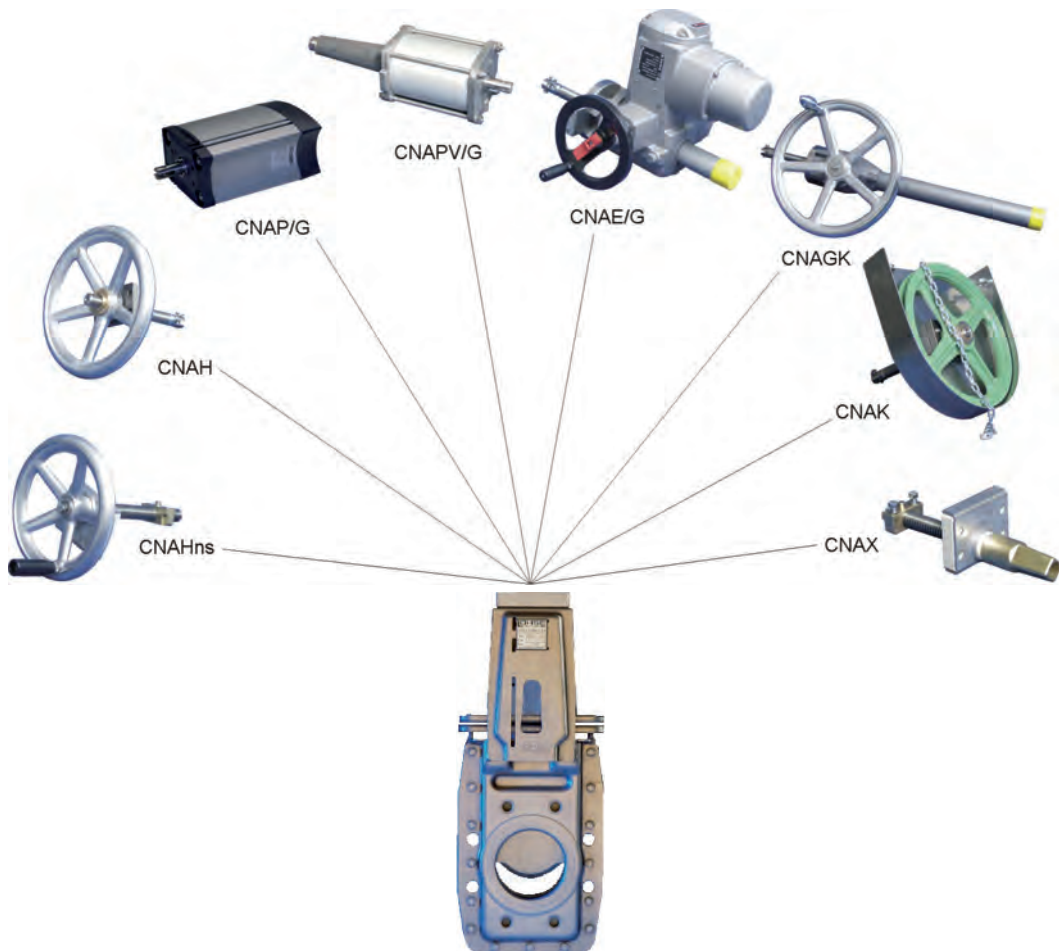
This facility is called the **LOHSE modular system** which offers the following advantages:

- simplified and less expensive holding of spare parts.
- in case of damage, actuating elements can be replaced inexpensively.
- if any valve drives have to be altered, replacement is easy and quick

Protection guards (G)

According to machinery directive 2006/42/EG guards are compulsory to shield all moving parts on automated gate valves.

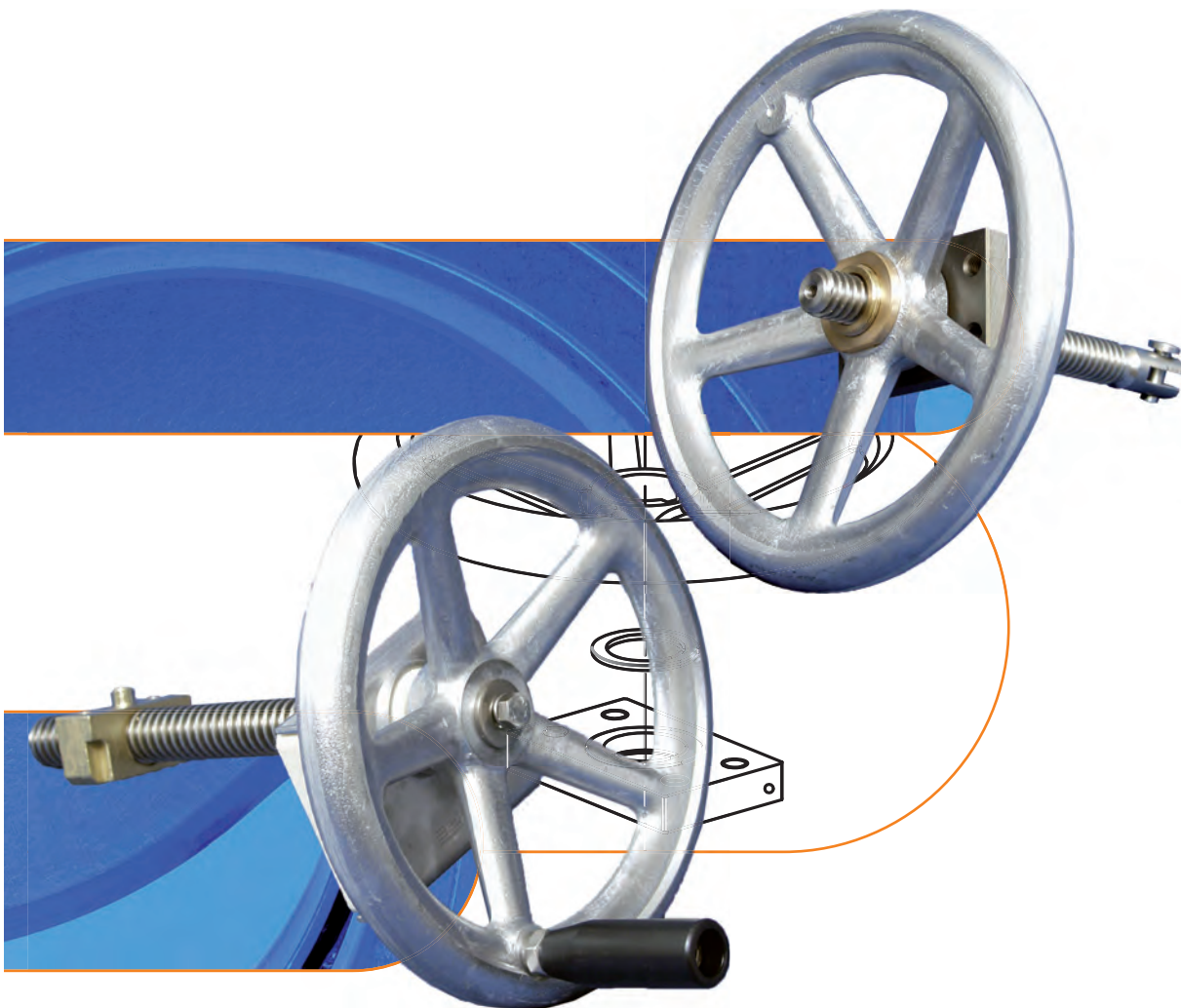
Protection guard of stainless steel.



Operating elements - the LOHSE modular system

Handwheels

Hns - not rising
H - rising



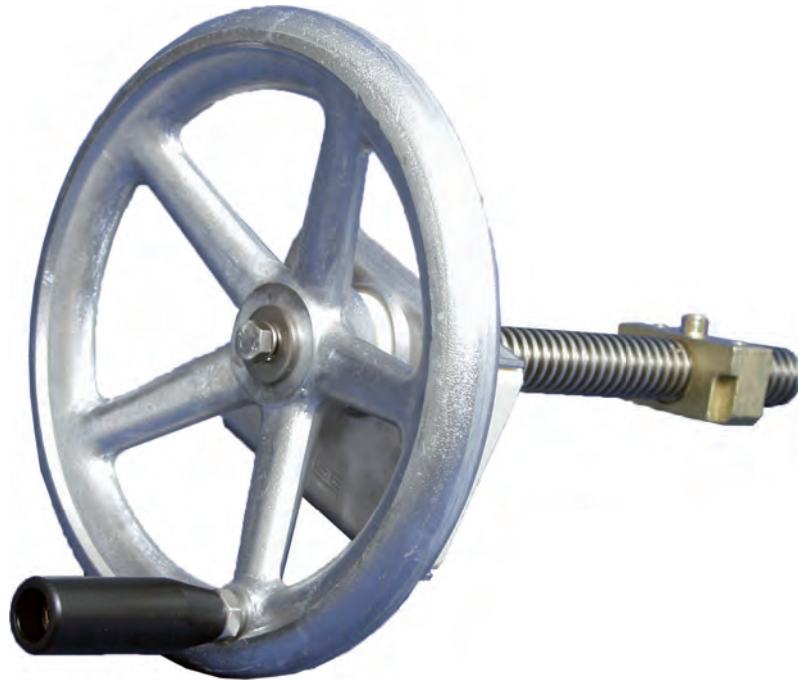
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Handwheel actuator type Hns with non-rising stem

Handwheel with non-rising stem, left-hand trapezoidal thread.
Attach a barrel handle to the handwheel of valves of type CNAHns, CBSHns and CAWHns up to DN 250.

Recommendation

for valves DN 50 – 300



Materials

- handwheel AlSi5Mg
- spindle 1.4301
- barrel handle Sustamid

Valid for types: CNA, CNAA, CNA-Bi, CAW, CBS, CBSA, CGNA, CGBS

Valid for types: CDS, CDSV, CDSA, CDSR, CGDS, NAQ, RQS, RQSV, AEQ

nominal diameter DN	handwheel-Ø [mm]	weight [kg]
50	180	1.8
65	180	1.8
80	180	1.8
100	225	2.6
125	225	2.7
150	225	2.7
200	280	4.7
250	280	4.9
300	360	5.8

nominal diameter DN	handwheel-Ø [mm]	weight [kg]
50	225	1.8
65	225	2.4
80	225	2.4
100	280	3.9
125	280	4.1
150	280	4.3
200	360	5.7
250	360	6.0
300	360	6.2

Handwheel actuator type H with rising stem

Handwheel with rising stem, left-hand trapezoidal thread, with stop sleeve.
 Turn clockwise: valve „CLOSED“.
 Turn anticlockwise: valve „OPEN“.

Recommendation

for valves DN 350 and more



Materials

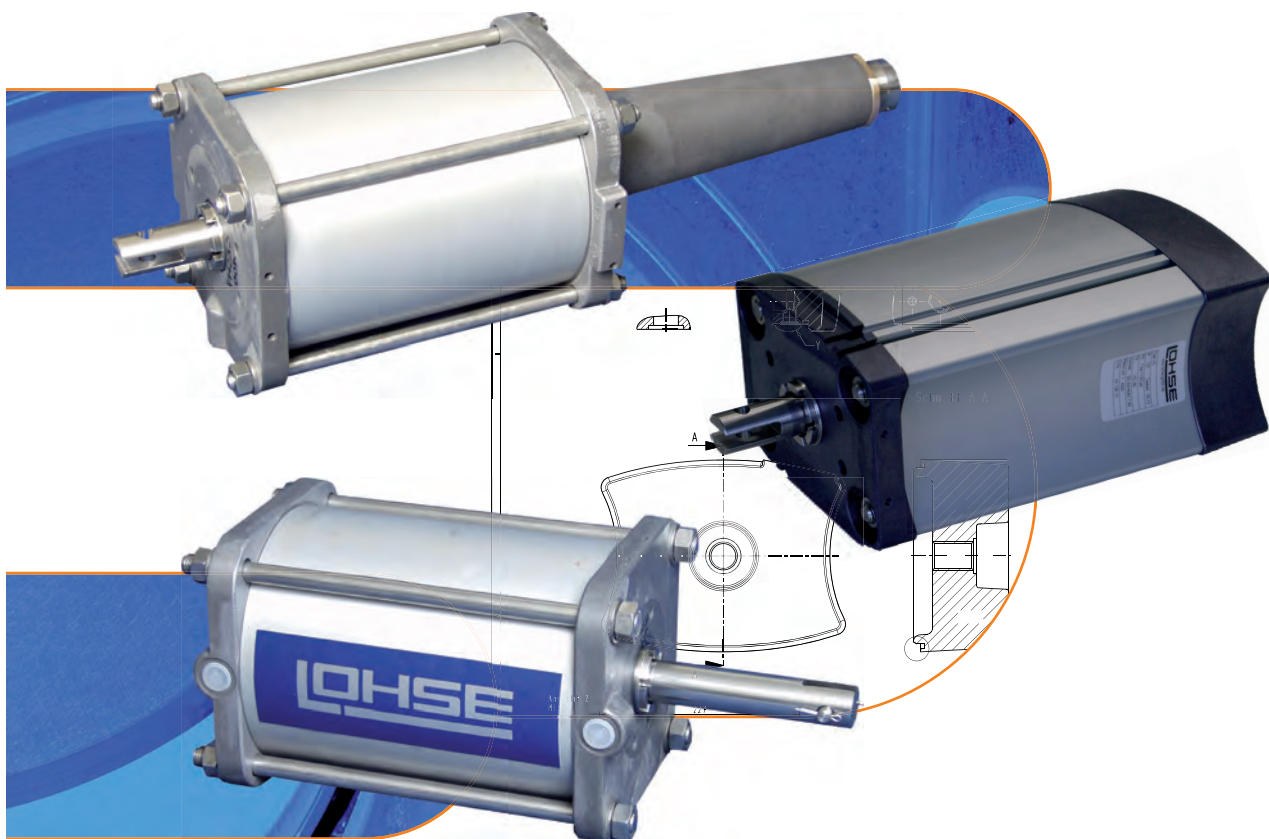
- handwheel AlSi5Mg
- spindle 1.4301

nominal diameter DN	handwheel-Ø [mm]	weight [kg]
50	225	1.9
65	225	1.9
80	225	1.9
100	280	3.3
125	280	3.3
150	280	3.4
200	360	6.0
250	360	6.2

nominal diameter DN	handwheel-Ø [mm]	weight [kg]
300	360	6.4
350	500	8.9
400	500	9.9
450	500	11.4
500	500	15.1
600	640	25.9
700	800	33.6
800	800	34.1

Operating elements - the LOHSE modular system

Pneumatic Cylinders



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General

Pressure

LOHSE pneumatic cylinders are controlled with compressed air at pressures of between 5 and 7 bar (6 bar*) through a multi-port valve. The control valve can be operated manually, electrically (solenoid valve) or pneumatically.

Optimum function at 6 bar. A minimum pressure of 5 bar is required to operate the valve under normal operating conditions. The maximum pressure of 7 bar (6 bar*) must not be exceeded.

* PC Ø 500 for max. 6 bar

Maintenance-free

LOHSE pneumatic cylinders are virtually maintenance-free. They are factory-lubricated.

LOHSE pneumatic cylinders are generally factory-adjusted to the particular valve type and valve size.

Accessories

- multi-port valve
- silencer
- flow control valve

Air consumption

Formula for the calculation of the air consumption in double-acting and single acting pneumatic cylinders (VC, VM, PZ, VMV, VMF).

$$Q \text{ [Nl/stroke]} = \frac{1,033 + P}{1,033} \times \text{piston surface [dm}^2\text{]} \times \text{stroke [dm]}$$

P = operating pressure [bar]

Q = air volume [normal litre / stroke]

CDSP / CDSVP / CDSAP /

CDSRP

CNAP

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
50	100	56	3.0
65	100	73	3.9
80	100	89	4.8
100	100	106	5.7
125	125	132	11.0
150	125	156	13.0
200	160	210	28.7
250	160	260	35.6
300	160	312	42.7
350	200	362	77.4
400	200	412	88.1
450	230	462	130,6
500	230	512	144.8
600	300	612	294.5
700	400	712	598.9
800	400	812	694.7

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
50	100	58	3.1
65	100	73	4.0
80	100	88	4.7
100	125	109	9.1
125	125	134	11.2
150	160	159	21.8
200	200	210	44.9
250	200	260	55.6
300	230	310	87.7
350	300	360	173.2
400	300	410	197.3
450	300	460	221.4
500	400	512	437.8
600	400	612	523.4
700	500	715	955.3
800	500	815	1089.0

CBSP

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
50	100	62	3.4
65	100	73	3.9
80	100	89	4.8
100	100	106	5.7
125	125	132	11.0
150	125	156	13.0
200	160	210	28.7
250	160	260	35.6
300	160	312	42.7
350	200	362	77.4
400	200	412	88.1
450	230	462	130.6
500	230	512	144.8

CAWP

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
50	100	52	2.8
65	100	67	3.6
80	100	82	4.4
100	100	99	5.3
125	125	124	10.4
150	125	149	12.5
200	160	202	27.6
250	160	252	34.5
300	160	302	47.4
350	200	352	75.3
400	200	402	86.0
450	230	452	127.8
500	230	502	142.0
600	300	602	289.7

TAP / TAQP

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
100	125	50	4.2
125	125	62.5	5.2
150	160	75	9.0
200	200	100	21.4
250	200	125	26.7
300	230	150	42.4
350	300	175	84.2
400	300	200	96.2
450	300	225	108.3
500	400	250	213.8
600	400	300	256.6
700	500	350	467.6
800	500	400	534.5

AEQP

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
100	125	102	8.5
150	160	147	20.2
200	200	202	43.2
250	200	247	52.8
300	230	302	85.4
350	300	352	169.3
400	300	402	193.5
500	400	502	429.3
600	400	602	514.8

SAQP

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
400	300	420	202.0
500	400	525	448.9
600	400	625	534.5
800	500	825	1102.3

TREP

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
150	160	77.6	10.6
200	200	103.5	22.1
250	200	129.4	27.7
300	230	155.3	43.9
400	300	207.1	99.7
500	400	258.8	221.3
600	400	310.6	265.6

RQSP / NAQP

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
100	125	114	9.5
150	160	164	22.5
200	200	214	45.8
250	200	275	58.8
300	230	325	91.9
350	300	375	180.4
400	300	425	204.5
500	400	530	453.3
600	400	630	538.7

CPDP

DN [mm]	cyl. Ø [mm]	stroke [mm]	Q [Nl/stroke] p=6 bar
80	100	85	4.5
100	100	105	5.6
125	100	130	7.0
150	100	155	8.3
200	125	205	17.1
250	125	255	21.3
300	160	305	41.7
350	160	355	48.6
400	160	405	55.5

Closing force, operating pressure 6 bar (60 N/cm²)

cyl. Ø [mm]	closing force [kN]
100	4.7
125	7.4
145	9.9
160	13.8
175	14.4
200	18.9
230	24.9
300	42.4
400	75.4
500	117.8

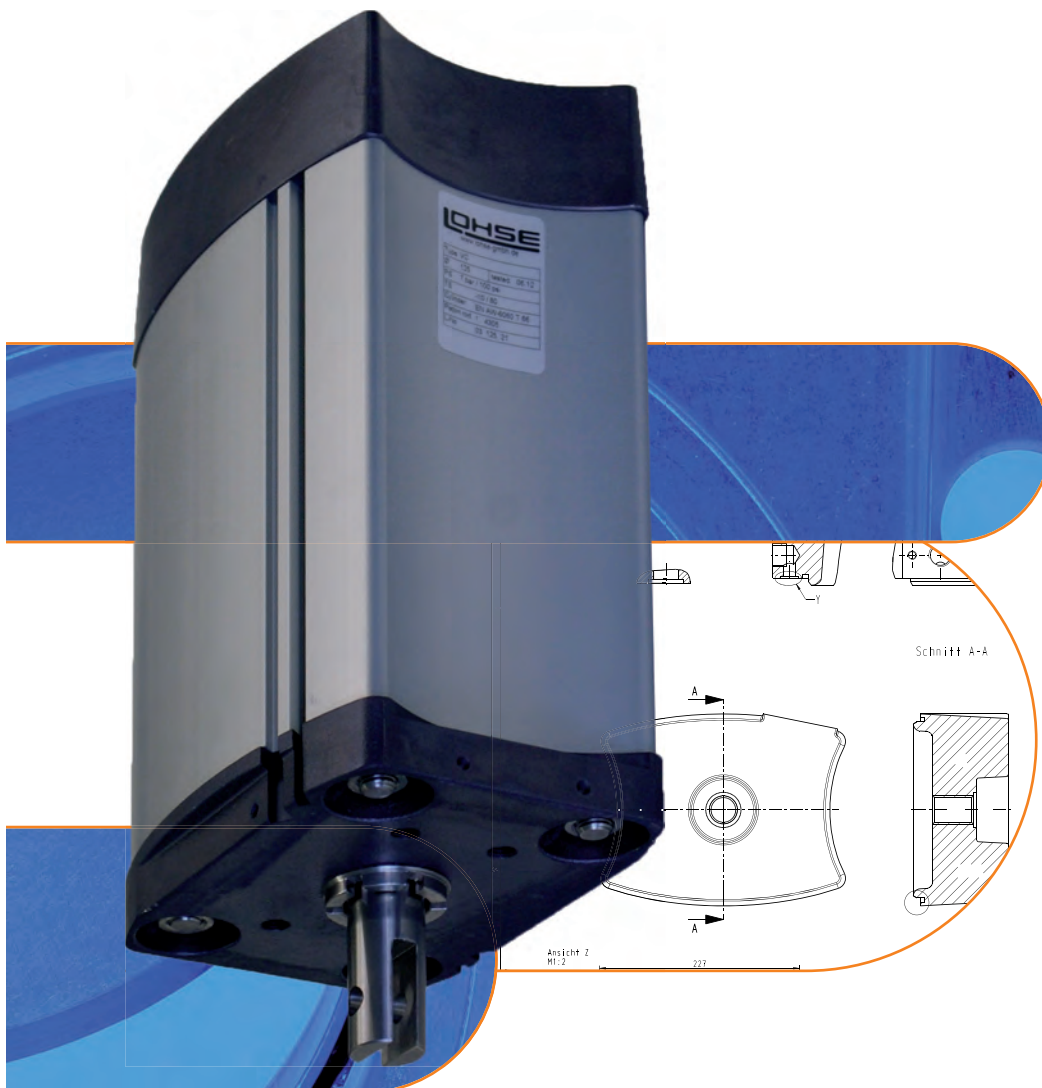
Compressed air connection

cyl. Ø [mm]	compressed air connection	min. line inside ø [mm]	min. pressure [bar]	max. pressure [bar]
100	G 1/4"	7	5	7
125	G 1/4"	7	5	7
145	G 1/4"	7	5	7
160	G 1/4"	7	5	7
175	G 1/2"	11	5	7
200	G 1/2"	11	5	7
230	G 1/2"	11	5	7
300	G 1/2"	11	5	7
400	G 3/4"	20	5	7
500	G 3/4"	20	5	7

Operating elements - the LOHSE modular system

Pneumatic Cylinder

Type VC



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A specially developed linear cylinder for corrosive media under the most demanding of operating conditions

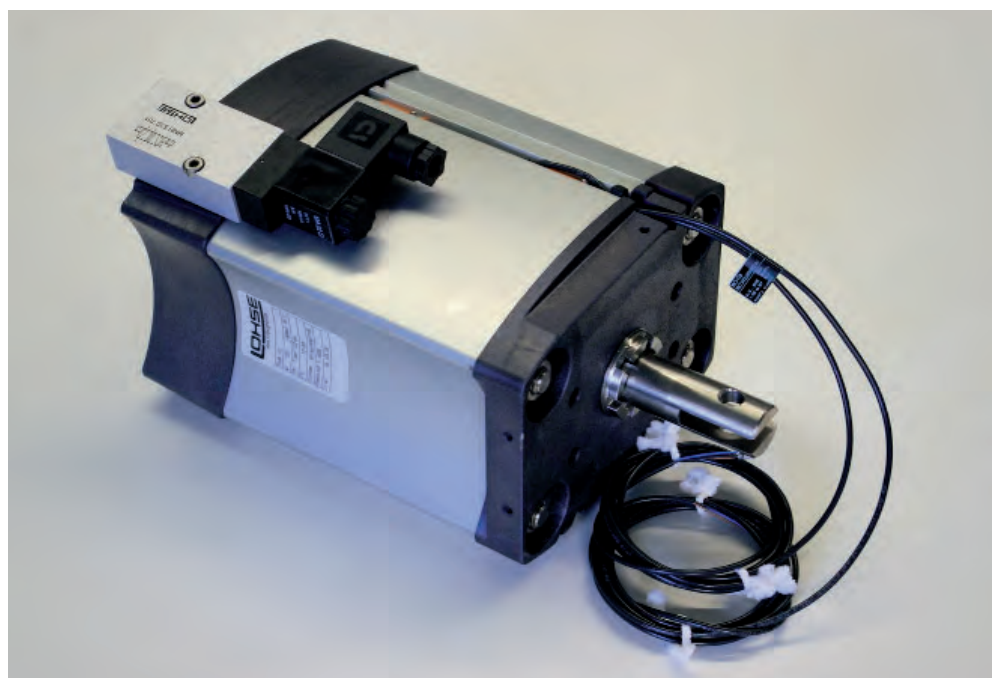
A compact construction according to the latest industrial design

- No external parts
 - dirt can be easily removed
- Stroke can be precisely adjusted in both directions and as a result can be used on a wide variety of valve types
- Light weight on account of its aluminium construction
- Low maintenance due to a life time cycle of lubrication
- Strong rods running the length of the cylinder barrel thus easy to remove
- Sturdy piston rod in stainless steel precisely guided

An integrated NAMUR interface according to VDI/VDE 3845 to enable the direct mounting of the solenoid valve

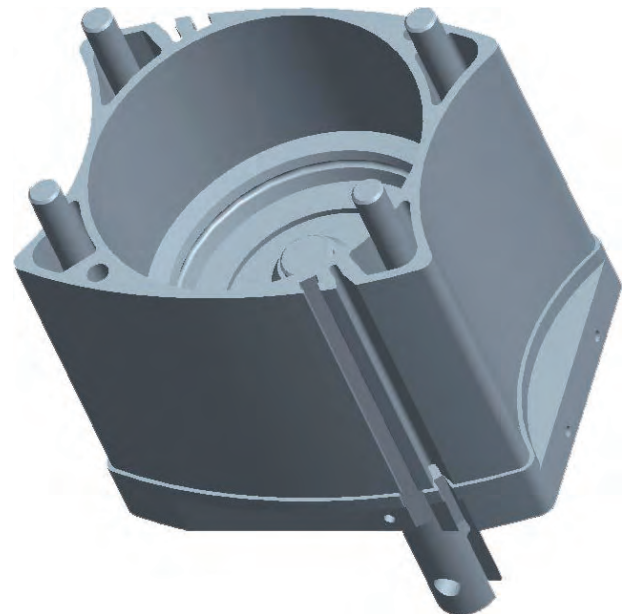
- No tubing is necessary from the solenoid valve to the cylinder
 - saving fixtures and air connections
 - reduction of leaks
- Straightforward mounting of the solenoid valve via two screws
 - mounting bracket no longer necessary
 - reduction of assembly time
- Direct connection of the solenoid to the main air line
 - expensive pneumatic control cabinets are thus eliminated
- Much improved air flow, the volume of flow is channelled internally in the piston area enabling a more direct response of cylinder piston and thus avoiding a jerking effect of the piston
- Lower stock-holding costs as identical solenoid valves suit all cylinders
- Connections:

	1/4"	1/2"
	Ø 100	Ø 200
	Ø 125	Ø 230
	Ø 160	



A Profiled Barrel with slots

- Made from anodized aluminium for optimum wear and slide characteristics
- Built-in T and C slots according to ISO 15552 for contactless position recognition
 - easy mounting of common cylinder proximity switches by insertion into the slots and fixing with sensor integrated clamping screws with combined slot or hexagon socket head
 - very clear visibility of the piston position even from a distance via integrated LED indicators on the proximity switches
 - Cost reduction
 - > via the elimination of expensive brackets to mount conventional proximity switches
 - > reduced installation time
 - Accessibility
 - > straightforward and practical adjustment is enabled
 - > in safety as guards do not need to be removed



Magnetic Piston

- Magnetic as standard
 - no retrofitting necessary
 - the change to a contactless position recognition is always possible

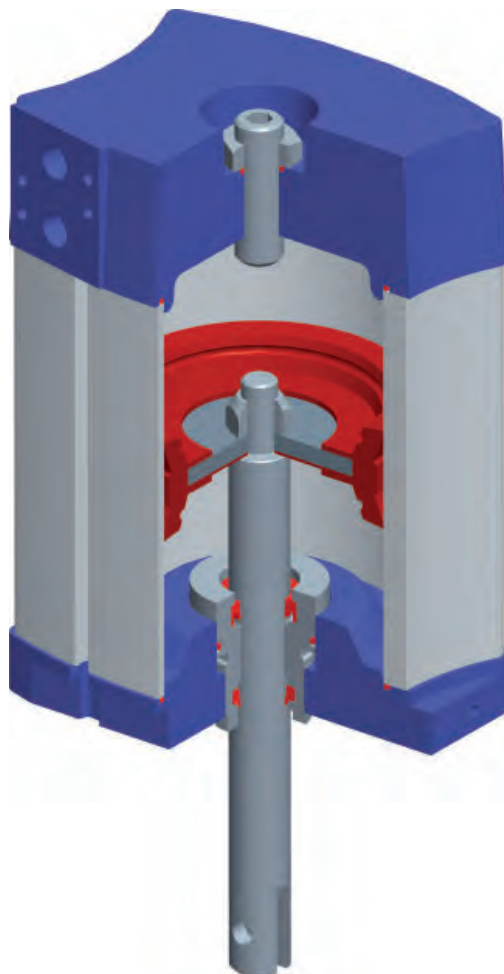
Materials

- cylinder bottom + cover AlSi5Mg
- profiled barrel AW-6060T66
- piston rod 1.4305
- piston head NBR
- hexagon bolts A2-70
- adjusting nut with bush 1.4305
- sealings NBR

Correlation between pneumatic cylinder VC and LOHSE-valves

DN	CNA	CAW	CBS	CDS	NAQ	RQS	AEQ	TA	TAQ	TRE	CPD
50	Ø 100	Ø 100	Ø 100	Ø 100	-	-	-	-	-	-	
65	Ø 100	Ø 100	Ø 100	Ø 100	-	-	-	-	-	-	
80	Ø 100	Ø 100	Ø 100	Ø 100	-	-	-	-	-	-	Ø 100
100	Ø 100	Ø 100	Ø 100	Ø 125	-	Ø 125	Ø 125	Ø 125	-	-	Ø 100
125	Ø 125	Ø 125	Ø 125	Ø 125	-	-	-	Ø 125	-	-	Ø 100
150	Ø 125	Ø 125	Ø 125	Ø 160	Ø 160	Ø 160	Ø 160	Ø 160	Ø 160	Ø 160	Ø 100
200	Ø 160	Ø 160	Ø 160	Ø 200	Ø 200	Ø 200	Ø 200	Ø 200	Ø 200	Ø 200	Ø 125
250	Ø 160	Ø 160	Ø 160	Ø 200	Ø 200	Ø 200	Ø 200	Ø 200	Ø 200	Ø 200	Ø 125
300	Ø 160	Ø 160	Ø 160	Ø 230	-	Ø 230	Ø 230	Ø 230	Ø 230	Ø 230	Ø 160
350	Ø 200	Ø 200	Ø 200	Ø 300 (*)	-	Ø 300 (*)	Ø 300 (*)	Ø 300 (*)	Ø 300 (*)	-	Ø 160
400	Ø 200	Ø 200	Ø 200	Ø 300 (*)	-	Ø 300 (*)	Ø 300 (*)	Ø 300 (*)	Ø 300 (*)	Ø 300 (*)	Ø 160
450	Ø 230	Ø 230	Ø 230	Ø 300 (*)	-	-	-	Ø 300 (*)	Ø 300 (*)	-	
500	Ø 230	Ø 230	Ø 230	Ø 400 (**)	-	Ø 400 (**)	Ø 400 (**)	Ø 400 (**)	Ø 400 (**)	Ø 400 (**)	

(*) pneumatic cylinder type VM
 (**) pneumatic cylinder type PZ



Operating elements - the LOHSE modular system

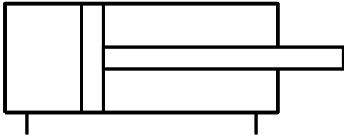
Pneumatic Cylinder

Type VM



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Pneumatic cylinder type VM, double-acting



LOHSE VM pneumatic cylinders are double-acting cylinders. In closing direction, the stroke can be adjusted with the adjusting nut. In opening direction, it can be adjusted with the adjusting screw.



Size: Ø 300 mm
Stroke: adjusted to suit valve type and size.

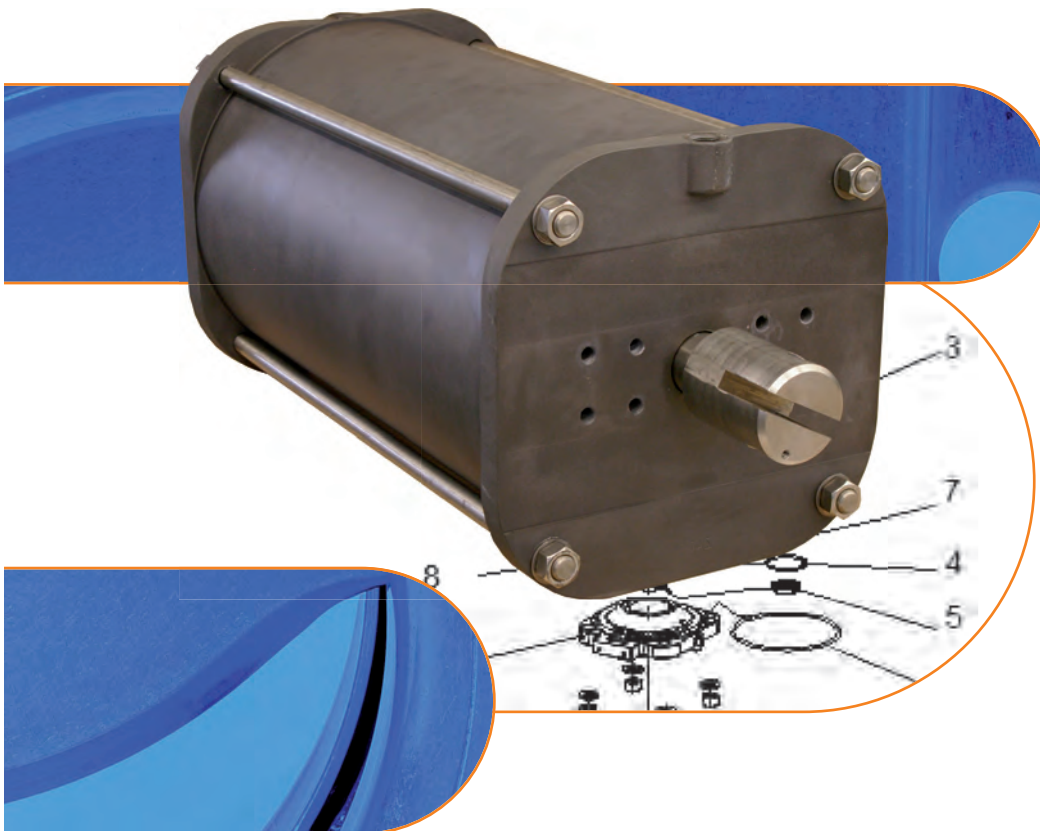
Materials

- cylinder bottom + cover AlSi5Mg
- cylinder barrel AlMgSi0.5
- piston rod 1.4305
- piston head NBR
- hexagon bolts A2-70
- adjusting nut with bush 1.4305
- sealings NBR

Operating elements - the LOHSE modular system

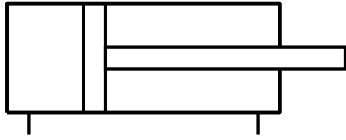
Pneumatic Cylinder

Type PZ



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Pneumatic cylinder type PZ, double acting



LOHSE PZ pneumatic cylinders are equipped with a fixed stop in closing direction (no adjusting nut). In opening direction, their stroke can be adjusted by means of the adjusting screw.



Sizes: Ø 400 and Ø 500 mm
Stroke: adjusted to suit valve type and size.

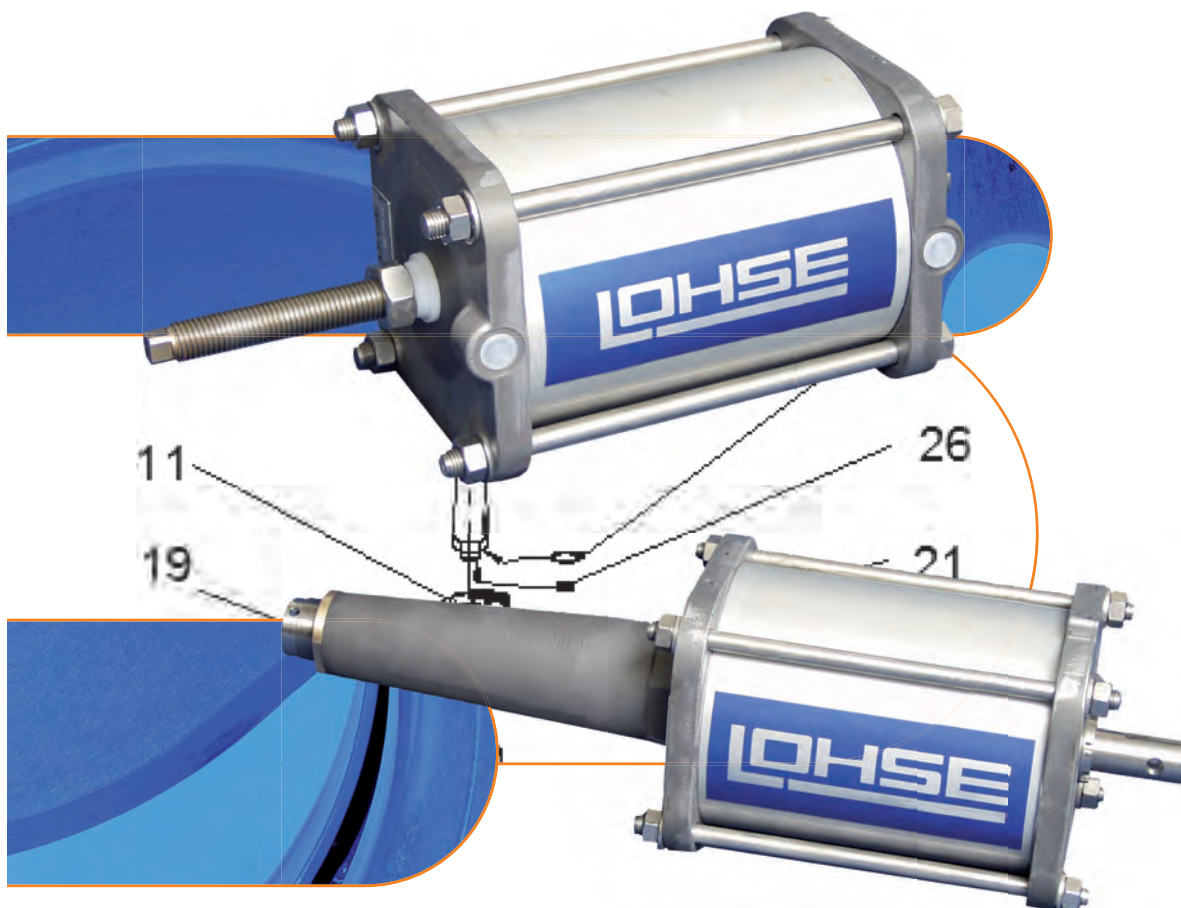
Materials

- cylinder bottom + cover Al
- cylinder barrel AlSi10Mg
- piston rod 1.4305
- piston PE
- hexagon bolts A2-70
- sealings NBR

Operating elements - the LOHSE modular system

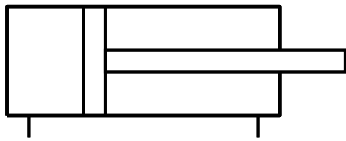
Pneumatic Cylinder

Type VMV



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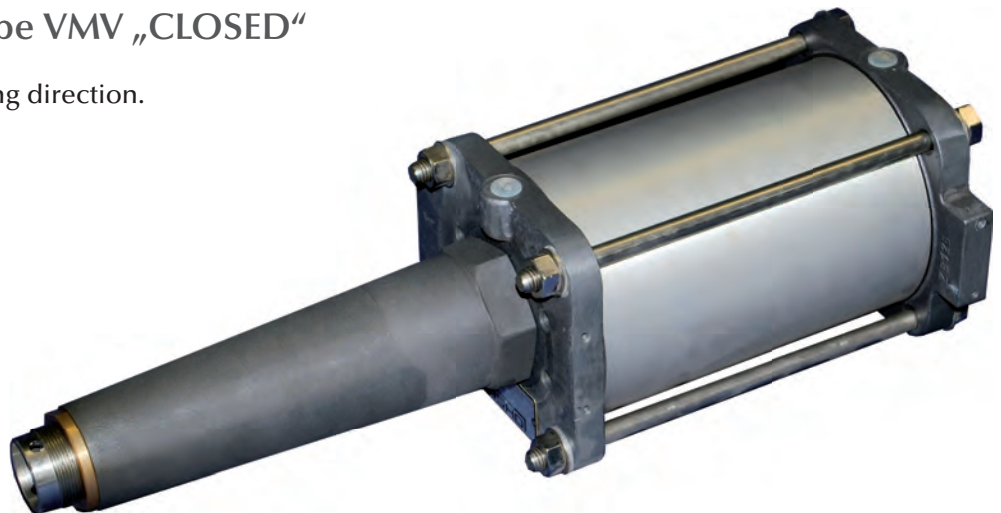
Pneumatic cylinder type VMV, double acting



LOHSE VMV pneumatic cylinders are cylinders with adjustable stroke limitation across the entire stroke length.

Pneumatic cylinder type VMV „CLOSED“

VMV „CLOSED“ - stop in closing direction.



Pneumatic cylinder type VMV „OPEN“

VMV „OPEN“ - stop in opening direction.



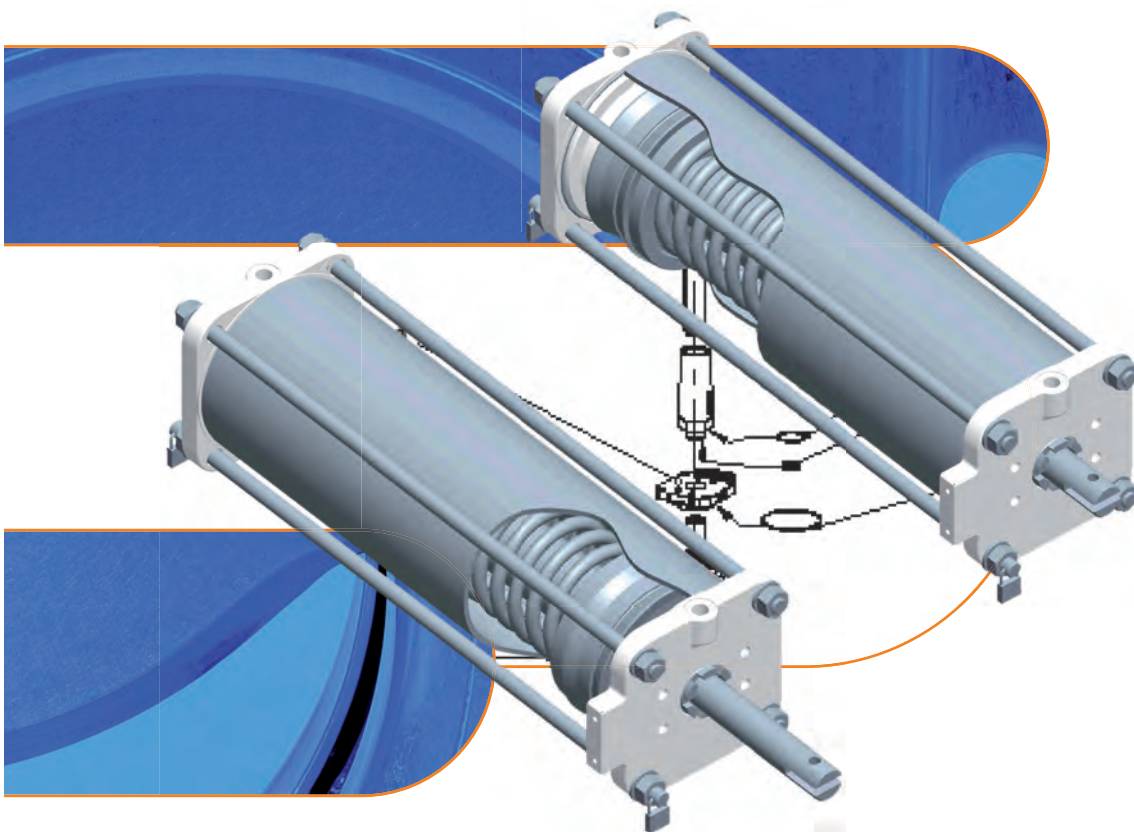
Materials

- cylinder bottom + cover AlSi5Mg
- cylinder barrel AlMgSi0.5
- piston rod 1.4305
- piston head NBR
- hexagon bolts A2-70
- adjusting nut with bush 1.4305
- sealings NBR

Operating elements - the LOHSE modular system

Pneumatic Cylinder

Type VMF

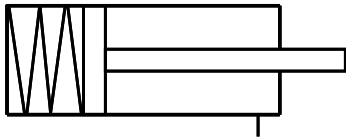


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Pneumatic cylinder type VMF, single acting

LOHSE VMF pneumatic cylinders are single-acting cylinders that are closed or opened by spring force.

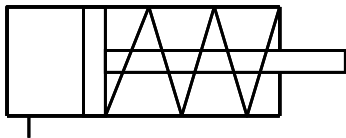
Pneumatic cylinder type VMF „spring-closing“



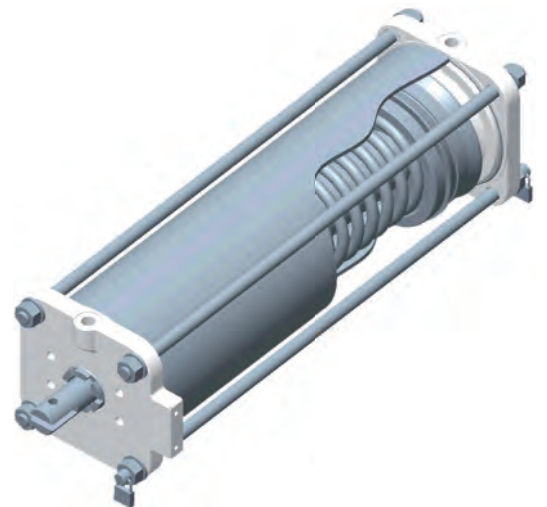
When not pressurised, the cylinder rod is fully extended.



Pneumatic cylinder Type VMF „spring-opening“



When not pressurised, the cylinder rod is fully retracted.



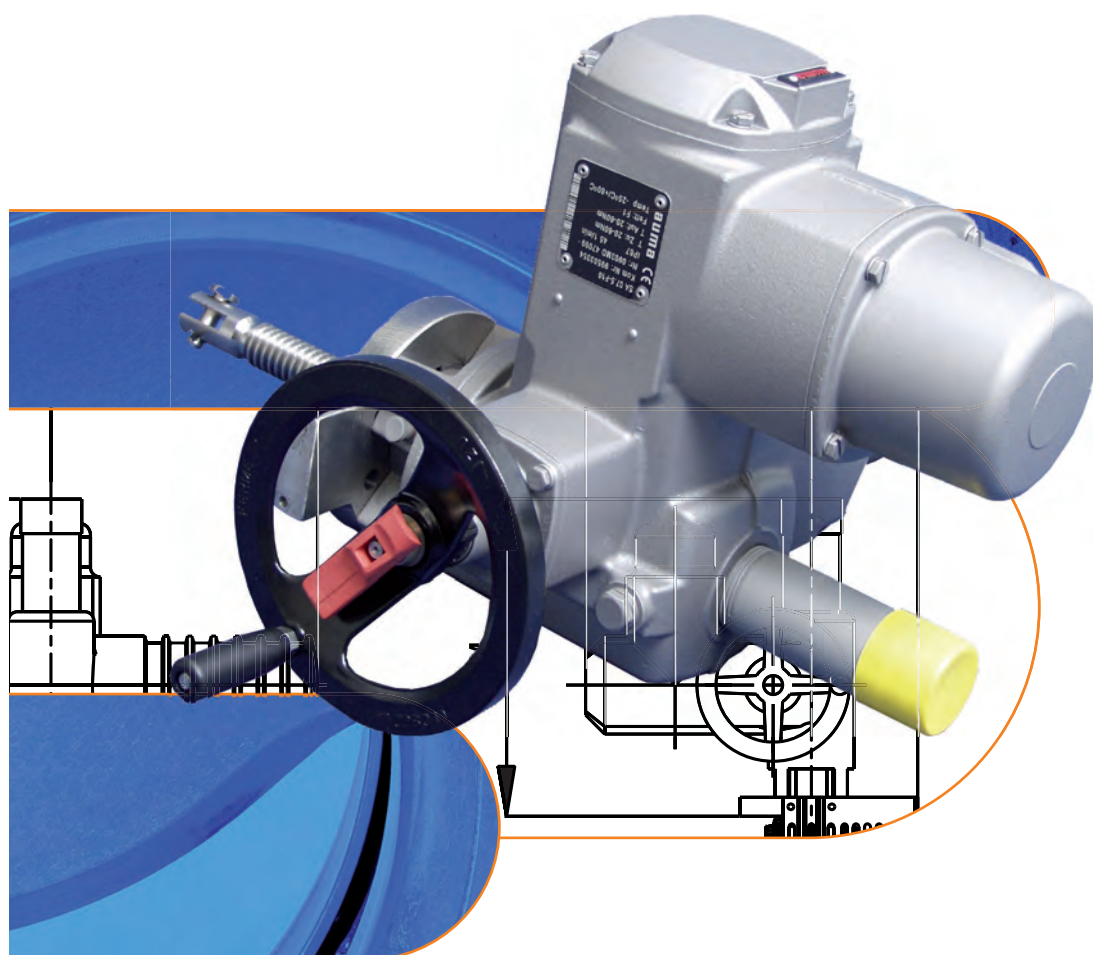
Materials

- cylinder bottom + cover AlSi5Mg
- cylinder barrel AlMgSi0.5
- piston rod 1.4305
- piston head NBR
- hexagon nuts A2-70
- adjusting nut with bush 1.4305
- sealings NBR

Operating elements - the LOHSE modular system

Electrical Actuator

Type E



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In principle, the valves can be operated with all conventional electrical actuators. The technical data in the tables below refer to AUMA actuators.



Adjustment

Incorrectly set travel and torque settings can cause damage to the valve.

- Adjust the settings as described in the operating manual of the actuator manufacturer and the details provided in the tables below.

for CNA, CNAА, CNA-Bi,
CGNA

DN [mm]	actuator type (AUMA)	torque [Nm]		actuating time [s]	power [kW]
		opening	closing		
50	SA 07.2 A45	30	20	17.3	0.18
65	SA 07.2 A45	30	20	24.4	0.18
80	SA 07.2 A45	30	20	29.7	0.18
100	SA 07.6 A45	30	20	28.3	0.37
125	SA 07.6 A45	40	30	35.2	0.37
150	SA 07.6 A45	40	30	41.6	0.37
200	SA 10.2 A45	80	60	46.7	0.75
250	SA 10.2 A45	80	60	57.8	0.75
300	SA 10.2 A45	80	60	68.9	0.75
350	SA 10.2 A45	120	80	78.0	0.75
400	SA 10.2 A45	120	80	90.0	0.75
450	SA 10.2 A45	120	80	101.0	0.75
500	SA 14.2 A45	250	200	112.0	1.50
600	SA 14.2 A63	250	200	83.0	3.00
700	SA 14.6 A63	500	400	97.0	5.50
800	SA 14.6 A63	500	400	110.0	5.50
900	SA 16.2 A63	800	600	108.4	7.50
1000	SA 16.2 A63	800	600	120.8	7.50
1400	SA 25.1 A63	1800	1400	136.2	15

for CAW

DN [mm]	actuator type (AUMA)	torque [Nm]		actuating time [s]	power [kW]
		opening	closing		
50	SA 07.2 A45	30	20	17.3	0.18
65	SA 07.2 A45	30	20	22.4	0.18
80	SA 07.2 A45	30	20	27.3	0.18
100	SA 07.6 A45	30	20	26.4	0.37
125	SA 07.6 A45	40	30	33.1	0.37
150	SA 07.6 A45	40	30	39.7	0.37
200	SA 10.2 A45	80	60	44.8	0.75
250	SA 10.2 A45	80	60	56.0	0.75
300	SA 10.2 A45	80	60	67.1	0.75
350	SA 10.2 A45	120	80	78.2	0.75
400	SA 10.2 A45	120	80	89.3	0.75
450	SA 10.2 A45	120	80	100.4	0.75
500	SA 14.2 A45	250	200	111.6	1.50
600	SA 14.2 A63	250	200	81.9	3.00
700	SA 14.6 A63	500	400	99.5	5.50
800	SA 14.6 A63	500	400	109.1	5.50
900	SA 16.2 A63	800	600	107.6	7.50
1000	SA 16.2 A63	800	600	119.5	7.50

for CBS, CBSA, CGBS
(triangular or pentagonal orifice)

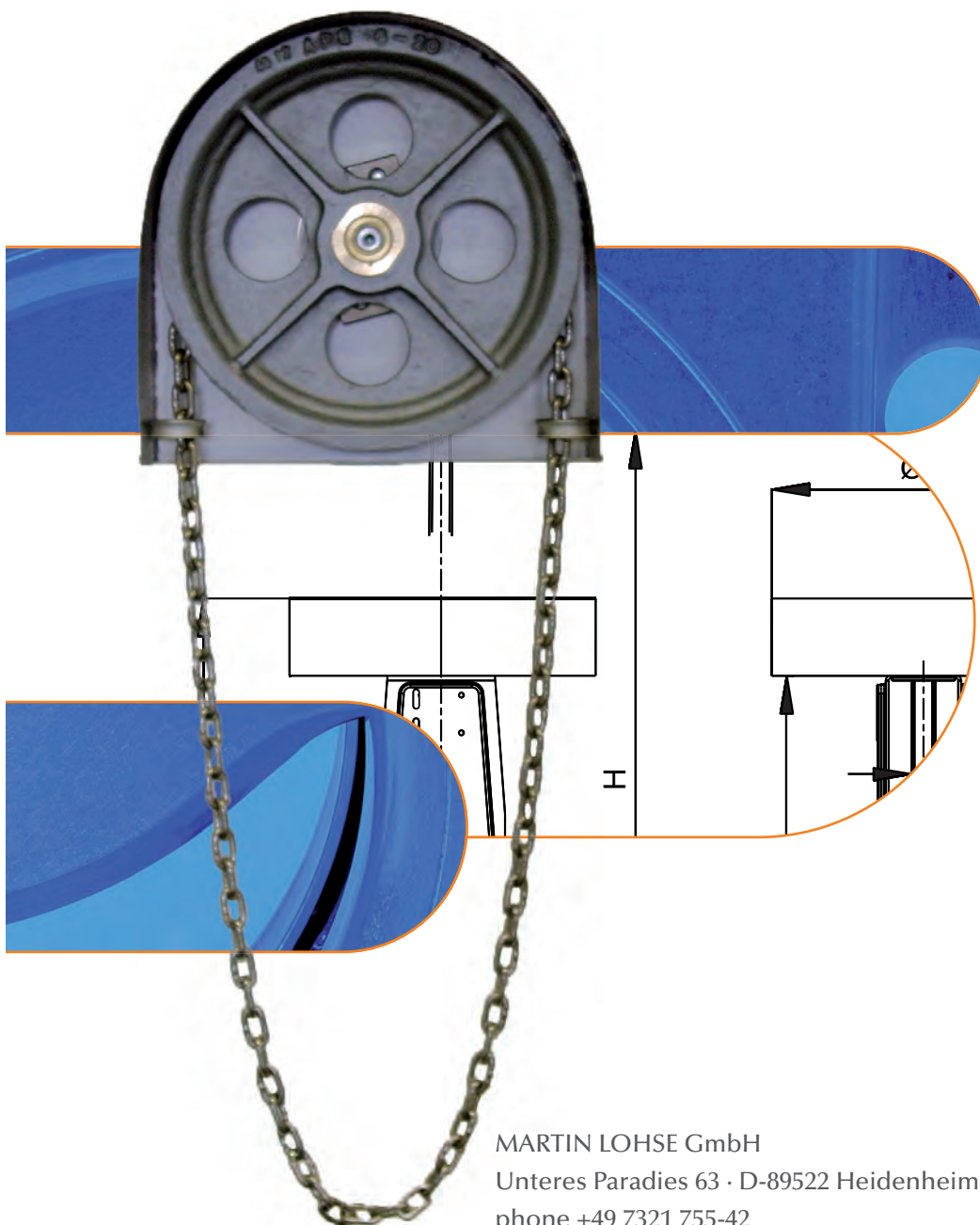
DN [mm]	actuator type (AUMA)	torque [Nm]		actuating time [s]		power [kW]
		opening	closing	triangular	pentagonal	
50	SA 07.2 A11	30	20	55.9	66.8	0.045
65	SA 07.2 A11	30	20	70.9	84.5	0.045
80	SA 07.2 A11	30	20	85.9	103.6	0.045
100	SA 07.6 A11	30	20	85.0	102.5	0.09
125	SA 07.6 A11	40	30	105.8	126.5	0.09
150	SA 07.6 A11	40	30	127.6	151.6	0.09
200	SA 10.2 A11	80	60	113.1	167.3	0.18
250	SA 10.2 A11	80	60	173.6	208.2	0.18
300	SA 10.2 A11	80	60	207.3	249.1	0.18
350	SA 10.2 A16	120	80	166.3	200.0	0.37
400	SA 10.2 A16	120	80	189.4	228.2	0.37
450	SA 10.2 A16	120	80	213.1	256.3	0.37
500	SA 14.2 A16	250	150	236.3	284.4	0.75
600	SA 14.2 A22	250	150	183.1	212.7	0.75
700	SA 14.6 A22	500	300	208.4	250.5	1.50
800	SA 14.6 A22	500	300	235.8	283.6	1.50

for CDS, CDSV, CDSA,
CDSR, CDSQ, CGDS

DN [mm]	actuator type (AUMA)	torque [Nm]		actuating time [s]	power [kW]
		opening	closing		
50	SA 07.6 A45	30	20	19.3	0.37
65	SA 07.6 A45	30	20	24.3	0.37
80	SA 07.6 A45	30	20	29.3	0.37
100	SA 07.6 A45	30	20	29.1	0.37
125	SA 07.6 A45	40	30	35.7	0.37
150	SA 07.6 A45	40	30	42.4	0.37
200	SA 10.2 A45	80	60	45.0	0.75
250	SA 10.2 A45	80	60	56.4	0.75
300	SA 10.2 A45	80	60	68.9	0.75
350	SA 14.2 A45	120	80	78.4	1.50
400	SA 14.2 A45	120	80	89.8	1.50
450	SA 14.2 A45	120	80	100.9	1.50
500	SA 14.6 A45	250	200	112.2	3.00
600	SA 14.6 A63	250	200	83.0	5.50
700	SA 14.6 A63	500	400	96.6	5.50
800	SA 14.6 A63	500	400	110.2	5.50
900	SA 16.2 A63	800	600	108.4	7.50
1000	SA 16.2 A63	800	600	120.8	7.50

Operating elements - the LOHSE modular system

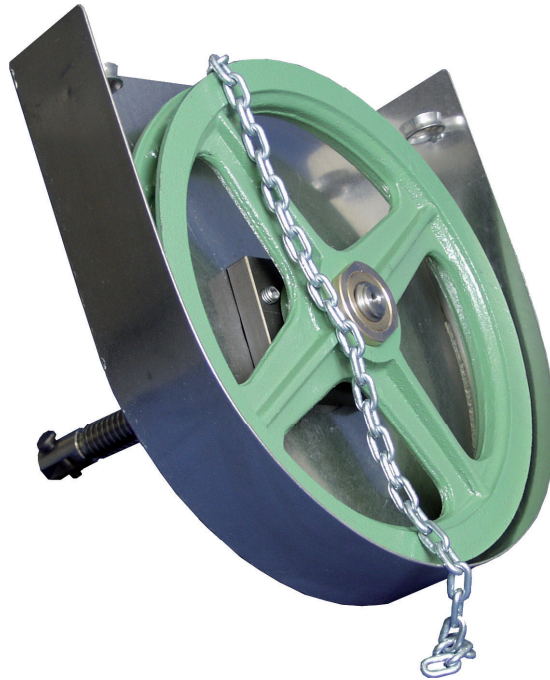
Chain Wheel Actuator Type K



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Chain wheel actuator type K

- for manual operation of valves at a higher level
- sprocket wheel suitable for round steel chains acc. DIN 766 A
- chain length can be adjusted individually
- rising stem



nominal diameter of valve DN	sprocket wheel - \varnothing [mm]
50	260
65	260
80	260
100	300
125	300
150	300

nominal diameter of valve DN	sprocket wheel - \varnothing [mm]
200	380
250	380
300	380
350	500
400	500

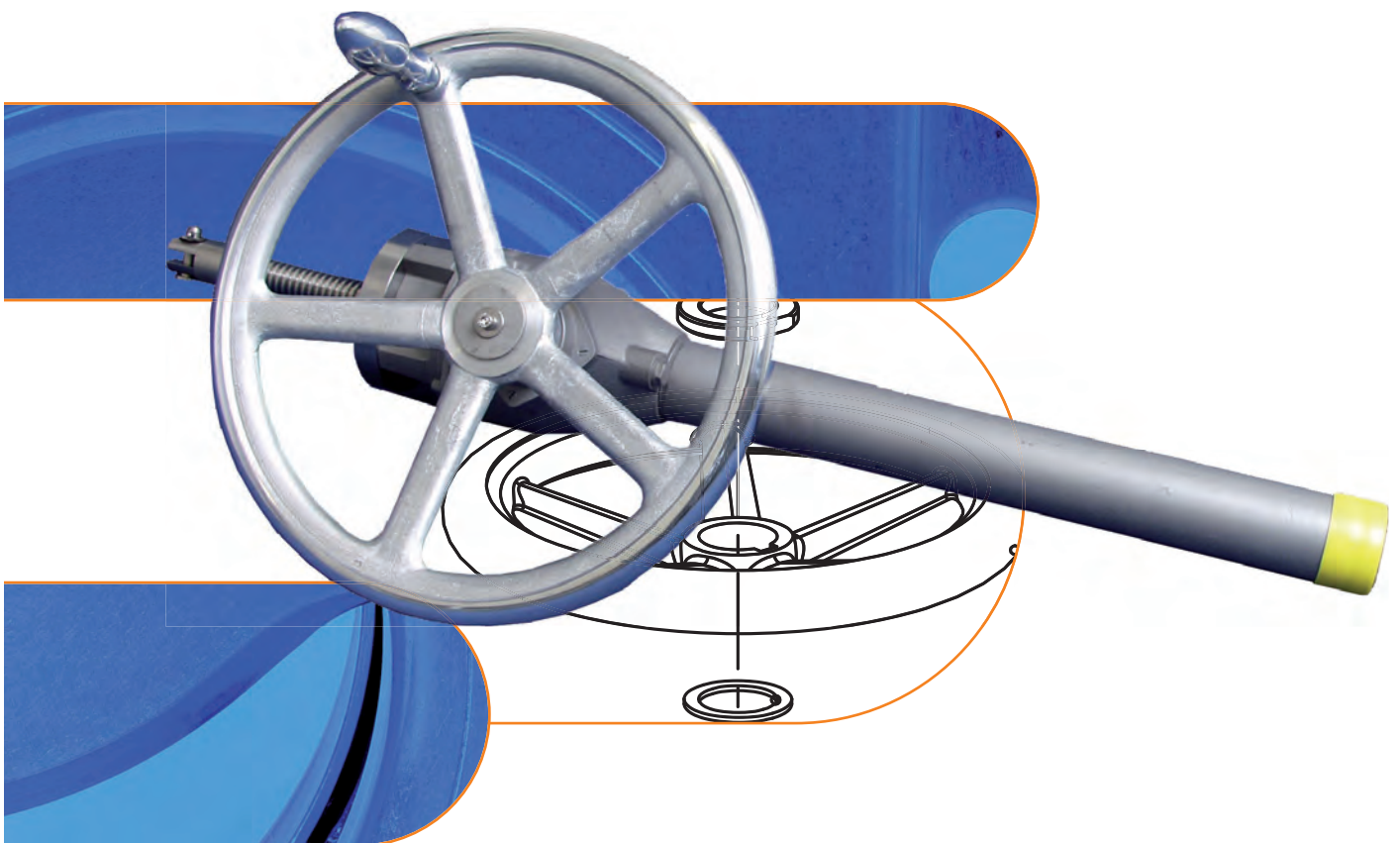
Function

- Turn clockwise: valve „CLOSED“.
- Turn anticlockwise: valve „OPEN“.

Operating elements - the LOHSE modular system

Bevel Gear Actuator

Type GK



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Bevel gear actuator type GK



nominal diameter valve DN	bevel gear actuator type (AUMA)	hand wheel \varnothing [mm]
150 - 300	GK10.2	360
350 - 500	GK10.2	400
600 - 800	GK14.2	500
900 - 1000	GK14.6	640

Technical data

- bevel gear actuator types 10.2 and 14.2 are single-speed gear mechanisms
- speed reduction ratio $i = 2:1$
- max. torque:
 - GK 10.2 : 120 Nm
 - GK 14.2 : 250 Nm
 - GK 14.6 : 500 Nm

Function

- The actuators are operated manually.
- Turn clockwise: valve „CLOSED“.
 - Turn anticlockwise: valve „OPEN“.

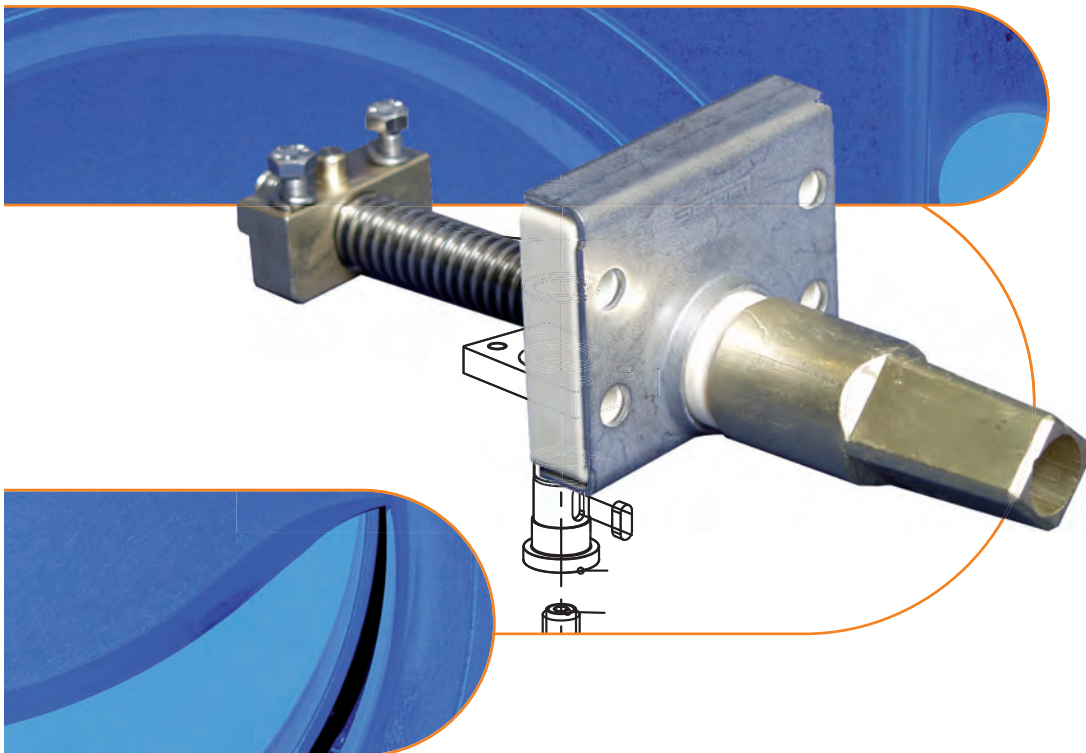
Recommendation

for valves DN 350 and more

Operating elements - the LOHSE modular system

Square Head Actuator

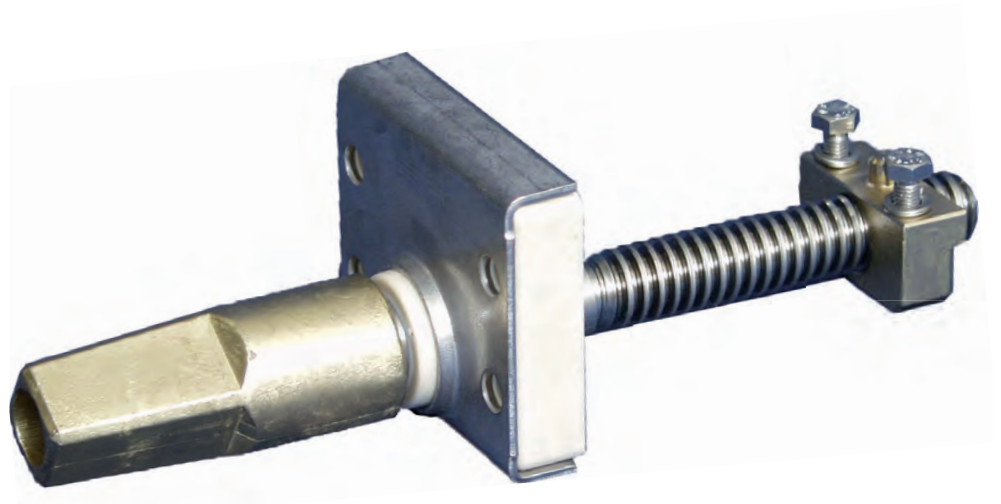
Type X



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Square head actuator type X for subsurface valves

Square head DIN 3223 „C“ with non-rising stem.



Function

The square head actuator is operated by means of a DIN 3223 „C“ fitting wrench.

- Turn clockwise: valve „CLOSED“.
- Turn anticlockwise: valve „OPEN“.

Germany + Switzerland

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