

SCHIEBEL

cm series

issue October 2023

CM Multiturn Actuator

Modulating-Duty / On-Off-Duty
up to 250 Nm



Power supply

- AC: 1phase 100VAC...240VAC 50/60Hz +/-10%
- DC: 24VDC +/-10% ■ 3-phase: 380...480VAC 50/60Hz +/-10%

Motor

- PM-motor ■ Controlled via BLDC motor control board
- Isolation class F

Absolut encoder

- (magnetic based) for high precision control with an accuracy of 0,1%

Operation mode

- CMxx: ON/OFF duty S2-15min & class A and B ■ rCMxx: Modulating duty S4-1200 cycles/hour with 40% duty cycle & class C

Local control

- Selector switch LOCAL-OFF-REMOTE - lockable
- Control switch OPEN-STOP-CLOSE ■ Large LC-display for detailed visualization of status information & parameters - different languages selectable ■ Red display backlight for alarms ■ 5 RGB LEDs for status indication & control information ■ Cover lid with display in 90° steps rotatable ■ Bluetooth & infrared interface for data exchange and actuator control with Android App or Windows PC

Remote control

- 5 binary inputs 24VDC: Open - Stop - Close - Emergency Open - Emergency Close, free programmable, 24VDC rated voltage with common ground potential, inputs with jumpers configurable in groups with separated commons

Status signals

- 8 binary outputs 24VDC: Ready - Open - Closed - Opening - Closing - Torque - Local - Remote, free programmable, 24VDC supply, max. load 0,5A/channel

Explosion protection

- Protection class Ex II 2 G Ex de IIC T4
- Certifications ATEX, IECEx, NEC

Features

- Free programmable step mode control for open and close
- 4 intermediate positions definable ■ Actuator torque adjustable between 25-100% from max. torque ■ Alternative menu structure available ■ Different user levels selectable ■ Counter values for preventive Maintenance notification

Valve connection

- Flange and output shaft according ISO 5210

Electric connectors

- Power connection via 6pole screw plug Han6E+PE
- Control and status signals via 24pole screw plug Han24E
- Metric cable entries for cable glands, closed with dummy glands
- Ex-design: terminal block

Ambient temperature

- -25°C up to +60°C, extended temperature range on request

Enclosure protection

- IP67 according EN 60 529, IP68 on request

Corrosion protection

- C2 according EN ISO 12944-5 for installation in aggressive atmosphere, C3 to C5 on request

Color

- RAL7024 - graphite grey, all others on request

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Size		(r)CM03	(r)CM06	(r)CM12	(r)CM25
Torque range 1phase or 3phase, free adjustable	Nm	8-32	19-64	32-125	64-250
Torque range 24VDC, up to 5rpm with 20rpm	Nm	8-32	16-55	--	--
Max. torque S4-operation	Nm	16	32	64	125
Max. torque S9-operation	Nm	10	20	30	60
Speed range 1ph or 3ph, free adjustable	rpm	1-72	1-64	1-60	1-32
Speed range 24VDC, free adjustable	rpm	1,0-20	1,0-20	--	--
Travel sensor range	Turns	0,25-105	0,25-105 1-300	0,25-105 1-300	0,25-105 0,25-1600
Valve flange	ISO 5210	F07 / F10	F10	F10	F14
Output drive	ISO 5210 / DIN 3210 / DIN 3338	A / Am / B / B1 / BSo / C / CSo / D / E-DO / DO / E / B3 / ESo / X			
Weight	kg	11,5	17,5	22	29
Motor	M	Brushless DC motor controlled by integrated control unit			
Power factor	cos ϕ	> 0,95			
Power supply 1ph (Standard)		1phase 100VAC...240VAC 50/60Hz +/- 10%			
Nominal current @1x230VAC	A	1,47A (16Nm / 72rpm)	2,17A (20Nm / 60rpm)	3,8A (40Nm / 70rpm)	3,8A (80Nm / 32rpm)
Power supply 3ph (Option)		AC: 3phase 380...480VAC 50/60Hz +/- 10%			
Nominal current @3x400VAC	A	0,46A (16Nm / 72rpm)	0,9A (32Nm / 60rpm)	1,4A (64Nm/60rpm)	1,4A (64Nm/60rpm)
Power supply 24VDC (Option)		DC: 24VDC +/- 10%		--	--
Nominal current	A	4,6A (10Nm / 20rpm)	9,2A (32Nm / 20rpm)	--	--

Software Options	Code
0/4-20 mA position transmission, galvanic separated (no signal isolator required), signal configurable as current sink	ER
Positioner for actuator control with 0/4-20 mA signal from PLC, passiv, potential isolation from thre remaining electronic	SR
PID positioner for two 0/4-20 mA input signals (target value, external actual value, configurable as activ or current sink signal)	PID
Actuator KKS / TAG on display (max. 15 digits)	ID
Customer parametrization (customer specific parametrization of binary input- and output signals in accordance with customer specific wiring diagram	KP
Torque curve - torque in relation to the stroke	AP
Logic operations of input and output signals	VIRT
KVS valve characteristics - Flow in relation to the position of the actuator	VK
Speed characteristics - speed in relation to the stroke	SC
Advanced service and maintenance capabilities	ADSM
Automatic partial and full stroke test	ST
Multiport valve support - Intermediate positioning	MPIP

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Due to production tolerance variation, the electrical values are averages compiled from actuator production test data.

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Parttum Gearboxes

**Modulating-Duty / On-Off-Duty
up to 300.000 Nm**



Planetary Gearboxes

Mode of operation

■ S2-20min(On/Off) & Class A and B or S4-1200 cycles/h with 40% duty cycle and Class C

Ambient temperatur

■ -40°C up to +85°C

Protection enclosure

■ IP67 according EN 60 529 and IEC529

Corrosion protection

■ K2 (C2) for installation in aggressive atmosphere, C3 up to C5 on request

Colour

■ RAL7024 with CM-series & RAL7030 with AB-series actuator

End stop

■ QT12.V2 | QT25 | QT50:

Mechanical endstops at 95° in Open & Close position

■ QTM12.V2 | QTM25 | QTM50:

Planetary gearbox without mechanical end stops

■ QTP12.V2 | QTP25 | QTP50:

Mechanical endstops at 185° in Open & Close position

Valve connection

■ Flange according to ISO5211

■ Plug-in coupling with bore and keyway or square

Worm Gearboxes

Mode of operation

■ S2-20min(On/Off) & Class A and B or S4-1200 cycles/h with 40% duty cycle and Class C

Rotation

■ Clockwise insert rotation by clockwise rotation of input shaft

Self-locking

■ Self-locking gearbox with single worm

Ambient temperature

■ -40°C up to +150°C, various versions available

Protection enclosure

■ IP67 according EN 60 529 and IEC529

Corrosion protection

■ C2 according EN ISO 12944-5 for installation in aggressive atmosphere, C3 to C5 on request

Colour

■ RAL7024 with CM-series & RAL7030 with AB-series actuator

Position indicator

■ Mechanical position indicator on gearbox

End stop

■ Stop screws for easy adjustment of the swivel angle for 0° and 90° +/- 5°.

Valve connection

■ Flange according to ISO5211

■ Plug-in coupling with bore and keyway or square

Modulating-Duty / On-Off-Duty up to 300.000 Nm

Planetary Gearboxes QT-series

Type	max. allowed output torque	max. torque S4-duty	Gearbox ratio	Mechanical advantage	Input flange for actuator	Valve output flange	max. shaft-Ø valve	max. valve square	Max. height valve shaft	Weight approx.	Suitable actuator size
	Nm	Nm	--	--	ISO 5211	ISO 5211	mm	mm	mm	kg	
QT12.V2 QTM12.V2 / QTP12.V2	120	60	4,88	4,16	F10	F05 F07 / F10	20	17	30	3,2	CM03 / AB3
QT25 QTM25 / QTP25	250	125	9	7,92	F10	F07 F10	25	22	41	4,8	CM03 / CM06 AB3 / AB5
QT50 QTM50 / QTP50	500	250	9	7,92	F10	F10 F12	40	32	46	8,9	CM06 / AB5

Worm Gearboxes SBWG-Series

Type	max. allowed gearbox output torque	max. torque S4-duty	Gearbox ratio	Mechanical advantage	Valve output flange	max. shaft-Ø valve	max. valve square	Max. height valve shaft	Weight	Suitable actuator size
	Nm	Nm	--	--	ISO 5211	mm	mm	mm	kg	--
SBWG-BF M	360	180/174	32	11,6	F07	20	17	76	4	CM03 CM06 AB3 AB5
SBWG-0 M	780	390	36	13,4	F07/F10	28	22	77	6	CM03 CM06 AB3 AB5
SBWG-00 M	1200	600	40	14,1	F10/F12	36	28	86	10	CM06 CM12 AB5 AB8
SBWG-01 M	1812	906	44	15,1	F10/F12/F14	46	35	96	13	CM12 AB8
SBWG-02 M	2800	1400	48	15,9	F12/F14/F16	60	46	109	21	CM12 AB8 AB18
SBWG-02-1S M	2800	1400	121,6	37,1	F12 & F16 F14	60	46	109	25	CM06 CM12 AB5 AB8
SBWG-03 M	4300	2150	52	16,9	F14/F16	75	58	116	29	AB18 AB40
SBWG-03-1S M	4300	2150	131,7	39,5	F14 F16	75	58	116	33	CM12 AB8
SBWG-04 M	10400	5200	56	18,3	F16/F25	95	73	147	56	AB18 AB40 AB80
SBWG-04-1S M	6048	3024	168	50,4	F16 & F25	95	73	147	66	CM12 AB8
	10400	5200	168	50,4	F16/F25	95	73	147	66	AB18
SBWG-05 M	15900	7950	60	19,6	F25/F30	115	89	155	78	AB80 AB100
SBWG-05-1S M	15900	7950	180	54,0	F25 & F30	115	89	155	88	AB18 AB40
SBWG-05-1SD M	15900	7950	540	149,0	F25 & F30	115	89	155	93	CM06 CM12 AB5 AB8
SBWG-06-1S M	32800	16400	256	74,2	F25 & F30	140	108	200	175	AB18 AB40
SBWG-06-1S M	32800	16400	256	74,2	F35	140	108	200	175	AB18 AB40 AB80
SBWG-06-1SD M	32748	16374	1024	272,9	F25 & F30	140	108	200	188	CM06 CM12 AB5 AB8
SBWG-06-1SD M	32748	16374	1024	272,9	F35	140	108	200	188	CM06 CM12 AB5 AB8
SBWG-07-1S M	51100	25550	272	80,9	F30/F35/F40	180	139	227	271	AB40 AB80
SBWG-07-1SD M	51100	25550	1088	297,9	F30/F35/F40	180	139	227	284	CM12 AB8 AB18
SBWG-75-1S M	81500	40750	330	106,1	F35/F40/F48	210	160	246	422	AB40 AB80
SBWG-75-1SD M	81500	40750	1650	488,2	F35/F40/F48	210	160	246	450	CM12 AB8 AB18

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Linear Units

up to 350 kN and 500 mm



Mode of operation

- S2-20min(On/Off) & Class A and B or S4-1200 cycles/h with 40% duty cycle and Class C
- LK-units: up to S9 and Class D

Self-locking

- L-units: self-locking
- LK-units: non self-locking

Ambient temperature

- -40°C up to +80°C

Protection enclosure

- L-units: IP66 according EN 60 529 and IEC529
- LK-units: IP67 according EN 60 529 and IEC529

Corrosion protection

- C2 according EN ISO 12944-5 for installation in aggressive atmosphere, C3 to C5 on request

Colour

- RAL7024 with CM-series & RAL7030 with AB-series actuator

Valve connection

- Flange according to ISO 5210

Technology

- L-units: threaded spindle and spindle nut
- LK-units: ballscrew spindle

Application

- L-units: standard process control
- LK-units: high-precision process control, control of small strokes with high cycles of operation

Linear Drives up to 350 kN and 500 mm

L-units – threaded spindle and spindle nut

Type	Thrust force max.	Thrust force min.	Modulating force max.	Stroke max.	Mechanical advantage	Valve flange	Spindle end work for mounting on valve stem	max. thrust forces in combination with rotary actuator [kN]										Weight approx.
--	kN	kN	kN	mm	--	ISO 5210		AB3	CM03	AB5	CM06	AB8 CM12	AB18	AB40	AB100	AB200	kg	
L50	15	3,5	7,5	50	2	F10	M16x1,5	15	15	15	--	--	--	--	--	--	7	
L75	25	3,5	7,5/12,5	75	2	F10	M16x1,5	15	15	15	25	25	--	--	--	--	8	
L100				100	2			15	15	15	25	25	--	--	--	--	9	
L350 (1)			13	350	2,43		M24x2,0	12	--	15	26	25	--	--	--	--	15	
L500 (1)				500	3,62			8	--	15	17,5	25	--	--	--	--	19	
L200.5 (1)	30	10	20	200	2,44	F10	M16x1,5	12	13	15	15	--	--	--	--	--	15	
L200.8 (1)								--	--	--	--	30	--	--	--	--	--	15
L100.8	45	18	22	100	2,73	F10	M16x1,5	--		--	--	45	--	--	--	--	14	
L120.18	75	38	39,5	120	3,16	F14 F10	M36x3,0 M20x1,5	--		--	--	--	75	--	--	--	28	
L220.18 (1)				220	3,16	F14	M36x3,0	--		--	--	--	75	--	--	--	30	
L150.40	100	45	55,5	150	4,45	F14	M36x3,0	--		--	--	--	--	100	--	--	39	
L300.40 (1)				300	4,45			--		--	--	--	--	100	--	--	43	
L100.100	220	108	108	100	4,61	F16	M42x3,0	--		--	--	--	--	--	217	--	110	
L200.100				200	4,61			--		--	--	--	--	217	--	120		
L200.200	350	177	177	200	5,64	F25	M48x3,0	--		--	--	--	--	--	--	350	150	

LK-units – ballscrew spindle

LK50	15	8	7,5 (3)	50	1,06	F10	M20x1,5	--	15	--	--	--	--	--	--	--	12,3
LK100	30	8	15 (3)	100	1,06	F10	M20x1,5	--	30	--	--	--	--	--	--	--	15,0
LK120	60	16	30 (3)	120	1,06	F10	M20x1,5	--	--	--	60	--	--	--	--	--	19,2
						F14	M36x3,0										