

Ontrac Intelligence Electric Actuator

Series MOE 700

Electrical Multi-Turn Actuators for
ON-OFF Operation S2 - 15 min
Torque 12 ... 1000 Nm
Speed 7 ... 180 min⁻¹



■ Main Components

- Robust, oil lubricated worm gear
- Three-phase asynchronous motor
- Microprocessor controlled frequency converter integrated in actuator
- Integrated local control panel with LCD display
- Optionally modules for position value or fieldbus
- Flanges acc. to ISO 5210 or DIN 3210

■ Technical Features

- Configuration via digital communication or local control panel
- Electronical speed- and torque setting
- Easiest commissioning due to high-tec sensor technology
- Wide range of monitoring and diagnosis functions
- Conventionally or via fieldbus controllable

Application

Robust electrical actuator for the operation of final control elements for a wide range of applications such such as energy, oil- and gas industry, water- and waste water treatment, etc. Additional gearings (for part-turn, linear- or multi turn movement) allow for easy adaptation to various valve types.

These intelligent multi-turn actuators offer extended functions, diagnosis and significant simplifications for project planning and commissioning.

The actuators of the MOE 700 series are able to communicate. That means a user-friendly infrared interface or an optional fieldbus interface.

This modular design simplifies the spare parts inventory.

Technical Data

Type Specific Data

Actuator Type	Mechanical Output		Self Locking	Stroke without spindle cover [mm]	Flange size (ISO 5210)	P _{max.} [kw]	I _{oper.} = I _{max} [A]	External fuse	Weight Standard . [kg]
	Switch-OFF torque Md [Nm]	Speed n [1/min]							
MOE 706	25 - 50	7 - 35	●	190	F 10	0.48	1.8	3 x 16 A slow	20.5
	10 - 25	18 - 92	●			1.0	3.5		
	6 - 15	36 - 180	○			1.0	3.5		
MOE 708	32 - 80	7 - 35	●	190	F 10	0.48	1.8	3 x 16 A slow	20.5
	20 - 50	18 - 92	●			1.0	3.5		
	12 - 30	36 - 180	○			1.0	3.5		
MOE 712	60 - 150	7 - 35	●	190	F 10	0.85	2.9	3 x 16 A slow	22
	40 - 100	18 - 92	●			1.76	4.8		
	32 - 80	36 - 180	○			1.76	4.8		
MOE 725	120 - 300	7 - 35	●	190	F 14	1.71	4.75	3 x 16 A slow	32
	80 - 200	18 - 92	●			3.52	8.0		
	50 - 125	36 - 180	○			3.52	8.0		
MOE 750	200 - 500	14 - 72	●	190	F 14	4.1	12	3 x 16 A slow	36
	160 - 400	18 - 92	●			4.1	12		
MOE 790	400 - 1000	14 - 72	●	190	F 16	7.5	15	3 x 20 A slow	63
	260 - 650	18 - 92	●			7.5	15		

● available ; ○ only with self-locking additional gearings

Thread selection table.

Actuator	Speed Group	Thread DIN	Linear Force [kN] min. / max.	Output Speed [mm/s] min. / max.	perm. axial forces acc. to ISO 5210 [kN]
MOE 706	M	Tr 26x5	8.8 / 22.1	0.6 / 2.9	25
	R		7.4 / 18.4	1.5 / 7.7	
	S		4.4 / 11.0	7.7 / 15.0	
MOE 708	M	Tr 26x5	8.8 / 22.1	0.6 / 2.9	40
	R		7.4 / 18.4	1.5 / 7.7	
	S		4.4 / 11.0	7.7 / 15.0	
MOE 708	M	Tr 32x6	7.2 / 18.0	0.7 / 3.5	40
	R		6.0 / 15.0	1.8 / 9.2	
	S		3.6 / 9.0	9.2 / 18.0	
MOE 712	M	Tr 32x6	14.4 / 36.0	0.7 / 3.5	40
	R		12.0 / 30.0	1.8 / 9.2	
	S		8.4 / 21.0	9.2 / 18.0	
MOE 725	M	Tr 52x8	19.4 / 48.5	0.93 / 4.67	100
	R		15.5 / 38.8	2.4 / 12.27	
MOE 750	R	Tr 52x8	23.3 / 58.2	2.4 / 12.27	100
	P		42 / 105	1.92 / 9.60	
MOE 790	R	Tr 68x10	50.4 / 126	2.4 / 12.27	150
	P		77.6 / 194	1.92 / 9.60	

Linear forces using output flange "A". All forces may vary depending on the load.

General Data

Voltage supply: AC 400 V 3 ~; -15% / +10%; 50/60 Hz +/- 5% (deviating values optionally on request)

Additional voltage supply: DC 24 V; (18 ... 33 V); max. 500 mA for redundant supply of signal electronics

Voltage output: DC 24 V; max. 30 mA; short-circuit-proof for the supply of conventional in- / output

Motor control: 3 phase frequency converter

Duty mode: S2 - 15 Min. acc. to IEC 34 and VDE0530

Operating torque (typically):

MOE 706 ... MOE 790: 50% of max. switch-off torque
 Protection class: IP 67; optionally IP 68
 IP 43 for transport and storage

Humidity: < 95% average (condensation only permitted with activated heater)

Ambient temperature: -25°C ... +70°C

Mounting position: any position

Coating: 1 component epoxy enamel coating; (RAL9005; black)

EMC interference immunity: acc. to EMC product standard EN 61800 part 3

EMC emission: acc. to EMC product standard EN61800 part 3

Electr. connection: details see page 4

fatigue strength_0.75 g within 5 ... 200 Hz; extended strength proof with 5 ... 150 Hz, 2g sinusoidal

Digital input (BE1 ... B4): 4 potential free contacts, galvanically isolated, freely configurable
 digital 0: -3 ... +5V or open
 digital 1: +12 ... +35 V

Function	Operating Mode		Standard Adjustment
	Standard	Option	
Drive actuator to OPEN	H	S	BE 1
Drive actuator to CLOSED	H	S	BE 2
STOP actuator	H	/	BE 3
Reset failure message	H	/	BE 4
Enabling signal OPEN	H	/	/
Enabling signal CLOSED	H	/	/

H = hold-to-run; S = self locking

Operating Mode:

Hold-to run: actuator moves as long as an external or push button command exists.

Self locking: a pulse drives the actuator until a stop- or counter pulse is provided; a position- or torque dependent switch-off stops or reverses the actuator as well

Technical Data

Digital output (BA1 ... BA4; optional additionally BA 5 ... BA8):
 4 (optionally 8) potential free relay contacts,
 galvanically isolated, freely configurable;
 max. 50V, overload proof
 $I_{max.} < 150 \text{ mA}$; $I_{min.} > 1 \text{ mA}$
 2 (4) x DTC; 2 (4) x NO contacts

Function Code	Function	Operating Mode		Standard Setting
1	Ready for operation	direct	inverted	BA1
2	Group alarm	direct	inverted	BA2
3	End position OPEN	direct	inverted	BA3
4	End position CLOSED	direct	inverted	BA4
5	Switch-off torque for OPEN exceeded	direct	inverted	BA5
6	Switch-off torque for CLOSED exceeded	direct	inverted	BA6
7	Position 1 achieved	direct	inverted	BA7
8	Position 2 achieved	direct	inverted	
9	Operating mode REMOTE	direct	inverted	
10	Operating mode LOCAL	direct	inverted	
11	Actuator moves (continuous signal)	direct	inverted	
12	Actuator moves (pulse signal)	direct	inverted	
13	Running direction- / end position indication (pulse / continuous signal) OPEN	direct	inverted	
14	Running direction- / end position indication (pulse / continuous signal) CLOSE	direct	inverted	
15	Analog Control/ Digital Control indication	direct	inverted	
16	Running direction OPEN (continuous signal)	direct	inverted	
17	Running direction CLOSE (continuous signal)	direct	inverted	
18	ESD Status indication (continuous signal)	direct	inverted	
19	Wheel operation indication	direct	inverted	
20	Analog Control Signal indication	direct	inverted	

The digital output can be inverted via the graphical user interface or optionally by the manufacturer prior to delivery .

Analogue output:0/4 ... 20 mA as position signal (optionally);
 load max. 500 Ω ; galvanically isolated; short-circuit proof

Bus connection:Profibus DP (optionally)

Technical Data

Electrical connection (Standard):

The pin assignment for terminal connection corresponds to the assignment for plug connection.

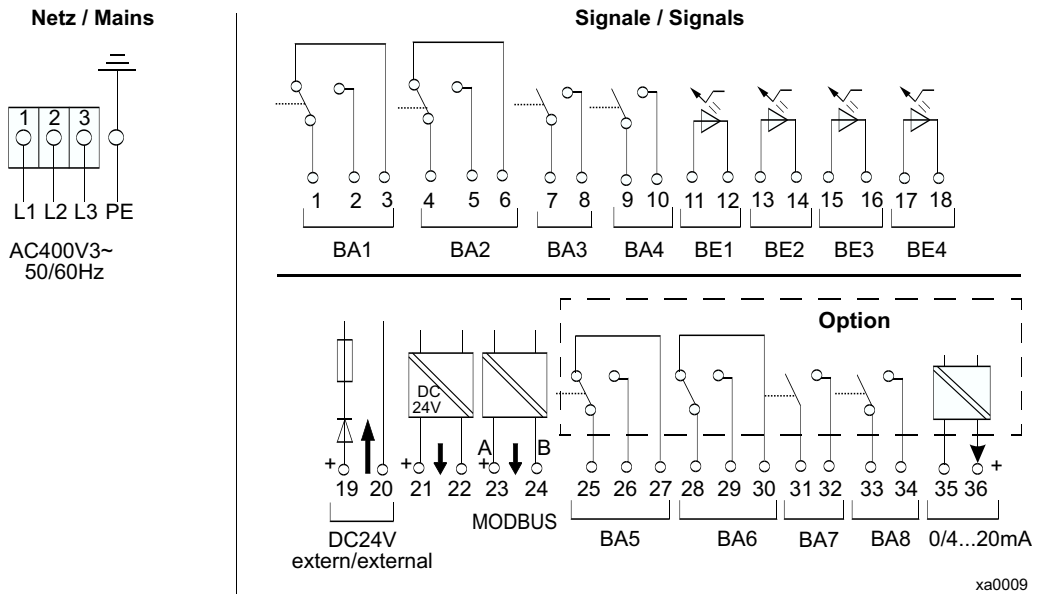
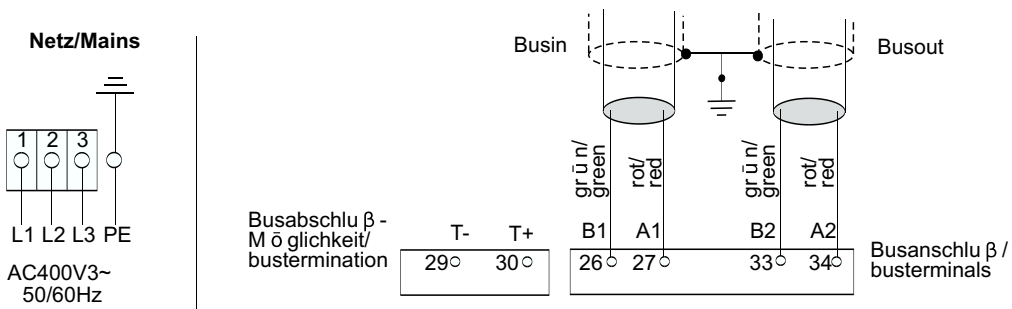


Fig. shows contacts not triggered

The signals BA 5 ... BA 8 and the analogue position signal (0/4 ... 20 mA) are only with code no. 385 available. All signal cables must be screened. Connect the screen at one end only or at both ends.

Electrical connection (Profibus)



Connect screen at both ends acc. to cable and profi bus specification RS 485 type "A"

Technical Data

Cable Cross-Section:

Terminal connection:

Power cable: $\leq 6 \text{ mm}^2$ inflexible or $\leq 4 \text{ mm}^2$ flexible

Signal cable: $\leq 2.5 \text{ mm}^2$ inflexible or flexible

Plug connection:

		MOE 706 ... MOE 790	Pin surface
Power cable (inflexible or flexible)	standard	$\leq 2.5 \text{ mm}^2$	silver-coated
	option	$\leq 6 \text{ mm}^2$	
Signal cable (inflexible or flexible)	standard	$\leq 2.5 \text{ mm}^2$	tin-coated
	option	$\leq 2.5 \text{ mm}^2$	gold-coated

Thread dimensions for cable entries

	Standard	Option	
	Metric	PG	NPT
Terminal connection:	2 x M32 x 1.5 1 x M25 x 1.5	1 x PG 21 1 x PG 16 1 x PG 13.5	2 x NPT 1 " 1 x NPT 3/4 "
Plug connection :	2 x M32 x 1.5 2 x M16 x 1.5	1 x PG 21 1 x PG 16 2 x PG 11	2 x NPT 1 " 2 x NPT 1/2 "

At "as supplied" condition the cable entries are provided with dummy plugs. The high protection class can only be guaranteed with locally provided cable glands.

Order Information

Multi-Turn Actuator MOE ...

Multi-Turn actuator MOE ...						7	8	9	10	11	12	13	14	15	Code				
Mech. Adaptater		Order No.																	
MOE 706	F10																		
MOE 708	F10																		
MOE 712	F10																		
MOE 725	F14																		
MOE 750	F14																		
MOE 790	F16																		
Output Speed (1/min)	Actuator MOE ... (Switch-Off torque in Nm)																		
	706/708	712	725	750	790														
14 ... 35	20-80	60-150	120-300	-	-														M
18 ... 44	-	-	-	-	-														N
28 ... 72	-	-	-	200-500	400-1000														P
36 ... 92	10-50	40-100	80-200	120-300	260-650														R
72... 180	6-30	24-60	50-125	-	-														S

Order Information

			8	9	10	11	12	13	14	Code			
mechanical adaptation acc. to ISO 5210													
B1 (standard) ISO 5210 shaft Φ			1										
MOE 706	w ith F10	42											
MOE 708	w ith F10	42											
MOE 712	w ith F10	42											
MOE 725	w ith F14	60											
MOE 750	w ith F14	60											
MOE 790	w ith F16	70											
B2 ; ISO 5210 shaft Φ			2										
MOE 706	with F10	31 \leq 42											
MOE 708	with F10	31 \leq 42											
MOE 712	with F10	31 \leq 42											
MOE 725	with F14	47 \leq 60											
MOE 750	with F14	47 \leq 60											
MOE 790	with F16	64 \leq 70											
shaft diam. in plain text: mm													
Threaded bushing A ISO 5210 shaft Φ			3										
not drilled, centered													
MOE 706	w ith F10	38											
MOE 708	w ith F10	38											
MOE 712	w ith F10	38											
MOE 725	w ith F14	55											
MOE 750	w ith F14	55											
MOE 790	w ith F16	68											
Threaded bushing A pre-drilled; ISO 5210 shaft Φ			4										
acc. to thread selection table... (see dimensions in data sheet)													
MOE 706	w ith F10	38											
MOE 708	w ith F10	38											
MOE 712	w ith F10	38											
MOE 725	w ith F14	55											
MOE 750	w ith F14	55											
MOE 790	w ith F16	68											
thread dimens. in plain text: mm													
B3 ; ISO 5210 shaft Φ			5										
MOE 706	w ith F10	20											
MOE 708	w ith F10	20											
MOE 712	w ith F10	20											
MOE 725	w ith F14	30											
MOE 750	w ith F14	30											
MOE 790	w ith F16	40											
B4 ; ISO 5210 shaft Φ			6										
MOE 706	with F10	20 \leq 31											
MOE 708	with F10	20 \leq 31											
MOE 712	with F10	20 \leq 31											
MOE 725	with F14	30 \leq 47											
MOE 750	with F14	30 \leq 47											
MOE 790	with F16												
shaft diam. in plain text: mm													
Type C ; ISO 5210 claw width			6										
MOE 708	w ith F10	14											
MOE 712	w ith F10	14											
MOE 725	w ith F14	20											
MOE 750	w ith F14	20											
MOE 790	w ith F16	24											

Order Information

		8	9	10	11	12	13	14	Code			
mechanical adaptation acc. to DIN 3210												
Type B (Standard); DIN 3210	shaft Φ	M										
MOE 708 w ith G0	42											
MOE 712 w ith G0	42											
MOE 725 w ith G1 / 2	60											
MOE 750 w ith G1 / 2	60											
MOE 790 w ith G3	70											
Threaded bushing A ; DIN 3210	shaft Φ	N										
undrilled; centered												
MOE 708 w ith G0	38											
MOE 712 w ith G0	38											
MOE 725 w ith G1 / 2	55											
MOE 750 w ith G1 / 2	55											
MOE 790 w ith G3	68											
Threaded bushing A pre-drilled; DIN 3210	shaft Φ	P										
acc. to thread selection table ... (see dimensions in data sheet)												
MOE 708 w ith G0	38											
MOE 712 w ith G0	38											
MOE 725 w ith G1 / 2	55											
MOE 750 w ith G1 / 2	55											
MOE 790 w ith G3	68											
thread dimensions in plain text:..... mm												
Type E ; DIN 3210	Shaft Φ	R										
MOE 708 w ith G0	20											
MOE 712 w ith G0	20											
MOE 725 w ith G1 / 2	30											
MOE 750 w ith G1 / 2	30											
MOE 790 w ith G3	40											
Type C ; DIN 3210	claw width	S										
MOE 708 w ith G0	20											
MOE 712 w ith G0	20											
MOE 725 w ith G1 / 2	20											
MOE 750 w ith G1 / 2	20											
MOE 790 w ith G3	24											
Type D ; DIN 3210	claw width	T										
MOE 708 w ith G0	20											
MOE 712 w ith G0	20											
MOE 725 w ith G1 / 2	30											
MOE 750 w ith G1 / 2	30											
MOE 790 w ith G3	40											

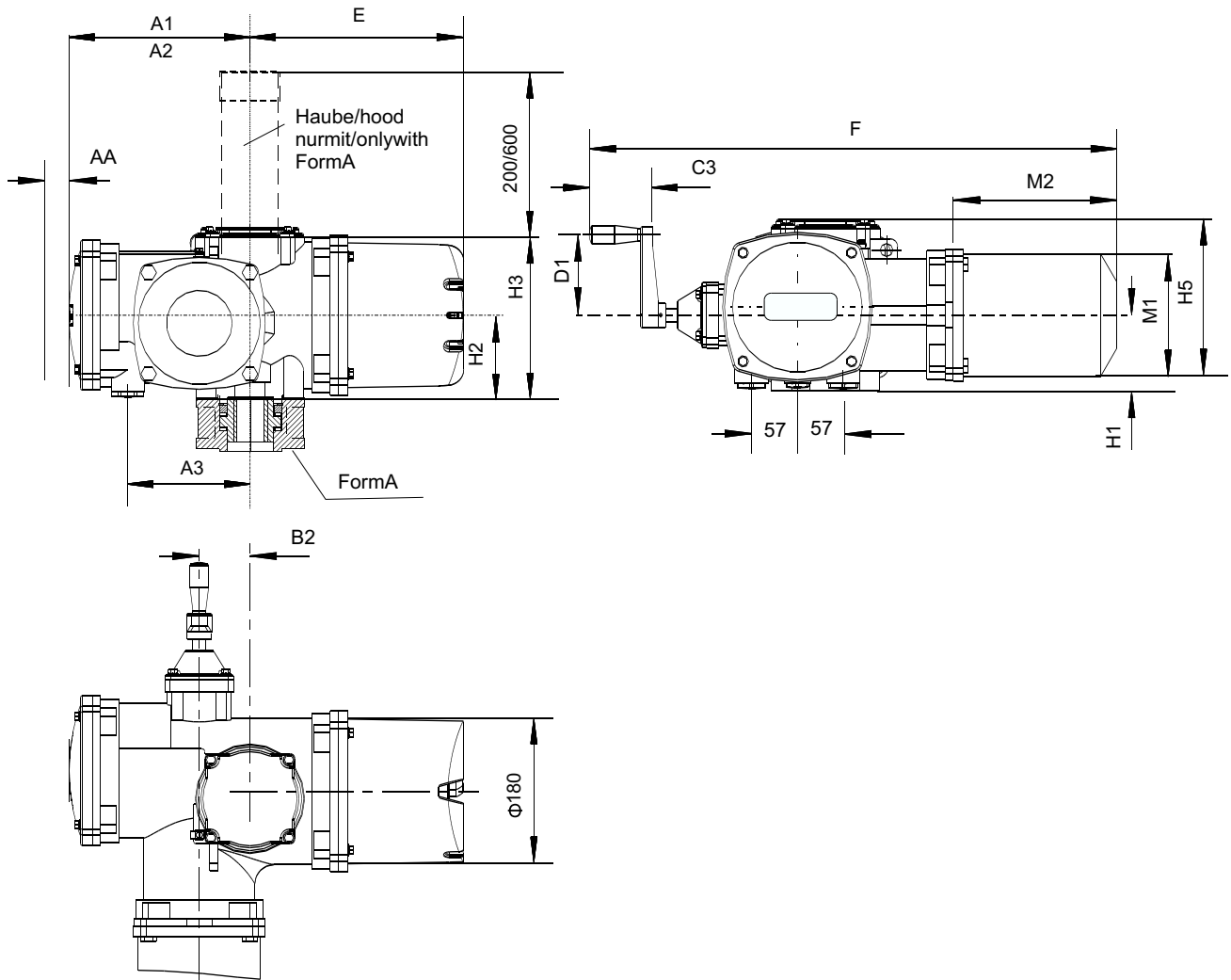
Order Information

	9	10	11	12	13	14	Code			
Spindle cover										
without (standard)(max. stroke see type specific data) ¹	1									
Length 200 mm ¹⁾	2									
MOE 706	2									
MOE 708	2									
MOE 712	2									
MOE 725	2									
MOE 750	2									
MOE 790	2									
Length 600 mm ¹⁾	3									
MOE 706	3									
MOE 708	3									
MOE 712	3									
MOE 725	3									
MOE 750	3									
MOE 790	3									
¹⁾ from top of housing										
Electronics design										
Integrated electronics (standard)		A								
Separate electronics without cable							upon request			
Separate electronics with m cable							upon request			
Voltage supply										
AC 400 V 3 ~; 50/60 Hz			1							
Special voltage							upon request			
Electrical connection (see "technical data" for details)										
Terminal connection for power- and signal cable							1			
Plug connection MOE 706 ... MOE 750										
Silver-coated for power cable max. 2.5 mm ² tin-coated for signal cable max. 2.5 mm ²							2			
gold-coated for signal cable max. 2.5 mm ²							3			
Silver-coated for power cable max. 6 mm ² tin-coated for signal cable max. 2.5 mm ²							4			
gold-coated for signal cable max. 2.5 mm ²							5			
Cable entry (see "electrical connection" for details)										
Metric thread							A			
PG thread							B			
NPT thread							C			
Hand crank										
With hand crank (standard)							1			

Order Information

Add 3-digit code no. for further features	Code			
Protection Class				
IP 68 (standard IP 67)	668			
Heater				
Electrical anti-condensation heater	360			
Interfaces				
0/4 ... 20 mA (actual value) / + 4 signal contacts (BA 5 ... BA8)	385			
Profibus DP / V1 (only available for version: plug connection)	386			
Set point input 4...20mA; position input 0/4...20mA + 3 signal contacts (BA5...BA7)	387			
MODBUS	388			
4 digital contact outputs 220V AC/8A	389			
Software Adjustment for Basic Functions				
(in case of missing code no. the highlighted values will be used)				
Language: German	797			
Language: English	---			
Switch-off torque + direction (40 ... 100%; 10% steps)	148			
Switch-off torque - direction (40 ... 100%; 10% steps)..... %	151			
Speed (rpm) + direction (40 ... 100%; 5% steps)..... %	154			
Speed (rpm) - direction (40 ... 100%; 5% steps)..... %	155			
Switch-off mode + direction				
position Dependent (55 ... 100%; 1% steps)..... %	161			
torque dependent	163			
Switch-off mode - direction				
position Dependent (0 ... 45%; 1% steps)..... %	166			
torque dependent	168			
Additional Software Functions				
Standard adjustment	390			
Customer specific adjustment (see next page)	391			
Additional Labelling				
Additional inscription (plain text; max. 32 characters).....	295			
Assembly with				
Valve / flap of order item.....	480			
Assembly with				
Additional gearing of order item.....	486			
Certificate				
manufacturers certificate 2.1 acc. to EN 10204	291			
certificate about final test 3.1 B acc. to EN 10204	292			
Accessories (mechanical)				
Plug holder with cover	273			
Software				
Smart Vision for Ontrac (see data sheet 10/63-1.20)				
Instructions				
English No remark for 1 copy	Z1E			

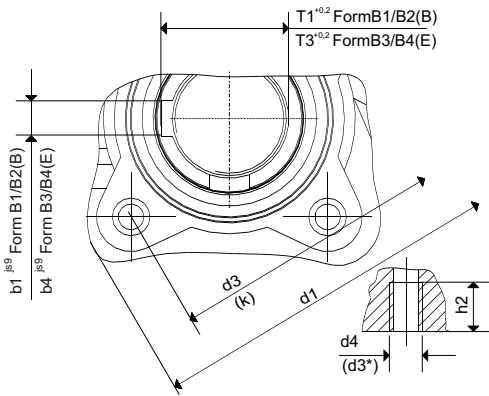
Dimensions



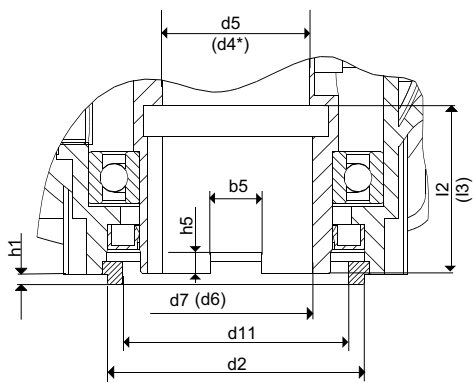
	MOE 706	MME808	MOE 712	MOE 725	MOE 750	MOE 790
ISO 5210	F10	F10	F10	F14	F14	F16
A1	206	206	206	225	225	244
A2	235	235	235	254	254	273
A3	133	133	133	152	152	175
AA	40	40	40	40	40	40
B2	50	50	50	63	63	80
D1	R60	R60	R60	R100	R100	R100
E	253	253	253	266	266	385
F	543	563	622	676	676	737
H1	94.5	94.5	94.5	94.5	94.5	109.5
H2	104.5	104.5	104.5	104.5	104.5	110.5
H3	202	202	202	202	202	211.5
H5	214	214	214	214	214	410
M1	106	106	120	137 / 152	137 / 152	137 / 152
M2	133	133	161	191 / 204	191 / 204	191 / 204

Dimensions (mechanical interface)

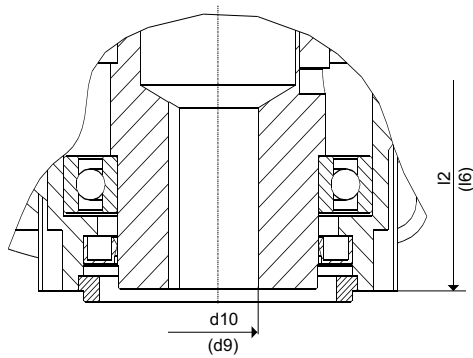
Flange



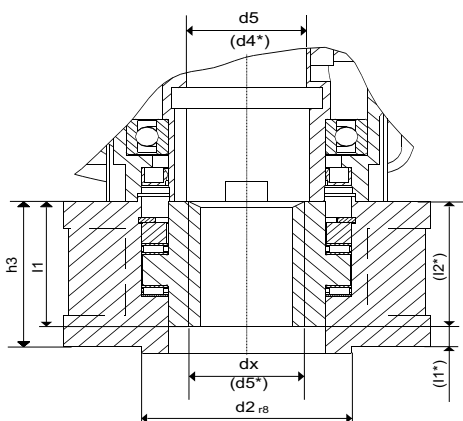
Form B1 / B2 (B)



Form B3 / B4 (E)



Form A



Ma βe	Ontrac Intelligence Electric Actuator Series MOE 700		
	MOE 706 / MOE 708 / MOE 712	MOE 725 / MOE 750	MOE 790
	F10 ISO 5210	F14 ISO 5210	F16 ISO 5210
General Flange Dimensions			
Φd1	125	175	215
Φd2 f8	70	100	130
Φd3	102	140	165
k	-	-	-
Φd3*	-	-	-
d4	M10	M16	M20
h1	3	4	5
h2	21	26	27
d11	54	88	120
Additional Dimensions for Interface B1/B2 (B)			
d4*	-	-	-
d5	40	57.5	70
d6	-	-	-
d7	42	60	70
d7 max.	31 ... 42	47 ... 60	64 ... 70
l3	-	-	-
l2	-	-	-
b1	12	18	20
t1	45.3	64.4	74.9
b5	14	20	24
h5	7	8	10
Additional Dimensions for Interface B3/B4 (E)			
l6	-	-	-
l6**	>55	>76	>105
b4	6	8	12
t3	22.8	33.3	43.3
d9	-	-	-
d10	20	30	40
d10 min.	20 ... 31	30 ... 47	40 ... 54
Additional Dimensions for Interface "A"			
l2*	-	-	-
l1*	-	-	-
h3	52	83	107
l1	51	71.5	87
d5* max	-	-	-
dx max.	38	55	68

Contact us

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