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F01 2000



Product
Brochure



Quarter Turn Electric Actuator "F01" series



Foreword

The Icon2000 range of actuator has been completed with the well-known F01 models for application on small quarter-turn valves.

The old series has been upgraded through the addition of the intelligent control unit, same as in the ICON2000 series, which ensures the same easiness of commissioning, set-up and use. Please refer to our ICON2000 brochure for further details.

Our intelligent actuators series is therefore complete, for the actuation of small to large valves.

Mechanics and Sensors

The mechanical and sensor part is the same as in the previous generation of F01 actuators.

The double spur gear and planetary gear system give a high reduction ratio with inherent self-locking characteristics. All rotating parts are supported by roller bearings.

A permanent oil bath reduces the consumption of the internal gearing. Position sensing through absolute encoder.

Torque sensor by potentiometer.

All the other features/environmental protection are the same as per the ICON2000.



Performances

Model	Nominal torque (Nm) and time (sec) for 90 degrees of rotation at 50Hz/60Hz						Handwheel			
	6/5	12/10	15/12	30/25	45/37	60/50	torque factor	turns/90°		
F01.150-052			150				48X10 ⁻³	21		
F01.150-054				150						
F01.150-056					150					
F01.150-058						150				
F01.150-052	150									
F01.150-054		150								
F01.300-052			300							
F01.300-054				300						
F01.300-056					300					
F01.300-058						300				
F01.300-102	300									
F01.300-104		300								
F01.600-102			600							
F01.600-104				600						
F01.600-106					600					
F01.600-108						600				
Ratio	1063:1	1063:1	2759:1	2759:1	2759:1	2759:1				

Definitions

- Actuator duty according to IEC 34-1:
On-Off: S2-30 minutes
Inching: S4-25%, max 200 starts/hour
- **Nominal torque** = the output torque given by the actuator when the torque device is set and trips at max settable value of its scale
- **Theoric max output torque.**
 The actual max output torque is a function of speed and motor power supply and may vary from 1.4 to 2 times the nominal output torque

- **Time for 90° rotation** = the actuator nominal operating time when the running torque is yielded
- **Running torque** = 0.4 times the nominal torque
- **Handwheel torque factor** = multiply the required output torque by this factor to obtain the handwheel torque
- **Bold-faced values** represent the performances of **Standard models** with 3-ph motors
- **Identification code:**
 Model/Nominal torque-time at 50 or 60Hz
 e.g.: F01.150-032/150-12

Notes

The above characteristics are referred to the actuators with 3-phase or 1-phase asynchronous motors



Electrical details

3-phase supply																					
Model	380V-50Hz-3Ph							415V-50Hz-3Ph							480V-60Hz-3Ph						
	KW	RPM	In(A)	Is(A)	Icc(A)	PF	Eff	KW	RPM	In(A)	Is(A)	Icc(A)	PF	Eff	KW	RPM	In(A)	Is(A)	Icc(A)	PF	Eff
F01.150-052	0.040	2820	0.25	0.40	1.00	0.47	0.52	0.040	2820	0.22	0.40	1.00	0.47	0.54	0.048	3380	0.25	0.40	1.00	0.47	0.49
F01.150-054	0.020	1400	0.16	0.20	0.40	0.42	0.46	0.020	1400	0.15	0.20	0.40	0.42	0.44	0.024	1680	0.16	0.20	0.40	0.42	0.43
F01.150-056	0.014	930	0.14	0.20	0.40	0.38	0.40	0.014	930	0.12	0.20	0.40	0.38	0.43	0.017	1120	0.14	0.20	0.40	0.38	0.38
F01.150-058	0.010	700	0.12	0.20	0.50	0.36	0.35	0.010	700	0.10	0.20	0.50	0.36	0.39	0.012	840	0.12	0.20	0.50	0.36	0.34
F01.300-052	0.040	2820	0.25	0.40	1.00	0.47	0.52	0.040	2820	0.22	0.40	1.00	0.47	0.54	0.048	3380	0.25	0.40	1.00	0.47	0.49
F01.300-054	0.020	1400	0.16	0.20	0.40	0.42	0.46	0.020	1400	0.15	0.20	0.40	0.42	0.44	0.024	1680	0.16	0.20	0.40	0.42	0.43
F01.300-056	0.014	930	0.14	0.20	0.40	0.38	0.40	0.014	930	0.12	0.20	0.40	0.38	0.43	0.017	1120	0.14	0.20	0.40	0.38	0.38
F01.300-058	0.010	700	0.12	0.20	0.50	0.36	0.35	0.010	700	0.10	0.20	0.50	0.36	0.39	0.012	840	0.12	0.20	0.50	0.36	0.34
F01.300-102	0.080	2850	0.40	0.50	1.50	0.56	0.54	0.080	2850	0.35	0.50	1.50	0.56	0.57	0.096	3420	0.40	0.50	1.50	0.56	0.52
F01.300-104	0.040	1420	0.30	0.40	1.00	0.42	0.48	0.040	1420	0.30	0.40	1.00	0.42	0.44	0.048	1700	0.30	0.40	1.00	0.42	0.46
F01.600-102	0.080	2850	0.40	0.50	1.50	0.56	0.54	0.080	2850	0.35	0.50	1.50	0.56	0.57	0.096	3420	0.40	0.50	1.50	0.56	0.52
F01.600-104	0.040	1420	0.30	0.40	1.00	0.42	0.48	0.040	1420	0.30	0.40	1.00	0.42	0.44	0.048	1700	0.30	0.40	1.00	0.42	0.46
F01.600-106	0.030	940	0.25	0.40	0.80	0.40	0.46	0.030	940	0.22	0.40	0.80	0.40	0.47	0.036	1130	0.25	0.40	0.80	0.40	0.44
F01.600-108	0.020	720	0.20	0.30	0.60	0.38	0.40	0.020	720	0.20	0.30	0.60	0.38	0.37	0.024	860	0.20	0.30	0.60	0.38	0.38

Definitions

- **KW** = motor nominal power
- **RPM** = motor nominal speed in round per minute
- **In** = nominal current of the motor, according to IEC 34-1, which approximately corresponds to 40% of the actuator nominal torque
- **Is** = current which approximately corresponds to the actuator nominal torque (torque set 100%); we recommend the selection of cables and protections based on the above values

- **Icc** = locked rotor current
- **PF** = power factor
- **Eff** = motor efficiency

Motor insulation class H

Motors duty according to IEC 34-1

For ambient temperature up to +65° C:

- S2-30 minutes or S4-25%, max 200 starts/hour

For ambient temperature up to +85° C:

- S2-15 minutes or S4-25%, max 60 starts/hour

Tolerances

Nominal Voltage Tolerance: $\pm 6\%$

Nominal Frequency Tolerance: $\pm 2\%$

Momentary max permissible

voltage variation: $+10\%$; -15%

Other tolerances according to IEC 34-1

Notes

The current values shown on the table are referred to motors with Star connection; when the phases are Delta-connected multiply the current figures by factor 1.73

Overall dimensions

Cables entries	a	b	c
ISO 7/1 ◊	Rc 1	Rc 1/2	Rc 1
NPT •	1	1 1/2	1
BS3643 •	M32x1.5	M40x1.5	M32x1.5
DIN 40430 •	Pg21	Pg29	Pg21

Notes

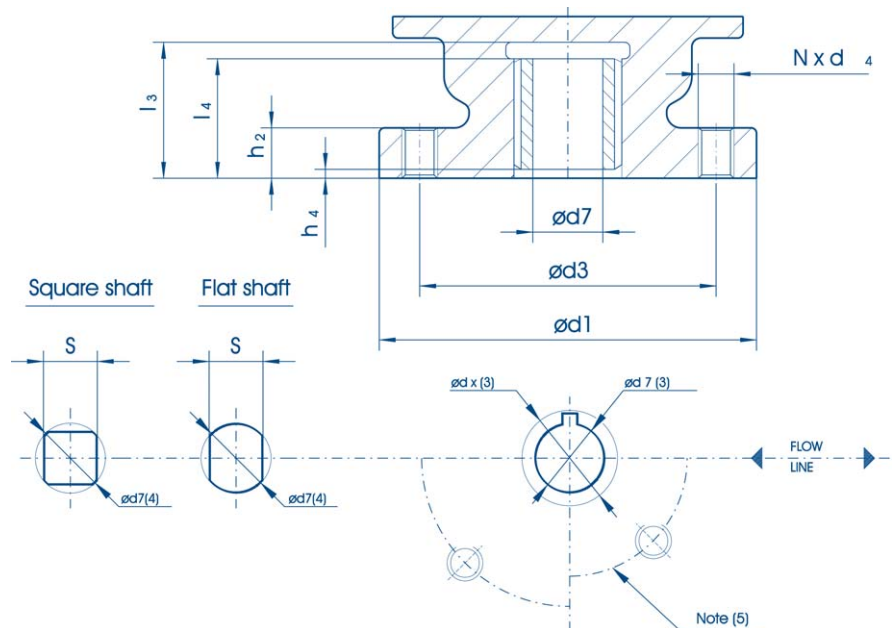
- * = space for cover removal
- ◊ = standard version
- = optional version, available on demand

Not certified drawing: certified dimensions will be supplied on request. All **dimensions** are in mm



Notes

1. Insert bush supplied by BIFFI with unmachined bore; larger bores can be supplied with solid piece bush
2. Fixing bolts or rods supplied by BIFFI only on request, minimum material required ISO class 8.8
3. dx= the maximum accepted diameter described by the key
4. Position of the shaft with closed valve
5. Additional ISO PCD is provided as shown on colum FL



Coupling Dimensions

Actuator size	ISO 5211	Ø d ₁	Ø d ₃	Ø d ₄	N	l ₃	l ₄	h ₂	h ₄	Max Stem Acceptance			Mass Kg	
										Ø d ₇	S	Ø d _x		
F01-150	F10	125	102	M10	4	50	48	16	1	28	22	36	F07	32
F01-300	F10	125	102	M10	4	50	48	16	1	28	22	36	F07	32
F01-600	F12	150	125	M12	4	60	58	18	1	40	30	48	F10	34

1-phase supply at 50 Hz

Model	110V-50Hz-1Ph									230V-50Hz-3Ph							
	KW	RPM	In(A)	Is(A)	Icc(A)	PF	Eff	Cap		KW	RPM	In(A)	Is(A)	Icc(A)	PF	Eff	Cap
F01.150-052	0.040	2820	1.40	2.50	4.50	0.92	0.28	25		0.040	2820	0.70	1.25	2.30	0.92	0.28	6.3
F01.150-054	0.020	1400	0.80	1.50	2.50	0.94	0.24	16		0.020	1400	0.40	0.80	1.30	0.94	0.24	4
F01.150-056	0.014	930	0.60	1.20	2.00	0.97	0.22	12.5		0.014	930	0.30	0.60	1.00	0.97	0.22	3.5
F01.150-058	0.010	700	0.50	0.80	1.50	0.96	0.19	8		0.010	700	0.25	0.40	0.80	0.96	0.19	2
F01.150-052	0.040	2820	1.40	2.50	4.50	0.92	0.28	25		0.040	2820	0.70	1.25	2.30	0.92	0.28	6.3
F01.150-054	0.020	1400	0.80	1.50	2.50	0.94	0.24	16		0.020	1400	0.40	0.80	1.30	0.94	0.24	4
F01.300-052	0.040	2820	1.40	2.50	4.50	0.92	0.28	25		0.040	2820	0.70	1.25	2.30	0.92	0.28	6.3
F01.300-054	0.020	1400	0.80	1.50	2.50	0.94	0.24	16		0.020	1400	0.40	0.80	1.30	0.94	0.24	4
F01.300-056	0.014	930	0.60	1.20	2.00	0.97	0.22	12.5		0.014	930	0.30	0.60	1.00	0.97	0.22	3.5
F01.300-058	0.010	700	0.50	0.80	1.50	0.96	0.19	8		0.010	700	0.25	0.40	0.80	0.96	0.19	2
F01.300-102	0.080	2850	2.10	3.00	5.50	0.90	0.38	50		0.080	2850	1.00	1.50	3.00	0.90	0.40	12.5
F01.300-104	0.040	1420	1.40	2.50	4.50	0.92	0.28	25		0.040	1420	0.70	1.30	2.30	0.92	0.28	6.3
F01.600-102	0.080	2850	2.10	3.00	5.50	0.90	0.38	50		0.080	2850	1.00	1.50	3.00	0.90	0.40	12.5
F01.600-104	0.040	1420	1.40	2.50	4.50	0.92	0.28	25		0.040	1420	0.70	1.30	2.30	0.92	0.28	6.3
F01.600-106	0.030	940	1.20	2.00	3.50	0.94	0.24	20		0.030	940	0.60	1.00	1.80	0.94	0.24	5
F01.600-108	0.020	720	0.80	1.50	2.50	0.94	0.24	16		0.020	720	0.40	0.80	1.30	0.94	0.24	4

1-phase supply at 60 Hz

Model	115V-60Hz-1Ph									240V-60Hz-1Ph							
	KW	RPM	In(A)	Is(A)	Icc(A)	PF	Eff	Cap		KW	RPM	In(A)	Is(A)	Icc(A)	PF	Eff	Cap
F01.150-052	0.048	3380	1.40	2.50	4.50	0.92	0.32	20		0.048	3380	0.70	1.25	2.30	0.92	0.31	6.3
F01.150-054	0.024	1680	0.80	1.50	2.50	0.94	0.28	12.5		0.024	1680	0.40	0.80	1.30	0.94	0.27	4
F01.150-056	0.017	1120	0.60	1.20	2.00	0.97	0.25	10		0.017	1120	0.30	0.60	1.00	0.97	0.24	3.5
F01.150-058	0.012	840	0.50	0.80	1.50	0.96	0.22	6.3		0.012	840	0.25	0.40	0.80	0.96	0.20	2
F01.150-052	0.048	3380	1.40	2.50	4.50	0.92	0.32	20		0.048	3380	0.70	1.25	2.30	0.92	0.31	6.3
F01.150-054	0.024	1680	0.80	1.50	2.50	0.94	0.28	12.5		0.024	1680	0.40	0.80	1.30	0.94	0.27	4
F01.300-052	0.048	3380	1.40	2.50	4.50	0.92	0.32	20		0.048	3380	0.70	1.25	2.30	0.92	0.31	6.3
F01.300-054	0.024	1680	0.80	1.50	2.50	0.94	0.28	12.5		0.024	1680	0.40	0.80	1.30	0.94	0.27	4
F01.300-056	0.017	1120	0.60	1.20	2.00	0.97	0.25	10		0.017	1120	0.30	0.60	1.00	0.97	0.24	3.5
F01.300-058	0.012	840	0.50	0.80	1.50	0.96	0.22	6.3		0.012	840	0.25	0.40	0.80	0.96	0.20	2
F01.300-102	0.096	3420	2.10	3.00	5.50	0.90	0.44	40		0.096	3420	1.00	1.50	3.00	0.90	0.44	12.5
F01.300-104	0.048	1700	1.40	2.50	4.50	0.92	0.32	20		0.048	1700	0.70	1.30	2.30	0.92	0.31	6.3
F01.600-102	0.096	3420	2.10	3.00	5.50	0.90	0.44	40		0.096	3420	1.00	1.50	3.00	0.90	0.44	12.5
F01.600-104	0.048	1700	1.40	2.50	4.50	0.92	0.32	20		0.048	1700	0.70	1.30	2.30	0.92	0.31	6.3
F01.600-106	0.036	1130	1.20	2.00	3.50	0.94	0.28	16		0.036	1130	0.60	1.00	1.80	0.94	0.27	5
F01.600-108	0.024	860	0.80	1.50	2.50	0.94	0.28	12.5		0.024	860	0.40	0.80	1.30	0.94	0.27	4

Definitions

- **KW** = motor nominal power
- **RPM** = motor nominal speed in round per minute
- **In** = nominal current of the motor, according to IEC 34-1, which approximately corresponds to 40% of the actuator nominal torque
- **Is** = current which approximately corresponds to the actuator nominal torque (torque set 100%); we recommend the selection of cables and protections based on the above values

- **Icc** = locked rotor current
- **PF** = power factor
- **Eff** = motor efficiency
- **Cap** = capacitors value measured in microFarad

Motor insulation class H

Motors duty according to IEC 34-1

For ambient temperature up to +65° C:

- S2-30 minutes or S4-25%, max 200 starts/hour

For ambient temperature up to +85° C:

- S2-15 minutes or S4-25%, max 60 starts/hour

Tolerances

Nominal Voltage Tolerance: ± 6%

Nominal Frequency Tolerance: ± 2%

Momentary max permissible

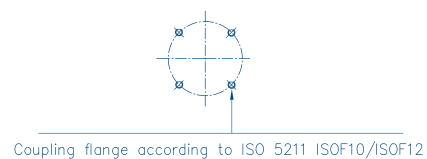
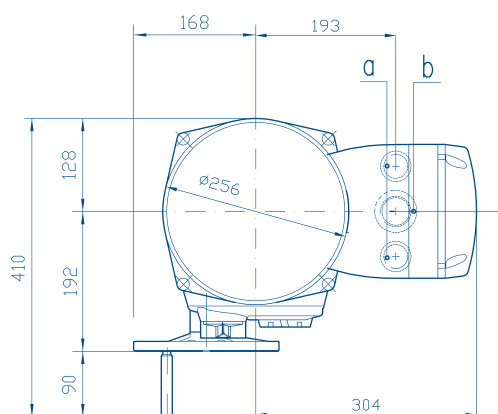
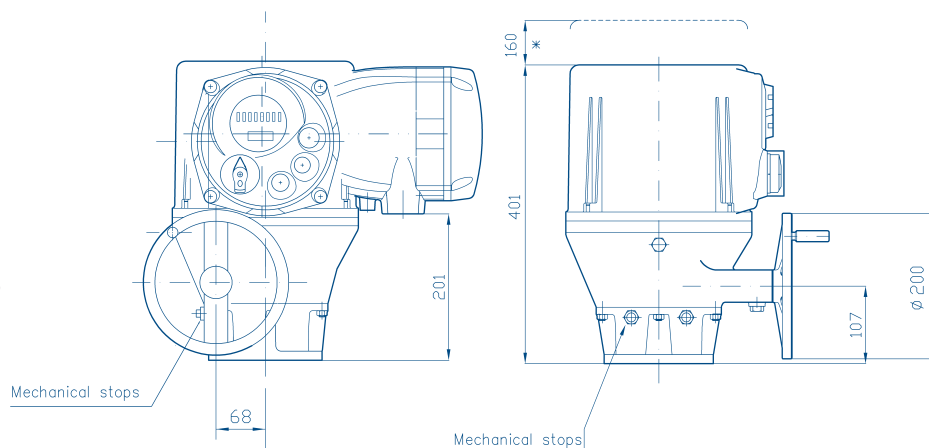
voltage variation: +10%; -15%

Other tolerances according to IEC 34-1

Model F01-600

Overall dimensions

Cables entries	a	b	c
NTP	Rc 1"	Rc1" ¹ / ₂	Rc 1"



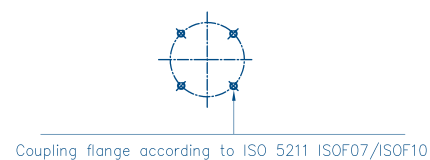
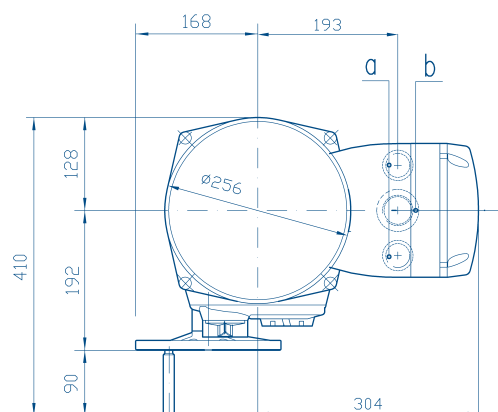
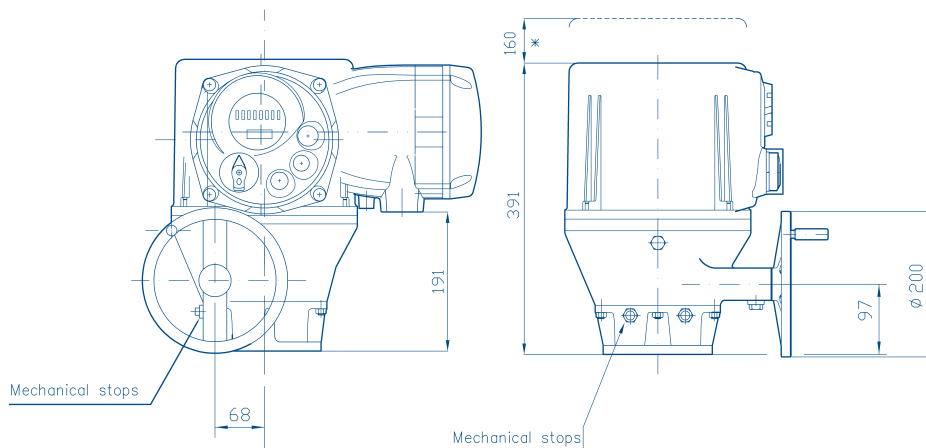
MASS. 32 Kg.

* Space for cover removal

Models F01-150 & 300

Overall dimensions

Cables entries	a	b	c
NTP	Rc 1"	Rc1" ¹ / ₂	Rc 1"



MASS. 31 Kg.

* Space for cover removal

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