

Электрические приводы F01

Технические характеристики

По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Россия (495)268-04-70

Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Киргизия (996)312-96-26-47

Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Казахстан (7172)727-132

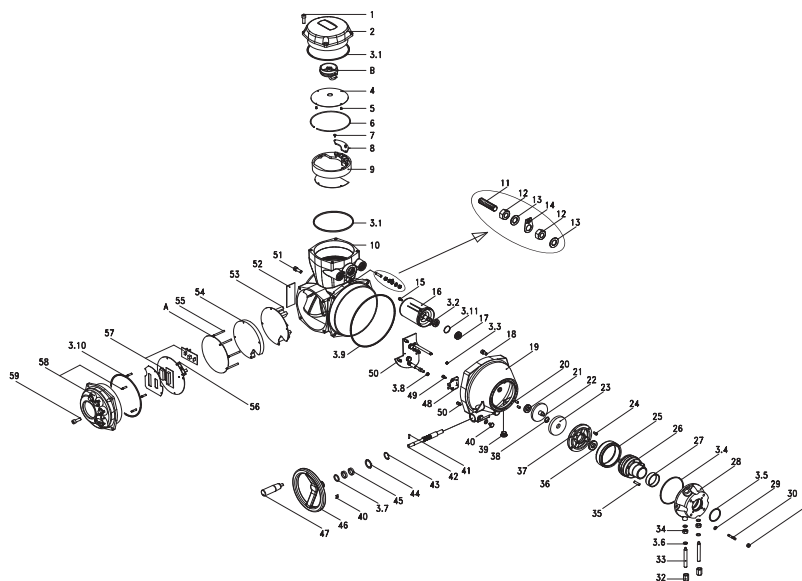
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Четвертьоборотные приводы F01

Компактные четвертьоборотные приводы, поставляемые в комплекте с интеллектуальным управляющим блоком Biffi ICON 2000. Устанавливаются на малых клапанах. Монтажный фланец выполнен по стандарту ISO 5211. Механическое регулирование положения. Управление крутящим производится моментом в оба направления вращения. Все вращающиеся части поддерживаются роликовыми подшипниками и смазываются маслом.



Component Parts



F01 Component Parts

Item	Qty	Description	Material	Item	Qty	Description	Material
1	4	Screw	Stainless steel	27	1	Guide bush	Bronze
2	1	Terminal board cover	Aluminum	28	1	Thrust block	Cast iron
3	1	Seal kit	* -	29	4	Washer	Carbon steel
3.1	2	O-ring	* NBR	30	4	Stud bolt	Carbon steel
3.2	1	Seal ring	* NBR	31	4	Nut	Carbon steel
3.3	1	O-ring	* NBR	32	2	Mechanical stop nuts	Carbon steel
3.4	1	O-ring	* NBR	33	2	Mechanical stops	Carbon steel
3.5	1	O-ring	* NBR	34	2	Nut	Carbon steel
3.6	1	Seal washer	* NBR	35	2	Pin	Carbon steel
3.7	1	O-ring	* NBR	36	1	Bearing	Carbon steel
3.8	1	O-ring	* NBR	37	1	Support flange	Aluminum
3.9	1	O-ring	* NBR	38	1	Circlip	Carbon steel
3.10	1	O-ring	* NBR	39	2	Oil plug	-
4	1	Terminals label	Plastic	40	1	Handwheel stop screw	Carbon steel
5	4	Screw	Stainless steel	41	1	Pin	Carbon steel
6	1	Circlip	Stainless steel	42	1	Worm gear assembly	-
7	2	Screw	Stainless steel	43	1	Circlip	Carbon steel
8	1	Power terminals cover	Nylon	44	1	Handwheel ring	Nylon
9	1	Terminal board	-	45	2	Handwheel slide ring	Nylon
10	1	Cover housing	Aluminum	46	1	Handwheel	Aluminum
11	1	Earth stud	Brass	47	1	Hand grip	Plastic
12	2	Earth stud nut	Brass	48	1	Torque plate	Stainless steel
13	2	Washer	Stainless steel	49	2	Screw	Stainless steel
14	1	Earth stud indicator plate	Aluminum	50	1	Torque/position assembly	-
15	2	Screw	Stainless steel	51	4	Screw	Stainless steel
16*	1	Electric motor	-	52	1	Data plate	Stainless steel
17	1	Bearing	Carbon steel	53	1	Power card	* -
18	1	Screw	Stainless steel	54	1	Power card cover	Nylon
19	1	Housing	Aluminum	55	4	Column	Stainless steel
20	1	Pin	Carbon steel	56	1	Potentiometer card	-
21	1	Bearing	Carbon steel	57	1	Processor card	* -
22	1	Double wheel 1st stage	Carbon steel	58	1	Local interface assembly	* -
23	1	Wheel 2nd stage	Carbon steel	59	4	Screw	Stainless steel
24	3	Screw	Carbon steel				
25	1	Worm wheel	Alloy steel				
26	1	Planicentric assembly	-	A	1	Bus card	* -
				B	1	Battery	-

NOTE:

* Recommended spare parts

Certification

Non-hazardous and Hazardous Area Certifications

Table 1. Non-hazardous / weatherproof areas

Standards	Enclosure marking	Version	Temperature range		
			3-PH		1-PH and DC
			Up to 60 St/hr	> 60 St/hr	
IEC EN 60529	IP66 / IP68	Standard temperature	-20 °C/+85 °C (-4 °F to 185 °F)	-20 °C/+65 °C (-4 °F to 149 °F)	-20 °C/+65 °C (-4 °F to 149 °F)
		Low temperature	-40 °C/+85 °C (-40 °F to 185 °F)	-40 °C/+65 °C (-40 °F to 149 °F)	-40 °C/+65 °C (-40 °F to 149 °F)
		Extra low temperature	-60 °C/+65 °C (-76 °F to 149 °F)	-60 °C/+65 °C (-76 °F to 149 °F)	-60 °C/+65 °C (-76 °F to 149 °F)

Table 2. European standards hazardous areas (ATEX)

Standards	Enclosure marking		Version	Temperature range		
	Gas	Dust		3-PH		1-PH and DC
				Up to 60 St/hr	> 60 St/hr	
ATEX (60079)§	c Ex d IIB T4 Gb*	c Ex d IIIC T135 °C Db	Standard temperature	-20 °C/+85 °C (-4 °F to 185 °F)	-20 °C/+85 °C (-4 °F to 185 °F)	-20 °C/+85 °C (-4 °F to 185 °F)
			Low temperature	-40 °C/+85 °C (-40 °F to 185 °F)	-40 °C/+85 °C (-40 °F to 185 °F)	-40 °C/+85 °C (-40 °F to 185 °F)
			Extra low temperature	-50 °C/+85 °C (-58 °F to 185 °F)	-50 °C/+85 °C (-58 °F to 185 °F)	-50 °C/+85 °C (-58 °F to 185 °F)
ATEX (60079)§	c Ex d e IIB T4*	Ex tD A21 T135 °C Db	Standard temperature	-20 °C/+60 °C (-4 °F to 140 °F)	-20 °C/+60 °C (-4 °F to 140 °F)	-20 °C/+60 °C (-4 °F to 140 °F)

Table 3. International standards hazardous areas (IECEx)

Standards	Enclosure marking		Version	Temperature range		
	Gas	Dust		3-PH		1-PH and DC
				Up to 60 St/hr	> 60 st/hr	
IECEx	Ex d IIB T4 Gb*	Ex d IIIC T135 °C Db	Standard temperature	-20 °C/+85 °C (-4 °F to 185 °F)	-20 °C/+85 °C (-4 °F to 185 °F)	-20 °C/+85 °C (-4 °F to 185 °F)
			Low temperature	-40 °C/+85 °C (-40 °F to 185 °F)	-40 °C/+85 °C (-40 °F to 185 °F)	-40 °C/+85 °C (-40 °F to 185 °F)
			Extra low temperature	-50 °C/+85 °C (-58 °F to 185 °F)	-50 °C/+85 °C (-58 °F to 185 °F)	-50 °C/+85 °C (-58 °F to 185 °F)

Table 4. Brazilian standards hazardous areas (INMETRO)

Standards	Enclosure marking		Version	Temperature range		
	Gas	Dust		3-PH		1-PH and DC
				Up to 60 St/hr	> 60 St/hr	
INMETRO§	c Ex d IIB T4 Gb*	c Ex d IIIC T135 °C Db	Standard temperature	-20 °C/+85 °C (-4 °F to 185 °F)	-20 °C/+85 °C (-4 °F to 185 °F)	-20 °C/+85 °C (-4 °F to 185 °F)
			Low temperature	-40 °C/+85 °C (-40 °F to 185 °F)	-40 °C/+85 °C (-40 °F to 185 °F)	-40 °C/+85 °C (-40 °F to 185 °F)
			Extra low temperature	-50 °C/+85 °C (-58 °F to 185 °F)	-50 °C/+85 °C (-58 °F to 185 °F)	-50 °C/+85 °C (-58 °F to 185 °F)

Table 5. Russian standards hazardous areas (EAC CoC)

Standards	Enclosure marking		Version	Temperature range		
	Gas	Dust		3-PH		1-PH and DC
				Up to 60 St/hr	> 60 St/hr	
EAC CoC§	c Ex d IIB T4 Gb*	c Ex d IIIC T135 °C Db	Standard temperature	-20 °C/+85 °C (-4 °F to 185 °F)	-20 °C/+85 °C (-4 °F to 185 °F)	-20 °C/+85 °C (-4 °F to 185 °F)
			Low temperature	-40 °C/+85 °C (-40 °F to 185 °F)	-40 °C/+85 °C (-40 °F to 185 °F)	-40 °C/+85 °C (-40 °F to 185 °F)
			Extra low temperature	-50 °C/+85 °C (-58 °F to 185 °F)	-50 °C/+85 °C (-58 °F to 185 °F)	-50 °C/+85 °C (-58 °F to 185 °F)

NOTES:

* with battery: add ia

§ Certified also with the 5th cable entry (optional)

Performance - Nominal Torque



Definitions

- Actuator duty according to IEC 60034-1: On-Off: S2-30 minutes; Inching: S4-25%, max 200 starts/hour; Modulating S4-50% 1200 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
- Stall torque = from 1.4 to 2 times the nominal 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 60 Hz e.g.: F01.150-052/150-12

Performances

Model	Nominal torque Nm (lb-ft) and time (s) for 90° of rotation at 50 Hz/60 Hz						Handwheel	
	6/5	12/10	15/12	30/25	45/37	60/50	Torque factor	Turns/90°
F01.150-052	-	-	150 (110)	-	-	-	48x10 ⁻³	21
F01.150-054	-	-	-	150 (110)	-	-	48x10 ⁻³	21
F01.150-056	-	-	-	-	150 (110)	-	48x10 ⁻³	21
F01.150-058	-	-	-	-	-	150 (110)	48x10 ⁻³	21
F01.150-052	150 (110)	-	-	-	-	-	48x10 ⁻³	21
F01.150-054	-	150 (110)	-	-	-	-	48x10 ⁻³	21
F01.300-052	-	-	300 (221)	-	-	-	48x10 ⁻³	21
F01.300-054	-	-	-	300 (221)	-	-	48x10 ⁻³	21
F01.300-056	-	-	-	-	300 (221)	-	48x10 ⁻³	21
F01.300-058	-	-	-	-	-	300 (221)	48x10 ⁻³	21
F01.300-102	300 (221)	-	-	-	-	-	48x10 ⁻³	21
F01.300-104	-	300 (221)	-	-	-	-	48x10 ⁻³	21
F01.600-102	-	-	600 (442)	-	-	-	48x10 ⁻³	21
F01.600-104	-	-	-	600 (442)	-	-	48x10 ⁻³	21
F01.600-106	-	-	-	-	600 (442)	-	48x10 ⁻³	21
F01.600-108	-	-	-	-	-	600 (442)	48x10 ⁻³	21
Ratio	1036:1	1036:1	2759:1	2759:1	2759:1	2759:1	48x10 ⁻³	21

NOTE:

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

Performance Three Phase Supply 380 V / 50 Hz; 415 V / 50 Hz; 480 V / 60 Hz



Definitions

- **kW** = motor nominal power
- **RPM** = motor nominal speed in round per minute
- **I_n** = nominal current of the motor, according to IEC 60034-1, which approximately corresponds to 40% of the actuator nominal torque
- **I_s** = 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
- **I_{cc}** = locked rotor current
- **PF** = power factor
- **EFF** = motor

Motor insulation class H

Motors duty according to IEC 60034-1

Tolerances

- Nominal Voltage Tolerance: ±10% continuous
+10%; -15% intermittent
- Nominal Frequency Tolerance: ±2%
Other tolerances according to IEC 60034-1

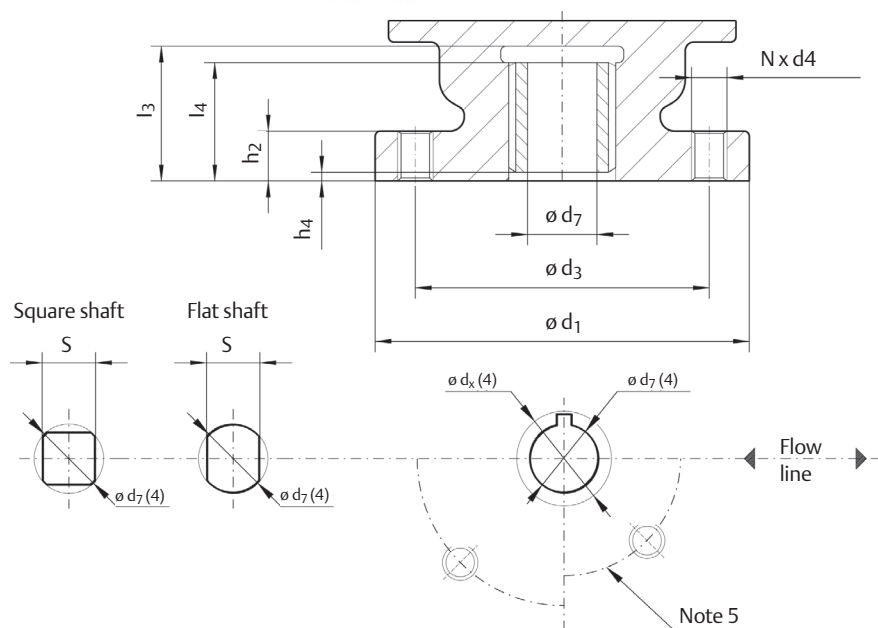
Electrical Details 3-PH Supply

Model	380 V - 50 Hz - 3-PH							415 V - 50 Hz - 3-PH							480 V - 60 Hz - 3-PH						
	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

NOTE:

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.

Output Drive Dimensions



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 (lb)
										Ø d ₇	S	Ø d _x	FL	
F01-150	F10	125 (4.92)	102	M10	4	50	48	16	1	28	22	36	F07	32 (70.5)
F01-300	F10	150 (5.91)	102	M10	4	50	48	16	1	28	22	36	F07	32 (70.5)
F01-600	F12	102 (4.02)	125	M12	4	60	58	18	1	36	30	45	F10	34 (75)

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. d_x = the maximum accepted diameter described by the key
4. Position of the shaft with closed valve
5. Additional ISO PCD is provided as shown in column FL

Performance Single Phase Supply 50 Hz / 60 Hz

1-PH Supply at 50 Hz

	110 V - 50 Hz - 1-PH							230 V - 50 Hz - 1-PH								
Model	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	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	0.020	1400	0.40	0.80	1.30	0.94	0.24	4.0
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	0.010	700	0.25	0.40	0.80	0.96	0.19	2.0
F01.300-052	0.040	2820	1.40	2.50	4.50	0.92	0.28	25.0	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	0.020	1400	0.40	0.80	1.30	0.94	0.24	4.0
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	0.010	700	0.25	0.40	0.80	0.96	0.19	2.0
F01.300-102	0.080	2850	2.10	3.00	5.50	0.90	0.38	50.0	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	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	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	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	0.030	940	0.60	1.00	1.80	0.94	0.24	5.0
F01.600-108	0.020	720	0.80	1.50	2.50	0.94	0.24	16.0	0.020	720	0.40	0.80	1.30	0.94	0.24	4.0

1-PH Supply at 60 Hz

	115 V - 60 Hz - 1-PH								240 V - 60 Hz - 1-PH							
Model	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	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	4.0
F01.150-056	0.017	1120	0.60	1.20	2.00	0.97	0.25	10.0	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	2.0
F01.300-052	0.048	3380	1.40	2.50	4.50	0.92	0.32	20.0	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	4.0
F01.300-056	0.017	1120	0.60	1.20	2.00	0.97	0.25	10.0	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	2.0
F01.300-102	0.096	3420	2.10	3.00	5.50	0.90	0.44	40.0	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	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	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	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	0.036	1130	0.60	1.00	1.80	0.94	0.27	5.0
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	4.0

Definitions

- **kW** = motor nominal power
- **RPM** = motor nominal speed in round per minute
- **In** = nominal current of the motor, according to IEC 60034-1, 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
- **Cap** = capacitors value measured in microFarad

Motor insulation class H

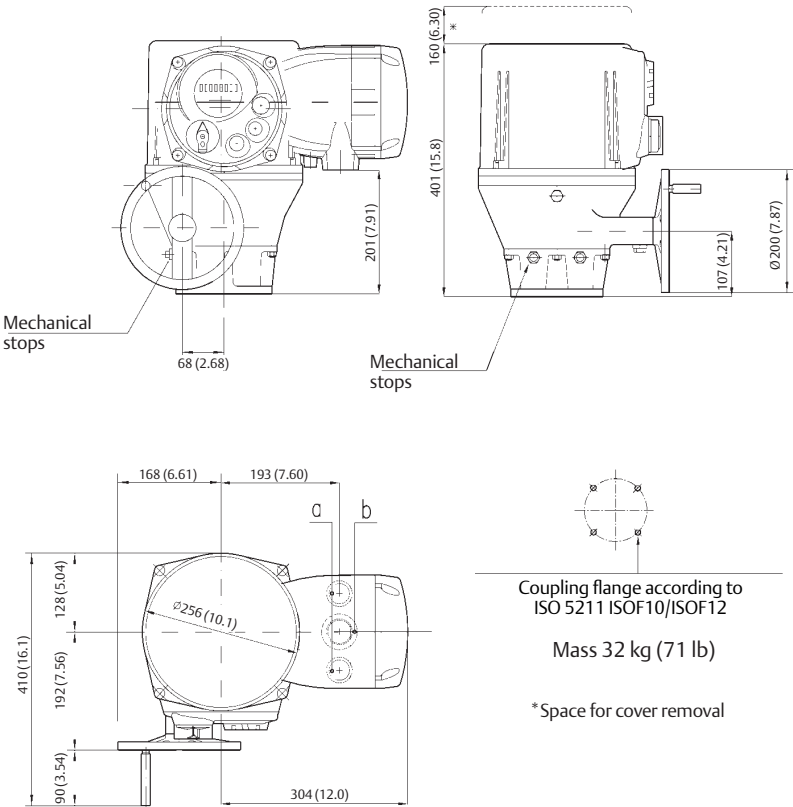
Motors duty according to IEC 60034-1

Tolerances

- Nominal Voltage Tolerance: ±10% continuous
+10%; -15% intermittent
- Nominal Frequency Tolerance: ±2%
Other tolerances according to IEC 60034-1

Overall Dimensions

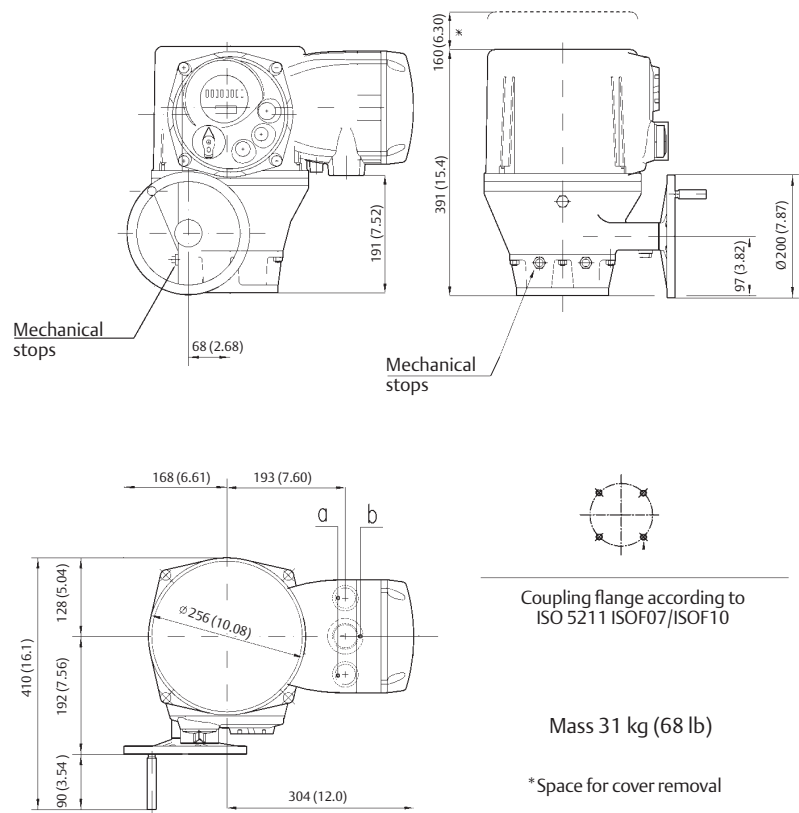
Model F01-600



Overall Dimensions mm (in.)

Cables entries	a	b	c
DN (NPT)	25 (1")	40 (1-1/2")	25 (1")

Models F01-150 and 300



Overall Dimensions mm (in.)

Cables entries	a	b	c
DN (NPT)	25 (1")	40 (1-1/2")	25 (1")

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