Product Data Sheet
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November 2018

Biffi ICON 3000

Electric Actuator

ICON3000 is the Biffi Smart Electric Multiturn Actuator, whose highest reliability is guaranteed by more than 60 years of experience. Focus on the customer needs and capability to anticipate them, are the engines that constantly drive Biffi towards continuous innovation, and made this electric actuator smarter, more reliable, powerful, flexible and robust.

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Actuator Models

General information

General	Smart and non-Intrusive intelligent multiturn actuator
Starter	Integrated

Specification

Enclosure	Aluminum alloy highly resistant, with a low number of joints		
Control Enclosure	The enclosure includes logic circuit boards, power boards, reversing contactor, non-intrusive local interface with three push-buttons for open, stop and close control and for actuator setting, LED indicators (yellow, green and red) and selector with local, remote and off positions. Standard features included are: Automatic Phase Correction, Phase failure Detection, Anti-hammer Protection, Jammed Valve Protection, Instantaneous Reversal Protection, ESD, Contactor Failure, Electronic Temperature Warming, Electronic Nameplate, Timer, Double Displays, etc.		
Lubrication	in OIL bath for life		
Manual Operation	Hand wheel and lockable engagement lever, black painted, with automatic de-clutch when motor starts: the hand wheel doesn't rotate during the electric operation.		
Torque & Position sensor	High precision and high resolution torque sensor. Torque detection is based on motor torque vs. speed characteristics, voltage and temperature compensated. Position sensors based on absolute encoder , controlled by a dedicated microprocessor with low power consumption. The Limit Position can be adjusted from 0% to 100% of the open position. The Output Torque can be adjusted from 40% to 100% of the nominal torque.		
By-pass Torque	Torque intervention bypass time function allows the actuator to yield its maximum torque at the beginning of the stroke with a bypass time configurable from 0 % to 20%		
Diagnostic	Data logger, warnings and alarm diagnostic messages available on local display or remotely transmitted, for high efficiency preventive maintenance programs and actuator status control. Instantaneous and hystorical data available.		
2_ Speed_Timer	Software Routine to extend the actuator travelling time in opening and/or in closing direction.		
Monitor Relay	One (1) Contact signal to indicate when the actuator is not available for remote control due to one or more of the ALARM conditions.		
Remote output contacts	Eight (8) voltage-free latching contacts are available for remote indication.		
Terminal Board	Double sealed for high protection.		
Heater	Included		
Paint Finish	Type	Procedure	Typical environments
	Standard	EPOXY COATING : 2 layers Aluminum Grey. Reference norm : ISO 12944, C4, High Durability	Industrial areas and coastal areas with moderate salinity.
	Special	EPOXY COATING : 3 layers Reference norm : ISO 12944, C5, High Durability	Industrial areas with high humidity and aggressive atmosphere & Coastal and offshore areas with high salinity.
Actuator Nameplate	In stainless steel, complete with all the relevant actuator's characteristics. Nameplates in English language.		
Cable entries	Standard	NPT	nr 2 x 1" nr 1 x 1 ½"
	Option	NPT	nr 2 x 3/4"

Controls

Local Controls	A pad-lockable LOCAL/OFF/REMOTE selector switch and OPEN/STOP/CLOSE push-buttons are included for local control of the valve.	
LED's	LED's colour: green = open / opening, red = close / closing, yellow = alarm / warning. blue = Bluetooth port active LED's colour can be easily changed by the local control interface.	
Bluetooth	Bluetooth port included for easy wireless actuator setting, diagnostic and control with PDA and PC through Biffi A_Manager software.	
Remote control	4 wires (OP, CL, Stop, C/latched) 3 wires (OP, CL, C/push-to-run or latched with instant reverse) 2 wires (NO contact to open or reverse)	
Control voltage/control inputs	24 V DC, internal supply not regulated max 4W	20 to 125 V DC, external supply 20 to 120 V AC, external supply max 25mA
Remote Output Contacts	**Status** Open limit Closed limit Position >=xx % Position <=xx % Closing Opening Motor running blinker Mid-travel position Local selected Remote selected Local stop active ESD signal on Manual operation	**Alarms** Motor over-temperature Over-torque over torque in OP Over-torque in CL Valve jammed in OP Valve jammed in CL Valve jammed Warnings Low lithium battery (if present) Mid-travel alarm in CL/OP Mains-only AS8
Interlock Controls	Two interlock inputs are available to inhibit actuator movement in open or close direction	
Emergency Shutdown (ESD)	Emergency shut-down (ESD) command make the actuator performing the relevant programmed action (with power supply only) Selector in LOCAL Selector in OFF Motor temperature alarm Local STOP pushbutton Torque alarm	2 speed timer Stay put Move to open position Move to close position Move to pre-set position
Monitor Relay	Loss of power Loss of one phase Electrical conctactor failure Loss of one phase Local stop activated Local selector switch in LOCAL/OFF Internal temperature alarm Position sensor Hardware error	Motor temperature alarm Torque alarm Jammed valve Mid-travel alarm Speed sensor configuration error Manual operation ESD signal Low battery
Intelligent Protection	Automatic phase correction Phase failure correction Motor thermostat Jammed valve protection Anti-hammer protection Instantaneous reversal protection	Warnings Contactor failure Maximum torque alarm Torque alarm by-pass High/low electronic temperature Opto-coupled remote controls

Upper Display	LCD numeric | 3 ½ digit | shows the current valve position in percentage		
Lower Display	OLED graphic | 128 x 64 dots | (yellow monochromatic)		
Multiple languages	It's possible to choose out of the following indicated languages: Italian, English, German, French, Portuguese, Spanish, Russian, Turkish, Norwegian		
Battery	Option A	[9V lithium battery included]	- Local position disply active (LCD 3 1/2 digit) - Real time Clock (Back-up) - 4-20 mA positioner & Relays active Above functionality are available also in case of MAIN POWER SUPPLY OFF
	Option B	[No Battery]	- Local position disply active (LCD 3 1/2 digit) - Real time Clock - 4-20 mA positioner & Relays active Above functionality are available only in case of MAIN POWER SUPPLY ON

Standards and Directives

Products have been certified in accordance with the following directives:

- India - C.C.O.E. (2)
- International – IECEx
- Brazil – INMETRO (2)
- Canada – CSA (2)
- China – NEPSI (2)
- Korea – KOSHA (2)
- Russia/Bielorussia/Kazakhistan - EAC CoC (CU-TR) (2)
- USA – FM (2)
- SIL 2/3

Note 2 : Available in Y 2019.

Test Summary

- **Vibration Test**
  - ICON3000 are certified as per IEC 60068-2-6- Appendix B (plant induced): frequencies from 1 to 500 Hz (in 3 axes) with 2.0g peak acceleration. Sweep cycles in each axis: 10.
- **Seismic Test**
  - ICON3000 are tested in accordance with IEC 60068-2-57. Frequencies from 1 to 35 Hz (in 3 axes) with max 2.0g peak acceleration. Verification of structural integrity at 5g. Endurance of oscillogram: 30 seconds.
- **Salt Spray Test**
  - ICON3000 external coating is tested for resistance to salt spray for 1,500 hours according to ASTM B117/IEC 68-2-11.
- **Noise Test**
  - ICON3000 are tested according to EN21680. Noise level is less than 65 dB (grade A) at 1m distance.

Applicable standards and regulations

- **Electromagnetic compatibility directive (EMC)**
  - ICON3000 actuators conform to the requirements of EMC Directive 2014/30/EU.
- **Low voltage directive (LV)**
  - ICON3000 actuators conform with Low Voltage Directive 2014/35/EU.
- **Machinery directive**
  - ICON3000 actuators comply with the provision of Machinery Directive 2006/42/EC.
- **RED directive**
  - ICON3000 actuators comply with the RED Directive 2014/53/EU.
- **ATEX directive**
  - ICON3000 actuators comply with the ATEX Directive 2014/34/EU.

Features and Functions of Actuators

Power Supply 3-phase AC

Open-Close | Inching Duty

S2-15' | S4-25%, 60 St/h

Hazardous areas	Enclosure marking						Actuator type				
	II 2 GD - c Ex d e IIB T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30	40	50
	II 2 GD - c Ex d e IIB+H2 T4 Gb - c Ex tb IIIC T135 C Db [2]									40	50
	II 2 GD - c Ex d e IIC T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30		
	II 2 GD - Ex db h (ia) IIB T4 Gb – Ex h tb IIIC T135 C Db IP66/68						10	20	30	40	50
	II 2 GD - Ex db h (ia) IIC T4 Gb - Ex h tb IIIC T135 C Db IP66/68 [1]						10	20			
Enclosure protection	Standard			IP68 in accordance to the EN60529							
Ambient temperature	Standard			-20°C to +85 °C (refer to the specific technical data sheet for details)							
	Special [1]			-60 °C to +85 °C (refer to the specific technical data sheet for details)							
Voltage/frequency	220	230	240	380	400	415				AC	Volt
	50	50	50	50	50	50					Hz
	280	440	460	480						AC	Volt
	60	60	60	60							Hz
Special Voltage/frequency	173	440	460	480	500	660	690			AC	Volt
	50	50	50	50	50	50	50				Hz
	208	220	230	380	400	415	500	575	690	AC	Volt
	60	60	60	60	60	60	60	60	60		Hz
Type of duty	Standard		S2-15' | S4-25%, 60 St/h Class A & B according to EN15714-2								
	In accordance to the IEC 60034_1										
Insulation Class	Standard			Class H							

1. Note: Not available with additional fieldbus disconnected module or extra cable entries unit.
2. Note: Available in Year 2019.

Power Supply 3-phase AC

Open-Close | Inching Duty

S2-30'

Hazardous areas	Enclosure marking						Actuator type				
	II 2 GD - c Ex d e IIB T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30	40	
	II 2 GD - c Ex d e IIB+H2 T4 Gb - c Ex tb IIIC T135 C Db [2]									40	
	II 2 GD - c Ex d e IIC T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30		
	II 2 GD - Ex db h (ia) IIB T4 Gb – Ex h tb IIIC T135 C Db IP66/68						10	20	30	40	
	II 2 GD - Ex db h (ia) IIC T4 Gb - Ex h tb IIIC T135 C Db IP66/68 [1]						10	20			
Enclosure protection	Standard			IP68 in accordance to the EN60529							
Ambient temperature	Standard [1]			-20°C to +65°C (refer to the specific technical data sheet for details)							
	Special			-60 °C to +65°C (refer to the specific technical data sheet for details)							
Voltage/frequency	220	230	240	380	400	415				AC	Volt
	50	50	50	50	50	50					Hz
	280	440	460	480						AC	Volt
	60	60	60	60							Hz
Special Voltage/frequency	173	440	460	480	500	660	690			AC	Volt
	50	50	50	50	50	50	50				Hz
	208	220	230	380	400	415	500	575	690	AC	Volt
	60	60	60	60	60	60	60	60	60		Hz
Type of duty	Standard		S2-30' | Class A & B according to EN15714-2								
	In accordance to the IEC 60034_1										
Insulation Class	Standard		Class H								

1. Note: Not available with additional fieldbus disconnected module or extra cable entries unit.
2. Note: Available in Year 2019.

Power Supply 3-phase AC

Modulating Duty

S4-25% 600 St/h

Hazardous areas	Enclosure marking						Actuator type				
	II 2 GD - c Ex d e IIB T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30	40	
	II 2 GD - c Ex d e IIB+H2 T4 Gb - c Ex tb IIIC T135 C Db [2]									40	
	II 2 GD - c Ex d e IIC T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30		
	II 2 GD - Ex db h (ia) IIB T4 Gb – Ex h tb IIIC T135 C Db IP66/68						10	20	30	40	
	II 2 GD - Ex db h (ia) IIC T4 Gb - Ex h tb IIIC T135 C Db IP66/68 [1]						10	20			
Enclosure protection	Standard			IP66/68 in accordance to the EN60529							
Ambient temperature	Standard			-20°C to +65 °C (refer to the specific technical data sheet for details)							
	Special [1]			-60 °C to +65 °C (refer to the specific technical data sheet for details)							
Voltage/frequency	220	230	240	380	400	415				AC	Volt
	50	50	50	50	50	50					Hz
	280	440	460	480						AC	Volt
	60	60	60	60							Hz
Special Voltage/frequency	173	440	460	480	500	660	690			AC	Volt
	50	50	50	50	50	50	50				Hz
	208	220	230	380	400	415	500	575	690	AC	Volt
	60	60	60	60	60	60	60	60	60		Hz
Type of duty	Standard			S4-25% 600 St/h, Class C according to EN15714-2							
	In accordance to the IEC 60034_1										
Insulation Class	Standard			Class H							

1. Note: Not available with additional fieldbus disconnected module or extra cable entries unit.
2. Note: Available in Year 2019.

Power Supply 3-phase AC

Modulating Duty

S4-50% 1200 St/h

Hazardous areas	Enclosure marking						Actuator type				
	II 2 GD - c Ex d e IIB T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30	40	
	II 2 GD - c Ex d e IIB+H2 T4 Gb - c Ex tb IIIC T135 C Db [2]									40	
	II 2 GD - c Ex d e IIC T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30		
	II 2 GD - Ex db h (ia) IIB T4 Gb – Ex h tb IIIC T135 C Db IP66/68						10	20	30	40	
	II 2 GD - Ex db h (ia) IIC T4 Gb - Ex h tb IIIC T135 C Db IP66/68 [1]						10	20			
Enclosure protection	Standard			IP66/68 in accordance to the EN60529							
Ambient temperature	Standard			-20°C to +65 °C (refer to the specific technical data sheet for details)							
	Special [1]			-60 °C to +65 °C (refer to the specific technical data sheet for details)							
Voltage/frequency	220	230	240	380	400	415				AC	Volt
	50	50	50	50	50	50					Hz
	280	440	460	480						AC	Volt
	60	60	60	60							Hz
Special Voltage/frequency	173	440	460	480						AC	Volt
	50	50	50	50							Hz
	208	220	230	380	400	415				AC	Volt
	60	60	60	60	60	60					Hz
Type of duty	Standard			S4-50% 1200 St/h, Class C according to EN15714-2							
	In accordance to the IEC 60034_1										
Insulation Class	Standard			Class H							

1. Note: Not available with additional fieldbus disconnected module or extra cable entries unit.
2. Note: Available in Year 2019.

Power Supply 1-phase AC

Open-Close | Inching Duty

S2-15' | S4-25%, 60 St/h

Hazardous areas	Enclosure marking						Actuator type				
	II 2 GD - c Ex d e IIB T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30		
	II 2 GD - c Ex d e IIB+H2 T4 Gb - c Ex tb IIIC T135 C Db [2]										
	II 2 GD - c Ex d e IIC T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30		
	II 2 GD - Ex db h (ia) IIB T4 Gb – Ex h tb IIIC T135 C Db IP66/68						10	20	30		
	II 2 GD - Ex db h (ia) IIC T4 Gb - Ex h tb IIIC T135 C Db IP66/68 [1]						10	20			
Enclosure protection	Standard			IP68 in accordance to the EN60529							
Ambient temperature	Standard			-20°C to +65 °C (refer to the specific technical data sheet for details)							
	Special [1]			-60 °C to +65 °C (refer to the specific technical data sheet for details)							
Voltage/frequency	220	230								AC	Volt
	50	50									Hz
	240									AC	Volt
	60										Hz
Special Voltage/frequency	110	115								AC	Volt
	50	50									Hz
	120									AC	Volt
	60										Hz
Type of duty	Standard			S2-15' | S4-25%, 60 St/h , Class A & B according to EN15714-2							
	In accordance to the IEC 60034_1										
Insulation Class	Standard			Class H							

1. Note: Not available with additional fieldbus disconnected module or extra cable entries unit.
2. Note: Available in Year 2019.

Power Supply 1-phase AC

Modulating Duty

S4-50% 1200 St/h

Hazardous areas	Enclosure marking						Actuator type				
	II 2 GD - c Ex d e IIB T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30		
	II 2 GD - c Ex d e IIB+H2 T4 Gb - c Ex tb IIIC T135 C Db [2]										
	II 2 GD - c Ex d e IIC T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20	30		
	II 2 GD - Ex db h (ia) IIB T4 Gb – Ex h tb IIIC T135 C Db IP66/68						10	20	30		
	II 2 GD - Ex db h (ia) IIC T4 Gb - Ex h tb IIIC T135 C Db IP66/68 [1]						10	20			
Enclosure protection	Standard			IP68 in accordance to the EN60529							
Ambient temperature	Standard			-20°C to +65 °C (refer to the specific technical data sheet for details)							
	Special [1]			-60 °C to +65 °C (refer to the specific technical data sheet for details)							
Voltage/frequency	220	230								AC	Volt
	50	50									Hz
	240									AC	Volt
	60										Hz
Special Voltage/frequency	110	115								AC	Volt
	50	50									Hz
	120									AC	Volt
	60										Hz
Type of duty	Standard		S4-50% 1200 St/h, Class C according to EN15714-2								
	In accordance to the IEC 60034_1										
Insulation Class	Standard		Class H								

1. Note: Not available with additional fieldbus disconnected module or extra cable entries unit.
2. Note: Available in Year 2019.

Power Supply Direct Current

Modulating Duty

S4-25% 600 St/h

Hazardous areas	Certificate						Actuator type				
	II 2 GD - c Ex d e IIB T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20			
	II 2 GD - c Ex d e IIB+H2 T4 Gb - c Ex tb IIIC T135 C Db [2]										
	II 2 GD - c Ex d e IIC T4 Gb - c Ex tb IIIC T135 C Db [2]						10	20			
	II 2 GD - Ex db h (ia) IIB T4 Gb – Ex h tb IIIC T135 C Db IP66/68						10	20			
	II 2 GD - Ex db h (ia) IIC T4 Gb - Ex h tb IIIC T135 C Db IP66/68 [1]						10	20			
Enclosure protection	Standard			IP68 in accordance to the EN60529							
Ambient temperature	Standard			-20°C to +65 °C (refer to the specific technical data sheet for details)							
	Special [1]			-60 °C to +65 °C (refer to the specific technical data sheet for details)							
Voltage/frequency	24	48								DC	Volt
Special Voltage/frequency	110	120								DC	Volt
Type of duty	Standard		S4-25% 600 St/h, Class C according to EN15714-2								
	In accordance to the IEC 60034_1										
Insulation Class	Standard		Class H								

1. Note: Not available with additional fieldbus disconnected module or extra cable entries unit.
2. Note: Available in Year 2019.

Technical Data

Actuator model description is defined by the following coding.

ICON	**xx /**	**yyyy -**	**zzz**
Type	Size	Torque	Speed

ICON	3000	Product family	
Size	10/20/30/40/50	Model size	
Torque	30/90/180/360/720/1440	Output nominal torque	Nm
Speed	12/24/.....	Output speed	RPM

Technical Data for Multi-Turn Actuators
Power Supply 3-Phase AC

Open-Close Duty

Short-Time Duty (S2-15') | Inching Duty (S4-25% |60 St/h)

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type							
	Nm										Hz
	min	nom.	max	12	18	24	36	48	72	144	50
				14	22	29	43	58	86	173	60
ICON 010	12	30	45	SM00	SM01	SM10	SM11	SM04	SM05	SM06	
ICON 010	36	90	135	SM10	SM11	SM12	SM13	SM14	SM15	SM16	
ICON 020	72	180	270		SM13	SM14	SM15	SM21	SM22	SM23	
ICON 030	144	360	540	SM21	SM32	SM21		SM30	SM23	SM31	
ICON 040	288	720	1080	SM30	SM44	SM30	SM40	SM41	SM31	SM42	
ICON 050	576	1440	2160	SM41	SM40	SM41	SM43	SM50	SM42	SM51	

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. SMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Short-time Duty (S2-30')

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type							
	Nm										Hz
	min	nom.	max	12	18	24	36	48	72	144	50
				14	22	29	43	58	86	173	60
ICON 010	12	30	45	TM00	TM01	TM10	TM11	TM04	TM05	TM06	
ICON 010	36	90	135	TM10	TM11	TM12	TM13	TM14	TM15	TM16	
ICON 020	72	180	270		TM13	TM14	TM15	TM21	TM22	TM23	
ICON 030	144	360	540			TM21		TM30	TM23	TM31	
ICON 040	288	720	1080			TM30	TM40		TM31		
ICON 050	576	1440	2160								

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. TMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Technical Data for Multi-Turn Actuators
Power Supply 3-Phase AC

Modulating Duty

Intermitted Periodic Duty (S4-25% - 600St/h)

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type							
	Nm										Hz
	min	nom.	max	12	18	24	36	48	72	144	50
				14	22	29	43	58	86	173	60
ICON 010	12	30	45	TM00	TM01	TM10	TM11	TM04	TM05	TM06	
ICON 010	36	90	135	TM10	TM11	TM12	TM13	TM14	TM15	TM16	
ICON 020	72	180	270		TM13	TM14	TM15	TM21	TM22	TM23	
ICON 030	144	360	540			TM21		TM30	TM23	TM31	
ICON 040	288	720	1080			TM30	TM40		TM31		
ICON 050	576	1440	2160								

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. TMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Intermitted Periodic Duty (S4-50% - 1200St/h)

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type							
	Nm										Hz
	min	nom.	max	12	18	24	36	48	72	144	50
				14	22	29	43	58	86	173	60
ICON 010	12	30	45	TM00	TM01	TM10	TM11	TM04	TM05		
ICON 010	36	90	135	TM10	TM11	TM12	TM13	TM14	TM15		
ICON 020	72	180	270		TM13	TM14	TM15	TM21	TM22		
ICON 030	144	360	540			TM21		TM30			
ICON 040	288	720	1080			TM30					
ICON 050											

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve attachement — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. TMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Technical Data for Multi-Turn Actuators
Power Supply 1-Phase AC

Open-Close Duty
Short-time Duty (S2-15') | Inching Duty (S4-25% |60 St/h)
Power Supply 220-240V/50-60Hz

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type		
	Nm					
	min	nom.	max	from	to	
ICON 010	12	30	45	8	17	TM11
ICON 010	12	30	45	24	72	TM15
ICON 010	12	30	45	73	95	TM16
ICON 010	36	90	135	6	23	TM13
ICON 010	36	90	135	24	95	TM18
ICON 010	36	90	135	96	120	TM16
ICON 020	72	180	270	12	36	TM22
ICON 020	72	180	270	48	60	TM22
ICON 030	144	360	540	10	30	TM30

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. TMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Power Supply 110-120V/50-60Hz

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type		
	Nm					
	min	nom.	max	from	to	
ICON 010	12	30	45	8	17	TM11
ICON 010	12	30	45	24	72	TM15
ICON 010	12	30	45	73	90	TM16
ICON 010	36	90	135	6	23	TM13
ICON 010	36	90	135	24	40	TM15
ICON 020	72	180	270	8	20	TM21

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. TMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Modulating Duty

Intermitted Periodic Duty (S4-5% - 1200St/h)

Power Supply 220-240V/50-60Hz

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type		
	Nm					
	min	nom.	max	from	to	
ICON 010	12	30	45	8	17	TM11
ICON 010	12	30	45	24	72	TM15
ICON 010	12	30	45	73	95	TM16
ICON 010	36	90	135	6	23	TM13
ICON 010	36	90	135	24	95	TM18
ICON 010	36	90	135	96	120	TM16
ICON 020	72	180	270	12	36	TM22
ICON 020	72	180	270	48	60	TM22
ICON 030	144	360	540	10	30	TM30

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. TMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Power supply 110-120V/50-60Hz

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type		
	Nm					
	min	nom.	max	from	to	
ICON 010	12	30	45	8	17	TM11
ICON 010	12	30	45	24	72	TM15
ICON 010	12	30	45	73	90	TM16
ICON 010	36	90	135	6	23	TM13
ICON 010	36	90	135	24	40	TM15
ICON 020	72	180	270	8	20	TM21

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. TMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Technical Data for Multi-turn Actuators
Power Supply Direct Current

Modulating Duty

Intermitted Periodic Duty (S4-25% - 600St/h)

Power Supply 24Vdc

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type		
	Nm					
	min	nom.	max	from	to	
ICON 010	12	30	45	12	30	DM05
ICON 010	12	30	45	30	60	DM05
ICON 010	36	90	135	12	30	DM05
ICON 010	36	90	135	50	68	DM05

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. DMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Power Supply 48Vdc

Type	Torque Range [4]			Operating speed [RPM]/Motor type		
	Nm					
	min	nom.	max	from	to	
ICON 010	12	30	45	12	30	DM05
ICON 010	12	30	45	30	60	DM05
ICON 010	36	90	135	12	30	DM05
ICON 010	36	90	135	50	68	DM05

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. DMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Power Supply 110Vdc

Type	Torque Range [4]			Operating Speed [RPM]/Motor Type		
	Nm					
	min	nom.	max	from	to	
ICON 010	12	30	45	12	30	DM05
ICON 010	12	30	45	30	60	DM05
ICON 010	36	90	135	12	30	DM05
ICON 010	36	90	135	50	68	DM05

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. DMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Power Supply 120Vdc

Type	Torque Range [4]			Operating speed [RPM]/Motor type		
	Nm					
	min	nom.	max	from	to	
ICON 010	12	30	45	12	30	DM05
ICON 010	12	30	45	30	80	DM05
ICON 010	36	90	135	20	40	DM05
ICON 010	36	90	135	55	70	DM05
ICON 020	72	180	270	35	37	DM05

1. Handwheel diameter — Refer to the Dimension Actuator document.
2. Valve connection — Refer to the Dimension Output drives document.
3. Weight — Refer to the Dimension Actuator document.
4. Output Torque — Adjustable in OPEN and in CLOSE direction from min. to nom. values.
5. Electric data actuator — Refer to the Electric data Actuator document with reference to the Power supply and Motor type.
6. DMxx — Code of the electric motor applied to the actuator model. See the relevant table for the Electric performance.

Electric data

3-phase AC

Short-Time Duty (S2-15') | Inching Duty (S4-25% |60 St/h)

3PH-220V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM00	0,03	0,4	0,5	0,7	12
SM01	0,04	0,4	0,6	1	8
SM04	0,14	1	1,3	2,7	6
SM05	0,21	0,8	1,3	3,9	4
SM06	0,42	1,3	2,5	7	2
SM10	0,07	1,2	1,3	1,7	12
SM11	0,1	1,1	1,3	2,2	8
SM12	0,12	2	2,1	3	12
SM13	0,18	1,6	1,9	3,7	8
SM14	0,28	1,4	1,8	4,6	6
SM15	0,36	1,7	2,5	7,5	4
SM16	0,73	2,2	4,4	12	2
SM21	0,52	3,1	3,9	9,8	6
SM22	0,78	2,7	4,3	12	4
SM23	1,47	4	7,5	23	2
SM30	1,12	5,4	12,1	19,5	6
SM31	3,36	8,8	17,6	52	2
SM32	0,5	5,23	8,7	17,21	8
SM40	1,68	4,3	6,5	30	4
SM41	1,93	7,6	13	25	6
SM42	5,81	13,4	28	83	2
SM43	2,88	16,75	27,16	126,75	4
SM44	0,84	8,51	14,49	27,18	8
SM50	3,87	11	19	80	6
SM51	11,63	27,5	57	130	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-230V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM01	0,04	0,4	0,6	1	8
SM04	0,14	1	1,3	2,7	6
SM05	0,21	0,8	1,3	3,9	4
SM06	0,42	1,3	2,5	7	2
SM10	0,07	1,2	1,3	1,7	12
SM11	0,1	1,1	1,3	2,2	8
SM12	0,12	2	2,1	3	12
SM13	0,18	1,6	1,9	3,7	8
SM14	0,28	1,4	1,8	4,6	6
SM15	0,36	1,7	2,5	7,5	4
SM16	0,73	2,2	4,4	12	2
SM21	0,52	3,1	3,9	9,8	6
SM22	0,78	2,7	4,3	12	4
SM23	1,47	4	7,5	23	2
SM30	1,12	5,4	12,1	19,5	6
SM31	3,36	8,8	17,6	52	2
SM32	0,5	5	8,32	16,46	8
SM40	1,68	4,3	6,5	30	4
SM41	1,93	7,6	13	25	6
SM42	5,81	13,4	28	83	2
SM43	2,88	16,02	25,98	121,24	4
SM44	0,84	8,14	13,86	26	8
SM50	3,87	11	19	80	6
SM51	11,63	27,5	57	130	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-240V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM00	0,03	0,4	0,5	0,7	12
SM04	0,14	1	1,3	2,7	6
SM05	0,21	0,8	1,3	3,9	4
SM06	0,42	1,3	2,5	7,0	2
SM10	0,07	1,2	1,3	1,7	12
SM11	0,10	1,1	1,3	2,2	8
SM12	0,12	2,0	2,1	3,0	12
SM13	0,18	1,6	1,9	3,7	8
SM14	0,28	1,4	1,8	4,6	6
SM15	0,36	1,7	2,5	7,5	4
SM16	0,73	2,2	4,4	12	2
SM21	0,52	3,1	3,9	9,8	6
SM22	0,78	2,7	4,3	12	4
SM23	1,47	4	7,5	23	2
SM30	1,12	5,4	12,1	19,5	6
SM31	3,36	8,8	17,6	52	2
SM32	0,5	4,79	7,97	15,77	8
SM40	1,68	4,3	6,5	30	4
SM41	1,93	7,6	13	25	6
SM42	5,81	13,4	28	83	2
SM43	2,88	15,35	24,9	116,19	4
SM44	0,84	7,8	13,28	24,92	8
SM50	3,87	11	19	80	6
SM51	11,63	27,5	57	130	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-380V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM00	0,03	0,4	0,5	0,7	12
SM01	0,04	0,4	0,6	1	8
SM04	0,14	1	1,3	2,7	6
SM05	0,21	0,8	1,3	3,9	4
SM06	0,42	1,3	2,5	7	2
SM10	0,07	1,2	1,3	1,7	12
SM11	0,1	1,1	1,3	2,2	8
SM12	0,12	2	2,1	3	12
SM13	0,18	1,6	1,9	3,7	8
SM14	0,28	1,4	1,8	4,6	6
SM15	0,36	1,7	2,5	7,5	4
SM16	0,73	2,2	4,4	12	2
SM21	0,52	3,1	3,9	9,8	6
SM22	0,78	2,7	4,3	12	4
SM23	1,47	4	7,5	23	2
SM30	1,12	5,4	12,1	19,5	6
SM31	3,36	8,8	17,6	52	2
SM32	0,5	3,1	5,1	10	8
SM40	1,68	4,3	6,5	30	4
SM41	1,93	7,6	13	25	6
SM42	5,81	13,4	28	83	2
SM43	2,88	9,2	15	70	4
SM44	0,84	4,95	8,42	15,79	8
SM50	3,87	11	19	80	6
SM51	11,63	27,5	57	130	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-400V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM00	0,03	0,4	0,5	0,7	12
SM01	0,04	0,4	0,6	1	8
SM04	0,14	1	1,3	2,7	6
SM05	0,21	0,8	1,3	3,9	4
SM06	0,42	1,3	2,5	7	2
SM10	0,07	1,2	1,3	1,7	12
SM11	0,1	1,1	1,3	2,2	8
SM12	0,12	2	2,1	3	12
SM13	0,18	1,6	1,9	3,7	8
SM14	0,28	1,4	1,8	4,6	6
SM15	0,36	1,7	2,5	7,5	4
SM16	0,73	2,2	4,4	12	2
SM21	0,52	3,1	3,9	9,8	6
SM22	0,78	2,7	4,3	12	4
SM23	1,47	4	7,5	23	2
SM30	1,12	5,4	12,1	19,5	6
SM31	3,36	8,8	17,6	52	2
SM32	0,5	2,9	4,8	9,5	8
SM40	1,68	4,3	6,5	30	4
SM41	1,93	7,6	13	25	6
SM42	5,81	13,4	28	83	2
SM43	2,88	9,2	15	70	4
SM44	0,84	4,7	8	15	8
SM50	3,87	11	19	80	6
SM51	11,63	27,5	57	130	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-415V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM00	0,03	0,4	0,5	0,7	12
SM01	0,04	0,4	0,6	1	8
SM05	0,21	0,8	1,3	3,9	4
SM06	0,42	1,3	2,5	7	2
SM10	0,07	1,2	1,3	1,7	12
SM11	0,1	1,1	1,3	2,2	8
SM12	0,12	1,9	2,1	3	12
SM13	0,18	1,5	1,9	3,7	8
SM14	0,28	1,4	1,8	4,6	6
SM15	0,36	1,6	2,5	7,5	4
SM16	0,73	2,1	4,4	12	2
SM21	0,52	2,9	3,9	9,8	6
SM22	0,78	2,6	4,3	12	4
SM23	1,47	3,8	7,5	23	2
SM30	1,12	5,2	12,1	19,5	6
SM31	3,36	8,4	17,6	52	2
SM32	0,5	2,8	4,63	9,16	8
SM40	1,68	4,1	6,5	30	4
SM41	1,93	7,3	13	25	6
SM42	5,81	12,9	28	83	2
SM43	2,88	8,92	14,46	67,47	4
SM44	0,84	4,53	7,71	14,46	8
SM50	3,87	10,6	19	80	6
SM51	11,63	26,5	57	130	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-280V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM00	0,03	0,7	0,8	1	12
SM01	0,05	0,7	0,9	1,4	8
SM04	0,17	1,6	1,8	3,8	6
SM05	0,25	1,4	2	5,5	4
SM06	0,51	2,1	3,6	10,1	2
SM10	0,09	2,3	2,5	3,4	12
SM11	0,13	2	2,4	4,4	8
SM12	0,15	3,7	4,1	6	12
SM13	0,22	2,7	3,4	7,5	8
SM14	0,34	2,5	3,2	9,2	6
SM15	0,44	2,9	4,2	14,7	4
SM16	0,88	3,6	7,5	24	2
SM21	0,63	5,5	6,9	18,9	6
SM22	0,95	4,8	7,7	24,9	4
SM23	1,76	6,9	12,9	41,1	2
SM30	1,35	9,3	20,6	32,6	6
SM31	4,04	15,1	30	89,1	2
SM32	0,6	5,14	8,06	25,71	8
SM40	2,02	7,4	11,1	51,4	4
SM41	2,33	13,2	22,3	44,6	6
SM42	6,98	24,9	51,4	150,9	2
SM43	3,46	17,14	26,57	123,43	4
SM44	1,01	8,23	13,71	29,14	8
SM50	4,66	20,6	35,1	144	6
SM51	13,96	51,4	102,9	236,6	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-440V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM00	0,03	0,4	0,5	0,6	12
SM01	0,05	0,4	0,6	0,9	8
SM04	0,17	1	1,2	2,4	6
SM05	0,25	0,9	1,3	3,5	4
SM06	0,51	1,3	2,3	6,4	2
SM10	0,09	1,4	1,6	2,1	12
SM11	0,13	1,3	1,5	2,8	8
SM12	0,15	2,4	2,6	3,8	12
SM13	0,22	1,7	2,1	4,8	8
SM14	0,34	1,6	2	5,8	6
SM15	0,44	1,8	2,7	9,3	4
SM16	0,88	2,2	4,8	15,2	2
SM21	0,63	3,4	4,3	12	6
SM22	0,95	3	4,9	15,8	4
SM23	1,76	4,3	8,1	26,1	2
SM30	1,35	5,8	13	20,7	6
SM31	4,04	9,6	19	56,7	2
SM32	0,6	3,27	5,13	16,36	8
SM40	2,02	4,6	7	32,7	4
SM41	2,33	8,4	14,1	28,3	6
SM42	6,98	15,8	32,7	96	2
SM43	3,46	10,91	16,91	78,55	4
SM44	1,01	5,24	8,73	18,55	8
SM50	4,66	13	22,3	91,6	6
SM51	13,96	32,7	65,4	150,5	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-460V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM00	0,03	0,4	0,5	0,6	12
SM01	0,05	0,4	0,5	0,8	8
SM04	0,17	0,9	1,1	2,3	6
SM05	0,25	0,8	1,2	3,3	4
SM06	0,51	1,3	2,1	6,1	2
SM10	0,09	1,4	1,6	2,1	12
SM11	0,13	1,3	1,5	2,7	8
SM12	0,15	2,3	2,5	3,7	12
SM13	0,22	1,7	2,1	4,6	8
SM14	0,34	1,6	2	5,6	6
SM15	0,44	1,8	2,6	9	4
SM16	0,88	2,2	4,6	14,6	2
SM21	0,63	3,3	4,2	11,5	6
SM22	0,95	2,9	4,7	15,1	4
SM23	1,76	4,2	7,8	25	2
SM30	1,35	5,6	12,5	19,8	6
SM31	4,04	9,2	18,3	54,3	2
SM32	0,6	3	5,3	10,2	8
SM40	2,02	4,5	6,8	31,3	4
SM41	2,33	8	13,6	27,1	6
SM42	6,98	15,1	31,3	91,8	2
SM43	3,46	9,6	16,2	73	4
SM44	1,01	4,9	8,5	16,1	8
SM50	4,66	12,5	21,4	87,7	6
SM51	13,96	31,3	62,6	144	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-480V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
SM00	0,03	0,4	0,5	0,8	12
SM01	0,05	0,4	0,6	0,8	8
SM04	0,17	0,9	1,1	2,3	6
SM05	0,25	0,8	1,2	3,2	4
SM06	0,51	1,3	2,1	5,9	2
SM10	0,09	1,4	1,5	2	12
SM11	0,13	1,2	1,4	2,6	8
SM12	0,15	2,2	2,4	3,5	12
SM13	0,22	1,6	2	4,4	8
SM14	0,34	1,5	1,9	5,4	6
SM15	0,44	1,7	2,5	8,6	4
SM16	0,88	2,1	4,4	14	2
SM21	0,63	3,2	4	11	6
SM22	0,95	2,8	4,5	14,5	4
SM23	1,76	4	7,5	24	2
SM30	1,35	5,4	12	19	6
SM31	4,04	8,8	17,5	52	2
SM32	0,6	3	4,7	15	8
SM40	2,02	4,3	6,5	30	4
SM41	2,33	7,7	13	26	6
SM42	6,98	14,5	30	88	2
SM43	3,46	9,6	16,2	73	4
SM44	1,01	4,8	8	17	8
SM50	4,66	12	20,5	84	6
SM51	13,96	30	60	138	2

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

- Contact Factory for following Power Supply
  - 3PH-173V(50Hz)
  - 3PH-440V(50Hz)
  - 3PH-460V(50Hz)
  - 3PH-480V(50Hz)
  - 3PH-500V(50Hz)
  - 3PH-660V(50Hz)
  - 3PH-690V(50Hz)
  - 3PH-208V(60Hz)
  - 3PH-220V(60Hz)
  - 3PH-230V(60Hz)
  - 3PH-380V(60Hz)
  - 3PH-400V(60Hz)
  - 3PH-415V(60Hz)
  - 3PH-500V(60Hz)
  - 3PH-575V(60Hz)
  - 3PH-690V(60Hz)

Intermitted Periodic Duty (S4-25% - 600 St/h) (S4-50% - 1200 St/h)

3PH-220V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM00	0,03	0,76	0,87	1,18	12
TM01	0,046	0,8	1	1,55	8
TM04	0,142	1,71	2	4,18	6
TM05	0,213	1,49	2,18	6	4
TM06	0,426	2,27	3,82	10,91	2
TM10	0,071	2,18	2,36	3,09	12
TM11	0,106	2	2,36	4	8
TM12	0,12	3,64	3,82	5,45	12
TM13	0,18	2,91	3,45	6,63	8
TM14	0,28	2,64	3,27	8,36	6
TM15	0,36	3,09	4,55	13,64	4
TM16	0,73	4	8	21,82	2
TM21	0,52	5,64	7,09	17,82	6
TM22	0,78	4,91	7,82	21,82	4
TM23	1,47	7,27	13,64	41,82	2
TM30	1,12	9,82	22	35,45	6
TM31	3,36	16	32	94,55	2
TM40	1,68	7,82	11,82	54,55	4

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-230V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM00	0,03	0,76	0,87	1,18	12
TM01	0,046	0,8	1	1,55	8
TM04	0,142	1,71	2	4,18	6
TM05	0,213	1,49	2,18	6	4
TM06	0,426	2,27	3,82	10,91	2
TM10	0,071	2,18	2,36	3,09	12
TM11	0,106	2	2,36	4	8
TM12	0,12	3,64	3,82	5,45	12
TM13	0,18	2,91	3,45	6,63	8
TM14	0,28	2,64	3,27	8,36	6
TM15	0,36	3,09	4,55	13,64	4
TM16	0,73	4	8	21,82	2
TM21	0,52	5,64	7,09	17,82	6
TM22	0,78	4,91	7,82	21,82	4
TM23	1,47	7,27	13,64	41,82	2
TM30	1,12	9,82	22	35,45	6
TM31	3,36	16	32	94,55	2
TM40	1,68	7,82	11,82	54,55	4

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-240V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM00	0,03	0,7	0,8	1,08	12
TM01	0,046	0,73	0,92	1,42	8
TM04	0,142	1,57	1,83	3,83	6
TM05	0,213	1,37	2	5,5	4
TM06	0,426	2,8	3,5	10	2
TM10	0,071	2	2,17	2,83	12
TM11	0,106	1,83	2,17	3,67	8
TM12	0,12	3,33	3,5	5	12
TM13	0,18	2,67	3,17	6,17	8
TM14	0,28	2,42	3	7,67	6
TM15	0,36	2,83	4,17	12,5	4
TM16	0,73	3,67	7,33	20	2
TM21	0,52	5,17	6,5	16,33	6
TM22	0,78	4,5	7,17	20	4
TM23	1,47	6,67	12,5	38,33	2
TM30	1,12	9	20,17	32,5	6
TM31	3,36	14,67	29,33	86,67	2
TM40	1,68	7,17	10,83	50	4

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-380V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM00	0,03	0,4	0,5	0,7	12
TM01	0,04	0,4	0,6	1	8
TM04	0,14	1	1,3	2,7	6
TM05	0,21	0,8	1,3	3,9	4
TM06	0,42	1,3	2,5	7	2
TM10	0,07	1,2	1,3	1,7	12
TM11	0,1	1,1	1,3	2,2	8
TM12	0,12	2	2,1	3	12
TM13	0,18	1,6	1,9	3,7	8
TM14	0,28	1,4	1,8	4,6	6
TM15	0,36	1,7	2,5	7,5	4
TM16	0,73	2,2	4,4	12	2
TM21	0,52	3,1	3,9	9,8	6
TM22	0,78	2,7	4,3	12	4
TM23	1,47	4	7,5	23	2
TM30	1,12	5,4	12,1	19,5	6
TM31	3,36	8,8	17,6	52	2
TM40	1,68	4,3	6,5	30	4

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-415V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM00	0,03	0,4	0,46	0,63	12
TM01	0,046	0,42	0,53	0,82	8
TM04	0,142	0,91	1,06	2,22	6
TM05	0,213	0,79	1,16	3,18	4
TM06	0,426	1,2	2,02	5,78	2
TM10	0,07	1,1	1,3	1,7	12
TM11	0,1	1	1,3	2,2	8
TM12	0,12	1,9	2,1	3	12
TM13	0,18	1,5	1,9	3,7	8
TM14	0,28	1,4	1,8	4,6	6
TM15	0,36	1,6	2,5	7,5	4
TM16	0,73	2,1	4,4	12	2
TM21	0,52	2,9	3,9	9,8	6
TM22	0,78	2,6	4,3	12	4
TM23	1,47	3,8	7,5	23	2
TM30	1,12	5,2	12,1	19,5	6
TM31	3,36	8,4	17,6	52	2
TM40	1,68	4,1	6,5	30	4

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-280V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM00	0,036	0,71	0,83	1,03	12
TM01	0,055	0,76	0,93	1,43	8
TM04	0,17	1,61	1,89	3,84	6
TM05	0,256	1,4	2,06	5,57	4
TM06	0,511	2,14	3,59	10,1	
TM10	0,08	2,3	2,5	3,4	12
TM11	0,12	2	2,4	4,4	8
TM12	0,14	3,7	4,1	6	12
TM13	0,22	2,7	3,4	7,5	8
TM14	0,34	2,5	3,2	9,2	6
TM15	0,44	2,9	4,2	14,7	4
TM16	0,88	3,6	7,5	24	2
TM21	0,63	5,5	6,9	18,9	6
TM22	0,95	4,8	7,7	24,9	4
TM23	1,76	6,9	12,9	41,1	2
TM30	1,35	9,3	20,6	32,6	6
TM31	4,04	15,1	30	89,1	2
TM40	2,02	7,4	11,1	51,4	4

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-440V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM00	0,03	0,4	0,5	0,6	12
TM01	0,05	0,4	0,6	0,9	8
TM04	0,17	1	1,2	2,4	6
TM05	0,25	0,9	1,3	3,5	4
TM06	0,51	1,3	2,3	6,4	2
TM10	0,09	1,4	1,6	2,1	12
TM11	0,13	1,3	1,5	2,8	8
TM12	0,15	2,4	2,6	3,8	12
TM13	0,22	1,7	2,1	4,8	8
TM14	0,34	1,6	2	5,8	6
TM15	0,44	1,8	2,7	9,3	4
TM16	0,88	2,2	4,8	15,2	2
TM21	0,63	3,4	4,3	12	6
TM22	0,95	3	4,9	15,8	4
TM23	1,76	4,3	8,1	26,1	2
TM30	1,35	5,8	13	20,7	6
TM31	4,04	9,6	19	56,7	2
TM40	2,02	4,6	7	32,7	4

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-460V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM00	0,036	0,44	0,5	0,68	12
TM01	0,055	0,46	0,57	0,89	8
TM04	0,17	0,98	1,15	2,4	6
TM05	0,256	0,86	1,25	3,44	4
TM06	0,511	1,3	2,19	6,26	2
TM10	0,09	1,4	1,6	2,1	12
TM11	0,13	1,3	1,5	2,7	8
TM12	0,15	2,3	2,5	3,7	12
TM13	0,22	1,7	2,1	4,6	8
TM14	0,34	1,6	2	5,6	6
TM15	0,44	1,8	2,6	9	4
TM16	0,88	2,2	4,6	14,6	2
TM21	0,63	3,3	4,2	11,5	6
TM22	0,95	2,9	4,7	15,1	4
TM23	1,76	4,2	7,8	25	2
TM30	1,35	5,6	12,5	19,8	6
TM31	4,04	9,2	18,3	54,3	2
TM40	2,02	4,5	6,8	31,3	4

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

3PH-480V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM00	0,036	0,42	0,48	0,65	12
TM01	0,055	0,44	0,55	0,85	8
TM04	0,17	0,94	1,1	2,3	6
TM05	0,256	0,82	1,2	3,3	4
TM06	0,511	1,25	2,1	6	2
TM10	0,09	1,4	1,5	2	12
TM11	0,13	1,2	1,4	2,6	8
TM12	0,15	2,2	2,4	3,5	12
TM13	0,22	1,6	2	4,4	8
TM14	0,34	1,5	1,9	5,4	6
TM15	0,44	1,7	2,5	8,6	4
TM16	0,88	2,1	4,4	14	2
TM21	0,63	3,2	4	11	6
TM22	0,95	2,8	4,5	14,5	4
TM23	1,76	4	7,5	24	2
TM30	1,35	5,4	12	19	6
TM31	4,04	8,8	17,5	52	2
TM40	2,02	4,3	6,5	30	4

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

- Contact Factory for following Power Supply
  - 3PH-173V(50Hz)
  - 3PH-440V(50Hz)
  - 3PH-460V(50Hz)
  - 3PH-480V(50Hz)
  - 3PH-500V(50Hz)
  - 3PH-660V(50Hz)
  - 3PH-690V(50Hz)
  - 3PH-208V(60Hz)
  - 3PH-220V(60Hz)
  - 3PH-230V(60Hz)
  - 3PH-380V(60Hz)
  - 3PH-400V(60Hz)
  - 3PH-415V(60Hz)
  - 3PH-500V(60Hz)
  - 3PH-575V(60Hz)
  - 3PH-690V(60Hz)

1-Phase AC
Short-Time Duty (S2-15') | Inching Duty (S4-25% |60 St/h)

1PH-220V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,106	1,1	1,9	4,2	8
TM13	0,184	3,3	5,7	12	8
TM15	0,367	2,8	5,5	11,5	4
TM16	0,735	7,1	9,4	20,9	2
TM18	0,5	3,2	6,9	17,5	4
TM22	0,789	6,8	10,9	18,8	4
TM30	1,123	12,5	17,2	26,1	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-230V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,106	1,1	1,8	4	8
TM13	0,184	3,2	5,5	11,5	8
TM15	0,367	2,7	5,3	11	4
TM16	0,735	6,8	9	20	2
TM18	0,5	3,2	6,9	17,5	4
TM22	0,789	6,5	10,5	18	4
TM30	1,123	12	16,5	25	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-240V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,127	1,2	2	4,6	8
TM13	0,221	3,6	6,3	13,2	8
TM15	0,44	3,1	6,1	12,6	4
TM16	0,882	7,8	10,3	23	2
TM18	0,6	3,72	8,02	20,25	4
TM22	0,947	7,4	12	20,7	4
TM30	1,348	13,8	18,9	28,7	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-110V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,106	3,1	5,7	9,7	8
TM13	0,184	5,8	11,2	24	8
TM15	0,367	7,3	10,23	23	6
TM16	0,735	12,3	13,56	26,1	4
TM21	0,526	13,4	16,7	26,1	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-115V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,106	3,1	5,7	9,7	8
TM13	0,184	5,8	11,2	24	8
TM15	0,367	7,3	10,23	23	6
TM16	0,735	12,3	13,56	26,1	4
TM21	0,526	13,4	16,7	26,1	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-120V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,127	3	5,5	9,3	8
TM13	0,221	5,5	10,7	23	8
TM15	0,44	7	9,8	22	6
TM16	0,44	8,2	18	25	4
TM21	0,631	12,8	16	25	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1-Phase AC
Intermitted Periodic Duty (S4-50% - 1200 St/h)

1PH-220V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,106	1,1	1,9	4,2	8
TM13	0,184	3,3	5,7	12	8
TM15	0,367	2,8	5,5	11,5	4
TM16	0,735	7,1	9,4	20,9	2
TM18	0,5	3,2	6,9	17,5	4
TM22	0,789	6,8	10,9	18,8	4
TM30	1,123	12,5	17,2	26,1	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-230V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,106	1,1	1,8	4	8
TM13	0,184	3,2	5,5	11,5	8
TM15	0,367	2,7	5,3	11	4
TM16	0,735	6,8	9	20	2
TM18	0,5	3,2	6,9	17,5	4
TM22	0,789	6,5	10,5	18	4
TM30	1,123	12	16,5	25	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-240V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,127	1,2	2	4,6	8
TM13	0,221	3,6	6,3	13,2	8
TM15	0,44	3,1	6,1	12,6	4
TM16	0,882	7,8	10,3	23	2
TM18	0,6	3,72	8,02	20,25	4
TM22	0,947	7,4	12	20,7	4
TM30	1,348	13,8	18,9	28,7	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-110V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,106	3,1	5,7	9,7	8
TM13	0,184	5,8	11,2	24	8
TM15	0,367	7,3	10,23	23	6
TM16	0,735	12,3	13,56	26,1	4
TM21	0,526	13,4	16,7	26,1	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-115V(50Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,106	3,1	5,7	9,7	8
TM13	0,184	5,8	11,2	24	8
TM15	0,367	7,3	10,23	23	6
TM16	0,735	12,3	13,56	26,1	4
TM21	0,526	13,4	16,7	26,1	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

1PH-120V(60Hz) Power Supply

Motor Type	Kw	In	Is	Icc	N Poles
TM11	0,127	3	5,5	9,3	8
TM13	0,221	5,5	10,7	23	8
TM15	0,44	7	9,8	22	6
TM16	0,44	8,2	18	25	4
TM21	0,631	12,8	16	25	6

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)
7. Tolerance on Frequency ±2%

Direct Current

Intermitted periodic duty (S4-25% - 600 St/h)

24V(DC) Power Supply

Motor Type	Kw	In	Is	Icc	ICON3000 Model	RPM Range Min	RPM Range Max
DM05	0,19	10	20	30	ICON_010/30	12	30
DM05	0,19	12	29	50	ICON_010/30	30	60
DM05	0,19	14	32	63	ICON_010/90	12	30
DM05	0,19	37	80	120	ICON_010/90	50	68

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)

48V(DC) Power Supply

Motor Type	Kw	In	Is	Icc	ICON3000 Model	RPM Range Min	RPM Range Max
DM05	0,4	9,5	10	58	ICON_010/30	12	30
DM05	0,4	10	12,5	58	ICON_010/30	30	60
DM05	0,4	10	16,5	58	ICON_010/90	12	30
DM05	0,4	16,5	32	58	ICON_010/90	50	68

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty S2-15' at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)

110V(DC) Power Supply

Motor Type	Kw	In	Is	Icc	ICON3000 Model	RPM Range Min	RPM Range Max
DM05	0,4	5,2	7,5	25	ICON_010/30	12	30
DM05	0,4	5,8	7,7	25	ICON_010/30	30	80
DM05	0,4	5,2	9	25	ICON_010/90	20	40
DM05	0,4	6	12	25	ICON_010/90	55	70
DM05	0,4	7,2	17,5	25	ICON_020/180	35	37

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)

120V(DC) Power Supply

Motor Type	Kw	In	Is	Icc	ICON3000 Model	RPM Range Min	RPM Range Max
DM05	0,4	4,8	7,5	25	ICON_010/30	12	30
DM05	0,4	5,4	7,7	25	ICON_010/30	30	80
DM05	0,4	4,8	9	25	ICON_010/90	20	40
DM05	0,4	5,5	12	25	ICON_010/90	55	70
DM05	0,4	6,6	17,5	25	ICON_020/180	35	37

1. Tolerances on Voltage value -10% / +10%
2. Nominal Output Power (KW) according to CEI 2-3 (Eq. to IEC 60034-1)
3. Absorbed Power at Nominal Conditions (Watt)
4. Inom = Motor nominal current; Is = Actuator nominal current at 100% (Seating current); Icc = Locked rotor current [A]
5. Nominal Duty at Pnom/Unom (-5%;+5%) acc. to CEI 2-3 (eq. to IEC 60034-1)
6. Tolerances on the published values according to CEI 2-3 (eq. to IEC 60034-1)

Controls

Analogue Module

Analogue Position Transmission Module

APTM	This card gives a 4-20 mA galvanically insulated module for position or torque retransmission. It is easily plugged in on the base card with no need for dedicated tools. The module can be configured to the output torque in place of the actuator position.

Position Servoamplifier Module

PSM	Module necessary for actuators in modulating and inching duty. It drives the motor through pulses at constant frequency and duration proportional to the position error, following an externally set analogical point signal. The basic features are: Input: 4-20 mA or 0-20 mA with galvanic insulation Output: 4-20 mA with galvanic insulation for position or torque re-transmission.

Bus Control Modules

FOUNDATION™ fieldbus

Foundation FieldBus	Electrical interface	IEC 61158-2,2 wire communication
	Data rate	31.25 kbit/s
	Bus type	H1 communication bus, Voltage Mode signalling
	Device number	32 devices per segment Max 16 device (best practice) even less in case of many Function Blocks assigned to the microcycle
	Bus length:	1900 m per segment
	Electrical power:	bus powered Max voltage 32V Min voltage 9V Rated current In = 19mA Fault current Imax = 24mA

HART 7

HART 7	Electrical interface	4-20mA analog loop, 2 wire communication
	Data rate	Request/response mode – 2/3 updates per second Optional burst mode – 3/4 updates per second
	Bus type	HART protocol 7.2
	Device number	Point-to-point architecture : 1 field device Split ranging: normally 2 field devices Multidrop: 16 field devices
	Bus length:	Maximum twisted pair length—10,000 ft (3,048 m) Maximum multiple twisted pair length—5,000 ft (1,524 m)
	Electrical power:	bus powered Max voltage 36V Min voltage 0V

Modbus RTU

MODBUS RTU	Electrical interface	Two-wires RS485
	Data rate	600 1200 2400 4800 9600 19200 38400 bit/sec
	Transmission technology	RS-485, half duplex
	Device number	Max. 32 devices per segment. If more than 32 devices are present on the Bus, repeaters should be used Max addresses 247
	Network topology	Line (bus) structure
	Bus length:	1200 meter without repeater
	Electrical power:	Actuator powered

Profibus DP

PROFIBUS DP V0/1/2	Electrical interface	Two-wires RS485
	Data rate	9.6 19.2 45.45 93.75 187.5 500 1500 Kbit/sec
	Network topology	Line (bus) structure. With repeaters tree structures can also be realised
	Device number	32 devices per segment without repeater (max 126, with repeaters)
	Transmission technology	PROFIBUS DP
	Bus length:	depends on bus speed selected

Bus speed	9.6	19.2	45.45	93.75	187.5	500	1500	Kbit/sec
Length:	1200				200	200	200	m

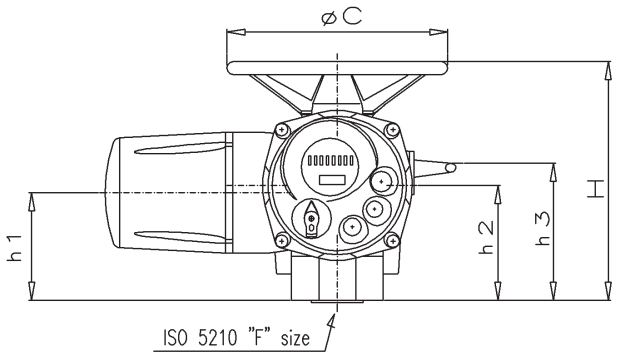
	Electrical power:	actuator powered (as option: auxiliary external voltage supply
	Station type	DPV1 and DPV2 (redundancy) slave

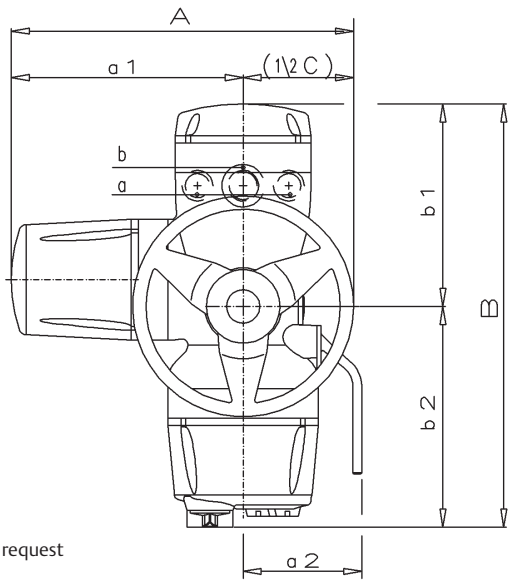
Lonworks

MODBUS RTU	Electrical interface	Two wires twisted pair
	Data rate	78 Kbps
	Network topology	Multidrop line or loop
	Device number	60 devices per segment using specific 16AWG cable. More segments with repeaters
	Transmission technology	LONWORKS FTT-10
	Bus length:	1200 meters per segment using specific 16AWG cable. More segments with repeaters
	Electrical power:	Actuator powered

Overall Actuator Dimensions

Overall Dimensions - Standard Manual Override





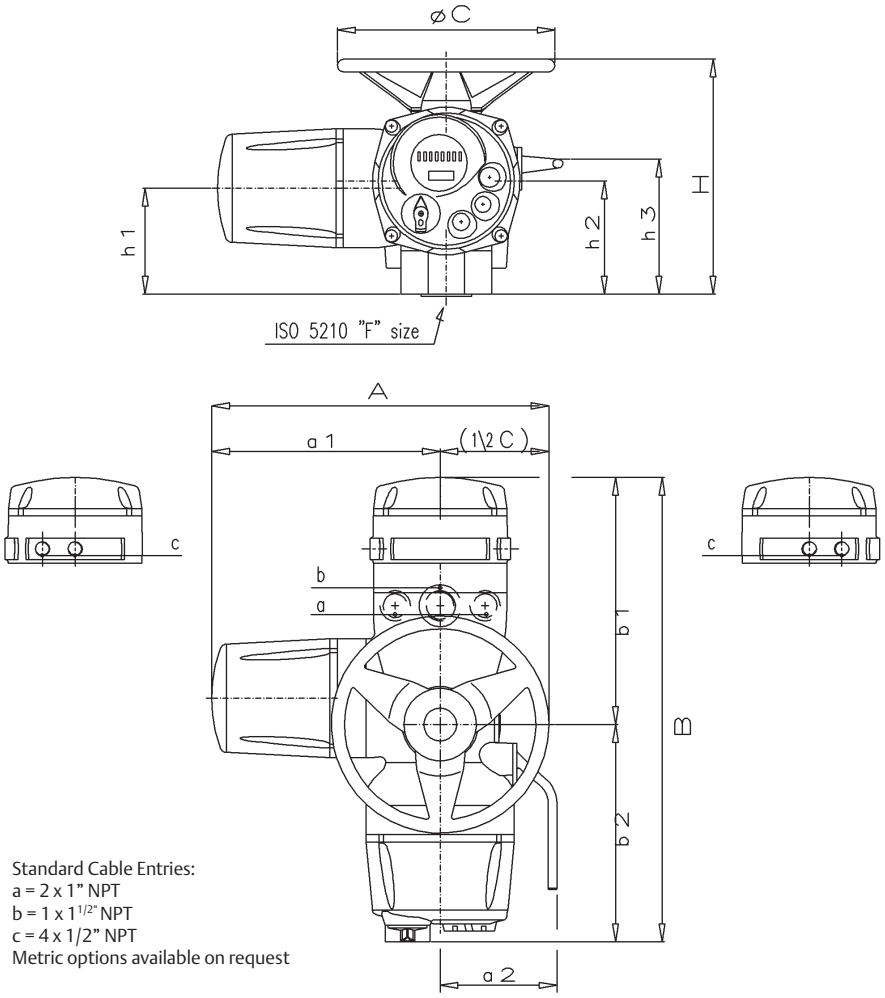
Standard Cable Entries:
a = 2 x 1" NPT
b = 1 x 1 1/2" NPT
Metric options available on request

Dimension Table

Overall Dimensions (mm)

Model	A	a1	a2	B	b1	b2	C	F	H	h1	h2	h3	Kg
ICON-010	484	325	159	561	273	288	300	F10	332	142	152	209	32
ICON-020	597	347	159	579	283	296	500	F14	380	161	161	239	45
ICON-030	699	399	159	621	313	308	600	F14	436	175	175	269	70
ICON-040	815	455	159	706	318	388	720	F16	486	196	191	291	86
ICON-050	958	528	159	756	363	393	860	F25	560	223	218	336	110

Overall Dimensions - Optional Profibus Module with Standard Manual Override



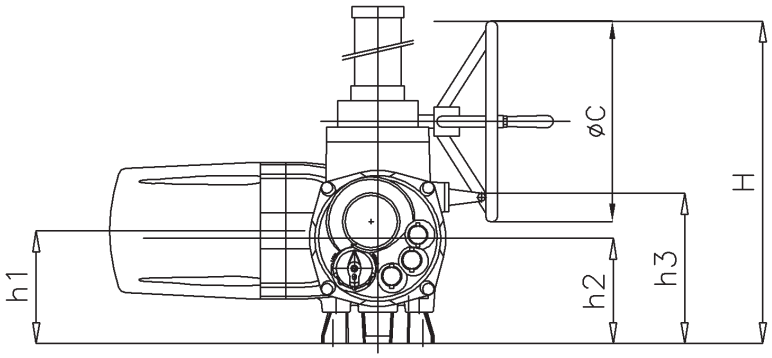
Standard Cable Entries:
a = 2 x 1" NPT
b = 1 x 1$^{1/2"}$ NPT
c = 4 x 1/2" NPT
Metric options available on request

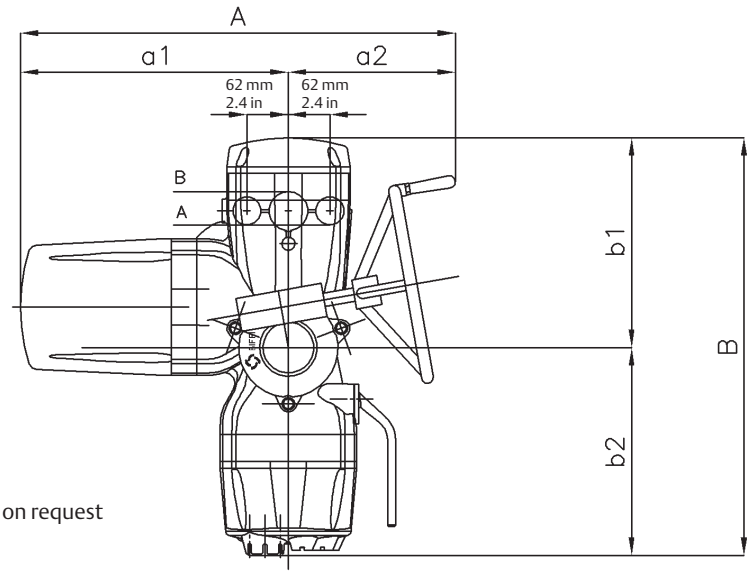
Dimension Table

Overall Dimensions (mm)

Model	A	a1	a2	B	b1	b2	C	F	H	h1	h2	h3	Kg
ICON-010	484	325	159	627	339	288	300	F10	332	142	152	209	38
ICON-020	597	347	159	645	349	296	500	F14	380	161	161	239	51
ICON-030	699	399	159	687	379	308	600	F14	436	175	175	269	76
ICON-040	815	455	159	772	384	388	720	F16	486	196	191	291	92
ICON-050	958	528	159	825	432	393	860	F25	560	223	218	336	116

Overall Dimensions - Reduced Manual Override





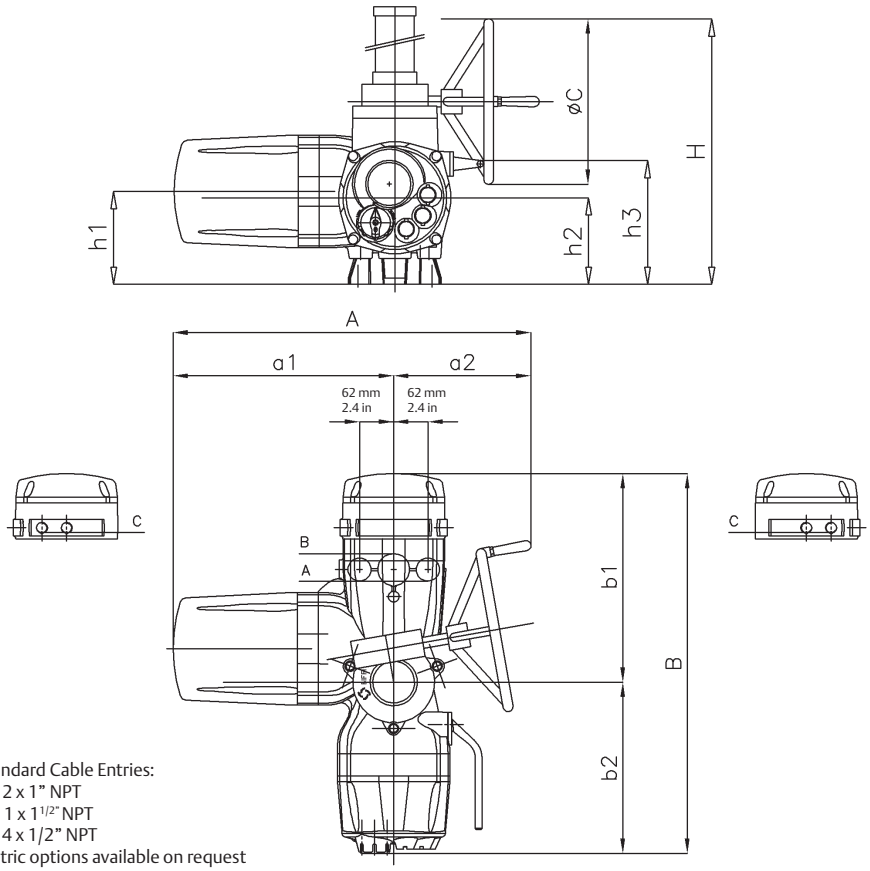
Standard Cable Entries:
a = 2 x 1" NPT
b = 1 x 1 1/2" NPT
Metric options available on request

Dimension Table

Overall Dimension (mm)

Model	A	a1	a2	B	b1	b2	C	H	h1	h2	h3	Manual override R:	Kg
ICON-030	648	399	249	621	313	308	300	500	175	175	269	10 / 1	78
ICON-040	723	455	268	706	318	388	400	574	196	191	291	13 / 1	94
ICON-050	799	528	271	756	363	393	500	685	223	218	336	17 / 1	118

Overall Dimensions - Optional Profibus Module with Reduced Manual Override



Standard Cable Entries:
a = 2 x 1" NPT
b = 1 x 1 1/2" NPT
c = 4 x 1/2" NPT
Metric options available on request

Dimension Table

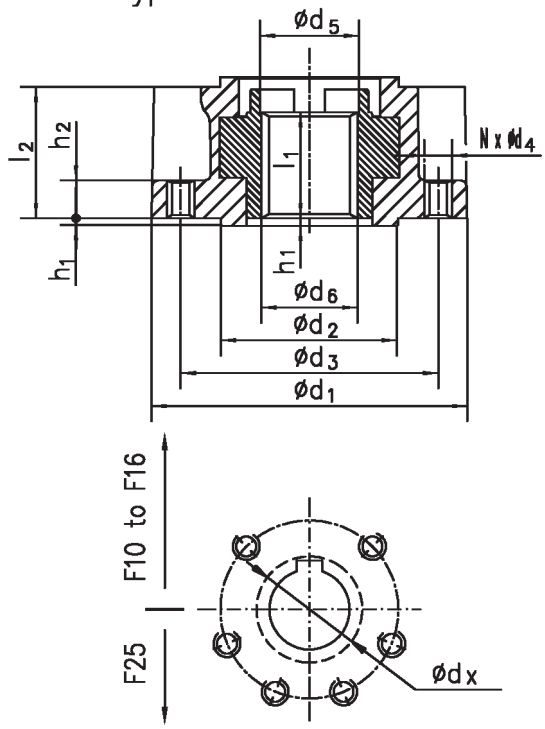
Overall Dimension (mm)

Model	A	a1	a2	B	b1	b2	C	H	h1	h2	h3	Manual override R:	Kg
ICON-030	648	399	249	687	379	308	300	500	175	175	269	10 / 1	84
ICON-040	723	455	268	772	384	388	400	574	196	191	291	13 / 1	100
ICON-050	799	528	271	822	429	393	500	685	223	218	336	17 / 1	124

Output Drives Dimension

Output Drive Type A Dimensions

ISO 5210 type A

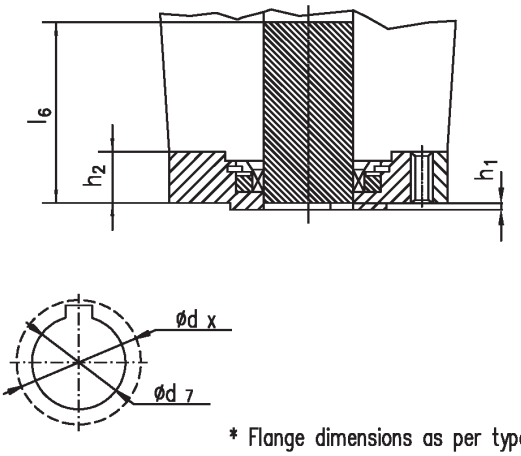


Model	010	020	030	040	050
ISO 5210	F10	F14	F14	F16	F25
Fnom KN	40	100	150	180	300
Fmax KN	60	150	225	270	450
Ød 1	125	175	175	210	300
Ød 2 f8	70	100	100	130	200
Ød 3	102	140	140	165	254
Ød 4	M10	M16	M16	M20	M16
Ød 5	33	46	62	68	78
Ød 6 not machined (5)	18 (5)	19	26	30	35
Ød 6 max	32	45	60,5	65	76,5
Ød x max	32	45	60,5	65	76,5
l 1	40	55	70	75	95
l 2	51	68	84	94	120
h 1	3	4	4	5	5
h 2	15	24	24	30	24
N	4	4	4	4	8
Weight (N)	15	75	75	150	275

1. Ød$_6$ max = Max threaded stem acceptance
2. Ød$_x$ = The maximum accepted diameter described by the key
3. Fnom is the maximum thrust applicable to the ICON/3000 block type "A" on DINAMIC CONDITIONS with torque control set at 100%
4. Fmax is the maximum thrust applicable to the ICON/3000 block type "A" on STATIC CONDITIONS with manual override or with motor in stall torque
5. Not applicable in case of insert bush blind

Output Drive Type B4 Dimensions

ISO 5210 type B4



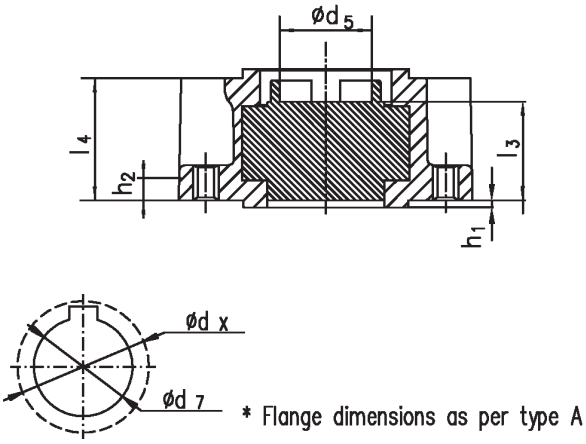
* Flange dimensions as per type A

B4	Ød 7 max (6)	22	32	46	50	58
	Ød$_x$	26	40	55	60	68
	l 6	100	120	130	180	180
	h 1	3	4	4	5	5
	h 2	15	24	24	30	24
	N	4	4	4	4	8
	Weight (N)	10	55	60	120	200

6. Ød$_7$ with standard keyway according to ISO 773
7. Ød$_x$ = The maximum accepted diameter described by the key

Output Drive Type B6 Dimensions

ISO 5210 type B6

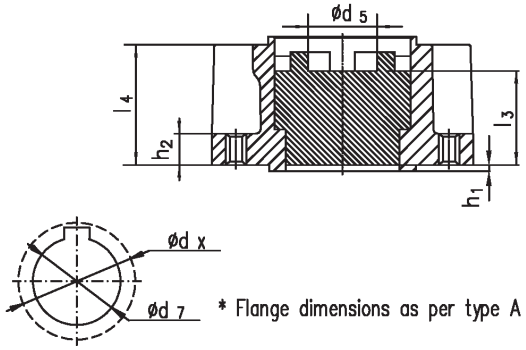


	$Ød_5$	33	46	62	68	78
B6	$Ød_7$ max (6)	25	38	51	55	65
	$Ød_x$ max (7)	33	46	62	66	75
	l_3	40	55	70	75	95
	l_4	51	68	84	94	120
	h_1	3	4	4	5	5
	h_2	15	24	24	30	24
	N	4	4	4	4	8
	Weight (N)	15	65	70	140	260

8. $Ød_7$ with standard keyway according to ISO 773
9. $Ød_x$ = The maximum accepted diameter described by the key

Output Drive Type B8 Dimensions

ISO 5210 type B8



	$Ød_5$	33	46	62	68	78
B8	$Ød_7$ max (6)	42	60	60	80	100
	$Ød_x$ max (7)	50	71	71	94	116
	l_3	40	55	70	75	95
	l_4	51	68	84	94	120
	h_1	3	4	4	5	5
	h_2	15	24	24	30	24
	N	4	4	4	4	8
	Weight (N)	15	65	70	140	260

10. $Ød_7$ with standard keyway according to ISO 773
11. $Ød_x$ = The maximum accepted diameter described by the key

Spare Parts List

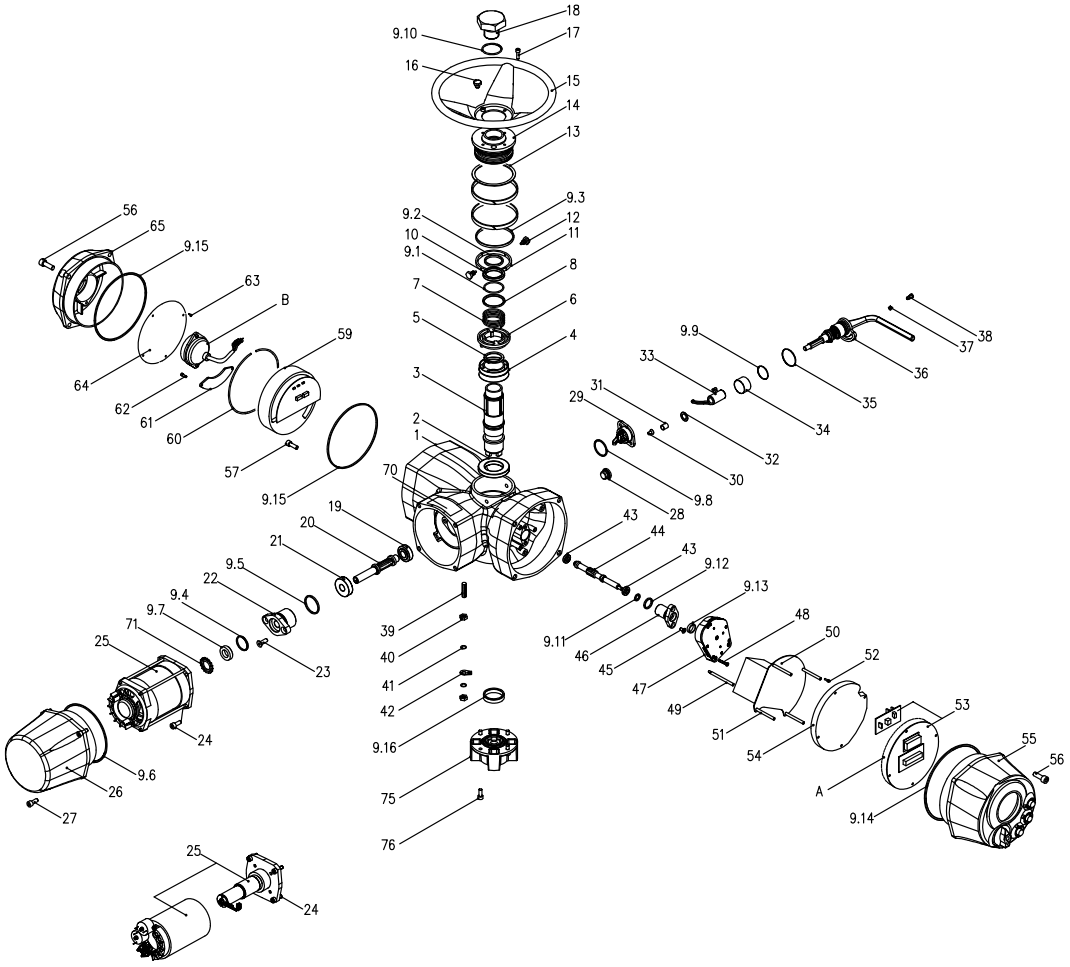
Component Parts

Item	Qty	Description	Material
1	1	Housing	Aluminum
2	1	Lower Bearing	Carbon Steel
3	1	Hollow Shaft	Carbon Steel
4	1	Worm Wheel	Bronze
5	1	Cirplip	Carbon Steel
6	1	Driver Sleeve	Cast iron
7	1	Driver Sleeve Spring	Carbon Steel
8	1	Spring Retaining Ring	Carbon Steel
9	1	Seal Kit *	--
9.1	1	O-Ring *	FPM Rubber
9.2	1	Seal Ring *	NBR Rubber
9.3	1	Q-Ring *	NBR Rubber
9.4	1	O-Ring *	NBR Rubber
9.5	1	O-Ring *	NBR Rubber
9.6	1	O-Ring *	NBR Rubber
9.7	1	Seal Ring *	PTFE
9.8	1	O-Ring *	NBR Rubber

Item	Qty	Description	Material
15	1	Handwheel	Carbon Steel
16	1	Oil Plug	Carbon Steel
17	4	Screw	Carbon Steel
18	1	Stem Protection Tube	Carbon Steel
19	1	Taper Bearing	Carbon Steel
20	1	Worm Shaft	Alloy Steel
21	1	Taper Bearing	Carbon Steel
22	1	Worm Shaft Flange	Aluminum
23	2	Screw	Carbon Steel
24	4	Screw	Carbon Steel
25	1	Electric Motor Assembly *	--
26	1	Motor Cover	Aluminum
27	4	Screw	Stainless Steel
28	1	Oil Plug	--
29	1	Finger Assembly *	--
30	2	Screw	Stainless Steel

Item	Qty	Description	Material
43	2	Bearing	Carbon Steel
44	1	Position Sensor Shaft	Brass
45	2	Screw	Stainless Steel
46	1	Position Sensor Flange	Aluminum
47	1	Position Sensor Assembly *	--
48	3	Screw	Stainless Steel
49	4	Column	Stainless Steel
50	1	Power Card *	--
51	4	Column	Stainless Steel
52	4	Screw	Stainless Steel
53	1	Processor Card *	--
54	1	Power Card Cover	Nylon
55	1	Local Interface Assembly	--
56	8	Screw	Stainless Steel
57	1	Screw	Stainless Steel

ICON 3000 Exploded - View Drawing



Wiring Diagram Code

Data applicable to the Multi-turn actuator model ICON3000

Coding Chart

Part Number	W	D	8	5	V	T	B	Y1	Y2

ICON 3000 Multi-Turn Actuator	
Control Type & Motor Duty	**V**
Short-time duty (S2-15') | Inching duty (S4-25% | 60 St/h) + Local CONTROL	A
Short-time duty (S2-15') | Inching duty (S4-25% | 60 St/h) + Local CONTROL + 4-20 mA OUT	B
Short-time duty (S2-15') | Inching duty (S4-25% | 60 St/h) + Local CONTROL + 4-20 mA IN/OUT	C
Short-time duty (S2-30') + Local CONTROL	A
Short-time duty (S2-30') + Local CONTROL + 4-20 mA OUT	B
Short-time duty (S2-30') + Local CONTROL + 4-20 mA IN/OUT	C
Modulating (S4-25%) | 600 St/h) + Local CONTROL	A
Modulating (S4-25%) | 600 St/h) + Local CONTROL + 4-20 mA OUT	B
Modulating (S4-25%) | 600 St/h) + Local CONTROL + 4-20 mA IN/OUT	C
Modulating (S4-50%) | 1200 St/h) + Local CONTROL	N
Modulating (S4-50%) | 1200 St/h) + Local CONTROL + 4-20 mA IN/OUT	M

Motor Power Supply	T
Direct Current	C
Single Phase	M
Three Phase	T

Options	B
Hard Wired (base)	0
LonWorks	A
Profibus DP V1/V2	G
Profibus DP V1/V2 redundant	K
Modbus redundant	V
Foundation FieldBus	N
Hart 7	H

Accessories/Special Variation	Y1	Y2
Hard Wired (base)	0	0
Heater (External powered)	1	1

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