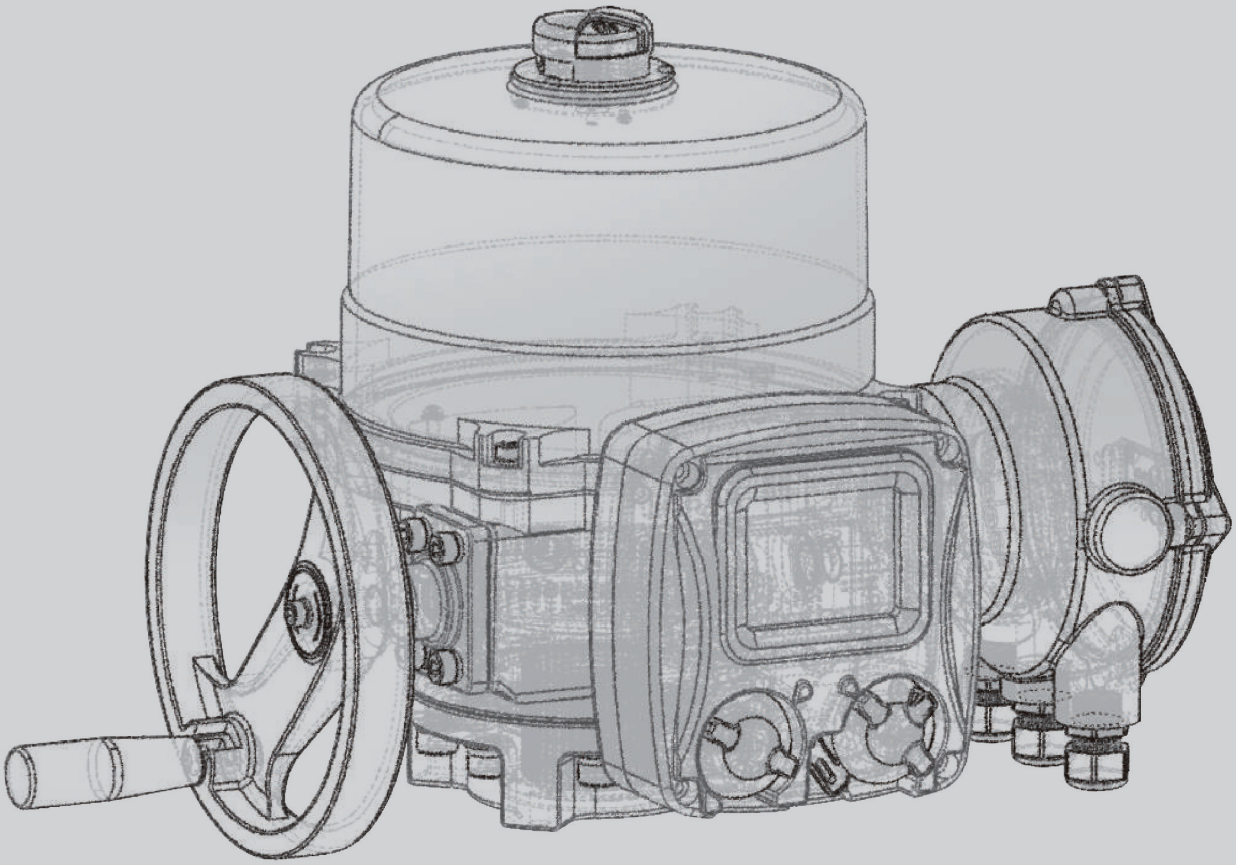
GPRO



QUARTER-TURN
ELECTRIC ACTUATOR

bsi. ISO 9001 Quality Management FM 522775

bsi. ISO 14001 Environmental Management EMS 595200

bsi. OHSAS 18001 Occupational Health and Safety Management OHS 595201

CE RoHS

QUARTER TURN ORDER CODE

KSTQ10-dB – K5 – B

- Product configuration (B: basic type; M: integral type;)
- Signal code (KS: A set of fully open and fully close dry contact feedback; T3-4~20 mA input and feedback …)
- Color code (B: black; Y: yellow; G: gray; A: blue ...)
- Voltage code (a: AC 24 V; I: AC 24 V/1 ph; O: 380 V3/ph …)
- Torque code (Please refer to the actuator parameter chart ...)
- Product series (Q: Quarter Turn Planetary Gear Actuator ...)
  (QG: Quarter Turn Planetary Gear Actuator+Gearbox)

Characteristics:

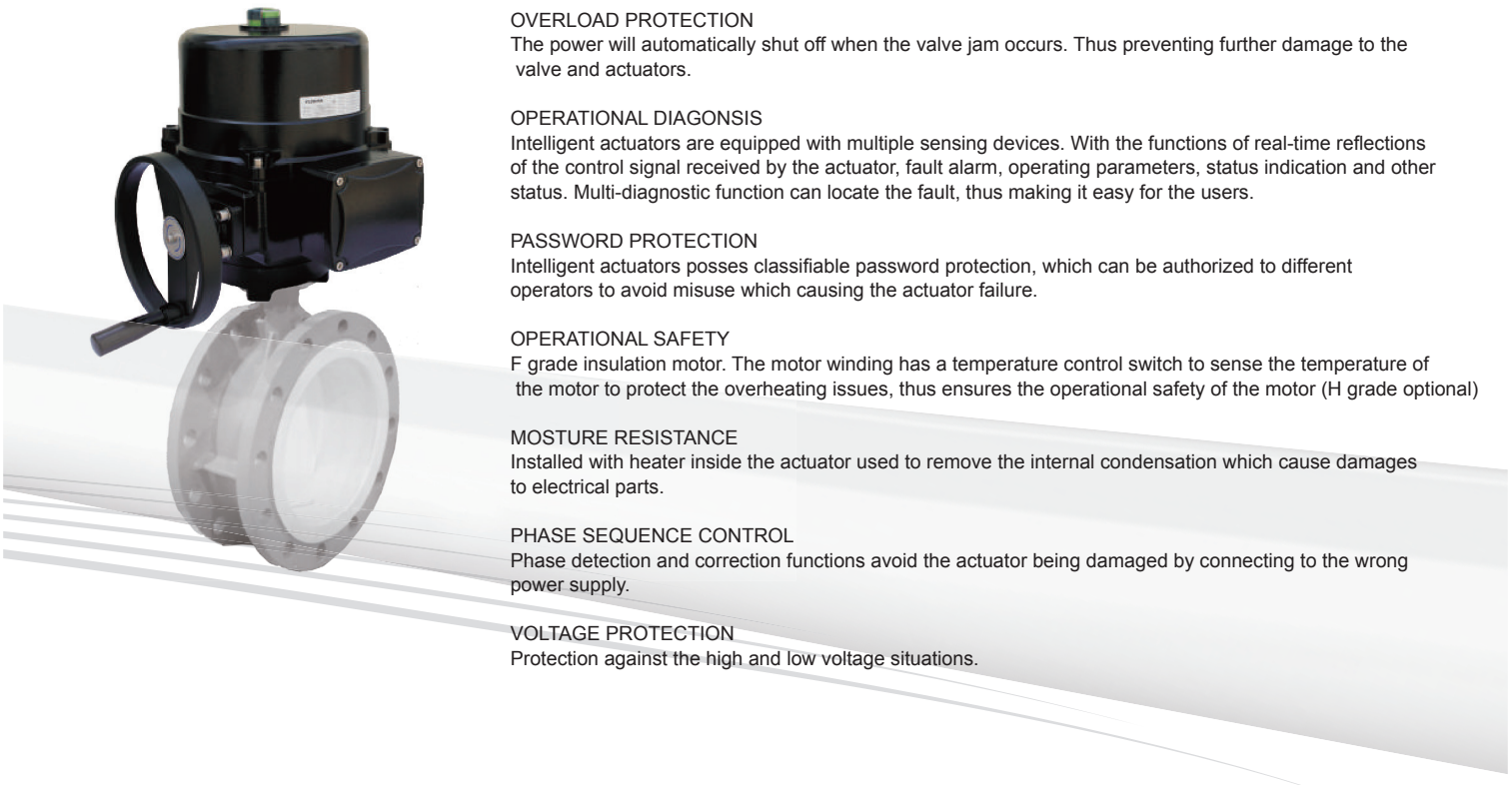
Professional Gear Design:
The adoption of the planetary gear design achieved a combination of manual and electric control without the need of the clutch which ensures the operator's safety.

Interchangeable Spline Sleeve:
Depending on the spindle of the valve, the output sleeve of the actuator is designed in spline form. The linner holes can be replaced into square holes and keyways and other different sizes. Fast debugging and replacing makes the operation more flexible.

Interchangeable Connecting Flange
The base connecting holes are in accordance with ISO5211 standard, also with various connecting flange sizes. It can be replaced and rotated for the same type of actuators in order to achieve with different hole positions and angles of the valve flange connection purposes.

Planetary Gears
Using high strength alloy steel for the planetary gear set, more compact and efficient, achieving greater output for the same volume.
At the same time, having differential input for motor drive and hand wheel operation, we are therefore able to operate electrically and manually at the same time.

Sprocket Operation
Based on the features of operating manually and electrically without clutch mechanism, sprocket operation is more convenient to operate the valve at higher position.



OVERLOAD PROTECTION
The power will automatically shut off when the valve jam occurs. Thus preventing further damage to the valve and actuators.

OPERATIONAL DIAGONSIS
Intelligent actuators are equipped with multiple sensing devices. With the functions of real-time reflections of the control signal received by the actuator, fault alarm, operating parameters, status indication and other status. Multi-diagnostic function can locate the fault, thus making it easy for the users.

PASSWORD PROTECTION
Intelligent actuators posses classifiable password protection, which can be authorized to different operators to avoid misuse which causing the actuator failure.

OPERATIONAL SAFETY
F grade insulation motor. The motor winding has a temperature control switch to sense the temperature of the motor to protect the overheating issues, thus ensures the operational safety of the motor (H grade optional)

MOSTURE RESISTANCE
Installed with heater inside the actuator used to remove the internal condensation which cause damages to electrical parts.

PHASE SEQUENCE CONTROL
Phase detection and correction functions avoid the actuator being damaged by connecting to the wrong power supply.

VOLTAGE PROTECTION
Protection against the high and low voltage situations.

QUARTER TURN

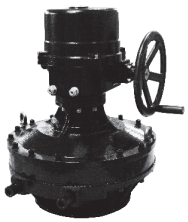
TECHNICAL SPECIFICATION

Basic (B)

KSTQ03-08 Series

KSTQ10~230 Series

KSTQG1~3 Series



KSTQG4~6 Series

General Parameters	Torque Range		▪ 35 - 20000 N.m
	Switch Time		▪ 11 - 155 s
	Ambient Temperature		▪ -25 ℃ ... 70 ℃ ○ Optional: -40 ℃ ... 60 ℃
	Anti-vibration Level		▪ JB/T8219
	Noise Level		▪ Less than 75 dB within 1 m
	Electrical interface		▪ TwoPG13.5 (<100N.m)TwoPG16 (≥100N.m) (customized)
	Ingress Protection		▪ IP67 , Optional:IP68 The definition of IP68 is:Depth of water: Maximum 15 m under water level.Duration of continuous immersion in water: Max.(72 hours).
	Connection size		▪ ISO5211
Mechanical Parameters	Motor Specifications		▪ Class F, with thermal protector up to +135 ℃ (+275 ℉) ○ Optional: Class H
	Working System		▪ On-off Type: S2 ~ 15 min, no more than 600 times per hour start
	Applicable Voltage		▪ 3 phase: AC (±10 %); Hz (±5 %) 50 Hz (220, 240, 380, 400, 460, 500, 525 和 550 Volts) 60 Hz (208, 220, 230, 240, 380, 440, 460, 480, 575 和 600 Volts) ▪ DC : 24 V (±10 %)
	Bus		▪ N/A
	On/off Type Signal	Input	▪ Built-in contacts for 5A @ 250Vac (depending on the control box)
		Signal Feedback	▪ Opening stroke limit, closing stroke limit ▪ Opening over torque, closing over torque ○ Optional: Semi-modulating type - position feedback potentiometer ○ Optional: 4 ~ 20 mA to send
		Malfunction Feedback	▪ Integrated fault alarm: Motor overheating, over torque and such contacts ○ Optional: Undercurrent protection contact
	Modulating Type Signal	Input	▪ N/A
		Output	▪ N/A
		Signal Reverse	▪ N/A
		Loss Signal Mode Setting	▪ N/A
		Dead Zone	▪ N/A
		Time Lag	▪ N/A
Control mode	Indication		▪ 3D opening indicator
	Operation Settings		▪ N/A
	Local Control		▪ N/A
Others	Intelligently Analyze Data Records		▪ N/A
	Other Function		▪ Moisture-resistant heaters (anti-moisture device) ▪ Torque protection ▪ Motor overheat protection

QUARTER TURN

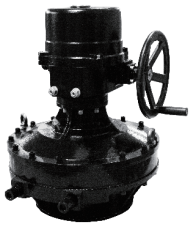
TECHNICAL SPECIFICATION

Integral (M)

KSTQ03~08

KSTQ10~230

KSTQG1~3



KSTQG4~6

General Parameters	Torque Range		▪ 10 - 20000 N.m
	Switch Time		▪ 11 - 155 s
	Ambient Temperature		▪ -25 ℃ ... +70 ℃
	Anti-vibration Level		▪ JB/T8219
	Noise Level		▪ Less than 75 dB within 1 m
	Electrical interface		▪ Two PG13.5(< 100N.m) Two PG16(≥100N.m) (customized)
	Ingress Protection		▪ IP67 , Optional:IP68 The definition of IP68 is:Depth of water: Maximum 15 m under water level.Duration of continuous immersion in water: Max.(72 hours).
	Connection size		▪ ISO5211
Mechanical Parameters	Motor Specifications		▪ Class F, with thermal protector up to +135 ℃ (+275 ℉) ○ Optional: Class H
	Working System		▪ On/off type: S2 ~ 15 min no more than 600 times per hour start ▪ Modulating type: S4~50% up to 600 triggers per hour ○ Optional: 1200 times per hour
	Applicable Voltage		▪ 1 phase: Voltage (±10 %); Hz (±5 %) 50 Hz (24, 220, 230, 240 Volts) 60 Hz (24, 110, 120, 220, 230, 240 Volts) ▪ 3 phase: Voltage (±10 %); Hz (±5 %) 50 Hz (220, 240, 380, 400, 460, 500, 550 Volts) 60 Hz (208, 220, 230, 240, 380, 440, 460, 480, 575 , 600 Volts) ▪ DC : 24 V (±10 %)
	Bus		▪ N/A
	On/off Type Signal	Input	▪ AC/DC 24 input control or AC 110/220 V input control
		Signal Feedback	▪ Close the valve contact ▪ Open the valve contact (contact capacity: 5 A @ 250 Vac) ○ Optional : Opening torque signal contact Closing torque signal contact Local/remote contacts Integrated fault contact 4 ~ 20 mA to send
		Malfunction Feedback	▪ Integrated fault alarm: Power off, motor overheating, lack of phase, over torque, signal off
	Modulating Type Signal	Input	▪ Input signal : 4 - 20 mA; 0 - 10 V; 2 - 10 V ▪ Input impedance : 250 Ω (4 - 20 mA)
		Output	▪ Output signal : 4 - 20 mA;0 - 10 V; 2 - 10 V ▪ Output impedance : ≤ 750 Ω (4 - 20 mA) (Repeatability and linearity within ± 1 % of full valve stroke)
		Signal Reverse	▪ Support
		Loss Signal Mode Setting	▪ Support
		Dead Zone	▪ ≤ 2.5 %
		Time Lag	▪ N/A
Control mode	Indication		▪ 3D opening indicator
	Operation Settings		▪ N/A
	Local Control		▪ N/A
Others	Intelligently Analyze Data Records		▪ N/A
	Other Function		▪ Phase correction(4-phase power supply only) ▪ Torque protection ▪ Motor overheat protection ▪ Moisture-resistant heaters (anti-moisture device)

QUARTER TURN REGULAR SERIES, EXPLOSION PROOF

ON-OFF TYPE VS MODULATING TYPE

REGULAR SERIES	ON/OFF TYPE	MODULATING TYPE
Basic (B)	√	—
Integral (M)	√	√
Integration (Y)	√	√
Intelligent (I)	√	√
Super Intelligent (S)	√	√

Explosion-proof Series	ON/OFF TYPE	MODULATING TYPE
Basic (B)	√	—
Integral (M)	√	√
Intelligent (I)	√	√
Super Intelligent (S)	√	√

QUARTER TURN GENERAL SPECIFICATION

— TECHNICAL PARAMETER CHART

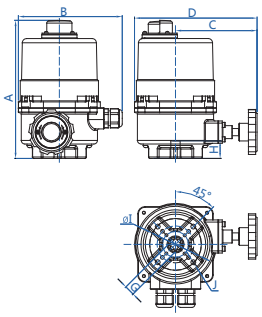
Model	Power (W)	Max Output Torque(N.m)		Max Output Torque(lbf.in)		Running time (Sec)				ISO 5211	Remarks
		AC 110 V AC 220 V AC/DC 24 V	AC 220 V AC 380 V 3 phase	AC 110 V AC 220 V AC/DC 24 V	AC 220 V AC 380 V 3 phase	50 Hz AC 110 V AC 220 V	50 Hz AC 380 V 3 phase	AC/DC 24 V	Fail-safe		
			-		-		-		-		
			-		-		-		-		
			-		-		-		-		
KSTQ03	10	35	-	310	-	11	-	8		F03/F05/ F07	Manual wrench options: Handwheel
KSTQ05		50	-	443	-	15	-	10			
KSTQ08		80	-	708	-	22	-	15			Handwheel
KSTQ10	40	100		885		19		14		F05/F07/ F10/F12	Handwheel operation, planetary gear mechanism
KSTQ20		200		1770		39		28			
KSTQ30		300		2655		39		28			
KSTQ40	90	400		3540		29		21		F10/F12/ F14	
KSTQ60		600		5310		39		28			
KSTQ80		800		7080		47		34			
KSTQ100	120	1000		8850		47		34			
KSTQ130		1300		11505		47		34			
KSTQ170		1700		15045		34		25		F12/F14/ F16	
KSTQ200		2000		17700		34		25	-		
KSTQ230	200	2300		20355		47		34	-		
KSTQG1		3500		30975		76		55	-	F14/F16	
KSTQG2		5000		44250		105		76	-		
KSTQG3		8000		70800		143		103	-	F25	
KSTQG4	400	-	13000	-	115050	-	109	-		F25/F30	
KSTQG5		-	16000	-	141600	-	129	-			
KSTQG6		-	20000	-	177000	-	155	-			

Note: Standard configuration.

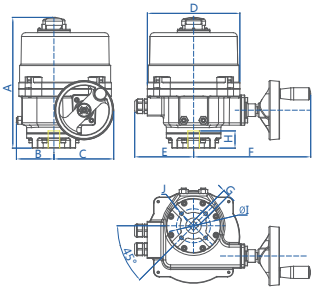
1. Rated torque is 75 % of the max torque.
2. Motor insulation is class F. class H is optional.
3. The running time of 60 Hz is 5/6 of that of 50 Hz. The max output torque is the same as above.
4. Above mentioned 3 phase output power doesn't apply to EFM1-(H),EFMA-(H).

DIMENSION QUARTER

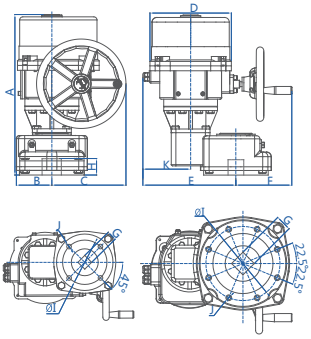
—— BASIC TYPE & INTEGRAL TYPE



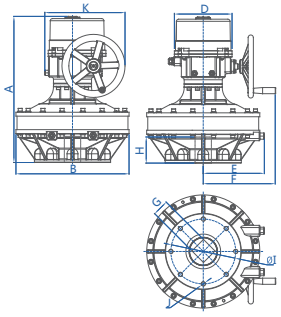
KSTQ03~08



KSTQ10~230



KSTQG1~3



KSTQG4~6

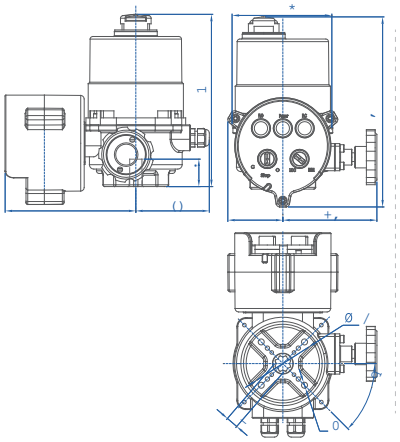
Model		A	B	C	D	E	F	G	H	ΦI	J	Weight (kg)
KSTQ03 KSTQ05 KSTQ08	On/off	192	150	135	170	-	-	11x11 14x14	20	36	4-M5	3.6
	Modulating	212		135	170	-	-	17x17		50	4-M6	3.8
KSTQ10 KSTQ20 KSTQ40		268	77	123	216	121	240	14x14 17x17 22x22	35	70 102	4-M8 4-M10	11
KSTQ60		327	103	187	266	150	297	22x22 27x27	55	102 125	4-M10 4-M12	22
KSTQ80 KSTQ100 KSTQ170		380	127	242	293	161	333	27x27 27x27	65	125 125	4-M12 4-M12	36
KSTQ230								36x36		140	4-M16	
KSTQG1		532	118	242		308	186	40x40	85	140 165	4-M16 4-M20	76
KSTQG2								46x46		165	4-M20	
KSTQG3		545	160	242		343	160	55x55	130	254	8-M16	107
KSTQG4 KSTQG5 KSTQG6		672	520	-		281	331	55x55 75x75	120	254 298	8-M16 8-M20	218

Note: 1. Dimension unit is mm.
2. Above "G" dimension is what we recommended. However, it can be customized according to customers' requirements.
3. Above "ΦI"and"J"dimensions are in accordance with ISO 5211 flange specifications. Which means that there's only one specification can be chosen, please specify when ordering.

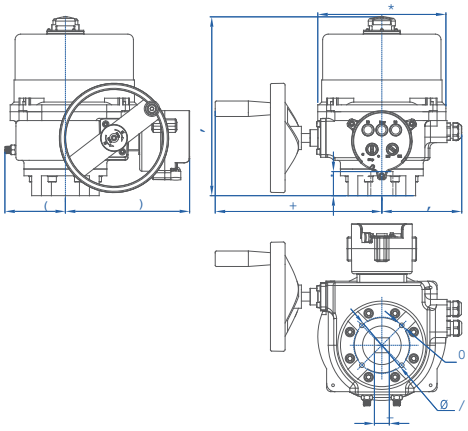
BASIC TYPE	
More functions as options:	○ Quick open ○ Slow open (The running time can be customized. Quick and slow open functions are added.)
More accessories as options:	○ Flange ○ Spline sleeve ○ Independent wiring box ○ Sprocket

INTEGRAL TYPE	
More functions as options:	○ Quick Open ○ Slow Open (The running time can be customized. Quick and slow open functions are added.) ○ Battery mackup ○ Capacitor return ○ Spring return (Fail-safe)
More accessories as options:	○ Flange ○ Spline sleeve ○ Independent wiring box ○ Sprocket

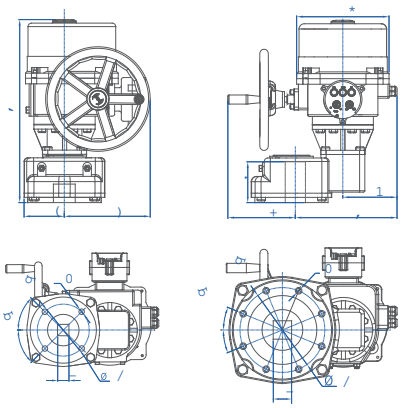
QUARTER TURN DIMENSION
—— INTEGRATION TYPE



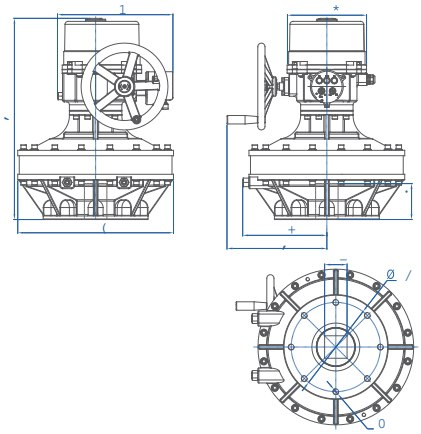
KSTQ03~08



KSTQ10~230



KSTQG1-3



KSTQG4-6

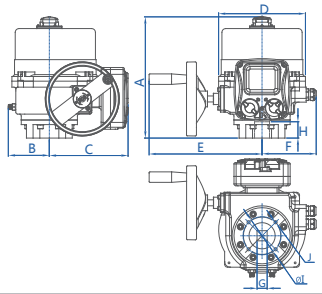
3 UJ K R		A	B	C	D	E	F	G	H	ΦI	J	K	Weight (kg)
KSTQ03	On-off	217	149	84	114	63	108	11 X 11	20	36	4- M5	197	4.7
KSTQ05	Modulating							14 X 14		50	4- M6		
KSTQ08		237						17 X 17		70	4- M8		4.9
KSTQ10		268	77	208	190	240	121	14 X 14	35	70	4- M8	-	12.2
KSTQ20								17 X 17					
KSTQ40		327	110	225	266	301	145	22 X 22	55	102	4- M10	-	23.2
KSTQ60								22 X 22		102	4- M10		
KSTQ80								27 X 27		125	4- M12		
KSTQ100								27 X 27		125	4- M12		
KSTQ170		380	127	248	265	333	161	27 X 27	65	125	4- M12	-	37.2
KSTQ230								36 X 36		140	4- M16		
KSTQG1		532	118	242	265	194	292	40 X 40	85	140	4- M16	156	77.2
KSTQG2								46 X 46		165	4- M20		
KSTQG3		545	160	242	265	168	343	55 X 55	130	254	8- M16	156	108.2
KSTQG4		672	520	-	265	281	331	55 X 55	120	254	8- M16	385	219.2
KSTQG5								75 X 75		298	8- M20		
KSTQG6													

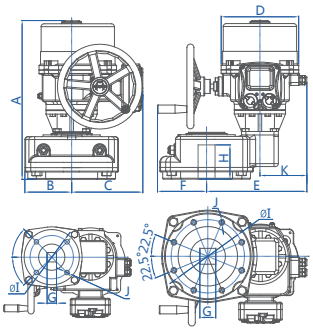
Note: 1. Dimension unit is mm.
2. Above “G” dimension is what we recommended. However, it can be customized according to customers’ requirements.
3. Above “ΦI”and“J”dimensions are in accordance with ISO 5211 flange specifications. Which means that there’s only one specification can be chosen, please specify when ordering.

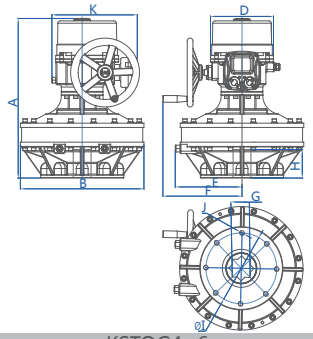
INTEGRATION TYPE

More functions as options:	○ Quick Open ○ Slow Open ○ Battery backup ○ Capacitor return ○ Spring return (Fail safe)
More accessories as options:	○ Flange ○ Spline sleeve ○ Independent wiring box ○ Sprocket

DIMENSION QUARTER TURN
—— INTELLIGENT TYPE



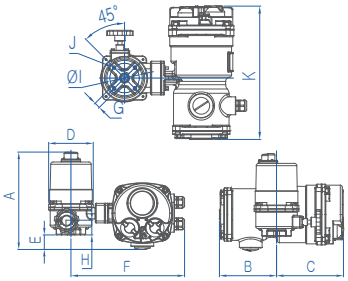




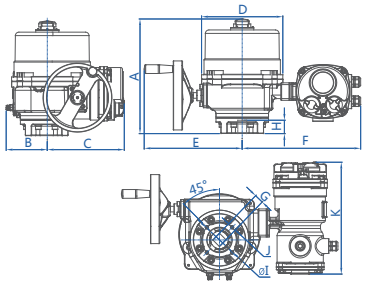
KSTQ10~230 | KSTQG1~3 | KSTQG4~6

Model	A	B	C	D	E	F	G	H	ΦI	J	K	Weight (kg)
KSTQ10	268	79	198	190	240	121	14 X 14	35	70	4- M8	-	13
KSTQ20							17 X 17					
KSTQ40	327	110	210	232	301	145	22 X 22	55	102	4- M10	-	24
KSTQ60							22 X 22		102	4- M10		
KSTQ80							27 X 27		125	4- M12		
KSTQ100							27 X 27		125	4- M12		
KSTQ170	380	127	234	265	333	161	27 X 27	65	125	4- M12	-	38
KSTQ230							36 X 36		140	4- M16		
KSTQG1	532	118	227	265	180	300	40 X 40	85	140	4- M16	156	78
KSTQG2							46 X 46		165	4- M20		
KSTQG3	545	160	244	265	168	343	55 X 55	130	254	8- M16	156	109
KSTQG4	672	520	-	265	281	331	55 X 55	120	254	8- M16	385	220
KSTQG5							75 X 75		298	8- M20		
KSTQG6												

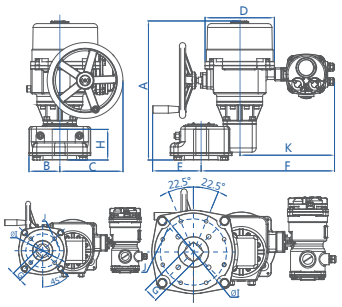
DIMENSION QUARTER TURN
—— SUPER INTELLIGENT TYPE

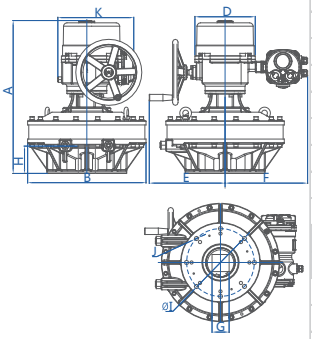


KSTQ03~08



KSTQ10~230





KSTQG1~3 | KSTQG4~6

Model	A	B	C	D	E	F	G	H	ΦI	J	K	Weight (kg)
KSTQ03 KSTQ05 KSTQ08	212	147	172	115	65	298	14 X 14	30	50	4-M6	319	8
KSTQ10	268	79	198	190	240	121	14 X 14	35	70	4-M8	319	13
KSTQ20							17 X 17					
KSTQ40	327	110	210	232	301	338	22 X 22	55	102	4-M10	319	24
KSTQ60							22 X 22		102	4-M10		
KSTQ80							27 X 27		125	4-M12		
KSTQ100							27 X 27		125	4-M12		
KSTQ170	380	127	234	265	333	361	27 X 27	65	125	4-M12	319	38
KSTQ230							36 X 36		140	4-M16		
KSTQG01	532	118	227	265	180	510	40 X 40	85	140	4-M16	361	78
KSTQG02							46 X 46		165	4-M20		
KSTQG03	545	160	244	265	168	545	55 X 55	130	254	8-M16	361	109
KSTQG04	672	520	-	265	281	363	55 X 55	120	254	8-M16	333	220
KSTQG05							75 X 75		298	8-M20		
KSTQG06												

INTELLIGENT TYPE/ SUPER INTELLIGENT TYPE	
More functions as options:	○ Quick Open ○ Slow Open (The running time can be customized. Quick and slow open functions are added.) ○ Battery backup ○ Capacitor return ○ Spring return (Fail-safe)
More accessories as options:	○ Flange ○ Spline sleeve ○ Independent wiring box ○ Sprocket ○ Remote control

Note: 1. Dimension unit is mm.
2. Above "G" dimension is what we recommended. However, it can be customized according to customers' requirements.
3. Above "ΦI"and"J"dimensions are in accordance with ISO 5211 flange specifications. Which means that there's only one specification can be chosen, please specify when ordering.

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