TOSHIBA

POWER APPARATUS & COMPONENTS

Product Offering

LOW & MEDIUM VOLTAGE

SMART, STRONG DESIGNS WITH PROVEN PERFORMANCE

Toshiba International Corporation (TIC) is proud to be a single-source solution for our customers, offering a complete product lineup of electric motors, adjustable speed drives, and motor starters for a variety of applications. Many of these products are manufactured at our 1,000,000+ sq. ft. facility located in Houston, Texas. Personnel at our Houston facility have extensive knowledge and experience in the following areas, and TIC offers the following services in-house:

- **Research & Development**
- **Design & Engineering**
- **Manufacturing**
- **Sales & Marketing**
- **Applications Support**
- **Field Service**
- **Customer Service & Project Management**
- **Logistics & Warehousing**
- **Product Application & Field Service Training**

CUSTOMIZABLE SOLUTIONS FOR MOTOR CONTROLS

Toshiba is a world leader in motor control technology, producing low and medium voltage motor control products from 208 V to 6900 V that are designed to softly start and stop AC motors in fixed speed applications and loads and under extreme conditions. Such soft starts and stops help to reduce wear and tear on the motors. Toshiba's motor controls are an excellent fit for use with conveyors, compressors, fans, and pumps.

INDUSTRIES SERVED

- Oil & Gas
- Mining & Minerals
- Aggregate
- Assembly
- Food & Beverage
- Utilities
- Textiles
- Agriculture

APPLICATIONS

- Conveyors
- Crushers
- Mixers
- Pumps
- Fans
- Blowers

LOW VOLTAGE VACUUM CONTACTORS

	HCV-1JBU	HCV-1KAU
Voltage	208 - 1500 V	208 - 1500 V
Current	600 A	720 A
Interrupting Current	42,000 A	42,000 A
Peak Withstand Current	-	85 kA
Frequency	50/60 Hz	50/60 Hz
Three-Phase Induction Motor	200 - 1600 HP	300 - 2000 HP
Three -Phase Synchronous Motor	-	-
Three-Phase Capacitor	200 - 1400 kVAR	250 - 1500 kVAR
Single Phase Transformer	60 - 800 kVA	75 -900 kVA
Three-Phase Transfomer	100 - 1400 kVA	130 - 1500 kVA
Discharge Lighting	600 A	N/A
Short-Circuit Making/Breaking Current IEC 60470 (2000)	6000 A (Close 100 Times)	7200 A (Close 100 Times)
	4800 A (Close-Open 25 Times)	5760 A (Close-Open 25 Times)
Withstand Overload Current	3600 A for 30 Seconds	4320 A for 30 Seconds
	6000 A for 2 Seconds	7200 A for 2 Seconds
	9000 A for 1 Second	10,800 A for 1 Second
	30,000 A for 0.05 Second	36,000 A for 0.05 Second
Coordination with Current-Limiting Fuses	50 kA	45 kA
Switching Frequency	1200/Hour	1200/Hour
Mechanical Life	2.5 Million	2.5 Million
Electrical Life	500,000	500,000
Impulse Withstand	15 kV	15 kV
Dielectric Strength	5.5 kV for 1 Minute	5.5 kV for 1 Minute
Control Voltage	100 - 240 VAC/DC	100 - 240 VAC/DC
Standards	UL Listed to Canadian and US Safety Standards	UL Listed to Canadian and US Safety Standards

MEDIUM VOLTAGE VACUUM CONTACTORS

	HCV-7HA	HCV-7HAL	HCV-6KAU	HCV-6KALU	CV-10HA(L)	CV-10HB(L)
Voltage	2.4 - 6.6 kV (7.2 kV)	2.4 - 6.6 kV (7.2 kV)	2.4 - 6.6 kV (7.2 kV)	2.4 - 6.6 kV (7.2 kV)	11 - 13.8 kV (15 kV)	11 - 12 kV (13.8 kV)
Current	400 A	400 A	720 A	720 A	400 A	400 A
Interrupting Current	7,200 A	7,200 A	7,200 A	7,200 A	5,000 A @ 12 kV (4,000 A @ 15 kV)	5,000 A
Peak Withstand Current	20 kA	20 kA	20 kA	20 kA	12.5 kA	12.5 kA
Frequency	50/ 60 Hz	50/ 60 Hz	50/ 60 Hz	50/ 60 Hz	50/ 60 Hz	50/ 60 Hz
.08 PF Induction/ Synchronous Motor	1,750 - 4,500 HP	1,750 - 4,500 HP	2,500 - 6,000 HP	2,500 - 6,000 HP	3,500 - 7,000 HP	N/A
1.0 PF Synchronous Motor	2,000 - 5,000 HP	2,000 - 5,000 HP	2,500 - 6,000 HP	2,500 - 6,000 HP	4,000 - 7,500 HP	N/A
Three-Phase Capacitor	1,500 - 2,000 kVAR	1,500 - 2,000 kVAR	2,000 kVAR	2,000 kVAR	N/A	1,500 - 5,000 kVAR
Three-Phase Transfomer	1,500 - 4,000 kVA	1,500 - 4,000 kVA	2,500 - 7,000 kVA	2,500 - 7,000 kVA	3,000 - 6,500 kVA	N/A
Class E1 MVA	30/62/86 (2400/5000/6900 V)	30/62/86 (2400/5000/6900 V)	30/62/86 (2400/5000/6900 V)	30/62/86 (2400/5000/6900 V)	95/96 (11/13.8 kV)	95 (11 kV)
Class E2 MVA	200/400/600 (2400/5000/6900 V)	200/400/600 (2400/5000/6900 V)	200/400/600 (2400/5000/6900 V)	200/400/600 (2400/5000/6900 V)	953/1195 (11/13.8 kV)	953/1195 (11/13.8 kV)
Withstand Overload Current	2,400 A for 30 Seconds	2,400 A for 30 Seconds	4,320 A for 30 Seconds	4,320 A for 30 Seconds	2,400 A for 30 Seconds	2,400 A for 30 Seconds
	6,000 A for 1 Second	6,000 A for 1 Second	10,800 A for 1 Second	10,800 A for 1 Second	8,000 A for 1 Second	8,000 A for 1 Second
Short Circuit Current (E2)	50 kA (130 kA Peak) See Coordination Below	50 kA (130 kA Peak) See Coordination Below	50 kA (130 kA Peak) See Coordination Below	50 kA (130 kA Peak) See Coordination Below	50 kA (130 kA Peak) See Coordination Below	50 kA (130 kA Peak) See Coordination Below
Coordination with Current-Limiting Fuses	Peak let-Thru 77 kA Max.	Peak let-Thru 77 kA Max.	Peak let-Thru 85 kA Max.	Peak let-Thru 85 kA Max.	Peak let-Thru 36 kA Max.	Peak let-Thru 36 kA Max.
Switching Frequency	1200/Hour	300/Hour	600/Hour	300/Hour	300/Hour	120/Hour
Mechanical Life	2.5 Million	250,000	1 Million	200,000	250,000	250,000
Electrical Life	250,000	250,000	200,000	200,000	100,000	100,000
Impulse Withstand	60 kV	60 kV	60 kV	60 kV	75 kV (95 kV)	75 kV (95 kV)
Dielectric Strength	18.2 kV for 1 Minute	18.2 kV for 1 Minute	18.2 kV for 1 Minute	18.2 kV for 1 Minute	35.75 kV (42 kV) for 1 Minute	35.75 kV (42 kV) for 1 Minute
Control Voltage	100 - 240 VAC/ 125 - 250 VDC	100 - 240 VAC/ 125 - 250 VDC	115 - 240 VAC/ 125 - 250 VDC	115 - 240 VAC/ 125 - 250 VDC	100 - 240 VAC/ 125 - 250 VDC	100 - 240 VAC/ 125 - 250 VDC
Standards	UL Listed to Canadian and US Safety Standards	UL Listed to Canadian and US Safety Standards	UL Listed to Canadian and US Safety Standards	UL Listed to Canadian and US safety standards	-	-

VACUUM CIRCUIT BREAKERS

	HV6CS-U(-L)	HV6CS-MU(-ML)	HV6CS-MLD	VK/HVK
Voltage	2.4 - 7.2 kV	2.4 - 7.2 kV	2.4 - 7.2 kV	4.2 - 15 kV
Maximum Continuous Current	600 A	600 A	600 A	1200, 2000, 3000 A
Rated Frequency	50/ 60 Hz	50/ 60 Hz	50/ 60 Hz	50/ 60 Hz
Closing-Coil Voltage	-	125 VDC	125 VDC	125 VDC
Trip-Coil Voltage	24/32 or 125 VDC	24/32 or 125 VDC	24/32 or 125 VDC	125 VDC
Interrupting Current (0.15 PF)	12.5 kA (Symmetrical)	12.5 kA (Symmetrical)	12.5 kA (Symmetrical)	18 - 41 kA (Symmetrical)
Making Current	31.5 kA (Peak)	31.5 kA (Peak)	31.5 kA (Peak)	58 - 78 kA (Peak) @ 4.2 kV 66 kA (Peak) @ 7.2 kV 37 - 77 kA (Peak) @ 15 kV
Interrupting Time	3 Cycles	3 Cycles	3 Cycles	3 Cycles
Basic Impulse Level	60 kV	60 kV	60 kV	60/ 95 kV @ 4.2 - 15 kV
AC Withstand Voltage	22 kV for 1 Minute	22 kV for 1 Minute	22 kV for 1 Minute	-
Installation	Fixed	Fixed	Drawout	Fixed, Drawout
Operation	Manual Closing	Motor-Spring Closing	Motor-Spring Closing	Manual/Motor-Spring Closing
Operational Duty	Open 1 Minute; Close/Open 3 Minutes; Closed/Open	Open 1 Minute; Close/Open 3 Minutes; Closed/Open	Open 1 Minute; Close/Open 3 Minutes; Closed/Open	Open 3 Minutes; Close/Open 3 Minutes; Closed/Open
Opening Time	30 ms	30 ms	30 ms	30 ms
No-Load Closing Time	N/A	30 ms	30 ms	40 ms
Mechanical Life	10,000 Operations	10,000 Operations	10,000 Operations	10,000 Operations
Load-Switching Life	10,000 Operations	10,000 Operations	10,000 Operations	10,000 Operations
Power Terminals	Vertical or Horizontal	Vertical or Horizontal	Horizontal	Horizontal
Features	Electrical & Mechanical Interlocks, Front Mounted Operation Counter, Undervoltage	Electrical & Mechanical Interlocks, Front Mounted Operation Counter, Undervoltage	Electrical & Mechanical Interlocks, Front Mounted Operation Counter, Undervoltage	Electrical & Mechanical Interlocks, Front Mounted Operation Counter, Optional Undervoltage

JK SERIES FULL VOLTAGE NON-REVERSING STARTERS

	JK400	JK700
Voltage	2.3 - 6.6 kV	2.3 - 6.6 kV
Current	360 A	720 A
Interrupting Current	200 - 570 MVA @ 2.3 - 6.6 kV	200 - 570 MVA @ 2.3 - 4.6 kV
Peak Withstand Current	20 kA	20 kA
Frequency	50/60 Hz	50/60 Hz
.08 PF Synchronous Motor/ Induction Motor	1,750 HP @ 2.2 - 2.5 kV	2,500 HP @ 2.2 - 2.5 kV
	2,250 HP @ 3 - 3.3 kV	3,000 HP @ 3 - 3.3 kV
	3,000 HP @ 4 - 5 kV	4,500 HP @ 4 - 5 kV
	4,500 HP @ 6 - 6.6 kV	6,000 HP @ 6 - 6.6 kV
1.0 PF Synchronous Motor	2,000 HP @ 2.2 - 2.5 kV	2,500 HP @ 2.2 - 2.5 kV
	2,500 HP @ 3 - 3.3 kV	3,000 HP @ 3 - 3.3 kV
	3,500 HP @ 4 - 5 kV	4,500 HP @ 4 - 5 kV
	5,000 HP @ 6 - 6.6 kV	6,000 HP @ 6 - 6.6 kV
Withstand Overload Current	2,400 A for 30 Seconds	4,320 A for 30 Seconds
	6,000 A for 1 Second	10,800 A for 1 Second
Short Circuit Current (E2)	50 kA @ 2.3 - 6.6 kV	50 kA @ 2.3 - 6.6 kV
Coordination with Current-Limiting Fuses	77 kA (Peak)	85 kA (Peak)
Switching Frequency	1200/Hour	600/Hour
Mechanical Life	2,500,000	1,000,000
Electrical Life	250,000	200,000
Impulse Withstand	60 kV	60 kV
Dielectric Strength	18.2 kV for 1 Minute	18.2 kV for 1 Minute
Control Voltage	115 to 240 VAC / 125 to 250 VDC	115 to 240 VAC / 125 to 250 VDC
Standards	UL Listed to Canadian and US Safety Standards	UL Listed to Canadian and US Safety Standards
Enclosure	Type 1 (Ventilated/Non-Ventilated), 12 & 3R	Type 1 (Ventilated/Non-Ventilated), 12 & 3R
Features	Front Accessible, Mechanical & Electrical Interlocks, Solid State Protection Relay, Control Power Transformer, Run/Off Pilot Lights & Start/Stop Push Buttons	Front Accessible, Mechanical & Electrical Interlocks, Solid State Protection Relay, Control Power Transformer, Run/Off Pilot Lights & Start/Stop Push Buttons

	Arc-Resistant JK
Voltage	2.4 - 6.9 kV (7.2kV Max)
Main Bus Current	1200 A
Accessibility Type	Arc-Resistant Type 2B
Short Circuit Rating	50kAIC (Symmetrical) for 0.5 Seconds
Impulse Withstand	60kV
Ambient Conditions	0 to 40°C (-20°C to 50°C w/ Heaters)
Control Power	120 VAC (CPT Included)
Standards	UL Listed to Canadian and US Safety Standards
Controller Configurations	Non-Fused Type E1 Rated 400A and Fused Type E2 Rated 345A with Modular, Pre-Assembled Exhaust Plenum
Features	Draw-Out Vacuum Contactor, JK Bolted Pressure Isolation Switch, Insulated Main Bus, Mechanical & Electrical Interlocks, Solid-State Protection Relay
Options	Mechanically-Held (Latched-Type), Zero Sequence Current Transformers, Key Interlocks, Cubicle Space Heaters

LOW VOLTAGE VOLTAGE SOLID STATE STARTERS

	TE3	TE2	TE-B	TE-H
Voltage	200 - 600 V	200 - 600 V	200 - 600 V	200 - 600 V
Current	18 - 1250 A	18 - 1250 A	21 - 600 A	21 - 1080 A
Overload Rating	500% for 1 minute	500% for 1 minute	500% for 1 minute	500% for 1 minute
Power Circuit	6 SCRs	6 SCRs	6 SCRs	6 SCRs
Ambient Conditions	0 to 40°C	0 to 40°C	0 to 40°C	0 to 40°C
Contol Power	120 VAC, 240 VAC Optional	120 VAC, 240 VAC Optional	120 VAC (CPT Included)	120 VAC (CPT Included)
Standards	UL Listed to Canadian and US Safety Standards	UL Listed to Canadian and US Safety Standards	UL Listed to Canadian and US Safety Standards	UL Listed to Canadian and US Safety Standards
Operational Variables/ Operational Controls	Pump-Flex Deceleration, Closed Loop Current/Torque Ramp, Voltage Ramp with Current Limit, Auto Pedestal	Pump-Flex Deceleration, Closed Loop Current/Torque Ramp, Voltage Ramp with Current Limit	Pump-Flex Deceleration, Closed Loop Current/Torque Ramp, Voltage Ramp with Current Limit	Pump-Flex Deceleration, Closed Loop Current/Torque Ramp, Voltage Ramp with Current Limit
Features	42 Smart Application Profiles, Integral Bypass Contactor, intelligent Energy Recovery System (iERS), Single-Line Status Display	Integral Bypass Contactor	Built-In Full HP Rated Bypass Contactor, Control Voltage CPT, Command Center Door, Main Lug Std, Opt Circuit Breaker or Fusible Disconnect, Surge Arrestors, ATL Overload Relay	Built-In Full HP Rated Bypass Contactor, Control Voltage CPT, Smart Door, Circuit Breaker or Fusible Disconnect, Surge Arrestors
Interface	3.5” Color Touch Screen	Digital LED Keypad with 8 Condition LEDs, 7 Command Keys	Door-Mounted 4 Condition LEDs, 4 Command Keys	Door-Mounted Digital LED Keypad with 8 Condition LEDs, 7 Command Keys
Communications	RS485 Modbus® RTU	RS485 Modbus® RTU	Std-RS485 Modbus® RTU, Opt-Ethernet/IP, DeviceNet®, Profibus DP, Profinet®, Plus Others	Std-RS485 Modbus® RTU, Opt-Ethernet/IP, DeviceNet®, Profibus DP, Profinet®, Plus Others
Enclosure	IP20/Type 1 (18-48A), Open Chassis (62-1250A)	Open Chassis	Std-Type 4/12	Std-Type 4/12

MEDIUM VOLTAGE SOLID STATE STARTERS

	JKSSS4	JKSSS7
Voltage	2.3 - 6.6 kV	2.3 - 4.2 kV
Current	360 A	720 A
Overload Rating	500% for 1 minute	500% for 1 minute
Power Circuit	6 - 18 SCRs	6 - 12 SCRs
Ambient Conditions	0 to 40°C (-20°C to 50°C w/ Heaters)	0 to 40°C (-20°C to 50°C w/ Heaters)
Contol Power	120 VAC (CPT Included)	120 VAC (CPT Included)
Standards	UL Listed to Canadian and US Safety Standards	UL Listed to Canadian and US Safety Standards
Operational Variables/ Operational Controls	Voltage Ramp with Current Limit, Closed Loop Current Ramp	Voltage Ramp with Current Limit, Closed Loop Current Ramp
Features	Full Rated Bypass Contactor, Non-Load-Break Disconnect Switch, Line Isolation Vacuum Contactor, Ground Bus, Internal Control Power Transformer, Color Touch Screen HMI	Full Rated Bypass Contactor, Non-Load-Break Disconnect Switch, Line Isolation Vacuum Contactor, Ground Bus, Internal Control Power Transformer, Color Touch Screen HMI
Interface	Door-Mounted 7" Full Color Touchscreen Keypad	Door-Mounted 7" Full Color Touchscreen Keypad
Communications	Std-RS485 Modbus® RTU, Opt-Ethernet/IP, DeviceNet®, Profibus DP, Profinet®, Plus Others	Std-RS485 Modbus® RTU, Opt-Ethernet/IP, DeviceNet®, Profibus DP, Profinet®, Plus Others
Enclosure	Std-Type 1, Opt-12 & 3R	Std-Type 1, Opt-12 & 3R

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Adjustable Speed Drives • Motors • Controls • Industrial Automation

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