

**TOSHIBA**

CONTROLS

# Product Offering

**LOW & MEDIUM  
VOLTAGE**



# SMART, STRONG DESIGNS WITH PROVEN PERFORMANCE

Toshiba International Corporation (TIC) is proud to be a single-source provider of electric motors, adjustable speed drives, motor control systems, and industrial automation. Known for our quality, performance, and reliability, Toshiba solutions are a preferred choice in demanding applications. With the knowledge and experience to optimize operations and develop a preventive maintenance plan, Toshiba can help reduce maintenance costs and increase uptime. Our in-house capabilities include:

- 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 CONTROLS

Toshiba provides a diverse range of motor control and protection solutions for both medium and low voltage applications, designed to enhance operational efficiency and safeguard critical systems. Toshiba's medium voltage controllers deliver superior motor control with high performance and dependability, offering robust protection in demanding industrial environments. The medium voltage motor control centers (MCC), including the Arc-Resistant JK MCC, provide enhanced safety and reliability in control gear for industrial applications. Toshiba's medium voltage switchgear assemblies are engineered to deliver safe and efficient distribution of electrical power in complex systems.



## INDUSTRIES SERVED

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

## APPLICATIONS

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

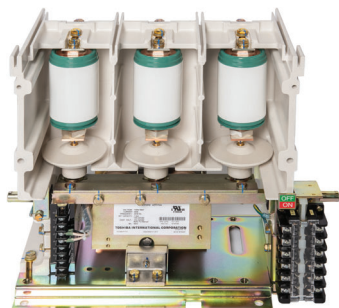


## LOW VOLTAGE VACUUM CONTACTORS



	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 Transformer	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 Transformer	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	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 - 24 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 FULL VOLTAGE CONTROLLERS



	JK400	JK700		Arc-Resistant JK	
Voltage	2.3 - 6.6 kV	2.3 - 6.6 kV	Voltage	2.4 - 6.9 kV (7.2kV Max)	
Current	360 A	720 A	Main Bus Current	1200 A	
Interrupting Current	200 - 570 MVA @ 2.3 - 6.6 kV	200 - 570 MVA @ 2.3 - 4.6 kV	Accessibility Type	Arc-Resistant Type 2B	
Peak Withstand Current	20 kA	20 kA	Short Circuit Rating	50kAIC (Symmetrical) for 0.5 Seconds	
Frequency	50/60 Hz	50/60 Hz	Impulse Withstand	60kV	
.08 PF Synchronous Motor/ Induction Motor	1,750 HP @ 2.2 - 2.5 kV	2,500 HP @ 2.2 - 2.5 kV	Ambient Conditions	0 to 40°C (-20°C to 50°C w/ Heaters)	
	2,250 HP @ 3 - 3.3 kV	3,000 HP @ 3 - 3.3 kV	Control Power	120 VAC (CPT Included)	
	3,000 HP @ 4 - 5 kV	4,500 HP @ 4 - 5 kV	Standards	UL Listed to Canadian and US Safety Standards	
	4,500 HP @ 6 - 6.6 kV	6,000 HP @ 6 - 6.6 kV	Controller Configurations	Non-Fused Type E1 Rated 400A and Fused Type E2 Rated 345A with Modular, Pre-Assembled Exhaust Plenum	
1.0 PF Synchronous Motor	2,000 HP @ 2.2 - 2.5 kV	2,500 HP @ 2.2 - 2.5 kV		Features	Draw-Out Vacuum Contactor, JK Bolted Pressure Isolation Switch, Insulated Main Bus, Mechanical & Electrical Interlocks, Solid-State Protection Relay
	2,500 HP @ 3 - 3.3 kV	3,000 HP @ 3 - 3.3 kV			Options
	3,500 HP @ 4 - 5 kV	4,500 HP @ 4 - 5 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			

## LOW 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
Control 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



	JKSS4	JKSS7
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)
Control 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

