

**TOSHIBA**  
Leading Innovation >>>



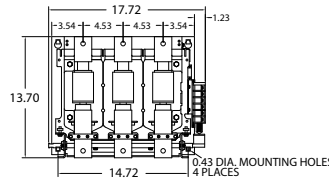
VACUUM CONTACTORS  
**LOW & MEDIUM VOLTAGE**



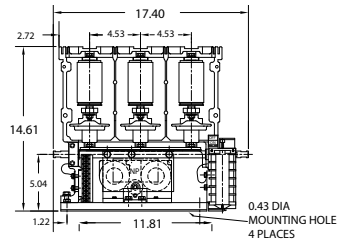
## COMPACT DESIGN, ADVANCED TECHNOLOGY

- **Environment-Resistant:** Ideal for use in high-dust areas. Switching arc is contained within the vacuum bottle, shielding the main contacts.
- **Reduced Maintenance:** Vacuum bottle contacts have long life with virtually no maintenance required.
- **No External Surge Protection:** Special main contact materials minimize chopping current. No surge suppressor is required.
- **Designed for Safety:** High voltage and low voltage parts are completely separated by an insulated barrier (non-flammable molded frame).
- **Electronic Control Drive Unit:** All contactors include electronic control of the operating coil, which offers a wide control voltage of 100 to 240 VAC and 100 to 250 VDC, anti-chopping feature, and reduced power consumption.
- **CV-10H (13.8/15 kV) Contactor:** Rated at 400 A inductive and 450 A thermal and is available in latched and non-latched versions. The CV-10HB is designed for capacitor switching and rated up to 13.8 kV.
- **Designed for Longer Wear:** Unique vertical magnetic arc dispersion system. USA patents on HCV-1KAU, HCV-6KAU, and HCV-6KALU.
- **Compact & Lightweight:** Smaller than air break contactors of equivalent electrical performance.
- **Conformance to International Standards:** Conforms to international industrial standards such as UL, CSA, AS, BS, NEMA, and IEC. Consult factory for each series.
- **Higher Interrupting Performance:** Offers a wide margin of protective coordination with any type of power fuse, resulting in increased electrical safety and reliability.

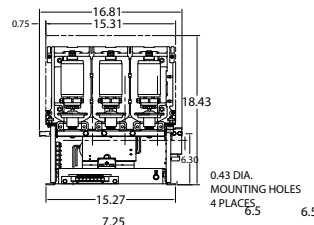
### HCV-1JBU/1KAU



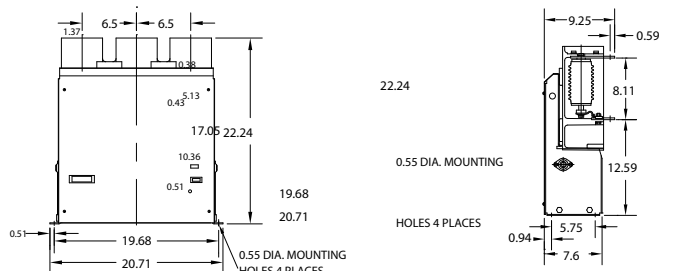
### HCV-5HA



### HCV-6KAU



### CV-10H



# VACUUM CONTACTORS

## > SPECIFICATIONS

CONTACTOR MODEL		HCV-1JBU	HCV-1KAU	HCV-5HA	HCV-5HAL*	CV-10HA(L)	CV-10HB(L)	HCV-6KAU	HCV-6KALU*	
Rated Voltage		208 to 1500 V		2400/4200/6900 V (7.2 kV Max)		12/15 kV	12/13.8 kV (Max)	2400V/4200/6900 V (7.2 kV Max)		
Rated Operational Current		600 A	720 A	400 A		400 A		720 A		
Rated Thermal Current		600 A	720 A	450 A				800 A		
Interrupting Current		42,000 A		7000 A (4.5 kA at 7.2 kV)		4000/5000 A	5000 A	7200 A		
Peak Withstand Current		—	85 kA (Peak)	15.8 kA		12.5 kA		20 kA		
Short-Circuit Making/ Breaking Current per IEC 60470 (2000)		6000 A (100 Times)	7200 A (100 Times)	6300 A		4000/5000 A	5000 A	8000 A		
		6000 A (25 Times)	7200 A (25 Times)	O for Three Minutes; CO for Three Minutes						
Class E1 MVA		—		25/50 (36/60)		120		30/60/85		
Class E2 MVA		—		200/400/570		1200		200/400/600		
Withstand Overload Current		3600 A for 30 Seconds	4320 A for 30 Seconds	2400 A for 30 Seconds		1920 A for 30 Seconds		4320 A for 30 Seconds		
		6000 A for Two Seconds	7200 A for Two Seconds	4000 A for 12 Seconds		—		—		
		9000 A for One Second	10,800 A for One Second	6300 A for Two Seconds		8000 A for One Second		10,800 A for One Second		
		30,000 A for 0.05 Seconds	36,000 A for 0.05 Seconds	—		—		—		
Overcurrent Strength (Peak Value)		—		—		See Coordination Below		85 kA (Peak)		
Coordination with Current- Limiting Fuses		50 kA	45 kA	—		Prospective Short-Circuit Current 50 kA; Cut-Off Current 36 kA (Peak)		—		
Switching Frequency		1200/Hour		1200/Hour	300/Hour	300/Hour (Latched-Type 120/Hour)		600/Hour	300/Hour	
Mechanical Life**		2.5M		2.5M	250K	250K		1M	200K	
Electrical Life**		500K		250K	250K	100K		200K		
Impulse Withstand		15 kV		60 kV		75 kV (95/110 kV with SA)		60 kV		
Dielectric Strength		5.5 kV for One Minute		22 kV for One Minute		36 kV for One Minute		22 kV for One Minute		
Closing Time (120 VAC)		60 to 80 ms		75 to 100 ms		120 to 145 ms		80 to 100 ms		
Opening Time (120 VAC)		50 to 65 ms		20 to 30 ms		80 to 90 ms	30 to 40 ms	40 to 55 ms		
Arcing Time		10 ms or Less								
Pick-Up Voltage		70% (Cold) to 85% (Hot)			70% (Cold) to 85% (Hot) AC or DC					
Drop-Out Voltage		20% or More of Rated Control Voltage (Cold)			40% (Cold) to 50% (Hot) AC or DC					
Tripping Voltage		—			<60% of Coil Rating (Cold) DC					
Control Voltage		Standard	100 to 240 VAC/VDC		120 VAC at 50/60 Hz		100 to 240 VAC/100 to 250 VDC		115 to 240 VAC/125 to 250 VDC	
		Optional	—		240 VAC/125 VDC/250 VDC		—		—	
Control Circuit Burden		Closing	1080 VA		5.4 A Peak at 120 VAC; 670 VA (AC) to 700 W (DC)		7.2 A Peak at 120 VAC; 864 VA (AC) to 900 W (DC)		6 to 7.0 A at 120 VAC; 840 VA (AC) to 875 W (DC)	
		Holding	50 VA		0.12 A Average at 120 VAC; 85 VA (AC) to 85 W (DC)		0.16 A Average at 120 VAC; 80 VA (AC) to 90 W (DC)		0.8 to 1.0 A at 120 VAC; 48 VA	
		Tripping*	—		4.8 A Peak at 125 VDC					
Auxiliary Contact Ratings		Arrangement	3NO-3NC		3NO-3NC	2NO-2NC	4NO-2NC (Latched-Type 2NO-1NC)		3NO-3NC	2NO-2NC
		Current	10 A (A600)							
		Voltage	48 to 600 V							
		AC	720 VA with 0.35 Power Factor							
		DC	60 W (L/R 150 ms)							
Application Conditions		Altitude (No Derate)	Lower than 3300 Feet (1000 Meters)							
		Ambient	-5 to 40°C							
		Relative Humidity	45 to 95% Non-Condensing							
		Vibration	Maximum 20 Hz at 1G							
		Shock	Maximum 30G							
Weight in lbs. (kg)		59.5 (27)	61.7 (28)	43 (19.5)	44 (20)	88 (40)	91 (41)	60 (27)	62 (28)	

\* - Latched-type.

\*\* - Maximum required test. Actual life under normal conditions is greater.

# VACUUM CONTACTORS

## > LOW VOLTAGE APPLICATIONS

Model Number	HCV-1JBU	HCV-1KAU		
Rated Voltage	1500 V	1500 V		
Rated Current	600 A	720 A		
Rated Frequency	50/60 Hz			
Three-Phase Motor	208 V	200 HP	—	
	230 V	250 HP	300 HP	
	380 V	300 HP	450 HP	
	460 V	500 HP	600 HP	
	575 V	600 HP	700 HP	
	762/796 V	800 HP	900 HP	
	1500 V	1600 HP	2000 HP	
Three-Phase Capacitor	240 V	200 KVAR	250 KVAR	
	480 V	400 KVAR	500 KVAR	
	600 V	500 KVAR	600 KVAR	
	1500 V	1400 KVAR	1500 KVAR	
Single- & Three-Phase Transformer	120 V	1 $\phi$	60 kVA	75 kVA
		3 $\phi$	100 kVA	130 kVA
	230 V	1 $\phi$	120 kVA	140 kVA
		3 $\phi$	200 kVA	240 kVA
	277 V	1 $\phi$	150 kVA	170 kVA
		3 $\phi$	260 kVA	290 kVA
	460 V	1 $\phi$	240 kVA	280 kVA
		3 $\phi$	400 kVA	480 kVA
	575 V	1 $\phi$	320 kVA	350 kVA
		3 $\phi$	560 kVA	600 kVA
	762/796 V	1 $\phi$	400 kVA	460 kVA
		3 $\phi$	720 kVA	800 kVA
1500 V	1 $\phi$	800 kVA	900 kVA	
	3 $\phi$	1400 kVA	1500 kVA	
Discharge Lighting	1500 V	600 A	—	

## > MEDIUM VOLTAGE APPLICATIONS

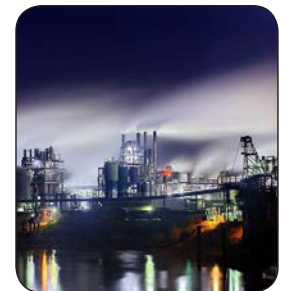
Model Number	HCV-5HA(L) (400 A)	CV-10HA(L) (400 A)	CV-10HB(L) (320 A Continuous, 230 A Breaking)	HCV-6KA(L) U (720 A)		
0.8 PF Induction/ Synchronous Motor	2.2 to 2.5 kV	1750 HP	—	N/A	2500 HP	
	3 to 3.3 kV	2250 HP	—		3000 HP	
	4 to 5 kV	3000 HP	—		4500 HP	
	6 to 6.6 kV	4500 HP	—		6000 HP	
	6.9 to 7.2 kV	—	3500 HP		—	
	11 to 12 kV	—	5500 HP		—	
	13.8 kV	—	7000 HP		—	
1.0 PF Synchronous Motor	2.2 to 2.5 kV	2000 HP	—	N/A	2500 HP	
	3 to 3.3 kV	2500 HP	—		3000 HP	
	4 to 5 kV	3500 HP	—		4500 HP	
	6 to 6.6 kV	5000 HP	—		6000 HP	
	6.9 to 7.2 kV	—	4000 HP		—	
	11 to 12 kV	—	6000 HP		—	
Three-Phase Transformer	13.8 kV	—	7500 HP	N/A	—	
	2.2 to 2.5 kV	1500 kVA	—		2500 kVA	
	3 to 3.3 kV	2000 kVA	—		3500 kVA	
	4 to 5 kV	3000 kVA	—		4500 kVA	
	6 to 6.6 kV	4000 kVA	—		7000 kVA	
	6.9 to 7.2 kV	—	3000 kVA		—	
Three-Phase Capacitor	11 to 12 kV	—	5500 kVA	N/A	—	
	13.8 kV	—	6500 kVA		—	
	2.2 to 2.5 kV	1500 KVAR	—		1500 kVAR	2000 KVAR
	3 to 3.3 kV	2000 KVAR	—		2000 kVAR	
	4 to 5 kV	2000 KVAR	—		2000 kVAR	
	6 to 6.6 kV	2000 KVAR	—		3000 kVAR	
	6.9 to 7.2 kV	—	—		3000 kVAR	
10 to 13.8 kV	—	—	5000 kVAR			
11 to 12 kV	—	—	—			
13.8 kV	—	—	—			

### APPLICABLE INDUSTRIES

- Aggregate
- Mining
- Oil & Gas
- Pulp & Paper
- Steel
- Utility/Power Generation
- Water/Wastewater

### APPLICABLE APPLICATIONS

- Pumps
- Conveyors
- Transformers



### TOSHIBA TRANSMISSION & DISTRIBUTION DIVISION

- Motor Controls
- Vacuum Contactors
- Vacuum Circuit Breakers

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