

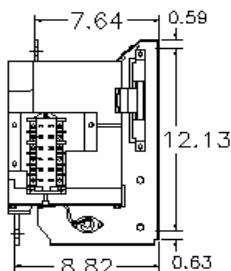
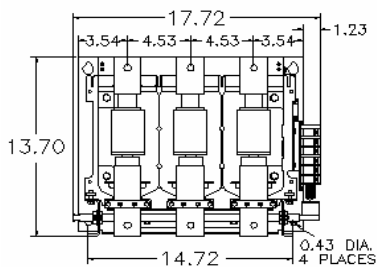
LOW & MEDIUM VOLTAGE VACUUM CONTACTORS

Toshiba Offers Superior Features

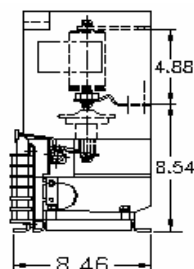
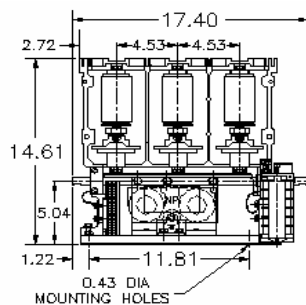
- **Environment Resistant:** Ideal for use in high dust areas. Switching arc is contained within the vacuum bottle, shielding the main contacts.
- **Reduced Maintenance:** Vacuum bottle contacts have long life with virtually no maintenance required.
- **No External Surge Protection:** Special main contact materials minimize chopping current. No surge suppresser required.
- **Designed for Safety:** High voltage and low voltage parts are totally 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 100-240Vac & 100-250Vdc, anti-chopping feature and reduce power consumption.
- **New CV-10H (13.8/15kV) Contactor:** This contactor replaces the CV4X2L but is now rated 320 inductive & 450 thermal amperes, and is now also available in a latched type version.
- **Designed for Longer Wear:** Unique vertical magnetic arc dispersion system, USA patent (HCV-1KAU, HCV-6KAU & HCV-6KA(L)U).
- **Compact and Lightweight:** Smaller than air break contactors of equivalent electrical performance.
- **Conformity to International Standards:** Conforms to international industrial standards such as UL, CSA, AS, BS, NEMA, and IEC. Consult factory on each series.
- **Higher Interrupting Performance:** Afford a wide margin of protective coordination with any type of power fuse resulting in increased electrical safety and reliability.



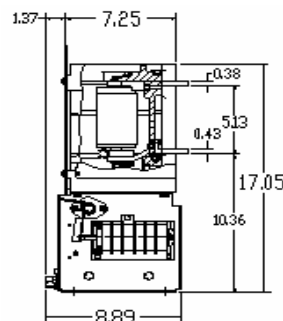
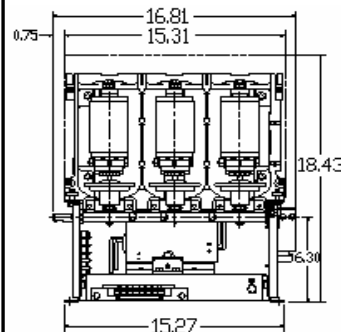
HCV-1JBU/1KAU



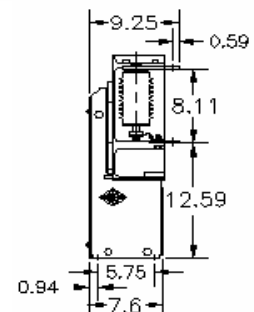
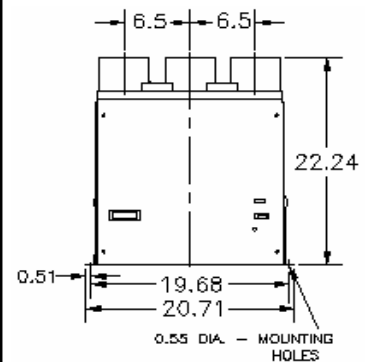
HCV-5HA



HCV-6KAU



CV-10H



Technical Data

CONTACTOR MODEL		HCV-1JBU	HCV-1KAU	HCV-5HA	HCV-5HAL*	CV-10HA(L)	CV-10HB(L)	HCV-6KAU	HCV-6KALU*
Rated Voltage		208-1500V		2400/4200/6900V(7.2kV max)		12/15kV	12/13.8kV (max.)	2400V/4200/6900V(7.2kV max)	
Rated Operational Current		600A	720A	400A		320A		720A	
Rated Thermal Current		600A	720A	450A		450A		800A	
Interrupting Current		42,000A		7000A (4.5kA @7.2kV)		5kA/4kA	5000A	7200A	
Peak Withstand Current		-	85 kA (Peak)	15.8kA		12.5kA		20kA	
Short-circuit Making/Breaking Current IEC 60470 (2000)		6000A (100 times)	7200A (100 times)	6.3kA		5kA/4kA	5kA	8.0kA	
Class E1 MVA		-		25/50 (36/60)		120		30/60/85	
Class E2 MVA		-		200/400/570		1200MVA		200/400/600	
Withstand Overload Current		3600A - 30s	4320A - 30s	2400A -30s		1920A - 30s		4320A - 30s	
		6000A - 2s	7200A - 2s	4000A - 12s		-		-	
		9000A - 1s	10800A - 1s	6300A - 2s		8000A - 1s		10,800A - 1s	
		30,000A - 0.05s	36,000A - 0.05s	-		-		-	
Overcurrent Strength (Peak Value)		-		-		See Coordination Below		85kA (PEAK)	
Coordination w/Current-Limiting Fuses		50kA	45kA	-		Prospective Short-circuit Current 50kA Cut-off Current 36kA Peak		-	
Switching Frequency		1200/Hr		1200/Hr	300/Hr	300/Hr	120/Hr	600/Hr	300/Hr
Mechanical Life***		2.5 M		2.5M	250k	250k		1M	200k
Electrical Life***		500 K		250k	250k	100k		200k	
Impulse Withstand		15 kV		60kV		75kV		60kV	
Dielectric Strength		5.5kV - 1 min.		22kV-1 Minute		28kV-1 Min (42kV)**		22kV-1 Minute	
Closing Time (@120Vac)		60 - 80 ms		75 - 100 ms		120 - 145 ms		80-100 ms	
Opening Time (@120Vac)		50 - 65 ms		20 - 30ms		30 - 40 ms		40-55 ms	
Arcing Time		10 ms or less		10 ms or less		10 ms or Less		10 ms or Less	
Pick-Up Voltage		85% (Hot) - 70% (Cold)		85% (Hot) - 70% (Cold) AC or DC					
Drop-Out Voltage		20% or more of rated control voltage (cold)		50% (Hot) - 40% (Cold) AC or DC					
Tripping Voltage		-		60% or less of Coil Rating DC (cold)					
Control Voltage	Standard	100-240 Vac/dc		120Vac 50/60 Hz		100-240Vac/100-250Vdc		115-240Vac/125-250Vdc	
	Optional	-		240Vac/125Vdc/250Vdc		-		-	
Control Circuit	Closing	1080 VA		5.4A Peak @120Vac 670VA (AC) - 700W (DC)		7.2A Peak @120Vac 864VA (AC) - 900W (DC)		6-7.0A @120Vac 840VA (AC) - 875W (DC)	
	Holding	50 VA		0.12 Avg. @120Vac 85VA (AC) - 85W (DC)		0.16A Avg. @120Vac 80VA (AC)/90W (DC)		0.8-1.0A @120Vac 48VA	
Burden	Tripping*	-		4.8A Peak @125Vdc		4.8A Peak @125Vdc		4.8A Peak @125Vdc	
Auxiliary Contact Ratings	Arrangement	3NO-3NC		3NO-3NC	2NO-3NC	4NO-2NC	2NO-1NC	3NO-3NC	2NO-2NC
	Current	10A (A600)							
	Voltage	600V Max - 48V Min							
	AC	720VA (P.F. 0.35)							
Application Conditions	Altitude w/o Derate	Lower than 3300ft (1000m)							
	Ambient	-5 to + 40°C							
	Relative Humidity	45 to 85%							
	Vibration	Max. 20 Hz - 1G							
Shock		Max. 30G							
Weight - 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 are greater.

Low Voltage Application Table

Model Number	HCV-1JBU	HCV-1KAU		
Rated Voltage	1500 V	1500 V		
Rated Current	600 A	720 A		
Rated Frequency	50/60 Hz			
3 Phase Motor	208 V	200 HP	-	
	230 V	250 HP	300 HP	
	380V	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	
3 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	
1 and 3 Phase Transformer	120 V	1 φ	60 kVA	75 kVA
		3 φ	100 kVA	130 kVA
	230 V	1 φ	120 kVA	140 kVA
		3 φ	200 kVA	240 kVA
	277 V	1 φ	150 kVA	170 kVA
		3 φ	260 kVA	290 kVA
	460 V	1 φ	240 kVA	280 kVA
		3 φ	400 kVA	480 kVA
	575 V	1 φ	320 kVA	350 kVA
		3 φ	560 kVA	600 kVA
	762/796 V	1 φ	400 kVA	460 kVA
		3 φ	720 kVA	800 kVA
	1500 V	1 φ	800 kVA	900 kVA
		3 φ	1400 kVA	1500 kVA
Discharge Lighting	1500 V	600 A	-	

Medium Voltage Application Table

Model	System Voltage	0.8 PF Ind./Syn Motor	1.0 PF Syn Motor	3 Phase Transformer	3 Phase Capacitor
HCV-5HA(L) (400A)	2.2-2.5kV	1750HP	2000HP	1500kVA	1500kVAR
	3.0-3.3kV	2250HP	2500HP	2000kVA	2000kVAR
	4.0-5.0kV	3000HP	3500HP	3000kVA	2000kVAR
	6.0-6.6kV	4500HP	5000HP	4000kVA	2000kVAR
CV-10HA(L) (320A)	6.9-7.2kV	3500HP	4000HP	3000kVA	Not Applicable
	11-12kV	5500HP	6000HP	5500kVA	
	13.8kV	7000HP	7500HP	6500kVA	
CV-10HB(L) (320A cont. 230A breaking)	2.2-2.5kV	Not Applicable	Not Applicable	Not Applicable	1500kVAR
	3.0-3.3kV				2000kVAR
	4.0-5.0kV				2000kVAR
	6.0-6.6kV				3000kVAR
	6.9-7.2kV				3000kVAR
HCV-6KA(L)U (720A)	2.2-2.5kV	2500HP	3000HP	2500kVA	2000kVAR
	3.0-3.3kV	3000HP	3500HP	3500kVA	2000kVAR
	4.0-5.0kV	4500HP	5000HP	4500kVA	2000kVAR
	6.0-6.6kV	6000HP	7000HP	7000kVA	2000kVAR

Application data is based on general load data and standard applications. Lower limitations may apply on specific applications (i.e. applications above 3300 feet).