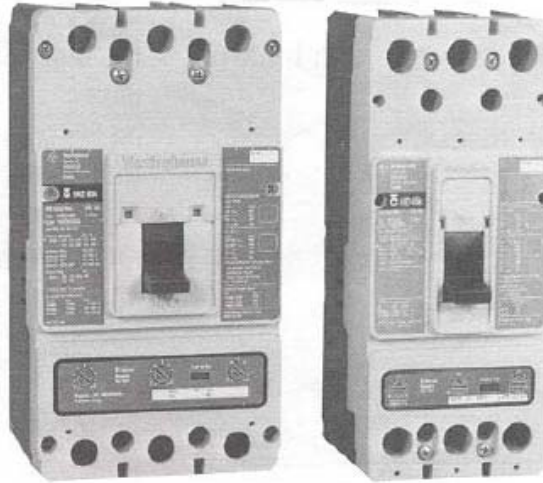




**CENTERLINE® Motor Control Centers**  
***Cutler-Hammer Inverse Time Circuit Breakers In Combination***  
***NEMA Starter, Application-rated Soft Starter Controller (SMC)***  
***and Variable Frequency Drive Units***



**Cutler-Hammer HKD and HJD frame thermal magnetic circuit breakers.**

## **Application**

Circuit breaker application is valid for the following Bulletin 2100 products:

- Bulletin 2107 Full Voltage Reversing Combination Starters
- Bulletin 2113 Full Voltage Non-Reversing Combination Starters
- Bulletin 2123 Two Speed Reversing Combination Starters
- Bulletin 2127 Two Speed Reversing Combination Starters
- Bulletin 2155 Combination Soft Starter Controllers
- Bulletin 2163 Variable Frequency AC Combination Drive Units
- Bulletin 2165 Variable Frequency AC Combination Drives with Manual Isolated Drive Bypass
- Bulletin 2173 Reduced Voltage Autotransformer Combination Starters

The information in this publication applies to Cutler–Hammer inverse time, thermal magnetic or solid-state circuit breakers, when they are used in NEMA (size 1 through size 6) combination starter, soft starter controller, and variable frequency drive units.

The information in this publication does not apply to instantaneous trip circuit breakers (motor circuit protectors). For combination starter units, soft starter controller units, and variable frequency drive units with

instantaneous trip circuit breakers, refer to Publication 2100-TD001x-EN-P, *Cutler–Hammer Instantaneous Trip Motor Circuit Protectors (HMCP) In Combination NEMA Starter, Application-rated Soft Starter Controller (SMC) and Variable Frequency Drive Units.*

## Circuit Breaker Operation

Inverse time circuit breakers are designed to trip at 100% to 125% of their continuous current rating. They are also designed to trip, on an inverse-time basis, at overcurrents up to the magnetic or electronic trip current setting of the circuit breaker. The circuit breaker manufacturer sets the continuous current ratings for the thermal magnetic circuit breakers. The continuous current rating of circuit breakers with solid-state trip mechanisms depends on the installed rating plug.

Cutler–Hammer F-frame circuit breakers have a non-adjustable instantaneous magnetic trip mechanism, which is set by the circuit breaker manufacturer. All other frame sizes have an adjustable instantaneous trip mechanism, which can be set to a desired current value. Refer to Tables 1-22 (pages 4-23) for the instantaneous (magnetic or electronic) trip ranges and settings.

## Circuit Breaker Size and Adjustment

Packaged Control Products has made engineering evaluations for the protective device (circuit breaker) selection, sizing, and setting range based on the protection rules/requirements and motor criteria as stipulated in NEC, CEC, NEMA, and UL Standards, e.g. motor full load currents (FLC), X/R ratios, lock rotor currents, nominal utilization voltages, etc. Should the motor application have criteria that deviates from those stated in the aforementioned standards, higher FLC and/or motor inrush currents (greater than 1300% of the nominal FLC) may be experienced, e.g. special motors, non-off standard NEMA motors, energy efficient motors, Design B energy efficient, Design E motors, IEC N motors, etc.

Determine the desired trip current, using the National Electrical Code (NEC) or Canadian Electrical Code (CEC), and the instructions provided with the combination starter unit. Refer to the tables on pages 4-21 and choose the trip setting which has the desired trip current value. Make certain that the circuit breaker operating handle is in the **OFF/O** position. Depress each trip setting dial with a screwdriver, and turn clockwise to the determined setting. If there is more than one dial on the circuit breaker, all should be set to the same value.

## Push-To-Trip Mechanism

The push-to-trip mechanism provides a manual means for tripping the circuit breaker. Use a small screwdriver to depress the red button on the circuit breaker cover. When the button is pushed, a plunger rotates the trip bar and causes the breaker to trip.

## Horsepower and Kilowatt Ratings

The horsepower and kilowatt ratings for combination starter units, soft starter controller units, and variable frequency drive units listed in the tables on pages 4-23 were determined from full load currents as specified in the NEC/CEC.

Acceptable performance should occur when the motor full load current is within 15% of the value which corresponds to the horsepower or kilowatt ratings and voltages listed in the NEC/CEC. Consult your local Rockwell Automation sales office or Allen-Bradley distributor if the motor full load current is not within these limits.

### ATTENTION



**ATTENTION:** The horsepower and kilowatt ratings and corresponding trip settings in Table 1-4 are only valid when the combination starter units are equipped with an Allen-Bradley SMP solid-state overload relays or a Bulletin 592 overload relays (motor running overcurrent protective device) with correctly sized heater elements. The horsepower and kilowatt ratings and corresponding trip settings in Tables 5-9 (2155F only) are only valid when the SMC combination starter units are equipped with Bulletin 592 overload relays (motor running overcurrent protective device) with correctly sized heater elements.

When correctly selected, this combination of equipment protects against short circuit and ground fault damage, and provides coordinated overcurrent protection in the motor branch circuit for continuous-duty rated motors, as defined in the NEC and CEC.

The circuit breaker tripping may indicate the interruption of a high fault current. To ensure protection against fire and/or shock hazard, examine the current carrying parts of the combination starter units, soft starter controller units, and variable frequency drive units and replace if damaged. (Refer to NEMA Standards Publication Number ICS 2.2, *Maintenance of Motor Controllers After a Fault Condition*, and NEMA Standard Publication Number ICS 2, Parts ICS 2-302.

**Table 1 Combination 2107, 2113, 2123, 2127, and 2173 Starter Units - FD, FDB, HFD, FDB-LFD Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	NEMA Starter Size	Horsepower Ratings					Magnetic Trip Range (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"		Standard Interrupting Capacity with Current Limiter Switch "CD"	
		200V	230V	380-415V	460V	575V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
15	1	0.125-1.5	0.125-2	0.125-3	0.125-3	0.125-5	500	800	FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01	FDB3015 LFD3070	25105-265-01 25107-101-08
20	1	2	3	5	5	7.5			FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02	FDB3020 LFD3070	25105-265-02 25107-101-08
30	1	3	5	7.5-10	7.5-10	10			FDB3030	25105-265-04	FD3030	25105-264-04	HFD3030	25105-263-04	FDB3030 LFD3070	25105-265-04 25107-101-08
40	1 2	5 —	— —	— —	— —	15 15			FDB3040	25105-265-06	FD3040	25105-264-06	HFD3040	25105-263-06	FDB3040 LFD3070	25105-265-06 25107-101-08
50	1 2	7.5 —	7.5 10	— 15	— 15-20	— 20-25	600	1200	FDB3050	25105-265-07	FD3050	25105-264-07	HFD3050	25105-263-07	FDB3050 LFD3070	25105-265-07 25107-101-08
60	2 3	10 —	— —	20 —	25 —	30 —			FDB3060	25105-265-08	FD3060	25105-264-08	HFD3060	25105-263-08	FDB3060 LFD3070	25105-265-08 25107-101-08
70	2 3	— —	15 —	25 —	— 30	— 40			FDB3070	25105-265-09	FD3070	25105-264-09	HFD3070	25105-263-09	FDB3070 LFD3070	25105-265-09 25107-101-08
100	3	15	—	30	40	50	700	1400	FDB3100	25105-265-11	FD3100	25105-264-11	HFD3100	25105-263-11	FDB3100 LFD3150	25105-265-11 25107-101-09
125	3	20	20	40	50	—	800	1600	FDB3125	25105-265-12	FD3125	25105-264-12	HFD3125	25105-263-12	FDB3125 LFD3150	25105-265-12 25107-101-09
150	3	25	25-30	50	—	—			FDB3150	25105-265-13	FD3150	25105-264-13	HFD3150	25105-263-13	FDB3150 LFD3150	25105-265-13 25107-101-09

**Table 2 Combination 2107, 2113, 2123, 2127 and 2173 Starter Units - JD, HJD, HKD, KD, KDB Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	NEMA Starter Size	Horsepower Ratings					Magnetic Trip Setting (Amperes)									Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		200V	230V	380-415V	460V	575V	5X	—	—	—	7.5X	—	—	—	10X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
125	4	—	—	—	60	60-75	625	700	780	860	940	1020	1050	1170	1250	JDB3125W	25104-348-04	HJD3125W	25104-346-04
150	4	30	40	60-75	75	100	750	840	935	1030	1125	1220	1315	1410	1500	JDB3150W	25104-348-05	HJD3150W	25104-346-05
175	4	40	50	—	100	—	875	980	1090	1200	1310	1420	1530	1640	1750	JDB3175W	25104-348-06	HJD3175W	25104-346-06
	5	—	—	—	—	125													
250	5	50-60	60-75	100-125	125-150	150-200	1250	1405	1565	1720	1875	2030	2185	2340	2500	JDB3250W	25104-348-09	HJD3250W	25104-346-09
300	5	75	—	150	—	—	1500	1690	1875	2065	2250	2440	2630	2815	3000	KDB3300W	25104-369-10	HKD3300W	25104-367-10
400	5	—	100	—	200	—	2000	2250	2500	2750	3000	3250	3500	3750	4000	KDB3400W	25104-369-12	HKD3400W	25104-367-12

**Table 3 Combination 2113 and 2173 Starter Units - LD, HLD Solid-State Circuit Breakers (Adjustable Electronic Trip)**

Continuous Current Rating (Amperes)	NEMA Starter Size	Horsepower Ratings					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		200V	230V	380-415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	
500	6	100	—	200	—	250-300	1000	1500	2000	2500	3000	3500	4000	LDB3600FT33W 6LES500T	25103-406-01 25107-447-04	HLDB3600FT33W 6LES500T	25103-406-02 25107-447-04	
600	6	125-150	125-150	250-300	250-300	350-400	1200	1800	2400	3000	3600	4200	4800	LDB3600FT33W 6LES600T	25103-406-01 25107-447-05	HLDB3600FT33W 6LES600T	24103-406-02 25107-447-05	

**Table 4 Combination 2113 and 2173 Starter Units - MDL, HMDL Solid-State Circuit Breakers (Adjustable Electronic Trip)**

Continuous Current Rating (Amperes)	NEMA Starter Size	Horsepower Ratings					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		200V	230V	380-415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	
800	6	—	200	—	400	—	1600	2400	3200	4000	4800	5600	6400	MDLB3800T33W 8MES800T	25103-462-01 25107-456-05	HMDLB3800T33W 8MES800T	25103-462-02 25107-456-05	

**Table 5 Combination 2155F and 2155G SMC Units - FD, FDB, HFD Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	SMC Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC Plus and SMC Dialog Plus is the output ampere rating.)</small>					Magnetic Trip Range (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		220V	230V	380-415V	460V	575V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
15	24	(0.75-1.5)	1-2	(0.75-2.2)	1-3	1-5	500	800	FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01
20	24	(2.2)	3	(3.7)	5	7.5		1000	FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02
30	24	(3.7)	5	(5.5-7.5)	7.5-10	10			FDB3030	25105-265-04	FD3030	25105-264-04	HFD3030	25105-263-04
40	24	—	—	—	—	15			FDB3040	25105-265-06	FD3040	25105-264-06	HFD3040	25105-263-06
50	24	(5.5)	7.5	(11)	15	20	600	1200	FDB3050	25105-265-07	FD3050	25105-264-07	HFD3050	25105-263-07
	35	(7.5)	10	—	20	25			FDB3060	25105-265-08	FD3060	25105-264-08	HFD3060	25105-263-08
60	35	—	—	(15)	25	30			FDB3070	25105-265-09	FD3070	25105-264-09	HFD3070	25105-263-09
70	54	(11)	15	(18.5)	30	40			FDB3100	25105-265-11	FD3100	25105-264-11	HFD3100	25105-263-11
100	54	(15)	—	(22)	40	50	700	1400						
125	54	—	20	—	—	—	800	1600	FDB3125	25105-265-12	FD3125	25105-264-12	HFD3125	25105-263-12
	97	(18.5)	—	(30)	50	—			FDB3150	25105-265-13	FD3150	25105-264-13	HFD3150	25105-263-13
150	97	(22)	25-30	(37)	—	—								

**Table 6 Combination 2155F and 2155G SMC Units - JD, HJD, KD, HKD Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	SMC Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC Plus and SMC Dialog Plus is the output ampere rating.)</small>					Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		220-230V	230V	380-415V	460V	575V	5X	—	—	—	7.5X	—	—	—	10X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	
125	97	—	—	—	60	60-75	625	700	780	860	940	1020	1050	1170	1250	JDB3125W	25104-348-04	HJD3125W	25104-346-04	
150	97	—	—	(45)	75	—	750	840	935	1030	1125	1220	1315	1410	1500	JDB3150W	25104-348-05	HJD3150W	25104-346-05	
	135	—	40	—	—	100	750	840	935	1030	1125	1220	1315	1410	1500					
175	135	—	50	—	100	125	875	980	1090	1200	1310	1420	1530	1640	1750	JDB3175W	25104-348-06	HJD3175W	25104-346-06	
250	135	(30-37)	—	(55)	—	—	1250	1405	1565	1720	1875	2030	2185	2340	2500	JDB3250W	25104-348-09	HJD3250W	25104-346-09	
	180	—	60	(75)	125-150	150	1250	1405	1565	1720	1875	2030	2185	2340	2500					
300	180	(45)	—	(90)	—	—	1500	1690	1875	2065	2250	2440	2630	2815	3000	KDB3300W	25104-369-10	HKD3300W	25104-367-10	
	240	—	75	—	—	200	1500	1690	1875	2065	2250	2440	2630	2815	3000					
400	240	(55)	—	(110)	200	250	2000	2250	2500	2750	3000	3250	3500	3750	4000	KDB3400W	25104-369-12	HKD3400W	25104-367-12	
400	240	(75) <sup>Ⓢ</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

<sup>Ⓢ</sup> Magnetic trip breakers are not available for this rating. Refer to publication 2100-2.3.1 for instantaneous trip breakers.

**Table 7 Combination 2155F and 2155G SMC Units - LD, HLD Solid-State Circuit Breakers (Adjustable Electronic Trip)**

Continuous Current Rating (Amperes)	SMC Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC Plus and SMC Dialog Plus is the output ampere rating.)</small>					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CM"	
		220-230V	230V	380-415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	
500	360	(90)	100	(132-160)	—	300	1000	1500	2000	2500	3000	3500	4000	LDB3600FT33W 6LES500T	25103-406-01 25107-447-04	HLDB3600FT33W 6LES500T	25103-406-02 25107-447-04	
600	360	(110)	125-150	(185)	250-300	350	1200	1800	2400	3000	3600	4200	4800	LDB3600FT33W 6LES600T	25103-406-01 25107-447-05	HLDB3600FT33W 6LES600T	25103-406-02 25107-447-05	
600	500	—	—	(200)	350	400-450												

**Table 8 Combination 2155F and 2155G SMC Units - MDL, HMDL Solid-State Circuit Breakers (Adjustable Electronic Trip)**

Continuous Current Rating (Amperes)	SMC Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC Plus and SMC Dialog Plus is the output ampere rating.)</small>					Magnetic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CM"	
		220-230V	230V	380-415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	
800	500	(132-150)	200	(220-250)	400	500	1600	2400	3600	4000	4800	5600	6400	MDLB3800T33W 8MES800T	25103-462-01 25107-456-05	HMDLB3800T33W 8MES800T	25103-462-02 25107-456-05	

**Table 9 Combination 2155H SMC Units - FD, FDB, HFD Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	SMC-3 Output Rating (Amperes)	Horsepower Ratings (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC-3 is the output ampere rating.)</small>					Magnetic Trip Range (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		220-230V	230V	380-415V	460V	575V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
15	3	(0.25 - 0.55)	0.5	(0.37 - 1.1)	0.5 - 1.5	0.75 - 2	500	800	FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01
15	9	(0.75 - 1.5)	0.75 - 2	(1.5 - 2.2)	2 - 3	3 - 5			FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01
20	9	(2.2)	—	(3.7)	5	7.5			FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02
20	19	—	3	—	—	—			FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02
30	19	(3.7)	5	(5.5 - 7.5)	7.5 - 10	10			FDB3030	25105-265-04	FD3030	25105-264-04	HFD3030	25105-263-04
40	19	—	—	—	—	15			FDB3040	25105-265-06	FD3040	25105-264-06	HFD3040	25105-263-06
50	25	(5.5)	7.5	(11)	15	20	600	1200	FDB3050	25105-265-07	FD3050	25105-264-07	HFD3050	25105-263-07
50	30	(7.5)	10	—	20	25			FDB3050	25105-265-07	FD3050	25105-264-07	HFD3050	25105-263-07
60	30	—	—	(15)	—	—			FDB3060	25105-265-08	FD3060	25105-264-08	HFD3060	25105-263-08
60	37	—	—	—	25	30			FDB3060	25105-265-08	FD3060	25105-264-08	HFD3060	25105-263-08
70	37	—	—	(18.5)	—	—			FDB3070	25105-265-09	FD3070	25105-264-09	HFD3070	25105-263-09

**Table 10 Combination 2155J SMC-Flex Units - FD, FDB, HFD Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	SMC-Flex Output Rating (Amperes)	Horsepower Ratings (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the SMC-3 is the output ampere rating.)</small>					Magnetic Trip Range (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		220-230V	230V	380-415V	460V	575V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
125	108	(18.5)	—	(30)	50	60	800	1600	FDB3125	25105-265-12	FD3125	25105-264-12	HFD3125	25105-263-12
150	108	(22)	25 - 30	(37)	60	75			FDB3150	25105-265-13	FD3150	25105-264-13	HFD3150	25105-263-13

**Table 11 Combination 2155J SMC-Flex Units - JD, HJD, KD, HKD Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	SMC-Flex Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS and 1336 PLUS II drive is the output ampere rating.)</small>					Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		220-230V	230V	380-415V	460V	575V	5X	—	—	—	7.5X	—	—	—	10X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	
150	108	—	40	(45)	75	100	750	840	935	1030	1125	1220	1315	1410	1500	JDB3150	25104-348-05	HJD3150	25104-346-05	
175	135	—	50	—	100	125	875	980	1090	1200	1310	1420	1530	1640	1750	JDB3175	25104-348-06	HJD3175	25104-346-06	
250	108	(30)	—	(55)	—	—	1250	1405	1565	1720	1875	2030	2185	2340	2500	JDB3250	25104-348-09	HJD3250	25104-346-09	
	135	(37)	—	—	—	—	1250	1405	1565	1720	1875	2030	2185	2340	2500					
	201	—	60-75	(75)	125-150	150-200	1250	1405	1565	1720	1875	2030	2185	2340	2500					
300	201	(45)	—	(90)	—	—	1500	1690	1875	2065	2250	2440	2630	2815	3000	KDB3300W	25104-369-10	HKD3300W	25104-367-10	
400	201	(55)	—	—	—	—	2000	2250	2500	2750	3000	3250	3500	3750	4000	KDB3400W	25104-369-12	HKD3400W	25104-367-12	
	251	—	100	(110)	200	250	2000	2250	2500	2750	3000	3250	3500	3750	4000					

**Table 12 Combination 2155J SMC-Flex Units - LD, HLD Solid-State Circuit Breakers (Adjustable Electronic Trip)**

Continuous Current Rating (Amperes)	SMC-Flex Output Rating (Amperes)	Nominal Horsepower Ratings (Nominal Kilowatt Rating)					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		200V	230V	380-415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	
500	251	(75)	—	(132)	—	—	1000	1500	2000	2500	3000	3500	4000	LDB3600FT35W	25103-406-01	HLDB3600FT35W	25103-406-02	
	317	(90)	—	(150 - 160)	—	300	1000	1500	2000	2500	3000	3500	4000	6LES500T	25107-447-04	6LES500T	25107-447-04	
600	317	—	125	—	250	—	1200	1800	2400	3000	3600	4200	4800	LDB3600FT35W	25103-406-01	HLDB3600FT35W	25103-406-02	
	361	(110)	150	(185)	300	350	1200	1800	2400	3000	3600	4200	4800	6LES600T	25107-447-05	6LES600T	25107-447-05	
	480	—	—	(200)	350	400-450	1200	1800	2400	3000	3600	4200	4800					

**Table 13 Combination 2155J SMC-Flex Units - MDL, HMDL Solid-State Circuit Breakers (Adjustable Electronic Trip)**

Continuous Current Rating (Amperes)	SMC-Flex Output Rating (Amperes)	Nominal Horsepower Ratings (Nominal Kilowatt Rating)					Electronic Trip Setting (Amperes)								Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		200V	230V	380-415V	460V	575V	2X	3X	4X	5X	6X	7X	8X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	
800	480	(132)	200	(220 - 250)	400	500	1600	2400	3200	4000	4800	5600	6400	MDLB3800T33W 8MES800T	25103-462-01 25107-456-05	HMDLB3800T33W 8MES800T	25103-462-02 25107-456-05	



**Table 14 Combination 2163P Drive Units (220-230V and 230V Constant Torque) - FD, FDB, HFD Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Rating (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS and 1336 PLUS II is the output ampere rating.)</small>		Magnetic Trip Range (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		220-230V	230V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
15	2.3	(0.37)	0.5	500	800	FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01
	3	(0.55)	0.75								
	4.5	(0.75-1.1)	1								
	6	(1.5)	1.5								
	8	—	2								
20	12	—	3	1000	FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02	
30	18	(2.2)	5		FDB3030	25105-265-04	FD3030	25105-264-04	HFD3030	25105-263-04	
40	18	(3.7)	—		FDB3040	25105-265-06	FD3040	25105-264-06	HFD3040	25105-263-06	
50	27	(5.5-7.5)	7.5	600	1200	FDB3050	25105-265-07	FD3050	25105-264-07	HFD3050	25105-263-07
	34	—	10								
70	48	—	15	700	1400	FDB3070	25105-265-09	FD3070	25105-264-09	HFD3070	25105-263-09
100	48	(11)	—								
	125	65	(15)	—	800	1600	FDB3100	25105-265-11	FD3100	25105-264-11	HFD3100
150		65	18.5	20							
	150	77	—	25	800	1600	FDB3125	25105-265-12	FD3125	25105-264-12	HFD3125
80		—	30	FDB3150							

**Table 15 Combination 2163P Drive Units (380-415V and 460V Constant Torque) - FD, FDB, HFD Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Ratings (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS and 1336 PLUS II drive is the output ampere rating.)</small>		Magnetic Trip Range (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		380-415V	460V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
15	1.1	(0.25)	0.5	500	800	FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01
	1.6	(0.37-0.55)	0.75								
	2.1	(0.75)	1								
	2.8	(1.1)	1.5								
	3.8	(1.5)	2								
	5.3	(2.2)	3								
20	8.4	(3.7)	5	1000		FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02
30	13.3	(5.5)	7.5								
	16.1	—	10								
40	16.1	(7.5)	—	600	1200	FDB3040	25105-265-06	FD3040	25105-264-06	HFD3040	25105-263-06
50	24	(11)	15								
	27	—	20								
60	27	(15)	—								
	39	—	25								
70	39	(18.5)	—								
	45	—	30								
100	45	(22)	—	700	1400	FDB3100	25105-265-11	FD3100	25105-264-11	HFD3100	25105-263-11
	60	—	40								
125	60	(30)	—	800	1600	FDB3125	25105-265-12	FD3125	25105-264-12	HFD3125	25105-263-12
	75	—	50								
150	75	(37)	—								

**Table 16 Combination 2163P Drive Units (220-230V, 230V, 380-415V and 460V, Constant Torque) - JD, HJD, KD, HKD (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Ratings (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS and 1336 PLUS II drive is the output ampere rating.)</small>				Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
		220-230V	230V	380-415V	360V	5X	—	—	—	7.5X	—	—	—	10X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	
125	77	—	—	—	60	625	700	780	860	940	1020	1050	1170	1250	JDB3125W	25104-348-04	HJD3125W	25104-346-04	
150	77	(22)	—	—	—	750	840	935	1030	1125	1220	1315	1410	1500	JDB3150W	25104-348-05	HJD3150W	25104-346-05	
	85	—	—	(45)	—														
	106	—	—	—	75														
175	138	—	—	—	100	875	980	1090	1200	1310	1420	1530	1640	1750	JDB3175W	25104-348-06	HJD3175W	25104-346-06	
250	106	—	—	(55)	—	1250	1405	1565	1720	1875	2030	2185	2340	2500	JDB3250W	25104-348-09	HJD3250W	25104-346-09	
	138	—	—	(75)	—														
	173	—	—	—	125														
400	173	—	—	(90)	—	2000	2250	2500	2750	3000	3250	3500	3750	4000	KDB3400W	25104-369-12	HKD3400W	25104-367-12	

**Table 17 Combination 2163P Drive Units (460V, Variable Torque) - FD, FDB, HFD Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Ratings (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS and 1336 PLUS II drive is the output ampere rating.)</small>	Magnetic Trip Range (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"							
		460V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number						
15	1.2	0.5	500	800	FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01						
	1.7	0.75														
	2.3	1														
	3	1.5														
	4	2														
	6	3														
20	9	5	1000	FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02							
30	15.4	7.5-10								FDB3030	25105-265-04	FD3030	25105-264-04	HFD3030	25105-263-04	
50	22	15	600	1200	FDB3050	25105-265-07	FD3050	25105-264-07	HFD3050	25105-263-07						
	27	20														
	60	34									25	FDB3060	25105-265-08	FD3060	25105-264-08	HFD3060
70	42	30	700	1400	FDB3070	25105-265-09	FD3070	25105-264-09	HFD3070	25105-263-09						
100	65	40									FDB3100	25105-265-11	FD3100	25105-264-11	HFD3100	25105-263-11
125	65	50									800	1600	FDB3125	25105-265-12	FD3125	25105-264-12

**Table 18 Combination 2163P Drive Units (460V, Variable Torque) - JD, HJD, KD, HKD Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Ratings (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS and 1336 PLUS II drive is the output ampere rating.)	Magnetic Trip Setting (Amperes)									Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"							
			460V									5X	—	—	—	7.5X	—	—	—	10X	Cutler-Hammer Catalog Number
125	75	60	625	700	780	860	940	1020	1050	1170	1250		JDB3125W	25104-348-04	HJD3125W	25104-346-04					
150	96	75	750	840	935	1030	1125	1220	1315	1410	1500		JDB3150W	25104-348-05	HJD3150W	25104-346-05					
175	120	100	875	980	1090	1200	1310	1420	1530	1640	1750		JDB3175W	25104-348-06	HJD3175W	25104-346-06					
250	150	125	1250	1405	1565	1720	1875	2030	2185	2340	2500		JDB3250W	25104-348-09	HJD3250W	25104-346-09					
	180	150																			

**Table 19 Combination 2163P Drive Units (575V Constant Torque) - FD, FDB, HFD Thermal Magnetic Circuit Breakers (Non-Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Ratings (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS and 1336 PLUS II drive is the output ampere rating.)	Magnetic Trip Range (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		Medium Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"		
			575V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
15	2	1	500		800	FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01
	4	2									
	6	3									
	8	5									
20	10	7.5	500		1000	FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02
30	12	10	500		1000	FDB3030	25105-265-04	FD3030	25105-264-04	HFD3030	25105-263-04
40	19	15	500		1000	FDB3040	25105-265-06	FD3040	25105-264-06	HFD3040	25105-263-06
50	24	20	600		1200	FDB3050	25105-265-07	FD3050	25105-264-07	HFD3050	25105-263-07
	30	25									
60	35	30	600		1200	FDB3060	25105-265-08	FD3060	25105-264-08	HFD3060	25105-263-08
70	45	40	600		1200	FDB3070	25105-265-09	FD3070	25105-264-09	HFD3070	25105-263-09
100	57	50	700		1400	FDB3100	25105-265-11	FD3100	25105-264-11	HFD3100	25105-263-11
125	62	60	800		1600	FDB3125	25105-265-12	FD3125	25105-264-12	HFD3125	25105-263-12

**Table 20 Combination 2163P Drive Units (575V Constant Torque) - JD, JDB, HJD, HKD, KDB Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Ratings (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS and 1336 PLUS II drive is the output ampere rating.)	Magnetic Trip Setting (Amperes)									Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"	
			575V			5X	—	—	—	7.5X	—	—	—	10X	Cutler-Hammer Catalog Number
125	85	75	625	700	780	860	940	1020	1050	1170	1250	JDB3125W	25104-348-04	HJD3125W	25104-346-04
150	109	100	750	840	935	1030	1125	1220	1315	1410	1500	JDB3150W	25104-348-05	HJD3150W	25104-346-05
175	138	125	875	980	1090	1200	1310	1420	1530	1640	1750	JDB3175W	25104-348-06	HJD3175W	25104-346-06

**Table 21 Combination 2163Q PowerFlex 70 Drive Units (220 - 230, 380 - 415, 460 and 575V) and 2165Q PowerFlex 70 Drive Units with Manual Isolated Drive Bypass (460 and 575V) FDB, FD, HFD Thermal Circuit Breakers (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Ratings (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the PowerFlex 70 drive is the output ampere rating.)					Magnetic Trip Setting (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		220-230V	230V	380-415V	460V	575V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
15	0.9	—	—	—	—	0.5	500	800	FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01
	1.1	—	—	—	0.5	—								
	1.3	—	—	(0.37)	—	—								
	1.7	—	—	—	—	0.75 - 1								
	2.1	—	—	(0.55 - 0.75)	0.75 - 1	—								
	2.2	(0.37)	0.5	—	—	—								
	2.7	—	—	—	—	1.5 - 2								
	3.4	—	—	—	1.5 - 2	—								
	3.5	—	—	(1.1 - 1.5)	—	—								
	3.9	—	—	—	—	3								
	4.2	(0.55 - 0.75)	0.75 - 1	—	—	—								
	5	—	—	(2.2)	3	—								
20	6.1	—	—	—	—	5	500	1000	FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02
	6.8	(1.1 - 1.5)	1.5 - 2	—	—	—								
	8	—	—	—	5	—								
	8.7	—	—	(3.7)	—	—								
30	9	—	—	—	—	7.5	500	1000	FDB3030	25105-265-04	FD3030	25105-264-04	HFD3030	25105-263-04
	9.6	—	3	—	—	—								
	9.6	(2.2)	—	—	—	—								
	11	—	—	—	7.5	10								
40	11.5	—	—	(5.5)	—	—	500	1000	FDB3040	25105-265-06	FD3040	25105-264-06	HFD3040	25105-263-06
	14	—	—	—	10	—								
	15.3	—	5	—	—	—								
50	15.3	(3.7)	—	—	—	—	600	1200	FDB3050	25105-265-07	FD3050	25105-264-07	HFD3050	25105-263-07
	15.4	—	—	(7.5)	—	—								
	17	—	—	—	—	15								
60	22	(5.5)	7.5	(11)	15	20	600	1200	FDB3060	25105-265-08	FD3060	25105-264-08	HFD3060	25105-263-08
	27	—	—	—	20	—								
	28	(7.5)	10	—	—	—	600	1200	FDB3060	25105-265-08	FD3060	25105-264-08	HFD3060	25105-263-08

**Table 22 Combination 2163R PowerFlex 700 Drive Units (380 - 415V, 460V) and 2165R PowerFlex Drive Units with Manual Isolated Drive Bypass (460V) - FDB, FD, HFD Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Ratings (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) <small>(The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the PowerFlex 700 drive is the output ampere rating.)</small>			Magnetic Trip Setting (Amperes)		Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CB"		High Interrupting Capacity Suffix Letter "CM"	
		380-415V	460V	575V	Min.	Max.	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number
15	1.1	—	0.5	—	500	800	FDB3015	25105-265-01	FD3015	25105-264-01	HFD3015	25105-263-01
	1.3	(0.37)	—	—								
	1.7	—	—	1								
	2.1	(0.55 - 0.75)	0.75 - 1	—								
	2.7	—	—	1.5 - 2								
	3.4	—	1.5 - 2	—								
	3.5	(1.1 - 1.5)	—	—								
	3.9	—	—	3								
	5	(2.2)	3	—								
6.1	—	—	5									
20	8	—	5	—	500	1000	FDB3020	25105-265-02	FD3020	25105-264-02	HFD3020	25105-263-02
	8.7	(3.7)	—	—								
	9	—	—	7.5								
30	11	—	7.5	10	500	1000	FDB3030	25105-265-04	FD3030	25105-264-04	HFD3030	25105-263-04
	11.5	(5.5)	—	—								
	14	—	10	—								
40	15.4	(7.5)	—	—	500	1000	FDB3040	25105-265-06	FD3040	25105-264-06	HFD3040	25105-263-06
	17	—	—	15								
50	22	(11)	15	20	600	1200	FDB3050	25105-265-07	FD3050	25105-264-07	HFD3050	25105-263-07
	27	—	20	25								
60	30	(15)	—	—	600	1200	FDB3060	25105-265-08	FD3060	25105-264-08	HFD3060	25105-263-08
	32	—	—	30								
	34	—	25	—								
70	37	(18.5)	—	—	600	1200	FDB3070	25105-265-09	FD3070	25105-264-09	HFD3070	25105-263-09
	40	—	30	—								
	41	—	—	40								
	43	(22)	—	—								
100	52	—	40	50	700	1400	FDB3100	25105-265-11	FD3100	25105-264-11	HFD3100	25105-263-11
125	56	(30)	—	—	800	1600	FDB3125	25105-265-12	FD3125	25105-264-12	HFD3125	25105-263-12
	62	—	—	60								
	65	—	50	—								
150	72	(37)	—	—	800	1600	FDB3150	25105-265-13	FD3150	25105-264-13	HFD3150	25105-263-13

**Table 23 Combination 2163R PowerFlex 700 Drive Units (380- 415V, 460, 575V) and 2165R PowerFlex 700 Drive Units with Manual Isolated Drive Bypass (460, 575V) - JD, HJD, KD, HKD Thermal Magnetic Circuit Breakers (Adjustable Magnetic Trip)**

Continuous Current Rating (Amperes)	Drive Output Ratings (Amperes)	Nominal Horsepower Rating (Nominal Kilowatt Rating) (The horsepower and kW ratings shown here are nominal. The limiting factor in the application and use of the Bulletin 1336 PLUS and 1336 PLUS II drive is the output ampere rating.)			Magnetic Trip Setting (Amperes)										Standard Interrupting Capacity Suffix Letter "CT"		High Interrupting Capacity Suffix Letter "CM"									
		380-415V	460V	575V	5X	—	—	—	7.5X	—	—	—	10X	Cutler-Hammer Catalog Number	Allen-Bradley Part Number	Cutler-Hammer Catalog Number	Allen-Bradley Part Number									
125	77	—	60	75	625	700	780	860	940	1020	1050	1170	1250	JDB3125W	25104-348-04	HJD3125W	25104-346-04									
150	96	—	75	—	750	840	935	1030	1125	1220	1315	1410	1500	JDB3150W	25104-348-05	HJD3150W	25104-346-05									
	105	(45)	—	—										—	—	—	—	—	—	—	—					
175	125	—	100	100	875	980	1090	1200	1310	1420	1530	1640	1750	JDB3175W	25104-348-06	HJD3175W	25104-346-06									
250	105	(55)	—	—	1250	1405	1565	1720	1875	2030	2185	2340	2500	JDB3250W	25104-348-09	HJD3250W	25104-346-09									
	125	—	—	125														—	—	—	—	—	—	—	—	
	144	—	—	150														—	—	—	—	—	—	—	—	—
	156	—	125	—														—	—	—	—	—	—	—	—	—
300	170	(75 - 90)	—	—	1500	1690	1875	2065	2250	2440	2650	2815	3000	KDB3300W	25104-369-10	HKD3300W	25104-367-10									
																		—	—	—	—	—	—	—	—	

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