What's **new** in molded case circuit breakers:



New Sentron Sensitrip

Sentron Sensitrip IV ETU Circuit Breakers with Integrated DAS / Maintenance Mode

Design enhancements include:

- Upgraded ETU for NEC 240.87 code compliance (Arc Energy Reduction)
- Frame ratings from 400A to 1600A
- Identical footprint, kAIC ratings and accessory offering as legacy Sensitrip III ETU breakers to ease integration / retrofit
- Maintenance mode versions require customer-supplied 24V external power supply, maintenance switch and light

The New Siemens QR Circuit Breaker

Implemented in load centers, panelboards, switchboards, meter centers, and modular metering, the new QR breaker is the same form-factor/ mounting as QJ breaker for easy retrofit.

Design enhancements include:

- Trip unit ratings from 100A to 250A.
- Field installable internal accessories – shunt trip, aux switch or shunt/aux combo.
- Two accessory pockets in 3-pole breakers. One accessory pocket in 2-pole breakers.
- High in-rush current capability (450%).
- Push-to-trip button.



The new Siemens 3VA molded case circuit breakers



- 125A thru 800A Thermal Magnetic Trip breakers
- 150A thru 1000A Electronic Trip Circuit Breakers
- Extensive and flexible accessories
- Common internal accessories for the entire breaker family
- Power metering with the series-8 LCD electronic trip
- Illuminated rotary handles show switch position
- Smaller footprint than Sentron or VL breakers
- Enhanced Tools and Resources

The **Dual Function Circuit Breaker** combines GFCI and AFCI, protecting against both Arc Faults and Ground Faults. This, along with the new Self-Test & Lockout feature, makes it the first in class in electrical safety for homeowners.

- Faster Installation
- Cost savings
- Smaller Device
- Self Test & Lockout feature as required by UL 943 effective June 2015



The Siemens 3VA41 circuit breaker is a compact, industrial design thermal magnetic breaker with features which include a design that meets multi-national standards (UL, NOM, EAC), available with NAVAL ratings which meet UL489 Supplement SB, and an extensive selection of UL listed, field installable internal accessories (auxillary and alarm switches, shunt and undervoltage trips). The 3VA41 is available from 15A to 125A in 1, 1 in 2-pole, 2 or 3-pole versions on 1 inch pole centers having AC interrupting ratings up to 65KA @ 480VAC and 25KA @ 600Y347V and DC ratings up to 100KA @ 250VDC.



1-Pole **1 in 2-Pole** **2-Pole** **3-Pole**

Ordering

The 3VA breakers are shipped complete with non-interchangeable trip units and without lugs.

The 3VA41 panelboard mounted circuit breakers are shipped with aluminum load side lugs installed as standard.

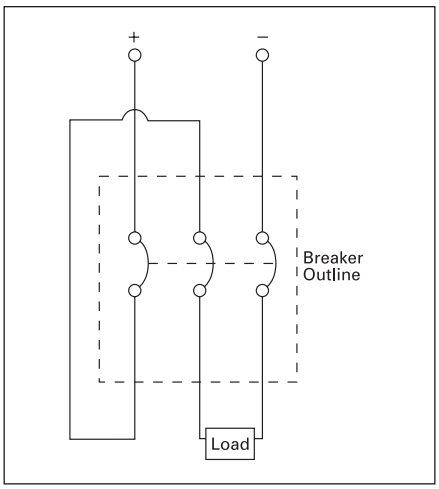
3VA51 through 3VA55 thermal-magnetic trip breakers as well as 3VA61 through 3VA66 electronic trip breakers are shipped as standard without lugs installed. To order factory installed nut keepers, which are required for installation in panelboards or switchboards, the 12th digit of the catalog should be change to "2" when ordering. (For example, a 35KA@480VAC, 40A, 3-pole, 3VA51 with lugs would be catalog number 3VA5140-5ED32-0AA0).

To order factory installed standard line and load lugs, the 12th digit of the catalog number should be changed to "6" (standard lugs are identified in the respective lug tables and footnotes in the SpeedFax). (For example, a 35KA@480VAC, 40A, 3-pole, 3VA51 with lugs would be catalog number 3VA5140-5ED3**6**-0AA0). Alternate connectors can be ordered separately for field installation.

All 3VA6 circuit breakers are certified to UL 489 Supplement SB, are marked "NAVAL", and are suitable for use at 50C.

To order NAVAL-rated thermal-magnetic trip circuit breakers, the 13th digit of the catalog number should be changed to the number "1". (For example, a 35KA @480VAC, 40A, 3-pole, NAVAL rated 3VA51 would be catalog number 3VA5140-5ED3**1**-1AA0).

All 3VA5 thermal-magnetic trip and 3VA6 electronic trip circuit breakers are UL listed for reverse feed applications.

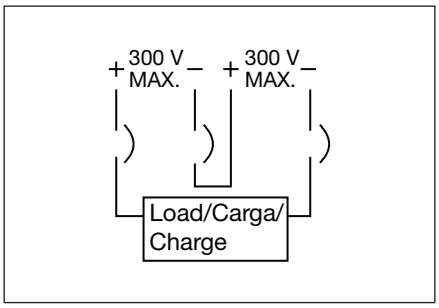


500V DC Wiring Configuration

Connecting Breakers for DC Application

Most Siemens thermal magnetic trip MCCBs are applicable on direct current (dc) systems. Generally, for 250 V dc systems a two pole breaker is used, with one pole on each leg of the supply circuit. For three pole breakers applied on 500 V undergrounded DC systems, it is important to connect the power supply "zig-zag" through the breaker as shown in the figure below. This assures that the Voltage between phases on the breaker terminals is uniformly distributed.

See below for an alternative connection diagram. For a list of 3VA5 breakers with the DC ratings, please refer to pages 7-10 to 7-11.










Type		3VA51	3VA51	3VA52	3VA53	3VA54	3VA55
Page		**7-50**	**7-50, 7-51, 7-52**	**7-58, 7-59, 7-60**	**7-66, 7-67**	**7-71**	**7-75**
Number of Poles		1	2, 3, 4	2 in 3-pole, 3, 4	2 in 3-pole, 3, 4	2 in 3-pole, 3, 4	3, 4
3VA5 molded case circuit breakers							
Size		125 A	125 A	250 A	400 A	600 A	800 A
Rated current I_n	A	15 … 125	15 … 125	100 … 250	200 … 400	400 … 600	600 … 800
Frequency	Hz	0 … 400	0 … 400	0 … 400	0 … 400	0 … 400	0 … 400
Electrical characteristics according to UL489							
Rated operational voltage 50/60 Hz AC	V	347	600	600	600	600	600
Electrical characteristics according to IEC 60947-2							
Rated operational voltage U_e 50/60 Hz AC	V	415	690	690	690	690	690
Rated insulation voltage U_i	V	500	800	800	800	800	800
Rated impulse withstand voltage U_{imp}	kV	8	8	8	8	8	8

Short-circuit breaking capacity according to UL 489 UL Breaker Type		Ⓢ SEAS	Ⓜ MEAS	Ⓗ HEAS	Ⓢ SEAS	Ⓜ MEAS	Ⓗ HEAS	Ⓜ MFAS	Ⓗ HFAS	Ⓒ CFAS	Ⓜ MJAS	Ⓗ HJAS	Ⓒ CJAS	Ⓜ MLAS	Ⓗ HLAS	Ⓒ CLAS	Ⓜ MMAS	Ⓗ HMAS	Ⓒ CMAS
120 V AC / 50/60 Hz	kA	65	85	150	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
240 V AC / 50/60 Hz	kA	—	—	—	65	85	100	85	100	200	85	100	200	85	100	200	85	100	200
277 V AC / 50/60 Hz	kA	25	35	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
347 V AC / 50/60 Hz	kA	14	18	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
480 Y/277 V AC / 50/60 Hz	kA	—	—	—	25	35	65	35	65	100	35	65	100	35	65	100	35	65	100
480 V AC / 50/60 Hz	kA	—	—	—	25	35	65	35	65	100	35	65	100	35	65	100	35	65	100
600 Y/347 V AC / 50/60 Hz	kA	—	—	—	14	18	25	18	25	35	18	25	35	18	25	35	18	25	50
600 V AC / 50/60 Hz	kA	—	—	—	—	—	—	18	25	35	18	25	35	18	25	35	18	25	50
125 V DC	kA	14	25	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
250 V DC	kA	—	—	—	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
500 V DC	kA	—	—	—	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
600 V DC (3-pole only)	kA	—	—	—	—	—	—	50	85	100	50	85	100	50	85	100	50	85	100
750 V DC (4-pole only)	kA	—	—	—	—	—	—	50	85	100	50	85	100	50	85	100	50	85	100
1000 V DC (4-pole only)	kA	—	—	—	—	—	—	50	85	100	6	6	10	6	6	10	18	25	50

Short-circuit breaking capacity according to IEC 60947-2		Ⓢ	Ⓜ	Ⓗ	Ⓢ	Ⓜ	Ⓗ	Ⓜ	Ⓗ	Ⓒ	Ⓜ	Ⓗ	Ⓒ	Ⓜ	Ⓗ	Ⓒ	Ⓜ	Ⓗ	Ⓒ
Rated ultimate short-circuit breaking capacity I_{cu} **Rated service short-circuit breaking capacity I_{cs}** rms value, according to IEC 60947-2																			
240 V AC / 50/60 Hz	kA	25/25	36/36	55/55	55/55	85/85	150/150	85/85	100/100	200/200	85/85	100/100	200/200	85/85	100/100	200/200	85	100	200
415 V AC / 50/60 Hz	kA	5/5	5/5	5/5	36/36	55/55	70/70	55/55	70/70	110/110	55/55	70/70	110/110	55/55	70/70	110/110	55	70	110
690 V AC / 50/60 Hz	kA	—	—	—	5/5	7/5	10/5	7/7	10/10	10/10	7/7	10/10	10/10	7/7	10/10	10/10	25	35	35
125 V DC	kA	14	25	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
250 V DC	kA	—	—	—	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
500 V DC	kA	—	—	—	50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
750 V DC (3-pole only)	kA	—	—	—	—	—	—	50	85	100	50	85	100	50	85	100	50	85	100

— Not available

Applicable Standards:

- UL489 - Molded Case Circuit Breakers
- UL486A - Wire connectors and solderless lugs for use with copper
- UL486B- Wire connectors and solderless lugs for use with aluminum wire
- CSA-22.2 No. 5-13 - Molded Case Circuit Breakers, Molded case switches and circuit breaker enclosures
- EN 60947-1 AMD 2 - Molded case circuit breakers
- EN 60947-2 AMD 2 2013
- EN 50581 2012 - RoHS compliant
- All 3VA breakers are HACR rated per UL

Catalog Numbering Logic

3VA	6	1	40	5	HL	3	1	0	A	A0

Breaker Designation

Thermal magnetic panelboard breakers	4
Thermal magnetic (Cable-in Cable-out) breakers	5
Electronic trip breakers	6

Frame Size

125/150A	1
250A	2
400A	3
600A	4
800A	5
1000A	6

Rated Current

3VA41/ 3VA51	3VA52	3VA53	3VA54	3VA55	3VA61	3VA62	3VA63	3VA64	3VA65	3VA66	
15A											95
20A	200A	200A									20
	225A	225A									22
25A	250A	250A				250A	250A				25
30A		300A									30
35A		350A									35
40A	40A	400A			40A		400A	400A			40
45A	45A		450A								45
50A	50A		500A								50
60A	60A		600A	600A				600A	600A		60
70A	70A			700A							70
80A	80A			800A					800A		80
90A	90A										90
100A	100A				100A	100A				1000A	10
110A	110A										11
125A	125A										12
	150A				150A						15
	175A										17

Interrupting Capacity @ 480V

3VA4/3VA5	3VA6		
MCP/MCS	200K		0
MCP/MCS	MCP/MCS		1
25K			4
35K	35K		5
65K	65K		6
100K	100K		7
	150K		8

Trip Unit Protection Functions (see next page for details)

Number of Poles (see next page for details)

Connection Technology (see next page for details)

Regional Specifics (as applicable) (see next page for details)

Auxiliary Releases (see next page for details)

Auxiliary/Alarm Switches (see next page for details)

Catalog Numbering Logic (cont.)

3VA	6	1	40	–	5	HL	3	1	0	A	A0

(see previous page for details)

Trip Unit Protection Functions										
3VA4/3VA5		L	I	N						
TM230	MCCB	fix	adj							EC
TM210	MCCB	fix	fix							ED
TM240	MCCB	adj	adj							EF
TM230	MCCB	fix	adj	100%						GC
TM210	MCCB	fix	fix	100%						GD
TM240	MCCB	adj	adj	100%						GF
TM110M	MSP		fix							MG
TM120M	MSP		adj							MH
TM120M	MSP		adj							MU
MCS110	MSC		fix							BB
3VA6		**L**	**S**	**I**	**G**	**N**	**LCD**	**com.**	**measurement values**	
ETU320 LI	MCCB	adj		adj		0%/50%/100%				HL
ETU330 LIG	MCCB	adj		adj	adj	0%/50%/100%				HM
ETU350 LSI	MCCB	adj	adj	fix		0%/50%/100%				HN
ETU550 LSI	MCCB	adj	adj	adj		20/40%...100/160%	yes	yes	standard	JP
ETU556 LSI(G)	MCCB	adj	adj	adj	alarm	20/40%...100/160%	yes	yes	standard	JT
ETU560 LSIG	MCCB	adj	adj	adj	adj	20/40%...100/160%	yes	yes	standard	JQ
ETU820 LI	MCCB	adj		adj		20/40%...100/160%	yes	yes	advanced	KL
ETU830 LIG	MCCB	adj		adj	adj	20/40%...100/160%	yes	yes	advanced	KM
ETU850LSI	MCCB	adj	adj	adj		20/40%...100/160%	yes	yes	advanced	KP
ETU856 LSI(G)	MCCB	adj	adj	adj	alarm	20/40%...100/160%	yes	yes	advanced	KT
ETU860 LSIG	MCCB	adj	adj	adj	adj	20/40%...100/160%	yes	yes	advanced	KQ
ETU310M	MCP			adj						MS
MCS110	MCS			fix						BB

Number of Poles	
1 pole	1
2 pole	2
3 pole	3
4 pole	4
1-in-2 pole	5
2-in-3 pole	6

Connection Technology	
No wire connector	1
Nut keeper kit, line and load	2
Nut keeper kit, load end only	3
Aluminum wire connector, load end only	4
Wire connector, line end only	5
Wire connector, line and load	6

Regional Specifics (as applicable)	
Standard	0
NAVAL/50C	1
100% Rated (3VA6)	2

Auxiliary Releases		
	Without	A

Auxiliary/Alarm Switches		
	Without	A0

3VA53 400A, 2-Pole in 3-Pole Frame, Thermal-Magnetic Trip Unit

Cont. Ampere Rating	M-Interrupting Class (MJAS) Catalog Number	H-Interrupting Class (HJAS) Catalog Number	C-Interrupting Class (CJAS) Catalog Number
	TM230 FTAM		
200	3VA5320-5EC61-0AA0	3VA5320-6EC61-0AA0	3VA5320-7EC61-0AA0
225	3VA5322-5EC61-0AA0	3VA5322-6EC61-0AA0	3VA5322-7EC61-0AA0
250	3VA5325-5EC61-0AA0	3VA5325-6EC61-0AA0	3VA5325-7EC61-0AA0
300	3VA5330-5EC61-0AA0	3VA5330-6EC61-0AA0	3VA5330-7EC61-0AA0
350	3VA5335-5EC61-0AA0	3VA5335-6EC61-0AA0	3VA5335-7EC61-0AA0
400	3VA5340-5EC61-0AA0	3VA5340-6EC61-0AA0	3VA5340-7EC61-0AA0

3VA53 400A Frame, 3-Pole Frame, Thermal-Magnetic Trip Unit

Cont. Ampere Rating	M-Interrupting Class (MJAS) Catalog Number	H-Interrupting Class (HJAS) Catalog Number	C-Interrupting Class (CJAS) Catalog Number
	TM230 FTAM①		
200	3VA5320-5EC31-0AA0	3VA5320-6EC31-0AA0	3VA5320-7EC31-0AA0
225	3VA5322-5EC31-0AA0	3VA5322-6EC31-0AA0	3VA5322-7EC31-0AA0
250	3VA5325-5EC31-0AA0	3VA5325-6EC31-0AA0	3VA5325-7EC31-0AA0
300	3VA5330-5EC31-0AA0	3VA5330-6EC31-0AA0	3VA5330-7EC31-0AA0
350	3VA5335-5EC31-0AA0	3VA5335-6EC31-0AA0	3VA5335-7EC31-0AA0
400	3VA5340-5EC31-0AA0	3VA5340-6EC31-0AA0	3VA5340-7EC31-0AA0
	TM240 ATAM		
200	3VA5320-5EF31-0AA0	3VA5320-6EF31-0AA0	3VA5320-7EF31-0AA0
225	3VA5322-5EF31-0AA0	3VA5322-6EF31-0AA0	3VA5322-7EF31-0AA0
250	3VA5325-5EF31-0AA0	3VA5325-6EF31-0AA0	3VA5325-7EF31-0AA0
300	3VA5330-5EF31-0AA0	3VA5330-6EF31-0AA0	3VA5330-7EF31-0AA0
350	3VA5335-5EF31-0AA0	3VA5335-6EF31-0AA0	3VA5335-7EF31-0AA0
400	3VA5340-5EF31-0AA0	3VA5340-6EF31-0AA0	3VA5340-7EF31-0AA0

Trip Settings for 3VA53

TM230 - FTAM

I_n (Amp)	I_r(Amp)	I_i (Amp)					
200	200	1000	1200	1400	1600	1800	2000
225	225	1125	1350	1575	1800	2025	2250
250	250	1250	1500	1750	2000	2250	2500
300	300	1500	1800	2100	2400	2700	3000
350	350	1750	2100	2450	2800	3150	3500
400	400	2000	2400	2800	3200	3600	4000

TM240 - ATAM

I_n (Amp)	I_r(Amp) 90%	I_r(Amp) 80%	I_i (Amp)					
200	180	160	1000	1200	1400	1600	1800	2000
225	203	180	1125	1350	1575	1800	2025	2250
250	225	200	1250	1500	1750	2000	2250	2500
300	270	240	1500	1800	2100	2400	2700	3000
350	315	280	1750	2100	2450	2800	3150	3500
400	360	320	2000	2400	2800	3200	3600	4000



3VA53 400A 3-Pole

Ordering Information

The catalog numbers listed here are for complete, non-interchangeable trip circuit breakers without lugs.

For factory installed nut keepers (3VA94730QA00), change the 12th digit of the catalog number to "2" (required to install a breaker in a panelboard or switchboard that has a provision). (For example, a 35KA @480VAC, 400A, 3-pole, 3VA53 with nut keepers would be catalog number 3VA5340-5EC3**2**-0AA0).

For factory installed standard line and load lugs, change the 12th digit to "6" (standard lugs are identified in the lug table and footnotes in this section of the SpeedFax). (For example, a 35KA @480VAC, 400A, 3-pole, 3VA53 with lugs would be catalog number 3VA5340-5EC3**6**-0AA0). Alternate connectors can be ordered separately for field installation.

For NAVAL-rated thermal-magnetic trip circuit breakers, change the 13th digit of the catalog number to the number "1". (For example, a 35KA @480VAC, 400A, 3-pole, NAVAL rated 3VA53 would be catalog number 3VA5340-5EC31-**1**AA0)

All 3VA53 thermal-magnetic trip circuit breakers are UL listed for reverse feed applications.

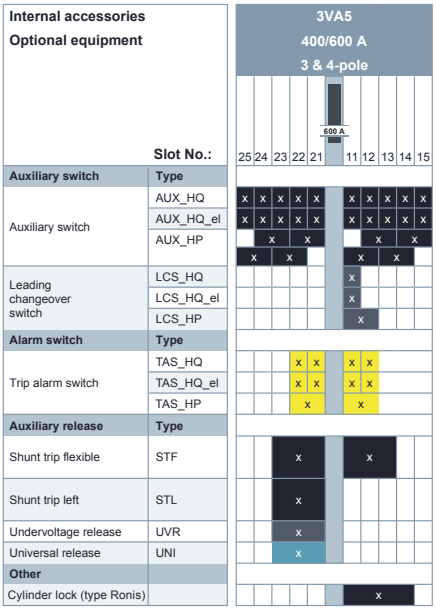
① Available with NAVAL/50C ratings.

3VA53 400A Frame, 4-Pole Frame, Thermal-Magnetic Trip Unit

Cont. Ampere Rating	M-Interrupting Class (MJAS) Catalog Number	H-Interrupting Class (HJAS) Catalog Number	C-Interrupting Class (CJAS) Catalog Number
TM230 FTAM Unprotected Neutral			
200	3VA5320-5EC41-0AA0	3VA5320-6EC41-0AA0	3VA5320-7EC41-0AA0
225	3VA5322-5EC41-0AA0	3VA5322-6EC41-0AA0	3VA5322-7EC41-0AA0
250	3VA5325-5EC41-0AA0	3VA5325-6EC41-0AA0	3VA5325-7EC41-0AA0
300	3VA5330-5EC41-0AA0	3VA5330-6EC41-0AA0	3VA5330-7EC41-0AA0
350	3VA5335-5EC41-0AA0	3VA5335-6EC41-0AA0	3VA5335-7EC41-0AA0
400	3VA5340-5EC41-0AA0	3VA5340-6EC41-0AA0	3VA5340-7EC41-0AA0
TM240 ATAM Unprotected Neutral			
200	3VA5320-5EF41-0AA0	3VA5320-6EF41-0AA0	3VA5320-7EF41-0AA0
225	3VA5322-5EF41-0AA0	3VA5322-6EF41-0AA0	3VA5322-7EF41-0AA0
250	3VA5325-5EF41-0AA0	3VA5325-6EF41-0AA0	3VA5325-7EF41-0AA0
300	3VA5330-5EF41-0AA0	3VA5330-6EF41-0AA0	3VA5330-7EF41-0AA0
350	3VA5335-5EF41-0AA0	3VA5335-6EF41-0AA0	3VA5335-7EF41-0AA0
400	3VA5340-5EF41-0AA0	3VA5340-6EF41-0AA0	3VA5340-7EF41-0AA0
TM230 FTAM 100% Neutral			
200	3VA5320-5GC41-0AA0	3VA5320-6GC41-0AA0	3VA5320-7GC41-0AA0
225	3VA5322-5GC41-0AA0	3VA5322-6GC41-0AA0	3VA5322-7GC41-0AA0
250	3VA5325-5GC41-0AA0	3VA5325-6GC41-0AA0	3VA5325-7GC41-0AA0
300	3VA5330-5GC41-0AA0	3VA5330-6GC41-0AA0	3VA5330-7GC41-0AA0
350	3VA5335-5GC41-0AA0	3VA5335-6GC41-0AA0	3VA5335-7GC41-0AA0
400	3VA5340-5GC41-0AA0	3VA5340-6GC41-0AA0	3VA5340-7GC41-0AA0
TM240 ATAM 100% Neutral			
200	3VA5320-5GF41-0AA0	3VA5320-6GF41-0AA0	3VA5320-7GF41-0AA0
225	3VA5322-5GF41-0AA0	3VA5322-6GF41-0AA0	3VA5322-7GF41-0AA0
250	3VA5325-5GF41-0AA0	3VA5325-6GF41-0AA0	3VA5325-7GF41-0AA0
300	3VA5330-5GF41-0AA0	3VA5330-6GF41-0AA0	3VA5330-7GF41-0AA0
350	3VA5335-5GF41-0AA0	3VA5335-6GF41-0AA0	3VA5335-7GF41-0AA0
400	3VA5340-5GF41-0AA0	3VA5340-6GF41-0AA0	3VA5340-7GF41-0AA0



3VA53 400A 4-Pole



Dimensions

Shipping Weight

Breaker	Poles	W in. (mm)	H in. (mm)	D in. (mm)	lbs.	kg
3VA53	3	5.4 (137)	9.8 (249)	5.4 (137)	11.5	5.2
3VA53	4	7.2 (183)	9.8 (249)	5.4 (137)	15.0	6.8

Interrupting Ratings for 3VA53

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (kA)									
		Volts AC (50/60 Hz)					Volts DC				
		240	480Y/ 277V	480	600Y/ 347V	600	250 (2P)	600 (3P)	750 (3P)	750 (4P)	1000 (4P)
M	MJAS	85	35	35	18	18	50	50	10	50	10
H	HJAS	100	65	65	25	25	85	85	10	85	10
C	CJAS	200	100	100	35	35	100	100	10	100	10