

FRENIC - HPAQ

Bypass Submittal Summary – UL Type 1 / NEMA 12 Ventilated & UL Type 12

Project:	
Engineer/Architect:	
Contractor:	
Submitted By:	Date:

Equip. Tag #	VFD Model #	Unit Ratings (Voltage, HP, Rated Current)

Configurations

- Bypass for Pumps & Cooling Tower Fans 3 Contactor bypass with Class 20 motor overload protection and input circuit breaker that provides simple manual bypass control logic.
- Bypass for Ventilation Fans

3 Contactor bypass with Class 20 motor overload protection and input circuit breaker that provides a comprehensive set of control features including; damper control output, damper end switch input, fire mode input with selectable low or high level priority safety inputs and selectable automatic bypass.



FRENIC-HPAQ Bypass Model Numbering System Diagram

PNL ### AR1 1 - ## U - X # X X/a Product Type Prefix	<u># ×</u>	<u>× ×</u>
Horsepower Rating 001 = 1Hp 050 = 50Hp 200 = 200Hp		
Drive Series AR1 = FRENIC-HVAC w/ Additional Pump Functionality		
Product Generation 1 = 1st Generation		
Input Voltage 20 = 208VAC 23 = 230VAC 46 = 460VAC 57 = 575VAC		
Country Code U = USA		
Configuration P = 3 Contactor Bypass for Pumps & Cooling Tower Fans F = 3 Contactor Bypass for Ventilation Fans		
Enclosure Type 1 = UL Type 1 ⁽¹⁾ 2 = UL Type 12 (Available for: 1-30Hp @ 208/230V, 1-75Hp @ 460V, 1-60Hp @ 575V)		
Main Disconnect Type C = Circuit Beaker		
Power Options X = None		
Control Options X = None B = Real Time Clock Backup Battery		
Communication Options X = None ⁽²⁾ E = Ethernet L = LonWorks		
I/O Options		

X = None

A = Qyt 2 Additional Analog Inputs & Qty 2 Additional Analog Outputs

B = Qty 2 Additional Analog Current (4-20mA) Outputs

R = RTD Input

Notes

(1) Enclosure meets NEMA 12 Ventilated (Gasketed & Filtered) requirements for:

40-60Hp @ 208/230VAC, 100-200Hp @ 460VAC, & 75-200Hp @ 575VAC

(2) Modbus RTU, Johnson Metasys N2, and BACnet are provided as standard, selectable via parameter setting

FRENIC-HPAQ Bypass Features

	Bypass for Pumps	Bypass for Fans
Featur	es	
Input Circuit Breaker	S	S
Drive Input Isolation Contactor	S	S
Drive Output Contactor	S	S
Bypass Contactor	S	S
Class 20 Motor Overload Relay	S	S
DC Link Reactor	S	S
EMC Filter	S	S
Control Power Transformer w/ Fusing	S	S
Power On Indication	S	S
Drive Run Indication	via Keypad	via Keypad
Drive Fault Indication	via Keypad	via Keypad
Bypass Run Indication	S	S
Motor Overload Indication	S	S
Isolated - Normal Selector Switch	S	S
VFD - Off - Bypass Selector Switch	S	S
Hand - Off - Auto Selector Switch	S	S
Remote - Local (for Bypass) Selector Switch	N/A	S
Enable Input	S	N/A
2 Level Priority Safety Inputs	N/A	S
Damper End Switch Input	N/A	S
Fire Mode Input	N/A	S
Automatic Bypass Permissive	N/A	S
Run Command Input	S	S
Bypass Local Override Input	S	N/A
Drive Fault Output	S	S
Drive Run Output	S	S
Bypass Run Output	S	S
Damper Control Output	N/A	S
Analog Signal Inputs	0-10VDC	0-10VDC
	4-20mA	4-20mA
Analog Signal Outputs	0-10VDC	0-10VDC
	4-20mA	4-20mA
Customer Control I/O Terminal Strip	S	S
Communcation	Protocols	
Modbus RTU	S	S
Metasys N2	S	S
BACnet	S	S
LonWorks	0	0
EtherNet	0	0
Codes & Sta	Indards	
UL 508A	S	S
Applicable NEMA & NFPA Standards	S	S

S = Provided As Standard

O = Available Option

FRENIC-HPAQ Bypass General Specifications

Environmental	
Enclosure	UL Type 1/NEMA 12 Ventilated, UL Type 12
Ambient Temperature	+14°F to +104°F (-10°C to +40°C)
Storage Temperature	+5°F to +140°F (-15°C to +60° C)
Humidity	5% to 95% with no condensation
Altitude	0 to 3,300 ft. (1,000 m) without derating, derate output current for higher altitudes per FRENIC-HVAC User's Manual

Codes and Standards

UL Listed per UL508A
Conforms to applicable NEMA ICS, NFPA, IEC/EN & Additional UL standards

Electrical

Input Voltage: Nominal - Phase	208VAC, 230VAC, 460VAC, 575VAC - 3 Phase
Input Voltage: Tolerance, Unbalance	+/-10%, <u><</u> 3% for 208VAC, 230VAC, & 460VAC
	-10% to 600V Maximum, <u><</u> 3% for 575VAC
Input Frequency	60Hz +/-5%
Displacement Power Factor	<u>></u> 0.97
Output Voltage: Range - Phase	0 to maximum input voltage - 3 Phase
Output Frequency	0.1 to 120Hz
Motor Control Method	PWM drive output with V/f control, Dynamic Torque Vector control, or V/f control with Slip Compensation
PWM Switch Frequency	0.75 to 16kHz (1-25Hp @ 208/230V and 1-50Hp @ 460V/575V) 0.75 to 10kHz (30-60Hp @ 208/230V and 60-125Hp @ 460V/575V) 0.75 to 6kHz (150-200Hp @ 460V/575V)
Drive Overload Capacity	110% rated current for 1 min.
Motor Overload	Class 20 Protection
Torque Boost	Auto or Manual (0.0 to 20%) settings available
Speed Reference	0 to <u>+</u> 10VDC, 4 to 20mA, 0 to 20mA, or Keypad (programmable inverse operation for analog signals)
Speed Reference Resolution	Analog setting: 1/3000 of maximum frequency Keypad setting: 0.01Hz (99.99Hz or less)
Acceleration/Deceleration Time	0 to 3600 seconds, with four user selectable patterns
Jump Frequencies	Qty 3 programmable frequency set points with adjustable jump bandwidth of 0 to 30Hz
Output Signals	Qty 1: N.O. dry contacts rated 0.3A @ 230V max, functionality: Drive Run
	Qty 1: Form C dry contacts rated 0.3A @ 230V max, functionality: Drive Fault
	Qty 1: N.O. dry contacts rated 5A @ 230V max, functionality: Bypass Run
	Qty 1: N.O. dry contacts rated 5A @ 230V max, functionality: Damper Control <i>(available only with bypass for fans)</i>
	Qty 1: 0 to 10VDC, user selectable programmable analog signal
	Qty 1: 4 to 20mA, user selectable programmable analog signal

FRENIC-HPAQ BYPASS for Pumps & Cooling Tower Fans

Drawing Number Selection Matrix

		Outline	Electrical	
Hp Rating	Rated Output Current [A]	Drawing Number	Drawing Number	Door Device Layout
		Number	Number	Layout
1	4.6			
2	7.5	ROA700202		
3	10.6			
5	16.7		ł	
7.5	24.2	ROA700203	ROA700206	
10	30.8		ł	ROA700200
15	46.2	ROA700204		KOA700200
20	59.4		ł	
25	74.8	ROA700205		
30 40	88 114	BOA700209		ł
		ROA700208	ROA700210	
50 60	143 169	ROA700209	KOA700210	
	109			
OVAC			I	I
		Outline	Electrical	
Un Daties	Rated Output	Drawing Number	Drawing Number	Door Device
Hp Rating	Current [A]	Number	Tedunuri	Layout
1	2.1			
2	3.4			
3	4.8	ROA700202		
5	7.6			
7.5	11			
10	14		ł	
15	21		ROA700206	
20	27	ROA700203		
25	34			ROA700200
30	40		ł	
40	52	ROA700204		
50	65		ł	
60	77	ROA700205		
75	96			-
100	127	ROA700208	ł	
125	156	DO 4700000	ROA700210	
150	180	ROA700209		
200	240			
	240			
200		Outline	Electrical	
200 25VAC	Rated Output	Drawing	Drawing	Door Device
200 '5VAC Hp Rating	Rated Output Current [A]			Door Device Layout
200 '5VAC Hp Rating 1	Rated Output Current [A]	Drawing	Drawing	
200 5VAC Hp Rating 1 2	Rated Output Current [A] 1.7 2.7	Drawing	Drawing	
200 5VAC Hp Rating 1 2 3	Rated Output Current [A] 1.7 2.7 3.9	Drawing	Drawing	
200 5VAC Hp Rating 1 2 3 5	Rated Output Current [A] 1.7 2.7 3.9 6.1	Drawing Number	Drawing	
200 5VAC Hp Rating 1 2 3 5 7.5	Rated Output Current [A] 1.7 2.7 3.9 6.1 9	Drawing Number	Drawing	
200 5VAC Hp Rating 1 2 3 5 7.5 10	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11	Drawing Number	Drawing Number	
200 5VAC Hp Rating 1 2 3 5 7.5 10 15	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17	Drawing Number	Drawing	
200 5VAC Hp Rating 1 2 3 5 7.5 10 15 20	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22	Drawing Number	Drawing Number	
200 5VAC Hp Rating 1 2 3 5 7.5 10 15 20 25	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27	Drawing Number ROA700202	Drawing Number	
200 5VAC 1 2 3 5 7.5 10 15 20 25 30	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32	Drawing Number ROA700202	Drawing Number	Layout
200 5VAC 1 2 3 5 7.5 10 15 20 25 30 40	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41	Drawing Number ROA700202	Drawing Number	Layout
200 5VAC 1 2 3 5 7.5 10 15 20 25 30 40 50	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41 52	Drawing Number ROA700202 ROA700203 ROA700204	Drawing Number	Layout
200 5VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30 40 50 60	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41 52 62	Drawing Number ROA700202 ROA700203	Drawing Number	Layout
200 5VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30 40 50 60 75	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41 52 62 77	Drawing Number ROA700202 ROA700203 ROA700204	Drawing Number	Layout
200 5VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30 40 50 60 75 100	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41 52 62 77 99	Drawing Number ROA700202 ROA700203 ROA700204 ROA700205	Drawing Number	Layout
200 5VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30 40 50 60 75	Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41 52 62 77	Drawing Number ROA700202 ROA700203 ROA700204 ROA700205	Drawing Number	Layout

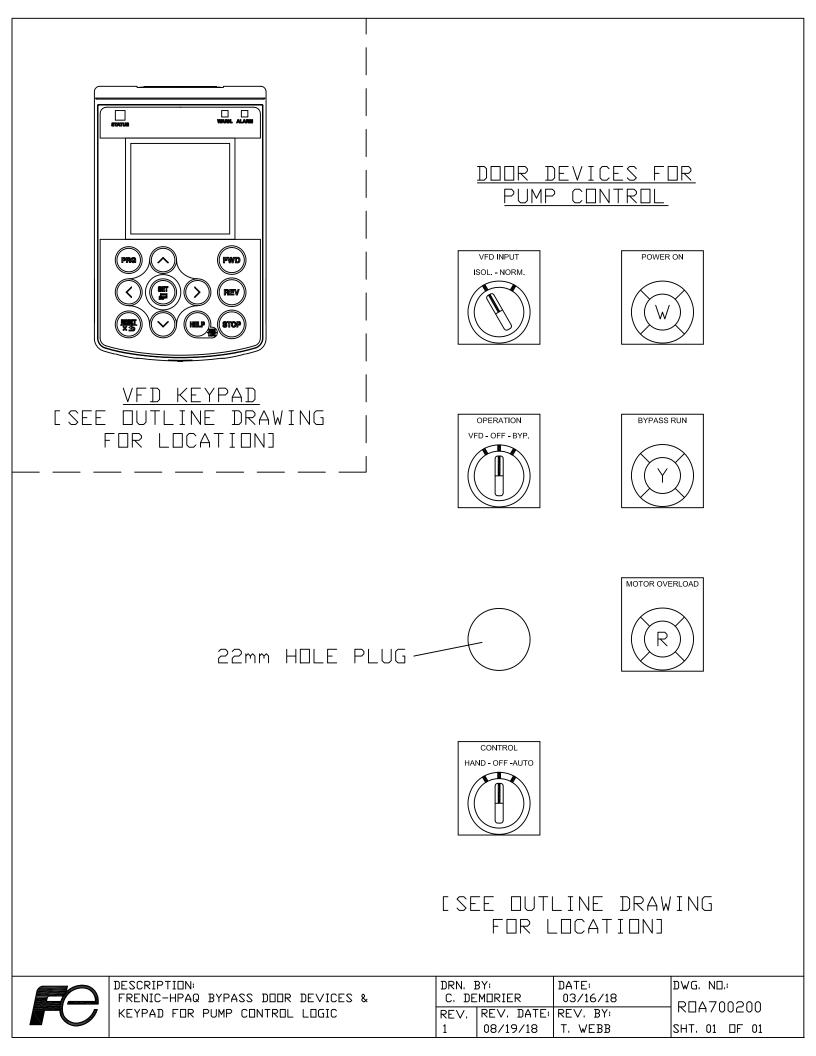
FRENIC-HPAQ BYPASS for Fans

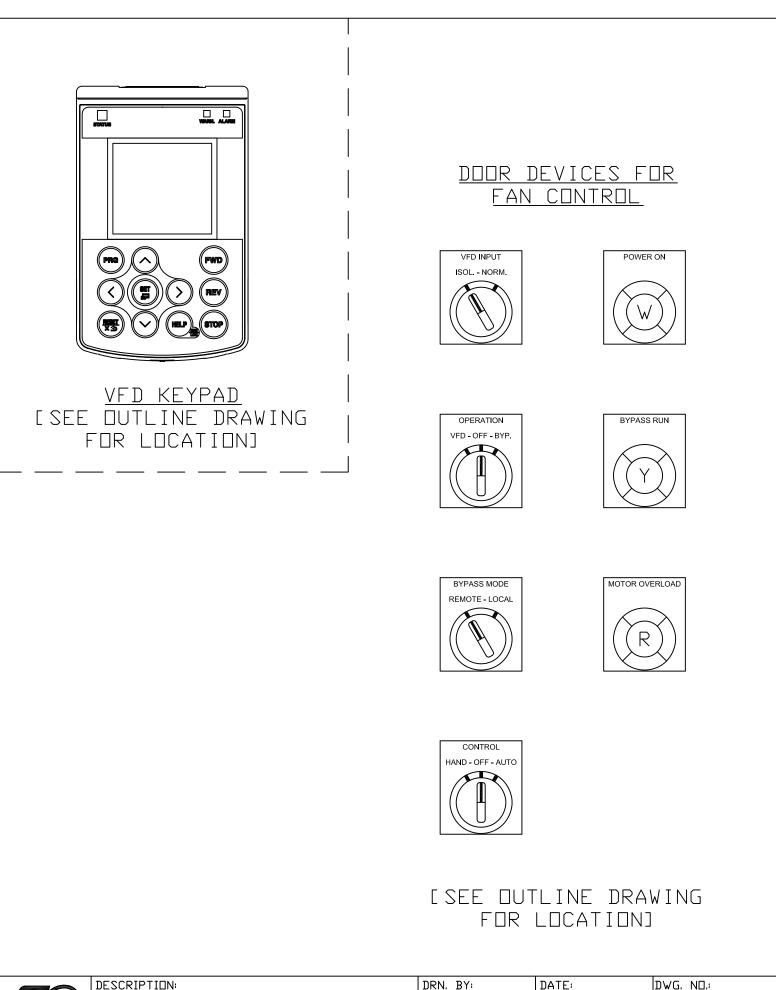
Drawing Number Selection Matrix

208/230VAC				
Un Datina	Rated Output	Outline Drawing	Electrical Drawing	Door Device
Hp Rating	Current [A]	Number	Number	Layout
1	4.6			
2	7.5	ROA700202		
3	10.6			
5	16.7			
7.5	24.2	ROA700203	ROA700207	
10	30.8			DO 4 700004
15	46.2	ROA700204		ROA700201
20	59.4			
25	74.8	ROA700205		
30	88			ł
40	114	ROA700208		
50	143	ROA700209	ROA700211	
60	169			
60VAC	1		-	
		Outline	Electrical	
	Rated Output	Drawing	Drawing	Door Device
Hp Rating	Current [A]	Number	Number	Layout
1	2.1			
2	3.4			
3	4.8	ROA700202		
5	7.6	NOAT 00202		
7.5	11			
10	14			
15	21		50,700007	
20	27		ROA700207	
25	34	ROA700203		
30	40			ROA700201
40	52			
50	65	ROA700204		
60	77			
75	96	ROA700205		
100	127	ROA700208		ł
125	156	110/11/00200	ł	
120		ROA700209	ROA700211	
150		110/1100/203		
150 200	180 240			
200	180 240			
200	240	Outline	Electrical	De ca De cice
200	240 Rated Output	Drawing	Drawing	Door Device
200 575VAC Hp Rating	240 Rated Output Current [A]			Door Device Layout
200 575VAC Hp Rating 1	240 Rated Output Current [A] 1.7	Drawing	Drawing	
200 575VAC Hp Rating 1 2	240 Rated Output Current [A] 1.7 2.7	Drawing	Drawing	
200 675VAC Hp Rating 1 2 3	240 Rated Output Current [A] 1.7 2.7 3.9	Drawing	Drawing	
200 575VAC Hp Rating 1 2 3 5	240 Rated Output Current [A] 1.7 2.7 3.9 6.1	Drawing Number	Drawing	
200 i75VAC Hp Rating 1 2 3 5 7.5	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9	Drawing Number	Drawing	
200 i75VAC Hp Rating 1 2 3 5 7.5 10	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11	Drawing Number	Drawing Number	
200 i75VAC Hp Rating 1 2 3 5 7.5 10 15	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 17	Drawing Number	Drawing	
200 i75VAC Hp Rating 1 2 3 5 7.5 10 15 20	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22	Drawing Number ROA700202	Drawing Number	
200 i75VAC Hp Rating 1 2 3 5 7.5 10 15	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27	Drawing Number	Drawing Number	Layout
200 F75VAC Hp Rating 1 2 3 5 7.5 10 15 20	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22	Drawing Number ROA700202	Drawing Number	
200 i75VAC Hp Rating 1 2 3 5 7.5 10 15 20 25	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27	Drawing Number ROA700202 ROA700203	Drawing Number	Layout
200 i75VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32	Drawing Number ROA700202	Drawing Number	Layout
200 i75VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30 40	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41	Drawing Number ROA700202 ROA700203	Drawing Number	Layout
200 575 VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30 40 50	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41 52	Drawing Number ROA700202 ROA700203 ROA700204 ROA700205	Drawing Number	Layout
200 575 VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30 40 50 60	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41 52 62	Drawing Number ROA700202 ROA700203 ROA700204	Drawing Number	Layout
200 575 VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30 40 50 60 75 100	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41 52 62 77 99	Drawing Number ROA700202 ROA700203 ROA700204 ROA700205	Drawing Number	Layout
200 i75VAC Hp Rating 1 2 3 5 7.5 10 15 20 25 30 40 50 60 75	240 Rated Output Current [A] 1.7 2.7 3.9 6.1 9 11 17 22 27 32 41 52 62 77	Drawing Number ROA700202 ROA700203 ROA700204 ROA700205	Drawing Number ROA700207	Layout

FRENIC-HPAQ Bypass

Base Control Family month Family month Control from the post Control from the post Control from the post Control from the post East month East month <th>Rated Current (A) Rated Current (A) Cutput (a) Cutput (b) Cutrent (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A)</th> <th>Input Circuit BreakerRating Frame Size (F) = Frame Size (T) = Trip Setting 15 15 20 30 90 15 15 20 20 30 90 155 156 157 300(F) / 300(T) 300(F) / 300(T) 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 16 17 18 19 10 15 15 16 17 17 18 19 10 15 <</th> <th>VFD Input Fuses [A],[V] 8A, 600V- Class J Time-Delay Fuses 10A, 600V- Class J Time-Delay Fuses 10A, 600V- Class J Time-Delay Fuses 20A, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 60A, 600V- Class J Time-Delay Fuses 80A, 600V- Class J Time-Delay Fuses 80A, 600V- Class J Time-Delay Fuses 80A, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 84, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 84, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 12A, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 140A, 600V- Class J Time-Delay Fuses</th> <th>Complete Assembly SCCR [kA] 100 100 35 35</th> <th>Overall Dimensions - Height x Width x Depth [Inches] 48.00 x 6.19 x 15.69 54.00 x 8.31 x 15.69 67.00 x 11.50 x 16.76 64.31 x 24.25 x 22.10 90.00 x 36.00 x 27.05⁽²⁾ 90.00 x 27.05⁽²⁾ 90.00 x 48.00 x 27.05⁽²⁾ 48.00 x 6.19 x 15.69</th> <th>Estimated Max. Weight 70 103 158 70 791 791 791 791 791</th> <th>Estimated Watts Loss [W] 119 152 307 307 307 307 162 591 591 198 591 108 1586 1586 1586 1586 1586 1586 1586 158</th>	Rated Current (A) Rated Current (A) Cutput (a) Cutput (b) Cutrent (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A) Cutput (A)	Input Circuit BreakerRating Frame Size (F) = Frame Size (T) = Trip Setting 15 15 20 30 90 15 15 20 20 30 90 155 156 157 300(F) / 300(T) 300(F) / 300(T) 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 16 17 18 19 10 15 15 16 17 17 18 19 10 15 <	VFD Input Fuses [A],[V] 8A, 600V- Class J Time-Delay Fuses 10A, 600V- Class J Time-Delay Fuses 10A, 600V- Class J Time-Delay Fuses 20A, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 60A, 600V- Class J Time-Delay Fuses 80A, 600V- Class J Time-Delay Fuses 80A, 600V- Class J Time-Delay Fuses 80A, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 84, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 84, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 12A, 600V- Class J Time-Delay Fuses 30A, 600V- Class J Time-Delay Fuses 140A, 600V- Class J Time-Delay Fuses	Complete Assembly SCCR [kA] 100 100 35 35	Overall Dimensions - Height x Width x Depth [Inches] 48.00 x 6.19 x 15.69 54.00 x 8.31 x 15.69 67.00 x 11.50 x 16.76 64.31 x 24.25 x 22.10 90.00 x 36.00 x 27.05 ⁽²⁾ 90.00 x 27.05 ⁽²⁾ 90.00 x 48.00 x 27.05 ⁽²⁾ 48.00 x 6.19 x 15.69	Estimated Max. Weight 70 103 158 70 791 791 791 791 791	Estimated Watts Loss [W] 119 152 307 307 307 307 162 591 591 198 591 108 1586 1586 1586 1586 1586 1586 1586 158
Abore Abore <th< th=""><th>60Hz, 3PH 4.6 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.6 10.6 10.6 7.5 7.6 2.4.2 76.2 30.8 30.8 9.8 7.6 143 143 143 143 143 143 143 143 143 143 143 143 143 144 143 144 144 145 144 145 144 145 146 147 148 149 141 141</th><th>15 15 15 15 30 30 50 50 50 250(F)/175(T) 300(F)/255(T)/255(T) 300(F)/255(T) 300(F)/255(T) 300(F)/255</th><th>8A, 600V - Class J Time-Delay Fuses 10A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 80A, 600V - Class J Time-Delay Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Class J Time-Delay Fuses 360A, 600V - Class J Time-Delay Fuses 360A, 600V - Class J Time-Delay Fuses 360A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses</th><th>35 100</th><th>48.00 × 6.19 × 15.69 54.00 × 8.31 × 15.69 67.00 × 11.50 × 16.76 64.31 × 24.25 × 22.10 90.00 × 48.00 × 27.05⁽²⁾ 90.00 × 48.00 × 27.05⁽²⁾</th><th>70 103 376 1133 791 1133 70 70</th><th>119 152 190 307 364 447 591 792 835 108 1676 1839 1676 1839 125 125</th></th<>	60Hz, 3PH 4.6 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.6 10.6 10.6 7.5 7.6 2.4.2 76.2 30.8 30.8 9.8 7.6 143 143 143 143 143 143 143 143 143 143 143 143 143 144 143 144 144 145 144 145 144 145 146 147 148 149 141 141	15 15 15 15 30 30 50 50 50 250(F)/175(T) 300(F)/255(T)/255(T) 300(F)/255(T) 300(F)/255(T) 300(F)/255	8A, 600V - Class J Time-Delay Fuses 10A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 80A, 600V - Class J Time-Delay Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Class J Time-Delay Fuses 360A, 600V - Class J Time-Delay Fuses 360A, 600V - Class J Time-Delay Fuses 360A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35 100	48.00 × 6.19 × 15.69 54.00 × 8.31 × 15.69 67.00 × 11.50 × 16.76 64.31 × 24.25 × 22.10 90.00 × 48.00 × 27.05 ⁽²⁾ 90.00 × 48.00 × 27.05 ⁽²⁾	70 103 376 1133 791 1133 70 70	119 152 190 307 364 447 591 792 835 108 1676 1839 1676 1839 125 125
16 11 10 80.00V. Class J Time-Daily Fiesses 49.00X. 61.9X 1569 70 10.5 11.1 20 12.6.00V. Class J Time-Daily Fiesses 65 67.00X 1150 X 1569 103 20.5 20.5 00.0V. Class J Time-Daily Fiesses 65 67.00X 1150 X 156 103 20.5 20.5 00.0V. Class J Time-Daily Fiesses 65 67.00X 1150 X 167 103 20.5 20.6 00.0V. Class J Time-Daily Fiesses 65 67.00X 1150 X 167 103 21.6 20.00V. Class J Time-Daily Fiesses 00.00X - 688 J Time-Daily Fiesses 90.00X - 6100 X 158 J 103 21.7 200 00.00V. Class J Time-Daily Fiesses 100 90.00X - 6100 X 158 J 103 21.8 21.8 200.00V. Class J Time-Daily Fiesse 100 90.00X 4100 X 158 J 103 21.8 21.8 200.00V. Class J Time-Daily Fiesse 100 90.00X 4100 X 158 J 103 21.8 21.8 200.00V. Class J Time-Daily Fiesse 100 48.00X 619X 156 J 103 21.8 21.8 200.00V. Class J Time-Daily F	4.6 7.5 7.5 7.5 7.5 16.7 16.7 7.5 7.5 24.2 30.8 30.8 30.8 30.8 30.8 30.8 30.8 30.8 30.8 30.8 30.8 114 114 114 114 114 115 2.1 3.4 3.4 3.4 3.4 114 11 11 11 11 11 117 117 117 117 117 117 117 117 117 111 111 111 111 <	15 15 15 15 20 20 20 50 70 20 125 15 15 15 15 15 15 15 15 15 15 15 15 15	8A, 600V - Class J Time-Delay Fuses 10A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 20A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 600V - 600V - Class J Time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 50A, 700V - Semiconductor Fuses 250A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 360A, 600V - Class J Time-Delay Fuses 360A, 600V - Class J Time-Delay Fuses 360A, 600V - Class J Time-Delay Fuses 360A, 700V - Semiconductor Fuses 360A, 600V - Class J Time-Delay Fuses 360A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35 100 65	48.00 x 6.19 x 15.69 54.00 x 8.31 x 15.69 67.00 x 11.50 x 16.76 64.31 x 24.25 x 22.10 90.00 x 48.00 x 27.05 ⁽²⁾ 90.00 x 48.00 x 27.05 ⁽²⁾	70 103 168 158 376 441 1133 1133	119 152 152 307 364 447 591 792 792 792 792 792 1676 1676 1676 1839 1678 1839
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15.2 17.0 0.0 2.0, (00.V. Class JTme-Delay) Fienes 6 3.0, (00.V. Class JTme-Delay) Fienes 9 9 3.0, (00.V. Class JTme-Delay) Fienes 9 9 3.0, (00.V. Class JTme-Delay) Fienes 9	16.7 16.7 24.2 24.2 30.8 46.2 59.4 74.8 74.8 74.8 74.8 73.3 114 114 114 115 1169 2.1 2.1 3.3 3.4 40 40 55 604 11 11 12 13.4 2.1 2.1 2.1 2.1 11 11 12 17 17 17 17 17 17 17 17 17 17 17 17 17 17 17	30 30 40 50 90 90 125 155 15 300(F) / 300(T) 300(F) / 300(T) 15 15 15 15 15 15 15 15 15 15 15 15 15	20A, 600V - Class J Time-Delay Fuses 40A, 600V - Class J Time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 80A, 600V - Class J Time-Delay Fuses 50A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 13A, 600V - Class J Time-Delay Fuses 13A, 600V - Class J Time-Delay Fuses 13A, 600V - Class J Time-Delay Fuses	35 100	54.00 × 8.31 × 15.69 67.00 × 11.50 × 16.76 64.31 × 24.25 × 22.10 90.00 × 48.00 × 27.05 ⁽²⁾ 90.00 × 48.00 × 27.05 ⁽²⁾	103 - 103 - 103 - 103 - 103 - 1133 - 11133 - 70 - 70 - 70 - 70 - 70 - 70 - 70 -	307 307 447 591 591 792 835 835 1108 1586 1586 1586 139 139 139
3/2 3/4 60 3/40 0/2 3/40 0/3 <td>24.2 24.2 24.2 46.2 59.4 114 114 113 169 2.1 2.1 2.1 2.1 2.1 2.1 111 111 111 111</td> <td>40 50 70 90 125 125 155 150 300(F) / 175(T) 300(F) / 300(T) 300(F) / 300(T) 15 15 15 15 15 15 15 15 15 15 15 15 15</td> <td>304, 600V - Class J Time-Delay Fuses 306, 600V - Class J Time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 80A, 600V - Class J Time-Delay Fuses 100A, 600V - Class J Time-Delay Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 34, 600V - Class J Time-Delay Fuses 84, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses</td> <td>35 10 55</td> <td>54.00 × 8.31 × 15.69 67.00 × 11.50 × 16.76 64.31 × 24.25 × 22.10 90.00 × 36.00 × 27.05⁽²⁾ 90.00 × 48.00 × 27.05⁽²⁾ 48.00 × 6.19 × 15.69</td> <td>103 - 103 - 158 - 158 - 158 - 158 - 1133 - 1133 - 70 - 70 - 70 - 70 - 70 - 70 - 70 -</td> <td>364 364 591 792 835 835 1108 1586 1586 1586 1839 1839 1839 147</td>	24.2 24.2 24.2 46.2 59.4 114 114 113 169 2.1 2.1 2.1 2.1 2.1 2.1 111 111 111 111	40 50 70 90 125 125 155 150 300(F) / 175(T) 300(F) / 300(T) 300(F) / 300(T) 15 15 15 15 15 15 15 15 15 15 15 15 15	304, 600V - Class J Time-Delay Fuses 306, 600V - Class J Time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 80A, 600V - Class J Time-Delay Fuses 100A, 600V - Class J Time-Delay Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 34, 600V - Class J Time-Delay Fuses 84, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35 10 55	54.00 × 8.31 × 15.69 67.00 × 11.50 × 16.76 64.31 × 24.25 × 22.10 90.00 × 36.00 × 27.05 ⁽²⁾ 90.00 × 48.00 × 27.05 ⁽²⁾ 48.00 × 6.19 × 15.69	103 - 103 - 158 - 158 - 158 - 158 - 1133 - 1133 - 70 - 70 - 70 - 70 - 70 - 70 - 70 -	364 364 591 792 835 835 1108 1586 1586 1586 1839 1839 1839 147
9/2 6/1 0/1 6/10 (model) freese 0/10 (model)	30.8 30.8 30.4 30.8 59.4 30.8 59.4 114 114 113 169 169 2.1 2.1 2.1 14 114 114 114 116 2.1 2.1 2.1 2.1 11 11 11 11 127 2.1 2.1 2.1 11 11 127 12 128 2.1 233 2.1 234 2.1 127 11 127 12 128 2.1 239 604 9 9 9 9 11 11 11 11 11 11 11 11 11 11	20 70 90 125 125 125 125 150 250(F)/15(T) 300(F)/200(T) 15 15 15 15 15 15 15 15 15 15	40A, 600V - Class J time-Delay Fuses 60A, 600V - Class J Time-Delay Fuses 80A, 600V - Class J Time-Delay Fuses 250A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 30A, 700V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	33 100	67.00 × 11.50 × 16.76 64.31 × 24.25 × 22.10 90.00 × 36.00 × 27.05 ⁽²⁾ 90.00 × 48.00 × 27.05 ⁽²⁾ 48.00 × 6.19 × 15.69	158 376 441 1133 791 713	447 591 792 835 1108 1676 1676 1676 1886 1886 1886 1839 1839 1839 1839 1839 1839 1839 1839
46.2 60.7 10 0.00 0.00 0.00 0.00 0.00 0.00 10.00 <td>59.4 59.4 59.4 88 88 88 88 88 88 88 114 114 114 169 169 169 114 114 114 164 114 164 115 114 114 14 114 14 127 221 23 34 265 52 655 655 66 221 127 77 127 77 23 240 66 66 11 17 11 17 11 9 9 9 61 9 9 9 11 11 11 11</td> <td>70 90 125 150 250(F)/175(T) 300(F)/255(T) 300(F)/200(T) 15 15 15 15 15 15 15 15 15 15 15 15 15</td> <td>800, 600V - Class J Time-Delay Fuses 800, 600V - Class J Time-Delay Fuses 100A, 600V - Class J Time-Delay Fuses 250A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 360A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses</td> <td>35 100</td> <td>67.00 x 11.50 x 16.76 64.31 x 24.25 x 22.10 90.00 x 36.00 x 27.05⁽²⁾ 90.00 x 48.00 x 27.05⁽²⁾ 48.00 x 6.19 x 15.69</td> <td>158 376 441 1133 70 70 70</td> <td>591 792 835 1108 1676 1676 1886 1886 1839 1839 1839 1839 1839 1839 1839 1833 1833</td>	59.4 59.4 59.4 88 88 88 88 88 88 88 114 114 114 169 169 169 114 114 114 164 114 164 115 114 114 14 114 14 127 221 23 34 265 52 655 655 66 221 127 77 127 77 23 240 66 66 11 17 11 17 11 9 9 9 61 9 9 9 11 11 11 11	70 90 125 150 250(F)/175(T) 300(F)/255(T) 300(F)/200(T) 15 15 15 15 15 15 15 15 15 15 15 15 15	800, 600V - Class J Time-Delay Fuses 800, 600V - Class J Time-Delay Fuses 100A, 600V - Class J Time-Delay Fuses 250A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 360A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35 100	67.00 x 11.50 x 16.76 64.31 x 24.25 x 22.10 90.00 x 36.00 x 27.05 ⁽²⁾ 90.00 x 48.00 x 27.05 ⁽²⁾ 48.00 x 6.19 x 15.69	158 376 441 1133 70 70 70	591 792 835 1108 1676 1676 1886 1886 1839 1839 1839 1839 1839 1839 1839 1833 1833
324 323 10 0000, currents, time-boay, freese 10 300	93.4 93.4 93.4 143 114 114 114 114 114 133 114 144 2.1 3.4 3.4 3.4 2.1 3.4 2.1 14 111 14 112 14 12 21 23 3.4 240 65 125 156 126 21 233 3.4 240 65 66 17 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1	125 150 250(F)/175(T) 300(F)/255(T) 300(F)/255(T) 300(F)/255(T) 300(F)/200(T) 15 15 15 15 15 15 15 15 15 15 15 15 15	ovn, couv Llass J time-Delay Fuses 100A, 800V - Class J time-Delay Fuses 250A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 350A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35 100	64.31 × 24.25 × 22.10 90.00 × 36.00 × 27.06 ⁽²⁾ 90.00 × 48.00 × 27.05 ⁽²⁾ 48.00 × 6.19 × 15.69	376 441 791 1133 70 70	192 1108 1676 1586 1586 1839 1839 1839 1839 1839 1839
xis xis <td>74.0 74.0 114 114 114 114 118 169 60Hz 34 2.1 3.4 11 14 12 14 14 14 14 14 156 14 160 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 280 66 17 17 17 17 17 17 17 17 17 11 9 9 6 11 17 11</td> <td>150 250(F)/175(T) 300(F)/255(T) 300(F)/255(T) 300(F)/255(T) 300(F)/255(T) 15 15 15 15 15 15 15 15 15 15 15 15 15</td> <td>250A, 700V - Semiconductor Fuses 250A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses</td> <td>35</td> <td>64.31 x 24.25 x 22.10 90.00 x 36.00 x 27.06⁽²⁾ 90.00 x 48.00 x 27.05⁽²⁾ 48.00 x 6.19 x 15.69</td> <td>701 791 1133 70 70</td> <td>1108 1676 1586 1839 1839 108 125</td>	74.0 74.0 114 114 114 114 118 169 60Hz 34 2.1 3.4 11 14 12 14 14 14 14 14 156 14 160 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 27 280 66 17 17 17 17 17 17 17 17 17 11 9 9 6 11 17 11	150 250(F)/175(T) 300(F)/255(T) 300(F)/255(T) 300(F)/255(T) 300(F)/255(T) 15 15 15 15 15 15 15 15 15 15 15 15 15	250A, 700V - Semiconductor Fuses 250A, 700V - Semiconductor Fuses 350A, 700V - Semiconductor Fuses 350A, 700V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35	64.31 x 24.25 x 22.10 90.00 x 36.00 x 27.06 ⁽²⁾ 90.00 x 48.00 x 27.05 ⁽²⁾ 48.00 x 6.19 x 15.69	701 791 1133 70 70	1108 1676 1586 1839 1839 108 125
114 115 2007, 125(1) 200, 127, 00 ³ 201 113 114 116 200, 127, 00 ³ 1133 114 115 200, 125(1) 250, 000, Casa J Time-Dalay Fuenes 100 90, 00, 27, 00 ³ 1133 06A, 27, 01 231 15 80, 600, Casa J Time-Dalay Fuenes 10 90, 00, 27, 06 ³ 1133 054, 27, 01 15 16 60, 000, Casa J Time-Dalay Fuenes 35 48, 00, 60, 136 1133 121 231 15 60, 600, Casa J Time-Dalay Fuenes 36 48, 00, 61, 91, 156 103 121 231 60 600, Casa J Time-Dalay Fuenes 36 48, 00, 61, 156 103 121 231 60 600, Casa J Time-Dalay Fuenes 56 41, 00, 83, 14, 156 103 121 231 60 600, Casa J Time-Dalay Fuenes 57 44, 10 123 121 233 60 600, Casa J Time-Dalay Fuenes 57 67, 00, 1150, 10, 10 103 121 233 60 600, Casa	86 114 114 169 169 169 2.1 2.1 2.1 1.4 1.1 1.1	250(F)/175(T) 300(F)/175(T) 300(F)/300(T) 15 15 15 15 15 15 15 15 16 00 60 60 60	2504, 100V - Semonucor ruses 3504, 700V - Semonucor ruses 3504, 700V - Class J Time-Delay Fuses 300A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 40A, 600V - Class J Time-Delay Fuses	32 90	90.00 × 36.00 × 27.06 ⁽²⁾ 90.00 × 48.00 × 27.05 ⁽²⁾ 48.00 × 6.19 × 15.69	70	1000 1676 1586 1839 1839 1839 1839 1839 125
H3 H1 Contribution Contribution Control Contro <th< td=""><td>113 113 60/12, 3PH 2.1 2.1 3.4 3.4 3.4 7.6 3.4 11 14 11 14 12 14 12 21 23 40 55 604, 3PH 127 14 127 14 127 21 23 96 127 127 126 221 233 34 96 117 17 17 17 9 9 9 9 9 9 11 11 9 9 9 9 9 11 11</td><td>200(F)/1713(1) 300(F)/256(T) 300(F)/200(T) 15 15 15 15 15 15 15 15 15 15 15 15 15</td><td>300A, 600V - Class J Time-Delay Fuses 300A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses</td><td>35</td><td>90.00 x 48.00 x 27.05⁽²⁾ 90.00 x 48.00 x 27.05⁽²⁾ 48.00 x 6.19 x 15.69</td><td>70</td><td>1000 1586 1839 1839 108 125</td></th<>	113 113 60/12, 3PH 2.1 2.1 3.4 3.4 3.4 7.6 3.4 11 14 11 14 12 14 12 21 23 40 55 604, 3PH 127 14 127 14 127 21 23 96 127 127 126 221 233 34 96 117 17 17 17 9 9 9 9 9 9 11 11 9 9 9 9 9 11 11	200(F)/1713(1) 300(F)/256(T) 300(F)/200(T) 15 15 15 15 15 15 15 15 15 15 15 15 15	300A, 600V - Class J Time-Delay Fuses 300A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35	90.00 x 48.00 x 27.05 ⁽²⁾ 90.00 x 48.00 x 27.05 ⁽²⁾ 48.00 x 6.19 x 15.69	70	1000 1586 1839 1839 108 125
113 2000, 430,02,20,6 ¹⁰ 1133 1133 604, 27,4 16 A6,000, Class J Time-Delay Fusies 10 900,0,27,6 ¹⁰ 1133 21 21 15 6,000, Class J Time-Delay Fusies 35 48,00,41,650 103 21 21 15 6,000, Class J Time-Delay Fusies 35 48,00,41,560 103 21 213 00 20,000, Class J Time-Delay Fusies 35 48,00,48,01,4156 103 21 213 00 20,000, Class J Time-Delay Fusies 56 67,000,156 163 21 213 00 20,000, Class J Time-Delay Fusies 56 64,11,20,115 103 22 213 00 60,000, Class J Time-Delay Fusies 65 64,11,20,116 103 22 23 00 60,000, Class J Time-Delay Fusies 65 64,11,20,20 141 22 23 00 60,000, Class J Time-Delay Fusies 65 64,31,2,24,55,22,00 141 23 26 64,000, Class J Time-Delay Fusies	169 169 169 169 2.1 2.1 2.1 3.4 3.4 3.4 11 11 12 21 21 14 14 14 15 3.4 16 14 17 77 75 52 66 96 17 1.7 17 3.3 6.1 9 9 9 17 1.7 17 1.7 17 1.1 17 1.1 17 1.1 17 1.1 17 1.1 17 11 17 11 17 11 17 11 17 11 17 11 17 11 17 11 11 11 12	300(F) / 530(T) 300(F) / 300(T) 15 15 15 15 15 15 16 16 60 60 60	2004, 000V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35	90.00 x 48.00 x 27.05 ⁽²⁾ 48.00 x 6.19 x 15.69	70	1000 1839 108 125
Obt. 32H 1 3 600x. Class J Time-Delay Fuese 35 48 37 75 75 75 75 75 75 75 75 75 75 75 75 75 75 75 75 75 75 75 76	60Hz, 3PH 2:1 2:4 3:4 3:4 3:4 3:4 3:4 3:4 3:4 3:4 3:4 3:4 3:4 3:4 3:4 3:4 3:4 11 11 127 21 127 127 127 127 127 127 127 127 127 127 127 128 129 121 127 128 117 11 11 11 11 11 11 11 11 11	15 15 15 15 15 15 15 15 15 15 15 15 15 1	3A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	88	48.00 × 6.19 × 15.69	2	108 125 147
2.1 2.4 15 3.400V- Class J Time-Delay Fuees 35 48.00 × 6.19 x 15.69 70 3.4 5.1 15 6.000V- Class J Time-Delay Fuees 35 48.00 × 6.19 x 15.69 70 1.4 14.3 20 20.4 600V- Class J Time-Delay Fuees 35 48.00 × 6.19 x 15.69 103 2.1 2.23 200 20.4 600V- Class J Time-Delay Fuees 54.00 × 8.31 x 15.69 103 2.1 2.13 200 20.4 600V- Class J Time-Delay Fuees 54.00 × 8.31 x 15.69 103 2.1 7.1 7.1 20 20.4 600V- Class J Time-Delay Fuees 65 64.31 x 2.4 2 x 22.10 411 2.1 7.1 7.1 200 20.0 500V- Class J Time-Delay Fuees 65 64.31 x 2.4 2 x 22.10 411 2.2 2.33 400 600V- Class J Time-Delay Fuees 65 64.31 x 2.4 2 x 2.10 411 2.2 2.00 2.00V- Samonulacie Fuees 65 64.31 x 2.4 2 x 2.10 411 2.2 2.01 2.00V- Class J Time-Delay Fuees 65 64.31 x 2.4 2 x 2.10	2.1 3.4 3.4 3.4 4.8 3.4 111 111 121 227 227 234 24 24 26 55 55 55 55 52 127 27 27 27 27 27 27 27 27 27	15 15 15 15 15 15 15 15 15 15 15 15 15 1	3A, 600V - Class J Time-Delay Fuses 6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35	48.00 x 6.19 x 15.69	02	108 125 147
34 37 15 64. 600V. Class J Time-Delay Fuses 35 48. 00 × 6.19 × 15.60 70 1	3.4 3.4 4.8 7.6 7.1 21 21 21 21 21 21 21 21 21 21 21 21 21	15 15 15 15 15 60 60 60	6A, 600V - Class J Time-Delay Fuses 8A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses	35	48.00 × 6.19 × 15.69	8	125
4.8 5.1 15 8.4 60V·C Class J Time-Delay Flaese 35 48.00 × 6.19 × 15.69 70 7.6 7.9 20 12.4 600V·C Class J Time-Delay Flaeses 35 48.00 × 6.19 × 15.69 103 2.7 2.7 3.0 2.0.4 600V·C Class J Time-Delay Flaeses 54.00 × 6.19 × 15.69 103 2.7 2.3 50 40.00 ·C Class J Time-Delay Flaeses 65 64.00 × 15.60	4.8 7.6 7.6 2.1 2.1 2.7 2.7 2.7 2.7 1.7 1.7 1.7 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.7 1.7 1.7 1.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2	15 15 30 30 60 60 60	8A, 600V - Class J Time-Delay Fuses 12A, 600V - Class J Time-Delay Fuses 15A, 600V - Class J Time-Delay Fuses 20A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 40A, 600V - Class J Time-Delay Fuses	35	48.00 x 6.19 x 15.69	2	147
7.6 7.9 1.5 1.2.0 1.5.4.00V. Class J Time-Dely Fieres 0.0 0.00X.015X 1.3024 0.0 7.1 1.13 30 20 56.00V. Class J Time-Dely Fieres 103 103 7.1 2.13 50 0.00X.01 Class J Time-Dely Fieres 54.00X 8.31x 15.69 103 7.1 2.13 50 0.00X.01 Class J Time-Dely Fieres 64.00X 1.50X 16.76 158 8.2 8.3 0.0 50X.60X-1 Class J Time-Dely Fieres 64.11.50X 16.76 158 8.2 8.3 0.0 60.00X-1058 J Time-Dely Fieres 66 61.31.24.25 x 22.10 441 8.6 9.0 9.00 600X-0158 J Time-Dely Fieres 66 61.31.24.25 x 22.10 441 9.0 9.00 500X-0100X-10168 J Time-Dely Fieres 90.00 2.80.02.27.06 ¹⁰ 731 9.0 3007/1267(J 300X-000X-0168 J Time-Dely Fieres 66 41.31.24.25 x 22.10 441 9.0 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00	7.6 11 21 27 27 34 34 34 34 11 77 77 77 77 77 12 12 12 12 12 12 12 12 12 12 12 12 12	15 20 30 50 60 60	12A, 600/ - Class J Time-Delay Fuses 15A, 600/ - Class J Time-Delay Fuses 20A, 600/ - Class J Time-Delay Fuses 30A, 600/ - Class J Time-Delay Fuses 40A, 600/ - Class J Time-Delay Fuses	0	40.00 X 0.19 X 10.09	2	Ē
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	14 14 21 21 21 21 23 34 34 40 52 55 65 55 1156 1157 1156 1156 1156 1156 117 127 139 39 60hz 39H 339 6.1 9 9 9 9 11 11	30 50 60 70	20A, 600V - Class J Time-Delay Fuses 30A, 600V - Class J Time-Delay Fuses 40A, 600V - Class J Time-Delay Fuses				257
21 21.3 40 300.000. Class J Time-Delay Fuess 3 50 400.6000. Class J Time-Delay Fuess 3 50 400.803.116.60 103 31 303 60.600. Class J Time-Delay Fuess 3 67.000.115.00.16.76 163 103 31 303 60.600. Class J Time-Delay Fuess 3 67.000.115.00.16.76 163	21 27 27 34 40 55 55 65 65 112 77 77 112 112 112 112 112 112 240 240 240 240 240 240 240 50 177 177 177 177 177 177 177 177 177 17	40 50 60 70	30A, 600V - Class J Time-Delay Fuses 40A, 600V - Class J Time-Delay Fuses				340
27 27.3 50 40.600V. Class J Time-Delay Fuees 64.00 x 8.31 x 15.69 103 34 34.3 60 60.600V. Class J Time-Delay Fuees 67.00 x 1150 x 16.76 158 103 26 82.3 80 60.600V. Class J Time-Delay Fuees 65 67.00 x 150 x 15.60 158 103 761 773 125 250A, 700V. Semiconductor Fuees 65 64.31 x 24.55 x 22.10 441 120 773 206 760V. Semiconductor Fuees 66 64.31 x 24.55 x 22.10 441 120 774 20 156 260A, 700V. Semiconductor Fuees 60.00 x 48.00 x 27.06 ¹⁰ 721 775 206/f 156(T) 300/f 126(T) 300/f 126(T) 120 1202 775 200 21.50 200 x 48.00 x 27.06 ¹⁰ 1202 1221 776 30 15 300/f 126(T) 300/f 126(T) 1202 1202 777 20 15 300/f 126(T) 300/f 126(T) 1201 1202 778 20 15	27 34 52 52 52 66 65 77 77 77 77 77 77 77 77 77 77 77 240 60 54 240 240 240 60 7 17 77 77 77 77 77 77 77 77 77 77 77 7	50 60 70	40A, 600V - Class J Time-Delay Fuses				435
34 34.3 60 50,600° - Class J Time-Delay Fuses 00	34 34 34 40 40 40 55 26 55 26 55 26 55 26 55 26 55 26 55 26 55 26 55 24 0 24 0 24 0 24 0 24 0 24 0 24 0 2	60 20			61 00 × 8 31 × 16 60	501	545
40 403 70 60A, 600V. Class JTme-Delay Fuess 65 65 67 150 67 156 158 150 77 77.4 125 260A, 700V. Class JTme-Delay Fuess 127 65 67.3 100 100.600V. Class JTme-Delay Fuess 126 65 67.3 100 100.00 × 36.00 × 21.60 °. 791 71 77.4 125 250A, 700V. Semiconductor Fuess 126 90.00 × 36.00 × 21.60 °. 791 41 126 153 300F/ 125(T) 250A, 00V. Class JTme-Delay Fuess 240 90.00 × 48.00 × 27.06 °. 791 126 133 300F/ 125(T) 350A, 00V. Class JTme-Delay Fuess 240 90.00 × 48.00 × 27.06 °. 1221 17 2.0 15 64.60V. Class JTme-Delay Fuess 3.0 18 (1) 48.00 × 6.19 × 15.69 70 17 2.0 15 64.60V. Class JTme-Delay Fuess 6.1 18 (1) 48.00 × 6.19 × 15.69 70 17 2.0 15 64.00V. Class JTme-Delay Fuess 6.1 18 (1) 48.00 × 6.19 × 15.69 70 17 2.0 15 60.00V. Class JTme-Dela	40 52 65 65 127 127 127 127 128 60 Kz 3PH 240 60 Kz 3PH 6.1 17 11 11 11 11 11 11 11 11 11 11 11 11	70	50A, 600V - Class J Time-Delay Fuses		01:00 X 0:01 X 10:00	001	562
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65 65.3 100 100A, 600V. Class J Time-Delay Fuses 65 44.1 11 127 124 125 250A, 700V. Semiconductor Fuses 90.00 x 36.00 x 27.06 ¹³ 791 11 127 124 125 250A, 700V. Semiconductor Fuses 90.00 x 36.00 x 27.06 ¹³ 791 120 120 153 300(F) / 255(T) 350A, 600V. Class J Time-Delay Fuses 90.00 x 48.00 x 27.06 ¹³ 791 1202 120 15 300(F) / 265(T) 350A, 600V. Class J Time-Delay Fuses 90.00 x 48.00 x 27.06 ¹³ 1202 1202 240 230 15 6A, 600V. Class J Time-Delay Fuses 90.00 x 48.00 x 27.06 ¹³ 1202 33 4.2 15 6A, 600V. Class J Time-Delay Fuses 90.00 x 6.19 x 15.69 70 17 3.0 15 6A, 600V. Class J Time-Delay Fuses 16 ¹¹ 48.00 x 6.19 x 15.69 70 17 17.3 3.0 15 6A, 600V. Class J Time-Delay Fuses 91.00 x 6.19 x 15.69 70 17 17.3 2.3 12.4 60.00 x 11.60 x 6.19 x 15.6	65 77 96 127 127 180 180 117 1.7 2.7 3.9 6042, 3PH 1.7 1.7 6.1 6.1 1.7 1.7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	00			67.00 × 11.50 × 16.76	158	940
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15. 15. <td>60H2 3PH 156 11.7 1.7 1.7 1.7 3.9 6 1 3.9 6 1 1 1 1 1 1 1 7 7 7 7 7 7 7 7 7 7 7 7</td> <td>250/E1 / 202/T1</td> <td>2004, 700V - Settiliouriducior Fuses 350A-700V - Semiconductor Fuses</td> <td></td> <td>$00.00 \times 36.00 \times 37.06^{(2)}$</td> <td>701</td> <td>1606</td>	60H2 3PH 156 11.7 1.7 1.7 1.7 3.9 6 1 3.9 6 1 1 1 1 1 1 1 7 7 7 7 7 7 7 7 7 7 7 7	250/E1 / 202/T1	2004, 700V - Settiliouriducior Fuses 350A-700V - Semiconductor Fuses		$00.00 \times 36.00 \times 37.06^{(2)}$	701	1606
100 103 $000(F)/200(F)$ 1202 1202 1202 240 243 $400(F)/200(T)$ $350A$, $600V$. Class J Time-Delay Fuses $90.00 \times 48.00 \times 27.05^{(3)}$ 1222 217 2.0 15 $6A, 600V$. Class J Time-Delay Fuses 16 14 12 1221 1221 2.7 3.0 15 $6A, 600V$. Class J Time-Delay Fuses 16 14 15 $000V$. Class J Time-Delay Fuses 16 $12A, 600V$. Class J Time-Delay Fuses 16 11 113 220 $15A, 600V$. Class J Time-Delay Fuses 16 $123, 600V$. Class J Time-Delay Fuses 16 $104, 600V$. Class J Time-Delay Fuses 16 $103, 600V$. Class J Time-Delay Fuses 10 $48.00 \times 6.19 \times 15.69$ 103 103 17 173 220 $15A, 600V$. Class J Time-Delay Fuses 35 $61.00 \times 8.31 \times 15.69$ 103 103 222 223 300 $25A, 600V$. Class J Time-Delay Fuses 35 $61.00 \times 8.31 \times 15.69$ 103 103 222 223 300	240 240 1.7 1.7 2.7 3.9 6.1 11 11 11	200(F) / 203(F)	250A, 700V - Settiluoriductor Fuses		90.00 X 30.00 X 21.00	161	2008
240 243 dot(f) / 40(1) 350A, 600V - Class J Time-Delay Fuses 1221 1221 60Hz, 3PH 2.7 3.0 15 6A, 600V - Class J Time-Delay Fuses 12 12 12 2.7 3.0 15 6A, 600V - Class J Time-Delay Fuses 18 48,00x 6,19x 15,69 70 2.7 3.0 15 6A, 600V - Class J Time-Delay Fuses 18 48,00x 6,19x 15,69 70 1.1 1.1.3 2.0 15A, 600V - Class J Time-Delay Fuses 18 48,00x 6,19x 15,69 70 1.1 1.1.3 2.0 15A, 600V - Class J Time-Delay Fuses 18 48,00x 6,19x 15,69 70 2.7 3.3 2.0 15A, 600V - Class J Time-Delay Fuses 18 48,00x 6,19x 15,69 103 2.7 2.3 50 400V - Class J Time-Delay Fuses 54,00x 8,31x 15,69 103 2.7 2.7 50 44,000V - Class J Time-Delay Fuses 54,00x 8,31x 15,69 103 2.8 2.7 53 50 400V - Class J Time-Delay Fuses 54,00x 8,31x 15,69 103 </td <td>240 240 1.7 2.7 3.9 6.1 6.1 11 11 11 77</td> <td>300(F)/233(T) 300(F)/300(T)</td> <td>2004, 000V - Class J Time-Delay ruses 3004, 600V - Class J Time-Delay Filses</td> <td></td> <td>90.00 x 48.00 x 27.05⁽²⁾</td> <td>1202</td> <td>2318</td>	240 240 1.7 2.7 3.9 6.1 6.1 11 11 11 77	300(F)/233(T) 300(F)/300(T)	2004, 000V - Class J Time-Delay ruses 3004, 600V - Class J Time-Delay Filses		90.00 x 48.00 x 27.05 ⁽²⁾	1202	2318
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41 41.3 70 604.600V - Class J Itme-Delay Fuses 67.00 x 11.50 x 16.76 158 156 158 156 158 156 158 175 79 156 700 V Semiconductor Fuses 64.31 x 24.25 x 22.10 433 171 79 150 791 291<	32	50	40A, 600V - Class J Time-Delay Fuses	35			464
Dz Dz. 3 00 107, 000 - Uass J Inne-Delay Fuses 64.31 x 24.25 x 22.10 433 1 77 79 150(F) / 127(T) 250A, 700V - Semiconductor Fuses 64.31 x 24.25 x 22.10 433 1 77 79 150(F) / 127(T) 250A, 700V - Semiconductor Fuses 64.31 x 24.25 x 22.10 433 1 99 101 250(F) / 126(T) 250A, 700V - Semiconductor Fuses 25 90.00 x 36.00 x 27.06 ⁽²⁾ 791 125 127 250(F) / 203(T) 250A, 600V - Class J Time-Delay Fuses 25 90.00 x 48.00 x 27.06 ⁽²⁾ 791 144 146 300(F) / 370A, 600V - Class J Time-Delay Fuses 35 90.00 x 48.00 x 27.05 ⁽²⁾ 1278 127 250(F) / 300A, 600V - Class J Time-Delay Fuses 35 90.00 x 48.00 x 27.05 ⁽²⁾ 1290	41	0/	60A, 600V - Class J lime-Delay Fuses		67.00 x 11.50 x 16.76	158	642
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125 127 250(F) / 201(F) 200, 000 - Class J Time-Delay Fuses 127 250(F) / 221(T) 250A, 600V - Class J Time-Delay Fuses 35 90.00 x 48.00 x 27.05 ⁽²⁾ 1290 192 194 400(F) / 321(T) 300A, 600V - Class J Time-Delay Fuses 35 90.00 x 48.00 x 27.05 ⁽²⁾ 1290	: 0	250(F) / 175(T)	250A 700V - Semiconductor Fuses	25	90.00 x 36.00 x 27.06 ⁽²⁾	791	1814
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	192	400(F)/310(T)	300A, 600V - Class J Time-Delay Fuses	3 5		1290	3700





DESCRIPTION				
FRENIC-HPAQ	BYPASS	DOOR	DEVIC	ES &
AND KEYPAD	FOR FAN	CONTR	ROL LO	IGIC

DRN. I			DWG. ND.:
C. DEMORIER		03/16/18	RDA700201
REV.	REV. DATE:	REV. BY:	KUA/UUZUI
1	08/19/18	C. DEMORIER	SHT. 01 🛛 🛛 🖓 🛛 🖉

