



Product Data

Restricted To Square D Personnel

Bulletin **C856**

Page 1 of 8

Date Dec., 1976

File 8198

Subject

COMPETITIVE HIGH VOLTAGE STARTERS COMPARED WITH SQUARE D CLASS 8198 ISO-FLEX STARTER

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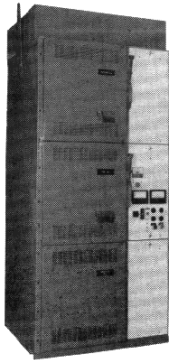
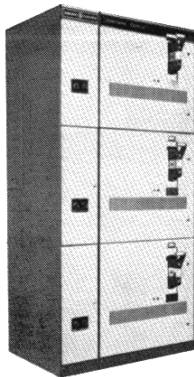
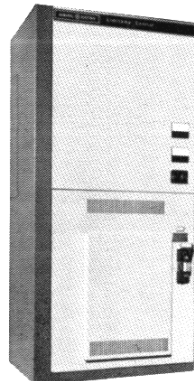
This publication provides a comparison of the Square D ISO-FLEX High Voltage Starter, introduced in 1976, with its competition. For reference, a comparison is also made with the previous Class 8198 High Voltage Starters supplied from 1964 to 1977.

The basis for this comparison is the full voltage, non-reversing starter which constitutes about 80% of the starter market.

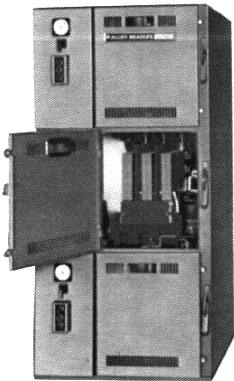
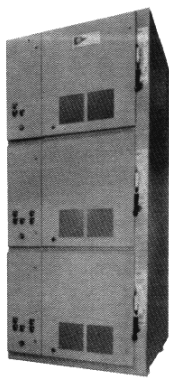
General Electric and Westinghouse are the major suppliers of high voltage starters. Square D, along with Allis-Chalmers, ITE Imperial, Allen-Bradley, and Nelson share in this very competitive market. During the last two years ITE Imperial, Allen-Bradley, and Nelson each have entered new design concepts in addition to Square D. Allis-Chalmers is continuing to market basically the same high voltage starter which they introduced in 1961.

Suppliers not listed in this Product Data include Cutler-Hammer, who announced in early 1976 they no longer would be a supplier of high voltage starters; Electric Machinery, who is active but not considered as a competitor to those listed above; Toshiba, a Japanese Company, who within the last two years began assembling vacuum contactors in the United States; and numerous assembly shops who custom build starters using contactors and other components supplied by the major suppliers.

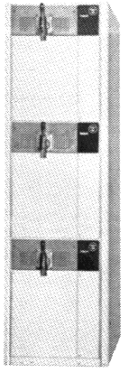
V. C. Maury/CVM

STARTER FEATURES	SQUARE D "ISO-FLEX"	GENERAL ELECTRIC "LIMIT AMP"	GENERAL ELECTRIC "LIMIT AMP"
			
CURRENT (OPEN) AND VOLTAGE RATINGS	400A 5000V	400A 5000V	700A 5000V
MINIMUM DIMENSIONS W x H x D (INCHES)	2 & 3 high—42 x 90 x 35	1 high—34 x 90 x 30 2 & 3 high—44 x 90 x 30	1 high—42 x 90 x 30
MAXIMUM NUMBER OF STARTERS PER VERTICAL SECTION	3	3	1
CONTROL VOLTAGE	120 VAC	230 VAC	230 VAC
HORIZONTAL POWER BUS LOCATION MAXIMUM RATING	Top—Adds 10" to height 2000 Amp	Middle Rear of 90" Enclosure 2000 Amp	Middle Rear of 90" Enclosure 2000 Amp
VERTICAL SECTION POWER WIRING (BUS OR CABLE)	Bus	Bus	Bus
POWER FUSES LOCATION	Front of Contactor	Front of contactor	Front of contactor
FUNCTION OF OPERATING OR DRAWOUT HANDLE	Drawout handle draws out contactor disconnecting both line and load. Primary of control potential transformer is also disconnected.	Operating handle disconnects and grounds line side of contactor. Secondary of control potential transformer is disconnected.	Operating handle disconnects and grounds line side of contactor. Secondary of control potential transformer is disconnected.
UL LISTED STANDARD #347	Anticipated in 1977	Yes	Yes

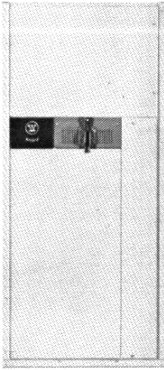
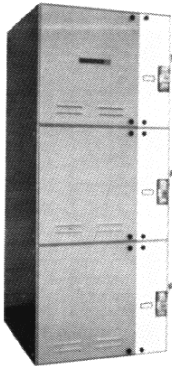
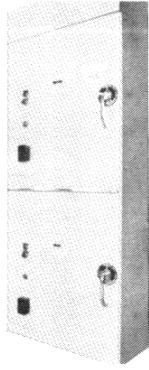
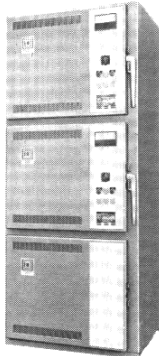
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ALLEN-BRADLEY "CENTERLINE--HVC"	ITE IMPERIAL "SERIES 7850"
	
400A 5000V	400A 5000V
1 & 2 high— 36 x 91½ x 36 3 high— 44 x 91½ x 36	1 high & 2 high narrow 29 x 90 x 36 2 high wide & 3 high 40 x 90 x 36
3	3
120VAC	120VAC
Middle rear of 90" enclosure 2000 Amp	Top, middle, or bottom rear of 90" enclosure 2400 Amp
Cable	Cable
Behind contactor	Front of contactor
Operating handle disconnects and grounds line side of contactor	Operating handle disconnects line and load. Primary of control potential transformer is also disconnected.
No	No

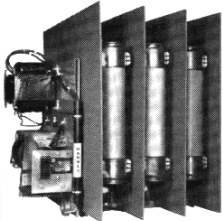
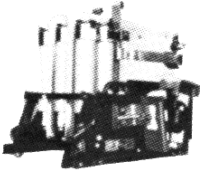
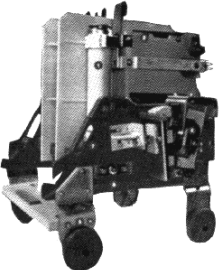
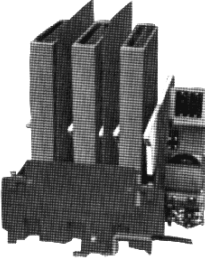
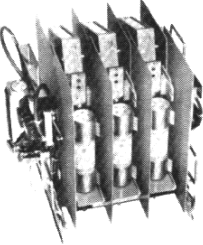
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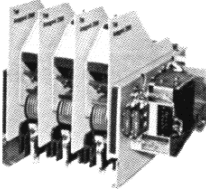
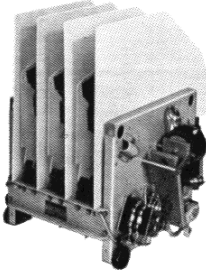
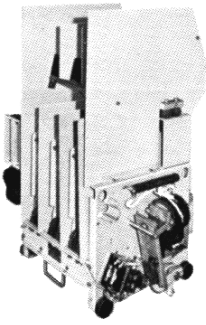
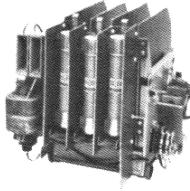
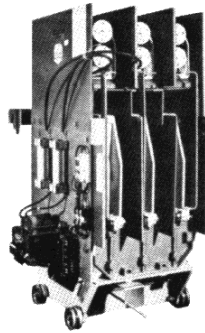
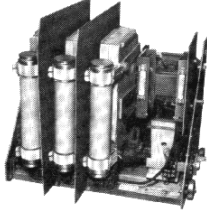
WESTINGHOUSE "AMPGARD" 	WESTINGHOUSE "AMPGARD" 
200A 2500/5000V 2 & 3 high—26 x 90 x 30	400A 5000V 1 & 2 high—36 x 90 x 30
2500V—3 5000V—2	2
120VAC	120VAC
Top—Adds 10" to height 3000 Amp	Top—Adds 10" to height 3000 Amp
Bus	Bus
Top rear of contactor	Top rear of contactor
Operating handle disconnects and grounds line side of contactor	Operating handle disconnects and grounds line side of contactor
No	No

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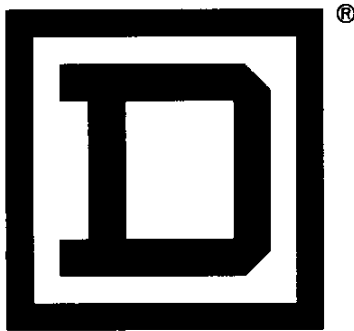
WESTINGHOUSE "AMPGARD" 	NELSON "CLASS 1041" 	ALLIS CHALMERS "SPACE MAKER II" 	SQUARE D CLASS 8198 1964-1976 DESIGN 
700A 5000V	400A 5000V	400A 5000V	400A 5000V
1 high—40 x 90 x 30	3 high—40 x 90 x 36	2 high—36 x 90 x 32	2 high—39 x 91½ x 32 3 high—37 x 91½ x 32
1	3	2	3
120VAC	120 or 230VAC	230VAC	120VAC
Top—Adds 10" to height 3000 Amp	Top—Adds 10" to height 2000 Amp	Top—Adds 10" to height 2000 Amp	Top—Adds 10" to height 2000 Amp
Bus	Bus	Cable	Cable
Top of contactor	Front of contactor	Top of contactor	Front of contactor
Operating handle disconnects and grounds line side of contactor	Operating handle disconnects line and load. Primary of control potential transformer is also disconnected.	Operating handle disconnects line and load. Primary of control potential transformer is also disconnected.	Drawout handle draws out contactor disconnecting both line and load. Primary of control potential transformer is also disconnected.
No	No	No	No

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CONTACTOR FEATURES (AIR BREAK)	SQUARE D CLASS 8110 FOR USE IN "ISO-FLEX"	GENERAL ELECTRIC	GENERAL ELECTRIC	ALLEN- BRADLEY	ITE IMPERIAL
					
CURRENT (OPEN) AND VOLTAGE RATINGS	400A 5000V	400A 5000V	700A 5000V	400A 5000V	400A 5000V
INTERRUPTING CAPACITY	50 MVA	50 MVA	80 MVA	50 MVA	50 MVA
BASIC IMPULSE LEVEL	60 KV	60 KV	60 KV	60 KV	60 KV
TYPE	Clapper	Clapper	Clapper	Clapper	Clapper
POWER FUSES PART OF CONTACTOR	Yes	Yes	Yes	No	Yes
CONTROL POTENTIAL TRANSFORMER PART OF CONTACTOR	Yes	No	No	No	No
COIL	Encapsulated DC Economizing reactor	Encapsulated AC Split winding	Encapsulated AC Split winding	Encapsulated DC Economizing capacitor	Encapsulated DC 2 winding 3 lead
OTHER TYPES AVAILABLE	Mechanical latched air break	Mechanical latched air break Vacuum break			Mechanical latched air break
REMARKS	Not inter- changeable with 1964-1976 design				

WESTING- HOUSE 	WESTING- HOUSE 	WESTING- HOUSE 	NELSON 	ALLIS- CHALMERS 	SQUARE D CLASS 8110 1964-1976 DESIGN 
200A 2500/5000V	400A 5000V	700A 5000V	400A 5000V	400A 5000V	400A 5000V
25 MVA	50 MVA	75 MVA	50 MVA	50 MVA	50 MVA
45 KV	60 KV	60 KV	60 KV	60 KV	60 KV
Clapper	Clapper	Clapper	Clapper	Vertical lift	Clapper
No	No	No	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Taped DC Economizing resistor	Encapsulated DC Economizing resistor	Encapsulated DC Economizing resistor	Encapsulated DC Economizing resistor	Encapsulated DC 2 winding 3 lead	Taped DC Economizing resistor
	Vacuum break		Vacuum break Oil immersed (200A only)		Mechanical latched air break
	Air and vacuum break inter- changeable		Air and vacuum break inter- changeable (Modified Westinghouse contactor)		Not inter- changeable with Iso-Flex starter

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SQUARE **D** COMPANY

COLUMBIA HEADQUARTERS SALES DEPT.

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