Specifications

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Standard

The seller's standard conditions of sale set forth in Price Sheet 150 apply, except as modified under "Warranty Qualifications" on page 3.

Special to This Product

Inclusions

S&C Metal-Enclosed Fuses are available with a choice of fuse mountings: disconnect style Fault Fiter® Electronic Power Fuse mountings with a Uni-Rupter® Interrupter; a disconnect, 45° opening style SML-20 or SML-4Z Power Fuse mountings with a Uni-Rupter Interrupter; a disconnect, 45° opening style SM-40 Power Fuse mountings; or non-disconnect style SM-5S Power Fuse mountings. Mountings with Uni-Rupter Interrupters provide 200-ampere or 400-ampere single- pole switching of single-phase or three-phase load circuits. Holders, refill units, end-fittings, fuse units, interrupting modules, and control modules (i.e., fuse components) for use in these mountings are not included and must be ordered separately.

All fuse mountings in S&C Metal-Enclosed Fuses are furnished with Cypoxy™● Insulators.

Metal-enclosed fuses include interphase and end-barriers of fiberglass-reinforced polyester. All enclosures are provided with an internal ground pad for cable shield as well as external, accessible ground pads to simplify connection to system ground. Lifting tabs are provided on the enclosure sides at the top. Mounting tabs are provided on the enclosure rear at the top and bottom and on the enclosure sides at the bottom front. Enclosures with SM or SML Fuse Mountings include a storage rack in the door for spare refill units or fuse units (storage for Fault Fiter Electronic Power Fuse interrupting modules and control modules cannot be provided in these racks).

Indoor style metal-enclosed fuses use enclosures with drip-proof construction, which includes gasketing on the roof plate, around the door handle, and on the top flange of the door opening. The doors of these enclosures are equipped with a flush-mounted padlockable door handle, which includes an overhang to shield the padlock shackle. To promote ventilation, louvers are provided in the enclosure door, and screened vents are provided in the enclosure bottom plate. Indoor-style enclosures are protected from corrosion by S&C's light gray Ultradur® II Outdoor Finish.

Submersible-style metal-enclosed fuses use enclosures with gasketed door openings and dual-swivel door suspension. These enclosures are protected from corrosion by S&C's light gray outdoor Ultradur II Outdoor Finish.

Indoor style metal-enclosed fuses are suitable for cable entrance through conduit with the addition of sufficient optional enclosure extenders (suffixes "-H1" through "-H4") to increase available cable-termination height. Both the indoor-style and submersible-style metal-enclosed fuses are suitable for cable connection to terminators with the addition of optional Cypoxy Insulator bushings and bushing wells (suffix "-X1," "-X2," or "-X3").

Exclusions

Metal-enclosed fuses on Table 1 on page 3 through Table 3 on page 5 do not include connectors; optional features, such as bushings or bushing wells; or bushing-well inserts and elbows. Optional features are listed in Table 5 on page 6. Connectors are available as listed in Table 18 on page 16. Bushing-well inserts and elbows are to be purchased from the elbow manufacturer(s).

Specification Deviations

Certain minor departures from the standard and optional features can be accommodated. Such deviations will be accommodated by a "minor modification." Contact your nearest S&C Sales Office for availability.

A key interlock is required for users other than electric utilities for interlocking the doors on metal-enclosed fuses with the source-side interrupter switch—to guard against access to fuses unless the interrupter switch is locked open. Specify by adding suffix "-K" to the catalog number of the selected metal-enclosed fuse.

● Cypoxy is the S&C trademark for S&C's cycloaliphatic epoxy resin system. Cypoxy Insulators are nontracking, self-scouring, nonweathering … there's never a compromise of insulation integrity.

Application Notes

For application information as well as a guide to the selection of the appropriate ampere ratings and speeds of S&C Power Fuses, and types and TCC curve parameters of control modules for Fault Fiter Electronic Power Fuses, contact your nearest S&C Sales Office.

Switching with Uni-Rupter Interrupters

S&C Metal-Enclosed Fuses with Type SML or Fault Fiter Fuse Mountings feature a Uni-Rupter Interrupter that permits single pole live switching of single-phase or three-phase load circuits on distribution systems rated up through 16.5 kV.

Complete ratings and capabilities of S&C Power Fuses with Uni-Rupter Interrupters as applied in S&C Metal-Enclosed Fuses are shown in Table 1 on page 3. Uni-Rupter Interrupters are also capable of carrying and interrupting load currents up to and including the emergency peak-load capabilities of the associated power fuses, or up to 400 amperes when used with Fault Fiter Electronic Power Fuses. In addition to the load dropping capabilities shown, Uni-Rupter Interrupters are capable of interrupting transformer-magnetizing currents associated with the applicable loads, as well as line-charging and cable-charging currents typical for distribution systems of these voltage ratings. The duty-cycle fault-closing capabilities shown for S&C Power Fuses with a Uni-Rupter Interrupters represent the fault-closing capabilities of the fuse with the Uni-Rupter Interrupter when the fuse is closed with a purposeful thrust without hesitation. Following the specified number of such closings (one or two), a Uni-Rupter Interrupter will remain operable and able to carry and interrupt rated current.

Warranty Qualifications

The standard warranty contained in the seller's standard conditions of sale (as set forth in Price Sheet 150) does not apply to S&C Metal-Enclosed Fuses when fuse components of other than S&C manufacture are used in conjunction with S&C Fuse Mountings.

Table 1. Ratings and Capabilities for S&C Fuses with a Uni-Rupter Interrupter

Fuse Type	Ratings					Live Switching Capability, Amperes, RMS			
	kV			Amperes, RMS		Load Dropping	Load splitting (Parallel or Loop Switching)	Fault-Closing, Duty-Cycle (Asym.)①	
	Nom.	Max	BIL	Max	Interrupting (Sym.)			One-Time	Two-Time
SML-20	13.8	17.0	95	200E or 200K	14 000	200	200	22 400	13 000
SML-4Z	13.8	17.0	95	200E	12 500	200	200	20 000	13 000
Fault Fiter	13.8	17.0	95	400	14 000	400	400	22 400	13 000

① The duty-cycle fault-closing capability defines the level of available fault current into which the fuse can be closed the specified number of times (once or twice), when operated vigorously through its full travel without hesitation at any point, with the Uni-Rupter Interrupter remaining operable and able to carry and interrupt currents up to 200 amperes.

When ordering metal-enclosed fuses, either the enclosure extender options or one of the Cypoxy Insulator cable-termination options must be specified.

Indoor style metal-enclosed fuses are ordered for cable entrance through conduit with the addition of sufficient optional enclosure extenders (suffixes "-H1" through "-H4") to increase the available cable-termination height. Holes for conduit entrance must be cut by the user in the top and bottom plates.

Indoor-style and submersible-style metal-enclosed fuses are ordered for cable connection to terminators with the addition of optional Cypoxy Insulator bushings and bushing wells (suffix "-X1," "-X2," or "-X3"). Appropriate top and bottom plates with bus connections, bushings, and bushing wells are furnished when these options are specified.

Metal-Enclosed Fuses

Complete the following steps to create a complete fuse order:

STEP 1. Obtain the catalog number of the desired unit from Table 2 and Table 3 on page 5 and Table 5 on page 6.

Catalog Number: ☐☐☐☐☐☐☐

STEP 2. Add suffix designations (to the catalog number above) for optional Cypoxy Insulator bushings or bushing wells or enclosure-extender options as required, as well as any other optional features desired, selected from Table 5 on page 6.

Suffixes:

☐

☐

STEP 3. Obtain the catalog number of the connectors and touch-up kit components from Table 18 and Table 19 on page 16.

Catalog Number: ☐☐☐☐–☐☐☐

Fuse Components

Select one of the three fuse types depending on the requirements of the installation and add them to the sales order:

For SML-20 or SML-40 Power Fuses: Obtain the catalog number of the end-fittings and the fuse units from Table 8 on page 7, Table 10 on page 8, Table 13 on page 12, and Table 14 on page 13, taking care to match the voltage rating of the end fittings to the fuse units.

End-fitting Catalog Number: ☐☐☐☐

Fuse Unit Catalog Number: ☐☐☐☐☐☐☐☐

For SML-4Z or SM-5S Power Fuses: Obtain the catalog number of the holder and refill units from Table 6 and Table 7 on page 7, Table 11 on page 9, and Table 12 on page 10, taking care to match the voltage rating of the holder to the refill units.

Holder Catalog Number: ☐☐☐☐☐☐☐

Refill Unit Catalog Number: ☐☐☐☐☐☐☐☐

For Fault Fiter Electronic Power Fuses: Obtain the catalog number for the holders, interrupting modules, and control modules from Table 9 on page 8, Table 15 on page 14, Table 16 on page 14, and Table 17 on page 15, taking care to match the voltage rating of the holders, interrupting modules, and the control modules.

Holder Catalog Number: ☐☐☐☐☐☐☐

Interrupting Module Catalog Number:

☐☐☐☐☐☐☐☐

Control Module Catalog Number:

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Example: The catalog number of an indoor 13.8-kV metal-enclosed fuse unit, Type SML-20 (3K-rated), equipped with optional ground studs and with 200-ampere Cypoxy Insulator bushing wells at the top and at bottom of the enclosure is:

Catalog Number: 9 0 6 1 2 – G1 X1

End-fitting Catalog Number: 3 0 9 7

Fuse Unit Catalog Number: 7 0 2 0 0 3

Table 2. Type SM Fuses—Three-Phase (including mountings—less end-fittings or holders, and less fuse units or refill units)①

Style	Fuse Type	Rating					Catalog Number④⑤	Page Reference for Dimensional Information
		kV			Amperes, RMS②			
		Nom.	Max	BIL	Max	Interrupting (Sym.)③		
Indoor	SM-40	4.8	5.5	60	400E	25 000	90910	17
		13.8	17.0	95	400E	25 000	90912	18
	SM-5S	4.16	4.8	60	400E	37 500	88330R6	17
		13.8	17.0	95	400E	25 000	88332R6	18
Submersible	SM-40	13.8	17.0	95	400E	25 000	90942	19
	SM-5S	13.8	17.0	95	400E	25 000●	88872R4	19

① Holders and refill units or end fittings and fuse units are to be ordered separately. Three are required for each three-phase metal-enclosed fuse. Refer to Table 6 on page 7 through Table 17 on page 15.

② The interrupting ratings expressed in amperes, RMS, asymmetrical are 1.6 times the symmetrical ratings listed.

③ Optional bushings and bushing wells offered for metal-enclosed fuses may limit application to lower available short-circuit current levels than the interrupting rating listed. Refer to Table 5 on page 6.

④ Optional feature "-K" (key interlock) is required for ultimate users other than electric utilities.

⑤ Catalog numbers do not include cable terminating devices. For available cable terminating options, refer to optional features in Table 5 on page 6.

● For incoming (source- or line-side) connections at bottom, rating is 14,000 amperes, RMS, symmetrical.

Table 3. Type SML Fuses—Three-Phase (including mountings with a Uni-Rupter Interrupter—less end-fittings or holders, and less fuse units or refill units)①

Style	Fuse Type	Rating						Catalog Number④⑤	Page Reference for Dimensional Information
		kV			Amperes, RMS②				
		Nom.	Max	BIL	Max	Load Dropping	Interrupting (Sym.)③		
Indoor	SML-20	13.8	17.0	95	200K or 200E	200	14 000	90612	21
	SML-4Z	13.8	17.0	95	200E	200	12 500	90712	21
Submersible	SM-20	13.8	17.0	95	200K or 200E	200	14 000	90642	22
	SM-4Z	13.8	17.0	95	200E	200	12 500	90742	21

① Holders and refill units or end fittings and fuse units are to be ordered separately. Three are required for each three-phase metal-enclosed fuse. Refer to Table 6 on page 7 through Table 17 on page 15.

② The interrupting ratings expressed in amperes, RMS, asymmetrical are 1.6 times the symmetrical ratings listed. The fault-closing capability of S&C Type SML Fuses with a Uni-Rupter Interrupter equals or exceeds these values. For complete live-switching capabilities of S&C Type SML Fuses with a Uni-Rupter Interrupter as applied in S&C Metal-Enclosed Fuses, refer to "Application Notes" on page 3.

③ Optional bushings and bushing wells offered for metal-enclosed fuses may limit application to lower available short-circuit current levels than the interrupting rating listed. Refer to Table 5 on page 6.

④ Optional feature "-K" (key interlock) is required for ultimate users other than electric utilities.

⑤ Catalog numbers do not include cable terminating devices. For available cable terminating options, refer to Table 5 on page 6.

Table 4. Fault Fiter Electronic Power Fuses—Three-Phase (Including mountings with a Uni-Rupter Interrupter—less holders, interrupting modules, and control modules)①

Style	Fuse Type	Rating						Catalog Number④⑤	Page Reference for Dimensional Information
		kV			Amperes, RMS②				
		Nom.	Max	BIL	Max	Load Dropping	Interrupting (Sym.)③		
Indoor	Fault Fiter	13.8	17.0	95	400	400	14 000	90812	24
Submersible	Fault Fiter	13.8	17.0	95	400	400	14 000	90842	25

① Holders and refill units or end fittings and fuse units are to be ordered separately. Three are required for each three-phase metal-enclosed fuse. Refer to Table 6 on page 7 through Table 17 on page 15.

② The interrupting ratings expressed in amperes, RMS, asymmetrical are 1.6 times the symmetrical ratings listed. The fault-closing capability of S&C Type SML Fuses with a Uni-Rupter Interrupter equals or exceeds these values. For complete live-switching capabilities of S&C Type SML Fuses with a Uni-Rupter Interrupter as applied in S&C Metal-Enclosed Fuses, refer to "Application Notes" on page 3.

③ Optional bushings and bushing wells offered for metal-enclosed fuses may limit application to lower available short-circuit current levels than the interrupting rating listed. Refer to Table 5 on page 6.

④ Optional feature "-K" (key interlock) is required for ultimate users other than electric utilities.

⑤ Catalog numbers do not include cable terminating devices. For available cable terminating options, refer to Table 5 on page 6.

Table 5. Optional Features

Item		Suffix to be Added to Metal-Enclosed Fuse Catalog Number
Dual-purpose front barriers, one for each fuse, to guard against inadvertent contact with live parts. Can also be inserted into the open gap when fuse is open		-B1
Ground stud on load side of each fuse and on ground pad inside enclosure		-G1
Enclosure extenders, for increased cable-termination height to permit cable entrance through conduit	5 inches (127 mm) at top of enclosure	-H1●
	5 inches (127 mm) at bottom of enclosure	-H2●
	10 inches (254 mm) at top of enclosure	-H3●
	10 inches (254 mm) at bottom of enclosure	-H4●
Key interlock, to interlock enclosure door with other apparatus		-K■
Cypoxy Insulator bushings and bushing wells①	200-ampere-rated bushing wells (with provisions for hold-down bail) at top and bottom of enclosure②	-X1
	600-ampere-rated bushings (with removable threaded studs) at top and bottom of enclosure③	-X2
	600-ampere-rated bushings (with removable threaded studs) at top of enclosure and 200-ampere-rated bushing wells (with provisions for hold-down bail) at bottom of enclosure②	-X3

① Bushing and bushing well interfaces are in accordance with ANSI/IEEE Standard 386 (ANSI Standard C119.2) to accept all standard separable insulated connectors and inserts. The mating bushing-well inserts and mating elbows (either loadbreak or non-loadbreak type) for use with these bushings and bushing wells should be purchased from the elbow manufacturer(s). Actual short-circuit capabilities of S&C Metal-Enclosed Fuses may be limited to lower values by the capabilities of bushing-well inserts and elbows.

② Metal-enclosed fuses equipped with optional S&C Bushing Wells (suffix "-X1" or "-X3") should not be applied where the short-circuit current exceeds 14,000 amperes, RMS, *symmetrical*.

③ Optional Cypoxy Insulator bushings (suffix "-X2") should not be applied where the short-circuit current exceeds 25,000 amperes, RMS, symmetrical.

● Enclosure extenders are not required or available with submersible styles and cannot be accommodated on indoor styles when option suffix "-X1," "-X2," or "-X3" (bushings or bushing wells) is specified.

■ Key interlock is required for users other than electric utilities. When ordering, furnish the name of the ultimate user, station, and location of gear.

Table 6. SML-4Z Power Fuse Components

Holders					
Item	For Type SML-4Z Metal-Enclosed Fuses Rated, kV	Rating			Catalog Number
		kV		Amperes, Max	
		Nom.	Max		
Holder (including silencer), for use with SM-4® Refill Units	13.8	14.4	17.0	200E	92352
SM-4® Refill Units	13.8	14.4	17.0①	For a complete listing of available ampere ratings, speeds, and catalog numbers, refer to Table 11 on page 9.	

① Rated 14.4 kV nominal, for use in SM-4Z or SML-4Z Holders rated 14.4 kV when applied in S&C Metal-Enclosed Fuses rated 13.8 kV.

Table 7. SM-5S Power Fuse Components

Holders					
Item	For Type SM-5S Metal-Enclosed Fuses Rated, kV	Rating			Catalog Number
		kV		Amperes, Max	
		Nom.	Max		
Holders (including snuffler), for use with SM-5® Refill Units	4.16	7.2	8.3	400E	86811R2
	13.8	14.4	17.0	400E	86812R2
SM-5® Refill Units	4.16	4.16	4.8①	For a complete listing of available ampere ratings, speeds, and catalog numbers, refer to Table 12 on page 10.	
	13.8	14.4	17.0②		

① Rated 4.16 kV nominal, for use in SM-5S Holders rated 7.2 kV when applied in S&C Metal-Enclosed Fuses rated 4.16 kV.

② Rated 14.4 kV nominal, for use in SM-5S Holders rated 14.4 kV when applied in S&C Metal-Enclosed Fuses rated 13.8 kV.

Table 8. SML-20 Power Fuse Components

Fuse-Unit End Fittings		
Item	For Type SML-20 Metal-Enclosed Fuses Rated, kV	Catalog Number
End Fittings (including silencer)① for use with SMU-20® Fuse Units	13.8	3097
SMU-20® Fuse Units②	14.4 Nominal, 17.0 Max	For a complete listing of available ampere ratings, speeds, and catalog numbers, refer to Table 13 on page 12.

① These end fittings (including silencer) are also suitable for use in SM-20 Mountings.

② These fuse units are also suitable for use in SM-20, SME-20, or SMD-20 Mountings.

Table 9. Fault Fiter Electronic Power Fuse Components

Item	For Fault Fiter Electronic Power Fuses Rated, kV	Rating			Catalog Number
		kV		Amperes, Max①	
		Nom.	Max		
Holder	13.8	13.8	17.0	400	99412R1
Interrupting module	13.8	13.8	17.0	600	802600R2
Control Modules	For a complete listing of available types, TCC curve parameters, and catalog numbers, refer to Table 16 on page 14 and Table 17 on page 15.				

① Interrupting modules rated 600 amperes continuous are suitable for use in mountings rated 200 amperes or 400 amperes continuous.

Table 10. SM-40 Power Fuse Components

Fuse-Unit End Fittings					
Item	For Type SM-40 Metal-Enclosed Fuses Rated, kV	Rating			Catalog Number
		kV		Amperes, Max	
		Nom.	Max		
End-fittings (including silencer), for use with SMU-40® Fuse Units	4.8	4.8	5.5	400E	3090
	13.8	14.4	17.0	400E	3090
SMU-40 Fuse Units①	4.8	4.8	5.5	For a complete listing of available ampere ratings, speeds, and catalog numbers, refer to Table 14 on page 13.	
	13.8	14.4	17.0		

① For use with SM-40 Fuse Unit End-Fittings.

Table 11. SM-4® Refill Units (For use in SM-4 and SML-4 Holders)①

Rating, Amperes ↓	14.4 kV Nominal, 17.0 kV Max②		
	Catalog Number		
Speed →	**S&C Std. TCC 115-4**		
1	122001R4	-	-
2	122002R4	-	-
Speed →	**S&C Std. TCC 153-4**	**S&C Slow TCC 119-4**	**S&C Coord. TCC 179-4**
3E	122005R4	-	-
5E	122007R4	-	-
7E	122010R4	-	-
10E	122015R4	-	-
13E	122020R4	-	-
15E	122025R4	252025R4	-
20E	122030R4	252030R4	-
25E	122040R4	252040R4	-
30E	122050R4	252050R4	-
40E	122060R4	252060R4	-
50E	122075R4	252075R4	-
65E	122100R4	252100R4	-
80E	122125R4	252125R4	-
100E	122150R4	252150R4	-
125E	122200R4	252200R4	-
150E	122250R4	252250R4	-
175E	122275R4	252275R4	-
200E	122300R4	252300R4	-
210E	-	-	382210R4●

① These refill units are also suitable for use with SME-4Z Holders listed in Specification Bulletin 665-31, "S&C Manual PME Pad-Mounted Gear" and Specification Bulletin 666-31, "S&C Remote Supervisory PME Pad-Mounted Gear."

② Rated 14.4 kV nominal, for use in SM-4 Holders rated 14.4 kV when applied in listed mountings rated 13.8 kV or in discontinued mountings rated 14.4 kV.

● This S&C Coordinating Speed refill unit should be applied where the maximum continuous load current does not exceed 200 amperes and where all fault currents below 1000 amperes will be cleared by another fuse.

Table 12. SM-5® Refill Units (For use in SM-5 Holders)

Rating, Amperes ↓	4.16 kV Nominal, 4.76 kV Max①			7.2 kV Nominal, 8.3 kV Max②		
	Catalog Number			Catalog Number		
Speed →	S&C Std. TCC 115-4			S&C Std. TCC 115-4		
1 2	130001R4 130002R4	-	-	131001R4 131002R4	-	-
Speed →	S&C Std. TCC 153-4	S&C Slow TCC 119-4	S&C Coord. TCC 173-4	S&C Std. TCC 153-4	S&C Slow TCC 119-4	S&C Coord. TCC 173-4
3E	130005R4	-	-	131005R4	-	-
5E	130007R4	-	-	131007R4	-	-
7E	130010R4	-	-	131010R4	-	-
10E	130015R4	-	-	131015R4	-	-
13E	130020R4	-	-	131020R4	-	-
15E	130025R4	260025R4	-	131025R4	-	-
20E	130030R4	260030R4	-	131030R4	-	-
25E	130040R4	260040R4	-	131040R4	-	-
30E	130050R4	260050R4	-	131050R4	-	-
40E	130060R4	260060R4	-	131060R4	-	-
50E	130075R4	260075R4	-	131075R4	-	-
65E	130100R4	260100R4	-	131100R4	-	-
80E	130125R4	260125R4	-	131125R4	-	-
100E	130150R4	260150R4	-	131150R4	-	-
125E	130200R4	260200R4	-	131200R4	-	-
150E	130250R4	260250R4	-	131250R4	-	-
175E	130275R4	260275R4	-	131275R4	-	-
200E	130300R4	260300R4	-	131300R4	-	-
250E	130400R4	260400R4	-	131400R4	261400R4	-
300E	130500R4	260500R4	-	131500R4	261500R4	-
400E	130600R4	260600R4	-	131600R4	261600R4	-
410E	-	-	381410R4●■	-	-	-
420E	-	-	381420R4●■	-	-	381420R4■

① Rated 4.16 kV nominal, for use in SM-5 Holders rated 7.2 kV when applied in listed mountings rated 4.8 kV for system voltages through 4.16 kV.

② Rated 7.2 kV nominal, for use in SM-5 Holders rated 7.2 kV when applied in listed mountings rated 4.8 kV for 4.8-kV system voltage only, or in discontinued mountings rated 7.2 kV for system voltages of 4.8 kV through 7.2 kV.

● Catalog numbers are in italics because these are 7.2-kV refill units. Interrupting ratings are those listed in S&C Specification Bulletin 252-31 for 7.2-kV SM-5S Power Fuses applied to systems rated 2.4/4.16 Y kV.

■ These S&C Coordinating Speed refill units should be applied where the maximum continuous load current does not exceed 400 amperes and where all fault currents below 3000 amperes for catalog numbers 381410R4 and 382410R4 and 4000 amperes for catalog numbers 381420R4 and 382420R4 will be cleared by another fuse.

TABLE CONTINUED ►

Table 12. SM-5® Refill Units (For use in SM-5 Holders)—Continued

Rating, Amperes ↓	14.4 kV Nominal, 17.0 kV Max①		
	Catalog Number		
Speed →	S&C Std. TCC 115-4		
1	132001R4	-	-
2	132002R4	-	-
Speed →	S&C Std. TCC 153-4	S&C Slow TCC 119-4	S&C Coord. TCC 173-4
3E	132005R4	-	-
5E	132007R4	-	-
7E	132010R4	-	-
10E	132015R4	-	-
13E	132020R4	-	-
15E	132025R4	262025R4	-
20E	132030R4	262030R4	-
25E	132040R4	262040R4	-
30E	132050R4	262050R4	-
40E	132060R4	262060R4	-
50E	132075R4	262075R4	-
65E	132100R4	262100R4	-
80E	132125R4	262125R4	-
100E	132150R4	262150R4	-
125E	132200R4	262200R4	-
150E	132250R4	262250R4	-
175E	132275R4	262275R4	-
200E	132300R4	262300R4	-
250E	132400R4	262400R4	-
300E	132500R4	262500R4	-
400E	132600R4	262600R4	-
410E	-	-	382410R4■
420E	-	-	382420R4■

① Rated 14.4 kV nominal, for use in SM-5 Holders rated 14.4 kV when applied in listed mountings rated 13.8 kV or in discontinued mountings rated 14.4 kV.

■ These S&C Coordinating Speed refill units should be applied where the maximum continuous load current does not exceed 400 amperes and where all fault currents below 3000 amperes for catalog numbers 381410R4 and 382410R4 and 4000 amperes for catalog numbers 381420R4 and 382420R4 will be cleared by another fuse.

Table 13. SMU-20® Fuse Units (For use in SM-20 or SML-20 Mountings)①

14.4 kV Nominal, 17.0 kV Max					
"K" Ratings		"E" Ratings			
Rating, Amperes ↓	Catalog Number	Rating, Amperes ↓	Catalog Number		
	S&C "K" TCC 165-2		S&C Std. TCC 115-2		
		1	702001		
		Speed →	S&C Std. TCC 153-2	S&C Slow TCC 119-2	S&C Very Slow TCC 176-2
3K	702003	-	-	-	-
6K	702006	-	-	-	-
8K	702008	5E	612005	-	-
10K	702010	7E	612007	-	-
12K	702012	10E	612010	-	-
15K	702015	13E	612013	-	-
20K	702020	15E	612015	712015	-
25K	702025	20E	612020	712020	-
30K	702030	25E	612025	712025	-
40K	702040	30E	612030	712030	-
50K	702050	40E	612040	712040	-
65K	702065	50E	612050	712050	602050
80K	702080	65E	612065	712065	602065
100K	702100	80E	612080	712080	602080
140K	702140	100E	612100	712100	602100
200K	702200	125E	612125	712125	602125
-	-	150E	612150	712150	602150
-	-	175E	612175	712175	602175
-	-	200E	612200	712200	602200

① These fuse units are equally suitable for use in SMD-20 Outdoor Distribution Mountings; and also, for use with SME-20 Fuse-Unit End Fittings listed in Specification Bulletin 665-31, "S&C Manual PME PadMounted Gear" and Specification Bulletin 666-31, "S&C Remote Supervisory PME Pad-Mounted Gear

Table 14. SMU-40® Fuse Units (For use in SM-40 Mountings)①

Rating, Amperes ↓	4.8 kV Nominal, 5.5 kV Max		14.4 kV Nominal, 17.0 kV Max	
	Catalog Number		Catalog Number	
Speed →	S&C Std. TCC 115-2		S&C Std. TCC 115-2	
1	820001		822001	
2	820002		822002	
Speed →	S&C Std. TCC 153-2	S&C Slow TCC 119-2	S&C Std. TCC 153-2	S&C Slow TCC 119-2
3E	820003	-	822003	-
5E	820005	-	822005	-
7E	820007	-	822007	-
10E	820010	-	822010	-
13E	820013	-	822013	-
15E	820015	830015	822015	832015
20E	820020	830020	822020	832020
25E	820025	830025	822025	832025
30E	820030	830030	822030	832030
40E	820040	830040	822040	832040
50E	820050	830050	822050	832050
65E	820065	830065	822065	832065
80E	820080	830080	822080	832080
100E	820100	830100	822100	832100
125E	820125	830125	822125	832125
150E	820150	830150	822150	832150
175E	820175	830175	822175	832175
200E	820200	830200	822200	832200
250E	820250	830250	822250	832250
300E	820300	830300	822300	832300
400E	820400	830400	822400	832400

① S&C Type SM-40 Indoor Power Fuse Mountings are offered only in S&C Metal-Enclosed Gear and are not available separately.

Table 15. Fault Fiter Electronic Power Fuse Control Modules—Underground Subloop① Type (TCC No. 422-7)

Continuous Current, Amperes, Max②	TCC Curve Parameters				Catalog Number
	Minimum Pickup, Amperes, RMS	Short-Time Pickup, Amperes, RMS	Short-Time Delay Band	Instantaneous Pickup, Amperes, RMS	
600	400	1300	2	3000	7020-C40P130S2T3
	500	1300	1	3000	7020-C50P130S1T3

① This control module is applicable for protection of 15-kV and 25-kV class underground distribution subloops having the following parameters: maximum available fault current—14,000 amperes, RMS, symmetrical at 15 kV, 12,500 amperes, RMS, symmetrical at 25 kV; maximum rated transformer kVA connected for residential circuits—1200 kVA single-phase, 3600 kVA three-phase at 15 kV, 2400 kVA single-phase, 7200 kVA three-phase at 25 kV; with no capacitor banks or current-limiting fuses on the load side of Fault Fiter fuse. If the maximum rated transformer kVA connected is greater than the values listed above, or if the application involves protection of circuits serving industrial, commercial, or institutional loads, contact your nearest S&C Sales Office.

② Control modules rated 600 amperes continuous are also applicable for use in mountings rated 200 amperes or 400 amperes continuous.

Table 16. Fault Fiter Electronic Power Fuse Control Modules—Inverse Curve Type (TCC No. 410-7)

Continuous Current, Amperes, Max①	Minimum Pickup, Amperes, RMS	Catalog Number
600	400	814040
	500	814050
	600	814060
	700	814070
	800	814080
	1000	814100
	1250	814125
	1500	814150

① Control modules rated 600 amperes continuous are also applicable for use in mountings rated 200 amperes or 400 amperes continuous.

Table 17. Fault Fiter Electronic Power Fuse Control Modules—Time-Delayed Compound-Curve Type (TCC No. 421-7)

Continuous Current, Amperes, Max①	TCC Curve Parameters				Catalog Number
	Minimum Pickup, Amperes, RMS	Short-Time Delay Band	High-Current Pickup, Amperes, RMS	High-Current Delay Band Time Delay, ms	
600	400	1	3000	8	7010-C40S1T3D8
			6000	8	7010-C40S1T6D8
		2	3000	8	7010-C40S2T3D8
			6000	8	7010-C40S2T6D8
		3	3000	8	7010-C40S3T3D8
			6000	8	7010-C40S3T6D8
		4	3000	8	7010-C40S4T3D8
			6000	8	7010-C40S4T6D8
	600	1	3000	8	7010-C60S1T3D8
			6000	8	7010-C60S1T6D8
		2	3000	8	7010-C60S2T3D8
			6000	8	7010-C60S2T6D8
		3	3000	8	7010-C60S3T3D8
			6000	8	7010-C60S3T6D8
		4	3000	8	7010-C60S4T3D8
			6000	8	7010-C60S4T6D8
	800	1	3000	8	7010-C80S1T3D8
			6000	8	7010-C80S1T6D8
		2	3000	8	7010-C80S2T3D8
			6000	8	7010-C80S2T6D8
		3	3000	8	7010-C80S3T3D8
			6000	8	7010-C80S3T6D8
		4	3000	8	7010-C80S4T3D8
			6000	8	7010-C80S4T6D8
	1100	1	3000	8	7010-C110S1T3D8
			6000	8	7010-C110S1T6D8
		2	3000	8	7010-C110S2T3D8
			6000	8	7010-C110S2T6D8
		3	3000	8	7010-C110S3T3D8
			6000	8	7010-C110S3T6D8
		4	3000	8	7010-C110S4T3D8
			6000	8	7010-C110S4T6D8

① Control modules rated 600 amperes continuous are also applicable for use in mountings rated 200 amperes or 400 amperes continuous.

Table 18. Connector

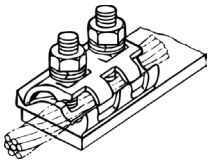
Illustration	Description	Accommodating Conductor	Catalog Number
	Bronze body, tin plated, two galvanized steel bolts, two Belleville washers	No. 2 solid (33.6 mm^2) through 500 kc mil (253 mm^2) stranded copper or aluminum	4745

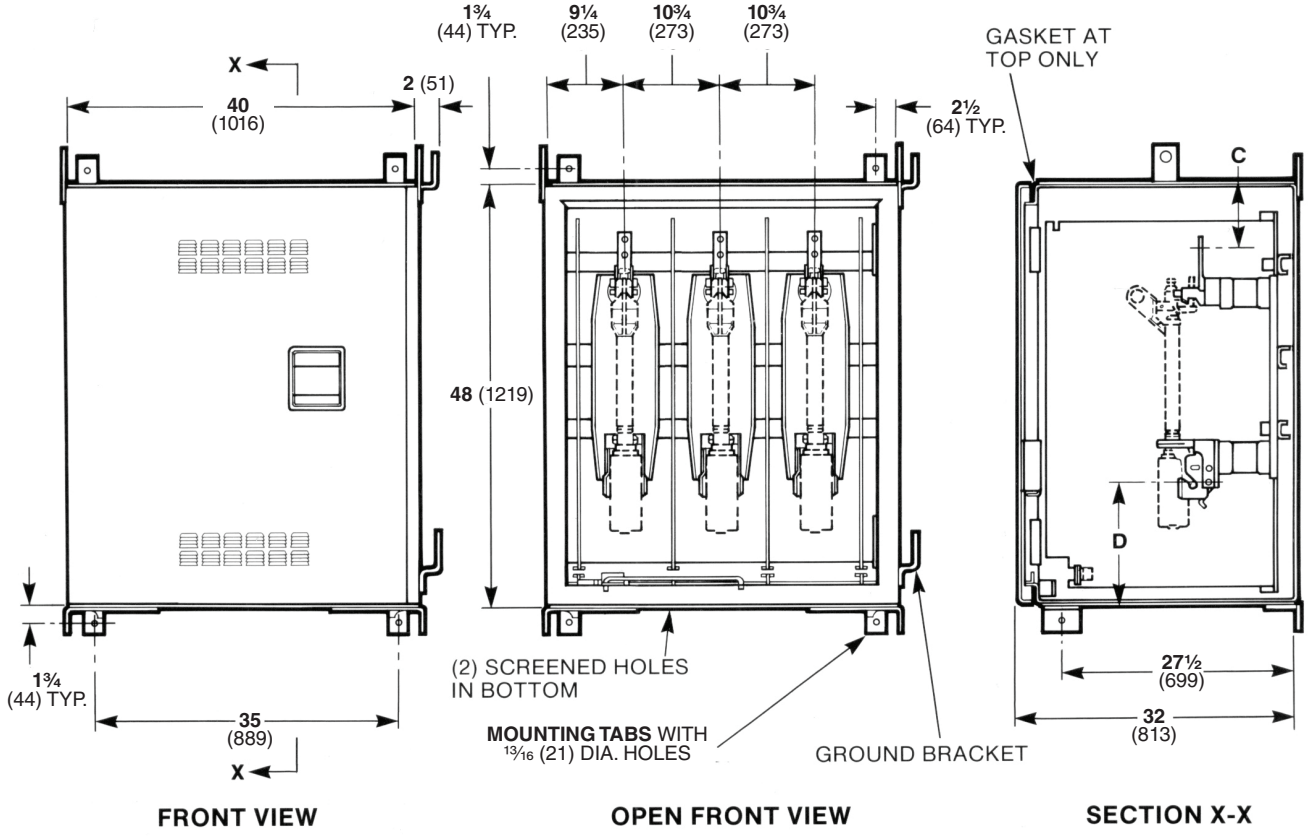
Table 19. Touch-up Kit Components—Aerosol Coatings in 12-Ounce Cans

Item	Catalog Number
S&C light gray outdoor finish	9999-080
S&C light gray indoor finish	9999-079
S&C red-oxide primer	9999-061

Type SM (Type SM-40 Power Fuses illustrated)

Indoor Style—4.16 kV and 4.8 kV Nominal—Three-Phase

Dimensions in inches (mm)



Style	Metal-Enclosed Fuse		kV, Nominal	Dimensions in Inches (mm)①		Net Weight, Lbs. (Kg.)②
	Type	Catalog Number		C	D	
Indoor	SM-5S	88330R6	4.16	11⅞ (302)	14⅜ (365)	605 (275)
	SM-40	90910	4.8	8 (203)	13½ (343)	570 (259)

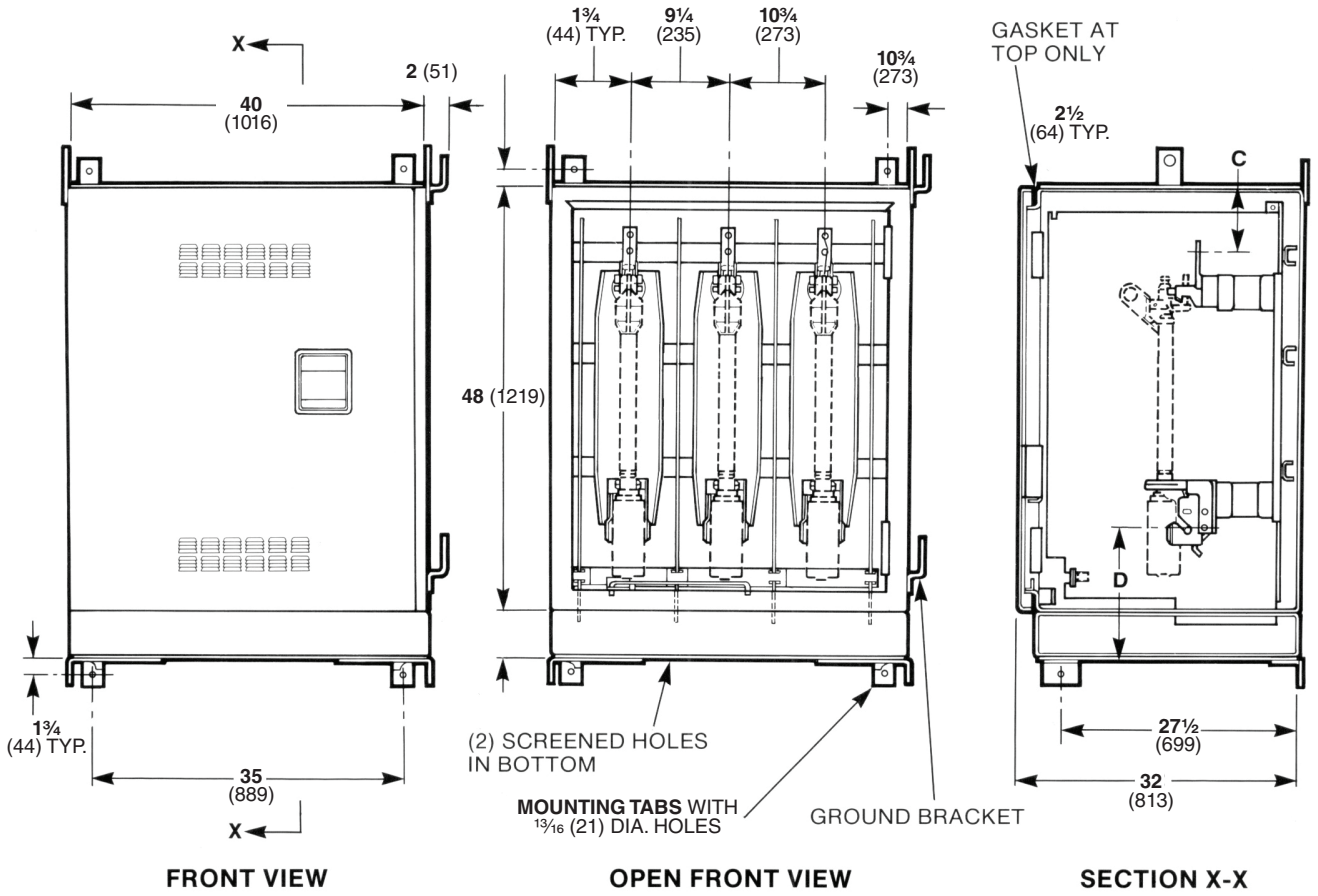
① Dimensions shown apply regardless of fuse type. For dimensions that apply when optional enclosure extenders (suffixes "-H1" through "-H4") are specified for cable entrance through conduit and when optional bushings or bushing wells (suffixes "-X1," "-X2," or "-X3") are specified for cable connection to terminators, refer to "Termination Locations for Optional Enclosure Extenders" on page 26 and page 27 and "Termination Locations for Optional Bushings and Bushing Wells," on page 28 and page 29.

② Excluding optional features, fuse components, and cable-terminating devices.

Type SM (Type SM-40 Power Fuses illustrated)

Indoor Style—13.8 kV Nominal—Three-Phase

Dimensions in inches (mm)



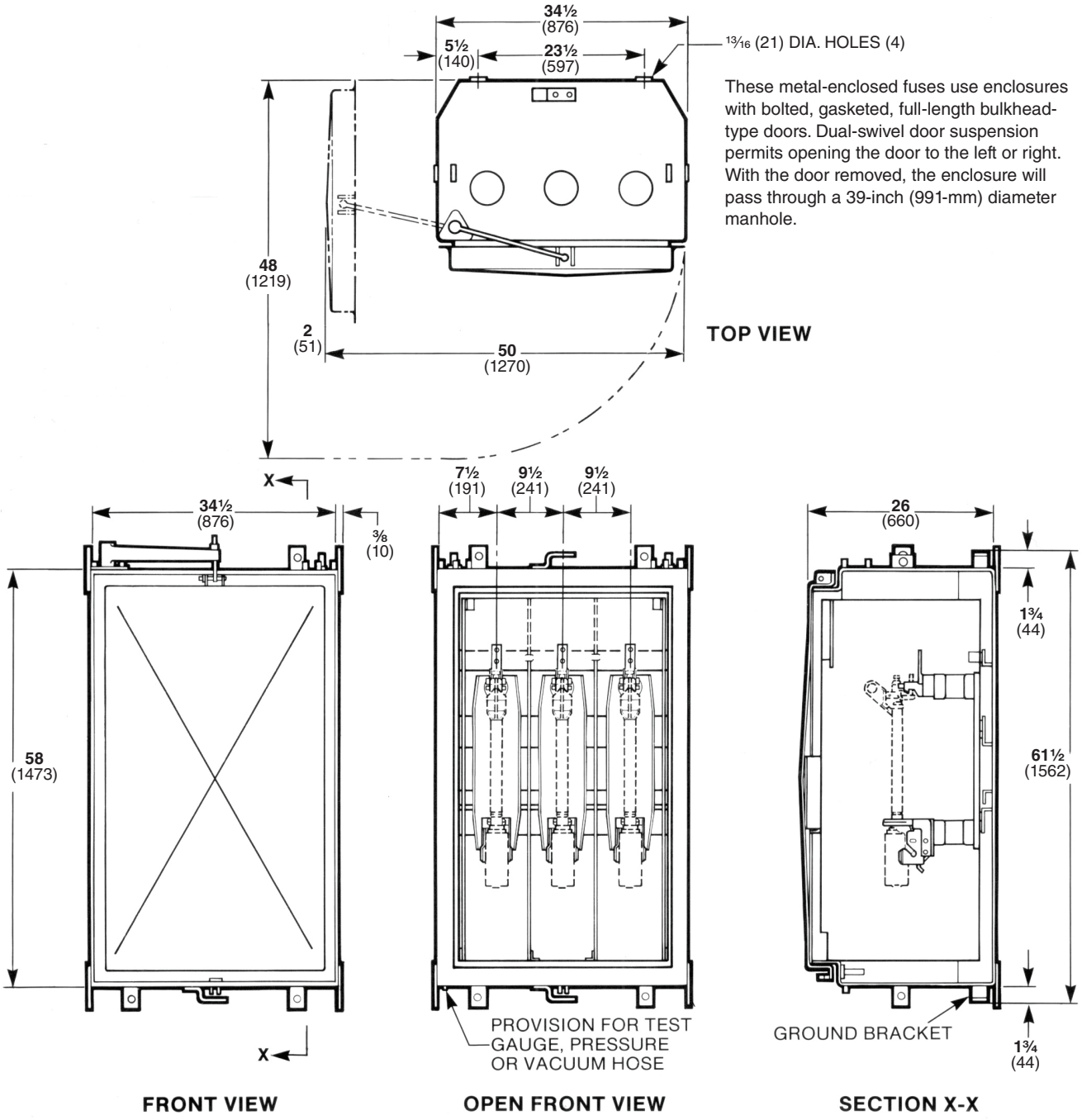
Style	Metal-Enclosed Fuse		kV, Nominal	Dimensions in Inches (mm)①		Net Weight, Lbs. (Kg.)②
	Type	Catalog Number		C	D	
Indoor	SM-5S	88332R6	13.8	8⅞ (225)	18⅜ (467)	670 (304)
	SM-40	90912	13.8	8⅝ (219)	14⅜ (365)	635 (288)

① Dimensions shown apply regardless of fuse type. For dimensions that apply when optional enclosure extenders (suffixes "-H1" through "-H4") are specified for cable entrance through conduit and when optional bushings or bushing wells (suffixes "-X1," "-X2," or "-X3") are specified for cable connection to terminators, refer to "Termination Locations for Optional Enclosure Extenders" on page 26 and page 27, and Termination Locations for Optional Bushings and Bushing Wells, on page 28 and page 29.

② Excluding optional features, fuse components, and cable-terminating devices.

Type SM (Type SM-40 Power Fuses illustrated)
Submersible Style 13.8 kV Nominal—Three-Phase

Dimensions in inches (mm)



These metal-enclosed fuses use enclosures with bolted, gasketed, full-length bulkhead-type doors. Dual-swivel door suspension permits opening the door to the left or right. With the door removed, the enclosure will pass through a 39-inch (991-mm) diameter manhole.

CONTINUED ▶

Dimensional Drawings

Style	Metal-Enclosed Fuse①		kV, Nominal	Net Weight, Lbs. (Kg).②
	Type	Catalog Number		
Submersible	SM-5S	88872R6	13.8	710 (322)
	SM-40	90942	13.8	675 (306)

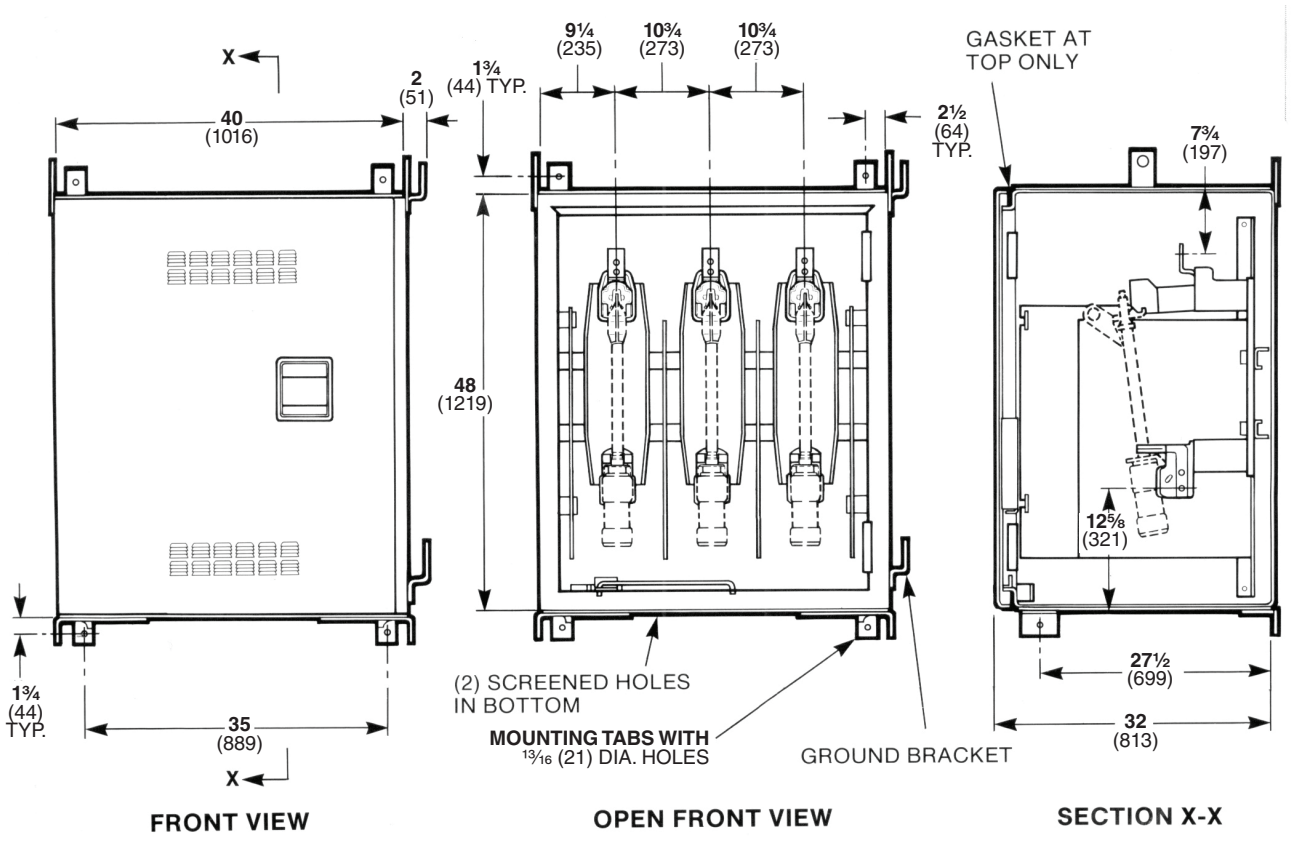
① Dimensions shown apply regardless of fuse type. For dimensions that apply when optional enclosure extenders (suffixes "-H1" through "-H4") are specified for cable entrance through conduit and when optional bushings or bushing wells (suffixes "-X1," "-X2," or "-X3") are specified for cable connection to terminators, refer to "Termination Locations for Optional Enclosure Extenders" on page 26 and page 27, and "Termination Locations for Optional Bushings and Bushing Wells," on page 28 and page 29.

② Excluding optional features, fuse components, and cable-terminating devices.

Type SML (Type SML-20 Power Fuses illustrated)

Indoor Style—13.8 kV Nominal—Three-Phase

Dimensions in inches (mm)



Style	Metal-Enclosed Fuse①		kV, Nominal	Net Weight, Lbs. (Kg.)②
	Type	Catalog Number		
Indoor	SML-20	90612	13.8	575 (261)
	SML-4Z	90712	13.8	580 (263)

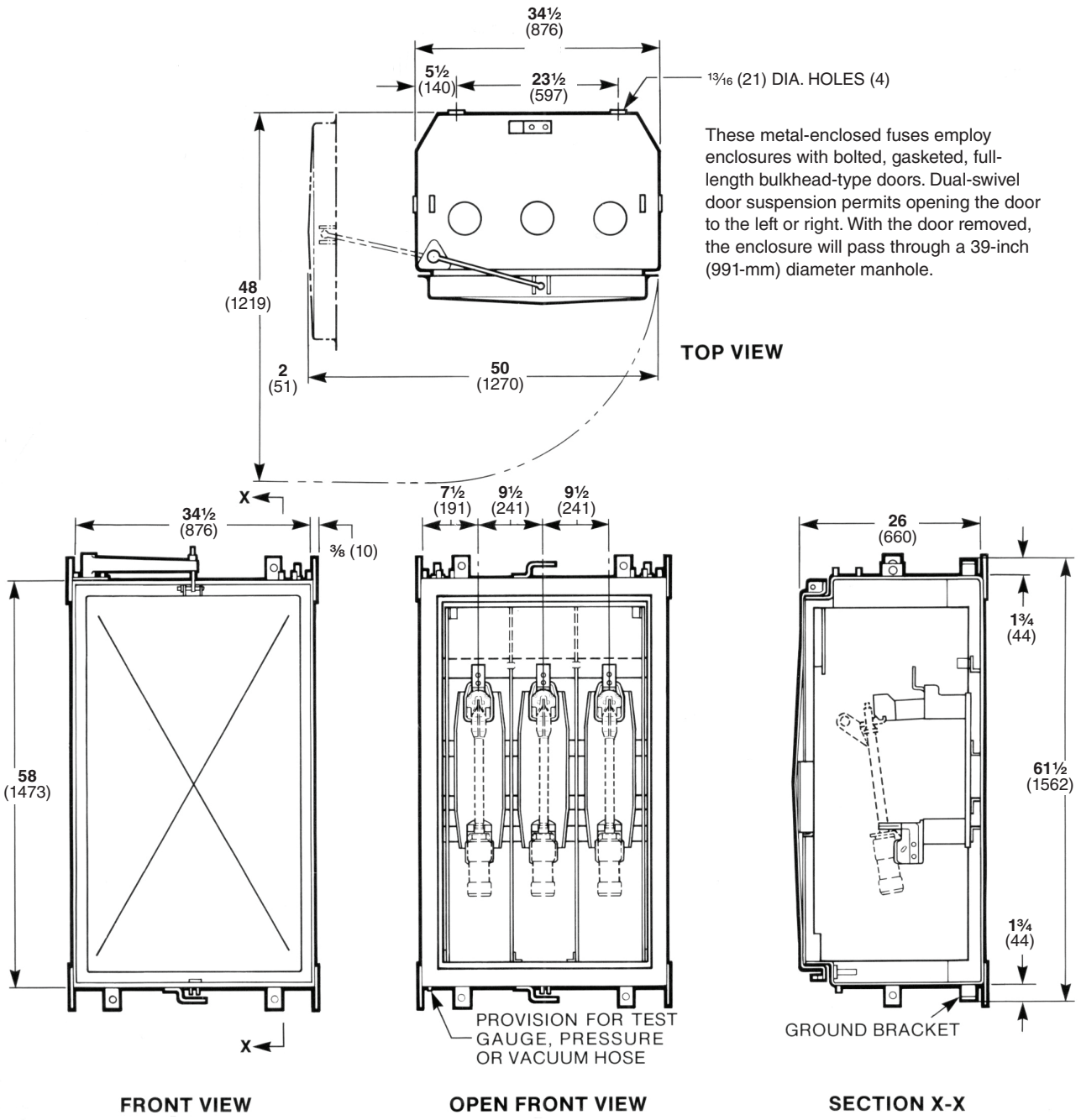
① Dimensions shown apply regardless of fuse type. For dimensions that apply when optional enclosure extenders (suffixes "-H1" through "-H4") are specified for cable entrance through conduit and when optional bushings or bushing wells (suffixes "-X1," "-X2," or "-X3") are specified for cable connection to terminators, refer to "Termination Locations for Optional Enclosure Extenders" on page 26 and page 27, and "Termination Locations for Optional Bushings and Bushing Wells," on page 28 and page 29.

② Excluding optional features, fuse components, and cable-termi- nating devices.

Type SML (Type SML-20 Power Fuses illustrated)

Submersible Style—13.8 kV Nominal—Three-Phase

Dimensions in inches (mm)



These metal-enclosed fuses employ enclosures with bolted, gasketed, full-length bulkhead-type doors. Dual-swivel door suspension permits opening the door to the left or right. With the door removed, the enclosure will pass through a 39-inch (991-mm) diameter manhole.

CONTINUED ▶

Style	Metal-Enclosed Fuse①		kV, Nominal	Net Weight, Lbs. (Kg.)②
	Type	Catalog Number		
Submersible	SML-20	90642	13.8	670 (304)
	SML-4Z	90742	13.8	675 (306)

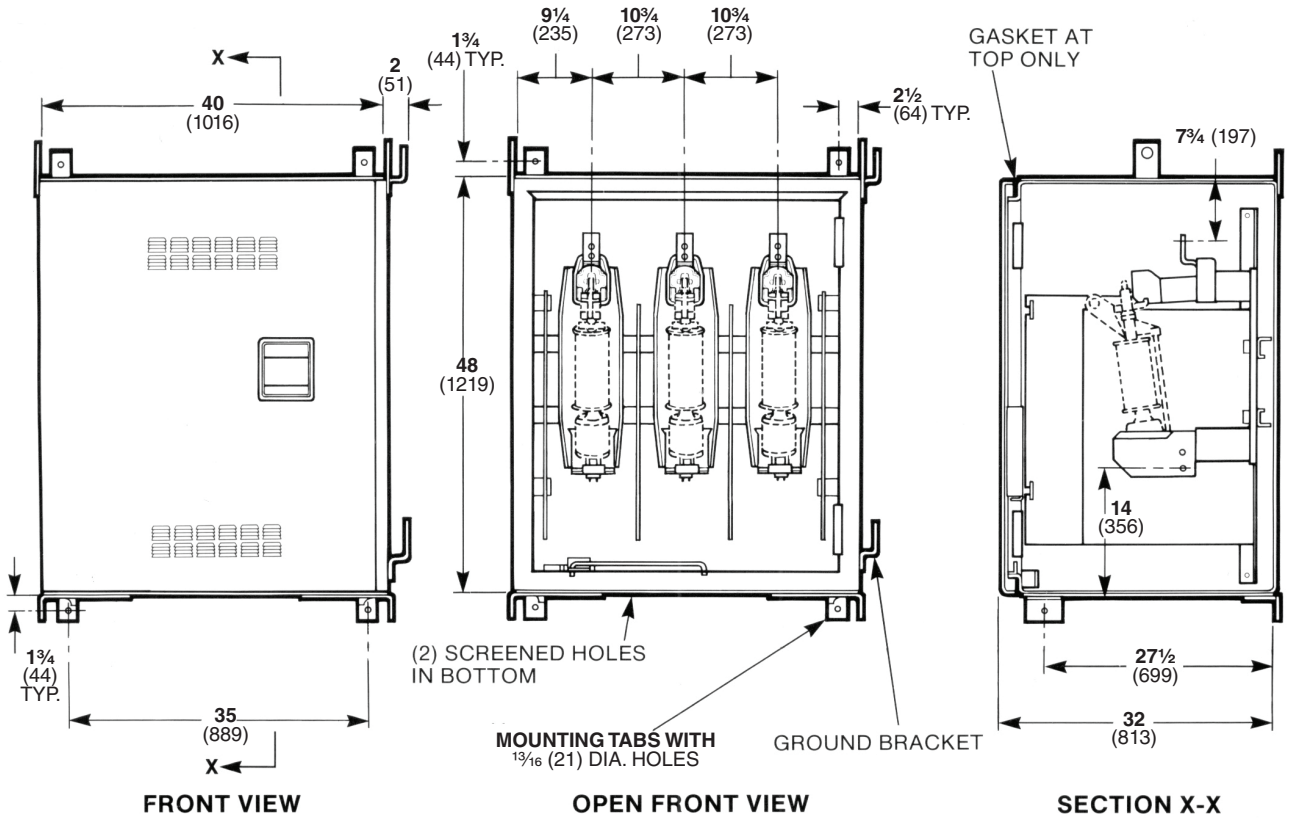
① Dimensions shown apply regardless of fuse type. For dimensions that apply when optional enclosure extenders (suffixes "-H1" through "-H4") are specified for cable entrance through conduit and when optional bushings or bushing wells (suffixes "-X1," "-X2," or "-X3") are specified for cable connection to terminators, refer to "Termination Locations for Optional Enclosure Extenders" on page 26 and page 27, and "Termination Locations for Optional Bushings and Bushing Wells," on page 28 and page 29.

② Excluding optional features, fuse components, and cable-terminating devices.

Fault Fiter Electronic Power Fuses

Indoor Style—13.8 kV Nominal—Three-Phase

Dimensions in inches (mm)



Style	Metal-Enclosed Fuse①		kV, Nominal	Net Weight, Lbs. (Kg.)②
	Type	Catalog Number		
Indoor	Fault Fiter	90812	13.8	575 (261)

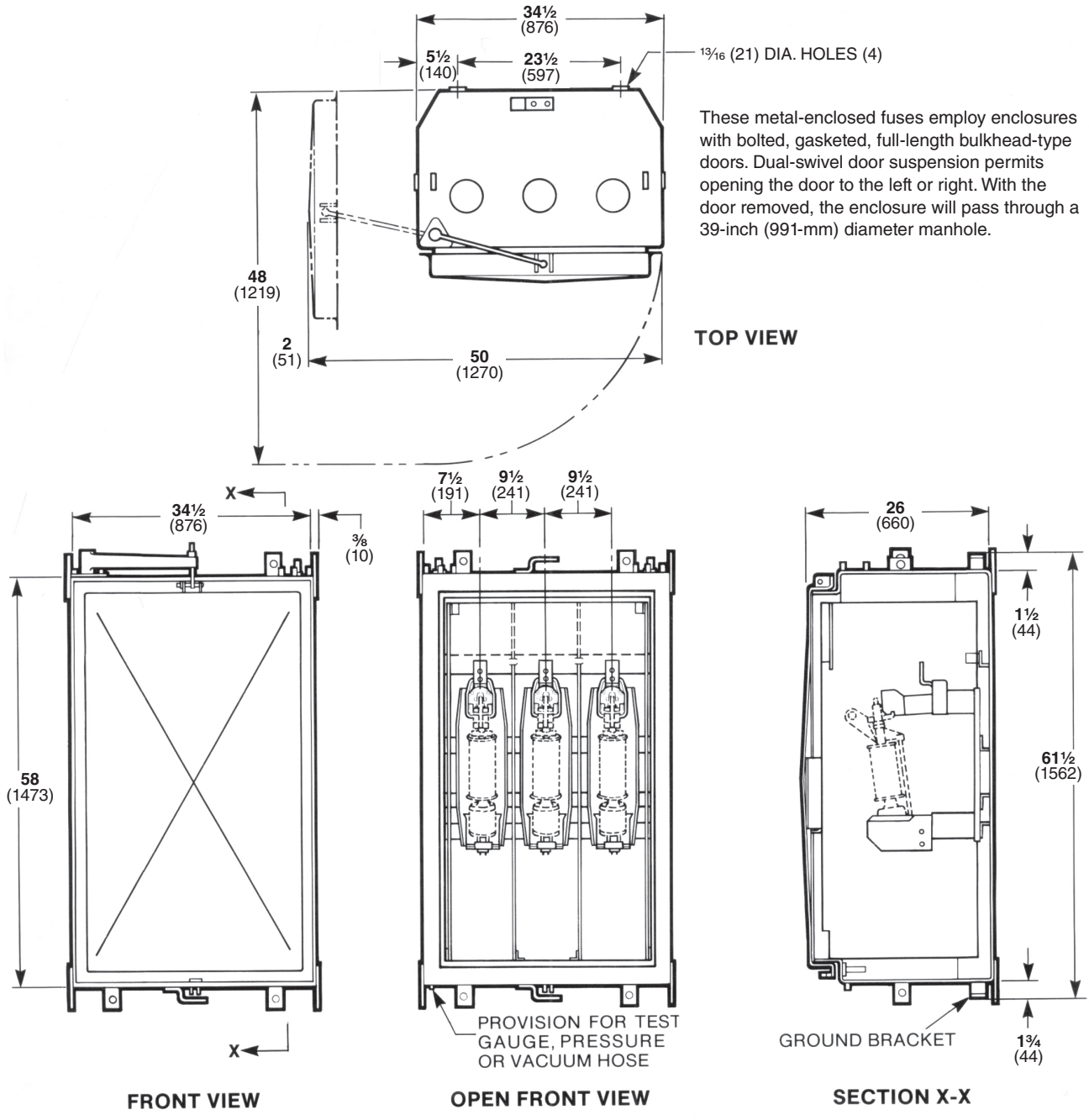
① For dimensions that apply when optional bushings or bushing wells (suffixes "-X1," "-X2," or "-X3") are specified for cable connection to terminators, refer to "Termination Locations for Optional Bushings and Bushing Wells," on page 28 and page 29.

② Excluding optional features, fuse components, and cable-terminating devices.

Fault Fiter Electronic Power Fuses

Submersible Style—13.8 kV Nominal—Three-Phase

Dimensions in inches (mm)



Style	Metal-Enclosed Fuse①		kV, Nominal	Net Weight, Lbs. (Kg.)②
	Type	Catalog Number		
Submersible	Fault Fiter	90842	13.8	670 (304)

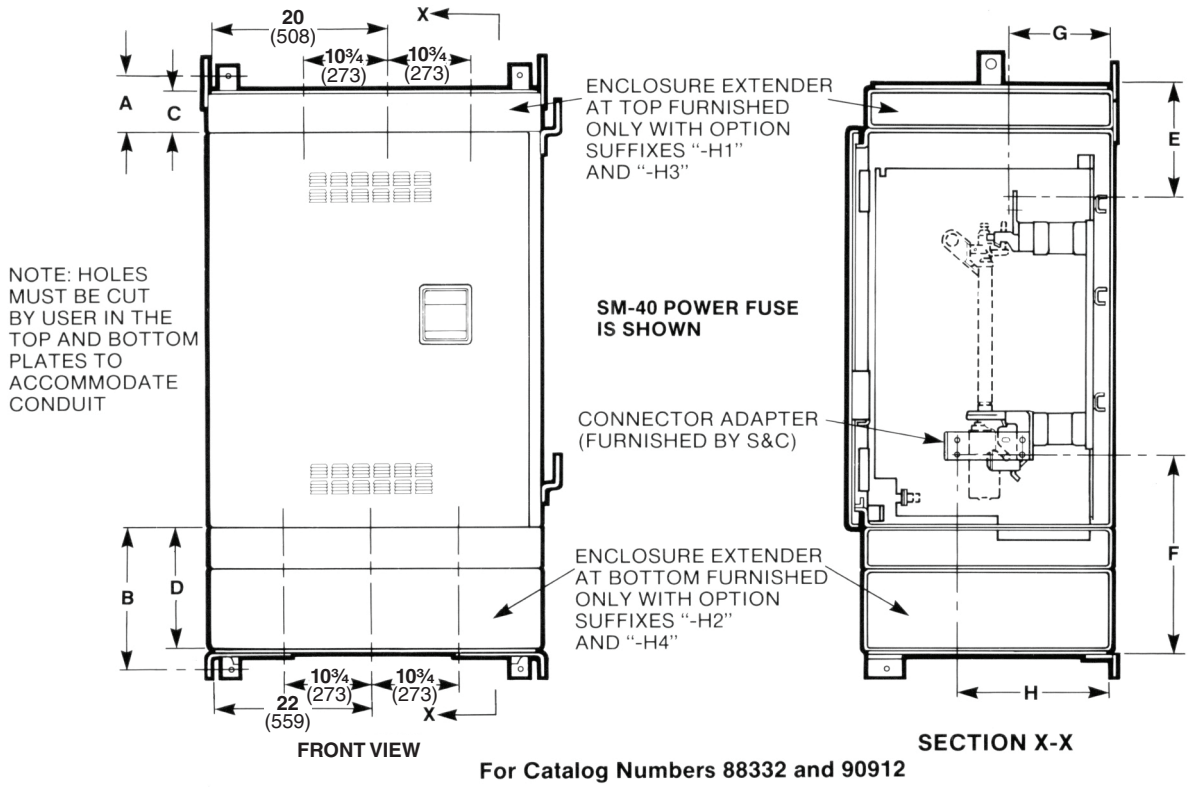
① For dimensions that apply when optional bushings or bushing wells (suffixes "-X1," "-X2," or "-X3") are specified for cable connection to terminators, refer to "Termination Locations for Optional Bushings and Bushing Wells," on page 28 and page 29.

② Excluding optional features, fuse components, and cable-terminating devices.

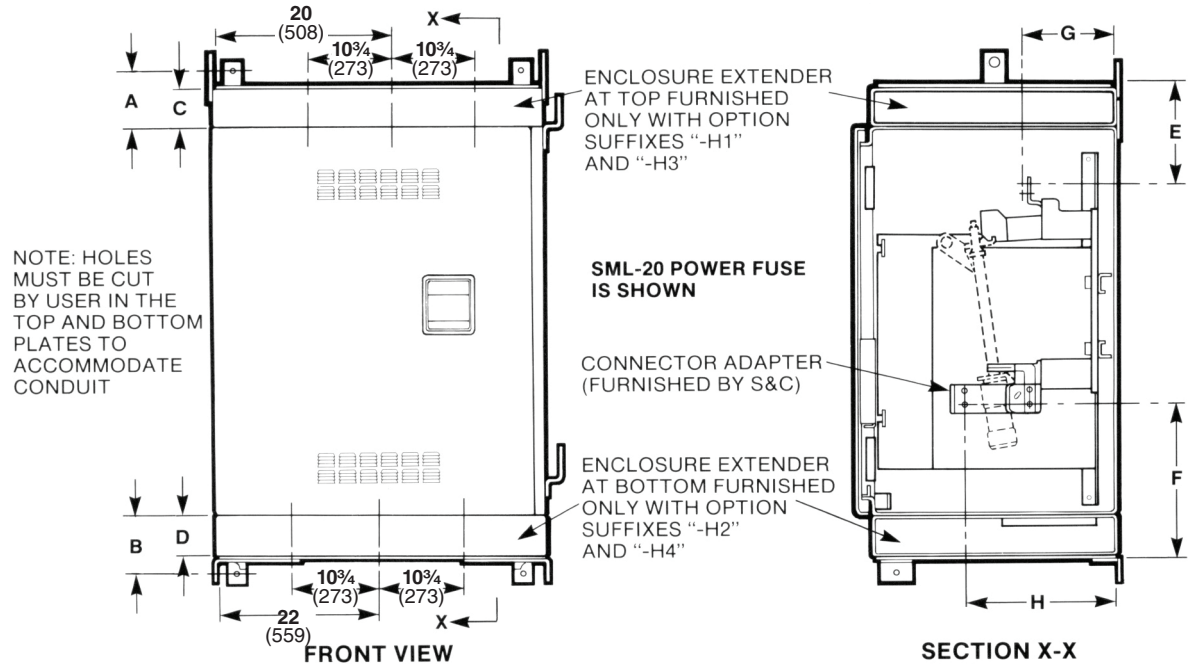
Termination Locations for Optional Enclosure Extenders

Suffixes “-H1” through “-H4”

Dimensions in inches (mm)



For Catalog Numbers 88332 and 90912



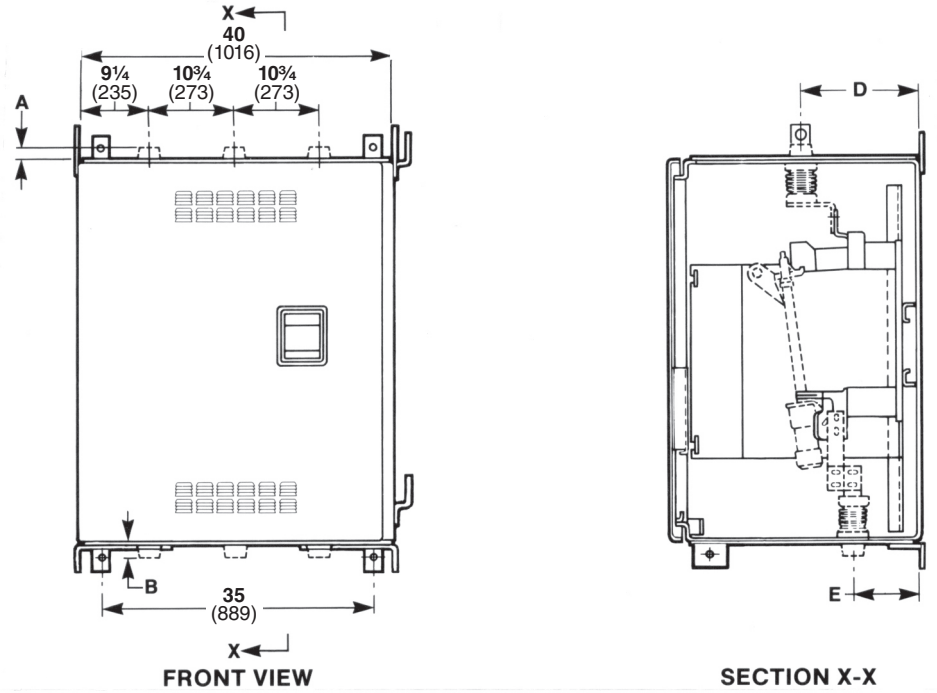
For Catalog Numbers 88330, 90910, 90612, 90712, and 90812

CONTINUED ►

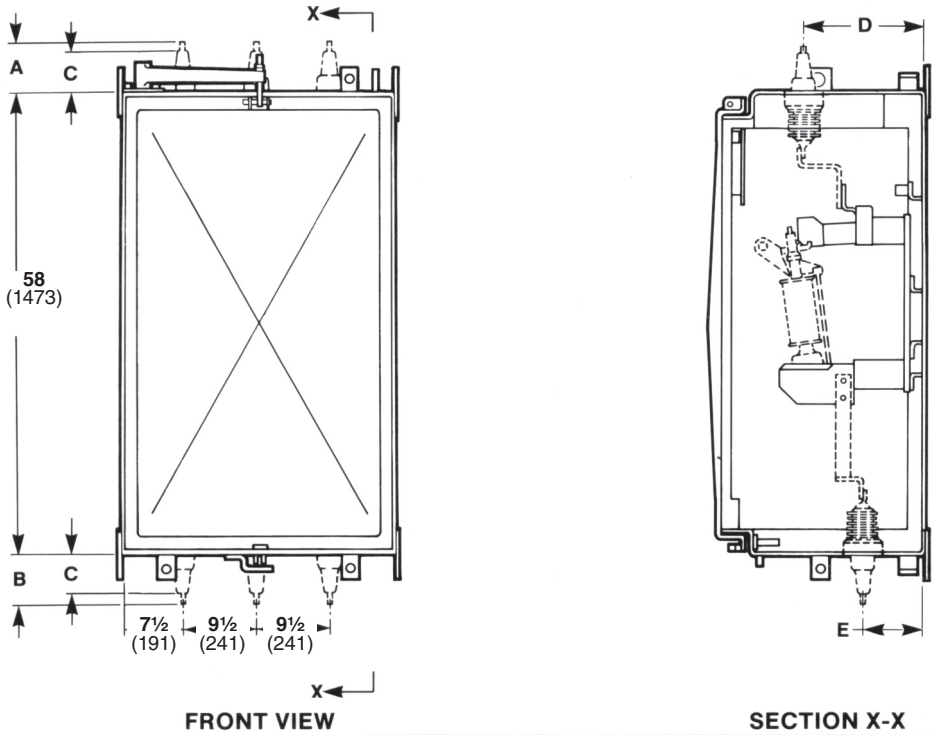
Catalog Number	With Option Suffix	Dimensions in Inches (mm)							
		A	B	C	D	E	F	G	H
88330	-H1	6⅞ (175)	1⅞ (48)	5 (127)	–	16⅞ (429)	14⅜ (365)	8½ (216)	6½ (165)
	-H2	1⅞ (48)	6⅞ (175)	–	5 (127))	11⅞ (302)	14⅛ (359)	8½ (216)	6½ (165)
	-H3	11⅞ (302)	1⅞ (48)	10 (254)	–	21⅞ (556)	14⅜ (365)	8½ (216)	6½ (165)
	-H4	1⅞ (48)	11⅞ (302)	–	10 (254)	11⅞ (302)	19⅛ (486)	8½ (216)	6½ (165)
90910	-H1	6⅞ (175)	1⅞ (48)	5 (127)	–	13 (330)	13½ (343)	11½ (292)	17½ (445)
	-H2	1⅞ (48)	6⅞ (175)	–	5 (127))	8 (203)	18½ (470)	11½ (292)	17½ (445)
	-H3	11⅞ (302)	1⅞ (48)	10 (254)	–	18 (457)	13½ (343)	11½ (292)	17½ (445)
	-H4	1⅞ (48)	11⅞ (302)	–	10 (254)	8 (203)	23½ (597)	11½ (292)	17½ (445)
88332	-H1	6⅞ (175)	6⅞ (175)	5 (127)	5 (127)	13⅞ (352)	18⅜ (467)	11 (279)	9 (229)
	-H2	1⅞ (48)	11⅞ (302)	–	10 (254)	8⅞ (225)	18⅛ (460)	11 (279)	9 (229)
	-H3	11⅞ (302)	6⅞ (175)	10 (254)	5 (127)	18⅞ (479)	18⅜ (467)	11 (279)	9 (229)
	-H4	1⅞ (48)	16⅞ (429)	–	15 (381)	8⅞ (225)	23⅛ (587)	11 (279)	9 (229)
90912	-H1	6⅞ (175)	6⅞ (175)	5 (127)	5 (127)	13⅝ (346)	14⅜ (365)	11½ (292)	17½ (445)
	-H2	1⅞ (48)	11⅞ (302)	–	10 (254)	8 (203)	19⅜ (492)	11½ (292)	17½ (445)
	-H3	11⅞ (302)	6⅞ (175)	10 (254)	5 (127)	18⅝ (473)	14⅜ (365)	11½ (292)	17½ (445)
	-H4	1⅞ (48)	16⅞ (429)	–	15 (381)	8 (203)	24⅜ (619)	11½ (292)	17½ (445)
90612 and 90712	-H1	6⅞ (175)	1⅞ (48)	5 (127)	–	12¾ (324)	12⅝ (321)	11 (279)	18½ (470)
	-H2	1⅞ (48)	6⅞ (175)	–	5 (127))	7¾ (197)	17⅝ (448)	11 (279)	18½ (470)
	-H3	11⅞ (302)	1⅞ (48)	10 (254)	–	17¾ (451)	12⅝ (321)	11 (279)	18½ (470)
	-H4	1⅞ (48)	11⅞ (302)	–	10 (254)	7¾ (197)	22⅝ (575)	11 (279)	18½ (470)
90812	-H1	6⅞ (175)	1⅞ (48)	5 (127)	–	12¾ (324)	14 (356)	11 (279)	10¾ (273)
	-H2	1⅞ (48)	6⅞ (175)	–	5 (127))	7¾ (197)	19 (483)	11 (279)	10¾ (273)
	-H3	11⅞ (302)	1⅞ (48)	10 (254)	–	17¾ (451)	14 (356)	11 (279)	10¾ (273)
	-H4	1⅞ (48)	11⅞ (302)	–	10 (254)	7¾ (197)	24 (610)	11 (279)	10¾ (273)

Termination Locations for Optional Bushings and Bushing Wells,
Suffixes "-X1" through "-X4"

Dimensions in inches (mm)



For Catalog Numbers 88330, 88332, 90612, 90712, 90812, 90910, and 90912
(Suffix "-X1" illustrated)



For Catalog Numbers 88872, 90642, 90742, 90842, and 90942
(Suffix "-X2" illustrated)

CONTINUED ►

Catalog Number	With Option Suffix	Dimensions in Inches (mm)				
		A	B	C	D	E
88330	-X1	1⅜ (35)	1⅜ (35)	–	15 (381)	6½ (165)
	-X2	6⅜ (162)	6⅜ (162)	5⅛ (130)	15 (381)	6½ (165)
	-X3	6⅜ (162)	1⅜ (35)	5⅛ (130)	15 (381)	6½ (165)
88332	-X1	1⅜ (35)	1⅜ (35)	–	15 (381)	9 (229)
	-X2	6⅜ (162)	6⅜ (162)	5⅛ (130)	15 (381)	8½ (216)
	-X3	6⅜ (162)	1⅜ (35)	5⅛ (130)	15 (381)	9 (229)
90612, 90712, 90812, 90910, and 90912	-X1	1⅜ (35)	1⅜ (35)	–	15 (381)	8½ (216)
	-X2	6⅜ (162)	6⅜ (162)	5⅛ (130)	15 (381)	7½ (191)
	-X3	6⅜ (162)	1⅜ (35)	5⅛ (130)	15 (381)	8½ (216)
88872, 90642, 90742, 90842, and 90942	-X1	1⅜ (35)	1⅜ (35)	–	15 (381)	8 (203)
	-X2	6⅜ (162)	6⅜ (162)	5⅛ (130)	15 (381)	8 (203)
	-X3	6⅜ (162)	1⅜ (35)	5⅛ (130)	15 (381)	8 (203)