

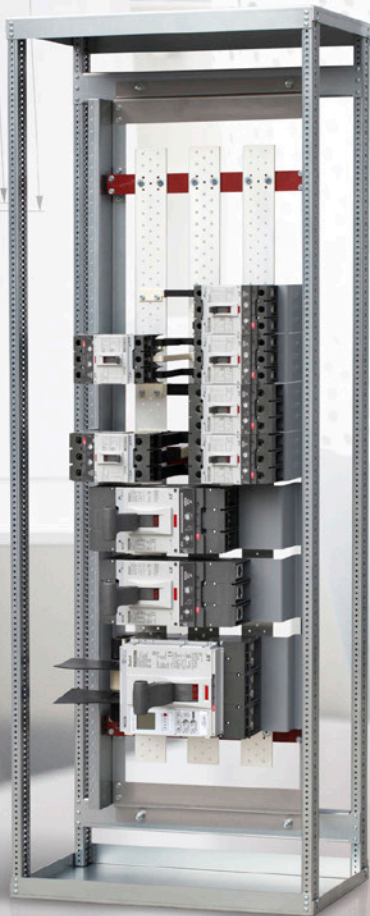
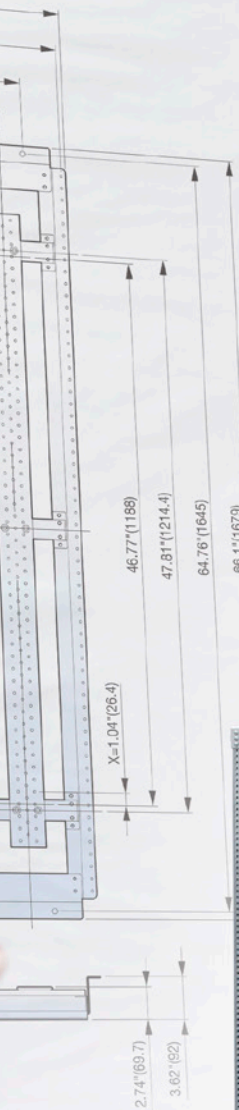
Derwent
Top 100
Global
Innovator
2020

Susol Super Solution

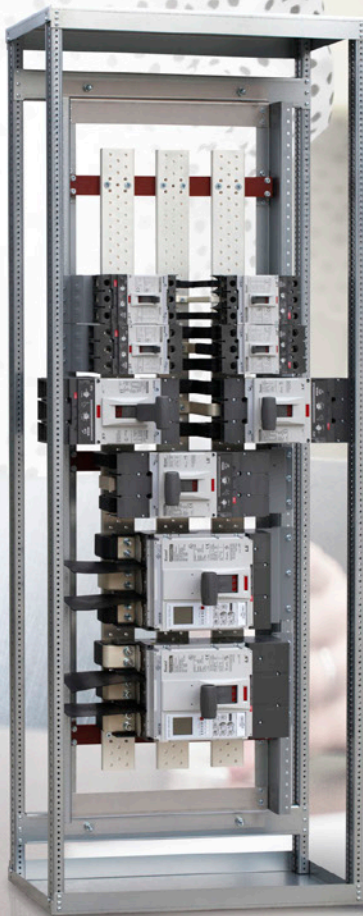
UL891 Switchboard Solution



LS ELECTRIC



1200A



2000A





UL489 MCCB

Susol *Super Solution*

UL891 Switchboard Solution

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Overview

The Susol UL891 switchboard solution meets UL67/UL891 certification standards for bus straps and interiors utilizing UL489 MCCBs.

There are five types of interiors, three types of bus straps, and a wide range of MCCBs available which allow flexibility during the development and selection stage for new panels. It is a cost effective and allows for safe installation and interchangeability.



LS's supply scope

Panel builder



UL891 Switchboard



UL67 Switchboard

LS's supply scope

* Exclude frames

Features

- UL67/UL891 Panelboards
- UL489 Molded case circuit breakers
- Main bus, 1200/2000/2400/4000/6000A copper
- Branch-bus direct connection
- Up to 1200A breaker mounted as a branch device
- Double branched 150, 250 and 400AF breakers
- The interior maximum short circuit interrupting rating 100kA at 480Vac
- Individual breaker Protection cover plates

Structure

1 Blank filler plate

Used to cover blank space on chassis

2 Circuit breaker cover

Used to protect breakers and bus straps

- single mounting type
- double mounting type

3 Filler plate

Filler plates are used to fill and protect unused spaces in the circuit breaker cover

4 Bus strap

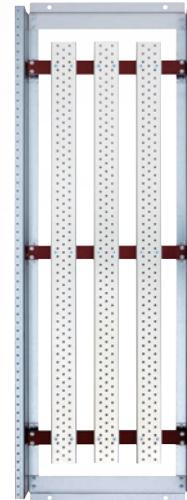
- single mounting type
 - double mounting type
 - Installation case
- ① 150AF of single bus strap
 - ② 150AF of double bus strap
 - ③ 800AF of single bus strap



Note : Exclude steel frames of outer angle

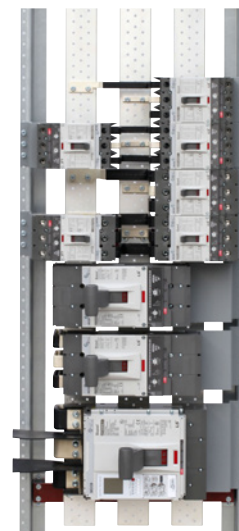
5 Interior

- 1200A(single chassis bus)
- 2000A(double chassis bus)
- 2400/4000/6000A

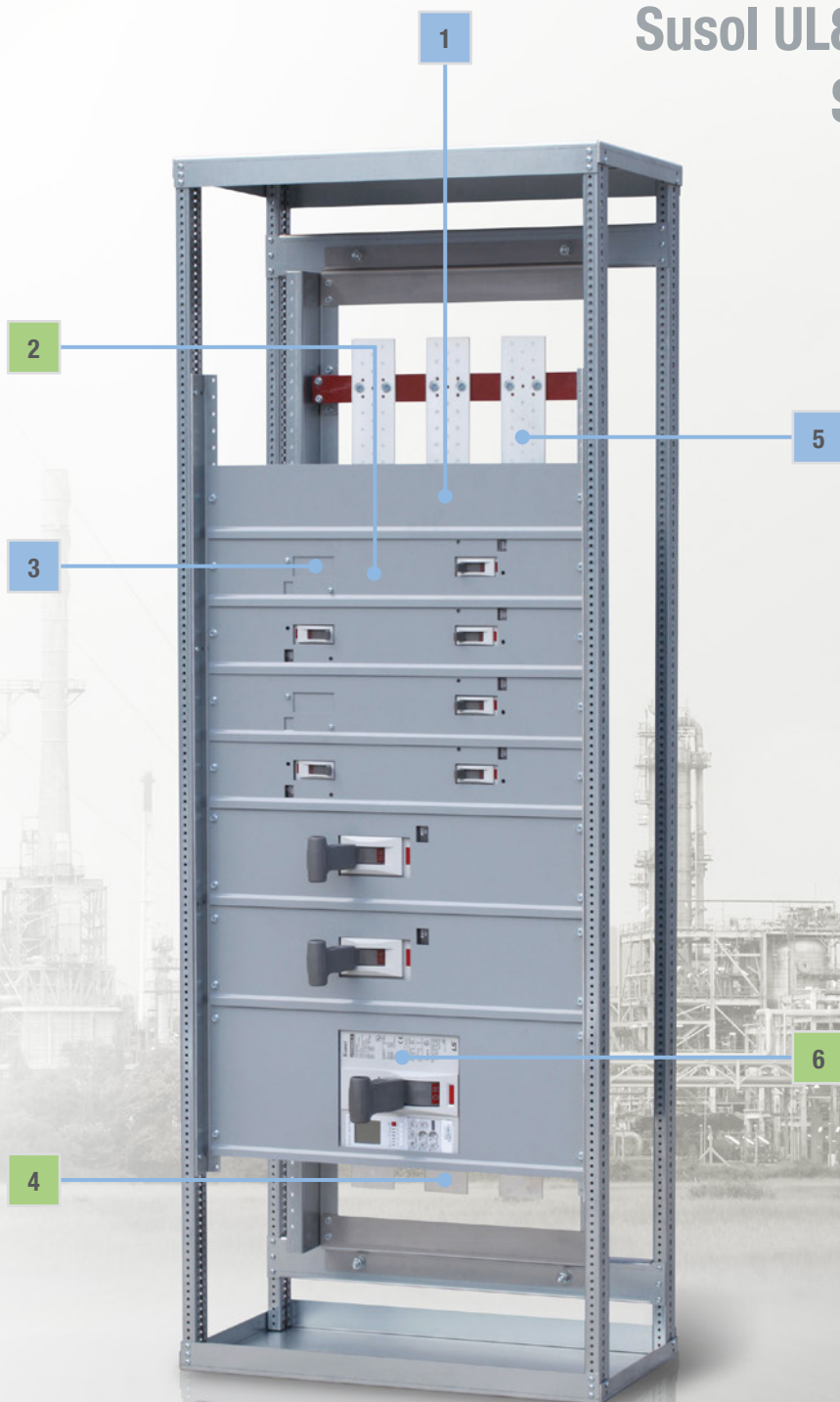


6 UL489 MCCB

- Ampere rating: 40~1200A
- Poles : 2, 3
- Various trip units:
FTU, FMU, ATU, ETS, ETM,
OCR, MCP, MCS
- Standards: UL489, IEC60947-2



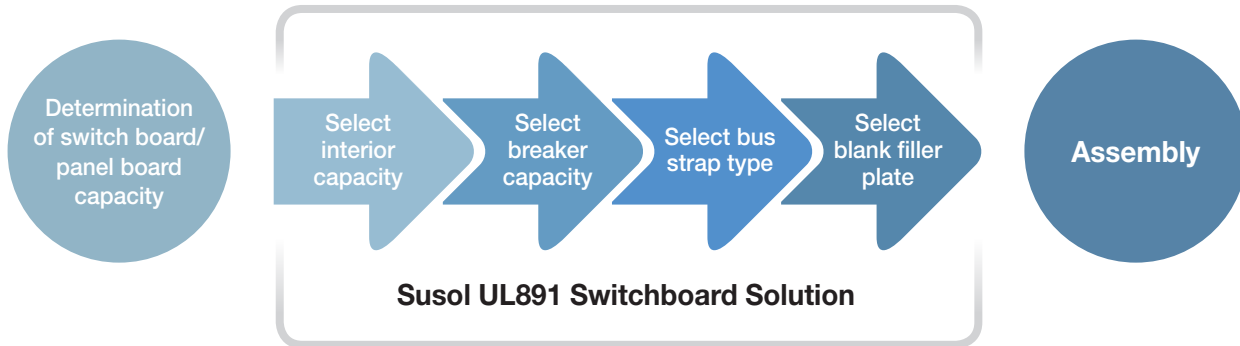
Susol UL891 Switchboard Solution



* Frames are installed for photography and are not included in the supply range.

■ Features

Product selection sequence

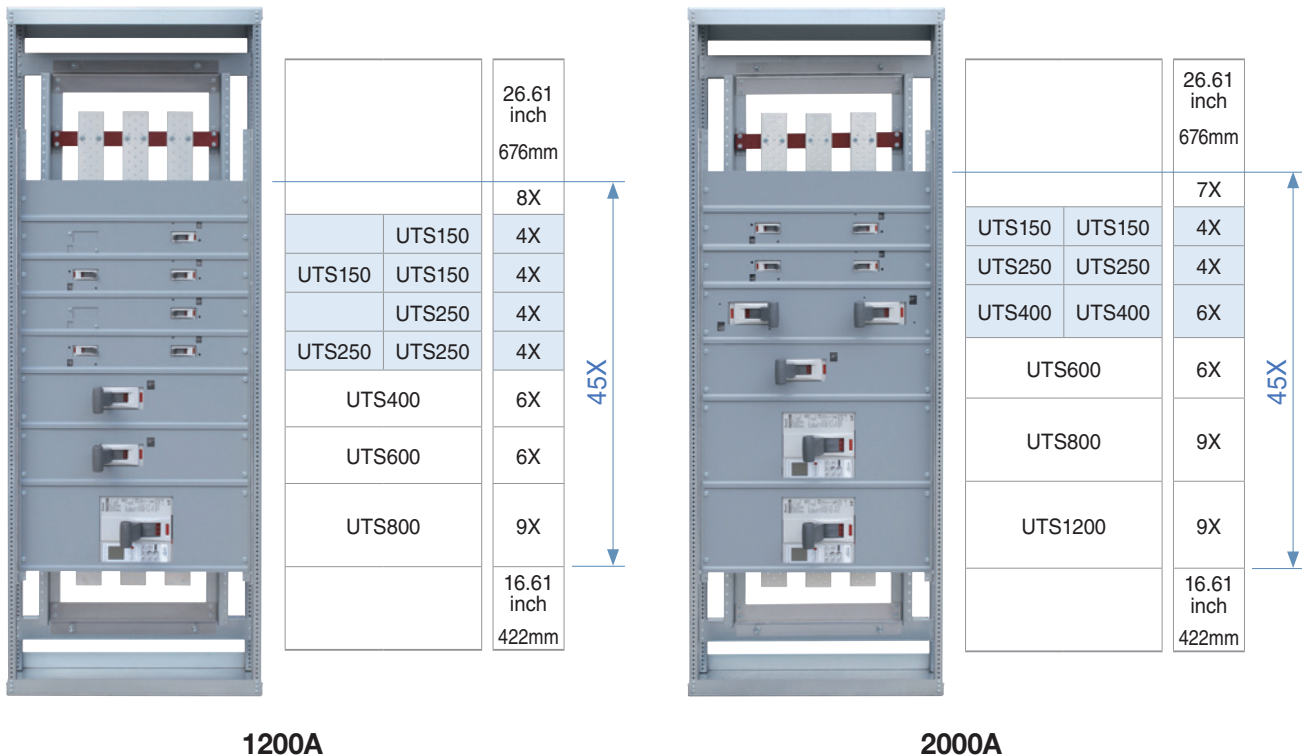


Chassis layout

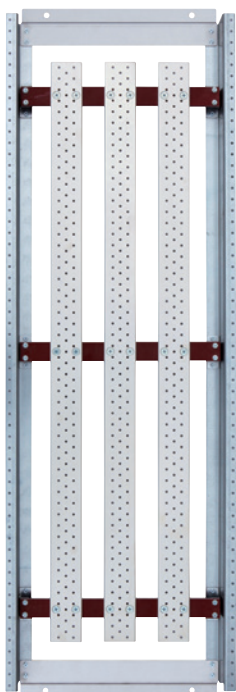
1200AF chassis can be utilized for MCCBs UTS 150AF to UTS 800AF. 2000/2400/4000/6000A chassis can be utilized for MCCBs UTS 150AF to UTS 1200AF.

There are dedicated covers for each capacity of the breaker, which are 4X, 6X, and 9X high. Considering the height of circuit breaker cover, the breaker can be installed within 45X heights for the 1200/2000A interior. For 2400/4000/6000A interiors, there are three types of 36/46/66X.

Breakers are installed in order of lowest at the top to highest capacity at the bottom. Install the breakers, and insert the blank filler plate of various heights to fill the remaining space and complete the panel. The top and bottom spaces can be used for ventilation and wire connections.



Interior



Description		Interior-1200	Interior-2000
Rated current		1200A	2000A
Rated short-circuit breaking capacity		100kA @480Vac	
Applicable MCCB		UTS150, UTS250, UTS400, UTS600, UTS800	UTS150, UTS250, UTS400, UTS600, UTS800, UTS1200
Minimum enclosure size (W×H×D)	mm	914.4 × 2,286 × 406.4	1,168.4 × 2,286 × 508.2
	inch	36" × 90" × 16"	46" × 90" × 20"
Standard		UL67	

Description		Interior-2400			Interior-4000			Interior-6000		
Rated current		2400A			4000A			6000A		
Rated Short-circuit breaking capacity		100kA @480Vac								
Applicable MCCB		UTS150, UTS250, UTS400, UTS600, UTS800, UTS1200								
Frame size		36X	46X	66X	36X	46X	66X	36X	46X	66X
mm	W	542			542			562		
	H	1256.6	1520.6	1995.8	1256.6	1520.6	1995.8	1256.6	1520.6	1995.8
	D	92			92			127.3		
inch	W	21.34			21.34			22.13		
	H	49.47	59.87	78.57	49.47	59.87	78.57	49.47	59.87	78.57
	D	3.62			3.62			5.01		
Standard		UL891								

■ Applicable circuit breakers

Susol UL MCCB

Susol UL489 MCCBs are designed to protect low voltage electrical systems from damage caused by overloads and short circuits.



Breaker type	Ampere frame	Ampere rating	Performance			Pole	Trip units							
			80% rating	100% ¹⁾ Rating	kA @480 Vac		FTU	FMU	ATU	ETS	ETM	OCR	MCP	MCS
UTS150	150	40/50/60/ 70/80/90/ 100/125/ 150A	N	NT	35	2,3	●	●	●	●	-	-	●	●
			H	HT	65									
			L	LT	100									
UTS250	250	150/160/ 175/200/ 225/250A	N	NT	35	2,3	●	●	●	●	-	-	●	●
			H	HT	65									
			L	LT	100									
UTS400	400	250/300/ 350/400A	N	NT	35	2,3	●	●	●	●	●	-	●	●
			H	HT	65									
			L	LT	100									
UTS600	600	500/600A	N	-	35	2,3	●	●	●	●	●	-	●	●
			H	-	65									
			L	-	100									
UTS800	800	400/600/ 630/800A	N	NT	35	3	-	-	-	-	-	●	●	●
			H	HT	65									
			L	LT	100									
UTS1200	1200	800/1000/ 1200A	N	-	35	3	-	-	-	-	-	●	●	●
			H	-	65									
			P	-	50									
			L	-	100									

Note1) The 100% rated MCCB is available with 90°C wire.

Circuit breaker terminals

UTS150 to UTS1200 frame circuit breakers can be ordered with line side and load side lugs.

The standard lugs can be removed for the installation of bus connections. All lugs are UL/cUL Listed Certified for their proper application and marked for use with aluminum and copper (Al/Cu) or copper only (Cu) conductors. Lugs suitable for copper and aluminum conductors are made of tin-plated aluminum. Mechanical lugs are sold either factory installed or as field installable kits.

Breaker type	Lug type	Ampere rating	Applicable wire (Copper)	TORQUEN N•m (lb-in)
UTS150	AL150TS	1.6~15A	14 AWG	4.1 (36.2)
		20~30A	12~10 AWG	5.4 (47.8)
		40~175A	8~2/0 AWG	15.1 (133.6)
UTS250	AL250TS	150~175A	1/0~2/0 AWG	32 (283.2)
		200~225A	3/0~4/0 AWG	
		250A	250~350 kcmil	44 (389.4)
UTS400	AL400TS	250, 300A	1/0 AWG~300 kcmil	40.5 (358.5)
		350, 400A	350~600 kcmil	54 (478)
UTS600	AL600TS	500, 600A	2/0 AWG~350 kcmil	40.5 (358.5)
UTS800	AL800TS	400, 600, 630, 800A	3/0 AWG~300 kcmil	45 (398.3)
UTS1200	AL1200TS	800, 1000, 1200A	3/0 AWG~350 kcmil	45 (398.3)

Note1) For the UTS150, barriers are required when connecting the breaker to the bus.



[UTS150 + barrier]

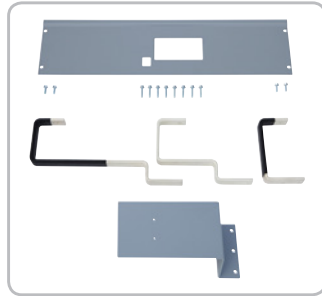


[Barrier for UST150]

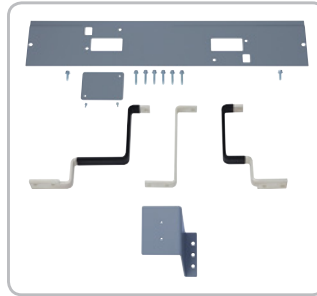
■ Bus strap kits

Each kit includes copper connectors, mounting brackets, cover, hardware and instructions.

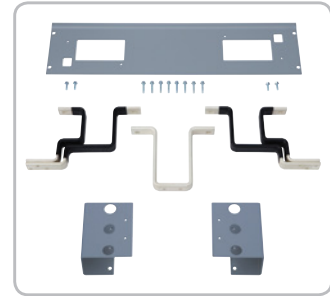
Bus strap kits composition



Single center



Single



Double

Installed appearance



Breaker type	Pole	Space required		Mounting type					
				1200A			2000A		
		Inch. (mm)	"X"	Single center	Single	Double	Single center	Single	Double
UTS150	2, 3	4.16 (105.6)	4X	-	●	●	-	●	●
UTS250	2, 3	4.16 (105.6)	4X	-	●	●	-	●	●
UTS400	2, 3	6.24 (158.4)	6X	●	-	-	●	●	●
UTS600	2, 3	6.24 (158.4)	6X	●	-	-	●	-	-
UTS800	3	9.36 (237.6)	9X	●	-	-	●	-	-
UTS1200	3	9.36 (237.6)	9X	-	-	-	●	-	-

Note) 1. X=1.04 Inches (26.4mm)

2. Single center: There is one open space.

3. Single: A filler plate is provided that covers one of the two spaces.

4. Circuit breaker is not included.

5. The single center types have L type (line side to the left) and R type (line side to the right) depending on the position of the breaker.

■ Type of protective cover

Blank filler plate

Used to cover blank space on chassis. All plate heights are measured in “X” units.

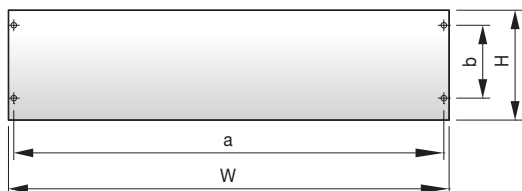
1X equals 1.04 inches (26.4 mm)

The blank filler plate heights are from 2X to 9X.

2X~4X



5X~9X



Dimensions

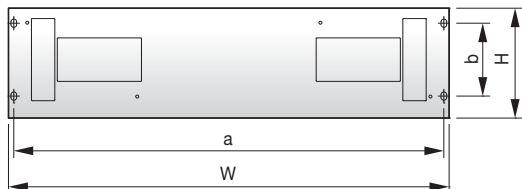
Blank	Frame		Hole spacing		
	W	H	a	b	X
	inch. (mm)	inch. (mm)	inch. (mm)	inch. (mm)	
2X	24.53 (623)	2.08 (52.8)	23.94 (608)	-	-
3X		3.12 (79.2)		-	-
4X		4.16 (105.6)		-	-
5X		5.20 (132.0)		3.12 (79.2)	3X
6X		6.24 (158.4)		4.16 (105.6)	4X
7X		7.28 (184.8)		5.20 (132.0)	5X
8X		8.32 (211.2)		6.24 (158.4)	6X
9X		9.36 (237.6)		7.28 (184.8)	7X

Note) 1. hole size: Ø8×12

2. A box contains 5EA(7X-9X) or 10EA(2X-6X) blank filler plates and is sold on a box-by-box basis.

Circuit breaker cover

All bus strap kits include a circuit breaker cover.



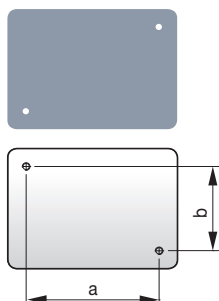
Dimensions

Circuit breaker	Frame		Hole spacing		
	W	H	a	b	X
	inch. (mm)	inch. (mm)	inch. (mm)	inch. (mm)	
UTS150/250	24.53 (623)	4.16 (105.6)	23.94 (608)	-	-
UTS400/600		6.24 (158.4)		4.16 (105.6)	4X
UTS800/1200		9.36 (237.6)		7.28 (184.8)	7X

Note) hole size: Ø8×12

Filler plate

The filler plates are used for single mounting in the double mounting type of the UTS150/250 and UTS400. The filler plates are required in addition to circuit breaker cover whenever a branch circuit breaker is specified.



Dimensions

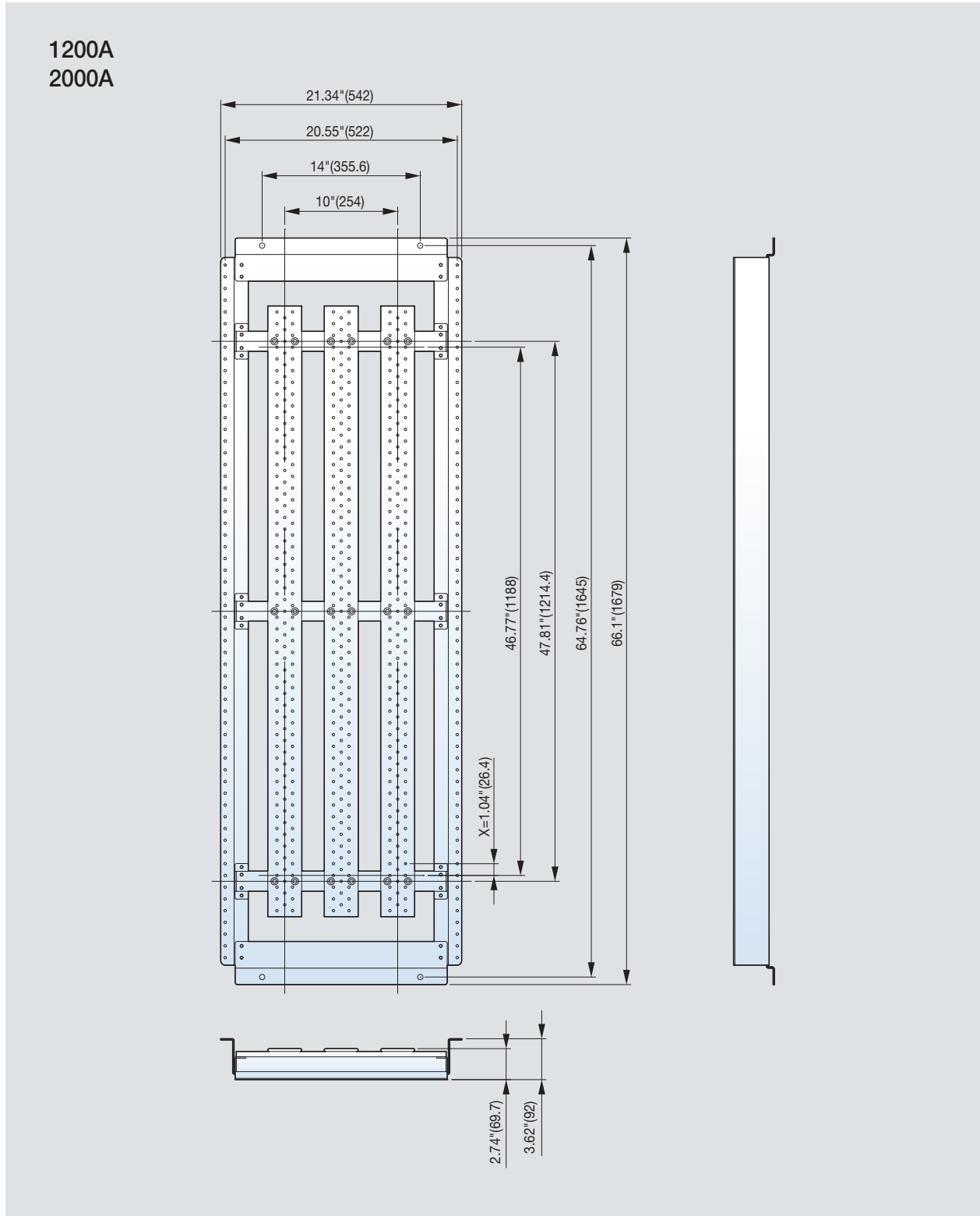
Circuit breaker	Hole spacing		Hole size
	a	b	
	inch. (mm)	inch. (mm)	
UTS150/250	3.47 (88.1)	2.87 (73)	NO. 8-32 UNC
UTS400/600	6.12 (155.5)	4.21 (107)	

Note) A box contains 30EA filler plates and is sold on a box-by-box basis.

■ Dimensions

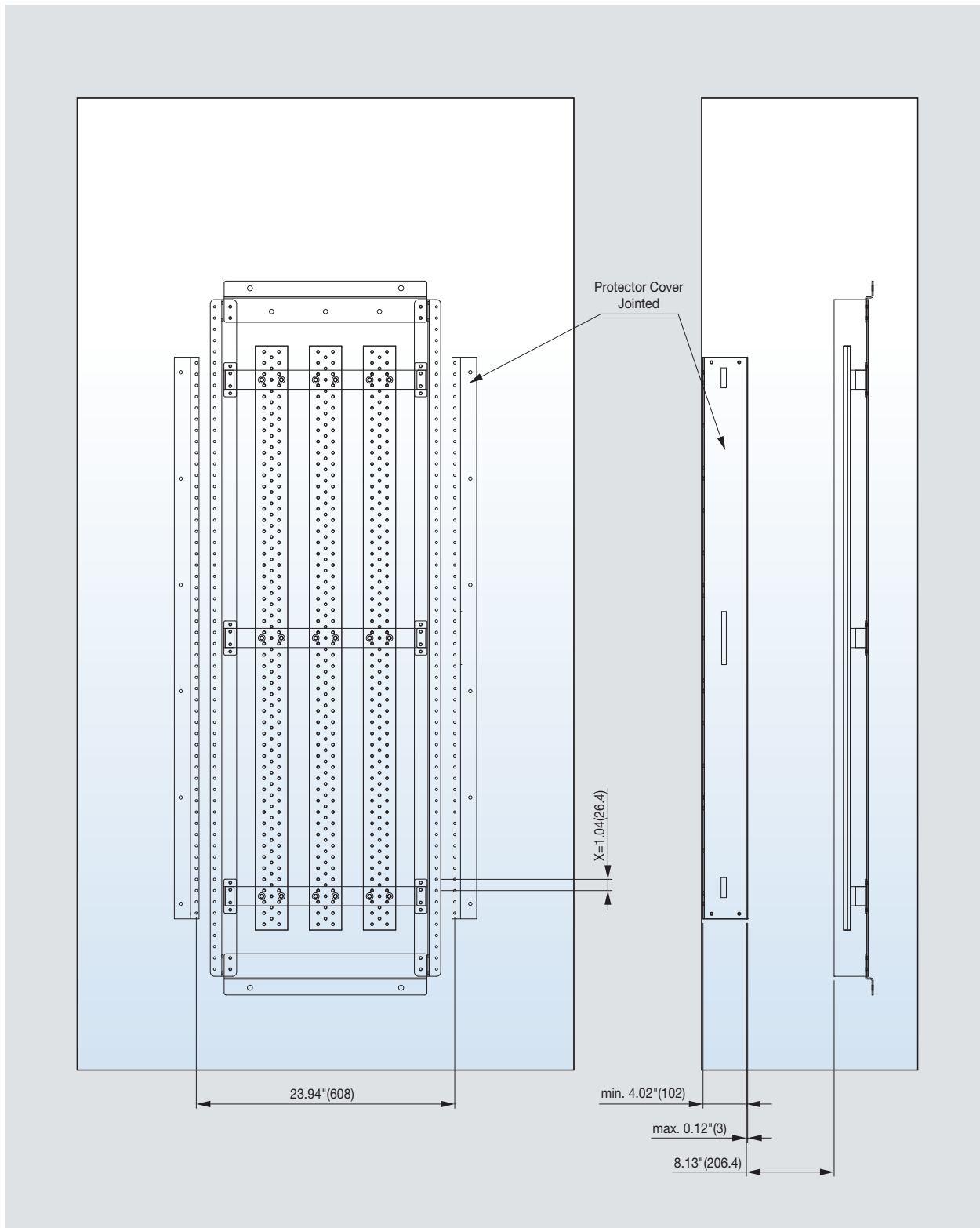
Interior

Dimension: inch[mm]



Protector cover joint

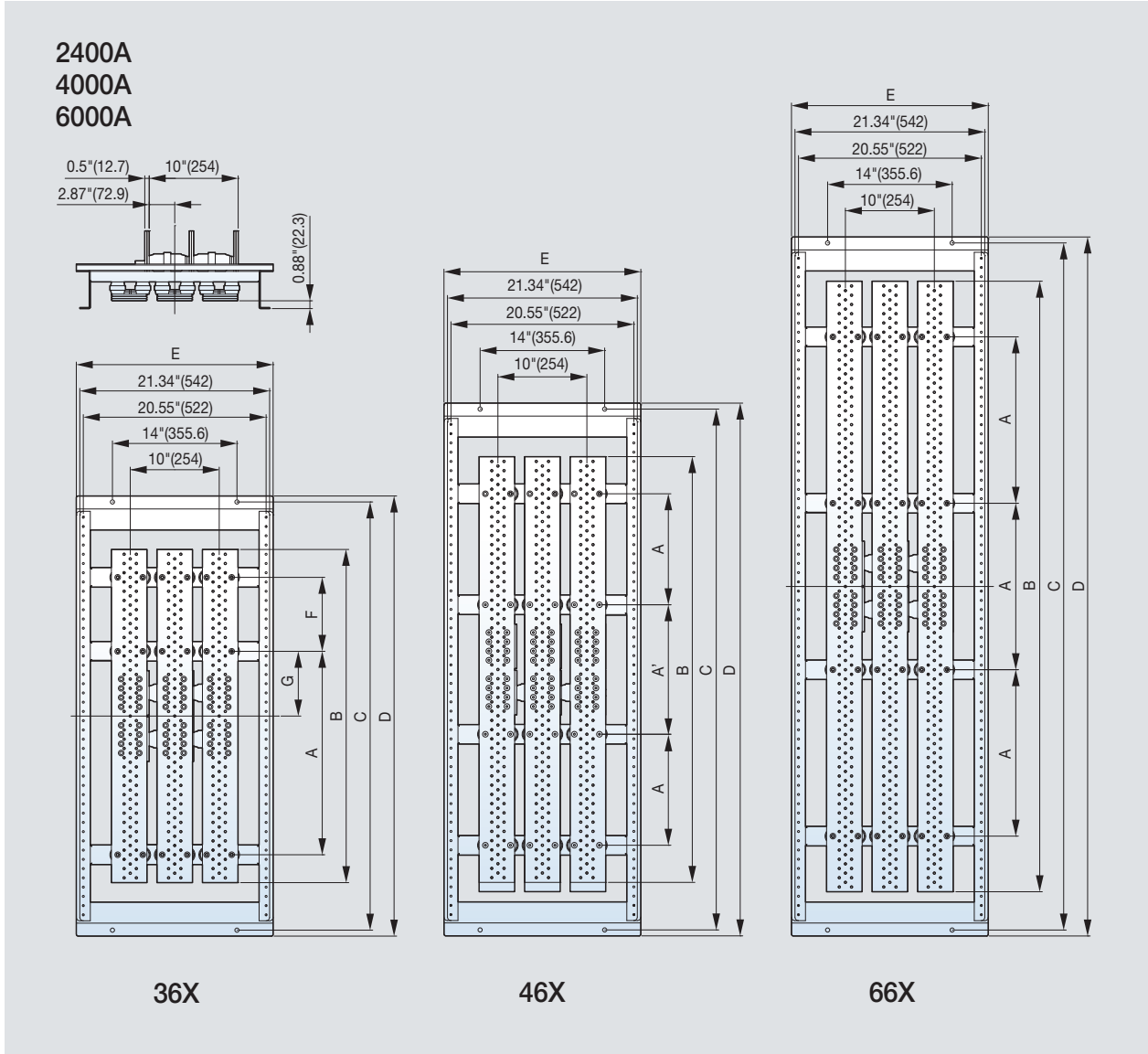
Dimension: inch[mm]



■ Dimensions

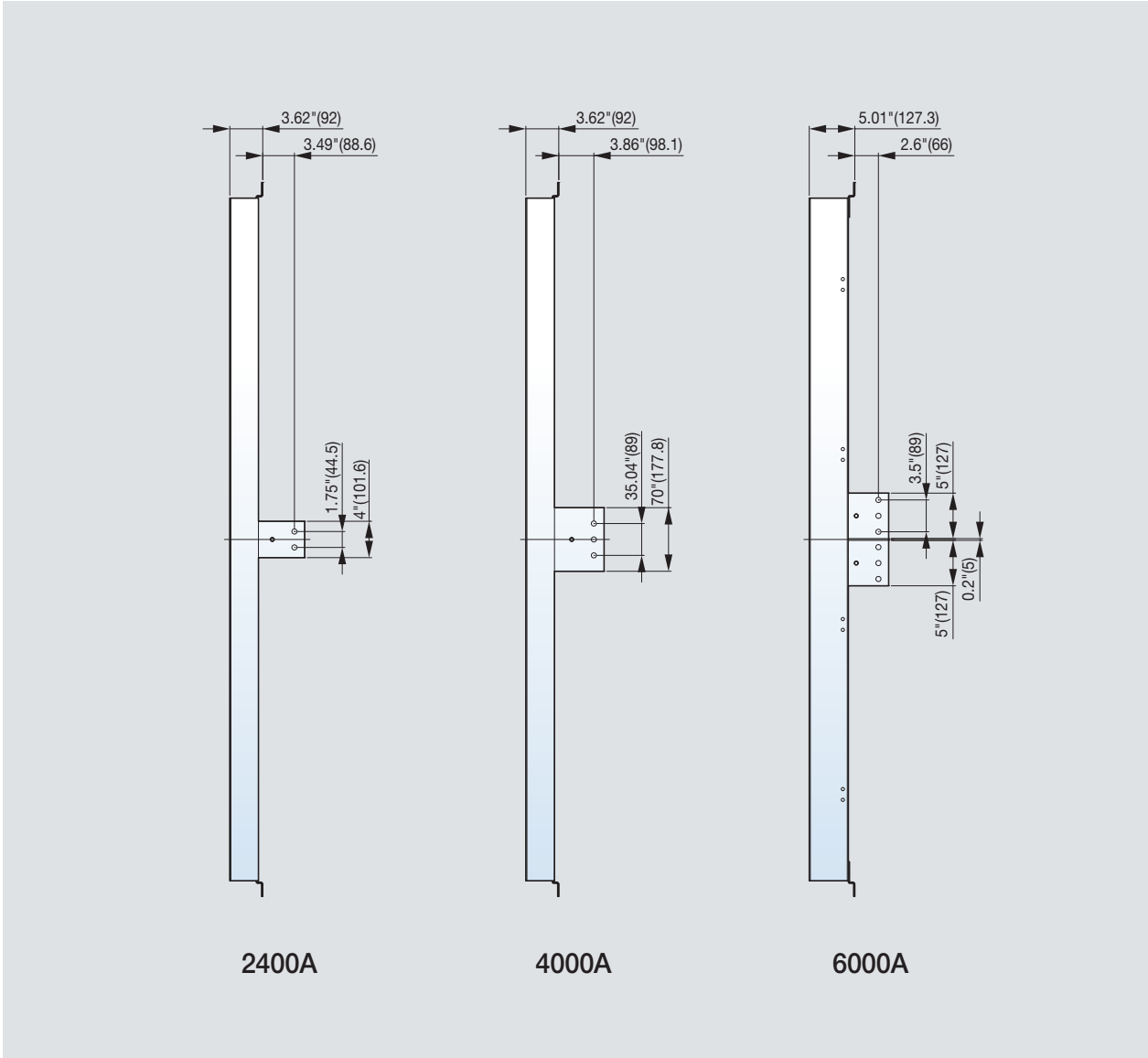
Interior

Dimension: inch[mm]



	36X			46X			66X		
	2400A	4000A	6000A	2400A	4000A	6000A	2400A	4000A	6000A
A	20.79 (528)		22.87 (580.8)	12.47 (316.8)			18.71 (475.2)		
A'	-	-	-	12.47 (316.8)		14.55 (369.6)	-		
B	38.24 (971.2)			48.63 (1235.2)			69.42 (1763.2)		
C	48.13 (1222.6)			58.53 (1486.6)			77.24 (1961.8)		
D	49.47 (1256.6)			59.87 (1520.6)			78.57 (1995.8)		
E	-	-	22.13 (562)	-	-	22.13 (562)	-	-	22.13 (562)
F	10.39 (264)		8.31 (211.2)	-			-		
G	5.2 (132)		7.28 (184.8)	-			-		

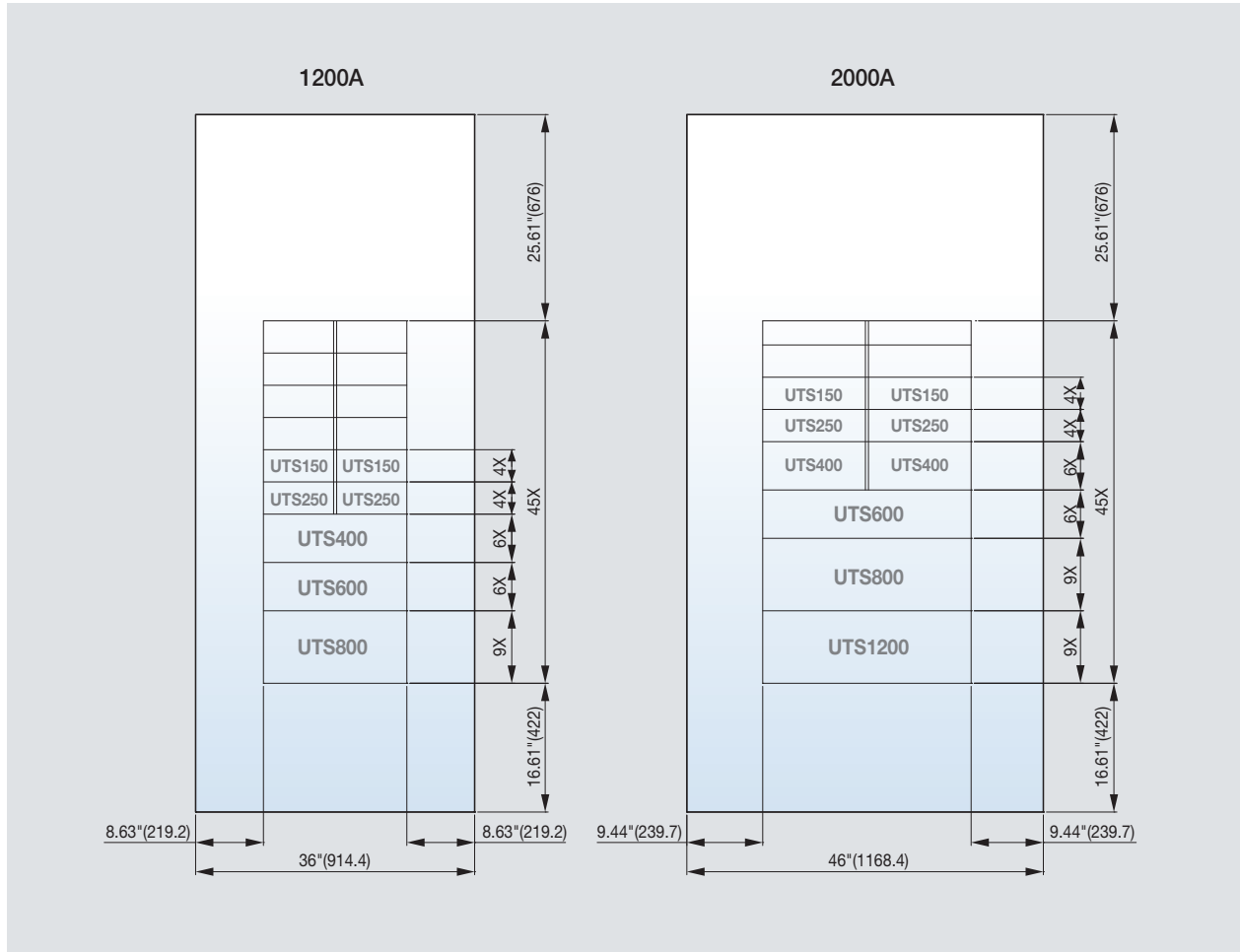
Dimension: inch[mm]



■ Dimensions

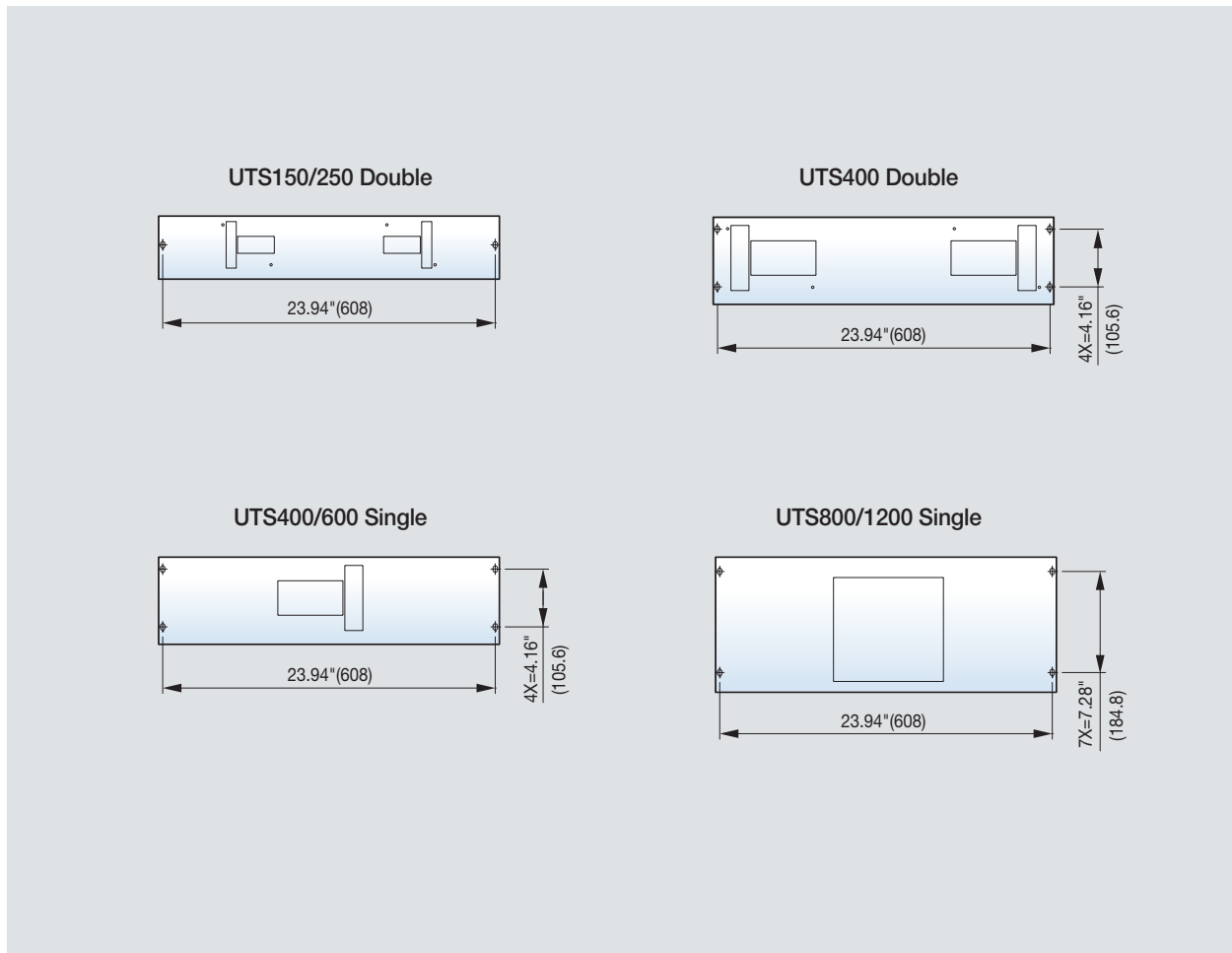
Chassis layout

Dimension: inch[mm]



Circuit breaker cover

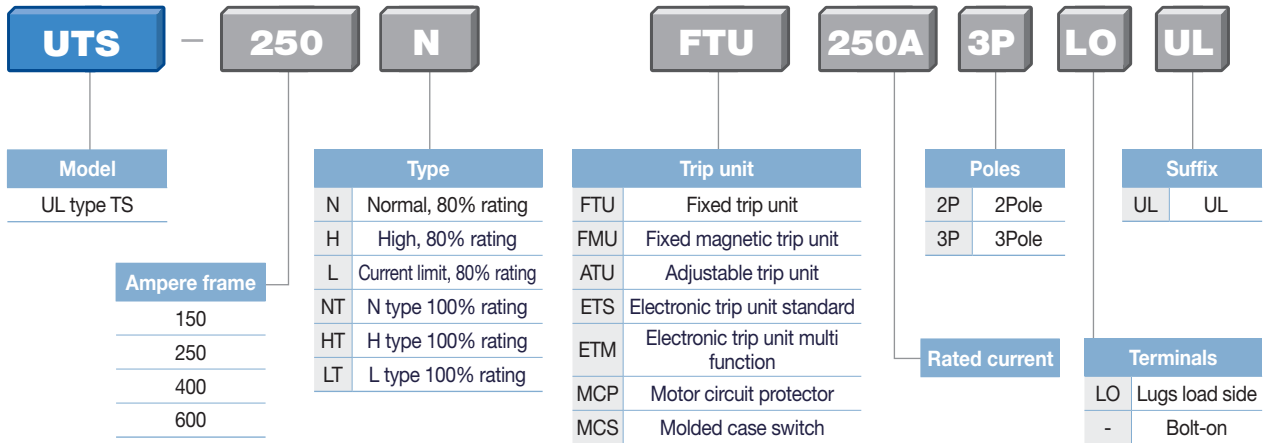
Dimension: inch[mm]



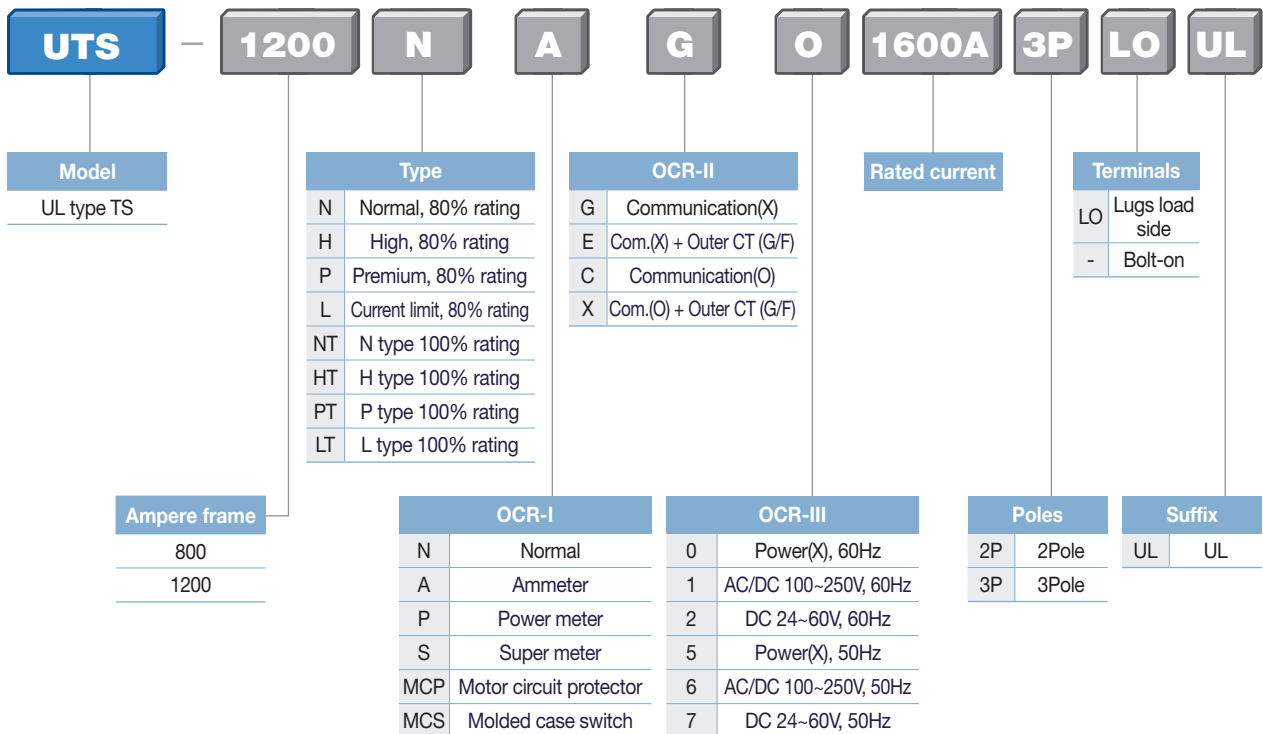
Part numbering

Circuit breakers

Trip unit: FTU, ATU, FMU, ETS, ETM, MCP, MCS



Trip unit: OCR



Interiors

INT — **2000A** — **45X** — **UL**

Model	
Interior	

Rated current	
1200	1200A
2000	2000A
2400	2400A
4000	4000A
6000	6000A

Circuit breaker mounting space	
45X	1200/2000A 45X
36X	2400/4000/6000 36X
46X	2400/4000/6000 46X
66X	2400/4000/6000 66X

Bus strap kits

BSK — **S - 3P** — **UTS150** — **UL**

Model	
Bus strap kits	

Code	Bus strap type	Pole	Line side
S - 2P	Single	2P	-
S - 2P	Single	3P	-
SC - 2PL	Single center	2P	Left
SC - 3PL	Single center	3P	Left
SC - 2PR	Single center	2P	Right
SC - 3PR	Single center	3P	Right
D - 2P	Double	2P	-
D - 3P	Double	3P	-

Ampere frame of circuit breaker	
UTS150	(1200A BKS-S, D) (2000A BKS-S, D)
UTS250	(1200A BKS-S, D) (2000A BKS-S, D)
UTS400	(1200A BKS-SC) (2000A BKS-S, SC, D)
UTS600	(1200A BKS-SC) (2000A BKS-SC)
UTS800	(1200A BKS-SC) (2000A BKS-SC)
UTS1200	(2000A BKS-SC)

Blank filler plate

BFP — **5X** — **UL**

Model	
Blank filler plate	

Protection cover size	
2X~6X	2X~6X (Set of 10)
7X~9X	7X~9X (Set of 5)

Note) A box contains 5 or 10 protector cover blanks and is sold on a box-by-box basis.

Filler plate

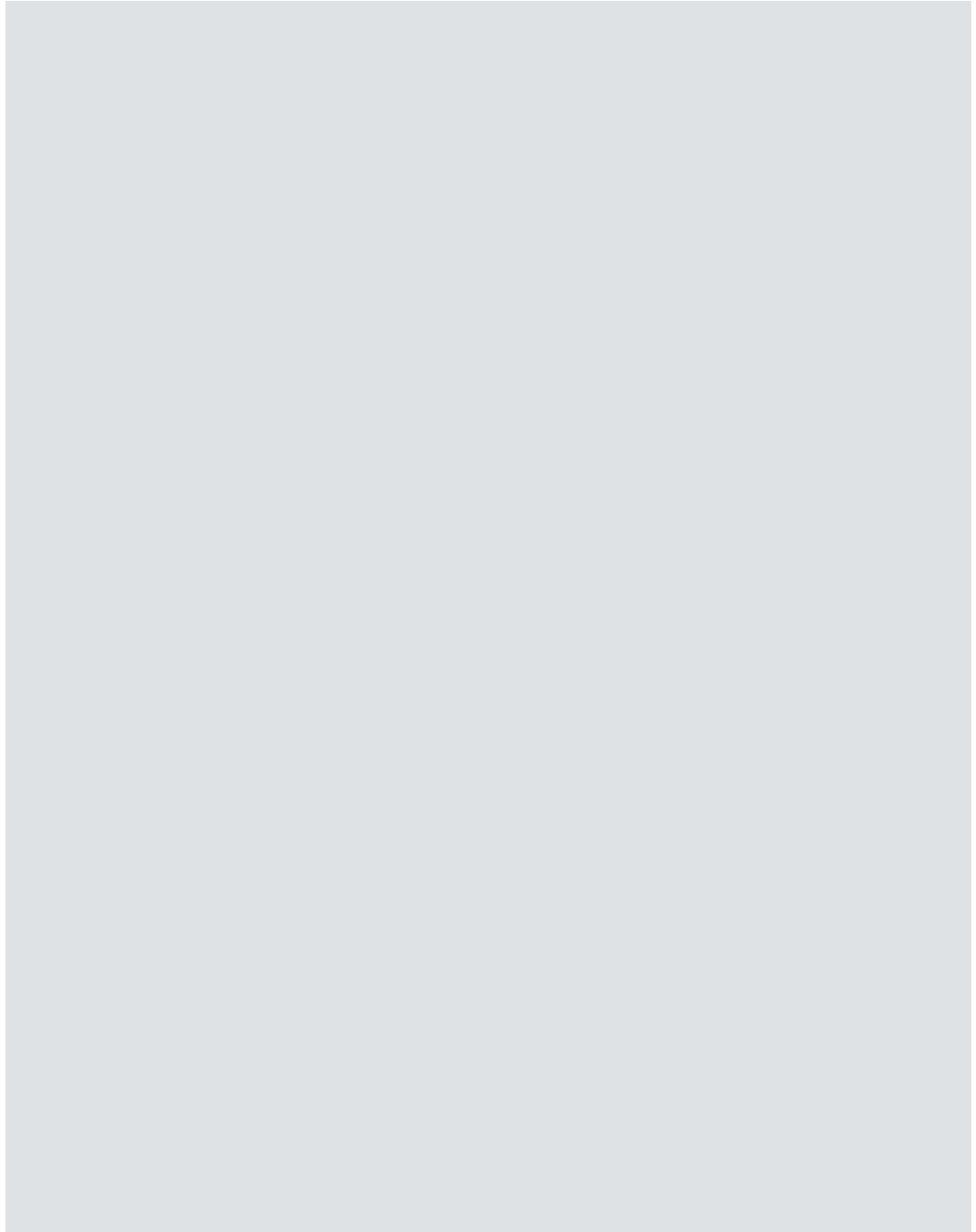
FP — **UTS150/250** — **UL**

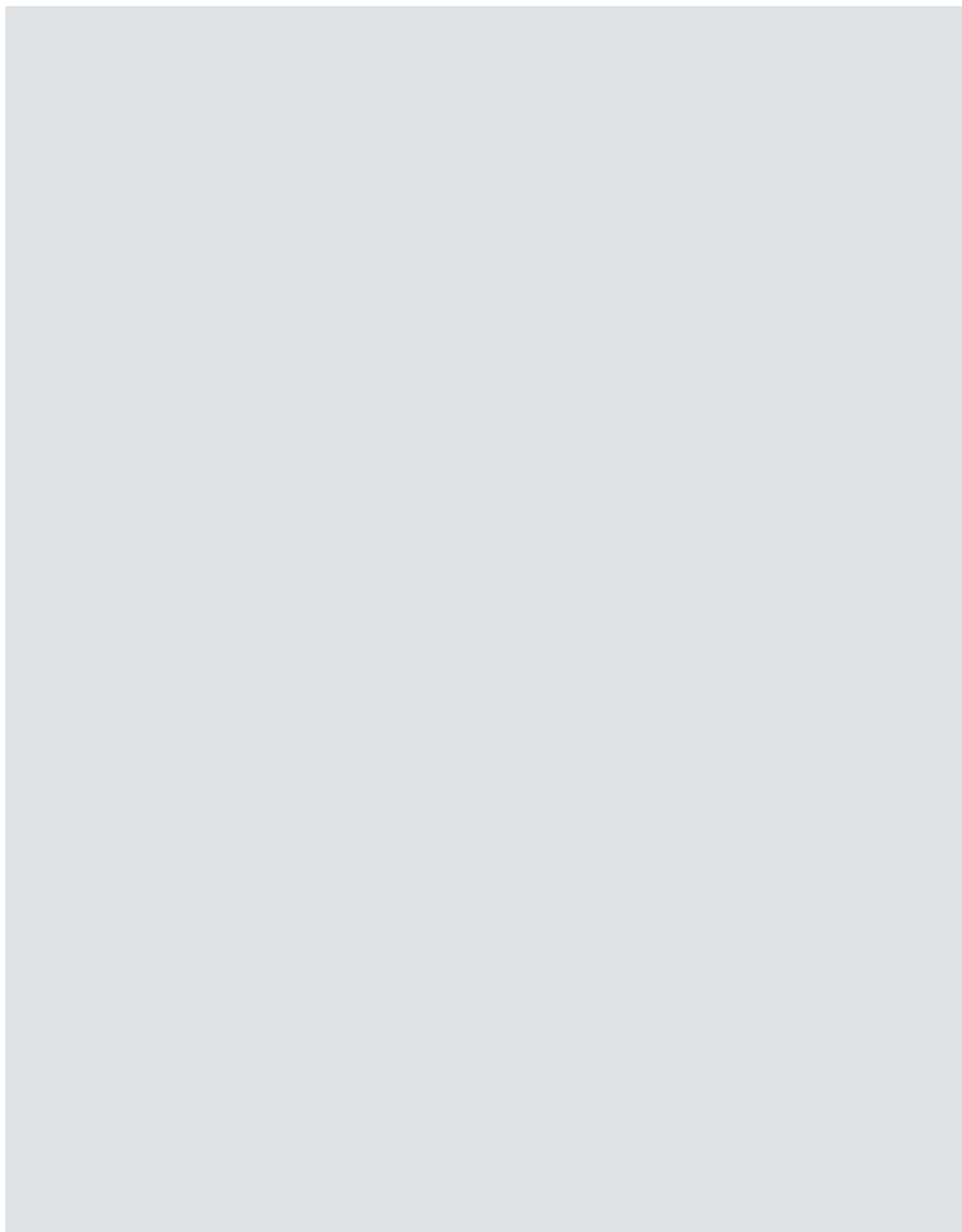
Model	
Filler plate	

Applicable MCCB	
UTS150/250 (Set of 30)	
UTS400/600 (Set of 30)	

Note) A box contains 30 protector cover fillers and is sold on a box-by-box basis.

 **Memo**







Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance. Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.



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