

**Low Voltage  
Switchgears**

**Air Circuit Breakers**

**Air Circuit  
Disconnectors**

**SUPER AE  
AE 1000 –  
AE 6300**



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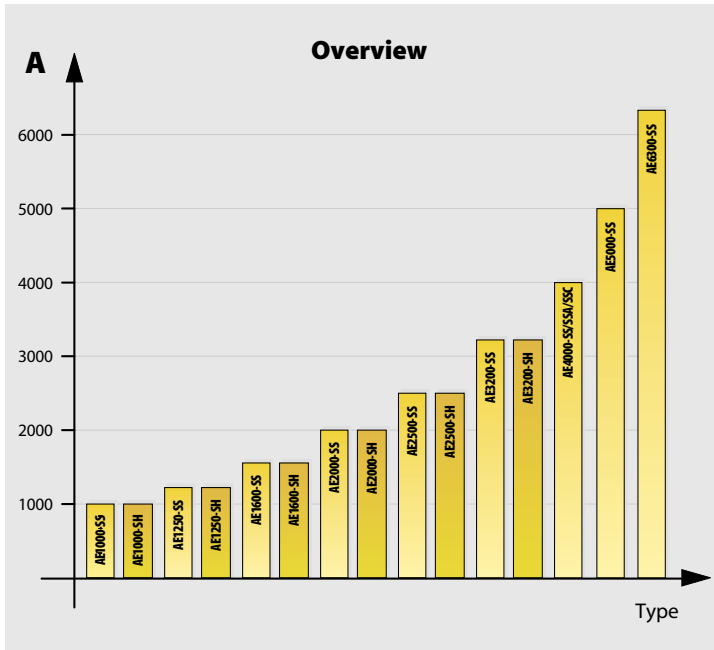
**Compact and intelligent  
at the feed-in point**



The complete range of air circuit breakers

More intelligence and more performance with significant smaller dimensions.

Breaker outlines with standardised panel cut-outs characterise the SS and SH series from 1000 to 6300 A.



### A Complete Range of Breakers

Mitsubishi Electric offers you a really complete range of circuit breakers. The SUPER AE air circuit breaker family consist of models from 1000 to 6300 A with a broad range of adjustable breaking capacities.

At the lower end of the scale the smallest current setting  $I_r$  is 157 A, with the AE1000 model. With the AE6300, the maximum possible setting is a full 6300 A.

#### Benefits:

This means that you can set any required current value between 157 A and 6300 A.

A complete breaker program for complete, all-round protection.

### Compact Design

Breakers with capacities of up to 6300 A are normally large units requiring a great deal of space. Not the SUPER AE series – compact, space-saving design is one of the most outstanding features of these breakers.

The control panel has standardised dimensions and the layout of the controls is very user-friendly. The door cutout dimensions are exactly the same for the entire series.

Depending on the rated operating voltage and capacity the arc exhaust is designed to enable drawout installation of the units directly one above the other – thus saving space.

#### Benefits:

The standardised control panel and control layout enhances safety and improves the appearance of your installation.

### Broad Performance Spectrum

The SUPER AE series circuit breakers are particularly well suited for use in power distribution systems.

The standard SS series offers short circuit breaking capacity  $I_{cs}$  from 65–130 kA (at 500 VAC), providing reliable performance for the majority of applications.

For more demanding applications the high-performance SH series is available, with a short circuit breaking capacity  $I_{cs}$  of 130 kA (at 500 VAC).

Despite their great precision the SUPER AE breakers are also absolutely reliable. The small number of components and the virtually maintenance-free design ensure a long service life.

#### Benefits:

A broad performance spectrum with just two breaker series, combined with high reliability and economy.

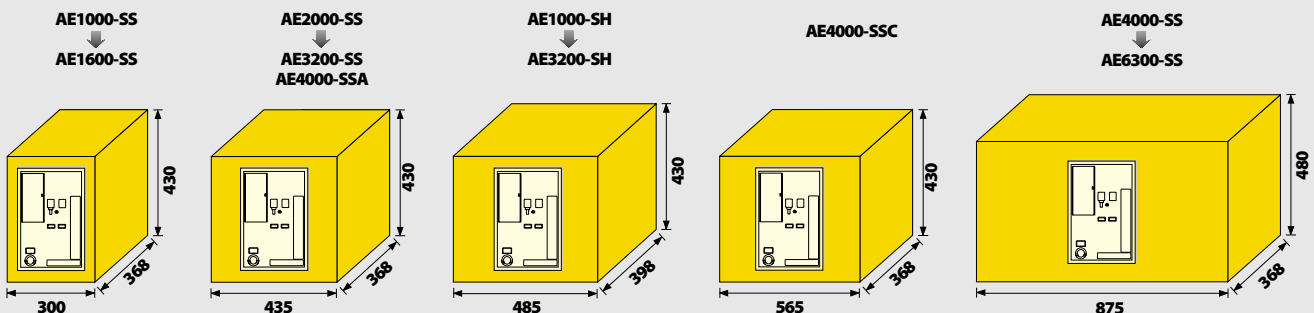
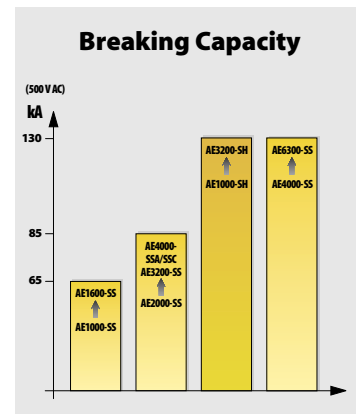


Figure shows 3-pole drawout

## Two Installation Alternatives

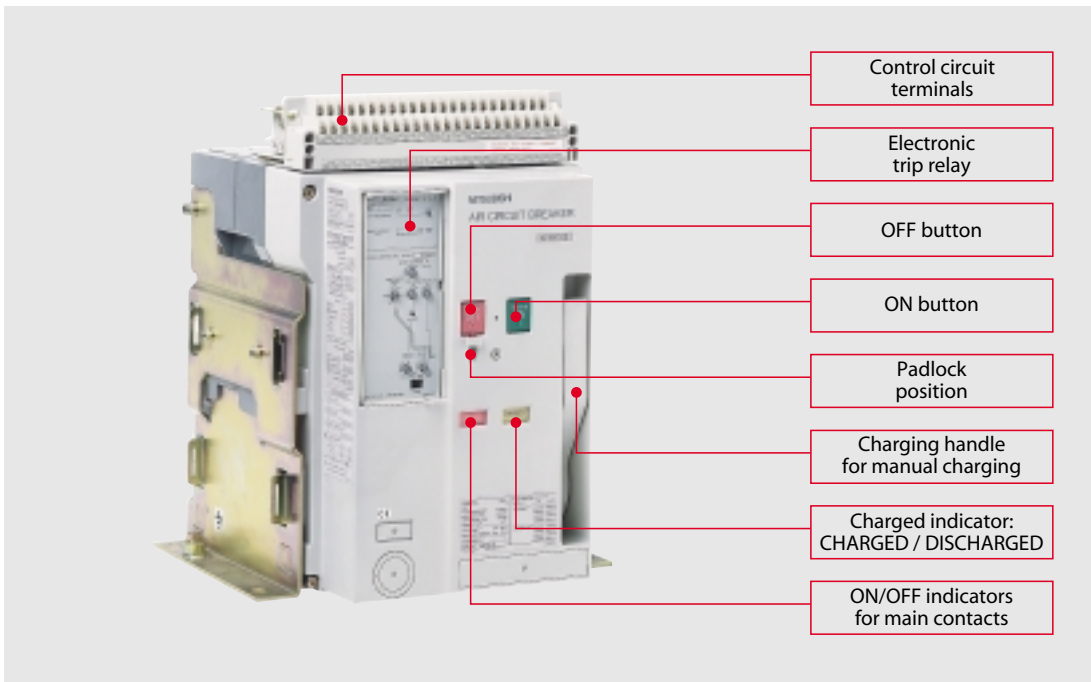
To cover all market requirements both the standard SS series and the high-performance SH series are available in a choice of fixed or drawout installation versions. Please note, however, that for technical reasons the models in the AE4000 to AE6300 range (except AE4000-SSA/-SSC) are available as drawout versions only.

All breakers are available in 3- or 4-pole versions (AE4000-SSC in 3-pole version only). On request, the 4-pole version provides a 100 % protected N-pole.

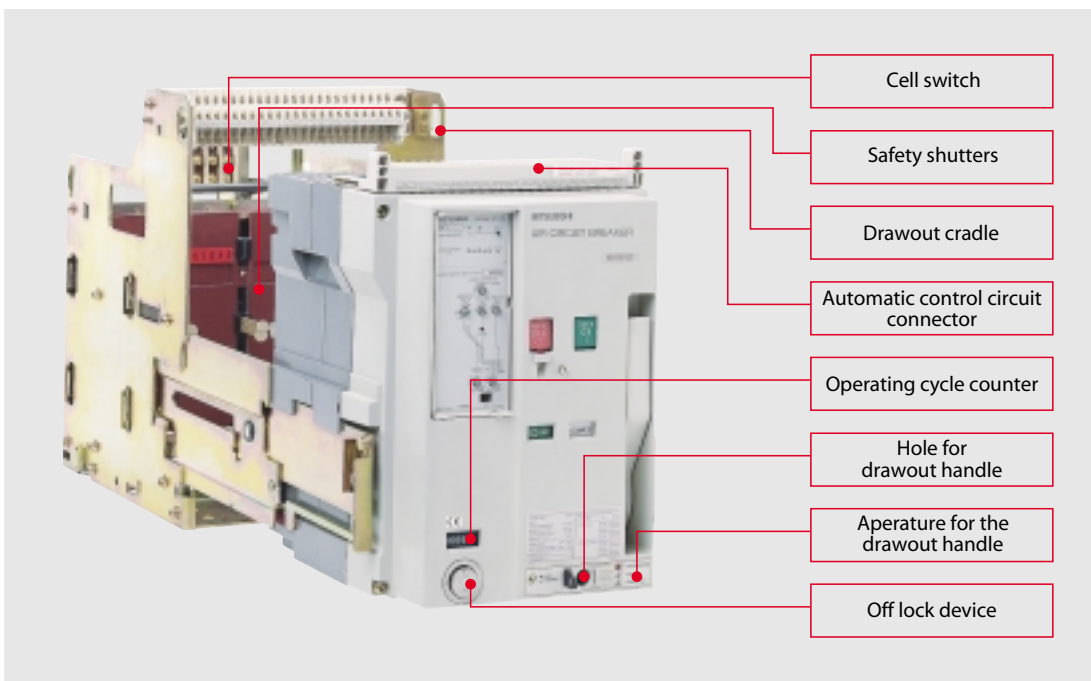
The disconnectors (circuit breakers without overcurrent trip system) are available for fixed or drawout installation, in 3- or 4-pole version.

A wide range of accessories rounds the line of air circuit breakers and disconnectors.

The SUPER AE air circuit breakers have been developed specifically for the world market. Among other things, this means that they already have all major industrial and shipping register approvals and certifications.



**Fixed type**



**Drawout type**

## Forward-looking Features

The design concept of the SUPER AE series is absolutely future-proof. A wide range of overload trip devices are available, covering every conceivable application.

### ● S type relay

- Universal protection with additional functions including load monitoring, ground fault protection, leakage current protection etc.
- Wide setting range of short-circuit protection from 4 to max. 16 x I<sub>n</sub>

### ● M type relay

- Generator protection; IEC 34-1 tripping characteristic with a multitude of functions
- The rated current can be set and fixed according to the requirements.

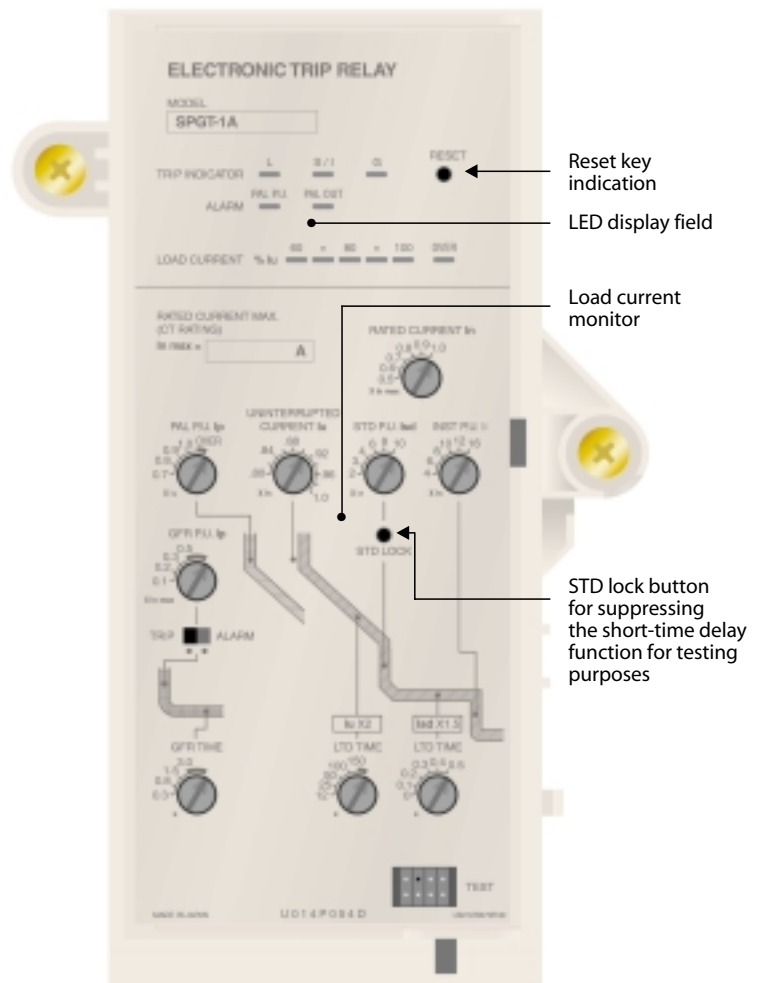
### ● B type relay

- For disconnectors
- For short-circuit protection during switching ON

Besides various options like pre-alarm, ground fault protection, and leakage current protection, our S and M type relays generally provide a complete protection against overload and short-circuit. The protection characteristics can be adjusted individually to the requirements.

The most important functions such as trip status, alarm, load current etc. are indicated via LEDs and can as well be read as external signals.

The measuring values are processed digitally.



## Calculation and Selection Software MELSHORT2

This software provides a quick and easy selection of the appropriate low voltage switchgears according to the required rated operation trip voltage and the respective peripheral equipment.

The program can be operated comfortably, easily, and quickly via interactive menus.

The Software is available on CD-ROM and runs under MS Windows® 95/98/NT4.0 and MS Windows® 2000.

## User-friendly Handling

All the SUPER AE series models are designed for easy installation, simple operation and trouble-free retrofitting.

Key design features:

- All additional features are accessible from the front for maximum safety. Positive opening is standard. The indicator on the front panel only shows OFF when the main contacts are really interrupted.
- The perfectly-designed cassette unit has only four mounting points for easy installation in any location.
- The control circuit terminals are located on the front of the unit for quick, simple connection.
- A wide variety of extras and accessories are available, including:
  - Shunt trip device
  - Undervoltage trip device
  - Closing coil
  - Auxiliary switches
  - Motor charging device
  - Counter
  - OFF lock devices
  - Mechanical interlock

All these features and the extensive range of accessories makes it possible to satisfy virtually every customer need with this series.

The drawout rack mounting system makes it particularly easy to withdraw the SUPER AE series units for access.

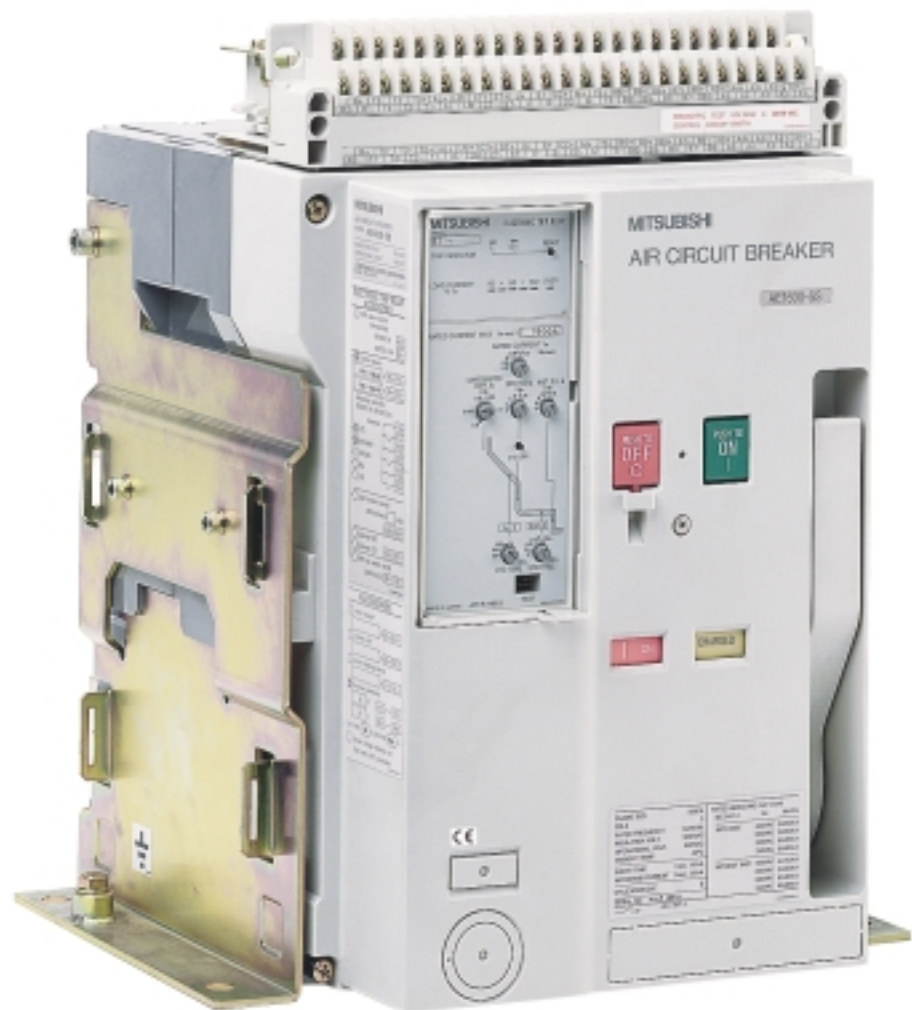
The SUPER AE series of air circuit breakers from MITSUBISHI ELECTRIC gives you state-of-the-art switchgear technology. And when you choose MITSUBISHI ELECTRIC you get all the many benefits of this reliable, high-performance technology at an amazingly reasonable price.

Contact us for more details.

As you can see, the designers of the SUPER AE series have proved that industrial equipment can be both efficient and attractive.



*Distinguished with the  
Industrieforum Design  
award.*



AE 1600-SS, 3-pole Fix, ST1A

# Overview of the Complete SUPER AE Range with Key Specifications

SUPER AE		Series		Standard series "SS"													
		Breaker type		AE 1000 - SS		AE 1250 - SS		AE 1600 - SS		AE 2000 - SS		AE 2500 - SS		AE 3200 - SS			
Rated current (A) at 40 °C <sup>①</sup>		I <sub>N max</sub>		1000		1250		1600		2000		2500		3200			
Rated insulation voltage (V) 50/60 Hz		U <sub>i</sub>		1000		1000		1000		1000		1000		1000			
Rated operating voltage (V) 50/60 Hz		U <sub>e</sub>		690		690		690		690		690		690			
Number of poles				3   4		3   4		3   4		3   4		3   4		3   4			
Adjustment range Rated current (A)		I <sub>r</sub>		500-600-700-800-900-1000 315-378-441-504-567-630 157-189-220-252-284-315 <sup>⑤</sup>		625-750-875-1000-1125-1250		800-960-1120-1280-1440-1600		1000-1200-1400-1600-1800-2000 800-960-1120-1280-1440-1600 625-750-875-1000-1125-1250		1250-1500-1750-2000-2250-2500		1600-1920-2240-2560-2880-3200			
Generator protection (current rating fixed)				500 ≤ I <sub>n</sub> ≤ 1000 200 ≤ I <sub>n</sub> ≤ 630 <sup>⑤</sup>		625 ≤ I <sub>n</sub> ≤ 1250		800 ≤ I <sub>n</sub> ≤ 1600		1000 ≤ I <sub>n</sub> ≤ 2000 625 ≤ I <sub>n</sub> ≤ 1000		1250 ≤ I <sub>n</sub> ≤ 2500		1600 ≤ I <sub>n</sub> ≤ 3200			
Rated current for neutral pole N		(A)		1000		1250		1600		2000		2500		3200			
Rated service short-circuit breaking capacity I <sub>cs</sub> (kA, eff, sym.) Breaking duty: O-t-CO-t-CO I <sub>cs</sub> = I <sub>cu</sub>	IEC 947-2, EN 60947-2, VDE 0660	With instantaneous trip	AC690V	50	50	50	50	50	50	50	50	50	50	50	50		
			AC600V	50	50	50	50	50	50	50	50	50	50	50	50		
			AC500V	65	65	65	65	65	65	65	65	65	65	65	65	65	
			Without instantaneous trip (with MCR)	AC690V	42	42	42	42	42	42	42	42	42	42	42	42	42
			AC600V	50	50	50	50	50	50	50	50	50	50	50	50	50	
			AC500V	65	65	65	65	65	65	65	65	65	65	65	65	65	
		Without inst. trip <sup>②</sup>	AC690V	25	25	25	25	25	25	25	25	25	25	25	25	25	25
			AC690V	105	105	105	105	105	105	105	105	105	105	105	105	105	
			AC600V	105	105	105	105	105	105	105	105	105	105	105	105	105	
			AC500V	143	143	143	143	143	143	143	143	143	143	143	143	143	
			Without instantaneous trip (with MCR)	AC690V	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2	
			AC600V	105	105	105	105	105	105	105	105	105	105	105	105	105	
Without inst. trip <sup>②</sup>	AC690V	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5			
	AC690V	105	105	105	105	105	105	105	105	105	105	105	105	105			
	AC600V	143	143	143	143	143	143	143	143	143	143	143	143	143			
	AC500V	187	187	187	187	187	187	187	187	187	187	187	187	187			
	Without inst. trip (with MCR)	AC690V	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2	88,2			
	AC600V	105	105	105	105	105	105	105	105	105	105	105	105	105			
Rated short-circuit making capacity I <sub>cm</sub> (kA, peak value)	Without inst. trip <sup>②</sup>	AC690V	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5	52,5		
		AC690V	105	105	105	105	105	105	105	105	105	105	105	105			
		AC600V	143	143	143	143	143	143	143	143	143	143	143	143			
Rated short time current (kA eff.) I <sub>cw</sub>	Without inst. trip <sup>②</sup>	1 s	65	65	65	65	65	65	65	65	65	65	65	65	65		
		2 s	40	40	40	40	40	40	40	40	40	40	40	40	40		
		3 s	30	30	30	30	30	30	30	30	30	30	30	30	30		
Maximum total breaking time		(s)		0,04		0,04		0,04		0,04		0,04		0,04			
Closing time		(s)		0,08		0,08		0,08		0,08		0,08		0,08			
Number of operating cycles <sup>③</sup> (ON/OFF)		With rated current		5000		5000		5000		1500		1500		1000			
		Without rated current		10000		10000		10000		10000		10000		10000			
Dimensions (mm) <sup>④</sup>		Fixed type	a	340	425	340	425	340	425	475	605	475	605	475	605		
			b	410	410	410	410	410	410	410	410	410	410	410	410	410	
			c	290	290	290	290	290	290	290	290	290	290	290	290	290	
			d	40	40	40	40	40	40	40	40	40	40	40	40	40	
		Drawout type	a	298	385	298	385	298	385	433	565	433	565	433	565	433	
			b	430	430	430	430	430	430	430	430	430	430	430	430	430	
			c	368	368	368	368	368	368	368	368	368	368	368	368	368	
			d	61	61	61	61	61	61	61	61	61	61	61	61	61	
Weight <sup>⑤</sup> (kg)	Fixed type	Charging type	Manual charging	41	51	41	51	42	52	60	72	61	73	63	75		
			Motor charging	44	54	44	54	45	55	63	75	64	76	66	78		
	Drawout type (with cradle)	Charging type	Manual charging	64	78	64	78	65	79	92	113	93	114	95	116		
			Motor charging	67	81	67	81	68	82	95	116	96	117	98	119		
Cradle only				26	30	26	30	26	30	35	43	35	43	36	44		

① For other temperatures refer to the Technical Catalogue SUPER AE.  
 ② The figures for "Without instantaneous tripping" are the values when the bare main body and the external relay are combined.  
 ③ The number of operating cycles with rated current also include the number of operating cycles without rated current.  
 ④ All specifications without peripheral accessories (e.g. UVT control unit).  
 ⑤ Further current ratings on request.  
 More details on request.

Standard series "SS"										High performance series "SH"												
AE 4000 - SSA		AE 4000 - SSC		AE 4000 - SS		AE 5000 - SS		AE 6300 - SS		AE 1000 - SH		AE 1250 - SH		AE 1600 - SH		AE 2000 - SH		AE 2500 - SH		AE 3200 - SH		
4000		4000		4000		5000		6300		1000		1250		1600		2000		2500		3200		
1000		1000		1000		1000		1000		1000		1000		1000		1000		1000		1000		
690		690		690		690		690		690		690		690		690		690		690		
3	4	3	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4
3200-3600-4000		3200-3600-4000		2000-2400-2800-3200-3600-4000		2500-3000-3500-4000-4500-5000		3150-3780-4410-5040-5670-6300		500-600-700-800-900-1000		625-750-875-1000-1125-1250		800-960-1120-1280-1440-1600		1000-1200-1400-1600-1800-2000		1250-1500-1750-2000-2250-2500		1600-1920-2240-2560-2880-3200		
3200≤In≤4000		3200≤In≤4000		2000≤In≤4000		2500≤In≤5000		3150≤In≤6300		500≤In≤1000		625≤In≤1250		800≤In≤1600		1000≤In≤2000		1250≤In≤2500		1600≤In≤3200		
4000		—		3200		3200		3200		1000		1250		1600		2000		2500		3200		
50		50		50		50		50		65		65		65		65		65		65		
65		65		85		85		85		85		85		85		85		85		85		
85		85		130		130		130		130		130		130		130		130		130		
50		50		50		50		50		—		—		—		—		—		—		
65		65		85		85		85		—		—		—		—		—		—		
75		75		85		85		85		—		—		—		—		—		—		
45		45		50		50		50		—		—		—		—		—		—		
105		105		105		105		105		65		65		65		65		65		65		
143		143		187		187		187		85		85		85		85		85		85		
187		187		286		286		286		130		130		130		130		130		130		
105		105		105		105		105		—		—		—		—		—		—		
143		143		187		187		187		—		—		—		—		—		—		
165		165		187		187		187		—		—		—		—		—		—		
94,5		94,5		105		105		105		—		—		—		—		—		—		
75		75		85		85		85		—		—		—		—		—		—		
65		65		70		70		70		—		—		—		—		—		—		
65		65		70		70		70		—		—		—		—		—		—		
0,04		0,04		0,05		0,05		0,05		0,04		0,04		0,04		0,04		0,04		0,04		
0,08		0,08		0,08		0,08		0,08		0,08		0,08		0,08		0,08		0,08		0,08		
500		500		500		500		500		3000		3000		2000		1500		1500		1000		
5000	4000	5000	2000	2000	2000	2000	2000	2000	2000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	
475	605	605	—	—	—	—	—	—	—	475	605	475	605	475	605	475	605	475	605	475	605	
410	410	414	—	—	—	—	—	—	—	410	410	410	410	410	410	410	410	410	410	410	410	
290	290	290	—	—	—	—	—	—	—	290	290	290	290	290	290	290	290	290	290	290	290	
117	117	136	—	—	—	—	—	—	—	70	70	70	70	70	70	70	70	70	70	70	70	
439	569	565	875	1005	875	1005	875	1005	875	615	615	485	615	485	615	485	615	485	615	485	615	
430	430	430	480	480	480	480	480	480	480	430	430	430	430	430	430	430	430	430	430	430	430	
368	368	368	368	368	368	368	368	368	368	398	398	398	398	398	398	398	398	398	398	398	398	
109	109	151	123	123	123	123	123	123	123	61	61	61	61	61	61	61	61	61	61	61	61	
81	99	109	—	—	—	—	—	—	—	66	79	66	79	66	79	66	79	66	79	66	79	
85	103	112	—	—	—	—	—	—	—	69	82	69	82	69	82	69	82	69	82	69	82	
107	136	145	240	263	240	263	240	263	240	105	127	105	127	105	127	105	127	105	127	105	127	
111	140	148	244	267	244	267	244	267	244	108	130	108	130	108	130	108	130	108	130	108	130	
49	61	75	125	140	125	140	125	140	125	42	50	42	50	42	50	42	50	42	50	42	50	

**Declaration of conformity:**
**Standards** IEC947-2, EN60947-2, VDE0660

**Certificates** ASTA, SEV (types on request)

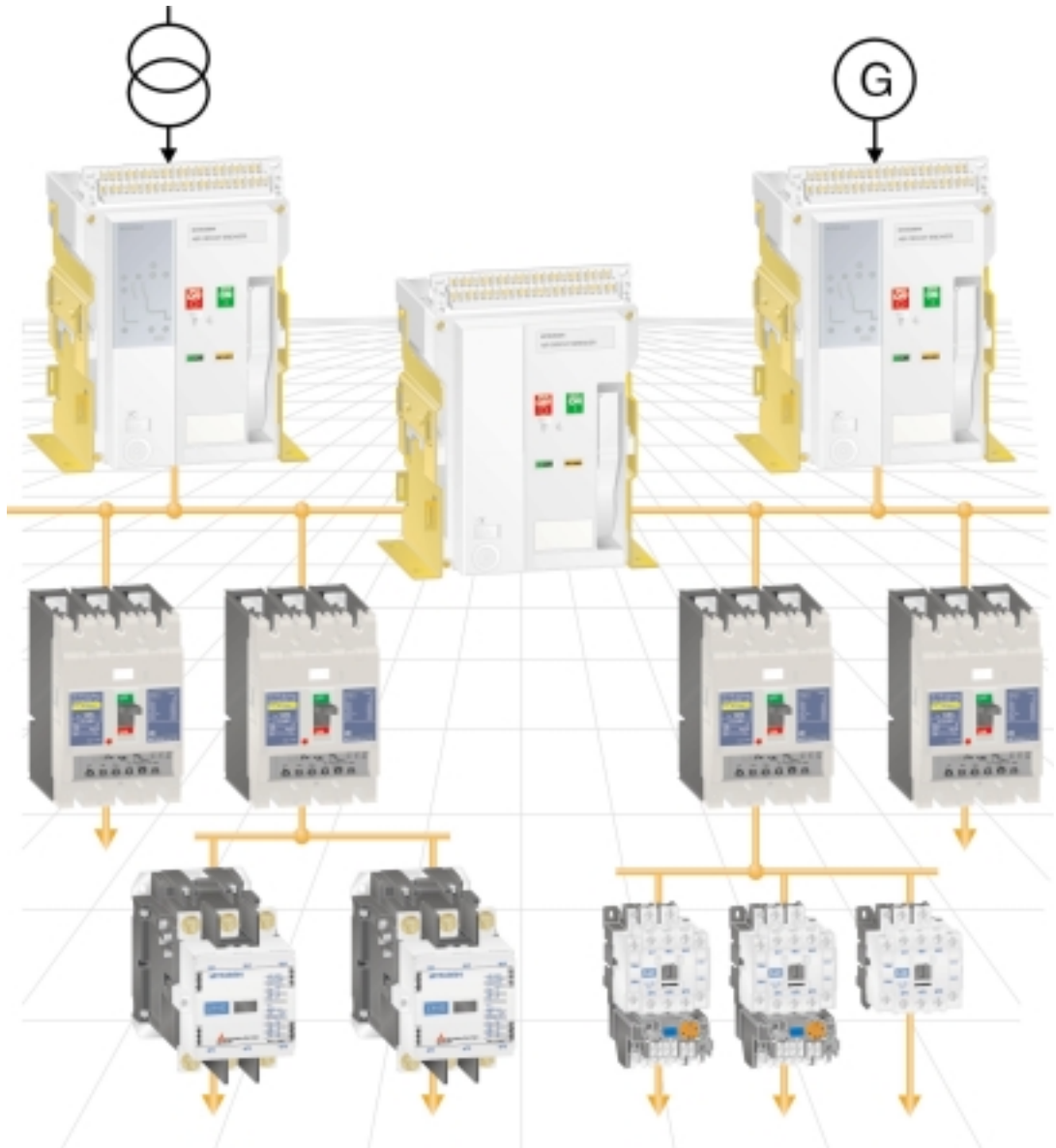
**Marine approvals** LRS, GL, BV, ABS, DNV, NK

(other approvals on request)

# Complete Solution for Line and Load Side

**Mitsubishi offers the whole line from Air Circuit Breakers over Low Voltage Switch-gears to Magnetic Contactors and Thermal Overload Relays.**

**The complete solution for all needs.**



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