

**Low Voltage
Switchgears**

Air Circuit Breakers

**Air Circuit
Disconnectors**

**SUPER AE
AE 1000 –
AE 6300**

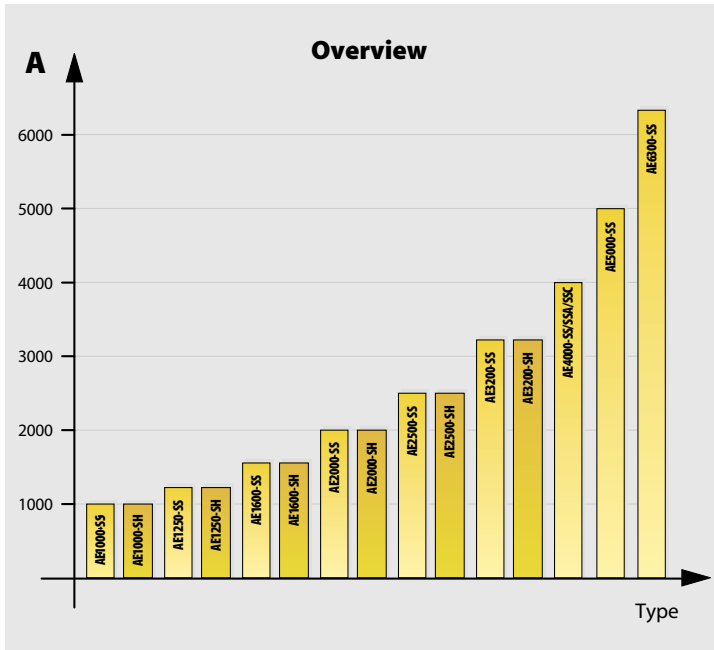


**Compact and intelligent
at the feed-in point**

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.

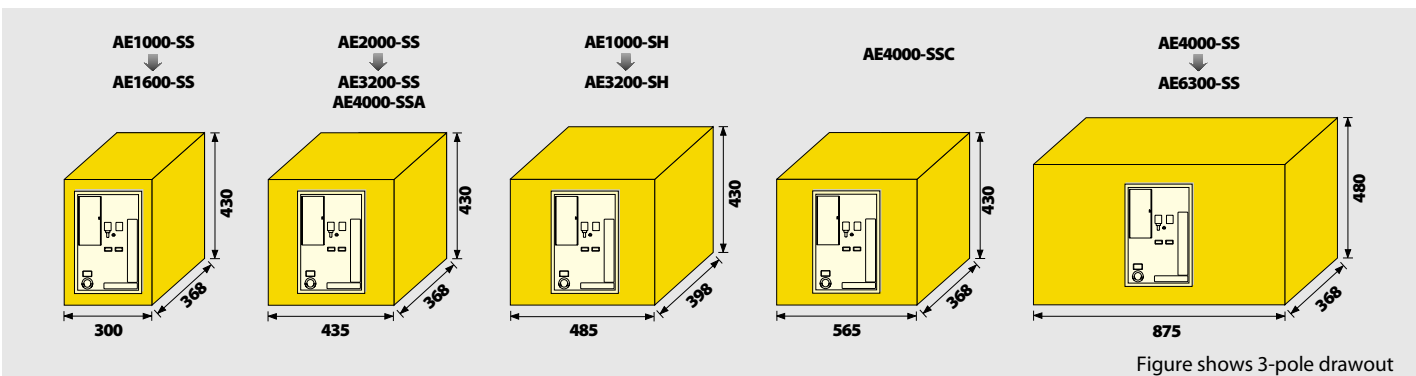
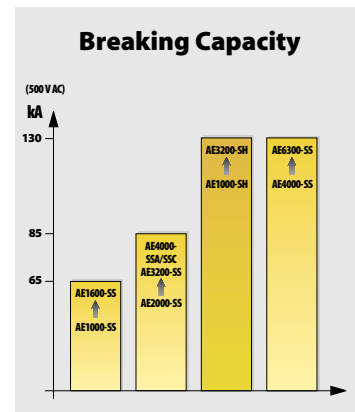


Figure shows 3-pole drawout

Two Installation Alternatives

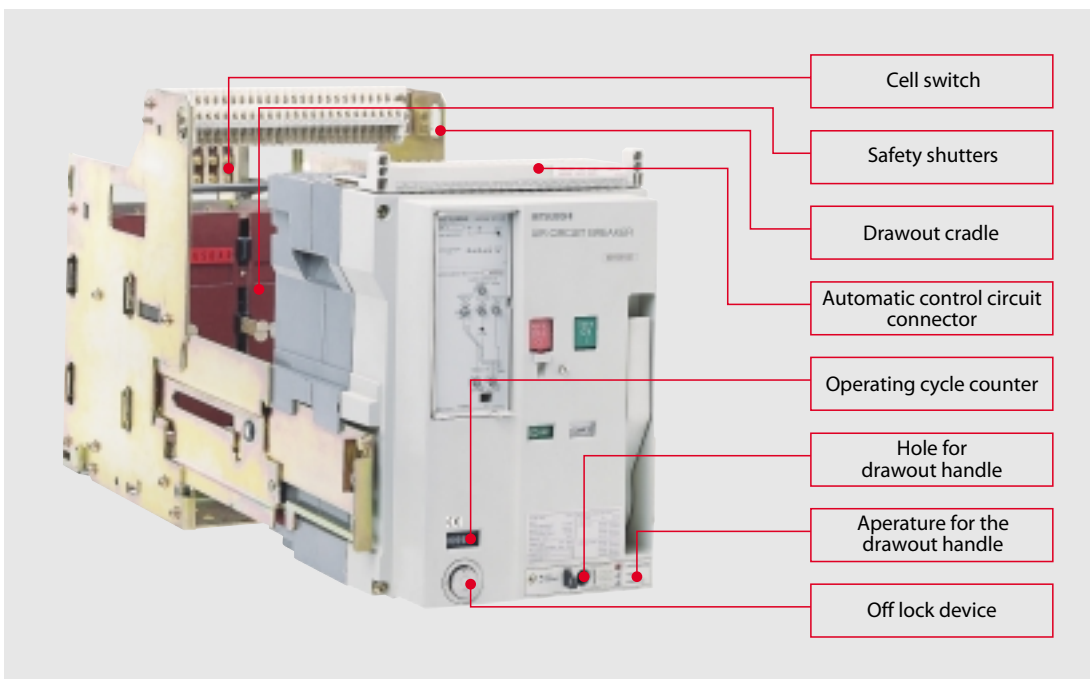
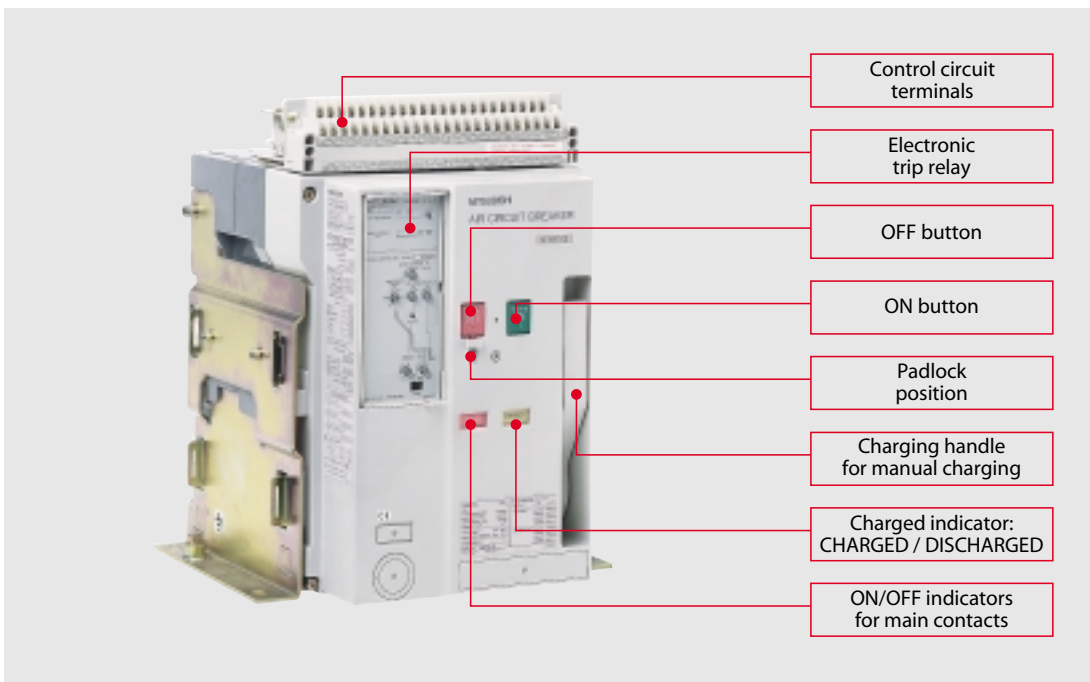
To cover all market requirements both the standard SS series and the high-performance SH series are available in a choice of fixed or drawout installation versions. Please note, however, that for technical reasons the models in the AE4000 to AE6300 range (except AE4000-SSA/-SSC) are available as drawout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



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_n

● 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.

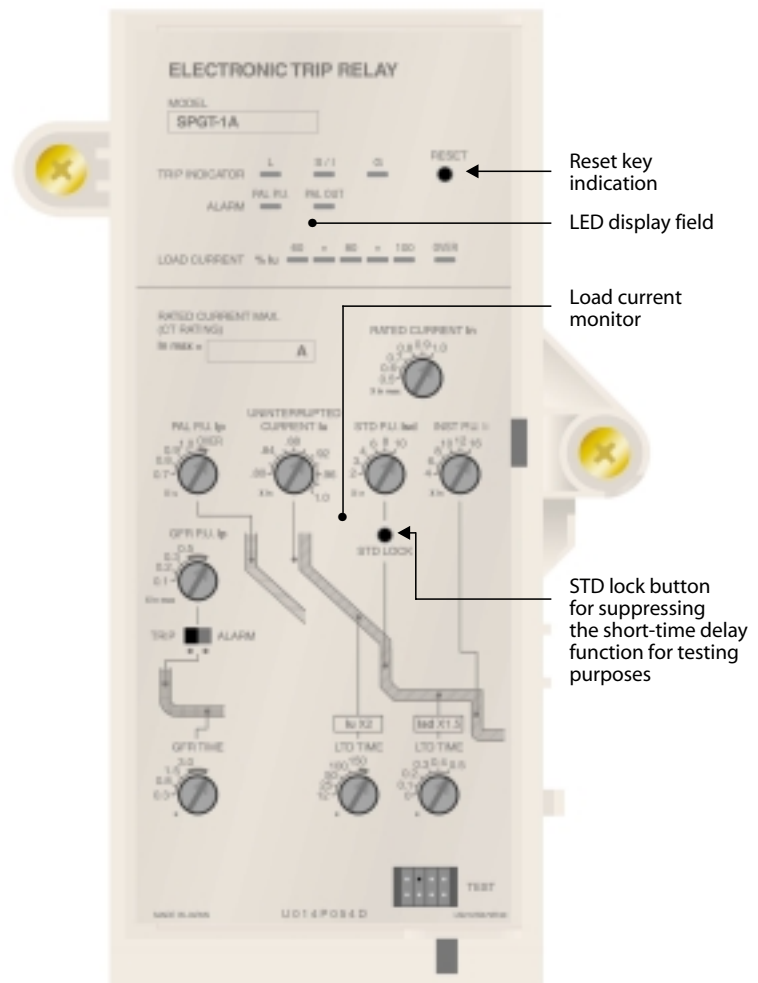
● B type relay

- 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 ①		I _{N max}		1000		1250		1600		2000		2500		3200																			
Rated insulation voltage (V) 50/60 Hz		U _i		1000		1000		1000		1000		1000		1000																			
Rated operating voltage (V) 50/60 Hz		U _e		690		690		690		690		690		690																			
Number of poles				3		4		3		4		3		4																			
Adjustment range Rated current (A)		General protection (current rating adjustable)		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																			
				315-378-441-504-567-630						800-960-1120-1280-1440-1600																							
				157-189-220-252-284-315 ⑤						625-750-875-1000-1125-1250																							
		Generator protection (current rating fixed)		500≤I _n ≤1000 200≤I _n ≤630 ⑤		625≤I _n ≤1250		800≤I _n ≤1600		1000≤I _n ≤2000 625≤I _n ≤1000		1250≤I _n ≤2500		1600≤I _n ≤3200																			
Rated current for neutral pole N (A)				1000		1250		1600		2000		2500		3200																			
Rated service short-circuit breaking capacity I _{cs} (kA, eff. sym.) Breaking duty: O-t-CO-t-CO I _{cs} = I _{cu}		IEC 947-2, EN 60947-2, VDE 0660		With instantaneous trip		AC690V		50		50		50		50		50																	
						AC600V		50		50		65		65		65																	
						AC500V		65		65		85		85		85																	
				Without instantaneous trip (with MCR)		AC690V		42		42		42		50		50		50															
						AC600V		50		50		50		65		65		65															
						AC500V		65		65		65		65		65		65															
		Rated short-circuit making capacity I _{cm} (kA, peak value)		Without inst. trip ②		AC690V		25		25		25		45		45		45															
						AC690V		105		105		105		105		105		105															
						AC600V		105		105		105		143		143		143															
				With instantaneous trip		AC690V		143		143		143		187		187		187															
						AC690V		88,2		88,2		88,2		105		105		105															
						AC600V		105		105		105		143		143		143															
Without inst. trip ②		AC690V		143		143		143		143		143		143																			
		AC690V		52,5		52,5		52,5		94,5		94,5		94,5																			
		AC690V		52,5		52,5		52,5		94,5		94,5		94,5																			
Rated short time current (kA eff.) I _{cw}				1 s		65		65		65		65		65		65																	
				2 s		40		40		60		65		65		65																	
				3 s		30		30		50		65		65		65																	
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 ③ (ON/OFF)		With rated current		5000		5000		5000		1500		1500		1000																			
		Without rated current		10000		10000		10000		10000		10000		10000																			
Dimensions (mm) ④				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			
						b		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			
						d		61		61		61		61		61		61		61		61		61		61		61		61			
Weight ⑤ (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)		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)

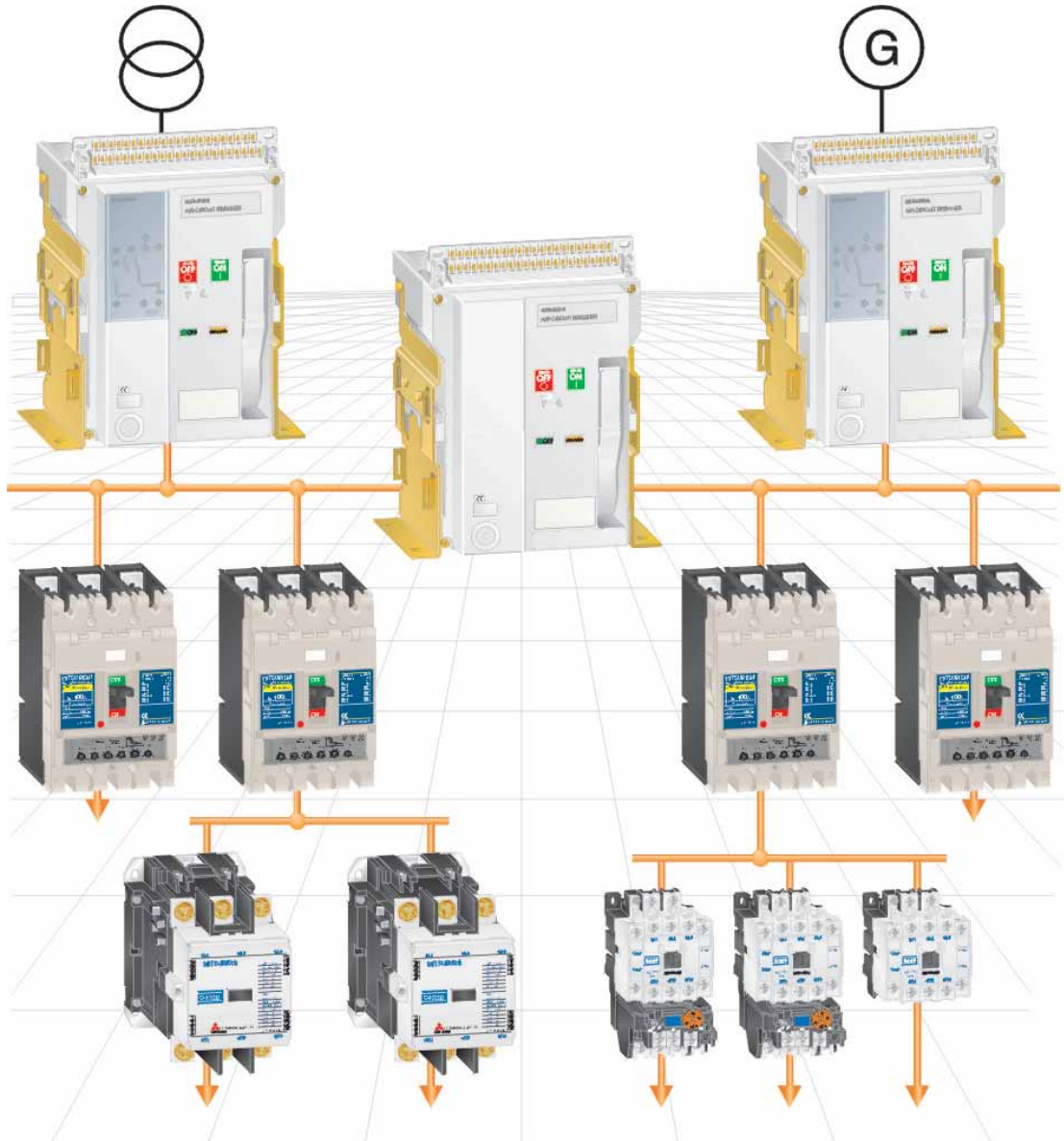
Marine approvals LRS, GL, BV, ABS, DNV, NK

(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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