

WS-V

Low Voltage Switchgear

Molded Case Circuit Breakers Breaking through the industry



New circuit breaking technology for higher performance



Integrated display enables energy management through visualization



Compact design leads to less required space in the control cabinet



Environment -friendly design and use of non hazardous substances

Intelligent breaking technology



Distinguished and secure breaking performance where reliability is needed



New model with 75 kA replaces old 50 kA model by maintaining the same size

Molded-case circuit breakers are utilized to open/close low-voltage circuits and protect wiring by automatically closing circuits when overloading or short-circuiting occurs.

Mitsubishi Electric is pioneering a new future for circuit breakers, working to realize market globalization by responding to international needs with products that offer enhanced ease of operation, high performance, and complying with various standards such as JIS, IEC, EN, GB, UL/CSA standards.

With its innovative breaking technology all Mitsubishi Electric breakers offer greater safety and even faster circuit-breaking speed through the use of the latest switch-off technology and innovative engineering, with an innovative electronic trip relay.

Mitsubishi Electric breakers of the WS-V series are available in 4 different versions which can be used for a wide range of applications:

■ NF-C economy type

Basic model with excellent cost performance. Standard products range from 30 to 250 A frames.

■ NF-S standard type

Standard model lineup, with products from 32 to 250 A frames

■ NF-H/-L high-performance type

High performance model lineup, with products from 63 –250 A frames

■ NF-U/-R ultra current-limiting type

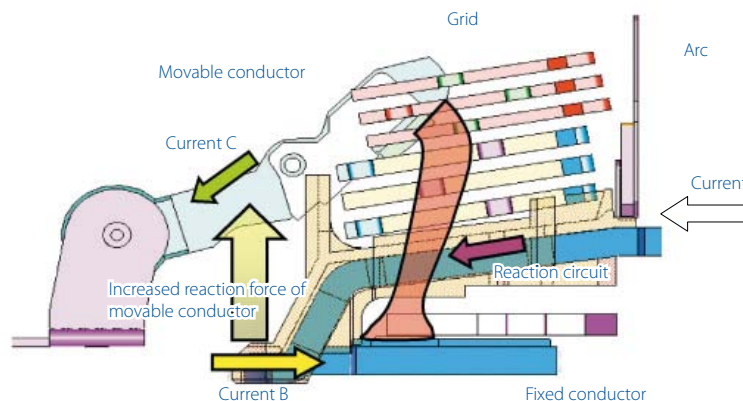
Realizing the world's maximum breaker capacity of 200 kA, this high breaking capacity breaker is the optimum model for backup shutdown.

Higher performance

The advanced technology of the WS-V series is based on a proven Mitsubishi Electric patent, and in consideration of the layout of the current leads provides excellent opening cycles of the main conductors.

The new circuit breaking technology "Expanded ISTAC" upgrades current limiting performance for a higher breaking capacity. With higher breaking capacity, lower class models can be used, thus leading to cost reduction of switch panels and machines.

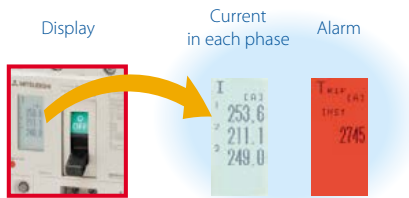
Extending the conductor (reaction circuit for movable conductor) beneath the fixed conductor makes the movable conductor open faster than the conventional ISTAC mechanism. This significantly improves the current limiting performance and reduces the maximum peak current by 10 %.



Expanded ISTAC breaking technology

Vizualization of current flow

Mitsubishi Electric electronic circuit breakers of the WS-V-series with display can display various measurement items. This will enable energy management through permanent visualization of the current in each phase, which leads to energy saving.



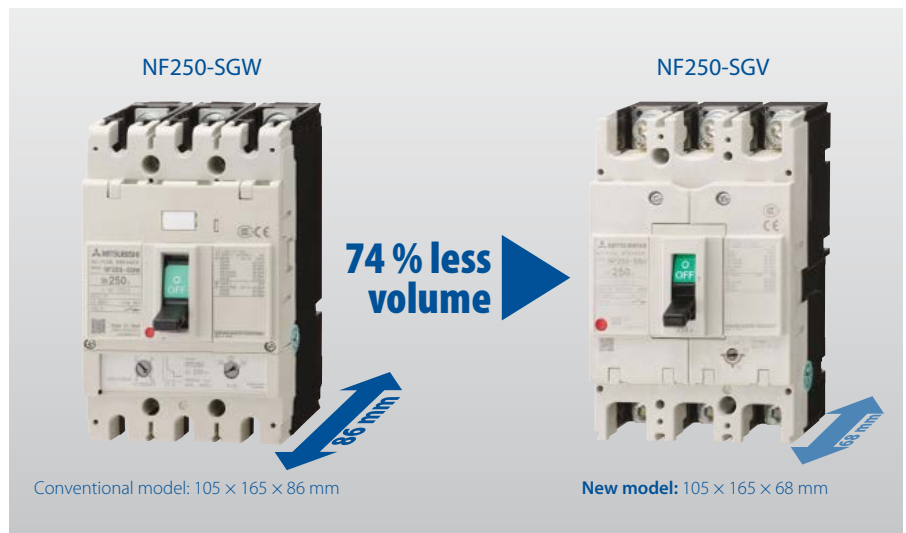
Clear and distinctly readable display

The easy to read display is on the circuit breaker body and shows diverse circuit informations. With the help of this display, detailed setting can be done easily. When an alarm occurs, the display turns red, so the affected breaker can be recognized quickly.

Compact design

The thermal adjustable circuit breakers and electronic circuit breakers of the WS-V series are very compact in size. Comparing to the predecessor series, these breakers contribute to a simplification of design and the reduction of the panel size.

250AF circuit breakers fixed types, thermal adjustable types and electronic types are the same size, leading to the standardization of panel design.



WS-V series breakers with a volume ratio of 74 % compared to the predecessor models

Modular and standardized accessories

The arrangement and design of pluggable accessories such as indicator and auxiliary contacts allows the user to modify the circuit in a way that saves time and space – at any time, even when built in and ready for operation. The presence of separate circuit chambers makes the system even safer.

Unlike the previous models the types of internal accessories has been reduced from 3 types to 1 type. The standardization of internal accessories contributes to the reduction of stock and delivery time.

Thus cassette type accessories ensure flexibility when upgrading circuits. The cassette type accessories are available in 5 different versions and fit for breaker series from 30 up to 800 AF:

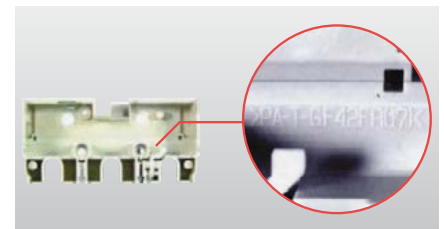
- alarm switch (AL)
- auxiliary switch (AX)
- alarm and auxiliary switch (AL+AX)
- shunt trip device (SHT)
- undervoltage trip device (UVT)



Breaker with accessories

Environment friendly

All circuit breakers of the WS-V series are eco-friendly designed without any hazardous substances. The circuit breakers comply with RoHS regulation. The body of the circuit breakers are made of thermo-plastic materials that are easy to recycle (some models are partially made of thermoset materials). The major plastic parts bear material identifications so that they can be recycled easily.



Use of various recycable materials

Energy saving production

Mitsubishi Electric Cooperation Fukuyama Works uses energy saving support devices such as MDU breakers and EcoServer to save energy through “visualization” of energy. Along with “visualization”, Fukuyama Works also installed high-efficiency equipments to further promote energy saving.

Through energy saving activity, Fukuyama Works has successfully reduced its electrical power consumption rate by 27 % in 2007 (compared with 1990).

Specifications

Specifications	NF32-SV	NF63-SV	NF63-HV	NF125-SGV	NF125-SEV	NF125-LGV			
Rated current I _{n max.} [A]	32	63	63	125	125	125			
Rated insulation voltage U _i [V]	AC 600	600	690	690	690	690			
Number of poles	3	3/4	3/4	3/4	3/4	3/4			
Rated breaking capacity [kA] (I _{av} /I _{cs})	IEC 947-2 EN 60 947-2 VDE 0660	AC (50/60 Hz)	690 V	—	2.5/2.5	8/8	8/8		
			440 V	2.5/2.5	7.5/7.5	10/8	36/36	36/36	50/50
			400 V	5/5	7.5/7.5	10/8	36/36	36/36	50/50
Dimensions (WxHxD)	mm 75x130x68	75/100x130x68	75/100x130x68	105/140x165x68	105/140x165x68	105/140x165x68			

Specifications	NF125-HGV	NF125-HEV	NF125-RGV	NF125-UGV	NF160-SGV	NF160-LGV	NF160-HGV			
Rated current I _{n max.} [A]	125	125	125	125	160	160	160			
Rated insulation voltage U _i [V]	AC 690	690	690	690	690	690	690			
Number of poles	3/4	3/4	3	3/4	3/4	3/4	3/4			
Rated breaking capacity [kA] (I _{av} /I _{cs})	IEC 947-2 EN 60 947-2 VDE 0660	AC (50/60 Hz)	690 V	10/8	10/8	—	15/15	8/8	8/8	10/8
			440 V	65/65	65/65	125/125	200/200	36/36	50/50	65/65
			400 V	75/75	75/75	150/150	200/200	36/36	50/50	75/75
Dimensions (WxHxD)	mm 105/140x165x68	105/140x165x68	105x165x68	105/140x240x68	105/140x165x68	105/140x165x68	105/140x165x68			

Specifications	NF250-SGV	NF250-SEV	NF250-LGV	NF250-HGV	NF250-HEV	NF250-RGV	NF250-UGV			
Rated current I _{n max.} [A]	250	250	250	250	250	250	250			
Rated insulation voltage U _i [V]	AC 690	690	690	690	690	690	690			
Number of poles	3/4	3/4	3/4	3/4	3/4	3	3/4			
Rated breaking capacity [kA] (I _{av} /I _{cs})	IEC 947-2 EN 60 947-2 VDE 0660	AC (50/60 Hz)	690 V	8/8	8/8	8/8	10/8	10/8	—	15/15
			440 V	36/36	36/36	50/50	65/65	65/65	125/125	200/200
			400 V	36/36	36/36	50/50	75/75	75/75	150/150	200/200
Dimensions (WxHxD)	mm 105/140x165x68	105/140x165x68	105/140x165x68	105/140x165x68	105/140x165x68	105x165x68	105/140x240x68			

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