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ONE device – TWO functions Disconnecting Circuit Breaker

3AP1/2 DCB for 145 kV and 420 kV



Reliable and safe

In switchgear, isolating distances in air combined with circuit breakers are used to protect the circuit state in the grid.

Siemens developed a combined device in which the isolating distance has been integrated in the SF₆ gas compartment in order to reduce environmental influence. The combined device (DCB – Disconnecting Circuit Breaker) is used as a circuit breaker and additionally as a disconnecter – two functions combined in one device.

The DCB was developed on the basis of a higher-rated standard 3AP circuit breaker to provide the higher dielectric properties required. Due to the SF₆-insulated disconnecter function there is no visible opening distance anymore. The proper function of the kinematic chain has been most thoroughly verified. The closest attention was paid to developing a mechanical interlock which guarantees that the circuit breaker remains in open position when used as a disconnecter.



When this mechanical interlock is activated, it is impossible to close the breaker. The current status of the DCB can also be controlled electrically and is shown by well visible position indicators.

Up to voltages of 145 kV, an additional air-insulated earthing switch could be mounted onto the supporting structure. Its earthing function has been implemented by a well-established earthing switch with a Ruhrtal designed maintenance-free contact system.

The disconnecting circuit breakers are type-tested according to class M2 and C2 of IEC 62271-108, a specific standard for combined switching devices.

By combining the strengths of our well proven product portfolio, we can provide a new type of device which fulfills customers' needs for the highest reliability and safety, while saving space and costs at the same time.

Answers for energy.



3AP1 DCB 145 kV with earthing switch



3AP2 DCB 420 kV

Your advantages:

- Highest reliability by applying well-proven and established components from Siemens circuit breakers and Ruhrtal designed earthing switches
- Highest availability due to reduced maintenance interruptions
- Costs and space saving solution by combining circuit breaker and disconnecter in one device
- Minimized costs for transportation, maintenance, installation and commissioning as well as civil works (foundation, steel, cable ducts etc.)
- Compact and intelligent interlocking and position indicating device
- Optionally available with earthing switch (145 kV)
- Everything from one source (documentation and technical support, assembling and installation, training, 24-hour-service)

Technical Data		3AP1 DCB	3AP2 DCB
Rated voltage	[kV]	145	420
Number of interrupter units per pole		1	2
Rated power frequency withstand voltage	[kV]	275/315	520/610
Rated lightning impulse withstand voltage	[kV]	650/750	1425/1665
Rated switching impulse withstand voltage	[kV]	n.a.	1050/1245
Rated normal current up to	[A]	3150	4000
Rated short-circuit breaking current	[kArms]	40 (31.5)	40
Ambient temperature ^{*)}	[°C]	-40 ... +40	-40 ... +40
Insulating medium		SF ₆	SF ₆
Classification CB		M2, C2	M2, C2
Classification DS		M2	M2
Insulators		composite ^{**)}	composite
Attached earthing switch (optional)		yes	no
Type tested according to		IEC 62271 - 108	

^{*)} other ambient temperature values on request
^{**)} or porcelain

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