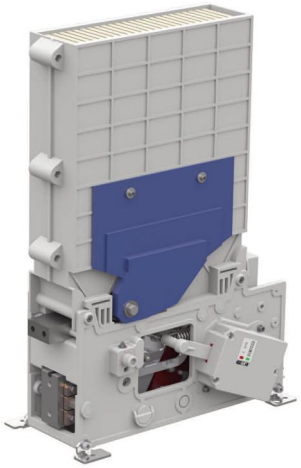
HSCBs

Standard Family Code
IR 3000 F SERIES H



Family Code			
Voltage	Holding System	Thermal Current	
		1500 A	3000 A
900 V	Holding Coil	**IR 3015 FC 09H**	**IR 3030 FC 09H**
	Permanent Magnet	**IR 3015 FP 09H**	**IR 3030 FP 09H**
1800 V	Holding Coil	**IR 3015 FC 18H**	**IR 3030 FC 18H**
	Permanent Magnet	**IR 3015 FP 18H**	**IR 3030 FP 18H**

Description

DC single pole, magnetic blowout, trip free, air circuit breaker. The closing mechanism is motor-operated independent type while the holding mechanism is magnetic type, provided with holding coil or permanent magnet. The breaker is equipped with a direct acting over-current trip device, which may be either unidirectional or bi-directional. Reference standard IEC 61992.

Type	IR3000 F
Number of Poles	1 NO
Mounting Position	Vertical
Control Voltage Rating Uc [Vdc]	24 - 36 - 48 - 72 - 110[1]
Auxiliary Contact Blocks	5 N.O. + 6 N.C.
Block Type	Reed
Arc chute Material	Ceramic
Main Contacts tips Material	$AgSnO_2$
Arcing Contacts tips Material	AgW
Electric Diagram HC	42870370B
Electric Diagram PM	42870579B
Layout Drawing HC	42870647C

[1] To be specified in order phase.

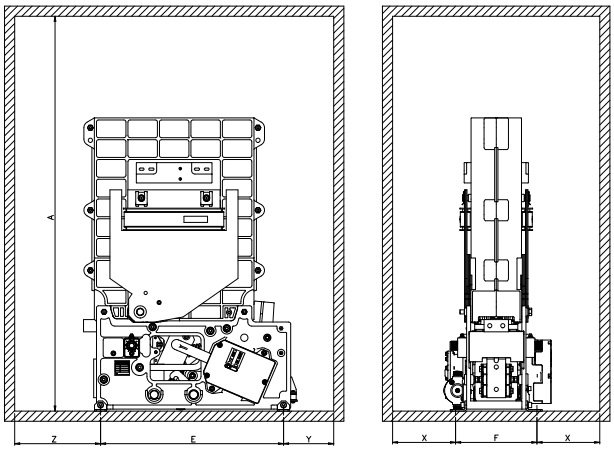
Electrical Characteristics	09H	18H
Rated Operational Voltage U_{Ne} [V_{dc}][1]	900	1800
Max Operational Voltage [V_{dc}]	1000	2000
Rated Insulation Voltage [V_{dc}]	2300	2300
Conventional Free Air Thermal Current [A] at 40°C [2]	1500 / 3000[1]	
Breaking Capacity [kA/ms]		
Rated Short Cicuit	70 / 63	50 / 63
Duty F: Maximum Fault	70 / 0	50 / 0
Duty E: Maximum Energy	35 / 31.5	32.5 / 31.5
Duty D: Distant Fault	6 / 63	6 / 63
Peak arc voltage x U_{Ne} [$\hat{U}_{arc}$]	up to 4 x U_{Ne}	
Standard direct acting trip device [kA][1]		
Setting Range 1	1 ÷ 1.8	
Setting Range 2	1.5 ÷ 2.7	
Setting Range 3	2.2 ÷ 4	
Setting Range 4	3.3 ÷ 6	
Blow Out Circuit Type	Coil	

[2] Device cabled according IEC 60947

Minimum clearances [mm] from[3]:								
Rated Operational Voltage [V_{dc}]		A[4]	E	F		X	Y	Z
1800	Metal Parts	1021	450	200		155	125	211
	Plastic Parts	921				105	75	161

[3] Reduced distances should be approved by M.S.

[4] These quotes are referred to a 50 % surface opening grid.



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HSCBs

Standard Family Code
IR 3000 SERIES VV

Family Code			
Voltage	Holding System	Thermal Current	
		1500 A	3000 A
900 V	Holding Coil	**IR 3015 VV 09L**	**IR 3030 VV 09L**
		IR 3015 VV 09M	**IR 3030 VV 09M**
1800 V		**IR 3015 VV 18M**	**IR 3030 VV 18M**

Description

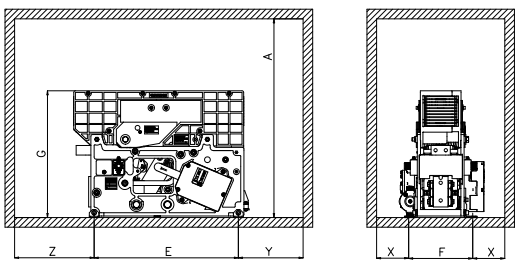
DC single pole, magnetic blowout, trip free, air circuit breaker. The closing mechanism is motor-operated independent type while the holding mechanism is magnetic type, provided with holding coil. The breaker is equipped with a direct acting over-current trip device, which may be either unidirectional or bi-directional. Reference standard IEC 60077.

Type	IR3000 VV
Number of Poles	1 NO
Mounting Position	Vertical
Control Voltage Rating Uc [Vdc]	24 - 36 - 48 - 72 - 110[1]
Auxiliary Contact Blocks	5 N.O. + 6 N.C.
Block Type	Reed
Arc chute Material	Ceramic
Main Contacts tips Material	$AgSnO_2$
Arcing Contacts tips Material	AgW
Electric Diagram HC	42870370B
Layout Drawing HC	42870555C

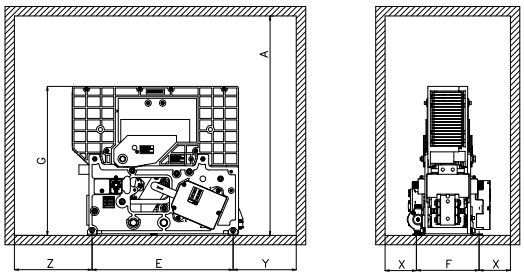
[1] To be specified in order phase.

Electrical Characteristics	09L	09M	18M
Rated Operational Voltage [V_{dc}][1]	900	900	1800
Max Operational Voltage [V_{dc}]	1000	1000	2000
Rated Insulation Voltage [U_{Nm}]	2300	2300	2300
Conventional Free Air Thermal Current [A] at 40°C [2]		1500 / 3000[1]	
Rated Short Cicuit Making and Breaking Capacity / Time constant [kA/ms]			
τ_1	30 / 0	50 / 0	30 / 0
τ_2	30 / 15	32.5 / 15	30 / 15
τ_3	30 / 50	30 / 50	30 / 40
τ_4	30 / 150	30 / 150	30 / 100
Rated Duty Cycle		0 - 20s - CO - 60s - C0	
Peak arc voltage x U_{Nm} [$\hat{U}_{arc}$]		up to 3 x U_{Nm}	
Standard direct acting trip device [kA][1]			
Setting Range 1		1 ÷ 1.8	
Setting Range 2		1.5 ÷ 2.7	
Setting Range 3		2.2 ÷ 4	
Setting Range 4		3.3 ÷ 6	
Blow Out Circuit Type		Coil	

[2] Device cabled according IEC 60947



IR 3000 VV Low Power



IR 3000 VV Medium Power

Minimum clearances [mm] from[3]:									
Rated Operational Voltage [V_{dc}]		A[4]	E	F	G	X	Y[4]	Z[4]
900	Metal Parts	620	450	200	396	100	202	248
	Plastic Parts	520				50	150	198
1800	Metal Parts	700			476	100	202	248
	Plastic Parts	600				50	150	198

[3] Reduced distances should be approved by M.S.

[4] These quotes are referred to a 50 % surface opening grid.

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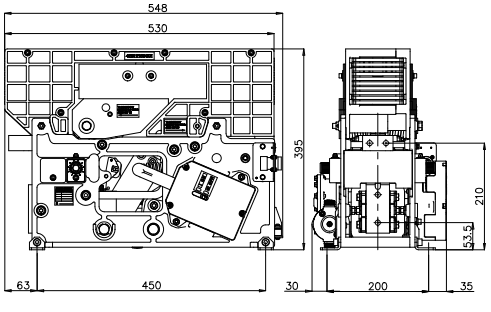
Mechanical Characteristics	
Mechanical Endurance (cycles)	6x50000
Electrical durability [In @ Un]	4x200
Shock and Vibrations (IEC61373)	Cat.1 - Class B
Weight LP / MP [kg]	44 / 54

Control Circuit	
Control Voltage Range	0.7Uc ÷ 1.25Uc
Operated by	D.C. Motor
Holding closed by	Holding Coil
Peak closing power and time [W x s]	400 x 0.01
Nominal closing power and time [W x s]	250 x 1.5
Holding Coil version	
Nominal holding power @ 20°C [W]	50
Nominal opening power @ 20°C [W]	0
Controlled opening time [ms]	< 50

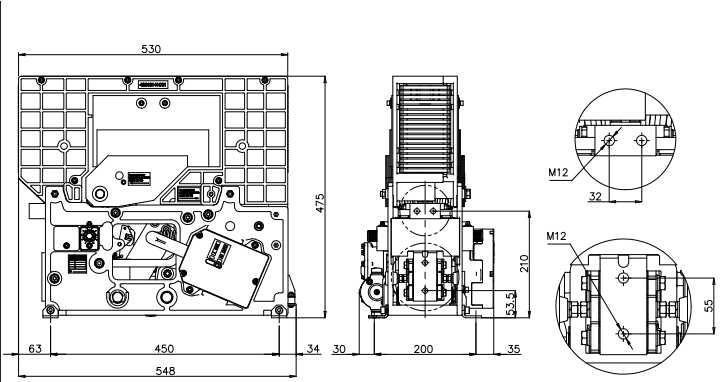
Auxiliary Contacts	
Type	Reed Contacts (Vacuum Technology)
Voltage [V_{dc}]	24 / 36 / 48 / 72 / 110
Rated Current [A]	5
Maximum Breaking Power with Inductive Load τ=2ms [W]	120
Maximum Breaking Current with Inductive Load τ=2ms [A]	3
Maximum Breaking Voltage with Inductive Load τ=2ms [V]	250
Minimum let-through Current at 24Vdc [mA]	5

Environmental Conditions	
Stock Temperature Range	-50°C ÷ +85°C
Operational Temperature Range	-30°C ÷ +70°C
Pollution Degree - Overvoltage Category (EN 50124-1)	PD3 - OV4
Clearance in air [mm]	14
Creepage distance [mm]	32.2
Comparative Tracking Index (CTI)	>600
Max Altitude without Performance Derating [m]	2000
Humidity [5]	10 ÷ 95% RH

[5] According to EN 50125-1



IR 3000 VV Low Power



IR 3000 VV Medium Power

HSCBs

Standard Family Code
IR 3000 F SERIES M

Family Code			
Voltage	Holding System	Thermal Current	
		1500 A	3000 A
900 V	Holding Coil	**IR 3015 FC 09M**	**IR 3030 FC 09M**
	Permanent Magnet	**IR 3015 FP 09M**	**IR 3030 FP 09M**
1800 V	Holding Coil	**IR 3015 FC 18M**	**IR 3030 FC 18M**
	Permanent Magnet	**IR 3015 FP 18M**	**IR 3030 FP 18M**

Description

DC single pole, magnetic blowout, trip free, air circuit breaker. The closing mechanism is motor-operated independent type while the holding mechanism is magnetic type, provided with holding coil or permanent magnet. The breaker is equipped with a direct acting over-current trip device, which may be either unidirectional or bi-directional. Reference standard IEC 61992.

Type	IR3000 F
Number of Poles	1 NO
Mounting Position	Vertical
Control Voltage Rating Uc [Vdc]	24 - 36 - 48 - 72 - 110[1]
Auxiliary Contact Blocks	5 N.O. + 6 N.C.
Block Type	Reed
Arc chute Material	Ceramic
Main Contacts tips Material	$AgSnO_2$
Arcing Contacts tips Material	AgW
Electric Diagram HC	42870370B
Electric Diagram PM	42870579B
Layout Drawing HC	42870555C
Layout Drawing PM	42870556C

[1] To be specified in order phase.

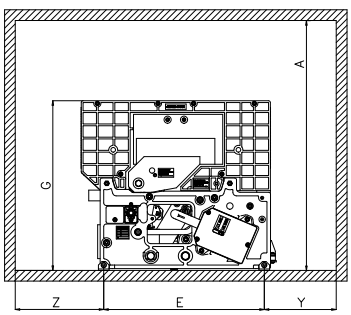
Electrical Characteristics	09M	18M
Rated Operational Voltage U_{Ne} [V_{dc}][1]	900	1800
Max Operational Voltage [V_{dc}]	1000	2000
Rated Insulation Voltage [V_{dc}]	2300	2300
Conventional Free Air Thermal Current [A] at 40°C [2]	1500 / 3000[1]	
Breaking Capacity [kA/ms]		
Rated Short Cicuit	50 / 31.5	30 / 31.5
Duty F: Maximum Fault	50 / 0	30 / 0
Duty E: Maximum Energy	32.5 / 20.5	25.2 / 16.8
Duty D: Distant Fault	6 / 31.5	6 / 31.5
Peak arc voltage x U_{Ne} [$\hat{U}_{arc}$]	up to 4 x U_{Ne}	
Standard direct acting trip device [kA][1]		
Setting Range 1	1 ÷ 1.8	
Setting Range 2	1.5 ÷ 2.7	
Setting Range 3	2.2 ÷ 4	
Setting Range 4	3.3 ÷ 6	
Blow Out Circuit Type	Coil	

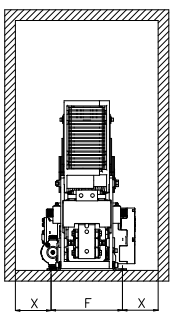
[2] Device cabled according IEC 60947

Minimum clearances [mm] from[3]:								
Rated Operational Voltage [V_{dc}]		A[4]	E	F	G	X	Y[4]	Z[4]
1800	Metal Parts	700	450	200	476	100	202	248
	Plastic Parts	600				50	150	198

[3] Reduced distances should be approved by M.S.

[4] These quotes are referred to a 50 % surface opening grid.





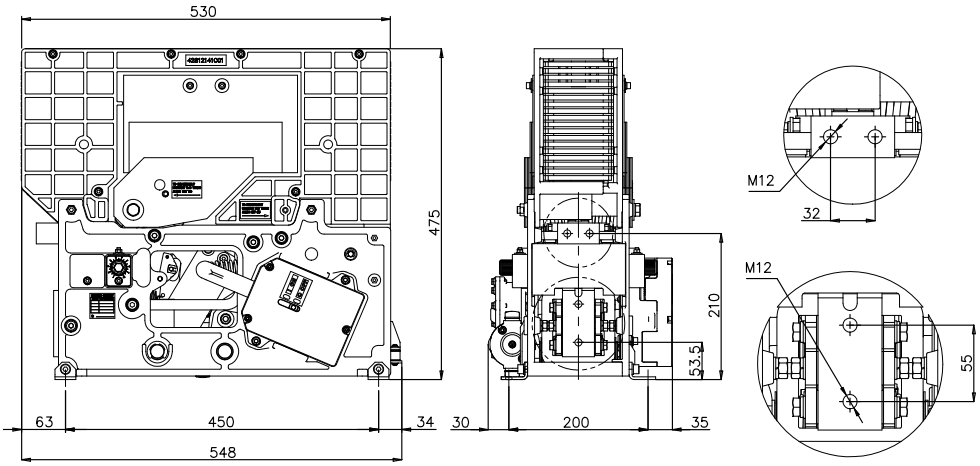
Mechanical Characteristics	
Mechanical Endurance (cycles)	6x50000
Electrical durability [In @ Un]	4x200
Shock and Vibrations (IEC61373)	Cat.1 - Class B
Weight [kg]	54

Control Circuit	
Control Voltage Range	0.7Uc ÷ 1.25Uc
Operated by	D.C. Motor
Holding closed by	Holding Coil or Permanent Magnet
Peak closing power and time [W x s]	400 x 0.01
Nominal closing power and time [W x s]	200 x 1.5
Holding Coil version	
Nominal holding power @ 20°C [W]	15
Nominal opening power @ 20°C [W]	0
Controlled opening time [ms]	< 50
Permanent Magnet version	
Nominal holding power @ 20°C [W]	0
Nominal opening power and time @ 20°C [W x s]	400 x 0.02
Controlled opening time [ms]	< 20

Auxiliary Contacts	
Type	Reed Contacts (Vacuum Technology)
Voltage [V_{dc}]	24 / 36 / 48 / 72 / 110
Rated Current [A]	5
Maximum Breaking Power with Inductive Load τ=2ms [W]	120
Maximum Breaking Current with Inductive Load τ=2ms [A]	3
Maximum Breaking Voltage with Inductive Load τ=2ms [V]	250
Minimum let-through Current at 24Vdc [mA]	5

Environmental Conditions	
Stock Temperature Range	-50°C ÷ +85°C
Operational Temperature Range	-30°C ÷ +70°C
Pollution Degree - Overvoltage Category (EN 50124-1)	PD3 - OV4
Clearance in air [mm]	14
Creepage distance [mm]	32.2
Comparative Tracking Index (CTI)	>600
Max Altitude without Performance Derating [m]	2000
Humidity [5]	10 ÷ 95% RH

[5] According to EN 50125-1



HSCBs

Standard Family Code
IR 3000 F SERIES L

Family Code			
Voltage	Holding System	Thermal Current	
		1500 A	3000 A
900 V	Holding Coil	**IR 3015 FC 09L**	**IR 3030 FC 09L**
	Permanent Magnet	**IR 3015 FP 09L**	**IR 3030 FP 09L**

Description

DC single pole, magnetic blowout, trip free, air circuit breaker. The closing mechanism is motor-operated independent type while the holding mechanism is magnetic type, provided with holding coil or permanent magnet. The breaker is equipped with a direct acting over-current trip device, which may be either unidirectional or bi-directional. Reference standard IEC 61992.

Type	IR3000 F
Number of Poles	1 NO
Mounting Position	Vertical
Control Voltage Rating Uc [Vdc]	24 - 36 - 48 - 72 - 110[1]
Auxiliary Contact Blocks	5 N.O. + 6 N.C.
Block Type	Reed
Arc chute Material	Ceramic
Main Contacts tips Material	$AgSnO_2$
Arcing Contacts tips Material	AgW
Electric Diagram HC	42870370B
Electric Diagram PM	42870579B
Layout Drawing HC	42870555C
Layout Drawing PM	42870556C

[1] To be specified in order phase.

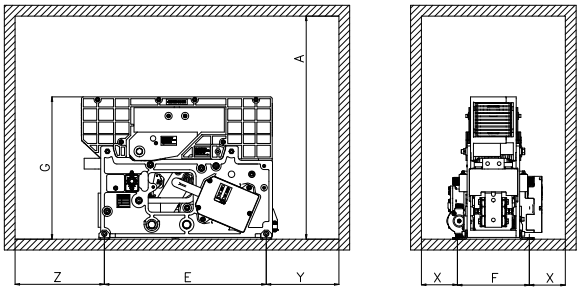
Electrical Characteristics	09L
Rated Operational Voltage U_{Ne} [V_{dc}][1]	900
Max Operational Voltage [V_{dc}]	1000
Rated Insulation Voltage [V_{dc}]	2300
Conventional Free Air Thermal Current [A] at 40°C [2]	1500 / 3000[1]
Breaking Capacity [kA/ms]	
Rated Short Cicuit	31.5 / 21
Duty F: Maximum Fault	31.5 / 0
Duty E: Maximum Energy	25.2 / 16.8
Duty D: Distant Fault	3 / 21
Peak arc voltage x U_{Ne} [$\hat{U}_{arc}$]	up to 4 x U_{Ne}
Standard direct acting trip device [kA][1]	
Setting Range 1	1 ÷ 1.8
Setting Range 2	1.5 ÷ 2.7
Setting Range 3	2.2 ÷ 4
Setting Range 4	3.3 ÷ 6
Blow Out Circuit Type	Coil

[2] Device cabled according IEC 60947

Minimum clearances [mm] from[3]:									
Rated Operational Voltage [V_{dc}]		A[4]	E	F	G	X	Y[4]	Z[4]
900	Metal Parts	620	450	200	396	100	202	248
	Plastic Parts	520				50	150	198

[3] Reduced distances should be approved by M.S.

[4] These quotes are referred to a 50 % surface opening grid.



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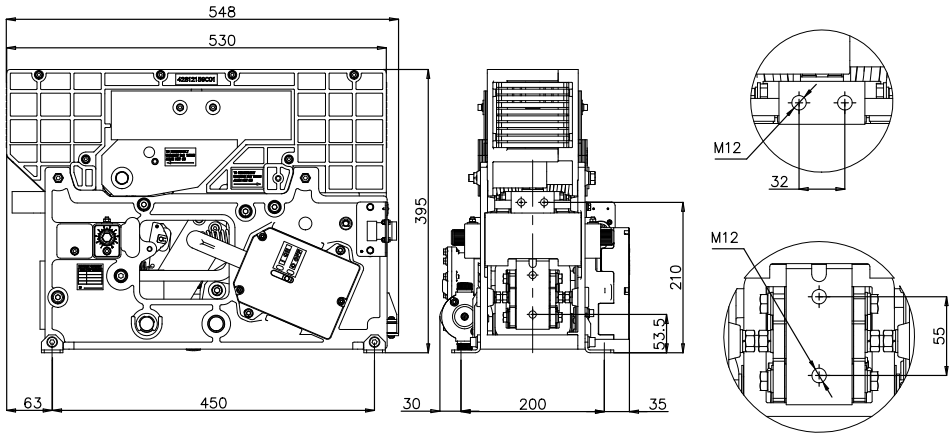
Mechanical Characteristics	
Mechanical Endurance (cycles)	6x50000
Electrical durability [In @ Un]	4x200
Shock and Vibrations (IEC61373)	Cat.1 - Class B
Weight [kg]	44

Control Circuit	
Control Voltage Range	0.7Uc ÷ 1.25Uc
Operated by	D.C. Motor
Holding closed by	Holding Coil or Permanent Magnet
Peak closing power and time [W x s]	400 x 0.01
Nominal closing power and time [W x s]	200 x 1.5
Holding Coil version	
Nominal holding power @ 20°C [W]	15
Nominal opening power @ 20°C [W]	0
Controlled opening time [ms]	< 50
Permanent Magnet version	
Nominal holding power @ 20°C [W]	0
Nominal opening power and time @ 20°C [W x s]	400 x 0.02
Controlled opening time [ms]	< 20

Auxiliary Contacts	
Type	Reed Contacts (Vacuum Technology)
Voltage [V_{dc}]	24 / 36 / 48 / 72 / 110
Rated Current [A]	5
Maximum Breaking Power with Inductive Load τ=2ms [W]	120
Maximum Breaking Current with Inductive Load τ=2ms [A]	3
Maximum Breaking Voltage with Inductive Load τ=2ms [V]	250
Minimum let-through Current at 24Vdc [mA]	5

Environmental Conditions	
Stock Temperature Range	-50°C ÷ +85°C
Operational Temperature Range	-30°C ÷ +70°C
Pollution Degree - Overvoltage Category (EN 50124-1)	PD3 - OV4
Clearance in air [mm]	14
Creepage distance [mm]	32.2
Comparative Tracking Index (CTI)	>600
Max Altitude without Performance Derating [m]	2000
Humidity [5]	10 ÷ 95% RH

[5] According to EN 50125-1



Mechanical Characteristics	
Mechanical Endurance (cycles)	6x50000
Electrical durability [In @ Un]	4x200
Shock and Vibrations (IEC61373)	Cat.1 - Class B
Weight [kg]	75

Control Circuit	
Control Voltage Range	0.7Uc ÷ 1.25Uc
Operated by	D.C. Motor
Holding closed by	Holding Coil or Permanent Magnet
Peak closing power and time [W x s]	400 x 0.01
Nominal closing power and time [W x s]	200 x 1.5
Holding Coil version	
Nominal holding power @ 20°C [W]	15
Nominal opening power @ 20°C [W]	0
Controlled opening time [ms]	< 50
Permanent Magnet version	
Nominal holding power @ 20°C [W]	0
Nominal opening power and time @ 20°C [W x s]	400 x 0.02
Controlled opening time [ms]	< 20

Auxiliary Contacts	
Type	Reed Contacts (Vacuum Technology)
Voltage [V_{dc}]	24 / 36 / 48 / 72 / 110
Rated Current [A]	5
Maximum Breaking Power with Inductive Load τ=2ms [W]	120
Maximum Breaking Current with Inductive Load τ=2ms [A]	3
Maximum Breaking Voltage with Inductive Load τ=2ms [V]	250
Minimum let-through Current at 24Vdc [mA]	5

Environmental Conditions	
Stock Temperature Range	-50°C ÷ +85°C
Operational Temperature Range	-30°C ÷ +70°C
Pollution Degree - Overvoltage Category (EN 50124-1)	PD3 - OV4
Clearance in air [mm]	14
Creepage distance [mm]	32.2
Comparative Tracking Index (CTI)	>600
Max Altitude without Performance Derating [m]	2000
Humidity [5]	10 ÷ 95% RH

[5] According to EN 50125-1