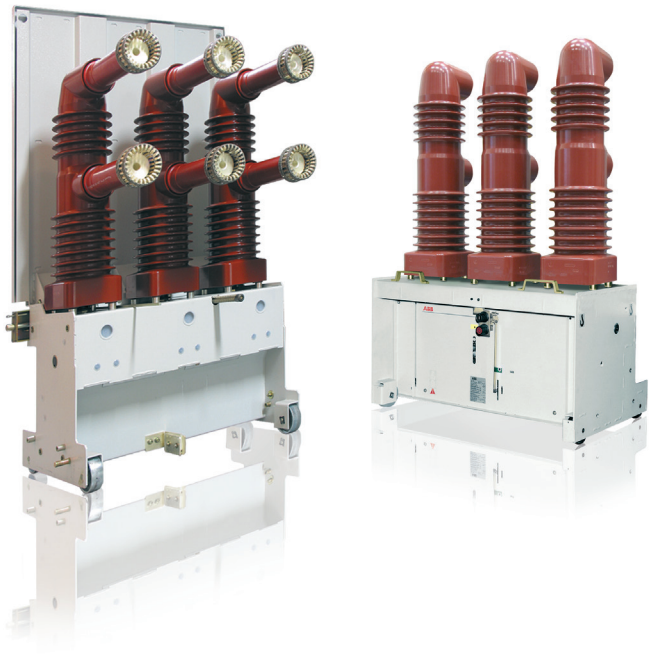
Instruction manual

VD4
Vacuum circuit-breaker – 36/40.5 kV

Contents



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2 Technical data

2.1 Technical data

Circuit-breakers for fixed installation and on withdrawable part

Rated voltage	kV	36 / 40.5	36 / 40.5
Rated frequency	Hz	50/60	50/60
Rated lightning impulse withstand voltage	kV	190	200 [7]
Rated power frequency withstand voltage	kV	95	95
Rate of rise of transient recovery voltage	kV/µs	0.57 / 0.69	0.57 / 0.69
Peak of ransient recovery voltage	kV	62 / 70	62 / 70
Rated operating sequence		O-3min-CO-3min-CO	
Rated operating sequence with auto-reclosing		O-0.3s-CO-3min-CO	

Breaker type	Rated voltage	Rated current	Rated short-circuit breaking current symm. [1]	Rated short-circuit breaking current asymm. [1]	Rated short-circuit breaking current (peak) [1]	Rated short-circuit duration	Poles centres		Weight		Permissible operating cycles of the vacuum interrupters
							fixed	with-drawable	fixed	with-drawable	
VD4..	kV	A	kA	kA	kA	s	mm		approx. kg		Fig. 2/1 page 9/10
3606-16	36	630 [3]	16	17.4	40	4	360	280	320	290	Diagram A
3612-16	36	1250 [3]							320	290	Diagram A
3606-20	36	630 [3]	20	21.8	50	4	360	280	320	290	Diagram B
3612-20	36	1250 [3]							320	290	Diagram B
3612-25	36	1250 [3]	25	27.3	63	4	360	280	320	290	Diagram C
3616-25	36	1600 [3]							320	290	Diagram C
3620-25	36	2000 [3]							355	340	Diagram C
3625-25	36	2500 [4] [5]							355	340	Diagram C
3631-25	36	3150 [6]				3		280		290	Diagram F
3612-31	36	1250 [3]	31.5	34.3	80	4	360	280	320	290	Diagram D
3616-31	36	1600 [3]							320	290	Diagram D
3620-31	36	2000 [3]							355	340	Diagram D
3625-31	36	2500 [4] [5]							355	340	Diagram D
3631-31	36	3150 [6]				3		280		290	Diagram G
3612-40	36	1250 [3] [7]	40	43.6	100	4	360	280	330	300	Diagram E
3616-40	36	1600 [3] [7]							330	300	Diagram E
3620-40	36	2000 [3] [7]							365	350	Diagram E
3625-40	36	2500 [4] [5] [7]							365	350	Diagram E
4006-16	40.5	630 [3]	16	17.4	40	4	360	280	320	290	Diagram A
4012-16	40.5	1250 [3]							320	290	Diagram A
4006-20	40.5	630 [3]	20	21.8	50	4	360	280	320	290	Diagram B
4012-20	40.5	1250 [3]							320	290	Diagram B
4012-25	40.5	1250 [3]	25	27.3	63	4	360	280	320	290	Diagram C
4016-25	40.5	1600 [3]							320	290	Diagram C
4020-25	40.5	2000 [3]							355	340	Diagram C
4025-25	40.5	2500 [4] [5]							355	340	Diagram C
4031-25	40.5	3150 [6]				3		280		290	Diagram F
4012-31	40.5	1250 [3]	31.5	34.3	80	4	360	280	320	290	Diagram D
4016-31	40.5	1600 [3]							320	290	Diagram D
4020-31	40.5	2000 [3]							355	340	Diagram D
4025-31	40.5	2500 [4] [5]							355	340	Diagram D
4031-31	40.5	3150 [6]				3		280		290	Diagram G
4012-40	40.5	1250 [3] [7]	40	43.6	100	4	360	280	330	300	Diagram E
4016-40	40.5	1600 [3] [7]							330	300	Diagram E
4020-40	40.5	2000 [3] [7]							365	350	Diagram E
4025-40	40.5	2500 [4] [5] [7]							365	350	Diagram E

Guideline values for function times at the rated supply voltage:

Closing time	approx.	60 ms
Opening time	≤	45 ms
Arcing time (at 50 Hz)	≤	15 ms
Total break time	≤	60 ms
Minimum command time on closing	20 ms	(120 ms [2])
Minimum command time on opening	20 ms	(80 ms [2])

[1] When the operating voltage is lower than the rated voltage the same values apply as for rated voltage. Higher values on request.
[2] If the activating relay contact cannot itself interrupt the release coil current
[3] Ambient temperature ≤ 55 °C
[4] Ambient temperature ≤ 40 °C
[5] Rated current 2500 A at 55 °C ambient temperature (VD4 with forced ventilation (fan ccoling) and assembled poles on withdrawable part)
[6] Rated current 3150 A at 40 °C ambient temperature (VD4 with forced ventilation (fan cooling) and assembled poles on withdrawable part)
[7]

Closing time	approx. 60 ms
Opening time	≤ 60 … 90 ms
Arcing time (at 50 Hz)	≤ 15 ms
Total break time	≤ 75 … 105 ms
Minimum command time on closing	20 ms (120 ms [2])
Minimum command time on opening	60 ms
Minimum command time on opening, if the activating relay cannot itself interrupt the release coil current	120 ms