



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAE0000383**  
Revision No:  
**2**

## This is to certify:

**That the Disconnection Switch**

with type designation(s)  
**OTDC16 - 1600**

Issued to  
**ABB Oy, Smart Power**  
**VAASA, Finland**

is found to comply with  
**DNV rules for classification – Ships, offshore units, and high speed and light craft**  
**IEC 60947**

## Application :

**Products approved by this certificate are accepted for installation on all vessels classed by DNV.**

Issued at **Høvik** on **2024-05-14**

This Certificate is valid until **2029-03-13**.

DNV local station: **Finland CMC**

Approval Engineer: **Nicolay Horn**

for DNV  
Digitally signed by  
Elter, Frederik Tore  
Location: DNV  
Høvik, Norway

**Frederik Tore Elter**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.  
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



## Product description

DC Switch-disconnector OTDC16 - 1600,

Technical data:

			OTDC16F	OTDC25F	OTDC32F
Rated insulation voltage $U_i$ (V)	Polution degree 3		1000	1000	1000
Rated imp.voltage $U_{imp}$ (kV)			8	8	8
Rated thermal current $I_{th}$ (A)	In open air		25	32	45
	In enclosure 40 °C		25	32	45
	In enclosure 60 °C		25	32	45
Rated operation current / poles in series DC21B (A)	500 V	One circuit	-	-	-
	660 V	One circuit	16/2	25/2	32/2
		Two circuits	-	25/2	32/2
	1000 V	One circuit	10/2,16/3	16/2,25/3	20/2,32/3
		Two circuits	10/2	16/2	20/2
		Three circuits	-	-	-
1500 V	One circuit	-	-	-	
Rated short circuit withstand current 1 kV, 1 sec. $I_{cw}$ (kA)			0.4	0.6	0.8
Rated short circuit making capacity $I_{cm}$ (kA)			0.4	0.6	0.8
Rated conditunal short circuit capacity $I_p$ (kA)	$I_p$ rms.		-	-	-
	Max fuse size		-	-	-

			OTDC16U	OTDC25U	OTDC32U
Rated insulation voltage $U_i$ (V)	Polution degree 3		1000	1000	1000
Rated imp.voltage $U_{imp}$ (kV)			8	8	8
Rated thermal current $I_{th}$ (A)	In open air		40	50	63
	In enclosure 40 °C		32	40	50
	In enclosure 60 °C		25	32	40
Rated operation current / poles in series DC21B (A)	500 V	One circuit	-	-	-
	660 V	One circuit	16/2	25/2	-
		Two circuits	16/2	25/2	32/2
	1000 V	One circuit	10/2	16/2	-
		Two circuits	10/2	16/2	20/2
		Three circuits	10/2	-	-
1500 V	One circuit	-	-	-	
Rated short circuit withstand current 1 kV, 1 sec. $I_{cw}$ (kA)			1	1	1
Rated short circuit making capacity $I_{cm}$ (kA)			1	1	1
Rated conditunal short circuit capacity $I_p$ (kA)	$I_p$ rms.		10	10	10
	Max fuse size		80	80	80

			OTDC100E	OTDC160E OTDC100U	OTDC200E
Rated insulation voltage $U_i$ (V)	Polution degree 3		1500	1500	1500
Rated imp. voltage $U_{imp}$ (kV)			12	12	12
Rated thermal current $I_{th}$ (A)	In open air		100	160	200
	In enclosure 40 °C		100	160	200
	In enclosure 60 °C		100	160	200
Rated operation current / poles in series DC21B (A)	500 V	One circuit	100/1	160/1	200/1
		660 V	One circuit	-	-
		Two circuits	-	-	-
	1000 V	One circuit	100/2	160/2	200/2
		Two circuits	100/2x2	160/2x2	200/2x2
		Three circuits	100/3x2	160/3x2	200/3x2
1500 V	One circuit	100/2x2	160/2x2	200/2x2	
Rated short circuit withstand current 1 kV, 1 sec. $I_{cw}$ (kA)			10	10	10
Rated short circuit making capacity $I_{cm}$ (kA)			10	10	10
Rated conditunal short circuit capacity $I_p$ (kA)	$I_p$ rms.		-	-	-
	Max fuse size		-	-	-

			OTDC100G OTDC100GV	OTDC160G OTDC160GV OTDC100UG OTDC100UGV	OTDC200G OTDC200GV
Rated insulation voltage $U_i$ (V)	Polution degree 3		1500	1500	1500
Rated imp. voltage $U_{imp}$ (kV)			12	12	12
Rated thermal current $I_{th}$ (A)	In open air		100	160	200
	In enclosure 40 °C		100	160	200
	In enclosure 60 °C		100	160	200
Rated operation current / poles in series DC21B (A)	500 V	One circuit	-	-	-
		1000 V	One circuit	100/2	160/2
		Two circuits	100/2x2	160/2x2	200/2x2
		Three circuits	-	-	-
	1500 V	One circuit	100/2	160/2	200/2
		Two circuits	100/2x2	160/2x2	200/2x2
	Three circuits	-	-	-	
Rated short circuit making capacity $I_{cm}$ , 1500V( _V_-models) 1000V (other)			10	10	10
Rated conditional short circuit current $I_q$ (only -ESS types)	Peak value		10	10	10
Rated conditional short circuit current $I_q$ (only -ESS types)	$I_q$ rms.		40	40	40
	Max. ETI fuse size, gPV)	L/R=3ms	350	350	350

			OTDC250G OTDC2500GV OTDC200UG OTDC200UGV	OTDC200UG OTDC200UGV	OTDC200UGV_ -X1	
Rated insulation voltage $U_i$ (V)	Polution degree 3		1500	1500	1500	
Rated imp. voltage $U_{imp}$ (kV)			12	12	12	
Rated thermal current $I_{th}$ (A)	In open air		250	315	250	
	In enclosure 40 °C		250	315	250	
	In enclosure 60 °C		250	315	250	
Rated operation current / poles in series DC21B (A)	500 V	One circuit	-	-	-	
		1000 V	One circuit	250/2	-	250/2
			Two circuits	250/2x2	-	250/2x2
	1500 V	Three circuits	-	-	-	
		One circuit	250/2	250/2	250/2	
		Two circuits	250/2x2	250/2x2	250/2x2	
		Three circuits	-	-	-	
Rated short circuit making capacity $I_{cm}$ , 1500V (V_-models) 1000V (other)			10	10	10	
Rated conditional short circuit current $I_q$ (only -ESS types)	Peak value		10	10	10	
Rated conditional short circuit current $I_q$ (only -ESS types)	$I_q$ rms.		40	40	40	
	Max. ETI fuse size, gPV)	L/R=3ms	350	350	350	

			OTDC250E OTDC245U OTDC200U OTDC180U	OTDC315E OTDC250U	OTDC400E OTDC320U	
Rated insulation voltage $U_i$ (V)	Polution degree 3		1500	1500	1500	
Rated imp. voltage $U_{imp}$ (kV)			12	12	12	
Rated thermal current $I_{th}$ (A)	In open air		250	315	400	
	In enclosure 40 °C		250	315	400	
	In enclosure 60 °C		200	315	400	
Rated operation current / poles in series DC21B (A)	500 V	One circuit	250/1	-	-	
		1000 V	One circuit	250/2	315/2	400/2
			Two circuits	250/2x2	315/2	400/2
	1500 V	Three circuits	-	315/2	400/2	
		One circuit	-	315/3	400/3	
		Two circuits	-	315/4	400/4	
		Three circuits	-	315/3	400/3	
Rated short circuit withstand current 1 kV, 1 sec. $I_{cw}$ (kA)			10	10	10	
Rated short circuit making capacity $I_{cm}$ (kA)			-	-	-	
Rated conditonal short circuit capacity $I_p$ (kA)	$I_p$ rms.		-	-	-	
	Max fuse size		-	-	-	

			OTDC315F OTDC250UF	OTDC400F OTDC320UF	OTDC500F OTDC400UF
Rated insulation voltage $U_i$ (V)	Polution degree 3		1500	1500	1500
Rated imp. voltage $U_{imp}$ (kV)			12	12	12
Rated thermal current $I_{th}$ (A)	In open air		315	400	500
	In enclosure 40 °C		315	400	500
	In enclosure 60 °C		315	400	500
Rated operation current / poles in series DC21B (A)	500 V	One circuit	-	-	-
	660 V	One circuit	315/2	400/2	500/2
		Two circuits	315/2x2	400/2x2	500/2x2
	1000 V	One circuit	315/2x3	400/2x3	500/2x3
		Two circuits	315/2	400/2	500/2
		Three circuits	315/2x2	400/2x2	500/2x2
1500 V	One circuit	315/2x3	400/2x3	500/2x3	
Rated short circuit withstand current 1 kV, 1 sec. $I_{cw}$ (kA)			10	10	10
Rated short circuit making capacity $I_{cm}$ (kA)			10	10	10
Rated conditonal short circuit capacity $I_q$ (only -ESS types)	$I_q$ rms. (kA)		30	30	30
	Max. ETI fuse size, (gPV 3) (A)	L/R=3ms	500	500	500

			OTDC500E OTDC400U	OTDC630E	OTDC800E OTDC600U
Rated insulation voltage $U_i$ (V)	Polution degree 3		1500	1500	1500
Rated imp. voltage $U_{imp}$ (kV)			12	12	12
Rated thermal current $I_{th}$ (A)	In open air		630	630	800
	In enclosure 40 °C		550	630	800
	In enclosure 60 °C		440	630	680
Rated operation current / poles in series DC21B (A)	500 V	One circuit	-	-	-
	660 V	One circuit	-	-	-
		Two circuits	-	-	-
	1000 V	One circuit	500/2	630/2	800/2
		Two circuits	500/2	-	-
		Three circuits	500/2	-	-
	1500 V	One circuit	500/2	-	-
One circuit		500/4	-	-	
Two circuits		500/3	-	-	
Rated short circuit withstand current 1 kV, 1 sec. $I_{cw}$ (kA)			10	10	10
Rated short circuit making capacity $I_{cm}$ (kA)			-	-	-
Rated conditonal short circuit capacity $I_p$ (kA)	$I_p$ rms.		-	-	-
	Max fuse size		-	-	-

			OTDC630F OTDC600UF	OTDC800F
Rated insulation voltage $U_i$ (V)	Polution degree 3		1500	1500
Rated imp. voltage $U_{imp}$ (kV)			12	12
Rated thermal current $I_{th}$ (A)	In open air		630	800
	In enclosure 40 °C		630	630
	In enclosure 60 °C		630	
Rated operation current / poles in series DC21B (A)	500 V	One circuit	-	-
		660 V	One circuit	630/2
		Two circuits	630/2x2	-
	1000 V	One circuit	630/2x3	-
		Two circuits	630/2	800/2
		Three circuits	630/2x2	-
1500 V	One circuit	630/2x3	-	
Rated short circuit withstand current 1 kV, 1 sec. $I_{cw}$ (kA)			10	10
Rated short circuit making capacity $I_{cm}$ (kA)			10	10
Rated conditunal short circuit capacity $I_q$ (only -ESS types)	$I_q$ rms. (kA)		30	30
	Max. ETI fuse size, (gPV 3) (A)	L/R=3ms	500	500

			OTDC800F_22_ OTDC800UF_22_	OTDC1000F_22_ OTDC1000UF_22_
Rated insulation voltage $U_i$ (V)	Polution degree 3		1500	1500
Rated imp. voltage $U_{imp}$ (kV)			12	12
Rated thermal current $I_{th}$ (A)	In open air		800	1000
	In enclosure 40 °C		800	1000
	In enclosure 60 °C		-	-
Rated operation current / poles in series DC21B (A)	500 V	One circuit	-	-
		660 V	One circuit	800/2x2
		Two circuits	-	-
	1000 V	One circuit	-	-
		Two circuits	800/2x2	1000/2x2
		Three circuits	-	-
1500 V	One circuit	-	-	
Rated short circuit withstand current 1 kV, 1 sec. $I_{cw}$ (kA)			10 40 (only -ESS, 0,05s)	10 40 (only -ESS, 0,05s)
Rated short circuit making capacity $I_{cm}$ (kA)			10 40 (only -ESS)	10 40 (only -ESS)
Rated conditunal short circuit capacity $I_q$ (only -ESS types)	$I_q$ rms. (kA)		30	30
	Max. ETI fuse size, (gPV 3) (A)	L/R=3ms	500	500

			OTDC1000E	OTDC1250E OTDC800U	OTDC1600E OTDC1000U
Rated insulation voltage $U_i$ (V)	Polution degree 3		1500	1500	1500
Rated imp. voltage $U_{imp}$ (kV)			12	12	12
Rated thermal current $I_{th}(A)$	In open air		1000	1250	1600
	In enclosure 40 °C		1000	1250	1250
	In enclosure 60 °C		800	1000	1000
Rated operation current / poles in series DC21B (A)	500 V	One circuit	-	-	-
	660 V	One circuit	-	-	-
		Two circuits	-	-	-
	1000 V	One circuit	1000/4	1250/4	1600/4
		Two circuits	-	-	-
		Three circuits	-	-	-
1500 V	One circuit	-	-	-	
Rated short circuit withstand current 1 kV, 1 sec. $I_{cw}$ (kA)			10	10	10
Rated short circuit making capacity $I_{cm}$ (kA)			10	10	10
Rated conditunal short circuit capacity $I_p$ (kA)	$I_p$ rms.		-	-	-
	Max fuse size		-	-	-

### Application/Limitation

Ingress protection IP20. To be installed inside switchboard / enclosures.  
 Installation procedures according to the manufacturer's instructions to be followed.

Environmental categories: Vibration A, Temperature D, Humidity B.

### Type Approval documentation

Technical info:

Brochure: [Switch-disconnectors OTDC\\_1SCC301022C0201\\_22-03](#)

ABB Oy catalogue "Protection and Connection– Switch-disconnectors OTDC and OTDCP (parts)

Test reports:

SGS test report no. HELES2110001042-1 dated 2021-10-28.

SGS test reports nos. 268531-1 dated 2012-09-24, 276842-2 dated 2014-10-01, 277635-1 dated 2014-10-10, 281632-1 dated 2015-11-12 and 286634-2 dated 2017-01-31.

Vaasa University of Applied Sciences test reports nos. TA2018-20 to 23 dated 2018-10-03 and TA2018-28 to 30 dated 2018-10-01.

### Tests carried out

Type tests in accordance with IEC 60947-1 (Third Ed +A1:2012) and IEC 60947-3 (Fifth Ed + A1:2010). Environmental tests in accordance with DNV GL-CG-0339.

### Marking of product

ABB Oy – Disconnecting switch – Type designation

### Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.



Job Id: **262.1-029610-3**  
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The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type Type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed at 2, 3.5 year and at renewal.

END OF CERTIFICATE