

BUREAU OF INDIAN STANDARDS

Program of Work

ETD 40 : Hvdc Power Systems

Scope: To prepare standards and guidelines on equipment and performance of high- voltage d.c(HVDC) Transmission Systems

Liaison: **IEC TC-115 (P): High Voltage Direct Current (HVDC) transmission for DC voltages above 100 kV** **IEC TC-22 SC-22F (P): Power electronics for electrical transmission and distribution systems**

Published Standards

S.No	IS No.	TITLE	Reaffirm M-Y	No. of Amds	Eqv.
1	IS 14801 : 2021 IEC 60633 : 2019 IEC 60633 : 2019	High-voltage direct current HVDC transmission Vocabulary first revision of IS 14801 : 2021		-	Identical under dual numbering
2	IS 14902 (Part 1) : 2022 IEC TR 60919-1: 2020 IEC TR 60919-1: 2020	Performance of high-voltage direct current HVDC systems with linecommutated converters : Part 1 Steady-state conditions second revision		-	Identical under dual numbering
3	IS 14902 (Part 2) : 2013 Reviewed In : 2024 IEC/TR 60919-2 : 2008	Performance of high - Voltage direct current (Hvdc) systems with line - Commutated converters: Part 2 faults and switching (First Revision)	June, 2024	2	Identical under dual numbering
4	IS 14902 (Part 3) : 2013 Reviewed In : 2024 IEC/TR 60919-3:2009	Performance of high - Voltage direct current (Hvdc) systems with line - Commutated converters: Part 3 dynamic conditions (First Revision)	June, 2024	2	Identical under dual numbering
5	IS 14911 (Part 1) : 2020 IEC 60700-1 : 2015 Reviewed In : 2024 IEC 60700-1 : 2015	Thyristor Valves for High Voltage Direct Current (HVDC) Power Transmission Part 1 Electrical Testing (First Revision)	June, 2024	1	Identical under dual numbering
6	IS 14911 (Part 2) : 2024 60700-2:2016+AMD 1:2021 CSV 60700-2:2016+AMD 1:2021 CSV	Thyristor Valves for High Voltage Direct Current (HVDC) Power Transmission Part 2 Terminology		-	Identical under dual numbering
7	IS 15597 : 2023 IEC 61803:2020 IEC 61803:2020	Determination of Power Losses In High-Voltage Direct Current HVDC Converter Stations With Line-Commutated Converters first		-	Identical under dual numbering

		revision			
8	IS 15617 : 2017 IEC 61954 : 2013 Reviewed In : 2020 IEC 61954 : 2021	Static var compensators (Svc) testing of thyristor valves (First Revision)	December, 2020	-	Identical under dual numbering
9	IS 15617 : 2024 IEC 61954 : 2021 IEC 61954 : 2021	Static VAR Compensators (SVC) " Testing of Thyristor Valves (Second Revision)		-	Identical under dual numbering
10	IS 16071 (Part 1) : 2024 IEC TR 62001-1 : 2021 IEC TR 62001-1 : 2021	High-Voltage Direct-Current (HVDC) Systems - Guidance to the Specification and Design Evaluation of a.c. Filters Part 1 Overview (Second Revision)		-	Identical under dual numbering
11	IS 16071 (Part 192) : 2021 IEC TR 62001-1:2016 IEC TR 62001-1 : 2021	High-voltage direct current HVDC systems Guidance to the specification and design evaluation of AC filters Part 1: Overview first revision		-	Identical under dual numbering
12	IS 16071 (Part 2) : 2021 IEC TR 62001-2:2016 IEC TR 62001-2:2016	High-voltage direct current HVDC systems Guidance to the specification and design evaluation of AC filters Part 2: Performance first revision		-	Identical under dual numbering
13	IS 16071 (Part 3) : 2021 IEC TR 62001-3:2016 IEC TR 62001-3:2016	High-Voltage Direct Current HVDC systems Guidance to the specification and design evaluation of ac filters Part 3: Modelling first revision		-	Identical under dual numbering
14	IS 16071 (Part 2) : 2021 IEC TR 62001-4:2016 IEC TR 62001-4 : 2021	High-voltage direct current HVDC systems Guidance to the specification and design evaluation of AC filters Part 4: Equipment first revision		-	Identical under dual numbering
15	IS 16071 (Part 4) : 2024 IEC TR 62001-4 : 2021 IEC TR 62001-4 : 2021	High-Voltage Direct Current (HVDC) Systems $i_c^{1/2}$ Guidance to the Specification and Design Evaluation of a.c. Filter Part 4 Equipment (Second Revision)		-	Identical under dual numbering
16	IS 16071 (Part 5) : 2024 IEC TR 62001-5 : 2021 IEC TR 62001-5 : 2021	High-voltage direct current (HVDC) systems - Guidance to the specification and design evaluation of a.c. filters Part 5 a.c. side harmonics and appropriate harmonic limits for HVDC systems with voltage sourced converters (VSC)		-	Identical under dual numbering
17	IS 16075 : 2013 Reviewed In : 2024 IEC 62501 : 2009	Voltage sourced converter (Vsc) valves for high - Voltage direct current (Hvdc) power transmission - Electrical testing	June, 2024	1	Identical under dual numbering
18	IS 16076 : 2013 Reviewed In : 2024 IEC 61975 : 2010	High - Voltage direct current (Hvdc) installations - System tests	June, 2024	1	Identical under dual numbering

19	IS 16665 : 2017 IEC/TS 61973 : 2012 Reviewed In : 2022 IEC/TS 61973 : 2012	High Voltage Direct Current (HVDC) Substation Audible Noise	January, 2022	1	Identical under dual numbering
20	IS 16666 : 2017 IEC/TR 62544 : 2010 Reviewed In : 2022 IEC/TR 62544 : 2011	High Voltage Direct Current (HVDC) Systems-Application of Active Filters	January, 2022	1	Identical under dual numbering
21	IS 16667 : 2018 IEC/TR 62543 : 2011 IEC TR 62543: 2022	High - Voltage direct current (Hvdc) power transmission using voltage sourced converters (Vsc)		-	Identical under dual numbering
22	IS 16667 : 2024 IEC TR 62543: 2022 IEC TR 62543: 2022	High-Voltage Direct Current (HVDC) Power Transmission Using Voltage Sourced Converters (VSC) (First Revision)		-	Identical under dual numbering
23	IS 17575 (Part 5) : 2021 IEC TR 62681 : 2014 IEC TR 62681:2022	Electromagnetic performance of high voltage direct current HVDC overhead transmission lines		-	Identical under dual numbering
24	IS 17575 : 2024 IEC TR 62681:2022 IEC TR 62681:2022	Electromagnetic Performance of High-Voltage Direct-Current (HVDC) Overhead Transmission Lines (First Revision)		-	Identical under dual numbering
25	IS 17576 : 2021 IEC TR 62978 : 2017 IEC TR 62978 : 2017	HVDC installations Guidelines on asset management		-	Identical under dual numbering
26	IS 17577 : 2021 IEC TR 62672 : 2018 IEC TR 62672 : 2018	Reliability and availability evaluation of HVDC systems		-	Identical under dual numbering
27	IS 17590 (Part 1) : 2021 IEC TS 63014-1 : 201 IEC TS 63014-1 : 201	High voltage direct current HVDC power transmission System requirements for DC-side equipment Part 1: Using line- commutated converters		-	Identical under dual numbering
28	IS 17591 : 2021 IEC TR 63127 : 2019 IEC TR 63127 : 2019	Guideline for the system design of HVDC converter stations with line- commutated converters		-	Identical under dual numbering
29	IS 17775 (Part 1) : 2021 IEC TR 63179-1 : 202 IEC TR 63179-1 : 202	Guideline for planning of HVDC systems : Part 1 HVDC systems with line-commutated converters		-	Identical under dual numbering
30	IS 17860 : 2024 IEC TS 62344:2023	Design of Earth Electrode Stations for High-Voltage Direct Current		-	Identical under dual numbering

	IEC TS 62344:2023	(HVDC) Links " Genral Guidelines (First Revision)			
31	IS 17860 : 2022 TS 62344 : 2013 IEC TS 62344:2023	Design of earth electrode stations for high-voltage direct current HVDC links General guidelines		-	Identical under dual numbering
32	IS 18321 : 2023 TR 63262 : 2019 TR 63262 : 2019	Performance of Unified Power Flow Controller UPFC in Electric Power Systems		-	Identical under dual numbering
33	IS 18322 (Part 1) : 2023 62751-1:2014+AMD 1:2018 CSV 62751-1:2014+AMD 1:2018 CSV	Power Losses in Voltage Sourced Converter VSC Valves for High-Voltage Direct Current HVDC Systems Part 1: General Requirements		-	Identical under dual numbering
34	IS 18322 (Part 2) : 2023 62751-2:2014+AMD 1:2019CSV 62751-2:2014+AMD 1:2019CSV	Power losses in voltage sourced converter VSC valves for high-voltage direct current HVDC systems Part 2: Modular multilevel converters		-	Identical under dual numbering
35	IS 18323 : 2023 62823:2015+AMD1: 2019 CSV 62823:2015+AMD1: 2019 CSV	Thyristor valves for thyristor-controlled series capacitors TCSC Electrical testing		-	Identical under dual numbering
36	IS 18324 : 2023 62927 : 2017 62927 : 2017	Voltage sourced converter VSC valves for static synchronous compensator STATCOM Electrical testing		-	Identical under dual numbering
37	IS 18345 : 2023 TR 62757: 2015+AMD1:2019 CSV TR 62757: 2015+AMD1:2019 CSV	Fire prevention measures on converters for high-voltage direct current HVDC systems static var compensators SVC and flexible ac transmission systems FACTS and their valve halls		-	Identical under dual numbering
38	IS 18461 : 2024 62747:2014+Amd 1:2019 CSV 62747:2014+Amd 1:2019 CSV	Terminology for Voltage-Sourced Converters (VSC) for High-Voltage Direct Current (HVDC) Systems		-	Identical under dual numbering
39	IS 18597 (Part 3) : 2024 IEC 60700-3 : 2022 IEC 60700-3 : 2022	Thyristor Valves for High Voltage Direct Current (HVDC) Power Transmission Part 3 Essential Ratings (Limiting Values) and Characteristics		-	Identical under dual numbering
40	IS/IEC/TR 60071-5 : 2014 IEC 60071-5 : 2014 IEC 60071-5:2014	Insulation Co-ordination Part 5 Procedures for High-Voltage Direct Current (HVDC) Converter Stations		-	Identical under single numbering
41	IS/IEC/TR 63259 : 2022 IEC TR 63259 : 2022 IEC TR 63259 : 2022	Water Cooling Systems for Power Electronics Used in Electrical Transmission and Distribution Systems		-	Identical under single numbering

42	IS/IEC/TR 63363-1 : 2022 IEC TR 63363-1 : 2022 IEC TR 63363-1 : 2022	Performance of Voltage Sourced Converter (VSC) Based High- Voltage Direct Current (HVDC) Transmission Part 1 Steady-State Conditions	-	Identical under single numbering
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Standards under Development

Projects Approved

SI. No.	Doc No.	Title
<i>No Records Found</i>		

Preliminary Draft Standards

SI. No.	Doc No.	Title
<i>No Records Found</i>		

Drafts Standards in WC Stage

SI. No.	Doc No.	Title
1	ETD 40 (26321) Revision of: IS 16075:2013	Voltage sourced converter VSC valves for high - Voltage direct current HVDC power transmission - Electrical testing
2	ETD 40 (26322)	High - Voltage direct current HvdC installations - System tests Amendment - 2
3	ETD 40 (26324)	Power Losses in Voltage Sourced Converter VSC Valves for High-Voltage Direct Current HVDC Systems Part 1 General Requirements Amendment - 1
4	ETD 40 (26325)	Power losses in voltage sourced converter VSC valves for high-voltage direct current HVDC systems Part 2 Modular multilevel converters Amendment - 1
5	ETD 40 (26326)	Voltage sourced converter VSC valves for static synchronous compensator STATCOM Electrical testing Amendment - 1

Draft Standards Completed WC Stage

SI. No.	Doc No.	Title
<i>No Records Found</i>		

Finalized Draft Indian Standard

SI. No.	Doc No.	Title
1	ETD 40 (25760)	Insulation co-ordination - Part 11 Definitions principles and rules for HVDC system

Finalized Draft Indian Standards under Print

SI. No.	Doc No.	Title
1	ETD 40 (25563)	Life extension guidelines for HVDC converter stations
2	ETD 40 (25564)	DC voltages for HVDC grids
3	ETD 40 (25761)	Insulation co-ordination - Part 12 Application guidelines for LCC HVDC converter stations

Total Published Standards:24 Total Standards Under development:9

Aspect Wise Report

Product : 5
Code of Practices : 11
Methods of Test : 5
Terminology : 4

Dimensions : 0
System Standard : 3
Safety Standard : 1
Others : 5
Service Specification : 1
Process Specification : 1
Unclassified : 0

Annexure-I :List of Indian Standards Withdrawn/Superseded

SI. No.	IS No. & Year	Title
1	IS 16071 : 2013 Reviewed In : 2018 IEC/TR 62001 : 2003	High - Voltage direct current Hvdc systems - Guidebook to the specification and design evaluation of a c filters
2	IS 2165 (Part 5) : 2005 Reviewed In : 2015 IEC 60071-5 (2002)	Insulation co - Ordination Part 5 procedures for high - Voltage direct current Hvdc converter stations

Annexure-II :List of Indian Product Standards

SI. No.	IS No. & Year	Title
1	IS 14902 (Part 2) : 2013 Reviewed In : 2024 IEC/TR 60919-2 : 2008	Performance of high - Voltage direct current Hvdc systems with line - Commutated converters Part 2 faults and switching First Revision
2	IS 14902 (Part 3) : 2013 Reviewed In : 2024 IEC/TR 60919-3:2009	Performance of high - Voltage direct current Hvdc systems with line - Commutated converters Part 3 dynamic conditions First Revision
3	IS 16071 (Part 4) : 2024 IEC TR 62001-4 : 2021	High-Voltage Direct Current HVDC Systems Guidance to the Specification and Design Evaluation of a c Filter Part 4 Equipment Second Revision
4	IS 16075 : 2013 Reviewed In : 2024 IEC 62501 : 2009	Voltage sourced converter Vsc valves for high - Voltage direct current Hvdc power transmission - Electrical testing
5	IS 17590 (Part 1) : 2021 IEC TS 63014-1 : 201	High voltage direct current HVDC power transmission System requirements for DC-side equipment Part 1 Using line-commutated converters