



Technical Bulletin

TB 0286 – Continuous current ratings for transmission underground cables

Purpose

This technical bulletin is to update Endeavour Energy's transmission underground cables continuous current rating standard, MDI0046.

Background

Endeavour Energy's new transmission cable specifications (ETS 0111, ETS 0112 and ETS 0113) were issued recently. The cable sheath construction for all Endeavour Energy transmission cables (33/66/132kV) were changed from copper wire screen (CWS) to corrugated aluminium sheath (CAS).

The transmission cable trench profiles were also recently changed as per Technical Bulletin TB0272 - New trench profiles for transmission cables.

These changes have affected the continuous current rating values of the transmission cables and therefore an update is required for MDI0046.

New Continuous Current Ratings of Transmission cables

Annexure 1 contains the new cable rating tables that will replace the following sections of MDI0046:

- Section 5.5 - table 2 and associated notes; and
- Section 5.6.7 - rating factor: variation in backfill material thermal resistivity.

Implementation

The new continuous current rating values of transmission cables are applicable immediately for the installation of cables under the new specifications. Where cable installation conditions are different to this instruction and MDI0046, a detailed assessment is to be carried out with the aid of a cable rating program or software.

Impacted Standards/Specifications

The contents of this technical bulletin will be included in the next update of *MDI0046 - transmission underground cables continuous current ratings*.

ANNEXURE 1(Continuous current rating applicable for corrugated Aluminum sheath cables)**Section 5.5 - table 2 and associated notes**

Voltage	CSA	Standard Rating (A) - depth of burial (m)													
		0.75	0.9	1	1.1	1.3	1.5	1.75	2	2.5	3	3.5	4	5	6
33kV	300mm ²	562	555	554	545	540	533	522	516	510	499	492	487	478	472
	630mm ²	822	812	811	796	790	779	761	752	742	724	714	706	693	683
	800mm ²	922	910	909	891	885	872	851	841	831	810	799	789	774	762
	1200mm ²	1110	1090	1078	1068	1051	1036	1020	1007	986	970	956	945	927	912
66kV	630mm ²	810	800	799	779	774	763	745	740	730	712	702	694	681	671
132kV	300mm ²	537	528	523	520	516	509	498	491	485	474	468	462	453	446
	400mm ²	609	598	593	589	584	576	563	556	549	536	528	522	512	504
	630mm ²	776	765	754	749	744	733	715	705	697	678	668	660	647	636
	800mm ²	860	848	840	835	830	817	795	780	772	749	738	729	714	702
	1200mm ²	1026	1006	995	985	968	953	938	925	904	888	874	862	844	829
	1600mm ²	1132	1109	1096	1085	1076	1059	1041	1016	992	973	957	944	924	907
	2000mm ²	1202	1178	1164	1151	1141	1123	1103	1075	1049	1028	1011	997	974	956

Note 1: The continuous current ratings given above, accompanied by appropriate use of the rating factors of Section 5.6, are the maximum ratings to be applied unless written approval is given by Mains Assets Manager.

Note 2: The continuous current ratings given above are based on standard trench profiles drawing 290689 Rev F.

5.6.7 Rating factor: variation in backfill material thermal resistivity

Backfill thermal resistivity (°K.m/W)	0.8	0.9	1.0	1.2	1.5	2.0	3.0
Rating factor	1.04	1.02	1.00	0.97	0.92	0.83	0.79

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