

Title: **TECHNICAL BULLETIN OF
TRENCH LINE TRAPS SUPPLIED
BY HVT (CONTRACT NO:
4600066174 & 4600066175)**

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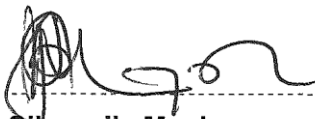
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Compiled by



Sibongile Maphosa
Engineer

Date *00 Dec 2019*

Approved by



Bheki Ntshangase
Senior Manager: PDE HV Plant

Date *02 December 2019*

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Revision History

Date	Rev	Compiler	Remarks
Dec 2019	1	S Maphosa	First issue

1. Introduction

An enquiry (Corp 4392) was issued to the market in May 2018 for the design, manufacture, test and supply of line traps together with tuning units for voltage ranges of 132kV up to 765kV. After all technical and commercial process were complete, HVT was awarded two contracts (No: 4600066174 and 4600066175) to supply line traps and tuning units with voltage ranges of 132kV up to 400kV. These line traps and tuning units are manufactured by the Trench Canada factory.

2. Line Traps and Tuning Units in HVT contract

2.1 List of Items in Contract

Line traps which form part of the contracts are listed in table 1 and tuning units are listed in table 2.

Table 1: Line Traps in HVT Contract

SAP No	Item	Short Description	Drawing Number
667708	U2	132kV line trap 2500A 40kA 0.2mH	0.54/9615
558639	S3H	275kV line trap 2500A 50kA 0.5mH 25mm/kV	0.54/7790
558638	S3HH	275kV line trap 2500A 50kA 0.5mH 31mm/kV	0.54/7791
558836	Q1H	400kV line trap 2500A 50kA 0.5mH 25mm/kV	0.54/8077
558835	Q1HH	400kV line trap 2500A 50kA 0.5mH 31mm/kV	0.54/8078
558834	Q3H	400kV line trap 2500A 50kA 1.2mH 25mm/kV	In progress
558833	Q3HH	400kV line trap 2500A 50kA 1.2mH 31mm/kV	0.54/8171
558832	Q6H	400kV line trap 3150A 50kA 0.5mH 25mm/kV	0.54/9617
558831	Q6HH	400kV line trap 3150A 50kA 0.5mH 31mm/kV	In progress
558830	Q7H	400kV line trap 3150A 63kA 0.5mH 25mm/kV	0.54/8091
558826	Q7HH	400kV line trap 3150A 63kA 0.5mH 31mm/kV	0.54/8090
558816	Q9H	400kV line trap 3150A 63kA 1.2mH 25mm/kV	In progress
558645	Q9HH	400kV line trap 3150A 63kA 1.2mH 31mm/kV	0.54/9613
558644	Q10H	400kV line trap 4000A 63kA 0.5mH 25mm/kV	In progress
558643	Q10HH	400kV line trap 4000A 63kA 0.5mH 31mm/kV	0.54/8270

Table 2: Tuning units used with Line Taps

SAP No	Short Description	Comments
667889	Line Trap Tuning Unit 40kA 0.2mH 80 - 108kHz	Used with item U2
667891	Line Trap Tuning Unit 40kA 0.2mH 104 - 156kHz	
667899	Line Trap Tuning Unit 40kA 0.2mH 125 - 204kHz	
667887	Line Trap Tuning Unit 40kA 0.2mH 194 - 500kHz	
667905	Line Trap Tuning Unit 50kA 0.5mH 48 - 78kHz	Used with items S3H, S3HH, S8H, S8HH, S10H, S10HH, Q1H, Q1HH, Q6H, Q6HH, QB1H & QB1HH
667936	Line Trap Tuning Unit 50kA 0.5mH 70 - 156kHz	
667943	Line Trap Tuning Unit 50kA 0.5mH 101 - 500kHz	

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SAP No	Short Description	Comments
667951	Line Trap Tuning Unit 63kA 0.5mH 48 - 78kHz	Used with items Q7H, Q7HH, Q10H & Q10HH
667952	Line Trap Tuning Unit 63A 0.5mH 70 - 156kHz	
667953	Line Trap Tuning Unit 63kA 0.5mH 101 - 500kHz	
667945	Line Trap Tuning Unit 50kA 1.2mH 40 - 500kHz	Used for S5H, S5HH, S9H, S9HH, Q3H, Q3HH, Q8H & Q8HH
667954	Line Trap Tuning Unit 63kA 1.2mH 40 - 500kHz	Used for Q9H & Q9HH

3. Technical Details

The line traps are coils of conductor with rated inductance and are designed to carry continuous and short circuit currents. The creepage in the technical description does not apply to the coil but applies to support (post) insulators. NB: Line traps rated for 132kV do not come standard with support insulators hence 132kV insulators must be ordered separately when required. This requirement arises due to the fact that at 132kV and lower voltages, line traps are normally mounted on top of coupling capacitors or capacitor voltage transformers.

3.1 Tuning units

Line traps work in conjunction with tuning units. Tuning units used in Eskom are fixed wideband type and their design parameters are the line trap inductance (mail coil inductance), short circuit current and bandwidth frequencies. Tuning units are not voltage dependent and can be used with line traps of different voltage levels as long as the inductance, short circuit current and bandwidth frequency requirements are the same.

Tuning units are ordered separately either for immediate insertion into line traps or as spares. When ordered as spares, it is important to note that they are manufacturer specific i.e. a Trench tuning unit cannot be used with a line trap from another manufacturer and vice versa.

3.2 HV Terminals

The HV terminals of Trench line traps are made of aluminium and are 8-bolt pads.

3.3 Installation

These line traps can be installed using different YC or 3YC depending on current carrying requirements and conductor take off angle.

3.4 Orders

Line traps and tuning units in this contract must be ordered using the allocated SAP number and the accompanying short description to avoid incorrect ordering.

Secondary plant project engineers are responsible for specifying and ordering the line traps and corresponding tuning units.

Orders for critical spares shall be discussed and verified by the subject matter expert(s).

4. Packaging, Shipping and Storage

Line traps are packaged and shipped in crates to protect them against damage. If the line traps are not installed immediately after arrival, they should be placed in intermediate storage without removing the packaging.

The crates must be stored on a level area with sufficient strength to bear their weight and in a clean and non-corrosive atmosphere. If the intermediate storage is outdoors, the period of storage must be limited to 6 months.

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NB: Longer storage period leads to deterioration in wooden packaging but does not affect the line trap.

5. Contract Communication

Persons listed in table 3 can be contacted for further enquiries.

Table 3: Contact Persons

Technical (Primary)	Name	Sibongile Maphosa
	Telephone number	+27 11 800 5208
	Mobile number	+27 82 940 3634
	E-mail address	sibongile.maphosa@eskom.co.za
Technical (Secondary)	Name	Tejin Gosai
	Telephone number	+27 11 871 2069
	Mobile number	+27 83 235 6494
	E-mail address	GosaiT@eskom.co.za
Quality	Name	Oupa Fokazi
	Telephone number	+27 11 629 5281
	Mobile number	+27 83 381 2133
	E-mail address	FokaziJO@eskom.co.za
Commercial	Name	Yurisha Pillay
	Telephone number	+27 11 800 2735
	E-mail address	ReddyY@eskom.co.za
Transmission Contract Manager	Name	Craig Potgieter
	Telephone number	+27 11 800 4853
	Mobile number	+27 82 805 7339
	E-mail address	PotgieBC@eskom.co.za
Group Capital Contract Manager	Name	Vincent Matshego
	Telephone number	+27 11 800 3780
	Mobile number	+27 82 522 4379
	E-mail address	MatsheGV@eskom.co.za