

TRACTION

ESF-R/ESF-D Rigid cable termination

 **ALPHA-ET**

Current and voltage – our passion



General description

General

The rigid cable termination ESF type R and D are dry, slip-on terminations for modular assembly. They largely consist of one compact, prefabricated, slip-on silicone component. The use of silicone sheds makes them ideally suited for applications in roof installations. For high rigidity a fibre glass tube is moulded in the silicone. The tested and applied silicone material complies with all electrical, mechanical and also thermal requirements of the cable.

Special characteristics

The slip-on termination is produced from high-grade silicone rubber. The resultant elasticity enables the termination to accept diameter tolerances as well as changes in cable diameter caused by variations in load. The low Shore A hardness of the silicone material prevents constriction of the core insulation even under high alternating load, while allowing it to adapt to any unevenness in the stripped core insulation. This prevents formation of cracks. This termination system ensures high operating reliability and is also absolutely maintenance free even under extreme stress. The proven slip-on technique requires little assembly work and minimises the fitting risk.

Contamination class

In addition to its outstanding mechanical and electrical characteristics, silicone rubber is distinguished by its ideal properties against atmospheric pollution. For example, the insulation strength is retained in the presence of severe pollution and thaw conditions. A large number of tests in our laboratory and all over the world have demonstrated the superiority of silicone rubber insulated insulators over other materials such as porcelain and EPDM. Terminations have been used successfully throughout the world since 1974 under the most severe climatic conditions.

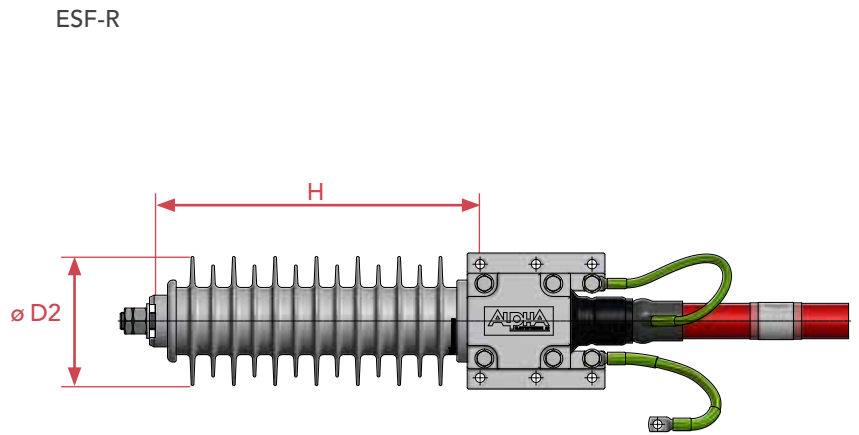
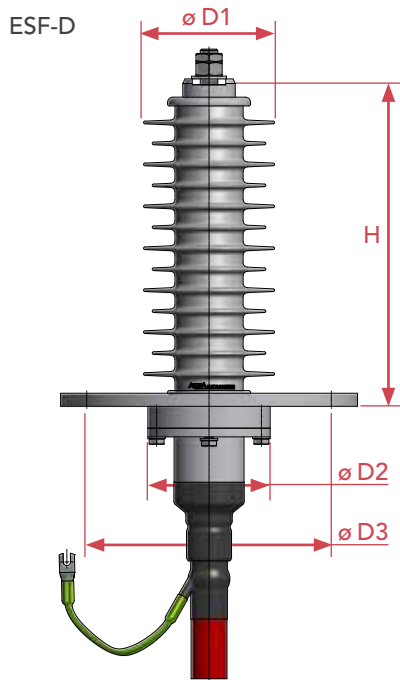
Application

The ALPHA ESF-R and ESF-D terminations are used for applications in traction installations and can be mounted on any polymeric cables (PE, XLPE, EPR) with copper conductors. The terminations ESF-R/D comply with the fire protection standard EN 45545-2:2013, required in the traction business.

Benefits ESF-R/ESF-D

- Cable cross-section 50–240mm²
- Temperature range from –55°C to +130°C
- Creepage distance 1035 mm
- All rigid cable terminations satisfy the requirements of the fire protection standard EN 45545-2:2013.
- Routine test of all assembled cables: AC/DC voltage withstand test according to the standard DIN EN 50124-1:2006-04 and partial discharge test according to the standard IEC 60270:2000 (<10 pC for each assembled cable).
- Maintenance free ESF-R/D cable termination guarantees low life-time costs

Technical data



Type		ESF-D	ESF-R
Rated voltage	kV		25
Maximum operating voltage	kV		36
Operating temperature	°C		-55... +130
Cable cross section	mm		50-240
Weight	kg		4
Lightning impulse withstand voltage	kV		200
Power frequency withstand voltage	kV		95
Creepage distance	mm		1035
H	mm	364	377
D1	mm	150	150
D2	mm	140	-
D3	mm	*	-

* according customer requirements

Highlights



Selectable connection variant

Connection variant according to customers' requirement. Possible connection variants:

- Connection bar
- Connection bolt
- Threaded connection bolt
- Connection variant for coiled jumper

The connection part is fixed against the cable termination in a user defined angle.



Individual design

- Individual design of the flange according to customers' requirement
- Execution with and without earthing cable



References

ESF-R

- Bombardier: Twindexx, Talent, ALP 45
- Alstom: TTNG, MI 09, Prima E12, KZ8A, X60 Batch, Coradia, CoCo China
- Škoda: Panter

ESF-D

- Hitachi Rail: IEP, ASR, WOE
- Stadler Rail: Ee922, Ee923
- Deutsche Bahn: ICE 3



Current and voltage – our passion

ALPHA Elektrotechnik AG

Schlossstrasse 13
2560 Nidau / Switzerland

- ☎ +41 32 3328700
- 📠 +41 32 3312679
- ✉ mail@alpha-et.ch
- 🌐 www.alpha-et.ch

Member of PFIFFNER Group

This document has been drawn up with the utmost care. We cannot, however, guarantee that it is entirely complete, correct or up-to-date.

© Copyright ALPHA-ET
subject to change without notice 2017.09

TRACTION



DISCONNECTORS

