Fibre-insulated wires

DAGLAS FL

- **Flat bare copper wire insulated with a glass/polyester fibre blend**
- **Winding wire with excellent mechanical properties**
- **Temperature Index 155, 180 or 200**

General description
Daglas covered flat bare wires are insulated with a double covering of fused glass and polyester fibers blend, available in 4 different versions:

V155: only fused, not impregnated

V180: impregnated with modified polyesterimide varnish.

V180K: impregnated with modified polesterimide varnish in a thermal-adhesive version.

VSi: impregnated with silicone-based varnish.

Silicone impregnation is not available in the thermal-adhesive version.

Application
- Windings for generators (with or without Roebel technology)
- HV motors (stator or rotor windings)
- Magnetic coils
- Pole coils

Conventional Types
Flat bare copper wires, insulated with:

- 2 covering layers (2 x)
- optional: varnish impregnation
- coating varnishes: modified polyesterimide, silicone, 'B'-Staged varnish

Cross section: 2 to 80 mm2
Width: 2,00 to 22,00 mm
Thickness: 1,00 to 6,00 mm.

The standard dimensions of the conductors (nominal dimensions) comply with the IEC standard 60317-0-8.

Build Criteria Rectangular Wire

Bare Conductor Width w (mm)	Max. Increase in Dimensions (mm) Daglas Fibre Covering over Bare Conductor Double covering
2.00 ≤ w ≤ 3.40	0.22 to 0.25
w > 3.40	0.23 to 0.30

Standards
DAGLAS-covered flat bare copper wires meets the requirements of IEC-Publications 60317-0-8,
60317-60-1 (TI155 fused, without impregnation)
60317-61 (TI180) --> V180
60317-62 (TI200) --> VSi

The test methods are based on IEC Publication 60851:

60851-1 General
60851-2 Definition of dimensions
60851-3 Mechanical properties
60851-4 Chemical properties
60851-5 Electrical properties
60851-6 Thermal properties

Advantages
- Good resistance to impregnating varnish solvents (for more information, consult our customer service)
- Covering with high mechanical and bonding strength

Processing Instructions
Can be processed without reservation under normal working conditions. For the items with a thermal adhesive bond-coat (K), the storage time is limited to 1 year at room temperature and 60 % relative humidity.

Order Data
Quantity, Designation, Supply Form e.g.:

The designation shall comprise:

Nominal dimension in mm: 5,00 x 2,24 mm
Conductor material: Cu
Description of the insulation: 2 Daglas
Reel type: e.g. DIN 500

Example of complete order:

2000 Kg 2DAGLAS 5,00 x 2,24 mm, reels DIN 500

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		2 DAGLAS not impregnated	2 DAGLAS V180 (K)	2 DAGLAS VSi	Test standard
Mechanical properties					
Elongation at break / thickness up to 2.5 mm	%	>= 30	>= 30	>= 30	IEC60851-3 test 6
Elongation at break / thickness above 2.5 mm	%	>= 32	>= 32	>= 32	IEC60851-3 test 6
Springiness	°	<= 5.0	<= 5.0	<= 5.0	IEC60851-3 test 7
Adherence after elongation	20 %	no loss of adhesion	no loss of adhesion	no loss of adhesion	IEC60851-3 test 8
Flexibility if width up to 10 mm - edgewise bend on mandrel Ø 5xwidth		no cracks	no cracks	no cracks	IEC60851-3 test 8
Flexibility if width above 10 mm - edgewise bend on mandrel Ø 6xwidth		no cracks	no cracks	no cracks	IEC60851-3 test 8
Flexibility - Flatwise bent on mandrel Ø 8xthickness		no cracks	no cracks	no cracks	IEC60851-3 test 8
Shear strength (for V180K only)	N/mm^2	na	>= 3	na	Delle test 1.47.14
Electrical properties					
Breakdown voltage after bending	V/mm	>= 2200	>= 2200	>= 2200	IEC60851-5 test 13
Thermal properties					
Heatshock 30 min / 180 °C if width up to 10 mm - edgewise Ø 7xwidth		no cracks	na	na	IEC60851-6 test 9
Heatshock 30 min / 180 °C if width above 10 mm - edgewise Ø 8xwidth		no cracks	na	na	IEC60851-6 test 9
Heatshock 30 min / 200 °C if width up to 10 mm - edgewise Ø 7xwidth		na	no cracks	no cracks	IEC60851-6 test 9
Heatshock 30 min / 200 °C if width above 10 mm - edgewise Ø 8xwidth		na	no cracks	no cracks	IEC60851-6 test 9
Thermal endurance	TI	155	180	200	NEMA MW 1000

Appearance
Slight color variations are raw material or process-related and have no influence on the technical properties of the wire.

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