VOLTtec® Standard

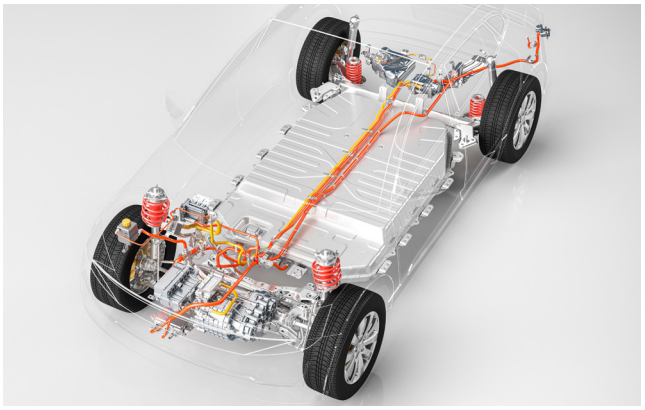
Insulated Fasteners for high-voltage connections

Special requirements apply to high-voltage contacting in electric vehicles, but also in stationary Battery Energy Storage Systems (BESS). All cables and connections must be designed for currents of 400 - 800 A (1,200 A for short term) and voltages up to 1,000 V. Correct functioning must be ensured at temperatures from -40 °C to +80 °C. To prevent accidental contact with live parts, the screws are covered with plastic at the head.

The flammability of the plastics corresponds to the standard HB or V0 according to UL 94. A purely pluggable contact does not generate sufficiently low contact resistance. At 500 A and the demand < 10 µΩ, a screw connection is required to ensure a permanent electrical connection, even under the influence of vibration. The IPxxB touch protection system is designed to prevent contact with live components.

Application

> High-voltage connections in electrified vehicles
> Battery Energy Storage Systems (BESS)
> Power Electronic Systems



Advantages

> Available from stock – Short time to market
> No additional investment in tooling and automation
> 100 % dielectric strength test with 4,5 kV
> Touch protection according to IPxxB
> Relaxation-free connection due to under-head geometry made of steel

Technical specifications

> Thread M6
> Shaft Length 20 - 50 mm
> Material plastic head Polyketon or PA6 GF30
> Transmittable torque min. 12 Nm

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Technical specifications

> **Material**
Steel hardened and tempered FK 10.9 according DIN EN ISO 898/T1
Plastic (see table)
Color: Orange

> **Surface Coating**
ISO 19598-Fe/ZnNi8/Cn/T2

> **Tracking Resistance**
CTI 500 or 600 V

> **Flammability**
HB or V0 according to UL 94 (See table)

Dimensions

> **Head-Ø**
18,5 mm ± 0,11 mm

> **Head Height**
10,3 mm ± 0,25 mm

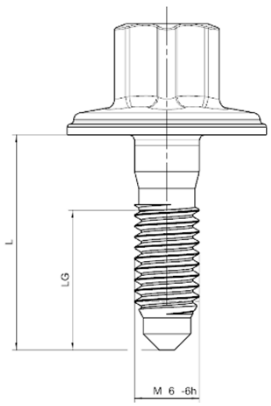
> **Drive**
TORX® E12

> **Thread**
M6 - 6h

> **Thick Shaft**
Ø 6 mm - 0,1 mm

> **Shaft Length**
20 - 50 mm (See table)

> **Shaft End**
PC according to DIN EN ISO 4753



Standard VOLTtec® Insulated Fastener M6 x L

Material / Overmolding

			L	LG	L	LG	L	LG	L	LG	L	LG	L	LG	L	LG
PA6 GF30	Flammability V0 acc. to UL94	Orange	20	13	25	18	30	18	35	25	40	25	45	25	50	25
PA6 GF30	Flammability HB acc. to UL94	Orange	20	13	25	18	30	18	35	25	40	25	45	25	50	25
PK GF30	Flammability V0 acc. to UL94	Orange	20	13	25	18	30	18	35	25	40	25	45	25	50	25

Properties	PA6 GF30	PA6 GF30 V0	PK GF30 V0
Reinforcement	30% Glass - fibre	30% Glass - fibre	30% Glass - fibre
Burning behaviour	HB	V0	V0
Tensile strength (dry)	++	+++	++
Tensile strength (wet)	+	+	++
Impact resistance	++	++	++
Heat deflection temperature	++	++	++
Moisture absorption	-	-	+++
Dimensional stability	+	+	+++
Electrical insulation (dry)	++ (CTI-500 V)	+++ (CTI-600 V)	+++ (CTI-600 V)
Electrical insulation (wet)	+	+	+++
Chemical resistance	++	++	+++
CO_2 footprint	-	-	+++

More information at www.ejot.com/industry or please contact
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