


E - M O B I L I T Y

HDPW



**IATF 16949:2016
certified.**

H I G H P E R F O R M A N C E W I R E S

State-of-the-art electric motors for EV's, PHEV's and HEV's require new and sophisticated solutions – especially in the field of stator winding and insulation materials. HPW – as a specialist for flat insulated copper winding wires over decades – developed different solutions suitable for various applications, voltage levels and other special requirements.

Starting from bare copper rod, we cover the entire manufacturing process including surface preparation and cleaning, rolling, drawing and insulation. Our enamel wires with improved properties significantly reduce typical failure rates in the industry. For high voltage applications we offer extruded insulation systems out of high performance polymers such as PEEK or PI setting a new industry standard and targeting specific requirements of our customers.

Comparison of properties of different insulation systems



Enameled Flat Wires

Smooth, even surface

Good adhesion on copper surface

Almost pin-hole and blister free (< 1 fault / 1000m)



Extruded PEEK insulated Flat & Round Wires

Smooth, even surface

Excellent adhesion on copper surface without any further bonding layer

High flexibility of insulation material

Very good aging and PD resistance



Extruded Polyimide insulated Flat & Round Wires

Smooth, even surface

Excellent adhesion on copper surface without any further bonding layer

High flexibility of insulation material

Very good aging and PD resistance



Polyimide-film insulated Flat & Round Wires

Good adhesion on copper surface

Proven insulation material

Standard insulation material in traction motors for decades

Surface	even, closed	even, closed	even, closed	un-even, with tape edges
Temperature class	200	240-260	240	240
Possible Coating Thickness	max. 100µm	max. 300µm	max. 300µm	max. 230µm (two layers)
Flexibility in Coating Thickness	+	++	++	~
Minimum Bending Diameter	min. 2x bare wire width/thickness	min. 1x bare wire width/thickness	min. 1x bare wire width/thickness	min. 2x bare wire width/thickness
Electrical Properties	+	++	++	++
Aging Resistance	~	++	+++	+
Corona Resistance	-	+++	+++	+
Possible Wire Shape	only Flat	Flat & Round	Flat & Round	Flat & Round

Detailed information regarding oil- and PD-resistance may be provided upon request.

Conductors for high performance rigid busbars

Rigid Busbars are used in electric vehicles – they require outstanding dimensional and insulation properties. Narrow bending angles cause high mechanical stress in conductor and insulation. Therefore highest possible bonding properties between conductor and insulation are needed.



PA12-BUSBAR WIRES

Smooth, even surface

Excellent adhesion on copper surface

No bonding layer between conductor and insulation

PA12 insulated Busbars

Surface	even, closed
Width of conductor	max. 22 mm
Thickness of conductor	max. 8 mm
Insulation increase	0,25 – 1 mm
Tensile strength	200 – 270 N/mm ²
Elongation	≥ 32%
Springback angle	≤ 6,0°
Color	RAL 2003 – RAL 2008

www.hpwires.com