

TISA-FLEX® EMI-PHY

EXTERNAL SHIELDING BRAID

-40°C to +150°C

EUROPEAN PATENT
NR 1 348 247

FEATURES AND BENEFITS:

- **EMI-RFI: shielding protection 60dB [30MHz ; 100MHz]**
- **Expandable sleeve**
- **Excellent abrasion resistance**
- **Excellent vibration resistance**
- **Extremely lightweight**
- **Working temperature -40 +150°C**
- **Halogen free**
- **Very high flexibility**
- **Fray-resistant**
- **Tear-resistant**

SPECIFIC PRODUCT EMI/RFI PROTECTION

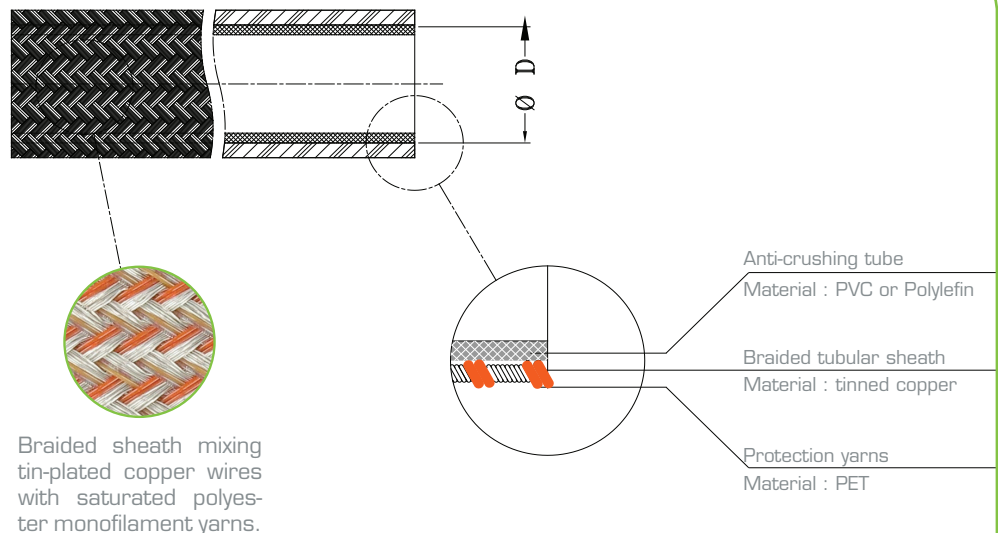
TISA-FLEX® EMI-PHY is an expandable EMI sleeving specifically designed for hybrid and electric vehicles.

The patented combination of thin copper wires and polyester monofilaments provides high electromagnetic shielding and mechanical protection.

The monofilaments are 2.5 times larger than copper wires, so the sleeve offers high abrasion protection both, inside for the cable insulation and, outside for external components which may come into contact with TISA-FLEX® EMI-PHY. The tight braided combination is tear-resistant, and increases the strength resistance.

With a low expansion ratio TISA-FLEX® EMI-PHY ensures high surface coverage and high shielding effectiveness.

TISA-FLEX® EMI-PHY is specifically designed to cover global shielding. Its structure allows crimping by stainless steel collars.



PRODUCT :

The sheath is usually braided on an easily removable polyolefin or polyvinyl-chloride tube but it is also possible to produce the braided sleeve without the tube.



TISA-FLEX® EMI-PHY

PACKAGING :

Spools

OPTIONS :

Other inner diameters and conductive wires : upon request.

Sheaths supplied in cut lengths : upon request

For sheath with UL94 VO behaviour refer to **TISA-FLEX® EMI-PFR**

HANDLING :

No special conditions. Refer to MSDS, upon request
It is advisable to wear protective gloves

Cold cut by scissors, no specific tool required

APPLICATIONS :

The cables are simply pulled through **TISA-FLEX® EMI-PHY** which forms a smooth fit to contours.

A tighter fit on smaller cables can be obtained by stretching **TISA-FLEX® EMI-PHY** and securing with cable ties.

For effective shielding, both ends must be grounded and terminations can be made by metallic crimping collar.

PART NUMBERING SYSTEM :

Example description	Nominal inner diameter	Standard packaging
EMIPHY35/50 - BTS	35	50m (cardboard spool)
EMIPHY35/250	35	250m (plastic spool)

REF	INNER DIAMETER			Nominal wall thickness (mm)	Approx. Linear weight (Kg/Km)	Packaging Spool (m)	
	Nominal value	Range of use					Tolerance
	mm	min	max				(mm)
EMIPHY08	8*	7	11.5	+/- 1.5	0.50	50 100 250	
EMIPHY10	10*	8	13	+/- 1.5	0.50	50 100 250	
EMIPHY12	12**	10	15	+/- 2	0.50	50 100 250	
EMIPHY15	15**	12	18	+/- 3	0.50	50 100 250	
EMIPHY20	20	19	27	+/- 4	0.50	50 100 250	
EMIPHY30	30	25	35	+/- 4	0.50	50 250	
EMIPHY35	35	30	40	+/- 4	0.50	50 250	
EMIPHY40	40	30	50	+/- 4	0.65	50 100	
EMIPHY50-60dB	50 - (60dB)	40	60	+/- 5	0.67	50 100	

REF	Nominal value	Approx. linear resistance (nominal diameter)	ELECTROMAGNETIC COMPATIBILITY			
			Screening performance			
	mm	(mΩ/m)	Transfer impedance @ 30 MHz (Note 1) Nominal Zt (mΩ/m)	Shielding effectiveness (Note 2)		
				300 MHz (dB)	600 MHz (dB)	1 GHz (dB)
EMIPHY08	8*	8.8	79.5	56	53	50
EMIPHY10	10*	7.8	79.5	67	66	63
EMIPHY12	12**	6.5	39.8	65	64	60
EMIPHY15	15**	4.55	10	62	59	56
EMIPHY20	20	4.30	100	48	48	48
EMIPHY30	30	3.30	70.8	68	66	58
EMIPHY35	35	2.60	39.8	71	63	58
EMIPHY40	40	1.70	10	72.5	67	67
EMIPHY50-60dB	50 - (60dB)	1.50	39.8	74	79	66

Note 1 : In mode transfer impedance, triaxial method

Note 2 : In mode stirred reverberation chamber - load : 50 Ω

* Plastic former.
** Plastic former upon request

TISA-FLEX® EMI-PHY

Combustibility: <ul style="list-style-type: none"> ● Test method D45 1333, Type B : Glow wire test <ul style="list-style-type: none"> ● Test method NF EN60695-2-10 &11 	Compliant no ignition at 960°C-30sec.
Resistance to fluids : <ul style="list-style-type: none"> ● Test method D47 1924: 	Compliant
Salt spray with humidity endurance test: <ul style="list-style-type: none"> ● According to IEC60068-2-52: 	Compliant
Resistance to impact: <ul style="list-style-type: none"> ● Test method NFR13-415 ● Hammer 400gr ,height 200mm ● Temperature -40°C 	Compliant
Abrasion resistance: <ul style="list-style-type: none"> ● Test method D44 1959 <ul style="list-style-type: none"> ● 200000 cycles ● 10Hz (334 +/-5 min) ● 100°C 	Compliant : Class MG4
Test of heat ageing: <ul style="list-style-type: none"> ● Linear resistance is measured through the 4 wires method, before ageing in heat and after ageing 240H at 150°C 	Compliant Variation of DC linear resistance <0.6mΩ/m
Vibrations Class <ul style="list-style-type: none"> ● Class 1 ● Class 2 	<ul style="list-style-type: none"> ● Compliant ● Compliant

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