



# INSTRUMENTATION CABLES

Multipair Individual and Overall Screen, Armoured and with Hi-Pack protection

PE/IS/OS/HIPK/SWA/PVC  
XLPE/IS/OS/HIPK/SWA/LSZH

## APPLICATIONS

This is an alternative to lead sheath and can be used in cable tray, conduit or direct burial to connect electrical instrumentation and communication circuits in industrial process controls.

This protection has lower weight and smaller diameter compared to lead sheath.

Excellent protection against corrosion, humidity, in petrochemical plants.

## OPERATING TEMPERATURE

-20 °C to +80 °C (for general use); -40 °C to +90 °C (on request).

## MINIMUM BENDING RADIUS

20 times the outer diameter.

## CABLE CONSTRUCTION

**Conductors** Plain annealed electrolytic copper wire according to EN 60228 class 1(U) solid, class 2 (R) stranded, class 5 (F) flexible.

**Insulation** PVC, PE, XLPE or LSZH thermoplastic material.

**Twisting** The insulated cores shall be twisted in pairs for a good reduction of the electromagnetic noise.

**Individual screen** Aluminium/polyester tape, coverage >100%, aluminium in contact with tinned copper drain wire.

**Cabling** The screened pairs are cabled with suitable non hygroscopic fillers (when necessary) and wrapped with polyester tape if required.

**Overall screen** Aluminium/polyester tape, coverage >100%, aluminium in contact with tinned copper drain wire.

**Hi-Pack protection** Aluminium tape coated with a protective plastic coating, longitudinally applied, bonded to black extruded bedding of High Density Polyethylene compound plus an additional Polyamide-Polypropylene special thermoplastic alloy.

**Armour** Single layer of galvanized steel wires (SWA).

**Outer sheath** PVC or LSZH thermoplastic material.

## APPLICABLE STANDARDS

*Basic design* 50228-7 or PAS 5308

*Flame retardant* IEC 60332-1

*Halogen free properties (only for LSZH cables)* IEC 60754-1

*Low smoke emission (only for LSZH cables)* IEC 61034-2

## EN 50288-7 (300 V)

Cross section (mm <sup>2</sup> )	Diameter under armour (mm)	Outer diameter (mm)	Weight (kg/km)
0,5 mm <sup>2</sup> stranded	R-XLPE/IS/OS/HIPK/SWA/LSZH		
1x2x0,5	7,9	11,7	283
4x2x0,5	13,1	17,0	731
6x2x0,5	15,3	19,2	924
12x2x0,5	18,4	23,0	1234
15x2x0,5	20,2	24,8	1447
24x2x0,5	24,2	29,0	1862
0,75 mm <sup>2</sup> stranded	R-XLPE/IS/OS/HIPK/SWA/LSZH		
1x2x0,75	8,1	11,8	293
4x2x0,75	13,5	17,5	749
6x2x0,75	15,8	19,8	951
12x2x0,75	19,2	23,8	1377
15x2x0,75	21,1	25,8	1552
24x2x0,75	25,4	30,2	2312
1 mm <sup>2</sup> stranded	R-XLPE/IS/OS/HIPK/SWA/LSZH		
1x2x1	8,6	12,3	330
4x2x1	14,6	18,6	888
6x2x1	16,7	20,8	1143
12x2x1	20,5	25,3	1579
15x2x1	22,6	27,4	1841
24x2x1	27,1	32,1	2356
1,5 mm <sup>2</sup> stranded	R-XLPE/IS/OS/HIPK/SWA/LSZH		
1x2x1,5	9,2	13,0	361
4x2x1,5	15,8	19,9	1053
6x2x1,5	18,3	23,0	1235
12x2x1,5	22,5	27,4	1848
15x2x1,5	25,0	29,8	2287
24x2x1,5	30,3	36,1	2777

approximate values

Electrical Characteristics				
Cross section (mm <sup>2</sup> )	0,5	0,75	1	1,5
Capacitance (pF/m)	≤150	≤150	≤150	≤150
L/R (μH/Ohm)	≤25	≤25	≤25	≤40

## PAS 5308 (300/500 V)

Cross section (mm <sup>2</sup> )	Diameter under armour (mm)	Outer diameter (mm)	Weight (kg/km)
0,5 mm <sup>2</sup> solid	U-PE/IS/OS/HIPK/SWA/PVC		
2x2x0,5	11,3	15,7	634
5x2x0,5	13,8	18,4	888
10x2x0,5	18,2	23,4	1348
15x2x0,5	20,6	26,2	1586
20x2x0,5	23,0	29,2	2187
0,5 mm <sup>2</sup> flexible	F-PE/IS/OS/HIPK/SWA/PVC		
2x2x0,5	12,6	17,2	781
5x2x0,5	15,5	20,8	1140
10x2x0,5	20,6	26,2	1586
15x2x0,5	23,8	30,2	2325
20x2x0,5	26,2	32,7	2409
1 mm <sup>2</sup> solid	U-PE/IS/OS/HIPK/SWA/PVC		
2x2x1	13,3	17,8	800
5x2x1	16,5	21,8	1120
10x2x1	21,8	27,4	1841
15x2x1	25,3	31,8	2329
20x2x1	28,3	35,0	2824
1,5 mm <sup>2</sup> stranded	R-PE/IS/OS/HIPK/SWA/PVC		
2x2x1,5	15,1	20,4	1077
5x2x1,5	18,6	24,0	1377
10x2x1,5	25,5	32,1	2356
15x2x1,5	29,1	35,8	2777
20x2x1,5	32,5	40,2	3675

approximate values

Electrical Characteristics			
Cross section (mm <sup>2</sup> )	0,5	1	1,5
Capacitance (pF/m)	≤115	≤115	≤120
L/R (μH/Ohm)	≤25	≤25	≤40