

## Installation Recommendations

PVC\* and thermoplastic LSF compounds become increasingly stiff and brittle as the temperature decreases. As a result, if a cable containing these materials is bent too quickly or to too small a radius or is struck sharply at temperatures in the region of 0°C or lower, there is a risk of shattering the thermoplastic components of the cable.

Elastomeric materials retain a reasonable degree of flexibility down to -20°C. It is recommended that such cables are not bent to the minimum bending radius permissible at temperatures below -15°C because of the resultant severe stresses that may be imposed during the installation.

Therefore, to avoid the risk of damage during handling, it is desirable that these cables should be installed only when both the cable and the ambient temperatures have been above the recommended minimum temperature for at least 24 hours, or where special precautions have been taken to maintain the cable above this temperature.

Good installation practices should be followed at all times ensuring that:

- When pulling around bends, side wall pressures are kept to a minimum using skid plates and rollers, etc., where necessary.
- The recommended pulling tension should not be exceeded (this is available on request and depends on the method of pulling employed).
- The cable is not bent at radii less than the minimum bending radius recommended.
- There are no sharp stones or edges which may damage the cable.

To prevent the ingress of moisture into the cable, the ends should be kept capped at all times.

\*NOTE. This refers to standard grades of PVC. Special grades are available with improved performance at low temperatures, e.g. "Arctic" grade.

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# Installation Recommendations – Cable Fixings

## Cleat Selection

Choose the design, material and finish of cleat to suit the application.

Aspects to check:

- a) Total mechanical load the cleat is expected to have to support.
- b) Type of installation, for example normal convoluted cable route or isolated vertical run.
- c) Exposure to weather, pollutants and/or radiation.
- d) Operating temperature range and/or radiation.
- e) Compatibility of the material or finish with the support structure.
- f) Size, whenever possible the overall diameter of the actual cable should be measured as cable catalogues only list nominal values.

## Correct Spacing

The table below shows the spacings from the IEE Wiring Regulations Guidance Notes Number 1, for cables up to 40mm diameter and Prysmian recommendations for larger cables.

Spacing Of Supports On Single Cables In Accessible Positions

Overall Diameter of cables*	Non-armoured rubber, PVC or lead sheathed cables		Armoured cables and corrugated Aluminium sheathed cables		Mineral insulated copper sheathed or aluminium sheathed cables	
	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
Not exceeding 9	250	400	-	-	600	800
Exceeding 9 but not 15	300	400	350	450	900	1200
Exceeding 15 but not 20	350	450	400	550	1500	2000
Exceeding 20 but not 40	400	550	450	600	-	-
Exceeding 40 but not 50	600	800	900	1100	-	-
Exceeding 50 but not 60	750	1000	950	1100	-	-
Exceeding 60 but not 70	900	1200	1000	1200	-	-
Exceeding 70 and above	1000	1400	1200	1400	-	-

\*Normal practise is to consult the cable manufacturer about support spacing on cables exceeding 40mm diameter. The spacing for horizontal runs may be applied also to runs at an angle of more than 30° from the vertical. For runs at an angle of 30° or less from the vertical, the vertical spacing is applicable. The spacing of supports for smooth aluminium sheathed cables may be twice those specified in columns 4 and 5. In long straight heavily loaded power cable installations either loop the cables at suitable intervals or increase the cable spacings by a factor of 1.5. Where the appearance of the cable installation is not important, the spacings could similarly be increased by a factor of 1.5.