

Better Connected

Microfeatures FO Patch Cable



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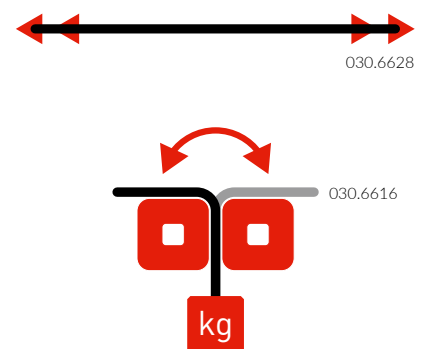
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Introduction

Mainly of mechanical nature are influences on a patchcord during the manipulation processes during installation and maintenance.

Mechanical loads during installation and maintenance:

- Tensile forces on the cable
- Bending stress Cable directly behind bend protection
- Lateral load on the plugged connection (plug - adapter - plug)



During operation, a plugged connection may be exposed to climatic influences.



- temperature variations
- air humidity

Depending on the operating environment, vibration may also occur, which can impair the connection.

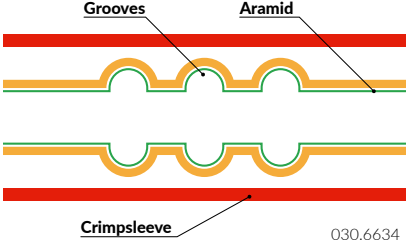


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Weak points in plugged patch cables

Load	weak point
<p>Pull on cable</p>  <p>030.6628</p>	<p>Fixation of cable sheath under crimp sleeve → Cable sheath slips out</p> <ul style="list-style-type: none"> • Increased susceptibility to bending of the cable • Damage to the core / fiber during manipulation  <p>030.6630</p> <p>Fixation of aramid under crimp sleeve → Aramid slips out of crimp sleeve</p> <ul style="list-style-type: none"> • Loss of tensile strength • high vulnerability of the wire during manipulation processes


Actions R&M

<p>Action 1:</p>	<p>ribbed crimp neck</p>  <p>030.6634</p>
<p>Action 2:</p>	<p>Hardened crimp inserts → cause 'cold deformation' of the crimping sleeve, which leads to more compact frictional locking</p>  <p>090.2651</p>
<p>Action 3:</p>	<p>even distribution of the aramid threads before crimping → uniform crimping of aramid yarns</p>  <p>030.6633</p>


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Weak points in plugged patch cables

Load	Weak point
Cable kink behind bend protection	too stiff or too soft anti-kink sleeves → Kink of the vein <ul style="list-style-type: none">• increased damping• Total failure possible  <p>030.6631</p>

Actions R&M	
Action 1:	Flexibility of the sleeve through design & choice of material → the sleeve is more flexible than a patch cable and thus absorbs the bending forces
Action 2:	Designed bending radius limitation → The design of the bend protection sleeve sed force is required when the minimum reached.



030.6632

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Weak points in plugged patch cables

Load	Weak point
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Temperature > +50°C

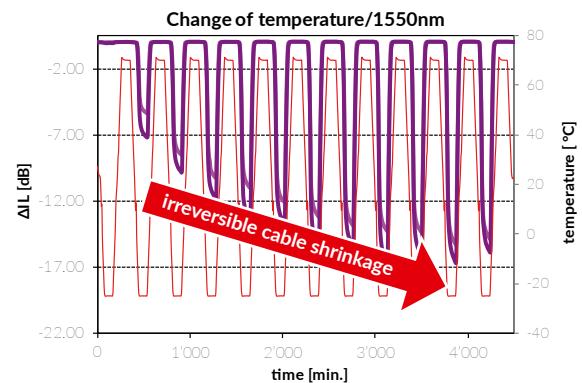
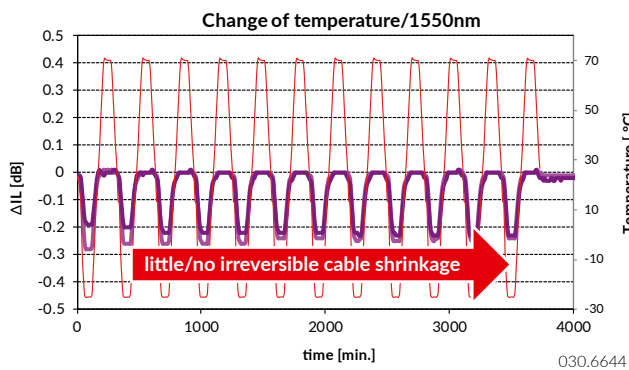
With temperature-sensitive cables, the cable sheath shrinks at temperatures > 50°C. The shrinkage affects the assembled cable.

- Cable jacket slides out of crimping an => loose protection of pigtail tube
- increase of insertion loss due to fiber overlength

Irreversible cable shrinkage usually only has an effect with increased IL values at lower temperatures < -5°C

Temperature change -10°C / +50°C

Shrinkage of temperature-sensitive cables has a negative effect especially during temperature cycles:



Behaviour of low shrinkage cable

Low shrinkage cables have low irreversible shrinkage at increased temperatures. In the temperature cycling test, the attenuation deviations are stable over the entire duration.

Behaviour of cable sensitive to shrinkage

With each high temperature cycle in the temperature cycling test, the cable continues to shrink. This leads from cycle to cycle to higher attenuation values at lower temperatures.

Actions R&M

Action 1: Temperature-stable, low-shrink cable assemblies for patch cords