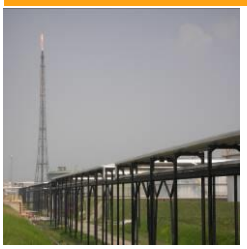
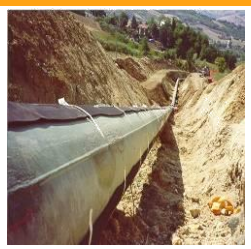
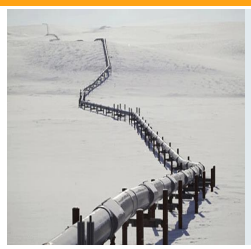
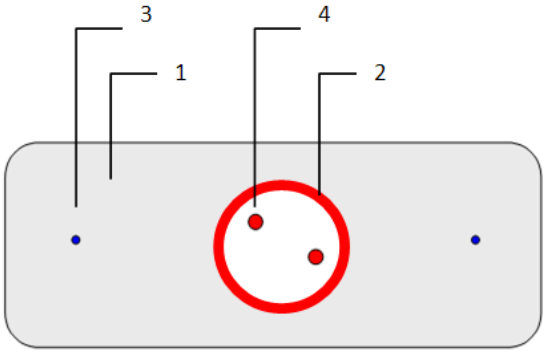
11.1030 DITEST SMARTPROFILE STRAIN SENSING CABLE

For distributed strain sensing

GENERAL DESCRIPTION

The DiTeSt SMARTprofile combined strain and temperature sensors are designed for distributed deformation (average strain) and temperature monitoring over long distances.



TECHNICAL DESCRIPTION

The DiTeSt SMARTprofile sensor consists of one or two bonded and two free single mode optical fibres embedded in a polyethylene thermoplastic profile. The bonded fibers are used for strain monitoring, while the free fibers are used for temperature measurements (quantitative if sensor deformation <0.2%, qualitative if sensor deformation >0.2%) and to compensate temperature effects on the bonded fibers. For redundancy, two fibers are included for both strain and temperature monitoring. The profile itself provides good mechanical, chemical and temperature resistance. The size of the profile makes the sensor easy to transport and install by fusing, gluing or clamping. The SMARTProfile sensor is designed for use in environments often found in civil, geotechnical and oil & gas applications. However, this sensor cannot be used in extreme temperature environments, nor in environments with high chemical pollution. It is not recommended for installation under permanent UV radiation (e.g. sunshine).

The SMARTprofile sensor is fully compatible with DiTeSt® system. It is delivered on spools and with all the necessary accessories such termination and connectors (E2000, FC-PC or other).

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1 LDPE matrix
2 PVC loose tube
3 Polymide coated SMF
4 Standard acrylate coated SMF

FEATURES

- **DiTeSt compatible**
- **Multi functional**
- **Single cable design**
- **Mechanically reinforced**
- **Chemically resistant**
- **Easy and rapid installation**
- **Light weight and small dimensions**

TEMPERATURE RANGE

• Operating temperature	-40 °C to +60 °C
• Storage temperature	-5 °C to +40 °C
• Installation temperature	-5 °C to +50 °C
• Pigtails and connectors	-40°C to +60°C

TECHNICAL DATA

• Temperature compensation	through temperature fibers if strain ≤ 0.3 %
• Calibration	during production
• Strain range	-1.5 % to +1.5 %
• Maximal length	800 m / reel, more upon request
• Dimensions (W x H)	8.0 mm x 3.0 mm
• Weight	22 ± 0.5 kg/km
• Max tensile strain	1.5 %
• Min bending radius	400 mm (long term)
• Hydrostatic pressure	300 kPa (bar)
• Chemical resistance	good to fair

FIBER TYPOLOGY

• Fiber support (strain)	2 SMF 9 / 125 μm Polymide coated ITU-T G.652.D compliant
• Fiber support (temperature)	2 SMF 9 / 125 μm Acrylate coated ITU-T G.652.D compliant
• Fiber attenuation (cabled @ 20 °C)	≤ 1.2 dB @ 1310 nm - strain
	≤ 1 dB @ 1550 nm – strain
	≤ 0.4 dB @ 1310 nm - temperature
	≤ 0.3 dB @ 1550 nm – temperature
• Number of fiber	2 strain fibers + 2 temperature fibers

ACCESSORIES AND ORDERING INFORMATION

- Cable termination with connectors
- Junction box
- Splice box

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11.1030ENDS DiTeSt SMARTprofile Strain Sensor

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