

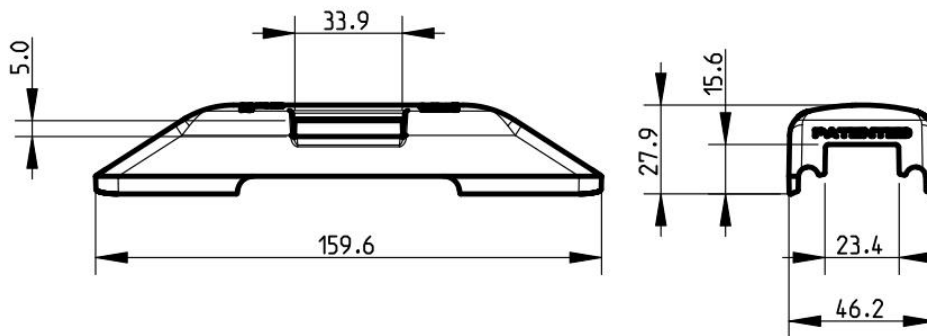
Smart® Protector, SP400-3820, Material PA12 Part No. SP-400-3820-PA12



Description

Patented cable clamping device for use in downhole applications capable of handling a flat ESP cable or for other cable clamping applications as required.

Outline Dimensions (General Tolerance $\pm 0.2\text{mm}$)



General Properties PA12¹

| Property | | Unit |
|--------------------------------|-------------------------------|-----------|
| Weight | 39.7 (1.40) +/- 2% | g (oz) |
| Cable Suitability ² | 38x20 (1.50x0.79) Flat ESP | mm (inch) |
| Maximum Smart Tie width | 32 (1.27) | mm (inch) |
| Maximum Smart Band width | 32 (1.27) | mm (inch) |

¹PA 12 is the material code for Polyamide 12 The generic designation is Nylon 12

²These are the ideal cable sizes but smaller cables sizes may be used depending on the application

Material Properties PA12¹

| Property | Dry as Moulded | Conditioned 50%RH | Unit | Test Method |
|--|----------------|-------------------|---|-------------|
| Density | 1.01 (0.58) | | g/cm ³ (oz/inch ³) | ISO 1183 |
| Water Absorption at 23°C Equilibrium at 50% RH | 0.7 | | % | ISO 62 |
| Saturation | 1.5 | | % | ISO 62 |
| Tensile Modulus +23°C/+73°F | | 1100 (160) | MPa (kpsi) | ISO 527-2 |

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| Material Properties PA12 ¹ Cont'd | | | | |
|---|----------------|-------------------|--|-------------|
| Property | Dry as Moulded | Conditioned 50%RH | Unit | Test Method |
| Tensile Stress (Yield, +23°C/+73°F) | | 40 (5.8) | MPa (kpsi) | ISO 527-2 |
| Tensile Stress (Break, +23°C/+73°F) | | 50 (7.3) | MPa (kpsi) | ISO 527-2 |
| Tensile Strain (Yield, +23°C/+73°F) | | 12 | % | ISO 527-2 |
| Tensile Strain (Break, +23°C/+73°F) | | >50 | % | ISO 527-2 |
| Flexural Modulus | | 1100 (160) | MPa (kpsi) | ISO 178 |
| Flexural Strength | | | MPa (kpsi) | ISO 178 |
| Charpy Unnotched Impact Strength +23°C/+73°F -30°C/-22°F -55°C/-67°F | | >100 (47.6) | kJ/m ² (ft-lb/in ²) | ISO 179 |
| | | >100 (47.6) | kJ/m ² (ft-lb/in ²) | ISO 179 |
| | | | kJ/m ² (ft-lb/in ²) | ISO 179 |
| Charpy Notched Impact Strength +23°C/+73°F -30°C/-22°F | | 7 (3.33) | kJ/m ² (ft-lb/in ²) | ISO 179 |
| | | 6 (2.85) | kJ/m ² (ft-lb/in ²) | ISO 179 |
| Heat Deflection Temperature 0.45 MPa, Unannealed 1.82 MPa, Unannealed | 115 (239) | | °C (°F) | ISO 75-2/B |
| | 45 (113) | | °C (°F) | ISO 75-2/A |
| Vicat Softening Temperature 50N 10N | 154 (309) | | °C (°F) | ISO 306/B |
| | 166 (331) | | °C (°F) | ISO 306/B |
| Melting Temperature | 178 (352) | | °C (°F) | ISO 11357 |
| Flammability | HB | | | UL 94 |
| RoHS Compliance | RoHS Compliant | | | |
| UL File Number | | | | |

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Further Technical Information and Design Guidelines can be found in the following booklets:

- Smart® Products Technical Booklet for Downhole Use



Important Notice to User

Shelf Life: Store in a cool dry area in original cartons and use within 5 years after date of receipt.

Warranty: HCL warrants that all products when stored, used and maintained in accordance with HCL's written instructions will meet or exceed the above specification. HCL makes no other warranties or conditions, expressed or implied, including, but not limited to, any implied warranty or condition of merchantability or fitness for a particular purpose or any implied warranty or condition arising out of a course of dealing, custom or usage of trade. If any HCL product does not conform to this warranty then only replacement or refund of the affected parts will be considered.

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Product Use: It is the user's responsibility to determine the suitability of the product for the task it is to be used for. HCL reserve the right to continually improve its product and would advise the user to contact HCL at all times to ensure they have up to date current data to work with.

