

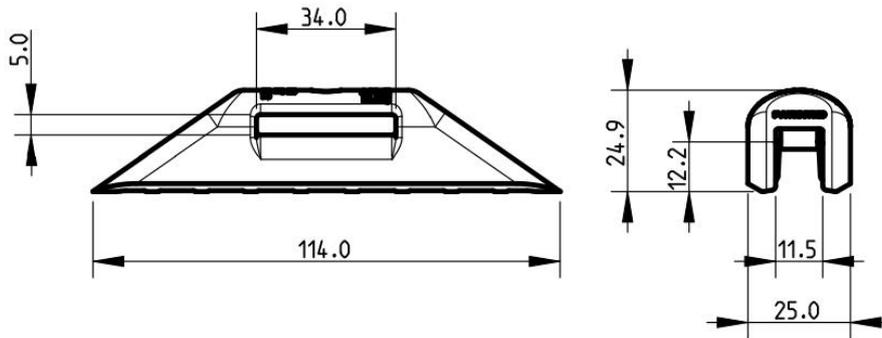
**Smart® Protector, SP200, Material PA66**  
**Part No. SP-200-PA66**



**Description**

Patented cable clamping device for use in downhole applications capable of handling multiple cables or for other cable clamping applications as required.

**Outline Dimensions (General Tolerance ± 0.2mm)**



General Properties PA66 <sup>1</sup>		
Property		Unit
Weight	21.5 (0.76) +/- 2%	g (oz)
Cable Suitability <sup>2</sup>	11 (0.43) Square or round	mm (inch)
Maximum Smart Tie width	32 (1.27)	mm (inch)
Maximum Smart Band width	32 (1.27)	mm (inch)

<sup>1</sup>PA66 is the material code for Polyamide 6.6. The generic designation is Nylon 6.6.

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

Material Properties PA66 <sup>1</sup>				
Property	Dry as Moulded	Conditioned 50%RH	Unit	Test Method
Density	1.14 (0.66)		g/cm <sup>3</sup> (oz/inch <sup>3</sup> )	ISO 1183
Water Absorption at 23°C Equilibrium at 50% RH	2.4		%	ISO 62
Saturation	8.5		%	ISO 62
Tensile Modulus +23°C/+73°F	3000 (435)	1400 (203)	MPa (kpsi)	ISO 527-2

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Material Properties PA66 <sup>1</sup> Cont'd				
Property	Dry as Moulded	Conditioned 50%RH	Unit	Test Method
Tensile Stress (Yield, +23°C/+73°F)	83 (12.0)	66 (9.6)	MPa (kpsi)	ISO 527-2
Tensile Strain (Yield, +23°C/+73°F)	4.5	25	%	ISO 527-2
Tensile Strain (Break, +23°C/+73°F)	25	105	%	ISO 527-2
Flexural Modulus	2900 (420)	1350 (196)	MPa (kpsi)	ISO 178
Flexural Strength	86 (12.4)	22 (3.2)	MPa (kpsi)	ISO 178
Charpy Unnotched Impact Strength +23°C/+73°F -30°C/-22°F -55°C/-67°F	No break		kj/m <sup>2</sup> (ft-lb/in <sup>2</sup> )	ISO 179
			kj/m <sup>2</sup> (ft-lb/in <sup>2</sup> )	ISO 179
	No break		kj/m <sup>2</sup> (ft-lb/in <sup>2</sup> )	ISO 179
Charpy Notched Impact Strength +23°C/+73°F -30°C/-22°F	5.3 (2.5)		kj/m <sup>2</sup> (ft-lb/in <sup>2</sup> )	ISO 179
	6.6 (3.1)		kj/m <sup>2</sup> (ft-lb/in <sup>2</sup> )	ISO 179
Notched Izod Impact Strength (23°C)	5.5 (2.6)		kj/m <sup>2</sup> (ft-lb/in <sup>2</sup> )	ISO 180
Heat Deflection Temperature 0.45 MPa, Unannealed 1.82 MPa, Unannealed	200 (392)		°C (°F)	ISO 75-2/B
	70.0 (158)		°C (°F)	ISO 75-2/A
Vicat Softening Temperature 50N 10N	236 (457)		°C (°F)	ISO 306/B
	255 (491)		°C (°F)	ISO 306/B
Melting Temperature	260 (500)		°C (°F)	ISO 11357
Flammability	V-2			UL 94
RoHS Compliance	RoHS Compliant			
UL File Number	E70062			

<sup>1</sup>PA66 is the material code for Polyamide 6.6. The generic designation is Nylon 6.6.



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.

**Limitation of Liability:** Except where expressly prohibited by law, HCL will not be liable for any damage or loss arising from the use of the HCL product.

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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.