



## Smart Band

<b>Page Number</b>	<b>Title</b>
3	Introduction and buying options
4	Dimensions
5	Electrical & Mechanical Properties
6	Explanation of Definitions
7	Chemical Resistance data A-F
8	Chemical Resistance data G-Z
9	Performance and Reliability
10	Performance Tests
11	Fitting Tool tightening forces
12	Quality Assurance
13-14	Questions & Answers

## Introduction and buying options

3

### Introduction

The **Smart Band** is a very long and strong tie that you can quickly cut to suit your particular application. For use when the standard tie will not satisfy.

Operation is quick and easy, you simply wrap the tie around the object, cut to length, feed through head and tighten. The unique profile of the teeth allows it to be tightened to **1750** Newton's (**175kg**) for the **10mm** bandwidth, **500** Newtons (**50kg**) for the **7mm** bandwidth size and **250** Newtons (**25kg**) for the **4mm** bandwidth size.

Being manufactured from Nylon 6.6. gives the product a unique set of properties, it is very safe to handle with no sharp edges to cut operators or equipment, it is non corrosive so is ideal for use indoors and out. Indeed it is the ideal fit & forget tie.

The need to stock different size cable ties is over, one continuous length is all you need, To extend the number of applications a full range of accessories is being designed.



### Buying Options

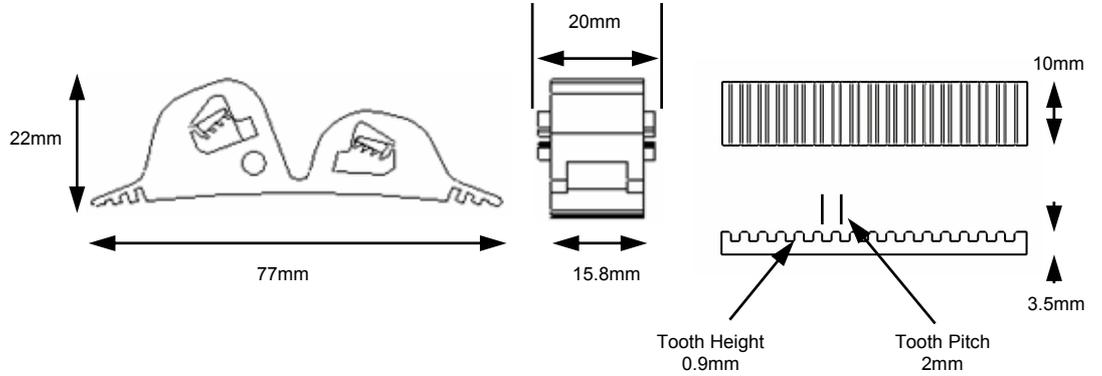
4mm	7mm	7mm Semi-Releasable	10mm Semi-Releasable
400 Heads (card pack)	200 Heads (card pack)	50 Heads (card pack)	40 Heads (card pack)
12000 Heads (box pack)	4000 Heads (box pack)	200 Heads (card pack)	130 Heads (card pack)
25m Reel	20m Reel	600 Heads (box pack)	500 Heads (box pack)
1000m Reel	500m Reel	20m Reel	15m Reel
		500m Reel	80m reel
			250m Reel

The **Smart Band** can also be ordered in pre-cut lengths

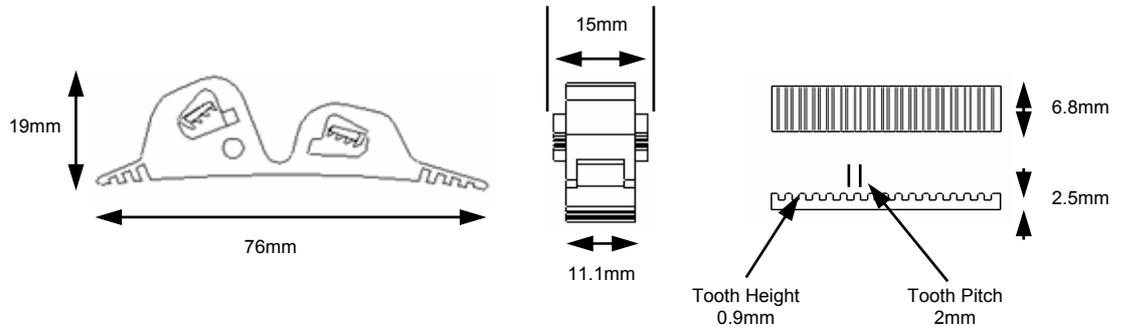
## Dimensions

4

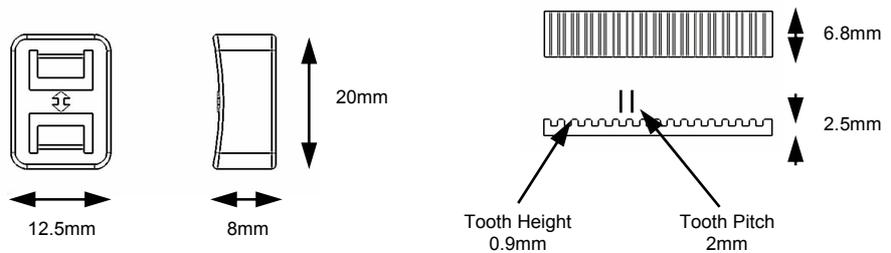
### 10mm Releasable



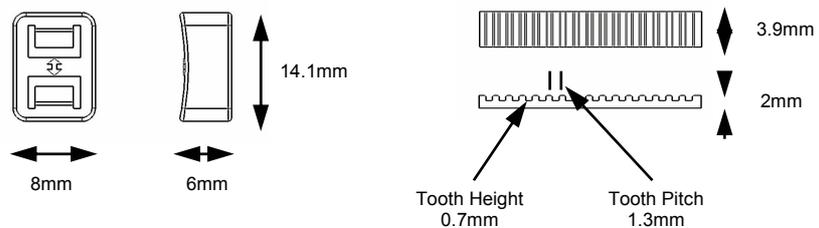
### 7mm Releasable



### 7mm Non-Releasable



### 4mm Non-Releasable



## Electrical and Mechanical Properties

5

The **Smart Band** uses a combination of different Nylon 6.6. grades to achieve its remarkable strength:

- 1) The **4mm, 7mm** and **10mm Band** part is made out of an extrusion grade of Nylon 6.6.
- 2) Running down the centre of the **10mm Band** part are two 1100N Glass fibre continuous cores, bonded to the Nylon 6.6. The result gives a tensile strength of up to 1750N at room temperature.
- 3) The **Head** Part is made out of a 25% Glass Fibre Nylon 6.6. polymer. This gives enough strength to ensure that when tested to failure, the band breaks first.

Nylon 6.6 resins are widely used in electromechanical parts because of their excellent mechanical properties, chemical resistance, heat resistance and self-extinguishing characteristics. This combination of properties permits nylon to be used in harsh environments.

Nylon 6.6. can be used in electrical applications requiring up to 600 volts and at 400 Hz. Power losses increase with increasing temperature, frequency and moisture. Moisture and temperature affect the volume resistivity, dielectric strength and dissipation factor of nylon. The short - time dielectric strength, as measured by ASTM D. 149, changes with thickness, moisture content and temperature. As the thickness and moisture content increases, the dielectric strength decreases. As the temperature increases, the dielectric strength decreases. Volume resistivity is affected by both temperature and moisture content. When temperature increases, volume resistivity decreases. Increasing moisture content causes decreased volume resistivity. Volume resistivity measurements were made according to ASTM D-257. The dielectric constant increases rapidly with increasing temperature or moisture content. The dissipation factor increases with increasing temperature and moisture. Measurements of change were made using ASTM D. 150. Many compositions of nylon have been rated by Underwriters Laboratories (UL) in its Component Recognition Program for Polymeric material.

Property	Test Conditions		ISO Spec.	Units	Nylon 6.6.			
	Band	Head			Dry as Moulded		50% RH	
<b>General</b>					Band	Head	Band	Head
Density				g/ml	1.14	1.14	1.14	1.14
Flammability	1.6 mm	1.6 mm	UL94		HB	HB	HB	HB
Water Absorption	23°C, Equilibrium	23°C, Equilibrium	62	%	2.5	1.7		
Rockwell Hardness	Scale M Scale R	Scale M Scale R	2039/2			103 122		87 118
<b>Mechanical</b>								
Stress at yield (Tensile Strength at Yield)	50 mm/min	5 mm/min	527	MPa	86	187	65	120
Strain at yield (Elongation at Yield)	50 mm/min	5 mm/min	527	%	5	4.4	50	26
Young's Modulus	1 mm/min	1 mm/min		MPa	3100	2800	1300	1400
Izod Impact Strength (Notched)	23°C -30°C	23°C -30°C	180	kJ/m <sup>2</sup>	6.2 4.3		11.9 4	
<b>Thermal</b>								
Melting Point			1218	°C	255	255	255	255
Heat Deflection Temperature	Method A; 1.8 MPa Method B; 0.45 MPa	Method A; 1.8 MPa Method B; 0.45 MPa	75	°C	90 235	80 235	72	
Coefficient of Linear Thermal Expansion				mm/mm 10 <sup>-4</sup> /K		1.16		
<b>Electrical</b>								
Comparative Tracking Index			IEC 112	V	600	525		
Dielectric Strength			IEC 243	kV/mm	30.5	31		28
Surface Resistivity			IEC 93	ohm		>1E15		1E13
Volume Resistivity			IEC 93	ohm cm	1E15	>1E15		2E11
Dielectric Constant	10 <sup>2</sup> 10 <sup>3</sup> 10 <sup>5</sup>	10 <sup>2</sup> 10 <sup>3</sup> 10 <sup>6</sup>	IEC 250	Hz	3.9 3.7	4.3 4.2 4.1		10.8 7.7 4.6
Dissipation Factor	50 Hz 1 MHz	50 Hz 1 MHz	IEC 250	10 <sup>-4</sup>	150 240	70 150	2000 750	4600 650

## Explanation of Definitions

6

### Mechanical Properties

Density	Units g/ml = g/cm <sup>3</sup>
Flammability	94 V-2 rating permits flaming particles on ignition and has a longer flame extinguishing time than the V-1 rating. 94 HB rating permits a burning rate of 8mm/min
Water Absorption	23°C Equilibrium 2.9% Equilibrium equals the amount of moisture uptake in air. 23°C Saturation 8.5% Maximum amount of moisture uptake possible.
Rockwell Hardness	This is the measure of surface penetration with a 12.5 mm (½ in.) diameter ball under a specified load.
Ball Indentation Hardness	This is similar to Rockwell Hardness and is the indentation with a hardened steel indenter.
	MPa is the pressure required to give a specific indentation.
Tensile Strength at Yield	MPa = Mega Pascal's = Nm <sup>2</sup> = the stress/force per area required to yield the nylon, i.e. a measure of strength.
Elongation at yield	This is the % increase in length of a specific length of nylon at the yield point when the material is being stretched at a rate of 50 mm per minute
Flexural Strength	Or bending strength is the stress (Mpa) required to break the material under bending.
Flexural Modulus	This is that value calculated from a measurement of beam stiffness in three point flexure. $E = \frac{(F/a)}{I^3} \cdot (l^3)$ Where E = Flexural Modulus (F/a) = Stiffness l = Span (l <sup>3</sup> /I) = 2nd moment of area (i.e. dimensions of beam section) Flexural modulus is obtained for a specific test speed (or time under load).
Young's Modulus	Measured in Mega Pascal's = the value of stress over strain when the nylon is being stretched at 1 mm per minute.
Izod Impact Strength	Equals the energy to break a specimen in which a notch with a 0.25 mm radius has been machined.

### Thermal Properties

Melting Point	Melting point of Nylon 6.6.
Heat Deflection Temp	This is the temperature at which a standard test bar deflects 0.25 mm under a stated stress level of either 0.45 or 1.82 N/mm <sup>2</sup> (66 or 264 psi).
Vicat B50 Softening Point	This is a measure of deflection of a test bar under heat and load. The test bar has a known force applied to the end of it in a cantilever position. The bar is then heated up until a certain deflection is reached.
Coefficient of Linear Thermal Expansion	Coefficient to determine the amount the material is going to expand when the temperature is raised.

### Electrical Properties

General	Parts made of Nylon 6.6. are generally used in electrical applications requiring 600 volts or less and frequencies of 400 cycles per second or lower.
Comparative Tracking Index	Also known as 'Tracking Resistance'. Tracking is the current flowing on the surface of an insulator between two electrodes caused either through pollution or degradation of the insulator. Therefore Tracking Resistance is the ability of an insulator to prevent such currents.
Dielectric Strength	Defined as the Potential Difference between the opposite sides of a sheet of solid insulating material necessary to break the material down. The potential gradient necessary to cause breakdown of an insulating medium is termed its 'dielectric strength'. Units are Kilo Volts per mm. Dielectric strength decreases (volts per mm.) with increasing thickness and moisture content.
Surface Resistivity	This is the resistance to leakage of a charge across a square area of surface. The size of the square is immaterial.
Volume Resistivity	Is the internal resistance of an insulating material to current flow.
Dielectric constant	This is the ratio of the permittivity of an insulator to the permittivity of vacuum. High values of this indicate that the material is particularly good for use in a capacitor.
Dissipation Factor	This is the tangent of the loss angle of an insulator, where the loss angle for an insulator is the angular change in the current (I), voltage (V) relation induced by the insulator in a capacitor versus an ideal capacitor. It is used to calculate power losses in an insulator.

## Chemical Resistance Data A-F

7

The information below is a guide to the resistance of the Nylon 6.6. to the specific reagents shown. Ratings of Excellent, Satisfactory or Unsatisfactory are based upon property retention for test bars exposed to the specified concentrations of the chemicals for the indicated time periods and temperatures. In the concentration (CONC) column, the word 'Conc' means the maximum concentration that is allowed to be sold. The word 'Satur' means the maximum saturation that is obtainable at this time.

It should be noted that the table below can only be used as a guide, and the only decisive test is to evaluate a clip 'in situ' if it is thought that the operating environment will be detrimental to the band material

In general nylon 6.6. is very resistant to most alkalis and neutral chemicals but not very resistant to strong acids. It should also be noted that nylon 6.6. is very resistant to fuels such as petrol and also food products including fruit juices.

### Chemical Resistance

CHEMICAL	CONC	EXPOSURE TEMP. °C	TIME DAYS	CHEMICAL RESISTANCE	CHEMICAL	CONC %	EXPOSURE TEMP. °C	TIME DAYS	CHEMICAL RESISTANCE
ACETALDEHYDE	90%	52		SATISFACTORY	CALCIUM HYPOCHLORITE	SATUR	35	77	UNSATISFACTORY
ACETIC ACID	5%	23	30	SATISFACTORY	CALCIUM THIOCYANATE	50%			UNSATISFACTORY
ACETONE	100%	50	365	EXCELLENT	CARBON TETRACHLORIDE	100%	50	365	EXCELLENT
ALUM. AMMONIUM	10%	24		UNSATISFACTORY	CARBONIC ACID	10%	24		EXCELLENT
ALUM. SALTS OF MINERAL ACIDS	10%	23		SATISFACTORY	CETANE	100%	23	365	EXCELLENT
AMMONIA, LIQUID	100%	24	200	SATISFACTORY	CHOLRINE WATER	DILUTE	23		SATISFACTORY
AMMONIUM CARBONATE	10%	23		SATISFACTORY	CHLOROACETIC ACID	10%	24		UNSATISFACTORY
AMMONIUM CHLORIDE	10%	52		UNSATISFACTORY	CHLOROFORM	100%	23	56	EXCELLENT
AMMONIUM HYDROXIDE	10%	23	365	EXCELLENT	CHLOROSULFONIC ACID	10%	24		UNSATISFACTORY
N-AMYL ACETATE	100%	98	45	UNSATISFACTORY	CHLOROX	100%	23	10	EXCELLENT
ANTIMONY TRICHLORIDE	10%	24		UNSATISFACTORY	CHROMIC ACID	10%	24		UNSATISFACTORY
AROCLOR 1242	100%	23	30	EXCELLENT	CITRIC ACID	10%	35	77	SATISFACTORY
BARIUM CHLORIDE	10%	24		UNSATISFACTORY	COPPER CHLORIDE	10%	24		UNSATISFACTORY
BARIUM SULFATE	10%	24		EXCELLENT	COPPER SULPHIDE	10%	24		UNSATISFACTORY
BARIUM SULFIDE	10%	24		SATISFACTORY	M-CRESOL	100%	24		UNSATISFACTORY
BENZENE	100%	23		EXCELLENT	DIETHYLENE GLYCOL	90%	24		EXCELLENT
BENZOIC ACID	10%	24		UNSATISFACTORY	ETHANOL	95%	50	365	EXCELLENT
BORIC ACID	7%	35	316	UNSATISFACTORY	ETHYLACETATE	95%	50	365	EXCELLENT
BROMINE	100%	24		UNSATISFACTORY	ETHYLENE DIBROMIDE	100%	50	45	SATISFACTORY
BROMINE WATER	25%	23	30	EXCELLENT	ETHYLENE DICHLORIDE	100%	66	7	EXCELLENT
BUFFER SOLUTION PH7	100%	70	365	EXCELLENT	ETHYLENE GLYCOL	100%	23	56	EXCELLENT
BUFFER SOLUTION PH10	100%	70	365	UNSATISFACTORY	FORMALIN	38%	23	14	EXCELLENT
BUTYRIC ACID	10%	24		UNSATISFACTORY	FORMIC ACID	90%	23		UNSATISFACTORY
CALCIUM CHLORIDE	5%	60		UNSATISFACTORY	FREON 11	100%	23	365	EXCELLENT

## Chemical Resistance Data F-Z

8

The information below is a guide to the resistance of the Nylon 6.6. to the specific reagents shown. Ratings of Excellent, Satisfactory or Unsatisfactory are based upon property retention for test bars exposed to the specified concentrations of the chemicals for the indicated time periods and temperatures. In the concentration (CONC) column, the word 'Conc' means the maximum concentration that is allowed to be sold. The word 'Satur' means the maximum saturation that is obtainable at this time.

It should be noted that the table below can only be used as a guide, and the only decisive test is to evaluate a clip 'in situ' if it is thought that the operating environment will be detrimental to the clip material

In general nylon 6.6. is very resistant to most alkalis and neutral chemicals but not very resistant to strong acids. It should also be noted that nylon 6.6. is very resistant to fuels such as petrol and also food products including fruit juices.

### Chemical Resistance

CHEMICAL	CONC	EXPOSURE TEMP. °C	TIME DAYS	CHEMICAL RESISTANCE	CHEMICAL	CONC %	EXPOSURE TEMP. °C	TIME DAYS	CHEMICAL RESISTANCE
FREON 12	100%	23	365	EXCELLENT	POTASSIUM BIEARBONATE	60%	23		EXCELLENT
FREON 21	100%	23	365	EXCELLENT	POTASSIUM CARBONATE	20%	98	45	EXCELLENT
FREON 22	100%	23	365	EXCELLENT	POTASSIUM CHLORIDE	90%	23		EXCELLENT
FREON TE	100%	23	8	EXCELLENT	POTASSIUM HYDROXIDE	30%	98	8	SATISFACTORY
GLYCOLIC ACID	70%		200	UNSATISFACTORY	POTASSIUM PERMANGANATE	5%	23	10	UNSATISFACTORY
HEXAFLUROISOPROPANOL	100%	23		UNSATISFACTORY	POTASSIUM THIOCYANATE	CONC			UNSATISFACTORY
HYDROCHLORIC ACID	10%	25	60	UNSATISFACTORY	SODIUM ACETATE	60%	38		EXCELLENT
HYDROGEN PEROXIDE	5%	43	30	UNSATISFACTORY	SODIUM BICARBONATE	50%	24		EXCELLENT
HYDROGEN SULPHIDE	CONC	23		UNSATISFACTORY	SODIUM CARBONATE	25%	35	77	EXCELLENT
HYLENET	100%	23	10	EXCELLENT	SODIUM CHLORIDE	10%	23	365	EXCELLENT
LACTIC ACID	10%	35	316	EXCELLENT	SODIUM HYDROXIDE	10%	70	30	EXCELLENT
LANOLIN SUSPENSION	10%	35	77	EXCELLENT	SODIUM HYPOCHLORITE	5%	23	10	SATISFACTORY
LINSEED OIL (RAW)	100%	82	30	EXCELLENT	SODIUM NITRATE	5%	24	10	EXCELLENT
METHANOL	100%	23	56	EXCELLENT	SODIUM SULPHATE	90%	24		EXCELLENT
METHYL CHLOROFORM	100%	72	4	EXCELLENT	SODIUM SULPHIDE	90%	24		EXCELLENT
METHYL ISOBUTYL ETONE	100%	23	14	EXCELLENT	STANNIC CHLORIDE	10%	24		UNSATISFACTORY
METHYLENE CHLORIDE	100%	23	28	SATISFACTORY	STANNIC SULFATE	10%	24		UNSATISFACTORY
NAPHTHA (VMP)	100%	98	45	EXCELLENT	SULPHUR DIOXIDE		38	100	UNSATISFACTORY
NITRIC ACID	10%	23	60	UNSATISFACTORY	SULPHURIC ACID	30%	23	30	UNSATISFACTORY
NITROMETHANE	100%	23	30	EXCELLENT	SULPHUROUS ACID	10%	23		UNSATISFACTORY
2-NITROPROPANE	100%	72	30	EXCELLENT	2,2,3,3 TETRAFLUOROPROPANE	100%			UNSATISFACTORY
NUJOL	100%	70	365	EXCELLENT	TOLUENE	100%	50	365	EXCELLENT
PERCHLORIC ACID	10%	24		UNSATISFACTORY	TRICRESYL PHOSPHATE	100%	66	7	EXCELLENT
PHENOL	90%	23		UNSATISFACTORY	XYLENE	100%			EXCELLENT
PHOSPHORIC ACID	5%	98		UNSATISFACTORY	ZEREX ANTIFREEZE	40%	104	92	SATISFACTORY

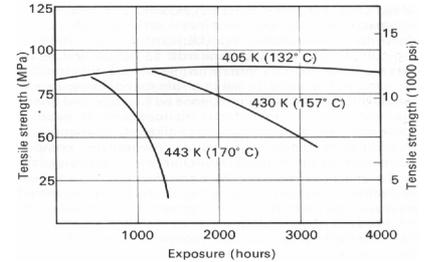
## Performance and Reliability

9

Smart Bands are made out of heat and UV stabilised Nylon 6.6 giving very good strength properties and high temperature characteristics.

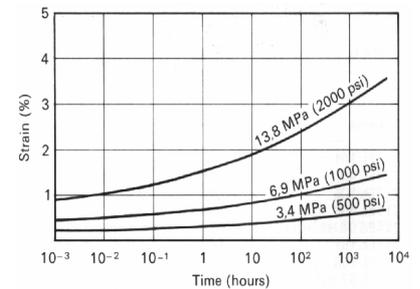
### Strength at High Temperatures

The graph to the right shows how heat stabilised Nylon 6.6 performs in high temperature applications. This shows the effect of air oven ageing of Heat Stabilised Nylon 6.6 on tensile strength. Note that at 132° C there is no real degradation of tensile strength, even after 4000 hours at this high temperature. (approx. 170 days)



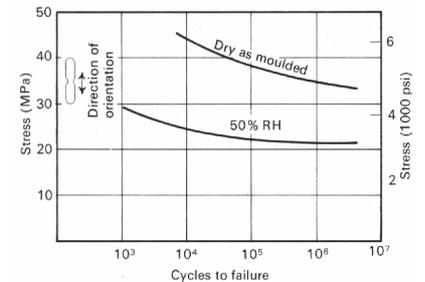
### Creep and Relaxation

Every plastic in tension undergoes a phenomenon called Creep. Over a period of time the product will stretch or creep. The **Smart Band 10mm** was designed with this specifically in mind. To overcome the problem of creep we have incorporated into the band two continuous lengths of glass fibre stranding running through its core. This not only helps to achieve high tensile strength but also greatly reduces creep.



### Fatigue

When materials are stressed cyclically they may be affected by fatigue. In the case of the Smart Band this is not really an issue as the clip is not subjected to rapid stress cycling in application, and in any case nylon has very good resistance to fatigue. The graph to the right shows axial fatigue for Heat Stabilised Nylon 6.6 with alternate tension and compression, at 1,800 cycles per minute. This shows Sonntag axial failure with alternate tension and compression of 1,800 cycles per minute. Tests were at 296K (23° C) with longitudinal orientation of the test bars. Note that the fatigue stress is well below the graph lines. This means that fatigue should never be a problem with the Smart Bands.



### Weathering and Environment

- i) UV Stabilisation: - Smart Bands are primarily made in black Heat Stabilised Nylon 6.6. The carbon black colouring acts as a very good UV stabiliser.
- ii) Corrosion: - This is never a problem; indeed any moisture present in the environment helps to condition the nylon and keep it supple.
- iii) Chemical attack: - Please refer to HCL Fact Sheet 002. If the Smart Band is to be used in a chemical environment then tests should be carried out. Note that strong acids will attack Nylon. In some cases different polymers can be used to improve chemical resistance.

---

## Performance Tests

**10**

### Performance Tests

The Smart Band has undergone rigorous testing, in which a number of important factors have been looked at, including

- Tensile Strength
- Creep
- Tightening Force (achieved with application tool)

---

### Tensile Tests

The Smart Band has been subjected to a number of tensile tests using a calibrated tensile testing machine.

Tests were carried out using two methods: -

- 1) A straight pull test using the Smart Band alone.
  - For the **10mm** the band break strength was consistently over **1750N (175kg)** which is greater than the majority of applications require.
  - For the **7mm** the band break strength was consistently over **500N (50kg)**
  - For the **4mm** the band break strength was consistently over **250N (25kg)**
- 2) A pull test using the Smart Band **10mm** and head fully assembled around a pipe.  
Again the results were remarkable, producing a circumferential break force of 2800N. In each case the band failed first, proving the design to be a success.

Competitors plastic banding systems were also tested and the nearest rival was only 25% as strong.

---

### Heat Stabilised

The Black Nylon 6.6. Can be made to a heat stabilised specification, allowing it to be used in a hot environment such as under a car bonnet.

---

### UV Resistance

For outdoor applications Smart Band should be in black. The carbon black colouring gives the Nylon 6.6. Resistance to UV attack

---

**Fitting Tool Tightening Forces****11**

Any Banding is only as good as its tightening tool, in other words the tightness of a band is directly related to the tightening strength of its application tool. The Smart Band fitting tools were designed to take full advantage of the high tensile strength.

If too much pressure is applied to the fitting tool the Smart Band is designed so that the band teeth strip or the band itself breaks on the tool side of the head jaws. Because this takes place outside of the clamp it prevents over tightening of the band resulting in band fracture elsewhere. Because of the unique tightening tool design the maximum tightening force is comparable with steel worm drive clamps.



## Quality Assurance

12

### Quality Policy

The objective of every one at HCL Fasteners Ltd is to provide its products in a manner which conforms to the specified requirements of the company, customers and all applicable regulating authorities. In order to achieve this objective, it is the policy of HCL Fasteners to maintain an effective quality system based on the requirements of:

**BS EN ISO 9002**

The Quality Manager is responsible for monitoring and measuring the system and reporting any deviation directly to the Managing Director. Management will ensure that all personnel are fully conversant with the company objectives through relevant training and education programmes. Meeting HCL Fasteners quality standards and constantly improving them is the responsibility of every single person in HCL Fasteners.

### Quality Control Procedures

GOODS RECEIVED INSPECTION	Smart Bands are made from Nylon 66 which is inspected on receipt from our suppliers by the quality controller. The material is inspected for:- a) Quality b) Type c) Satisfactory packaging The Goods Inwards inspection information is logged and retained by the Quality Control Department. If the material passes this inspection satisfactorily it is transferred to raw material stores.
INJECTION MOULDING CONTROL.	All of the Smart Band product range is manufactured to the highest standard using some of the latest equipment and techniques. The moulding machines are computer controlled and all the settings for each moulding tool are recorded on disk for optimum performance. In any production run, first off components are checked against specification. Once these are approved production begins. Machine setters are not authorised to change the controlling software. Should a parameter require adjustment, the setters will notify the production manager who, after consultation with the quality control department & engineering, will decide on any change.
STATISTICAL PROCESS CONTROL.	SPC data relating to each batch manufactured is available to customers upon request. This data is entered into a computer for dimensional verification and weight checks. The information is then transferred to hard copy and is stored for reference and product traceability.
ROUTINE PRODUCTION CHECKS	Bandss found to be outside specification are rejected, and the batch concerned isolated. Settings are adjusted until satisfactory yield is achieved and the suspect batch subject to 100% inspection.
FINAL INSPECTION	At this station all product is given a final visual and physical inspection. Finally during packaging operations, quality is confirmed by:- a) An inspection ticket packed with the goods. b) A Q. A. label attached on the external surface of the packaging. If required, a certificate of conformity to HCL's product specification can be issued.
QUALITY POLICY	HCL is committed to the highest possible quality standards. Quality control systems are subject to review at appropriate intervals in consideration of the following:- a) Changes in technology b) Changes to markets c) Changes in legislation d) External assessors' reports e) Overall company facilities & policies

## Questions & Answers

13

<p><b>Q. What range of sizes will the Smart Band cover?</b></p>	<p><b>A.</b> Any length from 5 mm to 10000 metres infinity. In theory you can have a band as long as you need.</p>
<p><b>Q. Is the Smart Band easy to fit?</b></p>	<p><b>A.</b> Yes. The band can be cut</p>
<p><b>Q How strong is the Band?</b></p>	<p><b>A.</b> The unique profile of the teeth allows it to be tightened to 1750 Newton's for the 100mm bandwidth size, <b>500</b> Newton's (<b>50kg</b>) for the <b>7mm</b> bandwidth size and <b>250</b> Newton's (<b>25kg</b>) for the <b>4mm</b> bandwidth size.</p>
<p><b>Q What makes the 10mm extra strong?</b></p>	<p><b>A.</b> By using internal glass fibre cores a high breaking strength of up to 1750 N (175kg) is achieved, far more than most applications will ever need.</p>
<p><b>Q Can I purchase the Smart Band in pre cut lengths?</b></p>	<p><b>A.</b> Yes. Because of its flexibility you can specify the length required and we will supply it to you fully assembled and ready to use.</p>
<p><b>Q Will the Smart Band reduce the number of sizes I carry in stock?</b></p>	<p><b>A.</b> Certainly. Either by purchasing on reels and cutting to your exact sizes when required or by specifying a pre-cut length to cover all sizes.</p>
<p><b>Q Can I order the Heads, Banding or Tooling separately?</b></p>	<p><b>A.</b> Yes. The flexibility of the system allows you to order all the components and tools separately. Details on standard quantities and reel lengths are given on Fact Sheet 005 'Specifications'</p>
<p><b>Q Will the Smart Band rust?</b></p>	<p><b>A.</b> No. The Smart Band is non-corrosive and is ideally suited for low maintenance areas. It is a fit and forget device.</p>
<p><b>Q Do chemicals affect the Smart Band?</b></p>	<p><b>A.</b> It is resistant to most chemicals although some acids can have an affect. A full list can be found in the Fact Sheet 002 'Chemical Resistance Data'. As we manufacture in house, we can control how the Smart Band is produced. If you have a special requirement – talk to us and we can discuss your needs.</p>
<p><b>Q Can the Smart Band be used on electrical cables?</b></p>	<p><b>A.</b> Yes. Being made of nylon makes the Smart Band non-conductive and non-magnetic.</p>
<p><b>Q Can the Smart Band be buried?</b></p>	<p><b>A.</b> Yes. The Smart Band is ideal for Utility companies who need to bury their equipment as it is non-corrosive and non toxic.</p>
<p><b>Q Does the band have to be bent around the product?</b></p>	<p><b>A.</b> No. The band is very supple and not only wraps itself around the object but takes up the shape.</p>
<p><b>Q Is the tool easy to operate?</b></p>	<p><b>A.</b> Very. The single handed operation allows the band to be quickly tightened and then cut. May be used at any angle, top of ladders or bottom of holes.</p>
<p><b>Q Can the tool be used with gloves?</b></p>	<p><b>A.</b> Yes. The tool is easy to operate even with gloves.</p>

**Questions & Answers**

<p><b>Q Is the tool complicated and heavy?</b></p>	<p><b>A.</b> No. The tool is designed for single handed operation and robust enough to withstand the mud, muck and rain of on-site use.</p>
<p><b>Q Will the Smart Band save money?</b></p>	<p><b>A.</b> Definitely. The ease of fitting, the strength and performance and reduction in stock may all provide a cost savings.</p>
<p><b>Q Can the Smart Band be fitted in confined or awkward places?</b></p>	<p><b>A.</b> Yes. The tool is designed for single-handed operation at any angle and in confined spaces.</p>
<p><b>Q Can I obtain the Smart Band in different colours?</b></p>	<p><b>A.</b> Yes. The band and head can be produced in a colour to meet your requirements. As we manufacture the Smart Band in house, we can control how the product is produced. If you have a special requirement – talk to us and we can discuss your needs.</p>
<p><b>Q Can the Smart Band be used to identify?</b></p>	<p><b>A.</b> Definitely. The ability to produce in different colours allows you to band and identify at the same time. As we manufacture the Smart Band in house, we can control how the product is produced. If you have a special requirement – talk to us and we can discuss your needs.</p>
<p><b>Q Is the Smart Band affected by temperature?</b></p>	<p><b>A.</b> The Smart Band has a temperature range from –40C to +150C. This is more than sufficient for the majority of situations.</p>
<p><b>Q What are the advantages of Glass reinforced Nylon 66?</b></p>	<p><b>A.</b> Nylon 6.6. is much stronger and more resistant than the commonly used acetal materials. It is also heat stabilized.</p>
<p><b>Q Why is the Smart Band safer to fit?</b></p>	<p><b>A.</b> No sharp edges. This removes the possibility of cutting the operator when fitting or of damaging the product when tightening.</p>
<p><b>Q What type of application can use Smart Band?</b></p>	<p><b>A.</b> Many and varied. In fact its flexibility and durability allows it to be used anywhere an item has to be securely banded or fixed in place. Try it for yourself.</p>
<p><b>Q Is the Smart Band a suitable alternative to stainless steel?</b></p>	<p><b>A.</b> Yes. The Smart Band can be used in many similar applications and give you a number of advantages. However there are a few applications that we would not recommend the product to be fitted and welcome the opportunity to discuss your requirement.</p>