

Smart[®] Products

Product Range – July 2018

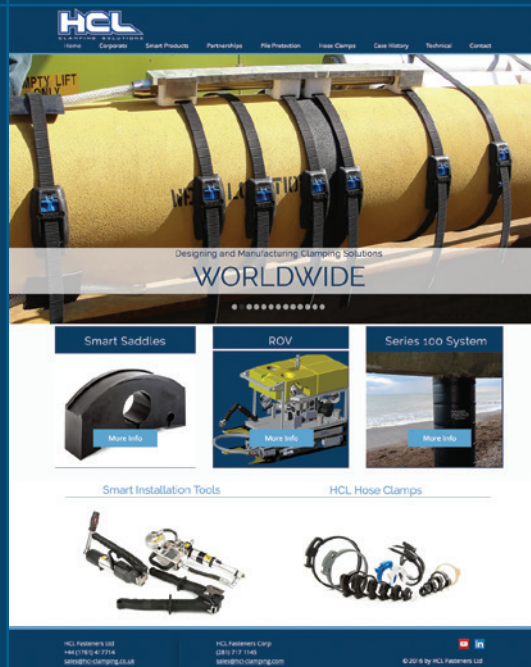


- **Smart[®] Band**
- **Smart[®] Tie**
- **Smart[®] Protector**
- **Smart[®] Installation Tools**



Smart[®] Product Literature

All HCL Smart[®] Product Literature can be downloaded from our website:
www.hclfasteners.com



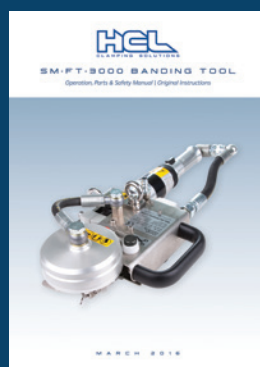
Smart[®] Products
Technical Booklet



Smart[®] Range Application
Track Record Booklet



Smart[®] Products Marine
Corrosion Booklet



SM-FT-3000 Banding
Tool Manual



SM-FT-1000 Banding
Tool Manual

Smart® Band Compact



The new Smart® Band Compact 32mm Banding System is an exciting step forward in the evolution of the Smart® Band range. It combines the best features of both the Smart® Tie and the Smart® Band Hybrid systems to create a superior product.

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The Smart® Band Compact reduces the size of the Hybrid buckle by over 60% allowing it to be installed on applications as low as 200mm in diameter. Yet unlike the Smart® Tie it contains glass fibre reinforced yarn allowing it to maintain the superior strength, retention and relaxation features of the Hybrid system.

Furthermore the innovative technology of over-moulding the buckle directly onto the band has actually produced an increase in the strength and retention of the Compact system. As such the Compact system is now perfectly placed to provide a High Strength, High Retention, Long Life and "quick to fit" strapping method for all major subsea applications including VIV Strake attachment on risers down to 200mm.

32mm (1¼ inch)



Performance & Material

System			Max System Strength		Min Diameter		Max Temp Resistance*		Flammability*
Dimensions		Material							
mm	in			kgf	lbf	mm	in	°C	
32	1¼	PA12GF	2689	5929	200	8	100	212	HB
		PPS	2068	4458	200	8	175	347	V-0

* Life expectancy is dependant on the working temperature. Refer to the Smart Products Technical Booklet for Downhole Use..



Dimensions, Part Numbers & Packaging

System				Band Dimensions				Buckle Dimensions		
Dimensions		HCL Part No	Width		Thickness		Supplied	Height	Length	Width
			mm	in	mm	in		mm/in	mm/in	mm/in
32	1¼	SB-COM-32-PA12GF-?M	32.2	1.27	4.7	0.19	In pre-cut lengths	30.0/1.18	55.2/2.17	51.1/2.01



Tool Options & Retention

System			Min System Retention*			Speed of Installation	Tool Type	Tension Control
Dimensions		Tool	N	kgf	lbf			
mm	in							
32	1¼	SM-FT-1000-32	7000	714	1574	20 secs	Manual	Torque Wrench
		SM-FT-2000-32	3500	357	787	10 secs	Manual	Hand
		SM-FT-3000-32	9000	918	1798	5 secs	Pneumatic	Air Regulator

*Values may be lower depending on materials chosen please refer to Technical Booklets for more information.

Key Features

- 60% reduction in buckle size over 32mm Hybrid
- Improved minimum diameter of 200mm over 32mm Hybrid
- Increase in system strength of 345kgf over the 32mm Hybrid

Smart® Band Hybrid



The Hybrid name points to the unique patented design of the teeth that sit within the buckle. The low profile buckle is made from a composite of materials allowing for greater flexibility and providing a significant increase in strength over the Standard system.

Smart® Band Hybrid is HCL's high strength composite polymer based band and buckle system. With a range of installation tools including the high speed 3000 pneumatic tool the **Smart® Band Hybrid** is the ideal solution for many offshore and onshore applications.

Smart® Band Hybrid is typically used as an alternative to high grade corrosion resistant alloy strapping solutions such as Inconel 625, Monel & Titanium. The Hybrid system combines a number of excellent qualities such as high strength, ease of use, high retention, relaxation properties and long life, to provide the ideal strapping solution for offshore & subsea use.

Key Features

- Low Profile Buckle
- High strength up to 2344kgf (5166lbf)
- Long-life materials
- Safe and easy to fit
- High speed installation
- High retention force - above 918kgf (1798lbf)
- Suitable for divers

19mm (3/4 inch)

32mm (1 1/4 inch)



Performance & Material

System			Max System Strength		Min Diameter		Max Temp Resistance ^o		Flammability ^o
Dimensions		Material							
mm	in			kgf	lbf	mm	in	°C	
19	¾	PA12GF	1321	2911	200	4	100	212	HB
19	¾	POM	1017	2238	200	4	95	203	HB
32	1¼	PA12GF	2344	5166	400	8	100	212	HB

* Life expectancy is dependant on the working temperature. Refer to the Smart Products Technical Booklet for Downhole Use..



Dimensions, Part Numbers & Packaging

System				Band Dimensions						Buckle Dimensions			Buckle
Dimensions		HCL Part No		Width		Thickness		Band Reel Lengths*		Height	Length	Width	Pack Qty
mm	in	Band	Buckle	mm	in	mm	in	m	ft	mm/in	mm/in	mm/in	
19	¾	SB-BA-3/4	SB-BU-3/4-HY	19.2	0.76	3.6	0.14	30/60	100/200	12.8/0.50	99.0/3.90	53.0/2.09	50
32	1¼	SB-BA-1-1/4	SB-BU-1-1/4-HY	32.2	1.27	4.7	0.19	30	100	16.8/0.66	135.5/5.33	76.8/3.02	25

*Band is available in pre-cut lengths with buckle fitted for large volume orders

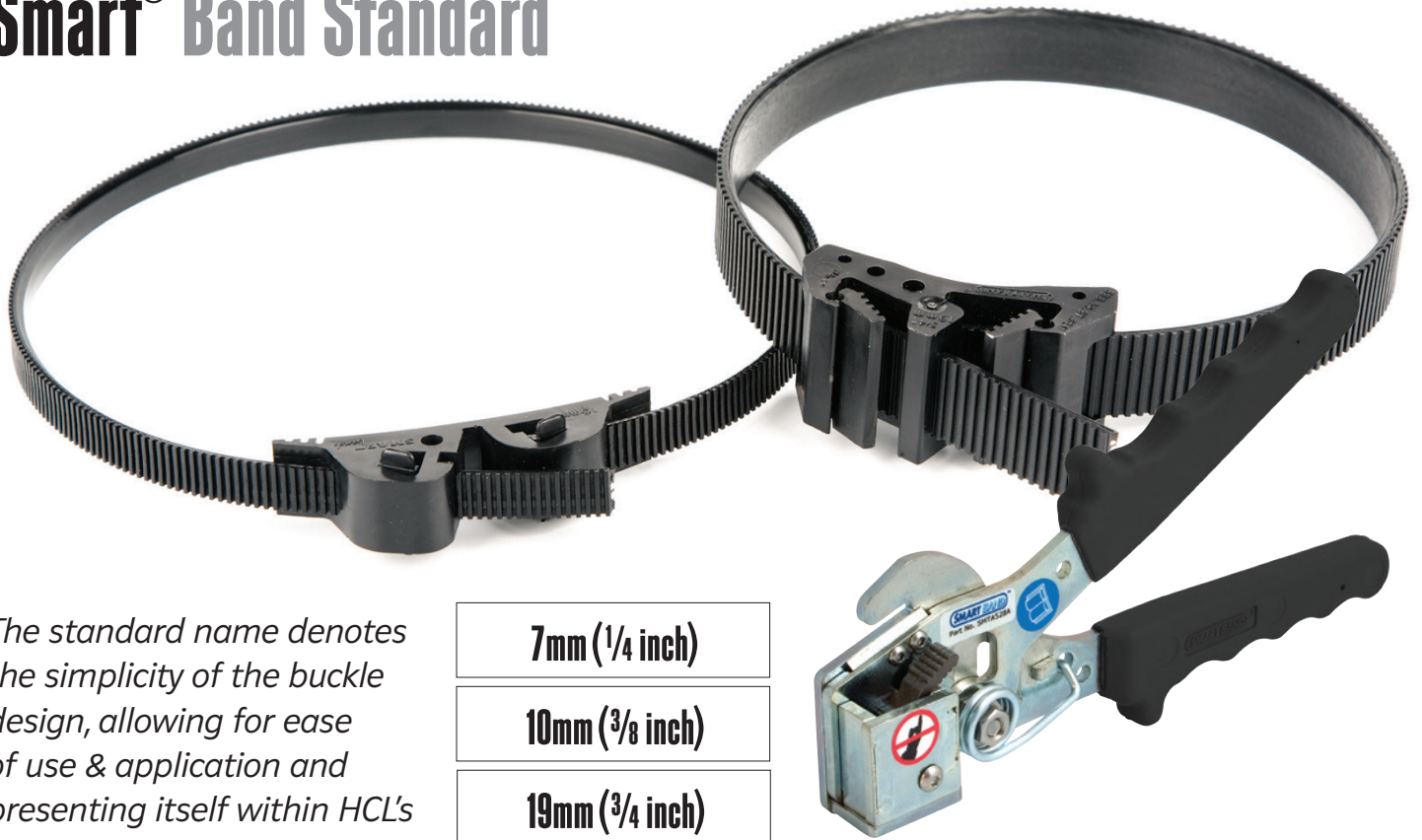


Tool Options & Retention

System			Min System Retention*			Speed of Installation	Tool Type	Tension Control
Dimensions		Tool	N	kgf	lbf			
mm	in							
19	¾	SM-FT-1000-19	3500	357	787	20 secs	Manual	Torque Wrench
		SM-FT-2000-19	3000	306	674	10 secs	Manual	Hand
		SM-FT-3000-19	4000	408	899	5 secs	Pneumatic	Air Regulator
32	1¼	SM-FT-1000-32	7000	714	1574	20 secs	Manual	Torque Wrench
		SM-FT-2000-32	3500	357	787	10 secs	Manual	Hand
		SM-FT-3000-32	9000	918	1798	5 secs	Pneumatic	Air Regulator

*Values may be lower depending on materials chosen please refer to Technical Booklets for more information.

Smart® Band Standard



The standard name denotes the simplicity of the buckle design, allowing for ease of use & application and presenting itself within HCL's product range as the general industry solution.

Smart® Band Standard is a non-metallic band and buckle system. Highly suited to lightweight applications such as temporary and permanent sign fixing and HVAC.

Smart® Band Standard system is available in a variety of materials, sizes and reel lengths. It offers long-life and non-corrosive properties, making it the ideal alternative to many high grade stainless steel strapping solutions.

Key Features

- Strength up to 264kgf (581lbf)
- Non-corrosive
- Safe and easy to fit
- Long life materials
- Lightweight easy to use hand tools
- Highly suited for temporary sign installation

7mm (1/4 inch)

10mm (3/8 inch)

19mm (3/4 inch)



Performance & Material

System			Max System Strength		Min Diameter		Max Diameter		Max Temp Resistance*		Flammability*
Dimensions		Material									
mm	in			kgf	lbf	mm	in	mm	in	°C	
7	¼	PA66	90	197	100	3.94	600	24	125	260	V-2
10	⅜	PA66	264	581	76	2.96	600	24	125	260	V-2
10	⅜	PA12	127	280	76	2.96	600	24	100	212	HB
19	¾	PA66	440	969	75	3.00	800	32	125	260	V-2

* Life expectancy is dependant on the working temperature. Refer to the Smart Products Technical Booklet for Downhole Use



Dimensions, Part Numbers & Packaging

System				Band Dimensions						Buckle Dimensions			Buckle
Dimensions		HCL Part No		Width		Thickness		Band Reel Lengths		Height	Length	Width	Pack Qty
mm	in	Band	Buckle	mm	in	mm	in	m	ft	mm/in	mm/in	mm/in	
7	¼	SB-BA-1/4	SB-BU-1/4-ST	6.9	0.27	2.6	0.1	30/250	100/820	19.2/0.76	76.0/2.99	15.1/0.59	100
10	⅜	SB-BA-3/8	SB-BU-3/8-ST	9.8	0.39	3.6	0.14	30/125	100/410	21.5/0.85	77.2/3.04	22.9/0.9	100
19	¾	SB-BA-3/4	SB-BU-3/4-ST	19.0	0.75	3.6	0.14	30/60	100/200	28.3/1.11	63.8/2.51	30.2/1.19	50



Tool Options & Retention

System			Min System Retention			Speed of Installation	Tool Type	Tension Control
Dimensions		Tool	N	kgf	lbf			
mm	in							
7	¼	SM-TA-528A	200	20	45	10 secs	Manual	Hand
10	⅜	SM-TA-528A	750	77	169	10 secs	Manual	Hand
19	¾	SM-FT-1000-19	1200	122	270	20 secs	Manual	Torque Wrench
		SM-FT-2000-19	1200	122	270	10 secs	Manual	Hand



Smart® Tie incorporates the High Strength Tooth Feature of the Smart® Band Hybrid and Compact and creates the strongest Polymer Cable Tie in the World.

Smart® Tie is a patented heavy duty polymer tie wrap, able to withstand system loads in excess of 1200kgf.* It has the advantage of being manufactured from a range of high temperature polymers, giving it superior chemical and temperature resistance up to 175°C*.

Lightweight and very easy to use the **Smart® Tie** has become the ideal downhole cable tie solution and compatibility with the **Smart® Protector** provides a complete solution for many down-hole applications. The **Smart® Tie** is also used widely in offshore applications such as Cable Protection and can be manufactured from long-life PA12.

*Depending on material choice.

Key Features

- High temperature resistance up to 175°C (347°F)
- High strength up to 1223kgf (2695lbf)
- Safe and very easy to fit
- High speed installation
- 100% recyclable
- Non-corrosive
- Long life materials
- Suitable for divers

19mm (3/4 inch)

20mm (3/4 inch)

32mm (1 1/4 inch)



Performance & Material

System			Max System Strength		Min Diameter		Max Temp Resistance*		Flammability*	Gas Resistance	
Dimensions		Material									
mm	in			kgf	lbf	mm	in	°C		°F	CBM Coal Seam Gas
19	¾	PA66	513	1128	60	2.36	125	260	V-2	?	?
20	¾	PK	565	1220	60	2.36	125	257	HB	Good	Good
		PA12	414	911	60	2.36	100	212	HB	Fair	Fair
		PPS	514	1130	60	2.36	175	347	V-0	Very Good	Very Good
32	1¼	PK	1270	2800	60	2.36	125	257	HB	Good	Good
		PA12	984	2169	60	2.36	100	212	HB	Fair	Fair
		PPS	1223	2695	60	2.36	175	347	V-0	Very Good	Very Good

*Life expectancy is dependant on the working temperature. Refer to the Smart Products Technical Booklet for Downhole Use



Dimensions, Part Numbers & Packaging

System			Band Dimensions						
Dimensions		HCL Part No	Maximum Length		Band Width		Band Thickness	Head Width	Head Height
mm	in		mm	in	mm	in	mm/in	mm/in	mm/in
20	¾	ST-20-600	620.0	24.41	20	0.79	3.6/0.14	35.0/1.38	12.0/0.47
		ST-20-750	770.0	30.31					
32	1¼	ST-32-550	573.0	22.56	32	1.26	4.6/0.18	50.0/1.97	20.0/0.79
		ST-32-850	873.0	34.37					



Tool Options & Retention

System			Min Retention*			Speed of Installation	Tool Type	Tension Control
Dimensions		Tool	N	kgf	lbf			
mm	in							
20	¾	SM-FT-1000-20ST	1500	153	337	20 secs	Manual	Torque Wrench
		SM-FT-2000-19	1500	153	337	10 secs	Manual	Hand
		SM-FT-3000-20ST	1500	153	337	5 secs	Pneumatic	Air Regulator
32	1¼	SM-FT-1000-32ST	4000	408	899	20 secs	Manual	Torque Wrench
		SM-FT-2000-32	3700	377	832	10 secs	Manual	Hand
		SM-FT-3000-32ST	4000	408	899	5 secs	Pneumatic	Air Regulator

*Values may be lower depending on materials chosen please refer to Technical Booklets for more information.

Smart® Courbhastrap



The Problem

Ultra deep water projects are now using new coated pipe with 5 LSPP (five layer Syntatic Polypropylene) & C25 Silicon System. Deep water pressure causes the shrinkage of the coatings generating an OD reduction of up to 10%. The result is a loss in the tension of any bands attached.

The Solution

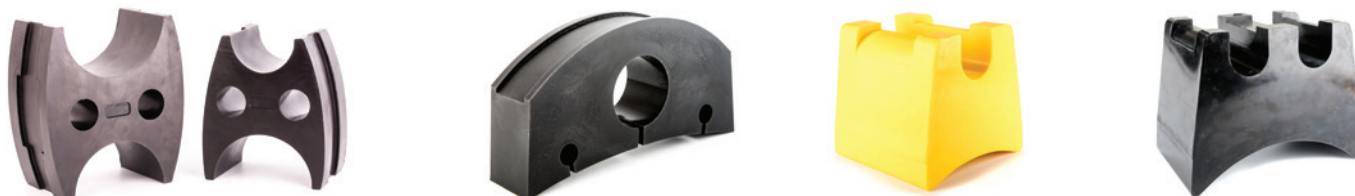
In collaboration with Group Courbis of France HCL have developed the Courbhastrap. Designed to maintain tension over long life in applications where the diameter increases or decreases by up to 10% - Qualified by Technip - Total & Hereema for the Kaombo project.

Smart® Saddles

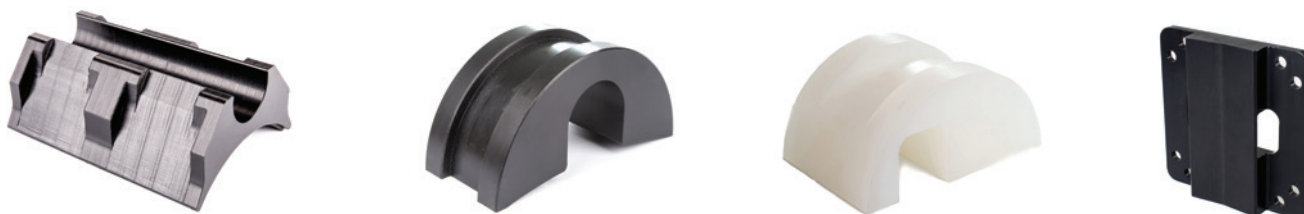


HCL have a dedicated team of highly qualified engineers on hand to work with the clients on special projects. HCL can design and supply PU Casted, PP injection moulded or machined parts which work in conjunction with the **Smart®** Range specifically the **Smart® Band & Smart® Ties**. HCL also has an in house Tool Shop to enable a quick response to client inquiries and delivery of a complete package including ties & saddles. These saddles are often referred to as Piggyback saddles and generally used in the attachment of Cables to offshore or Subsea Structures such as Risers, Pipes or Oil Rigs.

Polyurethane Cast Saddles



Machined Saddles



Injection Moulded Saddles



Style	Materials	Voilume	Cost	Lead time
Cast	PU	10-500	££	Short
Machined	HDPE	1-50	££	Medium
Moulded	PA66, PPS, PA12	500+	£	Long

Smart® Protector



A range of polymer cable protectors for use in Downhole, subsea and flow line applications.

The **Smart® Protector** is a patented product developed in co-operation with Shell. It is designed to operate within restricted annular clearances, to accommodate various tubing diameters, all coupling types and most cable combinations.

The **Smart® Protector** is not only used as a cable protector downhole it can be used to protect & attach cables in many other situations in conjunction with either the **Smart® Band** or **Smart® Tie**. One of the most successful applications is the attachment of Cathodic protection cables to Marine structures.

Key Features

- High temperature resistance up to 250°C (482°F)
- Fits any tubing diameter or coupling length
- Can be used for multi-line installations
- Prevents cable snagging
- Low profile and low friction coefficient
- Available for many different cable configurations
- Will not hang in BOP stack
- Easy to mill

SP-100	SP-100-2	SP-200	SP-300
SP-400-3820	SP-400-5228	SP-500-1721	SP-500-3338



Cable Configurations & Dimensions

Part	Cable Configuration/Options	Strapping Compatibility		Height	Length	Width
		20mm/¾ inch	32mm/1¼ inch	mm/in	mm/in	mm/in
SP-100	1 x ¼ inch control line 1 x ½ inch control line 1 x 2mm fibre optic	Yes	No	19.5/0.77	75.5/2.97	25.0/0.98
SP-100-2	2 x ¼ inch control line	Yes	Yes	21.6/0.85	25.7/0.99	104.2/4.10
SP-200	1 x 11mm square or round encapsulated line	Yes	Yes	24.9/0.98	114.0/4.49	25.0/0.98
SP-300	1 or 2 x 11mm square or round encapsulated line 1 or 2 x ¼ inch control lines	Yes	Yes	27.9/1.10	160.0/6.30	46.2/1.82
SP-400-3820	Flat Packs & Flat ESP Cables up to 38mm width & 20mm height	Yes	Yes	32.5/1.28	160.0/6.30	46.2/1.82
SP-400-5228	Flat Packs & Flat ESP Cables up to 52mm width & 28mm height	Yes	Yes	41.5/1.63	160.0/6.30	62.6/2.46
SP-500-1721	Round Cables between 17mm to 21mm Diameter	Yes	Yes	35.0/1.38	122.7/4.83	33.8/1.33
SP-500-3338	Round Cables between 33mm to 38mm Diameter	Yes	Yes	56.2/2.19	181.0/7.13	55.7/2.19

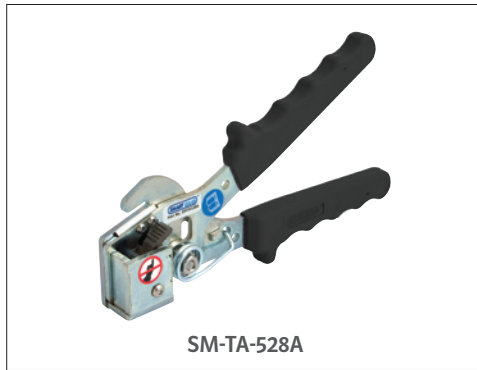


Performance & Material

Material	Max Temp*		Longevity*	Gas Resistance		Rotational Load	Crush Load
	°C	°F		CBM Coal Seam Gas	H ₂ S Sour Gas	kgf	kgf
PK	125	257	Long term				
PA12	100	212	Long term	Fair	Fair	50	2000
PPS	175	347	Long term	Very Good	Very Good		
PEEK	250	482	Long term	Excellent	Excellent		

*Life expectancy is dependant on the working temperature. Refer to the Smart Products Technical Booklet for Downhole Use.

Smart® Installation Tools



To enable the installation of the Smart® Band and Smart® Tie HCL had to design and manufacture a range of specific installation tools.

HCL has developed a range of tooling suitable for the installation of its range of **Smart® Band** and **Smart® Ties**.

- SM-TA-528A** - Lightweight and easy to use, the 528A tool is a manual tool for the smaller Standard systems
- SM-FT-1000** - A highly specified manual tool which can incorporate the addition of a torque wrench to enable consistent tightening to a set tension
- SM-FT-2000** - The divers choice. Loved for its exceptional ease of use and its ability to provide high retention forces
- SM-FT-3000** - Exceptionally fast, the 3000 tool has been designed to enable installation of **Smart® Bands** and **Smart® Ties** in under 5 seconds

SM-TA-528A

SM-FT-1000

SM-FT-2000

SM-FT-3000



Tool Options

		System Compatibility							
Tool	Part Number	System		Product	Buckle	Tool Weight		Speed of Installation	Control Type
		mm	in			kg	lb		
528A	SM-TA-528A	7	¼	Smart® Band	Standard	0.43	0.95	10 secs	Manual
		10	¾	Smart® Band	Standard				
1000	SM-FT-1000-19	19	¾	Smart® Band	Standard & Hybrid	2.79	6.14	20 secs	Manual with Torque capability
	SM-FT-1000-20ST	20	¾	Smart® Tie					
	SM-FT-1000-32	32	1¼	Smart® Band	Hybrid & Compact				
	SM-FT-1000-32ST	32	1¼	Smart® Tie					
2000	SM-FT-2000-19	19	¾	Smart® Band	Standard & Hybrid	0.75	1.65	10 secs	Manual
		20	¾	Smart® Tie					
	SM-FT-2000-32	32	1¼	Smart® Band	Hybrid & Compact	1.33	2.93		
				Smart® Tie					
3000	SM-FT-3000-19	19	¾	Smart® Band	Standard & Hybrid	6.40	14.08	5 secs	Pneumatic Tightening & Cutting
	SM-FT-3000-20ST	20	¾	Smart® Tie					
	SM-FT-3000-32	32	1¼	Smart® Band	Hybrid & Compact	7.50	16.50		
	SM-FT-3000-32ST	32	1¼	Smart® Tie					

Smart[®] Product Applications

Piggyback Pipelay



There are numerous requirements for piggyback pipe lay including the attachment of Fibre Optic, Methanol and DEH lines (Direct Electrical Heating). Smart[®] Band is an ideal solution for attachment in conjunction with piggyback clamps of the piggyback line to the main pipeline.

Cable, Riser & Flowline Protection



The installation of Subsea Cables is widespread. A key issue in this area is cable protection. HCL works alongside Half Shell Cable protection providers to provide a complete solution to the client. The Smart[®] Band is ideal for such applications offering good impact and abrasion resistance alongside its usual features of high strength, long life and price competitiveness.

Flotation and Buoyancy



Smart[®] Band is being increasingly utilised on risers and flowlines for clamping buoyancy and flotation products. Offering High Strength and excellent Elastic and Hydrostatic Compression characteristics the Smart[®] Band works with the buoyancy products to provide excellent long term retention.

VIV Strakes



Smart[®] Band is an ideal clamping solution for Strakes to risers and in particular in the deepwater environment. In these areas the Elasticity of the band and the excellent Hydrostatic Compression data become increasingly important. Specifically any applications where there is a susceptibility to compression.

Wind Farms



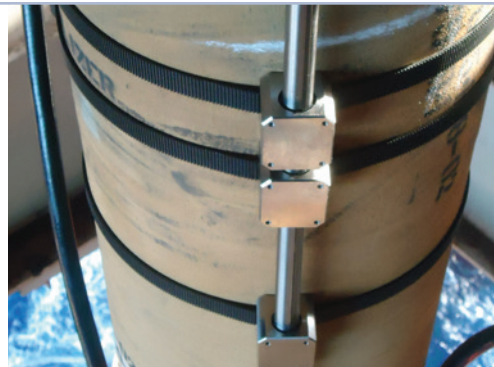
Attaching cables or brackets to the main structure of a Wind Farm can be expensive and fraught with difficulty. The ease of installation and the non-corrosive nature of the Smart[®] Band makes it an ideal solution for this application and it has been installed successfully in many projects worldwide.

One of the most common applications for Smart® Band offshore is subsea/offshore attachment of all sorts of cables and umbilicals. In many cases Smart® Band is the ideal solution. It's safe and easy to fit and because it has no sharp edges to damage the cables etc. We have an extensive track record in this area.



Cable Attachment

Sensor attachment is a common application offshore and subsea as companies attempt to identify patterns and record data. Smart® Band and Smart® Tie have both been extensively utilised in this area.



Sensor Attachment

Attaching corrosion protective Jackets to Jetty Piles has been one of the most successful applications for the Smart® Band and in terms of strapping has become the number 1 solution in this application. Key benefits are the corrosion resistance, ease of use, competitive pricing and also Smart® Band is not easily recyclable therefore will not get stolen from the Jettys once installed.



Pile Protection

Downhole is a very specific and aggressive application and attaching cables downhole often can often be a headache. The Smart® Tie is being increasingly utilised in this area replacing standard metal solutions which often causes significant disruption when they fail and fall to the bottom of the well.



Downhole

The uses for Smart® Band and Smart® Tie offshore and subsea are simply endless. Wherever something needs to be attached then these products can often be used.



Other Applications



Visit www.hclfasteners.com to view our complete range of products.

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Smart[®] Products

Product Range – October 2014

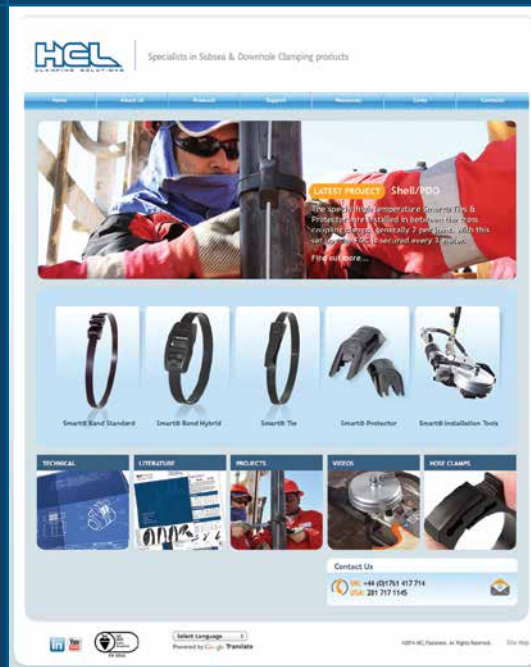


- **Smart[®] Band Standard**
- **Smart[®] Band Hybrid**
- **Smart[®] Tie**
- **Smart[®] Protector**
- **Smart[®] Installation Tools**



Smart[®] Product Literature

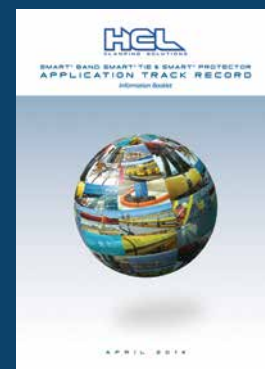
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Smart[®] Band & Smart[®] Tie
Technical Booklet



Smart[®] Protector
Technical Booklet



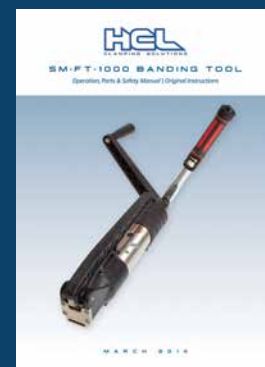
Smart[®] Range Application
Track Record Booklet



Smart[®] Band Product
Comparison Booklet



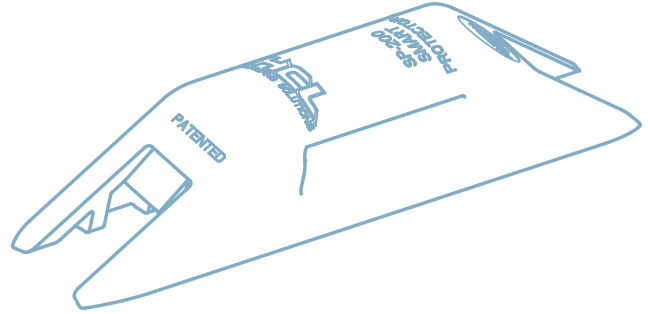
SM-FT-3000 Banding
Tool Manual



SM-FT-1000 Banding
Tool Manual

Over the past 20 years HCL have cemented their position as leaders in the manufacture and design of Subsea & Downhole clamping solutions. HCL manufacture a number of product categories within the **Smart®** product family which are displayed below. Based in Bath in the south west of the United Kingdom HCL are a family owned company with a proud history of innovation within the Oil & Gas industry.

HCL Subsea & Downhole Clamping Solutions



Smart® Product Group

Smart® Band



Standard

- 19mm (¾") (440kgf/969lbf)
- 10mm (⅜") (264kgf/582lbf)
- 7mm (¼") (90kgf/198lbf)



Hybrid

- 32mm (1¼") (2551kgf/5622lbf)
- 19mm (¾") (1270kgf/2799lbf)

Smart® Tie



- 19mm (513kgf/1131lbf)

Smart® Protector



- SP-100
Min Tubing Dia - 2⅜"



- SP-200
Min Tubing Dia - 2⅜"



- SP-300
Min Tubing Dia - 3½"



- SP-400-3820
Min Tubing Dia - 3½"



- SP-400-5228
Min Tubing Dia - 3½"



- SP-500-1721
Min Tubing Dia - 3½"

Installation Tools



- SM-TA-528A - Manual
For use with Smart® Band Standard 10mm & 7mm



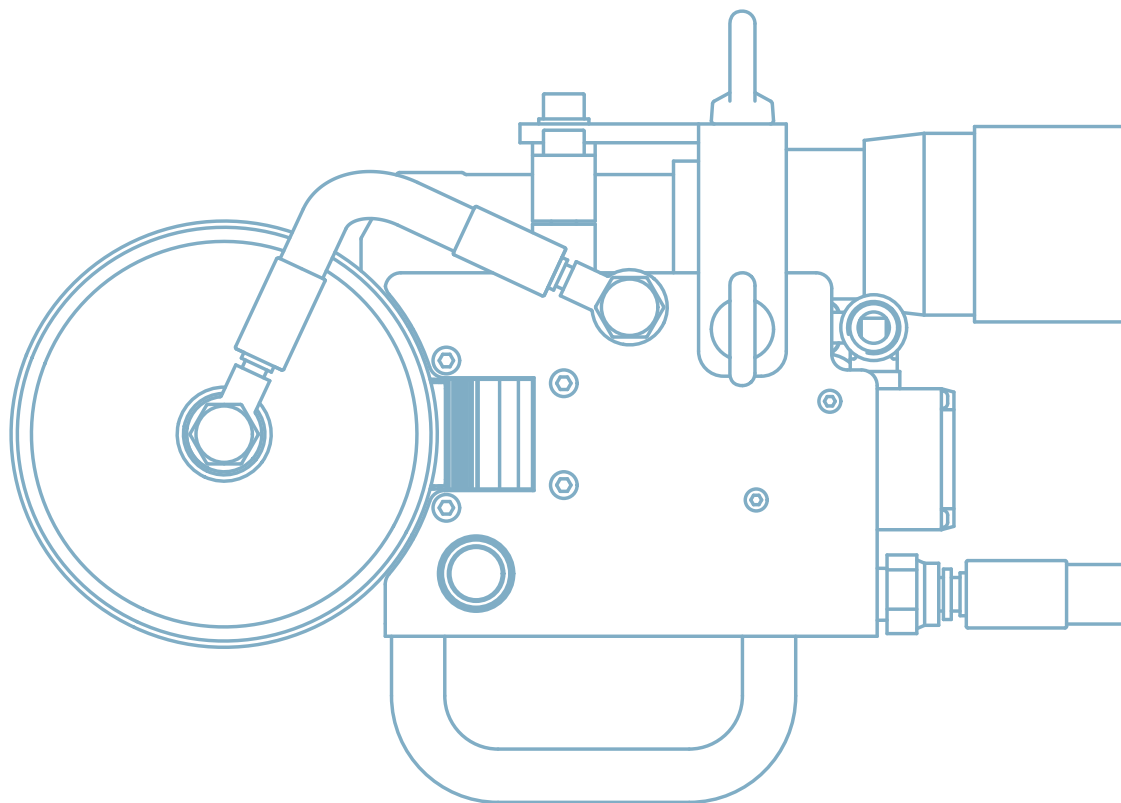
- SM-FT-1000 - Manual
For use with Smart® Band Standard 19mm, Hybrid 32mm & 19mm & Smart® Tie 19mm



- SM-FT-2000 - Manual
For use with Smart® Band 19mm & Smart® Tie 19mm



- SM-FT-3000 - Pneumatic
For use with Smart® Band Standard 19mm, Hybrid 32mm & 19mm & Smart® Tie 19mm





Smart[®]
Band Standard



The standard name denotes the simplicity of the buckle design, allowing for ease of use & application and presenting itself within HCL's product range as the general industry solution.



Smart[®] Band Standard

19mm (3/4 inch)

10mm (3/8 inch)

7mm (1/4 inch)

Smart[®] Band Standard is a non-metallic band and buckle system. It is a highly intuitive product making it very easy to fit (even subsea when divers often have to install in waters with very low visibility). It is the ideal strapping solution for less aggressive applications both on and offshore.

Smart[®] Band Standard system is available in a variety of materials, sizes and reel lengths. It offers long-life and non-corrosive properties, making it the ideal alternative to many high grade stainless steel strapping solutions. Further information can be found in the tables below.



Performance & Material

System			Max System Strength		Min Diameter		Max Diameter		Max Temp		Life Expectancy
Dimensions		Material									
mm	in			kgf	lbf	mm	in	mm	in	°C	°F
7	¼	Nylon 66	90	198	75	3	600	24	125	260	5+
10	⅜	Nylon 66	264	582	75	3	600	24	125	260	5+
10	⅜	Nylon 11	198	435	75	3	600	24	105	221	25+
19	¾	Nylon 66	440	969	75	3	800	32	125	260	5+



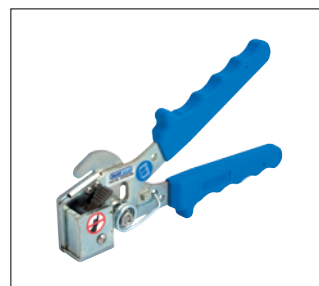
Dimensions, Part Numbers & Packaging

System				Band Dimensions						Buckle Dimensions			Buckle
Dimensions		HCL Part No		Width		Thickness		Band Reel Lengths		Height	Length	Width	Pack Qty
mm	in	Band	Buckle	mm	in	mm	in	m	ft	mm/in	mm/in	mm/in	
7	1/4	SB-BA-1/4	SB-BU-1/4-ST	7	1/4	2.5	0.1	30/250	100/820	19.2/0.76	76/2.99	15.1/0.59	100
10	3/8	SB-BA-3/8	SB-BU-3/8-ST	10	3/8	3.6	0.14	30/125	100/410	21.5/0.85	77.2/3.04	22.9/0.9	100
19	3/4	SB-BA-3/4	SB-BU-3/4-ST	19	3/4	3.6	0.14	30/60	100/200	28.3/1.11	63.8/2.51	30.2/1.19	50



Tool Options & Retention

System			Min System Retention			Speed	Tool Type	
Dimensions		Tool	N	kgf	lbf			
mm	in							
7	¼	SM-TA-528A	200	20	45	Fast	Manual	
10	⅜	SM-TA-528A	750	77	169	Fast	Manual	
19	¾	SM-FT-1000-19	1200	122	270	Medium	Manual	With Torque Wrench
		SM-FT-2000-19	1200	122	270	Fast	Manual	



SM-TA-528A



SM-FT-1000-19



SM-FT-2000-19

Key Features

- Strength up to 440kgf (969lbf)
- Non-corrosive
- Safe and easy to Fit
- Cut to length for any size
- Long life materials
- Full range of Installation Tools
- Suitable for divers



The Hybrid name points to the unique patented design of the teeth that sit within the buckle. The low profile buckle is made from a composite of materials allowing for greater flexibility and providing a significant increase in strength over the Standard system.



Smart[®]
Band Hybrid





Smart[®] Band Hybrid

32mm (1¼ inch)

19mm (¾ inch)

Smart[®] Band Hybrid is HCL's premium high strength composite polymer based band and buckle system. With a range of installation tools including the high speed 3000 pneumatic tool the **Smart[®] Band Hybrid** is the ideal solution for many offshore applications.

Smart[®] Band Hybrid is typically used as an alternative to high grade corrosion resistant alloy strapping solutions such as Inconel 625, Monel & Titanium. The Hybrid system combines a number of excellent qualities such as its high strength, ease of use, high retention and relaxation properties and its long life, to provide the ideal strapping solution for offshore & subsea use. Further details can be found below.



Performance & Material

System			Max System Strength		Min Diameter		Max Temp		Life Expectancy
Dimensions		Material							
mm	in			kgf	lbf	mm	in	°C	°F
19	¾	Acetal POM	1018	2244	200	4	95	203	5+
19	¾	Nylon 11 GF	1270	2799	200	4	115	239	25+
32	1¼	Acetal POM	1754	3867	400	8	95	203	5+
32	1¼	Nylon 11 GF	2551	5622	400	8	115	239	25+



Dimensions, Part Numbers & Packaging

System				Band Dimensions						Buckle Dimensions			Buckle
Dimensions		HCL Part No		Width		Thickness		Band Reel Lengths*		Height	Length	Width	Pack Qty
mm	in	Band	Buckle	mm	in	mm	in	m	ft	mm/in	mm/in	mm/in	
19	¾	SB-BA-3/4	SB-BU-3/4-HY	19	¾	3.6	0.14	30/60	100/200	12.8/0.50	99.0/3.90	53.0/2.09	50
32	1¼	SB-BA-1-1/4	SB-BU-1-1/4-HY	32	1¼	4.7	0.19	30	100	16.8/0.66	135.5/5.33	76.8/3.02	25

*Band is available in pre-cut lengths with buckle fitted for large volume orders



Tool Options & Retention

System			Min System Retention*			Speed	Tool Type	
Dimensions		Tool	N	kgf	lbf			
mm	in							
19	¾	SM-FT-1000-19	3500	357	787	Medium	Manual	With Torque Wrench
		SM-FT-2000-19	2000	204	450	Fast	Manual	
		SM-FT-3000-19	3500	357	787	Very Fast	Pneumatic	
32	1¼	SM-FT-1000-32	7000	714	1574	Medium	Manual	With Torque Wrench
		SM-FT-3000-32	9000	918	1798	Very Fast	Pneumatic	

*Values may be lower depending on materials chose please review section 2.3 of the Technical Data Booklet



SM-FT-1000-19



SM-FT-2000-19



SM-FT-3000

Key Features

- Low Profile Buckle
- High strength up to 2551kgf (5622lbf)
- Long-life materials
- Safe and easy to fit
- High speed installation
- Cut to length for any size
- High retention force - above 918kgf (1798lbf)



Smart[®]
Tie



Smart[®] Tie incorporates the Hybrid feature of the Smart[®] Band and creates the strongest Polymer Cable Tie in the World.



Smart[®] Tie

19mm (3/4 inch)

Smart[®] Tie is a patented heavy duty polymer cable tie, able to withstand system loads in excess of 500kgf. It has the advantage of being manufactured from a range of high temperature polymers, giving it superior chemical and temperature resistance up to 250°C.

Lightweight and very easy to use the **Smart[®] Tie** has become the ideal downhole cable tie solution and compatibility with the **Smart[®] Protector** provides a complete solution for many down-hole applications. The **Smart[®] Tie** is also used widely in offshore applications such as Cable Protection and can be manufactured from long-life Nylon 11.



Performance & Material

System			Max System Strength		Min Diameter		Max Temp		Longevity	Gas Resistance	
Dimensions											
mm	in	Material	kgf	lbf	mm	in	°C	°F		CBM Coal Seam Gas	H ₂ S Sour Gas
19	¾	Nylon 66	513	1131	60	2.36	125	260	Medium term	Limited	Limited
19	¾	Nylon 11	400	881	60	2.36	105	221	Long term	Fair	Fair
19	¾	PPS	505	1111	60	2.36	175	347	Long term	Very Good	Very Good
19	¾	PEEK	>815	1794	60	2.36	250	482	Long term	Excellent	Excellent



Dimensions, Part Numbers & Packaging

System			Band Dimensions						
Dimensions		HCL Part No	Maximum Length		Band Width		Band Thickness	Head Width	Head Height
mm	in		mm	in	mm	in	mm/in	mm/in	mm/in
19	¾	ST-20-750	770.0	30.31	20.0	0.79	3.6/0.14	35.0/1.38	12.0/0.47
19	¾	ST-20-600	620.0	24.41					
19	¾	ST-20-450	470.0	18.50					



Tool Options & Retention

System			Min Retention [*]			Speed	Tool Type	
Dimensions		Tool	N	kgf	lbf			
mm	in							
19	¾	SM-FT-1000-19	2000	204	450	Medium	Manual	With Torque Wrench
		SM-FT-2000-19	1800	184	405	Fast	Manual	
		SM-FT-3000-19	1600	163	360	Very Fast	Pneumatic	

*Values may be lower depending on materials chose please review section 2.3 of the Technical Data Booklet



SM-FT-1000-19



SM-FT-2000-19



SM-FT-3000

Key Features

- High temperature resistance up to 250°C (482°F)
- High strength up to 513kgf (1131lbf)
- Safe and very easy to fit
- High speed installation
- 100% recyclable
- Non-corrosive



A range of polymer cable protectors for use in Downhole, subsea and flow line applications



Smart[®]
Protector



PATENTED

HGL
CLAMPING SOLUTIONS

SP-300
SMART
PROTECTOR

Smart[®] Protector

SP-100

SP-200

SP-300

SP-400-3820

SP-400-5228

SP-500-1721

The **Smart[®] Protector** is a patented product developed in co-operation with Shell. It is designed to operate within restricted annular clearances, to accommodate various tubing diameters, all coupling types and most cable combinations.

The **Smart[®] Protector** is not only used as a cable protector downhole it can be used to protect & attach cables in many other situations in conjunction with either the **Smart[®] Band** or **Smart[®] Tie**. One of the most successful applications is the attachment of Cathodic protection cables to Marine structures.



Cable Configurations & Dimensions

Part	Cable Configuration/Options	Strapping Compatibility		Height	Length	Width
		19mm/¾ inch	32mm/1¼ inch	mm/in	mm/in	mm/in
SP-100	1 x ¼ inch control line 1 x ½ inch control line 1 x 2mm fibre optic	Yes	No	19.5/0.77	75.5/2.97	25.0/0.98
SP-200	1 x 11mm square or round encapsulated line	Yes	Yes	24.9/0.98	114.0/4.49	25.0/0.98
SP-300	1 or 2 x 11mm square or round encapsulated line 1 or 2 x ¼ inch control lines	Yes	Yes	27.9/1.10	160.0/6.30	46.2/1.82
SP-400-3820	Flat Packs & Flat ESP Cables up to 38mm width & 20mm height	Yes	Yes	32.5/1.28	160.0/6.30	46.2/1.82
SP-400-5228	Flat Packs & Flat ESP Cables up to 52mm width & 28mm height	Yes	Yes	41.5/1.63	160.0/6.30	62.6/2.46
SP-500-1721	Round Cables between 17mm to 21mm Diameter	Yes	Yes	35.0/1.38	122.7/4.83	33.8/1.33



Performance & Material

Material	Max Temp		Longevity	Gas Resistance		Rotational Load	Crush Load
	°C	°F		CBM Coal Seam Gas	H ₂ S Sour Gas	kgf	kgf
Nylon 66	125	260	Medium term	Limited	Limited	50	2000
Nylon 11	105	221	Long term	Fair	Fair		
PPS	175	347	Long term	Very Good	Very Good		
PEEK	250	482	Long term	Excellent	Excellent		

Key Features

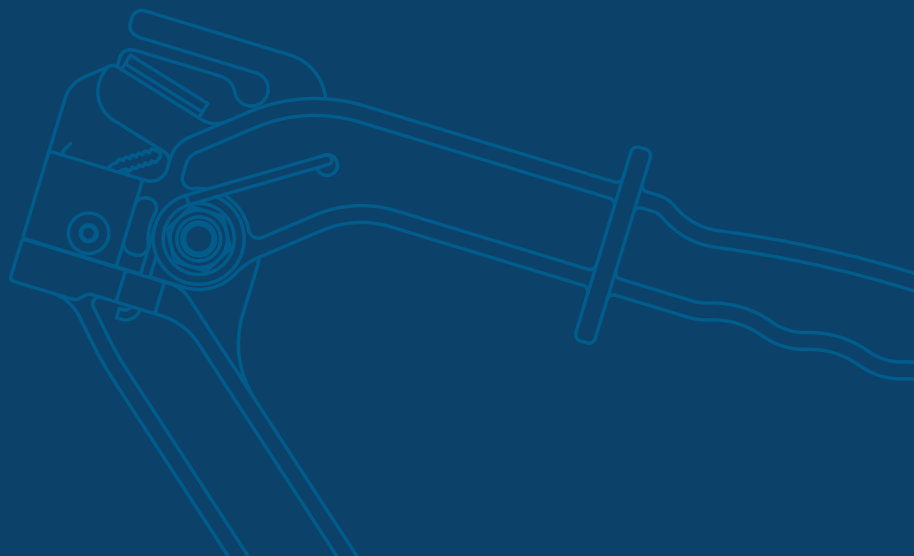
- High temperature resistance up to 250°C (482°F)
- Fits any tubing diameter or coupling length
- Can be used for multi-line installations
- Low profile and low friction coefficient
- Available for many different cable configurations
- Will not hang in BOP stack
- Easy to mill



To enable the installation of the Smart® Band and Smart® Tie HCL had to design and manufacture a range of specific installation tools.



Smart®
Installation Tools



Smart® Installation Tools

SM-TA-528A

SM-FT-1000

SM-FT-2000

SM-FT-3000

HCL has developed a range of tooling suitable for the installation of its range of **Smart® Band** and **Smart® Ties**.

- SM-TA-528A** - Lightweight and easy to use, the 528A tool is a manual tool for the smaller Standard systems
- SM-FT-1000** - A highly specified manual tool which can incorporate the addition of a torque wrench to enable consistent tightening to a set force
- SM-FT-2000** - The divers choice. Loved for its exceptional ease of use and its ability to provide high retention forces
- SM-FT-3000** - Lightweight and exceptionally fast, the 3000 tool has been designed to enable installation of **Smart® Bands** and **Smart® Ties** in under 5 seconds



Tool Options

		System Compatibility							
Tool	Part Number	System		Product	Buckle	Tool Weight		Speed of Installation	Type
		mm	in			kg	lb		
528A	SM-TA-528A	7	¼	Smart® Band	Standard	0.43	0.95	10 secs	Manual
		10	¾	Smart® Band	Standard				
1000	SM-FT-1000-19	19	¾	Smart® Band	Standard & Hybrid	2.79	6.14	20 secs	Manual with Torque capability
	SM-FT-1000-20ST	19	¾	Smart® Tie					
	SM-FT-1000-32	32	1¼	Smart® Band	Hybrid				
2000	SM-FT-2000-19	19	¾	Smart® Band	Standard & Hybrid	0.75	1.65	10 secs	Manual
		19	¾	Smart® Tie					
3000	SM-FT-3000-19	19	¾	Smart® Band	Standard & Hybrid	6.40	14.08	5 secs	Pneumatic Tightening & Cutting
	SM-FT-3000-20ST	19	¾	Smart® Tie					
	SM-FT-3000-32	32	1¼	Smart® Band	Hybrid	7.50	16.50		



SM-TA-528A



SM-FT-1000-19



SM-FT-2000-19



SM-FT-3000

Smart[®] Product Applications

Piggyback Pipelay



There are numerous requirements for piggyback pipe lay including the attachment of Fibre Optic, Methanol and DEH lines (Direct Electrical Heating). Smart[®] Band is an ideal solution for attachment in conjunction with piggyback clamps of the piggyback line to the main pipeline.

Cable, Riser & Flowline Protection



The installation of Subsea Cables is widespread. A key issue in this area is cable protection. HCL works alongside Half Shell Cable protection providers to provide a complete solution to the client. The Smart[®] Band is ideal for such applications offering good impact and abrasion resistance alongside its usual features of high strength, long life and price competitiveness.

Flotation and Buoyancy



Smart[®] Band is being increasingly utilised on risers and flowlines for clamping buoyancy and flotation products. Offering High Strength and excellent Elastic and Hydrostatic Compression characteristics the Smart[®] Band works with the buoyancy products to provide excellent long term retention.

VIV Strakes



Smart[®] Band is an ideal clamping solution for Strakes to risers and in particular in the deepwater environment. In these areas the Elasticity of the band and the excellent Hydrostatic Compression data become increasingly important. Specifically any applications where there is a susceptibility to compression.

Wind Farms



Attaching cables or brackets to the main structure of a Wind Farm can be expensive and fraught with difficulty. The ease of installation and the non-corrosive nature of the Smart[®] Band makes it an ideal solution for this application and it has been installed successfully in many projects worldwide.

One of the most common applications for Smart® Band offshore is subsea/offshore attachment of all sorts of cables and umbilicals. In many cases Smart® Band is the ideal solution. It's safe and easy to fit and because it has no sharp edges to damage the cables etc. We have an extensive track record in this area.



Cable Attachment

Sensor attachment is a common application offshore and subsea as companies attempt to identify patterns and record data. Smart® Band and Smart® Tie have both been extensively utilised in this area.



Sensor Attachment

Attaching corrosion protective Jackets to Jetty Piles has been one of the most successful applications for the Smart® Band and in terms of strapping has become the number 1 solution in this application. Key benefits are the corrosion resistance, ease of use, competitive pricing and also Smart® Band is not easily recyclable therefore will not get stolen from the Jettys once installed.



Pile Protection

Downhole is a very specific and aggressive application and attaching cables downhole often can often be a headache. The Smart® Tie is being increasingly utilised in this area replacing standard metal solutions which often causes significant disruption when they fail and fall to the bottom of the well.



Downhole

The uses for Smart® Band and Smart® Tie offshore and subsea are simply endless. Wherever something needs to be attached then these products can often be used.



Other Applications



Visit www.hclfasteners.com to view our complete range of products.

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Marine Cathodic Protection – January 2018



*Smart® Products
reducing cost and installation
time on Corrosion Projects*

Corrosion Protection - Using ICCP Systems

HCL Products used for Cable Management

A Smart® Protector

The 500-1721 Protector enhances the management and protection of the ICCP Cable



B Smart® Band 19mm

The 19mm Band is highly suited to clamping the ICCP cable on larger diameter structures



Smart® Ties

High strength and non-corrosive ideal for clamping ICCP Cable around smaller diameters



2000 Tool

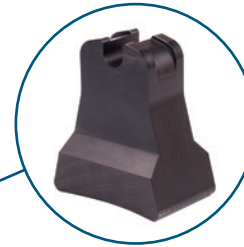
The manual 2000 tool is ideal for fast installation of 19mm Smart® Band & Smart® Ties around the structure



HCL Products used for Reference Electrode and Anode Attachment

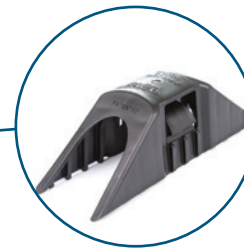
C HCL ICCP Saddle

HCL can accommodate Clients particular needs when it comes to stand-off dimension from the pile surface



D Smart® Protector

The 500-3338 Protector is used in conjunction with the 32mm Band to install and retain the electrode



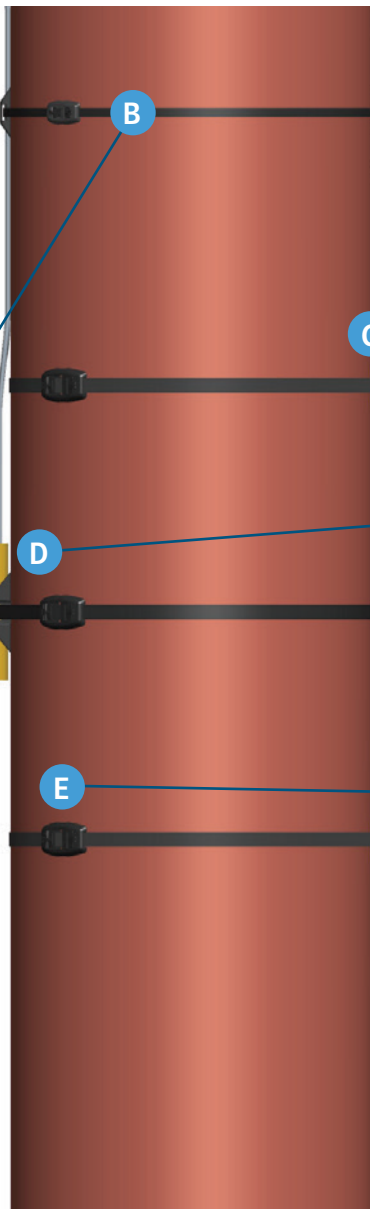
E Smart® Band 32mm

This High Strength System retains both the ICCP Anode and the Reference Electrode securely to the structure



1000 Tool

The 1000 tool with Torque control is used with the 32mm Band to provide consistent and high retention force



The installation of ICCP systems onto Port structures is often time consuming and expensive. Utilising the HCL Smart® Band, Cable protectors and saddle system can greatly reduce both material cost and installation time.

Additionally the HCL solution provides many benefits on a technical level which have been highlighted below.

Benefits:

A "soft fit" with no penetration of the existing surface coating required

Ties, Bands and Protectors can be used as an alternative

Saves days on installation time

Only basic diving requirement.
No powered plant required on site

Smart® Band can be cut off.
Very easy to replace anodes

Smart® Band will fit any irregular pile

Heavy custom made steel hoops are not required

Corrosion Protection – Sacrificial Anodes

HCL Products used for Anode attachment

1000 Tool

The 1000 tool with torque control is used with the 32mm Band to provide consistent and high retention force throughout the installation



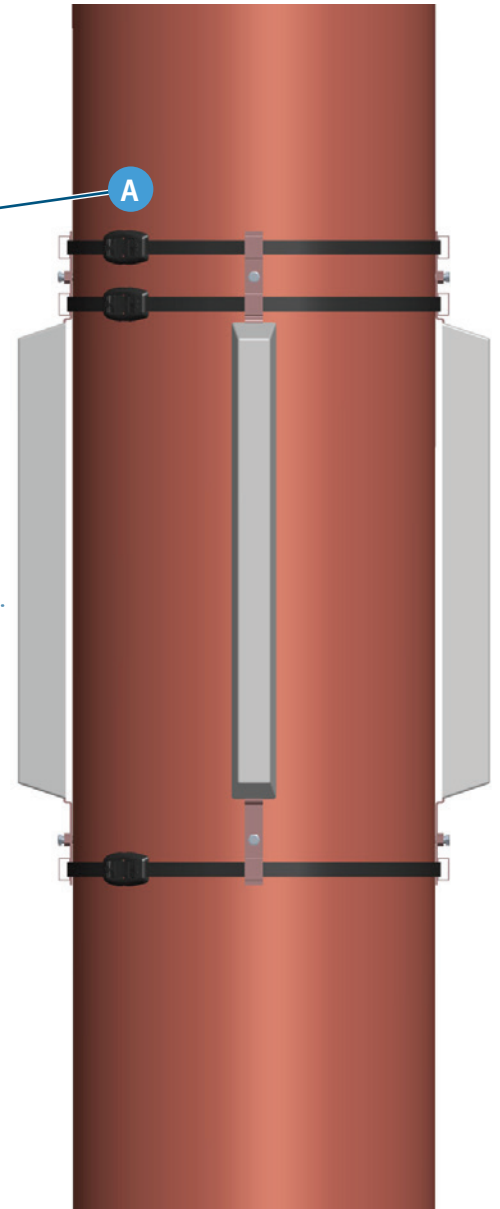
A Smart® Band 32mm

The Smart® Band 32mm System is used to secure the sacrificial anodes to the structure – eliminating the requirement for either welding or the use of steel frames

Traditional Sacrificial Anode attachment requires expensive steel cages fabricated to fit pile diameters or underwater welding in bad visibility.

HCL is able to offer a non-ferrous alternative to Anode attachment eliminating the need for advance pile measurement surveys and mobilisation of heavy clamping packages to sometimes remote site locations.

With the added advantage of no power being required to fit HCL's Smart® Band and the products ability to be adapted to local configurations (without returning to base) introduces significant savings on installation time and materials.



HCL has a team of professional engineers ready to assist with your corrosion problems providing technical consultation and system solution advice.

Benefits:

Light weight and ready packaged

No survey required and easily replaced

Only required in certain zones

"Soft Fit". Does not damage existing coating

Anodes hung on hooks. Strap passed through loops and tensioned

All Long Life Polymers

No power tools or plant required

HCL Products providing solutions to the Marine, Offshore & Subsea Industry for 20 Years



Visit www.hclfasteners.com to view our complete range of products.

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OEM Products - February 2016



*Herbie Clip® ■ Ezyklik™-P
Plasclip ■ Installation Tools*

Specialists in banding and clamping products

HCL is uniquely placed to provide a first class clamping service thanks to its long term exclusive arrangements with high quality clamping suppliers around the world, and its ability to manufacture a variety of clamping products and fitting tools.

Founded in 1994, HCL was originally known for the manufacture and supply of the original double grip plastic hose clamp, the Herbie Clip®. Since then, HCL has established a focused range of products which specialise in plastic clamping and banding, including Smart Band®, Smart Tie™ and the Ezyklik™. Our hi-tech manufacturing facility consisting of numerous injection moulding machines and bespoke extrusion lines.

2010 saw an exciting change for HCL, as for the first time we combined our manufactured and supplied clamping products to create a complete portfolio of clamping solutions.

With an established office in North America and a worldwide distribution network, our continuous objective is to innovate and service the market with quality-engineered products that will stand the test of time.



HCL's Quality Policy

Within HCL Fasteners Ltd we are committed to provide products and services which meet the customers' specified contractual and project requirements and those of all applicable regulating authorities.

We are totally committed to setting and achieving quality standards that are capable of meeting, in all respects, the specified requirements and reasonable expectations of our customers, whilst working within the framework of statutory, regulatory and legal requirements.

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 9001-2008**.



SNAP FIT & EAR CLAMPS



Herbie Clip® Plastic (Nylon) Hose Clamp – Double Grip

Manufactured by HCL, the Herbie Clip® is the original double grip plastic hose clamp. It is a quick and easy to install nylon hose clamp with exceptional strength arising from its unique double row of interlocking toothed jaws. The double row of teeth offers over twice the clamping force achieved by similar products with only a single row of teeth.

Applications

- Agricultural
- Automotive
- Hydro Massage
- Irrigation
- Pharmaceutical
- Vending
- White Goods
- General Industry

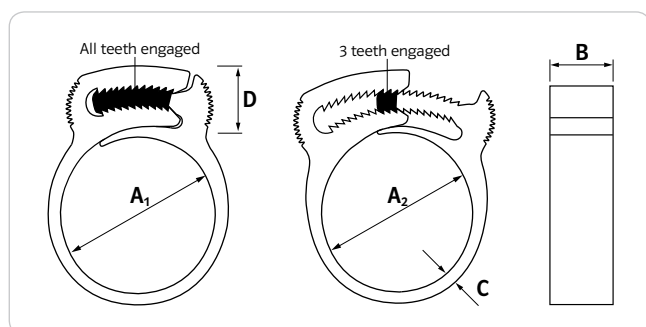
Materials

Standard

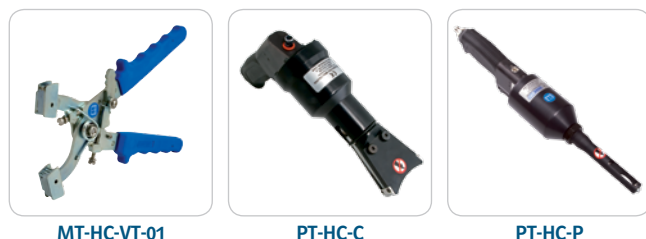
- Heat/UV Stabilised ROHS compliant Nylon 6.6.

On Request

- Polypropylene



Installation Tools



Other Herbie Clip® tools also available.

HCL Part No	Diameter Range (A ₁ -A ₂) mm	Band Width (B) mm	Band Thickness (C) mm	Head Height (D) mm	Box Quantity
HC-A	5.6 – 6.5	4.2	1.4	8.3	3000
HC-AA	6.5 – 7.9	4.5	1.6	9.9	2500
HC-B	7.9 – 9.2	4.6	1.6	9.3	2000
HC-BB	9.2 – 10.3	4.5	1.7	10.9	2000
HC-C	10.2 – 11.8	5.8	1.7	12.2	2000
HC-CC	11.5 – 13.4	6.4	1.8	12.8	2000
HC-D	12.0 – 13.8	6.1	1.7	12.9	2000
HC-E	13.1 – 15.1	7.2	2.0	13.6	1000
HC-F	15.0 – 17.1	7.1	2.0	12.9	1000
HC-G	16.9 – 19.1	6.9	2.1	12.5	1000
HC-H	18.1 – 20.6	7.1	2.1	12.7	1000
HC-J	20.3 – 23.0	6.4	2.2	14.2	1500
HC-K	23.1 – 26.1	7.3	2.2	13.7	1500
HC-L	24.5 – 27.6	7.1	2.1	12.5	1000
HC-M	26.5 – 29.5	7.4	2.2	13.4	1000
HC-N	28.8 – 32.2	9.0	2.0	13.4	1000
HC-P	32.0 – 34.8	9.1	2.2	13.8	750
HC-Q	34.3 – 37.9	8.9	2.1	13.5	750
HC-R	38.5 – 42.4	9.5	2.2	13.7	500
HC-S	41.8 – 45.2	9.3	2.1	13.6	500
HC-T	44.6 – 48.0	9.1	2.1	13.2	500
HC-U	47.4 – 51.1	9.1	2.1	14.6	1000
HC-V	48.5 – 53.8	9.0	2.1	14.4	1000
HC-W	53.0 – 56.5	9.0	2.1	15.0	1000
HC-X	55.0 – 60.5	9.4	2.3	15.5	750
HC-59	59.0 – 64.7	9.3	2.7	17.0	750
HC-64	63.0 – 67.4	9.4	2.6	15.6	750
HC-66	65.8 – 71.7	9.2	2.6	15.7	750
HC-70	70.0 – 75.4	9.1	2.6	15.5	750
HC-75	74.7 – 80.5	9.1	2.6	16.5	750
HC-80	79.8 – 85.0	9.0	2.9	17.7	500
HC-85	85.1 – 90.6	8.9	2.6	17.2	500
HC-91	91.0 – 96.0	9.5	2.6	16.7	500
HC-96	97.7 – 102.1	8.5	2.6	17.4	500
HC-105	105.3 – 111.8	8.9	2.6	16.2	500
HC-109	108.0 – 114.3	9.0	2.6	17.4	500
HC-115	115.0 – 121.0	9.5	2.6	17.4	500
HC-163	163.0 – 169.0	9.5	2.5	16.0	100

All weights, dimensions & quantities are subject to a 2.5% tolerance.
To add material selection to the HCL Part No: for Nylon 6.6. Black, add "PA66-BK".
Other colours available on request.

SNAP FIT & EAR CLAMPS



Ezyclick™-P Low Profile Plastic Hose Clamp

Manufactured by HCL, the Ezyclick™-P (Plastic) is specifically designed for hose clamping applications where space is restricted. The unique design of the patent pending Ezyclick™-P ensures strong, fast and reliable clamping with a low profile design and fully corrosion resistant materials.

Applications

- Automotive
- Hydro Massage
- Irrigation
- Pharmaceutical
- Vending
- White Goods
- General Industry

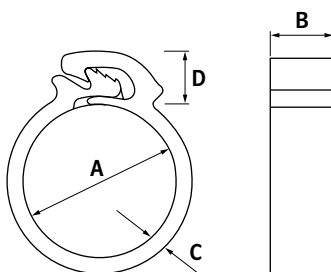
Materials

Standard

- Heat/UV Stabilised ROHS compliant Nylon 6.6.

On Request

- Polypropylene
- Glass-filled Nylon 6.6.



Installation Tools



MT-EZP-LVT-01



MT-EZP-HT-01



PT-EZY-C

Other Ezyclick™-P tools also available.

HCL Part No	Closed Diameter (A) mm	Band Width (B) mm	Band Thickness (C) mm	Head Height (D) mm	Box Quantity
EZY-P-8.5	8.5	8.0	1.7	5.3	2000
EZY-P-8.7	8.7				
EZY-P-8.9	8.9				
EZY-P-9.2	9.2				
EZY-P-9.5	9.5			5.5	1500
EZY-P-10.0	10.0				
EZY-P-11.4	11.4				
EZY-P-12.0	12.0				
EZY-P-12.5	12.5		5.6	5.7	1500
EZY-P-12.7	12.7				
EZY-P-13.2	13.2				
EZY-P-13.7	13.7				
EZY-P-14.5	14.5			5.8	1500
EZY-P-14.6	14.6				
EZY-P-15.0	15.0				
EZY-P-15.7	15.7				
EZY-P-15.9	15.9	9.0	2.0	6.8	1500
EZY-P-16.5	16.5				
EZY-P-16.8	16.8				
EZY-P-17.1	17.1				
EZY-P-17.5	17.5				
EZY-P-17.6	17.6				
EZY-P-18.0	18.0				
EZY-P-18.5	18.5				
EZY-P-19.1	19.1				
EZY-P-19.6	19.6				
EZY-P-20.1	20.1				
EZY-P-20.8	20.8				
EZY-P-21.1	21.1				
EZY-P-22.0	22.0				
EZY-P-22.1	22.1				
EZY-P-22.6	22.6				
EZY-P-23.1	23.1				
EZY-P-23.6	23.6				
EZY-P-24.7	24.7				
EZY-P-25.8	25.8				
EZY-P-26.8	26.8				
EZY-P-28.0	28.0				
EZY-P-30.6	30.6				
EZY-P-31.4	31.4				
EZY-P-36.5	36.5				
EZY-P-42.4	42.4				
EZY-P-43.3	43.3				
EZY-P-45.5	45.5				

All weights, dimensions & quantities are subject to a 2.5% tolerance.
To add material selection to the HCL Part No: for Nylon 6.6. Black, add "-PA66-BK". Other colours available on request.

WORM DRIVE & SCREW CLAMPS

Plasclip



Plastic Worm Drive Hose Clamp

HCL's Plastic Worm Drive Hose clip is ideal in applications requiring a non-conductive and non-corrosive clamp. Manufactured in the UK it is a unique clamping product which offers the non-corrosive features of a plastic clamping product combined with the strength of a metal worm drive hose clamp product.

Applications

- Electrical
- HVAC
- Irrigation
- Marine
- Medical
- Pharmaceutical
- General Industry

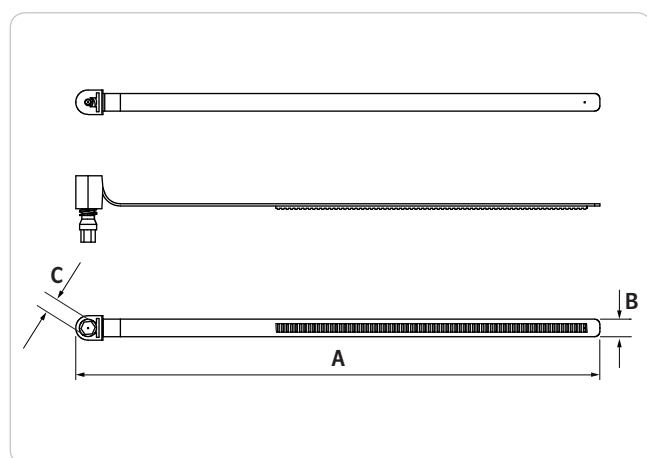
Materials

- Screw – PC/ABS
- Band & Housing – PA66

HCL Part No	Diameter Range mm	Length (A) mm	Band Width (B) mm	Hex Screw A/F (C) mm	Max Torque Nm	Box Quantity
PWD-15-65	15.0 – 65.0	135.0	10.0	7.0	2.5°	100

All weights, dimensions & quantities are subject to a 2.5% tolerance.

*It should be noted that torque data does not relate directly to the hoop strength of the clamp like a metal hose clip, as a significant amount of torque used in a metal clamp is needed to overcome the friction of the metal worm with the metal band of the clamp. This is not the case with the Plastic worm drive clamp as less torque is required to achieve the same hoop strength.



Installation Tools



MT-D-01

MT-AD-01

MT-TD-01

SPECIAL HOSE CLAMPS

Special Clamp Designs

From time to time, customers approach HCL with applications requiring a bespoke clamp design. On such occasions, HCL's in-house product development team will work closely with the customer to produce a unique clamp, based on either the Herbie Clip® or the Ezyklik™-P, but designed specifically for the particular application.

Below are a few examples of special clamp designs:



Herbie Clip® Capacitor Cradle

This special clamp is based on the Herbie Clip®, but has been adapted to function as a capacitor cradle. The clamp incorporates a rectangular recess for fixing it to a sheet metal frame and a living hinge for isolating the capacitor from the frame.



Ezyklik™ Fuel Pump Spigot Retaining Clamp

This bespoke clamp is based on the Ezyklik™-P, but has been modified to retain a moulded spigot in a cast automotive fuel pump housing. The clamp profile was designed to fit snugly around the housing boss, with various retaining features to prevent removal of the spigot or the clamp.



Herbie Clip® Dishwasher Clamp

This special Herbie Clip® is narrower than a standard clip, in order for it to fit in the restricted space on a certain dishwasher application. The head of the clip is full width where possible, so that the clip can be satisfactorily tightened using the Herbie Clip® Hand Tool.



Herbie Clip® Washing Machine Door Seal Clamp

This special clamp is based on the Herbie Clip®, but has been adapted to retain the rubber door seal on a washing machine. The clamp incorporates various bespoke features, including sealing, retaining and strengthening ribs.

Installation Tools



**Herbie Clip® -
Vertical Tool**

PART NUMBER
MT-HC-VFT-01

DIMENSIONS
225x125x25mm

WEIGHT **0.46kg**

BOX QUANTITY **1**

APPLICABLE CLAMPS
Herbie Clip® Sizes A-85



**Adjustable Waterpump
Pliers**

PART NUMBER
MT-PL-01

DIMENSIONS
235x205x20mm

WEIGHT **0.34kg**

BOX QUANTITY **1**

APPLICABLE CLAMPS
Herbie Clip®



**Herbie Clip® -
Removal Tool**

PART NUMBER
MT-HC-RT-01

DIMENSIONS
160x50x3mm

WEIGHT **0.09kg**

BOX QUANTITY **1**

APPLICABLE CLAMPS
Herbie Clip®



**Ezyklik™-P - Lightweight
Vertical Tool**

PART NUMBER
MT-EZP-LVT-01

DIMENSIONS
180x125x30mm

WEIGHT **0.10kg**

BOX QUANTITY **1**

APPLICABLE CLAMPS
Ezyklik™-P



**Ezyklik™-P -
Horizontal Tool**

PART NUMBER
MT-EZP-HT-01

DIMENSIONS
230x135x25mm

WEIGHT **0.37kg**

BOX QUANTITY **1**

APPLICABLE CLAMPS
Ezyklik™-P



**Herbie Clip® - Calliper
Tool (Various Jaw options
available)**

Handle Options:
 ■ Gun grip (shown)
 ■ Straight grip
 ■ Vertical grip

PART NUMBER
PT-HC-C

DIMENSIONS
240x80x170mm

WEIGHT **0.89kg**

BOX QUANTITY **1**

APPLICABLE CLAMPS
Herbie Clip® Sizes F-85



**Herbie Clip® - Piston Tool
(Various Piston options
available)**

Handle Options:
 ■ Gun grip
 ■ Straight grip (shown)
 ■ Vertical grip

PART NUMBER
PT-HC-P

DIMENSIONS
335x55x65mm

WEIGHT **0.66kg**

BOX QUANTITY **1**

APPLICABLE CLAMPS
Herbie Clip® Sizes A-105



**Ezyklik™ - Calliper Tool
(Various Jaw options
available)**

Handle Options:
 ■ Gun grip
 ■ Straight grip
 ■ Vertical grip (shown)

PART NUMBER
PT-EZY-C

DIMENSIONS
60x60x270mm

WEIGHT **0.91kg**

BOX QUANTITY **1**

APPLICABLE CLAMPS
Ezyklik™-P

TECHNICAL INFORMATION

A variety of polymers may be used to manufacture plastic hose clamps. The correct material for each application must be selected depending on the environmental conditions and the required performance of the clamp.

For the Herbie Clip® and Ezyclik™ hose clamps, the standard polymer is Nylon 6.6, however, other materials are available on request.

Nylon 6.6.

Nylon 6.6. is a high strength, temperature and creep resistant polymer. For outdoor applications black is recommended, as this has the best UV resistance. Please note that Nylon 6.6. is a hygroscopic (water absorbing) material. Herbie Clips® are supplied in a moisturised state and should not be allowed to dry out before they are applied. If the clamps are dry and stiff, the simple addition of water for 24 hours will re-moisturise the clamps. Once the clamps have been fitted, moisturisation is no longer an issue.

Material Information – Plastic

Glass-filled Nylon 6.6.

Available for the Ezyclik™-P on request only. Increased strength and temperature resistance over standard Nylon 6.6.

Polypropylene

Inferior to Nylon 6.6. in almost every respect but it does have improved chemical resistance (particularly to strong acids) over Nylon 6.6. The clamps also do not need to be moisturised.

More information on plastic material properties can be found in the Herbie Clip® and Ezyclik™ Technical Booklet





Conditions of Sale

Full terms and conditions can be found on the HCL website under the heading 'Corporate'.

Order Placement – Customer Codes

HCL uses customer codes against internal product codes to ensure continuity within the ordering process.

Customer codes will be used on 'Orders of Acceptance' and 'Invoices'.

Box Quantities

All box quantities are subject to a +/- 2.5% tolerance.

For Nylon 6.6. hose clamp products, HCL weigh-counts the quantities when dry for maximum accuracy. Due to the hygroscopic (water absorbing) nature of Nylon 6.6. and the addition of water to these products, the piece part weights may vary. Customers should be aware that any subsequent weigh-counting of the products could be inaccurate.

Returning Goods

Return of goods must be agreed beforehand with HCL. Without prior agreement, HCL reserves the right to refuse any return of goods.

Privacy

HCL is committed to safeguarding the privacy of its customers. Customer records will be protected from 3rd parties unless the customer expressly consents otherwise.

Guarantee

HCL guarantees the replacement of faulty products free of charge. This does not include faults caused by misuse or incorrect installation. See HCL warranty for full details.

Disclaimer

The information contained in this catalogue should be used as a guideline only and does not constitute a warranty (explicit or implied) for our products or their suitability for specific applications. HCL will assist and advise the selection of a suitable product for a given application, however, the customer assumes final responsibility for the use of any product from this catalogue.

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