CLAMPING SOLUTIONS

# SM-FT-1000 BANDING TOOL

*Operation, Parts & Safety Manual*



MAY 2012

# INDEX

## Tooling

**Depending on set up, this tool is designed to assemble HCL Smart Band® 32mm (1¼"), 19mm (¾") or Smart Tie™ 20mm (¾") systems.**

**Follow the instructions described to achieve safe operation.**

Warning

**Read these instructions carefully:**

**Whilst Smart Band® and Smart Tie™ are considered to be significantly safer than alternative metallic solutions, failure to follow these instructions can still result in personal injury.**

## General safety considerations:

### 1. STRAP BREAKAGE HAZARD

Smart Band® and Smart Tie™ are free from sharp metallic edges however it is important to understand that improper operation of the tool or sharp corners on the load can result in strap breakage during tensioning that could result in the following:

- A sudden loss of balance causing you to fall
- Both tool and strap flying violently towards your face

Failure to place the strap properly around the load, an unstable or shifted load, could result in a sudden loss of strap tension during tensioning. This could result in a sudden loss of balance causing you to fall.

Positioning yourself in-line with the strap during tensioning, can result in personal injury from flying strap or tool. When tensioning, position yourself to one side of the strap and keep all bystanders away.

### 2. TRAINING

This tool must not be used by persons not properly trained in its use. Be certain that you receive proper training from your employer. If you have any questions contact your HCL representative.

### 3. EYE INJURY HAZARD

Failure to wear safety glasses with side shields can result in eye injury or blindness. Always wear safety glasses with side shields which conform to ANSI Standard Z87.1 or EN 166.

### 4. FALL HAZARD

Maintaining improper footing and/or balance when operating the tool can cause you to fall. Do not use the tool when you are in an awkward position.

### 5. CUT HAZARD

Although the Smart Band® and Smart Tie™ are not metallic and therefore significantly less likely to cause cuts to hands or fingers, it is still strongly recommended that the operator wear protective gloves.

### 6. NOISE HAZARD

When using the pneumatic option, ear protection is recommended.

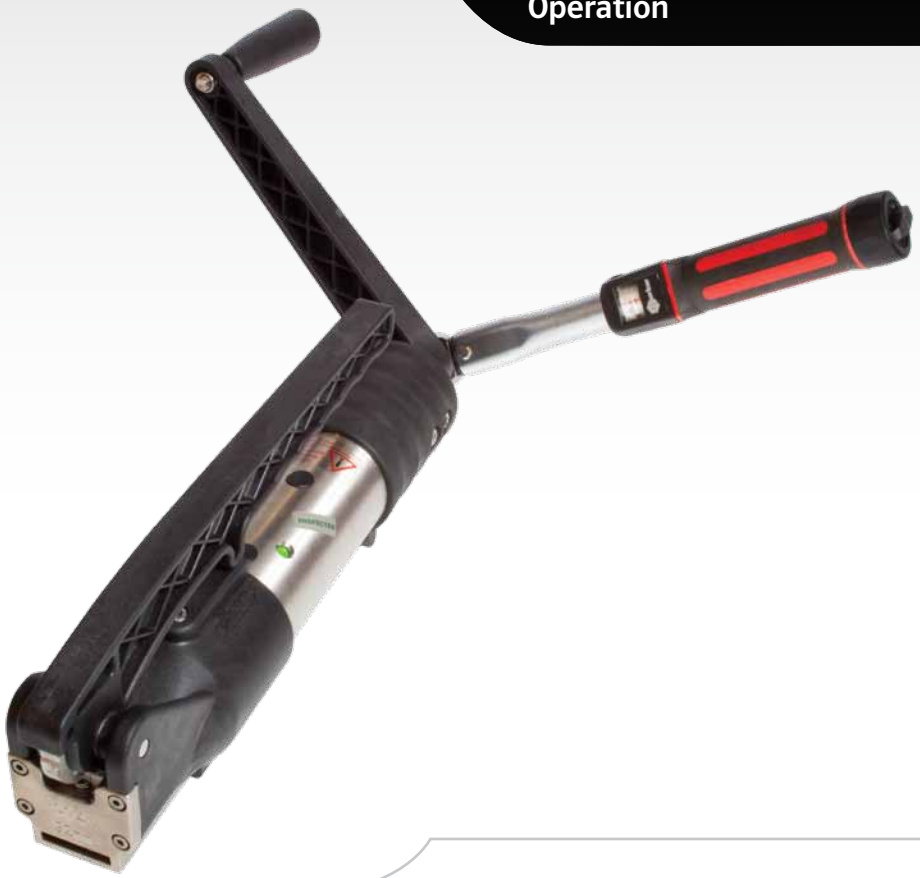
### 7. TOOL CARE (for further information see maintenance section)

- Inspect and clean the tool daily. Replace all worn or broken parts
- Lubricate all moving parts approximately every 50 hours of use
- On air powered tools always disconnect the pneumatic connection to the tool when performing part removal and replacement procedures. NEVER connect a pneumatic source to a disassembled tool unless otherwise specified
- If used in sea water, wash off with fresh water after use.
- To avoid tool damage in prolonged use, set the tool up on a counter-balance.

### 8. WORK AREA

Keep work areas uncluttered and well lit. For prolonged use and to avoid unnecessary strain on your back, set the tool up on a counter-balance.

## Operation



### 1

*Insert band into fixed end of the buckle*

### 2

*Pull back band to engage latch*


**WARNING – Ensure latch is fully engaged with band before tightening. Latch not fully engaged could lead to premature failure of system when tightening**

## 3

*Wrap band around the application*

## 4

*Insert band into other end of buckle*

## 5

*Pull band tight by hand, making sure teeth are fully engaged with band*

## 6

*Ensure that green marker is showing*

## Operation

**7**

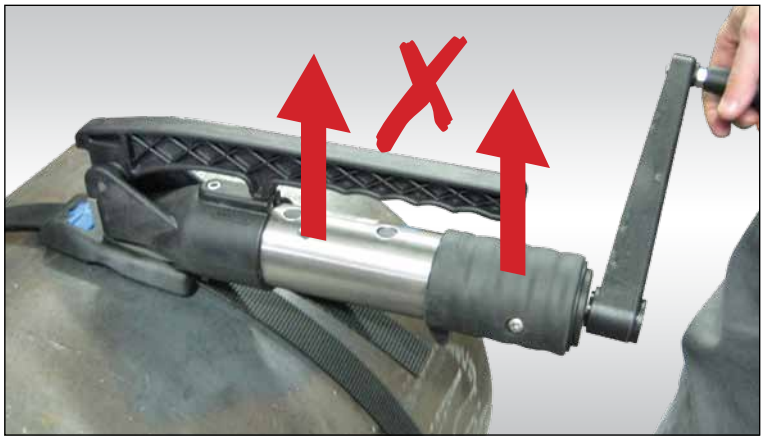
*Insert tool onto band*

**8**

*Push tool up against buckle*

**9**

*For manual tightening attach handle to the square drive at the rear of the tool*



**WARNING – Ensure tool does not lift away from application during tightening**

**10**

*Wind handle clockwise until band is tight. If red marker is showing, wind handle anti-clockwise until green, then continue to tighten the band*

## Operation

### 11

*To gain high accuracy in tension fit using torque wrench. Refer to the tensioning tables to set the correct torque*
*See torque wrench manual for detailed operating instructions*
*NOTE – Torque wrench can be used without handle using the socket provided*

**WARNING – Do not operate the Cutter during tightening (see step 12)**

### 12

**WARNING – Ensure that the green marker is showing before cutting the band.**

*To remove the excess band, simply take hold of the cutting handle...*

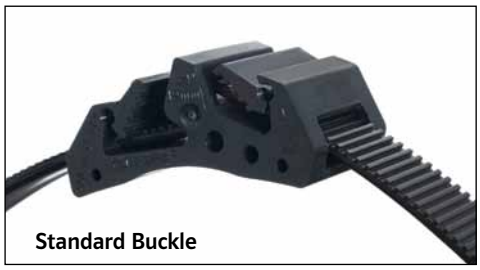
### 13

*...and push upwards*

### 14

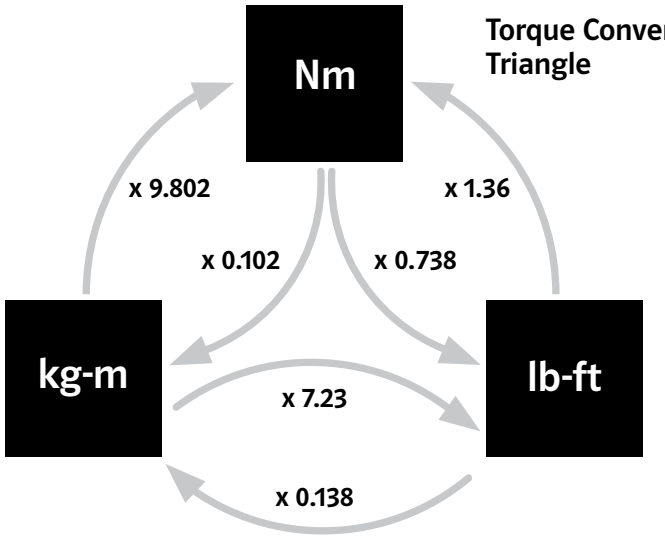
*Once cut remove tool from buckle – Installed system*

**WARNING – Do not exceed the maximum torque settings recommended for the Smart Tie™ or Smart Band® system being applied**



Standard Buckle

Hybrid Buckle




## Recommended Pressure Settings

| Smart Tie™ | | Max Input Torque[1] | | Max System Force (During Tightening) | | | Min Retention Force (After Tightening) | | |
|---|---|---|---|---|---|---|---|---|---|
| Size | Material | Nm | lb-ft | N | kgf | lbf | N | kgf | lbf |
| 20mm (¾") | PA66 (Nylon 6.6) | 8 | 5.9 | 3300 | 337 | 742 | 2000 | 204 | 450 |
| | PA11 (Nylon 11) | 7 | 5.2 | 2800 | 286 | 629 | 1400 | 143 | 315 |
| | PA12 (Nylon 12) | 7 | 5.2 | 2800 | 286 | 629 | 1400 | 143 | 315 |

| Smart Band® | | | Max Input Torque[1] | | Max System Force (During Tightening) | | | Min Retention Force (After Tightening) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Size | Buckle Material | Band Material | Nm | lb-ft | N | kgf | lbf | N | kgf | lbf |
| Standard Buckle – see photo above | | | | | | | | | | |
| 19mm (¾") | PA66 (Nylon 6.6.) | PA66 (Nylon 6.6.) | 7 | 5.2 | 3500 | 357 | 787 | 1200 | 122 | 270 |
| | PA66 (Nylon 6.6.) | POM (Acetal) | 7 | 5.2 | 3500 | 357 | 787 | 1200 | 122 | 270 |
| Hybrid Buckle – see photo above | | | | | | | | | | |
| 19mm (¾") | PA66 (Nylon 6.6.) | PA66 (Nylon 6.6.) | 12 | 8.9 | 6500 | 663 | 1461 | 3500 | 357 | 787 |
| | PA11GF (Nylon 11 Glass-filled) | PA11GF (Nylon 11 Glass-filled) | 11 | 8.1 | 7000 | 714 | 1574 | 3500 | 357 | 787 |
| | PA12GF (Nylon 12 Glass-filled) | PA12GF (Nylon 12 Glass-filled) | 11 | 8.1 | 7000 | 714 | 1574 | 3500 | 357 | 787 |
| | POM (Acetal) | POM (Acetal) | 10 | 7.4 | 6000 | 612 | 1349 | 2500 | 255 | 562 |
| 32mm (1¼") | PA11GF (Nylon 11 Glass-filled) | PA11GF (Nylon 11 Glass-filled) | 20 | 14.8 | 14000 | 1428 | 3147 | 7000 | 714 | 1574 |
| | PA12GF (Nylon 12 Glass-filled) | PA12GF (Nylon 12 Glass-filled) | 20 | 14.8 | 14000 | 1428 | 3147 | 7000 | 714 | 1574 |
| | POM (Acetal) | POM (Acetal) | 15 | 11.1 | 10000 | 1020 | 2248 | 6000 | 612 | 1349 |

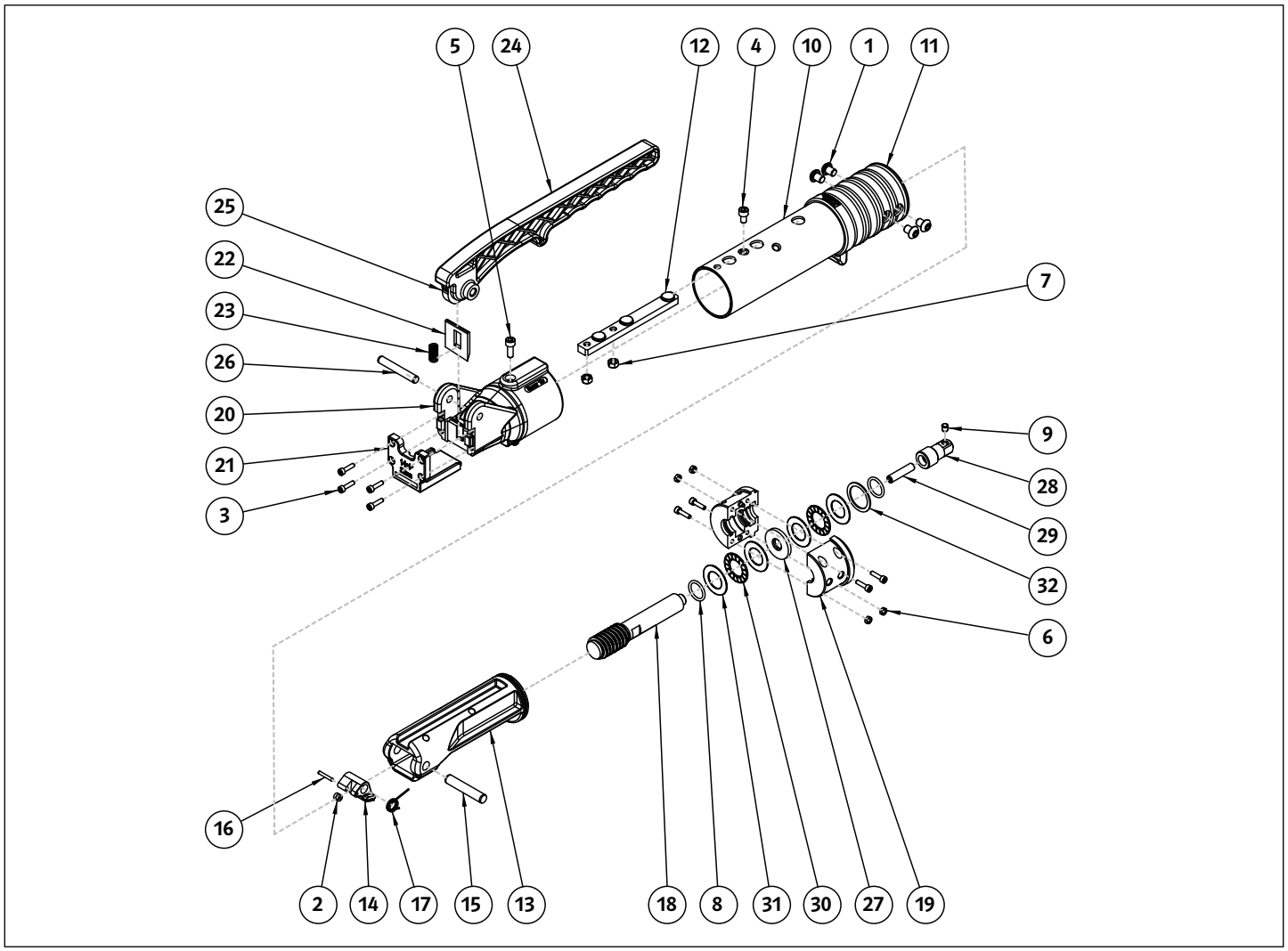
[1] The input torque may need to be reduced depending on the aggressive nature of the application.
Final Retention Force may be slightly lower on very small diameters.
Final Retention Force will be significantly higher on very large diameters.

## Parts List

| ITEM | PART NUMBER | DESCRIPTION | QTY. |
|---|---|---|---|
| 1 | BHS_M8X10_SS | BUTTONHEAD SCREW, SKT HD, M8x10LG, SS | 4 |
| 2 | BLB_3_7_3_SS | BEARING, BALL ROLLER, 3IDx7ODx3LG | 2 |
| 3 | CPS_M4X16_SS | CAPSCREW, SKT HD, M4x16LG, SS | 8 |
| 4 | CPS_M6X10_SS | CAPSCREW, SKT HD, M6x10LG, SS | 1 |
| 5 | CPS_M6X16_SS | CAPSCREW, SKT HD, M6x16LG, SS | 1 |
| 6 | NUT_HEX_M4_SS | NUT, FULL, HEXAGON, M4, SS | 4 |
| 7 | NUT_NYLOC_HEX_M6_SS | NUT, NYLOC, HEXAGON, M6, SS | 2 |
| 8 | ORG_01872X262 | O-RING, 18.72IDx2.62CS, NITRILE 70A | 2 |
| 9 | PRT1044 | PLUNGER, BALL SPRING | 1 |
| 10 | PRT1002 | HOUSING, MAIN BODY | 1 |
| 11 | PRT1003 | GRIP, OVERMOULDED, FITTING TOOL | 1 |
| 12 | PRT1004 | GUIDE | 1 |
| 13 | PRT1035 | HOUSING, PAWL | 1 |
| 14 | PRT1036 | PAWL, 32mm | 1 |
| | PRT1040 | PAWL, 25mm | 1 |
| | PRT1040 | PAWL, 19mm | 1 |
| 15 | PRT1037 | PIN, Ø10x54LG | 1 |
| 16 | PRT1038 | PIN, Ø3x20LG | 1 |
| 17 | PRT1039 | SPRING, TORSION | 1 |
| 18 | PRT1041 | MAIN SHAFT, THREADED | 1 |

| ITEM | PART NUMBER | DESCRIPTION | QTY. |
|---|---|---|---|
| 19 | PRT1045 | HOUSING, THRUST BEARING | 2 |
| 20 | PRT1046 | HOUSING, CUTTING BLADE | 1 |
| 21 | PRT1047 | FRONT END, CAST, 32mm | 1 |
| | PRT1053 | FRONT END, CAST, 25mm | 1 |
| | PRT1054 | FRONT END, CAST, 19mm | 1 |
| 22 | PRT1048 | BLADE, CUTTING, 32mm | 1 |
| | PRT1056 | BLADE, CUTTING, 25mm | 1 |
| | PRT1057 | BLADE, CUTTING, 19mm | 1 |
| 23 | PRT1049 | SPRING, COMPRESSION | 1 |
| 24 | PRT1050 | LEVER, CUTTING MECHANISM | 1 |
| 25 | PRT1051 | CAM, ROLLER | 1 |
| 26 | PRT1052 | PIN, Ø8x55LG | 1 |
| 27 | PRT1059 | WASHER, FLAT, 12IDx35ODx4LG | 1 |
| 28 | PRT1059 | BOLT, SQUARE DRIVE | 1 |
| 29 | SSS_M8X35_CUP_PT_SS | SKT SETSCREW, M8x35LG, CUP POINT, SS | 1 |
| 30 | THB_20_35_2 | BEARING, THRUST, NEEDLE ROLLER, 20IDx35ODx2LG | 2 |
| 31 | WAS_FLAT_20_35_1 | WASHER, FLAT, 20IDx35ODx1LG | 4 |
| 32 | WAS_WAVE_2670_3432_124 | WASHER, WAVE SPRING, 26.70IDx34.32ODx1.24LG | 1 |

* Items 14, 21 & 22 are either 19mm, 25mm or 32mm options



# AIR RATCHET TOOL

## Operation

*Fit Smart Band® following the instructions in Section 2.1, steps 1 to 8*

### 1

*For pneumatic tightening attach air ratchet to the square drive at the rear of the tool and locate in torque reaction bracket*

*See air ratchet manual for detailed operating instructions*

### 2

*Refer to Section 3.2, Tensioning Tables to set the correct pressure.*

*Hold down trigger on air ratchet. The tool will stall when the system reaches the correct tension. If red marker is showing, simply reverse direction of tool by turning knob on back of air ratchet head (see inset). Wind tool back until green, reverse direction again and continue to tighten.*

*If required, further calibration can be achieved with a torque wrench: see Section 2.1, step 11*

*Cut the band following the instructions in Section 2.1, steps 12 to 14*

**WARNING – Ensure that the green marker is showing before cutting the band.**

# AIR RATCHET TOOL

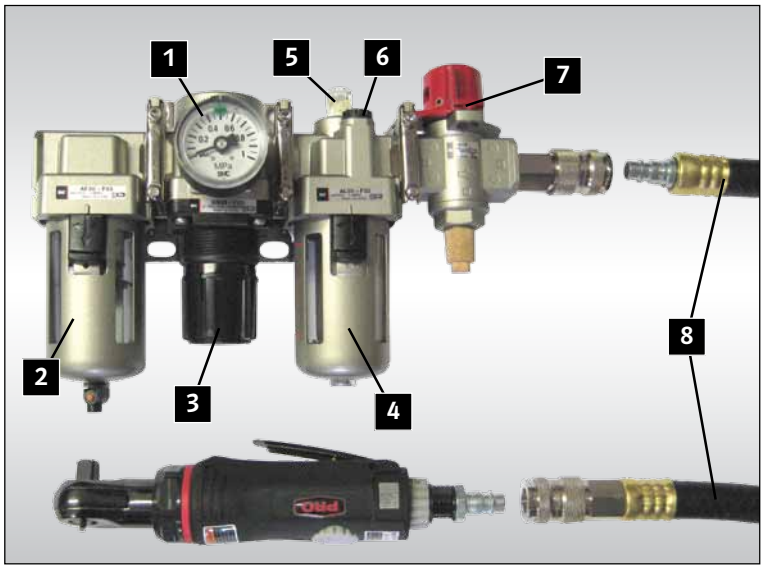
## Operation

## 1 – 8 *Pressure Regulation*

1. *Pressure Regulator Gauge*
2. *Air Filter – ⅜" BSP female input*
3. *Pressure Regulator Knob*
4. *Air Lubricator*
5. *Lubrication Dial*
6. *Lubrication Fill-point*
7. *Lockable Shut-Off Valve*
8. *5m hose*

**IMPORTANT – Input pressure to the regulator should be greater than 0.6 MPa but less than 1.0 MPa**

**– Input hose size should be ½" and above**




## 5 6 *Air Lubricator*

*To fill lubricator, remove black cap using 5mm Allen key and fill to between the maximum and minimum oil levels. See air ratchet manual for suitable oils. Ensure lubricator dial is set to '2' at all times.*

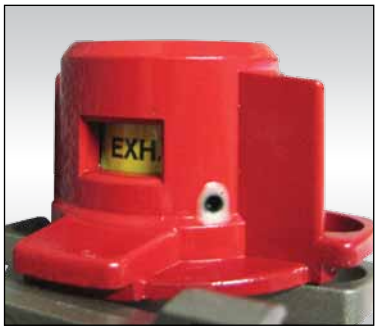
## 3 *Pressure Regulator*

*To set required pressure, pull down Pressure regulator knob until orange band appears, then twist until dial shows required pressure, finally, click knob back up until orange band disappears.*

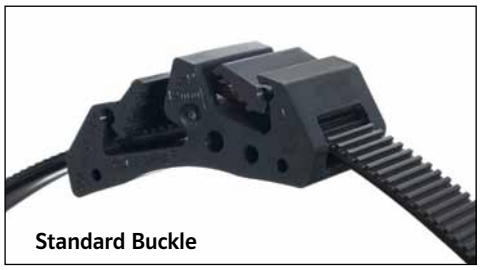

*Ensure Pressure Dial on Ratchet Wrench is set to 'HI' at all times*

## 7 *Lockable Shut-Off Valve*

*Set Lockable shut-off valve to 'SUP.' to supply air to the tool. To shut-off the air supply to the tool and dump the excess pressure in the hose to atmosphere, set Lockable shut-off valve to 'EXH.' (this enables safe removal of the hose).*

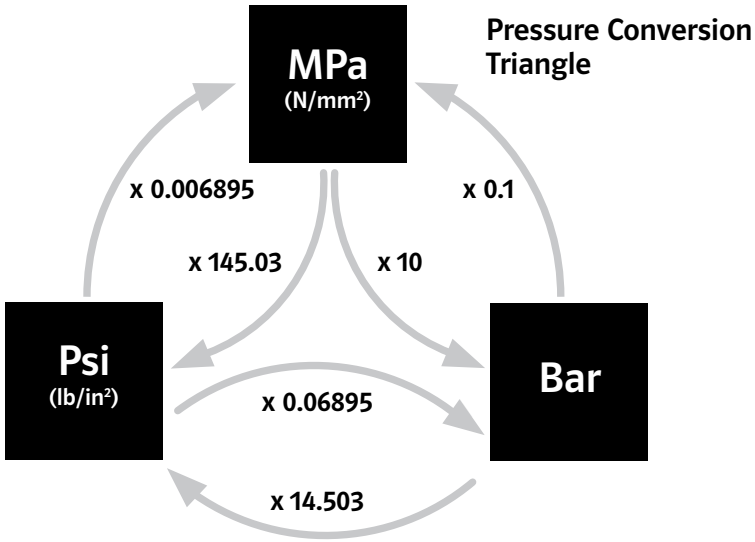



**WARNING – Do not exceed the maximum pressure settings recommended for the Smart Tie™ or Smart Band® system being applied**



Standard Buckle

Hybrid Buckle




## Recommended Pressure Settings

| Smart Tie™ | | Air Ratchet Type | Max Regulator Pressure[1] | Max System Force (During Tightening) | | | Min Retention Force (After Tightening) | | |
|---|---|---|---|---|---|---|---|---|---|
| Size | Material | | Mpa | N | kgf | lbf | N | kgf | lbf |
| 20mm (¾") | PA66 (Nylon 6.6) | W2610 | 0.35 | 3500 | 357 | 787 | 1500 | 153 | 337 |
| | PA11 (Nylon 11) | W2610 | 0.30 | 3200 | 326 | 719 | 1400 | 143 | 315 |
| | PA12 (Nylon 12) | W2610 | 0.30 | 3200 | 326 | 719 | 1400 | 143 | 315 |

| Smart Band® | | | Air Ratchet Type | Max Regulator Pressure[1] | Max System Force (During Tightening) | | | Min Retention Force (After Tightening) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Size | Buckle Material | Band Material | | Mpa | N | kgf | lbf | N | kgf | lbf |
| Standard Buckle – see photo above | | | | | | | | | | |
| 19mm (¾") | PA66 (Nylon 6.6.) | PA66 (Nylon 6.6.) | W2610 | 0.30 | 3000 | 306 | 674 | 1100 | 112 | 247 |
| | PA66 (Nylon 6.6.) | POM (Acetal) | W2610 | 0.30 | 3000 | 306 | 674 | 1100 | 112 | 247 |
| Hybrid Buckle – see photo above | | | | | | | | | | |
| 19mm (¾") | PA66 (Nylon 6.6.) | PA66 (Nylon 6.6.) | W2610 | 0.55 | 6500 | 663 | 1461 | 3500 | 357 | 787 |
| | PA11GF (Nylon 11 Glass-filled) | PA11GF (Nylon 11 Glass-filled) | W2610 | 0.55 | 7000 | 714 | 1574 | 3500 | 357 | 787 |
| | PA12GF (Nylon 12 Glass-filled) | PA12GF (Nylon 12 Glass-filled) | W2610 | 0.55 | 7000 | 714 | 1574 | 3500 | 357 | 787 |
| | POM (Acetal) | POM (Acetal) | W2610 | 0.50 | 5500 | 561 | 1236 | 2500 | 255 | 562 |
| 32mm (1¼") | PA11GF (Nylon 11 Glass-filled) | PA11GF (Nylon 11 Glass-filled) | W2300 | 0.30 | 14500 | 1479 | 3260 | 7000 | 714 | 1574 |
| | PA12GF (Nylon 12 Glass-filled) | PA12GF (Nylon 12 Glass-filled) | W2300 | 0.35 | 14500 | 1479 | 3260 | 7000 | 714 | 1574 |
| | POM (Acetal) | POM (Acetal) | W2300 | 0.35 | 10000 | 1020 | 2248 | 5000 | 510 | 1124 |

[1] Pressure measured when tool is NOT running. The regulator pressure may need to be reduced depending on the aggressive nature of the application.
Final Retention Force may be slightly lower on very small diameters.
Final Retention Force will be significantly higher on very large diameters.

# TORQUE SHUT-OFF TOOL

## Operation

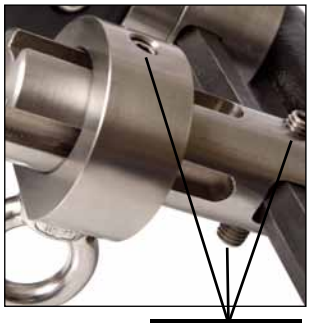

## *Input Pressure Regulation*

Ideal Regulator Pressure: 0.63MPa
Minimum Regulator Pressure: 0.50MPa

NOTE: Regulator pressure to be measured when tool is running.


## *Lifting Eye Adjustment*

To adjust the position of the Lifting Eye, loosen setscrews as indicated, adjust the position of the Lifting Eye and retighten the setscrews.




## *Quick Release Instructions*

**STEP 1:**

Locate Square Socket onto Square Drive

**STEP 2:**

Rotate Air Driver to desired orientation and insert Capscrew heads through holes in adaptor plate

**STEP 3:**

Rotate Air Driver 20° clockwise

**STEP 4:**

Insert Quick Release pin into hole until firmly in place

# TORQUE SHUT-OFF TOOL

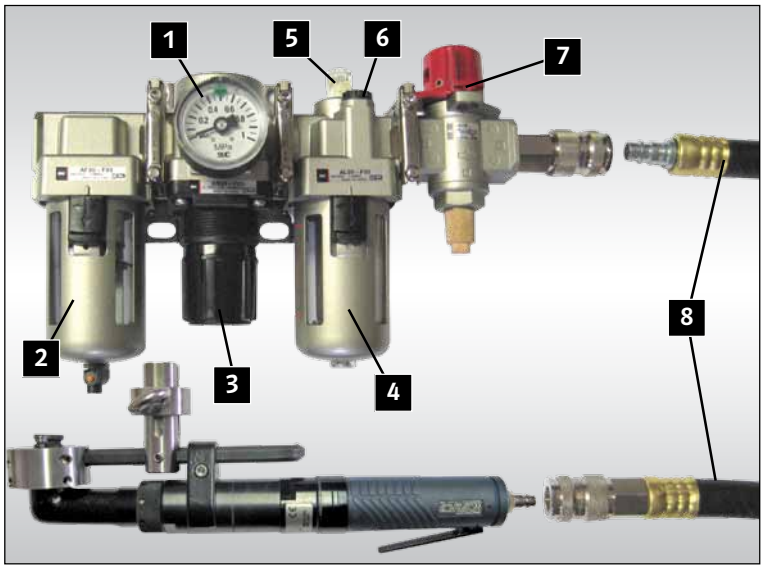
## Operation

## 1 – 8 Pressure Regulation

1. *Pressure Regulator Gauge*
2. *Air Filter – ⅜" BSP female input*
3. *Pressure Regulator Knob*
4. *Air Lubricator*
5. *Lubrication Dial*
6. *Lubrication Fill-point*
7. *Lockable Shut-Off Valve*
8. *5m hose*

**IMPORTANT – Input pressure to the regulator should be greater than 0.6 MPa but less than 1.0 MPa**

**– Input hose size should be ½" and above**




## 5 6 Air Lubricator

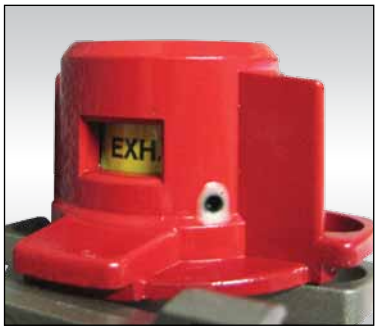
*To fill lubricator, remove black cap using 5mm Allen key and fill to between the maximum and minimum oil levels. See air ratchet manual for suitable oils. Ensure lubricator dial is set to '2' at all times.*

## 3 Pressure Regulator

*To set required pressure, pull down Pressure regulator knob until orange band appears, then twist until dial shows required pressure, finally, click knob back up until orange band disappears.*

## 7 Lockable Shut-Off Valve

*Set Lockable shut-off valve to 'SUP.' to supply air to the tool. To shut-off the air supply to the tool and dump the excess pressure in the hose to atmosphere, set Lockable shut-off valve to 'EXH.' (this enables safe removal of the hose).*

## Operating Instructions

*Fit Smart Band® following the instructions in Section 2.1, steps 1 to 5*

**1** 

Is Green marker showing?

NO → 

Press Reverse button and hold down Trigger simultaneously to reverse the tool

YES ↓

**2** 

Feed tool onto band

When Green marker shows, **first release the Trigger,** then release the Reverse button

« MOVE LEFT

**3** 

Hold down Trigger until Air Driver shuts off

When Green marker shows, **first release the Trigger,** then release the Reverse button

**4** 

Is Red marker showing?

YES → 

Press Reverse button and hold down Trigger simultaneously to reverse the tool

NO ↓

**5** 

Press Reverse button and hold down Trigger simultaneously to reverse the tool

**6** 

When Green marker shows, **first release the Trigger,** then release the Reverse button

**7** 

Cut excess band from buckle

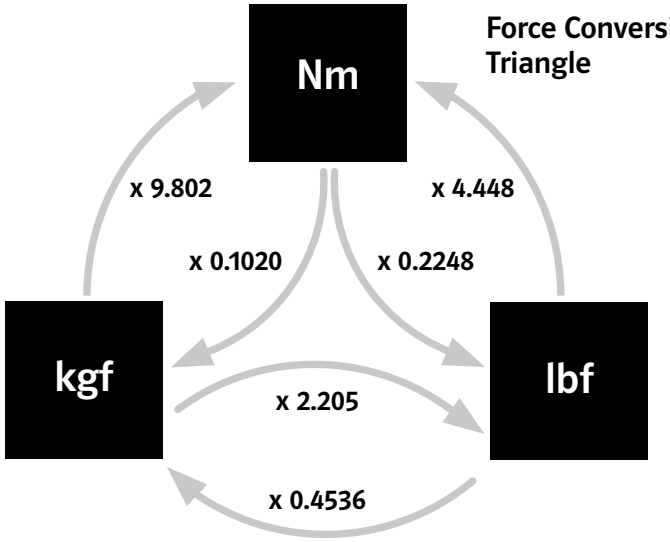
**8** 

Assembly complete

# TORQUE SHUT-OFF TOOL

## Tensioning Table


Hybrid Buckle




### Recommended Pressure Settings

| Smart Band® | | | Max System Force (During Tightening) | | | Min Retention Force (After Tightening) | | |
|---|---|---|---|---|---|---|---|---|
| Size | Buckle Material | Band Material | N | kgf | lbf | N | kgf | lbf |
| Hybrid Buckle – see photo above | | | | | | | | |
| 19mm (¾") | PA11GF (Nylon 11 Glass-filled) | PA11GF (Nylon 11 Glass-filled) | 8000 | 816 | 1798 | 3800 | 388 | 854 |
| | PA12GF (Nylon 12 Glass-filled) | PA12GF (Nylon 12 Glass-filled) | 8000 | 816 | 1798 | 3800 | 388 | 854 |
| 32mm (1¼") | PA11GF (Nylon 11 Glass-filled) | PA11GF (Nylon 11 Glass-filled) | 16000 | 1632 | 3597 | 9000 | 918 | 2023 |
| | PA12GF (Nylon 12 Glass-filled) | PA12GF (Nylon 12 Glass-filled) | 16000 | 1632 | 3597 | 9000 | 918 | 2023 |

The tool can be calibrated to provide a different tension if required.

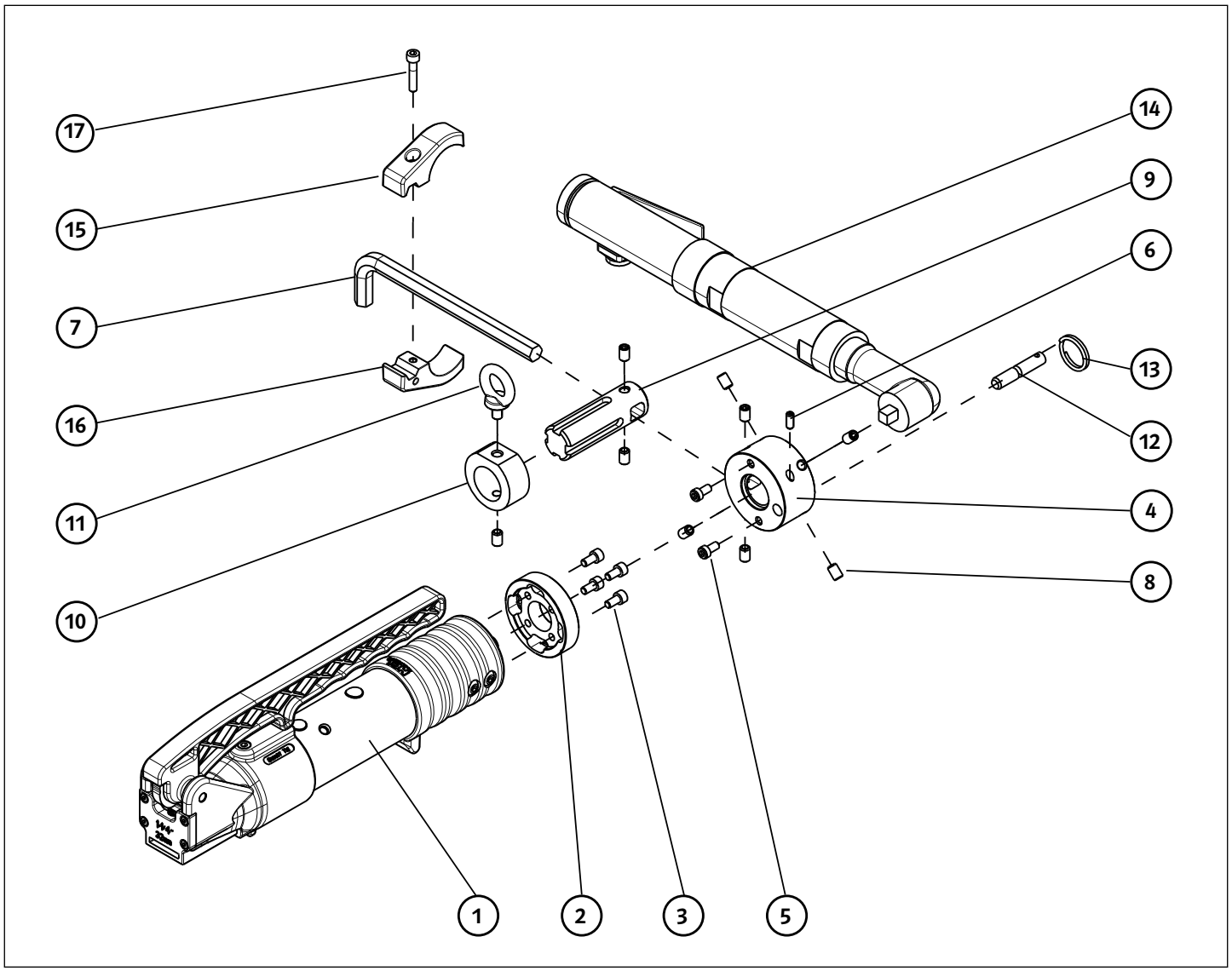
# TORQUE SHUT-OFF TOOL

## Parts List

| Item | Part Number | Title | Qty |
|---|---|---|---|
| 1* | ASM1000<br>ASM1001<br>ASM1002 | Fitting Tool, Smart Band 32mm<br>Fitting Tool, Smart Band 25mm<br>Fitting Tool, Smart Band 19mm | 1 |
| 2 | PRT1086 | Adaptor, Nutrunner Bush | 1 |
| 3 | CPS_M6X12_SS | Capscrew, SKT HD, M6x12LG, SS | 4 |
| 4 | PRT1087 | Bush, Nutrunner | 1 |
| 5 | PRT1089 | Capscrew, SKT HD, M6x12LG, 12.9 Modified | 2 |
| 6 | PRT1094 | Plunger, Ball Spring, M6 | 1 |
| 7 | PRT1093 | Hexagon Key, ½" Long Arm, Modified | 1 |
| 8 | SSS_M8X12_CUP_SS | Skt Setscrew, M8x12LG, Cup Point, SS | 9 |

| Item | Part Number | Title | Qty |
|---|---|---|---|
| 9 | PRT1090 | Bar, Adjustment | 1 |
| 10 | PRT1091 | Collar, Adjustment | 1 |
| 11 | Eye_Bolt_M8_SS | Bolt, Lifting Eye, M8x1.25, SS | 1 |
| 12 | PRT1088 | Pin, Grooved | 1 |
| 13 | PRT1092 | Split Ring | 1 |
| 14 | 0_607_461_600 | Nutrunner, 40Nm, 260rpm | 1 |
| 15 | 0_607_461_600_1 | Clamp, Torque Reaction Bar | 1 |
| 16 | 0_607_461_600_2 | Clamp, Torque Reaction Bar | 1 |
| 17 | CPS_M6X30_BZP | Capscrew, SKT HD, M6x30LG, BZP | 1 |

*Item 1 is either 19mm, 25mm or 32mm



## Lubrication of key components

**1**

*Wind the square drive clockwise until red marker is showing*


**2**

*Tap square drive on rear of tool to ensure rear housing is as far forward as possible. This will aid the removal of the bolts*

**3**

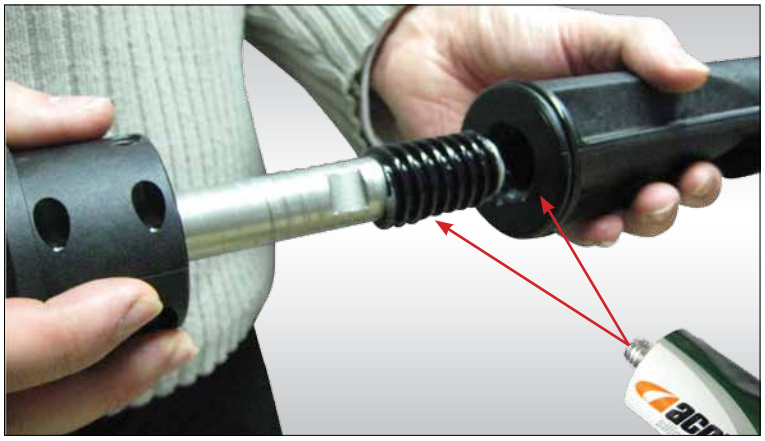
*Remove M8 Buttonhead screws (4x) using 5mm Allen key*

**4**

*Remove internal sub-assembly*

**5**

*Wind the square drive anti-clockwise to remove threaded shaft from internal housing. Thoroughly clean all parts. Apply Silicone grease to male and female threads as shown*



**6**

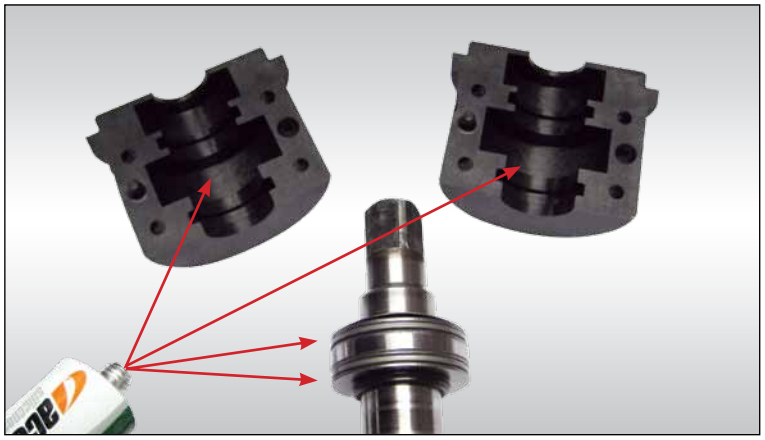
*Remove M4 Capscrews and Full nuts (4x each) from split housing. Thoroughly clean all parts*

**For maintenance of air ratchets and Torque Shut-off tool, please see manufacturers manual.**

## Lubrication of key components

### 7

*Apply Silicone grease to thrust washers and split housing as shown*

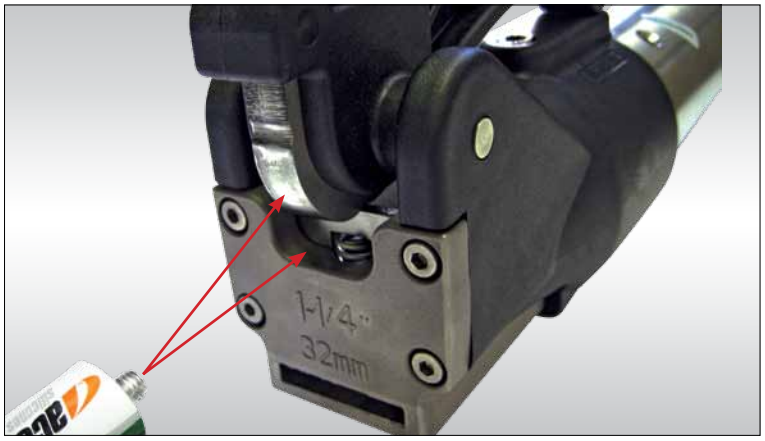


### 8

*Remove M6 Capscrew and slide front assembly off main body. Thoroughly clean all parts*

### 9

*Grease Cam and blade as shown*



## Changing the Pawl


Example of an Adaptation Kit

**NOTE:**
**1: If using the air ratchet tool, a different air ratchet must be selected if the size has changed – (Refer to Section 3.2)**
**2: If using the Torque Shut-off tool, this will need to be recalibrated by the manufacturer. Please contact HCL for further details**

### Changing the Pawl

Every fitting tool can be adapted to fit Smart Band® 32mm (1¼"), 19mm (¾") or Smart Tie™ 20mm (¾") systems.

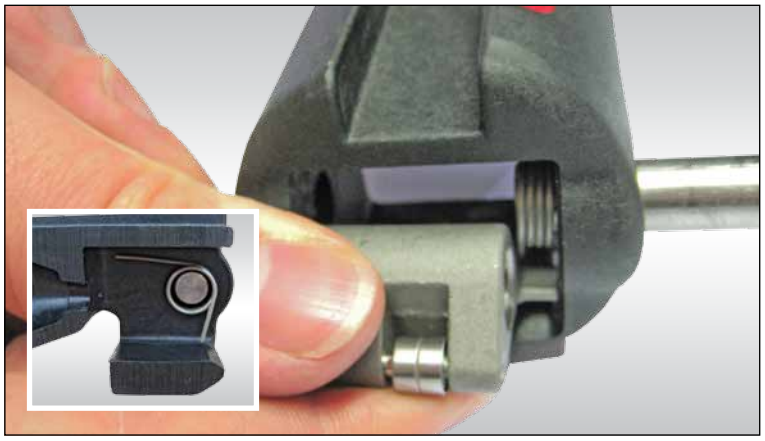
*Remove Pawl Housing by following the instructions in Section 5.1, steps 1 to 4*

***1***

***Remove pin from housing***

***2***

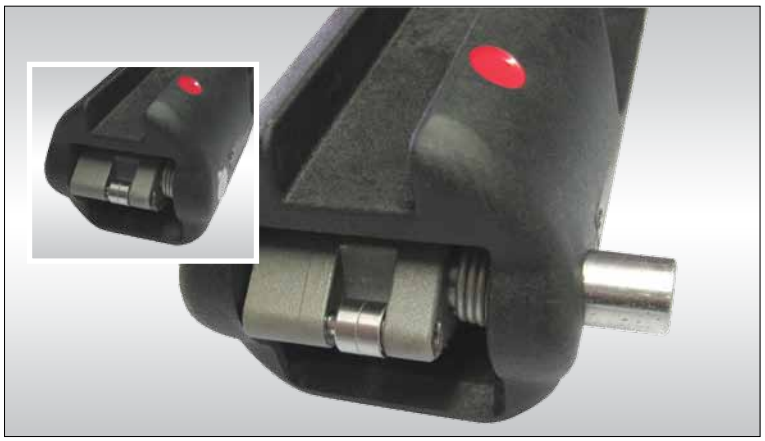
***Remove old pawl and insert new pawl***



**NOTE – Take care to reinsert spring in correct orientation.**

***3***

***Re-fit pin. Reassemble tool as reverse of disassembly***



## Changing the Blade & Blade Housing


Example of an Adaptation Kit

**NOTE:**

**1: If using the air ratchet tool, a different air ratchet must be selected if the size has changed – (Refer to Section 3.2)**

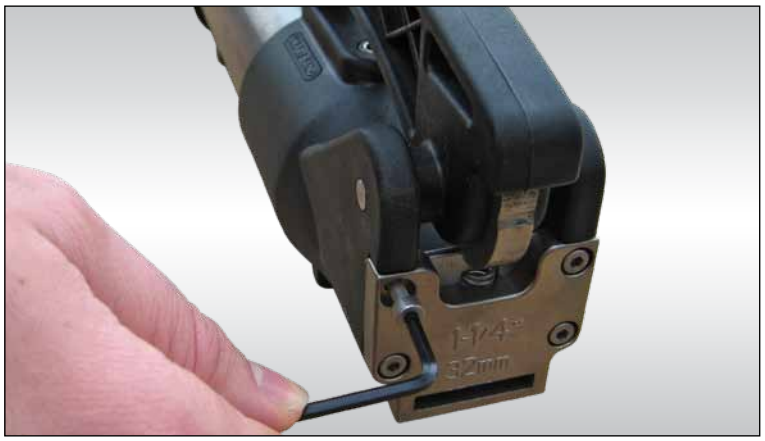
**2: If using the Torque Shut-off tool, this will need to be recalibrated by the manufacturer. Please contact HCL for further details**

### Changing the Blade & Blade Housing

Every fitting tool can be adapted to fit Smart Band® 32mm (1¼"), 19mm (¾") or Smart Tie™ 20mm (¾") systems.

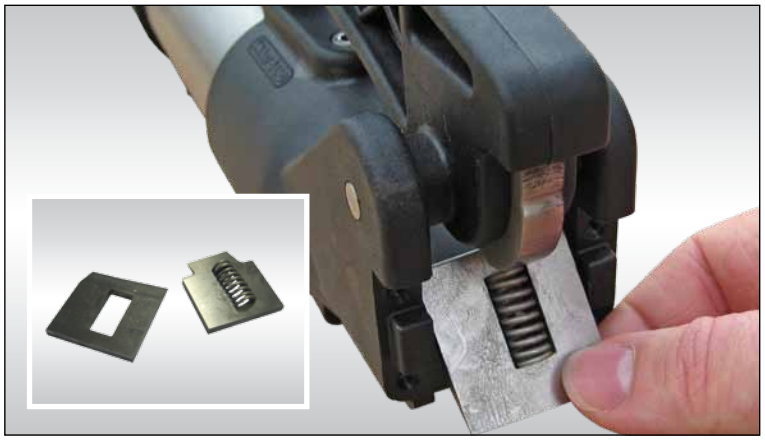
***1***

***Ensure cutting handle is in the down position. Remove Capscrews (4x) using 3mm Allen Key and remove old front plate***



***2***

***Remove existing blade and insert spring into new blade***



***3***

***Reassemble tool as reverse of disassembly***

## Potential Issues & Solutions

| Symptom 1: Smart Band Failure during fitting | |
|---|---|
| **Failure Mode & Possible Cause** | **Solution** |
| **1. Band/Buckle breaks due to incorrect input torque or pressure** | Set correct input torque or pressure (Refer to relevant Tensioning Tables) |
| **2. Buckle breaks due to incorrect tool positioning during fitting** | Ensure tool is correctly positioned in buckle. Do not lift tool away from application during tightening (Refer to Section 2.1, steps 8-9) |
| **3. Band breaks due to repeated relaxing and re-tightening** | Only tighten the band once (Refer to Section 2.1, step 10) |
| **4. System breaks due to cutting whilst in tension (green marker not showing)** | Do not operate cutter during tightening (Refer to Section 2.1, steps 12-14) |
| **5. Band pulls out of fixed end of buckle** | Ensure that latch is fully engaged with band before tensioning (Refer to Section 2.1, step 2) |
| **6. Buckle breaks due to being positioned in mid-air or around too small a radius** | Position Buckle on suitable radius (Refer to Banding Products Technical Booklet; Section 2.2 Technical – Installation Design) |
| **7. Band breaks due to being positioned around too small a radius** | Position Band on suitable radius (Refer to Banding Products Technical Booklet; Section 2.2 Technical – Installation Design) |

| Symptom 2: Inadequate Band Tension | |
|---|---|
| **Possible Cause** | **Solution** |
| **1. Tool has hit rear stop (red marker showing)** | Wind square drive anti-clockwise until green marker is showing. Then continue tightening the band (Refer to Section 2.1, step 10; Section 3.1, step 2; or Section 4.1, step 4) |
| **2. Input torque incorrect (Manual tool)** | Set Torque Wrench to correct torque (Refer to Section 2.2, Tensioning Tables) |
| **3. Input pressure incorrect (Air Ratchet/Torque Shut-off tool)** | Check supply pressure. Set regulator to correct pressure. Set Air Ratchet to 'HI' (Refer to Section 3.1, Operation; and Section 3.2, Tensioning Tables; or Section 4.1, Operation) |
| **4. Torque reaction bracket incorrect or not in use** | Fit torque reaction bracket to rear of fitting tool. Ensure that air ratchet fits tightly into bracket (Refer to Section 3.1, steps 1-2) |
| **5. Tool requires servicing** | Service fitting tool (Refer to Section 5.1, steps 1-9) |

| Symptom 3: Tool does not grip Band | |
|---|---|
| **Possible Cause** | **Solution** |
| **1. Excess band tail too short** | Remove band and replace with a longer length |
| **2. Pawl housing not fully forward (green marker not showing)** | Wind square drive anti-clockwise until green marker is showing. Then continue tightening the band (Refer to Section 2.1, step 10; Section 3.1, step 2; or Section 4.1, step 4) |
| **3. Pawl teeth dirty or clogged** | Remove internal sub-assembly from tool and clean pawl teeth (Refer to Section 5.1, steps 1-4) |
| **4. Incorrect pawl fitted** | Remove pawl and replace with correct size for band (Refer to Section 6.1, steps 1-3) |
| **5. Pawl stuck in position** | Remove internal sub-assembly from tool and un-stick pawl (Refer to Section 5.1, steps 1-4) |

| Symptom 4: Band does not feed through Tool | |
|---|---|
| **Possible Cause** | **Solution** |
| **1. Blockage in tool, e.g. band** | Remove internal sub-assembly or front sub-assembly as required, then clear blockage (Refer to Section 5.1, steps 1-4) |
| **2. Pawl stuck in position** | Remove internal sub-assembly from tool and un-stick pawl (Refer to Section 5.1, steps 1-4) |
| **3. Pawl Housing not fully forward (green marker not showing)** | Wind square drive anti-clockwise until green marker is showing (Refer to Section 2.1, step 10; Section 3.1, step 2; or Section 4.1, step 4) |
| **4. Blade stuck down** | Remove and clean blade. Front end may need to be removed. Be careful that blade does not spring out (Refer to Section 6.2, steps 1-3) |
| **5. Incorrect front end is fitted** | Remove internal sub-assembly from tool and un-stick pawl (Refer to Section 6.2, steps 1-3) |

| Symptom 5: Tool does not cut or it is too difficult to cut | |
|---|---|
| **Possible Cause** | **Solution** |
| **1. Blockage in tool, e.g. band** | Remove blade and/or front end as required, then clear blockage (Refer to Section 6.2, steps 1-3) |
| **2. Cam not lubricated (blade may also make 'screeching' noise)** | Grease cam and blade (Refer to Section 5.1, step 9) |
| **3. Blade worn or damaged** | Replace or re-sharpen blade (Refer to Section 6.2, steps 1-3) |
| **4. Incorrect blade or front end is fitted** | Remove blade and/or front end and replace with correct size for band (Refer to Section 6.2, steps 1-3) |

# Declaration of Conformity

| | |
|---|---|
| **Name of manufacturer:** | HCL Fasteners Ltd |
| **Address of manufacturer:** | First Avenue, Westfield Industrial Estate, Radstock, Bath BA3 4BS, UK |
| **Telephone:** | +44 (0)1761 417714 |
| **Email** | sales@hcl-clamping.co.uk |

I hereby declare that the following machinery complies with all the Essential Health and Safety Requirements of the Machinery Directive 89/392/EEC as amended.

**Machinery description:** Banding tool for tensioning the HCL Smart Band® 32 mm (1¼"), 19mm (¾") or Smart Tie™ 20mm (¾") Systems

**Tool Size:**

- ☐ Smart Tie™ 20mm (¾")
- ☐ Smart Band® 19mm (¾")
- ☐ Smart Band® 32 mm (1¼")

**Tool Type:**

- ☐ SM-FT-1000 – Basic Tool with Crank Handle
- ☐ SM-FT-1000-PR – Basic Tool with Power Ratchet Option
- ☐ SM-FT-1000-PS – Basic Tool with Power Shutoff Air Driver Option

**Serial No:** _____

**Transposed Harmonised European Standards used:**

| | |
|---|---|
| BS EN 12100 – 1&2:2003 | Safety of Machinery – Basic concepts, general principles for design |
| prEN 983 | Safety requirements for fluid power systems and components – Pneumatics |
| EN 349 : 1993 | Safety of Machinery – Minimum gaps to avoid crushing of parts of the human body |
| BS EN 792-10 | Hand-held non-electric power tools – Safety requirements – Part 14: Compression power tools |

## Your attention is drawn to the following:

HCL warrants that a new HCL banding tool will operate per functional specifications for a period of sixty (60) days after the date of shipment to the owners place of business. Normal wearing parts, as outlined in the Operations, Parts & Safety manual, are also covered by a sixty (60) day warranty unless, in HCL's judgement, these parts have been subjected to abnormal or extreme usage. HCL's sole liability hereunder will be to repair or replace, without charge, F.O.B. HCL, Bath UK, any tool which proves to not operate per functional specifications within the stated period. HCL reserves the right to replace any tool which proves not to operate per functional specifications with a new or like-new tool of the same model, if in HCL's judgement such replacement is appropriate. Any new replacement or like new replacement tool provided to an owner will carry a full sixty (60) day warranty. Any warranty repaired tool will carry a warranty for the balance of time remaining on the initial sixty (60) day warranty. This warranty will be extended to compensate for the time the tool is in HCL's possession for warranty repairs.

This warranty is void as to any tool which has been:

a) subjected to mis-use, misapplication, accident damage, or repaired with other than genuine HCL replacement parts.
b) improperly maintained, or adjusted, or damaged in transit or handling.
c) used with improperly filtered, regulated, unlubricated air.
d) in HCL's opinion, altered in a way that affects or detracts from the performance of the tool.

HCL MAKES NO WARRANTY, EXPRESSED OR IMPLIED, RELATING TO MERCHANTABILITY, FITNESS OR OTHERWISE EXCEPT AS STATED ABOVE AND HCL'S LIABILITY AS ASSUMED ABOVE IS IN LIEU OF ALL OTHERS ARISING OUT OF OR IN CONNECTION WITH THE USE AND PERFORMANCE OF THE TOOL. IT IS EXPRESSLY UNDERSTOOD THAT HCL SHALL IN NO EVENT BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES WHICH MAY ARISE FROM LOSS OF ANTICIPATED PROFITS OR PRODUCTION, SPOILAGE OF MATERIALS, INCREASED COSTS OF OPERATION OR OTHERWISE.

Considerable effort has been made to ensure that this product conforms to our high quality standards. However, should you experience any difficulties, please contact your Sales representative providing samples and the serial code specified on the tool.

HCL CLAMPING SOLUTIONS

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