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PRODUKT INFORMATION (PI)

1. Product description

1.1 Product status (replacement product)

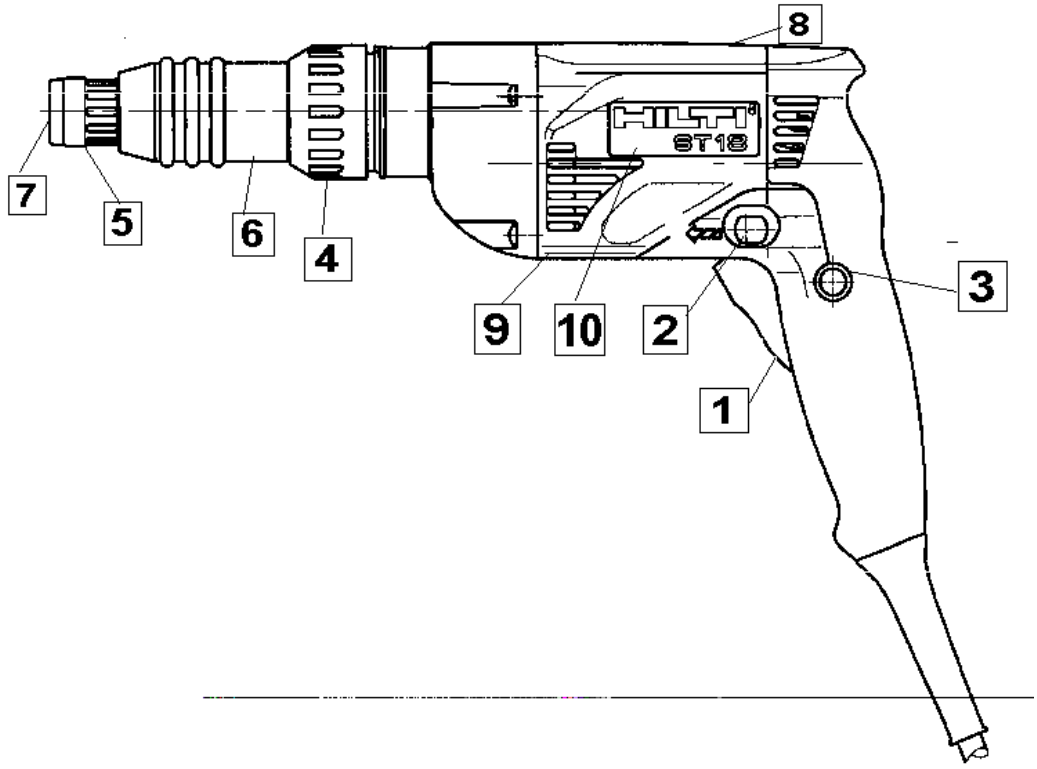
The ST 18 siding and roofing screwgun (metal construction) replaces the three models TKT 1300, TKT 1800 and TKT 2000.

--> It is a screwgun with a high torque (= TKT 1300) and a high speed (= TKT 2000). It is a light and short universal screwgun.

	ST 18	TKT 1300	TKT 2000	TKT 1800
Torque	20 Nm	20 Nm	13 Nm	20 Nm 11.5 Nm
Speed	1900 U/min	1250 U/min	2040 U/min	1250 U/min 2250 U/min
Weight (without supply cord)	1.8 kg	1.9 kg	1.9 kg	2.1 kg
Screwgun length	295 mm	320 mm	320 mm	356 mm

1.2 Product description

1.2.1 ST 18 screwgun for siding and roofing installation / metal construction



1 Electronic variable speed control switch

2 Reversing switch, push type

3 Lockbutton for sustained operation

4 Torque regulation

5 Depth gauge adjustment

6 Plug connection: depth gauge to screwgun

7 Chuck

8 Belt hook (not attached / accessory)

9 Nameplate

10 Serial number

1.2.2 Electronic variable speed control switch (1)

The speed can be infinitely varied between zero and maximum r.p.m. by slowly pressing the switch.

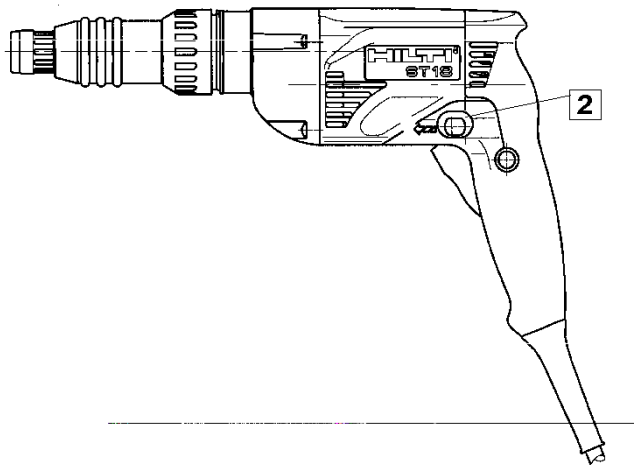
CUSTOMER BENEFITS:
--> A screw can be accurately driven in the desired position.

The switch is designed for several fingers.

CUSTOMER BENEFITS:
--> Working is more "comfortable" and workmans' fingers tireless.

Important:
--> If the screwgun stalls, it must be switched off immediately.
--> If this condition lasts more than 2 - 3 seconds, the motor can be damaged.

1.2.3 Reversing switch, push type (2)



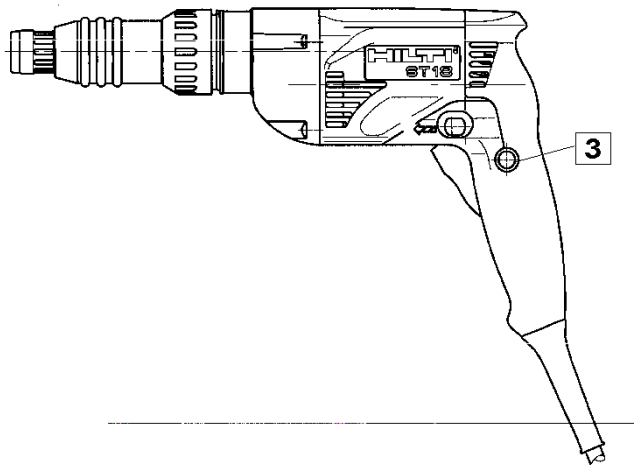
The direction of rotation of the drive spindle can be selected with the reversing switch.

CUSTOMER BENEFIT:
--> Screws can be driven in or removed.

A lock prevents switching when the motor is running.

CUSTOMER BENEFIT:
--> The motor is protected.

1.2.4 Lockbutton for sustained operation (3)



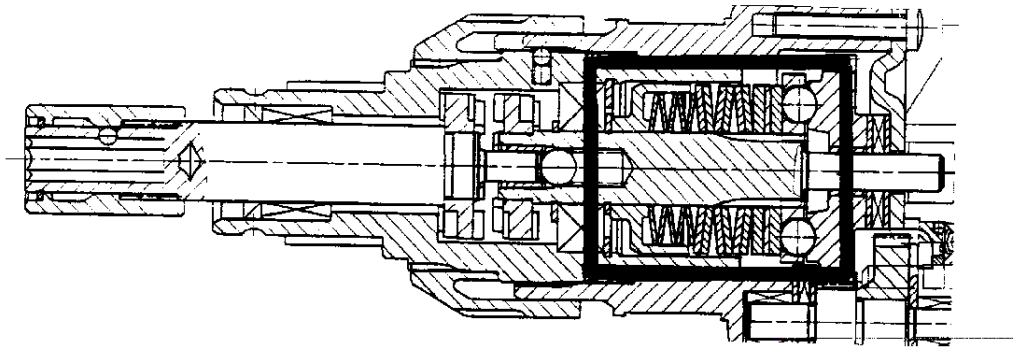
On pressing this lockbutton, the switched-on screwgun keeps running.

CUSTOMER BENEFIT:
--> Working with the screwgun is more "comfortable" because the switch does not have to be continually operated when making many identical fastenings.

Use: Switching on for sustained operation
1. Press the electronic switch (to full speed).
2. Press in the lockbutton.
3. Release the electronic switch.

Switching off sustained operation
Briefly press the electronic switch.
The lockbutton is automatically released.

1.2.5 Torque regulation (4)



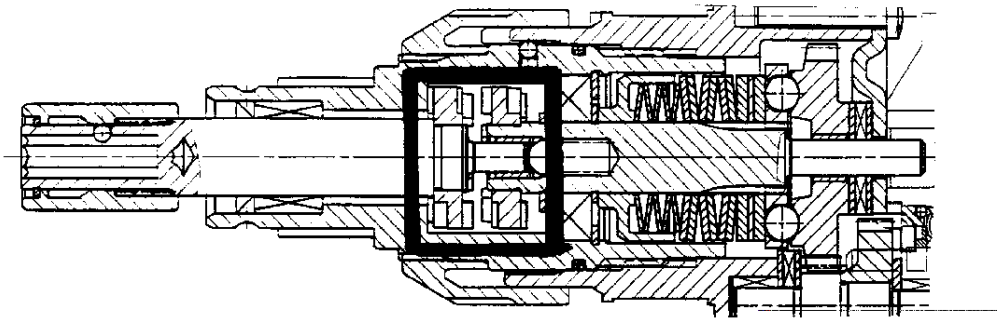
The torque must be adjusted when screw fastenings without a seal are made to steel. This means that the screw head is tightened down against the metal which, however, does not "give."

Since the screw head must pull down tightly without the screw snapping or the thread stripping, the screw must be driven in using a carefully pre-selected torque.

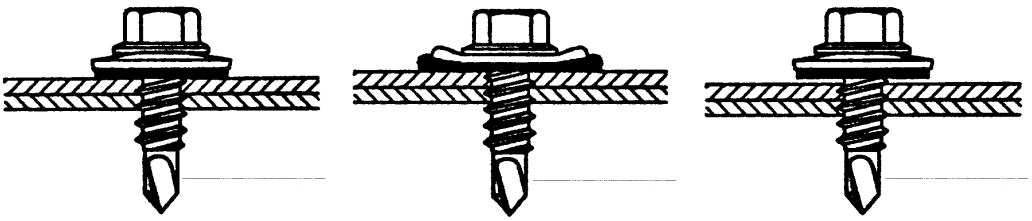
The tightening torque is adjusted by turning the regulating sleeve to the desired torque setting. This setting depends on the type of fastening and the type of screw.
(See technical data, point 2.2.)

CUSTOMER BENEFIT:
--> Controlled screw tightening torque is guaranteed.

1.2.6 Depth gauge / adjustment (5)



The depth gauge must be adjusted when fastenings are made with screws which have a sealing washer that presses against the sheet metal. This means the screw must be driven without too much or too little seal pressure against the metal.

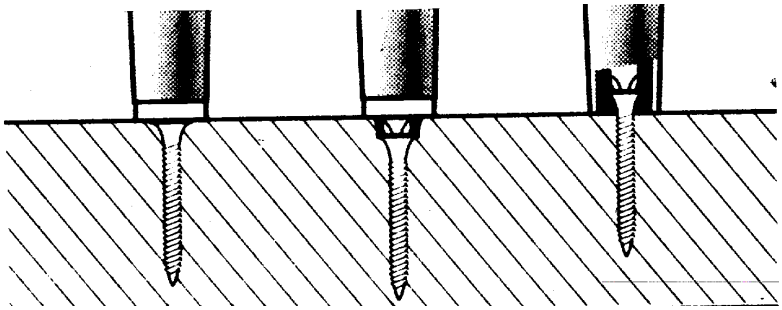


Right Overtightened Wrong

CUSTOMERBENEFIT:
--> A screw seal pressed down properly guarantees a tight seal.

Similarly, the depth gauge must be properly adjusted when fastening soft material, such as wood.

If the depth gauge is properly adjusted, screws can be driven flush with the surface, countersunk or with stand-off.



CUSTOMER BENEFIT:
--> Users have the guarantee that screws are driven to the right depth, also when making large numbers of identical fastenings.

OPERATIONS:
--> Turn depth gauge in counter-clockwise direction: the screw seal will be pressed down less or the screw will not be driven in so far.
--> Turn depth gauge in clockwise direction: a screw seal is pressed down more or the screw will be driven in deeper.
--> Each click = 0.25 mm adjustment)

1.2.7 Plug connection - depth gauge to screwgun (6)

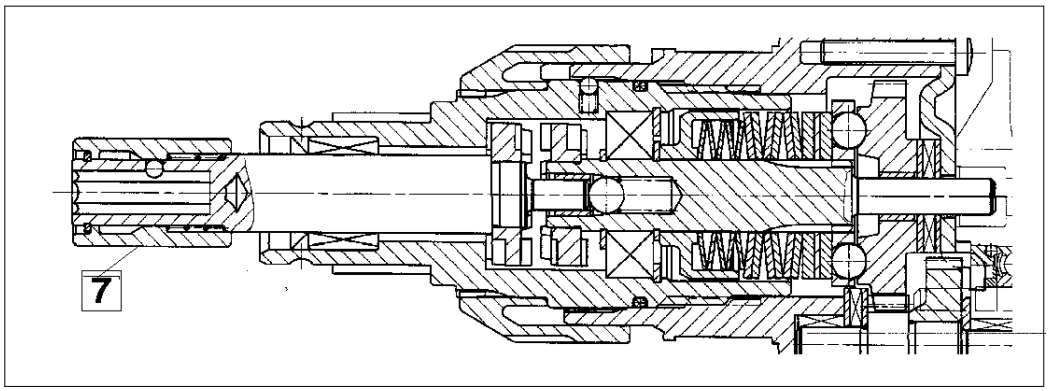
The depth gauge can be removed (pulled off) the chuck. (Previously, it had to be unscrewed on TKT tools.)

CUSTOMER BENEFITS:
--> Bits, insert tools, etc. can be changed more quickly or screwdriving tools are exposed for removing an in-place screw without using the depth gauge.

1.2.8 Chuck (7)

The chuck complies with the respective standard (DIN 3126/ISO 1173). Bits, insert tools, etc. are held by keying action.

CUSTOMER BENEFIT:
--> Customers are not forced to keep to the Hilti system.
No disruptions occur in use.



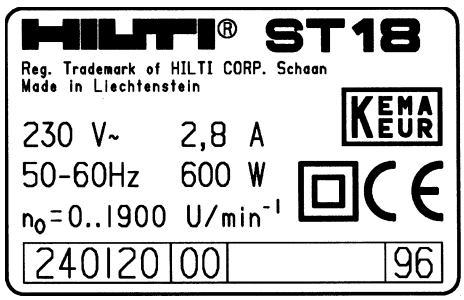
Changing the chuck: Pull back sleeve 1 and the bit, insert tool, etc. can be removed or inserted.

1.2.9 Belt hook (8), (accessory)

The belt hook is not attached, as a standard item, to the screwgun. If required, it can be connected using the same screw as the one for the grip cover.

CUSTOMER BENEFIT:
--> The screwgun is always ready at hand.

1.2.10 Nameplate (9)

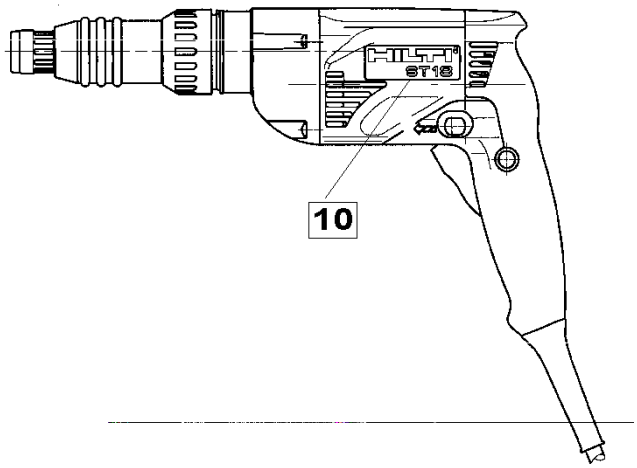


The following information is given on the nameplate:

- Technical data and regulations, etc.
  (CE directive - conformity, warnings, etc.)
- Suitable voltage
- Serial number
  Identical to spare parts list number
- Technical status with index number

1.2.11 Serial number (10)

The screwgun serial number is indented in the screwgun housing.
The serial number will be given on the nameplate of the first screwguns.



CUSTOMER BENEFIT:
--> This serial number is required in the event of warranty claims.

2. Technical data

2.1 Screwgun data

	S T 1 8	TKT 1300	TKT 2000	TKT 1800
Nominal power	600 W	600 W	600 W	600 W
No-load speed	1 900 r.p.m.	1 250 r.p.m.	2 040 r.p.m.	1 250 r.p.m. 2 250 r.p.m.
Nominal current: on 110 / 115 V on 230 V	 6 A 2.8 A	 6 A 3 A	 6 A 3 A	 6 A 3 A
Voltage	100/110 - 120/ 220 - 240 Volt	110/115/ 220/230/ 240 Volt	110/115/ 220/230/ 240 Volt	110/115/ 220/230/ 240 Volt
Mains frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Screwgun weight	1,8 kg	1,9 kg	1,9 kg	2.1 kg
Max. torque	20 Nm	20 Nm	13 Nm	20 Nm 11.5 Nm
Chuck type	1/4“ Hexagon socket with ball-notch retention	1/4“ Hexagon socket with ball-notch retention	1/4“ Hexagon socket with ball-notch retention	1/4“ Hexagon socket with ball-notch retention
Supply cord length	4 m	3 m (Standard)	3 m (Standard)	3 m (Standard)
Screwgun length to spindle end losest to corner	 295 mm 26 mm	 320 mm	 320 mm	 356 mm
Vibration	The typical hand-arm vibration exposure is less than 2.5 m/s2.			
Noise level	The typical A-rated noise level (pressure) is less than 80 dB (A).			

2.2 Torque coupling

2.2.1 Torque regulation - settings

The settings are only guidelines.

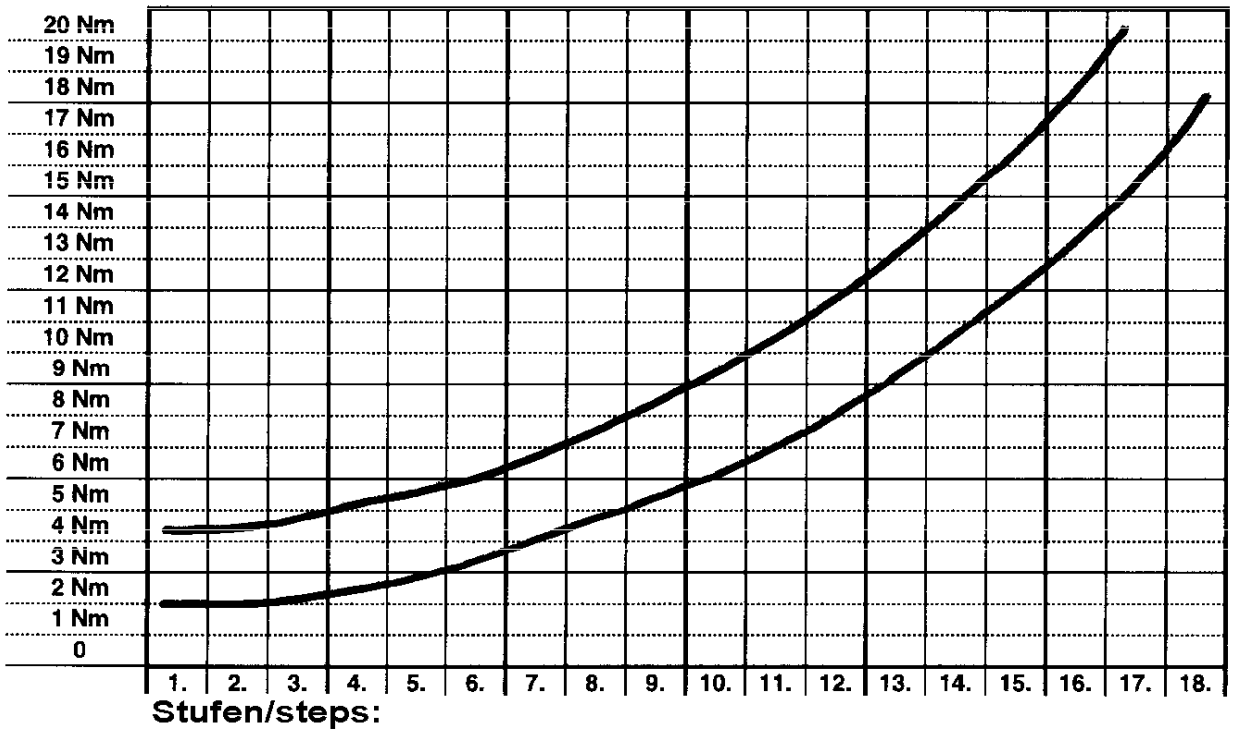
Different fastening values are obtained depending on the material being fastened, the condition of the screwgun, screw geometry, etc.

N o t e :
First make a trial fastening using a lower torque setting and then adjust the torque depending on the results.

Application / use	Type of screw / diameter (mm)	Torque setting
Fastening sheet metal to sheet metal	S-MD / ø 4,2	1 - 3
	S-MD / ø 4,8	2 - 4
Fastening sheet metal to steel components	S-MD 51 + S-MD21 ø 5.5	4 - 6
	S-MD53 + S-MD23 ø 5,5	6 - 8
	S-MP53 ø 6,3	8 - 10
Fastening sheet metal to steel beams	S-MD55 + S-MD 25 ø 5,5	10 - 14
	S-MP52 ø 6,3	12 - 16
Fastening sheet metal to wood	S-MP53 ø 6,5	12 - 18
FIBRE CEMENT		
Fastening fibre-cement panels to steel components	S-FD03 ø 6,3	6 - 12
Fastening fibre-cement panels to steel beams	S-FD05 ø 6,3	12 - 16
Fastening fibre-cement panels to wood	S-FS01 ø 6,5	12 - 18
SANDWICH / COMPOSITE PANELS		
Fastening these panels to steel components	S-CD63 ø 5,5	6 - 10
Fastening these panels to steel beams	S-CD65 ø 5,5	10 - 16

2.2.2 Release torque

The torque characteristics i.e. respective torque positions in the following graph, are influenced by various factors, such as wear, screwgun temperature, mains voltage, etc. A characteristic curve without tolerance range cannot, therefore, be given for the working life of the screwgun.



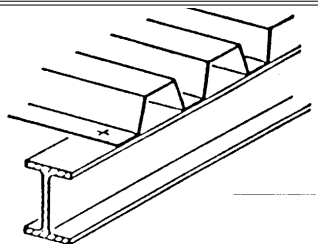
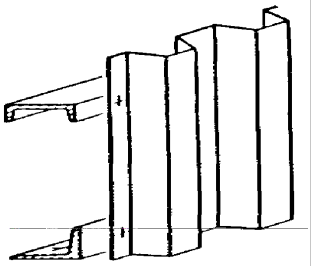
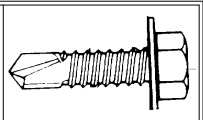
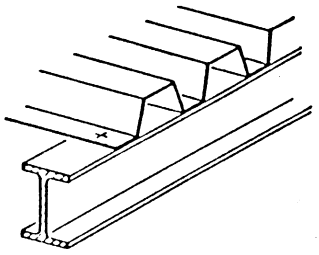
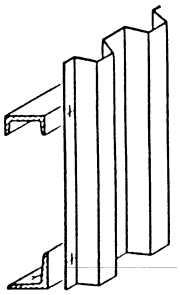
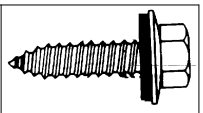
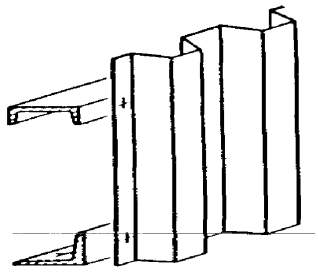
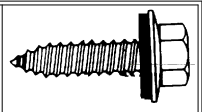
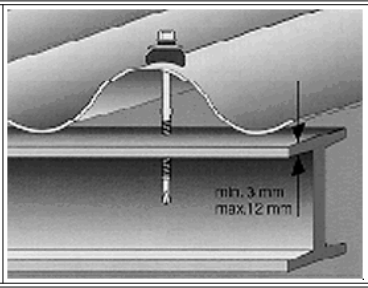
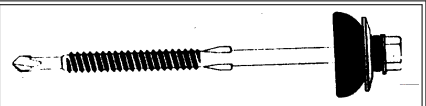
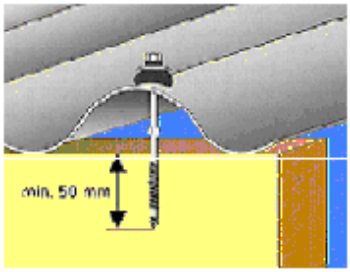
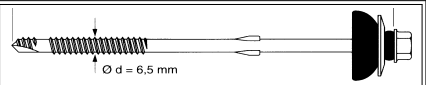
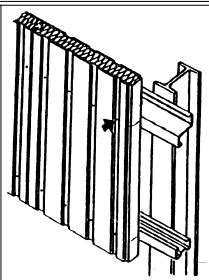
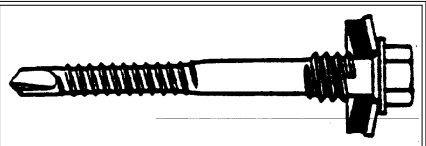
2.3 Safety / approval

--> CE conformity
Regulations in the directives 73/23 EEC, 89/336 EEC, 89/392 EEC

--> CB certification
Approval covering the entire European market

--> Planned national approval in
USA, CDN, AUS, PL, CS, SL, SK, H, SAR, J, Korea, China

3. Applications

Fastening aluminium or steel trapezoidal sheets to steel framing / structures up to 12 mm thick using self-drilling screws up to 6.3 mm dia., with or without a sealing washer			
			
Fastening aluminium or steel trapezoidal sheets to wood framing / structures using wood screws 6.5 mm dia., with or without sealing washer			
Fastening fibre-cement panels to steel framing / structures up to 12 mm thick using self-drilling FD screws			
Fastening fibre-cement panels to wood framing / structures using self-drilling FD screws			
Fastening sandwich / composite panels to steel framing / structures using self-drilling CD screws			

4. Operating instructions

See operating instructions for

- o screwgun use (handling),
- o maintenance,
- o servicing and
- o warranty.

5. Product description: Accessories / bits, insert tools, etc.

5.1 Accessories

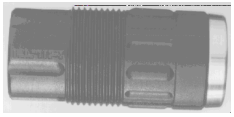
5.1.1 Plastic toolbox

Item number: 257395/4

Material: ABS plastic
Dimensions: 400 x 320 x 102 mm
Weight: 1.13 kg
Included in toolbox: ST 18 label for marking the toolbox
This label is included in the toolbox so that the customer can mark it with his screwgun model.

This plastic toolbox can be used for all SG95 power tools (one item no. for SD 45, ST 18, SU 25 and SR 16).

5.1.2 Depth gauge for screws with sealing washer of 17 mm diameter



Designation: S-GT 17
Item number: 240550/4

A Length: 55 mm
B Bore diameter: 17.5 mm
C Outside diameter: 27 mm

5.1.3 Depth gauge for screws with sealing washer of 23 mm diameter

Designation: S-GT 23
Item number: 240551/2

A Length: 55 mm
B Bore diameter: 23.5mm
C Outside diameter: 33 mm

5.1.4 Depth gauge for bit holder and bit

Designation: S-GU 13
Item number: 240549/6

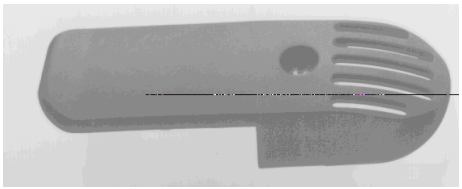
A Length 60 mm
B Bore diameter: 13 mm
C Outside diameter: 25 mm

5.1.5 Side handle

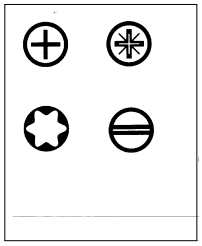
Designation: Side handle assy
Item number: 240466/3

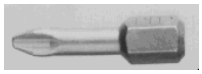
5.1.6 Belt hook

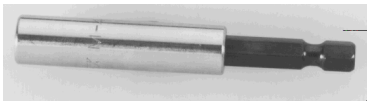
Designation: Hook
Item number: 240291/5



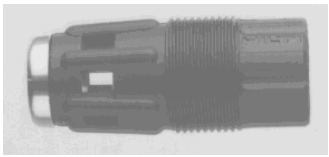
5.2 Bit, insert tools, etc.



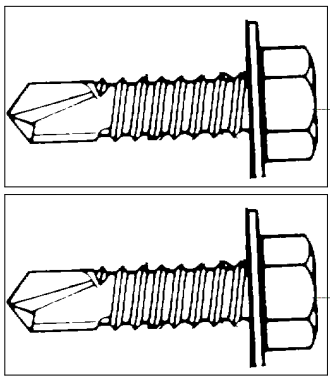


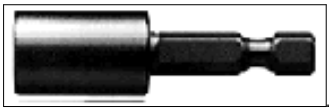


S-BH 50 M

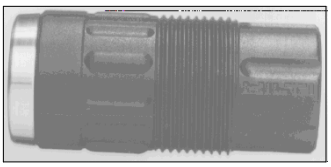


S-GU 13

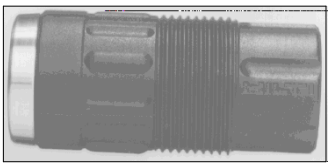




S-NS.....

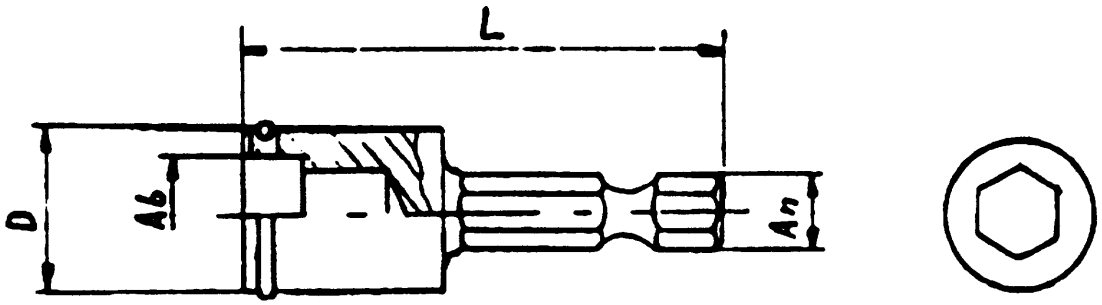


S-GT 23



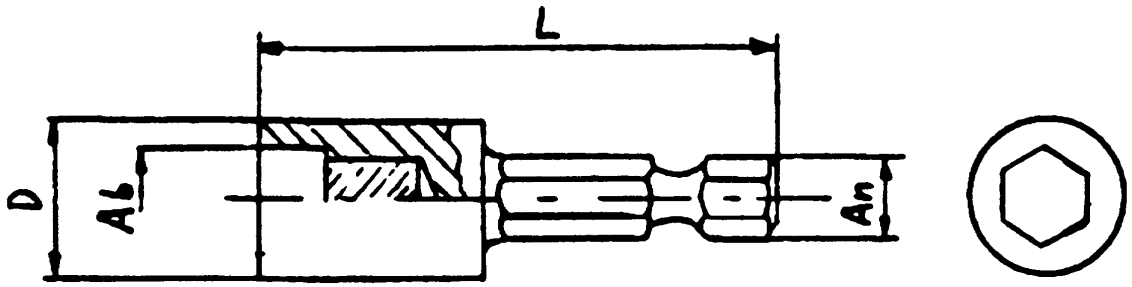
S-GT 17

5.2.1 Hexagon insert with spring lockwasher



Designation	Item no.	Length,	Diameter	Screw width across flats
S-NSD 8	81497/0	49 mm	14 mm	8mm
S-NSD 10	81498/8	49 mm	16 mm	10 mm
S-NSD3/8	80508/5	49 mm	16 mm	3/8 “

5.2.2 Magnetic hexagon insert



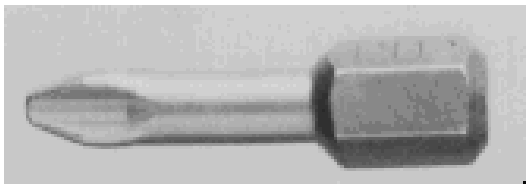
Designation	Item no.	Length	Diameter	Screw width across flats
S-NSD 6 M	80498/9	49 mm	12 mm	6 mm
S-NSD 7 M	80504/4	49 mm	12 mm	7 mm
S-NSD 8 M	80505/1	49 mm	14 mm	8 mm
S-NSD 10 M	80506/9	49 mm	16 mm	10 mm
S-NSD 3/8 M	80507/7	49 mm	16 mm	3/8 “

5.2.3 Short bit holder

Type: Magnetic bit holder / designation: S-BH 50 M
Item number: 257257/6

A Length: 50 mm
B Driven end: 1/4" external hexagon
C Drive end: 1/4" hexagon socket
D Bit retention: Spring lockwasher
Material: Bit holder in A2 stainless steel
Designation: BH 50 M

5.2.4 Bits



Designation	Item no.	Drive end	Driven end	Length	Sales packaging
S-B PH1 T	258123/9	Philips no. 1			25 pcs
S-B PH1 T	258124/7	Philips no. 1			10 pcs
S-B PH2 T	258125/4	Philips no. 2	1/4" external	25 mm	25 pcs
S-B PH2 T	257618/9	Philips no. . 2	hexagon		10 pcs
S-B PH3 T	258126/2	Philips no. 3			10 pcs
S-B PZD1 T	258127/0	Pozidriv no. 1			25 pcs
S-B PZD1 T	258128/8	Pozidriv no. 1			10 pcs
S-B PZD2 T	258129/6	Pozidriv no. 2	1/4" external	25 mm	25 pcs
S-B PZD2 T	257619/7	Pozidriv no. 2	hexagon		10 pcs
S-B PZD3 T	257620/5	Pozidriv no. 3			10 pcs
S-B PZD4	258130/4	Pozidriv no. 4		32 mm	5 pcs

Designation	Item no.	Drive end	Driven end	Length	Sales packaging
S-B TXI 30	258131/2	Hilti-Torx 30	1/4" external		10 pcs
S-B TXI 40	258132/0	Hilti-Torx 40	hexagon	25 mm	10 pcs
S-B TX 10 T	258134/6	Torx 10			10 pcs
S-B TX 15 T	258136/1	Torx 15			10 pcs
S-B TX 20 T	258138/7	Torx 20	1/4" external		10 pcs
S-B TX 25 T	258140/3	Torx 25	hexagon	25 mm	10 pcs
S-B TX 27 T	258142/9	Torx 27			10 pcs
S-B TX 30 T	258144/5	Torx 30			10 pcs
S-B TX 40 T	258146/0	Torx 40			10 pcs
S-B FB 0.8x5.5T	258148/6				10 pcs
S-B FB 1.0x5.5T	258150/2	Flat blade	1/4" external	25 mm	10 pcs
S-B FB 1.2x6.5T	258152/8		hexagon		10 pcs

5.2.5 SGS-FD 40 attachment

For fibre-cement screws
--> See Compass papers 686-04.

Designation	Item no.	Comments
SGS-FD 40	235144/3	Incl. screw insert and drive shaft, excl. adaptor

5.2.6 SGS-CD 50 attachment

For sandwich / composite panel screw
Introduction: --> 3rd quarter 1996

6. Screw programme

6.1 Screw programme for metal construction: siding & roofing

This screw programme is described in the Compass LI 340-104.

6.2 Screw programme for fibre-cement panels

This screw programme is described in the Compass 686-04.

6.3 Screw programme for sandwich / composite panels

Information about this screw programme will be given in the third quarter of 1996.

7. Product change: ST 18 roofing / siding screwdriver

7.1 Background information

Complaints from the market
The max. torque drops during the service life of the tool. The contact pressure required to drive screws increases.

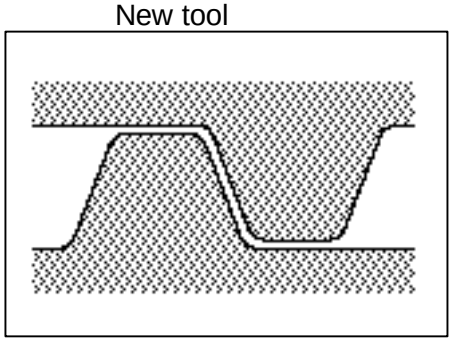
Customers' expectations
Customers expect to have the max. torque available over the entire service life of the tool. The contact pressure required must not increase with the age of the tool.

Customers' reaction to the fault
Customers are very satisfied with the ST18 screwdriver. Nevertheless, they find that the contact pressure required in order to achieve a certain torque increases with the age of the tool.

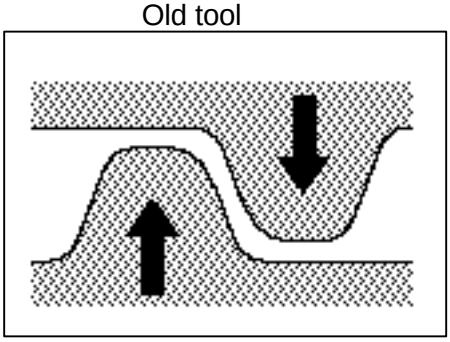
7.2 Product

Cause
Wear of the axial coupling tends to cause it to release unintentionally when the axial force applied is too low.

New tool



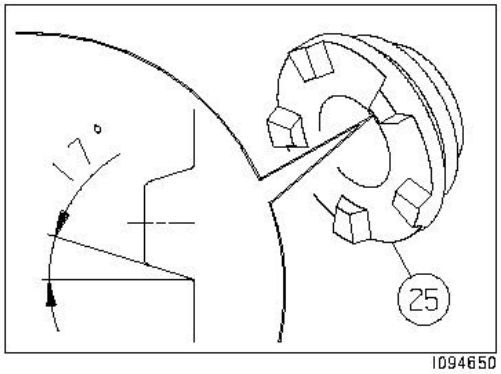
Old tool



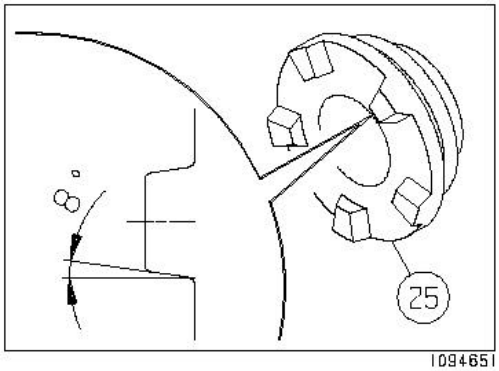
The more the corners are worn and rounded off, the more the user is required to increase the axial force applied in order to maintain the max. torque. The coupling in the ST 18 releases at a lower torque when the axial force applied is too low.

Product change
The flank angle has been changed from 17° to 8°. This will minimise wear and ensure engagement with minimal contact pressure over the entire service life of the tool.

Old



New

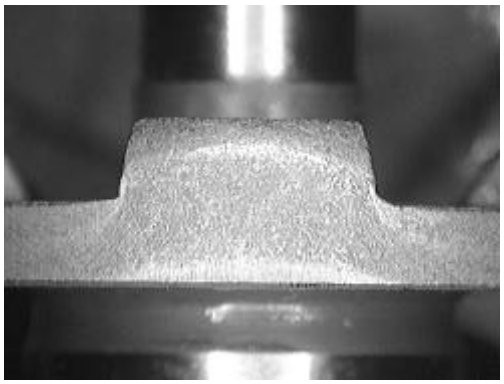


Product costs
Manufacturing costs will change only slightly. The price of the tool will not be increased.

7.3 Competitors' products

Together with this product improvement we have also examined the current situation with regard to our competitors' products. We were able to determine that the ST 18 has good sales arguments in its favour and would now like to pass this information on to Hilti representatives.

Bosch GSR 8-16 KE



The axial coupling has a flank angle of 5°. At a coupling release torque of 20 Nm, the necessary **contact pressureis approx. 40 N.**

Nevertheless, in order to prevent overheating of the screw drill point or, respectively, to cause it to drill into the steel, a contact pressure of at least 70 N must be applied.

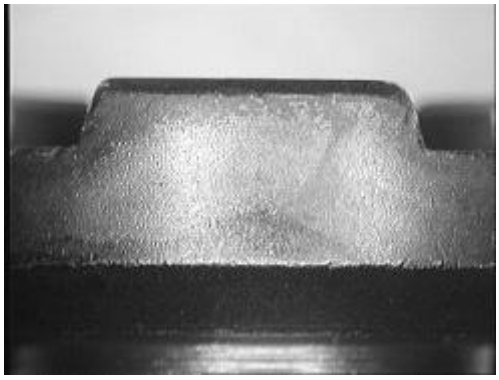
Screws can fail when using the Bosch screwdriver as the tool does not encourage the user to apply the necessary contact pressure.

Atlas Copco TQSE 1000

The axial coupling has a wave profile.
At a coupling release torque of 20 Nm, the necessary **contact pressureis approx. 130 N.**

With the Atlas Copco screwdriver, the user must apply a high contact pressure.
This is tiring when working overhead.

Makita 6805 BV

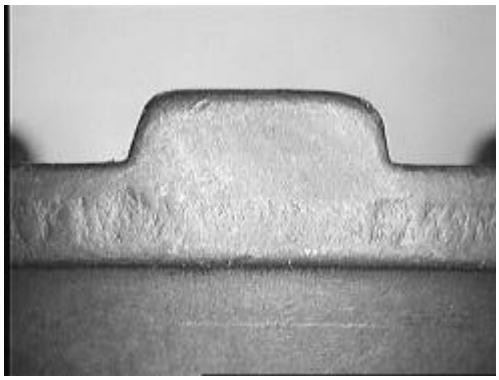


The axial coupling has a flank angle of 20°.
At a coupling release torque of 20 Nm, the necessary **contact pressureis approx. 250 N.**

With this screwdriver, the torque coupling cannot be set independently of the contact pressure. The higher the contact pressure, the higher the screwdriving torque.

With the Makita screwdriver, the user must apply a high contact pressure in order to achieve a torque of 20 Nm.
This is tiring when working overhead.

DeWalt DW 267

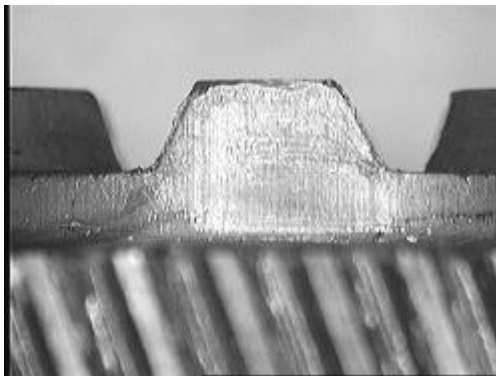


The axial coupling has a flank angle of 7° and the corners of the teeth are very rounded. At a coupling release torque of 20 Nm, the necessary **contact pressure is approx. 250 N.**

With this screwdriver, the torque coupling cannot be set independently of the contact pressure. The higher the contact pressure, the higher the screwdriving torque.

With the DeWalt screwdriver, the user must apply a high contact pressure in order to achieve a torque of 20 Nm. This is tiring when working overhead.

Hitachi W 6 VA 2

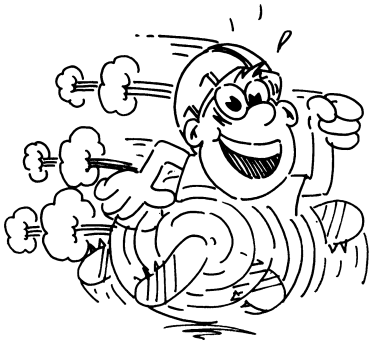


The axial coupling has a flank angle of 25°.
At a coupling release torque of 20 Nm, the necessary **contact pressure is approx. 250 N.**

This tool has no adjustable torque coupling, i.e. the torque transferred to the screw is determined by the contact pressure applied by the user.

With the Hitachi screwdriver, the user must apply a high contact pressure in order to achieve a torque of 20 Nm. This is tiring when working overhead.

7.4 Marketing



Communication of these points to the field sales force

ST 18 roofing / siding screwdriver – product improvement

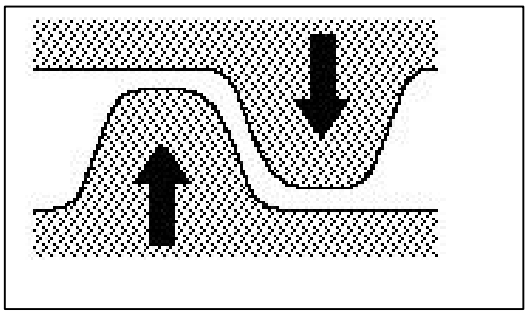
Complaints from the market
The max. torque drops during the service life of the tool. The contact pressure required to drive screws increases.

Customers' expectations
Customers expect to have the max. torque available over the entire service life of the tool. The contact pressure required must not increase with the age of the tool.

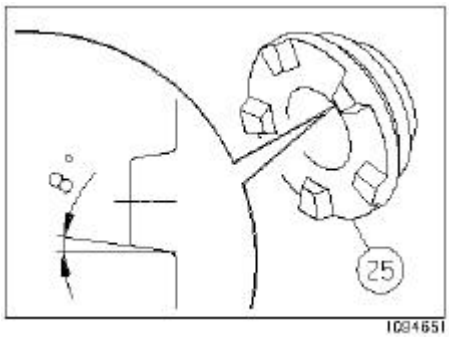
Cause
Wear of the axial coupling tends to cause it to release unintentionally when the axial force applied is too low. The more the corners are worn and rounded off, the more the user is required to increase the axial force in order to maintain the max. torque. The coupling in the ST 18 releases at a lower torque when the axial force applied is too low.

Product change
The flank angle has been changed from 17° to 8°. This will minimise wear and ensure engagement with minimal contact pressure over the entire service life of the tool.

Old tool



New tool



Market position
During processing of the complaints from the market, we were able to determine that the ST 18 has good sales arguments in its favour:

The physical requirements to be fulfilled by a roofing / siding screwdriver:
- The contact pressure must be at least 70 N in order to prevent overheating and failure of the drill point.
- Excessively high contact pressure is very tiring.

Company Type	**Hilti old ST18**	**Hilti new ST18**	**Bosch GSR 8/16 KE**	**Atlas Copco TQSE 1000**	**Makita 6805 BV**	**DeWalt DW 267**	**Hitachi W 6 VA 2**
Contact pressure in N	145 N	75 N	40 N	135 N	> 250 N	> 250 N	> 250 N
Max. torque	20 Nm	20 Nm	25 Nm	approx. 20 Nm	approx. 26 Nm	approx. 20 Nm	approx. 20 Nm
Speed in r.p.m. (no-load operation)	0-1900	0-1900	0-1600	0-1000	0-2700	0-2000	0-3350
Adjustable torque	yes	yes	yes	yes	no	no	no
Depth gauge function	yes	yes	no	no	yes	no	yes

Introduction
The new coupling is fitted to ST 18 machines as of serial number 80 943 (supplied as of November 1999).

7.5 Logistics

7.5.1. Product programme

The item numbers for the tool remain unchanged.
The item number for the two coupling rings has changed.

Old coupling rings	Item no. 240729	use up
New coupling rings	Item no. 218 387	

7.5.2 Dates

The changeover to the new coupling took place as of November 1999.
All machines will be supplied with the new coupling as of this date.

The change was introduced as of serial number 80 943 (versions in toolbox or in cardboard box).

7.5.3 Ex-factory price

The ex-factory price for the ST 18 roofing / siding screwdriver remains unchanged.

7.6 Repairs

This information should be communicated to repair workshops. Repair departments will be informed directly on pages VII-24 and VII-25 of RI 689-01.

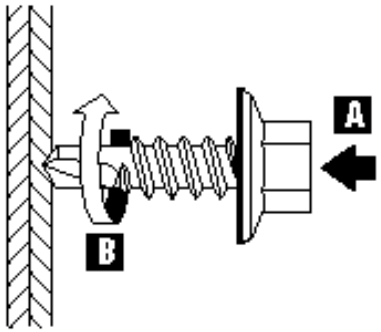
Important: Only coupling rings of the new type may be fitted together.

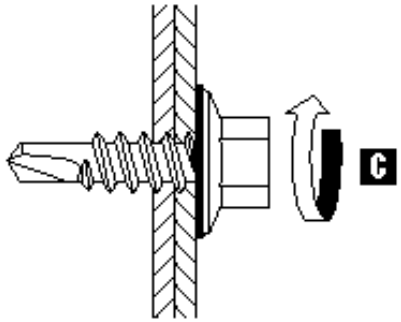
7.7 Training information

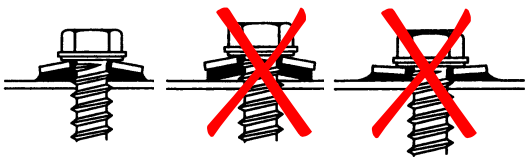
Enclosed you will find two overhead projector transparencies on this subject. These documents can be used to explain the advantages of the ST 18 over competitors' products at meetings of the sales teams.

At training courses of this kind, the main focus should be on sales arguments in favour of our product compared to competitors' products.

Steel/Metal - Siding- & Decking-Screwdriver ST18
Product improvements







Handling - physical demand

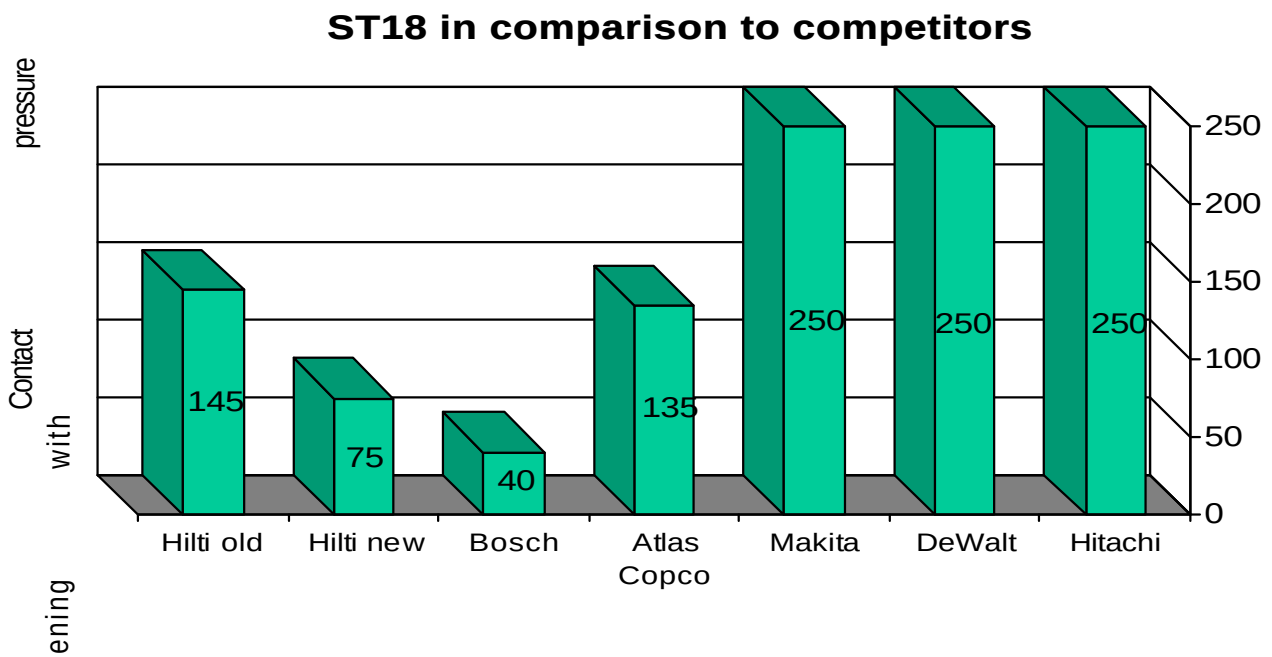
(A) Contact pressure for drilling in steel → min. 70 Nm
< 70 Nm → drill point burns up
> 70 Nm → tiring

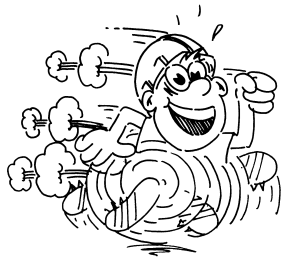
(B) Speed for drilling in steel (Ø 6 mm) → min. 1700 r.p.m.
< 1700 r.p.m. → drill point burns up, no drilling progress
> 2500 r.p.m. → drill point burns up

(C) Torque has to be adjustable depending on screw diameter and base material, otherwise → screw breakage or damage of thread

(D) Depth gauge function (for sealing screws) has to be adjustable otherwise → sealing will be leaking

Steel/Metal - Siding- & Decking-Screwdriver ST18
Product improvements





Company Type	**Hilti old ST18**	**Hilti new ST18**	**Bosch GSR 8/16 KE**	**Atlas Copco TQSE 1000**	**Makita 6805 BV**	**DeWalt DW 267**	**Hitachi W 6 VA 2**
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Max. torque	20 Nm	20 Nm	25 Nm	approx. 20 Nm	approx. 26 Nm	approx. 20 Nm	approx. 20 Nm
Speed in r.p.m. (no-load operation)	0-1900	0-1900	0-1600	0-1000	0-2700	0-2000	0-3350
Adjustable torque	yes	yes	yes	yes	no	no	no
Depth gauge function	yes	yes	no	no	yes	no	yes