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Overview of torqueing tools

What type of tool do you need?

To ensure safety and productivity, STAHLWILLE torqueing tools offer you a high degree of convenience, accurate setting and optimised ergonomic designs. The following overview is designed to help you select just the right model for your application.

1 Torque screwdrivers



for example, the TORSIOMETER 760

Torque screwdrivers

click-type	indicating	No	Capacity	Page
	•	760	15-600 cN·m	181
•		775	2-1000 cN·m	181

2 Torque wrenches



for example, the MANOSKOP® 730N

Torque wrenches

click-type	indicating	No	Capacity	Page
	•	71	160-800 N·m	182
	•	73Nm/15	2-15 N·m	182
•		755	1,5-300 N·m	183
•		730	4-800 N·m	184-186
•		721	6-300 N·m	187
•		720Nf	160-800 N·m	188
•		721Nf	160-1000 N·m	188
•		730N	2-1000 N·m	190-193
	•	701	1-20 N·m	194-195
	•	712R/6	3-60 N·m	208

3 Angle-controlled/torque wrenches



for example, the Sensotork® 713R

Torque wrench/angle-controlled wrench

click-type	indicating	No	Capacity	Page
•	•	730D	10-1000 N·m	198-200
•	•	714	1-1000 N·m	202-205
	•	713R	3-400 N·m	206-208

STAHLWILLE's calibration laboratory - accredited from the highest instance.

Controlled bolt tightening is an essential aspect of operating safety and the durability of screws and bolts. Put your trust in STAHLWILLE's DAkkS calibration laboratory. For all your torquing tools and testers.

More details on page 180.



4 Insert tools



Insert tools

System		Page
9x12 mm	9x12	211 - 213
14x18 mm	14x18	214 - 215
22x28 mm	22x28	216
24.5x28 mm	24.5x28	217

5 Torque multipliers



MP300

MP100-1500



MULTIPOWER

No	Capacity	Page
MP300	800-5000 N·m	221
MP100-1500	100-1500 N·m	221

6 Reference technique



7791 + 7791-2

7707 W



Torque testers and calibrating units

No	Capacity	Page
7707 W Torque tester	0.2-1100 N·m	224
7791 / 7792 Manutork	1-3000 N·m	226 - 229
7794 perfectControl	1-1000 N·m	231 - 233
Accessories		234 - 235



7794-2

STAHLWILLE's calibration laboratory - accredited from the highest instance



Controlled tightening is a must in terms of safety and the lifetimes of the screws and bolts. STAHLWILLE has been awarded accreditation as a calibrating laboratory for torque by the German Accreditation Body (DAkkS) because of the Company's skills in the field of torque controlled tightening.



The STAHLWILLE calibration service is in a position to offer both the usual **works calibration certificate** and the **DAkkS certificate**.

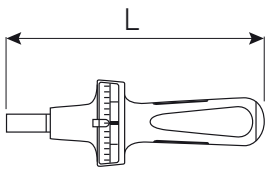
Torque screwdrivers

TORSIOMETER 760

- indicating type
- the measuring element is a torsional leaf spring
- clockwise tightening (with trailing pointer) and anticlockwise tightening
- with 1/4" internal hex drive (F 6.3 DIN 3126)
- comparative scale in in·lb and cursor
- inserts and adaptors with external hex E 6.3 (1/4")

- DIN 3126/ISO 1173 are securely held and firmly controlled in the mounting shaft (for BITS screwdriver inserts, refer to page 173).
- to attach 1/4" sockets, please order adaptor No 3115 (refer to page 172)
- with certificate
- display deviation value $\pm 4\%$

760 Torque screwdrivers TORSIOMETER



Code	size				inside O	L mm	Δ g
51040007	7.5	15-75 cN·m	1.5-6.5 in·lb	2.5 cN·m	F 6.3	185	225
51040015	15	30-150 cN·m	3-13 in·lb	5 cN·m	F 6.3	185	225
51040030	30	60-300 cN·m	6-26 in·lb	10 cN·m	F 6.3	185	230
51040060	60	120-600 cN·m	12-52 in·lb	20 cN·m	F 6.3	185	230

TORSIOMAX 775

- click-type
- for torque-controlled bolt tightening in the cN·m and in·lb ranges
- for one-off or production runs
- anticlockwise and clockwise tightening
- with 1/4" internal hex drive (F 6.3 DIN 3126/ISO1173)
- infinitely variable via micrometer scale (twist scale)
- disengaging clutch coupling prevents the preset value being exceeded

- the shape of the handle and its surface texture ensure safe and accurate transmission of torque
- insert tools: For all 1/4" hex E 6.3, Phillips-head screws, POZIDRIV/SUPADRIV®, straight-slot, TORX®, hex BITS (see pp. 173). For very small joints, BITS with a 4 mm hex drive and an adapter No 3115/2 for BITS screwdriver inserts, Type C4, and external hex 1/4" (E 6.3 DIN 3126/ISO 1173) are required (refer to pages 168, 171).
- with certificate
- display deviation value $\pm 6\%$

775 Torque screwdrivers TORSIOMAX



Code	size			inside O	L mm	Δ g
51060003	3 ¹⁾	2-30 cN·m	0.2 cN·m	F 6.3	105	99
51060012	12 ²⁾	20-120 cN·m	1 cN·m	F 6.3	157	192
51060030	30 ²⁾	40-300 cN·m	1 cN·m	F 6.3	160	214
51060050	50 ²⁾	100-500 cN·m	2.5 cN·m	F 6.3	205	436
51060100	100 ³⁾	400-1000 cN·m	5 cN·m	F 6.3	235	762
51460003	a/3 ¹⁾	0.2-3 in·lb	0.02 in·lb	F 6.3	105	99
51460012	a/12 ²⁾	2-12 in·lb	0.1 in·lb	F 6.3	157	192
51460050	a/50 ²⁾	10-50 in·lb	0.25 in·lb	F 6.3	205	436

¹⁾ with a swivelling handle-end to improve tool control; and with a clamping screw for locking the preset.

²⁾ with an additional locking mechanism to prevent the selected torque being inadvertently adjusted.

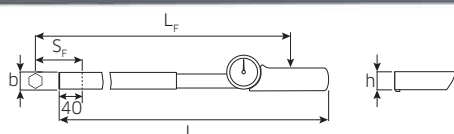
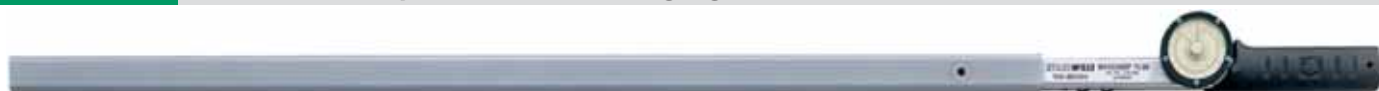
³⁾ with screw-on handles for increasing the force applied for large torques.

MANOSKOP® 71

- indicating type
- mount for interchangeable shell tools
- all 14 x 18 mm insert tools can also be used with insert tool adaptor No 7370/80 (max. 650 N·m)
- trailing pointer dial
- twin scales N·m/ft·lb
- scale is made of luminescent light yellow special film enabling clear readings even in poor light conditions
- handle with integrated force compensator
- measuring element is a bending plate housed in the handle
- with overload protection
- can be applied for either clockwise or anticlockwise tightening by turning the wrench over
- calibration using perfectControl calibrating unit No 7794 No 7794 or calibration system No 7706. Adjustment without disassembly.
- with certificate
- display deviation value $\pm 4\%$

211-217

71/80 MANOSKOP® torque wrench with dial gauge and mount for shell tools

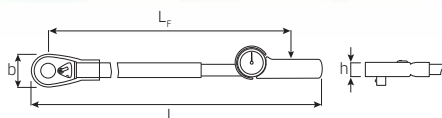


Code						b mm	h mm	L mm	L _F mm	S _F mm	ΔΔ g
50030080	160-800 N·m	120-600 ft·lb	10 N·m	10 ft·lb	24,5x28	28	24	1048	1050	95	2360

MANOSKOP® 71 with permanently installed reversible ratchet

- indicating type
- trailing pointer dial
- twin scales N·m/ft·lb
- scale is made of luminescent light yellow special film enabling clear readings even in poor light conditions
- additional protection for the gauge by the protective ring
- handle with integrated force compensator
- not for anticlockwise measurement
- calibration using perfectControl calibrating unit No 7794 or calibration system No 7706. Adjustment without disassembly.
- with certificate
- display deviation value $\pm 4\%$

71aR/80 MANOSKOP® torque wrench with dial gauge and permanently installed ratchet

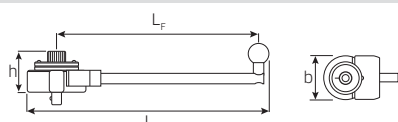


Code						b mm	h mm	L mm	L _F mm	ΔΔ g
50450080	100-600 ft·lb	160-800 N·m	10 ft·lb	10 N·m	3/4	70	30	1152	1060	4280

Friction gauge

- indicating type
- permanently installed square drive for clockwise use
- trailing pointer dial
- no "needle wobble" during measurements
- lighter construction due to use of aluminium
- with certificate
- display deviation value $\pm 4\%$

73Nm/15 Friction gauge



Code				b mm	h mm	L mm	L _F mm	S _F mm	ΔΔ g
50240015	2-15 N·m	0.5 N·m	1/2	72	50	298.5	250	0	775

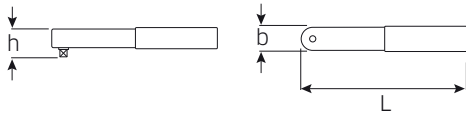
Industrial MANOSKOP® 755

For work on production lines or series production. No setting scale; have to be set with a tester such as the STAHLWILLE No 7707 W tester or the No 7794, No 7706 calibration system.

- click-type
- mount for interchangeable insert tools
- dual stop signal
- particularly light and easy to handle
- handle and shank are made of square tubular steel
- any force applied to the tool after the 'click' or applied in the opposite direction to the current function (up to the max. of the wrench's range)
- does not act on the trigger mechanism and cannot cause damage to it.
- anticlockwise torquing thanks to swap-over insert tools
- on request with preset cut-out value (surcharge 10%)
- display deviation value $\pm 4\%$

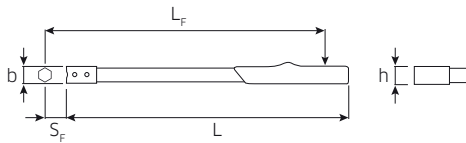
755R/1 Series MANOSKOP® torque wrench with permanently installed ratchet

dual stop signal, click-type. Deviation of indication $\pm 4\%$. Cut-out setting with aid of Setting Gauge.



Code				b mm	h mm	L mm	$\Delta\%$ g
50 10 0001	1.5-12.5 N·m	1.0-9.0 ft·lb	1/4	22	18	173.5	335

755 Series MANOSKOP® torque wrenches with mount for insert tools



Code	size				b mm	h mm	L mm	L _F mm	S _F mm	$\Delta\%$ g
5001 0004	4	4-40 N·m	4-30 ft·lb	9x12	22	18	201	172	17.5	522
5001 0010	10	20-100 N·m	15-74 ft·lb	9x12	28	24	318	289	17.5	635
5001 0020	20	40-200 N·m	30-147 ft·lb	14x18	28	24	457	435	25	1060
5001 0030	30	60-300 N·m	40-220 ft·lb	14x18	28	24	609	587	25	1210





MANOSKOP® 730

Mechanical torque wrenches



Advantages at a glance

- Easy setting and operation
- Extremely resilient and durable
- Wear-resistant switching mechanism
- Torque range 4 – 800 N·m
- No need for manual reset to zero – wear-free flexible rod instead of a compression spring
- Can be calibrated without disassembly
- Clearly detected cut-out even at very small torque settings
- Rapid setting thanks to slide control (sizes 2 – 65)
- Display deviation value $\pm 4\%$

1

Protected mechanism, extremely resistant to mechanical wear, protected against dirt inside the outer housing

2

Easy-to-read twin scale for N·m/ft·lb and N·m/in·lb on sizes 5 – 80

3

Sturdy handle made of tough plastic, resistant to oils, grease, fuels, brake fluid and Skydrol

4

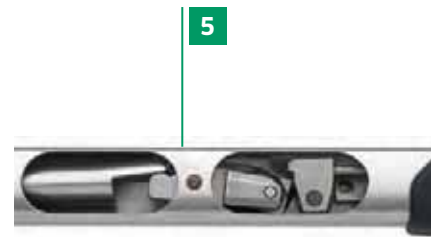
Square drive for use with a wide range of inserts (9x12 mm, 14x18 mm, 22x28 mm and 24.5x28 mm)

5

No need for manual reset to zero thanks to wear-free trigger system using triggering cam. The measuring element is only under load while force is being applied

6

Rapid setting of target torque on sizes 2 – 65.

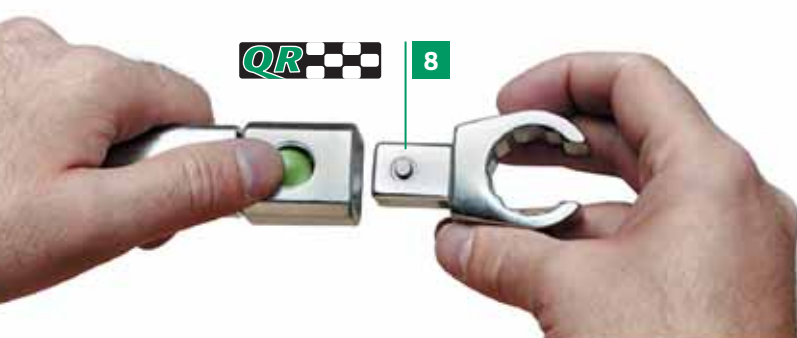


5

7 Quick adjustment from outside, no disassembly of the torque wrench required

8 QuickRelease safety lock guarantees secure locking of insert tools on sizes 5 – 65 and fast removal

9 Any force applied to the tool after the 'click' or applied in the opposite direction to the current function – forcible loosening of a jammed screw – does not act on the trigger mechanism and cannot cause damage to it.



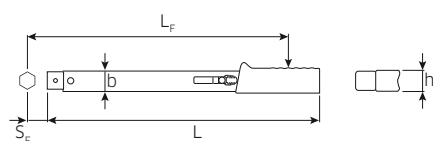
! Further details on **page 186**

Service MANOSKOP® 730

- click-type
- mount for interchangeable insert/shell tools
- QuickRelease safety lock (sizes 5-65)
- rapid setting (sizes 2-65)
- dual stop signal
- twin scales N·m/ft·lb and N·m/in·lb (sizes 5-80)
- the measuring element is only under load while force is being applied, no need for manual reset to zero
- can be applied for either clockwise or anticlockwise tightening by turning the inserts over
- any force applied to the tool after the 'click' or applied in the opposite direction to the current function – e.g. forcible loosening of a jammed screw – does not act on the trigger mechanism and cannot cause damage to it.
- calibration using perfectControl calibrating unit No 7794 or calibration system No 7706. Adjustment without disassembly.
- with certificate
- display deviation value $\pm 4\%$

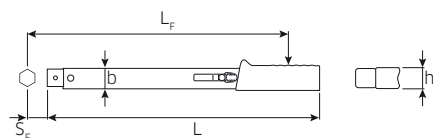
211-217

730 Service MANOSKOP® torque wrenches with mount for insert tools



730/2

Code	size				b mm	h mm	L mm	L _F mm	S _F mm	Δ g
50 18 00 02	2	4-20 N·m	0.5 N·m	9x12	27.5	23	178.5	174	17.5	315
50 18 00 04	4	8-40 N·m	1 N·m	9x12	27.5	23	222	218	17.5	395
50 58 00 01	a/2-1	17.5-87.5 in·lb	2.5 in·lb	9x12	27.5	23	178.5	174	17.5	315
50 58 00 02	a/2	30-175 in·lb	5 in·lb	9x12	27.5	23	178.5	174	17.5	315
50 58 00 04	a/4	70-350 in·lb	10 in·lb	9x12	27.5	23	222	218	17.5	395



730/5

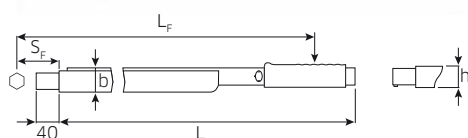
Code	size					b mm	h mm	L mm	L _F mm	S _F mm	Δ g
50 18 00 05	5	6-50 N·m	5-36 ft·lb	2 N·m	1 ft·lb	9x12	28	23	315	288	805
50 18 00 10	10	20-100 N·m	15-72.5 ft·lb	2.5 N·m	2.5 ft·lb	9x12	28	23	370	343	965
50 18 00 12	12	25-130 N·m	20-95 ft·lb	2.5 N·m	2.5 ft·lb	14x18	28	23	410	390	1100
50 18 00 20	20	40-200 N·m	30-145 ft·lb	5 N·m	5 ft·lb	14x18	28	23	455	435	1250
50 18 00 40	40	80-400 N·m	60-300 ft·lb	10 N·m	10 ft·lb	14x18	28	23	590	570	1880
50 18 00 65	65*	130-650 N·m	100-480 ft·lb	20 N·m	20 ft·lb	14x18	30.6	25.6	875	855	3280
50 18 15 65	II/65	130-650 N·m	100-480 ft·lb	20 N·m	20 ft·lb	22x28	30.6	25.6	897	907	3700
50 58 00 05	a/5	6-50 N·m	50-440 in·lb	2 N·m	10 in·lb	9x12	28	23	315	288	805
50 58 00 10	a/10	20-100 N·m	180-880 in·lb	2.5 N·m	20 in·lb	9x12	28	23	370	343	965
50 58 00 12	a/12	25-130 N·m	225-1150 in·lb	2.5 N·m	25 in·lb	14x18	28	23	410	390	1100
50 58 00 20	a/20	40-200 N·m	350-1750 in·lb	5 N·m	50 in·lb	14x18	28	23	455	435	1250

* recommended ratchet insert tool No 735/40HD

730/80 Service MANOSKOP® torque wrench with mount for shell tools



730/80



Code					b mm	h mm	L mm	L _F mm	S _F mm	Δ g
50 18 00 80	160-800 N·m	120-600 ft·lb	20 N·m	20 ft·lb	24.5x28	46	43	970	990	5377

Use shell adaptor No 7370/80 to make 14 x 18 mm insert tools fit.

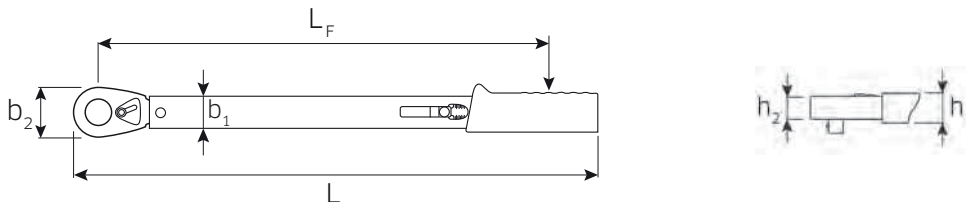
Standard MANOSKOP® 721

- click-type
- rapid setting
- dual stop signal
- twin scales N·m/ft·lb
- the measuring element is only under load while force is being applied, no need for manual reset to zero
- any force applied to the tool after the 'click' or applied in the opposite direction to the current function – e.g. forcible loosening of a jammed

screw - does not act on the trigger mechanism and cannot cause damage to it.

- all the sensitive components are protected by the sturdy tubular steel housing
- calibration using perfectControl calibrating unit No 7794 or calibration system No 7706. Adjustment without disassembly.
- with certificate
- display deviation value $\pm 4\%$

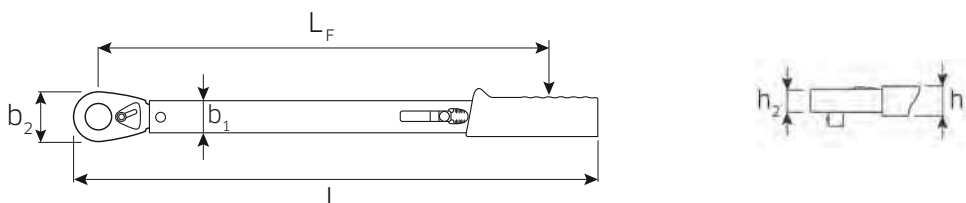
721 Standard MANOSKOP® torque wrenches permanently installed ratchet



Code	size					■	b ₁ mm	b ₂ mm	h ₁ mm	h ₂ mm	L mm	L _F mm	Δg g
50 20 00 05	5	6-50 N·m	5-36 ft·lb	2 N·m	1 ft·lb	3/8	28	27.5	23	14.5	352	293	900
50 20 00 15	15	30-150 N·m	25-110 ft·lb	5 N·m	5 ft·lb	1/2	28	41	23	18	452	387	1395
50 20 00 20	20	40-200 N·m	30-150 ft·lb	5 N·m	5 ft·lb	1/2	28	41	23	18	483	418	1490
50 20 00 30	30	60-300 N·m	50-220 ft·lb	10 N·m	10 ft·lb	1/2	28	44	23	27.5	553	486	1720

size 30 with push through square drive for anticlockwise torquing (spare square drive, refer to page 223)

721QR/20 Standard MANOSKOP® torque wrench with permanently installed QuickRelease ratchet



Code					■	b ₁ mm	b ₂ mm	h ₁ mm	h ₂ mm	L mm	L _F mm	Δg g
50 20 10 20	40-200 N·m	30-150 ft·lb	5 N·m	5 ft·lb	1/2	28	41	23	18	483	418	1250

721QR/20/3/1 Wheel-fitting set



Set of 5 in sturdy plastic case.

Contents

- 1 Standard MANOSKOP® No 721QR/20, 40-200 N·m, 30 - 150 ft·lb, with permanently installed QuickRelease ratchet, reversible, 1/2" ■ drive
- 3 wheel nut sockets No 51 IMP K, sizes 17 (green), 19 (blue), 20.8 mm (red)
- 1 extension 130 mm No 509QR/5



Code	Δg g	
96 50 72 13	2965	1

Torque tools

Standard MANOSKOP® 720Nf/721Nf

- click-type
- easy setting
- dual stop signal
- twin scales N·m/ft·lb
- anticlockwise torquing thanks to swap-over square drive
- all the sensitive components are protected by

the sturdy tubular steel housing in the U-shaped aluminium profile

- calibration using perfectControl calibrating unit No 7794 or calibration system No 7706. Adjustment without disassembly.
- with certificate
- display deviation value $\pm 4\%$

720Nf/80

Standard MANOSKOP® torque wrench with permanently installed square drive



Code						b mm	h mm	L mm	L _F mm	S _F mm	 g
50 19 00 81	160-800 N·m	120-600 ft·lb	20 N·m	20 ft·lb	3/4	45	42	1034	938	0	5650

721Nf

Standard MANOSKOP® torque wrenches with permanently installed ratchet



Code	size					"	b ₁ mm	b ₂ mm	h mm	L mm	L _F mm	ΔΔ g
50 20 00 81	80	160-800 N·m	120-600 ft·lb	20 N·m	20 ft·lb	3/4	46.5	76	42	1051	938	6770
96 50 20 01	100	200-1000 N·m	150-725 ft·lb	25 N·m	25 ft·lb	3/4	46.5	76	42	1504	1365	7005

730R/40/32 Torque wrench set

32 pieces, in steel case, for general service work.

Content:

- 1 SERVICE-MANOSKOP® No 730/40, 80-400 N·m
- 1 ratchet insert tool No 735/20, reversible, 1/2" ■-drive
- 1 square drive insert tool No 734/20, 1/2" ■-drive
- 7 o/e insert tools No 731/40, sizes 13, 15, 17, 19, 22, 27, 30 mm
- 1 No 3731/40 size 24 mm;
- 7 ring insert tools No 732/40, sizes 13, 15, 17, 19, 22, 24, 27 mm
- 10 sockets, bi-hexagon No 50, sizes 13, 14, 15, 17, 19, 22, 24, 27, 30, 32 mm
- 4 accessories, 1/2" ○-drive:
 - 1 T-handle No 506
 - 1 extension 255 mm No 509/10
 - 1 extension 130 mm No 509/5
 - 1 extension 55 mm No 509/2



Code		ΔΔ g	
96 50 20 53		9739	1

This is how to achieve the correct tightening torque - even if you are using inserts with an extension

When you tighten fasteners using inserts whose extension length S deviates from the standard length S_F , it is necessary to recalculate the setting/display value for the torque wrench in use.

Caution! If adapters are combined with inserts or special tools, use the sum of the extensions = ΣS . Where the special tool is angled to the side, W_K will have to be determined empirically.

$$W_K = \frac{M_A \cdot L_F}{L_K} \left[\frac{\text{N} \cdot \text{m} \cdot \text{mm}}{\text{mm}} \right]$$

$$W_K = \frac{M_A \cdot L_F}{L_F - S_F + S \text{ (or } \Sigma S \text{)}}$$

M_A = desired tightening torque

W = reading/setting $W = M_A$

W_K = adjusted reading or setting value $W_K \neq M_A$

L_F = functional length (see dimension table for torque wrenches)

L_K = adjusted functional length
 $L_K = L_F - S_F + S \text{ (or } \Sigma S \text{)}$

S = extension of STAHLWILLE inserts or special tools (see dimension table for inserts)

S_F = standard extension (see dimension table for torque wrenches)

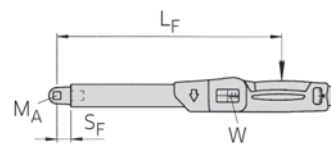
ΣS = total of all extensions of the attached inserts
 $S_{\text{adapter}} + S_{\text{insert}} + \dots$

Normal situation

Torque wrench No 730N/10 combined with square drive insert tool No 734/5 and socket size 13 mm.

Required tightening torque for the screw $M_A = 40 \text{ N} \cdot \text{m}$

Dimension table for torque wrenches: $L_F = 336 \text{ mm}$, $S_F = 17.5 \text{ mm}$
Dimension table for square drive insert tools: $S = 17.5 \text{ mm}$



No adjustment to setting value required on torque wrench.

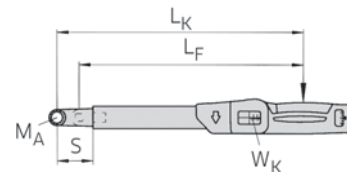
→ $S = S_F$
→ $W = M_A$

Example 1: adjusted setting value (1 insert tool)

Torque wrench No 730N/20 combined with ring insert tool No 732/40 size 36 mm

Required tightening torque for the screw $M_A = 190 \text{ N} \cdot \text{m}$

Dimension table for torque wrenches: $L_F = 424.5 \text{ mm}$, $S_F = 25 \text{ mm}$
Dimension table for ring insert tools: $S = 28 \text{ mm}$



And this is what it looks like in the catalogue:

730N Basic wrenches with tool carrier for insert tools													
Code	size	Functional length	Functional length	Functional length	Functional length	Fine scale	mm	b	h	L	L _F	S _F	Ø A
50181002	2	2-20 N·m	20-180 in·lb	1 N·m	10 in·lb	0.2 N·m	9x12	28	23	275	226	17.5	737
50181005	5	10-50 N·m	7-37 ft·lb	5 N·m	1 ft·lb	0.25 N·m	9x12	28	23	330	280.5	17.5	831
50181010	10	20-100 N·m	15-75 ft·lb	10 N·m	2.5 ft·lb	0.5 N·m	9x12	28	23	386	336	17.5	988
50181012	12	25-130 N·m	20-95 ft·lb	10 N·m	2.5 ft·lb	0.5 N·m	22x28	28	23	421	379	25	1128
50181020	20	40-200 N·m	30-150 ft·lb	10 N·m	5 ft·lb	1 N·m	22x28	28	23	467	424.5	25	1264
50181040	40	80-400 N·m	60-300 ft·lb	20 N·m	10 ft·lb	2 N·m	22x28	28	23	607	564.5	25	1655
50181065	65	130-650 N·m	100-480 ft·lb	50 N·m	20 ft·lb	2.5 N·m	22x28	30.6	25.6	890	848	25	3231
50181365	1/65	130-650 N·m	100-480 ft·lb	50 N·m	20 ft·lb	2.5 N·m	22x28	30.6	25.6	911	900	55	3504
50181080	80	160-800 N·m	120-600 ft·lb	100 N·m	25 ft·lb	5 N·m	22x28	30.6	25.6	1178	1167	55	4882
50181100	100	200-1000 N·m	150-750 ft·lb	100 N·m	25 ft·lb	5 N·m	22x28	30.6	25.6	1363	1297	55	5300
50581002	a/2	20-180 in·lb	1.5-15 ft·lb	10 in·lb	0.5 ft·lb	2 in·lb	9x12	28	23	275	226	17.5	737
50581005	a/5	90-450 in·lb	7-37 ft·lb	50 in·lb	1 ft·lb	2.5 in·lb	9x12	28	23	330	280.5	17.5	831
50581010	a/10	180-900 in·lb	15-75 ft·lb	100 in·lb	2.5 ft·lb	5 in·lb	9x12	28	23	386	336	17.5	988
50581020	a/20	350-1800 in·lb	30-150 ft·lb	100 in·lb	5 ft·lb	10 in·lb	22x28	28	23	467	424.5	25	1264
50581040	a/40	60-300 ft·lb	800-3600 in·lb	20 ft·lb	100 in·lb	2 ft·lb	22x28	28	23	607	564.5	25	1655

* recommended ratchet insert tool No 735/40HD

$$W_K = \frac{M_A \cdot L_F}{L_F - S_F + S} = \frac{190 \text{ N} \cdot \text{m} \cdot 424.5 \text{ mm}}{424.5 \text{ mm} - 25 \text{ mm} + 28 \text{ mm}} = \frac{190 \text{ N} \cdot \text{m} \cdot 424.5 \text{ mm}}{427.5 \text{ mm}} = 188.7 \text{ N} \cdot \text{m}$$

Adjusted setting value $W_K = 188.7 \text{ N} \cdot \text{m}$
→ value to set 189 N·m

→ $S \neq S_F$
→ $W \neq M_A$

732/40 Ring insert tools							
Code	Ø	mm	b	h	S	Ø A	g
58224013	13	16x10	22.5	11	25	130	
58224014	14	16x10	23	11	25	123	
58224015	15	16x10	24	11	25	128	
58224016	16	16x10	25.5	12	25	133	
58224017	17	16x10	27	12	25	135	
58224018	18	16x10	29	13	25	134	
58224019	19	16x10	30.5	13	25	138	
58224021	21	16x10	33	15	25	144	
58224022	22	16x10	34.5	15	25	145	
58224024	24	16x10	37.5	15	25	153	
58224027	27	16x10	42.5	17	25	162	
58224028	28	16x10	45.5	19	25	175	
58224030	30	16x10	46	19	25	182	
58224032	32	16x10	47.5	19	25	181	
58224034	34	16x10	52	19	28	210	
58224036	36	16x10	54	19	28	203	
58224041	41	16x10	60	20	30	240	

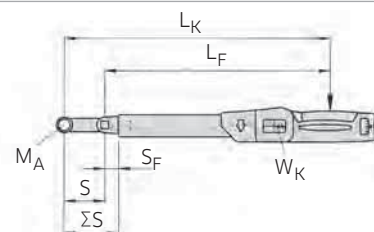
* Caution! Modified settings on torque wrench (refer to note on page 189).

Example 2: adjusted reading (insert tool and adapter)

Torque wrench No 730N/10 combined with square drive insert tool No 734/5 and adapter No 447 size 10 mm

Required tightening torque for the screw $M_A = 25 \text{ N} \cdot \text{m}$

Dimension table for torque wrenches: $L_F = 336 \text{ mm}$, $S_F = 17.5 \text{ mm}$
Dimension table for square drive insert tools: $S_F = 17.5 \text{ mm}$
Dimension table for adapters: $\Sigma S = 50.8 \text{ mm}$



$$W_K = \frac{M_A \cdot L_F}{L_F - S_F + \Sigma S} = \frac{25 \text{ N} \cdot \text{m} \cdot 336 \text{ mm}}{336 \text{ mm} - 17.5 \text{ mm} + 17.5 \text{ mm} + 50.8 \text{ mm}} = \frac{25 \text{ N} \cdot \text{m} \cdot 336 \text{ mm}}{386.8 \text{ mm}}$$

Adjusted setting value $W_K = 21.7 \text{ N} \cdot \text{m}$

→ $\Sigma S \neq S_F$
→ $W \neq M_A$



MANOSKOP® 730N

Mechanical torque wrench



Benefits at a glance:

- Accurate one-handed setting – quick & easy control using the knob at the end of the handle
- Audible setting positions
- Fail-safe setting mechanism in the knob
- Clearly readable twin scale (N·m and ft·lb)
- Noticeable double signals when the preset torque is reached
- Square drives with
- QuickRelease safety locks – for 9x12, 14x18 and 22x28 mm
- Handle is resistant to oils, grease, fuels, brake fluids and Skydrol
- Deviation of indication $\pm 3\%$

1

Protected mechanism extremely resistant to mechanical wear, protected against dirt inside the outer housing

2

Easily readable double scale. The colour differentiation between the N·m and ft·lb scales simplifies fine setting

3

Two-component handle made of extremely tough, impact resistant plastic with a kind-to-the-hands softer layer

4

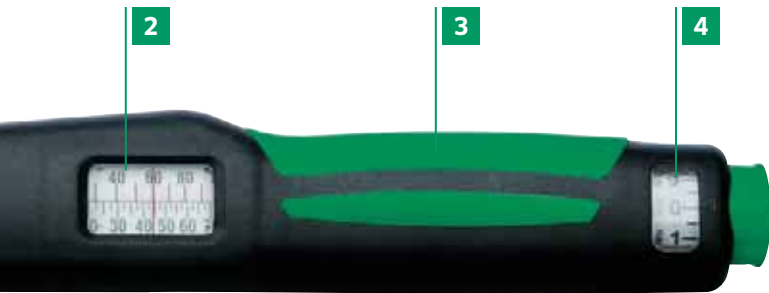
Ring scale with fine settings for the black measuring range on the twin scale

5

QuickSelect rapid setting: Pull, set, lock. All using the one setting knob

6

No need for manual reset to zero thanks to the wear-free triggering cam system. The measuring element is only under load while force is being applied.



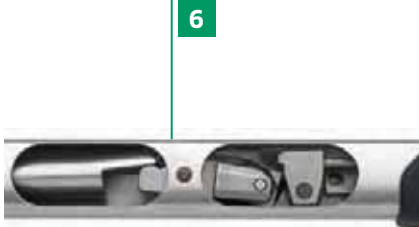
Also available with adaptor for 22x28 mm

- Tighten large torques effortlessly
- High long-term durability
- 650 – 1000 N·m

5



6



7



8



7

The square drive enables a broad range of tightening tools

8

Rapid adjustment from outside, no disassembly of the torque wrench

9

QuickRelease safety lock

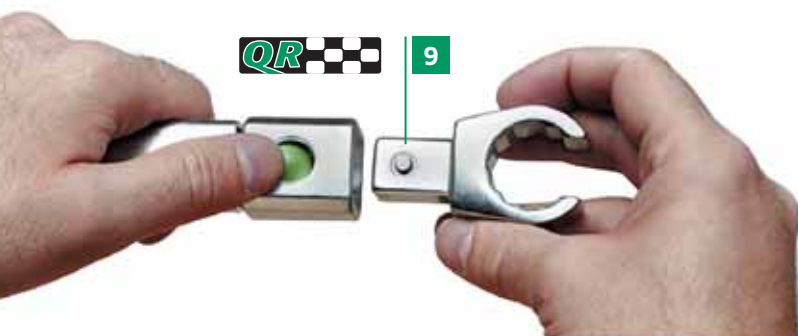
Firm locking and rapid change of insert tools thanks to the QuickRelease safety lock

10

Integrated clockwise and anticlockwise operation simply by turning over the wrench and insert tool

QR

9



Further details
on page 192

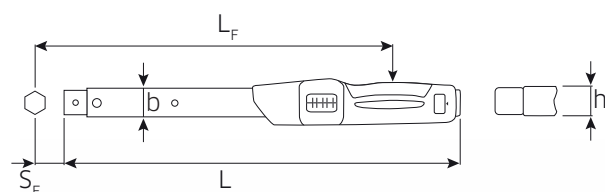
Service MANOSKOP® 730N

- click-type
- mount for interchangeable insert tools
- QuickRelease safety lock
- fast, accurate setting thanks to QuickSelect quick-action adjuster
- dual stop signal
- easy-to-read double scale with colour coding to differentiate between N·m/ft·lb and ft·lb/in·lb scales
- the measuring element is only under load while force is being applied, no need for manual reset to zero
- can be applied for either clockwise or anticlockwise tightening by turning the inserts over
- any force applied to the tool after the 'click' or applied in the opposite direction to the current function – e.g. forcible loosening of a jammed screw – does not act on the trigger mechanism and cannot cause damage to it.
- two-component handle with ergonomically designed green softer layers (resistant to oils, grease, fuels, brake fluids and Skydrol)
- calibration using perfectControl calibrating unit No 7794 or calibration system No 7706. Adjustment without disassembly.
- with certificate
- registered design
- display deviation value $\pm 3\%$

211-
217

730N

Service MANOSKOP® torque wrenches with mount for insert tools



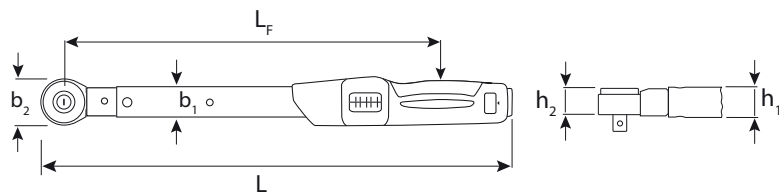
Code	size					Fine scale 	 mm	b mm	h mm	L mm	L _F mm	S _F mm	Δ g
50 18 1002	2	2-20 N·m	20-180 in·lb	1 N·m	10 in·lb	0.2 N·m	9x12	28	23	275	226	17.5	737
50 18 1005	5	10-50 N·m	7-37 ft·lb	5 N·m	1 ft·lb	0.25 N·m	9x12	28	23	330	280.5	17.5	1054
50 18 1010	10	20-100 N·m	15-75 ft·lb	10 N·m	2.5 ft·lb	0.5 N·m	9x12	28	23	386	336	17.5	988
50 18 1012	12	25-130 N·m	20-95 ft·lb	10 N·m	2.5 ft·lb	0.5 N·m	14x18	28	23	421	379	25	1128
50 18 1020	20	40-200 N·m	30-150 ft·lb	10 N·m	5 ft·lb	1 N·m	14x18	28	23	467	424.5	25	1264
50 18 1040	40	80-400 N·m	60-300 ft·lb	20 N·m	10 ft·lb	2 N·m	14x18	28	23	607	564.5	25	1655
50 18 1065	65*	130-650 N·m	100-480 ft·lb	50 N·m	20 ft·lb	2.5 N·m	14x18	30.6	25.6	890	848	25	3231
50 18 1365	II/65	130-650 N·m	100-480 ft·lb	50 N·m	20 ft·lb	2.5 N·m	22x28	30.6	25.6	911	900	55	3504
50 18 1080	80	160-800 N·m	120-600 ft·lb	100 N·m	25 ft·lb	5 N·m	22x28	30.6	25.6	1178	1167	55	4825
50 18 1100	100	200-1000 N·m	150-750 ft·lb	100 N·m	25 ft·lb	5 N·m	22x28	30.6	25.6	1363	1352	55	5000
50 58 1002	a/2	20-180 in·lb	1.5-15 ft·lb	10 in·lb	0.5 ft·lb	2 in·lb	9x12	28	23	275	226	17.5	737
50 58 1005	a/5	90-450 in·lb	7-37 ft·lb	50 in·lb	1 ft·lb	2.5 in·lb	9x12	28	23	330	280.5	17.5	831
50 58 1010	a/10	180-900 in·lb	15-75 ft·lb	100 in·lb	2.5 ft·lb	5 in·lb	9x12	28	23	386	336	17.5	988
50 58 1020	a/20	350-1800 in·lb	30-150 ft·lb	100 in·lb	5 ft·lb	10 in·lb	14x18	28	23	467	424.5	25	1264
50 58 1040	a/40	60-300 ft·lb	800-3600 in·lb	20 ft·lb	100 in·lb	2 ft·lb	14x18	28	23	607	564.5	25	1655

* recommended ratchet insert tool No 735/40HD

 Made in
Germany

730NR Service MANOSKOP® torque wrenches with permanently installed fine-tooth ratchet

in sturdy plastic case (size 65 in steel case). Deviation of indication $\pm 4\%$.

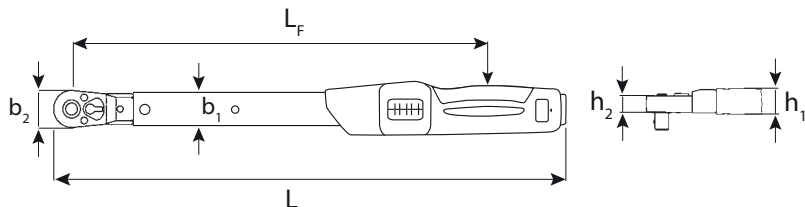


Code	size					Fine scale 		b ₁ mm	b ₂ mm	h ₁ mm	h ₂ mm	L mm	L _F mm	ΔΔ g	ΔΔ g with box
96 50 31 05 5 FK		10-50 N·m	7-37 ft·lb	5 N·m	1 ft·lb	0.25 N·m	3/8	28	33	23	24	364	280.5	973	1763
96 50 31 10 10 FK		20-100 N·m	15-75 ft·lb	10 N·m	2.5 ft·lb	0.5 N·m	1/2	28	33	23	24	420	336.5	1146	1934
96 50 31 20 20 FK		40-200 N·m	30-150 ft·lb	10 N·m	5 ft·lb	1 N·m	1/2	28	43	23	26	513.5	425	1583	2370
96 50 21 40 40 FK		80-400 N·m	60-300 ft·lb	20 N·m	10 ft·lb	2 N·m	3/4	28	50	23	31.5	657	564.5	2122	2657
96 50 22 65 65 FK-HD		130-650 N·m	100-480 ft·lb	50 N·m	20 ft·lb	2.5 N·m	3/4	30.6	58	25.6	36	944	848	3698	6188

730NR Service MANOSKOP® torque wrench with permanently installed QuickRelease ratchet



in sturdy plastic case (size 65 in steel case). Ratchet has QuickRelease safety lock. Deviation of indication $\pm 4\%$.



Code	size					Fine scale 		b ₁ mm	b ₂ mm	h ₁ mm	h ₂ mm	L mm	L _F mm	 g	 g with box
96502105	5QR FK	10-50 N·m	7-37 ft·lb	5 N·m	1 ft·lb	0.25 N·m	$\frac{3}{8}$	28	29	23	14.5	372.5	291	961	1386
96502110	10QR FK	20-100 N·m	15-75 ft·lb	10 N·m	2.5 ft·lb	0.5 N·m	$\frac{1}{2}$	28	29	23	14.5	428.5	346.5	1129	1554
96502120	20QR FK	40-200 N·m	30-150 ft·lb	10 N·m	5 ft·lb	1 N·m	$\frac{1}{2}$	28	41	23	18	526	438.5	1589	2014





SENSOTORK® 701

Electronic torque wrench



Advantages at a glance

- Slim, compact shape for smaller torques from 1 N·m upwards
- Units of measure: N·m, cN·m, ft·lb, in·lb
- Readings independent of point of application of force
- Indicating – for a broad torque range from 1 to 20 N·m.
- With additional SENSOMASTER 4 software:
 - Adjustable joints
 - Evaluation of tightening operation by means of coloured LEDs, buzzer and vibration
 - Calibrating interval adjustable
 - Logging function
- Supplied with battery
- For use in conjunction with perfectControl calibrating unit No 7794 or calibration system No 7706. Readjustment does not require disassembly
- With certificate
- Display deviation value $\pm 4\%$

1

Safe. Thanks to the permanently integrated fine-tooth ratchet and QuickRelease technology.

2

Compact. The ergonomically constructed design is extremely slim and enables working even in the most awkward places.

3

Versatile. Three measuring methods: track, peak hold, joint evaluation.

4

Accurate. SENSOTORK® 701 measures to within $\pm 4\%$. Always.

5

Intuitive. The required mode of operation can be quickly and easily set using the single-button setting system.

6

Ergonomically designed. Strain-free working thanks to the specially designed handle.

SENSOTORK® 701 electronic torque wrench

- indicating
- slim, compact shape for smaller torques from 1 N·m upwards
- measuring units: N·m, cN·m, ft·lb, in·lb
- measurements independent of the point of application of force
- additional functions using SENSOMASTER 4 software (freely available after registration at www.stahlwille.de/sensomaster):
 - adjustable joints
 - evaluation of tightening operation by means of coloured LEDs, buzzer and vibration
 - calibrating interval adjustable
 - logging function
- supplied with 3.6 V lithium battery, type 14500
- calibration in conjunction with perfectControl calibrating unit No 7794 or complete calibration system No 7706. Readjustment does not require disassembly
- with certificate
- display deviation value $\pm 4\%$

701/2 Electronic torque wrench with permanently installed fine-tooth ratchet



Code					"	b mm	h ₁ mm	h ₂ mm	L mm	L _F mm	$\Delta \varnothing$ g	$\Delta \varnothing$ g with box
96 50 45 02	1-20 N·m	100-2000 cN·m	0.7-15 ft·lb	9-180 in·lb	1/4	22.6	26	10	210	160	145	710



Note!

Torque tightening tools are measuring instruments. They must be regularly calibrated with suitable instruments and adjusted accordingly (see DIN EN ISO 6789, 5.3 Recalibrating).

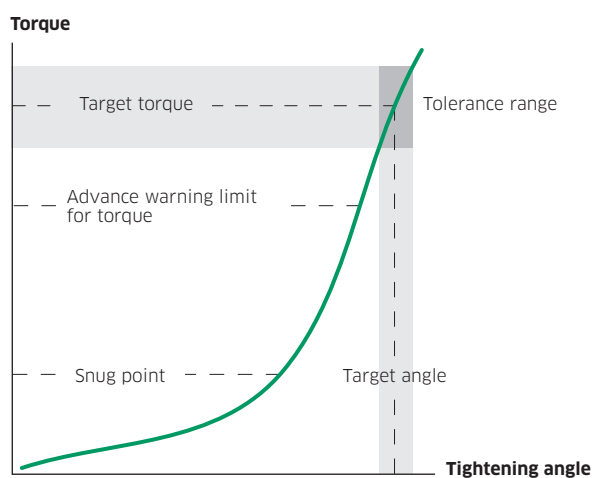


STAHLWILLE angle-controlled torque wrenches.

For absolute accuracy.



For high-accuracy applications – Category A bolted connections, for example – just checking the torque is not enough. As well as the torque, it is crucial to tighten to the correct tightening angle



The torque reading specifies how much force was applied to tighten a fastener. For many applications, this is perfectly good enough. However, in certain cases, the additional measure of accuracy is an essential requirement. The tightening force that is generated between the workpieces in a bolted joint has to be exactly adhered to: if the force is too great, there is a risk of breakage. If it is too low, on the other hand, the connection will not be firm enough and may lead to failure in the assembly under normal operating conditions. Since the tightening force is dependent on the tightening torque and the angle, measuring equipment that can measure both quantities exactly is required. For applications of this kind, STAHLWILLE has precisely the solutions industry needs.



MANOSKOP® 730D
+ Angle Module 7395-1

→ 198



MANOSKOP® 714

→ 202



SENSOTORK® 713R

→ 206

- **Accurate control:** Uncertainty is reduced to a minimum to guarantee accurate readings.
- **Higher quality bolted connections:** Including the tightening angle as the second measured quantity makes the bolted joint even more secure.
- **Perfect procedures:** Easily readable, unmistakable displays and automatic switch-over to angle-controlled measurement once the target tightening torque has been reached – key features in efficient, safe work practice.
- **Excellent economy:** Thanks to the considerably extended measuring range, every angle-controlled torque wrench can replace as many as four mechanical torque wrenches (two indicating and two clicking), which simultaneously reduces the costs of maintenance, calibration and adjustment. All these models are suitable for clockwise and anticlockwise tightening.
- **Better monitoring:** All our angle-controlled torque wrenches have a logging function. Using the corresponding software (in some cases this is an optional extra), it is possible to read out programmed, stored readings and archive them on the PC – for example by the serial number of the tool, date and timestamp of the tightening operation, target torque and angle and the torques and angles actually recorded.



MANOSKOP® 730D

Electromechanical torque wrench



Benefits at a glance:

- Indicating and click-type
- Displays the torque actually applied after the wrench cuts out. In this way, the user has the opportunity to optimise his or her working methods.
- Units of measurement: N·m / ft·lb / in·lb
- Automatic keypad lock
- Display also works for anticlockwise torque
- Angle-controlled measurement without a reference arm using a supplementary module
- Overload protection by means of acoustic and visual signals
- Automatic compensation to achieve correct tightening torque even if a changed extension is entered
- Different tolerance limits can be set for each joint
- Visual red and green signals in the display confirm the status of the joint
- Additional security for presets using PIN code
- Automatic notification of the next calibration date
- Deviation of indication $\pm 2\%$

Measure, cut-out and record: When the preset torque is reached, the torque wrench cuts out and indicates this fact to the user via a definite tactile and audible signal. The tightening torques are stored. The data can be transferred to a PC for evaluation and documentation.

1

The square drive enables a broad range of insert tools

2

Dual stop signal with tactile and acoustic cut-out signals

3

Easy-to-read display

4

Rapid setting
The convenient keypad enables the torque wrench to be quickly and easily set

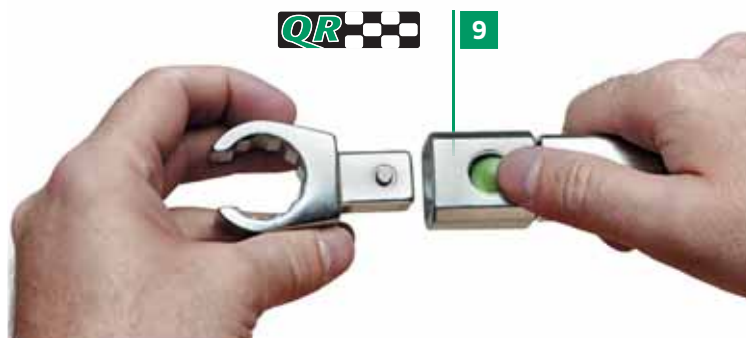


Also available with adaptor for 22x28 mm

- Tighten large torques effortlessly
- High long-term durability
- 650 - 1000 N·m



7395-1



5

5

Power supply two 1.5 V AA batteries

6

Angle controlled tightening

Simply attach the Angle Module No 7395-1 and connect the cable to the interface

7

Data output USB interface

8

2-component handle has ergonomically designed, green softer layers and is resistant to oils, grease, fuels, brake fluids and Skydrol.

9

QuickRelease safety lock



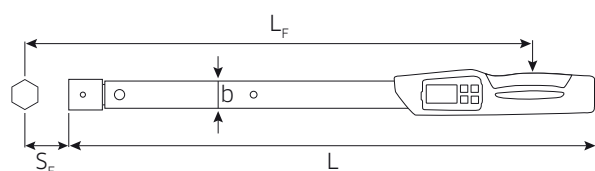
Further details
on page 200

Service work & series production MANOSKOP® – indicating and click-type

- tactile and acoustic trigger signal
- mount for interchangeable insert tools
- QuickRelease safety lock
- fast setting using convenient keypad
- automatic compensation to achieve correct tightening torque even if a changed extension is entered
- overload protection by means of acoustic and visual signals
- automatic keypad lock prevents inadvertent changes
- angle-controlled measurements without a reference arm using Angle Module No 7395-1 (refer to page 205)
- display also works for anticlockwise torque
- units of measurement: N·m, ft·lb, in·lb
- different tolerance limits can be set for each joint
- visual red and green signals in the display confirm the status of the joint
- additional security for presets (function mode, trigger or preset value, unit of measurement, tolerance, save, deviating extension) using PIN code
- up to 7.500 measurements can be stored
- USB interface
- automatic notification of the next calibration date
- calibration using perfectControl calibrating unit No 7794 or calibration system No 7706
- two-component handle with ergonomically designed green softer layers (resistant to oils, grease, fuels, brake fluids and Skydrol)
- with certificate
- in sturdy plastic case (sizes 40-100 in steel case)
- patent
- supplied with two 1.5 V AA batteries. AA/LR6, 1.2 V rechargeable cells may also be used
- display deviation value $\pm 2\%$, ± 1 digit

211-217

730D Service/Series MANOSKOP® torque wrenches with mount for insert tools



Code	size				Setting/display resolution				b	h	L	L _F	S _F	Δ g	Δ g with box
					N·m	ft·lb	in·lb	mm	mm	mm	mm	mm	mm	g	
96 50 17 10	10	10-100 N·m	7.4-75 ft·lb	90-900 in·lb	0.2/0.1	0.2/0.1	2/1.0	9x12	28	23	467	426.5	17.5	1085	1510
96 50 17 20	20	20-200 N·m	15-150 ft·lb	180-1800 in·lb	0.5/0.1	0.5/0.1	5/1.0	14x18	28	23	548	515	25	1361	1896
96 50 17 40	40	40-400 N·m	30-300 ft·lb	360-3600 in·lb	1.0/0.1	1.0/0.1	10/1.0	14x18	28	23	688	655	25	1765	5155
96 50 17 65	65*	65-650 N·m	48-480 ft·lb	580-5800 in·lb	1.0/0.1	1.0/0.1	10/1.0	14x18	30.6	25.6	870	837	25	3300	6000
96 50 19 65 II/65	65	65-650 N·m	48-480 ft·lb	580-5800 in·lb	1.0/0.1	1.0/0.1	10/1.0	22x28	30.6	25.6	892	889	55	3224	7500
96 50 20 80	80	80-800 N·m	60-600 ft·lb	720-7200 in·lb	1.0/1.0	1.0/1.0	10/1.0	22x28	30.6	25.6	1160	1157	55	4577	10500
96 50 21 00	100	100-1000 N·m	74-750 ft·lb	900-9000 in·lb	1.0/1.0	1.0/1.0	10/1.0	22x28	30.6	25.6	1344	1341	55	4995	11000

* recommended ratchet insert tool No 735/40HD

730DR Service/Series MANOSKOP® torque wrenches with reversible ratchet insert tool



Code	size				Setting/display resolution						Δ g	Δ g with box
					N·m	ft·lb	in·lb	mm	"		g	
96 50 18 10	10	10-100 N·m	7.4-75 ft·lb	90-900 in·lb	0.2/0.1	0.2/0.1	2/1.0	9x12	1/2		1232	1657
96 50 18 20	20	20-200 N·m	15-150 ft·lb	180-1800 in·lb	0.5/0.1	0.5/0.1	5/1.0	14x18	1/2		1663	2198
96 50 18 40	40	40-400 N·m	30-300 ft·lb	360-3600 in·lb	1.0/0.1	1.0/0.1	10/1.0	14x18	3/4		2232	4722
96 50 18 65	65	65-650 N·m	48-480 ft·lb	580-5800 in·lb	1.0/0.1	1.0/0.1	10/1.0	14x18	3/4		3767	6530
96 50 20 65 II/65	65	65-650 N·m	48-480 ft·lb	580-5800 in·lb	1.0/0.1	1.0/0.1	10/1.0	22x28	3/4		3994	9000
96 50 18 80	80	80-800 N·m	60-600 ft·lb	720-7200 in·lb	1.0/0.1	1.0/0.1	10/1.0	22x28	3/4		6492	12500
96 50 18 00	100	100-1000 N·m	74-750 ft·lb	900-9000 in·lb	1.0/0.1	1.0/0.1	10/1.0	22x28	3/4		6910	12500

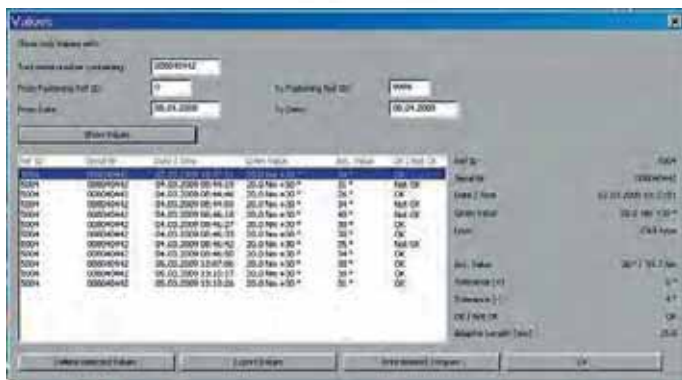
7759-3 USB adaptor, jack cable and software No 7732 for No 730D

Documentation and management of readings on a PC

- Read out stored wrench data and joint readings:
 - Joint identifier
 - Tool serial number
 - Date and time of tightening operation
 - Target torque or target angle
 - Torque level at which the tool cuts out
 - Tightening torque or angle reached
 - Tolerances
 - Joint evaluation
- Storage of joint data in a database
- Delete or print highlighted joints from the database
- Export displayed joint data to a CSV file (compatible with Excel)
- 13 languages
- User management
- Define new PIN
- Delete joint data stored in wrench

System requirements:

- PC
- Microsoft Windows 98 SE or compatible operating system with USB support
- USB connection
- Installed ODBC driver for Access data



Code	L m	ΔΔ g
96 58 36 27	1.5	137

7757-1 USB adaptor



Code	ΔΔ g
52 11 10 57	10

7395-1 Angle Module for No 730D

Patents applied for, angle-controlled measurement without a reference arm. For torque wrench No 730D (sizes 10-65) from software release 1.5.8. Torque wrenches No 730D fitted with older releases of the software can be upgraded. Simply attach the module and connect to the torque wrench interface and the No 730D can be used for angle controlled tightening. The measurements are read off and settings made via the torque wrench.

When the preset snug point is reached, the torque wrench automatically switches over to angle-controlled measurement in degrees.

Depending on the options selected, the torque wrench will either cut out when the preset angle is reached or an alarm is heard.

One 1.5 V battery is included in the package. Deviation of indication $\pm 1\%$.



Code	ΔΔ g
96 58 46 28	500

7751 Jack cable

with jacks at both ends, 90° angled.



Code	L m	ΔΔ g
52 11 00 51	1.5	50



MANOSKOP® 714

Electromechanical angle-controlled torque wrench



Benefits at a glance:

- Indicating and click-type
- 4 measuring methods (torque, angle, torque backed up by angle, angle backed up by torque)
- Freely configurable menu structure
- Includes SENSOMASTER software for easy configuration of the tool
- 3 function modes: click-type, peak (indicating mode displaying peak reading) and track (indicating mode displaying current value)
- Angle-controlled measurement without a reference arm
- Data storage ($\leq 2,500$ tightening jobs)
- Acoustic and visual assessment of the joint
- Clockwise and anticlockwise tightening
- Tactile and acoustic trigger signals
- Torque and angle are simultaneously visible
- All readings are independent of the point of application of force with sizes 1, 2 and 4
- Display deviation value $\pm 2\%$ for torque and $\pm 1\%$ for angle

1

High-definition graphical colour display with additional side-mounted indicator lamps

2

Automatic key-lock prevents inadvertent changes

3

Fast, accurate setting via keypad

4

Own ident number can be stored in the wrench

5

Indicator lamps clearly visible from all sides
Yellow light: advance warning threshold reached
Green light: within the target range
Red light: reading is outside the tolerance range

6

In a sturdy plastic case with foam inlays (sizes 40–100 in steel case)
With certificate



Also available with adaptor for 22x28 mm

- Tighten large torques effortlessly
- High long-term durability
- 650 – 1000 N·m



No 7195-2



No 7160



5

7

Optional extras: Li-Ionen battery No 7195-2 and charger No 7160

8

Individually configurable menus

9

Micro USB interface

10

Battery compartment with smooth-action bayonet fitting

11

Up to 200 joints can be programmed in up to 25 sequences

12

The wrench reminds the user automatically when calibration is due – either by the number of joints or the time interval

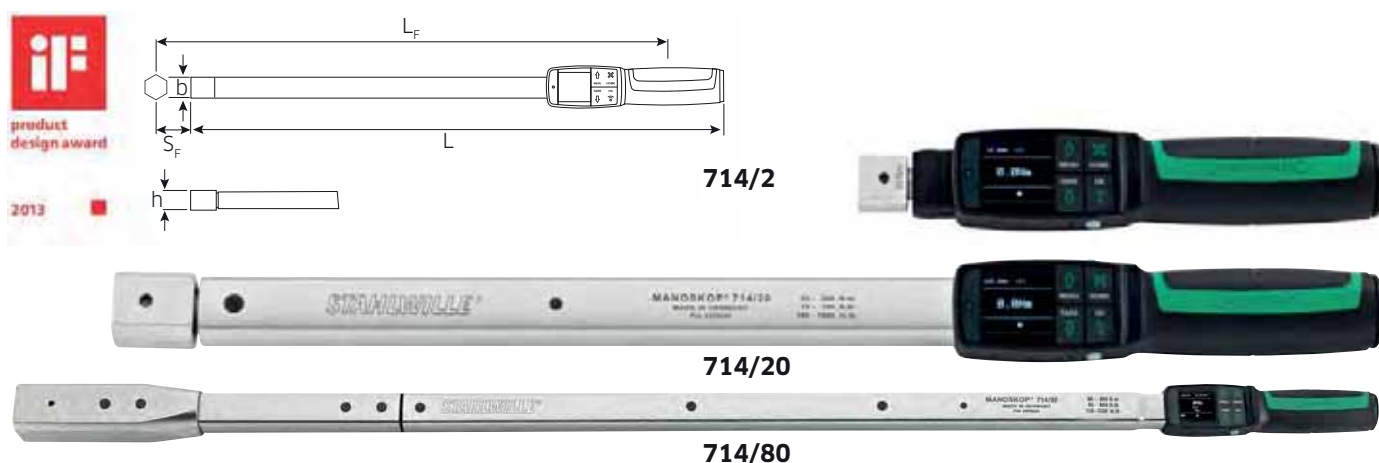


Further details
on page 204

MANOSKOP® 714 - indicating and click-type Electromechanical angle-controlled torque wrench

- 4 measuring modes (torque, angle, torque backed up by angle, angle backed up by torque)
- high-definition colour display with additional side-mounted indicator lamps
- freely configurable menu structure
- optionally: Li-ion battery No 7195-2 and charger No 7160
- 3 function modes: cut-out, peak hold (indicating mode with peak value) and track (indicating mode with current value)
- Micro USB interface
- bayonet connection for battery compartment
- QuickRelease safety lock change system for insert tools
- angle-controlled measurement without a reference arm
- Data storage (≤ 2500 tightening jobs)
- as many as 200 joints can be programmed in up to 25 preset sequences.
- different tolerance limits can be set for each joint
- acoustic and visual assessment of the joint
- rapid, accurate setting via keypad
- the automatic keypad lock prevents inadvertent changes
- overload protection by means of acoustic and visual signals and a fail-safe system (clockwise)
- automatic notification of the next calibration date, either by the number of joints or the time interval
- fully automated calibrating and adjusting using the perfectControl calibrating and adjusting unit
- No 7794-2 (torque) or 7794-3 (torque and angle) units of measure: N·m, ft·lb, in·lb.
- tightening torque is automatically corrected if a deviating extension is entered
- immediately reusable after release
- clockwise and anticlockwise tightening – it may be necessary to refit the insert tool rotated through 180° for anticlockwise tightening in the cut-out mode
- tactile and acoustic trigger signal.
- torque and angle are simultaneously visible
- all readings are independent of the point of application of force (with sizes 1, 2 and 4)
- safe handling due to ergonomically designed handle (resistant to oils, grease, fuels, brake fluid and Skydrol)
- 2 certificates (torque, angle)
- in sturdy plastic case (size 40-100 in steel case)
- design patent, patent
- supplied with SENSOMASTER Basic software, USB cable, 4 AAA/LR03 micro-batteries, 1.5 V. AAA, 1.2 V, micro NiMH rechargeable batteries can be used
- display resolution, angle 0.1°
- display deviation value, angle $\pm 1\%$, ± 1 digit
- display resolution, torque ≤ 60 N·m: 0.01 N·m; > 60 N·m: 0.1 N·m
- display deviation value, torque $\pm 2\%$, ± 1 digit

714 MANOSKOP® tightening angle torque wrenches with mount for insert tools



Code	size					b mm	h mm	L mm	L_F mm	S_F mm	$\Delta \varnothing$ g	$\Delta \varnothing$ g with box
96 50 09 01	1	1-10 N·m	0.7-7.5 ft·lb	9-90 in·lb	9x12	28	23	226	188	17.5	370	795
96 50 09 02	2	2-20 N·m	1.5-15 ft·lb	18-180 in·lb	9x12	28	23	226	188	17.5	380	805
96 50 09 04	4	4-40 N·m	3-30 ft·lb	36-360 in·lb	9x12	28	23	252	214	17.5	420	845
96 50 09 06	6	6-60 N·m	4.5-45 ft·lb	54-540 in·lb	9x12	28	23	393	355	17.5	810	1235
96 50 09 10	10	10-100 N·m	7.4-75 ft·lb	90-900 in·lb	9x12	28	23	466	428	17.5	1085	1655
96 50 09 20	20	20-200 N·m	15-150 ft·lb	180-1800 in·lb	14x18	28	23	547	516	25	1361	1896
96 50 09 40	40	40-400 N·m	30-300 ft·lb	360-3600 in·lb	14x18	28	23	687	656	25	1765	5155
96 50 09 65	65	65-650 N·m	48-480 ft·lb	580-5800 in·lb	22x28	30.6	25.6	890	890	55	3222	7000
96 50 09 80	80	80-800 N·m	60-600 ft·lb	720-7200 in·lb	22x28	30.6	25.6	1158	1158	55	4572	10400
96 50 01 00	100	100-1000 N·m	74-750 ft·lb	900-9000 in·lb	22x28	30.6	25.6	1343	1343	55	4990	10500

714R

MANOSKOP® tightening angle torque wrenches with reversible ratchet insert tool

714R/2



714R/20



714R/80



Code	size				mm	"	g	g with box
96 50 1001	1	1-10 N·m	0.7-7.5 ft·lb	9-90 in·lb	9x12	1/4	432	857
96 50 1002	2	2-20 N·m	1.5-15 ft·lb	18-180 in·lb	9x12	1/4	442	867
96 50 1004	4	4-40 N·m	3-30 ft·lb	36-360 in·lb	9x12	1/4	482	907
96 50 1006	6	6-60 N·m	4.5-45 ft·lb	54-540 in·lb	9x12	3/8	965	1390
96 50 1010	10	10-100 N·m	7.4-75 ft·lb	90-900 in·lb	9x12	1/2	1232	1657
96 50 1020	20	20-200 N·m	15-150 ft·lb	180-1800 in·lb	14x18	1/2	1663	2198
96 50 1040	40	40-400 N·m	30-300 ft·lb	360-3600 in·lb	14x18	3/4	2275	5665
96 50 1065	65	65-650 N·m	48-480 ft·lb	580-5800 in·lb	22x28	3/4	5137	9000
96 50 1080	80	80-800 N·m	60-600 ft·lb	720-7200 in·lb	22x28	3/4	6487	12300
96 50 1100	100	100-1000 N·m	73-735 ft·lb	885-8850 in·lb	22x28	3/4	6905	12500

7732-2

SENSOMASTER Live software

- Record tightening operations with the MANOSKOP® 714.
- Representation of torque over time, angle over time, torque over angle.
- Representation of several curves simultaneously.
- Data export for further processing.
- The software is for a single-seat licence.
- Torque wrenches 714/1 ... /100 must have firmware version 02.01.02.



Code	g
96 58 52 35	111

7195-2

Li-ion battery for No 714

max. charge voltage 4.2 V,
capacity 2600 mAh



Code	g
54 10 11 95	100

7160

Charging dock for Li-ion battery No 7195-2

including charger
Input: 100 V-240 V AC,
Output: 4.2 V DC,
with interchangeable socket adaptors.



Code	g
54 10 00 60	200

7762

Docking station for No 714

stationary base for securely
connecting angle-controlled torque
wrench No 714 to a PC via a USB
port.



Code	g
52 11 00 62	421



7762-1

Rest for docking station No 7762

for securely supporting long angle-controlled
torque wrenches No 714 from size 6 up.



Code	g
52 11 01 62	520

7761/3

Interface adaptor set

required for automated calibration and adjustment of angle-controlled
torque wrench No 714 using calibrating and adjusting units
perfectControl No 7794-2 and 7794-3.

Contents
No 7761 interface adaptor
No 7752 spiral cable
No 7760 mains adaptor



Code	g
96 52 11 61	446



Sensotork® 713R

Electronic angle-controlled torque wrench



Benefits at a glance:

- Angle-controlled measurements without a reference arm
- Broad measuring range (5% – 100% of rated value)
- Extremely wide range of angle measurement
- Units of measurement N·m / ft·lb / in·lb
- Clockwise and anticlockwise use
- For use with all insert tools 9x12 and 14x18 mm
- QuickSelect rapid recall of predefined sets of operating parameters
- Defined sequence – a number of repeated joints can be grouped as a defined sequence
- Tightening jobs are stored with a timestamp
- Readings can either be directly stored, transmitted to the PC or simply displayed
- Password protection tamper proof use
- Freely selectable names for each series of test
- Various languages available
- Works-specific identifier
- Programmable via PC
- Resistant to oils, grease, fuels, brake fluids and Skydrol
- Wide range of application: -20°C to +60°C
- Meets requirements of DKD-R 3-7, Class 2
- Deviation of indication $\pm 1\%$

1





1

Backlit display improves legibility and evaluation of the tightening operation (traffic-light colours).

2

All functions are selected using the arrow keys. The visual guidance system makes operation a simple matter

3

Improved ergonomics for strain-free working.
Measurements independent of the point of application of force.

4

Convenient angle measurement across a very wide angle range without a reference arm.

5

Warning signals: acoustic (buzzer), tactile (vibration in the handle), visual (LEDs and display).
The point at which the warning signal is triggered can be freely set

6

Data output USB interface

7

Easy extension setting. Where the insert tool requires an extension adjustment, simply enter the new value. Recalculation using complicated formulae is no longer necessary

8

QuickRelease
Firm locking and rapid change of any insert tools

5



Further details
on page 208

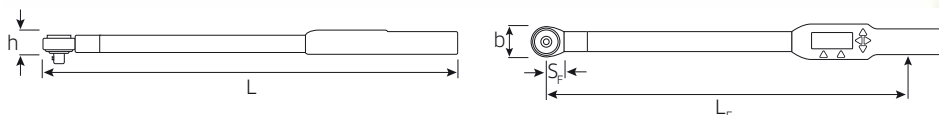
Electronic angle-controlled torque wrenches SENSOTORK® 713R

- simple, flexible operation thanks to operator guidance on large-format display
- very broad measuring range (5% to 100% of rated value)
- supplied with insert tool reversible ratchet, more insert tools
- QuickRelease safety lock
- for clockwise and anticlockwise torquing
- measurements independent of the point of application of force
- units of measurement: N·m, ft·lb, in·lb
- advance warning points programmable for visual, tactile and acoustic signals
- torque and angle are simultaneously visible
- new: backlit display aids evaluation of the tightening operation (traffic-light colours).
- convenient angle measurement across a very wide angle range without a reference arm
- insert tool lengths can be individually set
- maintenance friendly due to easy adjustment and automatic reminder of next calibration date
- repeated joints can be collated to form a single menu-guided sequence
- new: tightening jobs are stored with a timestamp
- individual identification markings possible
- password protection to prevent inadvertent changes and make the tool tamper-proof
- meets requirements of DKD-R 3-7, Class 2
- with certificate
- in sturdy plastic case (size 40 in tough steel case)
- supplied with two 1.5 V AA batteries. AA/LR6, 1.2 V NiMH rechargeable cells may also be used.
- fully automated calibration (torque) using perfectControl calibrating unit No 7794-2. Adjustment without disassembly.
- registered design
- display deviation value for angle $\pm 1^\circ$
- display deviation value $\pm 1\%$

211-217

713R

Electronic SENSOTORK® tightening angle torque wrenches with reversible ratchet insert tool



Code	size			"	mm	b mm	h mm	L mm	L _F mm	S _F mm	Δ g	Δ g with box
96 50 16 06	6	3-60 N·m	2.5-44 ft·lb	3/8	9x12	50	33.5	378	299	17.5	856	1500
96 50 16 20	20	10-200 N·m	7-148 ft·lb	1/2	14x18	50	33.5	608	524	25	1552	2430
96 50 16 40	40	20-400 N·m	15-296 ft·lb	3/4	14x18	50	33.5	838	750	25	2332	5555

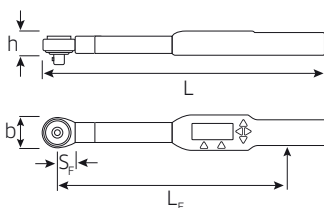
Electronic torque wrench SENSOTORK® 712R

712R/6

Electronic SENSOTORK® torque wrench with reversible ratchet insert tool



Same design as No 713 but without angle function.



Code			"	mm	b mm	h mm	L mm	L _F mm	S _F mm	Δ g	Δ g with box
96 50 15 06	3-60 N·m	2.5-44 ft·lb	3/8	9x12	50	33.5	378	299	17.5	856	1500

Accessories for electronic angle-controlled torque wrench Sensotork® No 713R and electronic torque wrench SENSOTORK® No 712R

7759-1 USB adaptor, jack cable and software SENSOMASTER for No 712R, 713R

for documenting and managing readings on a PC and carrying out statistical analyses.

- Read out stored wrench data and joint readings: Joint identifier, Tool serial number, Target torque or target angle, Torque level at which the tool cuts out, Tightening torque or angle reached, Tolerances, Joint evaluation
- Storage of joint data in a database
- Delete or print highlighted joints from the database
- Export displayed joint data to a CSV file (compatible with Excel)
- 13 languages
- User management
- Define new PIN
- Delete joint data stored in wrench

System requirements:

- PC
- Microsoft Windows 98 SE or compatible operating system with USB support
- USB connection
- Installed ODBC driver for Access data



Code	L m	Δ∅ g
96 58 36 25	1.5	137

7757-1 USB adaptor



Code	Δ∅ g
52 11 10 57	10

7751 Jack cable

with jacks at both ends, 90° angled.



Code	L m	Δ∅ g
52 11 00 51	1.5	50

SENSOTORK® 713R.

The decisive moment. Improved.



Accessories

7301/7302 Plastic case, empty

for safe storage and transport of torque wrenches (please order inlays separately). Supplied without torque wrench.



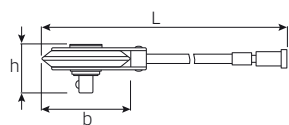
Code	No	for torque wrenches No	L mm	Δ g
81 37 0002	7301	712R/6; 713R/6; 714/1; 714/2; 714/4; 714/6; 714/10; 721/5; 721/15; 730/5; 730/10; 730/12; 730/20; 730a/5; 730a/10; 730a/12; 730a/20; 730N/5; 730N/10; 730N/12; 730N/20; 730Na/5; 730Na/10; 730Na/20; 730D/10	550	425
81 37 0003	7302	713R/20; 714/20; 721/30; 730/40; 730N/40; 730Na/40; 730D/20	680	535

7303/7304 Inlays for plastic case

Code	No	for torque wrenches No	Δ g
83 07 1004	7303	712R/6; 713R/6; 721/5; 721/15; 730/5; 730/10; 730/12; 730/20; 730a/5; 730a/10; 730a/12; 730a/20; 730N/5; 730N/10; 730N/12; 730N/20; 730Na/5; 730Na/10; 730Na/20; 730D/10	88
83 07 1002	7304	713R/20; 721/30; 730/40; 730N/40; 730Na/40; 730D/20	113

7380N/7385N Torque angle gauges

for angle controlled bolt/screw tightening, with static read-off point. Read-off possible from any angle thanks to a pair of angled scales. Removable magnet for attaching sockets with 1/2" internal square drive. For use in conjunction with tightening tools such as Service MANOSKOP® No 730N. Since this tightening method requires a pre-determined snug torque to be applied, it is essential to choose a torque wrench covering both snug torque as well as maximum torque required to reach the recommended tightening angle. Whether 1/2" or 3/4" sq.dr. Torque Angle Gauge is used depends upon the square drive of the appropriate torque wrench employed.



Code	No	□	■	□	■	b mm	h mm	L mm	Δ g
54 01 0001	7380N	1/2	1/2	± 360°	2°	78	43	416	494
54 01 0002	7385N	3/4	3/4	± 360°	2°	78	76	416	720

1299 BITS

for inside hexagon screws, for operating the adjusting screws on torque wrenches No 720, 721, 730 and 730N.



Code	mm	outside	"	L mm	Δ g	
08 09 0002	2	C 6.3	1/4	34	4	10
outside ● DIN 3126/ISO 1173						

7161 QuickRelease safety lock

prevents insert tools being swapped. The system is locked in place on the head of the torque wrench by means of a safety screw. Once the protection system has been fitted, it is possible to attach an insert tool but not to remove it because the QuickRelease unlock button itself is locked. After the safety screw has been removed, the torque wrench reverts to being a standard, versatile tool.



The safety screw can be fitted and removed using a TORX® screwdriver with a central bore in the tip (No 4656, Size T20, Code 46 56 00 20) or a BITS screwdriver insert with a central bore in the tip (No 1442, Size T20, Code 08 16 00 20).

Code	size	for torque wrenches No	Δ g
54 10 00 70	1	714/1; 714/2; 714/4	4
54 10 00 71	2	712R/6; 713R/6; 714/6; 714/10; 730/10; 730a/10; 730N/10; 730Na/10; 730D/10	5
54 10 00 72	3	713R/20; 713R/40; 714/20; 714/40; 730/12; 730/20; 730/40; 730/65; 730a/12; 730a/20; 730N/12; 730N/20; 730N/40; 730N/65; 730Na/20; 730Na/40; 730D/20; 730D/40; 730D/65	11
54 10 00 73	4	730/5; 730N/5	2
54 10 00 74	5	714/65; 714/80; 714/100; 730II/65; 730NII/65; 730N/80; 730N/100; 730DII/65; 730D/80; 730D/100	15

for other torque wrenches on request.

7396 LED lighting

for torque wrenches
If light is poor, simply attach this LED lamp to illuminate the work site. Included in the delivery is a 1.5 V micro battery. Supplied without torque wrench.



Code	for torque wrenches No	Δ g
54 01 0004	712R/6; 713R/6; 713R/20; 713R/40; 714/6; 714/10; 714/20; 714/40; 721/5; 721/15; 721/20; 721/30; 730/5; 730/10; 730/12; 730/20; 730/40; 730a/5; 730a/10; 730a/12; 730a/20; 730N/5; 730N/10; 730N/12; 730N/20; 730N/40; 730Na/5; 730Na/10; 730Na/20; 730Na/40; 730D/10; 730D/20; 730D/40	51

Insert/shell tools for torque wrenches

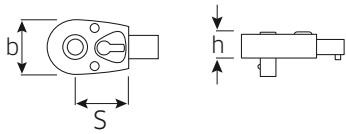
Output square drive ■ in accordance with DIN 3120

Long-term loading of the input and output square drive is in accordance with DIN EN ISO 6789:2003. This limit must not be exceeded if larger torque wrenches and tool holders are used.

725QR QuickRelease ratchet insert tools



reversible, with QuickRelease safety lock, size 4: 22 teeth, sizes 5 and 10: 30 teeth

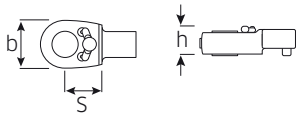


Code	size	■ "	mm	b mm	h mm	S mm	M N·m	ΔΔ g
58 25 30 04	4	1/4	9x12	22	13.8	17.5	40	60
58 25 30 05	5	3/8	9x12	29	18	28*	100	130
58 25 30 10	10	1/2	9x12	29	18	28*	100	141

* Caution! Modified settings on torque wrench (refer to note on page 189).

725B Bit ratchet insert tool

reversible, with inside hexagon, 1/4" or 5/16", DIN 3126/ISO 1173 D 6.3 or D8, for direct acceptance of bits 1/4" or 5/16" outside hexagon C 6.3 (size 4: 22 teeth, size 5: 30 teeth). Internal hex drive with a collar-thrust spring. Bits are easy to insert, lock securely in position and can be removed just as easily; even hex bits with a wide groove (Type E, DIN 3126/ISO 1173). Supplied without bits.

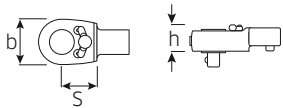


Code	size	inside ○"	mm	b mm	h mm	S mm	ΔΔ g
58 25 50 04	4	1/4	9x12	22	13.6	17.5	54
58 25 50 05	5	5/16	9x12	29	17.9	28*	117

* Caution! Modified settings on torque wrench (refer to note on page 189)

725/4 Ratchet insert tool

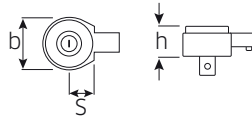
reversible, 22 teeth.



Code	■ "	mm	b mm	h mm	S mm	M N·m	ΔΔ g
58 25 40 04	1/4	9x12	22	13.8	17.5	40	62

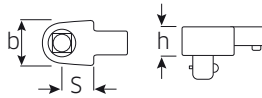
735 Ratchet insert tools, fine tooth

reversible, 60 teeth.



Code	size	■ "	mm	b mm	h mm	S mm	M N·m	ΔΔ g
58 25 00 05	5	3/8	9x12	33	24	17.5	100	155
58 25 00 10	10	1/2	9x12	33	24	17.5	100	147

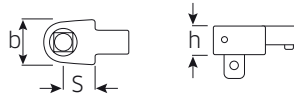
734 Square drive insert tools



Code	size	■ "	mm	b mm	h mm	S mm	M N·m	ΔΔ g
58 24 00 04	4	1/4	9x12	20	14	17.5	40	71
58 24 00 05	5	3/8	9x12	20	14	17.5	80	76
58 24 00 10	10	1/2	9x12	20	14	17.5	100	82

734F Square drive insert tools

with permanently attached, captive square drive.

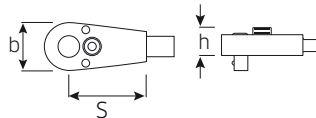


Code	size	■ "	mm	b mm	h mm	S mm	ΔΔ g
58 24 10 04	4	1/4	9x12	22	14	17.5	72
58 24 10 05	5	3/8	9x12	22	14	17.5	75

725L/5 Ratchet insert tool

reversible, 30 teeth.

Caution! Modified settings on torque wrench (refer to note on p. 189). This ratchet insert tool has the same extension length as ring insert tool No 732G/10 (see p. 213) and square drive insert tool No 734L/5 (see p. 212).

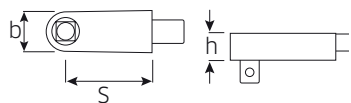


Code	■ "	mm	b mm	h mm	S mm	ΔΔ g
58 15 10 05	3/8	9x12	27.5	19.6	45	164

Insert/shell tools

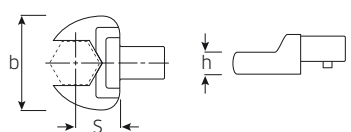
734L/5 Square drive insert tool

Caution! Modified settings on torque wrench (refer to note on p. 189). This square-drive insert tool has the same extension length as ring insert tool No 732G/10 (see p. 213) and ratchet insert tool No 725L/5 (see p. 211).



Code	"	mm	b mm	h mm	S mm	Δ g
58 24 2005	3/8	9x12	20	14	45	141

731/10 Open ended insert tools



Code	mm	mm	b mm	h mm	S mm	Δ g
58 21 1007	7	9x12	22	5	17.5	40
58 21 1008	8	9x12	22	5	17.5	39
58 21 1009	9	9x12	26	5.5	17.5	38
58 21 1010	10	9x12	26	5.5	17.5	42
58 21 1011	11	9x12	26	5.5	17.5	41
58 21 1012	12 ¹⁾	9x12	30	7	17.5	43
58 21 1013	13	9x12	30	7	17.5	48
58 21 1014	14	9x12	35	8	17.5	52
58 21 1015	15	9x12	35	8	17.5	51
58 21 1016	16	9x12	38	8.5	17.5	58
58 21 1017	17	9x12	38	8.5	17.5	60
58 21 1018	18	9x12	42	9	20*	71
58 21 1019	19	9x12	42	9	20*	74

¹⁾ For flare nuts of hydraulic pipes on French vehicles

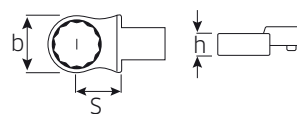
731a/10 Open ended insert tools

Code	"	mm	b mm	h mm	S mm	Δ g
58 61 1016	1/4	9x12	22	5	17.5	36
58 61 1020	5/16	9x12	22	5	17.5	53
58 61 1024	3/8	9x12	26	5.5	17.5	38
58 61 1028	7/16	9x12	26	5.5	17.5	37
58 61 1032	1/2	9x12	30	7	17.5	44
58 61 1034	9/16	9x12	35	8	17.5	49
58 61 1036	5/8	9x12	38	8.5	17.5	64
58 61 1038	11/16	9x12	42	9	20*	76
58 61 1040	3/4	9x12	42	9	20*	73

* Caution! Modified settings on torque wrench (refer to note on page 189)

732/10 Ring insert tools

AS-drive



Code	mm	mm	b mm	h mm	S mm	Δ g
58 22 1007	7	9x12	13	8	17.5	37
58 22 1008	8	9x12	14.2	8	17.5	40
58 22 1010	10	9x12	17.2	9	17.5	44
58 22 1011	11	9x12	18.5	9	17.5	41
58 22 1012	12	9x12	20.5	11	17.5	49
58 22 1013	13	9x12	21.5	11	17.5	55
58 22 1014	14	9x12	22.5	11	17.5	52
58 22 1015	15	9x12	24.5	12	17.5	52
58 22 1016	16	9x12	26	12	17.5	54
58 22 1017	17	9x12	27	13	17.5	59
58 22 1018	18	9x12	28	13	17.5	56
58 22 1019	19	9x12	30.5	13	17.5	65
58 22 1021	21	9x12	33	15	17.5	71
58 22 1022	22	9x12	34.5	15	17.5	74

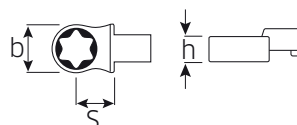
732a/10 Ring insert tools

AS-drive

Code	"	mm	b mm	h mm	S mm	Δ g
58 62 1016	1/4	9x12	13	8	17.5	36
58 62 1020	5/16	9x12	14.2	8	17.5	37
58 62 1024	3/8 ¹⁾	9x12	17.2	9	17.5	37
58 62 1028	7/16	9x12	18.5	9	17.5	40
58 62 1032	1/2	9x12	21.5	11	17.5	53
58 62 1034	9/16	9x12	22.5	11	17.5	52
58 62 1036	5/8	9x12	26	12	17.5	54
58 62 1038	11/16	9x12	28	13	17.5	58
58 62 1040	3/4	9x12	30.5	13	17.5	58
58 62 1042	13/16	9x12	33	15	17.5	68
58 62 1044	7/8	9x12	34.5	15	17.5	69

¹⁾ For Volvo aero-engines, types "JAS"

732TX/10 TORX® insert tools

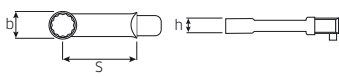


Code	size	mm	b mm	h mm	S mm	Δ g
58 29 1006	E6	9x12	13	8	17.5	40
58 29 1008	E8	9x12	14.2	8	17.5	45
58 29 1010	E10	9x12	17.2	9	17.5	45
58 29 1012	E12	9x12	18.5	9	17.5	50
58 29 1014	E14	9x12	21.5	11	17.5	60

732G/10 Ring insert tools

AS-drive HPQ

Caution! Modified settings on torque wrench (refer to note on p. 189). This insert tool has the same extension length as insert tool No 725L/5 (see p. 211) and square-drive insert tool No 734L/5 (see p. 212); HPQ® high performance steel, gunmetal finish.



Code	mm	mm	b mm	h mm	S mm	Δg
58620007	7	9x12	11.5	6	45	31
58620008	8	9x12	12.4	6	45	33
58620009	9	9x12	14	8	45	40
58620010	10	9x12	15.6	8	45	44
58620013	13	9x12	19.3	9.2	45	60

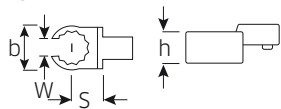
732aG/10 Ring insert tools

Code	mm	mm	b mm	h mm	S mm	Δg
58621216	1/4	9x12	10.4	6	45	28
58621220	5/16	9x12	12.4	6	45	31
58621224	3/8	9x12	14.9	8	45	42
58621228	7/16	9x12	17	8	45	43
58621232	1/2	9x12	19	9.2	45	58
58621234	9/16	9x12	21	9.2	45	58
58621236	5/8	9x12	23	12	45	74

for assembling and dismantling aero-engines.

733/10 Open ring insert tools

AS-drive



Code	mm	mm	b mm	h mm	W mm	S mm	Δg
58231010	10	9x12	21.5	11	7.1	17.5	57
58231011	11	9x12	22.5	11	8.6	17.5	55
58231012	12	9x12	24.5	12	9	17.5	59
58231013	13	9x12	26	12	10	17.5	55
58231014	14	9x12	27	13	11	17.5	60
58231016	16	9x12	30.5	13	13	17.5	65
58231017	17	9x12	31.5	13	14	17.5	64
58231018	18	9x12	33	15	14.8	17.5	74
58231019	19	9x12	34	15	15.8	17.5	80
58231021	21	9x12	38.5	15	16.2	20*	88
58231022	22	9x12	39.5	15	17	20*	92
58231024	24	9x12	40	15	18	20*	75

* Caution! Modified settings on torque wrench (refer to note on page 189)

733a/10 Open ring insert tools

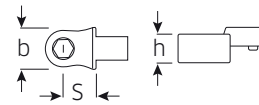
AS-drive

Code	mm	mm	b mm	h mm	W mm	S mm	Δg
58631024	3/8	9x12	21.5	11	7.1	17.5	55
58631028	7/16	9x12	22.5	11	8.6	17.5	56
58631032	1/2	9x12	26	12	9.5	17.5	58
58631034	9/16	9x12	27.5	13	11	17.5	59
58631036	5/8	9x12	30.5	13	12.7	17.5	61
58631038	11/16	9x12	33	15	14	17.5	48
58631040	3/4	9x12	34	15	15.8	17.5	76

736 BIT holder insert tools

Internal hex drive with a collar-thrust spring.

Bits are easy to insert, lock securely in position and can be removed just as easily; even hex bits with a wide groove (Type E, DIN 3126/ISO 1173).

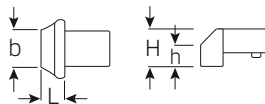


Code	size	inside ○	"	 mm	b mm	h mm	S mm	 g
58 26 10 10	10	D 8	5/16	9x12	16	12.5	17.5	47
58 26 26 10	10-1	D 6.3	1/4	9x12	14	10	17.5	45

inside DIN 3126/ISO 1173

737/10 Blank end insert tool

gunmetal finish. To prevent damage from excessive temperatures, the locking pin, spring and washer are not fitted until the welding work has been completed. Instructions are supplied.



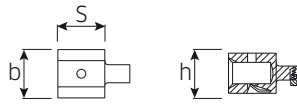
Code	Welding surface	mm	H mm	L mm	Δg
58270010	h x b mm	9x12	14.5	8	35

7370/10 Adaptor



for using insert tools with an outer square drive of 14 x 18 mm on torque wrenches with an internal square drive of 9 x 12 mm.

Caution! Modified settings on torque wrench (refer to note on p. 189).

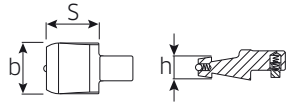


Code	mm	mm	b mm	h mm	S mm	Δg
58290010	9x12	14x18	31	26	30.5	114

7370/10-2 Adaptor

for use with insert tools with a lateral dovetail profile in torque wrenches with 9 x 12 mm internal square drives.

Caution! Modified settings on torque wrench (refer to note on p. 189).



Code	mm	b mm	h mm	S mm	Δg
58290012	9x12	23.5	9.5	24	51

1820 Tool holder

with tool carrier to receive insert/shell tools (without torque function).



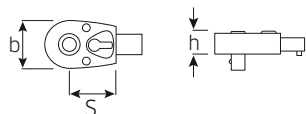
Code	mm	L mm	Δg
18200001	9x12	382.5	490

Insert/shell tools

725QR/20 QuickRelease ratchet insert tool



reversible, with QuickRelease safety lock, 36 teeth.

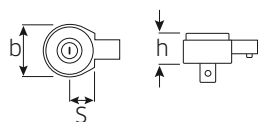


Code	size	"	mm	b mm	h mm	S mm	M N·m	ΔΔ g
58 25 30 20	20	1/2	14x18	41	22.3	38.5*	200	325

* Caution! Modified settings on torque wrench (refer to note on page 189).

735 Ratchet insert tools, fine tooth

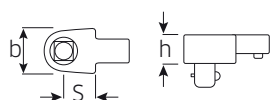
reversible, 60 teeth.



Code	size	"	mm	b mm	h mm	S mm	M N·m	ΔΔ g
58 25 00 20	20	1/2	14x18	43	26	25	300	302
58 25 00 40	40	3/4	14x18	50	31.5	25	400	510
58 25 00 65	40HD	3/4	14x18	58	36	30*	650	737

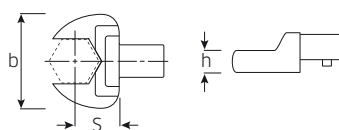
* Caution! Modified settings on torque wrench (refer to note on page 189).

734 Square drive insert tools



Code	size	"	mm	b mm	h mm	S mm	M N·m	ΔΔ g
58 24 00 20	20	1/2	14x18	27	18	25	300	203
58 24 00 40	40	3/4	14x18	40	25	25	650	396

731/40 Open ended insert tools



Code	"	mm	b mm	h mm	S mm	ΔΔ g
58 21 40 13	13	14x18	30	7	25	128
58 21 40 14	14	14x18	35	8	25	129
58 21 40 15	15	14x18	35	8	25	132
58 21 40 16	16	14x18	38	9	25	140
58 21 40 17	17	14x18	38	9	25	136
58 21 40 18	18	14x18	42	10	25	147
58 21 40 19	19	14x18	42	10	25	145
58 21 40 21	21	14x18	50	11	25	171
58 21 40 22	22	14x18	50	11	25	165
58 21 40 24	24	14x18	53	12	25	167
58 21 40 25	25	14x18	53	12	25	170
58 21 40 27	27	14x18	60	13	30*	219
58 21 40 30	30	14x18	66	14	30*	245
58 21 40 32	32	14x18	66	14	32.5*	246
58 21 40 34	34	14x18	66	14	32.5*	239
58 21 40 36	36	14x18	74	15	32.5*	275
58 21 40 38	38	14x18	74	15	32.5*	265
58 21 40 41	41	14x18	82	15	36.5*	307

* Caution! Modified settings on torque wrench (refer to note on page 189).

731a/40 Open ended insert tools

Code	"	mm	b mm	h mm	S mm	ΔΔ g
58 61 40 28	7/16	14x18	30	7	25	127
58 61 40 32	1/2	14x18	30	7	25	125
58 61 40 34	9/16	14x18	35	8	25	129
58 61 40 36	5/8	14x18	38	9	25	136
58 61 40 38	11/16	14x18	42	10	25	148
58 61 40 40	3/4	14x18	42	10	25	144
58 61 40 42	13/16	14x18	50	11	25	171
58 61 40 44	7/8	14x18	50	11	25	165
58 61 40 46	15/16	14x18	53	12	25	177
58 61 40 48	1	14x18	60	13	30*	224
58 61 40 52	1 1/8	14x18	66	14	30*	258

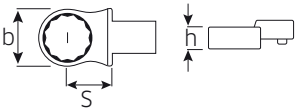
* Caution! Modified settings on torque wrench (refer to note on page 189).

STAHLWILLE insert tools.
More diversity. More options.



732/40 Ring insert tools

AS-drive



Code	mm	mm	b mm	h mm	S mm	Δg
58 22 40 13	13	14x18	22.5	11	25	130
58 22 40 14	14	14x18	23	11	25	123
58 22 40 15	15	14x18	24	11	25	128
58 22 40 16	16	14x18	25.5	12	25	133
58 22 40 17	17	14x18	27	12	25	135
58 22 40 18	18	14x18	29	13	25	134
58 22 40 19	19	14x18	30.5	13	25	138
58 22 40 21	21	14x18	33	15	25	144
58 22 40 22	22	14x18	34.5	15	25	145
58 22 40 24	24	14x18	37.5	15	25	153
58 22 40 27	27	14x18	42.5	17	25	162
58 22 40 28	28	14x18	45.5	19	25	175
58 22 40 30	30	14x18	46	19	25	182
58 22 40 32	32	14x18	47.5	19	25	181
58 22 40 34	34	14x18	52	19	28*	210
58 22 40 36	36	14x18	54	19	28*	203
58 22 40 41	41	14x18	60	20	30*	240

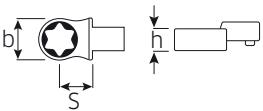
* Caution! Modified settings on torque wrench (refer to note on page 189).

732a/40 Ring insert tools

AS-drive

Code	"	mm	b mm	h mm	S mm	Δg
58 62 40 32	1/2	14x18	22.5	11	25	122
58 62 40 34	9/16	14x18	23	11	25	122
58 62 40 36	5/8	14x18	25.5	12	25	134
58 62 40 38	11/16	14x18	29	13	25	132
58 62 40 40	3/4	14x18	30.5	13	25	138
58 62 40 42	13/16	14x18	33	15	25	142
58 62 40 44	7/8	14x18	34.5	15	25	147
58 62 40 46	15/16	14x18	37.5	15	25	151
58 62 40 48	1	14x18	41	17	25	160

732TX/40 TORX® insert tools



Code	size	mm	b mm	h mm	S mm	Δg
58 29 40 14	E14	14x18	22.5	11	25	130
58 29 40 18	E18	14x18	24	11	25	135
58 29 40 20	E20	14x18	29	13	25	150
58 29 40 24	E24	14x18	30.5	13	25	150

7370/40-1 Adaptor

for using shell tools with an internal square drive of 24.5 x 28 mm on torque wrenches with an internal square drive of 14 x 18 mm. Caution! Modified settings on torque wrench (refer to note on p. 189).



Code	mm	mm	L mm	Δg
58 29 00 41	14x18	24,5x28	66	251

736/40 BIT holder insert tool

Internal hex drive with a collar-thrust spring. Bits are easy to insert, lock securely in position and can be removed just as easily; even hex bits with a wide groove (Type E, DIN 3126/ISO 1173).



Code	inside	"	mm	b mm	h mm	S mm	Δg
58 26 10 40	D 8	5/16	14x18	16	12.5	25	114

inside ○ DIN 3126/ISO 1173

737/40 Blank end insert tool

gunmetal finish. To prevent damage from excessive temperatures, the locking pin, spring and washer are not fitted until the welding work has been completed. Instructions are supplied.

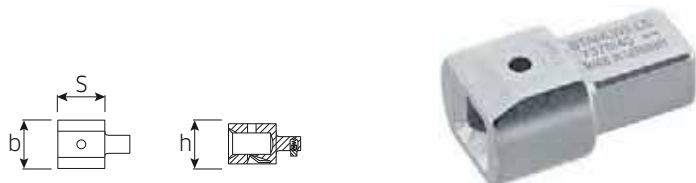


Code	Welding surface h x b mm	mm	H mm	L mm	Δg
58 27 00 40	11 x 25	14x18	21.5	12	98

7370/40 Adaptor



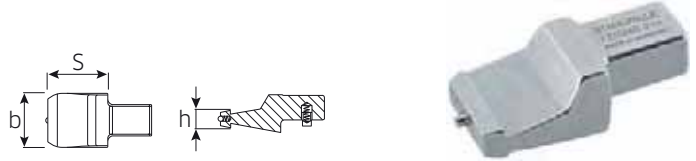
for using insert tools with an outer square drive of 9 x 12 mm on torque wrenches with an internal square drive of 14 x 18 mm. Caution! Modified settings on torque wrench (refer to note on p. 189).



Code	mm	mm	b mm	h mm	S mm	Δg
58 29 00 40	14x18	9x12	28	21	21.5	115

7370/40-2 Adaptor

for use with insert tools with a lateral dovetail profile in torque wrenches with 14 x 18 mm internal square drives. Caution! Modified settings on torque wrench (refer to note on p. 189).



Code	mm	b mm	h mm	S mm	Δg
58 29 00 42	14x18	31.5	9.5	34.6	138

1821 Tool holder

with tool carrier to receive insert/shell tools (without torque function).

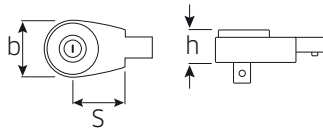


Code	mm	L mm	Δg
18 21 00 01	14x18	575	720

Insert/shell tools

735/65 Ratchet insert tool, fine tooth

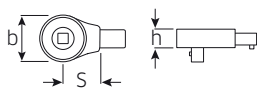
reversible, 60 teeth, load capacity up to 650 N·m, for size 65 torque wrenches.



Code	"	mm	b mm	h mm	S mm	Δ g
58 25 10 65	3/4	22x28	61	35	55	1100

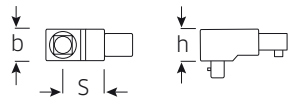
735/100 Ratchet insert tool

with push through square drive, 30 teeth.



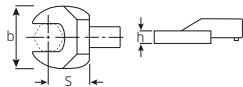
Code	"	mm	b mm	h mm	S mm	Δ g
58 25 01 00	3/4	22x28	76	42	55	1893

734/100 Square drive insert tool



Code	"	mm	b mm	h mm	S mm	Δ g
58 24 01 00	3/4	22x28	43	42	55	1171

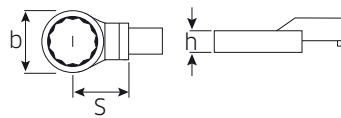
731/100 Open ended insert tools



Code	mm	mm	b mm	h mm	S mm	Δ g
58 21 10 24	24	22x28	50	13	55	628
58 21 10 27	27	22x28	56	14	55	648
58 21 10 30	30	22x28	63	15	55	695
58 21 10 32	32	22x28	67	15	55	713
58 21 10 34	34	22x28	72	15	55	739
58 21 10 36	36	22x28	74	15	55	727
58 21 10 41	41	22x28	84	16	55	902
58 21 10 46	46	22x28	94	17	55	952
58 21 10 50	50	22x28	104	18	55	1074
58 21 10 55	55	22x28	114	19	55	1174
58 21 10 60	60	22x28	124	20	55	1230

732/100 Ring insert tools

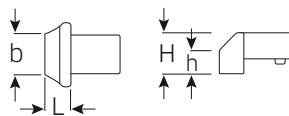
AS-drive



Code	mm	mm	b mm	h mm	S mm	Δ g
58 22 10 24	24	22x28	43	15	55	629
58 22 10 27	27	22x28	43	15	55	619
58 22 10 30	30	22x28	46	16	55	632
58 22 10 32	32	22x28	49	16	55	625
58 22 10 34	34	22x28	52	17	55	638
58 22 10 36	36	22x28	54	17	55	631
58 22 10 41	41	22x28	61	18	55	642
58 22 10 46	46	22x28	66	19	55	640
58 22 10 50	50	22x28	75	20	55	713
58 22 10 55	55	22x28	84	21	55	791
58 22 10 60	60	22x28	93	22	55	885

737/100 Blank end insert tool

gunmetal finish. To prevent damage from excessive temperatures, the locking pin, spring and washer are not fitted until the welding work has been completed. Instructions are supplied.



Code	Welding surface h x b mm	mm	H mm	L mm	Δ g
58 27 01 00	15 x 50	22x28	32	24	521

7370/100 Adaptor

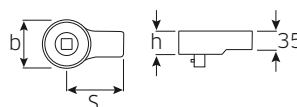
for using shell tools with an internal square drive of 24.5 x 28 mm on torque wrenches with an internal square drive of 22 x 28 mm. Caution! Modified settings on torque wrench (refer to note on p. 189).



Code	mm	mm	L mm	S mm	Δ g
58 29 11 00	22x28	24,5x28	85	100	563

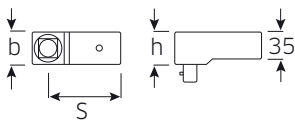
735/80 Ratchet shell tool

with push through square drive, 30 teeth.



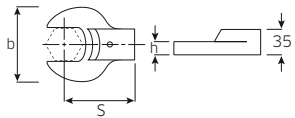
Code	"	mm	b mm	h mm	S mm	Δ g
58 25 00 80	3/4	24,5x28	76	43	95	2000

734/80 Square drive shell tool



Code	mm	mm	b mm	h mm	S mm	Δ g
58 24 00 80	3/4	24,5x28	42	42	95	1200

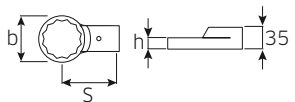
731/80 Open ended shell tools



Code	mm	mm	b mm	h mm	S mm	Δ g
58 21 80 24	24	24,5x28	50	13	95	601
58 21 80 27	27	24,5x28	56	14	95	620
58 21 80 30	30	24,5x28	63	15	95	655
58 21 80 32	32	24,5x28	67	15	95	670
58 21 80 34	34	24,5x28	72	15	95	699
58 21 80 36	36	24,5x28	74	15	95	740
58 21 80 41	41	24,5x28	84	16	95	810
58 21 80 46	46	24,5x28	94	17	95	867
58 21 80 50	50	24,5x28	104	18	95	1010
58 21 80 55	55	24,5x28	114	19	95	1150
58 21 80 60	60	24,5x28	124	20	95	1330

732/80 Ring shell tools

AS-drive



Code	mm	mm	b mm	h mm	S mm	Δ g
58 22 80 24	24	24,5x28	36	15	95	605
58 22 80 27	27	24,5x28	40,5	15	95	610
58 22 80 30	30	24,5x28	46	16	95	630
58 22 80 32	32	24,5x28	49	16	95	635
58 22 80 34	34	24,5x28	52	17	95	650
58 22 80 36	36	24,5x28	54	17	95	650
58 22 80 41	41	24,5x28	61	18	95	675
58 22 80 46	46	24,5x28	66	19	95	720
58 22 80 50	50	24,5x28	75	20	95	803
58 22 80 55	55	24,5x28	84	21	95	889
58 22 80 60	60	24,5x28	93	22	95	995

732a/80 Ring shell tools

AS-drive

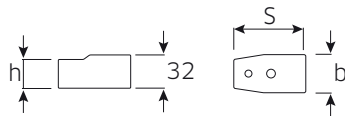
Code	mm	mm	b mm	h mm	S mm	Δ g
58 62 80 46	15/16 ¹⁾	24,5x28	36	14	95	604
58 62 80 50	1 1/16 ¹⁾	24,5x28	40,5	14	95	608

¹⁾ for jet engine pins (Airbus A320/A321)

7370/80 Shell adaptor

for attaching 14 x 18 mm insert tools.

Caution! Modified settings on torque wrench (refer to note on p. 189).



Code	mm	mm	b mm	h mm	S mm	Δ g
58 29 00 80	24,5x28	14x18	36	26	70	281

1822 Tool holder

with tool carrier to receive insert/shell tools (without torque function).



Code	mm	L mm	Δ g
18 22 00 03	24,5x28	1000	2000

540a HD CROW-FOOT spanners Heavy Duty

For particularly high loadings, e.g. stainless steel screw fittings.

Full use of jaws in conjunction with standard ratchets.

Caution! Modified settings on torque wrench (refer to note on page 189), chrome plated. Supplied without ratchet.



Code	mm	mm	L mm	b mm	a mm	S mm	Δ g	
02 50 10 34	9/16	3/8	43.4	32	11	26.8	52	1
02 50 10 36	5/8	3/8	45	34.8	11	27.7	58	1
02 50 10 38	11/16	3/8	47.2	38	11	28.6	69	1
02 50 10 42	13/16	3/8	51	46.4	11	30.5	113	1
02 50 10 44	7/8	3/8	52	48	11	31.3	99	1
02 50 10 46	15/16	3/8	54	51.2	11	32.3	129	1
02 50 10 48	1	3/8	56	53.4	11	33.2	133	1
02 50 10 50	1 1/16	3/8	57	53.8	11	34.1	124	1
02 50 10 52	1 1/8	3/8	59	53.8	11	35	128	1
02 50 10 56	1 1/4	3/8	62	60	11	36.8	153	1
02 50 10 62	1 7/16	3/8	66.5	66	11	39.6	172	1
03 50 10 64	1 1/2	1/2	76	70	16	45	310	1
03 50 10 69	1 13/16	1/2	85	84	16	49.6	400	1
03 50 10 72	2	1/2	89	90	16	52.3	451	1
03 50 10 74	2 1/8	1/2	91.5	92.8	16	54.2	460	1
03 50 10 75	2 3/16	1/2	93	96	16	55.1	480	1
03 50 10 76	2 1/4	1/2	95	99	16	56	500	1

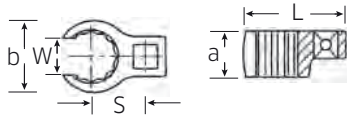
Insert/shell tools

440

CROW-RING spanners



Caution! Modified settings on torque wrench (refer to note on page 189).
Chrome Alloy Steel, chrome plated.



Code	mm	"	L mm	b mm	a mm	S mm	W mm	Δ g	
01 190008	8	1/4	23.8	12.7	8	12.3	6.3	11	1
01 190009	9	1/4	28.5	18.2	13.5	14	6.7	21	1
01 190010	10 ¹⁾	1/4	28.4	18.2	13.5	14	7.1	16	1
01 190011	11	1/4	28	18.2	13.5	14	8.6	17	1
01 190012	12 ¹⁾	1/4	30.8	20.6	14	15.7	9	20	1
01 190013	13	1/4	32	22.2	14	16.4	10	30	1
01 190014	14 ¹⁾	1/4	31.7	22.2	14	16.4	11.1	20	1
02 190015	15	3/8	36.5	24.6	17.5	19.1	11.9	34	1
02 190016	16	3/8	36.1	24.6	17.5	19.1	13	27	1
02 190017	17 ²⁾	3/8	39.2	27.3	17.5	20.5	14	40	1
02 190018	18	3/8	40.8	29	18.5	21.3	14.8	45	1
02 190019	19 ²⁾	3/8	40.5	29	18.5	21.3	15.8	40	1
02 190020	20	3/8	42.9	31.3	18.5	22.5	15.8	54	1
02 190021	21	3/8	42.8	31.3	18.5	22.5	16.2	45	1
02 190022	22 ²⁾	3/8	45.3	33.5	19	23.6	17	57	1
02 190023	23	3/8	47.5	35.7	19.5	24.6	17.5	71	1
02 190024	24 ²⁾	3/8	47.3	35.7	19.5	24.6	18	57	1
02 190025	25	3/8	49.3	37.7	20	25.7	19	80	1
02 190026	26	3/8	49.3	37.7	20	25.7	19	63	1
02 190027	27	3/8	52.8	40	21.4	28.2	20	100	1
02 19 10 27	27MB ³⁾	3/8	57.1	42.1	15	29.3	20	92	1
03 190028	28	1/2	56.8	42.1	22.5	29.3	21	120	1
03 190030	30	1/2	63	48	22.5	32.5	22	155	1
03 190032	32	1/2	62.5	48	22.5	32.5	24	145	1
03 190034	34	1/2	64.2	50	24	33.5	27	146	1
03 190036	36	1/2	66.5	51.9	24	34.6	27	150	1
03 190038	38	1/2	68.1	53.9	24	35.6	28.6	147	1
03 190040	40	1/2	71.8	57.9	24.5	37.7	31	160	1
03 190041	41	1/2	71.8	57.9	24.5	37.7	31	169	1
03 190042	42	1/2	71	57.9	24.5	37.7	33.2	189	1
03 190046	46	1/2	77.7	64.2	26	40.9	34.1	215	1
03 190050	50	1/2	83.2	70.5	27.5	44.1	39.7	295	1

¹⁾ For union nuts on fuel injection leads on 4-cylinder Mercedes-Benz diesel engines

²⁾ For use on suction or pressure lines within expansion valve of air conditioning unit (Mercedes-Benz)

³⁾ Slim-line version for setting of electronic injection on 440-HP-engines Mercedes-Benz series OM 442

440a

CROW-RING spanners

Code	mm	"	L mm	b mm	a mm	S mm	W mm	Δ g	
01 490024	3/8 ¹⁾	1/4	28.4	18.2	13.5	14	7.1	16	1
01 490028	7/16	1/4	28	18.2	13.5	14	8.6	14	1
01 490032	1/2	1/4	30.5	20.6	14	15.7	10	19	1
01 490034	9/16	1/4	31.7	22.2	14	16.4	11.1	23	1
02 490036	5/8	3/8	36.5	24.6	17.5	19.1	11.9	33	1
02 490038	11/16	3/8	39.2	27.3	17.5	20.5	14	36	1
02 490040	3/4	3/8	40.9	29	18.5	21.3	14.2	44	1
02 490042	13/16	3/8	42.9	31.3	18.5	22.5	15.8	51	1
02 490044	7/8	3/8	45.2	33.5	19	23.6	17.5	62	1
02 490046	15/16	3/8	47.2	35.7	19.5	24.6	18.3	63	1
02 490048	1	3/8	49.3	37.7	20	25.7	19	71	1
02 490050	1 1/16	3/8	52.8	40	21.4	28.2	20	84	1
03 490052	1 1/8	1/2	56.8	42.1	22.5	29.3	21	110	1
03 490056	1 1/4	1/2	62.5	48	22.5	32.5	23.8	137	1
03 490058	1 5/16	1/2	62.3	48	22.5	32.5	24.6	130	1
03 490060	1 3/8	1/2	64.2	50	24	33.5	27	138	1
03 490062	1 7/16	1/2	66.5	51.9	24	34.6	27	143	1
03 490064	1 1/2	1/2	68.1	53.9	24	35.6	28.6	152	1
03 490065	1 9/16	1/2	70.1	55.9	24	36.7	29.4	172	1
03 490066	1 5/8	1/2	71.8	57.9	24.5	37.7	31	169	1
03 490068	1 3/4	1/2	75.6	62	25.5	39.8	33.2	199	1
03 490069	1 13/16	1/2	77.7	64.2	26	40.9	34.1	229	1
03 490072	2	1/2	83.2	70.5	27.5	44.1	39.7	277	1
03 490076	2 1/4	1/2	91.2	78.7	29.5	48.2	42.8	337	1
03 490077	2 5/16	1/2	93.3	80.9	30	49.2	43.6	309	1
03 490078	2 3/8	1/2	95.2	83	30.5	50.2	46	385	1

¹⁾ For Volvo aero-engines, types "JAS"

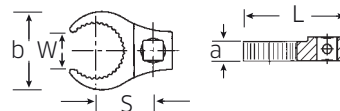
440S MJ

CROW-RING spanners



Supersedes No 440 MJ

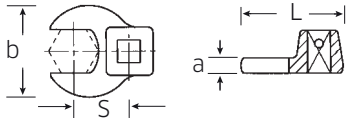
Caution! Modified settings on torque wrench (refer to note on page 189),
EN 4108, for pipe unions with straight cylindrical involute toothing,
HPQ® high performance steel, chrome plated.



Code	Threaded nut	mm	"	L mm	b mm	a mm	S mm	W mm	Δ g	
01 21 10 10	MJ10	DN04	1/4	31.9	22	8	17	6.5	54	1
01 21 10 14	MJ14	DN06	1/4	36.5	27	8	19.5	8.5	29	1
02 21 10 16	MJ16	DN08	3/8	43.8	31	8	24	10.5	47	1
02 21 10 18	MJ18	DN10	3/8	45.2	33	8	25	13	45	1
02 21 10 20	MJ20	DN12	3/8	46.2	35	8	26	15	49	1
02 21 10 22	MJ22	DN14	3/8	48.4	37	9	27	17.5	54	1
02 21 10 24	MJ24	DN16	3/8	49.5	39	9	28	19.7	56	1
02 21 10 27	MJ27	DN18	3/8	54.4	44	10	31	21.5	70	1
02 21 10 30	MJ30	DN20	3/8	60.8	50	10	36	23.7	93	1

540 CROW-FOOT spanners

Caution! Modified settings on torque wrench (refer to note on page 189), Chrome Alloy Steel, chrome plated.



Code	mm	"	L mm	b mm	a mm	S mm	Δg	
01 20 00 08	8	1/4	25.5	19.8	6.3	14.6	19	1
01 20 00 09	9	1/4	25.5	19.8	6.3	14.6	21	1
01 20 00 10	10	1/4	25.5	19.8	6.3	14.6	20	1
02 20 00 11	11	3/8	32	22.2	6.3	17.4	36	1
02 20 00 12	12	3/8	34.3	25.4	6.3	18.2	37	1
02 20 00 13	13	3/8	34.3	25.4	6.3	17.8	36	1
02 20 00 14	14	3/8	37.7	30	6.3	20.8	46	1
02 20 00 15	15	3/8	37.7	30	6.3	20.4	45	1
02 20 00 16	16	3/8	37.7	30	6.3	19.9	45	1
02 20 00 17	17	3/8	42.5	38	6.3	23.8	62	1
02 20 00 18	18	3/8	42.5	38	6.3	22.9	61	1
02 20 00 19	19	3/8	42.5	38	6.3	22.4	64	1
02 20 00 20	20	3/8	42.4	38	6.3	25	55	1
02 20 00 21	21	3/8	44.5	41	6.3	23.6	59	1
02 20 00 22	22	3/8	44.5	41	6.3	24.2	64	1
02 20 00 23	23	3/8	44.5	41	6.3	25.8	64	1
02 20 00 24	24	3/8	44.4	41	6.3	26.2	60	1
02 20 00 25	25	3/8	47	45	8	26.4	75	1
02 20 00 26	26	3/8	47	45	8	27.6	80	1
02 20 00 27	27	3/8	47	45	8	27.6	76	1
02 20 00 28	28	3/8	50	50	8	29.3	78	1
02 20 00 30	30	3/8	50	50	8	29.3	84	1
02 20 00 32	32	3/8	53	57	8	30.5	95	1
02 20 00 34	34	3/8	54.5	60	8	31.6	107	1
02 20 00 36	36	3/8	56.5	62	8	32.8	100	1
02 20 00 40	40	3/8	63	70	8	37.6	130	1
02 20 00 41	41	3/8	63	70	8	37.2	130	1
02 20 00 42	42	3/8	63	70	8	37.7	125	1
02 20 00 46	46	3/8	72	82	8	43.1	191	1
02 20 00 50	50	3/8	75	88	8	45.4	217	1

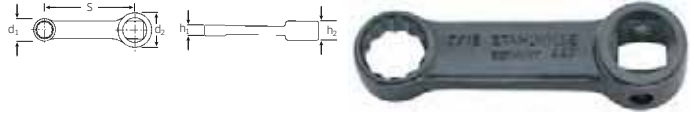
540a CROW-FOOT spanners

Code	mm	"	L mm	b mm	a mm	S mm	Δg	
01 50 00 24	3/8	1/4	25.5	19.8	6.3	14.6	17	1
02 50 00 28	7/16	3/8	32	22.2	6.3	17.2	34	1
02 50 00 32	1/2	3/8	34.3	25.4	6.3	18.1	37	1
02 50 00 34	9/16	3/8	37.7	30	6.3	20.9	40	1
02 50 00 36	5/8	3/8	37.7	30	6.3	20.4	44	1
02 50 00 38	11/16	3/8	42.5	38	6.3	24.1	62	1
02 50 00 40	3/4	3/8	42.5	38	6.3	24	66	1
02 50 00 42	13/16	3/8	42.3	38	6.3	24	59	1
02 50 00 44	7/8	3/8	44.5	41	6.3	25.8	65	1
02 50 00 48	1	3/8	47	45	8	26.7	78	1
02 50 00 50	1 1/16	3/8	47	45	8	27.2	78	1
02 50 00 52	1 1/8	3/8	50	50	8	28.5	84	1
02 50 00 54	1 3/16	3/8	50	50	8	29.2	83	1
02 50 00 56	1 1/4	3/8	53	57	8	30.3	101	1
02 50 00 58	1 5/16	3/8	53	57	8	31.2	101	1
02 50 00 60	1 3/8	3/8	54.5	60	8	32.3	105	1
02 50 00 62	1 7/16	3/8	56.5	62	8	33.1	107	1
02 50 00 64	1 1/2	3/8	58	65	8	34.5	118	1
02 50 00 65	1 9/16	3/8	59.5	68	8	35.7	126	1
02 50 00 66	1 5/8	3/8	63	70	8	37.3	140	1
02 50 00 67	1 11/16	3/8	63	70	8	37.7	126	1
02 50 00 68	1 3/4	3/8	68	76	8	40.4	161	1
02 50 00 70	1 7/8	3/8	72	82	8	42	205	1
02 50 00 72	2	3/8	75	88	8	44.8	214	1
02 50 00 74	2 1/8	3/8	75.6	91	10	46	265	1
02 50 00 76	2 1/4	3/8	80.5	96	10	49.5	297	1
03 50 00 78	2 3/8	1/2	81.5	96	8	51.3	214	1

447 Adaptor



Caution! Modified settings on torque wrench (refer to note on page 189), American sizes: SAE AS 954-E, HPQ® high performance steel, gunmetal finish.



Code	mm	"	d1 mm	d2 mm	h1 mm	h2 mm	S mm	Δg	
02 18 10 07	7	3/8	11.5	19	6	11	50.8	30	1
02 18 10 08	8	3/8	12.4	19	6	11	50.8	30	1
02 18 10 09	9	3/8	14	19	8	11	50.8	40	1
02 18 10 10	10	3/8	15.6	19	8	11	50.8	40	1
02 18 10 13	13	3/8	19.3	19	9.2	11	50.8	55	1

447a Adaptor

Code	mm	"	d1 mm	d2 mm	h1 mm	h2 mm	S mm	Δg	
02 47 00 16	1/4	3/8	10.4	19	6	11	50.8	27	1
02 47 00 20	5/16	3/8	12.4	19	6	11	50.8	29	1
02 47 00 24	3/8	3/8	14.9	19	8	11	50.8	41	1
02 47 00 28	7/16	3/8	17	19	8	11	50.8	40	1
02 47 00 32	1/2	3/8	19	19	9.2	11	50.8	56	1
02 47 00 34	9/16	3/8	21	19	9.2	11	50.8	61	1
02 47 00 36	5/8	3/8	23	19	12	11	50.8	73	1

1225 Special extension

3/8" offset



Code	L mm	d mm	Δg	
12 25 00 01	150	17	128	5

447aSP Spline-Drive adaptor



Caution! Modified settings on torque wrench (refer to note on page 189), MS-33787, MIL-W-8982, HPQ® high performance steel, gunmetal finish.



Code	Spline size	mm	"	d1 mm	d2 mm	h1 mm	h2 mm	S mm	Δg	
02 48 00 14	7	7/32	3/8	9.4	19	6	11	50.8	38	1
02 48 00 16	8	1/4	3/8	10.4	19	6	11	50.8	27	1
02 48 00 18	9	9/32	3/8	11.5	19	6	11	50.8	29	1
02 48 00 20	10	5/16	3/8	12.4	19	6	11	50.8	29	1
02 48 00 24	12	3/8	3/8	14.9	19	8	11	50.8	40	1
02 48 00 28	14	7/16	3/8	17	19	9.2	11	50.8	39	1
02 48 00 32	16	1/2	3/8	19	19	9.2	11	50.8	59	1
02 48 00 34	18	9/16	3/8	21	19	9.2	11	50.8	55	1
02 48 00 36	20	5/8	3/8	23	19	12	11	50.8	74	1

Allocation of coefficients of friction and recommended values to various materials, surfaces and joint lubrication states

Class of friction coefficient	Range for μ_G and μ_K	Selection of typical examples for Material/surfaces	Selection of typical examples for Lubricants
A	0.04 to 0.10	bright metal, hardened and tempered black, phosphated electrocoatings like Zn, Zn/Fe, Zn/Ni, zinc flake coatings	solid lubricants such as MoS ₂ , graphite, PTFE, PA, PE, PI in bonded coatings, as topcoats or in pastes; melted wax, wax dispersion
B	0.08 to 0.16	bright metal, hardened and tempered black, phosphated electrocoatings like Zn, Zn/Fe, Zn/Ni, zinc flake coatings, Al and Mg alloyscoatings	solid lubricants, such as MoS ₂ , graphite, PTFE, PA, PE, PI in bonded coatings, as topcoats or in pastes; melted wax; wax dispersions; greases; oils; delivery state
		hot-dip zinc-plated organic coatings	MoS ₂ ; graphite; wax dispersions with integrated solid lubricant or wax dispersion
C	0.14 to 0.24	austenitic steel	solid lubricants or waxes; pastes
		austenitic steel	wax dispersion pastes
		bright metal, phosphatised	delivery status (slightly oiled)
		electroplated coatings like Zn, Zn/Fe, Zn/Ni, zinc flake coatings, adhesive	without
D	0.20 to 0.35	austenitic steel	oil
E	≥ 0.30	electroplated coatings like Zn, Zn/Fe	without
		electroplated coatings like Zn, Zn/Fe	without
		Zn/Ni, austenitic steel, Al, and Mg alloys	

Approximate values for static friction μ_T in the joint

Material pairings	Coefficient of static friction in this state	
	dry	lubricated
steel - steel/cast steel	0.1 to 0.23	0.07 bis 0.12
steel - soft cast iron	0.12 to 0.24	0.06 to 0.1
soft cast iron - soft cast iron	0.15 to 0.3	0.2
bronze - steel	0.12 to 0.28	0.18
soft cast iron - bronze	0.28	0.15 to 0.2
steel - copper alloy	0.07	
steel - aluminum alloy	0.1 to 0.28	0.05 to 0.18
aluminum - aluminum	0.21	

Assembly pretension forces $F_{M\text{Tab}}$ and tightening torque M_A at $\nu = 0.9$ for **setscrews** with standard metric threads to DIN ISO 262; head sizes of hex screws to DIN EN ISO 4014 to 4018, screws with outer hex to DIN 34800 and cheese head to DIN EN ISO 4762 and central bore "medium" to DIN EN 20273.

Dim.	Strength class	Assembly pretension forces $F_{M\text{Tab}}$ in kN for $\mu_c =$							Tightening torque M_A in N-m for $\mu_K = \mu_c =$						
		0.08	0.10	0.12	0.14	0.16	0.20	0.24	0.08	0.10	0.12	0.14	0.16	0.20	0.24
M 4	8.8	4.6	4.5	4.4	4.3	4.2	3.9	3.7	2.3	2.6	3.0	3.3	3.6	4.1	4.5
	10.9	6.8	6.7	6.5	6.3	6.1	5.7	5.4	3.3	3.9	4.6	4.8	5.3	6.0	6.6
	12.9	8.0	7.8	7.6	7.4	7.1	6.7	6.3	3.9	4.5	5.1	5.6	6.2	7.0	7.8
M 5	8.8	7.6	7.4	7.2	7.0	6.8	6.4	6.0	4.4	5.2	5.9	6.5	7.1	8.1	9.0
	10.9	11.1	10.8	10.6	10.3	10.0	9.4	8.8	6.5	7.6	8.6	9.5	10.4	11.9	13.2
	12.9	13.0	12.7	12.4	12.0	11.7	11.0	10.3	7.6	8.9	10.0	11.2	12.2	14.0	15.5
M 6	8.8	10.7	10.4	10.2	9.9	9.6	9.0	8.4	7.7	9.0	10.1	11.3	12.3	14.1	15.6
	10.9	15.7	15.3	14.9	14.5	14.1	13.2	12.4	11.3	13.2	14.9	16.5	18.0	20.7	22.9
	12.9	18.4	17.9	17.5	17.0	16.5	15.5	14.5	13.2	15.4	17.4	19.3	21.1	24.2	26.8
M 7	8.8	15.5	15.1	14.8	14.4	14.0	13.1	12.3	12.6	14.8	16.8	18.7	20.5	23.6	26.2
	10.9	22.7	22.5	21.7	21.1	20.5	19.3	18.1	18.5	21.7	24.7	27.5	30.1	34.7	38.5
	12.9	26.6	26.0	25.4	24.7	24.0	22.6	21.2	21.6	25.4	28.9	32.2	35.2	40.6	45.1
M 8	8.8	19.5	19.1	18.6	18.1	17.6	16.5	15.5	18.5	21.6	24.6	27.3	29.8	34.3	38.0
	10.9	28.7	28.0	27.3	26.6	25.8	24.3	22.7	27.2	31.8	36.1	40.1	43.8	50.3	55.8
	12.9	33.6	32.8	32.0	31.1	30.2	28.4	26.6	31.8	37.2	42.2	46.9	51.2	58.9	65.3
M 10	8.8	31.0	30.3	29.6	28.8	27.9	26.3	24.7	36	43	48	54	59	68	75
	10.9	45.6	44.5	43.4	42.2	41.0	38.6	36.2	53	63	71	79	87	100	110
	12.9	53.3	52.1	50.8	49.4	48.0	45.2	42.4	62	73	83	93	101	116	129
M 12	8.8	45.2	44.1	43.0	41.9	40.7	38.3	35.9	63	73	84	93	102	117	130
	10.9	66.3	64.8	63.2	61.5	59.8	56.3	52.8	92	108	123	137	149	172	191
	12.9	77.6	75.9	74.0	72.0	70.0	65.8	61.8	108	126	144	160	175	201	223
M 14	8.8	62.0	60.6	59.1	57.5	55.9	52.6	49.3	100	117	133	148	162	187	207
	10.9	91.0	88.9	86.7	84.4	82.1	77.2	72.5	146	172	195	218	238	274	304
	12.9	106.5	104.1	101.5	98.8	96.0	90.4	84.8	171	201	229	255	279	321	356
M 16	8.8	84.7	82.9	80.9	78.8	76.6	72.2	67.8	153	180	206	230	252	291	325
	10.9	124.4	121.7	118.8	115.7	112.6	106.1	99.6	224	264	302	338	370	428	477
	12.9	145.5	142.4	139.0	135.4	131.7	124.1	116.6	262	309	354	395	433	501	558
M 18	8.8	107	104	102	99	96	91	85	220	259	295	329	360	415	462
	10.9	152	149	145	141	137	129	121	314	369	421	469	513	592	657
	12.9	178	174	170	165	160	151	142	367	432	492	549	601	692	769
M 20	8.8	136	134	130	127	123	116	109	308	363	415	464	509	588	655
	10.9	194	190	186	181	176	166	156	438	517	592	661	725	838	933
	12.9	227	223	217	212	206	194	182	513	605	692	773	848	980	1092
M 22	8.8	170	166	162	158	154	145	137	417	495	567	634	697	808	901
	10.9	242	237	231	225	219	207	194	595	704	807	904	993	1151	1284
	12.9	283	277	271	264	257	242	228	696	824	945	1057	1162	1347	1502
M 24	8.8	196	192	188	183	178	168	157	529	625	714	798	875	1011	1126
	10.9	280	274	267	260	253	239	224	754	890	1017	1136	1246	1440	1604
	12.9	327	320	313	305	296	279	262	882	1041	1190	1329	1458	1685	1877
M 27	8.8	257	252	246	240	234	220	207	772	915	1050	1176	1292	1498	1672
	10.9	367	359	351	342	333	314	295	1100	1304	1496	1674	1840	2134	2381
	12.9	429	420	410	400	389	367	345	1287	1526	1750	1959	2153	2497	2787
M 30	8.8	313	307	300	292	284	268	252	1053	1246	1428	1597	1754	2031	2265
	10.9	446	437	427	416	405	382	359	1500	1775	2033	2274	2498	2893	3226
	12.9	522	511	499	487	474	447	420	1755	2077	2380	2662	2923	3386	3775
M 33	8.8	389	381	373	363	354	334	314	1415	1679	1928	2161	2377	2759	3081
	10.9	554	543	531	517	504	475	447	2015	2392	2747	3078	3385	3930	4388
	12.9	649	635	621	605	589	556	523	2358	2799	3214	3601	3961	4598	5135
M 36	8.8	458	448	438	427	415	392	368	1825	2164	2482	2778	3054	3541	3951
	10.9	652	638	623	608	591	558	524	2600	3082	3535	3957	4349	5043	5627
	12.9	763	747	729	711	692	653	614	3042	3607	4136	4631	5089	5902	6585
M 39	8.8	548	537	525	512	498	470	443	2348	2791	3208	3597	3958	4598	5137
	10.9	781	765	748	729	710	670	630	3345	3975	4569	5123	5637	6549	7317
	12.9	914	895	875	853	831	784	738	3914	4652	5346	5994	6596	7664	8562

Assembly pretension forces and tightening torques

MAsssembly pretension forces $F_{M\text{Tab}}$ and tightening torques M_A for screws with standard metric threads to DIN 13, Page 43 (M 1.6-M 2.5-M 3 to M 39) and head contact sizes such as DIN 912 (DIN EN ISO 4762), DIN 931 (DIN EN 24014), DIN 934 (DIN EN 24032), DIN 912, DIN 7984, DIN 77990. The table readings $F_{M\text{Tab}}$ and M_A are based on the SI unit N (Newton). 1 N = 0.102 kp, 1 N-cm = 0.102 kp-cm, 1 N-m = 0.102 kp-m, 1 kp = 9.81 N, 1 kp-cm = 9.81 N-cm, 1 kp-m = 9.81 N-m. The assembly pretension forces $F_{M\text{Tab}}$ listed in the table above result in 90% exploitation of a screw's yield strength $\sigma_{0.2}$ (DIN ISO 898 Part 1) through the comparative tension σ_{rel} , which depends on the coefficient of thread friction μ_c . The table of assembly pretension forces shows what quality of which

screw is required for a particular thread friction to generate a certain required assembly pretension force $F_{M\text{Tab}}$. The tightening torque M_A required to achieve 90% yield strength exploitation for a screw whose dimensions and quality are given can be determined from the right-hand table having regard to a specific underhead friction (μ_h).

To determine the rated torque to be applied, deduct half the spread of the corresponding torque wrench from the applicable tightening torque M_A in the table. Calculation of the table entries and notes on their application to VDI 2230, Page 1.

MULTIPOWER

Makes child's play of the largest torques.

MULTIPOWER – or really “tough work”.

STAHLWILLE MULTIPOWER torque multipliers with planetary gears take the fatigue out of tightening or loosening stiff or large bolt connections. A long lever is not necessary.

STAHLWILLE MULTIPOWER multiplies human strength; steady torque transfer is easy on nuts and bolts. Even the largest torques are transferred with ease and precision over long periods.

Accordingly, construction materials and workmanship are extremely robust.

When combined with STAHLWILLE torque wrenches, MULTIPOWER really shows its strength.

The MULTIPOWER range extends to 5000 N·m/3687 ft·lb.

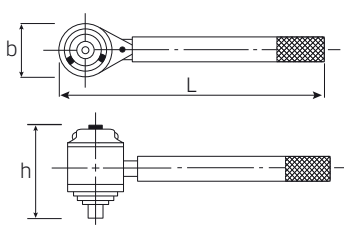
MULTIPOWER tools are also available on request up to 12000 N·m/8850 ft·lb.

The MULTIPOWER from 2000 N·m are fitted with an anti-backlash device.

Spare parts, see p. 223.

MP300 MULTIPOWER

with overload protection and planetary gears, in carrying case, with one spare sun wheel (overload cut-out), deviation of indication $\pm 5\%$.



Code	size	N·m ¹⁾	ft·lb ¹⁾	N·m ²⁾	ft·lb ²⁾	Gear ratio	Torque ratio	□ "	■ "	b mm	h mm	L mm	ΔΔ g	ΔΔ g with box
53 03 08 00	800	800	590	229	169	4 : 1	1 : 3.5	1/2	3/4	66	85	215	2000	5838
53 03 13 50	1350	1350	996	375	277	4 : 1	1 : 3.6	3/4	3/4	90	106	265	3400	7500
53 03 20 00	2000^{*)}	2000	1475	160	118	16 : 1	1 : 12.5	1/2	1	95	161	330	7000	11000
53 03 30 00	3000^{*)}	3000	2212	240	177	16 : 1	1 : 12.5	3/4	1	95	161	330	7000	10805
53 03 50 00	5000^{*)}	5000	3687	294	217	20 : 1	1 : 17.0	3/4	1 1/2	120	180	400	10400	14000

MULTIPOWER tools are also available on request up to 12000 N·m/8850 ft·lb.

^{*)} with anti-backlash device ¹⁾ max. output ²⁾ max. input

MP100-1500 MULTIPOWER

- particularly compact construction
- light and easy to handle
- with ratchet function
- working angle 8°
- with rotary scale
- for use with a torque wrench with a fixed 1/2" square drive
- patents applied for
- in carry-case
- included in the set: 3 hexagon inserts sizes 30; 32; 36 mm,
1 insert with 1" outer square drive,
1 reaction arm 400 mm
- display deviation value $\pm 5\%$



Code	N·m ¹⁾	ft·lb ¹⁾	N·m ²⁾	ft·lb ²⁾	Gear ratio	Torque ratio	□ "	b mm	h mm	L mm	ΔΔ g	ΔΔ g with box
96 53 15 00	1500	1106	300	221	5.62 : 1	1 : 5	1/2	105	30	165	1890	3630

¹⁾ max. output

²⁾ max. input

Sets of spare parts for ratchet insert tools

4150QR Spare parts set

Content:
1 pinion; 1 pawl; 2 lever with pin; 1 ball; 2 compression springs; 2 screws
M 1.7 x 8; 2 cover plates

Code	for No	g	
1901 1020	725QR/4	24	1

4350QR Spare parts set

Content:
1 pinion, 1 pawl, 1 lever with pin, 1 ball, 2 compression springs, 2 screws

Code	for No	g	
1902 0020	725QR/5	51	1

7250QR/10 Spare parts set

Content:
1 pinion, 1 pawl, 1 lever with pin, 1 ball, 2 compression springs, 2 screws

Code	for No	g	
1904 1020	725QR/10	64	1

5120QR Spare parts set

Content:
1 pinion, 1 pawl, 1 lever with pin, 1 ball, 2 compression springs, 2 screws

Code	for No	g	
1904 0020	725QR/20	118	1

7250B Spare parts sets

Content:
1 pinion, 1 pawl, 1 lever with pin, 1 ball, 2 compression springs, 2 screws,
1 cover plate

Code	size	for No	g	
1901 2022	4	725B/4	21	1
1901 2023	5	725B/5	48	1

7250L/5 Spare parts set

Content:
1 pinion, 1 pawl, 1 change-over button with pin, 1 ball, 2 compression
springs, 2 screws, 1 cover plate

Code	for No	g	
1902 1000	725L/5	70	1

7250/4 Spare parts set

Content:
1 pinion, 1 pawl, 1 lever with pin, 1 ball, 2 compression springs, 2 screws,
1 cover plate

Code	for No	g	
1901 2021	725/4	26	1

7350/5 Spare parts set

Content:
1 pinion, 1 pawl, 1 switching disk, 1 spring, 3 screws.

Code	for No	g	
59 25 10 05	735/5	85	1

for ratchets from 12/97

7350/10 Spare parts set

Content:
1 pinion, 1 pawl, 1 switching disk, 1 spring, 3 screws.

Code	for No	g	
59 25 10 10	735/10	96	1

for ratchets from 12/97

7350/20 Spare parts set

Content:
1 pinion, 1 pawl, 1 switching disk, 1 spring, 3 screws.

Code	for No	g	
59 25 10 20	735/20	146	1

for ratchets from 4/96

7350/40 Spare parts set

Content:
1 pinion, 1 pawl, 1 switching disk, 1 spring, 3 screws.

Code	for No	g	
59 25 10 40	735/40	219	1

for ratchets from 5/97

7350/40HD-65 Spare parts set

Content:
1 pinion, 1 pawl, 1 switching disk, 1 spring, 3 screws.

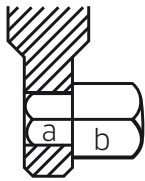
Code	for No	g	
59 25 10 65	735/40HD, 735/65	300	1

7210 Ratchet spare parts sets for torque wrenches No 721

Code	No	Content	Δg g
59 19 1005	7210/5	For ratchet/torque wrench No 721/5: 1 pinion, 1 pawl, 1 switch-over button and pin, 1 ball, 2 compression springs, 2 screws	53
19 04 0000	5120 + 7210/15	For ratchet/torque wrench No 721/15: 1 pinion, 1 pawl, 1 lever, 1 lever pin, 1 ball, 2 compression springs, 2 screws	127
59 19 1030	7210/30	For ratchet/torque wrench No 721/30: 1 pinion, 1 pawl, 1 lever, 1 lever pin, 1 ball, 2 compression springs, 2 screws	134
59 19 1080	7210/80	For ratchet/torque wrench No 721Nf/80, 721Nf/100, 735/80, 735/100: 1 pinion, 2 pawls, 2 spring contact points, 2 compression springs	448

70V Square drive units

for torque wrenches and insert tools.



502 1/2



70V 16

Code	size	for No	a "	b "	L mm	Δg g	
59 01 0001	1	71...V/1	1/4	1/4	17.5	5	5
59 01 0014	11	734/4	3/8	1/4	22	12	5
59 01 0003	3	734/5	3/8	3/8	25.8	17	5
59 01 0005	5	734/10	3/8	1/2	30	28	5
59 01 0011	502 1/2	720/30; 734/20	1/2	1/2	33.5	39	5
59 01 0007	7	721/30	1/2	1/2	44.3	52	5
59 01 0008	8	734/40	3/4	3/4	52.2	138	5
59 01 0015	12	720Nf/80; 721Nf/80+100; 734/80; 734/100; 735/80; 735/100	3/4	3/4	65	179	1
59 01 0016	16*	720Nf/80; 721Nf/80+100; 734/40; 734/80; 734/100; 735/80; 735/100	3/4	3/4	88	240	1

* extra-long, firmly locked, so usable from both sides

Spares for MULTIPOWER

SR290-393 Sun wheel with overload cutout



Code	No	for No	Δg g
59 03 08 00	SR300-800	MP300-800	45
59 03 13 50	SR300-1350	MP300-1350	106
59 03 20 00	SR300-2000	MP300-2000	120
59 03 30 00	SR300-3000	MP300-3000	130
59 03 50 00	SR300-5000	MP300-5000	127
59 30 00 39	SR290N	STW 290N	41
59 30 00 67	SR295N	STW 295N	95
59 30 00 68	SR391N	STW 391N	95
59 30 00 69	SR392N	STW 392N	105
59 30 00 70	SR393N	STW 393N	105

 Made in Germany

Electronic torque tester for torque wrenches **SENSOTORK® 7707 W** (For complete calibration systems, see p. 227, 231)

Compact torque tester for easy adaptation by replacement of the transducers.

High degree of accuracy thanks to flat transducer and conversion and digitalisation of readings within the transducer (see p. 225).

High degree of safety through display showing actual torque read-off where clicking torque wrenches are used.

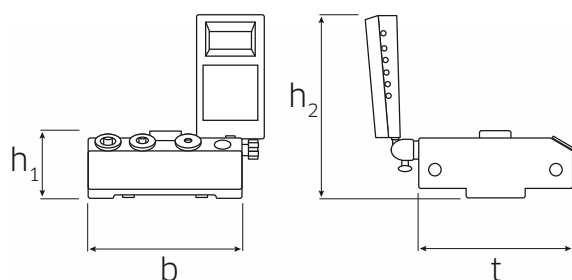
7707 W Torque tester **SENSOTORK®**

Electronic torque tester for torque wrenches, consisting of:

- transducer, patent
- holder
- display unit (registered design)
- tripod for display unit (with 1.5 m cable)
- spiral cable
- mains adaptor (110 V-230 V with interchangeable socket adaptors) or direct connection to 12 V in-car supply is possible
- square drive adaptor (No 7707-2W, No 7707-2-1W, No 7707-2-2W, No 7707-3W)
- kit for attaching the unit to a workbench or wall in a horizontal or vertical testing position for clockwise and anticlockwise use. Units of measurement: N·m, ft·lb, in·lb.

The easily interchangeable transducers are attached to the holder by means of a QuickRelease safety lock. Low lateral forces thanks to low-profile transducers, automatic detection of the transducer, flexible and user friendly because the unit can be used horizontally or vertically and the display unit can be placed in many positions, additional tripod with 1.5 m cable for mounting the display unit to facilitate visual monitoring when using longer torque wrenches, especially broad measuring range from approx. 2% to 100% of rated value.

The software No 7759-4, including USB hub and jack cable (see p. 234), enables readings to be transferred to the PC for documenting and for generating calibration certificates in accordance with DIN EN 6789:2003 (no separate power supply needed, power comes from PC). While individual transducers are being recalibrated, the torque tester itself remains on-site for further use. Wide range of application (-20°C to +60°C). Complies with DIN 51309: 2005, Class 2 and DKD-R 3-8: 2003. With certificate. Supplied in sturdy plastic case.



QR QuickRelease

Rapid change and firm locking of the transducers thanks to the QuickRelease safety lock.

Interchangeable square drive adapters:

A set of interchangeable square drive adapters are conveniently stored in the mounting block for a range of different drive sizes.



Code	No	Capacity N·m	Capacity ft·lb	Capacity in·lb	□ "	b mm	h ₁ mm	h ₂ mm	t mm	Δ g	Δ g with box
96 52 10 86	7707-1-3W ¹⁾	0.2-10	0.15-7.4	1.8-88.5	1/4	180	79	215	180	6255	9500
96 52 10 85	7707-1-2W	0.2-10	0.15-7.4	1.8-88.5	1/4	180	79	215	180	6255	9500
96 52 10 80	7707-1W	0.4-20	0.3-15	3.5-177	1/4	180	79	215	180	6255	9500
96 52 10 72	7707-2W ²⁾	2-100	1.5-74	18-885	3/8	180	79	215	180	7025	10300
96 52 10 83	7707-2-1W ³⁾	4-200	3-148	35-1770	1/2	180	79	215	180	7511	10975
96 52 10 84	7707-2-2W ⁴⁾	8-400	6-295	71-3540	3/4	180	79	215	180	7654	11100
96 52 10 82	7707-3W ⁴⁾	25-1100	18-812	221-9736	3/4	180	79	215	180	7495	11000

¹⁾ for calibrating torque screwdrivers

²⁾ with square drive adaptor No 409M (1/4" □ x 3/8" ■)

³⁾ with square drive adaptors No 7789-4 (1/4" □ x 1/2" ■), No 7789-5 (3/8" □ x 1/2" ■)

⁴⁾ with square drive adaptors No 7787 (1/4" □ x 3/4" ■), No 7788 (3/8" □ x 3/4" ■), No 7789 (1/2" □ x 3/4" ■)

Which transducer is for which torque wrench?

(Calibration in accordance with DIN EN ISO 6789: 2003)

STAHLWILLE's recommendation:

+++ very well suited ++ well suited + suitable

No	7721-1	7722	7723-1	7723-2	7723-3
730D/10		+++			
730D/20			+++		
730D/40				+++	
730D/65					+++
730N/2	+++				
730N/5		+++			
730N/10		+++	++		
730N/12			+++		
730N/20			+++	++	
730N/40				+++	
730N/65					+++
730Na/2	+++				
730Na/5		+++			
730Na/10		+++	++		
730Na/20			+++	++	
730Na/40				+++	
730/2	+++	++	+		
730/4		+++	++	+	
730a/2	+++	++	+		
730a/4		+++	++	+	
730/5		+++	++		
730/10		+++	++	+	
730/12			+++	+++	
730/20			+++	++	+
730/40				+++	++
730/65					+++

No	7721-1	7722	7723-1	7723-2	7723-3	7724-1
730a/5		+++	++			
730a/10		+++	++	+		
730a/12			+++	++	+	
730a/20			+++	++	+	
730/80					+++	+
720Nf/80					+++	+
721/5		+++	++			
721/15			+++	++	+	
721/30				+++	++	
721Nf/80					+++	+
721Nf/100					+++	+
755R/1	+++					
755/4		+++	++			
755/10		+++	++	+		
755/20			+++	++	+	
755/30				+++	++	
71/40				+++	++	
71/80					+++	+
71aR/80					+++	+
73Nm/15	+++	++				
712R/6		+++				
712R/20			+++			
712R/40				+++		
713R/6		+++				
713R/20			+++			
713R/40				+++		

7721-7724 Transducers



Patent, for calibration of torque wrenches and torque screwdrivers, high degree of accuracy thanks to conversion and digitization of readings within the transducer itself. Not susceptible to lateral forces due to low-profile construction. Can also be used as part of a calibration system (see p. 227, 231). With certificate. Supplied in sturdy plastic case.



		Measuring ranges by deviation of indication												
Code	No	Display deviation value ± 1% of the reading			Display deviation value ± 0.5% of the reading			Display deviation value ± 0.25% of the reading			∅	∅	ΔΔ	ΔΔ g
		N·m	ft·lb	in·lb	N·m	ft·lb	in·lb	N·m	ft·lb	in·lb	mm	"	g	with box
96 52 10 21	7721¹⁾	0.2-10	0.15-7.4	1.8-88.5	1-10	0.74-7.4	8.9-88.5	2-10	1.5-7.4	17.7-88.5	120	1/4	1735	2411
96 52 10 00	7721-0	0.2-10	0.15-7.4	1.8-88.5	1-10	0.74-7.4	8.9-88.5	2-10	1.5-7.4	17.7-88.5	120	1/4	1735	2411
96 52 10 26	7721-1	0.4-20	0.3-15	3.5-177	2-20	1.5-15	18-177	4-20	3-15	35-177	120	1/4	1735	2411
96 52 10 22	7722	2-100	1.5-74	18-885	10-100	7-74	89-885	12-100	9-74	106-885	120	3/8	2486	3223
96 52 10 23	7723-1	4-200	3-148	35-1770	20-200	15-148	177-1770	40-200	30-148	354-1770	120	1/2	2983	3605
96 52 20 23	7723-2	8-400	6-295	71-3540	40-400	30-295	354-3540	80-400	59-295	708-3540	120	3/4	3134	3745
96 52 10 28	7723-3	25-1100	18-812	221-9736	110-1100	81-812	974-9736	220-1100	162-812	1947-9736	120	3/4	2998	3761
96 52 10 29	7724-1²⁾	150-3000	111-2214	1328-26553	300-3000	221-2214	2655-26553	600-3000	443-2214	5311-26553	195	1 1/2	10500	12000

¹⁾ for calibrating torque screwdrivers

²⁾ for use with mechanical loader No 7792 and 7792-1 (see p. 229)

Note!

Torque testers are measuring instruments! They have to be regularly calibrated and, where necessary, adjusted, using suitable calibration equipment. We recommend recalibrating every 12 months.



Accurate. Reliable. Safe.

STAHLWILLE calibration

Calibration – Calibration is the regular examination of the accuracy and reliability of torque tools. This is done using special-purpose calibrating equipment which is subject to stringent monitoring. This is essential because torque tools are precision instruments which are very often in use in safety-relevant environments. They are expected to provide the same level of accuracy in their readings reliably over long periods of time. In order to ensure these standards are guaranteed, it is essential that examination by means of calibration takes place at regular intervals and is documented.

At the very least, a calibration system must include the following components:



1

Mechanical loader – The mechanical loader is required for rapid, accurate fixing and operation of the torque wrench. The mechanical loader also ensures that the DIN EN ISO 6789 requirement for clicking torque wrenches is fulfilled, i.e. that, above 80% of the final torque value, the force is applied slowly and steadily within a period of 0.5 to 4 seconds.



2

Transducer – The torque applied using the torque wrench is digitalised within the transducer and transmitted via USB cable to the PC, which ensures error-free transmission.



3

USB-Adaptor – From here, the data are transferred to the PC.



4

Cable – for connecting laboratory transducers No 7728 to USB adaptor, with jack plug and self-locking precision plug.



5

Square drive adaptor – The set includes the square drive adapters necessary to make full use of the measuring range of the transducers; e.g. for transducer No 7723-3 (internal square drive 3/4"), square drive adapter No 7787 (1/4" female to 3/4" male), No 7788 (3/8" female to 3/4" male) and No 7789 (1/2" female to 3/4" male).



6

Software – The data received in this way can then be used to issue a calibration certificate in accordance with DIN/ISO 6789.



Complete calibration systems with matched components



Mechanical base unit



Transducer laboratory



Cable
No 7751-1



USB adaptor No 7757-1



USB adaptor



PC/Printer – not included
in the delivery



Calibration systems No	7706-8 PC	7706-9 PC	7706-10 PC	7706-11 PC
Code	96 52 10 68	96 52 10 69	96 52 10 70	96 52 10 74
Weight/kg	14.2	67.6	70.6	108.4
Range/N·m	1-10	2-100	2-1000	20-3000
Mechanical loader	-	No 7791	No 7791	No 7792
Stand alone test attachment for torque screwdrivers	No 7790	-	-	-
Extension unit	-	-	No 7791-1	No 7792-1
Transducer laboratory	No 7728-1S (1-10 N·m)	No 7728-2 (2-20 N·m) No 7728-10 (10-100 N·m)	No 7728-2 (2-20 N·m) No 7728-10 (10-100 N·m) No 7728-40 (40-400 N·m) No 7728-100 (100-1000 N·m)	No 7728-20 (20-200 N·m) No 7728-100 (100-1000 N·m) No 7728-300 (300-3000 N·m)
USB adaptor	No 7757-1	No 7757-1	No 7757-1	No 7757-1
Jack cable	No 7751	No. 7751	No 7751	No 7751
Cable for No 7728 (connection between transducer and USB adaptor)	No 7751-1	No 7751-1	No 7751-1	No 7751-1
Square drive adaptor	No 431 (3/8"  x 1/4" )	No 431 (3/8"  x 1/4"  No 409M (1/4"  x 3/8" 	No 7787 (1/4"  x 3/4"  No 7788 (3/8"  x 3/4"  No 7789 (1/2"  x 3/4"  No 409M (1/4"  x 3/8" 	No 7787 (1/4"  x 3/4"  No 7788 (3/8"  x 3/4"  No 7789 (1/2"  x 3/4"  No 7789-2 (3/4"  x 1 1/2"  No 7789-3 (1"  x 1 1/2"  No 7789-4 (1 1/4"  x 1 1/2"  No 7789-5 (3/8"  x 1/2" 
Calibrating square drive insert tools	-	No 734K/4 (1/4"  No 734K/5 (3/8" 	No 734K/4 (1/4"  No 734K/5 (3/8"  No 734K/20 (1/2"  No 734K/40 (3/4" 	No 734K/4 (1/4"  No 734K/5 (3/8"  No 734K/20 (1/2"  No 734K/40 (3/4" 
Adaptors	No 3115 (1/4"  x 1/4"  E 6,3) - No 3115/1 (1/4"  x 1/4"  C 6,3) -		-	-
Calibration software	TORKMASTER 4	TORKMASTER 4	TORKMASTER 4	TORKMASTER 4
DAKS calibration certificates	1	2	4	3

*Manu*tork®

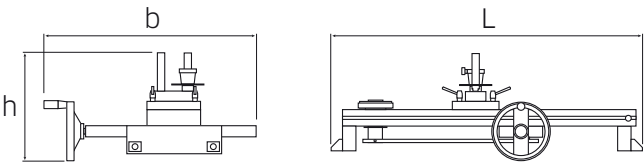
Mechanical loaders for torque wrenches and torque screwdrivers

Thanks to the modular design, end users can put together their own mechanical loader according to their specific requirements. Extensions with additional components are possible any time. All the components are carefully matched to ensure compatibility and can be easily fitted. This slot-in system is easy to use and has a very accurate fit. The components can be quickly and easily locked together using the integrated screw joints. The display unit can be attached at various points of the system via a holder. In this way, every user can organise his or her work to suit themselves.

7791 Mechanical loaders up to 400 N·m

Measurement possible without moving the point of application of force.

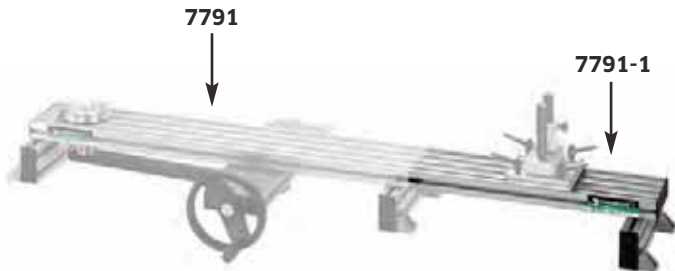
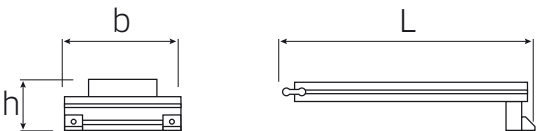
Thanks to a specially designed force transmission system, mechanical loader No 7791 avoids the risk of the point of force application shifting during the calibration process. The lever below the test rail is actuated in a linear direction by the handwheel acting on a spindle. The linear motion is translated into a rotary movement which acts on the transducer. The torque wrench to be calibrated remains in the same position throughout the calibration process. This prevents measuring errors caused by the point of force application being moved. Thanks to a low-friction linear ball bearing, the torque wrench is automatically levelled as it is placed in the unit. A further linear ball bearing ensures the contact with the torque wrench is friction-free. The reduction in lateral forces acting on the transducer and in the friction on the point of contact with the torque wrench results in a corresponding reduction in mismeasurement. Patents applied for.



Code	Capacity N·m	for transducer sizes 1-100	for torque wrenches with functional length (L _F) max. mm	Profile width mm	b mm	h mm	L mm	ΔΔ kg
52 110091	-400	sizes 1-100	815	180	704	323	1069	26.5

7791-1 Extension unit for No 7791, 7794-1 and 7794-2 up to 1000 N·m

with one pair of adapter plates No 7770-3 for height compensation between extension unit No 7791-1 and perfectControl calibrating units No 7794-1 and No 7794-2.



Code	Capacity N·m	for torque wrenches with functional length (L _F) max. mm	Profile width mm	b mm	h mm	L mm	ΔΔ kg
52 110191	-1000	1390 (7791 + 7791-1)	180	308	135	673	5.4

7792 Mechanical loaders unit to 1000 N-m

Patents applied for.



Code	Capacity N-m	for transducer	for torque wrenches with functional length (L _F) max. mm	Profile width mm	b mm	h mm	L mm	Δ kg
52 11 0092	-1000	sizes 20; 100; 300	1390	270	722	323	1668.5	57

7792-1 Extension unit for No 7792 up to 3000 N-m

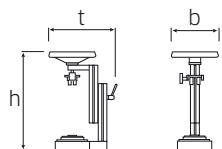


Code	Capacity N-m	for torque wrenches with functional length (L _F) max. mm	Profile width mm	b mm	h mm	L mm	Δ kg
52 11 0192	-3000	2390 (7792 + 7792-1)	270	558	135	1073	23.9

Test attachments for torque screwdrivers

7790 Mechanical loaders for torque screwdrivers

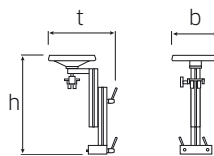
Can be bolted to mechanical loader No 7792. The torque screwdriver to be calibrated is inserted in the square mount of the transducer and fixed using the universal central clamp. The handwheel ensures that the required force is applied in a controlled manner to the torque screwdriver. Supplied without transducer or torque screwdriver.



Code	Capacity N-m	for transducer	b mm	h mm	t mm	Δ kg
58 52 1090	-10	7721; 7728-15	250	442-593	351	7.9

7791-2 Test attachment for torque screwdrivers

Can be bolted onto mechanical loader No 7791. The torque screwdriver to be calibrated is inserted in the square mount of the transducer and fixed using the universal central clamp. The handwheel ensures that the required force is applied in a controlled manner to the torque screwdriver.



Code	Capacity N-m	b mm	h mm	t mm	Δ kg
52 11 0291	-10	250	442-593	351	3.9

Accessory

7750-1 Holder

for display unit No 7750.
Can be bolted to test attachments.



Code	Δ kg
52 10 1050	165



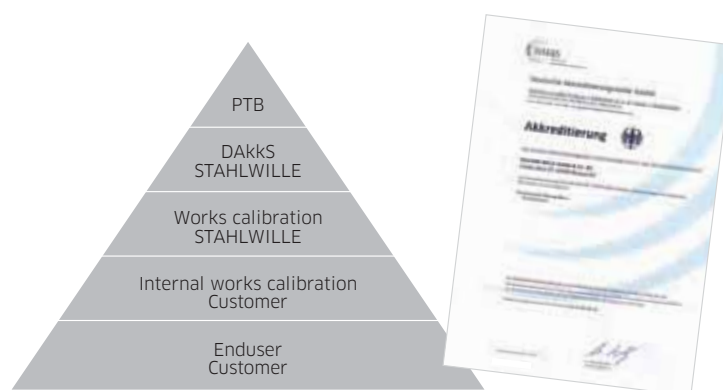
Audited. Documented. Certified.

STAHLWILLE DAKkS calibration laboratory

You can ensure controlled tightening, record the results of tightening processes, monitor torque tools.

STAHLWILLE's DAKkS calibration laboratory for torque is accredited by the German Accreditation Body (DAkkS) in accordance with DIN EN ISO/IEC 17025: 2005. Which means the specific requirements listed in Technical Specification ISO/TS 16949 relating to testing laboratories are met. Absolutely essential: This is absolutely essential to all suppliers in the automotive sector!

The transfer torque wrenches and torque transducers in use at STAHLWILLE's DAKkS calibration laboratory are subject to regular examination by the German Federal Physics Institute (PTB) in Braunschweig. The accuracy of the torque wrenches must be proved in a series of steps and these must be traceable. Only in this way can the reliability of the readings be guaranteed. During the first stage, the end-user checks the accuracy of the torque tools in-house using suitable calibrated testing equipment. At the next stage, this test equipment is checked in STAHLWILLE's DAKkS calibrating laboratory. This accreditation by the German Accreditation Body (DAkkS) in accordance with DIN EN ISO/IEC 17025: 2005 guarantees the direct link between the measuring equipment and the national standard as laid down in DIN EN ISO 9001: 2008.



Relationship between the national standard and the equipment





Complete calibration systems perfectControl with matched components



**Motorised calibrating tool
No 7794-2**



**Manual calibrating unit
No 7794-1**



Transducer laboratory



USB adaptor No 7757-1



**PC/Printer - not included
in the delivery**



Calibration systems No	7794-2/400	7794-2/1000	7794-1/400	7794-1/1000
Code	96 52 10 78	96 52 10 79	96 52 10 76	96 52 10 77
Weight/kg	61.9	69.6	53	60.7
Range/N-m	1-400	1-1000	1-400	1-1000
Motorised calibrating unit	No 7794-2	No 7794-2	-	-
Manual calibrating unit	-	-	No 7794-1	No 7794-1
Extension unit	-	No 7791-1	-	No 7791-1
Transducer laboratory	No 7728-1 (1-10 N-m) No 7728-6 (6-60 N-m) No 7728-40 (40-400 N-m)	No 7728-1 (1-10 N-m) No 7728-6 (6-60 N-m) No 7728-40 (40-400 N-m) No 7728-100 (100-1000 N-m)	No 7728-1 (1-10 N-m) No 7728-6 (6-60 N-m) No 7728-40 (40-400 N-m)	No 7728-1 (1-10 N-m) No 7728-6 (6-60 N-m) No 7728-40 (40-400 N-m) No 7728-100 (100-1000 N-m)
USB Adaptor	No 7757-1	No 7757-1	No 7757-1	No 7757-1
Jack cable	No 7751	No. 7751	No 7751	No 7751
Spiral cable	No 7752	No 7752	No 7752	No 7752
Cable for No 7728	No 7751-1	No 7751-1	No 7751-1	No 7751-1
Square drive adaptor	No 409M (1/4"  x 3/8"  No 7787 (1/4"  x 3/4"  No 7788 (3/8"  x 3/4"  No 7789 (1/2"  x 3/4"  No 7789-4 (1/4"  x 1/2"  No 7789-5 (3/8"  x 1/2" 	No 409M (1/4"  x 3/8"  No 7787 (1/4"  x 3/4"  No 7788 (3/8"  x 3/4"  No 7789 (1/2"  x 3/4"  No 7789-4 (1/4"  x 1/2"  No 7789-5 (3/8"  x 1/2" 	No 409M (1/4"  x 3/8"  No 7787 (1/4"  x 3/4"  No 7788 (3/8"  x 3/4"  No 7789 (1/2"  x 3/4"  No 7789-4 (1/4"  x 1/2"  No 7789-5 (3/8"  x 1/2" 	No 409M (1/4"  x 3/8"  No 7787 (1/4"  x 3/4"  No 7788 (3/8"  x 3/4"  No 7789 (1/2"  x 3/4"  No 7789-4 (1/4"  x 1/2"  No 7789-5 (3/8"  x 1/2" 
Calibrating square drive insert tools	No 734K/4 (1/4"  No 734K/5 (3/8"  No 734K/12 (3/8"  No 734K/20 (1/2"  No 734K/40 (3/4"  No 734K/100 (3/4" 	No 734K/4 (1/4"  No 734K/5 (3/8"  No 734K/12 (3/8"  No 734K/20 (1/2"  No 734K/40 (3/4"  No 734K/100 (3/4" 	No 734K/4 (1/4"  No 734K/5 (3/8"  No 734K/12 (3/8"  No 734K/20 (1/2"  No 734K/40 (3/4"  No 734K/100 (3/4" 	No 734K/4 (1/4"  No 734K/5 (3/8"  No 734K/12 (3/8"  No 734K/20 (1/2"  No 734K/40 (3/4"  No 734K/100 (3/4" 
Calibration software	TORKMASTER 4	TORKMASTER 4	TORKMASTER 4	TORKMASTER 4
DAKKS calibration certificates	3	4	3	4

7794-2 Motorised calibrating and adjusting tool from 1 to 400 N-m

The electronic perfectControl calibrating unit with its electric drive considerably reduces the amount of effort and time required for calibration and adjustment tasks on torque wrenches.



- measurement possible without moving the point of application of force.
 - prevents faulty readings thanks to precision-mounted spindle and finely regulated motor.
 - extremely accurate calibration thanks to optimised bearings and square drives for the transducers.
 - rapid, easy change of transducers thanks to quick-release latching system.
 - convenient pushbutton controls for clockwise and anticlockwise measurements with automatic speed compensation.
 - saves time because the bridge support is locked in place using a single-handed eccentric lever.
 - transmission of readings to a PC via USB interface for further processing, analysis and archiving.
 - calibration certificates can be printed or saved as a PDF file after calibration.
 - as found / as left calibrations can be documented.
 - during calibration, DIN EN ISO 6789:2003 in numerous languages is supported. Additional standards and works standards are available on request.
 - can be upgraded to perfectControl calibrating unit No 7794-3 for angle-controlled wrenches.
 - **calibration up to 1000 N-m is possible using the easily attached extension unit No 7791-1** (see p. 228)
 - design patent, other patents applied for
- Both clicking and indicating torque wrenches can be calibrated. Calibration of transducers is possible using reference torque wrenches No 7770-100 and 7770-1000, available on request.
- 6 calibrating square drive insert tools No 734K (sizes 4, 5, 12, 20, 40, 100), 6 square drive adaptors (No 409M, No 7787, No 7788, No 7789, No 7789-4, No 7789-5), 1 USB adaptor No 7757-1, 1 software Torkmaster 7731-1, 1 jack cable No 7751, 1 spiral cable No 7752, 1 cable No 7751-1 with jack plug and self-locking precision plug, 1 low-temperature cable connector, 1 hexagon key wrench No 10760CV size 2 mm are included.
- The unit is supplied without the torque wrench, transducers or notebook.
- Transducers laboratory No 7728** (see p. 233).



7794-2

Code	Capacity N-m	for transducer	for torque wrenches with functional length (L _F) max. mm	Profile width mm	b mm	h mm	L mm	Δ kg
96 52 1093	1-400	7728 (sizes 1-100)	815	180	640	328	1060	57

7794-1 Manual calibrating unit from 1 to 400 N-m

As for perfectControl No 7794-2, but the drive is via an ergonomically designed handwheel.

Calibration up to 1000 N-m is possible using the easily attached extension unit No 7791-1 (see p. 228). Patents applied for. 6 calibrating square drive insert tools No 734K (sizes 4, 5, 12, 20, 40, 100), 6 square drive adaptors (No 409M, No 7787, No 7788, No 7789, No 7789-4, No 7789-5), 1 USB adaptor No 7757-1, 1 software Torkmaster 7731-1, 1 jack cable No 7751, 1 spiral cable No 7752, 1 cable No 7751-1 with jack plug and self-locking precision plug, 1 low-temperature cable connector, 1 hexagon key wrench No 10760CV size 2 mm are included.

Supplied without torque wrench, transducer or notebook.

Transducers laboratory No 7728 (see p. 233).



7794-1

Code	Capacity N-m	for transducer	for torque wrenches with functional length (L _F) max. mm	Profile width mm	b mm	h mm	L mm	Δ kg
96 52 1092	1-400	7728 (sizes 1-100)	815	180	705	355	1060	47

7794-3 Automated calibrating and adjusting unit from 1 to 400 N·m

Automatically calibrates electronic torque and angle-controlled wrenches made by STAHLWILLE

Design patent, other patents applied for.

Model is the same as perfectControl No 7794-2, except it is additionally suited to calibrating angle-controlled wrenches.

Optimum adaptation to working height with motorised height adjustment.

6 calibrating square drive insert tools No 734K (sizes 4, 5, 12, 20, 40, 100), 6 square drive adaptors (No 409M, No 7787, No 7788, No 7789, No 7789-4, No 7789-5), 1 USB adaptor No 7757-1, 1 software Torkmaster 7731-1, 1 jack cable No 7751, 1 spiral cable No 7752, 1 cable No 7751-1 with jack plug and self-locking precision plug, 1 low-temperature cable connector, 1 hexagon key wrench No 10760CV size 2 mm are included.

Supplied without torque wrench, transducer or notebook.



Code	Capacity N·m	for transducer	for torque wrenches with functional length (L _F) max. mm	Profile width mm	b mm	h mm	L mm	Δ _g kg
96 52 1094	1-400	7728 (sizes 1-100)	815	180	640	884-1134	1060	230

7728 Transducers laboratory



patented, for laboratory environments, with optimised measuring range, for calibrating torque wrenches and torque screwdrivers, for use together with perfectControl calibrating unit No 7794 or calibration system No 7706.

High degree of accuracy thanks to conversion and digitization of readings within the transducer itself. With high-grade self-locking precision plug. Not susceptible to lateral forces due to low-profile construction.

With DAKKS calibration certificate. Max. display deviation value ± 0.5% of the reading.

Further details on request. Supplied in sturdy plastic case.



		Measuring ranges by deviation of indication									
Code	size	Display deviation value ± 0.5% of the reading			Display deviation value ± 0.25% of the reading			∅ mm	□ "	Δ _g g	Δ _g g with box
		N·m	ft·lb	in·lb	N·m	ft·lb	in·lb				
96 52 40 11	15¹⁾	1-10	0.74-7.4	8.9-88.5	2-10	1.5-7.4	18-88.5	120	1/4	1735	2415
96 52 40 01	1	1-10	0.74-7.4	8.9-88.5	2-10	1.5-7.4	18-88.5	120	1/4	1735	2415
96 52 40 02	2	2-20	1.5-15	18-177	4-20	3-15	35-177	120	1/4	1735	2415
96 52 40 04	4	4-40	3-30	35-354	8-40	6-30	71-354	120	3/8	2486	3136
96 52 40 06	6	6-60	4.5-45	53-531	12-60	9-45	106-531	120	3/8	2486	3136
96 52 40 10	10	10-100	7-74	89-885	20-100	14-74	177-885	120	3/8	2486	3136
96 52 40 20	20	20-200	15-148	177-1770	40-200	30-148	354-1770	120	1/2	2983	3170
96 52 40 40	40	40-400	30-295	354-3540	80-400	60-295	708-3540	156	3/4	4846	5507
96 52 40 65	65	65-650	48-479	575-5753	130-650	96-479	1151-5753	156	3/4	4846	5507
96 52 40 80	80	80-800	59-590	708-7081	160-800	118-590	1416-7081	156	3/4	4846	5507
96 52 41 00	100	100-1000	74-738	885-8851	200-1000	148-738	1770-8851	156	3/4	4846	5507
96 52 43 00	300²⁾	300-3000	221-2214	2655-26553	600-3000	443-2214	5310-26553	195	1 1/2	10500	12000

¹⁾ for calibrating torque screwdrivers

²⁾ for use with mechanical loader No 7792 and 7792-1 (see p. 229)

Accessories for workshop torque tester and calibration systems

7750 Display unit

registered design, for displaying the actual torque as measured.

Units of measurement: N·m, ft·lb, in·lb.

Modes of operation: track, peak hold, first peak (only with manual operation), additional display of actual torque applied with clicking torque wrenches. Swivels to any desired position thanks to universal ball-joint.



Code	L m	ΔΔ g
52 10 00 50	1.5	182

7759-4 USB adaptor, jack cable and software Torkmaster

Link between perfectControl or transducer and PC. For adjusting and calibrating torque wrenches and torque screwdrivers.

Produces calibration certificates in accordance with DIN EN ISO 6789: 2003, which can be printed out or saved as PDF files.

- as found / as left calibrations can be documented.
- graphical representation of the torque progression
- user management
- 17 languages
- equipment testing system

System requirements:

- PC
- Microsoft Windows XP SP3 or later operating system
- USB connection



Code	L m	ΔΔ g
96 58 36 29	1.5	137

7751 Jack cable

Connection between transducers 7721-7724 and USB adaptor or display unit, with jacks at both ends, 90° angled.



Code	L m	ΔΔ g
52 11 00 51	1.5	50

7752 Spiral cable

Connection between transducer and display unit or USB adaptor, with jacks at both ends, 90° angled.



Code	L max. mm	ΔΔ g
52 11 00 52	500	35

7751-1 Cable for No 7728

for connecting laboratory transducers 7728 to a USB hub or display unit, with jack plug, 90° angled, and self-locking precision plug.



Code	L m	ΔΔ g
52 11 00 54	1.5	50

7751-2 Spiral cable for No 7728



for connecting laboratory transducers 7728 to a USB hub or display unit, with jack plug, 90° angled, and self-locking precision plug.



Code	L max. mm	ΔΔ g
52 11 00 57	500	32

7760 Mains adaptor

Input: 110 V-230 V AC , Output: 9 V DC, with interchangeable socket adaptors.



Code	Volt	ΔΔ g
52 11 00 56	110-230	385

7761 Interface adaptor

required for automated calibration and adjustment of angle-controlled torque wrenches No 714 using calibrating and adjusting units perfectControl No 7794-2 and 7794-3.



Code	ΔΔ g
52 11 00 61	26

7761/3 Interface adaptor set

Contents
No 7761 interface adaptor
No 7752 spiral cable
No 7760 mains adaptor



Code	ΔΔ g
96 52 11 61	446

7311/7312 Plastic case, empty



for safe storage and transport of transducers (please order inlays separately).



Code	No	for transducer	ΔΔ g
81 50 0003	7311	7721; 7722; 7723; 7728 1-20	554
81 50 0004	7312	7728 40-100	1346

7313/7314 Inlays for plastic case



Code	No	for transducer	ΔΔ g
83 07 10 30	7313	7721; 7722; 7723; 7728 1-20	77
83 07 10 31	7314	7728 40-100	242

409M Square drive adaptor

1/4" socket x 3/8" plug (6.3 x 10).

Code	L mm	∅ mm	ΔΔ g
11 03 00 10	13	28	14



7787 Square drive adaptor

1/4" socket x 3/4" plug (6.3 x 20).

Code	L mm	∅ mm	ΔΔ g
58 52 10 87	15.5	29	41



7788 Square drive adaptor

3/8" socket x 3/4" plug (10 x 20).

Code	L mm	∅ mm	ΔΔ g
58 52 10 88	23.5	29	52



7789 Square drive adaptor

1/2" socket x 3/4" plug (12.5 x 20).

Code	L mm	∅ mm	ΔΔ g
58 52 10 89	23.5	29	42



7789-2 Square drive adaptor

3/4" socket x 1 1/2" plug (20 x 40).

Code	L mm	∅ mm	ΔΔ g
58 52 30 89	44	60	383



7789-3 Square drive adaptor

1" socket x 1 1/2" plug (25 x 40).

Code	L mm	∅ mm	ΔΔ g
58 52 40 89	44	60	291



7789-4 Square drive adaptor

1/4" socket x 1/2" plug (6.3 x 12.5).

Code	L mm	∅ mm	ΔΔ g
58 52 40 90	15.5	29	25



7789-5 Square drive adaptor

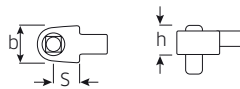
3/8" socket x 1/2" plug (10 x 12.5).

Code	L mm	∅ mm	ΔΔ g
58 52 40 91	15.5	29	28



734K Calibrating square drive insert tools

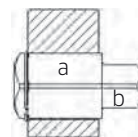
Without a ball or pin (so not suitable for bolt tightening). Optimum measuring results during calibration thanks to reduced lateral forces.



Code	size	"	mm	b mm	h mm	s mm	ΔΔ g
58 24 30 04	4	1/4	9x12	20	17.2	17.5	76
58 24 30 05	5	3/8	9x12	20	16.7	17.5	80
58 24 30 12	12	3/8	14x18	27	21.5	25	199
58 24 30 20	20	1/2	14x18	27	21.5	25	218
58 24 30 40	40	3/4	14x18	40	29.3	25	410
58 24 11 00	100	3/4	22x28	43	29.3	55	895

70VK Calibrating square drive units

Without a ball or pin (so not suitable for bolt tightening). Optimum measuring results during calibration thanks to reduced lateral forces.



Code	size	for No	a "	b "	L mm	ΔΔ g	
59 01 10 14	11	734/4	3/8	1/4	24.7	15	5
59 01 10 03	3	734/5	3/8	3/8	27.6	20	5
59 01 10 12	12	734/10, 734/20	1/2	3/8	32.5	34	5
59 01 10 11	502 1/2	734/20	1/2	1/2	36.9	60	5
59 01 10 08	8	734/40, 734/80, 734/100	3/4	3/4	52.2	147	5