

HIGH POWER Handheld Tools

H 1.0

Primary Features

■ **Powerful – Intelligent – Economical**

AMT handheld nutrunners are your ideal choice when it comes to safe fastening operations with consistently high accuracy. As partners with the automotive industry, we offer innovative and high-performance nutrunning systems that meet or exceed the rigid demands from our customer base.

■ **All From One Source**

As assembly technology specialists, we are able to offer, in addition to nutrunning technology, all peripheral equipment required for a workstation. This varies from a simple telescope to complex, semiautomatic handling devices. Our experts from the assembly technology area have many years of experience in the ergonomic design of assembly systems.

It is no wonder that many customers choose AMT for their nutrunning needs. A single partner for all applications related to the nutrunning process reduces planning and coordination efforts, which in turn reduces your overall cost.

■ **Safety in Assembly**

The quality of a fastened connection does not depend solely on the use of high-quality nutrunners. It also depends upon the operators who are using these tools. While considering solutions for our customers, therefore, we do not just think about the individual connections but also include the tool operator and configuration of his/her workstation in our design process. By doing this, errors can be avoided with the appropriate workstation layout. Fault recognition and troubleshooting, using innovative monitoring strategies, remains front and center.

Our nutrunner systems are, for example, capable of monitoring the correct fastening position, using camera, ultrasonic triangulation, or our patented Railnet system. As a result, missing fasteners and/or operations at the wrong fastener location are detected and avoided.

Of course, all data stored by the nutrunner control is available over network interfaces for documentation and additional processing by higher order computer systems.

■ **Pistol-Grip Nutrunner**

Torque up to 25 Nm
Speed up to 1481 rpm



■ **Angle Nutrunner**

Torque up to 250 Nm
Speed up to 1535 rpm



■ **Straight Nutrunner**

Torque up to 131 Nm
Speed up to 2388 rpm



Handheld Tools

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Primary Features

■ Drive

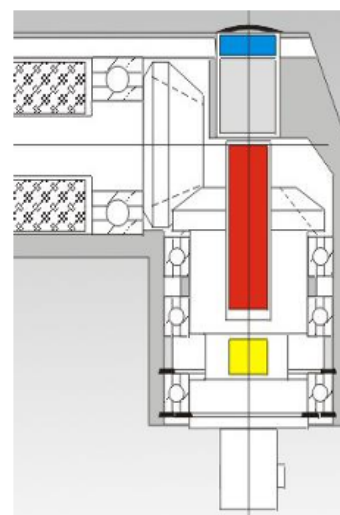
Short cycle times demand the use of higher powered drives. For this reason, all of our handheld tools are equipped with maintenance-free, high-dynamic electric motors.

■ Torque Recording

All handheld nutrunners come equipped with reaction torque sensors that are installed between the drive and output. They use strain gages with full bridge switches to record torque measurements with consistent reliability and accuracy.

■ Action Torque Sensors for Highest Accuracy

Action torque sensors eliminate side effects from the use of angular drives and can be used for applications that place the highest demands on accuracy. Torques are captured directly at the output shaft from the angular drive. As a result, changes in drive efficiency due to wear have no influence on the torque. The fastening process is completed correctly, based on accurate torque and regardless of the mechanical condition of the angular drive. This advantage is only available with AMT handheld nutrunners!



■ Integrated Maintenance Management

Even the most reliable tools suffer from natural wear over time. In order to keep this wear from progressing to an unexpected breakdown and potential stoppage of an assembly line, AMT nutrunners automatically signal when preventive maintenance is required. An integrated nutrunning cycle counter with a load-dependent evaluation ensures that required maintenance is signaled before a tool breaks down. This increases tool availability while, at the same time, reducing maintenance costs that occur from having to replace parts due to wear.

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- **Ergonomic soft stop***
keeps production costs to a minimum

We safeguard the health of your employees!

The ergonomic soft stop improves shut-off behavior in handheld tools during the final tightening phase.

When using high tightening torques during a fastening operation, tension builds up in the operator's muscles. If the tool is simply shut off after the required torque has been reached, i.e. immediate torque-free shutdown, then the operator does not have the required reaction time to release muscle tension.

Instead, the operator's muscle tension releases itself in a jerking arm motion, which has a negative physiological effect on muscles, tendons, and joints.

In order to avoid these health risks, our handheld tools are configured with a soft stop, which is used to stop the tool after the required torque has been reached. The impact on the operator's muscles, tendons, and joints is reduced considerably as a result.

The minimization of stress to your staff and related downtime all result in production cost savings to you.

* The ergonomic soft stop is available for the following control systems:

- SMX10
- SMX20
- SMX30



Handheld Tools

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Primary Features

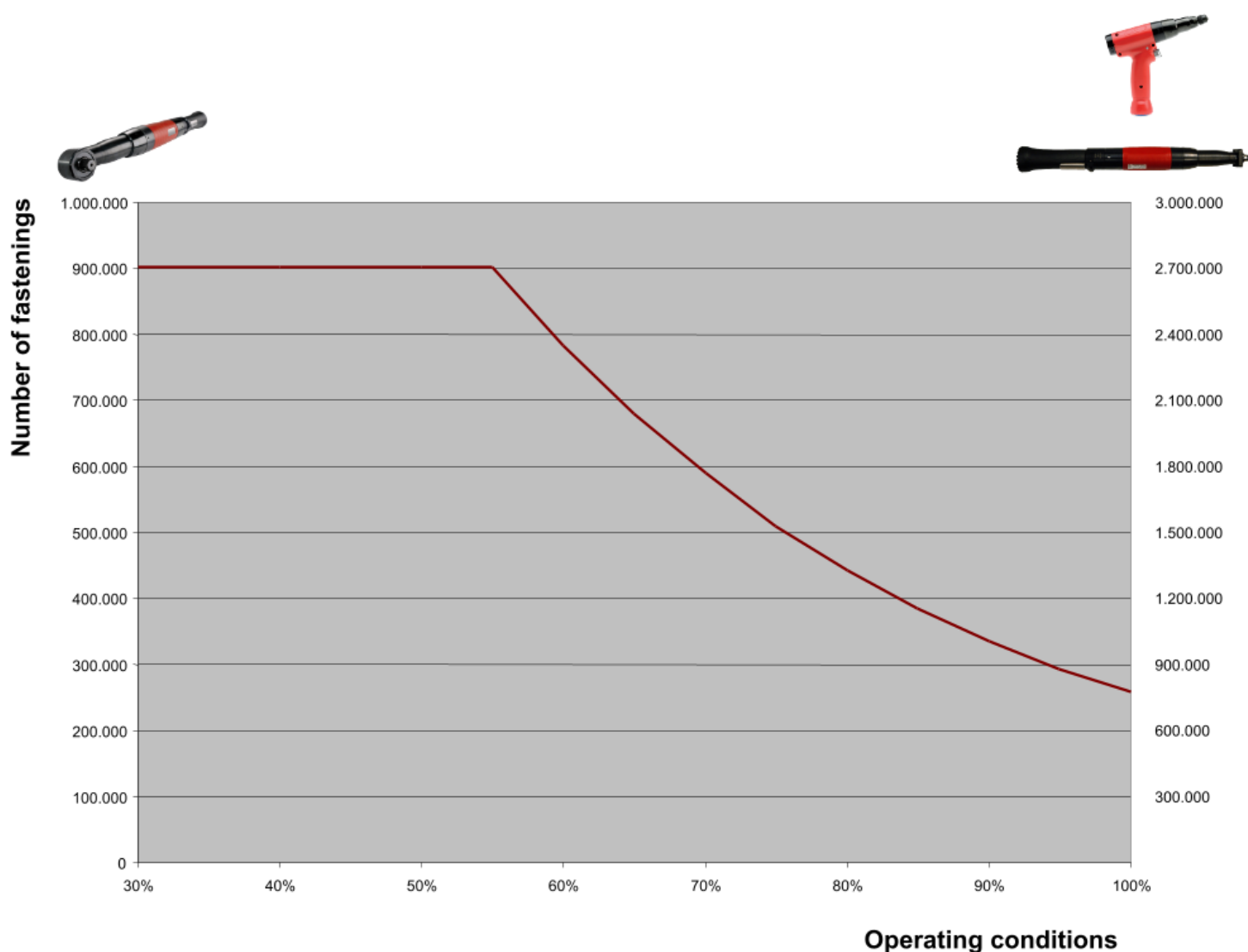
■ We make maintenance affordable

Reduced maintenance costs due to longer intervals between repairs!

Our integrated maintenance management system calculates the tool maintenance requirements based on load. By doing so, maintenance work is only required when it is absolutely necessary. As a result, our customers are not faced with high maintenance costs. The load-dependent maintenance requirements allow several tools to be operated over the entire runtime without maintenance

Maintenance is, therefore, only necessary when it is required and not when the cycle dictates it.

The load-dependent calculation of maintenance intervals is based on actual tool operating conditions. Therefore, the maintenance interval can be extended further by just using the next larger tool.



The new Handheld Tools HCX / PCX

Primary Features


H 1.1

■ Ergonomic, capability, lightweight

Ergonomics, capability, and torque repeatability are demands of the automotive industry and their suppliers.

The new handheld tools fulfill these requirements and even more!

Using a new-generation, high-dynamic motor, it is possible to increase nutrunner power by up to 30 percent. The results are faster and more cost-efficient fastening operations.

The appealing design was developed in consideration of trend-setting ergonomic factors:

- Ergonomically formed hand grip
- Newly designed directional ring for clockwise / counterclockwise operation with additional user-programmable switch function (e.g. NOK acknowledgement, program advance, etc.)
- Status display indicates direction of rotation via LEDs and additional LED for enhanced display functions (e.g. NOK acknowledgement, release)
- Ergonomically arranged START key of electropolished stainless steel
- 1-part, ergonomically formed angle head (can be rotated 4 x 90°)
- Lightweight design

The optimized ergonomic design and lightweight configuration reduce operator strain. This leads to an **increase in individual productivity** and, as a result, a **reduction in running production costs**.

■ Robust design

Handheld tools from AMT are designed for rugged industrial applications. The polyamide hand grip has a high proportion of fiberglass and the motor housing is made from high-strength polyurethane. Both motor and gearbox are configured for long-life operation. This robust design leads to an **increase in lifetime** and, as a result, a **minimum in maintenance costs**.

■ New functions

- reverse ring with additional, user-defined switch function (e.g. NOT OK status, program continue switch, etc.)
- additional LED for expanded display functions (e.g. NOT OK status, release)
- electronics with integrated maintenance counter

■ Integrated data chip

The new handheld tools also feature an integrated data chip that stores all relevant tool data. This data can be automatically read on any AMT control, as soon as a new tool is connected to the control. Time consuming and tedious parameter definitions become a thing of the past. The data chip also stores the number of executed fastening cycles. This allows for the development of individualized service intervals, in line with preventive maintenance.

■ Safeguarding the fastening process

All handheld tools have reaction torque sensors, in addition to gathering rotation angle data from the resolver. As a result, fastening processes are performed with maximum precision and consistent quality. While recording the rotation angle, the control monitors whether or not the specified torque is actually being applied to the fastened assembly. In addition, the tool's current consumption, equivalent to the torque, is used as a redundant control variable in all AMT controls. By doing this, all requirements for safe, reliable, and high quality fastened assemblies are met.

■ Integrated barcode reader (AMT patent)

Prior to fastening, part ID is frequently checked with a barcode reader. Based on the part number, the correct fastening program is then retrieved from the nutrunner control. Upon successful completion, the part number and fastening data can then be stored in a quality database. The use of a separate barcode reader to scan a barcode is, however, a time-consuming process. AMT, therefore, integrated the barcode reader into the spindle. As a result, scanning and fastening can take place in one step. The resulting reduction in cycle time leads to a reduction in assembly cost.

■ Integrated ultrasonic transmitter

By using an ultrasonic triangulation system, tightening data can be allocated correctly to the individual tightening points. Preset process sequences, automatic selection of tightening parameters and quality statements after processing of the complete contents result in an extended process security.

Handheld Tools

Pistol-Grip Nutrunner PCX Reaction Torque Sensor

H 1.1.1

■ Technical Data

Size 1
up to 25 Nm



Designation code:

PCX1013ZV38

PCX = Pistol-grip nutrunner, brushless driving motor with a linear Hall sensor

1 = Size 1

03 = Capacity of nutrunner in Nm

Z = Centric design

V = Square drive

H = Hexagon socket

38 = Square drive with cylindrical spring pin
3/8", 1/2", 3/4"

	Max. torque capacity in Nm*	Torque range Nm	Type	Max. idle speed rpm	Length mm	Drive	Weight kg	Ident-No.
Sz.1	13	3-11	PCX1013ZV38	1481	210	■ 3/8"	1,0	7900226
	13	3-11	PCX1013ZH14	1481	223	● 1/4"	1,0	7900242
	25	5-22	PCX1025ZV38	772	210	■ 3/8"	1,0	7900227

* Depending on the tightening operation / cycle time, the max. run down torque must be a maximum of 90% of the stated capacity.

Accessories

Type	Ident-No.
Serial barcode scanner	7006513
Adaption scanner	70000140
Suspension horizontal or vertical	70000139

Set of cables,
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Handheld Nutrunner HCX

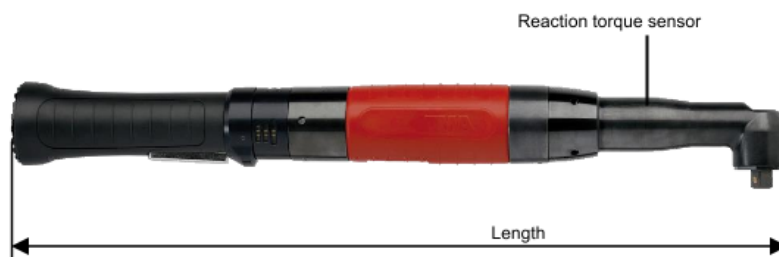
H 1.1.2

Reaction Torque Sensor

■ Technical Data

Size 1
up to 105 Nm

Size 2
up to 250 Nm



Designation code:

HCX1039WV38

HCX = Hand-held tool, brushless driving motor with a linear Hall sensor

1 = Size 1,2

039 = Capacity x 10 in Nm

W = Angle drive

V = Square drive

38 = Square drive with cylindrical spring pin
3/8", 1/2", 3/4"

	Max. torque capacity in Nm*	Torque range Nm	Type	Max. idle speed rpm	Length mm	Angle head Ø in mm	Drive □	Weight kg	Ident-No.
Size 1	15	6 - 13	HCX1015WV14	1535	438	23	1/4"	1,3	790 0174
	25	7 - 22	HCX1025WV38	1367	440	28	3/8"	1,4	790 0175
	32	8 - 28	HCX1032WV38	1367	442	31	3/8"	1,4	790 0176
	39	10 - 35	HCX1039WV38	977	445	33	3/8"	1,5	790 0177
	64	16 - 57	HCX1064WV38	660	457	38	3/8"	1,6	790 0178
	100	27 - 94	HCX1100WV12	398	523	48	1/2"	2,5	790 0215
Size 2	100	25 - 90	HCX2100WV12	569	542	41	1/2"	3	790 0204
	150	38 - 136	HCX2150WV12	322	568	51	1/2"	3,3	790 0205
	200	52 - 186	HCX2200WV34	236	578	66	3/4"	3,8	790 0206
	250	63 - 225	HCX2250WV34	197	587	74	3/4"	4,1	790 0207

* Depending on the tightening operation / cycle time, the max. run down torque must be a maximum of 90% of the stated capacity.

Set of cables,
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Handheld Tools

Angle Nutrunner HCR

H 1.1.3

Action Torque Sensor in the Angle Head

■ Technical Data

Size 1 up to 60 Nm	Size 2 up to 83 Nm	Size 3 up to 250 Nm
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Designation code:

HCR102A HWD1238-30

HCR = Hand-held tool, brushless driving motor, Resolver
 1 = Size 1, 2, 3
 02 = Capacity x 10 in Nm
 A = Adaption for angle head, with action torque sensor

H = Hand-held tool subassembly
 W = Angle drive
 D = Action torque sensor / digital
 1 = Size 1, 2, 3
 2 = Transmission (0 = Special drive)
 38 = Square drive with cylindrical spring pin 3/8", 1/2", 3/4"
 30 = Nominal torque of the torque sensor

	Max. torque capacity in Nm*	Torque range Nm	Type	Max. idle speed rpm	Length mm	Angle head Ø in mm	Drive □	Weight kg	Ident-No.
Size 1	16	4 - 14	HCR101A HWD1238-30	1139	398	34	3/8"	2,2	790 0011
	30	6 - 27	HCR102A HWD1238-30	593	398	34	3/8"	2,2	790 0012
	39	8 - 35	HCR103A HWD1238-40	454	397	36	3/8"	2,3	790 0013
	60	12 - 54	HCR103A HWD1338-60	295	408	46	3/8"	2,5	790 0014
Size 2	49	10 - 44	HCR204A HWD2138-50	710	423	41	3/8"	2,8	790 0015
	62	13 - 55	HCR204A HWD2238-63	568	425	41	3/8"		790 0016
	83	18 - 74	HCR204A HWD2312-100	426	429	54	1/2"	3,1	790 0017
Size 3	100	20 - 90	HCR311A HWD3112-100	402	503	49	1/2"		790 0018
	150	30 - 135	HCR311A HWD3212-150	259	508	61	1/2"	5,2	790 0019
	200	40 - 180	HCR313A HWD3234-200	213	510	64	3/4"		790 0020
	250	50 - 225	HCR313A HWD3334-250	178	513	70	3/4"		790 0021

* Depending on the tightening operation / cycle time, the max. run down torque must be a maximum of 90% of the stated capacity.

Set of cables,
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Scratch / Collision Guard for Handheld Tools HCX and HCR

H 1.2

■ Scratch Guard, PUR Material for Angle Nutrunner HCX

Developed for use with safety-related technical parts.



	Spindle Type	Wall thickness in mm	Scratch guard Ident-No.
Sz. 1	HCX1015WV14	3	701 7743
	HCX1025WV38	3	701 7744
	HCX1032WV38	3	701 7745
	HCX1039WV38	3	701 7746
	HCX1064WV38	3	701 7769

Note:

On request available for other types.

■ Collision Guard Leather Material with Foam Lining for Angle Nutrunner HCR

Developed for use with safety-related technical parts.



	Spindle Type	Wall thickness in mm	Collision guard Ident-No.
Sz. 3	HCR313D140HW3334	10	742 6839

Note:

On request available for other types.

Handheld Tools

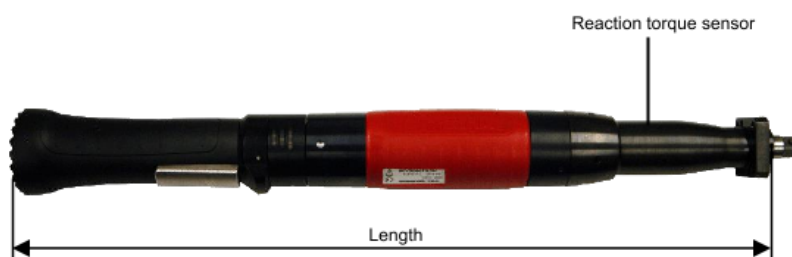
Straight Nutrunner HCX with Square Drive Reaction Torque Sensor

H 1.3.1

■ Technical Data

Size 1
up to 40 Nm

Size 2
up to 131 Nm



Designation code:

HCX1040ZV38

HCX = Hand-held tool, brushless driving motor with a linear Hall sensor

1 = Size 1,2

040 = Capacity of motor x 10 in Nm

Z = Centric drive

V = Square drive

38 = Square drive with cylindrical spring pin
3/8", 1/2", 3/4"

	Max. torque capacity in Nm	Torque range	Type	Max. idle speed rpm	Length	Drive	Weight kg	Ident-No.
Sz. 1	19	4 - 17	HCX1019ZV38	2388	414	3/8"	1,4	790 0179
	26	6 - 23	HCX1026ZV38	1777	414	3/8"	1,4	790 0180
	30	6 - 27	HCX1030ZV38	1466	414	3/8"	1,4	790 0181
	40	8 - 36	HCX1040ZV38	1122	418	3/8"	1,5	790 0182
Sz. 2	87	18 - 78	HCX2087ZV12	759	504	1/2"	2,7	790 0208
	131	27 - 117	HCX2131ZV12	506	508	1/2"	2,7	790 0209

* Depending on the tightening operation / cycle time, the max. run down torque must be a maximum of 90% of the stated capacity.

Set of cables,
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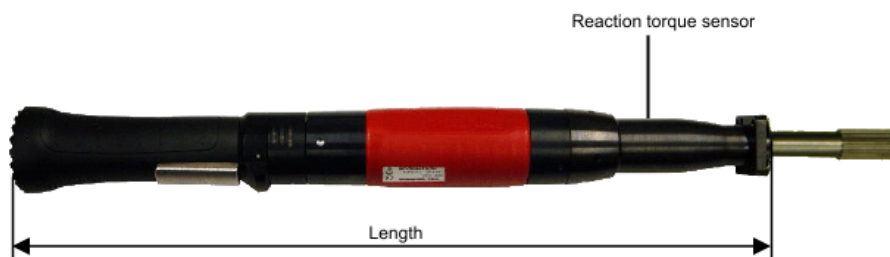
Straight Nutrunner HCX with Spring Travel Reaction Torque Sensor

H 1.3.2

■ Technical Data

Size 1
up to 40 Nm

Size 2
up to 131 Nm



Designation code:

HCX1040ZF50

HCX = Hand-held tool, brushless driving motor
with a linear Hall sensor

1 = Size 1,2

040 = Capacity of motor x 10 in Nm

Z = Centric drive

F = Spring travel

50 = Spring travel 50mm

	Max. torque capacity in Nm	Torque range	Type	Max. idle speed rpm	Length mm	Spring travel mm	Weight kg	Ident-No.
Sz. 1	19	4 - 17	HCX1019ZF50	2388	414	50	1,5	790 0187
	26	6 - 23	HCX1026ZF50	1777	414	50	1,5	790 0188
	30	6 - 27	HCX1030ZF50	1466	414	50	1,5	790 0189
	40	8 - 36	HCX1040ZF50	1122	418	50	1,5	790 0190
Sz. 2	87	18 - 78	HCX2087ZF50	759	504	50	2,8	790 0210
	131	27 - 117	HCX2131ZF50	506	508	50	2,8	790 0211

* Depending on the tightening operation / cycle time, the max. run down torque must be a maximum of 90% of the stated capacity.

Set of cables,
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Socket adaptors,
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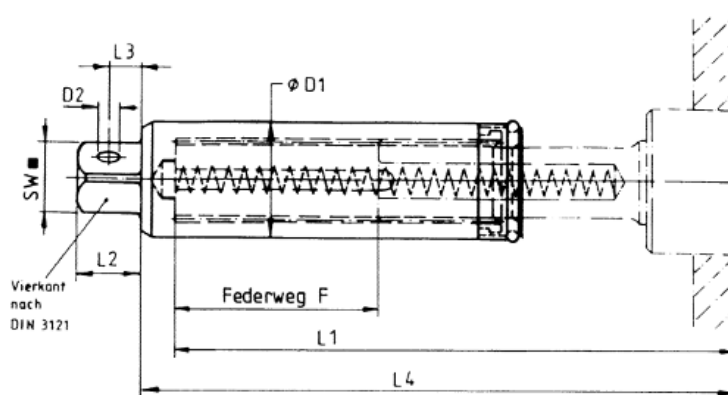
Handheld Tools


Socket Adaptors for Straight Nutrunners

H 1.4

Socket Adaptors with 50mm Spring Travel and External Square Drive

■ Technical Data



	Socket type	Suitable for type	Drive 	Spring travel mm	Spring resistance min/max Nm	D1 mm	D2 mm	L1 mm	L2 mm	L3 mm	L4 mm	Max. Md Nm	Ident-No.
Sz. 1	SK-1	HCX1019ZF50	3/8"	50	12 - 30	22	3,5	142	10,4	5,5	149	63	700 2230
	SK-1	HCX1026ZF50	3/8"	50	12 - 30	22	3,5	142	10,4	5,5	149	63	700 2230
	SK-1	HCX1030ZF50	3/8"	50	12 - 30	22	3,5	142	10,4	5,5	149	63	700 2230
	SK-1	HCX1040ZF50	3/8"	50	12 - 30	22	3,5	142	10,4	5,5	149	63	700 2230
Sz. 2	SK-2	HCX2087ZF50	1/2"	50	20 - 40	28	4,3	151	15,5	8,0	165	165	700 2049
	SK-2	HCX2131ZF50	1/2"	50	20 - 40	28	4,3	151	15,5	8,0	165	165	700 2049

Set of cables

H 1.5

Tool cables for hand-held tools

■ Tool Cable for HCX and PCX, straight



Designation	Length	Ident-No
Tool cable	3 Meter	701 8003
Tool cable	5 Meter	701 8005
Tool cable	7 Meter	701 8007
Tool cable	10 Meter	701 8010
Tool cable	15 Meter	701 8015

■ Tool Cable for HCX and PCX, straight, turnable by 330°



Designation	Length	Ident-No
Tool cable	3 Meter	701 8103
Tool cable	5 Meter	701 8105
Tool cable	7 Meter	701 8107
Tool cable	10 Meter	701 8110
Tool cable	15 Meter	701 8115

■ Tool Cable for HCX and PCX, angled by 90°, turnable by 330°



Designation	Length	Ident-No
Tool cable	3 Meter	701 8203
Tool cable	5 Meter	701 8205
Tool cable	7 Meter	701 8207
Tool cable	10 Meter	701 8210
Tool cable	15 Meter	701 8215

■ Straight Tool Cable for Angle Nutrunner HCR



Designation	Length	Ident-No
Tool cable	3 Meter	701 6703
Tool cable	5 Meter	701 6705
Tool cable	7 Meter	701 6707
Tool cable	10 Meter	701 6710
Tool cable	15 Meter	701 6715

Note:

Extension cables can be supplied to customer's requirements.
The total length of a tool cable must not exceed 50 meters.