

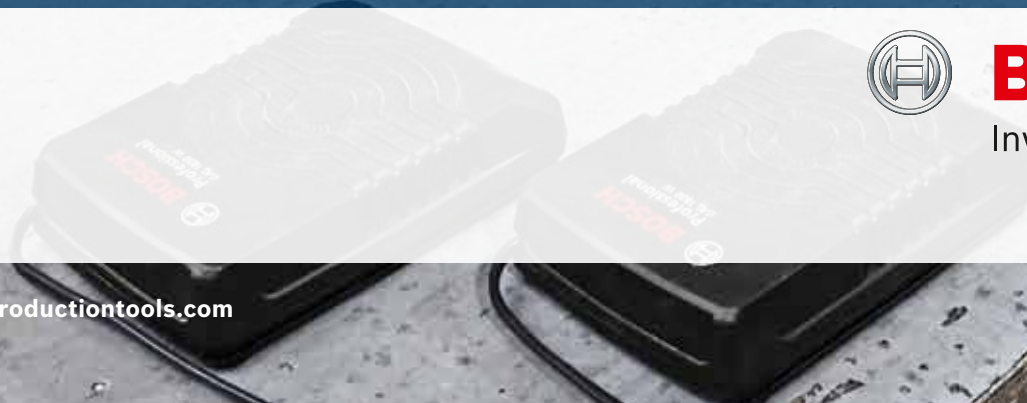
**World's  
first!**

The first battery  
with Wireless  
Charging System



# EXACT

Cordless and electric screwdrivers for industry



**BOSCH**

Invented for life

[www.boschproductiontools.com](http://www.boschproductiontools.com)



# Cordless and electric screwdrivers for industry



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# Big in performance, compact in size

E	X	A	C	T
Ergonomic	EXtremely Light	Accurate	Cmk proven	Tool



The **EXACT** and **ANGLE EXACT** tools from BOSCH are cordless shut-off screwdrivers for industry – offering the greatest accuracy, longevity and energy efficiency.

In assembly situations where cables or pneumatic hoses get in the way, the **EXACT** series enables you to optimise processes, build better products and reduce your costs.

- ▶ **Bright LED light** for illuminating the work area
- ▶ **Coloured marking rings** for easy identification
- ▶ **Right-hand/left-hand rotation change** with one hand
- ▶ **Repeat protection**
- ▶ **Low weight, balanced weight distribution** for better ergonomics
- ▶ **Industrial battery design** for longest lifetime
- ▶ **Torque setting** only with a special tool
- ▶ **Highest repeatability** due to Bosch clutch design
- ▶ **Easy service** due to plug connectors and common parts
- ▶ **Bosch SEC motor:** brushless motor technology
- ▶ **Visual and audible signals** provide information about battery status and screwdriving quality
- ▶ **Cordless quality control** with the Bosch Bluetooth wireless system

## CE Conformity

All electric, measuring and air tools in this catalogue meet the following standards:

EN 60745, EN 50144, EN 61029, EN 60335-1, EN 60825-1 or EN 792 or ISO EN 11148 (depending on model), EN 55014, EN 61000-3-2, -3-3 or -3-11 in accordance with EU directives 2011/65/EU, 2006/95/EC, 2006/42/EC, 2004/108/EC, 1999/5/EC.



Management Service

**Certified  
to  
ISO 9001**

**Certificate registration no.:  
12 100 36537/03 TMS**





# 1

## C-EXACT Production screwdrivers



# Hopefully, you will not run out of screws

C-EXACT and PUC-EXACT. The production screwdriver system from Bosch.  
The new C-EXACT electric screwdrivers offer much more than just a robust housing.  
High accuracy and repeatability are guaranteed, even after driving 1 million\* screws.



\* according to Bosch endurance tests

# Never lets you down even after 1 million screws

## Robust, efficient and user-friendly

Low-voltage operation, brushless EC motor technology and key components from the EXACT cordless screwdriver series make the C-EXACT electric screwdrivers cost-effective tools with innovative performance features. When required, the clutch offers 15% more torque in left-hand rotation for loosening screws. The clutch is adjusted using a special tool. If the adjustment tool is stored in a location inaccessible to the user, the torque cannot be adjusted unintentionally. Colour marking rings enable quick identification of different screwdrivers in the assembly line.

## Precise and stable under load

Whether assembling computer drives, electronics or precision mechanical equipment, the C-EXACT is the right choice when precision is what matters most.

Bosch quality testing for the C-EXACT family is extremely rigorous. In endurance testing, the C-EXACT tools must survive 1 million\* cycles without failure before being released for production. During continuous operation, they must maintain an ISO 5393 standard Cmk value greater than 1.67 with a tolerance of  $\pm 10\%$ .

Our production tools are therefore among the most accurate on the planet.

## C-EXACT electric screwdrivers

The C-EXACT screwdrivers are the first in a family of electric straight screwdrivers. They are equipped with a combination of great features and therefore set new standards for accuracy and longevity.

- ▶ Brushless EC motor technology
- ▶ Right-hand/left-hand rotation change with one hand
- ▶ ESD (ElectroStatic Discharge) compliant

## PUC-EXACT power supplies

The C-EXACT electric screwdrivers use the PUC-EXACT power supply unit as a clean, silent energy source for the brushless EC motor.

The power supply unit contributes to a reduction in operating costs by efficiently supplying the tool with low voltage.

The electric screwdrivers in the C-EXACT series (electric screwdrivers with 3.5 Nm or 31 in/lbs of maximum torque) are available as a lever start or push start driver.

The PUC-EXACT power supply safely generates the low-voltage electricity needed for efficient operation.



\* according to Bosch endurance tests









ElectroStatic Discharge (ESD) compliant means the screwdriving system is ideal for use in the electronics and electrical industries.




# C-EXACT

## Electric screwdrivers

- ▶ Bosch proves robustness and longevity by means of endurance tests with over one million work cycles
- ▶ Bosch SEC motor  
All models feature brushless EC motor technology
- ▶ High shut-off accuracy with very low tolerance
- ▶ Large torque range
- ▶ Visual and audible shut-off signals

	Part number	Torque, hard as per ISO 5393 (Nm)	Torque, soft as per ISO 5393 (Nm)
<b>Electric screwdrivers C-EXACT 1</b> 	0 602 495 202	0.2 – 0.8	0.2 – 0.8
	0 602 495 207	0.2 – 0.8	0.2 – 0.8
<b>Electric screwdrivers C-EXACT 2</b> 	0 602 495 203	0.5 – 2	0.5 – 2
	0 602 495 208	0.5 – 2	0.5 – 2
<b>Electric screwdrivers C-EXACT 4</b> 	0 602 495 200	0.5 – 3.5	0.5 – 3.5
	0 602 495 205	0.5 – 3.5	0.5 – 3.5

- ▶ Robust and durable design
- ▶ Indicators for operational readiness and overload
- ▶ Available with connections for 1 – 3 screwdrivers simultaneously
- ▶ Temperature-controlled cooling fan

	Part number	Input voltage (V)	Input frequency (Hz)
<b>Power supply PUC-EXACT 3</b>	0 602 495 003	100 – 240 AC	50 – 60

No-load speed (rpm)	Voltage (V)	Power (W)	Direction of rotation	Weight as per EPTA (kg)	Features and functions	Included accessories
1,000	36 DC	360	R/L	0.65	Lever start	Connecting cable 2.5 m Suspension hook Green colour ring Torque adjustment tool
1,000	36 DC	360	R/L	0.65	Push start	
500	36 DC	360	R/L	0.65	Lever start	Connecting cable 2.5 m Suspension hook White colour ring Torque adjustment tool
500	36 DC	360	R/L	0.65	Push start	
1,000	36 DC	360	R/L	0.65	Lever start	Connecting cable 2.5 m Suspension hook Grey colour ring Torque adjustment tool
1,000	36 DC	360	R/L	0.65	Push start	

Power input (W)	Output voltage (V)	Features and functions	Included accessories
400	36 DC	Power supply for up to three C-EXACT tools	Power cable 3 m



2

## EXACT ION and ANGLE EXACT ION

Now with lithium-ion technology



## Better than ever before!

### With Bosch Premium lithium-ion technology and Wireless Charging

The handy Bosch cordless shut-off screwdrivers in the EXACT range are now more powerful and efficient than ever before.

Enabling the highest repeatability, they are especially suitable for driving rows of screws and completing assembly applications with maximum performance whilst meeting very high quality demands. Thanks to Bosch lithium-ion battery technology, they deliver maximum power for high torques and speeds. They are also extremely resilient with minimal energy loss, so they additionally reduce your costs with their superior lifetime. Their low weight of only 1.3 kg (EXACT ION) also ensures impressively comfortable working in shift operations.

Now also with:





# WORLD'S FIRST: Wireless Charging

## Always power ready



- ▶ Just put the cordless tool down and the battery will charge.
- ▶ Your tool is always ready to use with only one battery.
- ▶ You save time and the extra costs for a second battery to alternate with.
- ▶ The worldwide unique Bosch Wireless Charging System consists of the charging station and a special battery.



### Greater user-friendliness and productivity:

- ▶ Batteries can stay in the tool
- ▶ Charging takes place automatically when the tool is placed on the charger, so it requires no effort
- ▶ Flexible mounting frame on the charger allows for a wide range of ergonomic positions – easy to mount at the workplace



### Complete flexibility:

Wireless Charging battery GBA (18 V 2.0 Ah MW-B) is compatible with all 18 volt Bosch cordless tools

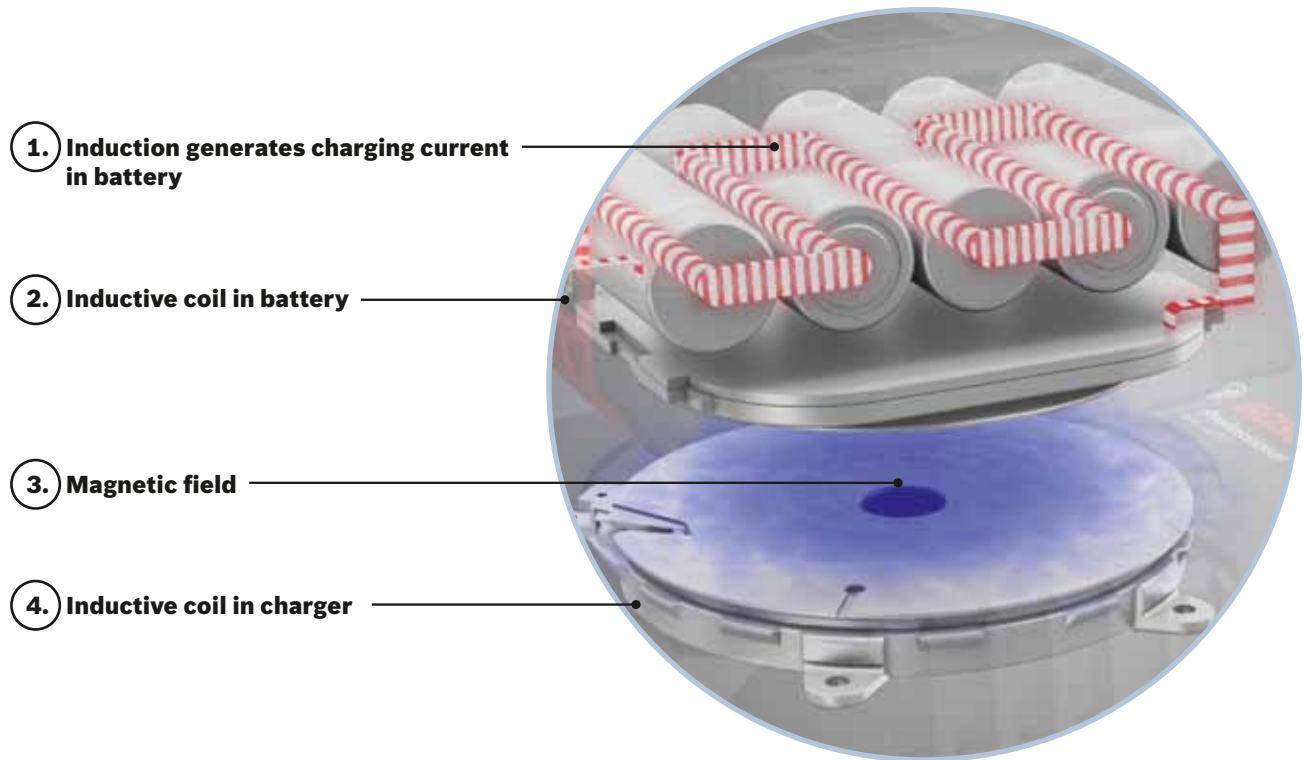


### Very robust charging station:


No contact points and durable against water, dust and dirt








## Wireless Charging packs of 5

Pack of 5 chargers	Part number	Description	Voltage (V)	Weight as per EPTA (kg)
<b>GAL 1830 W Professional + mounting frame</b> 	0 602 494 024	Pack of 5 chargers	230	5 x 0.55

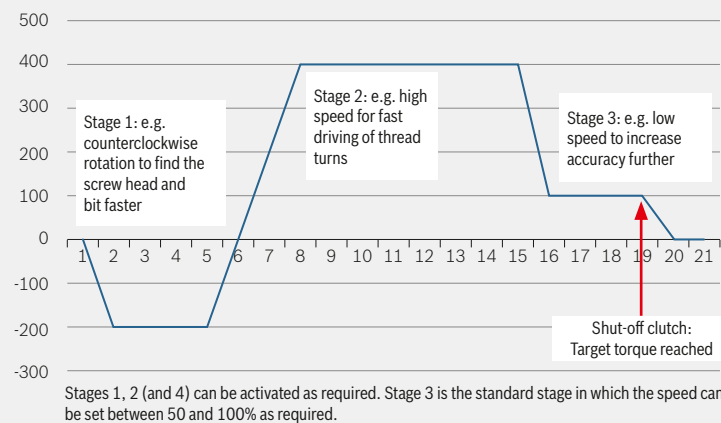
Pack of 5 batteries	Part number	Description	Voltage (V)	Capacity (Ah)	Weight as per EPTA (kg)
<b>GBA 18 V 2,0 Ah MW-B Professional</b> 	0 602 494 021	Pack of 5 batteries	18	2.0	5 x 0.5

# EXACT ION and ANGLE EXACT ION

## Now with lithium-ion technology



Multi-stage screwdriving process



### Greater process reliability:

- Precision shut-off clutch with  $C_{mk} > 1.67$  (at a tolerance of  $\pm 10\%$  in accordance with ISO 5393)
- **NEW!** Multi-stage screwdriving process, adjustable to your individual application via USB interface

### Greater efficiency:

- **NEW!** Bosch Premium lithium-ion technology for long lifetime and runtime
- **NEW!** Brushless (EC) motor for 30% more efficiency (compared to conventional DC motors) and extremely long lifetime

### Greater comfort:

- **NEW!** New ergonomic design and lower weight for even more comfortable working

### Lower costs:

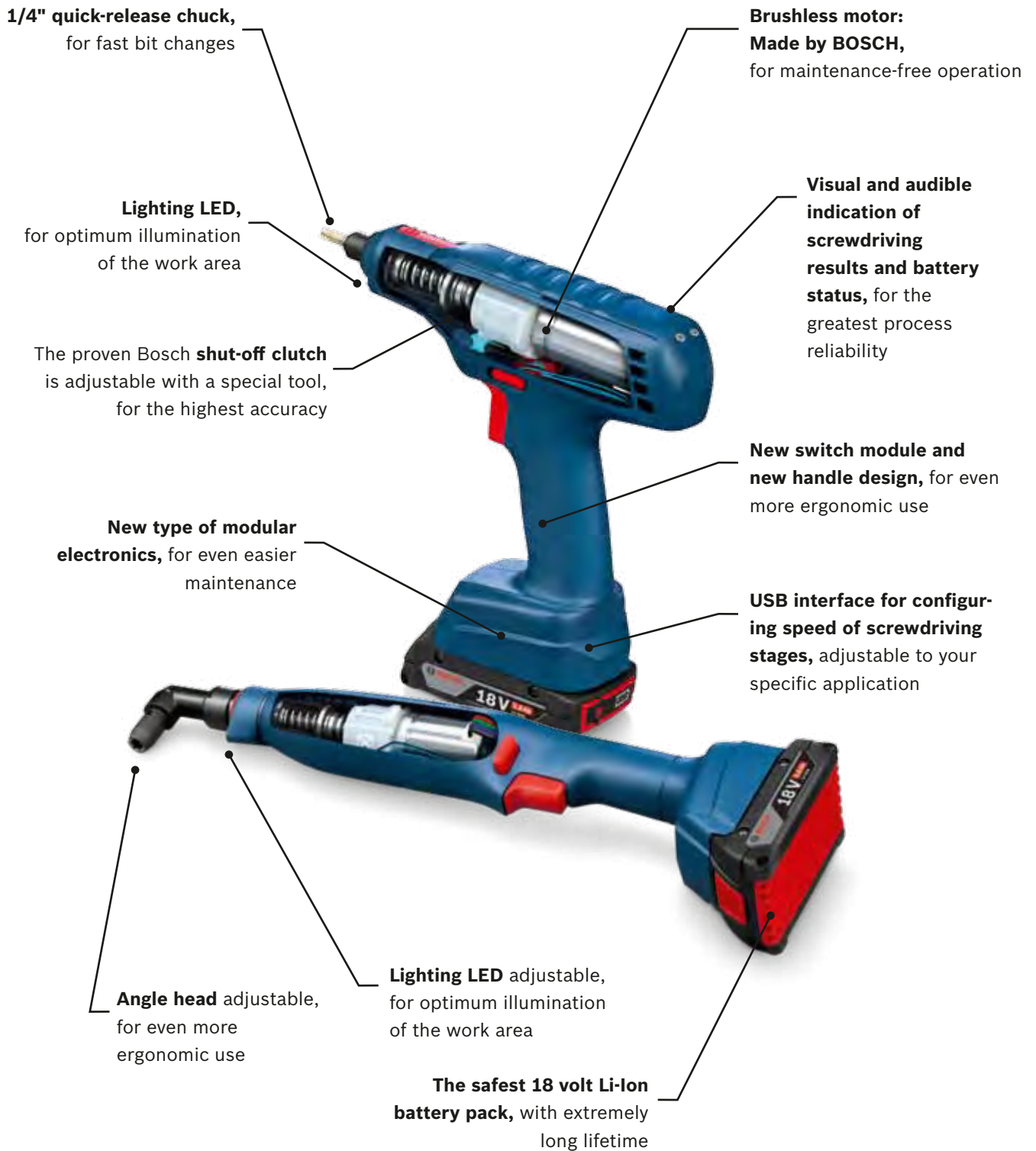
- **NEW!** Higher rotational speeds (compared to SEC-EXACT) and the screwdriving stages reduce production times and improve quality



### Flexible Power System



- ▶ **Patented new interface**, to prevent mix-ups
- ▶ **Temperature monitoring and overload protection**, for extremely long lifetime
- ▶ **Double locking**, to prevent falling out
- ▶ **Charge level indicator**, to identify the charging state
- ▶ **Bosch high-performance battery cells**, with low energy loss, for the highest speeds and torques
- ▶ **Integrated cooling**, for extremely long lifetime

















# EXACT ION

## Now with lithium-ion technology

- ▶ Precision shut-off clutch with  $C_{mk} > 1.67$  (at a tolerance of  $\pm 10\%$  in accordance with ISO 5393)
- ▶ Multi-stage screwdriving process, adjustable to your individual application via USB interface
- ▶ Bosch Premium lithium-ion technology for long lifetime and runtime
- ▶ Brushless (EC) motor for 30% more efficiency (compared to conventional DC motors) and extremely long lifetime
- ▶ New ergonomic design and lower weight for even more comfortable working
- ▶ Higher rotational speeds (compared to SEC-EXACT) and the screwdriving stages reduce production times and improve quality

	Part number	Torque, hard / soft as per ISO 5393 (Nm)	Speed (no-load)
<b>EXACT ION 2-700</b> 	0 602 494 400	0.5 – 2	350 – 700 (min. 70)
<b>EXACT ION 4-2000</b> 	0 602 494 401	1 – 4	1,000 – 2,000 (min. 200)
<b>EXACT ION 6-1500</b> 	0 602 494 402	1 – 6	750 – 1,500 (min. 150)
<b>EXACT ION 8-1100</b> 	0 602 494 403	1.5 – 8	550 – 1,100 (min. 110)
<b>EXACT ION 12-700</b> 	0 602 494 404	1.5 – 12	350 – 700 (min. 70)
<b>EXACT ION 12-450</b> 	0 602 494 405	1.5 – 12	225 – 450 (min. 45)





Bit holder	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Included accessories
1/4" quick-release chuck	18 V/2.0 Ah *  possible	R/L	1.3 (including battery)	Light green colour ring Torque adjustment tool Suspension hook
1/4" quick-release chuck	18 V/2.0 Ah *  possible	R/L	1.3 (including battery)	Grey colour ring Torque adjustment tool Suspension hook
1/4" quick-release chuck	18 V/2.0 Ah *  possible	R/L	1.3 (including battery)	Black colour ring Torque adjustment tool Suspension hook
1/4" quick-release chuck	18 V/2.0 Ah *  possible	R/L	1.3 (including battery)	Orange colour ring Torque adjustment tool Suspension hook
1/4" quick-release chuck	18 V/2.0 Ah *  possible	R/L	1.3 (including battery)	Red colour ring Torque adjustment tool Suspension hook
1/4" quick-release chuck	18 V/2.0 Ah *  possible	R/L	1.3 (including battery)	Black colour ring Torque adjustment tool Suspension hook

\* Battery not included  
in scope of delivery

# EXACT ION WK

## Now with lithium-ion technology

- ▶ Precision shut-off clutch with  $C_{mk} > 1.67$  (at a tolerance of  $\pm 10\%$  in accordance with ISO 5393)
- ▶ Multi-stage screwdriving process, adjustable to your individual application via USB interface
- ▶ Bosch Premium lithium-ion technology for long lifetime and runtime
- ▶ Brushless (EC) motor for 30% more efficiency (compared to conventional DC motors) and extremely long lifetime
- ▶ New ergonomic design and lower weight for even more comfortable working
- ▶ Higher rotational speeds (compared to SEC-EXACT) and the screwdriving stages reduce production times and improve quality

	Part number	Torque, hard / soft as per ISO 5393 (Nm)*	Speed (no-load)*
<b>EXACT ION 6-1500 WK</b> 	0 602 494 406	2 – 8	525 – 1050 (min. 105)
<b>EXACT ION 8-1100 WK</b> 	0 602 494 407	2 – 11	375 – 750 (min. 75)
<b>EXACT ION 12-700 WK</b> 	0 602 494 408	2 – 16	250 – 500 (min. 50)
<b>EXACT ION 12-450 WK</b> 	0 602 494 409	2 – 16	160 – 320 (min. 32)

\* measured with Bosch angle screwdriving head



Bit holder	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Included accessories
Flange for angle head **	18 V/2.0 Ah ***  possible	R/L	1.4 (including battery)	Black colour ring Torque adjustment tool Suspension hook
Flange for angle head **	18 V/2.0 Ah ***  possible	R/L	1.4 (including battery)	Orange colour ring Torque adjustment tool Suspension hook
Flange for angle head **	18 V/2.0 Ah ***  possible	R/L	1.4 (including battery)	Red colour ring Torque adjustment tool Suspension hook
Flange for angle head **	18 V/2.0 Ah ***  possible	R/L	1.4 (including battery)	Light blue colour ring Torque adjustment tool Suspension hook

\*\* Angle head not included in scope of delivery











\*\*\* Battery not included in scope of delivery

# ANGLE EXACT ION

## Now with lithium-ion technology

- Precision shut-off clutch with  $C_{mk} > 1.67$  (at a tolerance of  $\pm 10\%$  in accordance with ISO 5393)
- Multi-stage screwdriving process, adjustable to your individual application via USB interface
- Bosch Premium lithium-ion technology for long lifetime and runtime
- Brushless (EC) motor for 30% more efficiency (compared to conventional DC motors) and extremely long lifetime
- New ergonomic design and lower weight for even more comfortable working
- Higher rotational speeds (compared to SEC-EXACT) and the screwdriving stages reduce production times and improve quality

	Part number	Torque, hard/soft as per ISO 5393 (Nm)	Speed (no-load)
<b>ANGLE EXACT ION 8-1100</b> 	0 602 494 600	2 – 8	550 – 1,100 (min. 110)
<b>ANGLE EXACT ION 15-500</b> 	0 602 494 601	2 – 15	260 – 520 (min. 52)
	0 602 494 60A	2 – 15	260 – 520 (min. 52)
<b>ANGLE EXACT ION 23-380</b> 	0 602 494 602	10 – 23	190 – 380 (min. 38)
<b>ANGLE EXACT ION 30-290</b> 	0 602 494 607	10 – 30	145 – 290 (min. 29)
	0 602 494 60B	10 – 30	145 – 290 (min. 29)
<b>ANGLE EXACT ION 30-300</b> 	0 602 494 603	10 – 30	150 – 300 (min. 30)
<b>ANGLE EXACT ION 40-220</b> 	0 602 494 604	15 – 40	110 – 220 (min. 22)
<b>ANGLE EXACT ION 50-210</b> 	0 602 494 605	15 – 50	90 – 180 (min. 18)
<b>ANGLE EXACT ION 60-120</b> 	0 602 494 606	15 – 60	60 – 120 (min. 12)

Bit holder	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Included accessories
Flange for angle head*	18 V/2.0 Ah **  possible	R/L	1.7 (including battery)	Light blue colour ring Torque adjustment tool Suspension hook
Flange for angle head*	18 V/2.0 Ah **  possible	R/L	1.7 (including battery)	Light green colour ring Torque adjustment tool Suspension hook
3/8" square	18 V/2.0 Ah **  possible	R/L	1.7 (including battery)	Light green colour ring Torque adjustment tool Suspension hook Angle screwdriving head 3/8"
Flange for angle head*	18 V/4.0 Ah **  possible	R/L	2.2 (including battery)	White colour ring Torque adjustment tool Suspension hook
Flange for angle head*	18 V/4.0 Ah **  possible	R/L	2.2 (including battery)	Grey colour ring Torque adjustment tool Suspension hook
3/8" square	18 V/4.0 Ah **  possible	R/L	2.2 (including battery)	Grey colour ring Torque adjustment tool Suspension hook Angle screwdriving head 3/8"
3/8" square	18 V/4.0 Ah **  possible	R/L	2.4 (including battery)	Light grey colour ring Torque adjustment tool Suspension hook Angle screwdriving head 3/8"
3/8" square	18 V/4.0 Ah **  possible	R/L	2.4 (including battery)	Orange colour ring Torque adjustment tool Suspension hook Angle screwdriving head 3/8"
3/8" square	18 V/4.0 Ah **  possible	R/L	2.4 (including battery)	Red colour ring Torque adjustment tool Suspension hook Angle screwdriving head 3/8"
3/8" square	18 V/4.0 Ah **  possible	R/L	2.4 (including battery)	Black colour ring Torque adjustment tool Suspension hook Angle screwdriving head 3/8"

\* Angle head not included in scope of delivery

\*\* Battery not included in scope of delivery

# 3

## SEC-EXACT – Brushless motor and conventional battery technology





## The **SEC-EXACT**

Time and cost advantages guaranteed with the SEC motor from Bosch

A greater degree of efficiency was the main aim when developing the series of Bosch production cordless screwdrivers with SEC motor. This sensorless and brushless motor technology once again sets the standard: the lowest energy consumption, lowest weight and highest levels of torque and speed. In addition to this, we were also able to increase the accuracy even further.



# Faster and lighter, longer lifetime and higher accuracy

The Bosch cordless screwdrivers in the SEC series make the assembly process faster, safer and more accurate. Shut-off is better than ever thanks to our patented SEC motors. SEC-EXACT is therefore one of the most accurate cordless screwdrivers that Bosch manufactures. Making the best clutch in the world better was not easy, but we know you expect nothing less from the world's leading manufacturer of battery-operated assembly tools.

## **Bosch SEC-EXACT cordless screwdrivers improve your productivity.**

The cordless screwdrivers in the SEC-EXACT series provide a 50 to 100% speed increase over the EXACT range. Couple that with a weight reduction in select models that provides a 70% better power-to-weight ratio, and your productivity is sure to improve. For example, the new SEC-EXACT 412 weighs 300 grams less than the EXACT 12. This weight reduction was achieved by using the 9.6 V battery pack in the entire SEC range.

The Bosch SEC motor has no brushes to wear out. But the most important feature is that this technology developed and patented by Bosch does not need a sensor to detect rotor speed and position! This provides a very efficient, wear-free motor system compared to all other brushless motors. Bosch developed and manufactures this 3-phase, brushless and sensorless motor in Europe, thus ensuring the highest quality standards are met and maintained.

## **To sum it all up in a word: SEC = M<sup>2</sup>!**

- ▶ Faster line speeds and shorter screwdriving cycles thanks to speed increases of up to 100%
- ▶ Improved ergonomics, weight and reaction torque translates into satisfied, productive workers who like using the SEC-EXACT screwdrivers
- ▶ Reduced lifecycle costs due to wear-free components
- ▶ Bosch SEC motors are the most efficient, durable and economical motors of their type in the world

# SEC = M<sup>2</sup>\*

\* M<sup>2</sup> = The faster, more efficient  
and more economical Bosch motor!



**Brushless, sensorless  
Bosch SEC motor**  
Developed, patented and  
manufactured by Bosch in Europe

**Plug-in connectors  
for all electrical lines**  
For easy servicing  
when needed

**Non-contact right-hand/left-hand  
rotation switch**  
Wear-free components

**Integrated switch and  
electronics module**  
Non-contact components are  
wear-free and overload protected

**Battery pack contacts**  
Separately replaceable

# SEC-EXACT

## Cordless centre grip screwdrivers

### Cordless centre grip screwdrivers SEC-EXACT

- ▶ Highest repeatability:  
Cmk ≥ 2.0  
Reduction in reaction torques
- ▶ Lowest weight in their class: using the 9.6 volt battery pack in the new series leads to a weight reduction of up to 300 grams!
- ▶ Large speed range of the entire series
- ▶ Large torque range
- ▶ Illumination of the work area
- ▶ Overload protection for electronics, motor and battery pack
- ▶ Best ergonomics: compact and very well balanced. One-handed operation for on/off and left-hand/right-hand rotation
- ▶ Robust and durable screwdrivers with proven components from the EXACT series
- ▶ Proven and highly efficient battery technology in industrial quality. Existing charging technology, battery packs and protective caps can continue to be used

SEC-EXACT	Part number	Torque, hard as per ISO 5393 (Nm)	Torque, soft as per ISO 5393 (Nm)
<b>SEC-EXACT 1106</b> Highest speed for short cycle times 	0 602 492 431	1 – 6	1 – 6
	0 602 492 432	1 – 6	1 – 6
<b>SEC-EXACT 908</b> Combination of speed and torque 	0 602 492 443	2 – 8	2 – 8
	0 602 492 444	2 – 8	2 – 8
<b>SEC-EXACT 610</b> Performance and speed 	0 602 492 445	2 – 10	2 – 10
	0 602 492 446	2 – 10	2 – 10
<b>SEC-EXACT 459</b> The model for every application 	0 602 492 435	2 – 9	2 – 9
	0 602 492 436	2 – 9	2 – 9
<b>SEC-EXACT 412</b> High torque and low weight 	0 602 492 441	2 – 12	2 – 12
	0 602 492 442	2 – 12	2 – 12
<b>SEC-EXACT 402</b> Very precise in the lower torque range 	0 602 492 433	0.5 – 2	0.5 – 2
	0 602 492 434	0.5 – 2	0.5 – 2
<b>SEC-EXACT 212</b> Slow screwdriver e.g. for hose clamps 	0 602 492 439	2 – 12	2 – 12
	0 602 492 440	2 – 12	2 – 12



No-load speed (rpm)	Bit holder	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Features and functions	Included accessories
1,100	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Black colour ring
1,100	1/4"	9.6 V/1.8 Ah	R/L	1.2	0.7 s repeat protection	
900	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Orange colour ring
900	1/4"	9.6 V/1.8 Ah	R/L	1.2	0.7 s repeat protection	
600	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Grey colour ring
600	1/4"	9.6 V/1.8 Ah	R/L	1.2	0.7 s repeat protection	
450	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Light blue colour ring
450	1/4"	9.6 V/1.8 Ah	R/L	1.2	0.7 s repeat protection	
400	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Red colour ring
400	1/4"	9.6 V/1.8 Ah	R/L	1.2	0.7 s repeat protection	
400	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Light green colour ring
400	1/4"	9.6 V/1.8 Ah	R/L	1.2	0.7 s repeat protection	
275	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool White colour ring
275	1/4"	9.6 V/1.8 Ah	R/L	1.2	0.7 s repeat protection	

\* Battery not included  
in scope of delivery

# SEC-ANGLE EXACT

## Cordless angle wrenches

### Cordless angle wrenches SEC-ANGLE EXACT

- ▶ Highest repeatability:  
Cmk ≥ 2.0  
Reduction in reaction torques
- ▶ Lowest weight in their class: using the 9.6 volt battery pack in the 25 Nm class leads to a weight reduction of up to 400 grams!
- ▶ Large speed range of the entire series
- ▶ Large torque range
- ▶ Angle heads and work light adjustable for the best ergonomics
- ▶ Illumination of the work area
- ▶ Overload protection for electronics, motor and battery pack
- ▶ Best ergonomics: compact and very well balanced. One-handed operation for on/off and left-hand/right-hand rotation
- ▶ Robust and durable screwdrivers with proven components from the ANGLE EXACT series
- ▶ Proven and highly efficient battery technology in industrial quality. Existing charging technology, battery packs and protective caps can continue to be used

	Part number	Torque, hard as per ISO 5393 (Nm)	Torque, soft as per ISO 5393 (Nm)
<b>SEC-ANGLE EXACT 7-900</b> 	0 602 492 611	2 – 7	2 – 6.5
	0 602 492 612	2 – 7	2 – 6.5
<b>SEC-ANGLE EXACT 10-650</b> 	0 602 492 609	2 – 10	2 – 9
	0 602 492 610	2 – 10	2 – 9
<b>SEC-ANGLE EXACT 14-420</b> 	0 602 492 607	2 – 14	2 – 14
	0 602 492 608	2 – 14	2 – 14
<b>SEC-ANGLE EXACT 25-250</b> 	0 602 492 605	10 – 25	10 – 20
	0 602 492 606	10 – 25	10 – 20
<b>SEC-ANGLE EXACT 25-200</b> 	0 602 492 615	10 – 25	10 – 25
	0 602 492 616	10 – 25	10 – 25
<b>SEC-ANGLE EXACT 30-380</b> 	0 602 492 603	10 – 30	10 – 25
	0 602 492 604	10 – 30	10 – 25
<b>SEC-ANGLE EXACT 30-300</b> 	0 602 492 621	10 – 30	10 – 30
<b>SEC-ANGLE EXACT 40-280</b> 	0 602 492 601	10 – 40	10 – 35
	0 602 492 602	10 – 40	10 – 35
<b>SEC-ANGLE EXACT 50-210</b> 	0 602 492 613	10 – 50	10 – 45
	0 602 492 614	10 – 50	10 – 45
<b>SEC-ANGLE EXACT 60-170</b> 	0 602 492 617	15 – 60	15 – 60

No-load speed (rpm)	Angle head	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Features and functions	Included accessories
900	Flange for angle head*	9.6 V **	R/L	1.0	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Light blue colour ring
900	Flange for angle head*	9.6 V / 1.8 Ah	R/L	1.4	0.7 s repeat protection	
650	Flange for angle head*	9.6 V **	R/L	1.0	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Light green colour ring
650		9.6 V / 1.8 Ah	R/L	1.4	0.7 s repeat protection	
420	Flange for angle head*	9.6 V **	R/L	1.0	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook White colour ring
420	–	9.6 V / 1.8 Ah	R/L	1.4	0.7 s repeat protection	
245	3/8" square	9.6 V **	R/L	1.57	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Grey colour ring
245	3/8" square	9.6 V / 1.8 Ah	R/L	2.0	0.7 s repeat protection	
200	Flange for angle head*	9.6 V **	R/L	1.5	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Grey colour ring
200	Flange for angle head*	9.6 V / 1.8 Ah	R/L	1.9	0.7 s repeat protection	
380	3/8" square	14.4 V **	R/L	1.58	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Orange colour ring
380	3/8" square	14.4 V / 2.4 Ah	R/L	2.3	0.7 s repeat protection	
300	Flange for angle head*	14.4 V **	R/L	1.5	0.7 s repeat protection	Torque adjustment tool, Open-ended spanner, Suspension hook, Grey colour ring
280	3/8" square	14.4 V **	R/L	1.58	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Red colour ring
280	3/8" square	14.4 V / 2.4 Ah	R/L	2.3	0.7 s repeat protection	
210	3/8" square	14.4 V **	R/L	1.58	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Black colour ring
210	3/8" square	14.4 V / 2.4 Ah	R/L	2.3	0.7 s repeat protection	
170	3/8" square	14.4 V **	R/L	1.58	0.7 s repeat protection	Torque adjustment tool, open-ended spanner, suspen- sion hook, black colour ring

\* Angle head not included in scope of delivery    \*\* Battery not included in scope of delivery



# 4 EXACT

## Cordless screwdrivers for industry





## **Cordless assembly** with exceptional precision

The EXACT and ANGLE EXACT tools from BOSCH are cordless shut-off screwdrivers for industry – offering the greatest accuracy, longevity and energy efficiency. In assembly situations where cables or pneumatic hoses get in the way, the EXACT series enables you to optimise processes, build better products and reduce your costs.

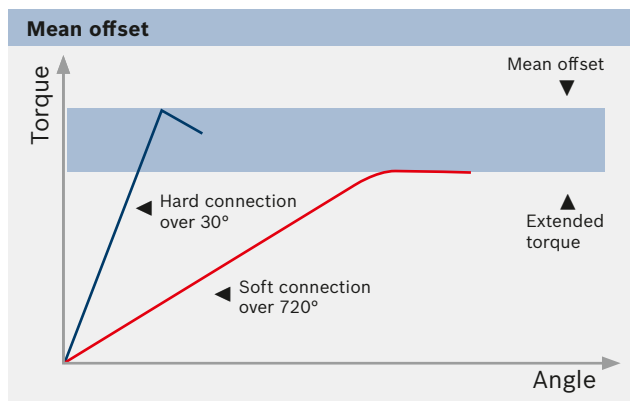


# The Bosch shut-off clutch proven in industry

Our shut-off clutch is designed to minimise user influence on the screwdriving process. Bosch clutches are among the most precise and repeatable in the world. Our repeatability rivals that of some controlled EC tools which cost more than ten times as much as our EXACT cordless tools.

## Precise and accurate shut-off

The EXACT clutch ensures high torque repeatability and accuracy. Whether in a hard screwdriving application of 30 degrees or a soft screwdriving application of 720 degrees, the clutch guarantees an extremely low mean value offset and consistent torque. Shut-off meets ISO 5393 requirements.



using a special tool. If the adjustment tool is stored in a location inaccessible to the user, the torque cannot be adjusted unintentionally. Colour marking rings enable quick identification of different screwdrivers in the assembly line.

## Precise and stable under load

Bosch quality testing for the EXACT family is extremely rigorous. The shut-off clutch of the EXACT tools must survive 500,000 cycles\* without failure before being released for production. During continuous operation, they must maintain an ISO 5393 standard Cmk value greater than 1.67 with a tolerance of  $\pm 10\%$ .

## A proven module

The shut-off clutch used in the EXACT cordless screwdriver family is the identical clutch used in our line of production air tools. This clutch has been used in many applications over the years and has proven itself a million times over at many of our customers' facilities.

## User-friendly features

The EXACT clutch offers 15% more torque in left-hand rotation for loosening screws. Specified torque is always reached regardless of battery voltage. The electronics prevent the tool from running if the battery falls below a minimum voltage. The clutch is adjusted

Capability study of the  
ANGLE EXACT 15



\* according to Bosch endurance tests














The Bosch EXACT and ANGLE EXACT cordless shut-off screwdrivers are suitable for virtually every screwdriving application.



# EXACT

## Cordless centre grip screwdrivers

- ▶ Precision shut-off clutch with  $C_{mk} > 1.67$
- ▶ Low weight
- ▶ Large torque range
- ▶ Repeat protection
- ▶ Visual and audible signals inform the worker about the battery status
- ▶ A visual and audible signal informs the worker about the screwdriving result
- ▶ Bright LED light for illuminating the work area
- ▶ One-handed operation for right-hand/left-hand rotation change
- ▶ Modular design with many common parts
- ▶ Colour marking rings for easy identification
- ▶ Protective cap for quick-release chuck
- ▶ Tool holder available
- ▶ Suspension hook available

	Part number	Torque, hard as per ISO 5393 (Nm)	Torque, soft as per ISO 5393 (Nm)
<b>EXACT 2</b> Very precise in the lower torque range 	0 602 490 433	0.6 – 2	0.6 – 2
<b>EXACT 4</b> High speed for short cycle times 	0 602 490 437	1 – 4	1 – 4
<b>EXACT 6</b> Combination of speed and torque 	0 602 490 431	1 – 6	1 – 6
	0 602 490 432	1 – 6	1 – 6
<b>EXACT 7</b> Slow screwdriver e.g. for hose clamps 	0 602 490 439	1.5 – 7	1.5 – 7
<b>EXACT 8</b> Performance and speed 	0 602 490 443	1.5 – 8	1.5 – 8
<b>EXACT 9</b> High torque and low weight 	0 602 490 435	1.5 – 9	1.5 – 9
<b>EXACT 12</b> Highest torques 	0 602 490 441	1.5 – 12	1.5 – 12
	0 602 490 442	1.5 – 12	1.5 – 12
<b>EXACT 60</b> Extremely low speeds of 60 rpm 	0 602 490 469	1.5 – 5.5	1.5 – 5.5
<b>EXACT 700</b> High speed and high torque 	0 602 490 447	1.5 – 8	1.5 – 8
<b>EXACT 1100</b> Highest speed 	0 602 490 471	1 – 4	1 – 4



No-load speed (rpm)	Bit holder	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Features and functions	Included accessories
600	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Light green colour ring
900	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Grey colour ring
600	1/4"	14.4 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Black colour ring
600	1/4"	9.6 V / 1.8 Ah	R/L	1.2	0.7 s repeat protection	
150	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool White colour ring
650	1/4"	12 V *	R/L	0.9	0.7 s repeat protection	Torque adjustment tool Orange colour ring
350	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Light blue colour ring
400	1/4"	12 V *	R/L	0.9	0.7 s repeat protection	Torque adjustment tool Red colour ring
400	1/4"	12 V / 2.4 Ah	R/L	1.6	0.7 s repeat protection	
60	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool White colour ring
700	1/4"	12 V *	R/L	0.9	0.7 s repeat protection	Torque adjustment tool Orange colour ring
1,100	1/4"	9.6 V *	R/L	0.8	0.7 s repeat protection	Torque adjustment tool Grey colour ring

\* Battery not included  
in scope of delivery

# ANGLE EXACT

## Cordless angle wrenches

- ▶ Precision shut-off clutch with  $C_{mk} > 1.67$
- ▶ Low weight
- ▶ Large torque range
- ▶ Repeat protection
- ▶ Visual and audible signals for the battery status as with centre grip
- ▶ Visual and audible signals for the shut-off signal as with centre grip
- ▶ Bright LED light for illuminating the work area
- ▶ All models with right-hand/left-hand rotation change function on the switch
- ▶ Modular design with many common parts
- ▶ Colour marking rings for easy identification
- ▶ Protective caps available for angle heads
- ▶ Use of the same batteries/chargers as for models with centre grip
- ▶ All models with suspension hook
- ▶ Tool weight with angle head and battery is 1.6 kg

ANGLE EXACT!	Part number	Torque, hard as per ISO 5393 (Nm)	Torque, soft as per ISO 5393 (Nm)
<b>ANGLE EXACT 2</b> Low torques and low speed: suitable for titanium screws 	0 602 490 647	0.7 – 2	0.7 – 2
<b>ANGLE EXACT 3</b> Very precise in the lower torque range 	0 602 490 656	0.7 – 3	0.7 – 3
<b>ANGLE EXACT 6</b> High speed 	0 602 490 652	1.5 – 6	1.5 – 6
<b>ANGLE EXACT 7</b> Very low speed: suitable for titanium screws 	0 602 490 669	2 – 7	2 – 7
<b>ANGLE EXACT 8</b> Combination of speed and torque 	0 602 490 638	2 – 9	2 – 8
	0 602 490 651	2 – 9	2 – 8
<b>ANGLE EXACT 15</b> High torque and very low weight 	0 602 490 635	2 – 15	2 – 15
	0 602 490 636	2 – 15	2 – 15
	0 602 490 650	2 – 15	2 – 15




No-load speed (rpm)	Angle head	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Features and functions	Included accessories
110	–	9.6 V *	R/L	1.0	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Light green colour ring
420	–	9.6 V *	R/L	1.0	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Light green colour ring
650	–	9.6 V *	R/L	1.0	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Black colour ring
110	–	9.6 V *	R/L	1.0	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Orange colour ring
420	3/8" square	9.6 V / 1.8 Ah	R/L	1.6	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Orange colour ring
420	–	9.6 V *	R/L	1.0		
250	3/8" square	9.6 V *	R/L	1.2	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Red colour ring
250	3/8" square	9.6 V / 1.8 Ah	R/L	1.6		
250	–	9.6 V *	R/L	1.0		

\* Battery not included  
in scope of delivery

# ANGLE EXACT and ANGLE EXACT CF

## Cordless angle wrenches




- See page 38 for features
- Tool weight with angle head and battery is 2.6 kg

ANGLE EXACT!	Part number	Torque, hard as per ISO 5393 (Nm)	Torque, soft as per ISO 5393 (Nm)
<b>ANGLE EXACT 17</b> High speed 	0 602 490 675	6 – 17	6 – 13
<b>ANGLE EXACT 23</b> Good combination of torque and speed 	0 602 490 673	7 – 23	7 – 20
<b>ANGLE EXACT 30</b> High torque 	0 602 490 671	8 – 30	8 – 28
	0 602 490 672	8 – 30	8 – 28

The ANGLE EXACT CF models are suitable for tube nut or crowfoot heads due to their speed and torque limitation in left-hand rotation.

This special technology prevents damage to the screwdriving head.

The screwdriving heads are not manufactured by Bosch.

ANGLE EXACT!	Part number	Torque, hard as per ISO 5393 (Nm)	Torque, soft as per ISO 5393 (Nm)
<b>ANGLE EXACT 14 CF</b> Low weight and the highest performance 	0 602 490 690	1.4 – 10 (without head)	1.4 – 10 (without head)
<b>ANGLE EXACT 22 CF</b> Good combination of torque and speed 	0 602 490 693	5 – 16 (without head)	5 – 14.3 (without head)
<b>ANGLE EXACT 29 CF</b> High torque 	0 602 490 691	5.7 – 21 (without head)	5.7 – 20 (without head)



No-load speed (rpm)	Angle head	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Features and functions	Included accessories
560	Flange for angle head (angle head not included)	14.4 V *	R/L	1.5	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook White colour ring
320	Flange for angle head (angle head not included)	14.4 V *	R/L	1.5	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Orange colour ring
220	requires HD angle head	14.4 V *	R/L	1.5	0.7 s repeat protection	Torque adjustment tool Open-ended spanner Suspension hook Red colour ring
220	requires HD angle head	14.4 V / 2.4 Ah	R/L	2.4	0.7 s repeat protection	

\* Battery not included in scope of delivery

No-load speed (rpm)	Angle head	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Features and functions	Included accessories
350 (without head)	Custom head, not supplied by Bosch	9.6 V *	R/L	1.0	0.7 s repeat protection Same specifications as ANGLE EXACT 15 in right-hand rotation, reduced performance in left-hand rotation	Torque adjustment tool Open-ended spanner Suspension hook Red colour ring
440 (without head)	Custom head, not supplied by Bosch	14.4 V *	R/L	1.5	0.7 s repeat protection Same specifications as ANGLE EXACT 23 in right-hand rotation, reduced performance in left-hand rotation	Torque adjustment tool Open-ended spanner Suspension hook Orange colour ring
300 (without head)	Custom head, not supplied by Bosch	14.4 V *	R/L	1.5	0.7 s repeat protection Same specifications as ANGLE EXACT 30 in right-hand rotation, reduced performance in left-hand rotation	Torque adjustment tool Open-ended spanner Suspension hook Red colour ring

\* Battery not included in scope of delivery

# 5

## BT-EXACT

### Bluetooth cordless screwdrivers



## Who says there are no screws loose here?

The Bluetooth EXACT cordless screwdriver system thinks for itself. The BT-EXACT screwdrivers take their commands from the EXAConnect controller, which stores the work progress in real time. The system can talk to and take commands from external devices like a PLC, barcode scanner or host network if desired. Improve your assembly process and never forget to drive a screw again.





# Higher production quality due to Bluetooth EXACT

## Quality control with cordless screwdrivers: Higher production quality due to Bluetooth EXACT

The BT-EXACT screwdriver sends radio signals (screw joint OK or not OK) to the EXAConnect controller, which also sends commands back to the BT-EXACT screwdriver. An EXAConnect can control seven screwdrivers simultaneously, making the system very cost-effective. A class 2 Bluetooth module ensures uncompromising data transfer with a 56-Bit encryption and security mode 3 in accordance with Bluetooth Standard 1.2. Screwdrivers and controllers use proprietary communication only. The software can be configured to prevent Bluetooth from disturbing other wireless systems to ensure interference-free communication. An adjustable antenna power output function allows the system to limit its electromagnetic emissions to virtually zero.

Barcode scanners, PLCs, stack lights and host network systems can be easily connected to the EXAConnect via the built-in I/O ports, RS 422 interfaces and the network connection. The system can also run as a stand-alone without additional hardware. The screwdriver is prevented from operating outside of the range of the EXAConnect.

The system is unique compared to other products; it does not require additional software to communicate with a network or computer. All information in the

EXAConnect controller is accessed by using a web browser. All software and firmware is stored within the EXAConnect controller.

## The Bosch Bluetooth system: Quality control redefined

The EXAConnect can control a BT-EXACT screwdriver by workpiece, screw and number of screwdriving applications. The OK/NOK monitoring can be enhanced if desired using runtime and other parameters to accurately determine cross-threading of screws or missing screws, and it can detect the direction of rotation to detect screw removal.

The system can be programmed to count and report only individual screwdriving applications or the entire screwdriving task. Three LED lights on the BT-EXACT screwdriver tell the worker the battery status and show whether the screw was properly tightened and whether the tool is locked, unlocked or out of range of the EXAConnect. The system collects and reports all this data to ensure that your assembly process always runs perfectly.







# Seven screwdrivers at a single glance:

## Powerful system software

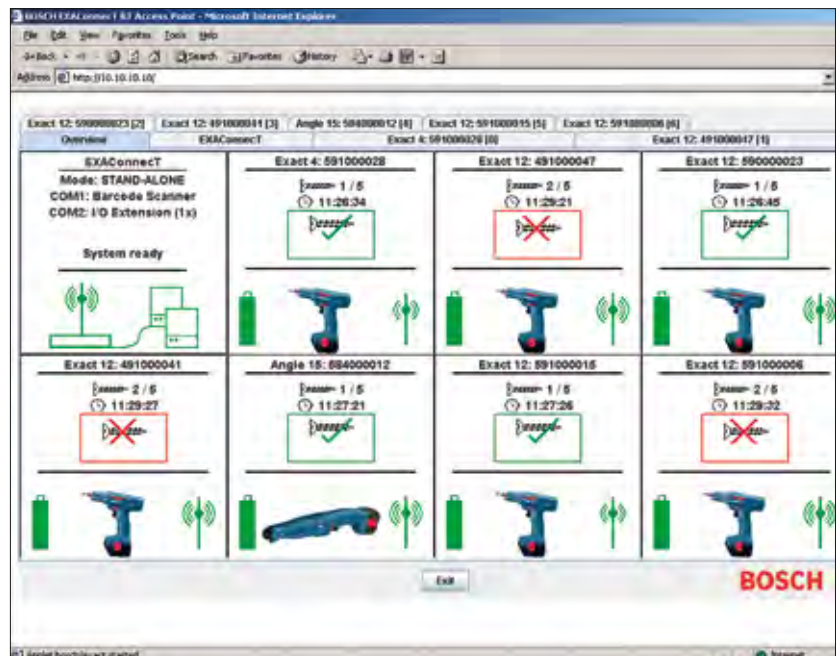
Quality control should be easy, not complicated. Our software combines powerful control, great flexibility and easy-to-use programming to give you the capability to control the BT-EXACT screwdrivers, the EXAConnect controller and your assembly line from anywhere.

The system runs in a web browser without the need for additional user interface software. It is password protected to ensure data security of the system.

Clicking on the "Overview" tab lets you view and control up to seven BT-EXACT screwdrivers running on one EXAConnect controller.

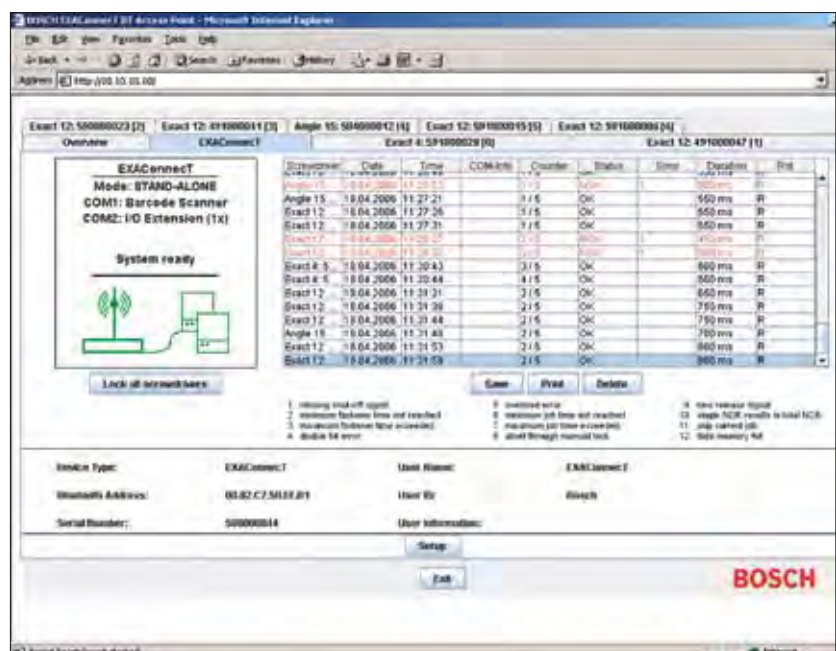
Each BT-EXACT screwdriver displays antenna signal strength, battery status, work progress and joint condition (OK/NOK shown in green or red).

The serial number and name of each BT-EXACT screwdriver are also displayed. The name of each BT-EXACT screwdriver can be customised for specific applications or locations within the assembly process.



Clicking on the 'EXAConnect' tab shows the detailed data for up to seven BT-EXACT screwdrivers in real time. The system can display extensive data such as BT-EXACT screwdriver name, date, time of event, screw runtime, direction of rotation, error messages, work progress and additional input data (such as barcode scans or sequence numbers).

The system also displays the status of the EXAConnect controller and lists the BT-EXACT screwdrivers that are connected. System error messages are displayed here, along with detailed information about the configuration.

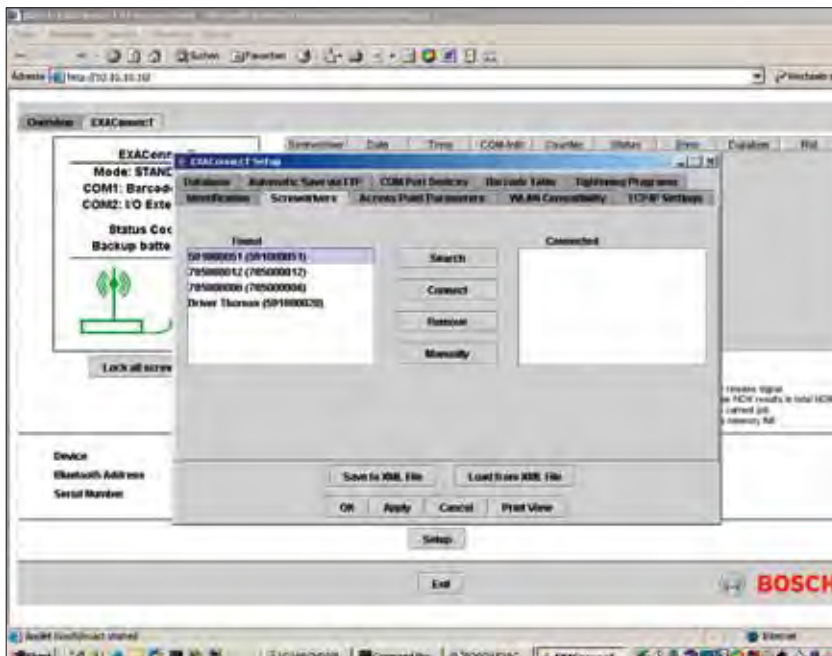




# Fine tuning for seven precision instruments: A symphony of data control

Configuration of the system is easy. All functions of the EXAConnect controller are programmed from only one user-friendly configuration screen. Standard protocols including Profibus, Ethernet TCP/IP, DeviceNet and FTP, serial interfaces, stack lights and RS 422 ports are managed from there. Each individual BT-EXACT screwdriver can be programmed to send data to differ-

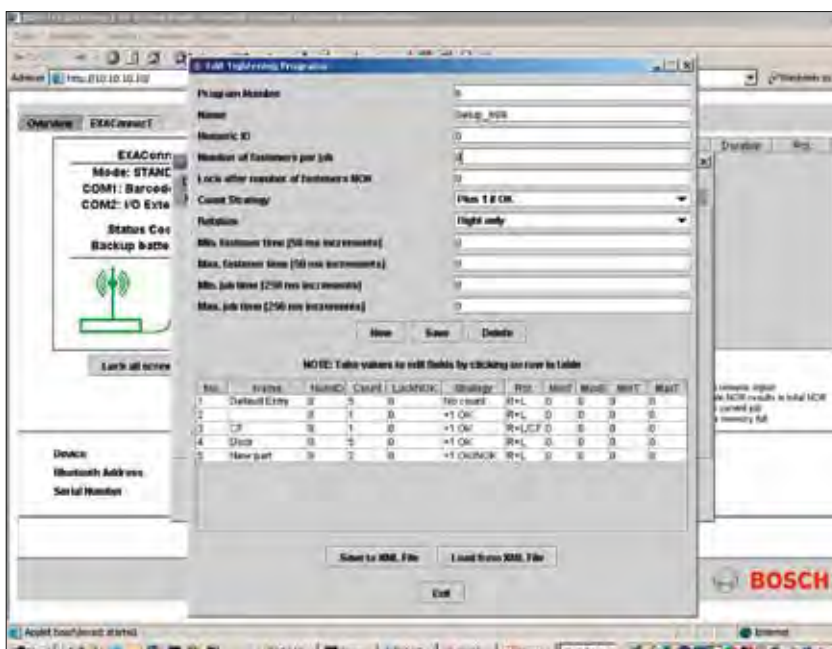
ent outputs simultaneously. Each BT-EXACT screwdriver can accept data from a variety of inputs. All this capability is managed by only one setup screen for each BT-EXACT screwdriver.



The system has separate configuration windows for the EXAConnect controller and the BT-EXACT screwdrivers. The configuration screen shows part of the EXAConnect configuration menu. The system can be password protected to prevent unauthorized use.

Each BT-EXACT screwdriver must be “found” and “connected” by the controller only one time; it will remain “connected” until removed by reprogramming.

Our unique system software can be configured to effectively stop the system from interfering with specific Wi-Fi channels.



The screwdriver configuration menu on the left controls everything from screw count to rework strategy to data output choices. The BT-EXACT screwdriver and the EXAConnect controller can be configured to send and receive data from a variety of systems, including a host ethernet system, PLC systems, barcode scanners or our digital I/O module.

The system can also monitor screw runtime to accurately determine cross-threading or missing screws.

Rework strategies to evaluate the assembly process can be defined in detail, including customer-specific programming that is created by Bosch.

# EXAConnect – the controller

## The core of the quality control system

The EXAConnect Bluetooth controller packs a lot of firepower in a small, easy to install package. The enclosure is IP54 (NEMA 12) rated for dust and moisture resistance.

The controller has its own processor, flash memory and operating system, so it can run as a stand-alone unit or connect to a variety of controls.

Various status LEDs and a two-digit display that can be seen through the clear cover alert you of connection status or system notifications.



The EXAConnect controller forms the link between your process control network and the Bluetooth-connected BT-EXACT cordless screwdriver. Information about the screwdriving process can be exchanged bi-directionally in real time to ensure that each BT-EXACT cordless screwdriver knows exactly what it has to do and when to do it. One EXAConnect controller can run seven BT-EXACT screwdrivers simultaneously, making it very cost-effective compared to other systems.

The EXAConnect controller can output data from up to seven BT-EXACT screwdrivers via the Ethernet connection (up to four BT-EXACT screwdrivers to a PLC via the 24-volt inputs and outputs). When controlling seven BT-EXACT screwdrivers via a PLC, an additional digital I/O module is required. Refer to page 49 for details.

A wide-range power supply ensures the system works anywhere in the world without the need for additional power transformers. An internal backup memory and real-time clock ensure that critical data is always saved, even in the event of a power loss.

	Part number	Voltage supply	24-V power supply (output)	Standard interfaces
<b>EXAConnect Bluetooth screwdriver controller</b>	0 602 491 003	100 – 240 V, 50/60 Hz	max. 4.8 W	Ethernet (TCP/IP) 1 x RS-232 2 x RS-422 4 x 24-V inputs 4 x 24-V outputs

Software requirements:

Operating system: Microsoft Windows XP, Windows 7

Browser: Internet Explorer, Netscape Navigator, Mozilla Firefox

Required plugin (freeware): Java Runtime Environment 1.4.2 or higher



# Digital I/O module

## Expansion module for up to 7 BT-EXACT screwdrivers

The digital I/O module is used with the EXAConnect controller. It allows 24-volt signals from up to seven BT-EXACT screwdrivers to be sent to a PLC. The module is IP54 (NEMA 12) rated for dust and moisture resistance.



The digital I/O module takes its power from the EXAConnect controller and receives its screwdriving data from the controller's RS 422 interface. The module has 16 inputs and outputs for exchanging data with a PLC. Configuration is done via the EXAConnect software (in a web browser).

The EXAConnect controller is capable of supporting up to four BT-EXACT screwdrivers (via a PLC) with limited data transmission. The digital I/O module is needed when 2 to 7 BT-EXACT screwdrivers have to communicate detailed information with a PLC.





The I/O module is not required when using an ethernet connection to a host network. There are different possible PLC configurations for any given situation. Contact your distributor for details.

	Part number	Power input	Standard interfaces
Bluetooth digital I/O module	0 602 491 004	24 V	Ethernet (TCP/IP) 2 x RS-422 16 x 24-V inputs 16 x 24-V outputs

# BT-EXACT

## Cordless centre grip screwdrivers

- ▶ Precision shut-off clutch with  $C_{mk} > 1.67$
- ▶ Low weight
- ▶ Large torque range
- ▶ Repeat protection
- ▶ A visual and audible signal informs the worker about the battery status
- ▶ Visual and audible signals inform the worker about the screwdriving result
- ▶ Bright LED light for illuminating the work area
- ▶ One-handed operation for right-hand/left-hand rotation change
- ▶ Modular design with many common parts
- ▶ Colour marking rings for easy identification
- ▶ Protective cap for quick-release chuck
- ▶ Tool holder
- ▶ Suspension hook available
- ▶ All models require the EXAConnect wireless controller

EXACT	Part number	Torque, hard as per ISO 5393 (Nm)	Torque, soft as per ISO 5393 (Nm)
<b>BT-EXACT 2</b> Bluetooth-capable 	0 602 491 433	0.6 – 2	0.6 – 2
<b>BT-EXACT 4</b> Bluetooth-capable 	0 602 491 437	1 – 4	1 – 4
<b>BT-EXACT 6</b> Bluetooth-capable 	0 602 491 431	1 – 6	1 – 6
<b>BT-EXACT 7</b> Bluetooth-capable 	0 602 491 439	1.5 – 7	1.5 – 7
<b>BT-EXACT 8</b> Bluetooth-capable 	0 602 491 443	1.5 – 8	1.5 – 8
<b>BT-EXACT 9</b> Bluetooth-capable 	0 602 491 435	1.5 – 9	1.5 – 9
<b>BT-EXACT 12</b> Bluetooth-capable 	0 602 491 441	1.5 – 12	1.5 – 12

No-load speed (rpm)	Bit holder	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Features and functions	Included accessories
600	1/4"	9.6 V *	R/L	0.8	Class 2 Bluetooth module	Torque adjustment tool Light green colour ring
900	1/4"	9.6 V *	R/L	0.8	Class 2 Bluetooth module	Torque adjustment tool Grey colour ring
600	1/4"	9.6 V *	R/L	0.8	Class 2 Bluetooth module	Torque adjustment tool Black colour ring
150	1/4"	9.6 V *	R/L	0.8	Class 2 Bluetooth module	Torque adjustment tool White colour ring
650	1/4"	12 V *	R/L	0.9	Class 2 Bluetooth module	Torque adjustment tool Orange colour ring
350	1/4"	9.6 V *	R/L	0.8	Class 2 Bluetooth module	Torque adjustment tool Light blue colour ring
400	1/4"	12 V *	R/L	0.9	Class 2 Bluetooth module	Torque adjustment tool Red colour ring

\* Battery not included  
in scope of delivery

# BT-ANGLE EXACT

## Cordless angle wrenches

- ▶ Precision shut-off clutch with  $C_{mk} > 1.67$
- ▶ Low weight
- ▶ Large torque range
- ▶ Repeat protection
- ▶ Visual and audible signals for the charging state
- ▶ Visual and audible signals for the shut-off
- ▶ Bright LED light for illuminating the work area
- ▶ One-handed operation for right-hand/left-hand rotation change
- ▶ Modular design with many common parts
- ▶ Colour marking rings for easy identification
- ▶ Protective cap available for angle heads
- ▶ Angle heads and batteries are not included in scope of delivery
- ▶ Use of the same batteries/chargers as for models with centre grip
- ▶ Suspension hook available
- ▶ All Bluetooth models require the EXAConnect wireless controller
- ▶ Tool weight with angle head and battery is 1.6 kg (BT-ANGLE EXACT 17, 23, 30: 2.6 kg)

	Part number	Torque, hard as per ISO 5393 (Nm)	Torque, soft as per ISO 5393 (Nm)
<b>BT-ANGLE EXACT 2</b> Bluetooth-capable 	0 602 491 647	0.7 – 2	0.7 – 2
<b>BT-ANGLE EXACT 3</b> Bluetooth-capable 	0 602 491 656	0.7 – 3	0.7 – 3
<b>BT-ANGLE EXACT 6</b> Bluetooth-capable 	0 602 491 652	1.5 – 6	1.5 – 6
<b>BT-ANGLE EXACT 7</b> Bluetooth-capable 	0 602 491 669	2 – 7	2 – 7
<b>BT-ANGLE EXACT 8</b> Bluetooth-capable 	0 602 491 651	2 – 9	2 – 8
<b>BT-ANGLE EXACT 15</b> Bluetooth-capable 	0 602 491 650	2 – 15	2 – 15
<b>BT-ANGLE EXACT 17</b> Bluetooth-capable 	0 602 491 675	6 – 17	6 – 13
<b>BT-ANGLE EXACT 23</b> Bluetooth-capable 	0 602 491 673	7 – 23	7 – 20
<b>BT-ANGLE EXACT 30</b> Bluetooth-capable 	0 602 491 671	8 – 30	8 – 28



No-load speed (rpm)	Angle head	Battery specifications (V)	Direction of rotation	Weight as per EPTA (kg)	Features and functions	Included accessories
110	Flange for angle head *	9.6 V **	R/L	1.0	Class 2 Bluetooth module	Torque adjustment tool Open-ended spanner Suspension hook Light green colour ring
420	Flange for angle head *	9.6 V **	R/L	1.0	Class 2 Bluetooth module	Torque adjustment tool Open-ended spanner Suspension hook Light green colour ring
650	Flange for angle head *	9.6 V **	R/L	1.0	Class 2 Bluetooth module	Torque adjustment tool Open-ended spanner Suspension hook Black colour ring
110	Flange for angle head *	9.6 V **	R/L	1.0	Class 2 Bluetooth module	Torque adjustment tool Open-ended spanner Suspension hook Orange colour ring
420	Flange for angle head *	9.6 V **	R/L	1.0	Class 2 Bluetooth module	Torque adjustment tool Open-ended spanner Suspension hook Orange colour ring
250	Flange for angle head *	9.6 V **	R/L	1.0	Class 2 Bluetooth module	Torque adjustment tool Open-ended spanner Suspension hook Red colour ring
560	Flange for angle head *	14.4 V **	R/L	1.5	Class 2 Bluetooth module	Torque adjustment tool Open-ended spanner Suspension hook White colour ring
320	Flange for angle head *	14.4 V **	R/L	1.5	Class 2 Bluetooth module	Torque adjustment tool Open-ended spanner Suspension hook Orange colour ring
220	Requires HD angle head Flange for HD angle head (HD angle head not included)	14.4 V **	R/L	1.5	Class 2 Bluetooth module	Torque adjustment tool Open-ended spanner Suspension hook Red colour ring

\* Angle head not included in scope of delivery

\*\* Battery not included in scope of delivery

# 6

## Accessories EXACT original accessories



## Function ensured: EXACT original accessories

**The new Wireless Charging System**, intelligent battery chargers, original BOSCH battery packs, 4-EXACT power supply unit, general accessories and dimensional drawings.





# Bosch cordless technology

## Maximum efficiency hard-wired



**Always  
power ready**



**Bosch CoolPack for  
up to 100% more  
lifetime**



**100% compatibility  
within the 18 volt range**

### **WORLD'S FIRST!** Wireless Charging System

#### **Greater user-friendliness and productivity:**

- ▶ Batteries can stay in the tool
- ▶ Charging takes place automatically when the tool is placed on the charger, so it requires no effort
- ▶ Flexible mounting frame on the charger allows for a wide range of ergonomic positions – easy to mount at the workplace

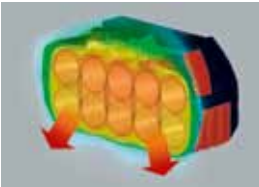




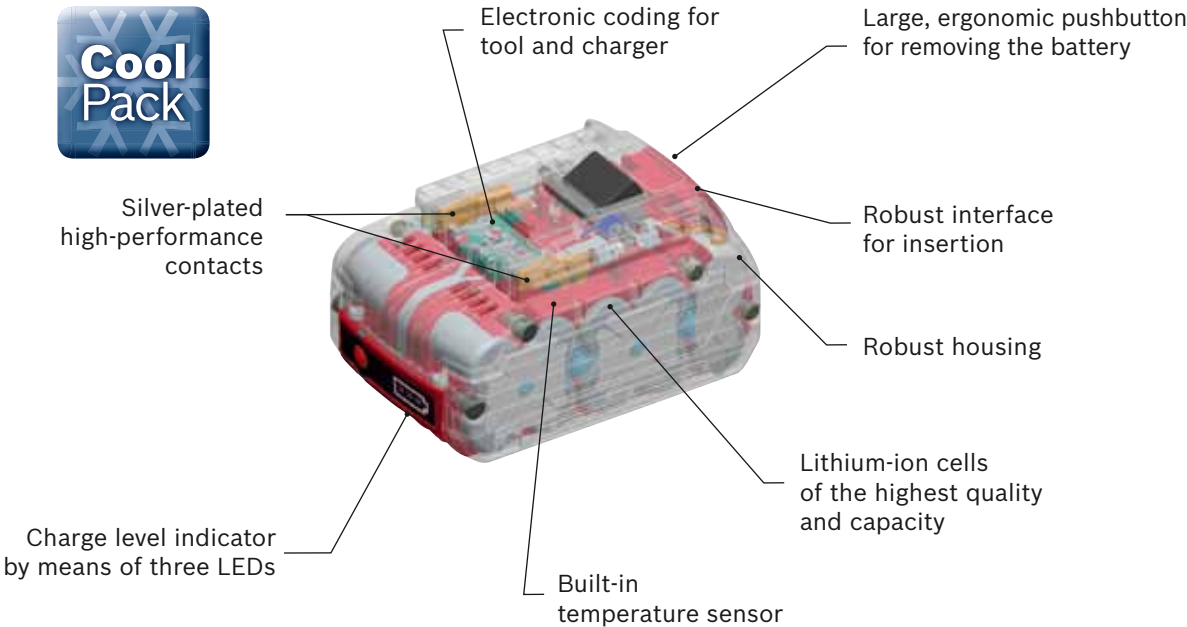
# Bosch cordless technology

## Maximum efficiency hard-wired

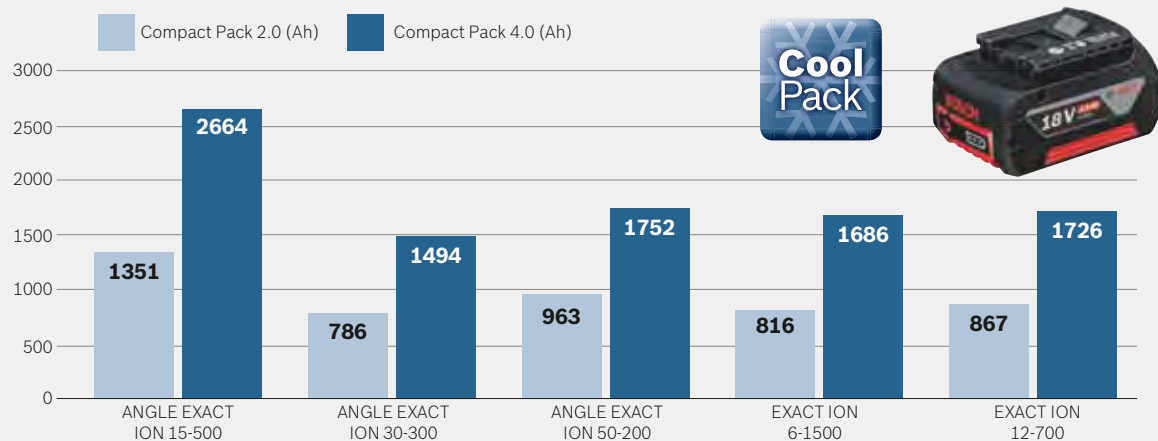
### Exceptional runtime and lifetime thanks to CoolPack



Red **CoolPack** housing made of heat-conductive material for up to 100% more lifetime compared to a Bosch battery without **CoolPack**.  
Bosch **CoolPack** ensures balanced warming and reduces heat build-up!



Number of screwdriving applications per battery charge




Results of endurance test 02/2013, at maximum torque and a medium-hard screwdriving application at 80° rotation angle, measured from a threshold torque of 50%, at screw size M8

# Battery packs and chargers




## for EXACT ION and ANGLE EXACT ION


### Wireless Charging battery packs and chargers

Lithium-ion	Part number	Description	Voltage (V)	Capacity (Ah)	Weight as per EPTA (kg)
<b>GBA 18 V 2,0 Ah MW-B Professional</b> 	0 602 494 021	Pack of 5 batteries	18	2.0	5 x 0.5

Wireless Charging quick charger	Part number	Description	Voltage (V)	Weight as per EPTA (kg)
<b>GAL 1830 W + mounting frame</b> 100% fully charges the Wireless Charging battery 18 V/2.0 Ah in 30 mins! 	0 602 494 024	Pack of 5 chargers	230	5 x 0.55




### Li-ion battery packs and chargers




Lithium-ion	Part number	Description	Voltage (V)	Capacity (Ah)	Weight as per EPTA (kg)
<b>18 V/2.0 Ah</b> 	0 602 494 002	Pack of 12 batteries	18	2.0	12 x 0.35
<b>18 V/4.0 Ah</b> 	0 602 494 004	Pack of 12 batteries	18	4.0	12 x 0.6
<b>18 V/5.0 Ah</b> 	0 602 494 003	Pack of 12 batteries	18	5.0	12 x 0.6


Li-Ion quick charger	Part number	Description	Voltage (V)	Weight as per EPTA (kg)
<b>AL 1860 CV</b> 100% fully charges the Bosch Li-Ion batteries 18 V/2.0 Ah in 30 mins, 18 V/4.0 Ah in 45 mins and 18 V/5.0 Ah in 65 mins! 	0 602 494 006	Pack of 8 chargers	230	8 x 0.8

# Battery packs and chargers

## for EXACT, SEC-EXACT and BT-EXACT

Nickel cadmium	Part number	Description	Voltage (V)	Capacity (Ah)	Weight as per EPTA (kg)
<b>9.6 V batteries</b> 	2607335877	Battery pack	9.6	1.8	0.4
	0602490022	Pack of 10 batteries	9.6	1.8	4
	2607335659	Battery pack	9.6	2.4	0.5
	0602490009	Pack of 10 batteries	9.6	2.4	5
<b>12 V batteries</b> 	2607335879	Battery pack	12	1.8	0.6
	0602490023	Pack of 10 batteries	12	1.8	6
	2607335375	Battery pack	12	2.4	0.7
	0602490004	Pack of 10 batteries	12	2.4	7
<b>14.4 V batteries</b> 	2607335881	Battery pack	14.4	1.8	0.7
	0602490024	Pack of 10 batteries	14.4	1.8	7
	2607335655	Battery pack	14.4	2.4	0.8
	0602490007	Pack of 10 batteries	14.4	2.4	8

Nickel metal hydride	Part number	Description	Voltage (V)	Capacity (Ah)	Weight as per EPTA (kg)
<b>9.6 V batteries</b> 	2607335681	Battery pack	9.6	2.6	0.55
	0602490025	Pack of 10 batteries	9.6	2.6	5.5
<b>12 V batteries</b> 	2607335683	Battery pack	12	2.6	0.7
	0602490026	Pack of 10 batteries	12	2.6	7
<b>14.4 V batteries</b> 	2607335685	Battery pack	14.4	2.6	0.8
	0602490027	Pack of 10 batteries	14.4	2.6	8

Quick charger	Part number	Voltage (V)	Weight as per EPTA (kg)
<b>AL 2450 DV</b> Multivolt charger. Charges all Bosch NTC battery packs from 7.2 to 14.4 volts with APT insertion end. 	2 607 225 027	230	1.0
	2 607 225 029 (UK Plug)		

# The 4-EXACT power supply – constant power for work stations

Constant power supply for the EXACT and ANGLE EXACT tools.  
Cannot be used for SEC-EXACT and SEC-ANGLE EXACT tools.  
Cannot be used for EXACT ION and ANGLE EXACT ION tools.

The 4-EXACT power supply unit is designed to be a constant voltage source for all screwdrivers in the EXACT and ANGLE EXACT series. The 4-EXACT is ideal for assembly situations in which the mobility of cordless tools is not necessary (or not wanted). It uses an “empty” battery housing as an adapter for a 5 metre long cable that is plugged directly into the tool.

- ▶ Automatically detects the correct voltage for the screwdriver connected
- ▶ Limits worker movement to 5 metres
- ▶ Power supply weight is 13.6 kg

Now you can use the same screwdrivers for mobile and stationary applications and simultaneously reduce your maintenance and spare parts costs. The system can also be used in conjunction with our Bluetooth EXACT screwdrivers.

	Part number
<b>Bosch 4-EXACT power supply 230 V</b> 	0 602 490 507

	Part number
<b>Adapter cable 9.6 V</b> 	0 602 490 503
<b>Adapter cable 12 V</b> 	0 602 490 504
<b>Adapter cable 14.4 V</b> 	0 602 490 505










A 5 metre long cable connects any EXACT or ANGLE EXACT screwdriver to the power supply. The cable and adapter allow for easy conversion of a cordless tool to an “electric screwdriver”.





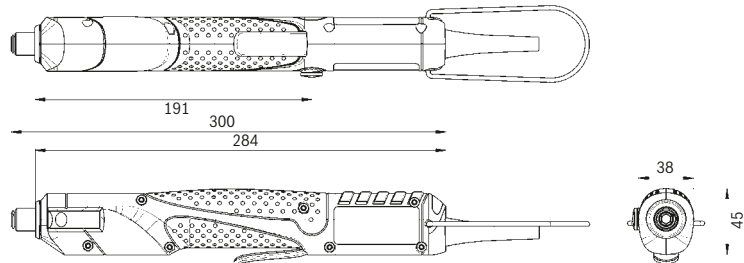
# C-EXACT and PUC-EXACT

## Accessories and dimensional drawings

Accessories		Part number	Quantity
<b>Protective cap</b> For all 1/4" quick-release chucks Prevents damage to the workpiece		3 605 500 210	5
<b>Colour rings</b> For quick identification of the torque range Suitable for all C-EXACT straight screwdrivers and all EXACT cordless screwdrivers with centre grip	 black	3 600 106 010	5
	 red	3 600 106 011	5
	 light blue	3 600 106 012	5
	 light green	3 600 106 013	5
	 orange	3 600 106 014	5
	 grey	3 600 106 017	5
	 white	3 600 106 019	5
	 mixed (1 of each: black, red, blue, green, orange)	3 600 106 015	5

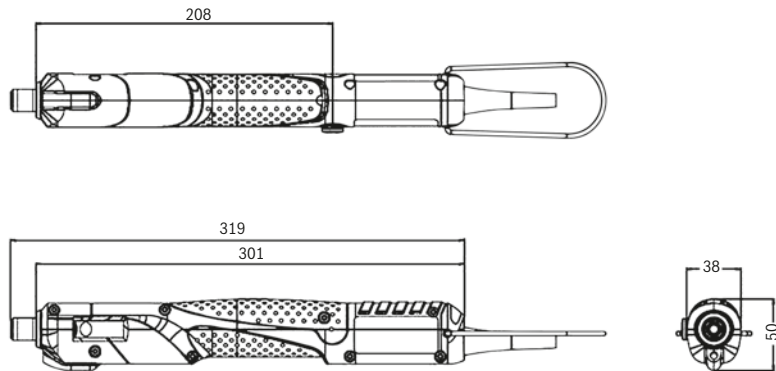
**C-EXACT lever start**

Dimensions in mm



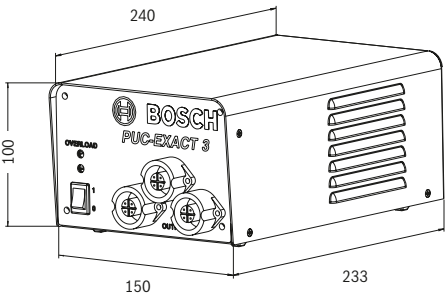
**C-EXACT push start**

Dimensions in mm

















**PUC-EXACT 3**

Dimensions in mm

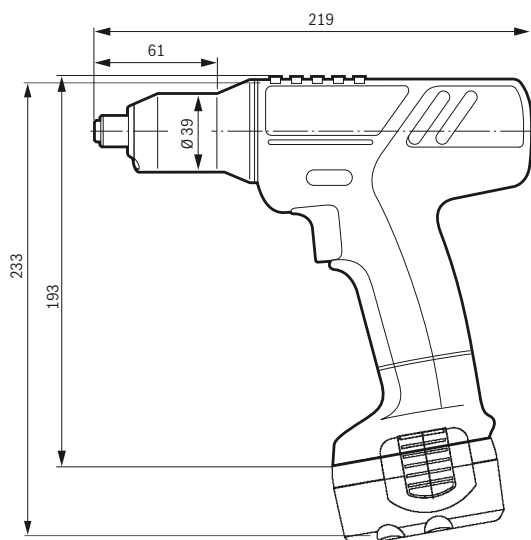


# EXACT and SEC-EXACT

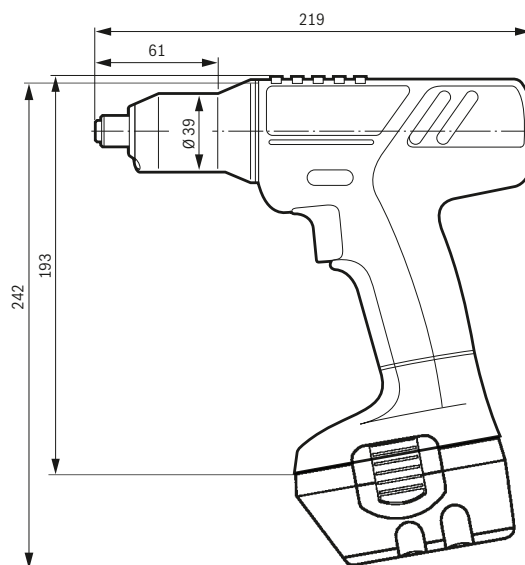
## Accessories and dimensional drawings

Accessories		Part number	Quantity
<b>Protective cap</b> For all 1/4" quick-release chucks Prevents damage to the workpiece		3 605 500 210	5
<b>Colour rings</b> For quick identification of the torque range Suitable for all C-EXACT straight screwdrivers and all EXACT cordless screwdrivers with centre grip	 black  red  light blue  light green  orange  grey  white  mixed (1 of each: black, red, blue, green, orange)	3 600 106 010 3 600 106 011 3 600 106 012 3 600 106 013 3 600 106 014 3 600 106 017 3 600 106 019 3 600 106 015	5 5 5 5 5 5 5
<b>Tool holder</b> (for all tools with centre grip)		0 602 490 001	10
<b>Protectors</b> Prevent damage to the workpiece Suitable for all EXACT cordless screwdrivers with centre grip Will not block motor air vents Available only as a pack of 10	 transparent  red  blue  green	0 602 490 011 0 602 490 012 0 602 490 013 0 602 490 014	10 10 10 10

**All 9.6 volt EXACT, BT-EXACT and SEC-EXACT models**  
 Dimensions in mm



**All 12 volt EXACT and BT-EXACT models**  
 Dimensions in mm



# ANGLE EXACT and ANGLE EXACT CF

## Accessories

Accessories			Part number	Quantity
<b>Colour rings</b> For quick identification of the torque range Suitable for all ANGLE EXACT tools		black	3 600 106 027	5
		red	3 600 106 028	5
		light blue	3 600 106 029	5
		light green	3 600 106 030	5
		orange	3 600 106 031	5
		grey	3 600 106 032	5
		white	3 600 106 033	5
	<b>Protectors</b> Prevent damage to the workpiece Suitable for all ANGLE EXACT tools Will not block motor air vents Available only as a pack of 10		transparent	0 602 490 015
		blue	0 602 490 017	10
		green	0 602 490 018	10
		red	0 602 490 019	10

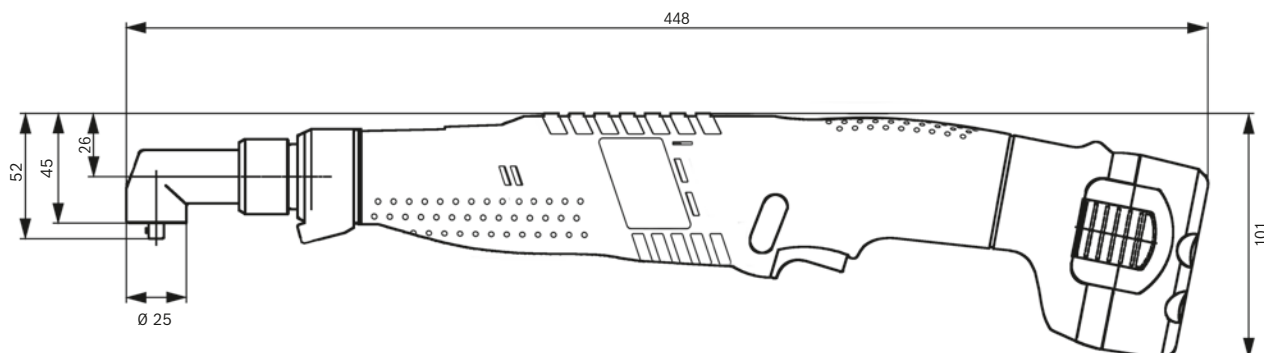
	Part number	Max. torque (Nm)	Drive end	Weight (kg)	Quantity	
<b>Straight head</b> 	0 607 453 631	6	1/4" QRC	0.2	1	
<b>Angle head</b> For ANGLE EXACT 2, 3, 6, 7, 8, 15, 17, 23 7-900, 10-650, 14-420 Gear ratio 1.4:1		0 607 453 617	27	1/4" square	0.2	1
		0 607 453 618	27	1/4" internal hex	0.2	1
		0 607 453 620	27	3/8" square	0.2	1
		0 607 453 630	27	1/4" QRC	0.2	1
<b>HD angle head</b> Required for ANGLE EXACT 30 (gear ratio 1.4:1)		0 607 451 618	35	3/8" square	0.22	1
<b>Protective cap</b> For angle heads 	Suitable for 0 607 453 617, -618, -620, -630	3 605 500 171	–	–	1	
	Suitable for 0 607 451 618	3 605 500 175	–	–	1	
<b>Protective cap</b> Prevents damage to the workpiece Suitable for SEC-ANGLE EXACT 25-250, 30-380, 40-280, 50-210, 60-170		3 609 202 A29	–	–	1	

# ANGLE EXACT, - CF and BT-ANGLE EXACT

## Dimensional drawings

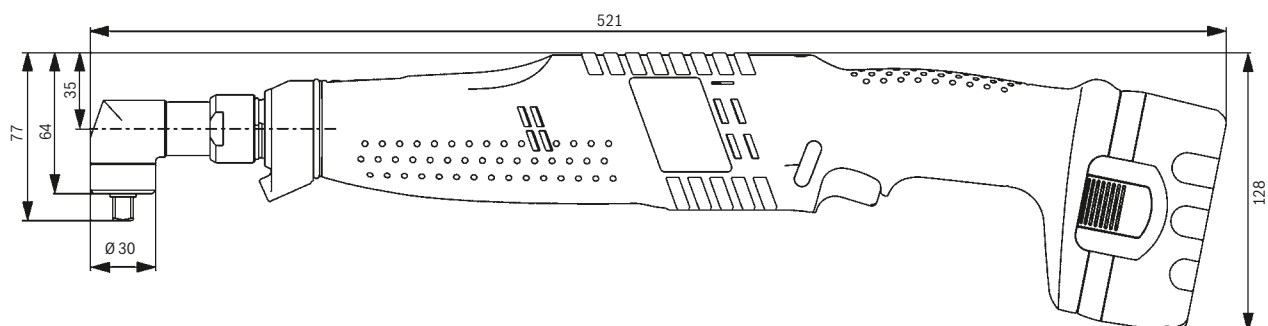
### ANGLE EXACT models 2, 3, 6, 7, 8, 15, 14 CF

Dimensions in mm



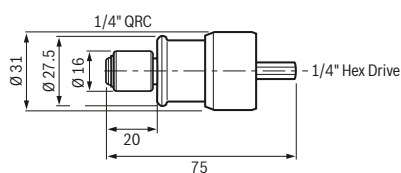
### ANGLE EXACT models 17, 23, 30, 22 CF, 29 CF

Dimensions in mm



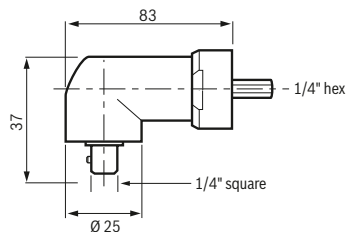
#### 0 607 453 631

Dimensions in mm



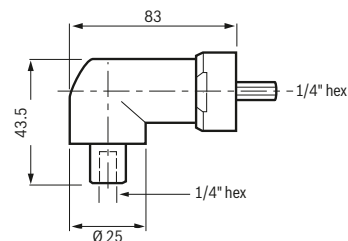
#### 0 607 453 617

Dimensions in mm



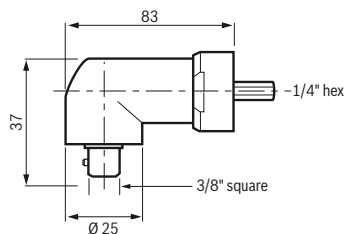
#### 0 607 453 618

Dimensions in mm



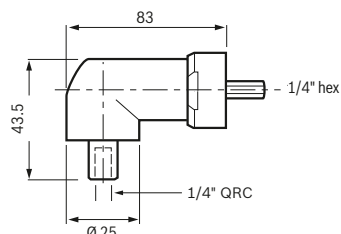
#### 0 607 453 620

Dimensions in mm



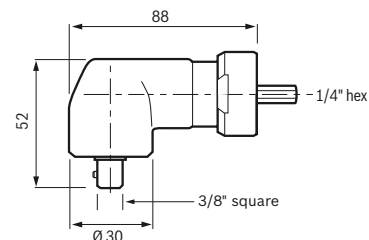
#### 0 607 453 630

Dimensions in mm



#### 0 607 451 618

Dimensions in mm



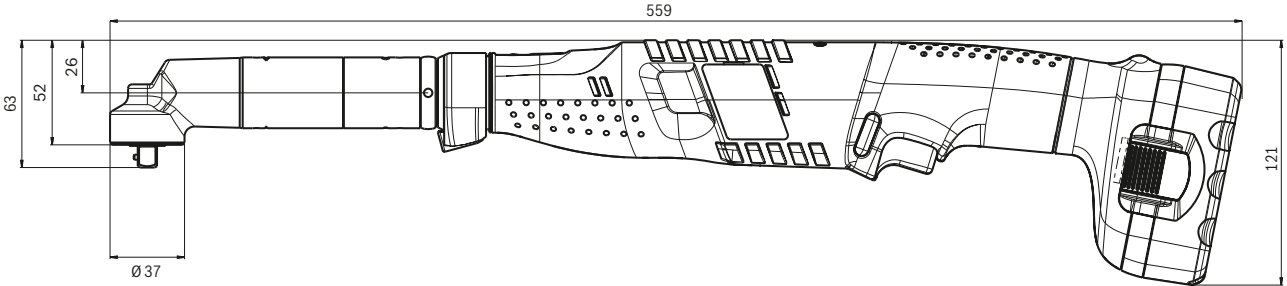


# SEC-ANGLE EXACT

## Dimensional drawings

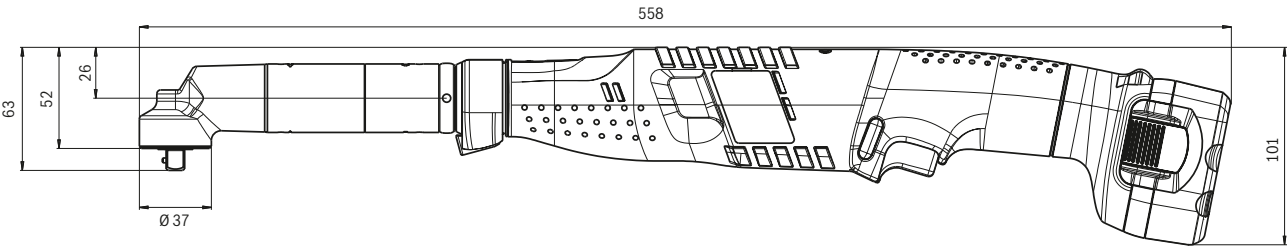
**SEC-ANGLE EXACT models 60-170, 50-210, 40-280, 30-380**

Dimensions in mm



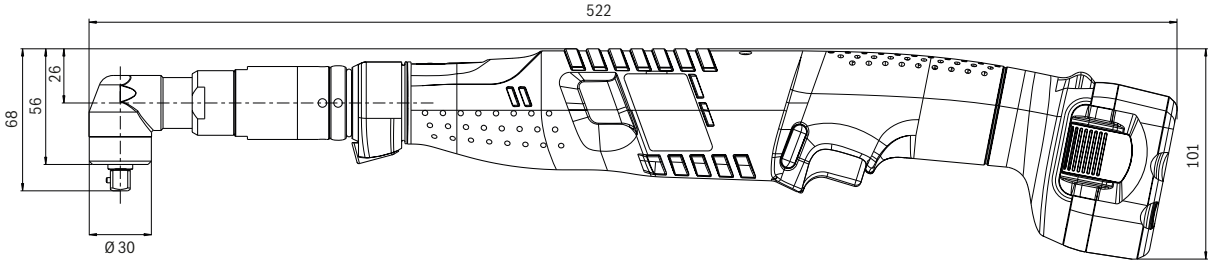
**SEC-ANGLE EXACT model 25-250**

Dimensions in mm



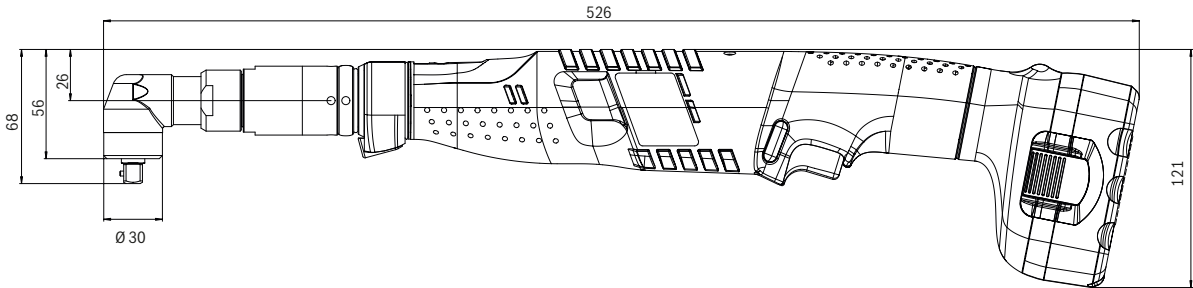
**SEC-ANGLE EXACT model 25-200**

Dimensions in mm



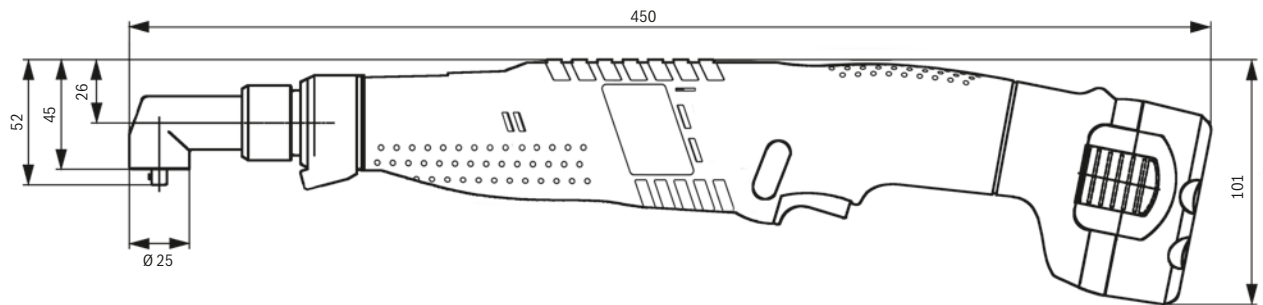
**SEC-ANGLE EXACT model 30-300**

Dimensions in mm















**SEC-ANGLE EXACT models 7-900, 10-650, 14-420**














Dimensions in mm



# EXACT ION and ANGLE EXACT ION

## Accessories

EXACT ION accessories			Part number	Quantity
<b>Colour rings</b> For quick identification of the torque range Suitable for all EXACT ION centre grip screwdrivers		black	3 600 106 010	5
		red	3 600 106 011	5
		light blue	3 600 106 012	5
		light green	3 600 106 013	5
		orange	3 600 106 014	5
		grey	3 600 106 017	5
		white	3 600 106 019	5
	<b>Protectors</b> Prevent damage to the workpiece Suitable for all EXACT ION centre grip screwdrivers Will not block motor air vents Available only as a pack of 10		transparent	0 602 494 016
		red	0 602 494 018	10
		blue	0 602 494 017	10
		green	0 602 494 019	10
<b>Battery pack protectors</b> Prevent damage to the battery Will not block the CoolPack housing Suitable for 18 volt Li-Ion battery packs Available only as a pack of 10		transparent – for the 2.0 Ah Compact battery pack	0 602 494 014	10
		transparent – for the 4.0 Ah Premium battery pack	0 602 494 015	10

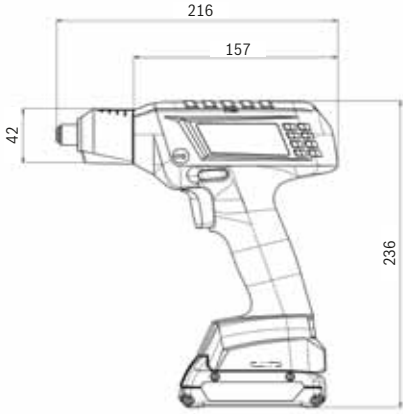
ANGLE EXACT ION accessories			Part number	Quantity
<b>Colour rings</b> For quick identification of the torque range Suitable for all ANGLE EXACT ION centre grip screwdrivers		black	3 600 106 027	5
		red	3 600 106 028	5
		light blue	3 600 106 029	5
		light green	3 600 106 030	5
		orange	3 600 106 031	5
		grey	3 600 106 032	5
		white	3 600 106 033	5
	<b>Protectors</b> Prevent damage to the workpiece Suitable for all ANGLE EXACT ION centre grip screwdrivers Will not block motor air vents Available only as a pack of 10		transparent	0 602 494 010
		red	0 602 494 012	10
		blue	0 602 494 011	10
		green	0 602 494 013	10
<b>Battery pack protectors</b> Prevent damage to the battery Will not block the CoolPack housing Suitable for 18 volt Li-Ion battery packs Available only as a pack of 10		transparent – for the 2.0 Ah Compact battery pack	0 602 494 014	10
		transparent – for the 4.0 Ah Premium battery pack	0 602 494 015	10

# EXACT ION, -WK and ANGLE EXACT ION

## Accessories and dimensional drawings

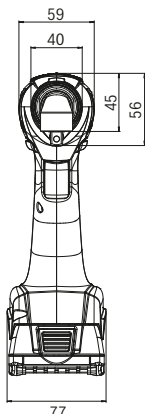
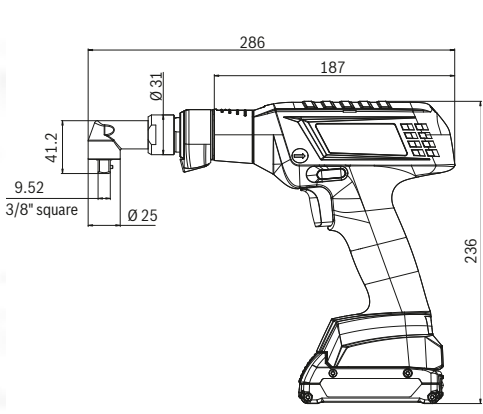
### EXACT ION

Dimensions in mm



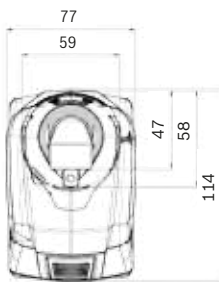
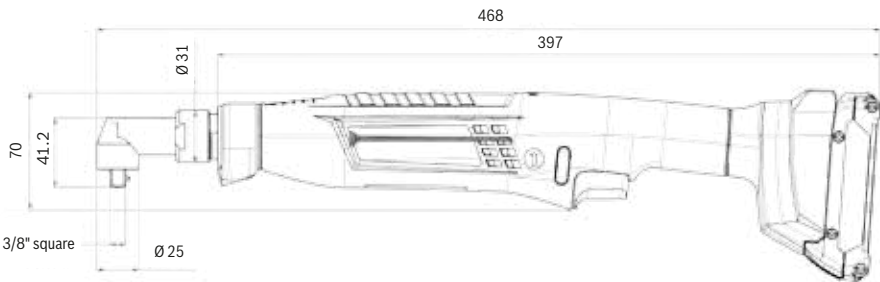
### EXACT ION WK

Dimensions in mm



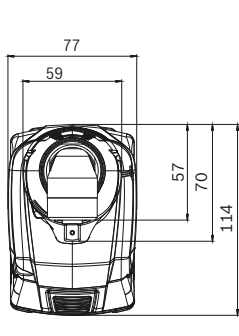
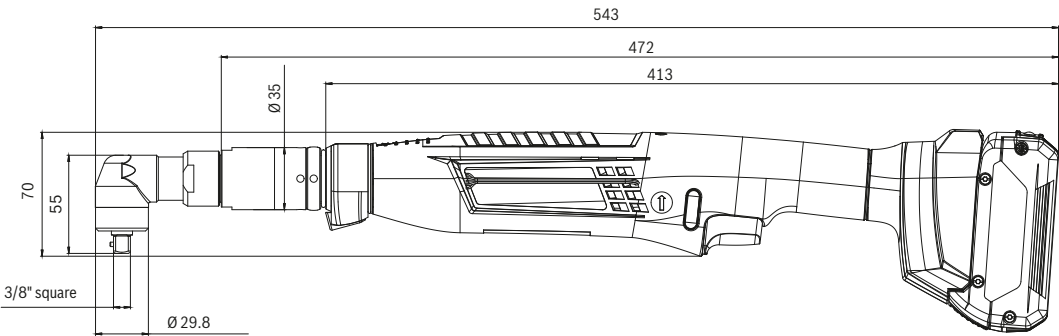
### ANGLE EXACT ION model: 15-500 and 8-1100

Dimensions in mm



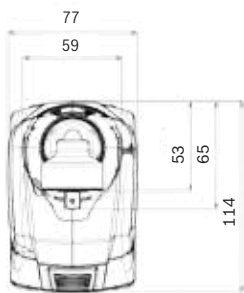
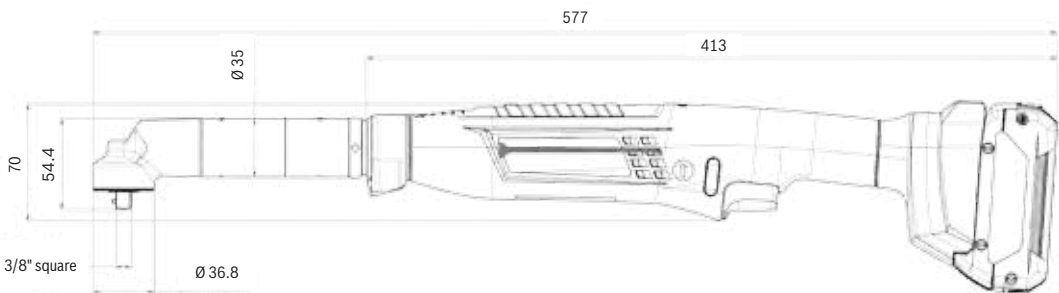
### ANGLE EXACT ION model: 23-380 and 30-290

Dimensions in mm



### ANGLE EXACT ION model: 30-300, 40-220, 50-210 and 60-120

Dimensions in mm



# Bosch Service Quality



## **The Bosch CD-ROM service information system**

provides information on Bosch power tools – including spare parts lists and exploded drawings and saves you time and money in spare parts management.



## **The Bosch online catalogue**

offers everything that customers need to know about Bosch production tools. Furthermore, they can find out the latest news about trade-fair dates and innovations from the Bosch Production Tools Division.



## **The Bosch spare parts service**

guarantees, in 99% of all cases, that the spare part you require is in stock, ensuring you can quickly return to your work.



## **The Bosch recycling service**

offers environmental protection that anybody can actively take part in. Bosch production tools, cordless tools and battery packs that are past their lifetime are taken back at no charge via specialist retailers or directly and sent for recycling.

**Stamp box:**

**Bosch Powertools**  
**Robert Bosch Ltd**  
PO box 98  
Uxbridge  
UB9 5HN  
UK  
+ 44 (0) 344 7360 109\*  
E-mail: [ProductionTools@de.bosch.com](mailto:ProductionTools@de.bosch.com)  
[www.boschproductiontools.com](http://www.boschproductiontools.com)

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