GEDORE
TOOLS FOR LIFE

# GEDORE TORQUE SOLUTIONS

formerly LÖSOMAT

1617

„WE CANNOT CHANGE THE WIND
BUT WE CAN ADJUST OUR SAILS.“

Aristoteles (384 - 322 B.C.), Greek philosopher

# Dear custumors, business partners,
## dear tool users,

with a new logo and fresh impetus, the LÖSOMATS from GEDORE remain the proven product of your choice for 2016. Made in Germany in proven quality and with top service for you.

Nothing changes for you - as usual we offer you active and competent support with our equipment and solutions. Also your usual sales channels and contacts will remain unchanged just as the high-quality fast service we offer.

Our products remain innovative, demanding and benefit from 40 years of concentrated expertise in toolmaking and high level torque bolting technology.

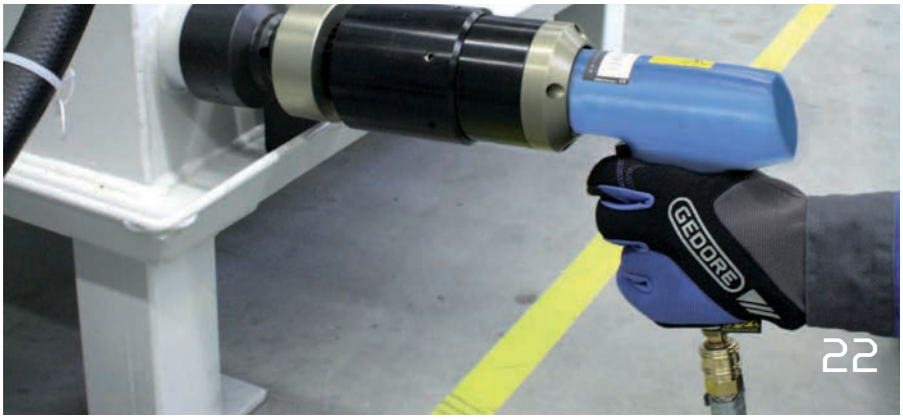
We have succeeded in turning an eagerly awaited customer wish into reality: With the launch of the new hybrid drive for our cordless wrenches, customers can now operate the wrench in battery mode or connected to the mains.
As a further highlight, we present the world's most powerful Cordless Torque Wrench with a massive 6.000 Nm torque, brand new with our more powerful high-power battery (140 Wh / 5 Ah / 28 V) - a strong team!
Our cordless Railway Torque Wrench LDB-10 is another new development, awarded with the Competence Prize for Innovation and Quality Baden-Württemberg 2015. The LDB-10 is a battery-driven lightweight (only 17.2 kg) suitable for one-man operation, also replacing the classic bolting machine, impact wrench and sleeper drill.
The latest generation of high-speed bolting also comes from GEDORE Torque Solutions GmbH. Our LHD-80 combines power and speed: for a faster insertion bolt by bolt. With a powerful 8,000 Nm it defies wind and weather.

You can find out more about these innovations on the following pages.

We hope you enjoy browsing through the new 2016/17 catalogue.

YOUR GEDORE TORQUE SOLUTIONS GMBH TEAM OF EXPERTS










# INNOVATIONS


## Our most powerful cordless wrench - 6.000 Nm with a new power-battery

As the market leader for high-torque cordless wrenches, GEDORE has now paved the way for wrenches in the 6,000 Nm category. In contrast to the commonly used 18V technology, all our cordless wrenches work with 28V which delivers significantly faster and more efficient bolting and wrenching. Our team of engineers was inspired by the idea to bolt connections faster and more conveniently. Together with our new, more powerful high-power battery (140 Wh / 5 Ah / 28 V) a strong team!

In a nutshell:

- The intelligent electronics of the Cordless Torque Wrench recognise when the required torque has been reached. The device is switched off and the reaction arm relaxes automatically so that it can be easily taken from the bolt
- A temperature sensor protects from overheating and switches the device off in time
- The drive unit is braked and can be rotated through 360°. The pistol grip sits securely in the hand
- A high-torque Cordless Torque Wrench to 500 Nm weighs, without reaction arm, 4.2 kg. The heavy-duty aluminium gearing facilitates lifting and working and greatly enhances work safety
- High work performance thanks to the lithium-ion batteries and microprocessor electronics. The powerful lithium-ion battery (24 V/5 Ah/140 Wh) works with consistent top performance until it is fully discharged
- The torque precision of our high-torque wrench fluctuates within a tolerance significantly under 3% for identical bolting operations. Every device is measured individually

Watch our video - see for yourself!

## We are driven by your needs – our hybrid technology

- All of our cordless wrenches are now available with the new hybrid battery technology
- Simply slide on the hybrid battery, plug in the power supply unit and get working
- 230 V standard version, all frequencies. 110 V available on request



## Reliable documentation of results now available for the electric high-torque wrench – LDE Track

- Our classical electric high-torque wrench is now also available with the LE.Track documentation function
- data transmission system is used for the wireless transfer of your data to the laptop/PC where you can then conveniently edit it further

## The latest generation of highspeed-bolting

The new torque wrench, combining power and speed: more than twice as fast as other suppliers - for a faster insertion bolt by bolt. Brushless Technology for a longer tool life of the torque wrench thanks to the brushless, low-wear DC drive. Due to strong voltage fluctuations it is often impossible in the wind power sector to use electrically driven bolting equipment with the required accuracy. This is avoided with the LHD-80 bolting device by a voltage conversion using our Powerbox - this way the bolting device is always provided with the necessary voltage for proper function.

In a nutshell:

- Reliable operation regardless of the wind or weather conditions
- Documentation of over 10.000 bolted connections (modul TRACK) - optional
- Evaluation as well as sowie reprogramming of bolting applications comfortable on the PC with a plausibly structured software: storable bolting operation assignment (module LOCK, module QS) - optional
- Inductive interface for data transmission
- Torque adjustment in 10 Nm steps
- Clear and intuitive handling directly on the machine with the help of a LCD-display and only three operating elements
- Optical and acoustical zero defect strategy
- Repeatability +/-2 %

Further informations on the pages 74-75.
Convince yourself at an individual demonstration of our Heavy Duty Torque Wrench LHD-80.

## One solution for all challenges: The universal LDB-10 railway torque wrench

On behalf of and in close cooperation with DB Bahnbau Gruppe, we have developed a compact and powerful answer to this challenge. The LDB-10 is a battery-operated railway torque wrench weighing less than 20 kg.

In a nutshell:

- Lightweight & compact for 1-man operation at just 17.2 kg
- No exhaust and emission with 0.0g-$CO^{2-}$footprint
- For all types of rail track systems
- High power for maximum flexibility with 16 kW (22 HP)
- High bolting precision
- Reliably prevents concrete sleepers from being damaged
- Logs all bolt connections (optional)
- Powerful enough to tighten up to 1,400 rail track bolts

Further informations on the pages 72-73.
We gladly introduce our railway torque wrench in detail at an individual presentation to you.

Watch our LDB-video - see for yourself!


GEDORE
Li-Ion
28V - 5 Ah
140
Watt Stunden
Watt Hours

# LDA, LAW
# CORDLESS TORQUE WRENCH

## LDA

- MACHINE
- REACTION ARM CRANKED
- 2 BATTERIES
- BATTERY CHARGER
- TOOL CASE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE

## LAW

- MACHINE
- REACTION ARM CRANKED
- 2 BATTERIES
- BATTERY CHARGER
- TOOL CASE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE

# THE CORDLESS TORQUE WRENCH
## LDA/LAW SERIES, 90 - 6.000 Nm

LDA series

Powerfull 140 Wh (28 V / 5 Ah) lithium-ion battery, attachable from two sides for easy handling

PLUS X AWARD achieved for: High Quality Ease of Use

Patented microprocessor-controlled switch-off electronics detect hard and soft tightening operations

torque values read-able on the label

Electronic on/off switch for specific control of the bolting operation

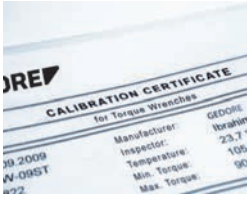
Automatic device switch-off when torque achieved. Wrench slackens (backs off) after torque is applied.





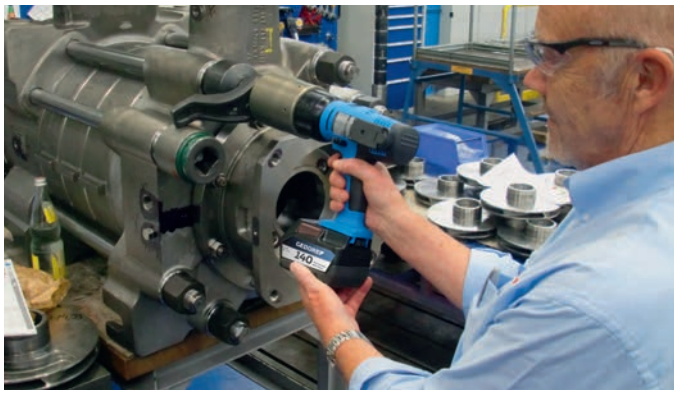
Hybrid set optionally available

Safety function protects the gears and increases the service life of the device




Supplied with individual GEDORE factory calibration certificate

LAW series

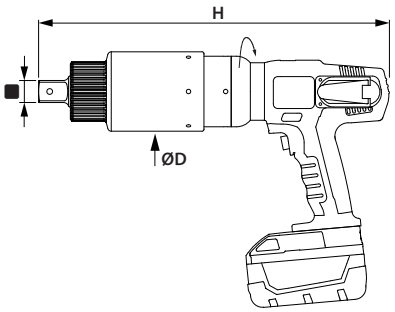


## We are showcasing our cordless torque wrenches up to 6,000 Nm

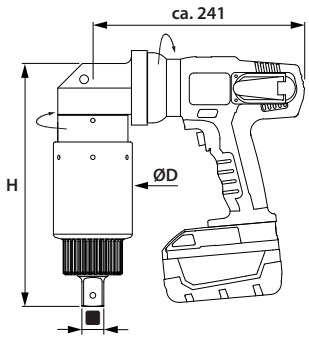
From now on, bolting operations can be implemented independently and flexibly with the GEDORE high-torque cordless torque wrench. It is the first of its kind which can generate precise torques up to 6,000 Nm without slip coupling and impact mechanism.

Applications at great heights or in confined spaces are child's play with the powerful lithium ion battery. Once the battery is fully discharged, you can switch to electrical operation thanks to the optionally available hybrid set.

## Technical data




LDA series – straight version




LAW series – angled version

| Type | N·m min*1 / max*2 | lbf·ft min*1 / max*2 | ~ U/min | ■ | Ø D mm | H mm | kg *3 |
|---|---|---|---|---|---|---|---|
| LDA - 05 | 90 - 500 | 70 - 370 | 48 | 3/4" | 80 | 308 | 4.2 |
| LDA - 07 | 120 - 700 | 90 - 520 | 27 | 3/4" | 80 | 342 | 4.7 |
| LDA - 09ST | 130 - 900 | 100 - 670 | 24 | 3/4" | 80 | 342 | 4.7 |
| LDA - 15 | 180 - 1500 | 110 - 1110 | 20 | 1" | 88 | 357 | 5.9 |
| LDA - 16ST | 250 - 2100 | 180 - 1550 | 9 | 1" | 90 | 375 | 6.5 |
| LDA - 28ST | 350 - 3100 | 260 - 2290 | 7 | 1" | 90 | 398 | 7.2 |
| LDA - 40 | 430 - 4000 | 320 - 2950 | 5 | 1" | 94 | 398 | 7.5 |
| LDA - 60 | 650 - 6000 | 480 - 4430 | 4 | 1 ½" | 102 | 412 | 8.7 |
| LAW - 09ST | 130 - 900 | 100 - 670 | 24 | 3/4" | 80 | 220 | 5.9 |
| LAW - 16ST | 250 - 2100 | 180 - 1550 | 9 | 1" | 90 | 254 | 7.5 |
| LAW - 28ST | 350 - 3000 | 260 - 2200 | 7 | 1" | 90 | 277 | 8.3 |
| LAW - 40 | 430 - 4000 | 320 - 2950 | 5 | 1" | 94 | 277 | 8.5 |

*1 Lowest torque in 2nd gear *2 Maximum torque in 1st gear *3 Without reaction arm with battery

# WHAT MAKES THE CORDLESS TORQUE WRENCH SO POWERFUL?

## The secret: the intelligent microprocessor electronics

The heart of the cordless torque wrench is the switch-off electronics with micro-processor control developed. This allows the tightening torque for each bolting operation to be precisely maintained and ensures stable torque accuracy over the entire discharging cycle of the battery.
In addition, the device detects a wide range of hard and soft bolting operations, automatically adapting to the properties of the bolted connection.

## Lies comfortably in the hand

By shifting the gear centre of gravity, the soft grip of the motor unit lies fatigue-free and non-slip in the hand. The powerful lithium ion battery can be inserted from two sides. The braked 360°-rotating drive unit prevents any injuries to the operator when used in confined spaces.

## Integrated gear protection and processor-controlled safety

The microprocessor prevents gear damage when loosening hard bolted connections. The low-backlash gear with a housing made of high-performance aluminium was specially developed further for this series. An active release function ensures that the wrench automatically releases after work is complete and can thus be easily removed from the bolt.


The roof structure of the football stadium belonging to TSG 1899 Hoffenheim mounted using GEDORE cordless torque wrenches.

## Optional Accessories:

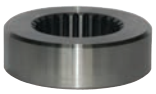
Charger 110V/60Hz; 220V/50Hz


140 Wh Battery (28 V / 5 Ah)

Charger with 12/24V connector

Reaction arm cranked with lock on function, made of drop-forged chrome-vanadium steel

Reaction arm made of light alloy, straight with adjustable locking knob with movable square-end and retaining ring.



Reaction ring for bespoken reaction arm design

# LONGER RUNNING TIME WITH THE RIGHT BATTERY TECHNOLOGY

## Technology which makes the work much easier

The lithium ion batteries operate 100% longer in comparison to nickel-cadmium batteries. In addition, they operate with uniform peak performance until they are fully discharged. This saves you having to change the battery frequently while working.

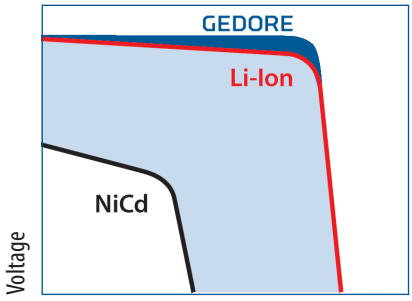
## An unbeatable combination

Battery technology and microprocessor electronics supplement each other optimally. Our microprocessor electronics increases and regulates the battery voltage. This increases the running time of the battery and maintains the torque at a constant level throughout the entire working cycle. This technology has also been patented by us.

## Reserve capacity of battery and charger

The charging time on the charger is approx. 30-50 min when the battery is empty. Once the battery is fully charged, the charger LED changes from red to green

Lithium ion technology




Discharging during work

Pressure switch for displaying the charge status

The flashing LED signals that the battery has a reserve capacity of 10%

Four lit up LEDs signal that the battery is fully charged

# LDE, LEW
# ELECTRIC TORQUE WRENCH

## LDE

- MACHINE
- REACTION ARM CRANKED
- TOOL CASE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE

## LEW

- MACHINE
- REACTION ARM CRANKED
- TOOL CASE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE

# THE ELECTRIC TORQUE WRENCH
## LDE/LEW SERIES, 90 - 13.000 Nm

### LDE series

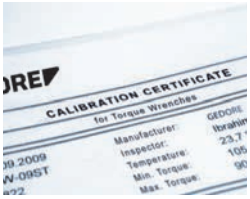
High input voltage and frequency range (200-260V, 47-63Hz), designed for international use

torque values read-able on the label

Digital display with visual-acoustic operator guidance for even simpler operation

optional:
Torque-Angle of Rotation Mode

Planet gear unit with Ceramic-Teflon®-coated tooth flanks




Supplied with individual GEDORE factory calibration certificate

Electronic R/L switching function


Optional LE.TRACK: Data read-out function via non-contact, inductive high-performance interface.

Drop-forged reaction arm made of chrome-vanadium steel for even greater stability

### LEW series

## Rugged gear unit combined with intelligent electronics

Setting new standards with the robust gear unit housing and intelligent electronics under the display: Service functions such as overload and recalibration are displayed to the user. In default, the display shows the torque level. In addition, if required, the display can be changed from torque level to torque value.

## Further functions

Optionally, the electric torque wrench, which is available in straight and angled versions, can be upgraded with a data read-out function, the torque-rotation angle mode and the fast mode.

## Reliable documentation of results – LE. Track

In response to many requests, the classical electric high-level torque wrench is now also available with the LE-Track documentation function.
Designed for the toughest construction site applications, the inductive data transmission system is used for non-contact transfer of your data to the laptop/PC where you can then conveniently edit it further (see page 6).

## The display and its functions

# HAND GRIP

From version size LDE-70, the electric torque wrench is supplied with a rotating hand grip to facilitate the easy operation of the device.

The hand grip is included as of size LEW-60 for the angled electric torque wrenches.

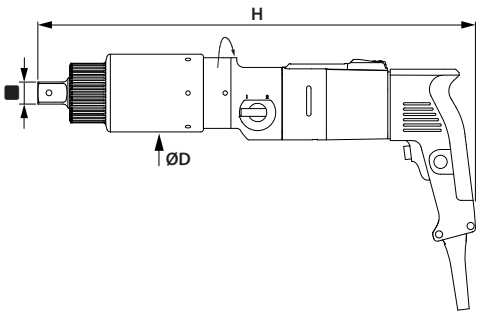
## Accessories

Reaction arm cranked with lock on function, made of drop-forged chrome-vanadium steel

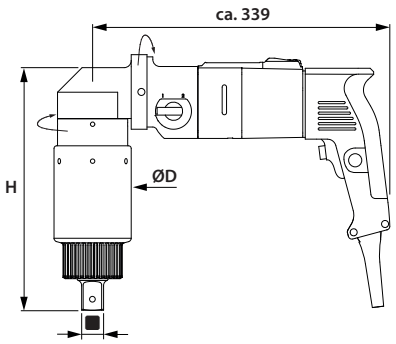
Reaction arm made of light alloy, straight with adjustable locking knob with movable square-end and retaining ring

Reaction ring for bespoken reaction arm design

## Technical data




LDE series – straight version




LEW series – angled version

## LDE series - straight version

| Type | N·m min*1/ max*2 | lbf·ft min*1/ max*2 | ~ U/min | ■ | Ø D mm | H mm | kg *3 |
|---|---|---|---|---|---|---|---|
| LDE - 05 | 90 - 500 | 70 - 370 | 44 | 3/4" | 80 | 405 | 4.5 |
| LDE - 075 | 100 - 750 | 80 - 550 | 22 | 3/4" | 80 | 439 | 5.0 |
| LDE - 15 | 250 - 1500 | 180 - 1110 | 20 | 1" | 88 | 455 | 6.1 |
| LDE - 28 | 500 - 2800 | 370 - 2050 | 6 | 1" | 88 | 495 | 7.3 |
| LDE - 40 | 750 - 4000 | 550 - 2950 | 5 | 1" | 88 | 495 | 7.3 |
| LDE - 60 | 700 - 6000 | 520 - 4400 | 3.5 | 1 ½" | 102 | 515 | 9.2 |
| LDE - 70 | 900 - 7500 | 660 - 5500 | 3 | 1 ½" | 128 | 531 | 12.1 |
| LDE - 90 | 1100 - 9000 | 810 - 6600 | 2.5 | 1 ½" | 142 | 542 | 14.0 |
| LDE - 120 | 1800 - 13000 | 1330 - 9500 | 2 | 1 ½" | 174.5 | 560 | 20.0 |

*1 Lowest torque in 2nd gear *2 Maximum torque in 1st gear *3 Without reaction arm



## LEW series - angled version

| Type | N·m min*1/ max*2 | lbf·ft min*1/ max*2 | ~ U/min | ■ | Ø D mm | H mm | kg *3 |
|---|---|---|---|---|---|---|---|
| LEW - 05 | 90 - 500 | 70 - 370 | 44 | 3/4" | 80 | 187 | 5.8 |
| LEW - 075 | 100 - 750 | 80 - 550 | 22 | 3/4" | 80 | 220 | 6.4 |
| LEW - 15 | 250 - 1500 | 180 - 1110 | 20 | 1" | 88 | 236 | 7.3 |
| LEW - 28 | 500 - 2800 | 370 - 2050 | 6 | 1" | 88 | 276 | 8.6 |
| LEW - 40 | 750 - 4000 | 550 - 2950 | 5 | 1" | 88 | 276 | 8.6 |
| LEW - 60 | 700 - 6000 | 520 - 4400 | 3.5 | 1 ½" | 102 | 296 | 10.7 |
| LEW - 70 | 900 - 7500 | 660 - 5500 | 3 | 1 ½" | 128 | 311 | 12.9 |
| LEW - 95 | 1100 - 9500 | 810 - 7000 | 2.5 | 1 ½" | 142 | 323 | 14.6 |
| LEW - 120 | 1800 - 13000 | 1330 - 9500 | 2 | 1 ½" | 174.5 | 340 | 20.6 |

*1 Lowest torque in 2nd gear *2 Maximum torque in 1st gear *3 Without reaction arm

# THE CRANE
# TORQUE WRENCH

There are applications where electric torque wrenches have to provide even more power. This includes crane assembly at great heights. The LEW-60L and LEW-95L devices are specially designed for the HV bolted connections on the tower sections of the Liebherr HC and EC models.

We also offer the complete package here for the demanding user. Starting from the gear unit diameter precisely matched to the tower section and conical impact sockets right up to the appropriate reaction arm made of high-performance aluminium.
In addition, higher loosening torques for disassembly, as well as special equipment and torque settings for other crane manufactures are available.

## Accessories for Crane Torqe Wrench

HC Design

EC Design

SL type impact socket

Reaction arms for other crane manufacturers on request.

## Technical data

Also available as a Heavy Duty version. LEW-60L with increased torque.

| Type | N·m min*1/ max*2 | lbf·ft min*1/ max*2 | ~ U/min | ■ | Ø D mm | H mm | kg *3 |
|---|---|---|---|---|---|---|---|
| LEW - 60L | 1200 - 6500 | 880 - 4800 | 3.5 | 1½" | 102 | 296 | 10.7 |
| LEW - 95L | 1100 - 9500 | 810 - 7000 | 2.2 | 1½" | 138 | 324 | 17.7 |

*1 Lowest torque in 2nd gear *2 Maximum torque in 1st gear *3 Without reaction arm

# THE STEEL STRUCTURE
# TORQUE WRENCH

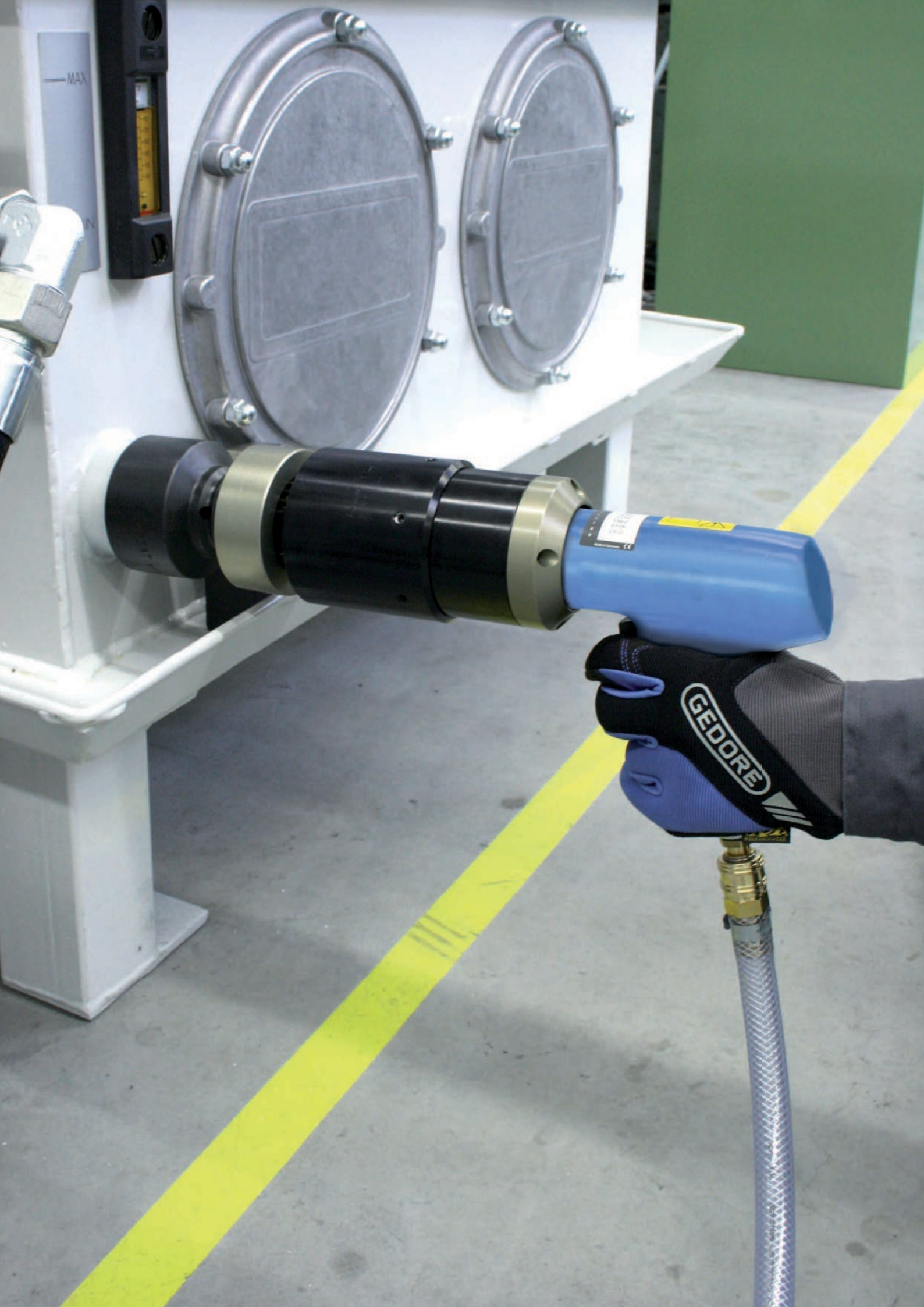
The steel structure torque wrench must be light but rugged in design for the assembly of bridges or steel construction projects.
We specialise in such situations.
Decades of experience and development work, combined with the known high quality requirements, are clearly demonstrated by the torque wrenches in this range. As with all series devices, you can rely on the acknowledged torque precision of these special versions.

## Technical Data

| Type | N·m min*1/ max*2 | lbf·ft min*1/ max*2 | ~ U/min | ■ | Ø D mm | H mm | kg *3 |
|---|---|---|---|---|---|---|---|
| LDE - 09ST | 120 - 900 | 90 - 670 | 19.0 | 3/4" | 80 | 439 | 5.2 |
| LDE - 16ST | 300 - 2200 | 220 - 1620 | 7.0 | 1" | 88 | 472 | 6.6 |
| LDE - 28ST | 450 - 3200 | 330 - 2360 | 6.1 | 1" | 88 | 495 | 7.3 |
| LEW - 09ST | 120 - 900 | 90 - 670 | 19.0 | 3/4" | 80 | 220 | 6.5 |
| LEW - 16ST | 300 - 2200 | 220 - 1620 | 7.0 | 1" | 88 | 253 | 7.9 |
| LEW - 28ST | 450 - 3200 | 330 - 2360 | 6.1 | 1" | 88 | 276 | 8.6 |

*1 Lowest torque in 2nd gear *2 Maximum torque in 1st gear *3 Without reaction arm


Steel Structure Torque Wrench
LDE-/LEW-09ST; Tightening of HV-connections from M12 to M24 (10.9)
LDE-/LEW-16ST; Tightening of HV-connections from M16 to M30 (10.9)
LDE-/LEW-28ST; Tightening of HV-connections from M20 to M36 (10.9)


MAX
GEDORE

# LPK, LPK-X
# PNEUMATIC TORQUE WRENCH

## LPK

- MACHINE
- REACTION ARM CRANKED
- TOOL CASE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE

# THE PNEUMATIC TORQUE WRENCH
## LPK SERIES, 80 - 12.800 Nm

LPK series

Ergonomic pistol grip made of resistant pressure-cast aluminium

Braked 360°-rotating motor unit for comfortable working with optimal operator safety

torque values readable on the label

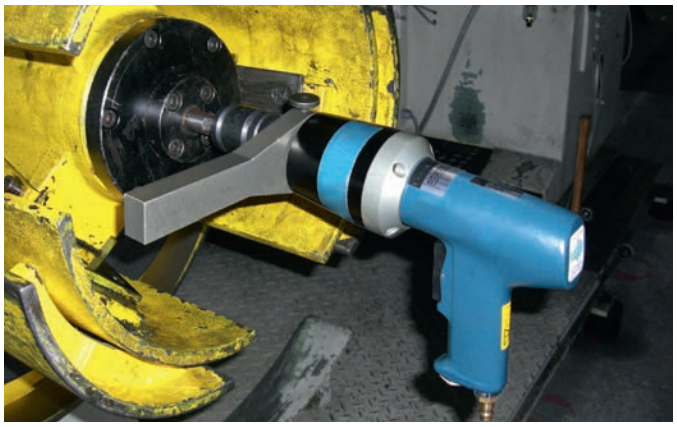
Rocker switch for simple change of rotation direction

Planet gear unit with ceramic-Teflon®-coated tooth flanks

Drop-forged reaction arm made of chrome-vanadium steel for even greater stability


Supplied with individual GEDORE factory calibration certificate

Maintenance unit optionally available



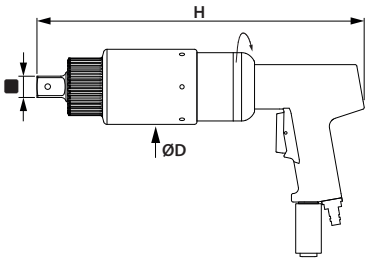
## Quiet and accurate torque - even from just 2 bar operating pressure

The pneumatic torque wrench is not an impact wrench. It functions without vibrations, thus protecting the user. Hand on vibration and hearing loss can be significantly reduced with the GEDORE Torque Solutions GmbH pneumatic torque wrenches.
The force is transmitted quietly and precisely from just 2 bar operating pressure via the proven high-performance gear unit to the bolt connection.

## Rugged pneumatic torque wrench for a wide range of environments

Because of the continuously generated overpressure in the device, the pneumatic torque wrench is particularly resistant when used in extremely dirty or dusty environments. Pressure fluctuations in the supply network are effectively compensated for by the proven maintenance unit comprising of an air filter, oiler and pressure reducers. The device is supplied with a constantly uniform airflow and the torque is constantly maintained.

## Technical data




LPK series– pneumatic

| Type | N·m min*1/ max*2 | lbf·ft min*1/ max*2 | ~ U/min | ■ | Ø D mm | H mm | kg *3 |
|---|---|---|---|---|---|---|---|
| LPK - 05 | 80 - 450 | 60 - 330 | 55 | 3/4" | 80 | 295 | 3.0 |
| LPK - 09 | 200 - 900 | 150 - 670 | 24 | 3/4" | 80 | 328 | 3.2 |
| LPK - 15 | 300 - 1500 | 220 - 1110 | 12 | 1" | 88 | 343 | 4.7 |
| LPK - 22 | 500 - 2200 | 370 - 1620 | 7 | 1" | 88 | 360 | 5.1 |
| LPK - 32 | 800 - 3200 | 590 - 2360 | 4 | 1" | 88 | 383 | 5.8 |
| LPK - 40 | 850 - 4200 | 620 - 3100 | 4 | 1" | 88 | 383 | 5.8 |
| LPK - 60 | 1200 - 6000 | 880 - 4400 | 4 | 1½" | 102 | 400 | 7.7 |
| LPK - 70 | 1500 - 7000 | 1110 - 5160 | 3 | 1½" | 128 | 416 | 10.6 |
| LPK - 95 | 2000 - 9500 | 1470 - 7000 | 2.5 | 1½" | 142 | 431 | 12.5 |
| LPK - 120 | 2500 - 12800 | 1840 - 9440 | 1.5 | 1½" | 174.5 | 448 | 18.5 |

*1 Lowest torque at 1.5 bar *2 Maximum torque at 8 bar *3 Without reaction arm
At 8 bar ca. 1,400 l/min. 

# THE PNEUMATIC TORQUE WRENCH
## LPK-X SERIES, 80 - 4.200 Nm

### LPK-X series

Braked 360°-rotating motor unit for comfortable working with optimal operator safety

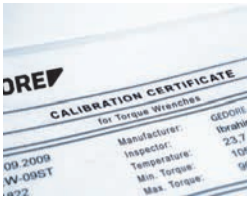
torque values readable on the label

Rocker switch for simple change of rotation direction

Low-backlash high-performance gear unit for reliable, long-term operation

Smallest dimensions and compact construction for extremely confined spaces

2-speed planet gear unit for up to 7-fold faster tightening speed




Supplied with individual GEDORE factory calibration certificate

### Accessories for the series LPK and LPK-X

Reaction arm cranked with lock on function, made of drop-forged chrome-vanadium steel

Reaction arm made of light alloy, straight with adjustable locking knob with movable square-end and retaining ring

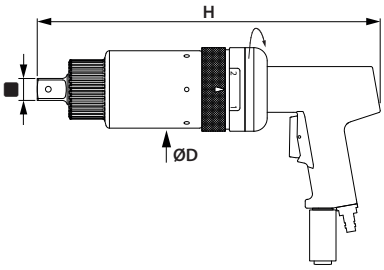
Reaction ring for bespoken reaction arm design

## Up to 7 times higher bolting speed

The LPK-X series has a 2-speed planet gear unit. The user can therefore select between rapid and torque mode. The rapid mode drives the bolt in up to the joining torque with a speed up to 300 rpm. It is then possible to switch to the torque mode that tightens the bolt to the precise torque required. Once the required torque has been achieved, the device switches off automatically.

If a torque wrench is not available, bolt connections are usually pre-tightened and then finished off with a torque wrench. These two working steps are combined in the LPK-X, saving working time for the user. In extensive on-site applications, the assembly times can be reduced by up to 30% through the combination of two working steps in one device with the LPK-X.

## Technical data




LPK-X series – pneumatic

| Typw | N·m min*1/ max*2 | lbf·ft min*1/ max*2 | ~ U/min*3 | ■ | Ø D mm | H mm | kg *4 |
|---|---|---|---|---|---|---|---|
| LPK - 05 X | 80 - 450 | 60 - 330 | 300 | ¾" | 80 | 301 | 3.0 |
| LPK - 09 X | 200 - 900 | 150 - 670 | 100 | ¾" | 88 | 333 | 4.0 |
| LPK - 22 X | 500 - 2200 | 370 - 1620 | 30 | 1" | 88 | 367 | 5.5 |
| LPK - 32 X | 800 - 3200 | 590 - 2360 | 25 | 1" | 88 | 390 | 6.2 |
| LPK - 40 X | 850 - 4200 | 620 - 3100 | 20 | 1" | 88 | 390 | 7.0 |

*1 Lowest torque in 2nd gear at 1.5 bar *2 Maximum torque in 1st gear at 8 bar *3 Maximum speed in 2nd gear *4 Without reaction arm

# LDH, LDK, LHU
# HYDRAULIC SOLUTIONS

## LDH

- MACHINE INCL. SQUARE DRIVE AND COUNTER BEARING
- TOOL CASE
- TORQUE-ADJUSTMENT -TABEL
- OPERATING MANUAL

## LDK

- MACHINE
- TOOL CASE
- TORQUE-ADJUSTMENT -TABEL
- OPERATING MANUAL

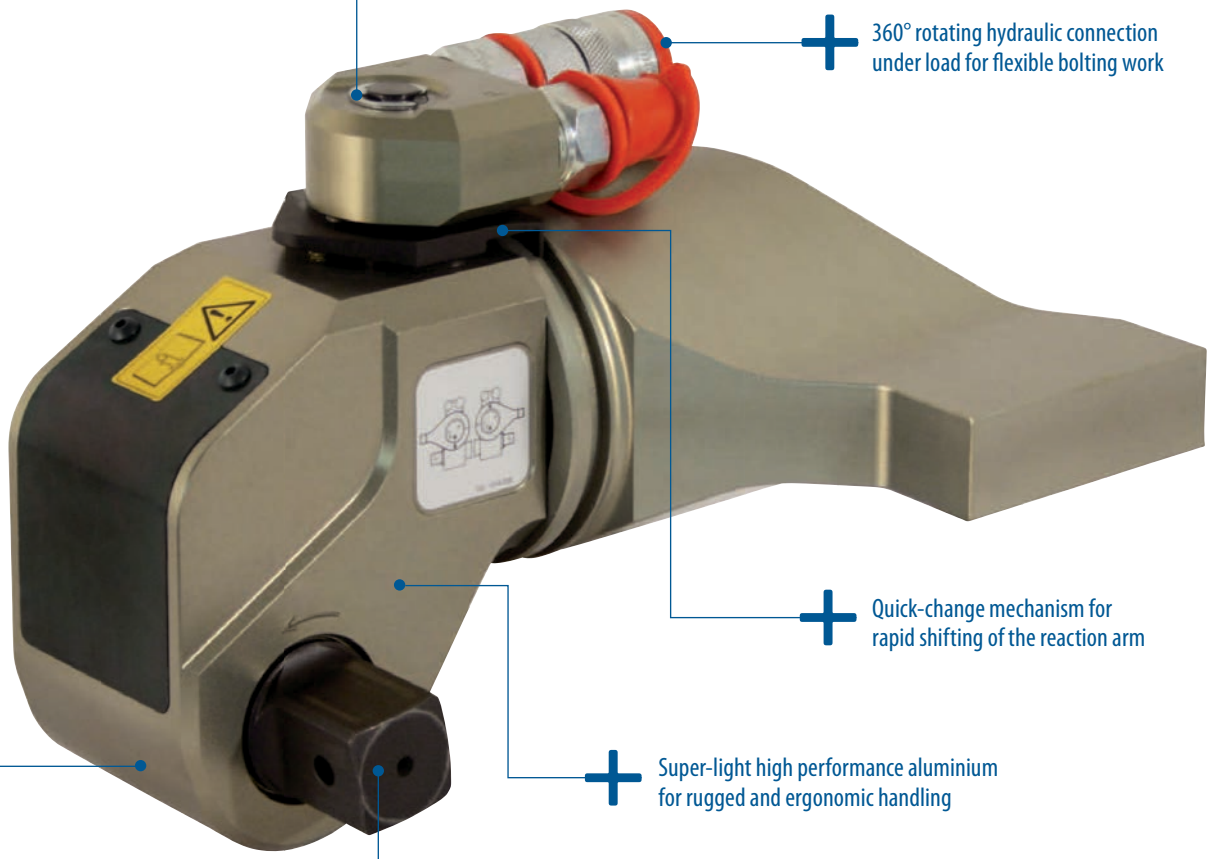
## LHU

- MACHINE OIL-FILLED
- OPERATING MANUAL

# THE HYDRAULIC TORQUE WRENCH
## LDH SERIES, 60 - 27.000 Nm

Integrated relief valve in hydraulic connection increases work safety

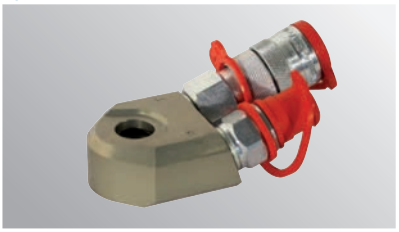
360° rotating hydraulic connection under load for flexible bolting work



Quick-change mechanism for rapid shifting of the reaction arm

Super-light high performance aluminium for rugged and ergonomic handling

Optional: inclined connection



Smallest dimensions and compact construction for extremely confined spaces

Various inserts as accessories for flexible working

## Accessories

Toothed impact sockets and special inserts

Square drive

Allen screw - ISW

## Light, easy to handle and with high torque

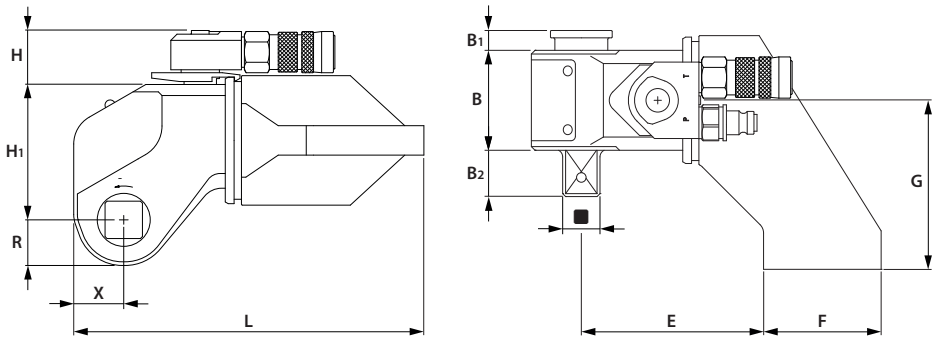
The LDH is used where very little space is available, but where high torque is necessary. In order to facilitate bolting operations for the user, the hydraulic torque wrench series has been designed with high-performance aluminium and subject to continuous improvements.
The size has therefore been constantly reduced while ever more details have been included to make the difficult work easier for the user.

An integrated relief valve ensures working safety and the flow-optimised, generously dimensioned oil channels reduce heating up of the device during high continuous loads to a minimum.

## The perfect combination

Together with our hydraulic units, the hydraulic torque wrenches achieve a maximum in work performance. Both components together create an excellent synergy of user-friendliness and operating convenience.

## Technical Data




Series LDH – hydraulic

| Type | N·m min*1 / max*2 | lbf·ft min*1 / max*2 | ■ | B mm | $B_1$ mm | $B_2$ mm | E mm*3 | F mm*3 | G mm | H mm | $H_1$ mm | L mm*3 | R mm | X mm | kg *2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LDH - 12V | 60 - 1200 | 45 - 880 | ¾" | 46 | 7 | 28 | -/88 | -/48 | 78 | 37 | 62 | -/158 | 19 | 22 | 1.9 |
| LDH - 24V | 120 - 2350 | 90 - 1730 | ¾" | 53 | 6 | 28 | 59/109 | 60/58 | 95 | 37 | 72 | 146/194 | 24 | 27 | 2.0 |
| LDH - 48V | 230 - 4800 | 170 - 3500 | 1" | 68 | 14 | 32 | 70/125 | 89/80 | 115 | 37 | 92 | 193/239 | 31 | 34 | 3.9 |
| LDH - 75V | 400 - 7560 | 290 - 5570 | 1 ½" | 76 | 12 | 44 | 74/134 | 94/93 | 122 | 37 | 107 | 207/266 | 36 | 39 | 6.2 |
| LDH - 100V | 500 - 10000 | 370 - 7300 | 1 ½" | 84 | 13 | 39 | 85/150 | 105/99 | 130 | 37 | 115 | 233/292 | 39 | 43 | 7.8 |
| LDH - 170V | 800 - 16000 | 590 - 11800 | 1 ½" | 100 | 11 | 45 | 93/163 | 118/108 | 150 | 50 | 135 | 265/325 | 48 | 54 | 11.8 |
| LDH - 270V | 1300-27000 | 960 - 19900 | 2 ½" | 119 | 18 | 76 | 121/206 | 145/133 | 200 | 50 | 164 | 329/402 | 59 | 63 | 24.0 |

*1 Maximum torque at 800 bar *2 Without reaction arm *3 Reaction arm type L(LM) / Reaction arm type S(LM)

# Technical data: Allen screw - ISW, Reaction arm - RA

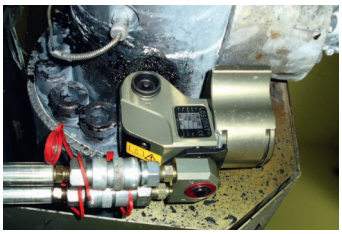
| Typ e | ISW mm |
|---|---|
| LDH - 12V | ISW 12V-14 |
| | ISW 12V-17 |
| | ISW 12V-19 |
| LDH - 24V | ISW 24V-14 |
| | ISW 24V-17 |
| | ISW 24V-19 |
| | ISW 24V-22 |
| | ISW 24V-24 |
| LDH - 48V | ISW 48V-17 |
| | ISW 48V-19 |
| | ISW 48V-22 |
| | ISW 48V-24 |
| | ISW 48V-27 |
| | ISW 48V-30 |
| | ISW 48V-32 |
| LDH - 75V | ISW 75V-17 |
| | ISW 75V-19 |
| | ISW 75V-22 |
| | ISW 75V-24 |
| | ISW 75V-27 |
| | ISW 75V-30 |
| | ISW 75V-32 |
| LDH - 100V | ISW 100V-19 |
| | ISW 100V-22 |
| | ISW 100V-24 |
| | ISW 100V-27 |
| | ISW 100V-30 |
| | ISW 100V-32 |
| | ISW 100V-36 |
| LDH - 170V | ISW 170V-27 |
| | ISW 170V-30 |
| | ISW 170V-32 |
| | ISW 170V-36 |
| | ISW 170V-41 |
| | ISW 170V-46 |
| LDH - 270V | ISW 270V-36 |
| | ISW 270V-41 |
| | ISW 270V-46 |
| | ISW 270V-50 |
| | ISW 270V-55 |
| | ISW 270V-60 |
| | ISW 270V-65 |
| | ISW 270V-70 |

Reaction arms

Reaction arm S(LM)
Standard design

Reaction arm L(LM)
(except LDH-12V) Compact design

Reaction arm K(LM)
for embedded screws and
raised Allen screws



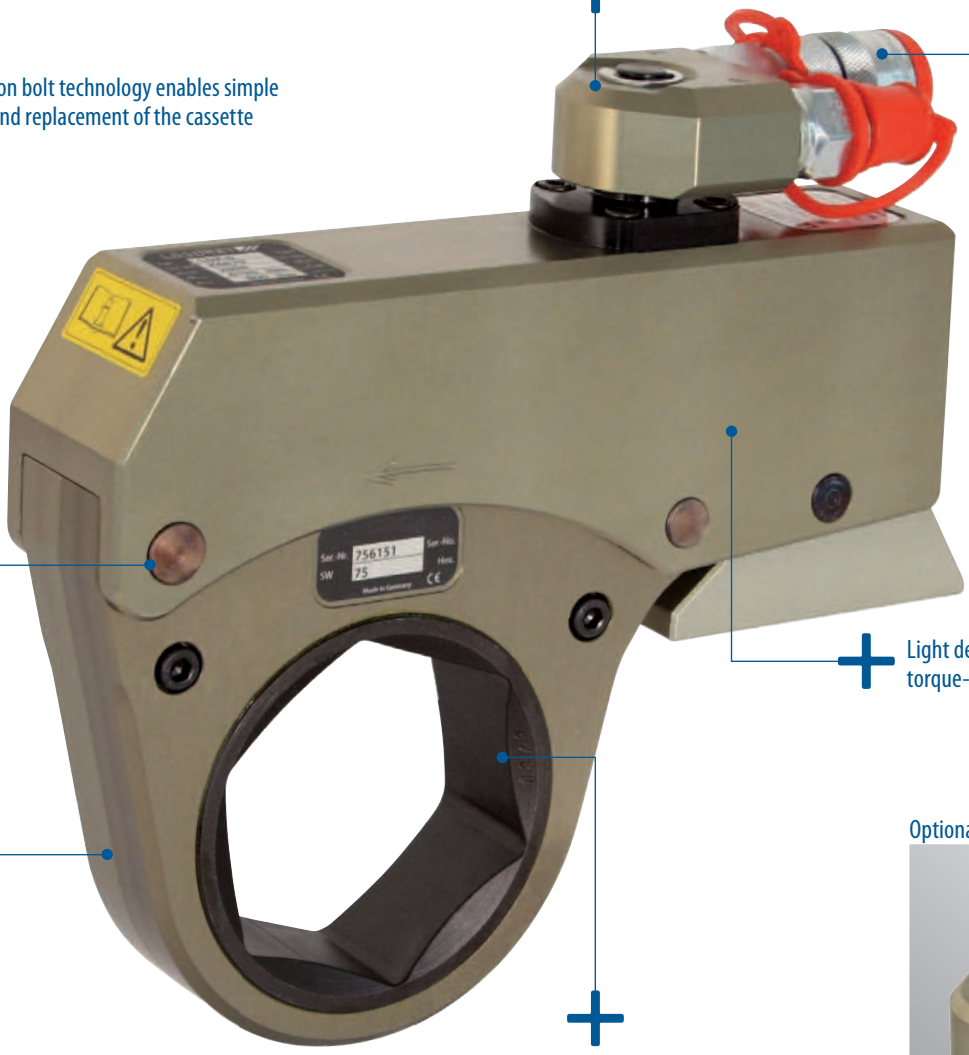
Reaction sleeve RH (St)

# THE CASSETTE WRENCH
## LDK SERIES, 160 - 24.000 Nm

Relief valve in hydraulic connection
increases work safety

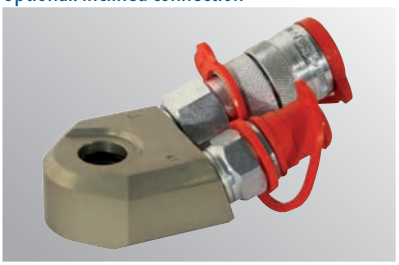
360° rotating hydraulic connection
under load for flexible bolting work

Compression bolt technology enables simple
insertion and replacement of the cassette



Light design ensures best
torque-weight relationship

Optional: inclined connection



Smallest of dimensions
for confined spaces

Various wrench widths
ensure universal applications

## Accessories

Hexagon insert - SA
Retaining ring - HR

Exchangeable cassette - WK
Inch sizes on request

In-Out impact socket

## Simple loosening and precise tightening in confined spaces

Tight spots can become problem spots. In such situations, the LDK series is the ideal solution. Compact dimensions are paired here with high torques. The flat hexagon cassettes have been optimised for minimum radius and compact construction heights.

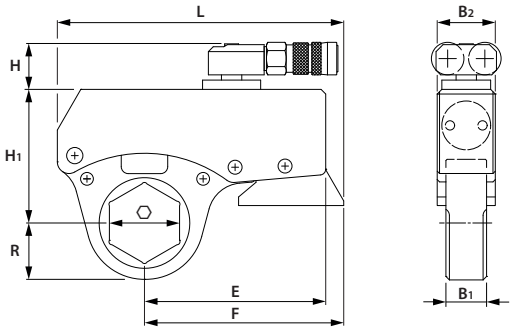
## Simple operation and handling characterises the cassette torque wrench

The exchangeable cassettes can be rapidly and easily changed with the compression bolt technology. Different types of hydraulic connections enable adaptation to diverse bolting operations even in difficult to access points.

## Economic in use

A separate cassette size is not always necessary for every wrench width. The Installation spaces often leave enough room for the economic hexagon adapters. These are, like all the adaptations, locked in the corresponding interchangeable cassette with a holding ring so that they cannot be lost.

## Technical data




LDK series – hydraulic

| Type | N·m min/ max*1 | lbf·ft min/ max*1 | ⬡ mm | ⬡ " | $B_1$ mm | $B_2$ mm | E mm | F mm | H mm | $H_1$ mm | L mm | R mm | kg *2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LDK - 3 | 160 - 3300 | 120 - 2400 | 32 - 60 | 1¼" - 2⅜" | 28 | 40 | 137 | 145 | 39.2 | 91/103 | 137 | 28 - 48 | 1.6 |
| LDK - 6 | 350 - 6200 | 260 - 4500 | 41 - 80 | 1⅝" - 3⅛" | 35 | 50 | 156 | 172 | 39.2 | 115/130 | 156 | 34 - 60 | 2.4 |
| LDK - 12 | 550 - 12500 | 410 - 9200 | 55 - 100 | 2³/₁₆" - 3⅞" | 47 | 65 | 200 | 215 | 39.2 | 141/156 | 200 | 46 - 73 | 4.4 |
| LDK - 24 | 1200 - 24000 | 880 - 17700 | 80 - 130 | 3⅛ - 5" | 56 | 82 | 245 | 260 | 50.0 | 182/202 | 245 | 62 - 96 | 8.2 |

*1 Maximum torque at 800 bar *2 Without exchangeable cassette

## Technical data: Exchangeable cassettes - WK, Hexagon insert - SA, Retaining ring - HR

| Type | WK Typ | R mm | $H_1$ mm | N·m max*1 | lbf·ft max*1 | | | SA*2 SW/ SW | HR mm |
|---|---|---|---|---|---|---|---|---|---|
| LDK - 3 | WK3-32 | 28.5 | 91 | 1700 | 1300 | - | - | - | - |
| | WK3-36 | 31.5 | 91 | 2100 | 1550 | - | - | - | - |
| | WK3-41 | 34.5 | 91 | 2500 | 1850 | SA3-41»36 | SA3-41»32 | SA3-41»30 | HR-41 |
| | WK3-46 | 38.5 | 91 | 2890 | 2130 | SA3-46»41 | SA3-46»36 | SA3-46»32 | HR-46 |
| | WK3-50 | 42.0 | 103 | 3290 | 2430 | SA3-50»46 | SA3-50»41 | SA3-50»36 | HR-50 |
| | WK3-55 | 45.0 | 103 | 3290 | 2430 | SA3-55»50 | SA3-55»46 | SA3-55»41 | HR-55 |
| | WK3-60 | 47.5 | 103 | 3290 | 2430 | SA3-60»55 | SA3-60»50 | SA3-60»46 | HR-60 |
| LDK - 6 | WK6-41 | 34.5 | 115 | 3840 | 2830 | SA6-41»36 | - | - | HR-41 |
| | WK6-46 | 39.5 | 115 | 4805 | 3540 | SA6-46»41 | SA6-46»36 | SA6-46»32 | HR-46 |
| | WK6-50 | 43.5 | 115 | 5410 | 3990 | SA6-50»46 | SA6-50»41 | SA6-50»36 | HR-50 |
| | WK6-55 | 46.5 | 115 | 5410 | 3990 | SA6-55»50 | SA6-55»46 | SA6-55»41 | HR-55 |
| | WK6-60 | 48.5 | 115 | 5410 | 3990 | SA6-60»55 | SA6-60»50 | SA6-60»46 | HR-60 |
| | WK6-65 | 52.5 | 130 | 6190 | 4570 | SA6-65»60 | SA6-65»55 | SA6-65»50 | HR-65 |
| | WK6-70 | 55.5 | 130 | 6190 | 4570 | SA6-70»65 | SA6-70»60 | SA6-70»55 | HR-70 |
| | WK6-75 | 57.5 | 130 | 6190 | 4570 | SA6-75»70 | SA6-75»65 | SA6-75»60 | HR-75 |
| | WK6-80 | 60.5 | 130 | 6190 | 4570 | SA6-80»75 | SA6-80»70 | SA6-80»65 | HR-80 |
| LDK - 12 | WK12-55 | 46.5 | 141 | 8000 | 5900 | SA12-55»50 | SA12-55»46 | SA12-55»41 | HR-55 |
| | WK12-60 | 48.5 | 141 | 8000 | 5900 | SA12-60»55 | SA12-60»50 | SA12-60»46 | HR-60 |
| | WK12-65 | 52.5 | 141 | 9800 | 7230 | SA12-65»60 | SA12-65»55 | SA12-65»50 | HR-65 |
| | WK12-70 | 55.5 | 141 | 9800 | 7230 | SA12-70»65 | SA12-70»60 | SA12-70»55 | HR-70 |
| | WK12-75 | 57.5 | 141 | 9800 | 7230 | SA12-75»70 | SA12-75»65 | SA12-75»60 | HR-75 |
| | WK12-80 | 60.5 | 141 | 10860 | 8010 | SA12-80»75 | SA12-80»70 | SA12-80»65 | HR-80 |
| | WK12-85 | 64.5 | 156 | 12500 | 9220 | SA12-85»80 | SA12-85»75 | SA12-85»70 | HR-85 |
| | WK12-90 | 67.5 | 156 | 12500 | 9220 | SA12-90»85 | SA12-90»80 | SA12-90»75 | HR-90 |
| | WK12-95 | 70.5 | 156 | 12500 | 9220 | SA12-95»90 | SA12-95»85 | SA12-95»80 | HR-95 |
| | WK12-100 | 73.5 | 156 | 12500 | 9220 | SA12-100»95 | SA12-100»90 | SA12-100»85 | HR-100 |
| LDK - 24 | WK24-80 | 62.0 | 182 | 13950 | 10290 | SA24-80»75 | SA24-80»70 | SA24-80»65 | HR-80 |
| | WK24-85 | 66.0 | 182 | 15810 | 11660 | SA24-85»80 | SA24-85»75 | SA24-85»70 | HR-85 |
| | WK24-90 | 69.0 | 182 | 16430 | 12120 | SA24-90»85 | SA24-90»80 | SA24-90»75 | HR-90 |
| | WK24-95 | 72.0 | 182 | 17860 | 13170 | SA24-95»90 | SA24-95»85 | SA24-95»80 | HR-95 |
| | WK24-100 | 76.0 | 182 | 17860 | 13170 | SA24-100»95 | SA24-100»90 | SA24-100»85 | HR-100 |
| | WK24-105 | 80.0 | 182 | 17860 | 13170 | SA24-105»100 | SA24-105»95 | SA24-105»90 | HR-105 |
| | WK24-110 | 84.0 | 202 | 24000 | 17700 | SA24-110»105 | SA24-110»100 | SA24-110»95 | HR-110 |
| | WK24-115 | 87.0 | 202 | 24000 | 17700 | SA24-115»110 | SA24-115»105 | SA24-115»100 | HR-115 |
| | WK24-120 | 90.0 | 202 | 24000 | 17700 | SA24-120»115 | SA24-120»110 | SA24-120»105 | HR-120 |
| | WK24-125 | 93.0 | 202 | 24000 | 17700 | SA24-125»120 | SA24-125»115 | SA24-125»110 | HR-125 |
| | WK24-130 | 96.0 | 202 | 24000 | 17700 | SA24-130»125 | SA24-130»120 | SA24-130»115 | HR-130 |

*1 Maximum torque at 800 bar *2 Special adapter on request

# THE HYDRAULIC UNIT
## LHU SERIES

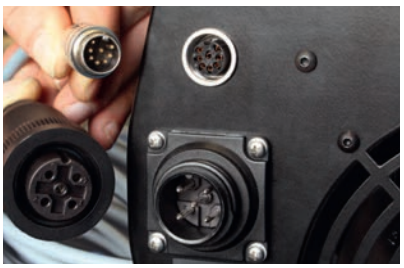
### LHU series

Sensors are installed fully in the unit, not in the hydraulic torque wrench. This makes the unit compatible with all hydraulic torque wrenches (dual-hose system)

Completely sealed housing protects unit and operator even in the roughest of applications

Wear-free pump technology means that the unit is maintenance-free

Plug-in connections for power and control system



Maximum pressure: 800 bar

Novel cooling air supply (patent-filed) for optimal cooling of the unit even under extreme loads

OR

OR

Manual control - M
The classic, semi-automatic control system enables the user to manually initiate every stroke of the hydraulic torque wrench. The return stroke is automatic.

Automatic control - A
The bolting operation is started by pressing a button, then automatically implemented and ended in the automatic control mode.

Modular control - Solution
The Solution control system is modularly expandable. All settings can be configured and bolting operations documented via the display.

## Technical data

| Manual control - M | Type | V / Hz | MP L/min., bar | HP L/min., bar | Tank L*1 | LxBxH mm | kg *3 |
|---|---|---|---|---|---|---|---|
|  | LHU-30 M | 110 / 50 | 2.1 / 320 | 0.7 / 800 | 3.0 | 400x240x380 | 27.0 |
| | LHU-30 M | 110 / 60 | 2.5 / 320 | 0.8 / 800 | 3.0 | 400x240x380 | 27.0 |
| | LHU-30 M | 230 / 50 | 2.1 / 320 | 0.7 / 800 | 3.0 | 400x240x380 | 27.0 |
| | LHU-30 M | 230 / 60 | 2.5 / 320 | 0.8 / 800 | 3.0 | 400x240x380 | 27.0 |
| | LHU-35 M | 110 / 50 | 3.0 / 320 | 0.8 / 800 | 3.5 | 570x275x400 | 41.5 |
| | LHU-35 M | 110 / 60 | 3.5 / 320 | 1.0 / 800 | 3.5 | 570x275x400 | 41.5 |
| | LHU-40 M | 230 / 50 | 3.1 / 320 | 0.7 / 800 | 4.0 | 480x270x400 | 33.0 |
| | LHU-40 M | 230 / 60 | 3.7 / 320 | 0.9 / 800 | 4.0 | 480x270x400 | 33.0 |
| | LHU-60 M | 400 / 50 , 60 | 6.1 , 7.4 / 320 | 1.4 , 1.7 / 800 | 6.0 | 480x270x400 | 36.5 |

| Automatic control - A | Type | V / Hz | MP L/min., bar | HP L/min., bar | Tank L*1 | LxBxH mm | kg *3 |
|---|---|---|---|---|---|---|---|
|  | LHU-30 A | 110 / 50 | 2.1 / 320 | 0.7 / 800 | 3.0 | 400x240x380 | 27.2 |
| | LHU-30 A | 110 / 60 | 2.5 / 320 | 0.8 / 800 | 3.0 | 400x240x380 | 27.2 |
| | LHU-30 A | 230 / 50 | 2.1 / 320 | 0.7 / 800 | 3.0 | 400x240x380 | 27.2 |
| | LHU-30 A | 230 / 60 | 2.5 / 320 | 0.8 / 800 | 3.0 | 400x240x380 | 27.2 |
| | LHU-35 A | 110 / 50 | 3.0 / 320 | 0.8 / 800 | 3.5 | 570x275x400 | 42.0 |
| | LHU-35 A | 110 / 60 | 3.5 / 320 | 1.0 / 800 | 3.5 | 570x275x400 | 42.0 |
| | LHU-40 A | 230 / 50 | 3.1 / 320 | 0.7 / 800 | 4.0 | 480x270x400 | 33.5 |
| | LHU-40 A | 230 / 60 | 3.7 / 320 | 0.9 / 800 | 4.0 | 480x270x400 | 33.5 |
| | LHU-60 A | 400 / 50 , 60 | 6.1 , 7.4 / 320 | 1.4 , 1.7 / 800 | 6.0 | 480x270x400 | 37.2 |

| Modular control - Solution | Type | V / Hz | MP L/min., bar | HP L/min., bar | Tank L*1 | LxBxH mm | kg *3 |
|---|---|---|---|---|---|---|---|
|  | LHU-30 Solution | 110 / 50 | 2.1 / 320 | 0.7 / 800 | 3.9 | 400x240x380 | 27.5 |
| | LHU-30 Solution | 110 / 60 | 2.5 / 320 | 0.8 / 800 | 3.9 | 400x240x380 | 27.5 |
| | LHU-30 Solution | 230 / 50 | 2.1 / 320 | 0.7 / 800 | 3.9 | 400x240x380 | w27.5 |
| | LHU-30 Solution | 230 / 60 | 2.5 / 320 | 0.8 / 800 | 3.9 | 400x240x380 | 27.5 |
| | LHU-35 Solution | 110 / 50 | 3.0 / 320 | 0.8 / 800 | 3.7 | 570x275x400 | 42.5 |
| | LHU-35 Solution | 110 / 60 | 3.5 / 320 | 1.0 / 800 | 3.7 | 570x275x400 | 42.5 |
| | LHU-40 Solution | 230 / 50 | 3.1 / 320 | 0.7 / 800 | 3.7 | 480x270x400 | 34.0 |
| | LHU-40 Solution | 230 / 60 | 3.7 / 320 | 0.9 / 800 | 3.7 | 480x270x400 | 34.0 |
| | LHU-60 Solution | 400 / 50 , 60 | 6.1 , 7.4 / 320 | 1.4 , 1.7 / 800 | 4.1 | 480x270x400 | 37.5 |

*1 Supplied filled with oil and ready for operation *2 LHA-881/3D with tank cooling *3 Weight with control system, without oil



## Patent applied for cooling air supply

The novel cooling air supply in the LHU series differs from other units in that the air is not blown into the unit, but sucked in. A vacuum is generated in the unit by the separately driven ventilator, enabling a targeted cooling air flow within the housing. This improves the cooling efficiency by 60% compared to open units.

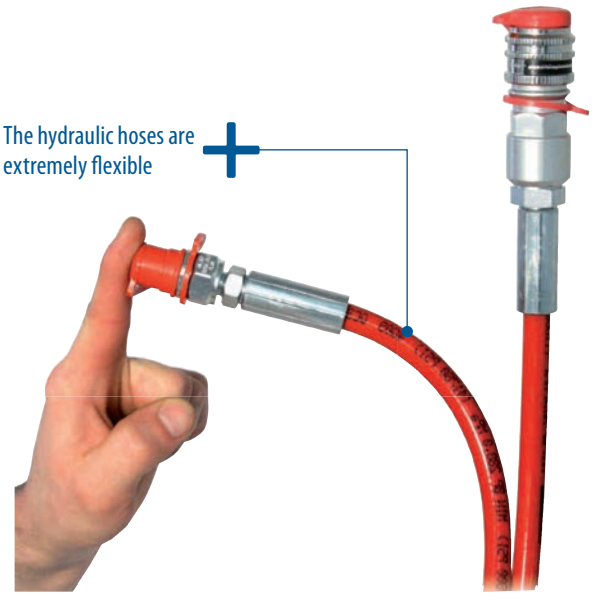
The cooling air supply is routed according to the arrangement of the individual components in the unit. The most cooling air is routed to where the warmest components are located. This technology is unique and of enormous benefit for bolting operations.

## Hydraulic hoses

All our hydraulic unit models are equipped with a dual-hose system.
The connections of both high-pressure hoses are uniquely identified.
This prevents any connection errors when connecting the unit and hydraulic torque wrench.

Thanks to the new coupling, the high-pressure hoses can be easily mounted using just one hand

The hydraulic hoses are extremely flexible



# MODULAR CONTROL - SOLUTION


## LHU Solution

The LHU Solution series is the High End model in modern hydraulic unit technology. In addition to the basic bolting methods (manual, automatic and torque-rotation angle), the control system can be retrofitted according to your requirements with additional modules. The operator controls the entire bolting process per remote control.

The visual, acoustic operator guidance is an innovation. The entire hydraulic unit is programmed in a flash using the potentiometer wheel. The large colour display simplifies input significantly. In addition to acoustic feedback, the operator is visually informed about the completion of bolting operations. This is done by the display taking in different background colours.

## LHU Solution basic equipment

The LHU Solution unit includes as standard, with the modular Solution control system, the following functions:

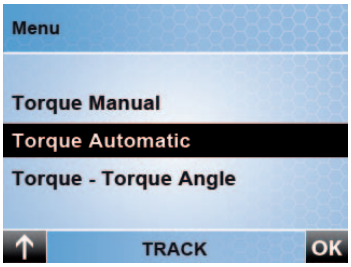
### Manual bolting (M)
This setting enables the user to manually initiate every stroke of the hydraulic torque wrench. The return stroke is automatic.

### Automatic bolting (A)
The bolting operation is started by pressing a button, then automatically implemented and ended.

### Torque-rotation angle (M+α)
The rotary knob can be used to set and confirm the joining torque and the prevailing angle.

## Optional modul (documentation): LH.Track

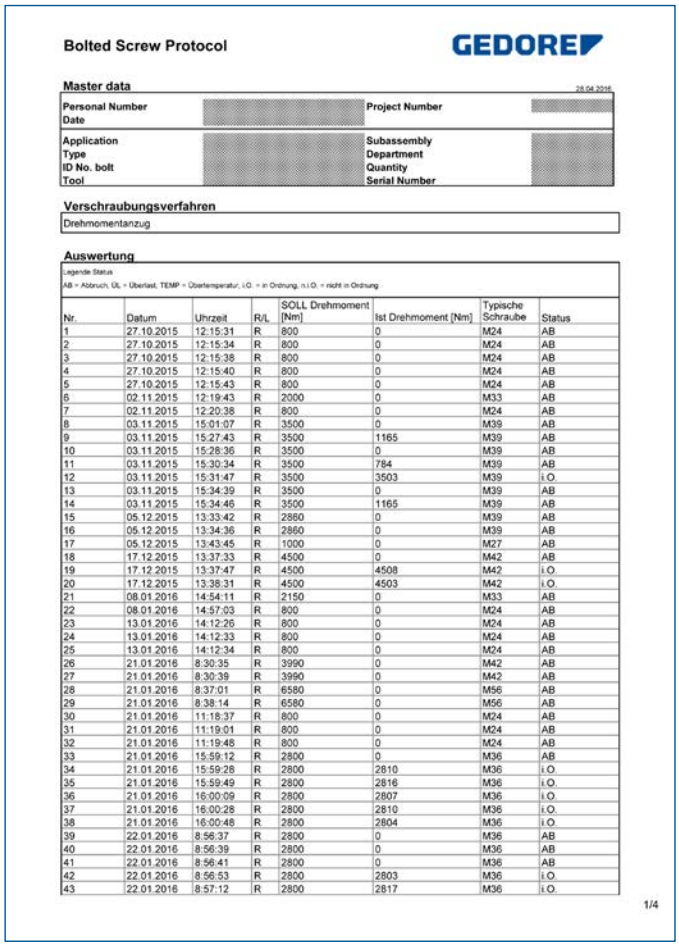
Bolting operations can be tracked with the TRACK module.
Data are documented during the bolting operation and subsequently exported to a PC. From there, a bolting protocol can be created and archived.




Bolting operations with the LHU and the Solution control system

Export to PC via inductive interface (USB)

Bolting protocol



**Bolted Screw Protocol** GEDORE

**Master data** 28.04.2016

| | | | |
|---|---|---|---|
| Personal Number<br>Date | | Project Number | |
| Application<br>Type<br>ID No. bolt<br>Tool | | Subassembly<br>Department<br>Quantity<br>Serial Number | |

**Verschraubungsverfahren**

Drehmomentanzug

**Auswertung**

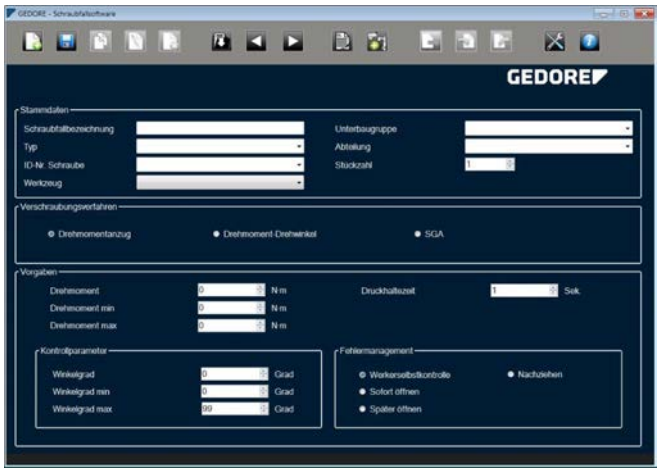
Legende Status
AB = Abbruch, ÜL = Überlast, TEMP = Übertemperatur, i.O. = in Ordnung, n.i.O. = nicht in Ordnung

| Nr. | Datum | Uhrzeit | R/L | SOLL Drehmoment [Nm] | Ist Drehmoment [Nm] | Typische Schraube | Status |
|---|---|---|---|---|---|---|---|
| 1 | 27.10.2015 | 12:15:31 | R | 800 | 0 | M24 | AB |
| 2 | 27.10.2015 | 12:15:34 | R | 800 | 0 | M24 | AB |
| 3 | 27.10.2015 | 12:15:38 | R | 800 | 0 | M24 | AB |
| 4 | 27.10.2015 | 12:15:40 | R | 800 | 0 | M24 | AB |
| 5 | 27.10.2015 | 12:15:43 | R | 800 | 0 | M24 | AB |
| 6 | 02.11.2015 | 12:19:43 | R | 2000 | 0 | M33 | AB |
| 7 | 02.11.2015 | 12:20:38 | R | 800 | 0 | M24 | AB |
| 8 | 03.11.2015 | 15:01:07 | R | 3500 | 0 | M39 | AB |
| 9 | 03.11.2015 | 15:27:43 | R | 3500 | 1165 | M39 | AB |
| 10 | 03.11.2015 | 15:28:36 | R | 3500 | 0 | M39 | AB |
| 11 | 03.11.2015 | 15:30:34 | R | 3500 | 784 | M39 | AB |
| 12 | 03.11.2015 | 15:31:47 | R | 3500 | 3503 | M39 | i.O. |
| 13 | 03.11.2015 | 15:34:39 | R | 3500 | 0 | M39 | AB |
| 14 | 03.11.2015 | 15:34:46 | R | 3500 | 1165 | M39 | AB |
| 15 | 05.12.2015 | 13:33:42 | R | 2860 | 0 | M39 | AB |
| 16 | 05.12.2015 | 13:34:36 | R | 2860 | 0 | M39 | AB |
| 17 | 05.12.2015 | 13:43:45 | R | 1000 | 0 | M27 | AB |
| 18 | 17.12.2015 | 13:37:33 | R | 4500 | 0 | M42 | AB |
| 19 | 17.12.2015 | 13:37:47 | R | 4500 | 4508 | M42 | i.O. |
| 20 | 17.12.2015 | 13:38:31 | R | 4500 | 4503 | M42 | i.O. |
| 21 | 08.01.2016 | 14:54:11 | R | 2150 | 0 | M33 | AB |
| 22 | 08.01.2016 | 14:57:03 | R | 800 | 0 | M24 | AB |
| 23 | 13.01.2016 | 14:12:26 | R | 800 | 0 | M24 | AB |
| 24 | 13.01.2016 | 14:12:33 | R | 800 | 0 | M24 | AB |
| 25 | 13.01.2016 | 14:12:34 | R | 800 | 0 | M24 | AB |
| 26 | 21.01.2016 | 8:30:35 | R | 3990 | 0 | M42 | AB |
| 27 | 21.01.2016 | 8:30:39 | R | 3990 | 0 | M42 | AB |
| 28 | 21.01.2016 | 8:37:01 | R | 6580 | 0 | M56 | AB |
| 29 | 21.01.2016 | 8:38:14 | R | 6580 | 0 | M56 | AB |
| 30 | 21.01.2016 | 11:18:37 | R | 800 | 0 | M24 | AB |
| 31 | 21.01.2016 | 11:19:01 | R | 800 | 0 | M24 | AB |
| 32 | 21.01.2016 | 11:19:48 | R | 800 | 0 | M24 | AB |
| 33 | 21.01.2016 | 15:59:12 | R | 2800 | 0 | M36 | AB |
| 34 | 21.01.2016 | 15:59:26 | R | 2800 | 2810 | M36 | i.O. |
| 35 | 21.01.2016 | 15:59:49 | R | 2800 | 2816 | M36 | i.O. |
| 36 | 21.01.2016 | 16:00:09 | R | 2800 | 2807 | M36 | i.O. |
| 37 | 21.01.2016 | 16:00:28 | R | 2800 | 2810 | M36 | i.O. |
| 38 | 21.01.2016 | 16:00:48 | R | 2800 | 2804 | M36 | i.O. |
| 39 | 22.01.2016 | 8:56:37 | R | 2800 | 0 | M36 | AB |
| 40 | 22.01.2016 | 8:56:39 | R | 2800 | 0 | M36 | AB |
| 41 | 22.01.2016 | 8:56:41 | R | 2800 | 0 | M36 | AB |
| 42 | 22.01.2016 | 8:56:53 | R | 2800 | 2803 | M36 | i.O. |
| 43 | 22.01.2016 | 8:57:12 | R | 2800 | 2817 | M36 | i.O. |

1/4

## Optional modul (production): LH.Track

The bolting data are precisely specified by quality management and loaded into the Solution control system via the inductive data transmission system. The following fields can be edited in the master data: bolting process torque, torque-rotating angle, SGA (yield point-controlled tightening process), tool, bolt and quantity. Up to 50 different bolting operations can be pre-defined. The operater can only select from the pre-defined bolting operations in the Solution control system. These cannot subsequently be changed by the operator.



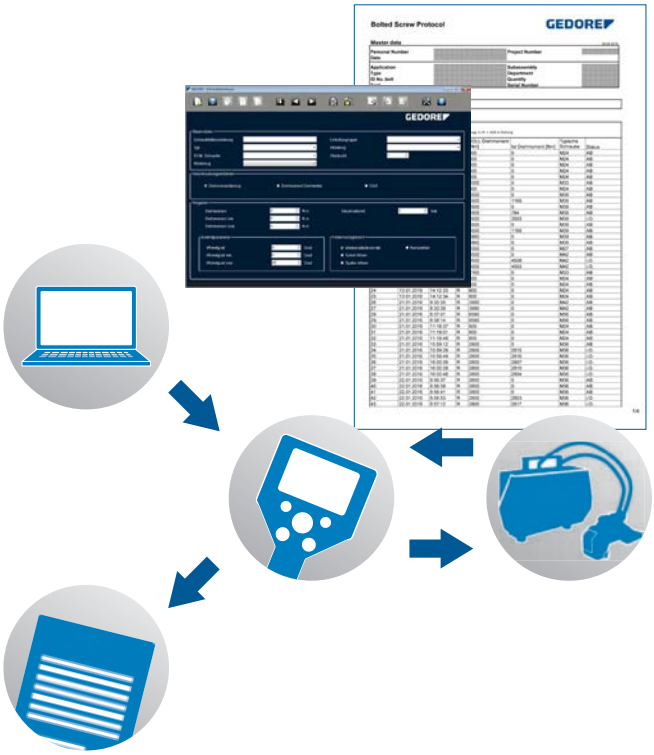

Definition of bolting operation

Export to Solution control system via inductive interface

Bolting operation with the LHU under defined specifications

## Optional module (quality management): LH.QS

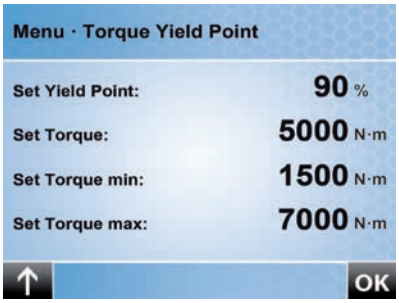
The „QS“ module is suitable for all companies that need to define and document bolting operations according to quality management specifications.
The working steps and values are pre-defined on the PC. These are transferred via the inductive interface to the Solution control system. The operator can only select from the pre-defined bolting operations.
After bolting operations are complete, the bolting results for each bolt can be reloaded onto the PC and documented there in the form of a bolting protocol. This ensures that all bolts were tightened with the correct settings.



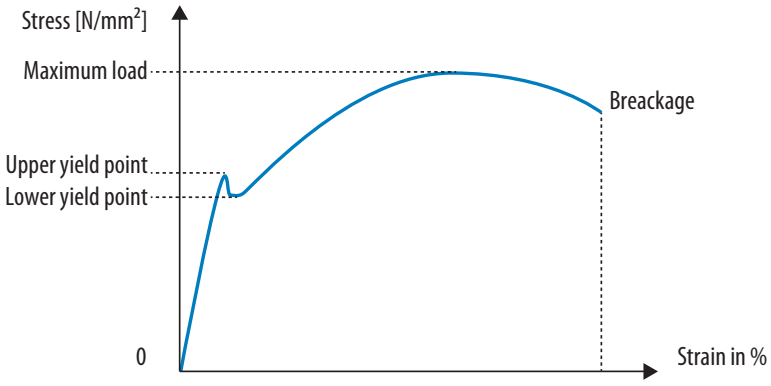

## Optional module (yield point): LH.QS

The yield point-controlled tightening process SGA occures independent of the friction coefficient. This method is an alternative to the torque method. The settings can be made on the PC or directly with the Solution control system.
The following settings can be made:

Yield point: 80 % – 110 % (standard: 100 %)
Control parameters: Theoretical torque,
Torque min./max.
Angular degree




### Stress-stain diagram




HSL2
ECO-PLUS

# LKV, LKS
# MANUAL SOLUTIONS

## LKV

- MACHINE
- REACTION ARM CRANKED
- TOOL CASE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE

## LKV-L

- MACHINE
- REACTION ARM STRAIGHT, ADJUSTABLE
- TOOL CASE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE

## LKS

- MACHINE
- OPERATING MANUAL

# THE TORQUE MULTIPLIER
## LKV SERIES, 500 - 54.000 Nm

### Series LKV-40 bis 550RS

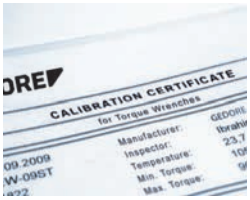
Integrated return safety „RS“ for CW/CCW rotation and safe operation (as of model LKV-40RS)


Integrated overload safety mechanism for gear unit protection

Lean, high-performance aluminium housing is 30% lighter than a steel one

Planet gear unit with ceramic-Teflon®-coated tooth flanks (as of model LKV-40) enables minimum lubrication

Drop-forged reaction arm with lock on function, made of chrome-vanadium steel for even greater stability




Supplied with individual GEDORE factory calibration certificate

## Reinvented: The torque multiplier

The torque multiplier is probably the simplest device in high level torque bolting technology and has been around for over forty years.
The GEDORE Torque Solutions GmbH has reinvented this proven tool. With a clever design and new functions, the new torque multiplier series is a great contribution to facilitating operations.

## Housing and gear unit

The housing and gear unit are the innovations in this series. A new production method was created, based on nature. The housing is therefore approx. 30% lighter but still as rugged.
At the same time, the ceramic-Teflon® coating enables minimum device lubrication. While conventionally lubricated torque multipliers decrease in performance (efficiency) when the outside temperatures are colder, due to the increasing tenacity of the grease, this unit operates independently of the temperature.

## Reaction arm

The reaction arm, which must resist the counter-forces during bolting operations, has also been completely reworked.
Force distribution was analysed using complex FEM methods. It is therefore even more stable and durable than before due to the shape and materials selected.
In addition, the reaction arm is equipped with a patented hold function that prevents the gear teeth from slipping.

## Non-destructive overload protection

The 40-550RS models are equipped with a non-destructive overload safety mechanism. This patent-filed innovation represents real cost savings for the user. The basis of this extra feature is a highly-dynamic, pre-tensioned slip-coupling. As soon as the maximum permissible input torque is exceeded, the „Slipper“ triggers with a clearly audible acoustic noise.
The torque multiplier is not damaged so that normal operation can be started again. This means that no assembly downtimes occur and the safety of the operator is actively supported.

## Certified safety

A completely new benefit for the torque multiplier is the individual factory calibration certificate for each device. This has never been the case before. This allows bolting operations to be implemented at a high level of torque precision. The torque tables on the devices display the standard torque for HV bolts. The tables can also be modified on request to the individual torques of the operator.


LKV-40 LKV-40RS LKV-60RS LKV-80RS LKV-100RS LKV-120RS LKV-550RS

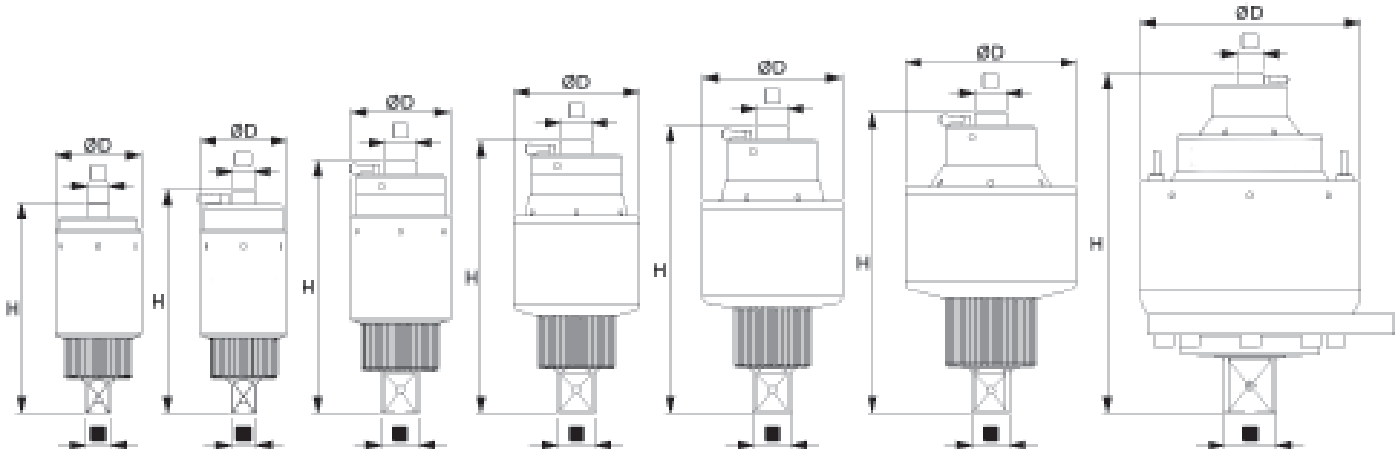
# ACCESSORIES FOR THE LKV-40 TO LKV-120RS

Reaction arm cranked with lock on function, made of drop-forged chrome-vanadium steel (up to LKV-80)

Reaction arm cranked with lock on function, made of light alloy with protective cap made of steel (from LKV-100)

Reaction arm made of light alloy, straight with adjustable locking knob with moveable square-end and retaining ring (up to LKV-100)

## Technical data LKV-40 - 550RS



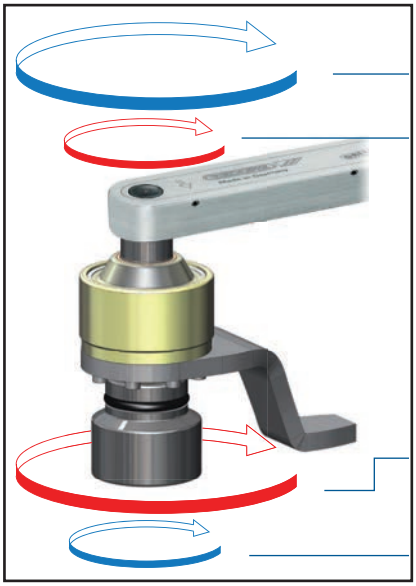

LKV - 40 | LKV - 40RS | LKV - 60RS | LKV - 80RS | LKV - 100RS | LKV - 120RS | LKV - 550RS

| Type | N·m max | lbf·ft max | N·m min / max*1 | lbf·ft min / max*1 | •:⬢ *2 | Q | ■ | Ø D mm | H mm | kg *3 |
|---|---|---|---|---|---|---|---|---|---|---|
| LKV - 40 | 300 | 220 | 500 - 4000 | 400 - 2930 | 1:16 | ½" | 1" | 88 | 212.8 | 3.9 |
| LKV - 40RS | 310 | 230 | 500 - 4000 | 400 - 2930 | 1:16 | ½" | 1" | 88 | 226.9 | 4.2 |
| LKV - 60RS | 400 | 300 | 650 - 6000 | 500 - 4400 | 1:18 | ¾" | 1 ½" | 102 | 256.2 | 6.6 |
| LKV - 80RS | 420 | 310 | 800 - 8000 | 600 - 5870 | 1:22 | ¾" | 1 ½" | 128 | 276.5 | 9.1 |
| LKV - 100RS | 410 | 305 | 1000 - 10000 | 700 - 7330 | 1:28.5 | ¾" | 1 ½" | 142 | 291.5 | 10.9 |
| LKV - 120RS | 380 | 280 | 1320 - 13000 | 1000 - 9530 | 1:39 | ¾" | 1 ½" | 174.5 | 306 | 17.0 |
| LKV - 550RS | 380 | 280 | 5500 - 54000 | 4000 - 40330 | 1:175 | ¾" | 2 ½" | 270 | 414.5 | 64.6 |

*1 Maximum load limit! Take into account a reserve of ~25% when selecting a device and, where applicable, note increased loosening torques!
*2 Approximate data *3 Without reaction arm (except for LKV-550RS device with reaction plate)

# THE FUNCTION PRINCIPLE

## The principle of torque multiplication




The chart representation demonstrates the principle of torque multiplication. Let us assume a 60 Nm input torque and a 240 Nm output torque. At a 1:4 ratio, 4 revolutions are needed at the input for 1 revolution with a 240 Nm torque to be obtained at the output.

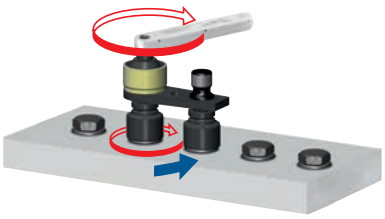
This is based on the physical formula:

Power = torque x revolution

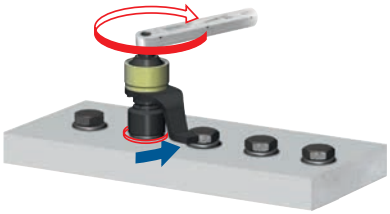
With gear efficiency deducted, the output power can be considered as a constant equal to the input power. Thus multiplication of the torque can only be obtained from an increased number of revolutions at the input.

## Force and reaction

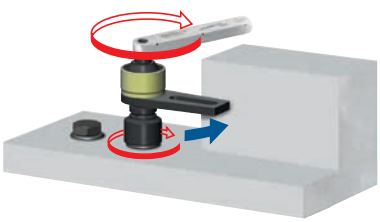
When working with a torque multiplier, torsion wind-up is built up in the gear while the bolt is tightened. This stress must be reduced. A reaction absorbed by reaction arm and thrust bearing is produced.



Reaction arm made of light alloy, straight with adjustable locking knob with slave square: The reaction acts on the adjacent impact socket



Reaction arm cranked:
The reaction acts on the adjacent bolt connection



Reaction arm straight without adjustable reaction square drive:
The reaction acts on the wall. However, the resulting tilting moment means that the maximum permitted torque is reduced by 20%.

Torque

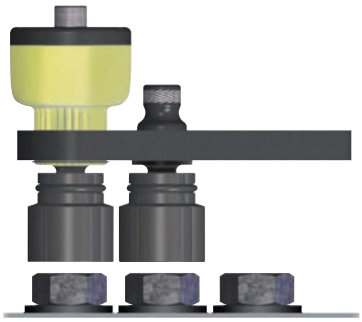
Reaction

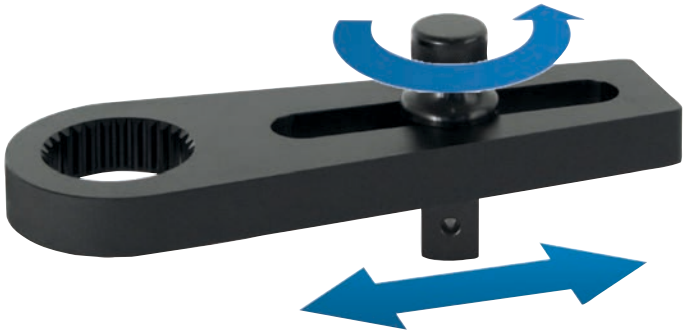
# REACTION ARM
## MADE OF LIGHT ALLOY

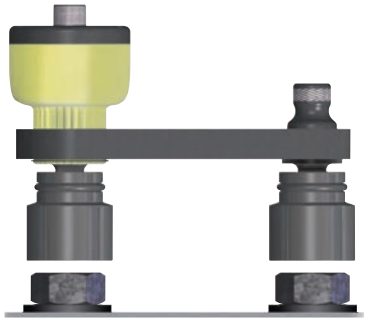
straight with adjustable locking knob
with movable square-end

### Reaction arm with adjustable locking knob

**Reaction square can be released and shifted horizontally. This means the reaction arm can be adapted to the various flange screw fittings.**







# THE TORQUE MUTIPLIER IN TESTS

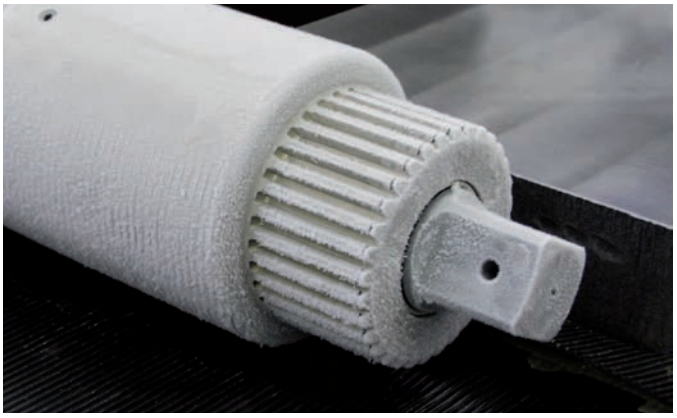
Our torque multipliers are tested to their limits.
Thanks to temperature and load tests, we can make statements about bolting operations in various climate zones and about the robustness and durability of the device.

## Coldtest

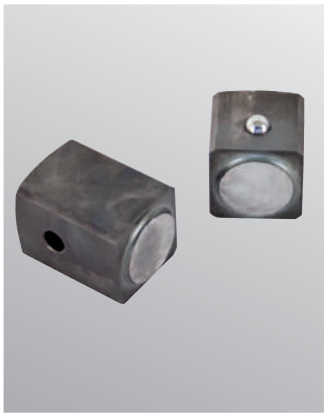
The ambient temperature always has an influence on the degree of efficiency and therfore on the accuracy of the device. The torque multiplier was cooled to -40°C in a cold test. Due to the minimal lubrication in the planetary gearing, the temperature influence could be kept to a minimum and the device could be used as usual.

## Load test

If a torque multiplier is overloaded, there is no danger to the gearing. The square drive of the device has a predetermined. If a Torque Multiplier is overloaded, there is no danger to the gearing. The square drive of the device has a predetermined breaking point, breaking away cleanly if too much load is acting on the device. The broken-off square drive can be replaced without problems.
The advantage is that no splinters or deformation occur during breakaway.
The device remains functional.



LKV cooled down to -40°C



GEDORE Torque Solutions GmbH:
Controlled breakaway

OTHERS: Uncontrolled breakaway can damage other components

# THE TORQUE MULTIPLIER
## SERIES LKV, 50 - 1.300 Nm

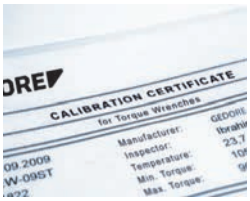
### Series LKV-12

Total weight of 1.9 kg for best torque-weight ratio

Lean, high-performance aluminium housing is 30% lighter than a steel version


Easy to handle and compact as optimal on-board tool suitable for utility vehicles or construction machines

Drop-forged reaction arm with lock on function, made of chrome-vanadium steel for even greater stability




Supplied with individual GEDORE factory calibration certificate

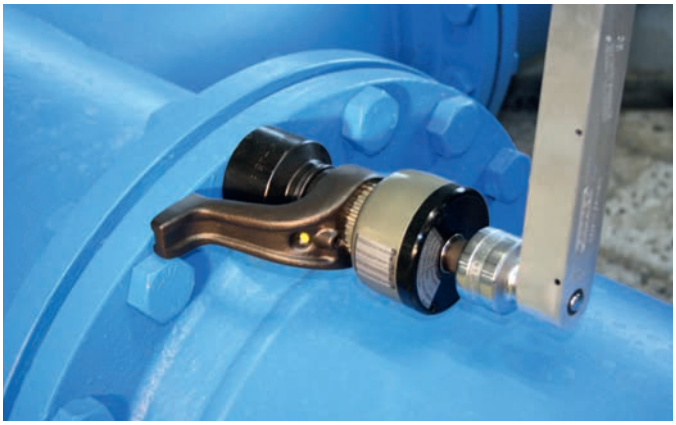
### Accessories for the LKV-12

Reaction arm cranked with lock on function, made of drop-forged chrome-vanadium steel

Reaction arm made of light alloy, straight with adjustable locking knob with slave square and retaining ring

Sun gear

# TECHNICAL DATA LKV-12



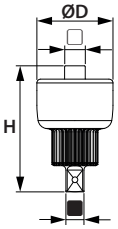
## Small, easy to handle, light but rugged

The smallest torque multiplier in this series is particularly suitable for maintenance purposes and in workshops. The little power packet has been reduced to the smallest possible dimensions without losing any robustness or torque power. It is equipped with an offset reaction arm and can be retrofitted with a straight reaction arm.

The sun gear acts as a predetermined breaking point if the device is overloaded. This protects both the operator and the device. The sun gear can be easily and rapidly replaced by the operator. Assembly and cost outlay remain low.

## The optimal on-board tool

The LKV-12 has small dimensions and can fit in a pocket. This device is highly suitable for use as an on-board tool in utility or construction site vehicles. It can be stored in the vehicle in a stable transport case. Due to the minimum lubrication of the gear unit, the device is essentially temperature-independent and can be operated without problems even at freezing temperatures.




| Type | N·m max | lbf·ft max | N·m min / max*1 | lbf·ft min / max*1 | *2 | Q | ■ | Ø D mm | H mm | *3 kg |
|---|---|---|---|---|---|---|---|---|---|---|
| LKV - 12 | 270 | 200 | 50 - 1300 | 40 - 950 | 1:5 | 1/2" | 3/4" | 80 | 132.5 | 1.3 |

*1Maximum load limit! Take into account a reserve of ~25% when selecting a device and, where applicable, note increased loosening torques!
*2 Approximate data *3 Without reaction arm

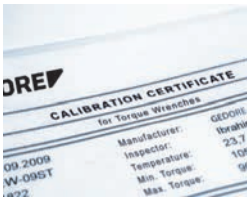
# THE TORQUE MULTIPLIER
## SERIES LKV, 100 - 2.800 Nm

### Series LKV-20Z/28Z

Lean, high-performance aluminium housing is 30% lighter than a steel one

Fixed reaction arm in straight or cranked version


Output square as overload protection for gear unit protection




Supplied with individual GEDORE factory calibration certificate

Series LKV-20L/ 28L


### Accessories fpr the LKV-20 and LKV-28

Reaktion arm cranked (bolted to the tool)

Reaction arm made of light alloy, straight with adjustable locking knob with reaction slave square (bolted to the tool)

Spare square for LKV-20

Spare square for LKV-28

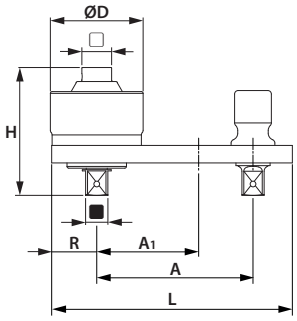
# TECHNICAL DATA LKV-20/28

## Popular for flange bolt connections: LKV-20/28L

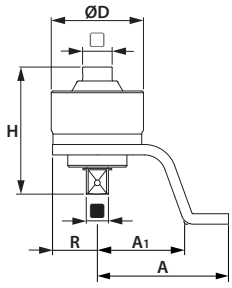
The positioning of the torque multiplier must be implemented easily and rapidly, particularly for flange bolt connections. The LKV-L is equipped with a fixed straight reaction arm and is therefore a complete solution for flange bolt connections. The required spacing between two bolts can be rapidly and easily set using the adjustable reaction square, accelerating work.

## Practical and easy to handle: LKV-20/28Z

The LKV-Z series is particularly suitable for mechanical and plant engineering, maintenance and the transport industry. This series also has a fixed reaction arm, but cranked version. The gear unit is protected against overload with a shearing square which can be easily replaced.




LKV-L



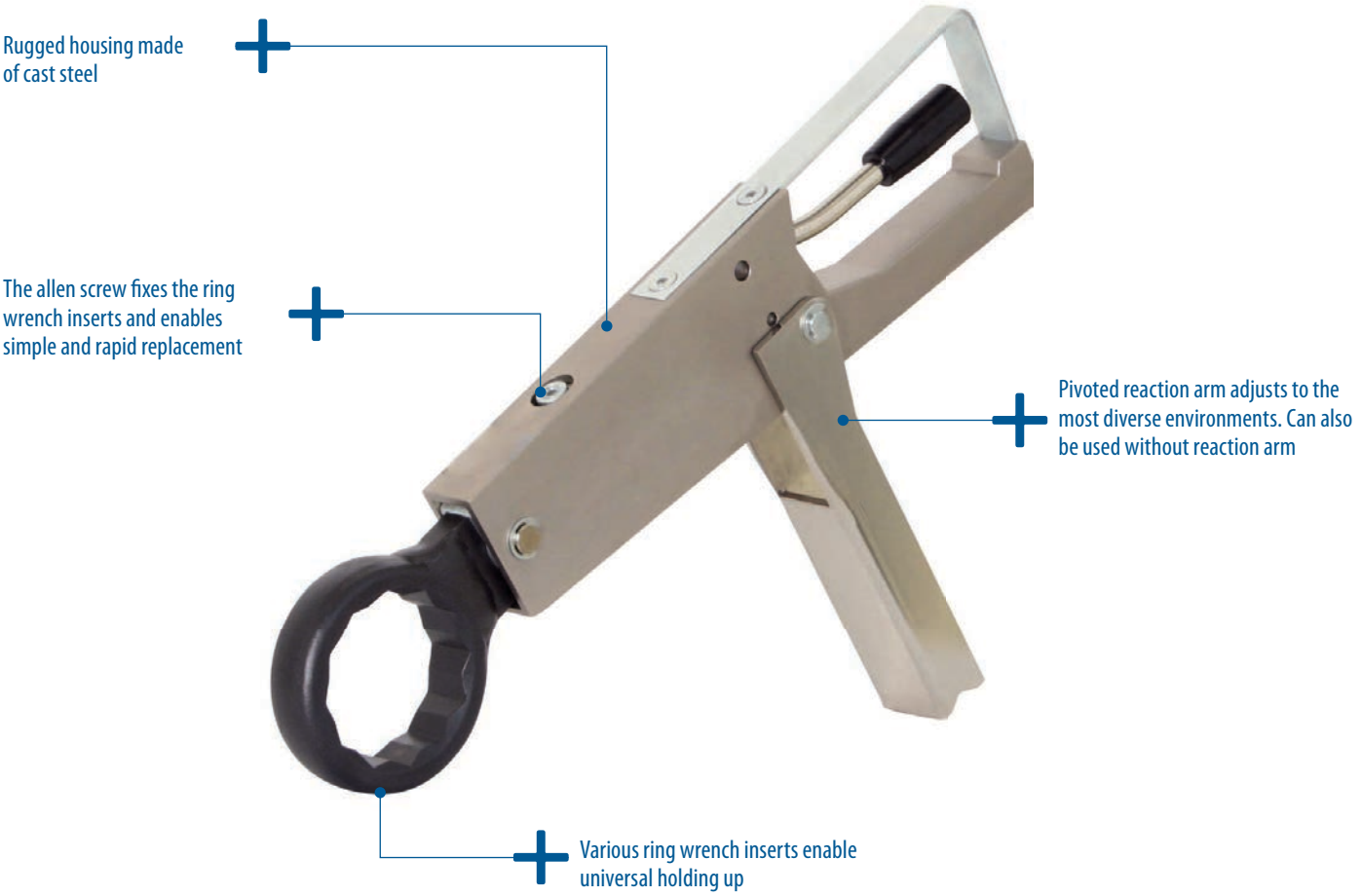

LKV-Z

| Type | N·m max | lbf·ft max | N·m min / max*1 | lbf·ft min / max*1 | •:⚙*2 | □ | ■ | A mm | $A_1$ mm | ø D mm | H mm | R mm | kg*3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LKV - 20L | 580 | 430 | 100 - 2000 | 70 - 1500 | 1:4 | ¾" | 1" | 152 | 73 | 88 | 131 | 43 | 1.8 |
| LKV - 20Z | 580 | 430 | 100 - 2000 | 70 - 1500 | 1:4 | ¾" | 1" | 150 | 100 | 88 | 131 | 43 | 1.8 |
| LKV - 28L | 550 | 410 | 500 - 2800 | 400 - 2050 | 1:5.5 | ¾" | 1" | 199 | 83 | 106 | 146 | 52 | 2.4 |
| LKV - 28Z | 550 | 410 | 500 - 2800 | 400 - 2050 | 1:5.5 | ¾" | 1" | 151 | 101 | 106 | 146 | 52 | 2.4 |

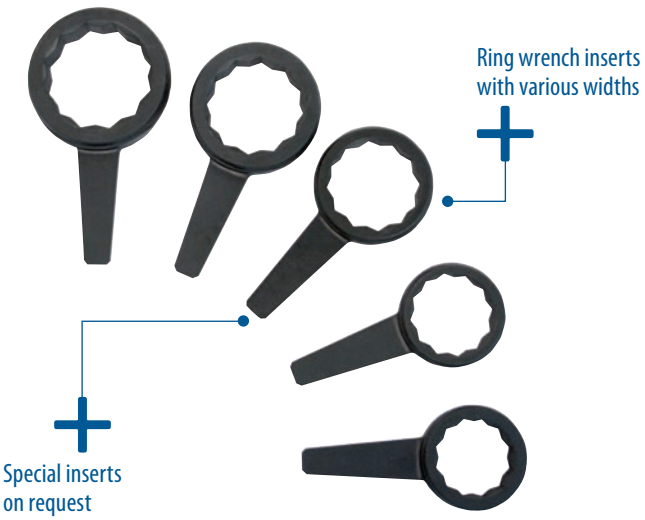
*1 Maximum load limit! Take into account a reserve of ~25% when selecting a device and, where applicable, note increased loosening torques!
*2 Approximate data *3 Without reaction arm

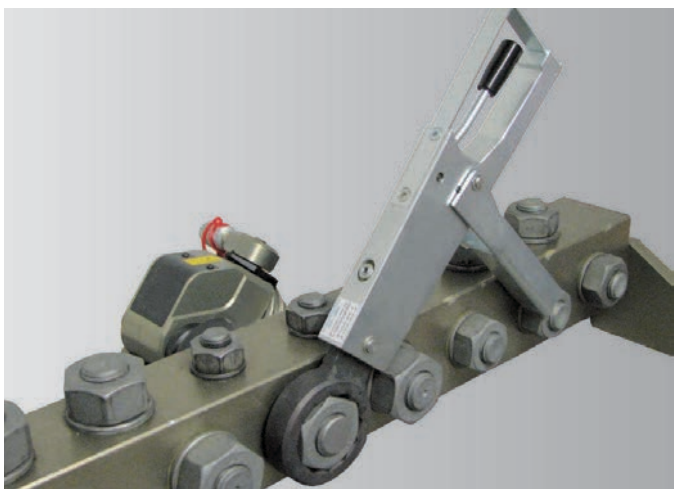
# THE COUNTER WRENCH
## LKS SERIES, RSW 32 - 115 mm

### LKS series




### Accessories



## Danger to assembly personnel must be avoided

Every user knows the problems and dangerous situations that can arise when counter-holding while a bolted connection is being tightened. The wrench used for counter-holding can often rotate with unpredictable torques, block or jump off. Once the bolting operation is complete, it often needs to be levered off or even knocked off.
The danger of injury for the assembly personnel is very high here and the risk of damaging neighbouring components or the tools is also significant. The results can be irritation, time loss and assembly downtimes.

## The solution: The GEDORE Counter Wrench

Equipped with the appropriate insert, the device utilises a thrust bearing and absorbs the driving torque with the integrated mechanics. Following completion of the bolting operation, a simple press of the lever and the counter-wrench can be rapidly and easily released.

## Frequently copied, but never matched

The patented mechanism of the GEDORE counter wrench is unique. Only the precise interplay of the individual components ensures correct and problem-free function. Cheaper copies can bend or stick under large loads. The ring inserts are made of forged chrome-vanadium steel as of size 70.

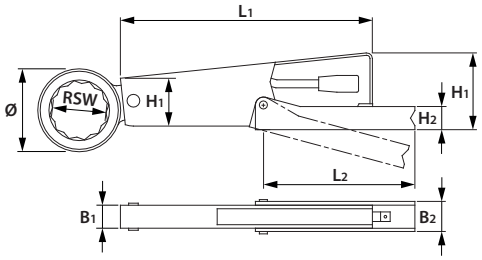
## Technical data

| Type | $L_1$ mm | $B_1$ mm | $H_1$ mm | $L_2$ mm | $B_2$ mm | $H_2$ mm | kg |
|---|---|---|---|---|---|---|---|
| LKS | 310 | 27 | 65/95 | 190 | 38 | 30 | 2.6 / 0.4*1 |

*1 plus reaction element

Ring wrench inserts type RSW

| RSW mm | Ø*2 mm | RSW mm | Ø*2 mm | RSW mm | Ø*2 mm |
|---|---|---|---|---|---|
| 32 | 54 | 60 | 94 | 90 | 152 |
| 36 | 54 | 65 | 104 | 95 | 152 |
| 41 | 60 | 70 | 110 | 100 | 155 |
| 46 | 75 | 75 | 115 | 105 | 172 |
| 50 | 80 | 80 | 126 | 110 | 172 |
| 55 | 88 | 85 | 130 | 115 | 172 |




*1 Head diameter (Ø similar DIN 7444).


GEDORE
140
GEDORE

# LDP, LTC
# TORQUE TESTING BENCH TECHNOLOGY

## LDP

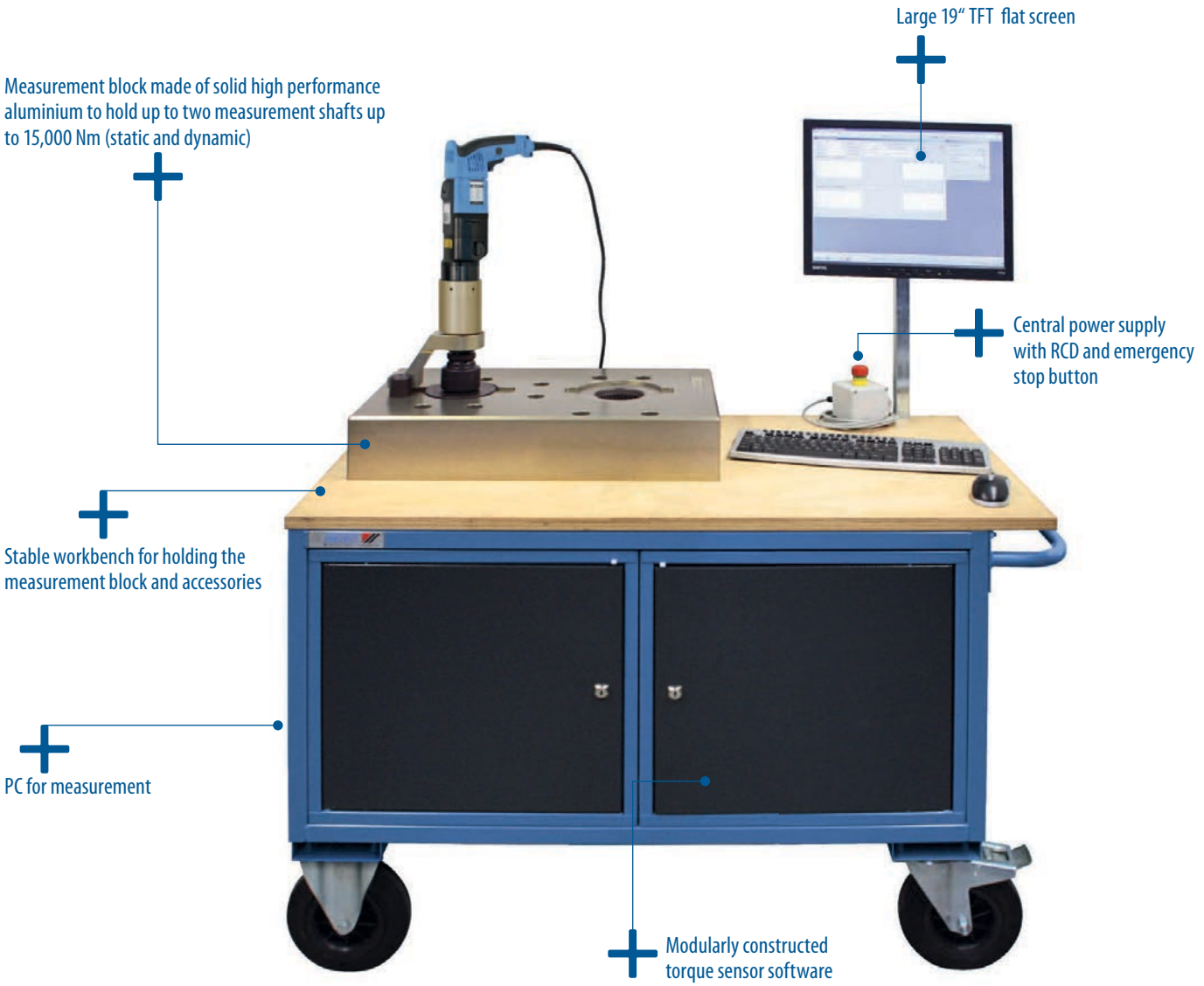
- MACHINE
- SOFTWARE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE FOR TORQUE SENSOR

## LTC

- MACHINE
- SOFTWARE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE FOR TORQUE SENSOR

# THE TORQUE TESTING BENCH TECHNOLOGY
## LDP SERIES, 100 - 15.000 Nm

### LDP series




### Measure dynamic torques, but how?

If one looks at the influencing factors that arise during the production of a correct bolted connection, it is clear that the greatest influence is due to the bolt itself: Type and condition of the thread, quality class, diameter, length, bolting in speed, the list could be continued almost endlessly.

For this reason, there are still no recommended measurement regulations from any of the official bodies for the traceable determination of dynamic torques. Torque measurements where the resistance of the bolted connection is simulated via mechanical braking systems or similar systems ignore significant influencing factors.

# Static and dynamic torque measurements up to 15,000 Nm

## Torque measurement with system

The torque testing bench system takes the actual aspects of your bolting applications in practice into account as much as is feasible.
Original bolts with all the influencing factors that act on them are measured to determine the dynamic torques.

## Correction factors are not necessary

The value determined during measurement is actually equivalent to the dynamic torque applied to the bolted connection. Subsequent addition of correction factors for hard or soft bolting operations, etc. is not necessary. This allows you to implement rational and error-free measurement in all application cases.

## The modular kit

The interface between bolt and test bench is the so called bolt adapter. Attachment of the bolt to the bolt adapter is simple and means that the bolted connection can be changed at any time, even during measurements.
Special adaptations are just as easy with this system as the direct use of standard female hexagon inserts for static torque measurement of hydraulic wrenches, torque multipliers and torque wrenches.

## Module for graphical evaluation

The mean values of all measurement series are recorded graphically and shown on the factory calibration certificate. The torque curve is recorded up to the maximum value for hydraulic torque wrenches and manual torque multipliers.

## Module for different languages

Certificates in various languages are increasingly required due to the international use of bolting systems. This is no longer a problem with the language module. The languages of all previously created factory calibration certificates can be changed both during measurement and afterwards. Over 15 European and Asiatic languages are currently available.

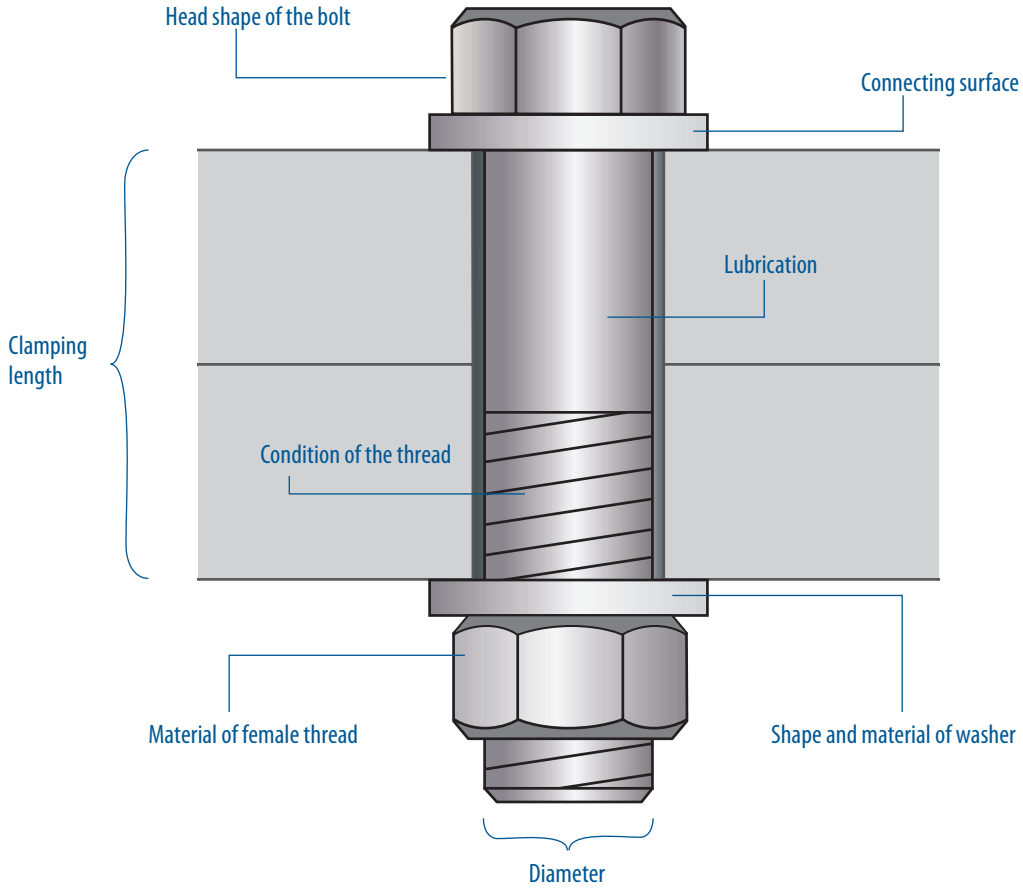
## Module for measurement unit selection

Torque data is frequently given with the imperial units system. This software module allows you to switch the units in all previously created certificates before or after measurement between the metric and imperial units systems.

## Database module

You can administrate all your torque wrenches as well as static and dynamic bolting systems with this module. Over 500 test specimens can be recorded for 20 years with the basic module alone. Identification is implemented with a bar code scanner.

# THE INFLUENCING FACTORS OF A BOLT



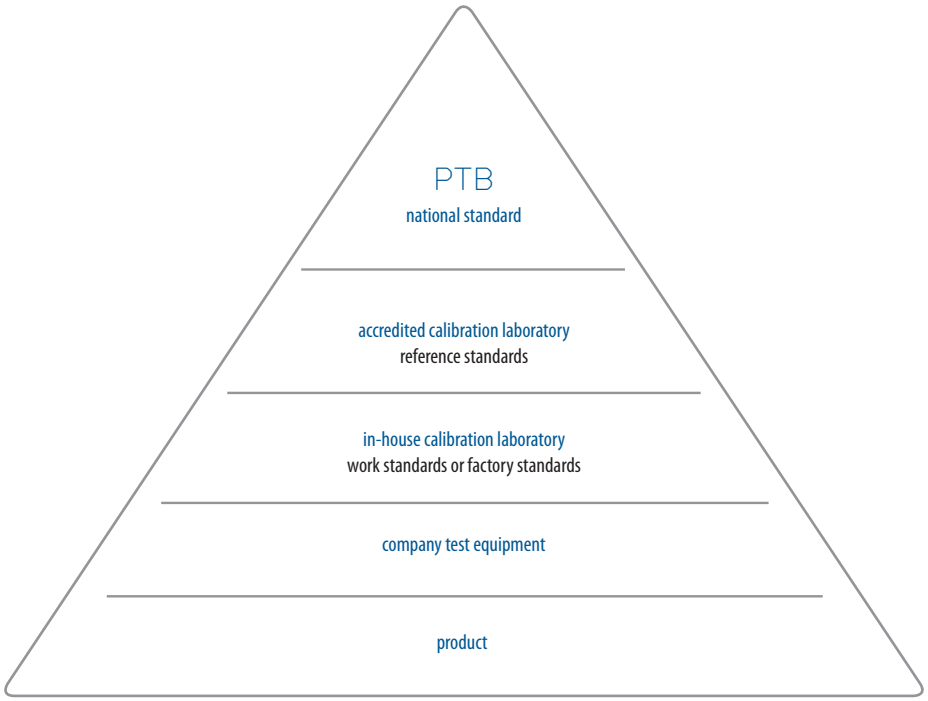

## Influencing factors of the bolt connection

The aim of every bolt tightening operation is to achieve the required clamp force that is generated between two components being connected. The clamp force is influenced by numerous factors in the torque process.
This means that the expected clamp force may not be reached in the end because other influencing factors have reduced the force. Influencing factors can be the condition of the thread, lubrication, etc.
It is therefore very important to know the bolted connection and relevant influencing factors before any bolt tightening using torque.
But how can the required clamp force be achieved with reproducible accuracy?
The answer is: system setting using original bolts.

## Teach-in with original bolts

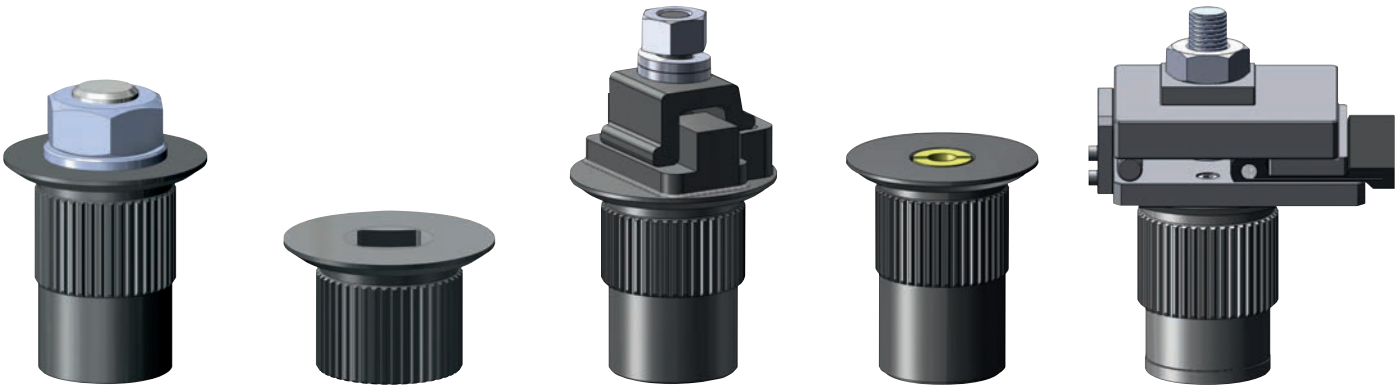
We know the influencing factors for bolt connections and takes them into consideration during the test procedure.
Our philosophy is very close to practice. The bolt adapters in the torque testing benches are realised 1:1 with the real application case. All influencing factors are taken into account with this process.
Even exotic bolting operations can be individually simulated with our torque testing benches. The entire system reacts flexibly to hard and soft, static and dynamic bolting operations.
At the end of measurement, each device receives the individual factory calibration certificate.

# FACTORY CALIBRATION CERTIFICATE
## CLASSIFICATION




### In-house calibration laboratory
Our factory test certificate is classified in the „in-house calibration laboratory“ category.

### screw adapter



# THE TORQUE TESTING BENCH TECHNOLOGY
## LTC SERIES, 100 - 5.000 Nm

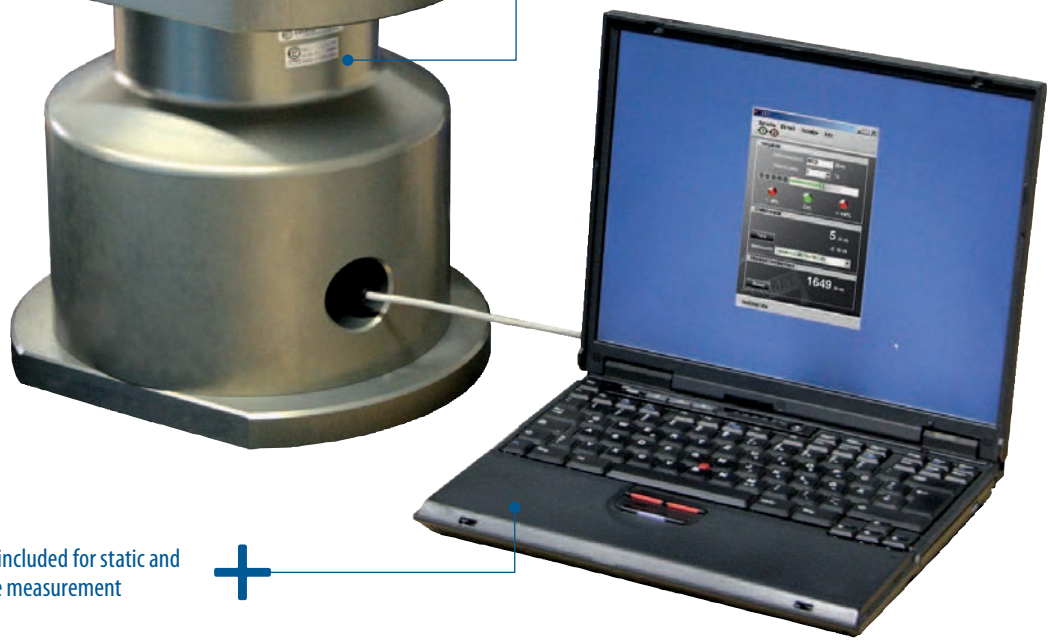
LTC series

Reaction module for accommodating the reaction forces

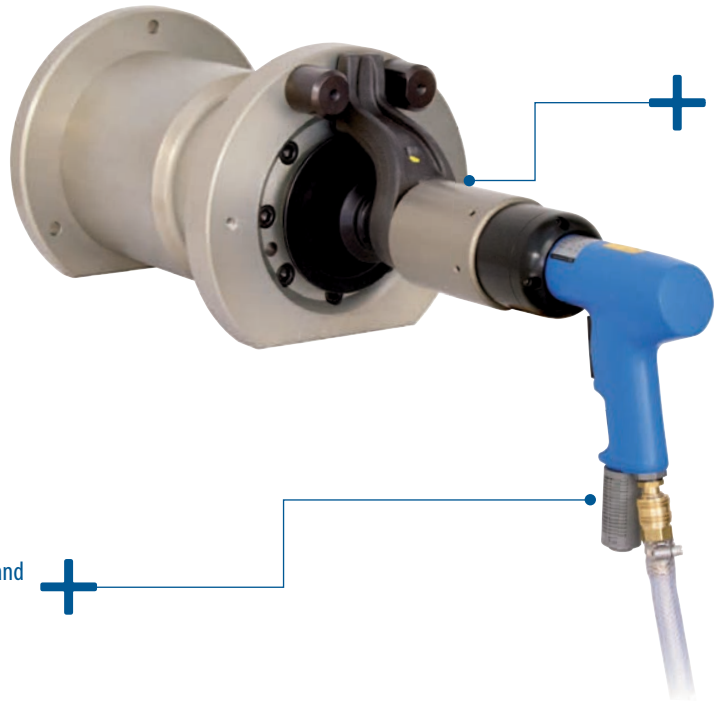
Rugged surface treatment

Bolt adapter

Stable measurement block made of high-performance aluminium



Basic software included for static and dynamic torque measurement



Optional horizontal or vertical operation of measurement shaft

Compatible with all static and dynamic torque wrenches

## Static and dynamic torque measurements up to 5.000 Nm

Static and dynamic bolting systems must be regularly checked for their torque accuracy. The Torque Check (LTC) system was developed for simple, mobile and professional dynamic torque measurement.

## Torque measurement with our system

You do not need to omit proven, close to practice measurement of your bolting operation with this model. As in the larger LDP series the dynamic torque is determined using an original bolt. The supplied bolt adapter can be exchanged and replaced.

## Basic software with comprehensive utility

The basic software included with the system has comprehensive utilities for rapid static and dynamic torque measurement in metric and imperial units. Both German and English are available as the operating languages.
At the end of each measurement, the system signals the operator immediately as to whether the determined value lies within the specified tolerances or not.
The operator is constantly informed visually and numerically about the torque progress. This is particularly helpful when testing torque wrenches.

The basic software can be upgraded modularly to a complete test bench environment. So that the test bench grows from the entry model to a fully professional system together with your requirements.

The LTC is available for the following measuring ranges:

| | |
|---|---|
| LTC-10 | 100 – 1.000 Nm |
| LTC-30 | 300 – 3.000 Nm |
| LTC-50 | 500 – 5.000 Nm |

# SPECIAL SOLUTIONS
## FOR DIFFERENT CUSTOMERS REQUIREMENTS

### GATE VALVE WRENCHES LDA-S

- MACHINE INCL. REACTION ARM, STRAIGHT(LM)
- 2 BATTERIES
- BATTERY CHARGER
- TOOL CASE
- OPERATING MANUAL

### GATE VALVE WRENCHES LDE-S

- MACHINE INCL. REACTION ARM, STRAIGHT(LM)
- TOOL CASE
- OPERATING MANUAL

### GATE VALVE WRENCHES LEW-S

- MACHINE INCL. REACTION ARM, STRAIGHT(LM)
- TOOL CASE
- OPERATING MANUAL

### SIDE POWER WRENCHES LES

- MACHINE INCL. HEXAGON ADAPTER AND HOLDER
- TOOL CASE
- OPERATING MANUAL

### SIDE POWER WRENCHES LPS

- MACHINE INCL. REACTION ARM, STRAIGHT(LM)
- TOOL CASE
- OPERATING MANUAL

### RAILWAY TORQUE WRENCH LDB

- MACHINE INCL. REACTION ARM, STRAIGHT (LM) WITH HOLDFUNCTION
- 2 BATTERIES
- BATTERY CHARGER
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE

### HEAVY DUTY TORQUE WRENCH LHD

- MACHINE INCL. REACTION ARM, CRANKED (ST) WITH HOLDFUNKTION
- POWERBOX
- TOOL CASE
- OPERATING MANUAL
- FACTORY CALIBRATION CERTIFICATE

# THE GATE VALVE WRENCHES
## SERIES LDA-S, LDE-S, LEW-S

### LDA-S series

Flexible drive systems:
electric and battery-operated

Infinitely adjustable breakaway torque for individual settings on your gate valves


Rugged planet gear unit for high breakaway torques

2-speed gearbox for 3x higher speed

Robust planetary gear for high breakaway torques

Optional counter


LEW-S (electric)

LDE-S (electric)
Display with integrated counter

## Open every gate valve with these tools

Our gate valve wrenches are derived from the development of precision torque wrenches. Once again, unnecessary weight has been saved in this new generation. At the same time, the mountings of the moving parts in the rugged planet gear unit were improved, leading to an enormous increase in service life of the entire machine.

## Impact-free and accident-free work, even with difficult gate valves

Our gate valve wrenches work rapidly and reliably without wear-inducing slip-coupling. The electronically infinite torque settings and the soft start-up behaviour of the motor make a sudden tearing away of the gate valve spindle impossible.

## Optimal working weight of just 4.7 kg with a breakaway torque of over 900 Nm

Our gate valve wrenches are consistently weight-optimised without losing any operating comfort or the necessary safety. The complete motor unit can be rotated through 360° in all models and adapts comfortably to your application case due to the ergonomic design. The reaction forces are securely accommodated by the device. The operator can easily open even jammed gate valves up to size DN 1.000.

## Various drive systems for flexible applications

The gate valve wrenches are available with electric or cordless power systems. Determine your own gains with regards to working safety, flexibility and time when opening/closing your gate valves in your pipe network.

## Accessories

Specially for gate valves

Telescopic slide rod

Adapter

Cardan joint

Specially for LDA-series

battery + charger

Charger with 12/24V connector

Hand lever extension

Hand wheel adapter

# LDA-S SERIES

## Robust battery technology for gate valve wrenches

The cordless gate valve wrench battery equipment is a real highlight under the gate valve wrenches.
Battery-operated but just as strong as a mains-based AC wrench, it provides a powerful breakaway torque of max. 900 Nm. Even with this design, the torque can be reduced during operation without reducing the speed until the best possible security is achieved for the gate valve and operator.

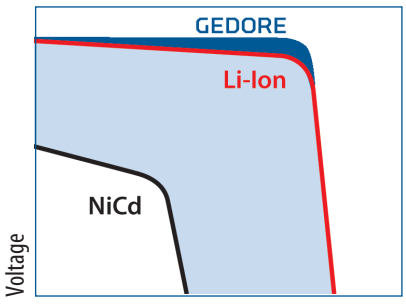
## Flexible maintenance work and pipe network maintenance

From now on, you can work with your gate valve wrench whenever you want, wherever you want and as long as you want to.
Ourgate valve wrenches work with lithium ion technology (Li-Ion) instead of conventional nickel-cadmium batteries (Ni-Cd). These are characterised by 100% more operating time per charge compared to Ni-Cd batteries.
This provides you with peak performance during the entire usage time without speed or torque loss.

## Reserve capacity of battery and charger

The charging time on the charger is approx. 30-50 min when the battery is empty. Once the battery is fully charged, the charger LED changes from red to green

Lithium ion technology

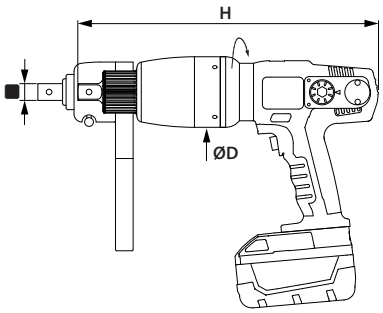



The flashing LED signals that the battery has a reserve capacity of 10%

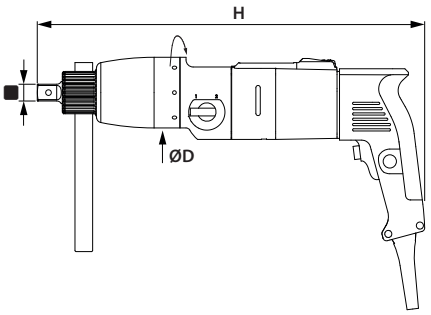
Pressure switch for displaying the charge status

Four lit up LEDs signal that the battery is fully charged

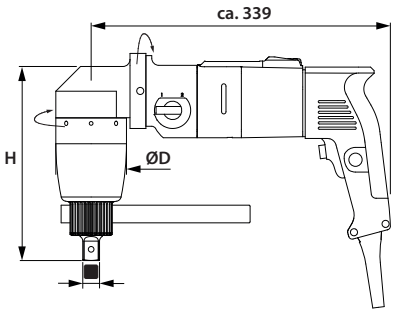
## Technical Data




LDA-S – battery-operated




LDE-S – electric straight version




LEW-S – electric angled version

| Type | ~ N·m max*1 | ~ lbf·ft max*1 | ~ U/min | ■ | Ø D mm | H mm | kg *2 |
|---|---|---|---|---|---|---|---|
| LDA - 05S | 500 | 370 | 60 | ¾ " | 80 | 308 | 4.3 |
| LDA - 07S | 700 | 520 | 41 | ¾ " | 80 | 319 | 4.5 |
| LDA - 09S | 900 | 660 | 30 | ¾ " | 80 | 340 | 4.7 |
| LDE - 075S | 770 | 570 | 25 | ¾ " | 80 | 440 | 5.1 |
| LDE - 09S | 900 | 670 | 17 | ¾ " | 80 | 440 | 5.2 |
| LEW - 09S | 900 | 670 | 18 | ¾ " | 80 | 220 | 6.5 |

*1 Breakaway torque in 1st gear  Other torques on request  *2 Without reaction arm



# THE SIDE POWER WRENCH
## LES/LPS SERIES

### LES series

Optimised design enables space-saving positioning parallel to the tie rod

Patented switch-off electronics protected against spray water and moisture

Infinitely adjustable torque settings with electronic overload protection

torque values readable on the label

Display with integrated counter and countdown function

Braked 360° pivoting drive unit enables simple positioning on the tie rod

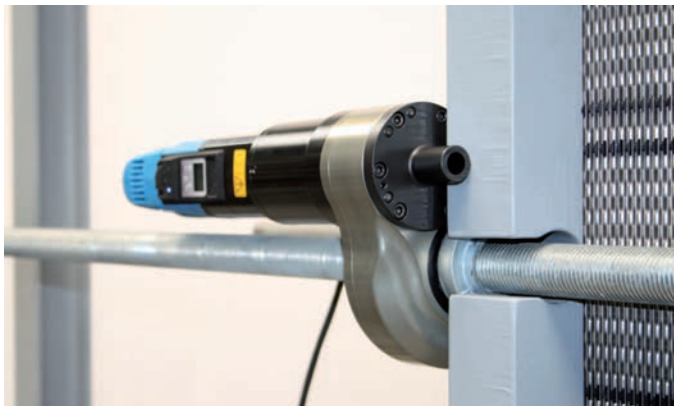
Patented tandem gear pulley for secure transmission of large torques up to 4,800 Nm (in LES-16/..)

Various wrench widths with reduction inserts ensure universal application options

### LPS series (pneumatic)

### Accessories: Hexagon adapter

| ⬡ | 36 mm | 41 mm | 46 mm | 50 mm | 55 mm | 60 mm | 65 mm | 70 mm | 75 mm | 80 mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | • | • | • | | | | | | | |
| 60 | • | • | • | • | • | | | | | |
| 70 | • | • | • | • | • | | | | | |
| 80 | • | • | • | • | • | • | • | • | | |
| 95 | | | | | | • | • | • | • | • |



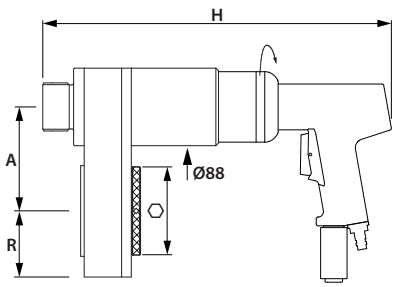
## Specially developed for working on plate heat exchangers

We have specially developed various series of side power wrenches in this sector for the safe assembly and disassembly of plate heat exchanger systems. They work rapidly and reliably, and are – like all of our devices – weight-optimised and designed to be user-friendly.
Regardless of whether your exchanger systems are equipped with or without thrust bearings, we have the appropriate system for all types to make your work as easy and comfortable as possible.
Our side power wrenches are available with electric or pneumatic drives.

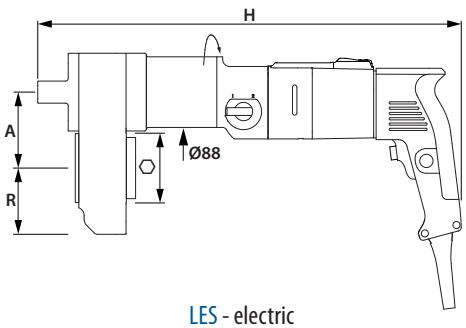
## The alternative for smaller plate heat exchangers

The LES-09 model is our entry models with torques up to 1,600 Nm. These side power wrenches are impressive because of their practical and simple operation, particularly for smaller plate heat exchanger versions.
High-performance aluminium ensures lower weight and the rotating hand grip adapts individually to the requirements of the user. But, above all, it is the enormous bolting speed that is characteristic of both our new products. The set includes a hexagon adapter for the next smallest wrench width, including the holder for attaching the adapter to the basic unit.

## Technical data




LPS - pneumatic




LES - electric

| Type | ~ N·m max*1 | ~ lbf·ft max*1 | ~ U/min*2 | ⬡ mm | A/R mm | H mm | kg *3 |
|---|---|---|---|---|---|---|---|
| LPS - 1/60 | 3000 | 2200 | 7 | 60 | 112/61 | 396 | 10.0 |
| LPS - 1/80 | 3600 | 2650 | 5 | 80 | 118/75 | 396 | 12.0 |
| LPS - 1/95 | 4800 | 3500 | 4 | 95 | 135/95 | 396 | 13.0 |
| LES - 16/60 | 3000 | 2200 | 7 | 60 | 112/61 | 503 | 11.1 |
| LES - 16/70 | 3600 | 2650 | 5 | 70 | 118/75 | 503 | 11.7 |
| LES - 16/80 | 3600 | 2650 | 5 | 80 | 118/75 | 503 | 11.7 |
| LES - 16/95 | 4800 | 3500 | 4 | 95 | 135/95 | 503 | 13.6 |
| LES - 09/55 | 1600 | 1180 | 13 | 55 | 86/75 | 480 | 10.0 |
| LES - 09/60 | 1600 | 1180 | 13 | 60 | 86/75 | 480 | 9.8 |

*1 Series LES: Breakaway torque in 1st gear
*1 Series LPS: Breakaway torque at 7 bar
*2 Series LES: Maximum speed in 2nd gear
*2 Series LPS: Maximum speed at 7 bar
*3 Without reaction arm

# THE RAILWAY TORQUE WRENCH
## LDB SERIES

Select the rail system directly on the large, illuminated colour display

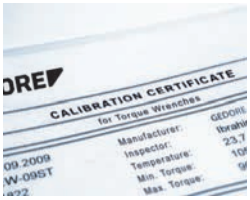

Change of direction right on the handle

Robust, lockable 48V Lithium Ion battery. For approx. 1,400 bolts on new W-rail system

Low-wear, brushless direct current drive with 16 kW maximum output

Maximum breakaway torque 1,100 Nm

Additional handles, variable attachment




Supplied with individual GEDORE factory calibration certificate

Watch our LDB-video - see for yourself!

Awarded with the

**COMPETENCE PRIZE**
BADEN-WÜRTTEMBERG
FOR INNOVATION AND QUALITY
**2015**

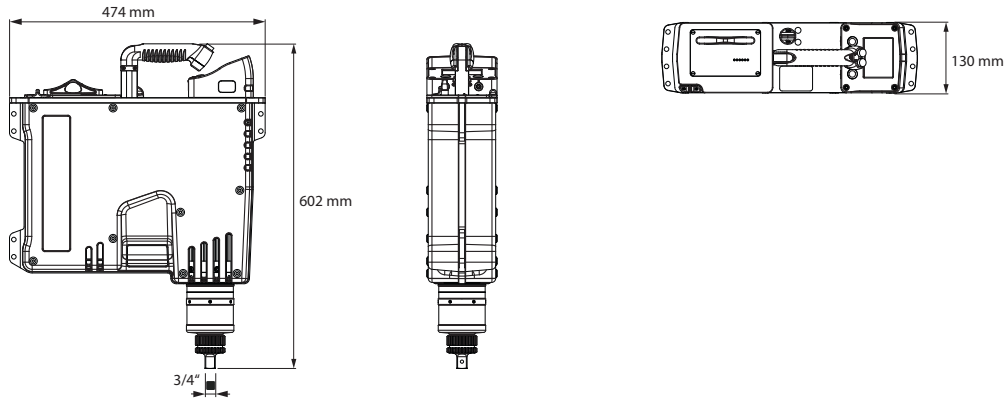
## A complex task

Bolts with two different thread pitches are normally used to fasten rails. When fixing the W-rail system, the sleeper bolt head bolts ten times faster to the sleeper in comparison to the K-rail system due to the larger thread pitch.
Various types of fixing equipment are also used which also makes the process complicated. It mainly depends on the skills of the rail track fitter to fasten the bolts quickly yet carefully. A virtually impossible task due to the time restrictions often involved.
All rail systems used to be fastened with the same torque setting of approx. 200 Nm. However this setting is suboptimal for the majority of tracks. In practice one torque setting means that rails are incorrectly fastened and can lead to the sleepers breaking and bolts cracking.

## Flexible use is the feature of a universal talent

- The LDB-10 can be used for tightening and loosening horizontal bolts for insulated rail joints, fishplate joints, check rail bolts, track switch bolts etc. In comparison to the impact wrench, each bolt is opened.
- It can be held perfectly balanced in the hand of the operator thanks to the ergonomic, height-adjustable handle. Two handles that can be mounted at variable heights allows the operator to adapt the device depending on the type of work.
- The universal railway torque wrench weighs under 20 kg, a fraction of conventional machines and can easily be operated and moved by one operator.
- Alongside bolting, the LDB-10 can also be used to drill sleepers using a suitable drilling adapter.
- Environmentally-friendly battery operation ensures zero-emission working. Advantage: Can be used in tunnels.
  This tool can be operated during the night as its noise levels are considerably lower than with other drives.
- The torque no longer has to be set on the LDB-10. The operator simply has to select the type of rail system from a pre-configured menu. The corresponding torques and bolting speeds have been pre-entered at the factory. The correct setting can be made quickly. And above all: Damages on the sleepers and bolts can be easily avoided.
- The LDB-10 can also be equipped with a universal impact socket. With this, both clip bolts (hexagon 39 mm) and sleeper bolts (square 21/28) and even fishplate bolts (hexagon 41 mm) can be torqued. W-, KS-, K-rail and track switches can be torqued without having to change tools.
- The quality of each single bolt connection must be verified in line with increasing demands on safety and quality.
  The LDB-10 has been designed with this in mind and stores the type of rail track system, the time of bolting, the torque and the correct tightening.
  The memory saves up to 50,000 bolting operations and can be conveniently read out on the PC (documentation optional).

## Technical data




LDB - battery operated

| Type | ~ Nm max*1 | ~ lbf·ft max*1 | ~ U/min | ■ | L mm | B mm | H mm | kg *3 |
|---|---|---|---|---|---|---|---|---|
| LDB-10 | 150-1100 | 110-810 | 160 | ¾" | 410 | 130 | 420 | 17.2 |

1 breakaway torque 2 Without reaction arm, without impact socket, with battery.



| Type | $C_N$ | U | L mm | B mm | H mm | kg |
|---|---|---|---|---|---|---|
| Li-Ion phosphate-based battery | 10 Ah | 48 V DC | 178 | 130 | 337 | 4.6 |

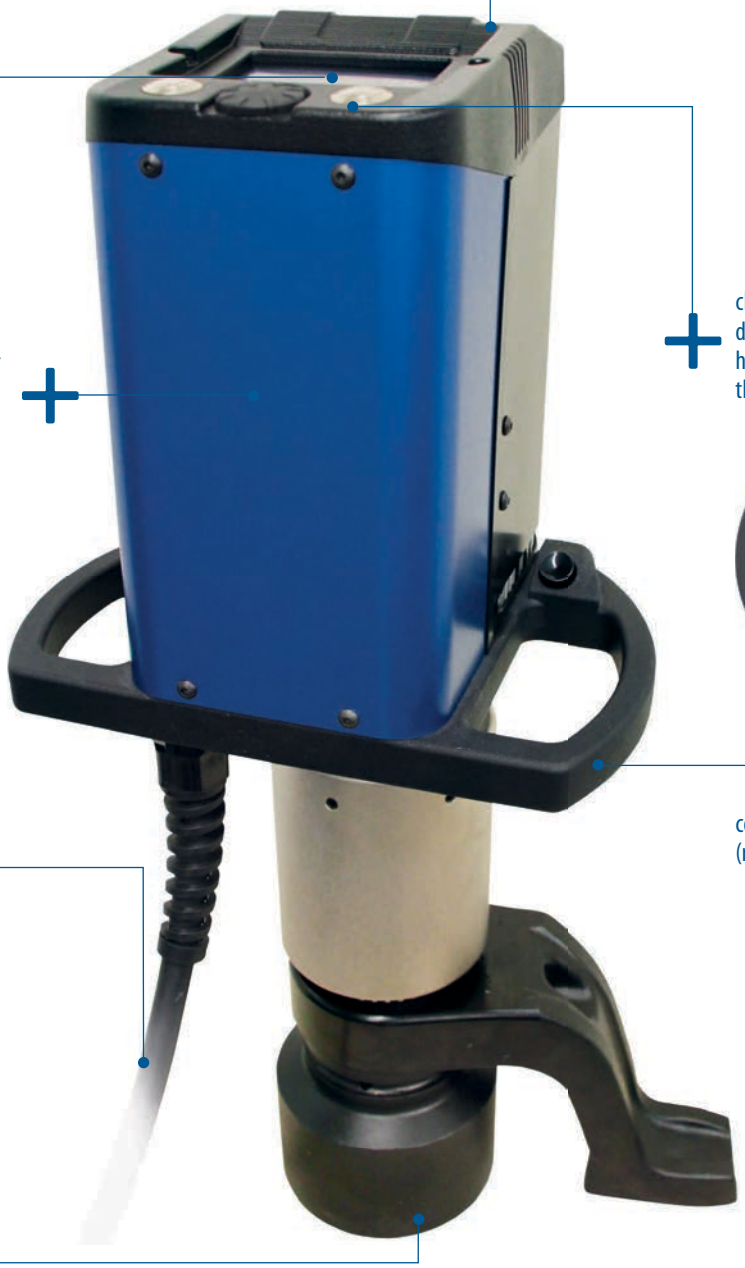
| Type | Input voltage | Output voltage | P | L mm | B mm | H mm | kg | Charging time |
|---|---|---|---|---|---|---|---|---|
| Charger with mains cable | 100-260 V / 45-70 HzWh | 48 V DC / 1.6 A | 100 W | 218 | 121 | 55 | 1.35 | approx.. 4.6 h |

IEC C14 connector, Protective insulation Protection class I (DIN EN 61140)

# THE HEAVY DUTY TORQUE WRENCH
## LHD SERIES

inductive interface for data transmission

Visual and acoustic zero-defect strategy

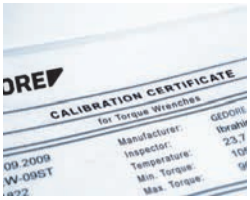


clear and intuitive handling directly on the machine with the help of a LCD-display and only three operating elements

Brushless Technology for a longer tool life of the torque wrench thanks to the brushless, low-wear DC drive

control directly on the handle (right-/left-handed rotation)

connection to the powerbox




Supplied with individual GEDORE factory calibration certificate

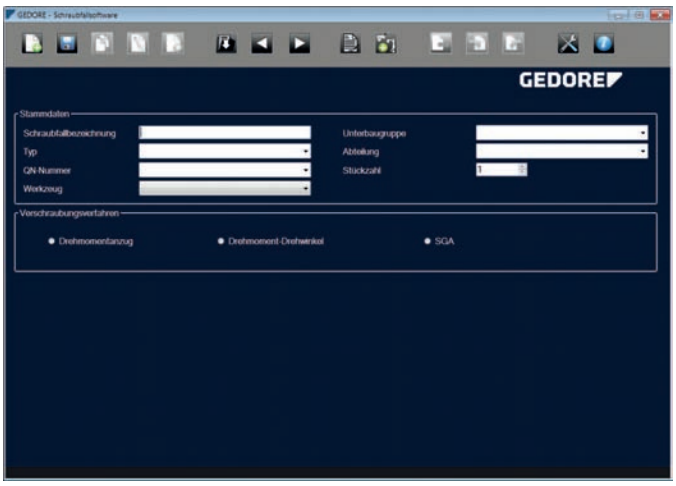
## Technical data

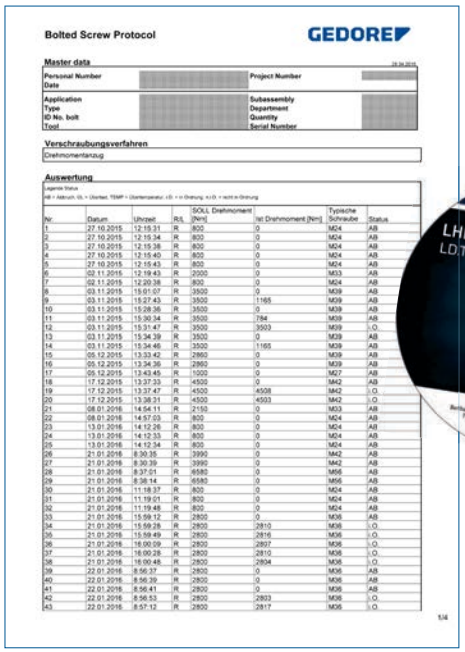
- more than twice as fast as other suppliers - for a faster insertion bolt by bolt
- reliable operation regardless of the wind or weather conditions
- Torque
- Torque angle
- torque adjustment in 10 Nm steps
- repeatability +/-2 %

| | |
|---|---|
| Torque range | 800 - 8.000 Nm |
| Speed | 10,3 U/min |
| Weight | 14,6 kg |
| Dimension (LxWxH) | 180 x 250 x 540 mm |
| Gear unit diameter | 102 mm |
| Square drive | 1 ½“ |
| Protection | IP54 |

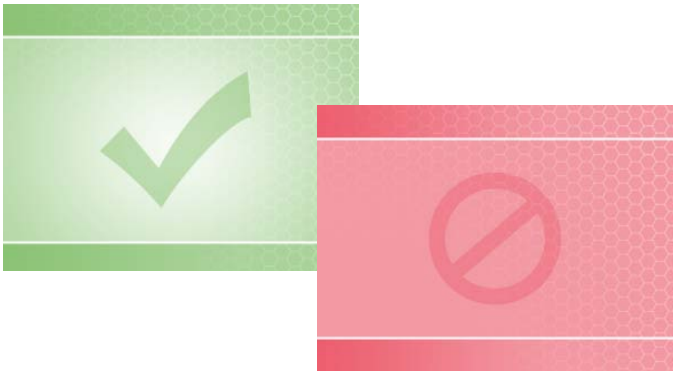
## Evaluation as well as sowie reprogramming of bolting applications comfortable on the PC with a plausibly structured software

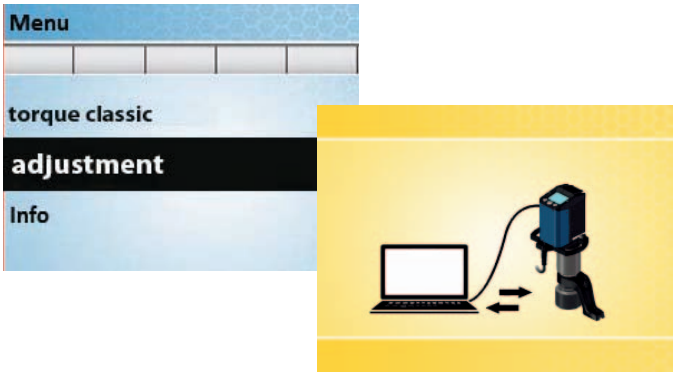
Documentation of over 10,000 bolted connections is possible with the optional availiable module TRACK.
With optional availiable module LOCK and QS it is possible to save storable bolting operation assignments. This simplifies the work on the site and reduces the expenditure of time.










## Powerbox + accessory case for cable

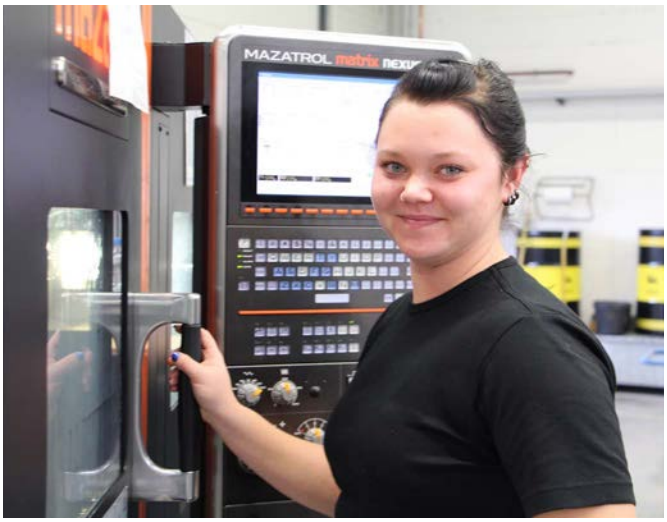
Due to strong voltage fluctuations it is often impossible in the wind power sector to use electrically driven bolting equipment with the required accuracy.
This is avoided with the LHD-80 bolting device by a voltage conversion using our Powerbox - this way the bolting device is always provided with the necessary voltage for proper function.

| | |
|---|---|
| Input voltage | 180-264 V AC / 47-63 Hz |
| Output voltage | 48 V DC |
| Max. efficiency | 3.000 W |
| Dimension (LxWxH) | 380 x 445 x 160 mm |
| Weight | 9,4 kg inclusive power cable and accessories box (Powerbox 5,9 kg; accessories box 2,7 kg) |
| Protection | IP43 |
| Protection class | II |


GEDORE

# COMPANY AND SERVICES

# YOUR SPECIALIST IN
# HIGH LEVEL TORQUE BOLTING TECHNOLOGY




## From pioneer to high-tech centre

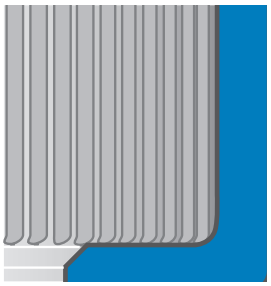
We have represented quality and innovation in all branches of bolting technology for 40 years.
Production based in Germany on state of the art machining centres ensures excellent quality and precision in our torque wrenches.
The difference is quite simply in the detail.

## New production method

A patent-filed impact operation producing no grooves or notches at all. This enables a lighter and more stable gear housing than traditional type of machining.
Your advantage: more safety in the process of bolt tightening with greater convenience.

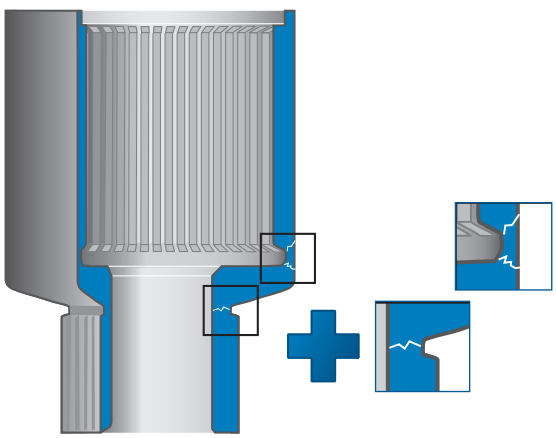
## Customary operation

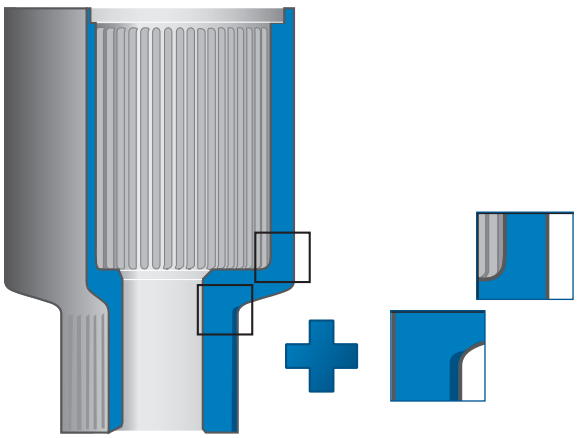
With the usual rolling impact operation, the cutting tool - at the serrated face runout - requires a design-necessitated „clearance cut“ to act as a notch.
Cracks in the material may form within if overloaded.
The notching needs to be countered by a thicker plate thickness in the gear.



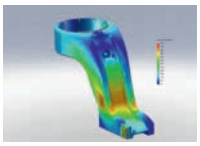
Housing based on a buttress root

Buttress root in the jungle





# HIGH MANUFACTURING DEPTH OF NEARLY 100%



## We develop the torque wrenches for your future

Our specialists develop your torque wrenches with state of the art construction and analysis methods (CAD/CAM/FEM). If a suitable solution is not available in our product range, we can design a specifically customised solution for you. Your applications are our challenge.

### Production steps of a gear body

Raw material

Turning

Indenting

Milling

Hardening


## Precision testing before release

In our in-house test laboratory, all dynamic devices are precisely measured and configured before they are sent to you. The torque deviation is usually significantly under 3% for identical bolting operations.
The individual factory calibration certificate is the proof that is required by every QM system as per DIN EN ISO 9001:2008.

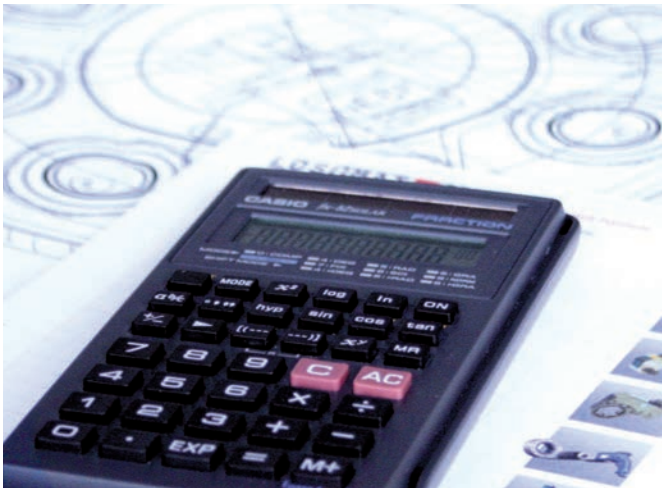
# CONSULTATION AND TRAINING BY SPECIALISTS

## Always the right solution for you

Our experts can advise you on site and analyse your application case together with you in order to offer you the appropriate system.
Our extensive range of products offers you a professional solution.

## In-house training

We offer safety instruction and training courses for you in our in-house training centre. Every participant is subsequently issued with a certificate as verification of training.



## Financing

The best solution for you counts. We will be happy to consider your wishes and ideas with regards to the contractual arrangement. In order to provide you with flexibility, we can offer various options when purchasing our products, from leasing to paying by instalments.

# THE FACTORY CALIBRATION CERTIFICATE

GEDORE
TOOLS FOR LIFE

## Factory CALIBRATION CERTIFICATE

for Battery torque wrench

| | | | | Bolting Adapter: |
|---|---|---|---|---|
| Date | 12.01.2016 | Manufacturer | GEDORE | M20x90: II 1-3 |
| Type | LDA-16ST | Inspector | Max Mustermann | M24x120: I 1, II 4-7 |
| Serial No | DA07.00153 | Temperature | 23,1 °C | M30x130: I 2-4 |
| Inventory No | | min. torque: | 250 Nm | M36x130: I 5-7 |
| Model Year | 2016 | max. torque: | 2180 Nm | |
| | | Tolerance | 5 % | |

**MEASURED VALUES 1. Gear [Nm]** / **EVALUATION**

| Set. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Ave. | % Dev. | 95% Valu | 105% Valu | Sensor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 556 | 540 | 550 | 548 | 550 | | | | | | 549 | 1,05 | 521 | 576 | |
| 2 | 835 | 827 | 821 | 815 | 816 | | | | | | 823 | 1,03 | 782 | 864 | |
| 3 | 1113 | 1141 | 1113 | 1148 | 1137 | | | | | | 1130 | 1,43 | 1074 | 1187 | |
| 4 | 1424 | 1392 | 1402 | 1433 | 1423 | | | | | | 1415 | 1,22 | 1344 | 1485 | |
| 5 | 1763 | 1734 | 1741 | 1755 | 1757 | | | | | | 1750 | 0,69 | 1663 | 1838 | |
| 6 | 2034 | 1994 | 2021 | 2044 | 2016 | | | | | | 2022 | 0,94 | 1921 | 2123 | |
| 7 | 2186 | 2233 | 2179 | 2220 | 2211 | | | | | | 2206 | 1,03 | 2096 | 2316 | |

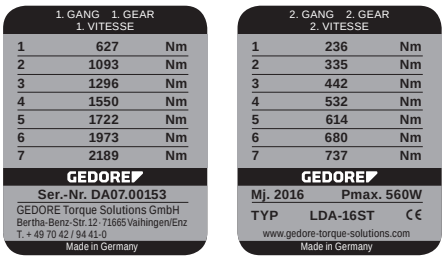
**MEASURED VALUES 2. Gear [Nm]** / **EVALUATION**

| Set. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Ave. | % Dev. | 95% Valu | 105% Valu | Sensor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 233 | 242 | 238 | 237 | 236 | | | | | | 237 | 1,38 | 225 | 249 | |
| 2 | 304 | 304 | 300 | 311 | 301 | | | | | | 304 | 1,37 | 289 | 319 | |
| 3 | 416 | 412 | 416 | 403 | 408 | | | | | | 411 | 1,34 | 390 | 432 | |
| 4 | 511 | 506 | 505 | 514 | 513 | | | | | | 510 | 0,82 | 484 | 535 | |
| 5 | 629 | 633 | 628 | 649 | 632 | | | | | | 634 | 1,35 | 602 | 666 | |
| 6 | 739 | 747 | 735 | 724 | 727 | | | | | | 734 | 1,25 | 698 | 771 | |
| 7 | 778 | 771 | 785 | 768 | 785 | | | | | | 777 | 1,00 | 738 | 816 | |

**Sensor data sheet (in order to their appearance):**
1: Torque Sensor, Lorenz Messtechnik D-2271, SN: 102552, 15000 Nm
2: Torque Sensor, Lorenz Messtechnik D-2268, SN: 104305, 2000 Nm
All measured values in this document are executed with a regular proofed calibration equipment.
So that the lead back to ISO 9000 ff are guaranteed.

LPU: 201101171

1. Secure DataMatrix Code
2. Individual factory calibration certificate for every planet gear unit system torque wrench with individual serial number for article identification
3. Transparency and safety resulting from deviation data taking the efficiency into consideration
4. Various languages available on request
5. Three to five complete measurement series per torque level depending on the device type
6. The torque values are readable on the label:

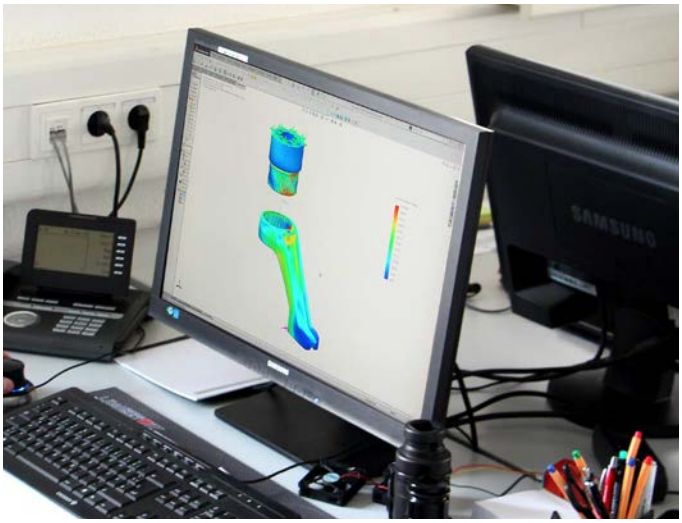


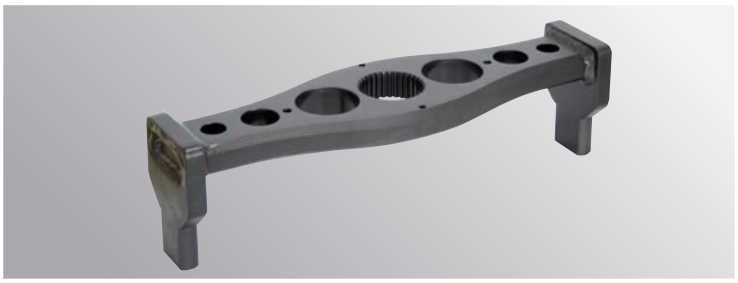

Individual factory calibration certificate for all planet gear unit system torque wrenches in the series:
LDA/LAW, LDE/LEW, LPK/LPK-X and LKV
Tested on standard or original bolts
We recommend annual tool inspection of the devices, a new factory calibration certificate can be issued following this inspection if required

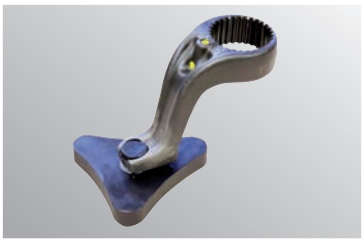
# SPECIAL REACTION ARM VERSIONS

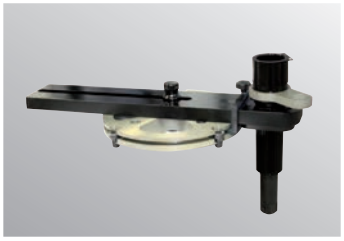
The reaction arm of a high-torque wrench is one of the most important components on the device. It absorbs all reaction forces produced during bolting operations. It therefore has to be stable. In addition, reaction arms require a place in their surroundings where they can support themselves. They therefore not only need to be stable, but also suitable for a variety of environments.

As bolts can be located anywhere, it is possible that the standard reaction arm does not always fit and only a custom design can correctly absorb the reaction force. We are specialised in this area. Custom reaction arms can be built and force effects simulated (FEM) in our own development department in Vaihingen/Enz.









# REFERENCE PROJECTS


## Football stadium TSG Hoffenheim

The roof structure of the football stadium belonging to TSG 1899 Hoffenheim was mounted with our cordless torque wrench.

## Metropol Parasol, Sevilla

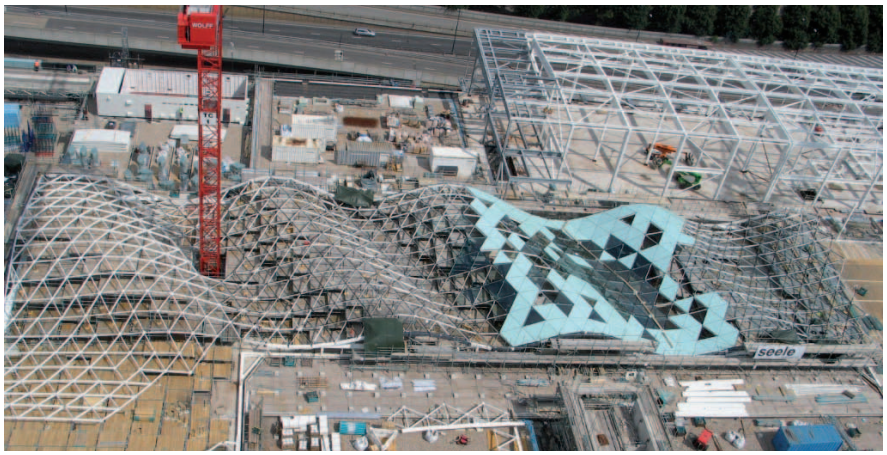
The new landmark in Seville, Spain, was mounted with the high-torque cordless torque wrench (LDA). A total of 21900 bolted connections were tightened on the wooden construction.

*source: MERK Timber GmbH*


## Shopping centre in England

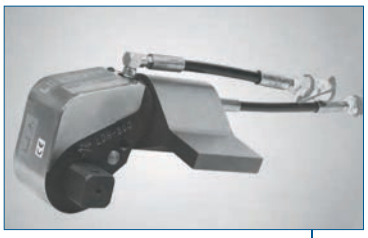
A custom electric torque wrench was specially developed for the curved roof structure of a shopping centre in England where the bolts were difficult to access.

source: seele holding GmbH & Co. KG



# OUR SUCCESS STORY

**1992**
Move to new and larger administration and production facilities in Vaihingen/Enz.



**1972**
Peter Neef founded a commercial agency for bolt technology.

**1981**
The first self-releasing counter wrench in the world, designed to counter-hold difficult bolt connections, was introduced to the market and patented.

**1985**
LÖSOMAT develops a square drive wrench with patented ratchet system.

1970 1975 1980 1985 1990


**1991**
New introduction of the LÖSOMAT electric torque wrench with an angled design for confined spaces.

**1988**
Trailblazing development and market introduction of the precision torque LÖSOMAT torque electric torque wrench, which achieved 13,000 Nm for the first time.
Development of the LÖSOMAT pneumatic torque wrench up to 13,000 Nm with pressure and torque monitoring.

**1990**
The LÖSOMAT side power wrench sets new yardsticks with a patented tandem gear train.

**2010**
LÖSOMAT awarded the Plus X Award in the categories "Ease of Use" and "High Quality" for the cordless torque wrench. Also awarded the "Best Product 2010" award.

**2008**
LÖSOMAT becomes a wholly owned subsidiary of the Gedore Group.

**2012**
Company's anniversary – 40 years of LÖSOMAT

**2007**
A world innovation presented here:
The LÖSOMAT cordless torque wrench with microprocessor controlled switch-off electronics up to 4,000 Nm.

**2015**
With the LHD, LÖSOMAT develops the new generation of heavy duty screw connections. Brushless Technology and the Powerbox make this torque wrench durable and usable in all weathers.

**2005**
LÖSOMAT develops and patents the first automatic control unit for hydraulic units that functions without the need for any sensors in the hydraulic torque wrench.

1995 2000 2005 2010 2015

**1996**
The LÖSOMAT hydraulic torque wrench sets new yardsticks with regards to size and weight up to 27,000 Nm.

**2007**
The LÖSOMAT HRPU series makes it possible for the first time in modern unit technology to modularly configure hydraulic units. Each module can be retrofitted.

**2011**
LÖSOMAT opens their first branch in United Kingdom under the name "LÖSOMAT UK".

**2016**
LÖSOMAT Schraubtechnik Neef GmbH is fully integrated into the GEDORE Group and receives a new name:
GEDORE Torque Solutions GmbH

**2014**
LÖSOMAT developed the rail track wrench (LDB). With this wrench, users can bolt and drill in vertical and horizontal positions as well as in dual combination on a rail car.
In 2015 LÖSOMAT receives the Competence Prize for Innovation and Quality Baden-Württemberg for developing the Railway Torque Wrench LDB-10.

**2009**
LÖSOMAT moves to new company premises with double the production area in Vaihingen/Enz.

COMPETENCE PRIZE
BADEN-WÜRTTENBERG
FOR INNOVATION UND QUALITY
2015

# GEDORE TORQUE SOLUTIONS GMBH WORLDWIDE

| | | |
|---|---|---|
| Germany<br>GEDORE Torque Solutions GmbH | Bertha-Benz-Straße 12<br>71665 Vaihingen/Enz | Tel.: +49(0) 7042 / 9441-0<br>Fax: +49(0) 7042 / 9441-41<br>torque-solutions@gedore.com<br>www.torque-solutions-gedore.com |

## Europe

| | | |
|---|---|---|
| Austria<br>GEDORE Austria GmbH | GEDORE-Straße 1<br>8190 Birkfeld / Stmk. | verkauf@gedore.at<br>www.gedore.at |
| Belgium<br>SAB-BNL nv | Vriesenrot 22<br>Industrieterrein Hoogveld Zone B<br>9220 Dendermonde | brecht@sab-bnl.be<br>www.sab-bnl.be |
| Czech Republic<br>GEDORE Polska Sp. z o.o. | ul. Żwirki i Wigury 56a<br>43-190 Mikołów · Poland | gedore@gedore.pl<br>www.gedore.pl |
| Denmark<br>EP Tools A/S | Industrivej Nord 9B, Birk<br>7400 Herning | ernst@eptools.dk |
| Finland<br>Raahen Pultti Oy | Varikkotie 2<br>92100 Raahe | merja@pultti.net<br>www.pultti.net |
| France<br>GEDORE France SARL | Parc d´activités des Béthunes - La Mare II<br>10, avenue di Fief - Bât. 12<br>BP 79144 Saint-Ouen-l´Aumône<br>F-95074 CERGY PONTOISE CEDEX | info-klann@gedore.fr<br>www.gedore.fr<br>www.klann.fr |
| Greece<br>C. Canetti & Co. | 269 Messogion Ave<br>152 31 Halandri | sales@kanetis.gr<br>www.kanetis.gr |
| Hungary<br>Gero Tools S.R.L. | Comuna Selimbar<br>Str. Mihai Viteazu nr. 245A<br>557260 Sibiu · Romania | calin.minduc@gerotools.ro<br>www.gerotools.ro |
| Netherlands<br>GEDORE Technag B.V. | Flemingweg 7<br>2408 AV Alphen aan den Rijn | technag@gedore.nl<br>www.gedore.nl |
| Norway<br>Tech-Tools AS | Postboks 37<br>2021 Skedsmokorset | post@techtools.no<br>www.techtools.no |
| Poland<br>GEDORE Polska Sp. z o.o. | ul. Żwirki i Wigury 56a<br>43-190 Mikołów · Poland | gedore@gedore.pl<br>www.gedore.pl |
| Romania<br>S.C. Gero Tools S.R.L. | Comuna Selimbar<br>str. Mihai Viteazu nr. 245A<br>557260 Sibiu jud. Romania | calin.minduc@gerotools.ro<br>www.gerotools.ro |
| Slovakia<br>GEDORE Polska Sp. z o.o. | ul. Żwirki i Wigury 56a<br>43-190 Mikołów · Poland | gedore@gedore.pl<br>www.gedore.pl |
| Spain<br>GEDORE Ibérica, S.L. | c/Arangutxi 12 · Pol. Ind. Júndiz<br>01015 Vitoria - Alava | gedore@gedore.es<br>www.gedore.es |
| Sweden<br>Hydro Pascal AB | Flamtegelvägen 53<br>23839 Oxie | info@hydropascal.com<br>www.hydropascal.com |
| Switzerland<br>Atico AG | Dammstraße 7<br>8112 Otelfingen | info@atico.ch<br>www.atico.ch |

| | | |
|---|---|---|
| Turkey<br>GEDORE el Aletleri SAN. ve TIC. Ltd. Sti | Istanbul Ankara Karayolu 35. km<br>TR 34953 Tuzla-Istanbul | info@gedore.com.tr<br>www.gedore.com.tr |
| United Kingdom<br>GEDORE Torque Ltd. | Tannery Lane, Gosden Common<br>Bramley, Guildford, Surrey, GU5 0AJ | salesandrepairs@gedore-torque.com<br>www.gedore-torque.com |
| United Kingdom<br>LÖSOMAT UK | Unit 7 Springvale Business Centre<br>Millbuck Way · Sandbach · Cheshire<br>CW11 3HY | sales@losomat.co.uk<br>www.losomat.co.uk |
| Ukraine<br>GEDORE Polska Sp. z o.o. | ul. Żwirki i Wigury 56a<br>43-190 Mikołów · Poland | gedore@gedore.pl<br>www.gedore.pl |

## Worldwide

| | | |
|---|---|---|
| Brazil<br>Ferramentas GEDORE do Brasil S.A. | Rua Vincentina Maria Fidelis, 275<br>Sao Leopoldo-RS CEP 93025-340 | sales@gedoretools.com<br>www.gedore.com.br |
| Brazil<br>KDOWIDAT Ferramentas Especiais LTDA | Rua da Aviacao, 141<br>7053140 Guarulhos – SP – Brasil | ricardo.ciquiguti@gedore.com.br<br>www.gedore.com.br |
| Chile<br>Comercializadora Servi All Ltda. | Los Topacios No. 573<br>La Chimba · 124000 Antofagasta | ventas@serviall.cl<br>www.serviall.cl |
| China<br>GEDORE Tool Trading (Shanghai) Co. Ltd. | B1/f., Block 2, 1358 Pingan Road, Minhang<br>Shanghai, China 201109 | info@gedore.cn<br>www.gedore.cn |
| Dubai<br>GEDORE TOOLS MIDDLE EAST FZE | P.O. Box 372042<br>West Wings 3<br>Office # 209<br>Dubai Airport Free Zone | |
| India<br>GEDORE India Private Ltd. | 374, Udyog Vihar Phase II<br>Guragon – 1220016, Haryana | info@gedore.in<br>www.gedoreindia.com |
| India<br>Mekaster Tools Ltd. | 908, Ansal Bhawan<br>16, Kasturba Gandhi Marg<br>New Delhi – 110 001 | support@mekastertools.com<br>www.mekastertools.com |
| Russia<br>OOO GEDORE Tool Center | ul. Bakhruschina H32 G 1<br>115054 Moskau<br>Tel. 007/495/7240074 | GTCOOO-Russia@gedore.com |
| South Africa / Africa<br>GEDORE Tools S. A. (PTY) Ltd. | P.O. Box 68<br>New Germany 3620 | general@gedoresa.co.za<br>www.gedore.com.br |
| South Korea<br>Dong Jin Power Co. Ltd. | RA-1226, Chungang Circulation Complex<br>Seoul | dongjin@djpower.co.kr |
| South Korea<br>Enertec Korea | Daejo-2dong, Kangseo-Gu<br>Busan, 618-804 Korea | enertec@enerteckorea.co.kr<br>www.enerteckorea.co.kr |
| Taiwan<br>DEAMARK Ltd. | No. 6, Lane 5. Lin Sen N. Rd.<br>100 R.O.C Taipei | tomlee@deamark.com.tw<br>www.deamark.com.tw |
| USA<br>GEDORE TOOLS, INC. | 7187 Bryhawke Circle, Suite 700<br>North Charleston, SC 29418 | info@gedoretool.com<br>www.gedoretools.com |

# CAPTIONS


Company, Services, More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Hydraulic Solutions


Manual Solutions


Torque Testing Bench Technology


Special Solutions

Weight


Square drive (internal)


Square drive (external)


Hexagonal socket drive (internal)


Input torque


Output torque


Transmission ratio

EN

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GEDORE Torque Solutions GmbH
Bertha-Benz-Straße 12
71665 Vaihingen/Enz · GERMANY

T +49 (0) 7042 - 9441 - 0
F +49 (0) 7042 - 9441 - 41
torque-solutions@gedore.com
www.gedore-torque-solutions.com

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