

# HYTORC

## Continuously rotating pneumatic, electric & battery bolting tools

Lightweight. Mobile. Flexible.



[www.hytorc.de](http://www.hytorc.de)



Bolts are by far the most important separable joints in mechanical, plant and automotive engineering and in process industries. More than two thirds of all separable joints use bolts. In Germany alone, more than 50 billion bolts are used every year. The vast majority of these bolts is smaller than M12, but the number of larger bolts is also continuously growing. For economic reasons, the trend of the past decade is towards larger, maintenance-free machines and plants.

Nowadays, construction equipment, utility vehicles, airplanes, power plants, wind turbines and even bridges and high-rise buildings are designed in sizes that would have been impossible only a few years ago. These larger dimensions require correspondingly larger fastening elements, and existing bolted joints must have an increased performance and a higher and more accurate preload.

HYTORC, the world's leading manufacturer for industrial bolting, develops evermore powerful new tools, fasteners and bolting processes to increase efficiency, profitability, safety and quality for its customers all over the world.

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◀ Fastening flanges in conformity with "TA Luft" using the DISC hexagon washer to prove surface pressure



### Bolting technology made by HYTORC

- comprehensive product range
- many years of application experience
- innovative and customized bolting solutions for all applications
- ISO 9001, ISO 29990 and KTA 1401 certified
- customer-oriented sales and services

# The perfect solution

## Innovative technology and intelligent processes for the highest bolting quality

HYTORC is the leading manufacturer for industrial bolting technology and a reliable partner for many industries. Thanks to our wide range of products, the highest quality standards, unique services and valuable expert knowledge, we will find the perfect solution even for the most demanding applications.

HYTORC develops and manufactures innovative solutions for separable joints, and with its reliably fast tools and assembly systems, HYTORC contributes considerably to the high competitiveness of the oil and gas, chemical and petrochemical industry, energy and wind energy, mechanical and plant engineering, heavy industry, infrastructure, and many more.

From the world's widest range of bolting technology, we identify the perfect individual solution, tailor-made to the specific requirements:

- Hydraulic torque wrenches
- Pneumatic torque wrenches
- Electric and battery torque wrenches
- Patented fastening elements
- Innovative bolting processes
- Intelligent system controls
- Industry 4.0 – robot-controlled hydraulic bolting technology

With this portfolio and on the basis of our key competences, including product development, engineering and system support, we have been developing the world's greatest expertise in bolting technology for more than five decades. With safe and user-friendly systems as well as practical solutions, we support our customers in finding the perfect fastening solution in terms of costs, quality, productivity and plant availability from the first phase of planning. This allows our customers to take a decisive lead, and that is why we have been a valuable partner for leading companies for many years. Make HYTORC part of your bolting technology solution!



# Perfect Bolting Technology Made by HYTORC

HYTORC offers the entire range of mobile bolting technology, including all tightening methods in accordance with VDI 2230, unique fastening elements and customer-oriented services. Fast, safe, innovative.



Catrin Junkers, Jörg Lindemann  
and Patrick Junkers

HYTORC's headquarters for Germany, Austria, Switzerland, Turkey and Azerbaijan are located in Krailling near Munich. Since 1985, the trading company Barbarino & Kilp GmbH has been responsible for HYTORC's sales. Barbarino & Kilp GmbH has a successful company tradition of more than 275 years and has consistently developed the HYTORC brand.

We have a team of around 40 employees, some of them in our headquarters in Munich-Krailling and some in other sales and service locations. This team structure allows us to provide the highest efficiency in engineering, administration, processing and logistics in our headquarters and direct customer support on-site thanks to our locations in different regions.

Our customers value our strictly customer and service oriented approach: HYTORC has its own calibration center for pressure, torque and preload. We support our customers already in the first phase of planning with our CAD Design Center. This allows us to develop customized designs and provide valuable support in planning. The company-owned Akademie der Schraubverbindung in Augsburg provides theoretic and practical further training for management, engineering, quality assurance and assembly and ensures certified bolting expertise in your company. Our unique services such as on-site service and flexible financing solutions round off HYTORC's portfolio.



ISO 9001



ISO 29990

**Welcome to the world of HYTORC!**

Certification numbers:

ISO 9001: 397107 QM15 and ISO 29990:2010: 397107 LSP

# HYTORC provides unique solutions



- **Experience and competence since 1968**
- **Fast and safe bolting with constant friction values and without reaction arms**

Hands-free via remote control even in applications overhead, explosion risk areas (ATEX approval) and underwater joints
- **Intelligent hydraulic bolting technology in the sense of industry 4.0 and “intelligent factories”\***

Safe assembly processes thanks to perfect monitoring, system transparency, system analysis, bolt management and visualization of process data. The HYTORC system meets all standard minimum requirements according to VDI/VDE 2862-2 and more for bolted joints of category A = high, B = medium and C = low risk assessment
- **Sustainably tight flange connections with particularly low leakage rates**

Instead of a product loss of 14.2 kg per year and meter due to manual tightening, a product loss of only 0.1 kg per year and meter is now possible. This is achieved thanks to the simultaneous use of several torque wrenches and one of our five fastening elements with constant friction value
- **Maintenance-free bolted joints**

Nominal preload forces can be easily increased by using one of our five fastening elements with constant friction value and/or intelligent and process reliable fastening processes such as yield point controlled tightening or torque/angle tightening
- **Comprehensive product range**

in the fields of hydraulic, pneumatic, electric and battery torque wrenches from 50 Nm to 190,000 Nm
- **Standard bolted joints**

such as galvanized sets, anchor bolts, rolled bolt threads up to M200 and up to 18 m length of the highest quality and certification for the entire industry
- **No-rotation fastening elements with constant friction value**
- **Lubricants, anti-seize and metal cleaners**
- **Thread cleaning machines for internal and external threads, nut splitters and lifting devices**
- **Customer-oriented sales**
- **On-site service**

For sustainable improvement of your occupational safety, ergonomics and quality, HYTORC supports you on-site, accompanying you during internal audits and shutdowns, on-site inspections, examinations and recalibration of your fastening tools. Great availability thanks to our rental tools
- **Akademie der Schraubverbindung**

As a certified learning service provider, we offer different training modules, for example in accordance with DIN EN 1591-4:2013; ASME or OSHA, both in the Academy in Augsburg and on your premises

**HYTORC is your one-stop shop for everything related to bolted joints!**

\* see catalog “Mobile hydraulic bolting technology”

# **HYTORC Bolting Solutions**

## For applications in many industries

HYTORC's innovative, mobile bolting techniques are a valuable contribution for the entire industry.

### **Chemistry & petrochemistry**

#### **Oil & gas**

Systematic development of the HYTORC flange concept for documented, economically efficient and safe bolting in chemical, oil and gas plants.



#### **Exemplary applications:**

- pressurized flanges
- BOP (preventer)
- compressors
- machines
- reactors
- fittings
- heat exchangers
- hydrogenators
- catalytic converters
- pumps
- cyclonic separators
- carburetor
- and many more

### **Energy & wind energy**

Process-reliable bolting with reduced weight using the yield point controlled tightening method for optimized operation and costs over the entire lifecycle.



#### **Exemplary applications:**

- gearbox bolting
- tower bolting
- machine support bolting
- yaw bolting
- blade bolting
- foundation bolt fastening
- mainframe bolting
- shrink disk on gearbox
- brake disc bolting
- clamping set bolting
- shaft-hub-connection
- and many more

### **Machine & plant engineering**

Industry 4.0 ready thanks to process controlled, documented bolting systems in accordance with VDI 2230 for maximum loaded and perfectly dimensioned bolted joints.



#### **Exemplary applications:**

- container bolting
- pressing
- variable displacement pumps
- cathodic and electrolytic furnaces
- nacelle bolting
- support boltings
- heat exchanger bolting
- bolting of wheel bearings
- bolting of motor mounts
- hexagon boltings on shredding facilities
- cylinder bolt fastening
- couplings
- bucket wheels
- and many more



HYTORC offers unique bolting solutions for different industries and sectors. Among others, this allows us to find entirely new ways to significantly save time during downtimes and internal audits. To make the bolting process safe for the installers, HYTORC provides tools for hands-free tightening and tensioning without reaction arm. This also protects the plants and helps to prevent and significantly reduce damages on components and paintings. Furthermore, flanges can be fastened quickly, safely and entirely tightly with HYTORC. With plane parallel flange joints, we ensure that the 'TA Luft' (technical instruction on air quality control) is complied with. This is beneficial both for the environment and for your business. With our unique bolting methods and fastening elements, HYTORC users can master all kinds of challenges and fully document the orderly execution of their jobs at any point in time.

### Heavy industry

Hydraulic bolting systems with maximum dimensions for torques of several 10,000 Nm. In conformity with VDI/VDE 2862-2 and fully documented.



#### Exemplary applications:

- bolting of wheels and tracks
- module bolting
- slewing gear bolting
- roller slewing ring
- vehicle frame bolting
- input and output flange
- pitman arm
- transverse control arm
- sprocket drum
- tow bar coupling
- operation cylinder bolting
- articulated links
- engine mount bolting
- crane boltings
- and many more

### Infrastructure

Customized systems for safety-relevant bolting and quick realization of repairs for heavily loaded bolted joints in infrastructure projects.



#### Exemplary applications:

- rail vehicles
- utility vehicle engineering
- crane and lifting technology
- bolting of couplings
- slewing gear bolting
- roller slewing ring
- bolting of wheel bearings
- vehicle frame bolting
- input and output flange
- pitman arm
- transverse control arm
- sprocket drum
- tow bar coupling
- operation cylinder bolting
- articulated links
- engine mount bolting
- and many more

### Other industries

#### Mining

- underground and opencast mining

#### Shipbuilding and shipyards

- ship diesel/big engines
- shaft couplings
- marine propellers

#### Steel mills

- bolting of guiding and stability rolls on mill trains
- cylinder bolting
- bending presses
- roll train cassettes on the rolling mill stand
- forging boxes and beds

#### Construction companies

- structural engineering
- civil engineering
- bridge construction

#### Steel construction

#### Industry service providers / contractors

#### Public contractors

- research institutes
- universities
- public utilities
- public service providers
- military

#### Elevators and cable cars



## **Battery torque wrenches by HYTORC**

HYTORC's powerful battery torque wrench series BTM GUN 36V and LiON GUN 18V with color display and perfect weight distribution are becoming more and more popular in the industry. They are mobile and flexible and, compared to impact wrenches, they have much more precise torques, a documentation mode and are easy to use.

# BTM GUN 36V

## Mobile, compact, light

The powerful dual speed battery torque tool with 36V battery and perfect weight distribution

### BTM GUN 36V – Benefits

- five product series from 47 Nm to 4,050 Nm with steplessly adjustable torque ranges
- dual speed planetary gear with high fastening speeds in all torque ranges
- accurate disengagement when the set torque is reached with ratchet mechanism
- fully colored display indicating the torque in ft.lbs. or Nm and direction of rotation as well as battery life
- versatile thanks to a comprehensive range of accessories, e.g. for ISO 4014, ISO 4017, ISO 4762, DIN 934, DIN 2510 and others
- deployable for axial bolting without reaction arm or back-up wrench with modern fastening elements
- long fatigue-proof tightening and loosening of bolted joints
- powerful breaking loose of bolts
- 36 Volt battery, i.e. significantly faster than other assembly tools
- documentation mode: all recorded data can be exported to a PC or tablet comfortably via USB connection
- also deployable in confined spaces (see Offest Link)
- automatic shutoff with ratchet mechanism after reaching the desired torque
- low noise, free from impacts or vibrations
- can also be used without reaction arm or back-up wrench



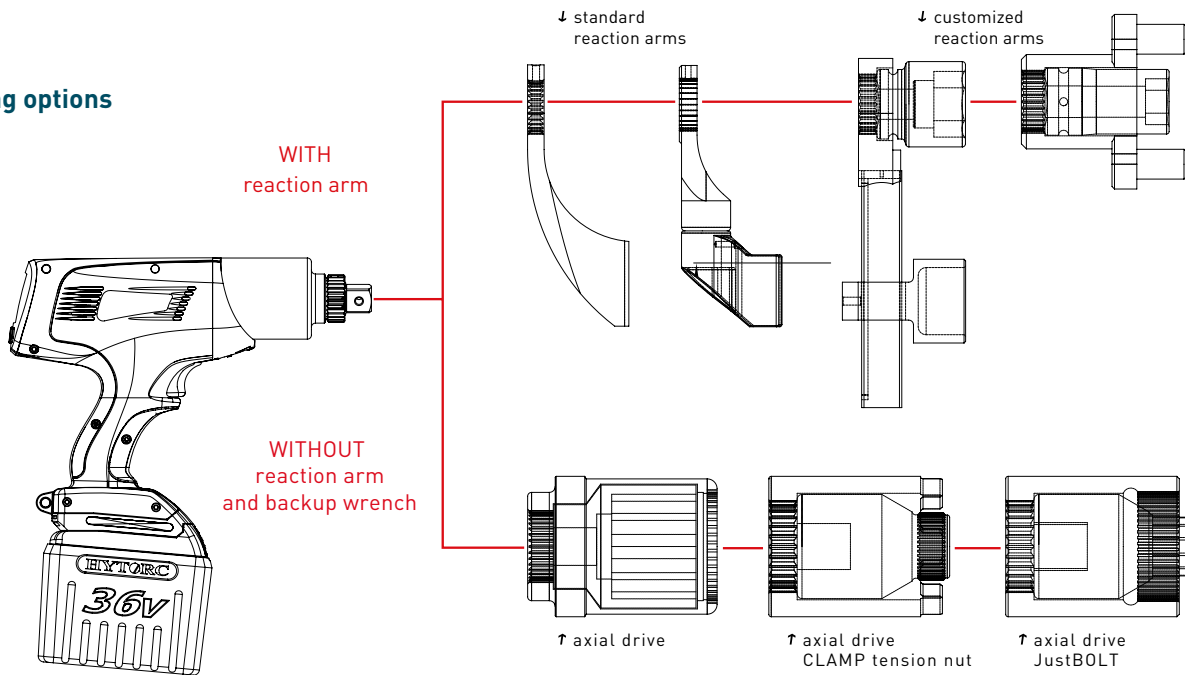
^ BTM GUN 36V with powerful 36 V battery for accurate bolting results and long work intervals



- a BTM 700 on a gearbox cover in a power plant
- b BTM 2000 for brake fastening in wind energy
- c enables bolting without reaction arm
- d BTM 1000 in container assembly



## Bolting options



The five models of our universal battery torque tool series can be deployed for all kinds of bolting applications. The powerful battery with 36 V at a battery output of 4.1 Ah is extremely reliable even through long assembly periods. The fully colored display indicates all control parameters including battery life.

### BTM GUN 36V – Features

- 360° completely rotatable drives
- standard square drive from ½" to 1"
- quick switching from tightening to loosening
- unique with 36 V battery
- dual speed transmission
- digital display
- torque and angle function
- calibration certificate with new deliveries
- intuitive operation via the display
- compact design, small radius
- perfect weight distribution and low total weight



### BTM GUN 36V – Facts & Figures

| Model                         | BTM 250  | BTM 700  | BTM 1000 | BTM 2000 | BTM 3000 |
|-------------------------------|----------|----------|----------|----------|----------|
| min. torque                   | 47       | 200      | 270      | 340      | 580      |
| max. torque square drive inch | 440      | 950      | 1,620    | 2,710    | 4,050    |
| speed high speed mode rpm     | ½        | ¾        | ¾        | 1        | 1        |
| square drive inch             | 180      | 85       | 40       | 23       | 11       |
| speed torque mode rpm         | 17       | 8.5      | 4        | 1.8      | 1.1      |
| weight incl. battery kg       | 4.32     | 4.63     | 4.81     | 6.44     | 7.07     |
| battery power V (Ah)          | 36 (4.1) | 36 (4.1) | 36 (4.1) | 36 (4.1) | 36 (4.1) |
| charger                       | included | included | included | included | included |
| length [L] mm                 | 257      | 282      | 290      | 338      | 344      |
| height incl. battery [H] mm   | 326      | 326      | 326      | 335      | 335      |

## LiON GUN 18V

### Mobile, compact, light

The powerful battery torque tools from 33 Nm to 949 Nm with 18 V battery, color display and perfect weight distribution



#### LiON GUN 18V – Benefits

- accurate and repeatable torque
- low noise, free from vibrations
- with digital display and integrated data acquisition
- all recorded data can be exported to a PC or tablet easily
- integrated torque-angle tightening method
- broad range of applications thanks to comprehensive accessories
- steplessly adjustable torque range from 33 Nm to 949 Nm
- low noise, free from vibrations
- also deployable in confined spaces (see Offset Link)
- automatic shutoff with ratchet mechanism after reaching the desired torque
- low noise, free from impacts or vibrations
- can also be used without reaction arm or back-up wrench

◀ LiON GUN 18 V  
small, lean and  
powerful up to 950 Nm



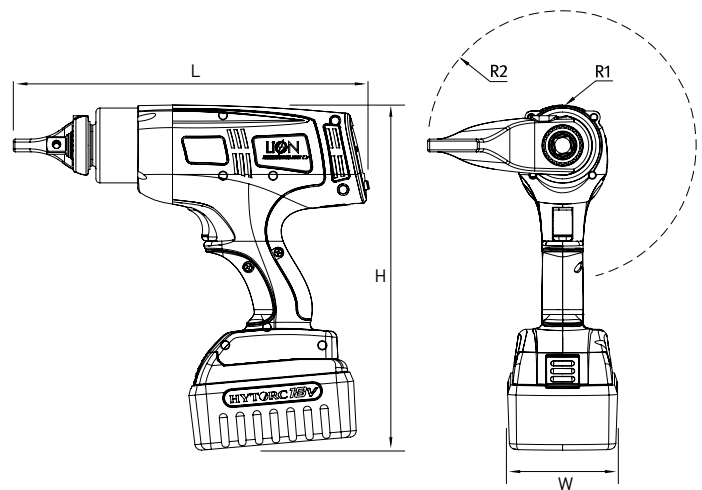
◀ enables bolting without reaction arm



The 18 V battery torque wrench models LiON GUN 18V-0.25 and LiON GUN 18V-0.70 are mobile, low-noise and impact-free assembly tools with fully colored displays and integrated data acquisition for industrial use. The recorded data can be exported directly from the tool to a PC or tablet and are fully documented. Both models have impressively precise and repeatable torques from 33 to 338 Nm and from 203 to 949 Nm, and a low total weight of only 3.5 kg and 4.0 kg. In addition, both tools also have a torque angle function.

### LiON GUN 18V – Features

- 18 Volt – 4.1 Ah Lithium-Ion battery tool (brushless electric motor) with torque outputs from 33 Nm to 949 Nm for bolts size M8 to M33
- intuitive operation via the display
- 360° completely rotatable drive
- standard square drive from ½ to ¾ inch
- quick switching from tightening to loosening
- calibration certificate with new deliveries
- deployable for axial bolting, i.e. without reaction arm or backup wrench



### LiON GUN 18V – Facts & Figures

| Model                         | LiON 0.25  | LiON 0.70  |
|-------------------------------|------------|------------|
| min. torque                   | 33         | 203        |
| max. torque square drive inch | 338        | 949        |
| square drive inch             | ½          | ¾          |
| fastening speed rpm           | 11         | 3          |
| weight incl. battery + arm kg | 3.5        | 4.0        |
| battery output V [Ah]         | 18 V (4.1) | 18 V (4.1) |
| radius gearbox [R1] mm        | 30         | 31         |
| radius reaction arm [R2] mm   | 108        | 115        |
| length [L] mm                 | 258        | 280        |
| height incl. battery [H] mm   | 275        | 275        |



# FlashGUN-DE

## The electric power tool

The powerful electric wrench from 220 Nm to 4,000 Nm



### FlashGUN-DE – Benefits

- supply voltage 230 Volt / 50 Hz
- currently 3 models to choose from with torques up to 4,000 Nm
- accurately adjustable torque
- high fastening speed in all torque ranges
- precise disengagement when reaching the final torque
- also deployable in confined spaces (see Offset Link)
- automatic shutoff with ratchet mechanism after reaching the desired torque
- low noise, free from impacts or vibrations
- compact planetary gear with small radius
- quick switching from tightening to loosening - operating errors are impossible
- low weight with perfect weight distribution
- versatile also with wrench boxes
- deployable at every 230V connection
- can also be used without reaction arm or back-up wrench



◀ The Offset-Link is the perfect solution for high protruding bolts





◀ Only the model series FlashGun-DE is dust and splash water proof in accordance with IP Code 54

The FlashGUN-DE is the world's first electric torque wrench that can be used without reaction arm! In combination with our innovative fastening elements, such as no-rotation washers, no reaction loads occur outside of the bolting axis. In combination with the CLAMP tension nut, the FlashGUN-DE can mechanically tighten any bolted joints to precise preload repeatability, even torsion-free and lateral force-free. Conventionally, any customary bolt can be tightened quickly and in a controlled manner using a reaction arm. The torque is applied to the bolted joint accurately, without impact and continuously rotating. When the desired torque is reached, the ratchet mechanism allows the user to comfortably remove the tool from the application. The development of the FlashGUN-DE focused on a compact design, ergonomic handling and the highest possible torque precision. At the same time, HYTORC's standard requirements in terms of robustness, industrial suitability and durability had to be met.

### FlashGUN-DE – Facts & Figures

| Model                          | FLASH-0.5 | FLASH-1 | FLASH-3 |
|--------------------------------|-----------|---------|---------|
| min. torque Nm                 | 220       | 390     | 820     |
| max. torque Nm                 | 720       | 1,700   | 4,000   |
| square drive inch              | 3/4       | 3/4     | 1       |
| fastening speed rpm            | 20        | 6.5     | 2       |
| weight with reaction arm in kg | 4.9       | 5.2     | 8.5     |
| radius gearbox [R1] mm         | 32        | 32      | 38      |
| length [L] mm                  | 420       | 440     | 490     |
| height [H] mm                  | 147       | 147     | 147     |

Subject to technical modifications. 3D models in STEP upon request: info@hytorc.de

### FlashGUN-DE – certified safety

The FlashGUN-DE passed the following comprehensive tests by independent auditors:

- **IP Code 54:** dust and splash water proof
- **EMC:** electromagnetic compatibility
- **RoHS:** restriction of hazardous substances (lead, mercury, cadmium...)
- **ECHA / REACH:** registration, evaluation and authorization of chemicals
- **LVD:** Low Voltage Directive
- **CE:** Communautés Européennes / European Community (EC)
- **CB:** Certification Body

### FlashGUN-DE – Features

- quick loosening also of very tight bolts
- high adjustable torque output up to 4,000 Nm
- broad area of application and use
- high productivity thanks to high-speed boating
- versatile use thanks to quick change of tools (accessories)
- noise reduction
- no vibrations or impacts during bolting operation
- ergonomic design and low weight
- 1,400 Watt engine
- clockwise and counter-clockwise operation
- single speed load gear
- low weight (max. 8.5 kg including reaction arm)





## **Pneumatic torque wrenches by HYTORC**

With the robust pneumatic jGUN tools users can do their jobs quickly, accurately and without vibrations or impacts. The jGUN model series are available as digital, single and dual speed pneumatic wrenches. They are steplessly adjustable up to almost 11,000 Nm with the highest possible torque precision. The jGUN also has ATEX approval and is therefore also qualified for sensitive areas.

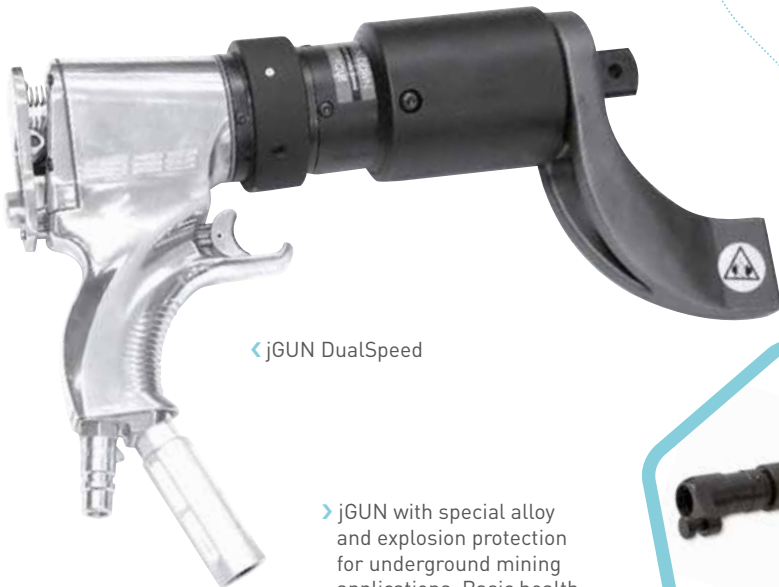
# HYTORC's pneumatic torque tools



◀ jGUN SingleSpeed



◀ jGUN Digital



◀ jGUN DualSpeed

▶ jGUN with special alloy and explosion protection for underground mining applications. Basic health and safety requirements in accordance with Annex II of Directive 94/9/EC for tool class I category M2



◀ jGUN series in operation



## jGUN Digital

The first pneumatic torque tool without separate maintenance unit



### jGUN Digital – Benefits

- high torque output and very small dimensions
- onboard air regulator for simple torque adjustment at the bottom of the handle
- digital display with torque readout
- torques in Nm or ft.lbs
- silencer integrated in handle
- deployable also in confined spaces (see Offset Link)
- automatic shutoff with ratchet mechanism after reaching the desired torque
- low noise, free from impacts or vibrations
- 360° completely rotatable drive
- integrated meter for operating hours
- for all hexagon and Inbus fasteners
- can also be used without reaction arm or back-up wrench
- delivered in hardshell case with calibration certificate

HYTORC's new jGUN Digital is the world's first pneumatic torque tool with a digital display and operation without maintenance unit. Unlike other systems, the patented design and the new motor go without add-ons such as filters, regulators and lubricating systems, creating maximum convenience and flexibility.

The desired torque can be easily set on the onboard air regulator located at the bottom of the handle.

This comes in handy when switching from tightening to loosening mode or setting the highest torque. Simply confirm the selected torque on the digital display directly on the tool. These features make the jGUN the most advantageous mobile pneumatic torque tool on the market.



### jGUN Digital – Features

- quick loosening also of very tight bolts
- high adjustable torque output from 65 Nm to almost 11,000 Nm
- broad area of application and use
- high productivity thanks to high-speed bolting
- versatile use thanks to quick change of tools (accessories)
- noise reduction
- no vibrations or impacts during bolting operation
- ergonomic design
- clockwise and counter-clockwise operation



### jGUN Digital – Facts & Figures

| Modell                              | jGUN-D.25 | jGUN-D.5 | jGUN-D1 | jGUN-D2 | jGUN-D3 | jGUN-D5 | jGUN-D8 |
|-------------------------------------|-----------|----------|---------|---------|---------|---------|---------|
| min. torque Nm                      | 65        | 175      | 408     | 706     | 1,150   | 1,560   | 2,400   |
| max. torque Nm                      | 351       | 689      | 1,670   | 2,970   | 4,210   | 7,140   | 10,740  |
| rpm 1 <sup>st</sup> speed           | 65        | 24       | 6.5     | 5.5     | 5       | 2.5     | 1.5     |
| square drive inch                   | ¾         | ¾        | ¾       | 1       | 1       | 1½      | 1½      |
| tool weight kg<br>with reaction arm | 3.9       | 3.9      | 5.1     | 6.6     | 8.6     | 11.8    | 16.5    |
| length (L) mm                       | 181       | 205      | 224     | 266     | 282     | 311     | 330     |
| height (H) mm                       | 180       | 186      | 186     | 202     | 202     | 204     | 215     |
| width (W) mm                        | 80        | 80       | 80      | 86      | 86      | 86      | 86      |
| radius (R) mm                       | 63        | 63       | 63      | 41      | 41      | 53      | 58      |

## jGUN SingleSpeed

### Compact, small, light, robust

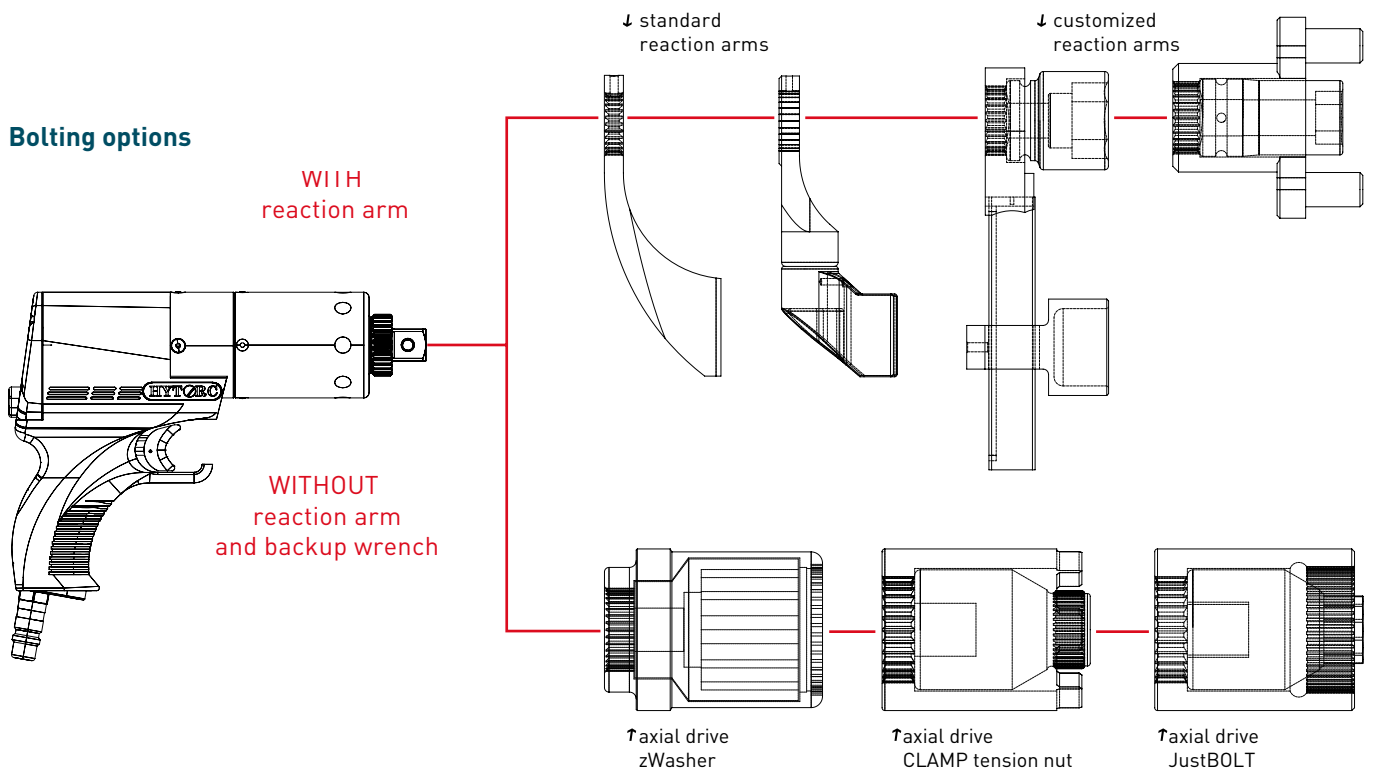
The smallest single speed pneumatic torque tool without impact unit for precise bolting up to 10,743 Nm for all kinds of applications.



#### jGUN SingleSpeed – Benefits

- seven models up to 10,743 Nm with steplessly adjustable torque ranges
- ATEX approval in accordance with EX II 2G c IIC T6 and EX II 2D tD A21 IP66 T85°C
- single speed planetary gear with small diameters, robust and light
- 6 bar maximum operating air pressure with low noise under 80 dBA thanks to integrated silencer
- precise torques without vibrations or impacts
- deployable for axial bolting without reaction arm with modern fastening elements

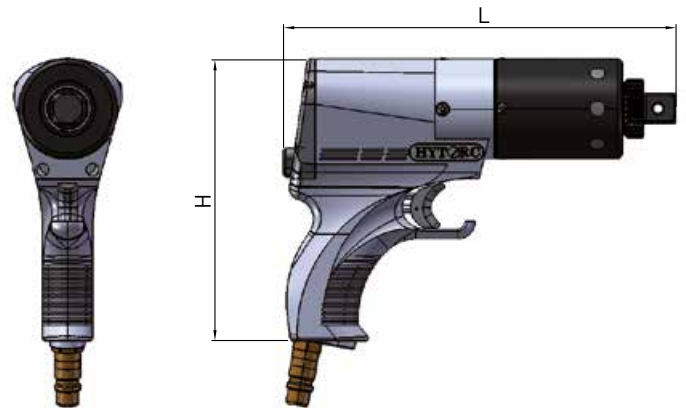
## Bolting options



Considering the favorable purchasing price, the features and the wide range of high quality accessories, the jGUN SingleSpeed is the perfect tool for precise conventional torque controlled tightening. Thanks to its simple design and small size, it is the perfect choice especially in areas that are hard to access and in extremely confined spaces.

## jGUN SingleSpeed – Features

- adjustable torque from 65 Nm to 10,743 Nm
- freely rotatable aluminum case up to 360° around the drive and bolting axis
- standard square drive from 3/4" to 1 1/2"
- quick switching from tightening to loosening mode
- protected start button, optionally available with Safety Paddle
- exchangeable and washable silencer
- calibration certificate with new deliveries



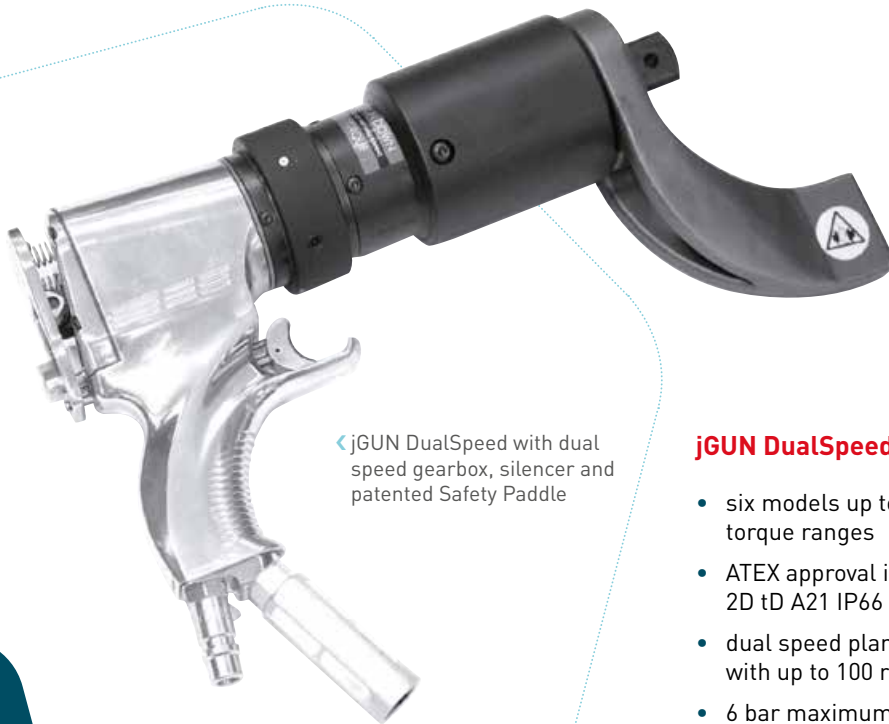
## jGUN SingleSpeed – Facts & Figures

| Model                            | jG-0,25-S | jG-0,5-S | jG-1-S | jG-2-S | jG-3-S | jG-5-S | jG-8-S |
|----------------------------------|-----------|----------|--------|--------|--------|--------|--------|
| min. torque Nm                   | 65        | 175      | 409    | 706    | 1,156  | 1,559  | 2,363  |
| max. torque Nm                   | 339       | 689      | 1,669  | 2,970  | 4,209  | 7,140  | 10,743 |
| square drive inch                | 3/4       | 3/4      | 3/4    | 1      | 1      | 1 1/2  | 1 1/2  |
| rpm 1 <sup>st</sup> speed        | 65        | 24       | 6.5    | 5.5    | 5      | 2.5    | 1.5    |
| tool weight kg with reaction arm | 3.3       | 3.8      | 4.5    | 8.1    | 8.6    | 12.2   | 17.3   |
| height [H] mm                    | 179       | 186      | 179    | 202    | 202    | 202    | 210    |
| length [L] mm                    | 181       | 204      | 224    | 282    | 282    | 310    | 330    |

# jGUN DualSpeed

## Fast, quiet, accurate

The fast dual speed pneumatic torque tool without impact unit for precise bolting up to 11,233 Nm.



◀ jGUN DualSpeed with dual speed gearbox, silencer and patented Safety Paddle

### jGUN DualSpeed – Benefits

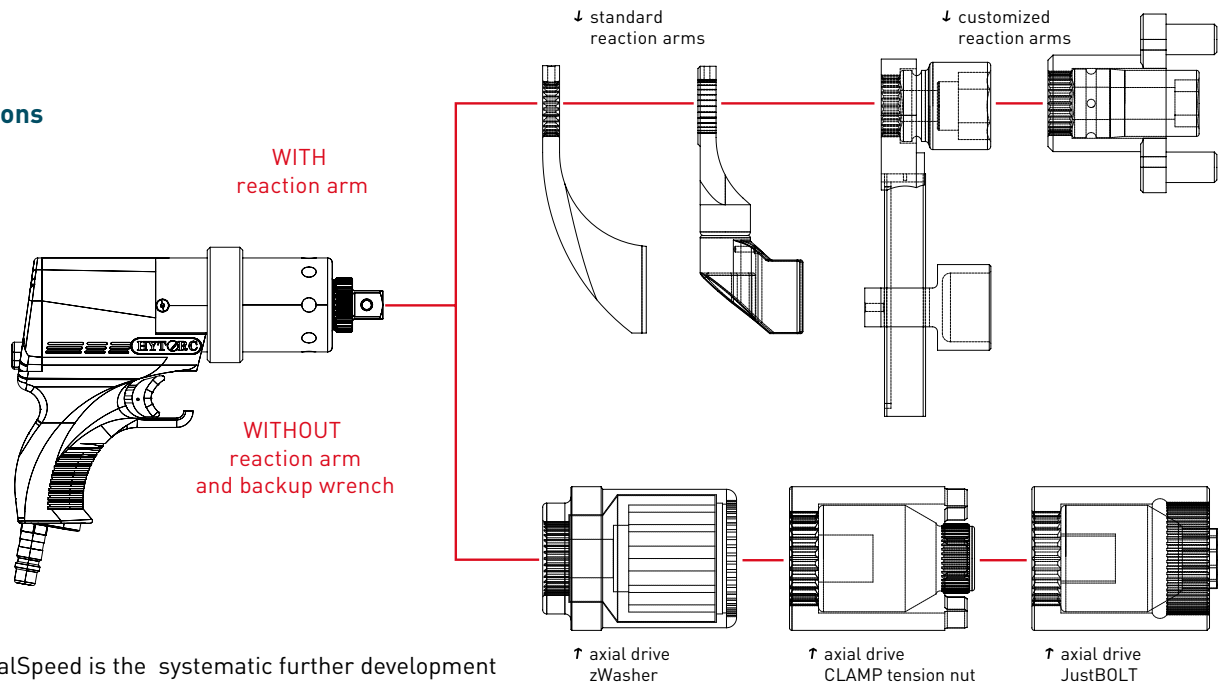
- six models up to 11,233 Nm with steplessly adjustable torque ranges
- ATEX approval in accordance with EX II 2G c IIC T6 and EX II 2D tD A21 IP66 T85°C
- dual speed planetary gear with small diameters, with up to 100 rpm
- 6 bar maximum operating air pressure with low noise under 75 dBA thanks to integrated silencer
- precise torques without vibrations or impacts with state-of-the-art switching mode in the dual speed gearbox
- deployable for axial bolting without reaction arm with modern connection elements



◀ jGUN DualSpeed with air maintenance unit FRL



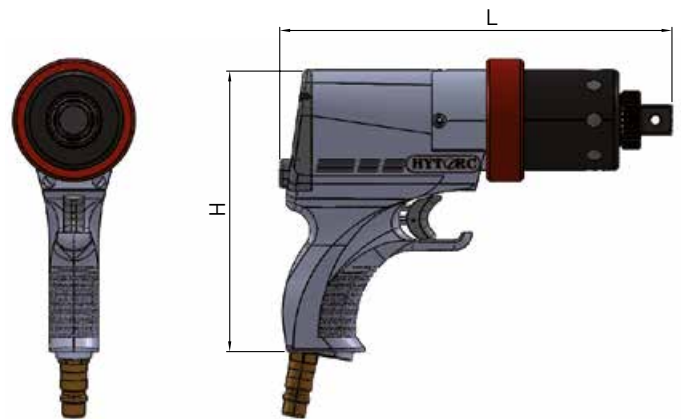
## Bolting options



The jGUN DualSpeed is the systematic further development of the jGUN SingleSpeed. The dual speed planetary gear adjusts the fastening speed perfectly to every individual application. Fast pre-tightening and precise fastening in one step – that's what makes this tool series special. Especially in assembly processes, the jGUN DualSpeed can significantly reduce bolting times. The wide range of accessories also allows for axial bolting without reaction arm.

## jGUN DualSpeed – Features

- adjustable torque from 263 Nm to 11,233 Nm
- robust one-piece housing
- standard square drive with pressure cap
- positioning of the reaction arm by pushing a button
- reaction pawl system
- calibration certificate with new deliveries



## jGUN DualSpeed – Facts & Figures

| Model                               | jGUN-0,5-DS | jGUN-1-DS | jGUN-2-DS | jGUN-3-DS | jGUN-5-DS | jGUN-8-DS |
|-------------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|
| min. torque Nm                      | 263         | 423       | 705       | 1,125     | 1,647     | 2,818     |
| max. torque Nm                      | 680         | 1,724     | 2,764     | 4,165     | 6,788     | 11,233    |
| square drive inch                   | ¾           | ¾         | 1         | 1         | 1½        | 1½        |
| rpm 1 <sup>st</sup> speed           | 363         | 114       | 90        | 38        | 43        | 34        |
| rpm 2 <sup>nd</sup> speed           | 20          | 6         | 5         | 4         | 3         | 2         |
| tool weight kg<br>with reaction arm | 4,6         | 5,2       | 7,1       | 8,4       | 13,4      | 19,4      |
| height [H] mm                       | 188         | 226       | 214       | 186       | 214       | 214       |
| length [L] mm                       | 254         | 273       | 318       | 314       | 367       | 391       |

Subject to technical modifications. 3D models in STEP upon request: info@hytorc.de

# Offset Link

## Slim, high-torque, robust

The new drive unit Offset Link replaces offset wrenches and is much more versatile.



### Offset Link – Benefits

- available in two sizes, from wrench size 30 to wrench size 80 and from 1-1/4" to 3-1/8"
- can be used with all HYTORC square drive tools
- simple switching between clockwise and counter-clockwise operation without removing the Offset Link
- easily exchangeable double-hex cartridges for quick fitting
- ready for reaction arm free bolting using the zWasher
- the perfect solution for plate heat exchangers, double-claw clamps and threaded spindles

◀ The drive unit Offset Link:  
One system for every application.



◀ jGUN DualSpeed with  
Offset Link for operation  
with zWasher for bolting  
without reaction arm



ICE-1 with Offset Link and zWasher for bolting without reaction arm

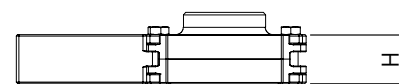
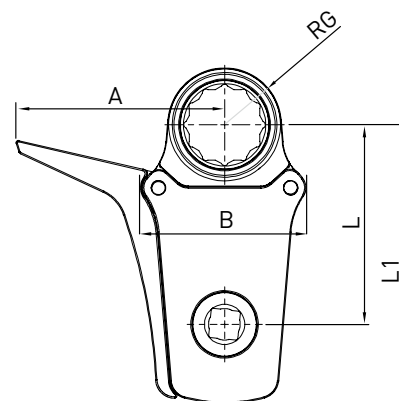


Offset Link, socket, reaction arm - flat, light and fast

HYTORC Offset Link provides absolute flexibility and versatile use for almost any bolting application. The drive unit can be equipped with easily exchangeable double hex cartridges that allow quick fitting and removal. All wrench sizes from 30 mm to 80 mm and from 1-1/4" to 3-1/8" are covered. What's more, the Offset Link can also be used with the hydraulic tools ICE and AVANTI (see catalog "Mobile hydraulic fastening technology").

### Offset Link – Features

- robust continuously rotating drive system
- clockwise and counter-clockwise operation with all continuously rotating tools
- universal use with many different torque tools
- easy fitting thanks to double-hex cartridge
- also available as a complete set in a box



### Offset Link – Facts & Figures

| Offset Link 3/4" | M20   | M22   | M24   | M27   | M30   | M33   | M36   | M39   | M42   | M45   | M48   | M52   |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| wrench size      | 30    | 32    | 36    | 41    | 46    | 50    | 55    | 60    | 65    | -     | -     | -     |
| H                | 37    | 37    | 37    | 37    | 37    | 37    | 37    | 37    | 48    | -     | -     | -     |
| A                | 135   | 135   | 135   | 135   | 135   | 135   | 135   | 135   | 135   | -     | -     | -     |
| B                | 112   | 112   | 112   | 112   | 112   | 112   | 112   | 112   | 112   | -     | -     | -     |
| RG               | 30    | 30    | 33    | 35    | 38    | 41    | 45    | 48    | 50    | -     | -     | -     |
| L                | 123.2 | 123.2 | 126.5 | 128.3 | 130.3 | 133.6 | 138.4 | 141.1 | 143.5 | -     | -     | -     |
| L1               | 205   | 205   | 211   | 215   | 220   | 227   | 227   | 227   | 241   | -     | -     | -     |
| Offset Link 1"   | M20   | M22   | M24   | M27   | M30   | M33   | M36   | M39   | M42   | M45   | M48   | M52   |
| wrench size      | -     | -     | -     | -     | 46    | 50    | 55    | 60    | 65    | 70    | 75    | 80    |
| H                | -     | -     | -     | -     | 48    | 48    | 48    | 48    | 51    | 51    | 51    | 51    |
| A                | -     | -     | -     | -     | 205   | 205   | 205   | 205   | 205   | 205   | 205   | 205   |
| B                | -     | -     | -     | -     | 166   | 166   | 166   | 166   | 166   | 166   | 166   | 166   |
| RG               | -     | -     | -     | -     | 45    | 45    | 47    | 49    | 54    | 56    | 58    | 60    |
| L                | -     | -     | -     | -     | 186.9 | 188.5 | 190.0 | 194.8 | 196.6 | 199.6 | 201.2 | 201.2 |
| L1               | -     | -     | -     | -     | 301   | 301   | 305   | 308   | 308   | 322   | 327   | 327   |



## **HYTORC – Your partner for high-quality accessories and customized solutions**

For the benefit of our users, the highest quality standards apply when we select, produce and process our original equipment. This is ensured with our quality control in accordance with ISO 9001 and our own process controlling. This is especially important when it comes to customer specific customized solutions.

# The entire range

## High-quality accessories by HYTORC

The wide range of our outstanding torque tools is rounded off by an unrivaled comprehensive range of accessories.

**HYTORC provides a broad range of accessories with socket wrenches, backup wrenches, hoses and much more.**

Quality control in accordance with the ISO 9001 quality process and our own process controlling ensure the highest quality standards. With this, we meet both national and international standards, such as ISO 2725-2 and the German standard DIN 3129.

This is a solid foundation on which we can promote our own technologies for your benefit and further increase our technological lead. Upon the customer's request we also produce customized equipment. True to the motto "anything is possible", we are your strong partner for accessories.

### **Standard sockets in accordance with DIN 3129:2012-03**

To ensure safe transmission of high torques with sockets, the highest quality requirements for production processes, durability and safety must be guaranteed. This also includes the exact and application-specific design of these important components of force transmission considering international standards such as ISO 1174-2, 1703, 1711-2, 2725-2 and 2725-3. Our standard range of stock for sockets includes square drives up to 2½ inch and wrench sizes up to 200 mm for all metric dimensions. This allows HYTORC to deliver within only a few hours.

### **Standard sockets for cylinder head bolts in accordance with ISO 4762**

The selection of the right nut is crucial for occupational safety. Cylinder head bolts, also known as Inbus bolts, are among the fasteners that require particular care, especially for loosening. HYTORC designed a range of products in which all hexagon sockets of one square size have the same total length. This ensures that, with all wrench sizes, the reaction arm always diverts the counter torque on the same reaction level. Long hex sockets and adapters are also available for all ISO 4762 cylinder head bolts. Available in both metric and inch dimensions.

### **Stack sockets for bolted joints with long bolt protrusions**

Stack sockets are a special solution and have for many years been a proven concept for all exchangeable link wrenches. These sockets have both an internal and an external hex. HYTORC's stack sockets have tension-free hex corners, individually adapted heights, through-holes for the individual thread sizes and smaller dimensions than standard exchangeable link wrenches. And of course, HYTORC also provides the corresponding reaction arms.



## Accessories for square torque wrenches

- sockets in mm and inch up to wrench size 200
- square drive from 3/4" to 2 1/2"
- direct drive sockets for all nut sizes
- direct hex drives for all nut sizes
- hex sockets in mm up to wrench size 100



## Customized reaction equipment and safety equipment

- customer specific reaction equipment
- tailor-made for your applications
- customer requirement, CAD design, production
- also available as 3D STEP file for collision test
- also available as a full set in a hardshell case



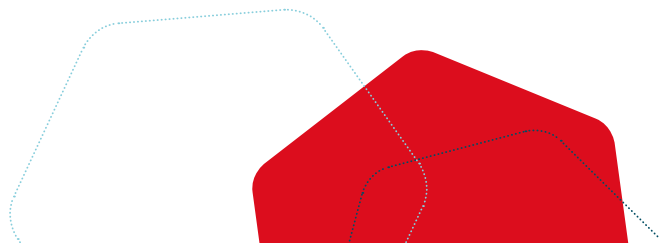
## Reaction Fixtures

- custom-made for all torque tools
- axial reaction arm extensions
- in-line reaction arms
- adjustable 360°/360° rotation reaction arms



## Backups

- hydraulic backups up to 5,000 Nm with interchangeable double-hex sockets
- mechanic backups for all torque ranges
- models with double hex
- also available as customized solutions





### zWasher

- for bolting with no shear forces and without reaction arm
- no reaction arm required
- no turning on the flange
- protection of flange contact areas
- stability min. 300 HV
- in conformity with ASME and VDI
- reusable



### Backup Washer

- the simple mechanic back-up
- prevents turning of the locknut
- easy positioning
- no additional tools required
- stability min. 300 HV
- in conformity with ASME and VDI
- reusable



### flangeFIX

For simple, quick and safe marking of the order of assembly on all flange connections

- saves 70% of time during flange labeling
- for ANSI B16.5 – ANSI B16.47B and EN 1092 Type11
- for standardized and correct assemblies
- can be used in every assembly situation
- for all 1-TOOL-, 2-TOOL- and 4-TOOL assemblies
- also suitable for special flanges and for flanges on machines
- for one-time or repeated use
- customizable with your company logo, QR code, RFID chip

# HYTORC's thread cleaning system

## For male and female threads

Clean internal and external threads are a fundamental requirement for precise fastening.



Clean internal and external threads are a fundamental requirement for precise fastening. Without this, a precise assembly preload is not possible. This holds true for both the internal thread of the nut and its contact areas as well as for the external thread of the bolt and its shank.

✓ Cleaner for internal threads with automatic particulate extraction



### Automatically adjustable thread cleaners for internal and external threads

- simple, easy and quick operation
- compact and ergonomic design
- brushing wheels with safe spring suspension
- almost no wear
- no service or maintenance costs
- fixed and adjustable female thread cleaners
- optionally with extraction
- available as a full set in a case



### Cleaner for external threads

The cleaners for external threads perfectly clean threaded bolts from size M8 to M230. The patented brush system enables automatic and stepless adjustment to the thread diameter in the corresponding range. The thread grooves and the threaded shaft can both be cleaned in the same step. The grooves of the threads are cleaned from all sides; adhering dust and dirt is removed perfectly and the surfaces are smoothed out. This creates a uniform friction value in the thread. The stainless steel brushes with spring suspension are located in a solid aluminum housing. By turning the engagement ring, pressure on the brushes is adjusted steplessly in the entire range. This creates the perfect settings for the individual cleaning job.



◀ Cleaner for external threads with automatic thread adjustment

### Cleaner for internal threads

The cleaners for internal threads perfectly clean threaded holes from size M60 to M210. The patented technology enables automatic and stepless adjustment to the thread diameter in the corresponding range. For sizes M8 to M70, a set with special individual brushes is available. The grooves of the threads are cleaned from all sides, and the cleaner for internal threads removes adhering dust and dirt perfectly and the surfaces are smoothed out. This creates a uniform friction value in the thread. The stainless steel brushes are held by a brush support made of aluminum. After loosening the bolt and subsequent turning of the engagement ring, the brushes are steplessly adjusted to the desired thread diameter (in the corresponding range).



◀ Steplessly adjustable female thread cleaners from size M60

### Cleaner for external threads

| Type of tool/model | application area | max. external $\varnothing$ | particulate extraction | min. bolt distance    |
|--------------------|------------------|-----------------------------|------------------------|-----------------------|
| DEV-ARG 10-27      | M10-M27          | 100 mm                      | optionally available   | 62-79 mm (M10-M27)    |
| DEV-ARG 20-55      | M22-M54          | 150 mm                      | optionally available   | 99-133 mm (M22-M54)   |
| DEV-ARG 35-70      | M36-M68          | 160 mm                      | optionally available   | 118-150 mm (M36-M68)  |
| DEV-ARG 50-90      | M52-M88          | 185 mm                      | optionally available   | 147-183 mm (M52-M88)  |
| DEV-ARG 90-120     | M86-M120         | 212 mm                      | optionally available   | 194-228 mm (M86-M120) |

### Cleaner for internal threads

| Brush type         | application area   | max. external $\varnothing$ | particulate extraction |
|--------------------|--|-----------------------------|------------------------|
| individual brushes | M8-M56   | depending on the thread     | optionally available   |
| DEV-IK-6070        | M60-M72  | 3 x 30 mm                   | optionally available   |
| DEV-IK-7080        | M72-M80  | 3 x 30 mm                   | optionally available   |
| DEV-IK-8090        | M80-M90  | 3 x 30 mm                   | optionally available   |
| DEV-IK-9011        | M90-M110   | 3 x 40 mm                   | optionally available   |
| DEV-IK-1113        | M110-M130  | 3 x 40 mm                   | optionally available   |
| DEV-ISK-1027       | Female thread sets in a case with drive machine from size M8 to M27. |                             |                        |
| DEV-ISK-0872       | Male thread sets in a case with drive machine from size M8 to M72.   |                             |                        |

# HYTORC lubricants

## Designed for perfect joints

For lubricants and their application, HYTORC also provides expert consultation and perfect services.

**Lubricants recommended by our experts ensure that the nominal bolt forces are safely reached thanks to the perfect interaction of all components of the bolted joint.**

Our customers benefit twice from our lubricants: On the one hand, they get everything they need for bolting from a one-stop shop. And on the other hand, our high quality lubricants are precisely adapted to the corresponding area of application. Thanks to many decades of experience in the field of bolting, we have great expertise and have come across all kinds of challenges in this field on site. We make use of this experience when we developed the lubricants. Therefore, they meet real-life requirements.



### Cleaners and lubricating pastes

- **HY.50 special lubricant**  $\mu\text{min. } 0.08$  is the perfect choice for clean non-destructive assembly and for inlet optimization of highly loaded bolts
- **HY.52 special lubricant**  $\mu\text{min. } 0.09$  is the perfect choice for assembly purposes and for the inlet of slowly running machine elements (also four-color metals and stainless steel)
- **HY.55 hot thread paste**  $\mu\text{min. } 0.10$  the perfect face for high-temperature applications up to  $+1,200\text{ }^{\circ}\text{C}$
- **HY.56 high-temperature paste**  $\mu\text{min. } 0.12$  bolt paste for high temperature applications up to  $+1,000\text{ }^{\circ}\text{C}$ , developed especially for application on flange connections
- **HY.61 anti-seize** with loosening properties
- **HY.73 metal cleaner**
- **DISC.08 anti-friction coating spray** air drying anti-friction coating spray for constant friction coefficients - the perfect choice for hex nuts used with the DISC

# Standard Fastening Elements

## HYTORC's C parts are 1A components

HYTORC is a full range provider, delivering every product with corresponding certificates in accordance with EN 10204.

Oftentimes, the importance of bolts, nuts, discs and fasteners in plants is underestimated. The truth is, these so-called C parts are indispensable for proper functioning.



^  
The entire high-quality product range of standard bolted joints with all kinds of surface coating

At HYTORC, these C parts are always 1A components. Because the quality of the fastening elements is decisive for perfect joints that ensure safe and trouble-free operation of the plant. For our customers, we do not only provide detailed design and customized production, quality assurance and certification, but we also take care of procuring all required fastening elements. For HYTORC, being a one-stop shop includes the right corrosion protection and the use of suitable lubricants and test methods.

### Our production possibilities

- external and internal threads up to M200 and up to 18 m length
- all threads available and inch dimensions
- bolts in accordance with, among others, ISO 4014, ISO 4017, ISO 4762, EN 14399
- pins and tension bolts in accordance with DIN, ASTM, AISI and UNS
- hex nuts in accordance with DIN 934, DIN 2510 and ASTM A193
- certification EN 10204
- heat treatment
- hot and cold working
- surface coating, e.g. zinc flake coating, ecologically galvanized or hot-dip galvanized
- company-owned laboratory test methods

### Our testing possibilities

- chemical analysis (up to 20 elements)
- bending moment determination with the Charpy impact test up to -150 °C
- surface crack testing (two methods)
- spectral analysis
- tensile test (test device up to 600 kN)
- hardness test HRC and HRB
- determination of surface roughness (measuring machine)
- determination of coating thickness
- preload force measurement up to M90 and 3000 kN



# Innovative Fastening Elements

## For all assemblies and applications



HYTORC provides innovative fasteners for every kind of assembly: Washer System, DISC, CLAMP, SmartSTUD and JustBOLT For high-strength joints, for connections with high temperature resistance and for perfect surface protection at full capacity of the bolted joint.

### Washer System

No reaction arm and no backup wrench needed thanks to anti-turn washers



The zWasher is an anti-turn washer that both serves as axial reaction element and ensures a defined friction coefficient. It is designed in such a way that all standard bolts can be axially preloaded. The Backup Washer also ensures that the locknut does not turn. No backup wrenches needed. The use of washers for optimization of friction is stipulated in sets of rules and regulations such as ASME PCC 1 and VDI 2200-2007-07.

### DISC Hexagon Washer

For bolting without rotation and with optimized friction



DISC hexagon washers make preloading of bolted joints with hex nuts much easier. The calibrated torque of the assembly tool is transformed into a reproducible preload force through the constant friction coefficients. The DISC ensures that the joined elements and the locknut do not turn during assembly. Traditional backup wrenches are no longer needed and the assembly tools can be fitted directly on the DISC.

## CLAMP Tension Nut

for torsion-free tensioning



The CLAMP tension nut is a mechanical preload system that can be calibrated and that can be used for almost every application to 450 °C. The CLAMP tension nut makes preloading of bolted joints much easier and much more safe. The torque is directly transformed into a reproducible preload force. The bolted joint is free from torsional or lateral forces and with a preload force accuracy of  $\pm 5\%$ .

## SmartSTUD

The first bolt for torsion-free tensioning especially at high temperatures > 350 °C



The SmartSTUD is a bolt with three components that is tightened without torsion. The bolt is designed either as waisted shank or full-shank bolt. With this simple design of the system, it is possible to tension axially and free from torsional or lateral forces for the first time. The dimensions of the SmartSTUD have been optimized so that the outer diameter corresponds to Inbus bolts and capped nuts in accordance with DIN 2510. Therefore, the SmartSTUD is creep resistant up to 600 °C.

## JustBOLT

Threaded bolts for axial fastening without reaction arm



JustBOLT is the simplified version of the SmartSTUD. JustBOLTS are available from size M20 and can be precisely axially preloaded. Axial tightening makes the friction coefficient much more consistent and steady than conventionally tightened bolted joints. This assembly concept is especially favorable in assemblies in confined installation spaces. Users can also replace Inbus connections in accordance with ISO 4762 with JustBOLTS and tighten safely, quickly and free from torsional or lateral forces without reaction arm. Without any design changes.



## **Service first. Typical for HYTORC**

It is our highest priority to realize our customers' requirements quickly and in time. HYTORC's services provide the decisive added value with our on-site service, consultation, calibration service, customer service, seminars and trainings.

Let our services speak for themselves!

# HYTORC Services

## The customer is always in the focus

**New tools, borrowed tools and rental tools:  
We provide on-time service also on site.**

**HYTORC's customers are convinced by service modules that are tailor-made to their needs:**

### **24-hour customer service**

Outstanding services for great products. We provide that kind of services both in our headquarters and on site with our field service. Reliable and quick with short reaction times.

### **Measuring and test center**

Theory and practice go hand in hand. We determine even high preload forces in bolted joints simply and safely and test torques and angles with all available tightening methods. On-site and in our measuring and test center.

### **Project and system support**

Large projects require teamwork and trust. With our various services and service packages we are a reliable partner for the industry. We ensure full data protection: confidential, systematic, and discrete.

### **Bolt calculation program**

To prevent errors in bolt calculation, HYTORC offers a simple torque calculation program based on a database which we provide for free upon request. Please send an email to [info@hytorc.de](mailto:info@hytorc.de) and write "torque calculation program" in the reference line.

### **HYTORC services:**

- 24-hour customer service
- seminars & trainings
- project and system support
- measuring and test center
- on-site service
- CAD-Design
- bolt calculation program
- flange bolting certificates
- rental and leasing service
- **service hotline for Germany:  
0800-5005 888 (free of charge)**
- **service hotline outside Germany:  
+49 89 230 999 0**



CAD design and...



...successful realization

### CAD-Design

We make customized solutions visible in advance. For almost 10 years, we have continuously expanded the cooperation between our CAD design department and our customers' engineering offices. To include engineers in the design of plants and machines at an early stage can save significant costs. This way, the shape of the component can be adapted to the standard tools that will be used, eliminating the need to design expensive customized solutions later on. Cutting-edge 3D printers can optically realize customized designs within a very short time that can be used for prototypes even before the customized tool is produced. This saves lots of time and money.

### On-site service

Service is decisive for the quality of a fastening system. We offer this kind of services both in our service and repair department in our headquarters in Krailling and on site at your premises with our trained service technicians.

- **On-site spare parts service**

Our on-site service technicians have all the important spare parts and tool gaskets on board. This ensures short reaction times and perfect supply with spare parts, also on weekends.

- **On-site repair service**

Our on-site service technicians can perform all standard repairs and all inspection and maintenance works right on site.

### Internal audit and shutdown services

HYTORC experts support your staff and contractors before and during internal audits and shutdowns to achieve sustainable improvement of occupational safety, ergonomics, and quality.

#### Technical preparation before the beginning of internal audits and shutdowns:

- analysis of drawings and parts lists
- determination of the most suitable tightening method
- we issue flange bolt certificates with integrated work instructions for the installers
- testing of torques, preload forces, required space and accessibility

#### Technical service and support during internal audit/shutdown:

- provision of replacement tools/accessories on site, on-site provision of spare parts
- provision of personnel on site to ensure that the bolting equipment used can be operated efficiently
- and safety in terms of occupational and plant safety by the users
- documentation of the required parameters in accordance with the requirements



HYTORC experts  
on the job



### HYTORC flange bolt certificate

| Druckmoment in Nm | Druckmoment in Nm | Stück in Set | Richtung |
|-------------------|-------------------|--------------|----------|
| 100               | 1000              | 1            | U        |
| 200               | 2000              | 2            | U        |
| 300               | 3000              | 3            | U        |
| 400               | 4000              | 4            | U        |

Both sets of rules, "TA Luft" (technical instruction for air quality control) and EN 1591, require proof for the tightness and stability of flange connections. To ensure this quality, HYTORC offers the certification software LoadCERT online for automatic creation of flange bolt certificates.

### Industrie 4.0

#### Robot-controlled hydraulic bolting technology for series production

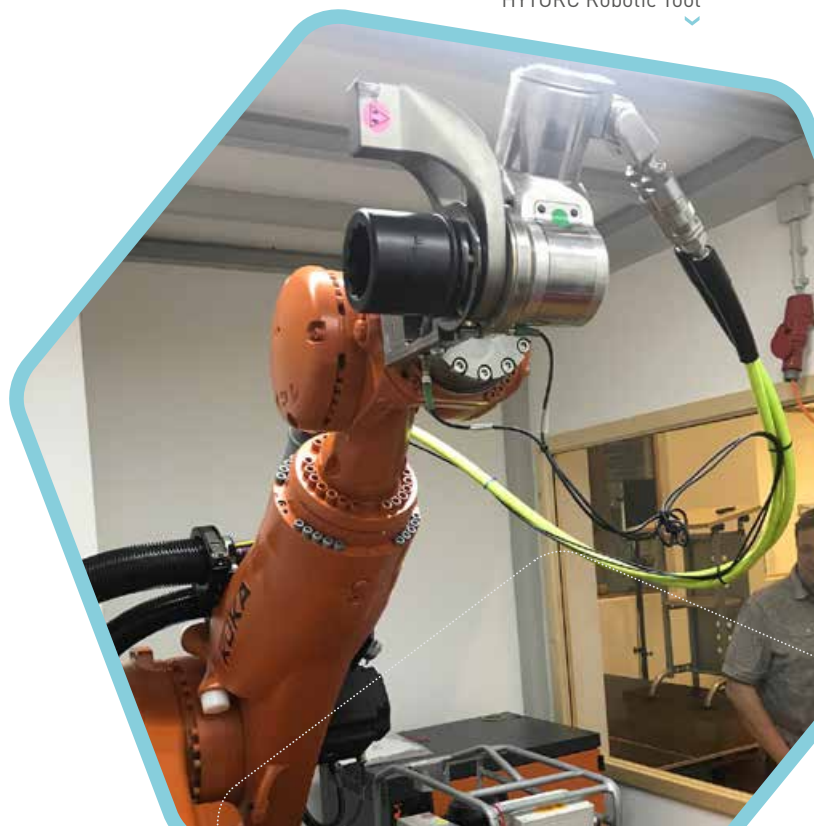
The HYTORC Robotik Tool allows full automation of repeating standard joints and simultaneous documentation. The bolting machine meets the requirements of VDI / VDE 2862-2 for process-reliable bolting. Both torque and angle are processed digitally. Should any deviations from the parameters occur during the tightening process, a notification is sent to the quality management department. Perfect in combination with the Eco2TOUCH.

HYTORC Robotic Tool

For further details, please visit our website [www.hytorc.de](http://www.hytorc.de)

#### Advantages of the HYTORC flange bolt certificate:

- proof in accordance with TA Luft and EN 1591
- work instruction for tightening of the flange in all languages
- support in case of problems
- integration in existing quality management systems
- extension of tender documents for the preparation of downtimes
- resource planning for lubricants, bolts, gaskets and tools
- reduction of weak points thanks to automatic plausibility checks
- increases the safety of plants and staff



\* see catalog "Mobile hydraulic fastening technology"

## Know-how connects to succeed. Certified learning service provider for training and further training in accordance with ISO 29990\*

Experts need expert knowledge in the field of bolting. This is highlighted in the directive VDI/VDE 2637, sheet 1 “Qualification in bolting technology” that will soon come into force and the standard DIN EN 1591:2013 “Flanges and their joints” that has been in force since 2013.

**We have been operating our training center in Augsburg for several years. Throughout the years, more and more companies approached us, asking for specific training contents. This high demand turned the Akademie der Schraubverbindung into another brand by Barbarino & Kilp GmbH. New experts and professionals have been integrated. Together with them, we were able to significantly expand our training portfolio.**

The new quality is regularly monitored and tested by audits carried out by accredited auditing companies. Certification in accordance with ISO 9001:2015 and ISO 29990:2010\* ensures an international standard for non-formal education and training.

That means for training participants and their companies that the expert knowledge acquired after successful participation is confirmed by an internationally recognized certificate.

### **What is the benefit of a certified learning service provider for companies and participants?**

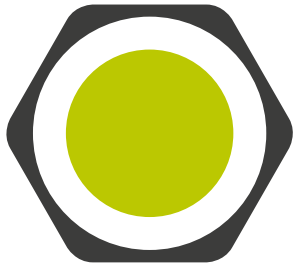
ISO 29990:2010\* is an international standard for providers of non-formal education and training which, in accordance with ISO requirements for management systems, is state-of-the-art. The standard refers to all kinds of training facilities: Individual trainers, private providers of seminars, organizations for further education, in-house trainings, colleges and universities.

### **The objectives of the ISO 29990:2010\* include:**

- assurance of quality, transparency and comparability of training institutions
- provision of a generic quality model for occupational practice and performance
- focusing on the competence of trainers and organizations
- training programs for users, technicians and engineers

Our training portfolio has a modular structure. The training center is famous for its focus “practitioners for practitioners”: Technicians, masters and skilled workers - all users are trained with the same practical orientation. Trainers and speakers consider the individual requirements and needs of their participants.





# AKADEMIE DER<sup>®</sup> SCHRAUBVERBINDUNG

The training topics range from basics such as occupational safety (see page 14) to the correct handling of tools, compliance with requirements and trainings that are required to meet the requirements of individual standards. This includes DIN EN 1591-4:2013 which is relevant for flange connections (relevant for example in chemical and process industry). DIN EN 1591-4:2013 stipulates: Installers that disassemble and reassemble flange connections must have specific training and skills for this job.

When users know what they are doing they can reduce emissions, increase process safety and reduce operating costs because downtimes due to improperly bolted joints are reduced. And one more benefit: increased occupational safety and practice. When users know how to handle modern tools that operate without muscle power, they can meet any requirements.

But the **Akademie der Schraubverbindung** is not just beneficial for practitioners; planners, designers and engineers can also benefit. Engineers are also eager for knowledge. For example about standards and directives, so that they can make tailor-made and practicable developments and optimizations. It is crucial that process owners learn about new standards and the requirements at an early stage. This is the promise of the Academy. The trainers take up new and amended standards, directives and guidelines at an early stage and integrate them into the training programs. The trainings are provided according to your request, either as classroom trainings or as webinars (e-learning).

The high standards set for industrial bolting in terms of process capability and legal safety requirements are already becoming higher today and are predetermined to become even higher in the future. As early as in the planning phase, the responsibility for choosing the right bolting technology to meet the respective bolting case is delegated to developers. That choice directly affects the technology to be used, process and quality assurance and final product liability – while all this is subject to profitability pressure.

### **Open to everyone and everything**

Apart from predefined standardized trainings, the Akademie der Schraubverbindung can also meet individual customer requests and provide tailor-made trainings. We also provide trainings on site in the company's own training facilities or on production sites - a true USP and a huge gain for customers and participants!

**For more details, please visit [www.akademie-sv.de](http://www.akademie-sv.de)**





## **HYTORC**

**The global leader and your strong partner and and supplier in the field of industrial bolting.**

- comprehensive and unique product portfolio
- innovative technologies and solutions
- service sites close to our customers
- training and education center in Augsburg
- customer oriented services that are promptly available

**HYTORC provides innovative products, unique fastening elements, intelligent bolting methods and many years of expertise with applications and engineering in the field of industrial bolting.**

With our extensive sales and service network we are close to our customers in Germany and Europe and can provide prompt support with the best tools and expert knowledge.

On this basis, we always provide our customers with the best solutions that are state-of-the-art in industrial bolting.

**We look forward to your challenges!**

🔗 For more details, please visit

[www.hytorc.de](http://www.hytorc.de)

[www.akademie-sv.de](http://www.akademie-sv.de)



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All the information in this document reflects our current knowledge and serves the purpose of providing information about our products and their possibilities of application. The information is not intended to guarantee specific features for a particular application. We guarantee the highest quality within the framework of our "General Delivery Conditions".