



PLARAD[®]

Torque & Tension Systems

Products & Services

| www.plarad.de |

Quality made in Germany



Professional bolting technology

Since 1962 Maschinenfabrik Wagner and its brand „Plarad“ has been the benchmark for quality, innovation and reliability in the field of bolting technology.

SME's and large, globally engaged companies in various industries rely on our competence where tailor-made bolting solutions are concerned. Our customers benefit from our flexibility and our know-how, acquired continuously since the early 1960s.

The new generation of Plarad bolting systems are thinner, more powerful and lighter than the preceding models. Due to continuous development of our products, Plarad is always a step ahead. We are driven by customer's requirements as well as market demands.

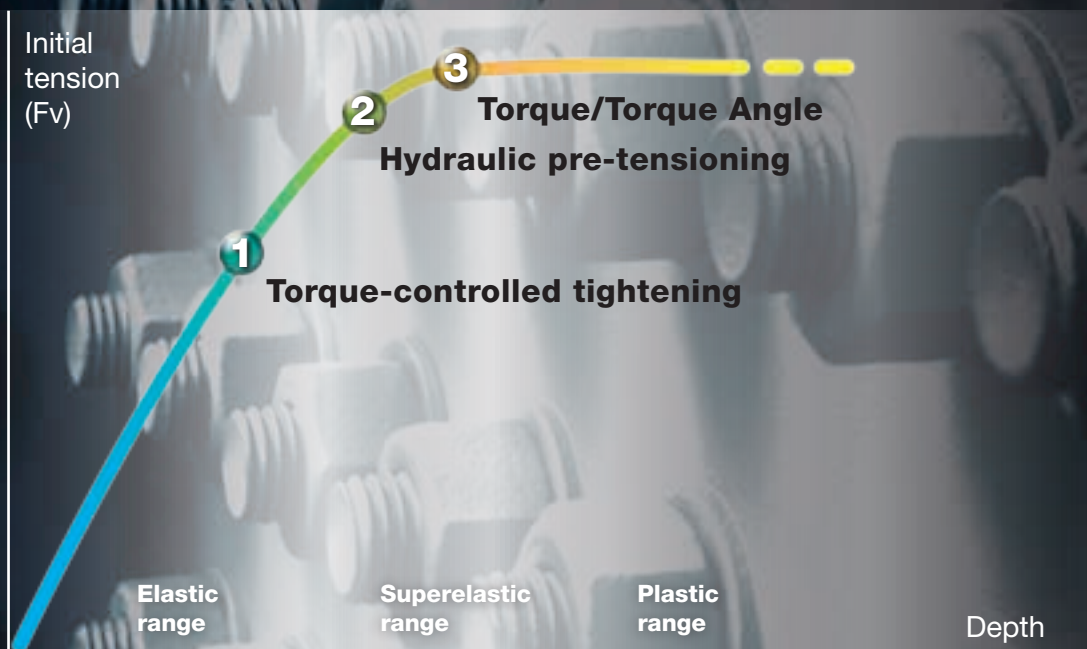
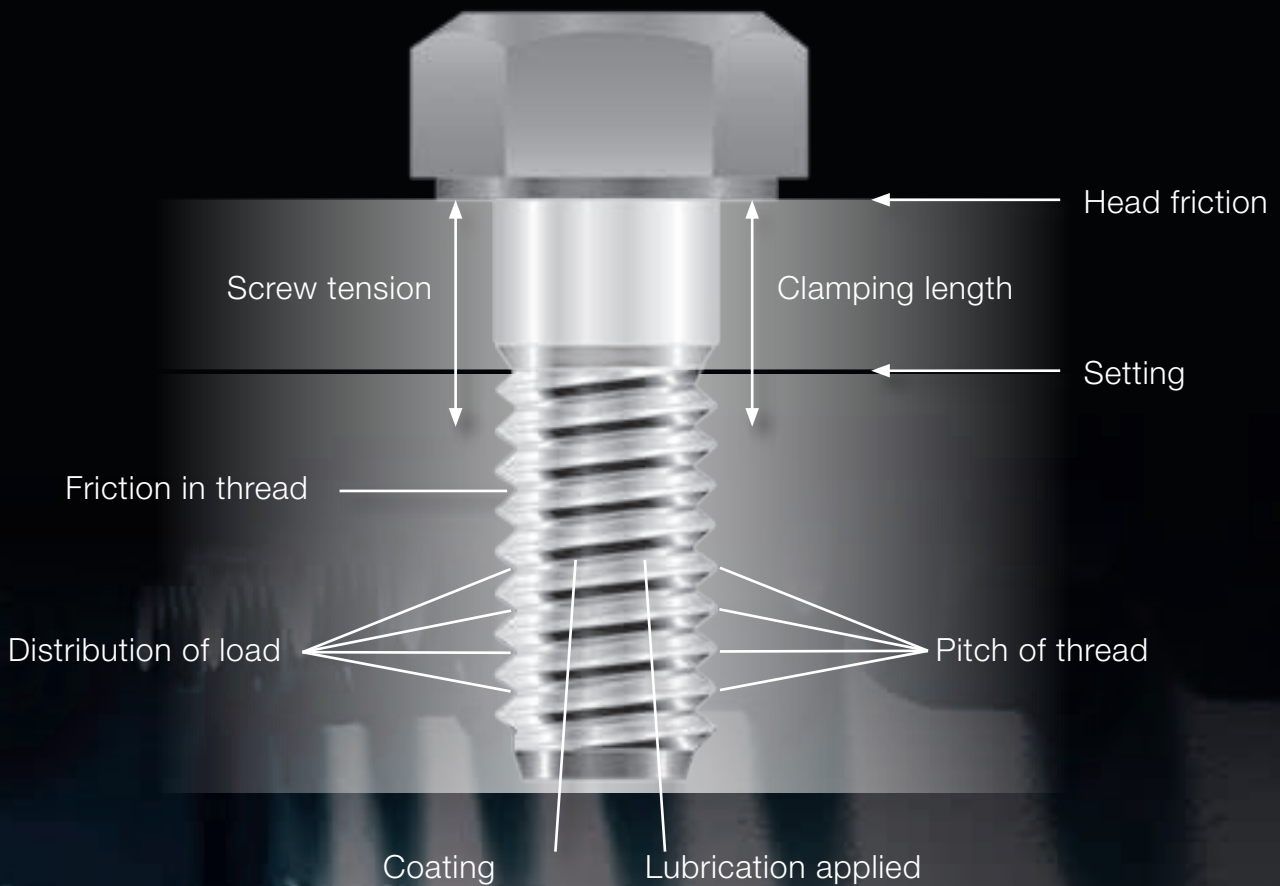
When developing new designs, we do not only focus on achieving a high level of quality, but at the same time we test extensively the function and handling features using our own testing devices. The result is a new generation of products for bolting technology which do not only technically fulfil the highest demands.

With eight product lines, from manual torque multipliers through to completely automatic bolting systems, we can offer you the broadest product range in the market. You benefit from perfectly optimised tooling while all the products for your bolted joints come from a single source.



Bolt joint

Many physical characteristics affect and influence the final bolted joint.

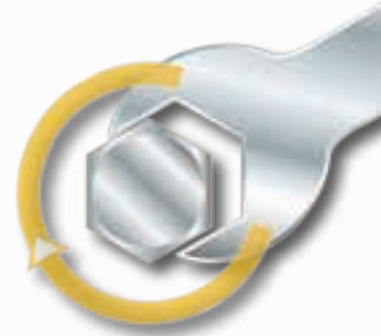


Our solutions

1

Torque-controlled tightening

- In the majority of cases where bolts are used, torque-controlled tightening is the method used to tighten.
- With this method the friction on the thread and head of the bolt act as a precise pre-tensioning force, therefore the use of accurate tools is imperative.
- Effectively the bolt can be tightened quicker.
- This method is more practical and easy.
- Light, compact tools can be used where space is limited.



2

Hydraulic Tensioning

- As the nut is not rotated under load, there is no torsional load on the bolt.
- After achieving the desired applied load, the nut can be tightened without causing stresses on it. The correct applied bolt load is therefore achieved.
- Even different co-efficients (levels) of friction have no effect on the tensioning process.

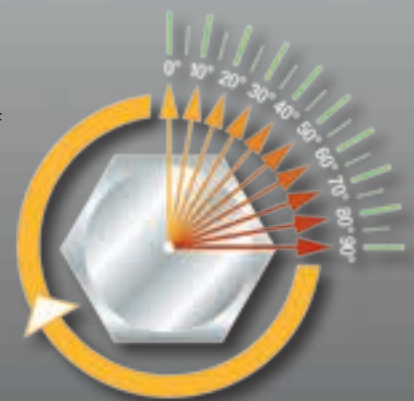


Via the hydraulic cylinder tensioning force is exerted on the bolt causing it to elongate.

3

Torque/torque-angle-controlled tightening

- Torque/torque-angle-controlled tightening is more precise than purely torque-controlled tightening.
- The defined amount of rotation of the bolt (torque angle) provides automatically and accurately the required pretension.
- Control is achieved directly from the power pack, by means of microprocessor technology within the pump.
- Higher quality bolting joints are achieved.
- Results can be stored and used at a later date for documentation required in quality assurance processes.
- The whole control process is achieved without the need of external sensors, hence no need for extra cables from the tool.



ATEX products

Terminology conforms to EU machine guidelines 98/37/EU and 94/9 EU



X 2-P-Z

Pneumatic Power Pack

II 2G ck IIB T4
-10°C ≤ Ta ≤ +50°C



FSX

Hydraulic Torque Wrench

II 2G ck IIB T4
-10°C ≤ Ta ≤ +50°C



MX-EC

Hydraulic Torque Wrench

II 2G ck IIB T4
-10°C ≤ Ta ≤ +50°C



DP

Nutrunner (pneumatic)
for mining

I M2 c
-10°C ≤ Ta ≤ +50°C

Nutrunner (pneumatic) for
oil and gas industries

II 2GD c IIB T5
-10°C ≤ Ta ≤ +50°C

Manual Torque Multipliers



PLARAD

XVR/XVK

- Manually operated torque multiplier
- Ideal for use with no external power supply
- Available for use anywhere and at any time

Torque multiplier	Height (mm)	Ø (mm)	Performance range (Nm)	Weight (kg)
XVK 15	172	81	220 - 1 700	2.6
XVR 25	302	81	440 - 2 300	5.2
XVR 35	273	81	510 - 3 600	5.0
XVR 40	238	95	560 - 4 000	6.1
XVR 65	244	114	820 - 6 200	8.4
XVR 70	302	128	980 - 6 800	11.4
XVR 90	300	172	1 780 - 8 600	21.8
XVR D 45	310	128	1 000 - 10 100	16.0

All weights are without reaction arm/subject to amendment.

Compatible torque wrenches



PH 36 Z (60 - 360 Nm)

PH 50 Z (200 - 500 Nm)

XVK
Single stage torque multiplier

XVR
Multi stage torque multiplier with reversing safety mechanism ensures extra safety for users

Flexibility thanks to height-adjustable reaction arm



General accessories

Trolley for hydraulic power packs – for mobility in plants and workshops

Aluminum frame, 2 integrated handles, lockable quick-lock, rollers with solid rubber tires and roller bearings, brake and caster wheels



Assortment of hoses and coupling adapters

Plarad hoses with a fourfold safety factor up to 800 bar (bursting pressure 3 200 bar)





Lubricants



Valve wheel driver for valves



Various reaction arms



Various sockets and fittings

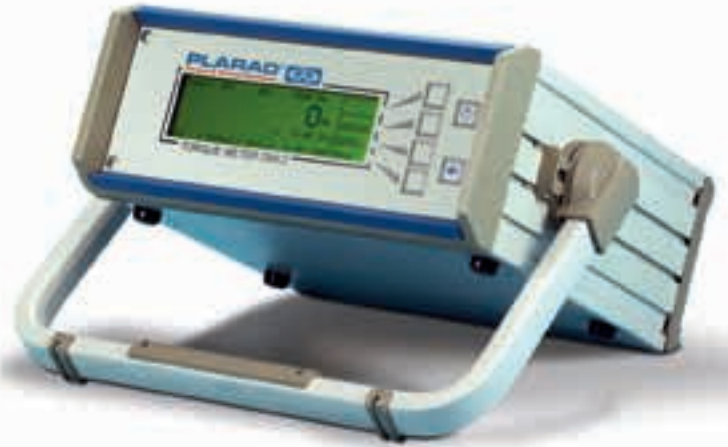
GMV 2 & PH

torque measuring device

Checking bolting joints

The microprocessor controlled GMV 2 unit is our key test instrument.

Used in conjunction with a transducer, it enables precision measurement of torque while bolts are being done up. The values can be saved, along with the date and time, and can then be printed out by the instrument itself or uploaded to a PC for further evaluation.



Equipment testing

The PH test system, used with the GMV 2, is the ideal combination for testing and setting up hydraulic tools.

Combining the DRT reaction torque sensor with the GMV 2 enables static testing of impact tools, electric torque tools and other equipment of various designs.

PLARAD™		Torque & Tension Systems								
Testdate/zeit	Group	Set	Schraube	Stress	Zeit	Stellen	Stellen	Set	Ergebnis	Unit
01.01.2010 10:00	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:05	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:10	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:15	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:20	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:25	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:30	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:35	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:40	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:45	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:50	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 10:55	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:00	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:05	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:10	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:15	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:20	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:25	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:30	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:35	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:40	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:45	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:50	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 11:55	01	100	M12x1.5	100	10	1	1	100	100	Nm
01.01.2010 12:00	01	100	M12x1.5	100	10	1	1	100	100	Nm

Bolting joints can be evaluated on a PC



TC1

mobile measuring unit

The TC1 measuring unit is an innovation in the field of mobile measuring equipment. It measures the applied torque, and hence the bolting process, directly where it happens. The system works wirelessly in the bolting process and can simply be attached to the nutrunner.

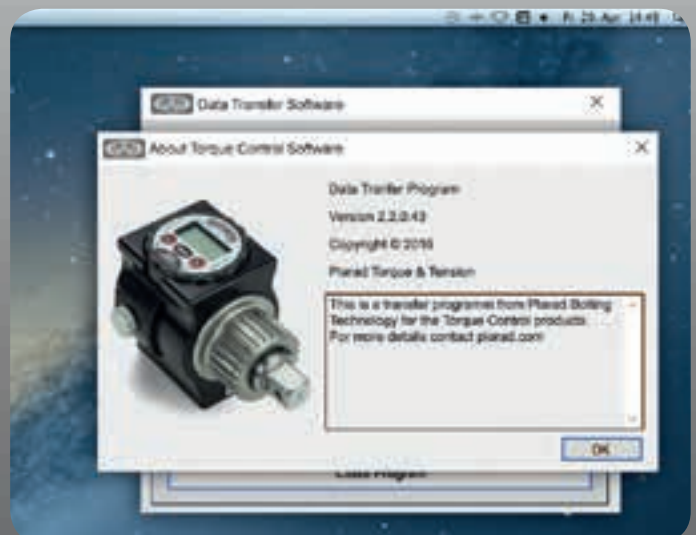
- Measures the applied torque directly at the point of application
- Measuring range up to 5 500 Nm
- Torque is shown in the sensor display
- Acoustic warning signal if the defined tolerance is exceeded
- An LED display provides information about the torque result
- Integrated memory for 250 values
- Transfer and analysis to the PC
- Appliances are compatible with the current Plarad nutrunner range and virtually maintenance-free
- Including transport box, Data-Trans software, power cable and USB cable



Type	Measurement range (Nm)	Square drive	Spline teeth quantity	Weight (kg)
TC1 - 11	110 - 1 100	3/4"	26	2.60
TC1 - 31	310 - 3 100	1"	45	4.70
TC1 - 41	410 - 4 100	1"	26	2.70
TC1 - 55	550 - 5 500	1 1/2"	45	5.00

Torque Control Software

- Documentation from: Screw connection date, time, OK/NO OK result
- Storage of screw connection data
- Evaluation/statistics/archive
- Optimised documentation and process security
- Quality assurance guarantee



Comprehensive service

Sustained long-term success will only be possible if you are able to respond to market and customer requirements quickly. With over 50 years' worth of bolting expertise and the broadest product range, we can offer you the most economical solution.

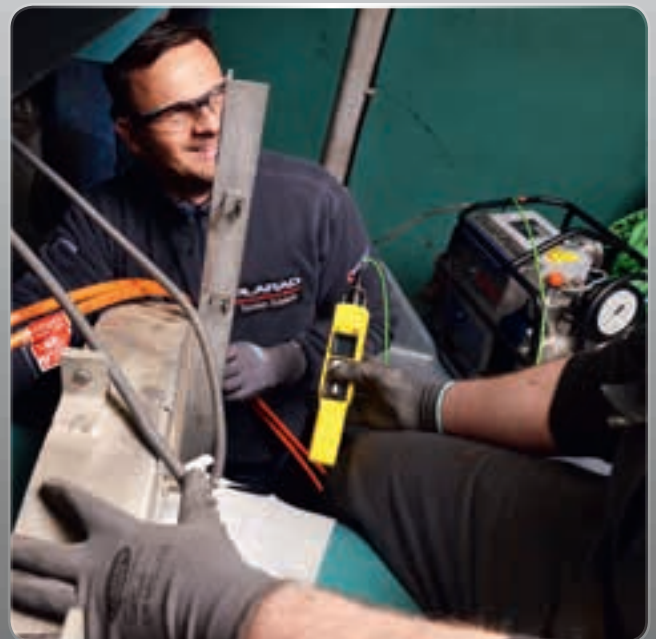
In close cooperation with our clients, we develop tailor-made tools that are perfectly customised to their respective requirements. Extensive support is meanwhile an integral part of our service. This is because we will accompany you before, during and after the project phase.

We are actively involved in various panels and standardisation committees. This enables the accommodation of the latest changes in standards and of future bolting requirements in our competent service portfolio.

- Project Consulting
- Bolting Case Analysis
- 3D-CAD Analysis
- Product Demonstrations
- Trainings/Instructions/Seminars
- Measuring/Testing/Calibrating
- Repair and Spare Part Service
- 24-hour Service
- Renting/Leasing/Financing



Product advice from our specialists on-site



Test equipment and product demonstrations available

3D CAD analysis

Give us the data on your bolting joints in whatever format you want:

E.g. hand-drawn sketch, with the aid of our bolting survey or as a CAD file.



We will use your information to create a 3D model on our own CAD system. This enables us to recommend the optimum tools for your needs. Where appropriate, we can customise a bolting system for your individual needs.



You will receive our recommended solution in the form of a printout and a 3D animation (use "Autodesk" dwf viewer).

Our wide range of products enables us to find the most economical solution for you.



Special solutions



Offset drive

For nutrunner when space is limited (e.g. plate heat exchangers)



Speedy

Pneumatic speedy nutrunner: fast operation in low torque applications

XB 1

Hydraulic power pack with protective shields and an extra manometer



Threaded column connection mechanism

for pre-stressed concrete reinforcement

