



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.

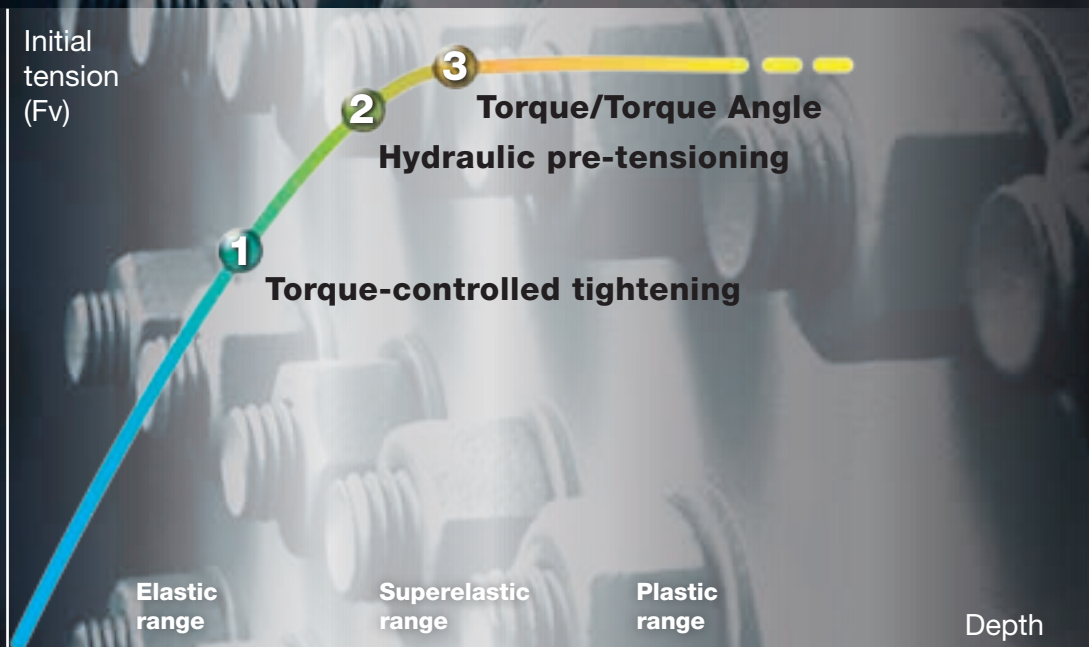
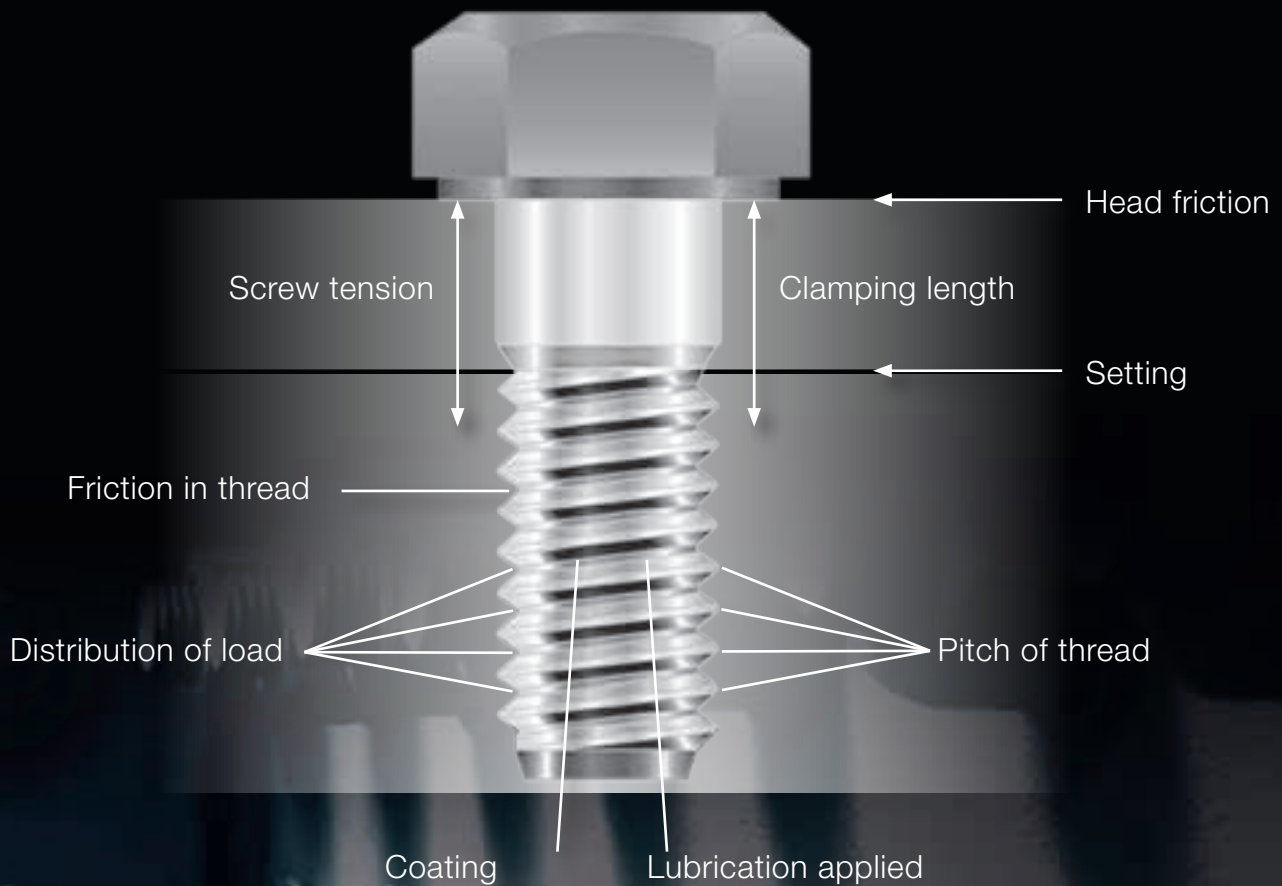
When developing new designs, we do not only focus on achieving a high level of quality, but at the same time we test extensively the function and handling features using our own testing devices. The result is a new generation of products for bolting technology which do not only technically fulfil the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

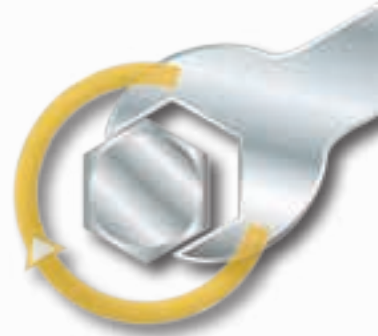


Our solutions

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.

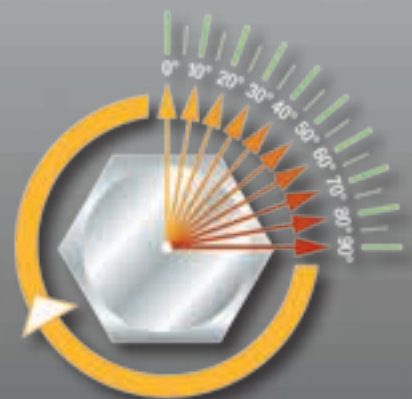


Via the hydraulic cylinder tensioning force is exerted on the bolt causing it to elongate.

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.



A close-up photograph of a hydraulic power pack assembly. In the upper left, a circular pressure gauge with a white face and black markings is visible, showing a reading around 200. The main body of the power pack is a light-colored metal block with various ports and fittings. Two red safety caps are attached to the assembly with red lanyards. The background is dark and out of focus.

Hydraulic Power Packs

PLARAD

Hydraulic Power Packs

for every bolting situation

Our robust and long-lived hydraulic power packs are distinguished by a constant volume of oil (litres) up to the final pressure of 800 bar and have proven their mettle in heavy continuous use. From light-weight standard versions via microprocessor-controlled, fully automatic designs through to special power packs – Plarad has the correct power pack for every need, electric or pneumatic drive.



IQ-VAX 2 WZ X32



IQ-VAX 3,5 DM-DW X32



IQ-VAX 2 Z-X32 110V



XB 1



XB 2 Z



XB 2



X2 P-Z



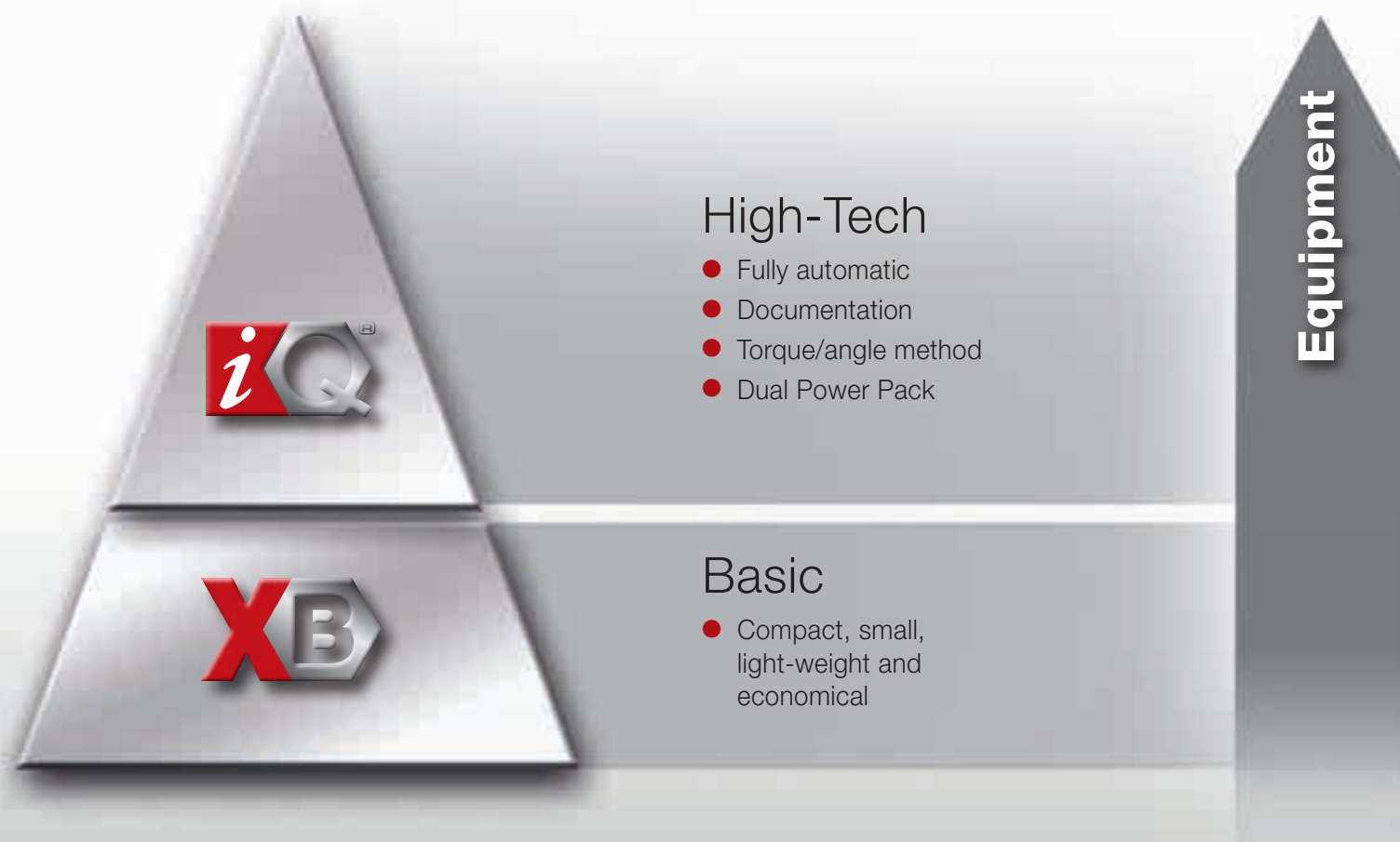
TAX



IQ VAX 2 WZ Dual

Power Pack Overview

electric



Fast

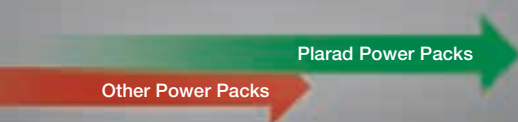
- More bolts can be tightened in the same amount of time: Plarad products are up to 3 times faster than other products.

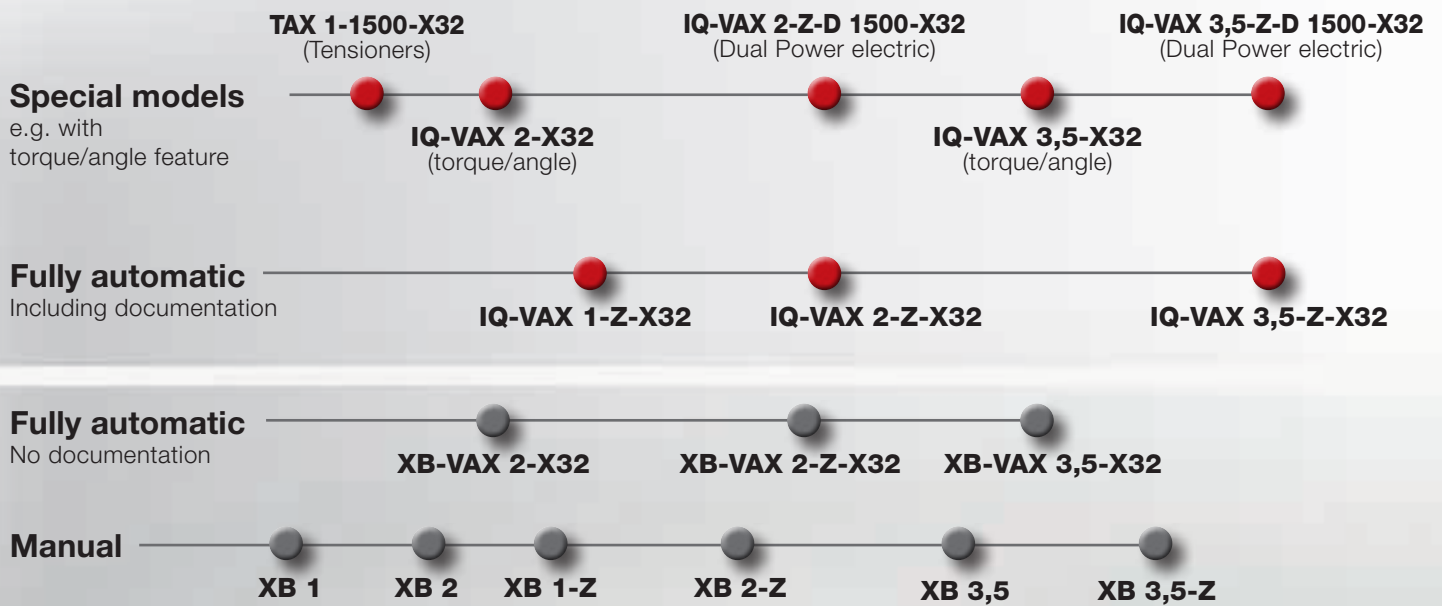
Reliable

- Accurate, safe results as the application is controlled and monitored completely automatically by an internal microprocessor.

Safe

- The Plarad documentation system makes it possible to record and illustrate the results of every bolted joint. For this reason the documentation is very useful in the field of product liability.





Fast operation

Lightweight

- Optimal power to weight ratio. The oil-filled electrical motor technology guarantees optimum weight and maximum output.



Can be operated almost continuously

- The power packs do not over-heat thanks to their special oil-filled motor design. The oil tank is part of the motor itself and no other tank is necessary. The motor, the pump unit and the oil are all cooled at the same time.



It runs and runs and runs!

- Innovative, patented technologies and design features, plus the use of high-quality materials ensure the pump has an extremely long lifespan.





PLARAD



Power Packs

high-tech models



Our rugged and durable power packs are characterised by the constant volume they output right up to their pressure limits, and have proved themselves through their long life in the toughest applications. The oil-filled motor prevents overheating. The design also ensures optimum performance to weight ratio.

IQ-VAX

- Fully automatic for accurate, reliable bolting joints
- Documentation
- Instrumentation and control systems
- Torque-angle method

Fully automatic VAX technology keeps users perfectly safe

Power Pack	Flow rate	Weight *
IQ-VAX 3,5-X32	3.5 l/min	35 kg
IQ-VAX 1-Z-X32	5.3 / 0.75 l/min	26 kg
IQ-VAX 2-Z-X32	8.0 / 1.2 l/min	32 kg
IQ-VAX 3,5-Z-X32	13.2 / 3.0 l/min	36 kg

Extracts of the specifications

* ready for use



Each individual bolting case (tightening – loosening) is controlled via the pump's microprocessor control unit utilising different processes

Rugged cage which protects the unit, even on building sites

Pressure indication displayed, assessment of the bolting case via a status indicator

Low noise while operating



VAX – Genuine full automation function

- Straight to work at the touch of a button: the VAX automatic controls and finishes the bolted joint automatically and accurately, even when handling multiple bolts, as well as indicating progress to the operator via the remote-control.
- Pressure is taken off the operator, hence errors are eliminated.



Documentation

- The Plarad “Documentation” add-on saves all torque or torque angles conducted into the control unit.
- Once uploaded to a computer, the bolting data can be used for traceability purposes on each bolt joint.

Multiple bolting technologies

- The torque/angle function, for example, means that differing friction coefficients of bolts no longer play a role. The required tightening torque will always be achieved.

Synchronised operation

- Synchronised operation using two or more units (MX-EC or FSX).
- The automatic function ensures that synchronised bolted joints are handled quickly and reliably, ensuring an optimal seal.

Optional accessories



There is an extensive range of accessories, e.g. auxiliary oil tanks, to extend the unit's range of applications



Hydraulic couplings – adaptors and hoses are available in many sizes etc.



Optimal storage in a professional Plarad storage trolley



PLARAD

XB Power Packs

setting high standards



XB 1

for mobile service work

- **XB 1**

The lightweight design of the XB 1 makes this power pack ideal for mobile service applications.

- **XB 2**

The all-rounder in the XB range is the XB 2, famous for its high speed.

- **XB 3,5**

As the quickest power pack the XB 3,5 is a powerful package particularly suitable for complex bolting jobs.

XB 2

for universal use

Guide to wind
the cables around

Rugged industrial
cage for tough
environments

The main valve is
within a protected
non exposed area
on the pump

Outward-facing oil filters (on XB 1 and
XB 3,5) and maintenance friendly
design, for easier maintenance

Improved valve
technology

One or more hydraulic
tools can be used
with one or twin hose
technology



Power Pack	Flow rate	Weight*
XB 1	0.8 l/min	20 kg
XB 2	1.2 l/min	29 kg
XB 3,5	3.5 l/min	33 kg
XB 1-Z	5.4 / 0.8 l/min	24 kg
XB 2-Z	8.0 / 1.2 l/min	31 kg
XB 3,5-Z	13.2 / 3.0 l/min	35 kg
XB-VAX 2	1.2 l/min	32 kg
XB-VAX 2-Z X32	8.0 / 1.2 l/min	32 kg
XB-VAX 3,5	3.5 l/min	35 kg

Extract from technical data (values apply to 230 V/50 Hz or 400 V/50 Hz versions. (other voltages are available), e.g. 110 V.

* ready for use



XB 3,5

for use in manufacturing plants





PLARAD

TAX

the pump for tensioners

Guide to wind
the cables around



Power Pack	Flow rate	Weight*
TAX 1-1500-X32	0.4 l/min (1 500 bar)	31 kg
TAX 3,5-1500-X32	1.0 l/min (1 500 bar)	40 kg

Extracts of the specifications

* ready for use

- Dedicated pump specially for tensioning applications up to 1 500 bar (optional to 2 100 bar)
- Pressure indication in the display screen
- Compactly built with special principles being utilised to build up the pressure

Dual Power



Hydraulic Torque Tools

Power Pack	Flow rate	Weight *
IQ-VAX 2-Z-D 1500-X32	8.0 / 1.2 l/min (at 800 bar) 8.0 / 0.4 l/min (at 1500 bar)	40 kg
IQ-VAX 3,5-Z-D 1500-X32	13.2 / 3.0 l/min (at 800 bar) 13.2 / 1.0 l/min (at 1500 bar)	42 kg

Extracts of the specifications

* ready for use

800 bar



The IQ Dual Power Pack can power both hydraulic torque tools and hydraulic tensioners.

1 500 bar
(optional up to 2 100 bar)



Tensioners

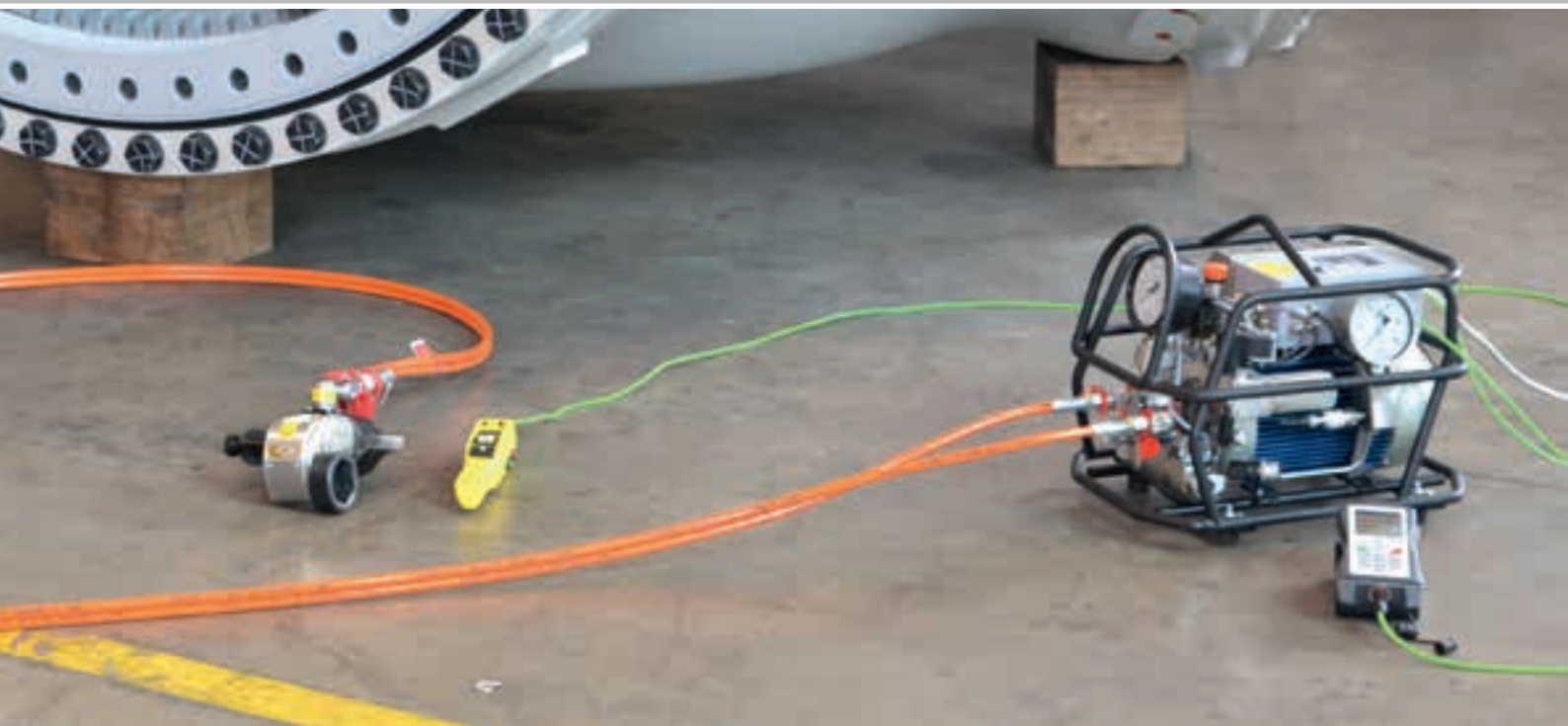
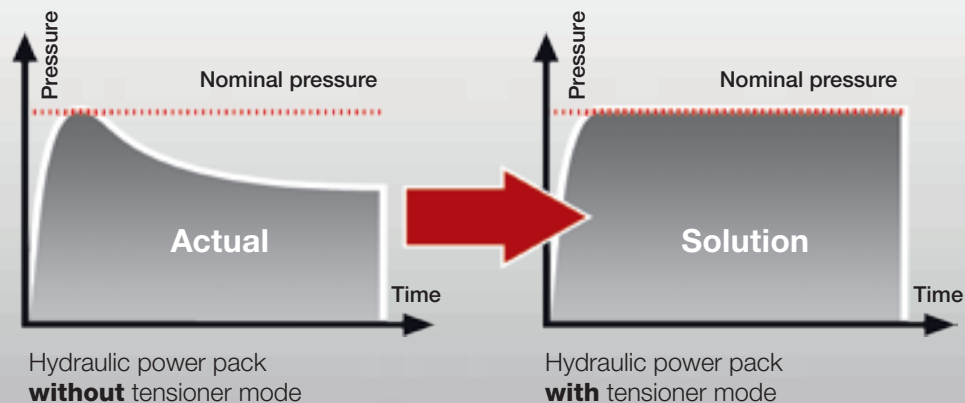
As well as a variety of bolting techniques and lifting processes in 800 bar mode, the Dual Power VAX unit can also be used for tensioning applications up to 1 500 bar (optional up to 2 100 bar). This universal hydraulic Power Pack saves you having to invest in additional high-pressure units.

- 2-in-1, one less unit to buy
- Fully automatic pumping of hydraulic tensioners
- Automatic limit-stop
- Pumping performance accross the range
- User-friendly – a remote control with identical functions. Users can easily familiarise themselves with the operation of the units easily
- All of the upgrades and enhancements on conventional IQ Power Packs are also available for the Dual Power

Controlled tensioning force in tensioner mode

When initially tensioning, there is a risk that oil pressure decreases due to the settling of the object during the actual stretching process or due to stretching of the attached hydraulic hoses.

Plarad IQ Power Packs tensioner mode monitors the pressure and pump as required, ensuring that the required tension is achieved.





PLARAD

Pneumatic Hydraulic Power Packs



Just like our electrically powered hydraulic units, our pneumatic hydraulic power packs are characterised by their ruggedness, long life and their constant throughput right up to their pressure limits. The pneumatic motor is integrated into the oil tank, preventing seizure while simultaneously cooling the hydraulic fluid.

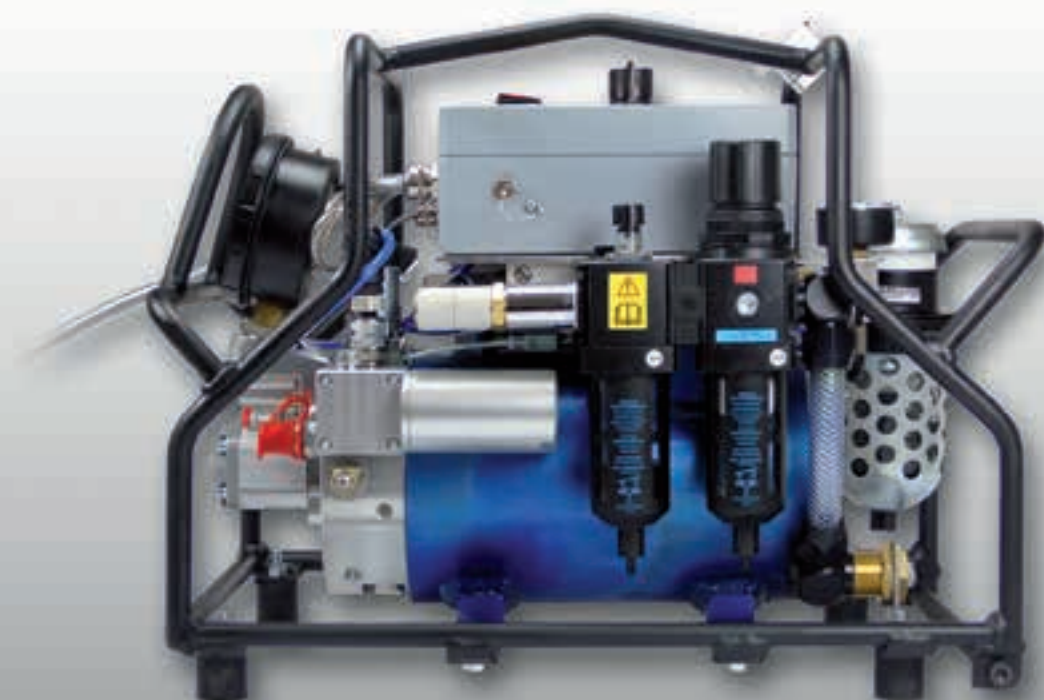
IQ VAX

pneumatic

Only from Plarad!

The first pneumatic VAX unit:

The new, fully automatic pneumatic power pack uses the latest microprocessor technology. This eliminates user errors since operators simply start a fully automatic, controlled procedure at the push of a button. The machinery shuts off automatically when the required torque is achieved and informs the operator via the remote control.



IQ-VAX 2-P-Z



**For the full
functionality of
IQ technology**

Power Pack	Flow rate	Weight*
X 1-P	0.8 l/min	24 kg
X 2-P	1.6 l/min	31 kg
X 2-P-Z	7.0 / 1.6 l/min	31 kg
X 2-P-Z ATEX	7.0 / 1.6 l/min	32 kg
IQ-VAX 2-P-Z	7.0 / 1.6 l/min	35 kg

Extracts of the specifications

* ready for use

ATEX

approved

Only from Plarad!

X 2 P-Z ATEX: Approved for operation in Zone 2G.
Certified for use in areas containing materials with
a minimum flame point of 0.082 mJ



X 2-P-Z

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.

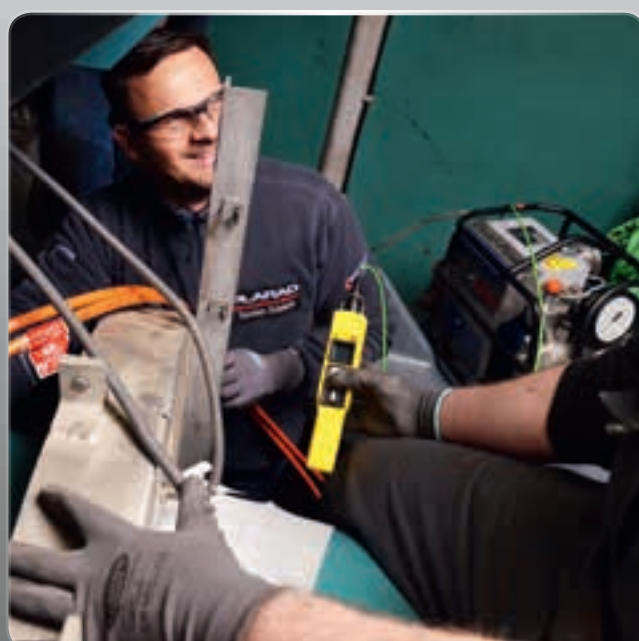
In close cooperation with our clients, we develop tailor-made tools that are perfectly customised to their respective requirements. Extensive support is meanwhile an integral part of our service. This is because we will accompany you before, during and after the project phase.

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

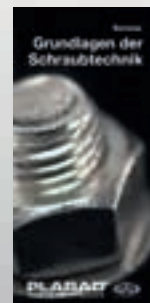
We pass on our knowledge

We continually offer advanced training within the organisation to enhance the know-how of our employees.

We cooperate with PSA Sicherheitstechnik GmbH & Co. KG in operations worldwide, providing detailed support for training and safety instruction (for example, working at height, where this is a risk of falling), both for our own employees and for yours.

Training and seminars for your employees

- Maintenance and repair of torque tools:
 - Relevant maintenance
 - Fault diagnosis
 - Repairs
 - Adjustment, calibration and testing
- User training:
 - Basic bolt fitting and technology
 - Safety aspects
 - Handling and positioning torque tools
 - Equipment settings
- Training courses in colleges and academies:
 - e.g. basic bolting techniques



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





Our support service includes financial analysis of your project, instruction on the operation of the equipment, loan equipment, equipment calibration, maintenance and more.



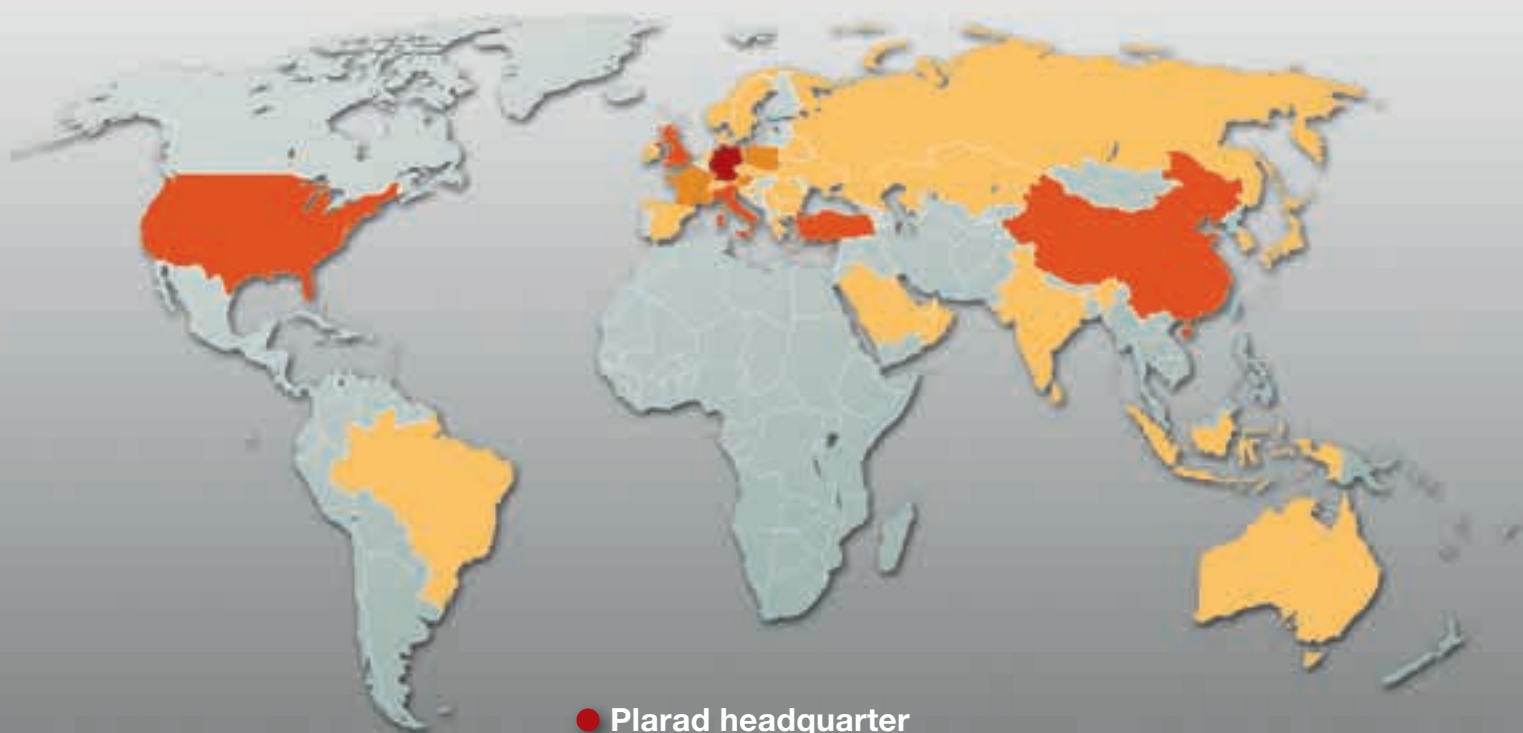
We check your bolting needs by means of precise measurement of torque while bolts are being tightened.

24/7 support and service

Competent expert help available throughout the world, at any time

- Economic and technical security, thanks to expert consultation anywhere in the world.
- We offer provision for service and maintenance, a reliable supply of spares as well as calibration services.
- One call is enough!
Our 24/7-service team will provide clear quick no-nonsense support.

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- Plarad's foreign subsidiaries
- Plarad staff
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PLARAD®
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