

**PLARAD**  
**Bolting Systems for the**  
**OIL AND GAS INDUSTRY**



**PLARAD**<sup>®</sup>  
Torque & Tension Systems

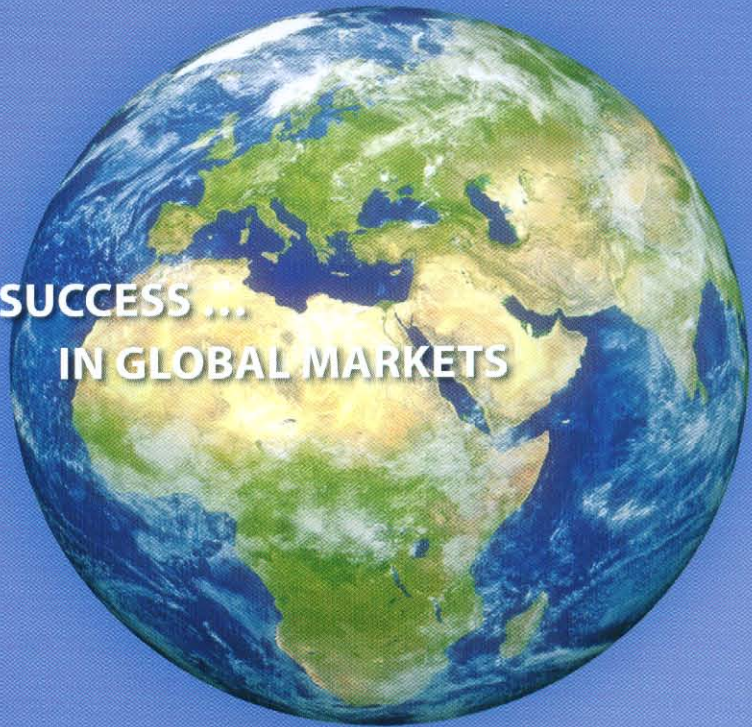


# THE EXPERTISE TO SOLVE YOUR ASSEMBLY CHALLENGE

We are in the business of solving your problems. Over forty years of success in global markets tells us we are on the right track.

**40 YEARS OF SUCCESS ...  
IN GLOBAL MARKETS**

Being competitive today means facing the challenges of tomorrow.



## SAVE MONEY, TIME AND RESOURCES

Our goal is to identify your needs and develop innovative solutions that save money, time and resources.

**PLARAD**<sup>®</sup>  
Torque & Tension Systems



# CHOOSE PLARAD, INVEST IN THE FUTURE.

We have been taking up the challenge of developing bolting systems tailored to the special needs of oil and gas companies for many years. In oil and gas extraction, environmental protection and accident prevention are paramount.

Facilities producing and processing fossil resources measure their daily output in millions. Any downtime, any loss of production must be avoided.

We have worked for years together with industry specialists to develop and implement solutions that prevent leakage and guarantee user safety.

To this end, we maintain constant close contact with our clients – leading companies in the oil and gas sector.

This close collaboration, alongside dialogue with universities and engineering institutes, enables us to provide solutions for every bolting challenge.

## **SOLUTIONS SPECIALLY DEVELOPED FOR THE OIL AND GAS INDUSTRY**

We call it fit2gether – a perfect fit between your requirements and our innovative solutions that directly benefits your bottom line.



# ONE POWER PACK, ENDLESS POSSIBILITIES

Three performance classes up to 3.5 l/min at 800 bar

**PLARAD IQ-VX** power packs are an upgradable modular system with a choice of output volumes. The **IQ-VX** series offers basic models in three sizes with differing volume-to-weight ratios.

The **PLARAD IQ-VX** also grows with your needs, with a range of accessories including an extra oil tank and a pressure intensifier.

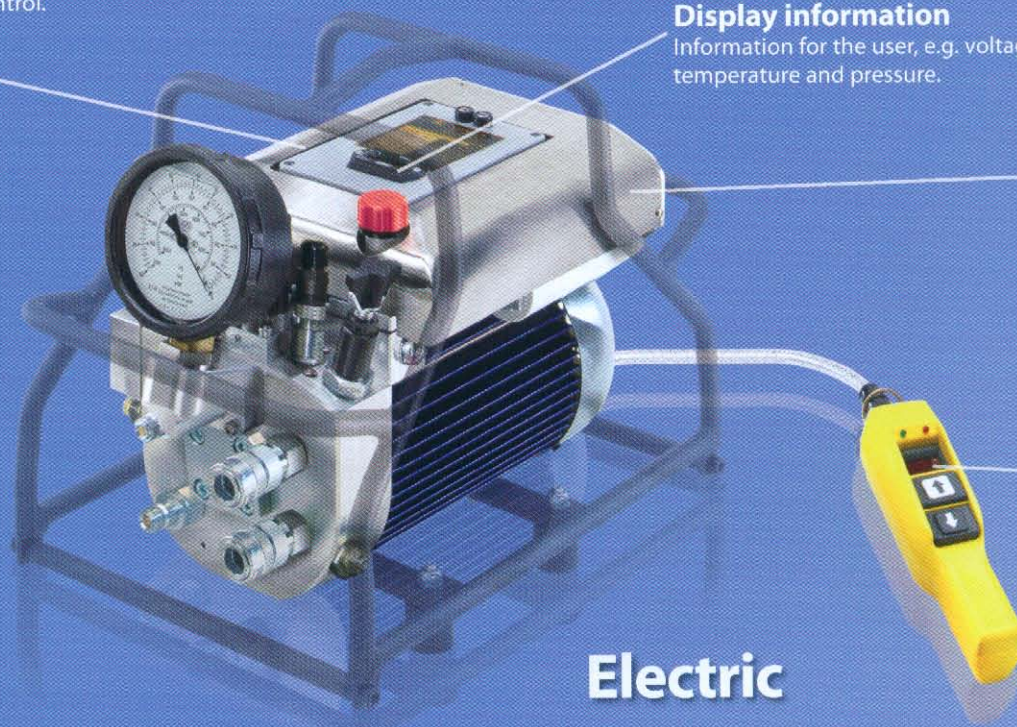
All models from the basic PLARAD VX upwards boast an integral microcontroller and a range of operating modes and tightening methods.

## VAX technology (fully automated)

Safe to use with fully automated tightening, automatic tool shut-off and completion indicator on remote control.

## Display information

Information for the user, e.g. voltage, temperature and pressure.



## IQ-VAX 1 - Z

- Compact
- Light weight

## IQ-VAX 2 - Z

- Excellent handling
- High speed

## IQ-VAX 3,5 - Z

- Minimum payback period
- Extremely high speed

# MULTIFUNCTION POWER PACKS FOR THE OIL AND GAS INDUSTRY

**Synchro**  
For tightening multiple bolts in parallel.

**Rugged**  
Strong frame to protect the machine.

**Handy and lightweight**  
Ideally suited for mobile use (from 22 kg).

**Pneumatic**  
(also available with VAX technology)

**Latest bolting methods**  
Microcontroller for torque or angle-controlled tightening without tool-mounted sensors.

**Fast two-stage system**  
with additional gear pump for low torque ranges.

**ATEX-compliant**  
Specially designed for use in explosive atmospheres.

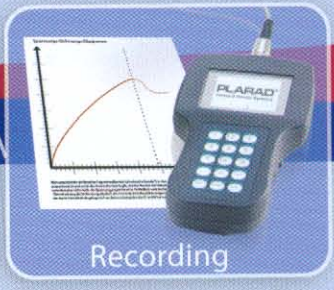
**Digital remote control**  
Digital display shows applied pressure and status message on assembled joint.

## Optional extras for added versatility

**Fully scaleable**  
For use with two or more large torque tools. Optimum weight in every application.

**Extends up to 2,000 bar**  
For use with bolt tensioners and other high-pressure hydraulic components up to 2,000 bar.

**Data input/output**  
Record and print attained torque and other data.



# PLARAD SYNCHRO -

## PERMANENTLY LEAKTIGHT FLANGES

Only around 13 % of estimated 5-8 million tonnes of crude oil which pollute the oceans escapes from shipwrecked tankers.

**The overwhelming share** originates from ships which wash out their tanks while at sea or **from leakages in oil rigs and pipelines.**

Tightening a flange evenly all round used to be a multiple stage process. The only way to avoid gaps and uneven settling was by tightening the bolts in a criss-cross pattern and in several passes.

With a 20-bolt flange, this could mean repositioning the torque tool 99 times – a major waste of time and effort.

### ... PERFECT AND LEAKTIGHT ASSEMBLY AT MAXIMUM SPEED

In synchronous tightening, two, four or more bolts are tightened simultaneously. All fasteners are perfectly and evenly tightened in only two passes.



# SPECIAL TECHNOLOGIES

## FOR SPECIAL APPLICATIONS

### EXPLOSION SAFETY

When choosing tools and equipment, the oil and gas industry must apply very high standards of explosion safety. We have taken up the challenge and developed pneumatic bolting systems that meet the high standards permitting their use in explosive atmospheres. Our ATEX-certified pneumatic tool, **DP-ATEX (EX-I M2cT6)**, and our ATEX-compliant pneumatic power pack, **X2P**, are ideally suited for ATEX applications.



### UNDERWATER APPLICATIONS

Deep-sea assembly is another application where only PLARAD tools make the grade. Precise and safe assembly is no problem – without any loss of working speed – down to greater depth. Our users gain the benefits of PLARAD where other tools fail.

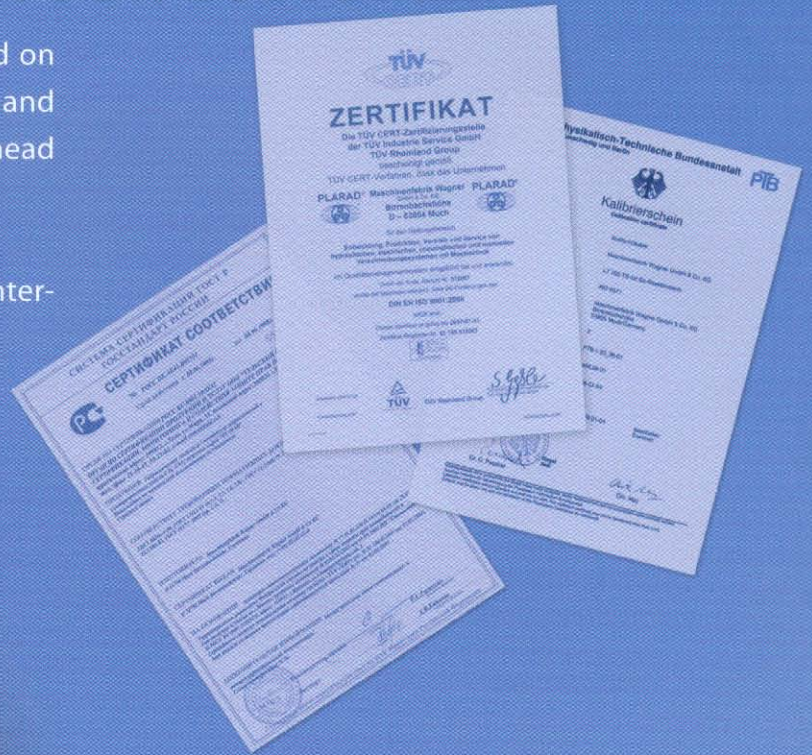


# VERIFIED QUALITY FOR OUR CUSTOMERS

Our working relationships are always founded on a top-quality product. Ongoing development and decades of experience keep us always a step ahead of the competition.

In many cases, our expertise is verified with internationally recognized certification.

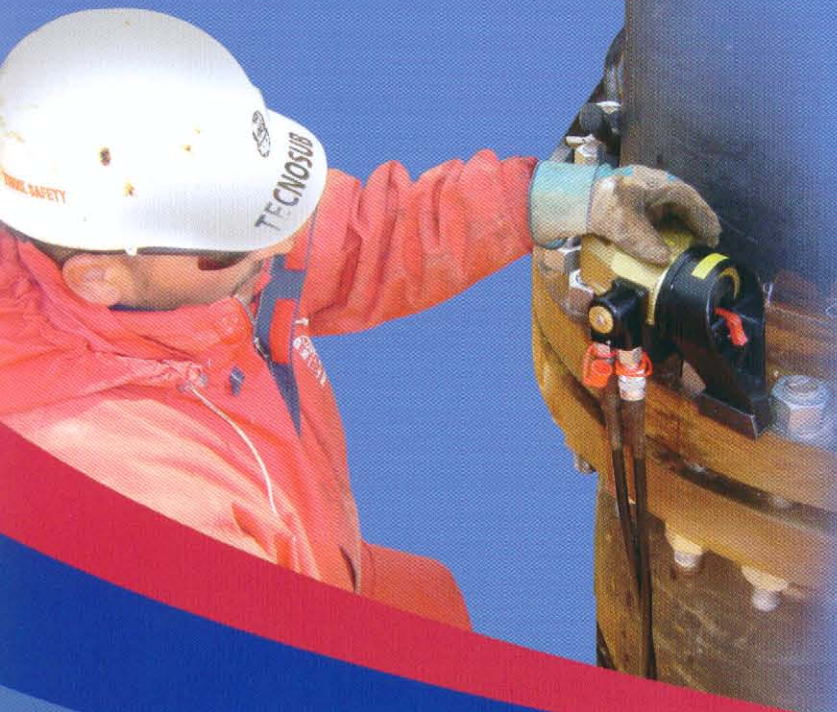
... ALWAYS A STEP  
AHEAD OF THE  
COMPETITION.



Among other things, this includes **DIN ISO 9001:2000** certification of systematic quality management.

The acclaimed **German National Metrology Institute (PTB)** provides us with support in product and acceptance testing.

The global wind power certifier **Germanischer Lloyd** supports us in product certification.



ATEX



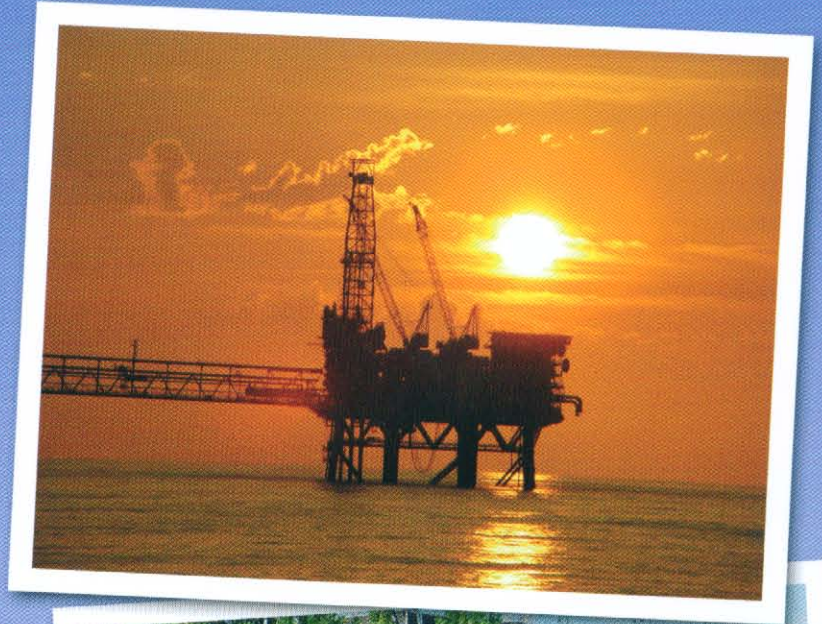
Germanischer Lloyd



# PLARAD BOLTING TECHNOLOGY: INDISPENSABLE

## ... IN EXTRACTION

*Explosion-safe bolting systems for ATEX applications.*



## ... IN PIPELINES

*Synchronous bolting systems for permanently leaktight flanges.*



## ... AND IN PROCESSING

*Minimum payback periods, maximum return on investment.*



# fit<sup>2</sup>gether

**Fit2gether:** You and **PLARAD** products from Maschinenfabrik Wagner are the perfect fit.

Together we join components, tighten fasteners, master engineering challenges and find the most cost-effective solution to match your needs. Our products go hand in hand with full service.

When you buy **PLARAD**, you are entering into a long-term partnership focused exclusively around your needs.

**Fit2gether** is professional knowledge and expertise in bolting.

We meet your needs.

**Fit2gether** – your partnership with **PLARAD**.

**PLARAD**<sup>®</sup>  
Torque & Tension Systems



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

# The multifunctional **TORQUE SYSTEM**

The latest power pack generation from **PLARAD**



**PLARAD**®  
Torque & Tension Systems



# IQ-VX Series

## Hydraulic power packs

### Rugged

Strong frame to protect the machine

### Latest bolting methods

Microcontroller for torque or angle-controlled tightening without tool-mounted sensors

### Display information

Information for the user, e.g. voltage, temperature and pressure, etc.

### Synchro

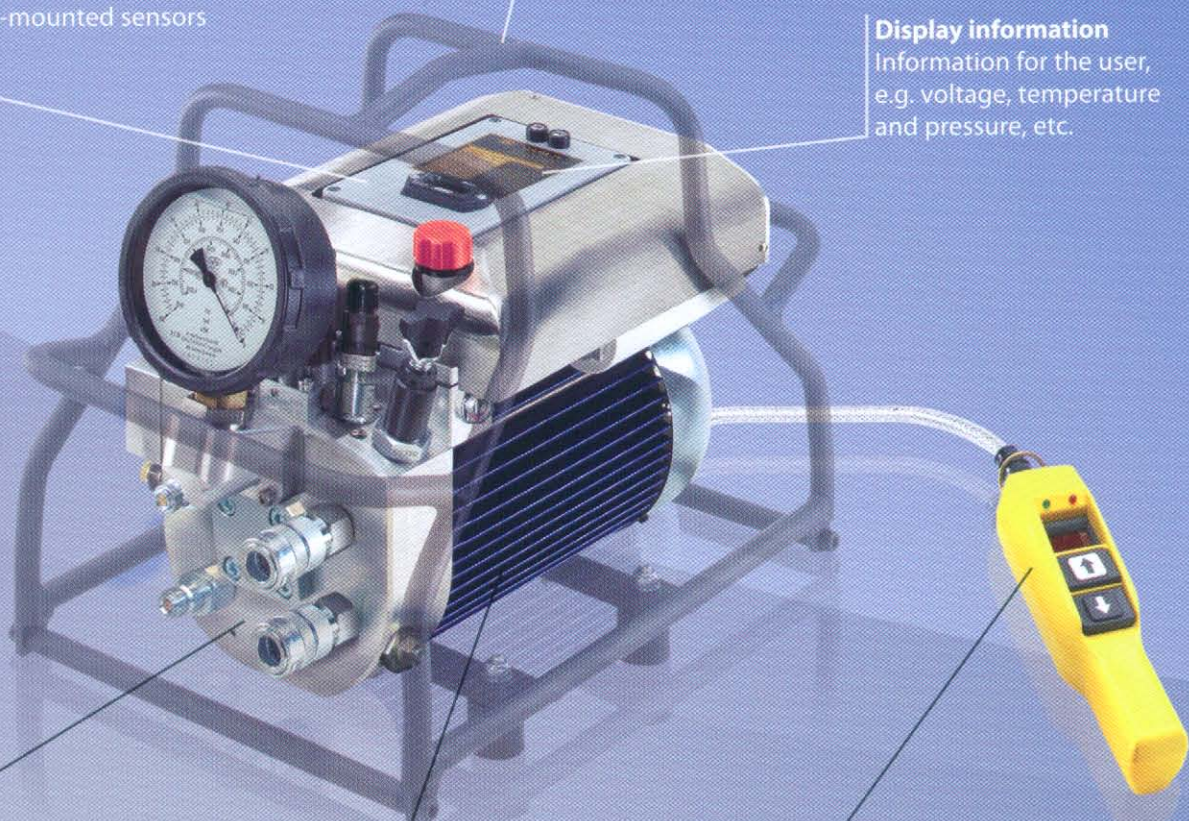
For tightening multiple bolts in parallel

### Digital remote control

Digital display shows applied pressure and evaluation of bolting

### IQ-VAX-technology (fully automated)

Safe to use with fully automated tightening, automatic tool shut-off and completion indicator on remote control



# Intelligence · Quality · Safety in bolted joint assembly.

**Need a hydraulic power pack for your service side that packs more punch for less weight?**

**Assembly operations call for a high-output power pack and an exact record of every nut and bolt tightened?**

The **PLARAD IQ-VX series** always has the right hydraulic power pack to meet your needs.

**PLARAD IQ-VX power packs** are an upgradable modular system with a choice of output volumes. The **IQ-VX series** offers basic models in three sizes with differing volume-to-weight ratios. **IQ-VX** also grows with your needs, with a range of accessories including an extra oil tank and a pressure intensifier.

All models from the basic **PLARAD IQ-VX** upwards boast an integral microcontroller and a range of operating modes and tightening methods.

**Gain a better grip of your assembly operations?** Upgrade your **IQ-VX power packs** with **IQ-VAX technology** for fully automated operation.

For the entry-level **IQ-VAX** upgrade, **PLARAD** offers fully automated control through to completion of the tightening process. Operating information such as pressure and cycle completion are displayed on a remote control unit.

**Need more?** The next step on the **IQ-VAX technology** upgrade path is a compact hand unit. This is used to enter parameters, and likewise controls the tightening process fully automatically, turning the tool past the selected snug torque by a specified angle and automatically shutting off at the final torque. The angle-controlled tightening method ensures maximum reproducibility in bolting – and this is achieved without tool-mounted sensors.

Finally, **IQ-VAX technology** offers full computer-based recording of all assembly work. Attained values can be transferred from the hand unit to a personal computer for analysis – without a computer linked up to the power pack.

**PLARAD IQ-VX and IQ-VAX power packs:** The right choice for any application.

*From standard to high tech!*

# From the standard **IQ-VX** power pack range

## **IQ-VX1-Z**

*Light weight for mobile service*

- Oil-immersed motor for optimum power-to-weight ratio
- Ergonomically outstanding low noise level
- Cooling ribs and high-speed cooling system for optimum operating temperature
- Minimum size and only 22 kg weight
- Integrated microcontroller regulates voltage fluctuations

*Graduated flow rate from 5.3 down to 0.75 l/min, pressure to 800 bar*

## **IQ-VX2-Z**

*Power for mobile assembly*

- Oil-immersed motor for optimum power-to-weight ratio
- Ergonomically outstanding low noise level
- Cooling ribs and high-speed cooling system for optimum operating temperature
- Integrated microcontroller regulates voltage fluctuations

*Graduated flow rate from 8.0 down to 1.2 l/min, pressure to 800 bar*

## **IQ-VX3.5-Z**

*High speed for production*

- High performance with 400 V operating voltage
- Oil-immersed motor for optimum power-to-weight ratio
- Ergonomically outstanding low noise level
- Cooling ribs and high-speed cooling system for optimum operating temperature
- Integrated microcontroller regulates voltage fluctuations
- Minimum payback period

*Graduated flow rate from 13.2 down to 3.0 l/min, pressure to 800 bar*

**PLARAD: The best power pack for every bolting application**

# To **IQ-VAX** fully automated high-tech torque systems



Fully automated **PLARAD IQ-VAX** the tightening process to completion – at the press of a button.



Compact **hand unit** to select tightening method and target values – fully automatically controlled by **PLARAD IQ-VAX**



Attained values can be transferred from the hand unit to a personal computer for analysis – without a computer linked up to the power pack.

**PLARAD IQ-VX** power packs are modular and upgradable from the standard control system to full computer-based recording of all assembly work. Add to your options without investing in a new power pack – be ready for tomorrow's challenges today

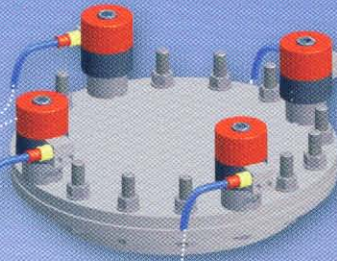
- Standard control system with forward/reverse
- Fully automated control to completion of tightening cycle
- Data input and output using compact hand unit
- Upgradable for torque/angle-controlled and yield-point-controlled tightening
- Synchronous control to drive multiple tools in parallel
- Data transfer and recording without tool-mounted sensors
- Diagnostics system to monitor power pack condition

*Ready for tomorrow's challenges today*

# IQ-VX Extensions

*PLARAD IQ-VX-power packs are an expandable modular system.*

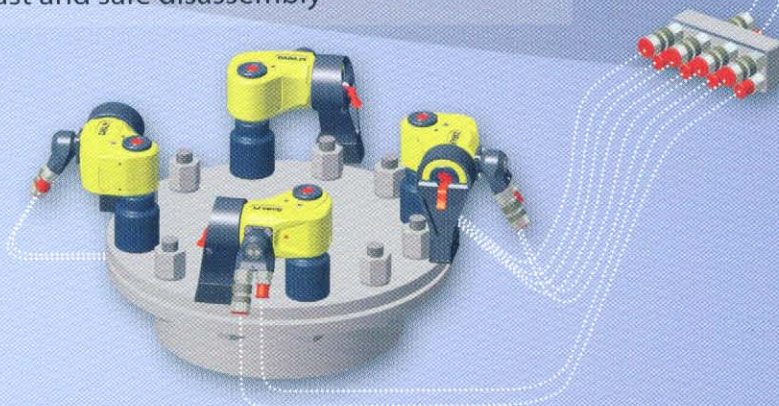
Applications that call for large volumes of oil or high pressures up to 2,000 bar are no problem. Expand your **PLARAD IQ-VX** or **IQ-VAX** powerpack for endless applications.



- **Extra oil tank** for when larger volumes of oil are needed
- **Pressure intensifiers** for working pressures from 300 to 2,000 bar
- **Manifold** for use with more than two bolting tools

The extensive **PLARAD** product range has the right hydraulic tool for every application

- **MXEC torque multipliers** for up to 65,000 Nm
- **SXEC flange bolting tools** up to A/F 185 bolts
- **Bolt tensioners** for torsion-free bolted joints
- **Lifting cylinders** for precise lifting of heavy parts
- **Nut splitters** for fast and safe disassembly
- **Flange spreaders** for fast and safe disassembly

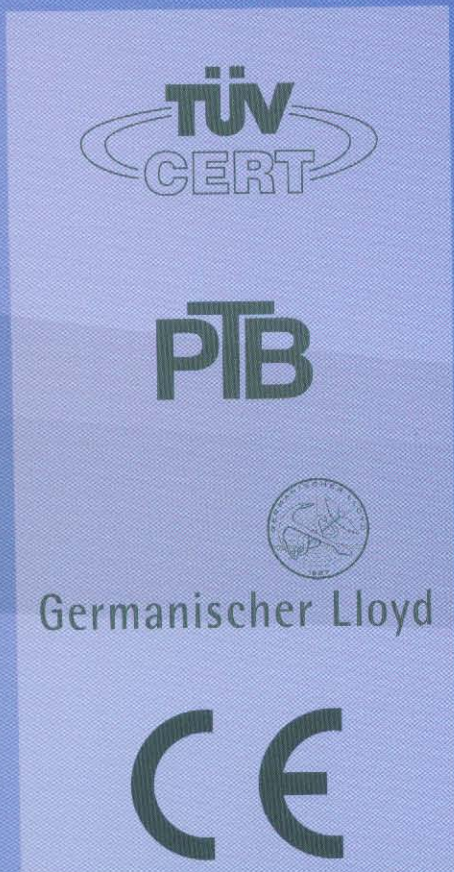
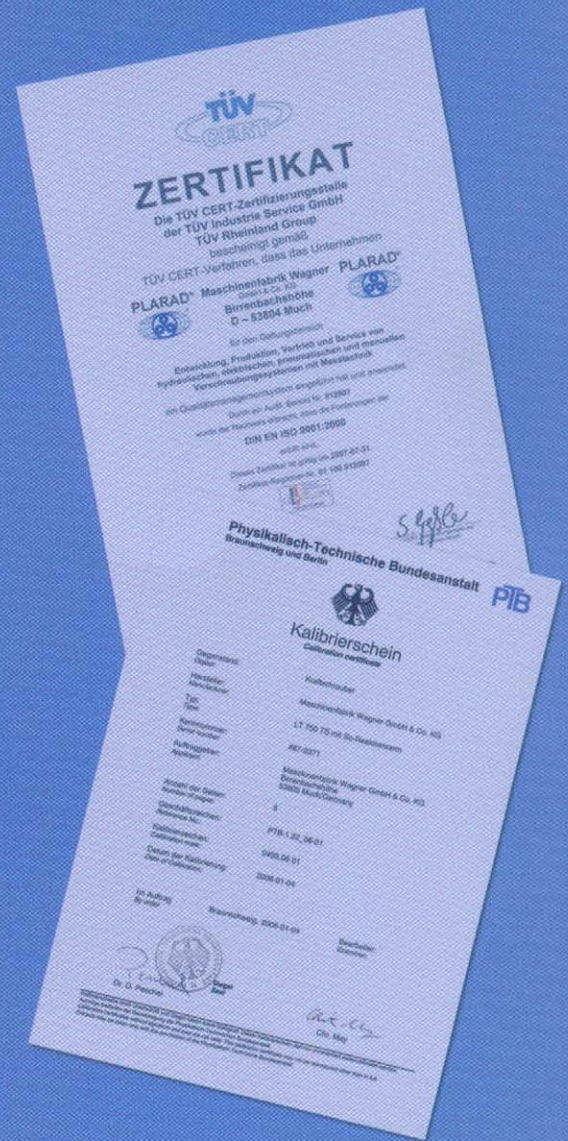




# Verified Quality for our Customers

Our working relationships are always founded on a top-quality product. Ongoing development and decades of experience keep us always a step ahead of the competition. In many cases, our expertise is verified with internationally recognized certification.

Among other things, this includes **DIN ISO 9001:2000** certification of systematic quality management.



The acclaimed **German National Metrology Institute (PTB)** provides us with support in product and acceptance testing.

The global certifier **Germanischer Lloyd** supports us in certification.

# POWER!

made easy.

The new MXEC/MSX hydraulic socket tools:

The benchmark for productivity, safety and precision!



**PLARAD**<sup>®</sup>  
Torque & Tension Systems



# MIX EC / MSX

## Hydraulic Socket Tools



The Plarad **Safety Hold system** with angle indicator for a secure hold in any working position (optional accessories).



The innovative Plarad **safety latch** reliably prevents the reaction arm from unintentionally coming free.



360° rotating **twin hose hydraulic connection** with safety valve, prevents hoses being incorrectly connected.

# NOW YOU'RE TORQUING

**Data**  
(selection)

This universal hydraulic turbo bolting system will secure practically anything – including your competitive edge. As **PLARAD MXEC/MSX** is a powerful package: A precision machine that clamps down on price and delivers on performance.

Whether your business is chemicals, energy or steel, whether you need 210 or 65,000 Nm of torque or a single-hose or twin-hose tool, **MXEC/MSX** is the great all-rounder.

With a winning combination of speed, ergonomics and safety, these tools set high standards of quality day in, day out. They excel in virtually any bolting situation, cutting out high service costs and saving valuable time.

Model	Square adapter	Torque range (Nm)
MX-EC 20 TS	1" (3/4)"	210 – 2,100
MX-EC 45 TS	1"	450 – 4,500
MX-EC 75 TS	1½"	750 – 7,500
MX-EC 95 TS	1½"	950 – 9,500
MX-EC 120 TS	1½"	1,200 – 12,000
MX-EC 155 TS	1½"	1,550 – 15,500
MSX 250 TS	2½"	2,500 – 25,000
MSX 400 TS	2½"	4,000 – 40,000
MSX 650 TS	3½"	6,500 – 65,000

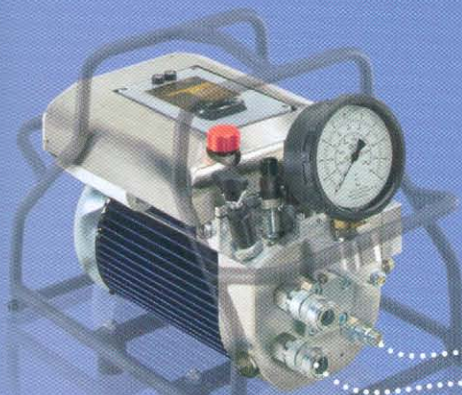
Errors and omissions excepted. Subject to change without notice.

## PROFIT MAXIMIZER

The extendable modular system ensures that there is always a tool ideally suited for your application. **MXEC/MSX**: The right tool for the job, any time. Deploy together with our powerful high-speed **VX** and **VAX** power packs to maximize your return on investment. The **VAX Synchro** system enables fully automated control of multiple bolting tools for perfect, even joint assembly.

Your benefits from perfectly matched technology:

- Maximum assembly speed any time.
- Material and tool wear is kept to a minimum.
- Quickly applies a precisely specified torque to every fastener.
- Tools and power packs are already perfectly synchronized without prior calibration.



**PLARAD VX / VAX**  
hydraulic power pack



**PLARAD X2P**  
pneumatic power pack

*Tomorrow's technology that pays today*

# PERFORMANCE!

made compact.

The new FSX slimline hydraulic torque tools:

The benchmark for productivity, safety and precision!



**PLARAD**<sup>®</sup>  
Torque & Tension Systems



# FSX

## Slimline Hydraulic Torque Tools



The Plarad **Safety Hold system** with angle indicator for a secure hold in any working position (optional accessories).



360° rotating **twin hose hydraulic connection** with safety valve, prevents hoses being incorrectly connected.



The **Drive unit** with patented spherical bearing piston system.

## SPACE SAVER

**Data**  
(selection)

This flexible hydraulic torque tool is hugely versatile thanks to its low-profile design and really comes into its own in tight and inaccessible spaces. With its superior working speed and outstanding ease of use, it also clamps down on job times and operating costs.

Whether your business is machinery, wind turbines or natural gas, whether you need 250 or 45,000 Nm of torque, and whatever the bolt size – **PLARAD FSX** is the ideal tool for the most challenging bolting applications. Combining an affordable price with frugal servicing needs and future-proof technology, this tool is a smart investment.

Drive unit	Ratchet head (A/F range)	Torque range (Nm)
SX-EC 1 MF	27 – 41	100 – 1,000
SX-EC 2 TS	20 – 60	250 – 2,500
SX-EC 5 TS	27 – 80	500 – 5,500
SX-EC 12 TS	50 – 120	1,200 – 12,000
SX-EC 20 TS	55 – 130	2,000 – 20,000
SX 30 TST	115 – 130	3,000 – 30,000
SX 45 TST	120 – 155	4,500 – 45,000

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## PROFIT MAXIMIZER

The extendable modular system ensures that there is always a tool ideally suited for your application.

**FSX**: The right tool for the job, any time.

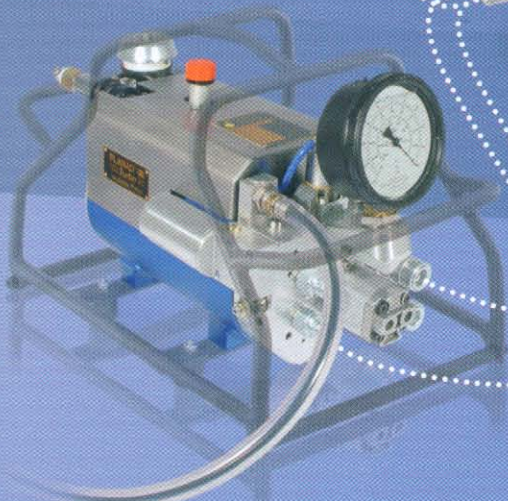
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- Material and tool wear is kept to a minimum.
- Quickly applies a precisely specified torque to every fastener.
- Tools and power packs are already perfectly synchronized without prior calibration.



**PLARAD VX / VAX**  
hydraulic power pack



**PLARAD XP**  
pneumatic power pack



**Tomorrow's technology that pays today**

# TORQUE!

## made flexible.

The new DEM / DEA electric nutrunners:

The benchmark for productivity, safety and precision!



**PLARAD**<sup>®</sup>  
Torque & Tension Systems





# DEM/DEA

## Electric Nutrunner

Cost-saving turbo speed

Used in assembly, maintenance and mass production

Industrial grip and casing

Multiposition electronic torque selector

Vibration-free and low-noise

360° rotating handle



Plarad DE with **angle drive**: High performance and ingenious design for hard-to-access bolting tasks.



The **offset gear** for Plarad DE boosts the versatility of your torque tool many times over. (optional accessories)



The optional **extension** for Plarad DE makes light work of awkward corners.

# HEAD TURNER

**Data**  
(selection)

**PLARAD** has further refined its electric torque tool technology to create a new generation of outstandingly engineered products: The two-speed manual gearchange **PLARAD DEM** and the automatic gearbox **PLARAD DEA** – with unprecedented cost efficiency.

Depending on the bolting task, these high-speed torque tools can deliver time savings of up to 70 percent thanks to their turbo technology.

Their low-vibration technology is easy on the user's muscles and joints and is effective at preventing the occurrence of hand-arm vibration syndrome (HAVS).

All this combined with their extreme light weight, proven ergonomic profile and high accuracy add up to an outstanding investment – and a key asset in your machine inventory.

The extendable modular system ensures that there is always a tool ideally suited for your application. **DEM and DEA:** The right tool for the job, every time.

Model	Weight	Torque range (Nm)
DEM 08 TLX	6.3 kg	100 – 825
DEM 12 TLX	6.3 kg	200 – 1,220
DEM 17 TLX	6.9 kg	250 – 1,750
DEM 28 TLX	8.9 kg	500 – 2,850
DEM 47 TLX	9.5 kg	800 – 4,700
DEM 65 TLX	13.9 kg	1,200 – 6,500
DEA 08 TLX	6.8 kg	250 – 825
DEA 12 TLX	6.9 kg	300 – 1,220
DEA 17 TLX	7.9 kg	450 – 1,750
DEA 28 TLX	9.7 kg	800 – 2,850
DEA 47 TLX	10.4 kg	1,500 – 4,700
DEA 65 TLX	14.9 kg	1,800 – 6,500

Errors and omissions excepted. Subject to change without notice.



DEA 65 TLX  
in manufacture



DEA 17 TLX in  
on-site assembly

*Tomorrow's technology that pays today*

# MORE POWER, LESS RISK

**Data**  
(selection)

This pneumatically driven nutrunner is another outstandingly engineered new product from **PLARAD**. With the two-speed manual gearchange **PLARAD DPM** and the automatic gearbox **PLARAD DPA**, you can unleash all the torque you need without plugging in to electric power – and with unprecedented cost efficiency.

Thanks to their turbo technology, these high-speed nutrunner can deliver time savings of up to 70 percent depending on the bolting task.

Their low-vibration technology is easy on the user's muscles and joints and is effective at preventing the occurrence of hand-arm vibration syndrome (HAVS).

Their extreme light weight, proven ergonomic profile and high accuracy add up to an outstanding investment.

**PLARAD DPA/DPM** is the ideal choice of tool wherever electric power is lacking or a hazard to use.

Model	Weight	Torque range (Nm)
DPM 08 TLX	5.2 kg	60 – 825
DPM 12 TLX	5.7 kg	80 – 1,220
DPM 17 TLX	6.5 kg	110 – 1,750
DPM 28 TLX	7.7 kg	150 – 2,850
DPM 47 TLX	8.5 kg	220 – 4,700
DPM 65 TLX	13.0 kg	300 – 6,500
DPA 08 TLX	5.9 kg	120 – 825
DPA 12 TLX	6.1 kg	270 – 1,220
DPA 17 TLX	7.0 kg	300 – 1,750
DPA 28 TLX	8.6 kg	600 – 2,850
DPA 47 TLX	9.3 kg	1,100 – 4,700
DPA 65 TLX	13.8 kg	1,300 – 6,500

Errors and omissions excepted. Subject to change without notice.



DPM in  
flange assembly



DPA in truck  
maintenance

**Tomorrow's technology that pays today**

# MUSCLE!

**made safe.**

The new DPM / DPA pneumatic nutrunners:

The benchmark for productivity, safety and precision!



**PLARAD**<sup>®</sup>  
Torque & Tension Systems



# DPM/DPA

## Pneumatic Nutrunner

Cost-saving turbo speed

For high-risk environments in any industry

Industrial grip and casing

Shock-free and low-noise

360° rotating handle

Pneumatic valve for fine adjustment



PLARAD DP with **angle drive**: High performance and ingenious design for hard-to-access bolting tasks.



The **offset gear** for PLARAD DP boosts the versatility of your torque tool many times over (optional accessories).



The optional **extension** for PLARAD DP makes light work of awkward corners.

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DPA 17 TLX	7.0 kg	300 – 1,750
DPA 28 TLX	8.6 kg	600 – 2,850
DPA 47 TLX	9.3 kg	1,100 – 4,700
DPA 65 TLX	13.8 kg	1,300 – 6,500

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*DPM in  
flange assembly*



*DP in truck  
maintenance*

**Tomorrow's technology that pays today**