



*Electro-mechanical drive solutions
for industrial applications*

INNOVATION BUILT ON EXPERIENCE

More than a century of manufacturing innovation and continuous product improvement lies behind Tornado's position today as a leading provider of innovative and high quality electro-mechanical drive solutions for industrial applications.



Specialist in gearboxes and geared motors

Our expertise has been gained through years of meeting the technical and service expectations of many OEMs with multiple applications:

- we are a leading player in the supply of drive systems for the accessibility and mobility lift industry, typically including stairlift, platform and service lifts.
- in the industrial doors market, we deliver electro-mechanical solutions, known as direct drives.
- we also serve the stage machinery and special-purpose industry markets (cranes, storage, printing, textile...).

Tornado has established a reputation for being the specialist for industrial geared motors from 0,12 kW to 7,5 kW and with torque ranging from 30 Nm to 1.500 Nm.

With a strong customer base in Europe and North America, Tornado's current production capacity exceeds 200.000 units per annum. Our capability is enhanced by a high degree of vertical integration of design, manufacturing (machining, grinding, milling, turning, gear-tooth forming) and final assembly, in production space of over 11.000 m².

Delivering trusted product solutions

We continuously improve our product design, systems and manufacturing techniques, and customers today benefit from our on-going priority to deliver versatility, speed, precision and quality.

"They more than deliver on their promise when it comes to design, manufacture and performance"

Stairlift Manufacturer

CONSULT

FORWARD-LOOKING FOR OUR CUSTOMERS' SUCCESS



Integrated Management System (IMS)

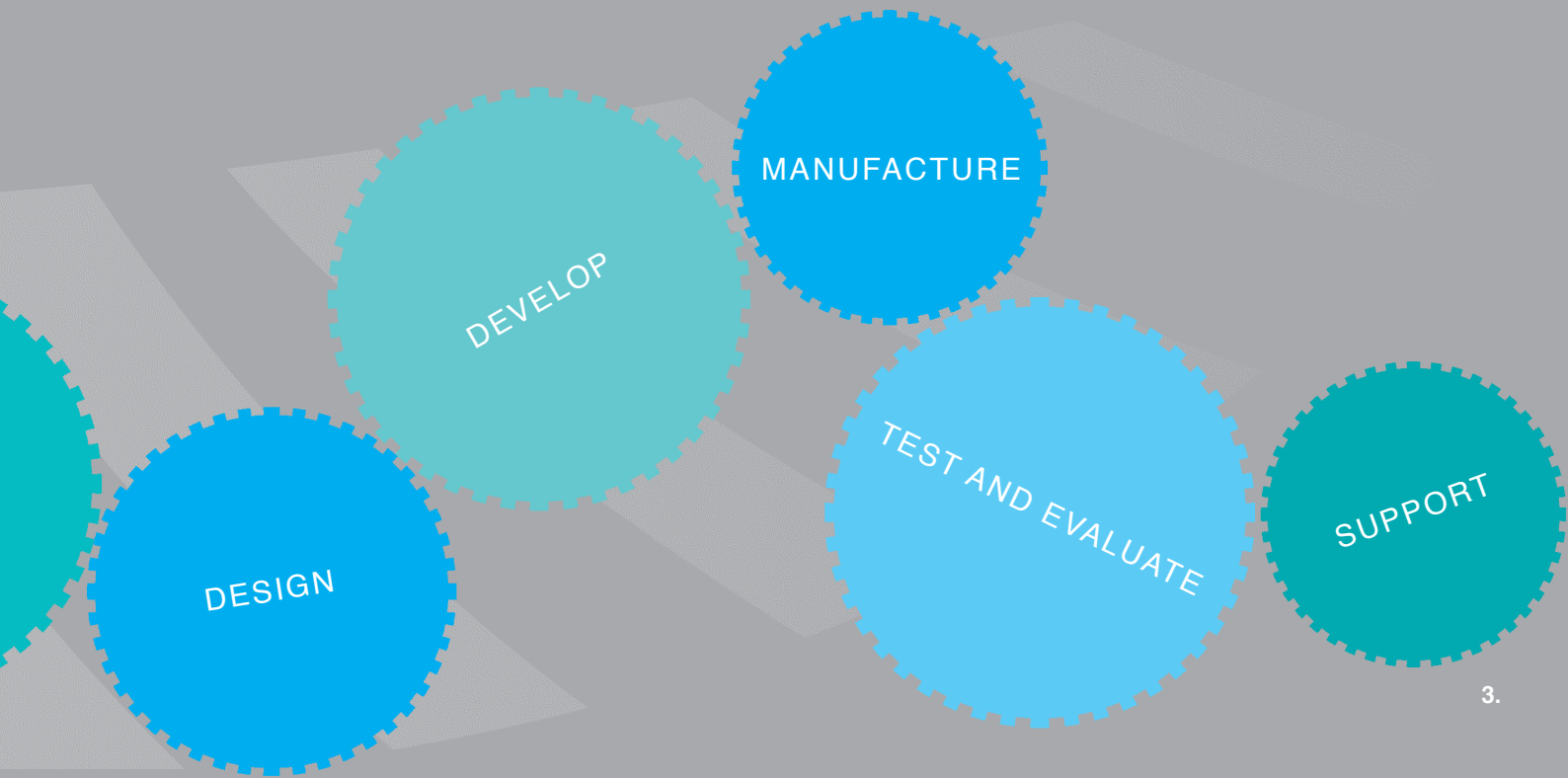
All Tornado products are manufactured and assembled in Germany, with development, production, sales and distribution based at our modern facility in Berlin.

Tornado's IMS coordinates precisely the processing chain, contributing to a rigorous quality control and enabling our responsiveness to meet customers' evolving needs. Our total commitment to quality is recognised in our ISO 9001, ISO 14001 and ISO 18001 certifications.

A shared commitment to customer service

Tornado's highly qualified and skilled workforce – our greatest asset – is committed to finding the best solutions for our customers, and is key to our success.

Technical expertise and mature experience combine with the creativity and fresh thinking of our junior staff. We facilitate this and invest in the ongoing development of core competencies and skills – benefiting us and our customers, now and in the future.



DRIVES FOR INDUSTRIAL APPLICATIONS

Tornado uses its broad market knowledge to meet customers' specific needs.



Accessibility and mobility lifts

Tornado's geared motor technology is integral to stairlifts – for both straight and curved stairs – and platform lifts. Supplied to leading companies, these are developed to individual customer specification. Good gear efficiency, silent operation and comfortable ride quality are standard features of Tornado's geared motors.

Goods and service lifts

Tornado has developed specialised drive solutions to power small goods and freight lifts of between 50 kg and 2.000 kg lifting capacity, distributing meals, files and medications in many types of public buildings and on board ships.

Industrial doors, shutters and gates

Tornado designs and manufactures direct drives dedicated for industrial sectional doors, shutters and heavy-duty sliding gates. Customers combine our standard drives solutions with door control and accessories on site to meet end users specifications.

Stage and studio equipment

Tornado manufactures high quality, low noise and safe gear solutions for the stage technology industry. Our solutions achieve maximum torques of up to 1.500 Nm for use in both the upper and lower machinery.

We also work closely with system integrators in the design and supply of dedicated gear solutions, typically including automated rigging, chain hoists and curtain systems.

Industrial and special purpose

Tornado has a proven track record of finding solutions for specialised needs when standard drives are not appropriate, in industries as diverse as textile machining, printing and solar energy.

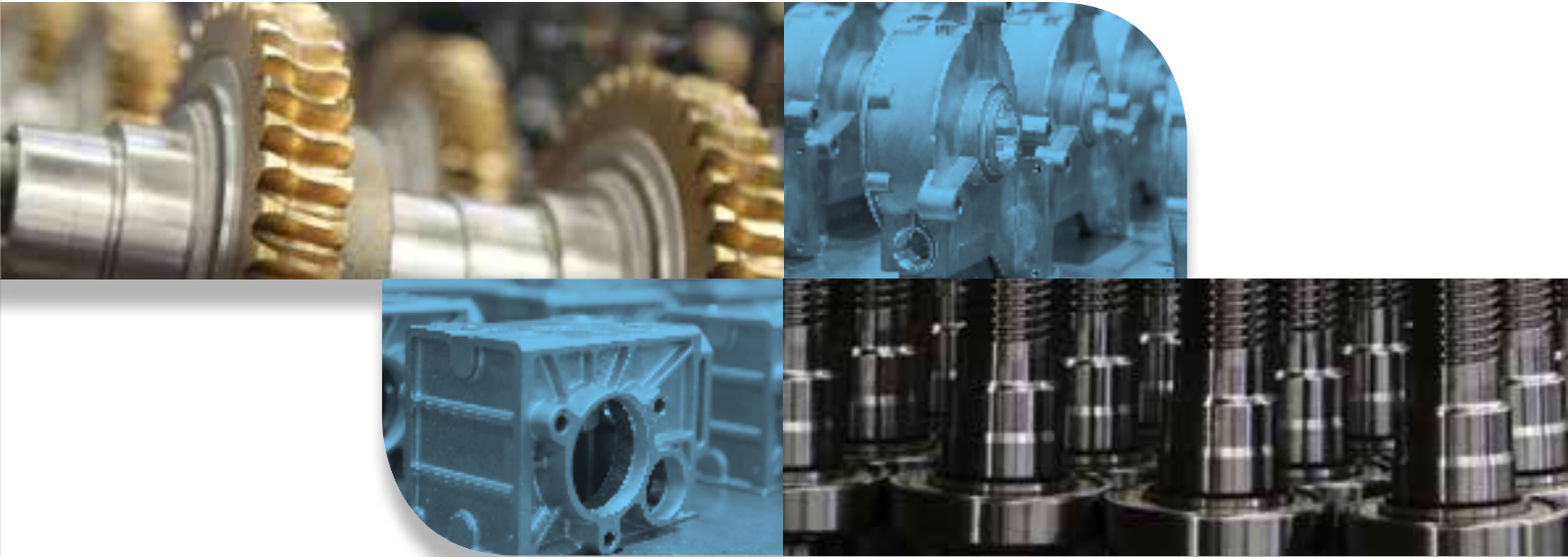
Our capability extends to the production of specialised gear components based on customer specifications, such as contract manufacturing.

“Tornado has helped us achieve the highest standards of reliability for our hoist solutions”

**Drives & Control Technology/
Stage Machinery Manufacturer**

PRODUCTS AND TECHNOLOGIES – STANDARD SOLUTIONS

Tornado's focus is on the design and manufacture of worm and helical gear drives and drives employing a combination of these technologies. Our strength lies in intelligently evaluating needs, defining best fit and implementing optimised solutions through multi-source partnerships.



Worm gear range (TD Series)



Applications

- Industrial doors, shutters and gates
- Stage and studio equipment
- Goods and service lifts

Features

- Torque range 30 Nm to 1.500 Nm
- Gear ratio up to 125
- Available with AC and DC motors

Benefits

- Compact and design flexibility
- Highly efficient and silent operation
- Wide choice of add-on features available

Helical gear range (TS Series)



Applications

- Material handling and storage systems
- Packaging, food and pharma industry
- Stage and studio equipment

Features

- Torque range 5 Nm to 180 Nm
- Gear ratio up to 126
- Available with AC and DC motors

Benefits

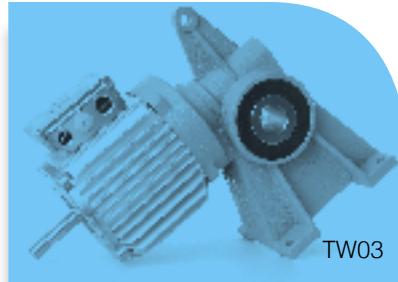
- Modular and square design
- High power density and silent operation
- Reduced total length and optimised weight

PRODUCTS AND TECHNOLOGIES – CUSTOMISED SOLUTIONS

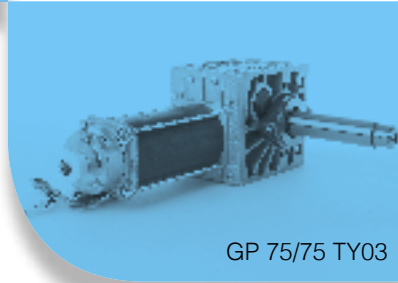
From design concept to delivery, Tornado also has the in-house capability to develop bespoke motor gearbox solutions tailored to customer specifications in diverse industrial applications – products that are efficient, durable, cost-effective and compliant with all applicable standards.



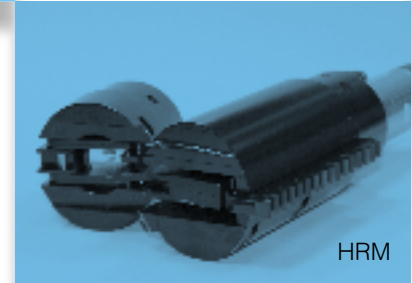
TS10.1AS



TW03



GP 75/75 TY03



HRM

Examples of customised gearboxes and geared motors



TS10.1AS

| | |
|----------------|------------------------------------|
| Type | Worm gear without AC motor |
| Motor power | Up to 5 kW |
| Gear ratio | 19,67 |
| Output speed | Dependent on motor |
| Nominal torque | 317 Nm |
| Options | Safety catch, double brake 2x16 Nm |
| Applications | Point hoist for theatres |



GP 75/75 TY03

| | |
|----------------|--------------------------------------|
| Type | Worm helical gear unit with DC motor |
| Motor power | 0,32 kW |
| Gear ratio | 74 |
| Output speed | 32 min ⁻¹ |
| Nominal torque | 60 Nm |
| Options | Pinion, hollow shaft |
| Applications | Stairlift, curved |



TW03

| | |
|----------------|-------------------------|
| Type | Worm gear with AC motor |
| Motor power | 0,75 kW |
| Gear ratio | 43 |
| Output speed | 32 min ⁻¹ |
| Nominal torque | 125 Nm |
| Applications | Goods and service lifts |



HRM

| | |
|----------------|---------------------------------------|
| Type | Special worm gear with DC motor |
| Motor power | 0,02 kW |
| Gear ratio | 1.348 |
| Output speed | 2,3 min ⁻¹ |
| Nominal torque | 30 Nm |
| Applications | Stairlift, drive for retractable rail |

A COMPREHENSIVE SERVICE OFFER

Building close working partnerships with our customers is central to the success of our fully integrated, quality- and service-driven offer.



Design and development

Customised design projects begin with our development team gaining a clear understanding of the specific application, progressing to state-of-the-art CAD modelling and rapid prototyping. Through a closed-loop feedback between Tornado departments, we adjust and optimise our solution before it is put into production.

Production

Using precisely engineered manufacturing processes, Tornado's technicians produce components of exceptional quality for the drives, and build the specialist equipment and tools needed for prefabrication and assembly.

Assembly

Tornado installs up to 600 drives daily. Whether for small batch or high volume production, customer orders can be fulfilled efficiently by our semi-automated assembly lines or dedicated manual assembly workstations.

Quality control

The safety, no-fail reliability and optimal performance of our drives are crucial – particularly when used in the most demanding operational conditions.

Tornado products come with the assurance of robust quality management throughout the entire development and manufacturing process, with thorough checks made of incoming components and at each stage of manufacture, to final inspection of all drives before leaving our factory.

Our testing capability is extensive and uses modern technology, including tests for leakage and on final assembly. Supplementary mechanical and electrical tests are available upon customer request.

“Tornado has played a vital role as manufacturing partner in our stairlifts solutions”

Stairlift Manufacturer



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