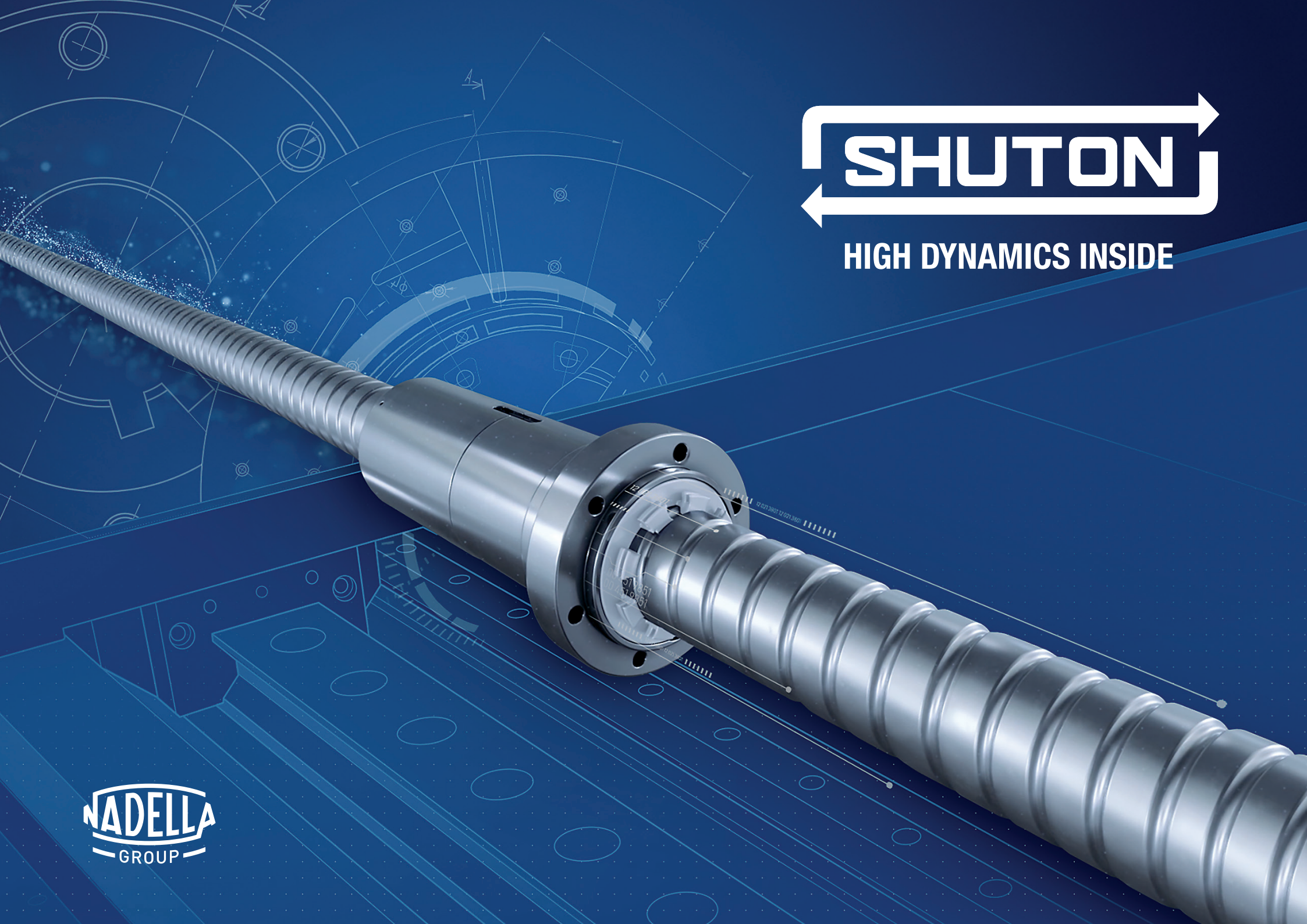
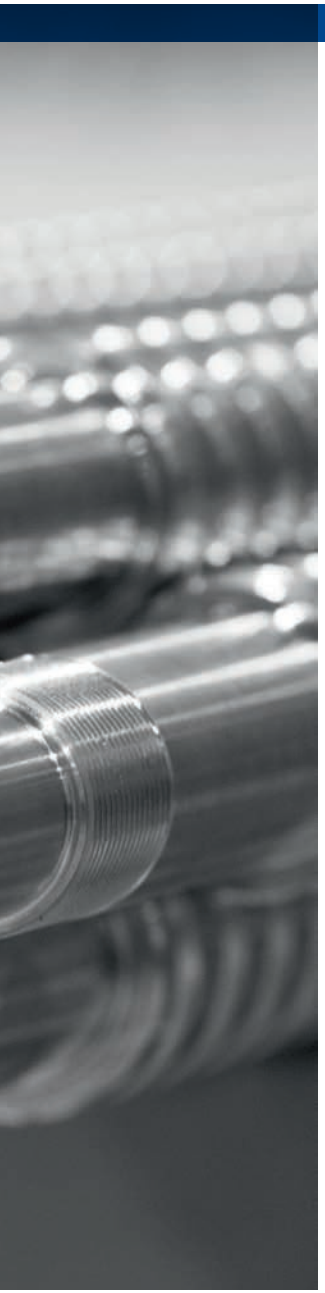

SHUTON
HIGH DYNAMICS INSIDE
NADELLA
GROUP

HIGH DYNAMICS INSIDE

Xtrem Dynamics redefines **SHUTON**'s philosophy in the search of technologies and materials with the aim of increasing the rigidity of the Ball screws, to improve the dynamics and therefore the efficiency of the machine, resulting in productivity for longer.



HIGHER PERFORMANCE

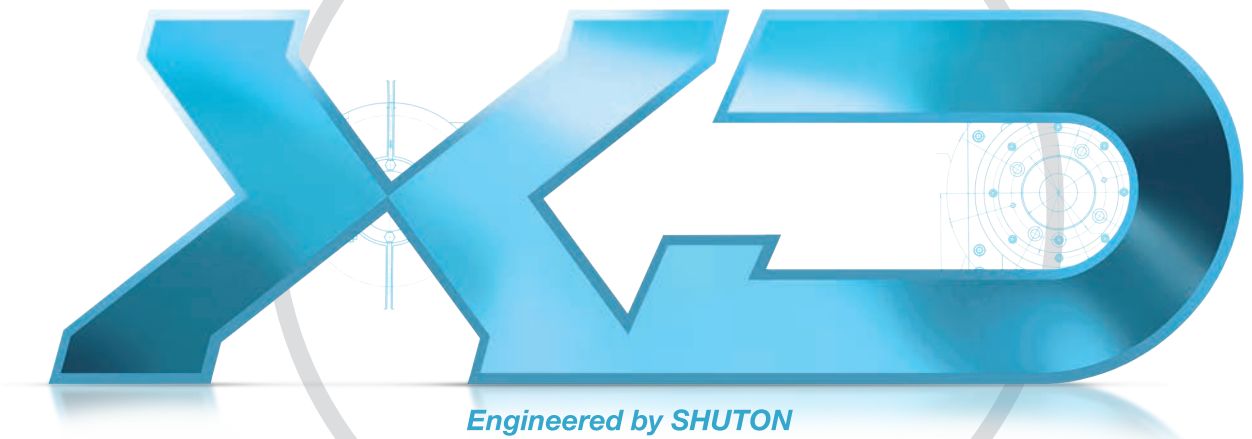
Improvement in ball screw acceleration and feed speeds for a better performance for longer duration in extreme applications.

HIGHER DYNAMICS

Improvement of accelerations and feed speeds of the drive, keeping optimum temperature and noise levels.

HIGHER RIGIDITY

Efficient rigidity oriented at enhancing the machining quality of the parts, optimizing the natural frequency of the system and improving motor parameters Kv and Kp, and the jerk.



INCREASED UPTIME

Improvement of ball screw life for increasing the machine uptime.

LESS MAINTENANCE

Improvement of ball screw performance and life for a reduction of life-cycle costing (LCC).

HIGHER DURABILITY

Parallel improvements in materials, treatment and manufacturing processes contribute to an additional increase of the ball screw life.

Major SHUTON markets in:

AMERICA

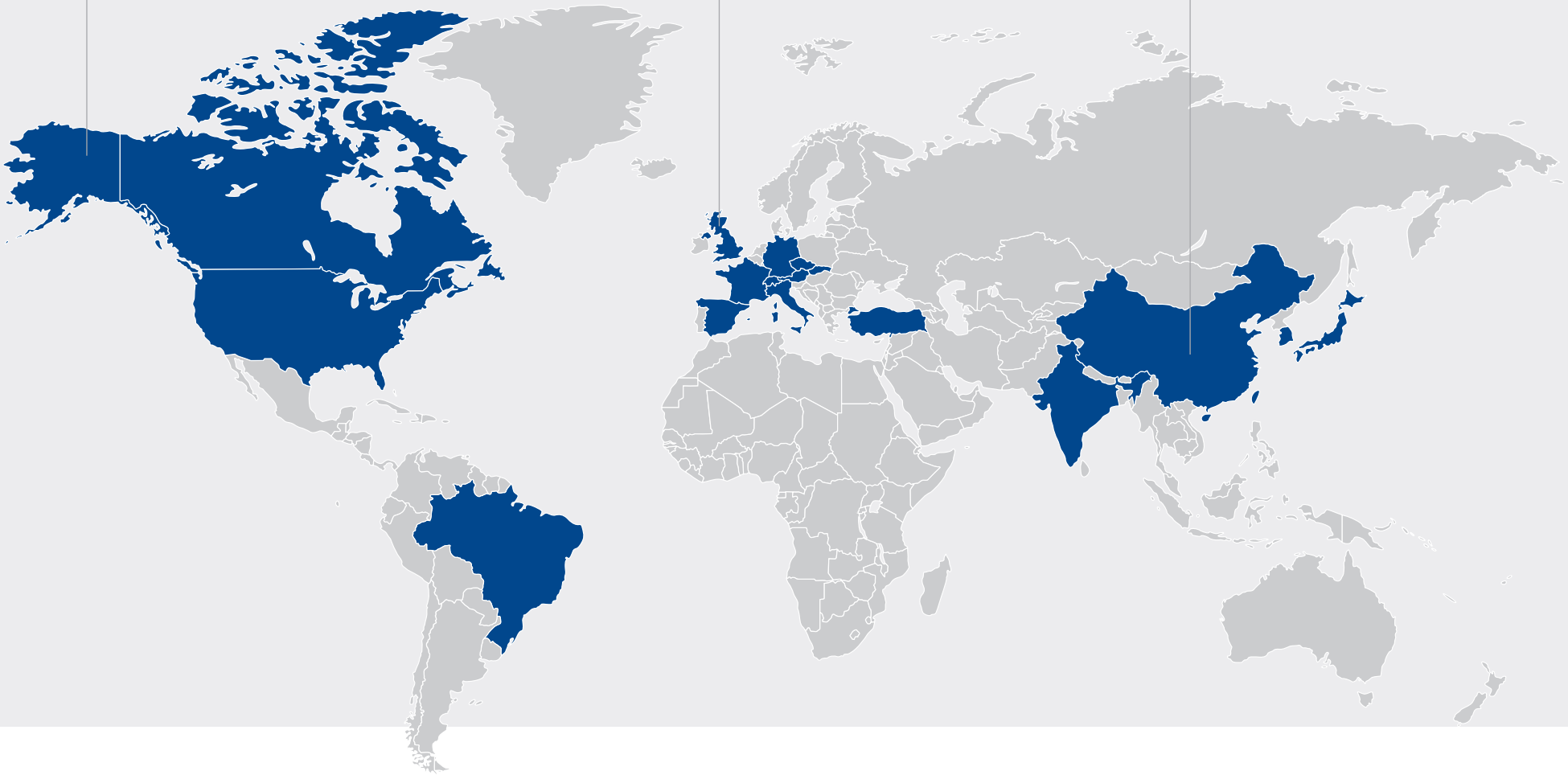
Brazil
Canada
United States

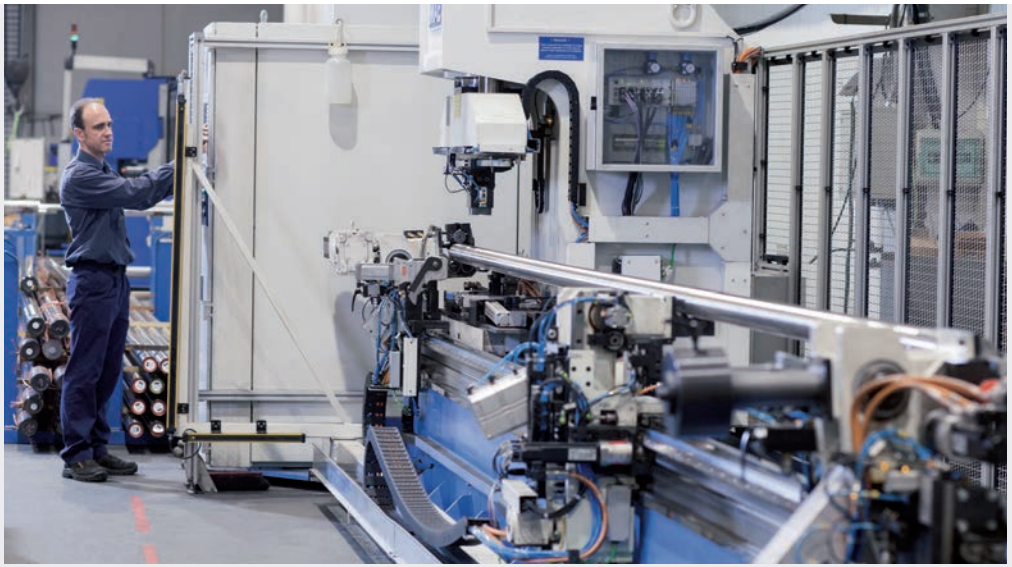
EUROPE

Austria
Czech Republic
France
Germany
Italy
Slovaquia
Spain
Switzerland
Turkey
United Kingdom

ASIA

China
India
Japan
South Korea





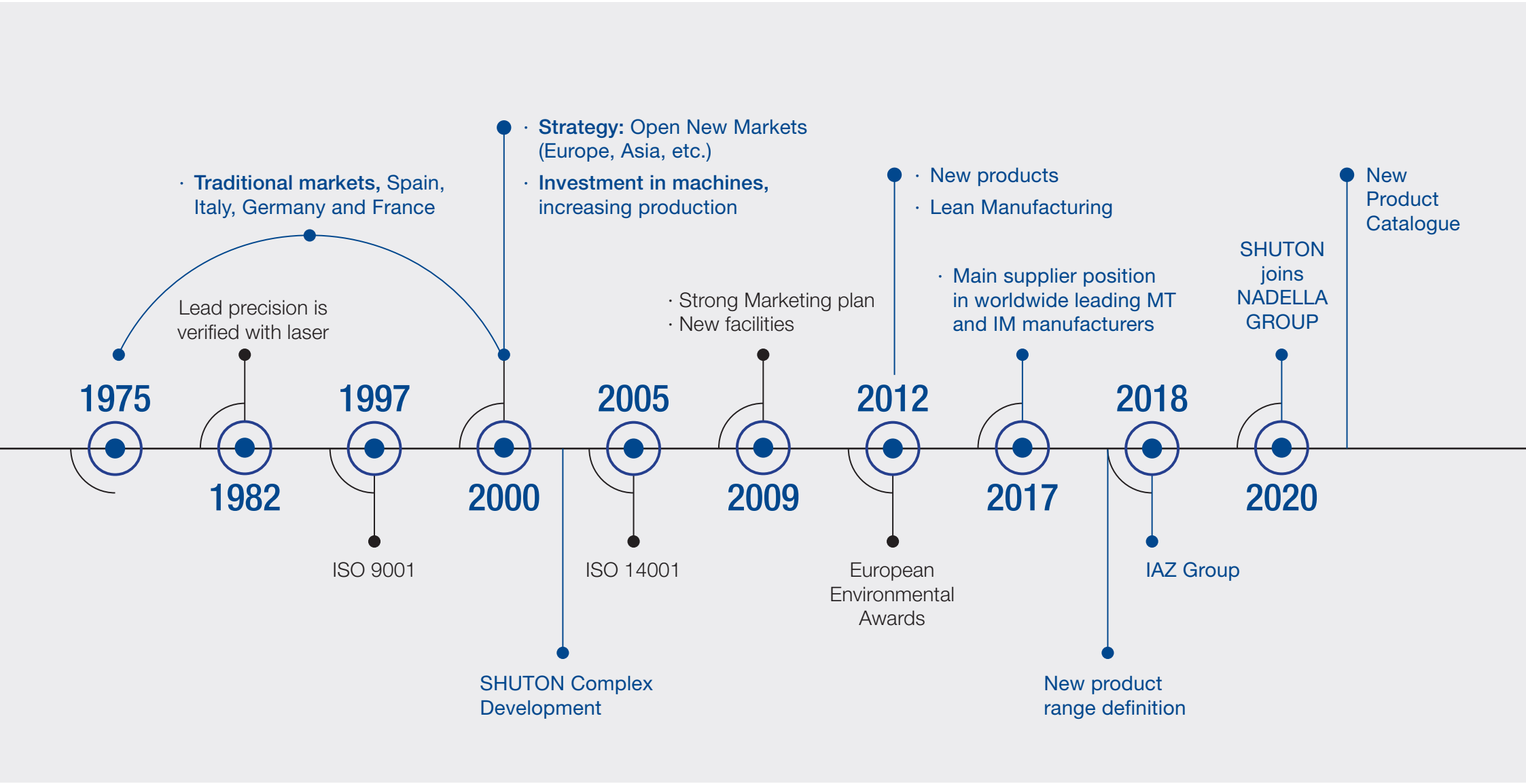
SHUTON is a leading company in the manufacture of high precision ball screws located in the Basque Country, central and leading area in the machine tool industry in the north of Spain and throughout Europe.

SHUTON has been a part of the Nadella Group since 2020, and with more than 45 years of experience in the development and manufacture of high precision ball screws, our presence in the most advanced machine construction markets, and our close relationship with leading manufacturers facilitates the optimization of our products in order to offer the most efficient results for the most demanding applications.

We are an active and experienced team, of innovative mentality and great capacity for growth and improvement, committed to offer the most innovative and appropriate products and services that best suit the needs of our customers.

Excellence is our key principle that leads us to be present today and in the future as key collaborators and best partners of our customers.

SHUTON
EVOLUTION


· Traditional markets, Spain, Italy, Germany and France
· Strategy: Open New Markets (Europe, Asia, etc.)
· Investment in machines, increasing production
· New products
· Lean Manufacturing
New Product Catalogue
SHUTON joins NADELLA GROUP
· Main supplier position in worldwide leading MT and IM manufacturers
· Strong Marketing plan
· New facilities
Lead precision is verified with laser
1975
1982
1997
2000
2005
2009
2012
2017
2018
2020
ISO 9001
SHUTON Complex Development
ISO 14001
European Environmental Awards
New product range definition
IAZ Group

CONTINUOS TECHNOLOGY
DEVELOPMENT

High response capacity

One of key principles of Shuton is to become the “Best Partner” of our customers. We work to respond to the needs that our customers may have in all aspects of engineering, supply and customer support. This is backed by an advanced management system and bold company values such as communication, formation, commitment, participation and professional ethics, resulting in a highly involved and committed team.

Applied engineering

Our innovative mentality and the continuous search to improve results and respond to new needs have led us to develop new technologies that make SHUTON precision ball screws the most competitive. This is how SHUTON COMPLEX, SHUTON HIGH LOADS, SHUTON PRIME and SHUTON ATR ball screw ranges were developed, as well as the solutions adapted to the specific needs of our customers.

Reliability

The high performance offered by SHUTON products has its guarantee of reliability, which is verified by internal and external technology homologation processes, study of materials and treatments, continuous update and improvement of the manufacturing and control systems, product traceability and unitary verification.

High performance

SHUTON main objective is to offer our customers the ball screw that will offer the best performance. Knowledge of customer requirements, strong ball screw technology development and innovation program and a detailed study of each ball screw application are the key aspects for getting the best of each ball screw design.

Engineered by SHUTON

SHUTON COMPLEX

High precision ball screws for high dynamics machine tools with efficient rigidity requirements and extreme duty cycles. Oriented to improve machining times in productively demanding sectors such as automotive, aeronautics, die mold processing machines,etc.

In line with this Xtrem Dynamics philosophy and with the aim of obtaining the best results in the most demanding applications, SHUTON has developed different technologies adapted to the different application areas:

SHUTON HIGH LOADS

High dynamics and high load ball screws for injection molding machines, presses and other heavy duty applications operated by electric servo drive in extreme conditions.

SHUTON PRIME

Fine-lead high precision ball screws for precise positioning and average dynamics demand applications, such as grinding machines and EDM machines that ensure smooth rotation in short strokes.

SHUTON ATR

High efficiency precision ball screws for pick and place applications, factory automation, actuators and other transport applications.

SHUTON COMPLEX

SHUTON COMPLEX ball screws have been designed for applications with requirements of accurate positioning, high speeds and high loads, such as high speed, 5 axis machining centres, large sized machining centres and combined machine tools, die mold processing machines, aeronautics and automotive work pieces and other applications with highly demanding conditions.

Picture Source: Starrag AG

Main features:

- Efficient Rigidity, highest rigidity with the lowest preload/temperature.
- Higher dynamics, the greater rigidity allows greater accelerations and jerks, thus achieving a more dynamic machine. DN values of up to 210.000.
- Elimination of the chatter effect and the inversion error, avoiding the “lost motion moment” effect, obtaining improved ball bar test results, and therefore considerably improving the surface finish of the work piece, especially in 5-axis machines with challenging machining operations.
- Increase of the dynamic and static load capacities of the ball screw, attaining a very high durability with greater fatigue life and capacity to work under the most extreme conditions.
- A very high efficiency in low distance forward and backward machining with minimum torque variation.
- Very low torque variation along the shaft, offering a very smooth rotation and reduced noise levels.

Nut detail:

COMPLEX TD preloaded double nut (with 1 or 2 starts) or COMPLEX TUC Ultracompact nut (2 starts), with ball recirculation by U-type or B-type recirculation system.

Preload	Nut type	Recirc.	Diameter	Lead	Ball size	Application
YES	TD Double Nut (1 start)	U	25-120	10-80	5-12	High dynamic applications, Average load requirement
		B	50-160	12,7-25	9-19	High dynamic applications, Higher load requirement
	TD Double Nut (2 start)	U	32-120	20-80	6-12	High dynamic applications, Higher load requirement, without nut length limitation
		B	63-140	25-32	9-12	High dynamic applications, Extra high load requirement, without nut length limitation
	TUC Ultracompact Nut (2start)	U	32-100	20-80	6-9	High dynamic applications, high load requirement, with nut length limitation
		B	63-100	25	9	High dynamic applications, Extra high load requirement, with nut length limitation

SHUTON PRIME

Main features:

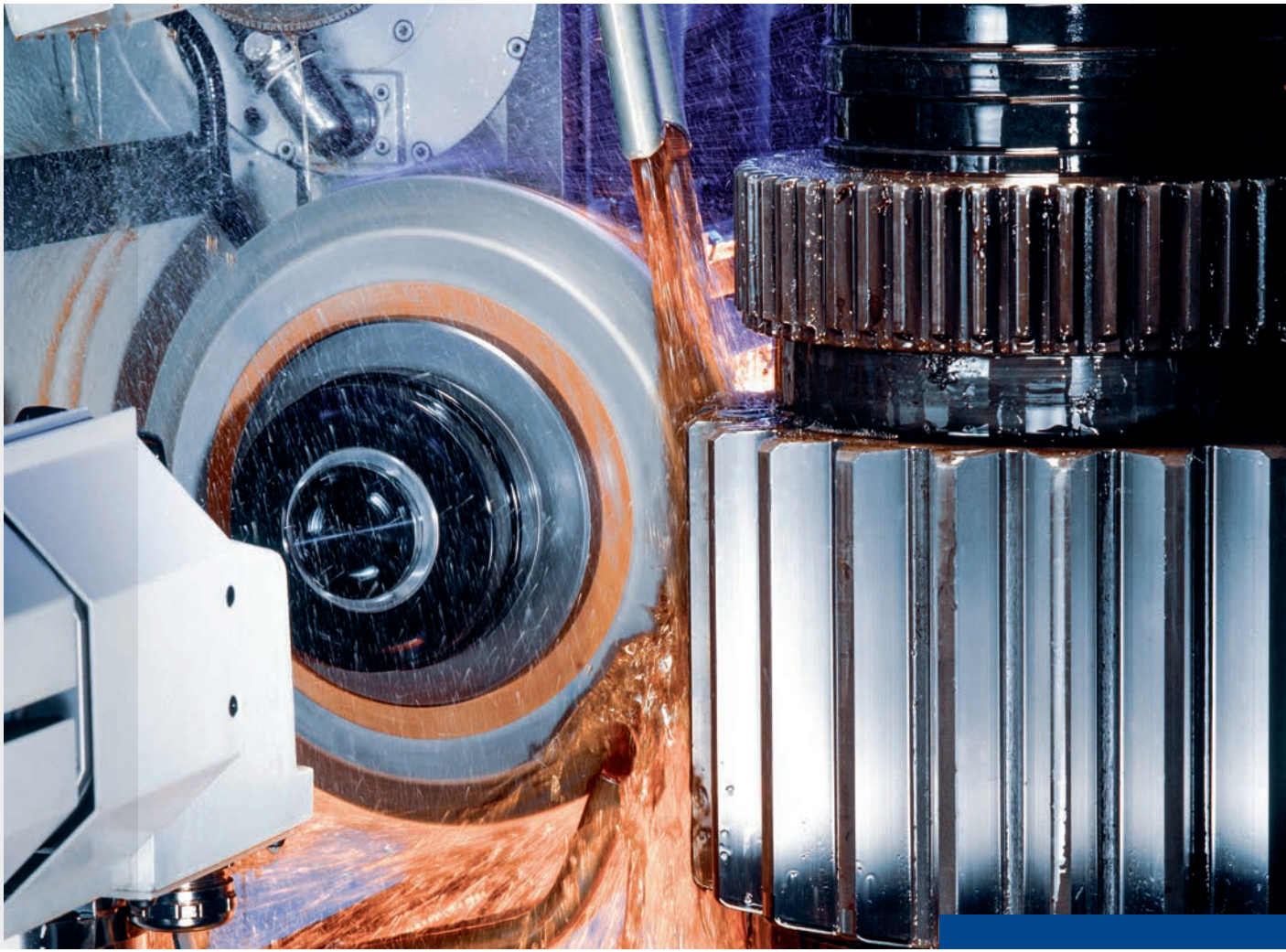
- SHUTON PRIME ball screws are used in applications in which the load and the speed requirements are not as demanding as in COMPLEX ball screws.
- Maximum DN of 100.000, low speed and short lead applications
- Accurate results in positioning
- Very smooth rotation in short strokes.
- Best performance along the life cycle of the ball screw.

Nut detail:

PRIME TD Preloaded Double nut or PRIME TC Preloaded Compact nut, with ball recirculation by S-type recirculation system.

Preload	Nut type	Recirc.	Diameter	Lead	Ball size	Application
YES	TC Compact Nut (1 start)	S	20-100	5-20	3-9	General Machine tool application, with short nut length. Improved T9
	TD Double Nut (1 start)					General Machine tool application. Possibility of greater circuit quantity

The PRIME ball screw range are fine-lead high precision ball screws for precise positioning and average dynamics demand applications, such as grinding machines and EDM machines that ensure smooth rotation in short strokes.



SHUTON

HIGH LOADS

The SHUTON HIGH LOAD ball screw range are high dynamic and high load ball screws for injection molding machines, presses and other heavy duty applications operated by electric servodrives which may reach extreme working condition requirements.

Picture Source: KraussMaffei

Main features:

- Top results with high durability and reliability.
- Especially high values of dynamic and static load capacity, as well as high values of maximum permissible loads.
- Very smooth rotation ensuring uniform ball circulation, avoiding any crashes between balls and resulting in very low noise levels and enabling the use of higher feed speed values, thus reaching DN values up to 170.000.
- Accuracy grade and axial play.
  - H 0.020 mm or less.
  - A 0.040 mm or less.
- Depending on the application requirement of load capacity and speed, and in order to obtain the optimum life results in each case, SHUTON has developed three different types of HIGH LOAD ball screws:
  - HIGH LOAD IML Specially designed for HIGH LOAD and high speed applications, DN up to 170.000.
  - HIGH LOAD HDL Specially designed for very HIGH LOAD and moderate speed applications, DN up to 110.000.
  - HIGH LOAD PKL Specially designed for applications with momentary extreme peak loads.
- Optimized ball screw design by study of:
  - Type of HIGH LOAD design.
  - Shaft and nut thread geometry.
  - Ball circuit distribution and position.
  - Number of thread starts.
  - Load distribution in HIGH LOAD ball screws
  - Tying method
  - Lubrication

Nut detail:

HIGH LOADS TS single nut (with 1 or 2 starts), with ball recirculation by U-type or B-type recirculation system.

Preload	Nut type		Recirc.	Starts	Diameter	Lead	Ball size	Application
NO	TS Single nut	HDL	U	1s	80-120	20-50	12	Very high load and moderate rotation speed applications, DN up to 140.000.
			B	1s	63-160	16-32	12-25	Very high load and moderate rotation speed applications, DN up to 110.000.
				2s	63-140	32-50	12-19	Very high load & high lienar speed DN up to 110000
		IML	U	1s	80-120	20-50	12	High load and very high rotation speed applications, DN up to 210.000.
			B	1s	50-160	12,7-25	9-19	High load and high rotation speed applications, DN up to 170.000
				2s	63-140	25-50	9-19	High load and very high linear speed applications, DN up to 170.000
		PKL	B	1s	63-160	20-32	15-25	Momentary especially extreme peak loads. DN up to 170.000

SHUTON

ATR

ATR ball screws are high efficiency precision ball screws for pick and place applications, factory automation, actuators and other transport applications.

Main features:

- High precision ball screws, assembled with non-preloaded single nuts
- Cost-effective alternative to pneumatic and hydraulic actuators.
- Best performance throughout the life cycle of the ball screw.

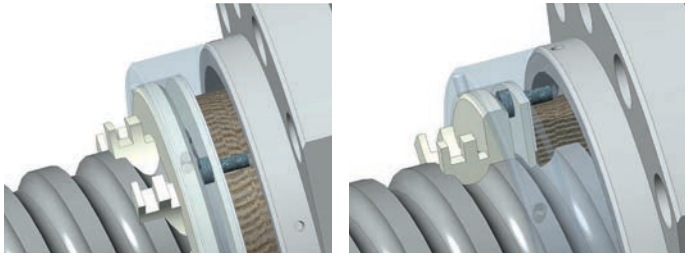
Nut detail:

ATR TS Single nut, with ball recirculation by S-type or U-type recirculation system.

Preload	Nut type	Recirc.	Diameter	Lead	Ball size	Application
NO	TS Single Nut	S	20-100	5-20	3-9	General transportation application
		U	25-100	10-80	5-11	General transportation application, higher speed and load requirement

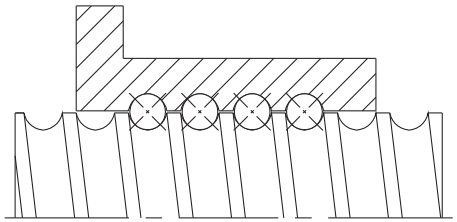
CUSTOMISED
SOLUTIONS

Asymmetric nut

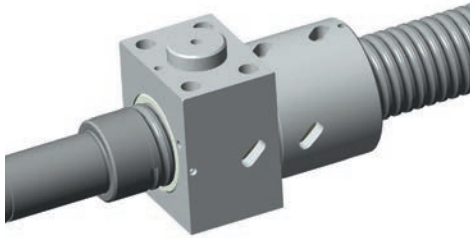


Special wipers

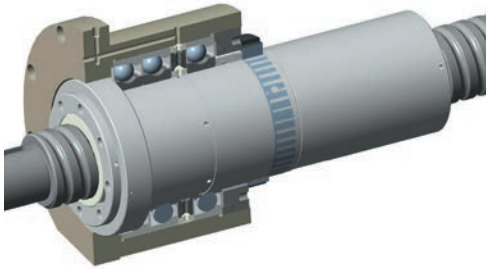
Ceramic balls



Single nut with preload



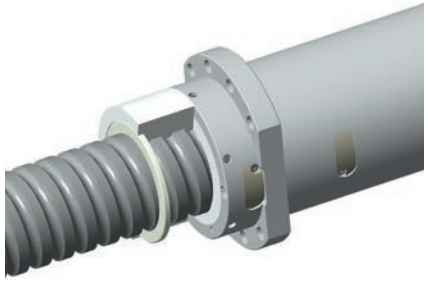
Special nuts



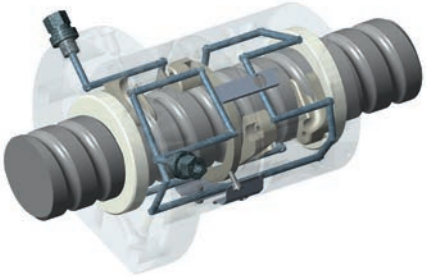
Rotary nut system

Special spindle end machining

Refrigerated shaft



Safety nut



Refrigerated nut

Coating

Special heat treatments

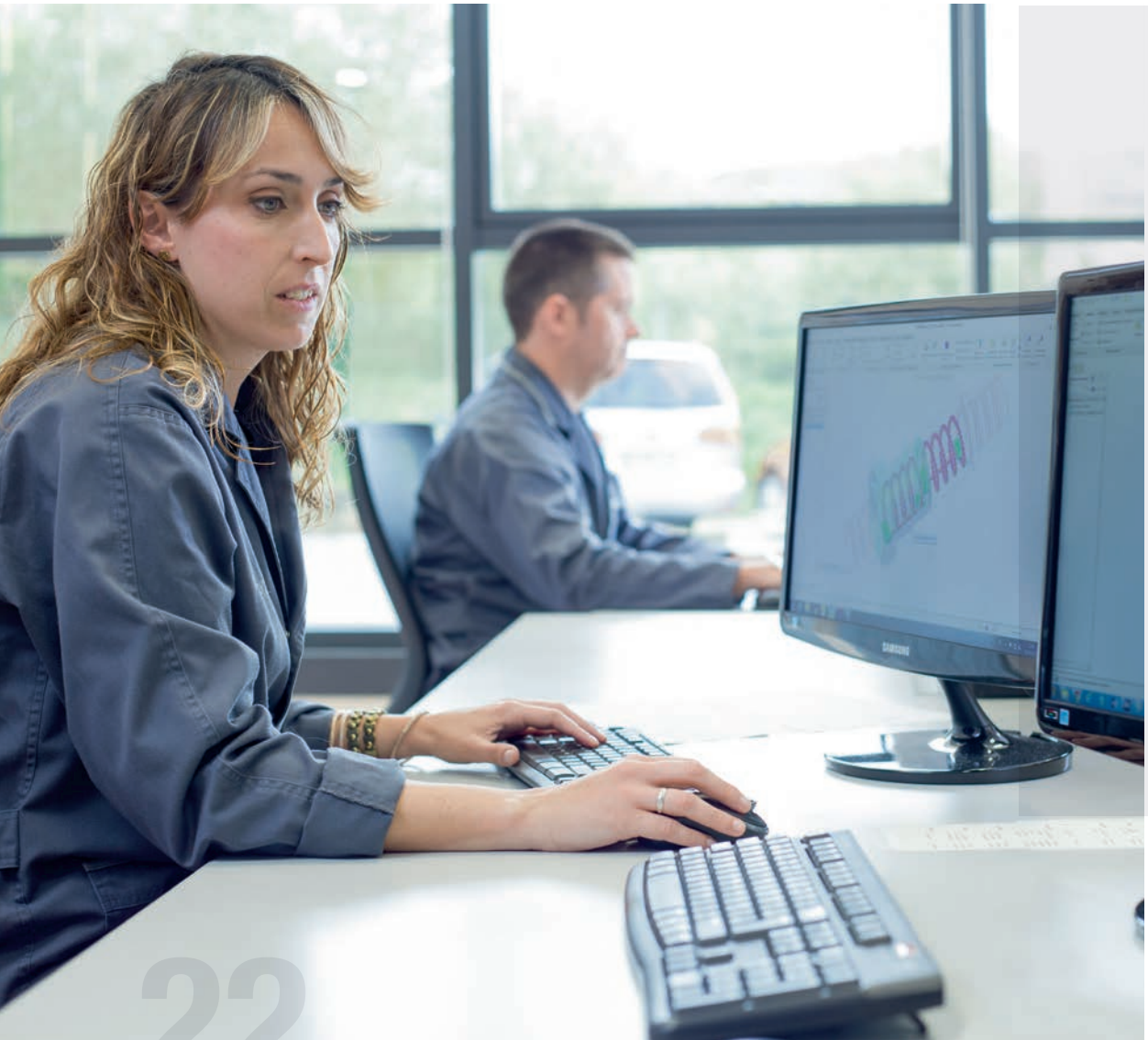
iBall screw

The intelligent ball screw has been developed to match novel industry 4.0 demands, including predictive maintenance, environmental aspects like the Wreduction in lubrication quantity, optimization of machining parameters, etc.

Specific sensors are placed on strategic nut points in order to obtain the required performance information from the ball screw. Combined data from the ball screw and other components of the machine are analyzed on the edge and the results are stored or communicated to other intelligent systems of the machine.

To optimize the benefi ts of iBall screw, specific strategies can be followed, like obtaining the fingerprint of the ball screw under a specific duty cycle and periodically compare the results against the original fingerprint. In any case, this optimization requires a close collaboration with the machine manufacturer. Please contact SHUTON Engineering Department for further and updated information.

ENGINEERING
SERVICE



SHUTON applied engineering department provides the necessary knowledge both at technical level and at product level, to offer the best solution adapted to customer needs.

SHUTON “Engineering Service”, which has 3-dimensional drawing systems, CAM programming, and different calculation programs; offers its customers comprehensive advice for the selection of the precision ball screw and optimal use for each application, studying the different solutions and detecting new developments needs that may arise.

SHUTON
LOCATION AND CONTACTS

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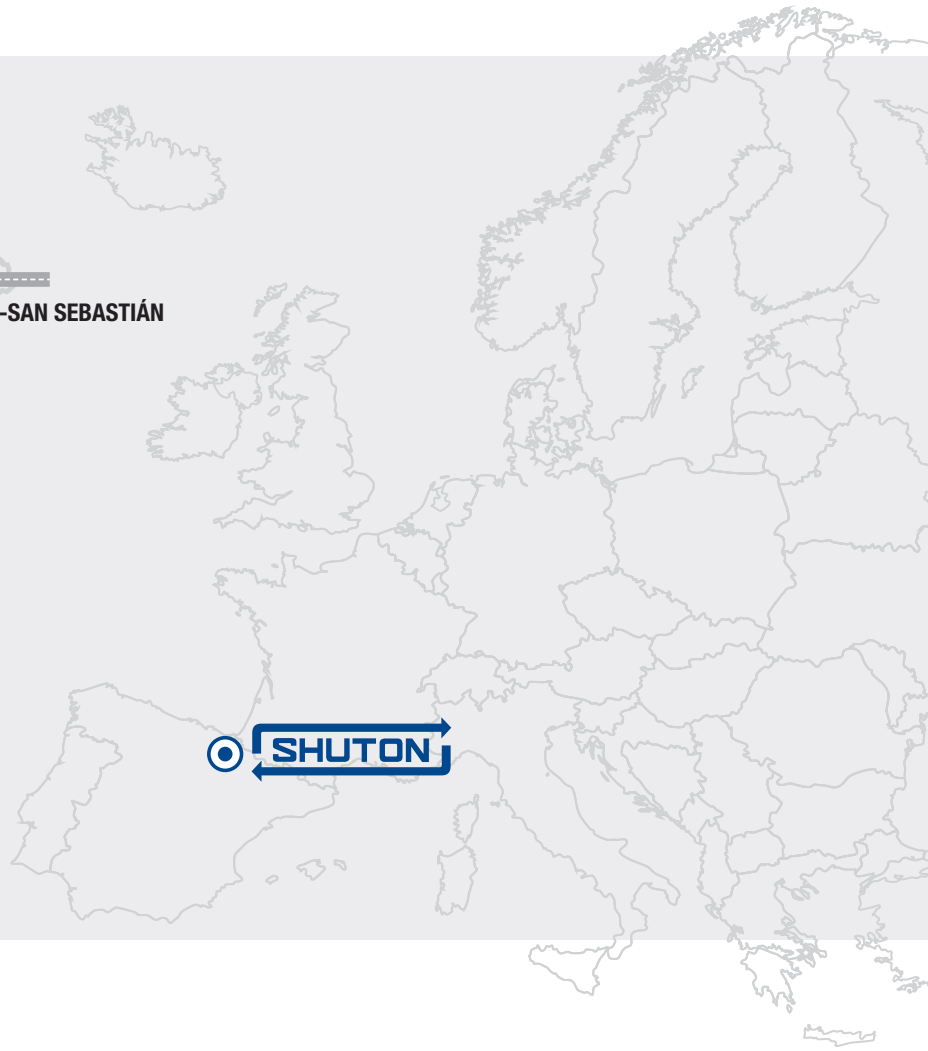

www.shuton.com

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