REBAR SPLICING SYSTEMS FOR THE **NUCLEAR INDUSTRY**

Dextra

www.dextragroup.com

An experience and trusted partner of nuclear civil engineering

Founded in 1983, Dextra Group is a manufacturer of steel and glass-fiber products for the construction industry.

Our wide product range, large production capacity, proximity presence (Offices in a dozen countries), engineering support and top-notch service have made us the world leader of mechanical splices (couplers of concrete reinforcing bars).

50 Nuclear installations

11 millions supplied to these projects

ROSATOM
18
VVER

NPCIL
12
PHWR

中核集团 CNNC
4
HPR

CGN
2
HPR

EDF
5
EPR

3
FNR

6
Fuel and waste treatment installations

Quality assurance & nuclear safety

Quality and Nuclear safety have always been Dextra's top priorities. This commitment is recognized by independent certificates from the nuclear industry :

- **ISO 19443** since 2021
- **ASME QSC** since 2009

To apply our thorough quality control process, we have equipped ourselves with our own testing laboratory, which is duly accredited :

- **ISO/IEC 17025** since 2013

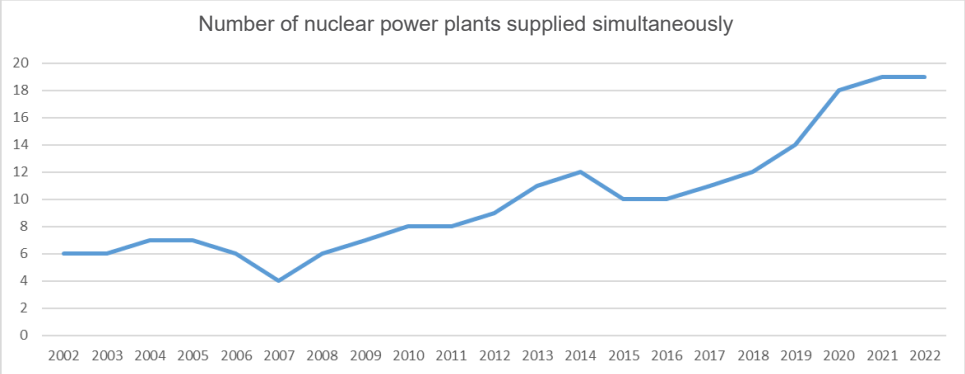
ISO 19443
BUREAU VERITAS
Certification

ASME
SETTING THE STANDARD

Industrial Capability

Production of couplers

Our 2 factories combined annual capacity of 15 million pieces enable us to serve many projects at a time and we have always been able to increase capacity to meet demand.



Manufacture of bar threading and swaging machines

We design and manufacture the machines required to thread or swage the reinforcing bars...

Operation of bar threading workshops

... and we operate them ourselves in some places, so we know how to optimize them.

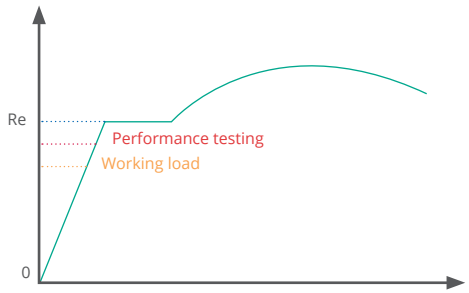
On-site and remote servicing of machines

Our 30 engineers of 10 different nationalities speak 8 languages to service and maintain our 1,000+ machines located in 50 countries.

Proof-testing of Mechanical splices

What is it ?

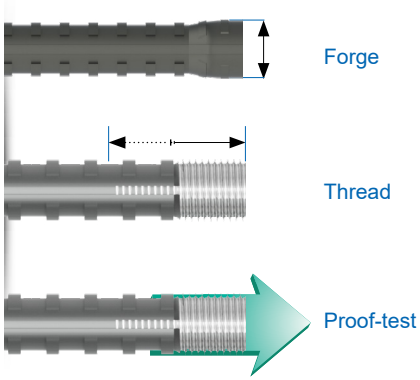
Proof-testing consists in applying a tensile load on the bar end which has been threaded or swaged in order to verify its strength. It is done at a load slightly lower than the specified yield strength of the bar and is therefore a non-destructive QC operation.



Why do it ?

Conventional nuclear power plants are huge structures which require a large quantity of construction materials. For example, a project like Hinkley Point C will use about 2.5 million couplers over a period of ten years. This means 5 million bar ends to either swage or thread. At peak times the splicing workshop must process 5,000 bars per day. It is no easy task to maintain a constant level of quality on such a large production output. That's why proof-testing it is a much better guarantee of quality than simple dimensional checks.

With the Fortec+ system, a separate machine is added after the threading machine to perform the proof-testing.



This proof-testing machine leaves a mark on the bar end as a proof that the bar has been tested.

Our extensive experience

18 VVER reactors for Rosatom and NPCIL

Ostrovets 1&2, Belarus
2013-2018

Kursk II 1&2, Russia
2019-ongoing

Ruppur 1&2, Bangladesh
2018-ongoing

Akkuyu 1-4, Turkey
2020-ongoing

Novovoronezh II 1&2, Russia
2008-2015

Kudan Kulam 1&2, India
2003-2009

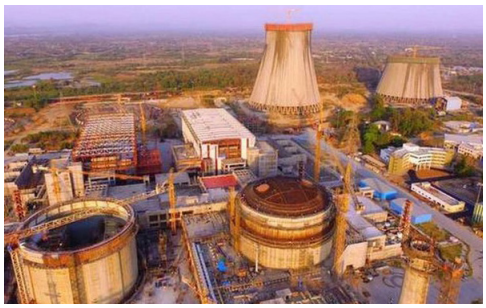
Kudan Kulam 3&4, India
2019-ongoing

Kudan Kulam 5&6, India
2021-ongoing

Case study :
Ruppur 1&2 NPP

- **Technology provider :** Rosatom
- **NPP model :** VVER 1200 x 2 units
- **Civil works contractors :**
  - Nuclear island : Nikimt Atomstroy, Trest Rossem
  - Turbine building : Max Group-HCC JV
  - Cooling towers : Paharpur
- **Number of Dextra machines on site :** up to 10
- 1,400,000 couplers

12 PHWR reactors for NPCIL



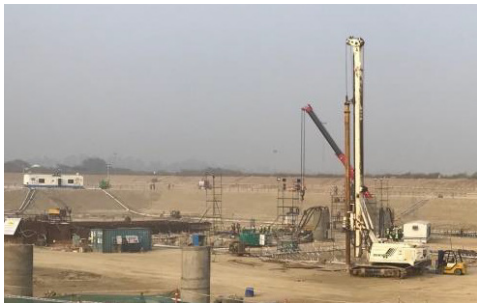
Kakrapar 3&4, India
2010-2019

Rajasthan (Kota) 5&6, India
2011-2020

Rajasthan (Kota) 7&8, India
2011-2020

Tarapur 3&4, India
2002-2003

Kaiga 3&4, India
2002-2006



Gorakhpur 1&2, India
2020-ongoing

Case study : Kakrapar 3&4 NPP

- **Technology provider :** NPCIL
- **NPP model :** IPHWR 700 x 2 units
- **Civil works contractors :**
  - Nuclear island : L&T
  - Turbine building : Bridge and Roof
  - Cooling towers : L&T
- **Number of Dextra machines on site :** 3
- 540,000 couplers

6 HPR reactors for CNNC and CGN

Fangchenggang 3&4, China
2018-ongoing

Fuqing 5&6, China
2015-2021

Ling Ao 1&2, China
1997-1998

Case study : Fuqing 5&6 NPP

- **Technology provider :** CNNC
- **NPP model :** HPR 1000 x 2 units
- **Civil works contractors :** CN24
- **Number of Dextra machines on site :** 2
- 400,000 couplers

5 EPR reactors for EDF and CGN

Hinkley Point C, UK
2017-ongoing

Taishan 1&2, China
2009-2015

Flamanville 3, France
2008-2014

Case study : Hinkley Point C NPP

- **Technology provider :** EDF
- **NPP model :** EPR 1600 x 2 units
- **Civil works contractors :**
  - Nuclear island, Turbine building and Heat sink : Bouygues-Laing O'Rourke JV
  - Tunneling and marine works : Balfour Beatty
- **Number of Dextra machines dedicated to the project :** up to 12
- 1,300,000 couplers

Other products

Couplers for on-site splicing of unthreaded reinforcing bars

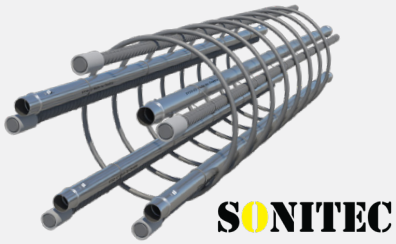
Convenient for solving on-site issues as only a hand power tool is required to connect concrete embedded bars.

Cement-grouted couplers for the connection of precast concrete elements

Typical applications are connections of precast columns, beams, wall panels and pipe racks.

Reservation tubes for cross-hole sonic logging

These thin steel tubes for integrity and homogeneity quality control of below-ground concrete are light to handle and do not require any welding

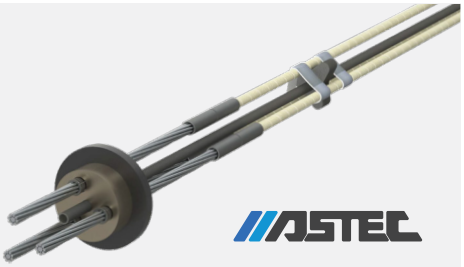


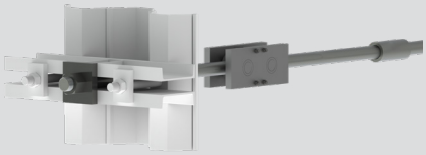
Glass-fiber reinforcing bar

Non-metallic, non-magnetic, light weight, durable reinforcement for applications where the physical properties of steel create technical challenges.

Glass-fiber post-tensioned anchors

A glass-fibre ground anchor with a steel head for post-tensioning.





Tie bars for anchoring sea walls

Marine tie bars to tie back a harbour sea wall to an anchor wall.

Tension rods for steel structures

Tension rods for bracing, truss stiffening or suspension of steel structures such as roofs, façades and bridges.

50 nuclear reactors around the world

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