




**NUCLEP INSTITUTIONAL
PRESENTATION FOR NT2E_ NUCLEAR
BY WNA AND ABDAN
17 NOVEMBER 2021**



MISSION

OUR MISSION IS TO DESIGN, TO DEVELOP, TO MANUFACTURE AND TO SELL HEAVY COMPONENTS AND PRODUCTS FOR NUCLEAR POWER PLANTS, SHIPBUILDING, OFFSHORE AND OTHERS.



An aerial photograph of the NUCLEP manufacturing plant. The central feature is a large, long industrial building with a light-colored roof. To its right are several smaller, rectangular buildings. In the foreground, there is a parking lot filled with cars and a row of blue buses. A green field with a small sports field is visible near the buses. The background shows a body of water and distant mountains under a clear sky.

Established in 1975.
Operational in 1980.

Total area : 1.560.000 m²

Employees : 780

Transport options:

- Maritime terminal
- Heliport
- Roads

MANUFACTURING PLANT OVERVIEW



STRATEGIC LOCATION



MINISTRY OF
MINES AND ENERGY





Itaguaí City

Belo Horizonte
477 km



São Paulo
397 km



Angra dos Reis
85 km



NUCLEP's
Maritime
Terminal

Port of Itaguaí

Shipyard and
Naval Base

Rio de Janeiro
75 km



STRATEGIC LOCATION MAP



MINISTRY OF
MINES AND ENERGY



MATERIAL HANDLING:

- Bridge, jib and gantry cranes
- Rails
- Tractors
- Forklifts
- Magnetic lifters
- Handy and riding trucks

BRIDGE CRANE MAX CAPACITY: 2 X 300 t

TOTAL BUILDING AREA : 95.000 m²

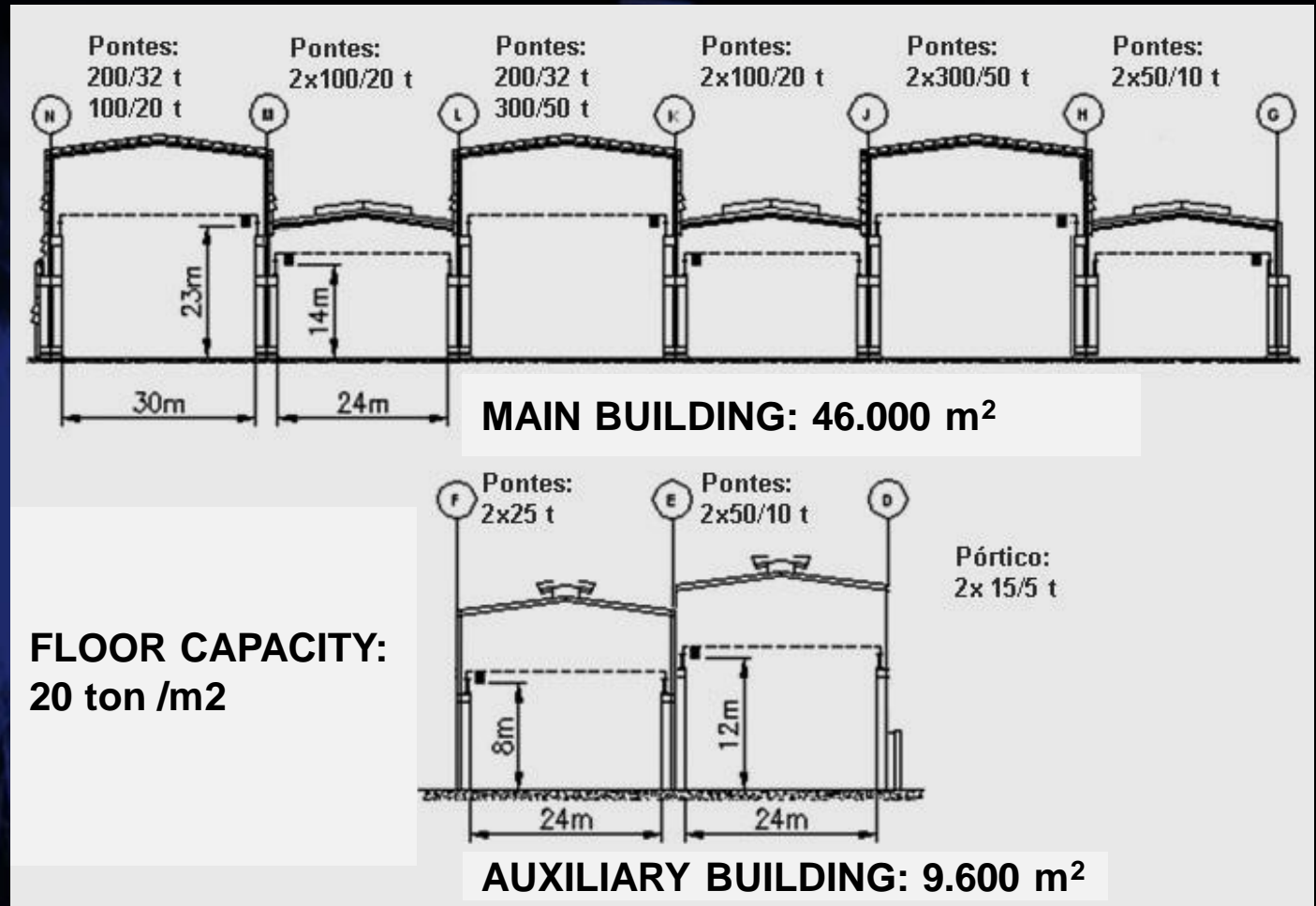
CLEAN ROOM : 1.170 m² (45m x 26m x 8m)

X-RAY BUNKER : 324 m²

LAYOUT SOLUTIONS:

- Product line or family centered
- Fixed material
- Process department

PRODUCTION LAYOUT FLEXIBILITY





AREA 5
2.600 m²

AREA 6
1.894 m²

AREA 4
32.000 m²

AREA 3
19.880 m²

AREA 1
8.070 m²

AREA 2
14.875 m²

EXTERNAL SITES

OFFSHORE AND OTHER HEAVY STRUCTURES ASSEMBLY AREAS



MINISTRY OF
MINES AND ENERGY



PRIVATE MARITIME TERMINAL

Distance from NUCLEP: 3 km

Cargo capacity: 10 t / m²

Type: ROLL-ON ROLL-OFF (Ro-Ro)

MARITIME TERMINAL

RESOURCES



PROCESS



PRODUCTS



PRODUCTION FLOW

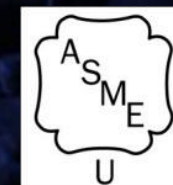
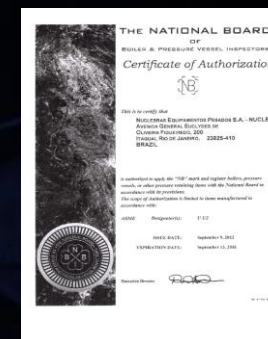
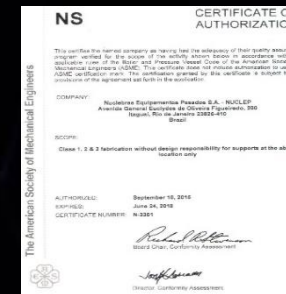
ASME III – Nuclear Components | Stamps:
NA, NPT e NS

ASME VIII – DIV. 1 & DIV. 2 - stamps: U &
U2
Pressure vessels

Defense Strategic Company– MD

National Board

ISO 9001:2015



QUALITY CERTIFICATES

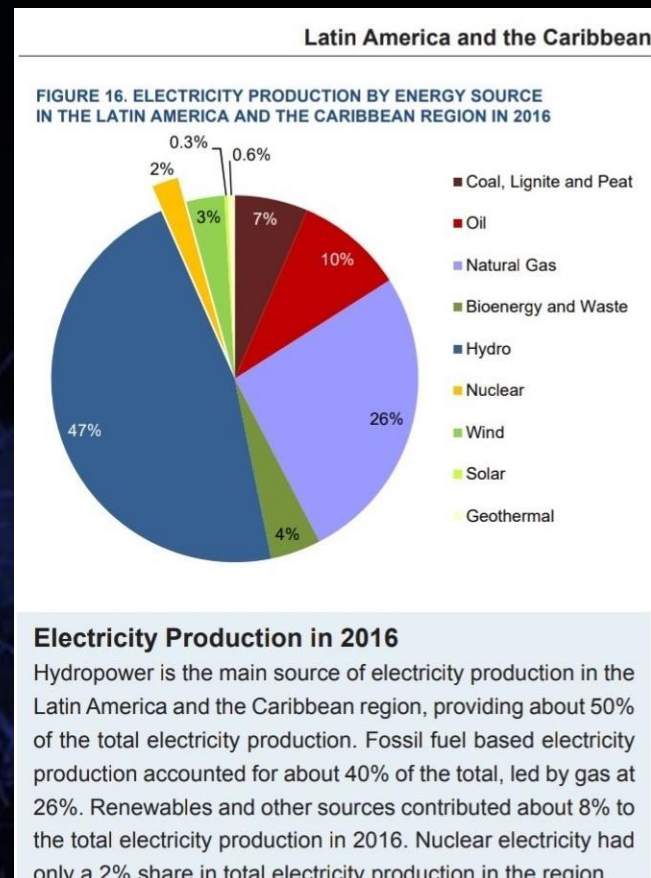


MINISTRY OF
MINES AND ENERGY



- RESUME ANGRA III
- MANUFACTURING COMPONENTS FOR NUCLEAR POWER PLANTS IN BRAZIL
- LATIN AMERICA NUCLEAR ENERGY PERSPECTIVES

OPPORTUNITIES



Nuclear Power Development around the World in 2016

- There were 448 operational nuclear power reactors in the world at the end of 2016, with a total net installed power capacity of 391 GW(e).
- An additional 61 units with a total capacity of 61 GW(e) were under construction.
- During 2016, ten new nuclear power reactors with a total capacity of 9531 MW(e) were connected to the grid, and three reactors with a total capacity of 1405 MW(e) were retired. In 2016, construction began on three new units that are expected to add a total capacity of 3014 MW(e).
- Electricity generation from operational nuclear reactors increased about 2% in 2016, reaching 2476 TW·h.
- Nuclear power accounted for about 11% of total electricity production in 2016.

ENERGY, ELECTRICITY AND
NUCLEAR POWER ESTIMATES
FOR THE PERIOD UP TO 2050
IAEA-RDS-1/37

ISBN 978-92-0-106117-1

ISSN 1011-2642

Printed by the IAEA in Austria

September 2017



THANK YOU

diretoria.comercial@nuclep.gov.br

www.nuclep.gov.br



MINISTRY OF
MINES AND ENERGY

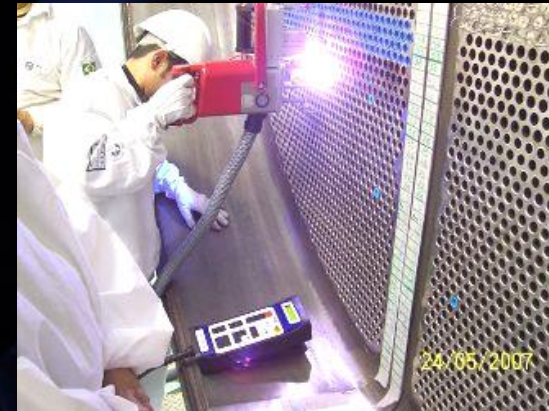


OUR PRODUCTS



REPLACEMENT STEAM GENERATORS FOR ANGRA I NUCLEAR POWER PLANT

DESIGN: AREVA / MANUFACTURER: NUCLEP



NUCLEAR PRODUCTS MANUFACTURED



MINISTRY OF
MINES AND ENERGY



AUTOCLAVE (INB, 2012)



**MAIN NUCLEAR COMPONENTS
ALREADY PRODUCED**

CONDENSERS

Manufacturing and on site assembly (Angra 2 NPP, 1988 and Angra 3 NPP, 2019)

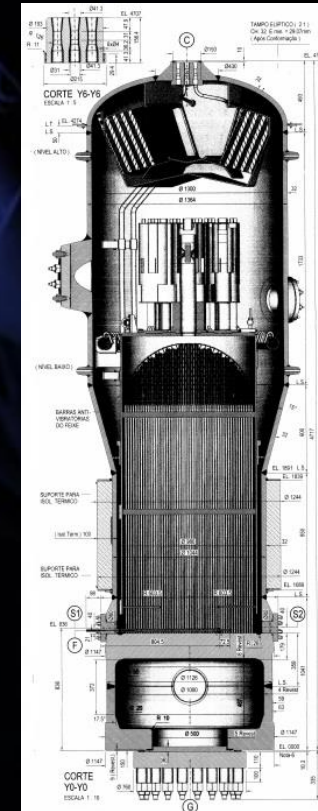


NUCLEAR PRODUCTS MANUFACTURED

REACTOR PRESSURE VESSEL (Brazilian Navy, 2003)



STEAM GENERATORS



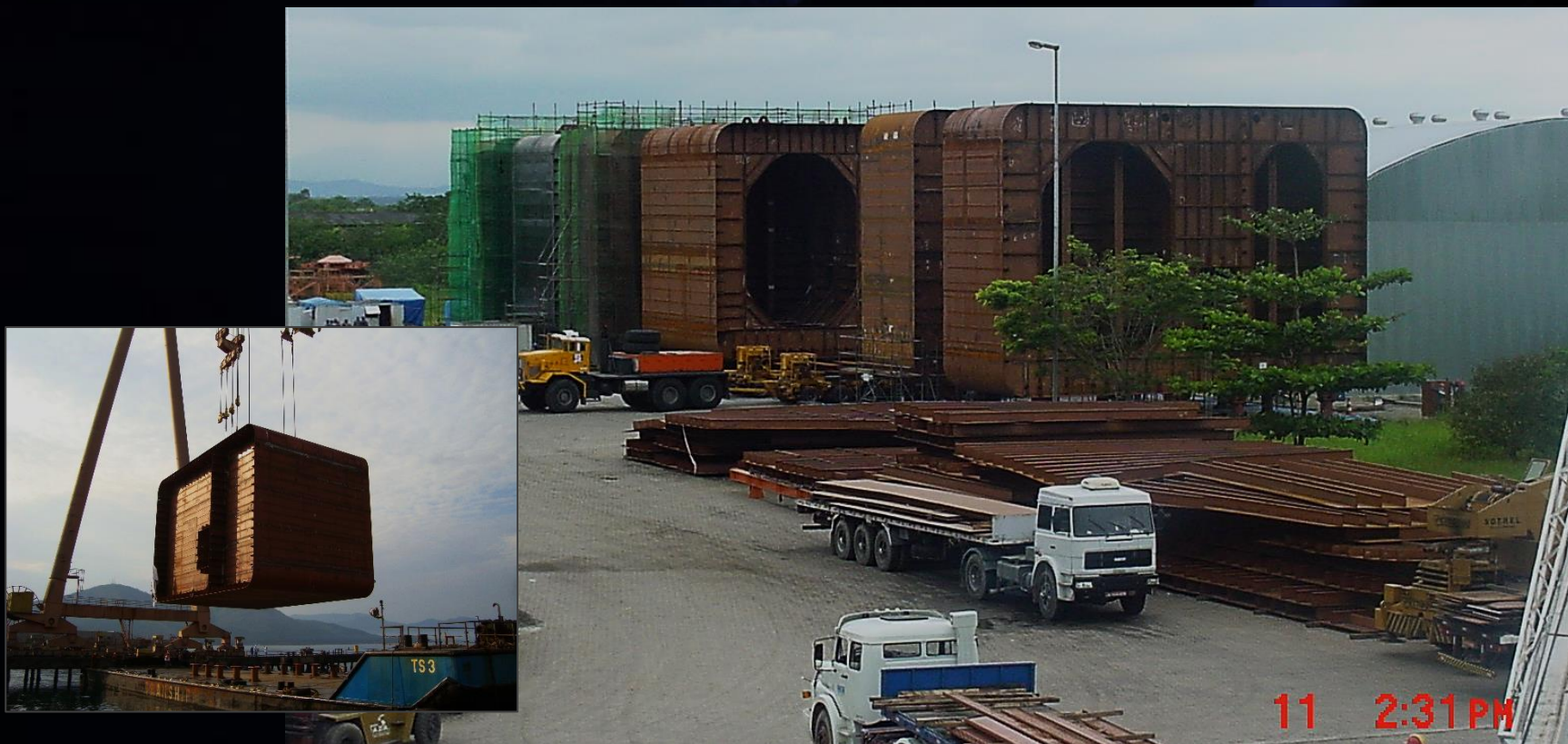
NUCLEAR PRODUCTS MANUFACTURED

SUBMARINE PRESSURE HULLS RIACHUELO CLASS (Brazilian Navy, 2015)



**DEFENSE INDUSTRY
PRODUCTS MANUFACTURED**

PONTOONS AND COLUMNS FOR SUBMERSIBLE PLATFORMS P-51 AND P-56 (Petrobras, 2005 and 2010)



**OIL & GAS SECTOR
PRODUCTS MANUFACTURED**

PROCESS MODULES FOR FPSO (Petrobras, 2013)



**OIL & GAS SECTOR
PRODUCTS MANUFACTURED**

PROCESS MODULES FOR FPSO (SBM - The Netherlands, 2011)



**OIL & GAS SECTOR
PRODUCTS MANUFACTURED**

HYDROPOWER INTAKE NOZZLES

(IMPSA – Argentina, 2010)



Weight: 283 t
Dimensions: Ø 15.000 mm
x 5.500 mm (height) x
130 mm (thickness)

OTHER PRODUCTS MANUFACTURED

HYPERBARIC CHAMBER

(Petrobras - CENPES, 2001)



Thickness: 240 mm
Simulates a pressure of
3.000 m of water column

OTHER PRODUCTS MANUFACTURED

INDUSTRIAL INSTALLATIONS



HEAT TREATMENT FURNACE



Automatic control
Temperature: 750 °C
Accuracy: ± 10 °C
Width: 10.000 mm
Height: 10.000 mm
Length: 16.000 mm
Trolley width: 8.000 mm
Load on trolley: 600 t

MAIN FACILITIES AND MACHINES

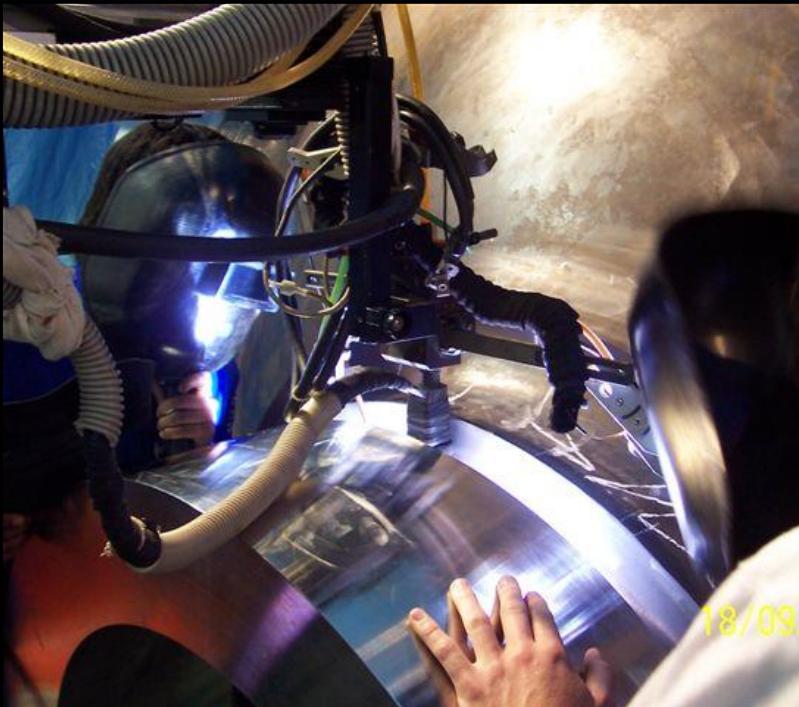


Vertical displacement: 3.000 mm
Horizontal displacement: 5.000 mm
Depth : 1.100 mm
Main shaft diameter : Ø 65 mm
Top and bottom lines: Ø 32 mm

MAIN FACILITIES AND MACHINES

WELDING TECHNOLOGY

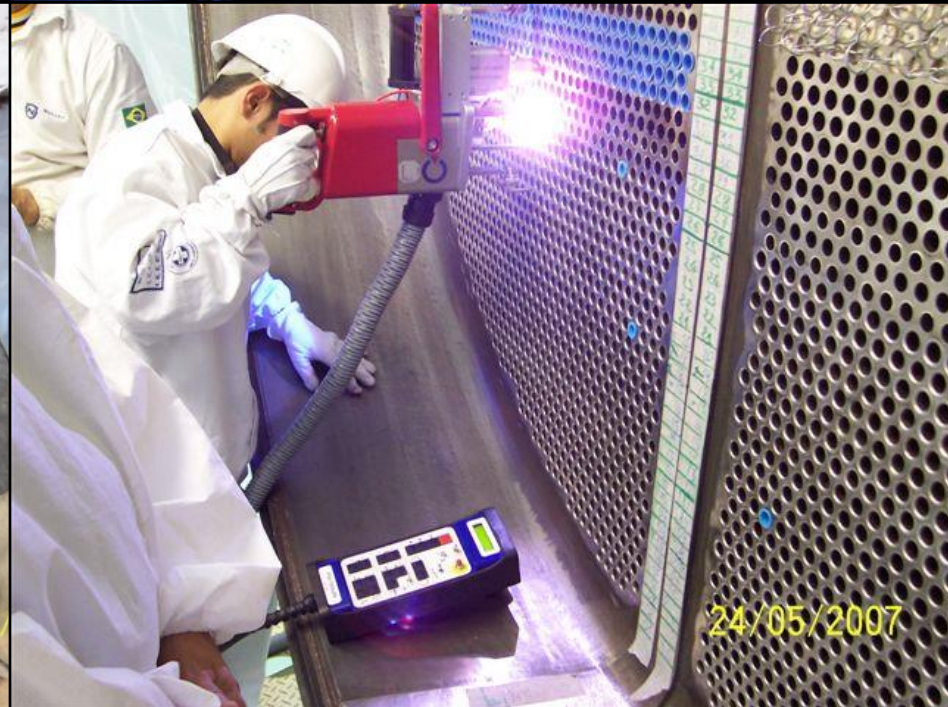
AUTOMATIC TIG
HOT WIRE TECHNIQUE



SUBMERGED ARC WELDING (SAW)
NARROW GAP TECHNIQUE

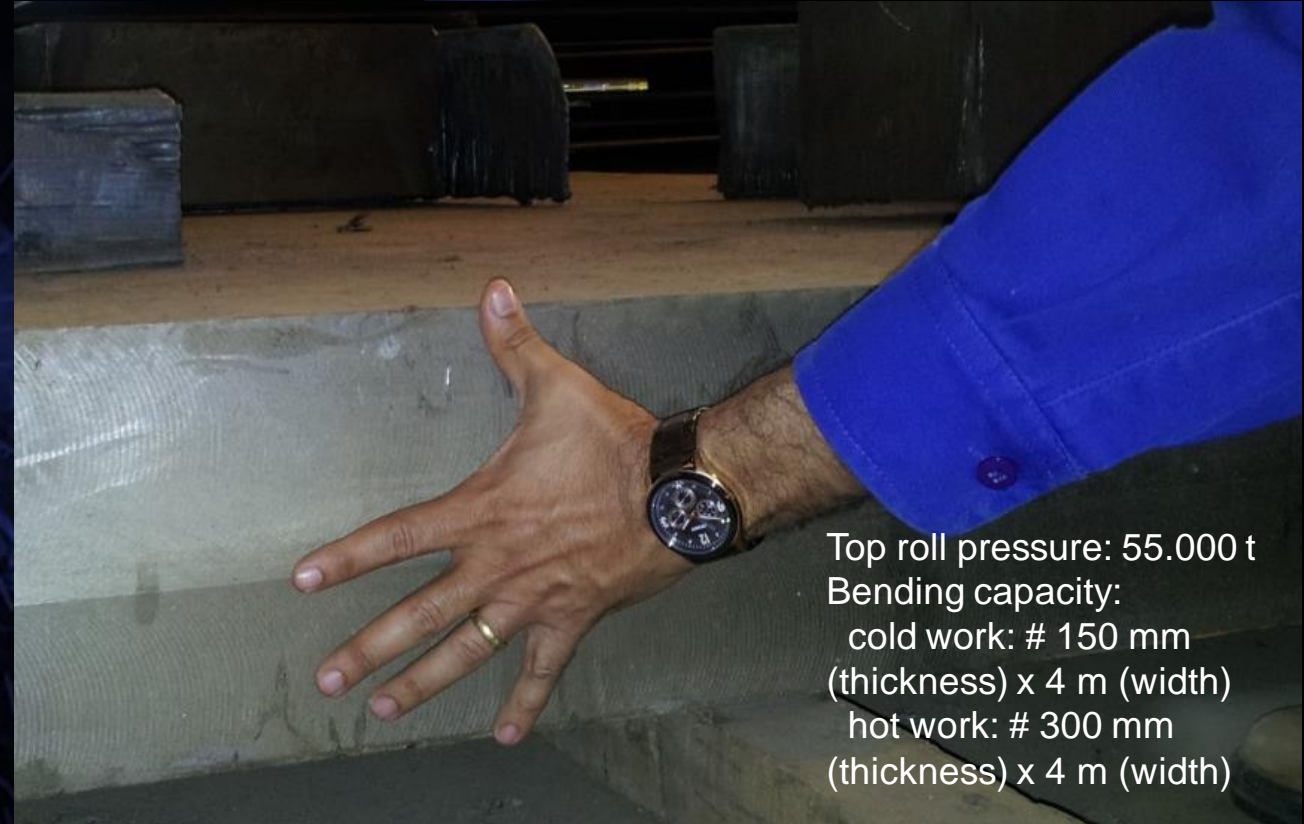


ORBITAL TIG



MAIN FACILITIES AND MACHINES

BENDING AND ROLLING MACHINE



Top roll pressure: 55.000 t
Bending capacity:
cold work: # 150 mm
(thickness) x 4 m (width)
hot work: # 300 mm
(thickness) x 4 m (width)

MAIN FACILITIES AND MACHINES

CLEAN CONDITION ROOM

Area: 1.800 m² / Class: 100.000 ppm / Certified by ISO 14644-1:2015 Class: 8



MAIN FACILITIES AND MACHINES

VERTICAL LATHE

Machining diameter = 16.000 mm / Diameter of the plate = Ø 7.500 mm

Load on the plate = 500 t / Working height = 10.500 mm



MILLING AND BORING MACHINE

Vertical displacement = 6.000 m / Horizontal displacement = 18.000 mm
W axial depth displacement = 1.600 mm / Z axial depth displacement = 1.400 mm



MILLING AND BORING MACHINE WITH ROTARY TABLE

Vertical displacement = 6.000 mm / Horizontal displacement = 26.000 mm

W axial depth displacement = 1.600 mm / Z axial depth displacement = 1.250 mm / Rotary table = 5.000 mm



HYDRAULIC PRESS

Capacity = 1.000 t



MAIN FACILITIES AND MACHINES



CUSTOMERS AND PARTNERS



MINISTRY OF
MINES AND ENERGY

