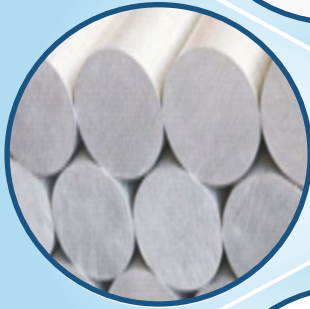
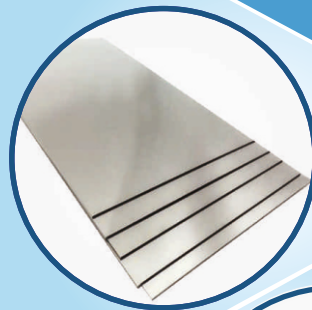
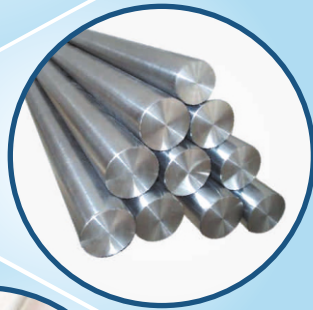


TITANIUM PRODUCTS



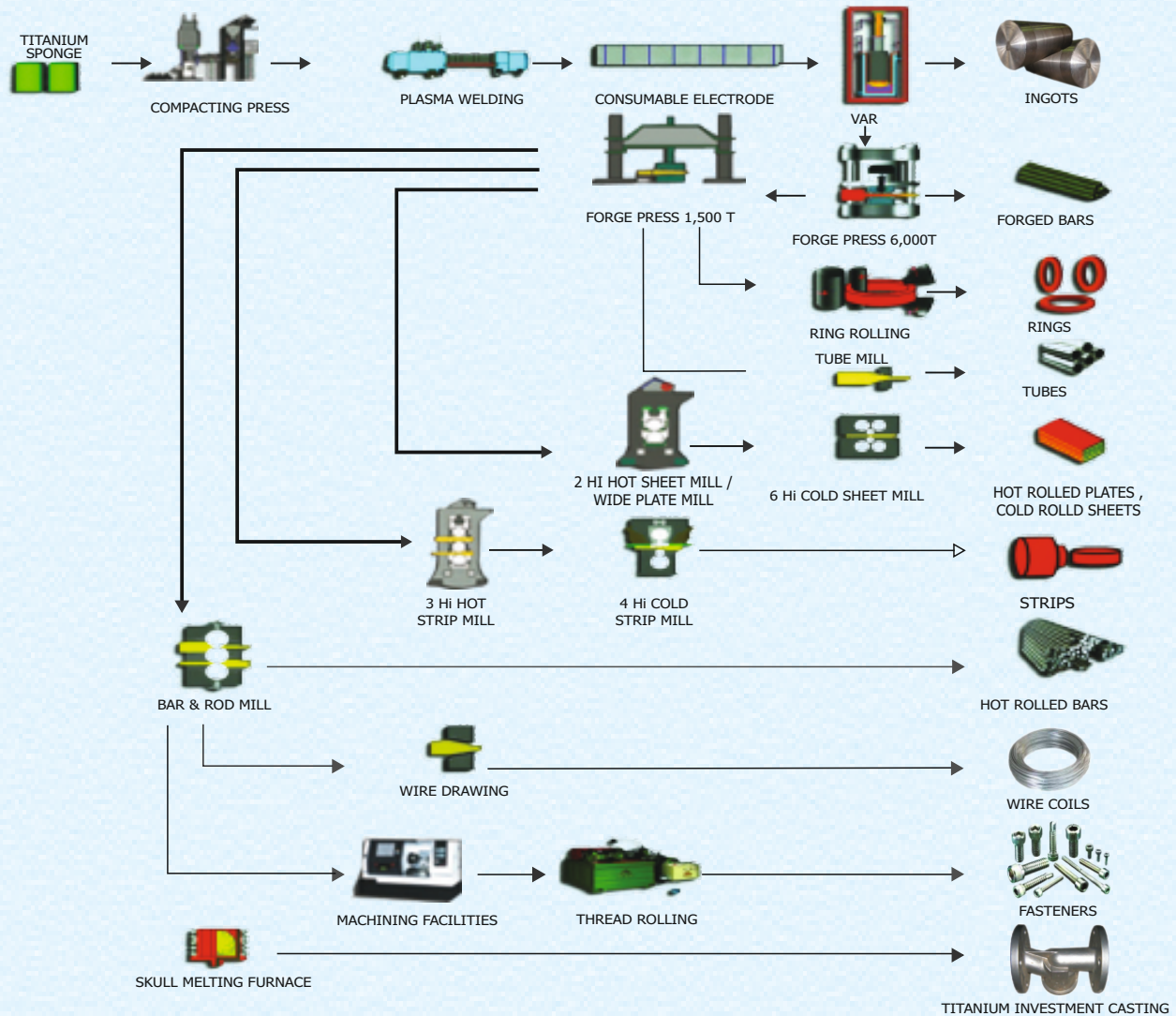
मिश्र धातु निगम लिमिटेड
MISHRA DHATU NIGAM LIMITED

ABOUT MIDHANI

Mishra Dhatu Nigam Limited (Midhani), A Govt. of India Enterprises was set up in 1973 at Hyderabad, INDIA. MIDHANI is an ISO 9001:2015 & AS 9100-2016 Certified company with modern metallurgical facilities and technical competence. It is listed at BSE / NSE (Code BSE:541195 / NSE:MIDHANI) with 26% shares in Public.

MIDHANI specializes in manufacturing a wide range of Superalloys, Titanium alloys and Special Steels meeting stringent international standards for application in Aerospace, Defence, Nuclear, Space, Chemical and other hi-tech industries. With the deidicated research facilities and decades of experience, MIDHANI is capable of manufacturing more than 500 grades of Special alloys including Titanium alloys, Superalloys and Special Steels under single roof.

TITANIUM MANUFACTURING PROCESS IN MIDHANI



- Melting**
- > Vacuum Arc Remelting/EBM
 - > 3000T Compacting press
 - > Plasma Welding Unit
 - > Vacuum Annealing Furnance

- Forging**
- > 6000T Hydraulic Forge Press With 20T & 25T Manipulator
 - > 1500T Forge Press

- Ring Rolling**
- > Radial Axial Ring Rolling Mill

- Tube Mill**
- > Seamless Tube Mill

- Sheet Mill (Hot / Cold)**
- > 2-hi, 2-Stand Hot Sheet Mill
 - > 6-hi Cold Sheet Mill

- Strip Mill (Hot / Cold)**
- > 3-hi Hot Strip Mill
 - > 4-hi Cold Strip Mill

- Bar & Rod Mill**
- > 3 Stand Bar Mill
 - > 7 Stand Wire Rod Mill

- Wire Drawing**
- > Dry Wire Drawing Machines
 - > Wet Wire Drawing Machines
 - > Straightening & Cutting Machine
 - > Spooling Facility

- Fasteners**
- > Machining Facilities
 - > Thread Rolling

- Titanium Investment Casting**
- > Vacuum Skull Melting Furnace
 - > Investment Cast Facilities

KEY WESTERN ALLOYS BY MIDHANI

Alloy Type	International Titanium Grade	Equivalent Midhani Grade	Conformity to International Specifications
CP	Grade 1	Titan 12	ASTM B265, ASTM B348, ASTM B367, ASTM B381, ASTM F67, ASTM F467 & ASTM F468 AMS 4940, AMS 4911 BS Ta1, UNS R50250, DIN 3.7024
CP	Grade 2	Titan 15	ASTM B265, ASTM B348, ASTM B367, ASTM B381, ASTM F67, ASTM F467, ASTM F468 AMS 4902, AMS 4942, AMS 4951 BS Ta1, BS TA2, UNS R50400, DIN 3.7024
$\alpha + \beta$	Grade 5	Titan 31	ASTM B265, ASTM B348, ASTM B367, ASTM B381, ASTM F136, ASTM F467, ASTM F468 AMS 4911, AMS 4928, AMS 4932, AMS 4935, AMS 4954, AMS 4965, AMS 4967, AMS 4985 BS TA10, BS TA11, BS TA12, BS TA13, BS TA28, BS TA56, BS TA59 UNS R56400, DIN 3.7164
$\alpha + \beta$	Grade 9	Titan 32	ASTM B265, ASTM B227, ASTM B338, ASTM B381 AMS 4943, AMS 4944, AMS 4945 UNS R56320
Near α	Titanium 8-1-1	Titan 22	AMS 4915, AMS 4916, AMS 4972, AMS 4973 UNS R54810
Near α	Ti-6Al-5Zr-0.5Mo-0.25Si	Titan 26	BS TA43, BS TA44 DIN 3.7154
β	Grade 21	Titan 44	ASTM B265, ASTM B337, ASTM B338, ASTM B381 AMS G92AP, UNS R58210
$\alpha + \beta$	Grade 23	Titan 31 ELI	ASTM B265, ASTM B337, ASTM B338, ASTM B381 AMS 4907, AMS 4930, AMS 4931, AMS 4956 UNS R56407

KEY RUSSIAN ALLOYS BY MIDHANI

International Titanium Grade	Equivalent Midhani Grade	Alloy Type	Conformity to International Specification
BT 3-1	Titan Bt31	$\alpha + \beta$	OCT1-90173-75
BT 5-1	Titan BT 51	α	OCT1-90266-78
BT 9	Titan Bt9	$\alpha + \beta$	OCT1-90006-77
OT 4-1	Titan Ot41	Near α	OCT1-90218-76
BT 20	Titan BT20	$\alpha + \beta$	GOST-23755-79

QUALITY ASSURANCE

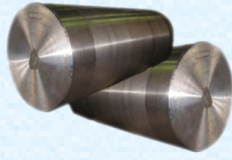
Quality Systems of MIDHANI ARE certified with ISO 9001:2015 and AS9100-2016. Chemical and Mechanical testing laboratories are accredited by NABL in accordance with ISO/IEC 17025:2005

MIDHANI quality systems are also approved by more stringent standards of Director General of Aeronautical Quality Assurance, Director General of Civil Aviation, Director General of Quality Assurance, Department of Space and Department of Atomic Energy.

TITANIUM PRODUCTS

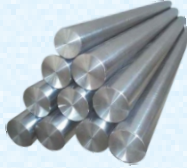
INGOTS

Equipment-
Vaccum Arc Remelting /
Electron Beam Melting
Size - 550mm to 860 mm
Weight - 1.4T to 6T



FORGINGS

Equipment - 6000T / 1500T
Hydraulic Forge press
Size - 100mm to 275mm
Weight - Upto 3.0T



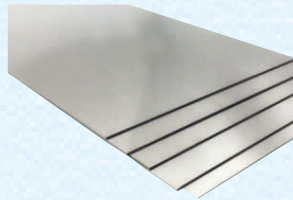
RINGS

Equipment -
Radial Axial Ring Rolling Mill
Size (OD) - 320mm to 3540mm
Height - 50mm to 635mm
Weight - Upto 3.5T



PLATES / SHEETS

Equipment – Wide Plate Mill
Thickness – 5mm and above
Width – Upto 2000mm
Weight – Upto 6500Kgs
Equipment – Cold Sheet mill
Thickness – 0.8mm and above
Width – Upto 1000mm



BARs & WIRES

Equipment - Hot Rolling / Cold
Drawing / Hot Swaging

Size - 1.2 mm and above
Shape - Round and Square
Supply form - Spools, Rods and Bars



INVESTMENT CASTINGS

Equipment- Vaccum Skull
Melting Furnace
Weight - Upto 300Kgs.



SEAMLESS TUBES

Equipment - Tube Extrusion mill
Size (OD) - 27mm to 90 mm
Wall thickness - 3 mm to 10 mm
Max. Lenth - 12000mm



FASTENERS

- Hexagonal bolts
- Hexagonal socket
- Head cap screws
- Cheese Head Screws
- Countersunk Screws
- Locking washers and plates
- Wire locking screws and Nuts
- Studs
- Specialized and Custom made fasteners
- Lock nuts and Split bushes



BIOMEDICAL IMPLANTS & DEVICES

- Knee Hinge Joint
- Hip Prosthesis
- Compression Hip Screw
- Implants
- Screws
- Clamps and Plates
- Intra medullar
- Nails & Rush Nails
- Custom Size & Shape as per specific requirements



FERRO TITANIUM

- MDN FeTi 60
- MDN FeTi 65
- MDN FeTi 70
- Custom Grade

Features :

- Low Carbon and low aluminium Content
- Controlled Oxygen and Nitrogen levels



MISHRA DHATU NIGAM LIMITED

Regd. Office : PO Kanchanbagh, Hyderabad-500 058, India; Phone: +91-40-29568519, Fax : +91-40-29568527
E-mail : mktg@midhani-india.in, Website: www.midhani-india.in