

GALLIUM *PREET*
Forming & Processing Line Division

Design | Engineering | Procurement | Manufacturing | Consultancy

OVERVIEW

**\$ 500
million+**

**Worth of
Machinery
Exported
Since
Inception**

**\$ 150
million+**

**Worth of
Machinery
Sold Within
India Since
Inception**

70+

**Countries
Where Gallium
Machinery
Have Been
Installed**

With a legacy spanning four decades, Gallium has been a trusted provider of steel processing equipment to the global steel industry.

Over the years, Gallium has transformed from an equipment provider into a technology leader providing end-to-end engineering, procurement, consultancy and manufacturing service to the its clients in the steel sector.

With ever growing demand for high productivity systems and modern manufacturing practices, Gallium has also been instrumental in developing proprietary applications and technologies including high-end ERW tube forming, tube finishing equipment, coil processing machinery and tooling with customized features.

GEOGRAPHICAL PRESENCE

Gallium has corporate offices, manufacturing facilities, technology development & design centers and sales representative offices in multiple countries across South-Asia, South-East Asia, Middle-East, Egypt, Europe, Latin America & North America

Furthermore, Gallium has created a vast network of representatives around the world who remain in close contact with our Valued clients and fulfill their technical requirement.



INDIA

CHINA

MALAYSIA

SRI LANKA

UAE

SAUDI
ARABIA

ARGENTINA

BRAZIL

ITALY

RUSSIA

EGYPT

MEXICO

GALLIUM EXPERTISE



ERW Steel Tubes, welded sections & Custom profiles

CR & HR Coils

Finished long products

Gallium Expertise Spans Across Manufacturing & Services Verticals. key Equipments Provided By Gallium Have Been Incorporated In The Subsequent Pages:

- Steel Plant Engineering And Site Survey
- Custom Manufacturing And Technology For Steel Plant, Coil Processing Lines, In Line Galvanizing, Cold Roll Formed Welded Steel Tube Plants And Equipment
- Galvanizing Lines, Color Coating Line And Rolling Mills
- Custom Engineering And Tool Design/development
- Plant Layout Assistance
- Plant Productivity Assessment And Improvement Studies
- Manufacturing Production Assistance
- Equipment Installation And Commissioning
- Equipment Installation And Commissioning
- Equipment Installation And Commissioning
- Equipment Retrofitting And Revamping
- Feasibility Reports And Detailed Project Reports

GALLIUM TECHNOLOGICAL INNOVATIONS

ENTRY LINE EQUIPMENT



COIL CARS

DECOILERS

DRIVEN PRECISION LEVELLER

PRE FORMING EDGE TRIMMING UNITS

STAMPING & EMBOSSING UNITS

COIL JOINING EQUIPMENT

COIL ACCUMULATOR SYSTEMS:

- HORIZONTAL RLA TYPE

- K-FEEDER TYPE

COIL CARS

Hydraulic operated coil cars with Motorized actuation for forward & reverse movement & hydraulic up down precision movement. Hanger Type Car also available for fast & safe loading of Uncoiler for Single /Double Mandrel decoiling systems. Available in various mounting options. Can be customized as per Client preference.

Coil Car Model	Coil Width Range		Coil Weight (tons)
	Max (mm)	Min (mm)	
GPCC : 300	40mm	300mm	5T
GPCC : 500	80mm	500mm	10T
GPCC : 750	100mm	900mm	15T
GPCC : 900	150mm	1650mm	20T/25T
GPCC - HT : 500	250mm	2000mm	20/30/40T

DECOILERS

Decoiler feeds slit coils to tube mills /Down stream equipment at a constant rate without damaging the strip surface & edges at constant speed.

Options: For Top Snubber, Top & Bottom Feed Roll , Coil Safety cage & Coil Hanger & Pusher Option available.

DECOILER MODEL	TYPE	COIL WIDTH RANGE		Coil Weight (tons)
		Min (mm)	Max (mm)	
GP-UCDM:250	Double Mandrel	40mm	250mm	5Tx2
GP-UCSM:300	Single Mandrel	50mm	300mm	6T
GP-UCSM:650	Single Mandrel	60mm	650mm	12T
GP-UCSM:900	Single Mandrel	100mm	900mm	18T
GP-CT-900	Cone Type Uncoiler	250mm	2000mm	>=20T

COIL JOINING EQUIPMENT

Coil joining equipment is placed prior to entry in accumulator & aids in shearing leading & lagging coil ends & but welds for smooth transition of material eliminating down time. Gallium Shear welder are operational for strip range from 20 mm upto 2000 mm wide and thickness from 0.5 mm to 16.0 mm maximum.

FEATURES:

- Semi and fully automatic systems available.
- Perfect hands free indexing of both edges.
- Both TIG and MIG welding systems possible through wire feeding unit.
- Water cooled backup bars and copper pads for strip contact during welding operation.
- Optional Weld planisher roll, Weld bead milling unit can be integrated.
- Consistent weld quality by motorized movement through stepper motor.
- Weld strength up to 98% of parent material.
- Suitable for Metallic, Ferrous, Aluminum, Stainless steel, Galvanized steel etc.

SHEAR WELDER MODEL	COIL WIDTH RANGE	TYPE
GP - SW P	240 mm x 3mm	PSA TYPE Pneumatic/Hydraulic
GP - SW L	700 mm x 8 mm	Hydraulic Shear & Welder
GP - SW R	2000 mm x 16 mm	Roller Type Shear & Mig Welding

PRECISION LEVELERS

Precision levelers are required to correct input straightness requirements for feed strip prior to cold forming in Cold Rolled Open and Closed profile forming equipment. Based on output straightness requirements, type of material properties and speed of operating line, Precision Levelers are custom designed in 5 Roll, 13 Roll or 4 Hi, 6 Hi, 10 Hi configuration. Optional Entry guide roll and pinch rolls are proposed as per operational requirements.

COIL ACCUMLATOR SYSTEM



Coil joining equipment is placed prior to entry in accumulator & aids in shearing leading & lagging coil ends & butt welds for smooth transition of material eliminating down time. Gallium Shear welder are operational for strip range from 20 mm upto 2000 mm wide and thickness from 0.5 mm to 16.0 mm maximum.

FEATURES:

- Fully automatic systems. Flexibility in operation.
- Lesser moving parts and motors. Turn Table type design.
- Strip Entry at any angle. Strip is always contained and ease of changeover.
- No damage to strip during accumulation.
- Ability to handle cambered strip. High filling speeds up to 3 times of Mill speed.
- Can operate independent of Mill use. Can fill during mill stoppage.

ACCUMULATOR MODEL	COIL WIDTH RANGE	STRIP THICKNESS	MAX MILL SPEED	STRIP STORAGE IN MINUTES
GPRLA 35	32-120	0.6-2.5 mm	150	5
GPRLA 45	40-240	0.8-3.5 mm	150	5
GPRLA 55	65-360	1.0-5.4 mm	120	5
GPRLA 65	190-530	1.6-7.1 mm	90	6
GPRLA 85	280-1000	2.9-10 mm	60	8

GALLIUM DFT MILL



Gallium offers high technology tubemill for section tubes to reduce cost of tooling as well as reduce roll change time. Direct Forming Technology is an advanced manufacturing system designed by Gallium to manufacture wide range of section tubes without roll change. One set of rolls cover complete range of sizes. Any size can be set in 20 minutes with the help of Servo motors & planetary gearboxes. DFT machines represent a crucial asset in modern manufacturing environments, where adaptability, precision, and efficiency are paramount for staying competitive in fast-paced markets.

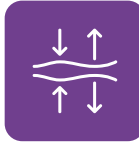
DFT TUBE MILL PRODUCT RANGE

MODEL	Tube Size (Square)		Tube Size (Rectangular)		Tube Thickness Range		Line Speed
	Min Size	Max Size	Min Size	Max Size	Min Size	Max Size	
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	
GDFT-60	20X20	60X60	25X20	80X40	0.8/1.0	3.0/4.0	120/100
GDFT-100	30X30	100X100	35X30	120X80	1.0/2.0	4.0/6.0	100/80
GDFT-150	50X50	150X150	60X50	200X100	2	6.0/8.0	60
GDFT-200	80X80	200X200	90X80	250X150	3	8.0/10	40
GDFT-250	100x100	250X250	110X100	300X200	3	8.0/10.0/12.0	40
GDFT-300	120X120	300X300	130X120	350x250	3	10.0/12.0/14.0	30
GDFT-400	200x200	400X400	210X200	450X350	4	16	30
GDFT-500	250x250	500X500	260X250	550X450	6	20	25

KEY FUNCTIONS



Direct Shaping: FT Mill forms square & rectangular sizes directly from flat steel coils without the need for intermediate round tube shaping. This direct forming reduces steps in the manufacturing process.



Reduced Material: Traditional tube mills when reshaping round tubes into squares or rectangles, corner thickening leading more strip width. DFT optimizes material usage by forming the final shape directly.



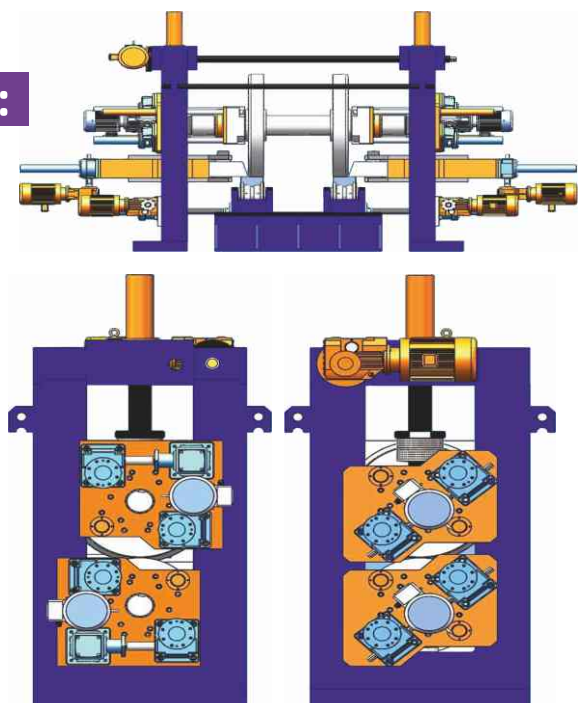
Production Efficiency: There is no roll change and any size can be set within 20 minutes. After the first production of the roll adjustment, the data such as the servo position of each unit used in this pipe can be stored into the formula and can be custom named. In this way the Mill availability is much higher than conventional mill so production efficiency.



Versatility in Section Sizes: The technology is highly flexible and allows manufacturers to produce tubes of varying section sizes by simply adjusting the rolls. Any section size standard/non-standard can be made immediately without wait for tooling to be manufactured as in conventional Mill Inventory.

BENEFITS OF USING DFT TUBE MILLS:

- **Variety of Sizes:** Variety of sizes can be made with same tooling.
- **No Inventory:** Inventory is not required as any size can be made as & when required
- **Cost Savings:** No Tool cost & No Inventory cost.
- **In time delivery:** In time delivery is a big advantage for sales person to get order.
- **Productivity:** Mill availability is much higher in comparison of conventional Mill which increases productivity.



GALLIUM FFX TUBE MILL



Gallium offers high technology tubemill with common rolls in forming section to reduce cost of tooling as well as reduce roll change time. Forming Flexible Machine is an advanced manufacturing system designed by Gallium to provide versatility and adaptability in material shaping and forming processes. These machines are engineered to accommodate a wide range of product designs, materials, and production volumes, making them an ideal solution for industries that require high customization and rapid reconfiguration. Forming flexible machines represent a crucial asset in modern manufacturing environments, where adaptability, precision, and efficiency are paramount for staying competitive in fast-paced markets.

FFX TUBE MILL PRODUCT RANGE

MODEL	Tube Size (Round)		Tube Size (Square)		Tube Size (Rectangular)		Tube Thickness Range		Line Speed (m/min)
	Min	Max	Min	Max	Min	Max	Min	Max	
	Size (mm)	Size (mm)	Size (mm)	Size (mm)	Size (mm)	Size (mm)	Size (mm)	Size (mm)	
GFFX-60	25.4	76.2	20X20	60X60	25X20	80X40	0.8/1.0	3.0/4.0	120/100
GFFX-100	38.1	127	30X30	100X100	85X30	120X80	1.0/2.0	4.0/6.0	100/80
GFFX-150	63.5	193.7	50X50	150X150	60X50	200X100	2	6.0/8.0	60
GFFX-200	88.9	254	80X80	200X200	90X80	250X150	3	8.0/10	40
GFFX-250	114.3	323.9	100X100	250X250	110X100	300x200	3	8.0/10.0/12.0	40
GFFX-300	139.7	406.4	120X120	300X300	130x120	350x250	3	10.0/12.0/14.0	30
GFFX-400	219.1	508	200X200	400X400	210X200	450X350	4	16	30
GFFX-500	273	660	250x250	500X500	260X250	550X450	6	20	25



FEATURES

- **Adaptability:** Can be reconfigured for different materials, shapes, and sizes, allowing for quick changes in production processes.
- **Automation:** Often incorporates advanced control systems and robotics, reducing manual labour and enhancing precision.
- **Efficiency and Reduced Lead Time:** By minimizing machine changeover times, optimizing material usage, and improving cycle times, these machines contribute to greater overall manufacturing efficiency. Their ability to rapidly switch between different sizes also supports just-in-time production, helping companies respond quickly to market demands.
- **Customization and Low-Volume Production:** Ideal for industries such as aerospace, automotive, and consumer electronics, where custom parts and short production runs are common. The ability to quickly modify tooling and settings allows manufacturers to produce high quality, low-volume, and highly specialized components without significant downtime or retooling costs.
- **Advanced Control Systems:** Equipped with sophisticated programmable logic controllers (PLCs), Human-Machine Interfaces (HMI), and real-time monitoring systems, FFX systems offer high precision and consistent quality control across diverse production batches. These machines are often integrated with CNC (Computer Numerical Control) or robotic automation to further enhance operational flexibility and reduce human intervention.

CRM- COMMON ROLL MILL



Gallium 'Common Roll Mill' ERW High Frequency Welded Tube

Gallium Common Roll Mill (CRM) is engineered to maximize efficiency by significantly reducing downtime during roll tool changeovers. This not only minimizes productivity loss but also enhances overall yield. Designed with operational flexibility at its core, the CRM allows seamless forming of ERW HF Welded Round, Square, and Rectangular hollow sections within the same mill, ensuring higher output with reduced interruptions.

Gallium CRM Technology: USPs

Flexibility



Gallium's Common Roll Mill (CRM) Technology allows forming of Square, Rectangle and Round hollow sections in the same Mill - Using No Roll Change Concept.

Reduced Change-Over Time

Coil Loading or Change- over Time	+	Coil Joining Time	+	Strip Inching	+	Roll Change over- Forming, Fin pass & Sizing Roll (Skilled Technicians)	+	Weld Roll Change over	+	Cut Off Alignment & Gripper Adjustment
8 Minutes		5 Minutes		20 Minutes		180 Minutes		60 Minutes		20 Minutes
Conventional ERW HF Tube Mill						Estimated Downtime: 4.5 Hours/Shift/Size change over				
Gallium CRM Technology						Estimated Downtime: 30 Minutes/Shift/Size change over				

FEATURES:

- Achieves consistent Ovality, Corner radius & Weld finish for entire range profiles. Customized features at Entry line equipment, Roll Tool Design, Welding systems, Sizing & Cutting Systems.
- Numerical Control of production parameters, Roll set adjustment of Breakdown, Fin pass, Iron Roll pass, Sizing and Shaping Passes.
- All numerically controlled parameters, settings and adjustments can be repeated through Servo controls & HMI controller record.

CRM PRODUCT RANGE

MODEL	Tube Size (Round)		Tube Size (Square)		Tube Size (Rectangular)		Tube Thickness Range		Line Speed (m/min)
	Min	Max	Min	Max	Min	Max	Min	Max	
	Size (mm)	Size (mm)	Size (mm)	Size (mm)	Size (mm)	Size (mm)	Size (mm)	Size (mm)	
GCRM-60	25.4	76.2	20X20	60X60	25X20	80X40	0.8/1.0	3.0/4.0	120/100
GCRM-100	38.1	127	30X30	100X100	35X30	120X80	1.0/2.0	4.0/6.0	100/80
GCRM-150	63.5	193.7	50X50	150X150	60X50	200X100	2	6.0/8.0	60
GCRM-200	88.9	254	80X80	200X200	90X80	250X150	3	8.0/10	40
GCRM-250	114.3	323.9	100X100	250X 250	110X100	300X200	3	8.0/10.0/12.0	40
GCRM-300	139.7	406.4	120X120	300X300	130X120	350X250	3	10.0/12.0/14.0	30
GCRM-400	219.1	508	200X200	400X400	210X200	450X350	4	16	30
GCRM-500	273	660	250X250	500X500	260X250	550X450	6	20	25

SIGNIFICANT ADVANTAGES:

- Forms Round, Square and Rectangle sections in the same mill with better weld characteristics and corner inner & outer radius in sections.
- Sections are formed from mother tube by providing better HAZ & V-angle. This is possible due to use of Round Impeder causing less energy wastage dissipated as heat & efficient use in ID Bead trimming.
- Ensures Minimal residual stress as contact rolls are evenly distributed on tube forming surface. Inherent waviness / Flatness in corrected in product is achieved through passing from corrective stretching at Sizing & elongation from Round to Hollow section.
- Only 1 set of CNC profiled tooling for all sizes. No need to maintain Spacers & repeated adjustments. Process control through Digital indicators & programming.
- Superior surface finish, minimal distortion, minimal residual stresses and tighter tolerances for welded sections & Tubes. Control of Weld seam & maintaining parallel edges is easier in CRM.
- Combines benefit of motorized adjustment of break down, fin pass & sizing roll through Servo motor adjustment. Rafted Cassettes at Sizing Pass dedicated for Round & Hollow sections with motorized roll adjustment

GALLIUM LASER TUBE CUTTING MACHINE

Gallium's Laser Tube Cutting Machine is engineered to deliver unmatched precision, speed, and efficiency. With advanced automation and cutting-edge laser technology, it ensures optimal material utilization, superior cut quality, and significant cost savings making it an indispensable solution for modern tube processing.



FEATURES

- **High-Accuracy Encoder:** Guarantees precise positioning and consistent cutting length.
- **Self-Centering Chuck:** Secures the tube firmly for accurate and stable cutting.
- **Laser Head Height Control:** Automatically adjusts to maintain optimal focus and cut quality.
- **Anti-Spatter Function:** Prevents damage, ensuring clean and reliable operation.

KEY ADVANTAGES

- **Automated Operation:** Fully automated process from material feeding to final cutting for higher efficiency.
- **360° Cutting Flexibility:** Advanced rotating laser head enables complete circumference cutting for intricate shapes and designs.
- **Increased Productivity:** Continuous, precise cutting drastically improves production speed compared to conventional methods.
- **Reduced Material Waste:** Optimized cutting ensures maximum tube length utilization and minimal scrap.
- **Superior Quality:** High-precision laser cutting delivers burr-free edges and minimal deformation.
- **Cost-Effective Solution:** Reduced downtime, higher yield, and optimized operations lead to lower production costs.



SIC HIGH-PERFORMANCE WELDING SYSTEMS



Silicon Carbide - Pipe Welder

The SIC High-efficiency switch welder is designed for straight seam induction welding of steel tubes. It mainly uses UJ3C120040K3S (SIC) and DSEI60-06A (fast recovery diode), rectifier diodes, and modular Power component consisting of high-power IGBT and other power devices. The high-power capacitor bank C and the inductance coil L form the current-mode parallel boost resonant circuit. This kind of circuit adapts to the high-frequency welded pipe with low load impedance and does not require the output transformer. This not only improves the efficiency but also increases the reliability of the whole machine.

The high-efficiency switch welder owns the following obvious features of significant energy conservation, good welding quality, small size, easy maintenance, low failure rate, and low maintenance cost, etc.

BENEFITS OF SIC-JFET (Silicon Carbide Junction Field-Effect Transistor)

LOW LINE LOSS: At similar power levels, SIC conduction loss is much lower than MOSFET, almost one-eighth of MOSFET conduction loss. Unlike MOSFET, the conduction loss of SIC hardly changes with temperature

HIGH VOLTAGE RATING: The breakdown field strength of SIC is more than ten times that of Si, so the blocking voltage of SiC is much higher than that of MOSFET. The rated voltage of the mosfet is 500V, but the rated voltage of the SIC can reach 1200V.

HIGH WORKING TEMPERATURE: SiC has an extremely stable crystal structure in terms of physical properties, and its bandwidth can reach 2.2EV to 3.3EV. The SiC therefore ensures that the welding machines run stably.

LARGE CONTINUOUS CURRENT: At the same working temperature, the SiC continuous current is more than three times that of the MOSFET. For example, at 25°C, the current of the mosfet is 20A, the current of the SiC can reach up to 62A.

FAST SWITCHING SPEED, LOW SWITCHING LOSS: The thermal conductivity of SiC is almost 2.5 times that of Si material, and the saturation electron drift rate is twice that of Si material, so the SiC device can operate at a higher frequency. Benefit from the fast switching speed, the switching loss is significantly lower. The high voltage and current of SiC provides a more reliable guarantee for stable operation of welding machine. Moreover, the SiC is more durable, reduced the down-time rate.

Compared with MOSFET high-frequency welding machine, the withstand voltage and current over load margin of SiC high-frequency welding machine are significantly improved (10% higher than that of other manufacturers in the same industry). Compared with MOSFET, the temperature range of SiC is wider; therefore, SiC works more stably and has longer service life under the same working condition.

Comparison between HF Welder with MOSFET vs SiC

Type		On-Resistance	Drain Source Voltage (V)	Conti Drain Current(A) (@25 DegC)
MOSFET	IRFP460	270	500	20
SiC	UJ3C120040K3S	35	1200	62

Type	Turn On Delay Time	Rise Time	Turn off Delay Time	Fall Time
MOSFET	18	59	110	58
SiC	33	20	63	20

BI-METAL TUBE MILL



BI-Metal tube technology combines the structural strength of mild steel with the corrosion resistance of stainless steel, creating double-walled composite tubes that eliminate the need for chrome plating. This makes them highly durable, cost-effective, and ideal for diverse industrial applications.



WHY BIMETAL TECHNOLOGY?

- Combines mild steel strength with stainless steel corrosion resistance, extending service life and reducing maintenance.
- Eliminates the need for additional coatings or plating, lowering production costs and improving sustainability.
- Offers superior durability, dimensional stability, and reliability for diverse industrial applications.
- With enhanced reliability withstanding demanding industrial and environmental conditions.

APPLICATIONS:

- Architectural & industrial structures
- Automotive & transportation
- Furniture and consumer goods
- General engineering applications

BENEFITS:

- **Superior Corrosion Resistance:** Stainless steel outer layer protects against environmental damage.
- **Enhanced Structural Strength:** Mild steel inner core ensures durability and load-bearing capacity.
- **Cost-Efficient Alternative:** Replaces chrome plating while reducing lifecycle maintenance costs.
- **Versatile Applications:** Suitable across industries where aesthetics, strength, and corrosion resistance are critical.

TECHNICAL SPECIFICATIONS:

- **Product:** BI-Metallic double-walled tubes (M.S. inner tube + Stainless steel outer tube).
- **Size & Thickness:** As per the client's specifications.
- **Process:** ERW HF Welding Mills for composite and bimetal tubes.



KEY ADVANTAGE:

With proven installations worldwide, Gallium BI-Metal Tube Mills deliver long-lasting, sustainable, and high-performance tubes that align with modern industry needs. These mills combine advanced engineering with robust automation, ensuring consistent production quality and reduced downtime.

By integrating mild steel and stainless steel in a single tube, Gallium's BI-Metal technology provides unmatched durability, superior corrosion resistance, and cost-effectiveness.



GALLIUM AUTOMATED STORAGE & RETRIEVAL SYSTEM (AS/RS)

Gallium's Automated Storage & Retrieval System (AS/RS) is designed for inventory management by combining intelligent engineering, advanced automation, and seamless software integration. It enables businesses to optimize space, reduce operational costs, and achieve higher productivity while ensuring accuracy and sustainability.



BENEFITS:

- To positively transform your business, it's mandatory to use systematic engineering surveys and slotting analysis to design storage solutions that save your time and space. Using the technology that helps you achieve the lowest cost storage density and offers the highest throughput are the automated storage and retrieval systems
- When the volume of inventory is large, Automated Storage and Retrieval Systems (AS/RS) work best. Real-time data makes physical inventory inspections redundant, saving time and costs. Automated Storage and Retrieval Systems (AS/RS) increase throughput and efficiency, lowering building costs and optimising 'air rights'.
- This System is designed to minimize and mobilize the stock. It secures the inventory, eliminates damage, and increases productivity and accuracy, thus reducing carbon footprint saving energy, time, and money. Solution is accompanied by an intelligent software that ensures real-time supply chain visibility which is designed to interface with all ERP platforms, thus producing a strong return on investment.



BENEFITS AS/RS:

- Handle Widest Range Of SKUs
- Accurate Inventory Management
- High Uptimes & Lifecycle Management
- Flawless Sequencing & Order Fulfillment
- Eliminate Manpower Damage & Waste Design



ERW HF TUBE MILLS



Gallium offers state of art ERW HF Tube mills manufactured with proprietary technologies and features for multiple sectors and applications.

Tube Mill range for manufacturing ERW HF welded tubes, Sections & special shapes starts from 10 mm OD up to 355 mm OD with thickness up to 16 mm.

Applications:

- Mechanical/Precision Tubes
- Automotive
- Structural and Scaffolding
- Casing Pipes/API Grade/OCTG
- Water and Sewage Galvanized Pipes
- Boiler and Heat Exchanger
- Square and Rectangle Hollow Sections
- Infrastructure and Railways

ERW TUBE MILL PRODUCT RANGE

TUBE MILL MODEL	TUBE OD RANGE		TUBE THICKNESS RANGE		MAXIMUM LINE SPEED (METER/MIN)		
	Min OD (mm)	Max OD (mm)	Min (mm)	Max (mm)	Low	Med	High
GTM - 1.0	10.0	25.4	0.5	2.0	60	100	120
GTM - 1.5	12.7	38.1	0.6	2.5	60	100	120/150
GTM - 2.0	12.7	50.8	0.7	3.2	60	100	120/150
GTM - 3.0	15.88	76.2	0.8	3.6	60	100	120
GTM - 3.5	21.3	88.9	1.2	-	50	80	100
GTM - 4.5	33.4	114.3	1.2	5.4	50	80	100
GTM - 5.0	42.4	127.0	1.6	6.0	50	80	100
GTM - 6.5	60.3	168.3	2.0	7.1	40	60	90
GTM - 8.5	88.9	219.3	3.0	8.2	-	30	60
GTM - 10.0	114.3	273.1	4.0	10.2	-	30	40
GTM - 12.0	152.4	323.9	4.5	12.0	-	20	30
GTM - 14.0	193.70	355.60	4.5	16.0	-	-	30

MILL CONFIGURATIONS:

- Conventional HF ERW Tube Mills
- Cassette Type - Rafted Tube Mill with Quick Changeover Features Gallium - Common Roll Mill - with CNC Motorized Tool Adjustment

FEATURES:

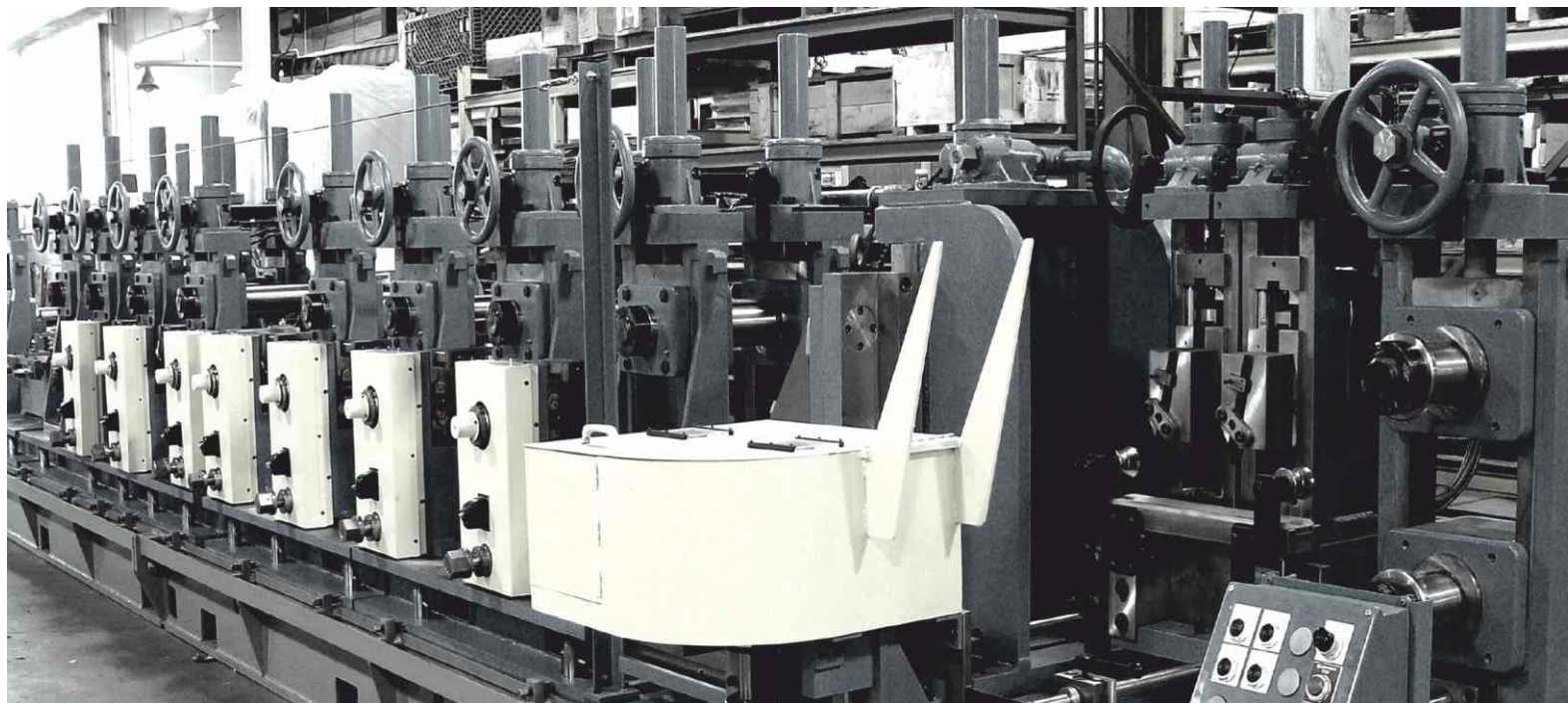
- 100% in-house Design and Development.
- Wide range of equipment designs for custom utility and development.
- Project Engineering Services.
- State-of-the-art production facilities.
- Highly experienced team for startup and production assistance.
- Prompt deliveries.
- Can be supplied as complete systems or parts thereof as per client requirement.

Long- term equipment financing options available.

CONVENTIONAL ERW TUBEMILLS/ RAFTED CASSETTE TYPE TUBE MILLS

Gallium offers custom-made ERW HF Tube mills in both Conventional W- Forming Design and Cassette-type Rafted Design for rapid changeover which results in lesser down-time and increased productivity.

Each tube mill is designed as per exact specifications and features as requested by our clients.



Applications:

- Mechanical/Precision Tubes
 - Water & Sewage
 - Galvanized Pipes
 - Automotive
 - Boiler & Heat Exchanger
 - Structural & Scaffolding SHS & RHS Hollow Sections
- Infrastructure

ERW TUBE MILL EQUIPMENT CONVENTIONAL MILL

Slit Coil --> Un-Coiler --> Shearing & Butt Welder -->
Storage/ Accumulator --> Forming --> Welding --> Cooling --
> Sizing --> Cutting Saw --> Run Out Table --> Finishing -->
Pipe Collecting & Packaging



Decoiler - Double
Mandrel



Auto Coil Joining
Equipment



Horizontal
Accumulator



Forming Mill



Welding Mill



Cooling Trough



Sizing Mill



NC Flying Cold Saw
Cut Off System



Tube - Run Out
Table

COLD ROLL FORMING LINES

Gallium offers custom-made Cold Roll Forming lines as per industry standards as well as special purpose lines for complex roll formed products. Each Roll former and tooling thereof is designed as per exact specifications and features as requested by our clients.



Applications:

- HVAC Industry
- Structural Roll-formed Products and Purlin Profiles Energy and Solar Base Mounting Purlins
- Custom Profiles for Automotive/Railway/Metal Crash Barrier Storage and Shelving
- Electrical Cabinet Member Parts
- Custom Rollformers in Inline Welding, Notching and Bending Operations
- Roll Tooling, Inline/Offline Punching Presses and Cut-off Systems

TUBE FINISHING EQUIPMENT



INLINE FLYING TUBE AND SECTION CUT OFF SYSTEMS

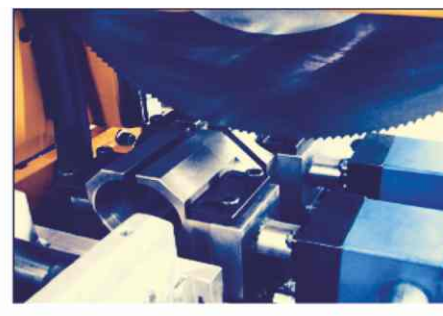
TUBE END FACING MACHINES

PIPE THREADING MACHINES

BUNDLING MACHINES

HYDROTESTER MACHINE

TUBE STRAIGHTENING MACHINE



INLINE FLYING CUT OFF SYSTEMS

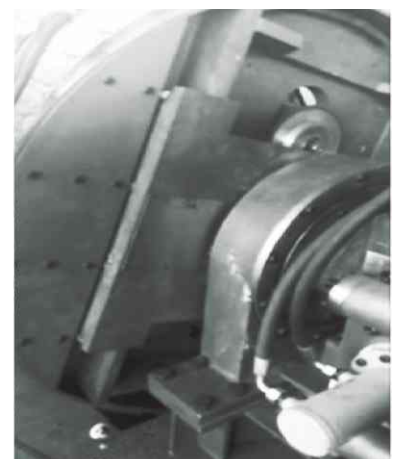
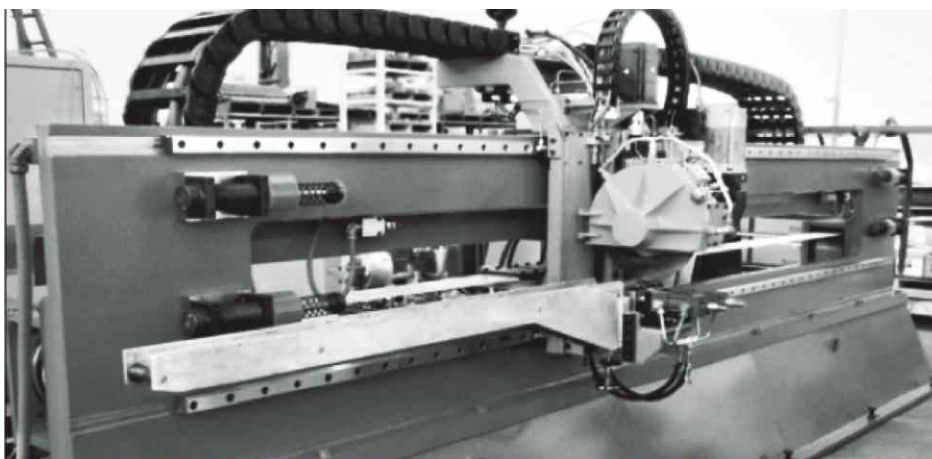
Gallium offers Inline flying cut-off systems in following configurations:

- Flying Cold Saw Cut off System – Single Blade
- Flying Cold Saw Cut off System – Twin Blade Flying Milling Type Cut off system for Sections

FEATURES:

- Fully automatic systems.
- Flexibility in operation, CNC controlled and as per length preference.
- Burr free cutting in case of cold saw cut off.
- Max Line speeds up to 150 meters per minute. Suitable for Both CR/HR/GP Steel.
- Integrated Accelerator with high mechanical efficiency. Complete protection from chip contamination.
- Rapid blade changeover mechanism.
- Human Interface control through touchscreen operation.

CUT OFF MODEL	TUBE OD Range	TUBE Thickness	MAXIMUM LINE Speed
GPCC 50	12.7-50.8 mm	0.6 -2.5 mm	150
GPCC 90	19.05-88.9 mm	0.8 -3.5 mm	120
GPCC 120	31.5-127 mm	2.0 -6.0 mm	80
GPCC 220	88.9-219.1 mm	2.0 -6.0 mm	50
GPMTC 320	Up to 12 inch NB	2.0- 8.5 mm	40
GPMTC 400	Up to 14 inch OD	3.5 - 12.7 mm	30



TUBE THREADING MACHINE

Gallium offers fully automatic tube threading machine to produce thread as per international standards at very high output rate and with quick tool change.

FEATURES:

- Fully automatic operation.
- High productivity up to 12 tubes per minute. Robust design.
- Threading heads developed in-house.
- High quality chasers for accurate threading. Quick tool change.

THREADING MODEL	TUBE OD Range	TUBE Thickness	TUBE Standard
GPTTM - 40	21.3 - 114.3 mm	1.2 - 5.4 mm	BS21/ASTM A53
GPTTM - 80	88.9 - 219.3 mm	1.5 - 8.5 mm	BS21/ASTM A53



TUBE END FACER

Gallium offers AUTOMATIC CAM OPERATED Twin Head End facer with three tool system. The machine can be installed Offline/Online to match mill output rate.

FEATURES:

- Fully automatic systems.
- Carbide/HSS tooling for quality end facing and quick tool changing/setting.
- Three tool system for OD/ID & face chamfering simultaneously.
CAM operated facing & clamp for safety.

END FACER MODEL	TUBE OD Range	TUBE Thickness	MAXIMUM OUTPUT RATE TUBES/MINUTE
GPEF - 50	12.7 - 50.8 mm	0.8-0.3 mm	20
GPEF - 80	19.05 - 88.9 mm	0.8-4.5 mm	17
GPEF - 100	21.3-114.3 mm	1.0-5.4 mm	17
GPEF - 150	60.3-168.3 mm	2.0-7.1 mm	05
GPEF - 200	88.9-219.3 mm	3.0-8.2 mm	04



TUBE BUNDLING MACHINE

Gallium automatic tube bundling machines can be used both offline and inline with high speed tube mills. Flexibility in design enables installation of machine on existing as well as new lines with ease.

FEATURES:

- Suitable for both Round and Sections sizes with quick changeover. Regular/Irregular hexagonal bundles for shaped tubes.
- Option for Manual or Auto strapping of Bundles.
- Coolant evacuation, Bundle weighing and Marking systems can be integrated as added features.
- Customized and flexible tube conveyor systems. Suitable for both offline and online functions.

Bundling Machine Capacity & Bundle shape/Size can be designed to accommodate buyer requirements.

BUNDLING MACHINE MODEL	TUBE OD RANGE	MAXIMUM BUNDLING SIZE	MAXIMUM BUNDLE WEIGHT
GPBM - 50	12.7 - 50.8 mm	400 x 350 mm	1200 kg
GPBM - 100	21.3 - 114.3 mm	600 x 520 mm	2000 kg
GPBM -200	88.9 - 219.3 mm	660 x 572 mm	3000 kg



TUBE HYDROTESTER MACHINE

Gallium automatic Single/Triple tube Hydrotester equipped with oil/water high pressure (Up to 5000 Psi) intensifiers, automatic handling systems & chart type pressure recorders according to API/ASTM/BS Standards.

FEATURES:

- OD Sealing type operation. Oil/Water intensifier.
- Continuous chart type pressure recorders/SG transducers for each Tube result.
- Closed circuit blocking heads for automatic balancing of end thrust. Quick change tooling.
- HMI based operation & data capture.
- Disc/Screw roll/Chain cross transfer type tube feeding system.

HYDROTESTER MACHINE MODEL	TUBE OD RANGE	TUBE THICKNESS	MAXIMUM TEST PRESSURE
GPHT - 30	12.7 - 76.2 mm	0.8 - 3.5 mm	UPTO TO 5000 psi
GPHT - 40 S/T	21.3 - 114.3 mm	1.2 x 5.4 mm	UPTO TO 6000 psi
GPHT - 60	60.3 - 168.3 mm	1.6 x 71.2 mm	UPTO TO 5000 psi
GPHT - 80	88.9 - 219.3 mm	3.0 x 8.2 mm	UPTO TO 5000 psi



TUBE STRAIGHTENING MACHINE (CROSS ROLL TYPE)

Gallium Tube Straightening Machine is offered in both 6 Cross Roll & 10 Cross roll type designs. The machine operated on rotary pressure & deflection principle of straightening with hyperbolic profiled rolls mounted in pairs which gives very high degree of straightness up to 1 in 3000 mm.

FEATURES:

- Accurate tube straightening without surface blemishes.
Fixed/Variable speed operation.
- Hydraulic lift features in entry bottom roll for smooth entry of tube No guides required to control tube passing.
- Built in indicators for accurate roll setting.
- Easy and quick changeover of tube sizes within range of operation. Pressure sensing unit with digital display for thin walled tubes.
- U type Inlet and L type outlet semi-automatic tube handling system. Automatic tube loading and handling system can be provided.

TUBE STRAIGHTENING MACHINE MODEL	TUBE OD RANGE	TUBE LENGTH	MAXIMUM SPEED
GPST -22-6CR	10- 32.0 mm	4 mm	50-75 mpm
GPST - 50 - 6CR	13.0 - 75.0 mm	5 mm	60-90 mpm
GPST - 6CR	25.0 - 114.0 mm	6/12mm	90/30 mpm
GPST - 114-6CR	40.0 - 140.0 mm	8mm	50-75 mpm
GPST - 140-6CR	40.0 - 169.0 mm	12mm	30-60 mpm
GPST - 220-6CR	127 - 355.6 mm	16mm	20-30 mpm



COLD DRAWN WELDED TUBE PLANT EQUIPMENT



DRAW BENCHES – SINGLE/DOUBLE/TRIPLE TUBE TYPE
TWO-DIE TYPE PUSH POINTING MACHINE
TOOLING

TUBE DRAWBENCH (SINGLE/DOUBLE/TRIPLE WITH AUTO FEED TYPE)

Gallium offers Single/Double/Triple Tube Draw bench with automatic operation, designed for high yield, perfect quality and precise application.

FEATURES:

- Automatic Tube handling and feeding mechanism.
- Motorized rotating/indexing type back bench with auto plug positioning device to minimize handling time.
- Spherical die holder for self alignment.
- Fully guided carriage with automatic fast return.
- Round tooth type pneumatic clamp to avoid tube slippage.
- AC/DC drive options.
- Heavy duty high reduction gear box.
- Carriage driven by duplex/triplex type double sprocket and chain having rupture strength up to 6 times the draw force.
- Automatic tube discharge at front frame.

DRAWBENCH MACHINE MODEL	MAXIMUM FORCE	MAXIMUM MOTHER OD	MAXIMUM TUBE DRAW LENGTH	MAXIMUM TUBE DRAW LENGTH
GPDB - 10	10 MT	50 mm	18 m	60 m/min
GPDB - 20	20 MT	75 mm	18 m	60 m/min
GPDB - 30	30 MT	90 mm	25 m	60 m/min
GPDB - 40	40 MT	110 mm	25 m	60 m/min
GPDB - 50	50 MT	130 mm	25 m	60 m/min
GPDB - 75	75 MT	175 mm	25 m	36 m/min



TUBE PUSH POINTER

Gallium offers HYDRAULICALLY OPERATED Two/Four die tube push pointing machine suitable for both Ferrous and Non-ferrous material for pointing of tube prior to cold drawing with many advantages over conventional swaging/squeezing pointing operations. The machine is also capable of nozzeling the point.

FEATURES:

- Noise less & vibration free operation.
- Improved productivity & yield in cold drawing.
- Prevents excess material wastage.
- Perfectly round concentric points suitable for thin/thick walled tubes. No loss of point in multi pass job.
- Flexible point lengths.
- Fixed/Rotary type multi sided gripper jaws.
- Common die for pointing and cold drawing.
- Automatic handling system with rubberized rolls.

PUSH POINTING MACHINE MODEL	MAXIMUM PUSH FORCE	MAXIMUM TUBE OD
GPPP - 50	23 MT	90 mm
GPPP - 75	34 MT	130 mm
GPPP - 75/150	34/68 MT	130 mm



COIL PROCESSING LINES



SLITTING LINES UP TO 2200 MM WIDE & 16 MM THICK

CUT TO LENGTH MACHINES UP TO 2000 MM WIDE &
20 MM THICK

STRIP GALVANIZING LINES

COLOR COATING LINES

COIL PICKLING LINES

TENSION LEVELING LINES

SHEET STACKING SYSTEMS

ROTARY SHEARS

SLITTING LINES

Gallium specializes in designing and manufacturing Slitting Lines for Steel Service Centers and Manufacturers who demand precision, reliability and maximum productivity.

Our range of Slitting Lines is divided into various categories on the basis of dimensions and thickness of the material to machine and production quantities.

MINI SLITTING LINES:

15 ton, 950mm, Thickness 0.2 mm to 3 mm, Speed up to 120 m/min

MEDIUM SLITTING LINES:

Up to 30 Ton, 1600 mm, Thickness 1.5 mm to 16.0 mm, Speed up to 100 m/min

HEAVY SLITTING LINES:

Up to 40 Ton, 2200 mm, Thickness 2.5 mm to 12 mm, Speed up to 40 m/min

SLITTING LINES MODEL	SHEET THICKNESS MM	COIL WIDTH MM	LINE SPEED M/MIN	COIL WEIGHT(T)
GPSL - 950	0.2-2.5	300-950	0-120	10, 15
GPSL - 1550	0.5-4.5	300-1550	0-100	15, ^20,25
GPSL - 1800	1.2-8.0	900-1800	0-80	25,30,40
GPSL - 2000	2.5-10.0	950-2000	0-60	25,30,40
GPSL - 2200	2.5-16.0	950-2200	0-40	25,30,40

CUT TO LENGTH LINES

Gallium specializes in designing and manufacturing Cut To Length Lines for Steel Service Centers and Manufacturers who demand precision, reliability and maximum productivity

Our range of Cut To Length Lines is divided into various categories on the basis of dimensions, productivity and thickness of the material to be processed.

AUTOMATIC MINI CTL:

For strip width range 100 to 750 mm, thickness up to 3.5 mm Operation- START STOP SHEAR / FLYING SHEAR

AUTOMATIC CTL:

For strip width range 900, 1250, 1550, 1600, 1800 and 2000 mm, thickness up to 16 mm

START STOP SHEAR / FLYING SHEAR / ROTARY SHEAR

CUT TO LENGTH LINE MODEL	SHEET THICKNESS MM	COIL WIDTH MM	LINE SPEED M/MIN	COIL WEIGHT(T)
GPCTL - 850	0.3-3.0	300-850	40	^10,15
GPCTL - 1300	1.2-4.5	400-1300	40	^15,20
GPCTL - 1600	1.2-6.0	400-1600	40	^20,25
GPCTL - 1650	1.5-8.0	400-1650	40	20,25
GPCTL - 1800	2.0-10.0	650-1600	40	25,30,40
GPCTL - 2000	3.0-16.0	950-2000	40	25,30,40

COIL PROCESSING EQUIPMENT



GALLIUM - ADVANCED REVERSING COLD-MILL TECHNOLOGY (ARCT)

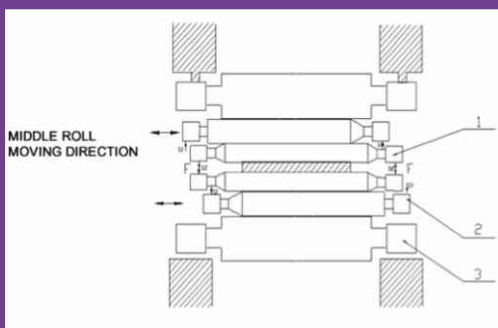
Advanced reversing cold-mill technology is an ideal solution for small-to-medium production capacities or for rolling of smaller order lots of special steel grades. We offer 4-high or 6-high mill stands to meet client requirements. In reversing cold mills, the tension reels are placed on both sides of a 1 or 2 mill-stand arrangement. Due to reversing rolling passes, production efficiency is lower than that of a tandem mill. However, because the rolling parameters can be quickly changed for each coil, reversing cold mills are especially suitable for small-lot production of various product types. The size of the mill equipment is also smaller, which allows easier access to mill equipment and machinery for maintenance purposes. Due to their simpler design, reversing mills can be easily stopped and restarted. They are also less expensive to purchase and operate.

GALLIUM - SKIN PASS MILL (SIX HIGH COLD OF TWO STANDS PINCH PASS MILL OF HYDRAULIC AGC SYSTEM)

Gallium skin-pass mills include full compliance with tight strip elongation tolerances, excellent flatness performance, high surface quality with respect to roughness, peak count and residuals and the availability of wet and dry skin-passing modes.

Gallium supplies stand-alone and inline skin-pass mills in either single or two stand design for adjusting the final mechanical properties, flatness and surface finish of cold-rolled strip. Due to its higher rolling forces and torques, a two-stand skin-pass mill is the preferred solution to meet the increasing demands placed on strip flatness, elongation and roughness, especially for hard-material grades. It consists of two series of two rollers and four rollers. It is used for leveling annealed cold rolling strips for improving machinery functions to enhance the surface hardness, strength and elasticity of CR strips.

Meanwhile, the CR strips through the leveler unit can have functions of excellent deep punching, shapes and surface clearness. Four rollers leveler unit for middle and wider coils and plates is equipped with hydraulic AGC pressing down and automatic adjusting rolling elevation lever installations.



Leveling technic such as constant extension, constant rolling force, constant clearance of rollers and constant tension can come true by PLC & Numerical online control

CONTINUOUS GALVANIZING LINES



Continuous Process:

Coils to be processed on galvanizing line are charged, or loaded, on to one of two Pay-Off Reels. The head of the coil being charged is welded to the tail of the coil being processed by a lap seam welder. The two coils are over-lapped onto one another, and a pair of high-voltage copper wheels, one above and one below, roll from one edge to the other, melting the laps and pressing them into one another. After welding, the strip travels into the 'Entry Loop Car', or accumulator section, where enough material is stored to allow the entry section to shut down for at least a minute and a half while another coil is charged without slowing the process (annealing and zinc pot) section.

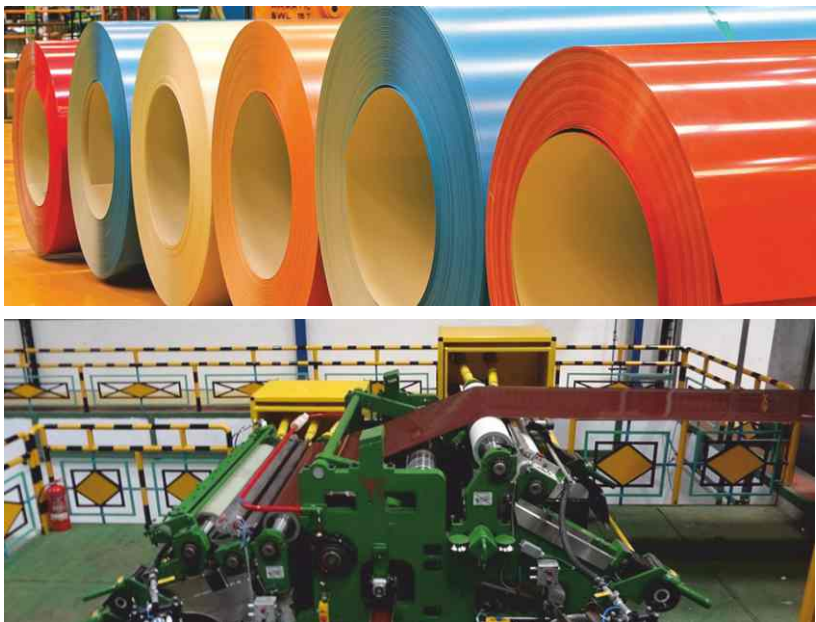
Control of Zinc Coating Amounts:

- Highly-functional galvanizing technology.
- Capable of thin zinc-coating products.
- Non-contact baffle plate control.
- Rapid gas-jet cooling.
- Strip temperature controlled through the adjustment of the air volume in the strip's width direction.

GALLIUM – COLOUR COATING LINES

Gallium offers optimized line configuration for Colour Coating in steel strip, easy accommodation of product and colour changes.

Metal strip is coated using multi-layer technology to meet visual requirements on one hand, by applying different colors, and to protect the final product against corrosion, chemicals, UV radiation, and mechanical scratches on the other hand.



CLIENT BENEFITS:

- High production flexibility due to wide product range with roll coaters.
- Best surface quality by ensuring a continuous process with selected components of high availability.
- Process routes optimized for production and maintenance purposes.
- Single-source concept as complete line supplied by Gallium.

TOOLING

Gallium offers customized solutions for Roll tool design, manufacturing and supply for all Gallium scope of Equipment and also for retrofitting to existing equipment. In-House rapid tool prototyping, COPRRA software simulation and modern in-house manufacturing facility allows us to cater to wide variety of industries.

Gallium partners with its Clients for roll tool development, consultancy for selection of raw material and offers retrofitting services.



STRAIGHTENER ROLLS



OPEN PROFILE ROLLS



BICYCLE RIM ROLLS



FURNITURE PROFILE ROLLS



REDUCTION ROLLS



TUBE MILL ROLLS

SCOPE OF EQUIPMENT:

- Roll Tools for Tube & Pipe Mills
- Roll Tools for Open Section forming
- Contour Rolls for Straightening Machine
- Roll Tool for Re-profiling and Grinding
- Retrofitting and Tool/Die Development Forming, Sizing, Shaping and Contouring Rolls
- Mill Shafts, Shear Blades, Cutting Inserts
- Scarfing Tools and Facing heads Punching, Marking, Embossing and Shearing tools
- Slitting Cutter/Knives and Spacers



GALLIUM – IMCR TECHNOLOGY

Gallium integrated melting, casting and rolling ("IMCR") process technology offers plant equipment which is 45% economical than conventional HR Mills. This technology is applicable to both Billet based rolling and Slab based rolling to achieve finished products by significantly reducing costs and improving output quality preventing material yield losses.

Depending on the product end-use, various shapes can be cast. The melting/casting/rolling processes are linked while casting a shape that substantially conforms to the finished product.

Each project can be custom designed to meet exact requirements of clients and their product specifications.

ADVANTAGES OF IMCR TECHNOLOGY:

- Production of various types of continuous casting moulds.
- Allows production of HR Coils directly with controlled gauge thickness. The process allows higher scrap recycling and reduces dependence on pig iron or DRI.
- In addition to the substantial energy savings it enables, the process is more tolerant to high residual elements without loss of quality, enabling greater flexibility in ferrous feed sourcing.
- Low capital expenditure and efficient use of scrap as raw material.
- Allows easy scale up for backward Integration for raw material supply for finished products.

GALLIUM – IMCR TECHNOLOGY FOR LONG PRODUCTS, PLATES AND NARROW WIDTH FLAT PRODUCTS

Gallium offers innovative technology for manufacturing long products from primarily scrap based plants integrating high speed caster and a rolling mill. This technology is applicable to both Billet Based Rolling and Slab based rolling to achieve finished products by significantly reducing costs and improving output quality preventing material yield losses.

Currently, most steel is continuously cast into slabs, billets or blooms, which have to be reheated when later rolling them into final shape. Gallium ICRT integrates the casting and hot-rolling of steel into one step, thereby reducing the need to reheat the steel before rolling it.

Depending on the product end-use, various shapes can be cast. The melting/casting/rolling processes are linked which substantially conforms to the finished product.



GALLIUM – IMCR TECHNOLOGY PROCESS STAGES

STAGE-1



Metal Scrap



Melting Furnace

STAGE-2



Casting Mill



Billet caster

 Billet



Slab/Bloom caster

 Bloom  Slab

STAGE-3

ROLLING MILL



Section Mill



Slab Re-Rolling Mill



TMT/Bar Mill

FINISHING PRODUCTS

  Bar/Billet
Angle/Channel
Rolled Sections
and I-beams
Wire Rod

  Direct Plate with
Narrow Thickness
Direct HR Coil with
Controlled Thickness

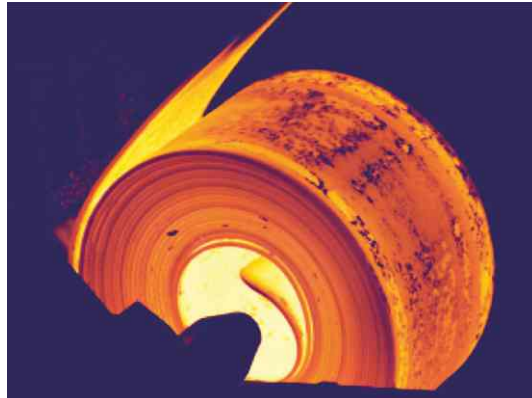
  TMT Bar of
Various Dia
Wire Rod

GALLIUM – IMCR TECHNOLOGY PROCESS STAGES

STAGE-4

**DIRECT HR COIL WITH
CONTROLLED THICKNESS**

**RE-ROLLING
AND HR COIL**



STAGE-5

**Cold Rolling Mill for getting
Precision Cold Roll Coils & Stripes
after Re-Rolling**



**Direct HR Strip Coil
Galvanizing - Wet Flux
Type Hot Dip Process**



STAGE-6

**Economic Conversion of Scrap Based Production of HR Coil to Hot Rolled
Pre-Galvanized Coil with Superior Finish and Gauge Control**



GALLIUM – IMCR TECHNOLOGY PROCESS STAGES

STAGE-7

HR Pre-Galvanized Coil to



ERW HF Tube Mill



FINISHED PRODUCTS:

ERW Welded Steel Tubes/Sections, Special Shapes: 0.5 - 8 inch
OD Metal Pipes for Conduit Applications
Sections and Tubes for Construction Scaffolding Corrosion
Resistant Structural Tubes

STAGE-8

OPEN SECTION FORMING MILLS



- **FINISHED PRODUCTS:**
- Pre Galvanized Solar Base Mounting Structures & Purlins
- W-Beam Guard Rails & C Channels
- Corrosion Resistant Structural Components Corrosion Resistant Roofing and Accessory Profiles Metal Trays – Galvanized
- Struts & Channel Parts for Storage Industry
- Sheet Products for HVAC Application for Ducting
- Cable Tray and Scaffolding Walk Board Profiles

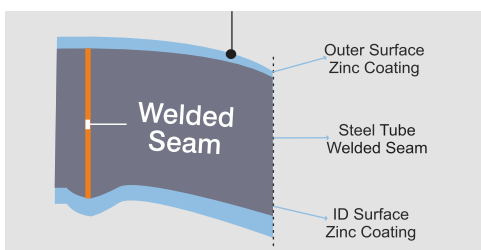
GALLIUM INLINE OD & ID GALVANIZING TECHNOLOGY FOR WELDED TUBULAR & SECTIONS

Gallium offers state of art Inline Galvanizing and Tube coating technologies. This process is most efficient & flexible manufacturing method for ERW Welded Tubular & Sections with perfect finish, unmatched corrosion resistance with high output yield.

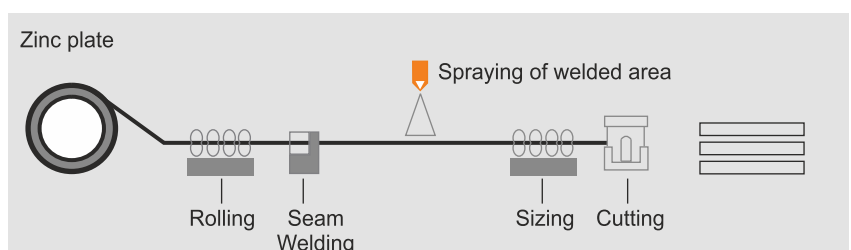
The Technology Offers even surface finish without cracking, flaking or otherwise damaging the integrity of the coating on interior Surface. This vastly increases corrosion resistance of pipes & offers unmatched surface finish & is best alternate to hot dip galvanizing.



The Technology has Applications across Industries requiring Corrosion Resistance and in High Saline Environments including Structural, Architectural, Fence Tubes, Mechanical and Automotive.



Interior Surface of Welding

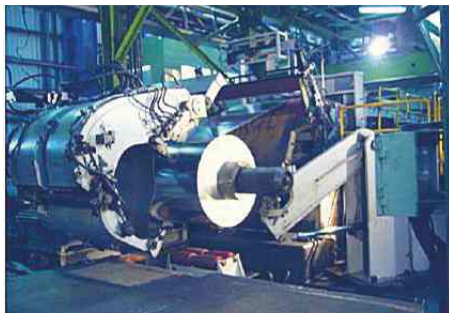


Metalizing Outer Surface of Welding

GALLIUM GALVANIZING TECHNOLOGY - PRODUCTION STAGES

STAGE-1

HR Strip is used as substrate on online strip galvanizing through WET-FLUX Type Hot Dip Galvanizing process for making economical fully galvanized strips of maximum 600 mm wide coils.



STAGE-2

Fig: Slitting Operation of Galvanized Coil To Accurately Feed Strips for ERW HF Tube and Section Forming

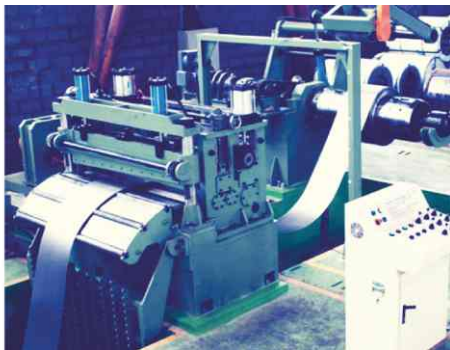
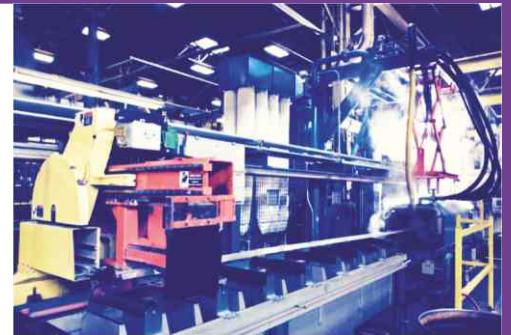


Fig: ERW HF Tube Forming Mill With Inline Metalizing Unit & Special OD & ID Surface anti-corrosion coating systems

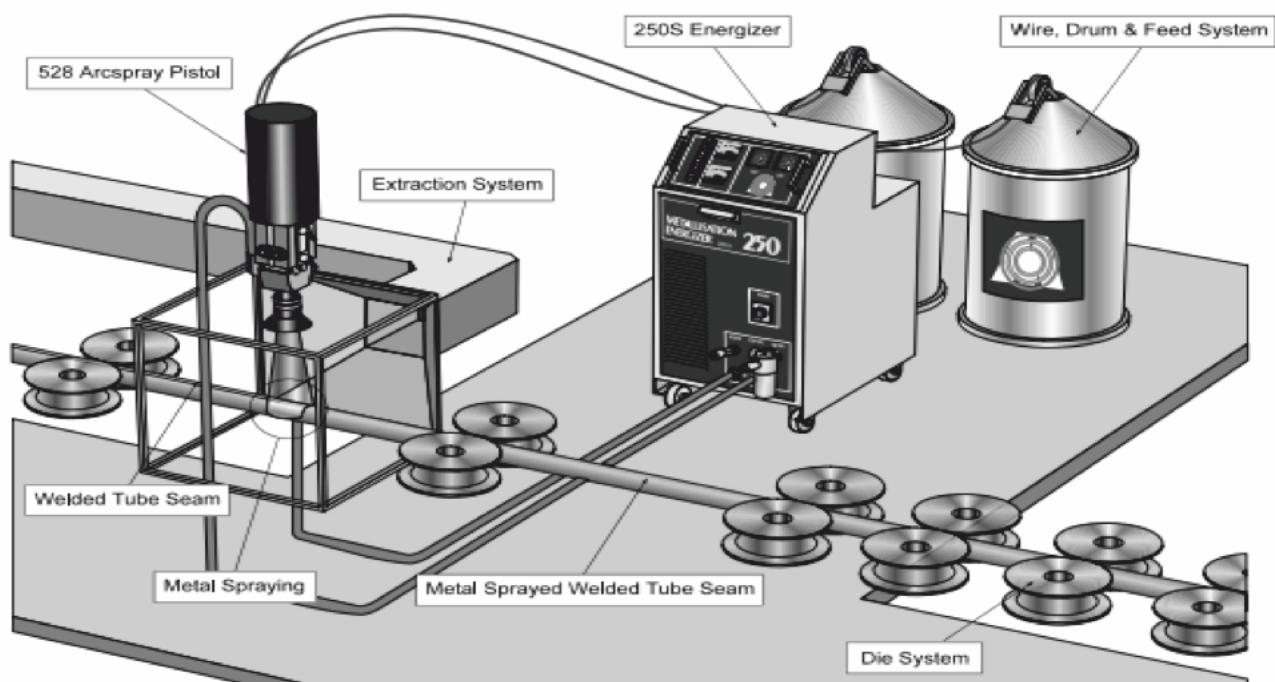
GALLIUM GALVANIZING TECHNOLOGY - PRODUCTION STAGES

STAGE-2

The proposed equipment is placed in line to provide moisture free surface for zinc coating in presence of inert gas chamber. This is followed by quick cooling zone with fume extractor. The surface of the Tube is heated in order for surface bonding of zinc coating offering superior finish with even surface coating.



In-Line Induction Heater with Fume Extractor System



In Line Weld Seam Metalizing & Spray Unit

Metalizing unit comprises of a torch and a wire for spraying molten zinc on the black line formed by bead cutter. The system has a fume extractor and a dust collector. Space can be provided on bed and this system shall be placed after Welding station and OD Bead Scarfing unit.

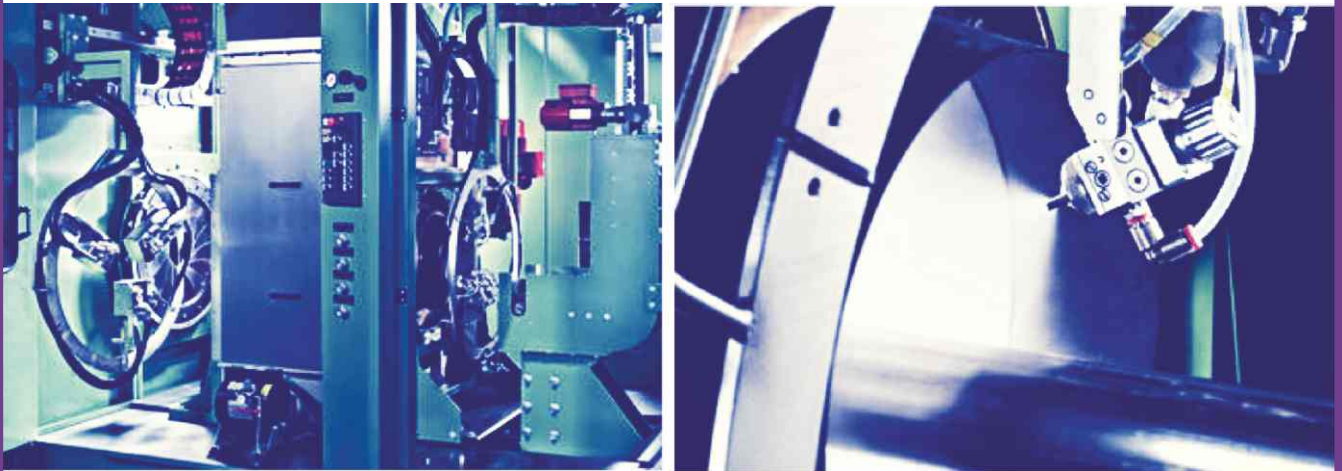
System unit Includes:

Zinc Wire & feeding Unit x 1 No, Energizer x 1 No, Arc Spray Unit x 1 No and Extraction System x 1 No

GALLIUM GALVANIZING TECHNOLOGY - PRODUCTION STAGES

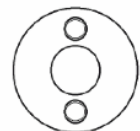
STAGE-2

Inline – Pipe Surface Solvent Free UV Lacquer Coating System



Inline Lacquering plant for steel tubes with UV treatment for additional corrosion protection. The surface quality of the solvent free coating with 100% UV lacquer, the fast curing time of ≤ 1 second as well as an overspray recovery rate of more than 95% are impressive features which, by their very nature, offer high economic efficiency. Additional modules individually perform either the cleaning work, dust removal or marking of tubes.

Special Impeders for Pipe/Tube ID Surface Coating



Special Return Flow Type impeders for conduit use a high efficiency, single ferrite design which results in increased production speeds and reduced downtime. The use of high power, low loss ferrite materials significantly reduces the amount of cooling required by the impeder.

GALLIUM GALVANIZING TECHNOLOGY - PRODUCTION STAGES

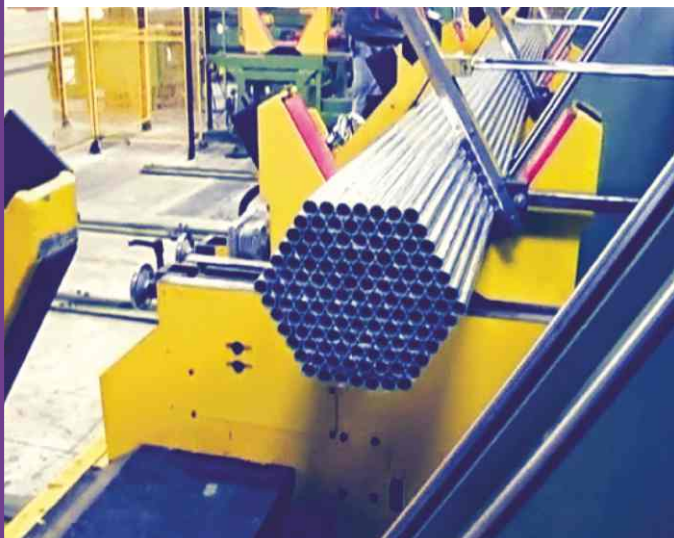
STAGE-3

Inline Cold Saw Cut Off & Tube Delivery System



STAGE-4

Inline Tube Bundling System For Finished Tubes



GALLIUM GALVANIZING TECHNOLOGY - RESULTS, APPLICATIONS & ADVANTAGES

END RESULT



Without Internal
Galvanizing Coating



Gallium Internal & External
Surface Galvanizing Coating

FINISHED PRODUCTS APPLICATIONS



Construction
& Infra



Metal Tube
Fence Post



Electrical
Conduit Pipes



Agricultural
Posts



Corrosion-free
Metal Construction

PROCESS ADVANTAGES:

- This economical technology by Gallium offers both exterior and interior surface galvanizing of ERW Welded Steel tubes at the same time as they are made. The corrosion resistance of the coating depends on the thickness of the pure zinc layer.
- Both external and internal weld area are evenly finished preventing rusting due to even surface coating.
- This technology offers alternate process than hot-dip galvanizing. The difference between online coating process and the dip coating process is that dip coating process has a thinner pure zinc layer and a thicker metal alloy layer. Conversely, the coating using inline galvanizing process has an even finish internal and external zinc layer and a thinner metal alloy layer.

GALLIUM GALVANIZING TECHNOLOGY - CUSTOMIZED SIZES AND SHAPES

GALVANIZED ERW WELDED ROUND & SECTION POPULAR SIZES

Round Type (kg/m)	Weight of tube (kg/m)/ t wall thickness (mm)																																					
	1.0	1.1	1.2	1.4	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8											
19.1	.446	.488	.530	.611	.690	.729	.768	.806	.843	.880	.917	.953																										
21.7			.607	.701	.793	.838	.883	.928	.972	1.02	1.06	1.10	1.14	1.18	1.22	1.26	1.31																					
22.2	.523	.572	.621	.718	.813	.859	.906	.951	.996	1.04	1.09	1.13	1.17	1.21	1.26	1.30	1.34																					
25.4	.602	.659	.716	.823	.939	.994	1.05	1.10	1.15	1.21	1.26	1.31	1.36	1.41	1.46	1.51	1.56																					
27.2			.769	.891	1.01	1.07	1.13	1.19	1.24	1.30	1.36	1.41	1.47	1.52	1.58	1.63	1.68																					
31.8			.906	1.105	1.19	1.26	1.33	1.40	1.47	1.54	1.61	1.67	1.74	1.81	1.87	1.94	2.00																					
33.5			.958	1.11	1.28	1.33	1.41	1.48	1.55	1.63	1.70	1.77	1.84	1.91	1.98	2.05	2.12	2.19	2.26	2.32	2.39	2.46	2.52															
34.0			.971	1.13	1.28	1.35	1.43	1.50	1.58	1.65	1.73	1.80	1.87	1.94	2.01	2.08	2.15	2.22	2.29	2.36	2.43	2.50	2.57															
38.1			1.09	1.27	1.44	1.53	1.61	1.70	1.78	1.86	1.95	2.03	2.11	2.19	2.28	2.36	2.44	2.52	2.60	2.68	2.75	2.83	2.91															
42.0			1.21	1.40	1.59	1.69	1.78	1.88	1.97	2.07	2.16	2.25	2.34	2.44	2.53	2.62	2.71	2.80	2.89	2.97	3.06	3.15	3.24	3.32														
42.7			1.23	1.43	1.62	1.72	1.82	1.91	2.01	2.10	2.20	2.29	2.39	2.48	2.57	2.66	2.76	2.85	2.94	3.03	3.12	3.21	3.30	3.38														
48.1			1.39	1.61	1.83	1.95	2.06	2.16	2.27	2.38	2.49	2.60	2.70	2.81	2.92	3.02	3.13	3.23	3.34	3.44	3.54	3.65	3.75	3.85	3.95	4.05	4.15											
48.6			1.40	1.63	1.85	1.97	2.08	2.19	2.30	2.41	2.52	2.63	2.73	2.84	2.95	3.06	3.16	3.27	3.37	3.48	3.58	3.69	3.79	3.89	3.99	4.10	4.20											
57.2				1.93	2.19	2.33	2.46	2.59	2.72	2.85	2.98	3.11	3.24	3.37	3.50	3.63	3.76	3.88	4.01	4.14	4.26	4.39	4.51	4.63	4.76	4.88	5.00											
60.0				2.02	2.30	2.44	2.58	2.72	2.86	3.00	3.14	3.27	3.41	3.54	3.68	3.82	3.95	4.08	4.22	4.35	4.48	4.61	4.75	4.88	5.01	5.14	5.20											
60.5				2.04	2.32	2.46	2.61	2.75	2.89	3.02	3.16	3.30	3.44	3.58	3.71	3.85	3.98	4.12	4.25	4.39	4.52	4.65	4.79	4.92	5.05	5.18	5.30											
76.3						3.13	3.31	3.49	3.66	3.84	4.20	4.20	4.37	4.55	4.73	4.90	5.08	5.25	5.42	5.60	5.77	5.94	6.11	6.28	6.45	6.62	6.79											

Rectangular Tube (kg/m)	Weight of tube (kg/m)/ t wall thickness (mm)																	
	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
50x50					2.38	2.52	2.66	2.80	2.83	3.07	3.20	3.34	3.47	3.60	3.73	3.86	3.99	
50x60					2.88	3.05	3.22	3.39	3.56	3.73	3.90	4.06	4.22	4.39	4.55	4.71	4.87	
75x45					2.88	3.05	3.22	3.39	3.56	3.73	3.90	4.06	4.22	4.39	4.55	4.71	4.87	

ERW TUBE MILL PRODUCT RANGE WITH INLINE GALVANIZING PROCESS

TUBE MILL MODEL	TUBE OD RANGE		TUBE THICKNESS RANGE		MAXIMUM LINE SPEED (METER/MIN)		
	MIN OD MM	MAX OD MM	MIN OD MM	MAX OD MM	LOW	MED	HIGH
GTM - 1.0	10.0	25.4	0.5	2.0	60	100	120
GTM - 1.5	12.7	38.1	0.6	2.5	60	100	120/150
GTM - 2.0	12.7	50.8	0.7	3.2	60	100	120/150
GTM - 3.0	15.88	76.2	0.8	3.6	60	100	120/150
GTM - 3.5	21.3	88.9	1.2	6.0	50	180	100
GTM - 4.5	33.4	114.3	1.2	5.4	50	180	100
GTM - 5.0	42.4	127.0	1.6	6.0	50	180	100
GTM - 6.5	60.3	168.3	2.0	7.1	-	60	90

MILL CONFIGURATION:

- CONVENTIONAL HF ERW TUBE MILLS
- CASSETTE TYPE – RAFTED TUBE MILL WITH QUICK CHANGE OVER CHANGE

FEATURES:

- GALLIUM – COMMON ROLL MILL - WITH CNC MOTORIZED TOOL ADJUSTMENT

FEATURES:

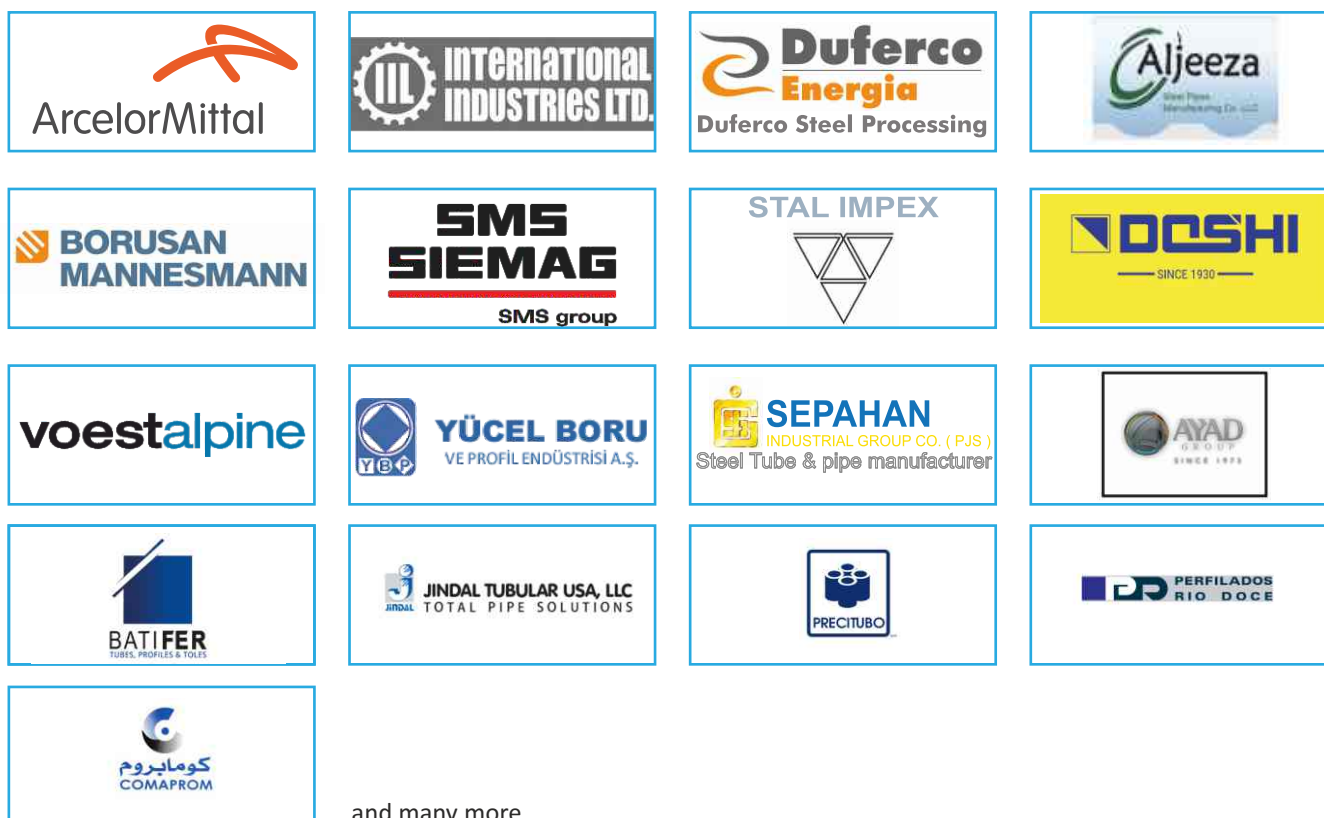
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