

DESIGN . ENGINEERING . PROCUREMENT . MANUFACTURING . CONSULTANCY



GALLIUM HOLDINGS



CORPORATE BROCHURE



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OVERVIEW

**\$ 100
million+**

**WORTH OF
MACHINERY
EXPORTED
SINCE
INCEPTION**

**\$ 50
million+**

**WORTH OF
MACHINERY
SOLD WITHIN
INDIA SINCE
INCEPTION**

65+

**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 services to 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 and Latin 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 requirements.



INDIA

CHINA

UAE

SAUDI
ARABIA

MALAYSIA

ARGENTINA

BRAZIL

SRI LANKA

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 Retrofitting and Revamping
- Feasibility Reports and Detailed Project Reports



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 TYP

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)
	Min (mm)	Max (mm)	
GEPL - CC:300	40 mm	300 mm	2T
GEPL - CC:500	80 mm	500 mm	5T
GEPL - CC:750	100 mm	900 mm	15T
GEPL - CC:900	150 mm	1650 mm	20T/25T
GEPL - CC-HT-500	250 mm	2000 mm	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 (in tons)
		Min (mm)	Max (mm)	
GEPL - UCSM:300	Single Mandrel	40 mm	300 mm	3T
GEPL - UCDM:500	Double Mandrel	50 mm	300 mm	5T
GEPL - UCDM:750	Double Mandrel	60 mm	650 mm	7.5T
GEPL - UCDM:900	Double Mandrel	100 mm	900 mm	10T
GEPL - CT-900	Cone Type Uncoiler	250 mm	2000 mm	>=15T

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
GEPL - SW P	240 mm x 3mm	PSA TYPE Pneumatic/Hydraulic
GEPL - SW L	700 mm x 8 mm	L-Type Hydraulic Shear
GEPL - 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 ACCUMULATOR SYSTEMS



Gallium Horizontal Accumulators are available in several models based on Strip width range, Coil thickness and Operating line speed options. They are able to store 20 mm to 1915 mm wide material with thickness range from 0.3 mm to 16 mm maximum. Both RLA-Reverse Loop Type & K-Feeder Type design options are available for clients.

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	Min Strip Storage in Minutes
GEPL - RLA 35	32-120	0.6-2.5 mm	150	5
GEPL - RLA 45	40-240	0.8-3.5 mm	150	5
GEPL - RLA 55	65-360	1.0-5.4 mm	120	5
GEPL - RLA 65	190-530	1.6-7.1 mm	90	6
GEPL - RLA 85	280-690	2.9-8.2 mm	60	8
GEPL - RLA 125	360-2000	3.05-16.0 mm	40	8



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
GEPL - 1.0	10.0	25.4	0.5	2.0	60	100	120
GEPL - 1.5	12.7	38.1	0.6	2.5	60	100	120/150
GEPL - 2.0	12.7	50.8	0.7	3.2	60	100	120/150
GEPL - 3.0	15.88	76.2	0.8	3.6	60	100	120/150
GEPL - 3.5	21.3	88.9	1.2	6.0	50	180	100
GEPL - 4.5	33.4	114.3	1.2	5.4	50	180	100
GEPL - 5.0	42.4	127.0	1.6	6.0	50	180	100
GEPL - 6.5	60.3	168.3	2.0	7.1	-	60	90
GEPL - 8.5	88.9	219.3	3.0	8.2	-	30	60
GEPL - 10.0	114.3	273.1	4.0	10.2	-	30	40
GEPL - 12.0	152.4	323.9	4.5	12.0	-	20	30
GEPL - 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 TUBE MILLS/ 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



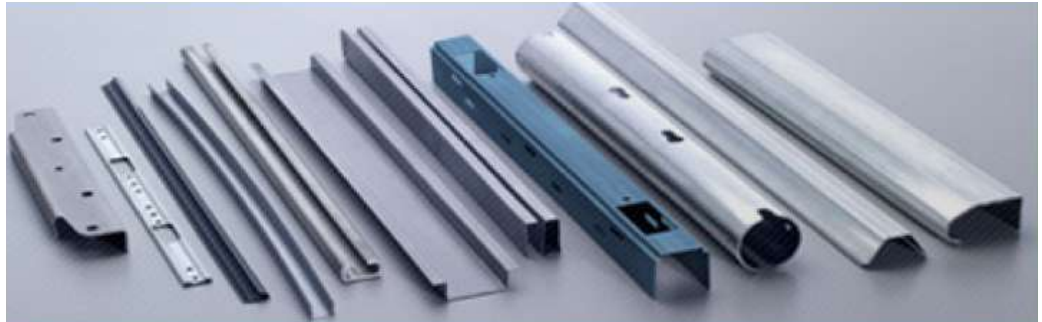
NC Flying Cold Saw
Cut Off System



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



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 Friction Saw Cut off System
- 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
GEPL - CC50	12.7-50.8 mm	0.6 -2.5 mm	150
GEPL - CC90	19.05-88.9 mm	0.8 -3.5 mm	150
GEPL - MTC120	31.5-127 mm	2.0 -6.0 mm	80
GEPL - MTC220	Up to 12 inch □ OD	2.0- 8.5 mm	40
GEPL - MTC C220H	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
GEPL - THM - 40	21.3 - 114.3 mm	1.2 - 5.4 mm	BS21/ASTM A53
GEPL - THM - 80	88.9 - 219.3 mm	1.5 - 8.5 mm	BS21/ASTM A53



TUBE ENDFACING MACHINE

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
GEPL - TE 50	12.7 - 50.8 mm	0.8 - 3.0 mm	20
GEPL - TE 80	19.05 - 88.9 mm	0.8 - 4.5 mm	17
Â EPL - TE 100	21.3 - 114.3 mm	1.0 - 5.4 mm	17
GEPL - TE 150	60.3 - 168.3 mm	2.0 - 7.1 mm	05
GEPL - TE 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
GEPL - BM - 50	12.7 - 50.8 mm	400 x 350 mm	1200 kg
GEPL - BM - 100	21.3 - 114.3 mm	600 x 520 mm	2000 kg
GEPL - BM -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
GEPL- HT- 30	12.7 - 76.2 mm	0.8 - 3.5 mm	Up to 3000 psi
GEPL - HT - 40 S/T	21.3 - 114.3 mm	1.2 - 5.4 mm	Up to 3000 psi
GEPL - HT - 60	60.3 - 168.3 mm	1.6 - 7.1 mm	Up to 5000 psi
GEPL - HT - 80	88.9 - 219.3 mm	3.0 - 8.2 mm	Up to 5000 psi



TUBE STRAIGHTENING MACHINE (CROSS ROLL TYPE)

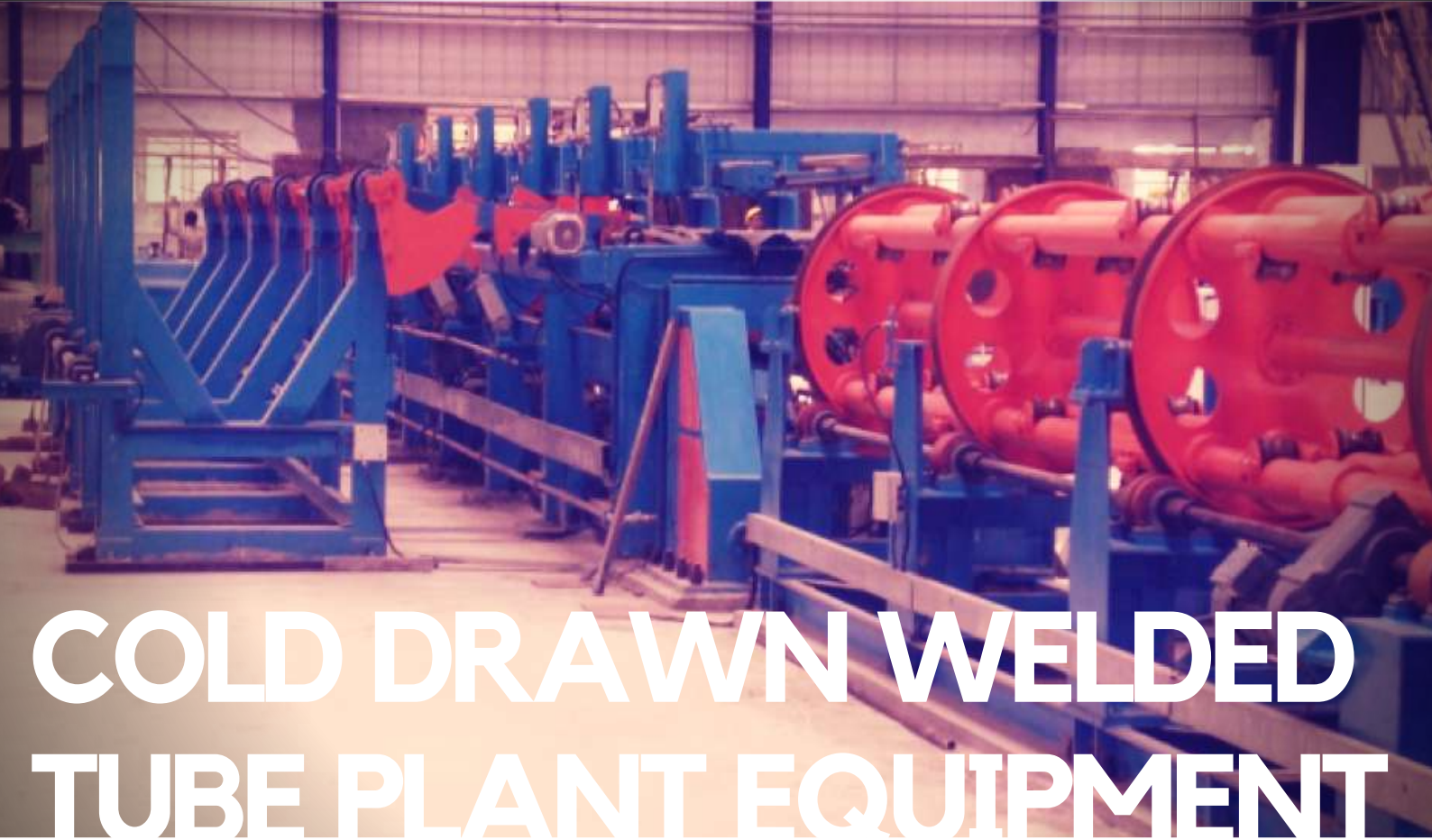
Gallium Tube Straightening Machine is offered in both 6 Cross Roll & 10 Cross roll type designs. The machine operated on rotary pressure & deflection principle of straightening with hyperbolic profiled rolls mounted in pairs which gives very high degree of straightness up to 1 in 3000 mm.

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
GEPL-ST-22-6CR	10 - 32.0 mm	4 m	50-75 mpm
GEPL-50-6CR/10CR	13.0 - 75.0 mm	5 m	60-90 mpm
GEPL-ST-75-6 CR/10 CR	25.0 - 114.0 mm	6 m	60-90 mpm
GESPL-ST114-6CR	40.0 - 140.0 mm	8 m	50-75 mpm
GEPL-ST-140-6CR	60.0 - 169.0 mm	12 m	30-60 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 DRAWING SPEED
GEPL-DB-10	10 MT	50 mm	18 m	60 m/min
GEPL-DB-20	20 MT	75 mm	18 m	60 m/min
GEPL-DB-30	30 MT	90 mm	25 m	60 m/min
GEPL-DB-40	40 MT	110 mm	25 m	60 m/min
GEPL-DB-50	50 MT	130 mm	25 m	60 m/min
GEPL-DB-75	75 MT	175 mm	25 m	36 m/min



TUBE PUSH POINTER

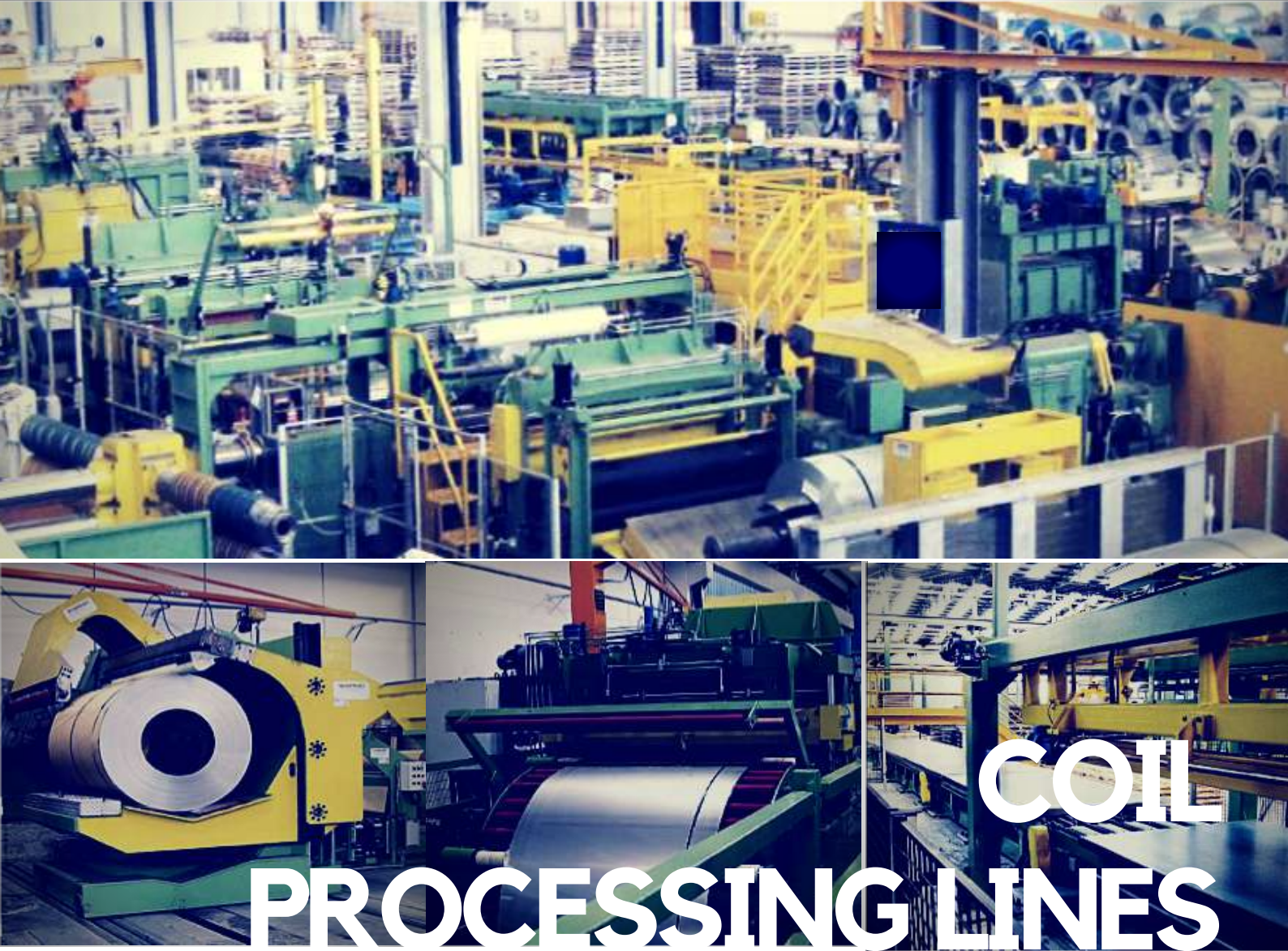
Gallium offers HYDRAULICALLY OPERATED Two/Four die tube push pointing machine suitable for both Ferrous and Non-ferrous material for pointing of tube prior to cold drawing with many advantages over conventional swaging/squeezing pointing operations. The machine is also capable of nozzeling the point.

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
GEPL-PP-50	23 MT	90 mm
GEPL-PP-75	34 MT	130 mm
GEPL-PP-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)
GEPL-SL-950	0.2-2.5	300-950	0-120	5, ^10
GEPL-SL-1550	0.5-4.5	300-1550	0-100	5, ^10
GEPL-SL-1800	1.2-8.0	900-1800	0-80	25, 30, 40
GEPL-SL-2000	2.5-10.0	950-2000	0-60	25, 30, 40
GEPL-SL-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 LINES MODEL	SHEET THICKNESS (mm)	COIL WIDTH (mm)	LINE SPEED (m/min)	COIL WEIGHT (t)
GEPL-CTL-850	0.3-3.0	300-850	40	5, 10
GEPL-CTL-1300	1.2-4.5	400-1300	40	10, ^15
GEPL-CTL-1600	1.2-6.0	400-1600	40	15, ^20
GEPL-CTL-1650	1.5-8.0	400-1650	40	15, 20, 25
GEPL-CTL-1800	2.0-10.0	650-1600	40	25, 30, 40
GEPL-CTL-2000	3.0-16.0	950-2000	40	25, 30, 40

COIL PROCESSING EQUIPMENT



GALLIUM - ADVANCED REVERSING COLD-MILL TECHNOLOGY (ARCT)



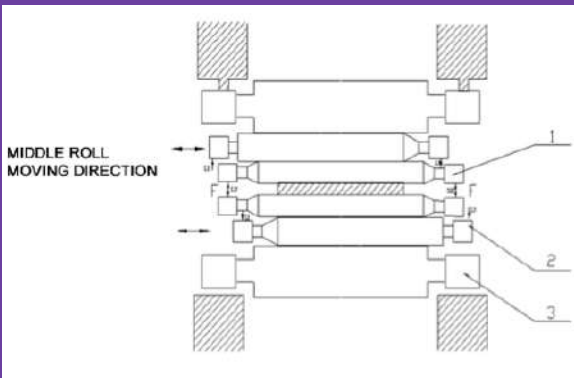
Advanced reversing cold-mill technology is an ideal solution for small-to-medium production capacities or for rolling of smaller order lots of special steel grades. We offer 4-high or 6-high mill stands to meet client requirements. In reversing cold mills, the tension reels are placed on both sides of 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



BYCYCLE 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

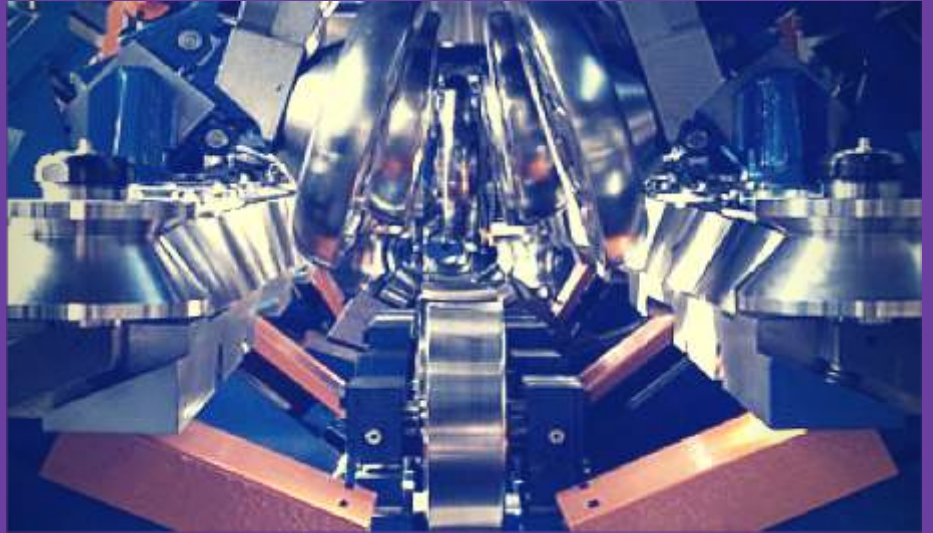




GALLIUM TECHNOLOGICAL INNOVATIONS

GALLIUM - COMMON ROLL MILL - WITH CNC MOTORIZED TOOL ADJUSTMENT

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.



FEATURES & BENEFITS:

- Consistent Ovality, Corner radius & Weld finish for entire range of profiles.
- Customized features at Entry line equipment, Roll tool design, Welding systems, Sizing and 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.



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

FINISHED PRODUCTS



Bloom Based

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



Slab Based

Direct Plate with
Narrow Thickness
Direct HR Coil
with Controlled
Thickness



Billet Based

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
Finished Products



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

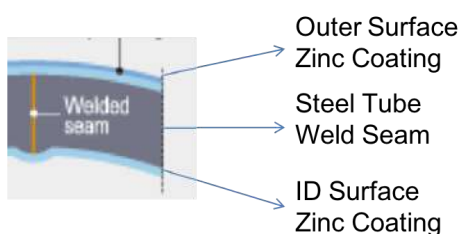
GALLIUM INLINE OD & ID GALVANIZING TECHNOLOGY FOR WELDED TUBULAR & SECTIONS

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.

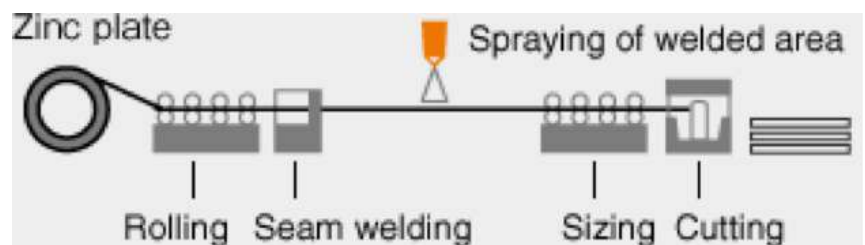
The Technology Offers even surface finish without cracking, flaking or otherwise damaging the integrity of the coating on interior Surface. This vastly increases corrosion resistance of pipes & offers unmatched surface finish & is best alternate to hot dip galvanizing.



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

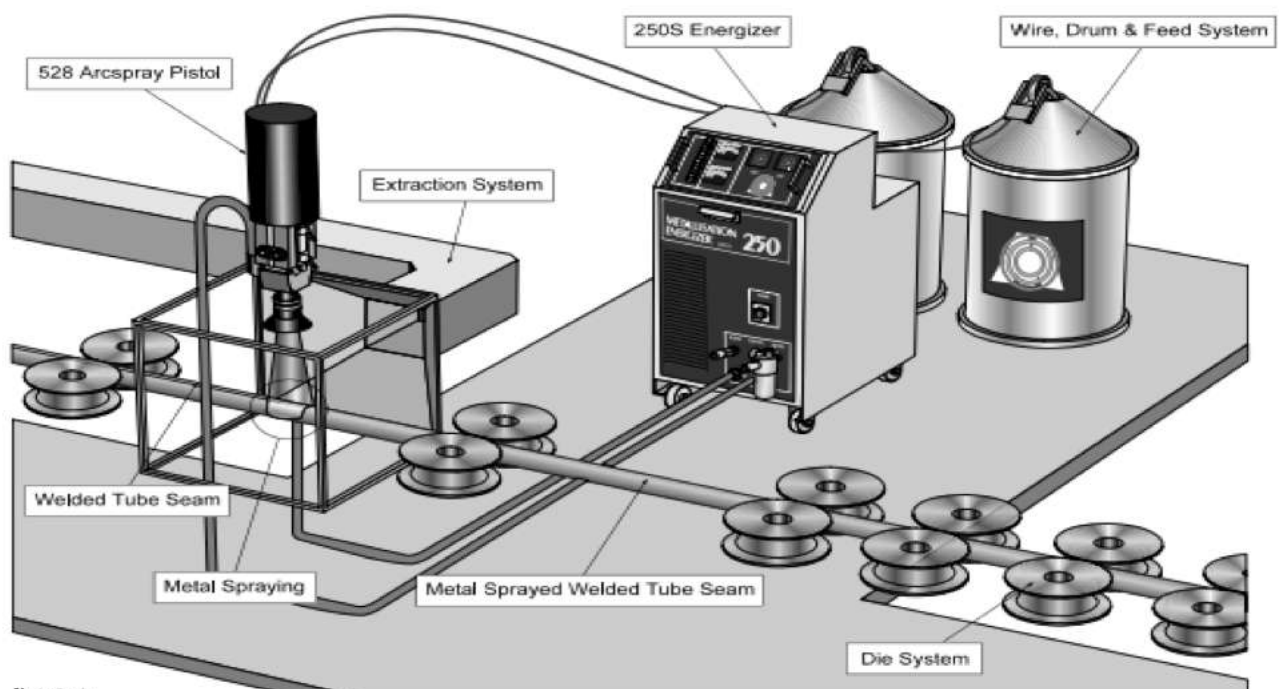
GALLIUM GALVANIZING TECHNOLOGY - PRODUCTION STAGES

STAGE-2 CONTINUED

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



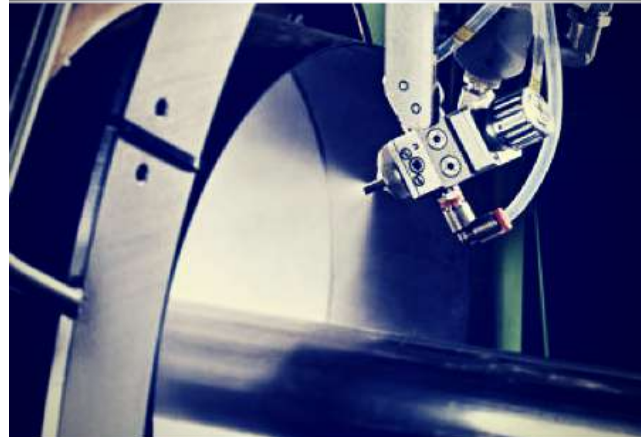
In Line Weld Seam Metalizing & Spray Unit

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

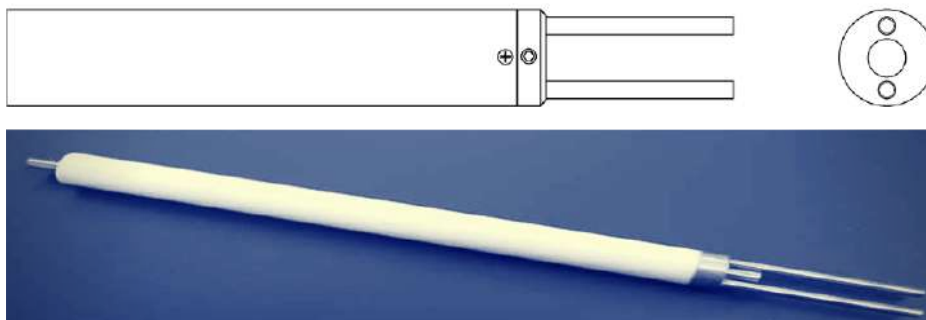
STAGE-2 CONTINUED

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 RESULTS



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 tube (kg/m)	W=0.02466[D-t] W: weight of tube (kg/m) / t: wall thickness (mm) / D: external diameter of tube (mm)																											
t (mm) → D (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	.829	.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	1.05	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			.956	1.11	1.26	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	5.27	
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	5.31	
76.3						3.13	3.31	3.49	3.66	3.84	4.02	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)		W=0.0157(A+B-3.287t) W: weight of rectangular tube (kg/m) / t: wall thickness (mm) / A,B: length of sides (mm)																	
t (mm) → Size AxB (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	
50 × 50					2.38	2.52	2.66	2.80	2.93	3.07	3.20	3.34	3.47	3.60	3.73	3.86	3.99		
60 × 60					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		
75 × 45					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		

Customized Sizes and Shapes can be manufactured upon request.

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 (mm)	Max (mm)	Low	Med	High
GEPL - 1.0	10.0	25.4	0.5	2.0	60	100	120
GEPL - 1.5	12.7	38.1	0.6	2.5	60	100	120/150
GEPL - 2.0	12.7	50.8	0.7	3.2	60	100	120/150
GEPL - 3.0	15.88	76.2	0.8	3.6	60	100	120/150
GEPL - 3.5	21.3	88.9	1.2	6.0	50	180	100
GEPL - 4.5	33.4	114.3	1.2	5.4	50	180	100
GEPL - 5.0	42.4	127.0	1.6	6.0	50	180	100
GEPL - 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 CHANGEOVER CHANGE 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 & development.
- Project engineering services.
- State-of-the-Art production facilities.
- Highly experienced team for startup & production assistance.
- Can be supplied as complete systems or parts there of.
- Equipment Long term Finance Options.

CLIENTS

KEY DOMESTIC CLIENTS



KEY OVERSEAS CLIENTS





GALLIUM HOLDINGS

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