

THE BRONX GROUP



Quality Coil Processing Solutions for Steel and Aluminium

THE BRONX GROUP

About Bronx

The Bronx Group is a world leader in the design, manufacturing, installation, and commissioning of high-quality coil processing equipment. Established in 1940 in the UK, Bronx has evolved into an industry-known brand synonymous with reliability and quality. Continuous product improvements through research and development, along with investment in people and up-to-date technology, have given Bronx a competitive edge.

We support you through every phase of your project, from the initial business idea to engineering, manufacturing, installation, commissioning, and post-sales support. Whether you need a Cut-to-Length Line, Tension Leveller, Colour Coating Line, Embosser, or any other Coil Processing Equipment, Bronx provides tailored solutions to meet your needs.



With its headquarters in the UK, Bronx operates globally and has successfully completed numerous projects in over 50 countries.



"Bronx has met our high expectations and we would strongly recommend them to any company that desires to work in partnership with a professional team that provides solutions, specific to the needs of its customer"

Alcoat Metal Boyama Sanayi Ve Ticaret A. S. Turkey



Why Choose Bronx?

With over 80 years of experience, we provide high-quality equipment backed by expertise and professionalism, delivered with meticulous care. Every Bronx contract includes comprehensive Training & Knowhow Transfer, offering on-site training for operational and maintenance staff, along with detailed manuals. All Bronx equipment is designed and engineered in-house and manufactured to the highest industry standards.

A Wealth of Knowledge in Coil Processing

- ◆ In-house Design more than 80 years of engineering
- ◆ Flexible Line Configurations to suit your business
- ◆ Site Supervision installation and commissioning
- Hundreds of successful projects in over 50 countries
- Training a full training package for operators and production personnel
- Quality Guarantee of product and equipment
- ◆ Solid Equipment built to last
- Partnerships over 65% is repeat business
- On-going Operational Support our expertise becomes your expertise
- ◆ On-going After Sales Support spares, audits, and upgrades

CONTINUOUS COLOUR COATING LINES

Bronx has been designing and building Colour Coating Lines for over 40 years with more than 50 references worldwide.



Bronx offers Colour Coating Lines customised to suit any business, from Compact Lines with a 10,000 tpa output to high-speed & high-capacity lines. Our lines are designed to apply either a superior quality three-coat system or an economical two-coat system.

Various coater options are available to accommodate your line layout, including Horizontal, Vertical (space-saving), Quick Colour Change 'U' Wrap Coater as well as the 'S' Wrap and 'C' Wrap Coaters. Bronx offers Catenary Convection Gas or Electric (Infrared) Ovens as coating curing methods. You can be assured that we will find the right solution to fit your business needs.

The type of metals coated include:

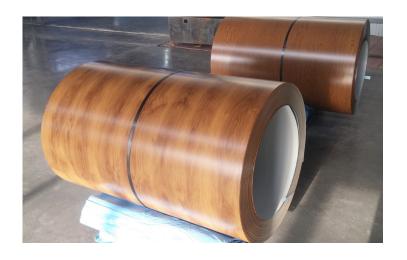
- Steel
- Galvanised Steel
- Aluminium

Optional equipment

You can opt for a basic line design or enhance your product's value by incorporating additional equipment. This extra equipment may include pattern coating units, paint and metal embossers, hot laminators, and plastic film applicators.

Bronx offers a variety of lines including:

- Conventional High-Speed, High-Capacity
- Warehouse Modular
- Warehouse Compact



Design

The 'Conventional' high-speed, high-capacity lines.

Conventional Colour Coating Lines are highspeed, high-output, single-pass continuous systems designed for efficient production in the construction and appliance markets. With years of engineering expertise, Bronx can customise these lines to meet specific customer requirements. Additionally, optional equipment can be integrated to enhance product value.

The Bronx 'Warehouse' lines are a family of Colour Coating Lines designed to fit into existing factory buildings.

Proven technology, innovative designs and resulted in a family of line designs that can be installed in buildings with clearance as low as 5 metres, without pits, and with minimal additional foundations.

The 'Warehouse' lines offer a low-investment entry into coil coating for processors looking to backward integrate, or manufacturers aiming to add value to existing products. This is an ideal choice for those entering the coil coating market, as well as for those looking to perform short runs or produce niche colors and patterns.

Operator Training & Technology Transfer

Bronx professional staff have unparalleled experience in designing, building and operating Colour Coating Lines. We then ensure all customer line operators are provided with intensive training on all aspects of coil coating. This includes both theoretical and on-the-job training.

The training includes:

- Complete process knowledge
- Product testing and quality control
- Production, technical and maintenance manuals

Product Guarantee

By working closely with major paint and chemical suppliers, Bronx guarantees the following parameters on all its Colour Coating Lines:

- Paint characteristics of final product
- Oven curing
- Paint applications
- Strip cleaning and pre-treatment
- Strip transporation



CONVENTIONAL COLOUR COATING LINES

Bronx is a world leader in the design and manufacture of high-quality production lines. Our Conventional Colour Coating Lines are high-speed, high-capacity single-pass systems tailored for the construction and appliance industries. Each line is custom-designed to meet the specific requirements of our customers. Bronx offers a choice of both Gas or Infrared curing ovens and has extensive references in both curing technologies, ensuring our customers can select their preferred option. Both ovens are proven technology, operating in many lines worldwide.

Services Offered by Bronx

With over 40 years of experience in Colour Coating Line design, operation and manufacture, Bronx is able to offer much more than quality equipment.

We offer the following services to our customers:

- Project Feasibility
- Equipment Design
- Installation & Commissioning
- Technology Transfer
- Training of Operators & Production Personnel
- Operator & Maintenance Manuals
- Product Testing
- Downstream Equipment
- Ongoing Technical Support
- -Ongoing Customer Support



Conventional Single Pass Lines - Recent Bronx Projects

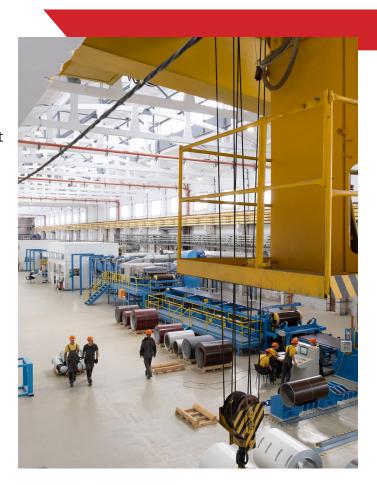
Project	Country	Material	Output (tpa)	Width (mm)	Thickness (mm)
Hoa Phat Steel Sheet	Vietnam	Steel	120,000	1250	0.15 – 0.8
Metal Profil	CIS	Steel	160,000	1285	0.2 – 0.8
Tezcan	Turkey	Steel	225,000	1300	0.25 – 1.2

WAREHOUSE COLOUR COATING LINES

The Bronx Warehouse Lines are a family of Colour Coating Lines designed to fit into existing factory buildings. Despite their more compact size, the quality of the structure, equipment, and production is equal to that of the Conventional Lines offered by Bronx.

Benefits

- Low capital cost entry to coil coating
- Designs available for both two and three coat systems
- Innovative design allows lines to fit into most existing industrial buildings, reducing capital cost
- Small factory footprint, ensuring minimal foundations
- Continuous operation providing high prime yield
- ◆ Choice of Gas or Infrared (IR) ovens
- Cost-effective manufacture of small tonnages from 5,000 tpa to 60,000 tpa
- Innovative designs allow for rapid, cost-effective installation



Bronx Warehouse Lines

Туре	Gauge	Width (mm)	Max Speed (m/min)	Reference Strip	Output (tpa)
Compact Double Pass	0.14 - 0.80 (Steel) 0.30 - 1.20 (Aluminium)	1250mm	Prime: 40mpm Finish: 30mpm	0.45 x 1250 (Steel)	22,500tpa
Modular Double Pass	0.14 - 0.80 (Steel) 0.30 - 1.20 (Aluminium)	1250mm	Prime: 40mpm Finish: 40mpm	0.45 x 1250 (Steel)	29,000tpa
Modular Single Pass	0.14 - 0.80 (Steel) 0.30 - 1.20 (Aluminium)	1250mm	Prime: 40mpm Finish: 40mpm	0.45 x 1250 (Steel)	60,000tpa

ROLL COATER MACHINES

Bronx designs and manufactures a range of high-quality Roll Coater Machines tailored to meet specific customer needs. These coaters are compatible with Bronx Coil Coating Lines and can also be seamlessly integrated into existing coil coating systems provided by other suppliers. In addition, Bronx offers coater upgrade services to enhance performance and efficiency.

Typical uses for Bronx Roll Coater machines are:

- Pretreatment Coaters
- Prime Coaters
- Finish Coaters
- Passivation Coaters
- Resin Coaters

A number of configurations are offered by **Bronx. These include:**

- 'S' Wrap Roll Coater
- 'C' Wrap Roll Coater
- 'U' Wrap Quick Colour Change Roll Coater
- Horizontal Paint and Chemical Coaters
- Vertical Paint and Chemical Coaters

All Bronx coaters include many innovative features designed to ensure a safe working environment, ease of use for operators and minimum downtime for maintenance.

Added features of Bronx Coaters:

- Quick Colour Change Prime and/or Finish Coaters
- Precision linear guiding for top and bottom head
- Pressure monitors for consistant/repeatable paint thickness
- Adjustable eccentric offset on backup drum for light gauge material
- Excellent off-line position for cleaning or removal of applicator rolls
- Off-line backing coater head position
- Roller type paint tray
- Servo controls



Coating Thickness Measurement - Spec METRIX



Bronx is a valued partner of Specmetrix - a supper of unique Coating Thickness Measurement Systems. The SpecMetrix Systems deliver a new standard for non-contact, non-destructive and real-time absolute thickness measurement data for transparent and pigmented primer and top coat samples. Designed to streamline coil coating QA processes, the SpecMetrix systems use exclusive technologies to improve coating process and quality control, while reducing costs in the OA lab or R&D center.

- Available for dry and wet film
- ◆Non-Contact and Non-Destructive
- ♦On-line and Off-line

- ◆ Absolute Thickness Measurement
- ◆ Substrate Independent
- Environmentally Friendly

PATTERN COATING & DIGITAL PRINTING

Bronx offers a wide range of opportunities to expand your market share with innovative designs that are capturing the market in style and creative flair. The coil coating process is very adaptable. A wide variety of special finishes can be used to give different effects instead of just a plain painted surface. Some of these effects can be achieved by utilising specialty paints. This encompasses:

- Metallic Paints
- Wrinkle Finish Paints
- High Build Primers
- Plastisols (is always embossed at the exit of the oven with water cooled rolls)

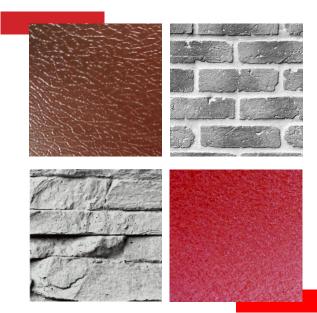
Other special finished can require extra equipment and Bronx Print Technology is the solution.

Bronx Print

Bronx is the world leader in pattern printing technology and employs engineers to continually expand and develop machinery and innovative designs that are proving popular in the marketplace. The quality of the final print provided by Bronx pattern printing systems is of the highest quality.

Bronx provides flexographic and offset rotogravure printing options, as well as 3D (textured) printing with a variety of patterns, including but not limited to woodgrain, brick, and stone.





Digital Printing

Whilst conventional pattern coating relies on repeated images limited to the size of the roll in use, digital printing provides much greater flexibility to suit your business needs.

Depending on the machine selected, there will be some variation in maximum width. With the ability to print in any length of image, from as small as 12cm to as large as 10 meteres, employing any range of colours, the possibilities are endless.

When designing a line, consideration needs to be given to the products that are to be offered, so this equipment, or provision for it, can be made in the design phase. It especially concerns Digital printing.

METAL EMBOSSING MACHINERY

Metal embossing involves passing the coil sheet through heavy-duty engraved rolls to create an imprint on the metal. Embossing can be carried out after painting the substrate, without damaging the paint, and it can also be used to emboss unpainted aluminium or stainless steel.

Unlike paint embossing done on Plastisols, metal embossing actually deforms the base metal. The purpose of this embossing is less about visual appearance and more about increasing the strength and stiffness of the base metal, allowing for the use of lighter gauge metal. Designs like woodgrain and leathergrain can provide the appearance of wood or leather but have the durability of metal.

All Bronx Embossing Machines are equipped with state-of-the-art Metal Embossing Rolls. The rolls can feature any design of your choosing, offering limitless possibilities for creating a design that is unique to your company's needs or selecting from one of the many standard designs.

Embossing can be done on the following:

- Stainless Steel
- Aluminum
- Steel

Double-sided Pattern:

Produced by rolling coils between specially imprinted rolls, the strength and rigidity of the material are increased. Therefore, a thinner sheet may be used, resulting in a strengthened material



Variety of patterns:

- Bespoke designs
- Extra character to finished product
- Visually appealing
- Corrosion resistant
- Resistant to scratching/wear
- Life cycle cost savings
- Rejected steel can be reprocessed into prime stock through embossing

Bronx can supply a coil to coil embossing line as well as integrate a metal embosser into your existing equipment (roll-forming, slitting and colour coating lines)



BRONX THERMAL SOLUTIONS

Bronx Thermal Solutions is an initiative of The Bronx Group of Companies to ensure Bronx Colour Coating Lines have state-of-the-art Thermal Equipment. Bronx has developed a range of Thermal Products which are integrated into traditional Bronx Coating Lines. The Bronx Thermal Team has extensive experience in the Coil Coating industry along with other thermal related industries.

The main products included in the Bronx Thermal Solutions range are:

- Paint Curing and Chemical Drying Ovens
- Recuperative and Regenerative Oxidisers
- Heat Recovery Systems
- Coil Cleaning and Pre-treatment Sections
- Strip cooling Sections



Drying and Curing Ovens

Bronx Thermal Solutions offers a wide range of Gas Convection and Electric Infrared Paint Curing Ovens specifically designed for drying of conversion coats and curing of painted strip in a Coil Coating Line. All ovens are suitable for processing water based or solvent based coatings and come in both horizontal and vertical configurations.

Recuperative and Regenerative Oxidisers

Bronx provides engineering and manufacturing of high-quality Recuperative and Regenerative Thermal Oxidisers. Bronx Oxidisers are used to destroy Hazardous Air Pollutants (HAPs) and Volatile Organic Compounds (VOC's) from industrial air streams. The Oxidiser decomposes the hazardous gases at a high temperature before releasing them into the atmosphere.



Bronx Oxidisers are individually designed to ensure your system is perfectly matched to your requirements. Bronx Oxidisers are designed and manufactured to provide a highly energy-efficient system that meets required high levels of VOC destruction.

Bronx Thermal Solutions will guide the customer through the Oxidiser selection process and provide advice on which type and size of Thermal Oxidiser best suits the customer's application.

Heat Recovery Systems

Bronx Thermal Solutions offers a range of well proven Heat Recovery Systems for preheating of oven process make-up air, hot water or steam generation, factory heating, direct heating (for use with heating grids) and electric power generation all designed specifically for use with Continuous Coil Coating Line fume abatement systems. Bronx Thermal Solutions can tailor the Heat Recovery System to the specific needs of the customer.

Strip Pre-treatment Systems

Bronx provides a comprehensive range of multi-stage pre-treatment equipment specifically designed for the pre-treatment of steel, aluminum, or zinc strips before coating. The equipment is made from high-grade stainless steel and includes options for chemical dosing controls and automatic raise lids.

Cooling Systems

The selection of cooling products from Bronx Thermal Solutions features:

- Air coolers
- Water quenches
- Air knives
- Cooling rolls



All Bronx Thermal Solutions cooling equipment is designed to match the cooling cycle required by the product. All heat exchangers are designed within the Bronx Thermal Solutions design offices using specialist modeling software developed by Bronx Thermal Solutions.

Bronx works with its customers to tailor the best and most cost-effective Thermal Solution for your Coating Line.



TENSION LEVELLING SOLUTIONS

Bronx Tension Levellers are well known for producing the very best flatness in high-quality surface sensitive products.

Materials processed include:

- Paint and metallic coated steel and aluminium
- Decorative and construction aluminium alloys
- Automotive steel for both internal applications and exposed skin panels.
- Architectural and decorative stainless steel
- Pre- and post-pickled hot-rolled steel

Applications

Tension Levellers can be installed in Continuous Process Lines, Inspection Lines and in dedicated Tension Levelling Lines.



Technology

Bronx is at the forefront of technology for Tension Levelling and our machines include features such as:

- 6 Hi work roll cassettes
- Multi station curvature correction for line bow and crossbow
- Quick cassette changeover
- Auto pre-set system
- On-line flatness measurement
- Bronx Tension Levellers are designed for best quality and long life.

Bronx uses tried and tested work roll cassette components of the highest quality together with proven preventative maintenance programmes to ensure each of our customers can maintain the highest quality and performance from our machines.

Bridle Drive and Elongation Control Systems

An important part of the tension levelling system is the bridle drive and elongation control system which utilises entry and exit bridles to generate the tension required to achieve the necessary strip elongation through the tension leveller.

◆ Bridle drive system

◆ Independent electric drive

Speed	Thickness	Width	Туре
Up to 300 mpm	0.15mm -3mm	1830mm	6 high



PRECISION LEVELLING SOLUTIONS

Bronx has been manufacturing Precision Levellers for over 55 years, with more than 500 units in operation worldwide, processing various ferrous and non-ferrous materials. Our Precision Levellers are designed to optimize flatness across a wide range of materials, available in different sizes and roll combinations, tailored by our experienced technical team to meet specific processing needs. We can provide a Precision Leveller solution suitable for the following range of materials:

Strip Width

Material Types

0.15mm - 12.7mm

200mm - 2500mm

1280 N/mm2

Max Yield Stress

Hot or Cold-Rolled Steel, Stainless Steel, Alumimium Alloys

High Strength Materials

New materials with significantly higher yield stress are being developed for the automotive sector. To meet the processing needs of these materials, Bronx has created a new Precision Leveller capable of leveling strips with a thickness of 2mm and a yield stress of 1280 MPa. Bronx can upgrade existing machines or design new ones to accommodate high-strength materials.



Precision Levelling Technology

Bronx leads in Precision Levelling Technology and is continually developing new analytical models for both Tension and Precision Levelling. Recent advancements in strip curvature prediction allow Bronx to analyze roll configurations and calculate the optimal mesh settings needed to level strips with minimal energy.

Benefits of low energy settings:

- Flat strip
- Reduction of surface degradation
- Lower energy consumption
- Consistent results

Active Levelling

Bronx has installed an Active Levelling System to a Precision Leveller in a Rotary Shear Line. Active Levelling provides the operator with a system to monitor flatness through the coil and to make adjustments to the Leveller to maintain consistent flatness through the coil. A distance measurement laser scans the strip at the exit of the Leveller and measures any out of flatness. The measurements are used to display a 3D image of the strip and to make corrections to the leveller settings in order to control the strip shape. This technology will reduce the amount of operator supervision and will produce consistent results.

Flatness reports can also be provided for each coil. Bronx has developed this technology jointly with Scantron® which can also be retro-fitted to existing machines.

CUT TO LENGTH LINES

Bronx is a world leader in the design, manufacture, installation and commissioning of high-quality Coil Processing Equipment. Whether your product is 0.15mm thick surface sensitive Aluminium, Coated Material or 16mm thick Hot-Rolled Steel, Bronx has the solution.

Bronx concepts for Cut to Length lines are the result of many years of experience and co-operation with ferrous and non-ferrous industries throughout the world.

To meet the high specifications and Just-In-Time (JIT) requirements of industries worldwide, Bronx is a leader in high-speed multi-blanking lines.

This type of line enables the production of single or multiple precision-levelled blanks with extremely close tolerances on both length and width in a single operation directly from coil stock. With line speeds of up to 100 meters per minute and a shearing capacity of up to 150 cuts per minute, producing 750 blanks per minute will improve your production rates, reduce overhead costs by eliminating labor-intensive guillotining, and increase your profitability.



The 'Kombi II' has been designed with the JIT principle in mind, allowing for quick and easy changes between production requirements to maximise the equipment's usability.

The flexibility of this equipment also allows it to be used as a Conventional Cut to Length Line with or without edge trimming.



Features:

- Automatic coil loading and feeding
- Automatic pre-setting of machine adjustments
- Computer controlled precision levelling
- High-speed precision shearing
- Stacking systems for single or multiple blanks
- Inspection system with sheet classification facilities
- Drop sheet stacking
- Air floatation stacking
- Magnetic, belt type stacking
- Vacuum, belt type stacking
- Bomb door stacking
- Single or multi-position stacking

AUTOMOTIVE STEEL RECOILING & INSPECTION LINES

Bronx is recognised as a specialist supplier of Automotive Steel Recoiling & Inspection Lines and has supplied lines to many of the leading producers in recent years.

Each Automotive Steel Recoiling & Inspection line is specified to suit the requirements of the customer and can take many different forms depending on the specific material type and condition.

The main function of these lines is to provide final inspection of the finished product before shipment and as such it is important to carry out this task without causing surface finish damage or defects during the process. Bronx engineers fully understand this requirement and take great care during all stages to enable us to include a non-marking guarantee with each line.

Technology

Bronx has proven in-house technology for the main equipment and work with industry recognised suppliers for specialist equipment. Innovative technology standard on Bronx lines features:

- Automatic coil loading
- Auto-set trimming
- Auto feed up scrap baller
- Roll cleaning
- Custom designed inspection station
- Tension Levelling with optimum pre-set system



Electrical Drive & Control System

A critical element of this type of line is the Electrical Control System.

Our experienced electrical team work together with the chosen equipment supplier during design and commissioning to make sure that the required performance is achieved by this system to enable us to meet our non-marking guarantee. In addition to the minimum requirement of inspection and recoiling, other main features can be added such as:

- Edge trimming and scrap removal
- Coil dividing
- Reclamation Non-prime removal and prime coil build up
- Tension levelling
- Strip cleaning
- Coil joining
- Width and thickness measurement
- Electrostatic re-oiling



LINE UPGRADE SOLUTIONS

Since 1940, Bronx has been developing special partnerships with all of its customers, resulting not only in the supply of complete lines but also in collaboration on enhancements to their existing production plants.

Whether these enhancements aim to increase production, reduce downtime, improve safety, satisfy current European regulations, or enhance product quality, Bronx will work with its customers to achieve their desired results.

Bronx is available to discuss an application or can carry out a line audit, engineering study or conduct an inspection visit, relating to:

- Line capacity upgrades
- Productivity improvements
- Precision levellers
- Tension levelling sections
- Storage & loading systems
- Strip joining units
- Chemical coating units
- Thermal drying & cooling sections
- Slitting & edge trim units



Recent Bronx Projects

Company	Country	Project	Width (mm)	Thickness (mm)
Union Galvasteel	Philippines	Stitcher Upgrade	1250	0.8
William King Ltd	UK	Uncoiler Upgrade	2000	0.9



SPARES & SERVICE SOLUTIONS

To ensure consistent output and product quality "year in, year out" on your Bronx line or other equipment, regular servicing is essential. Bronx possesses the expertise and knowledge necessary to keep your equipment running efficiently. We maintain machine drawings and records for every Bronx machine ever built, enabling us to manufacture replacement parts that meet original specifications.

Spare Parts:

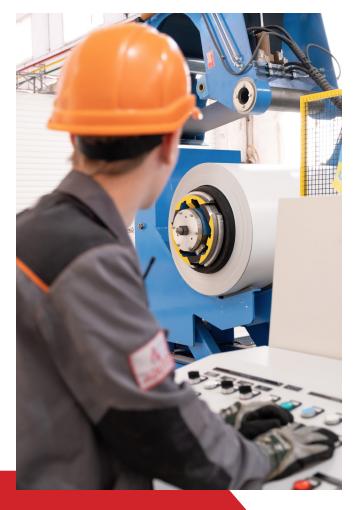
- Assessment of your equipment backed up by a detailed report
- ♦ Complete spare parts service for Bronx and non-Bronx equipment
- ♦ Fast turn-around of replacement and spare parts
- Advice on holding spares











Service:

- ◆ Operator & maintenance training
- ◆ Refurbishing / rebuilding of machines
- Scheduled service visits
- **◆** Emergency breakdown service
- Machine inspection



GLOBAL REFERENCE LIST



Australia | Austria | Argentina | Azerbaijan | Bangladesh | Belarus | Belgium | Canada | China Columbia | Denmark | Finland | France | Germany | Greece | Guatemala | Hungary | Holland India | Indonesia | Ireland | Italy | Iran | Kenya | Lebanon | Luxembourg | Mexico | Nigeria Norway | Philippines | Poland | Russia | Saudi Arabia | South Africa | South Korea | Spain | Sweden Switzerland | Taiwan | Turkey | Ukraine | United Kingdom | Uzbekistan | USA | Venezuela | Vietnam

What our customers say......

"... It was vitally important for Ace to pick a partner who could deliver the quality in machinery for us to continue to compete in the Australian market with a product that would measure up to benchmark. Bronx engineering and technical experience coupled with the capability to meet deadlines has certainly achieved that for Ace. I would have no hesitation based on my own experience to recommend to anyone looking to install a state of the art wet paint line that they use Bronx...."

Ace Gutters Pty Ltd, Australia

"....The vast experience and references of Bronx, combined with the skilled Project Management of Tezcan, guaranteed the success of this modern Paint Line facility.... We will have no hesitation to work in partnership again with Bronx on future projects and congratulate Bronx and other companies involved with this highly successful project."

Tezcan Galvaniz Yapi Elemanlari, Turkey

"... the Bronx line and overall package has more than met our expectations and we are now working with Bronx to add pattern coating to the line, to further enhance our position in the local and export markets".

Alcoat, Turkey

The Bronx Sales, Engineering, Production Technology & Customer Relations Staff are committed to working with you from inception to total completion of your project.

DESIGN - CREATE - DELIVER

