



Helping you create



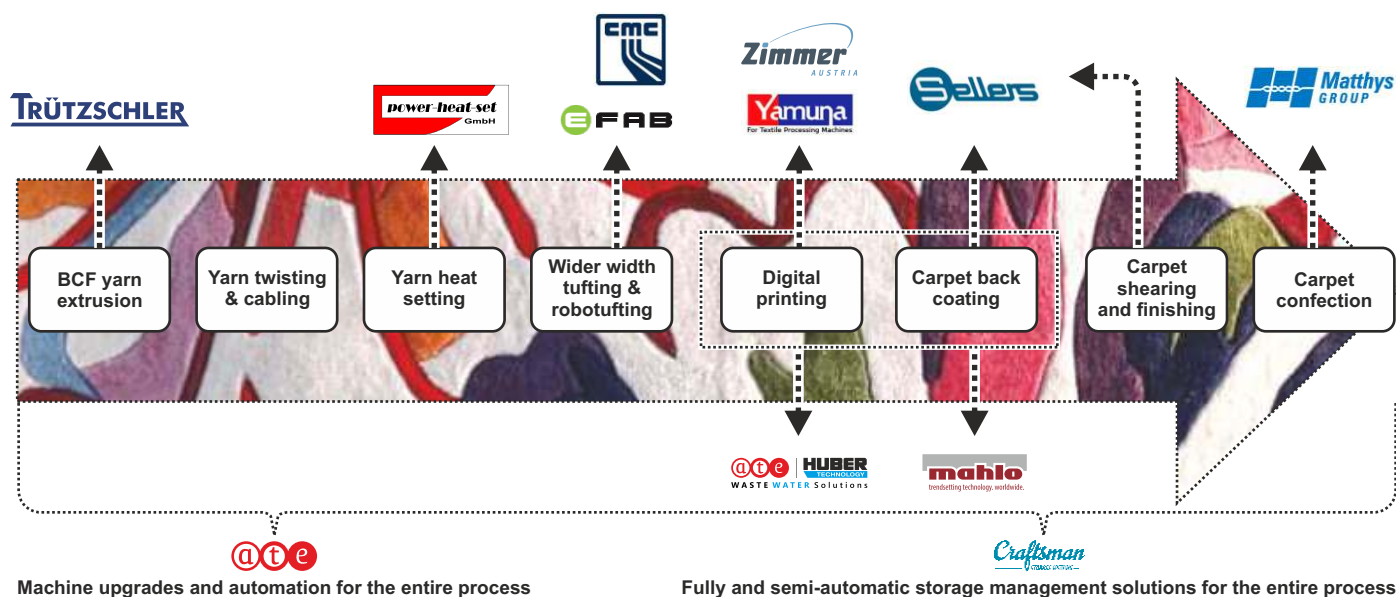
world class
CARPETS

Carpet manufacturing offers a tremendous business opportunity as carpet demand is growing rapidly. Carpet consumption is driven by rising use of carpets in both interior applications as well as for outdoor uses.

A.T.E. brings to the Indian textile industry a wide range of state-of-the-art machinery for the manufacturing of carpets. A.T.E.'s range, from reputed global leaders, starts with BCF yarn production and processing, and goes all the way to confection and packing machines for the finished product.

A.T.E. can also help you with control system upgrades and effluent treatment solutions.

Tufted carpet manufacturing process and A.T.E.'s solutions



Bulk Continuous Filament lines (BCF)

from Trützschler Man-Made Fibers, Switzerland

TRÜTZSCHLER

OPTIMA concept (4 ends/position or 2 winders/position):

- Symmetric, straight yarn path
- Perfect heat distribution
- Gentle yarn treatment

OPTIMA is suitable for the following BCF types and applications:

- BCF from PA6, PA66, PET, PP, PTT tailored to the requirements of one product category
- Mono-colour yarns for woven and tufted carpets
- Tri-colour BCF yarns
- Fine yarns down to 500 dtex
- Coarse yarns up to 7000 dtex
- Spun-dyed yarns and qualities for automotive applications

MO40-C:

- High flexibility, small footprint (4 sq. m)
- High output per square metre
- Compared to conventional systems, lowest energy consumption/kg of yarn
- Up to 700 filaments/spinneret
- Denier range: 500 – 3600 dtex (6000, after plying)
- Denier per filament range: 1.5 – 40 dpf



Trützschler new OPTIMA 4-End

MO40-E:

- Larger spin pack - up to 1200 filaments
- Denier range: 750 - 3600 dtex (7000, after plying)
- Denier per filament range: 1.5 - 40 dpf

TO40:

- For producing tricolour BCF yarn and each multifilament is composed of strands of three different colours
- Up To 3 × 200 filaments
- Denier range: 1000 - 3600 dtex (5500, after plying)
- Denier per filament range: 2.5 - 28 dpf

Carpet yarn heat setting machines

from **Power-Heat-Set GmbH, Germany**



Power-Heat-Set builds two types of machines: GVA and HiPerSet. Both are available with different capacities. The machines can be used to set both natural and synthetic fibers using superheated steam under pressure.

The machines are highly energy efficient, economical in operation, and help create high quality carpet yarn.

GVA:

The GVA is used to heat set up to 96 ends of carpet yarn. Due to the GVA's 6 channel configuration, heat setting of small lots, different colours of same yarn or straight set and frieze is possible at the same time.

With the modular system of the GVA, the following variants are available:

GVA 4.0+	Economic model
GVA 5.0+	Standard model
GVA 8.0+	Maximum production model

HiPerSet:

The HiPerSet is a single belt solution for heat setting of up to 84 ends of carpet yarn with superheated steam.

With the modular system of the HiPerSet, the following variants are available:

HiPerSet 4.0+	Economic medium-sized model up to 72 ends
HiPerSet 8.0+	Largest single channel model up to 84 ends



Heat setting machine

Tufting machines

from **Card-Monroe Corp., USA**



Card-Monroe Corp (CMC)'s tufting machines are built to fit the exact needs of every soft-surface flooring application. These machines are used to produce tufted floor coverings for a wide range of industries and markets such as hospitality, commercial, contract, residential, turf, area rugs, automotive, and more.

Tailored Loop, the latest CMC innovation, offers new design possibilities for every soft-surface floor covering application. Using its patented Individual Looper Control, the Tailored Loop enables perfect control over each and every loop, something that has never before been possible in the history of tufting.

ColorPoint, the highly popular patented tufting machine offers the capability to produce carpets that are more desirable and sophisticated.

All CMC tufting machines can produce lower weight carpet with vivid colours, pinpoint stitch accuracy, unmatched detail, and enhanced product durability.



CMC's ColorPoint Tufting Machine

When it comes to the turf market, CMC continues to lead the way. Their advanced turf machines give you the ability to operate at 600 RPM – even while tufting high turf pile heights. This is as much as twice the speed of other equipment - and that alone can double the productivity.

Robotic tufting machine

from EFAB, Germany



eTuft is an advanced **robotic tufting machine** designed for the production of fashionable tufted carpets and rugs that is ideal for small orders and samples.

- Interchangeable tufting-gun mechanism
- Cut pile height 12-75 mm (U-tuft or J-tuft) and loop pile height 4-55 mm
- Tufting speed: 2000 stitches/min; production throughput: 1~6 m²/hr
- Variable pile height tufting effects and non-stop cut-loop changeover
- 4x6 m² frame size (4x8 m² as a special case)
- Can tuft a wide range of yarns such as wool, viscose, bamboo, polyester, nylon, linen, polypropylene, cotton or their blends
- Laser pointer precisely positions the tufting head for easy tufting as well as repairing
- Wireless remote control improves operator efficiency, as the machine can be managed with the operator at different spots. Seamlessly integrated with eDesigner carpet design software
- Maximum ROI



eShear is a high quality and heavy-duty stationary **carpet shearing machine** designed for samples and small scale carpet production. It is fast, accurate, and easy to operate.

eShear is equipped with:

- Double slider mechanism for easy and smooth traveling
- 12 spiral blades with 36 cm width for higher quality shearing
- Pneumatic actuator for lifting up the shearing head
- Anti-grabbing mechanism
- eShear can be customised by choosing from:
 - Different shearing widths between 300 - 650 cm
 - Adjustable shearing depth with 0.1 mm accuracy
 - Automatic carpet feeder for big/ heavy carpets
 - Carpet unroller on the back for easy unrolling
 - Wide shearing spirals of 36 cm or wider
 - Carpet holder in front, carpet collecting tray on the bottom
 - Adjustable shearing speed for great results with fine yarns
 - Powerful vacuum unit with easily removable collecting bags



Supporting equipment for Zimmer digital printing machines

from Yamuna Machine Works, India



- Unrolling/unwinder - input carpet roll unwinder and accumulator or J box with required carpet content
- Lint cleaning equipment for cleaning dust and dirt
- Pre-steamer or pre-washer for carpets
- Centre guiding to keep the carpet on the edges
- Foam applicator to coat the carpet with required adhesives
- Reductive washing unit for polyester carpets
- Oven/dryer with stenter online with printing to dry as well as stabilise the carpet in width and fix the inks
- Roll-up/surface winder



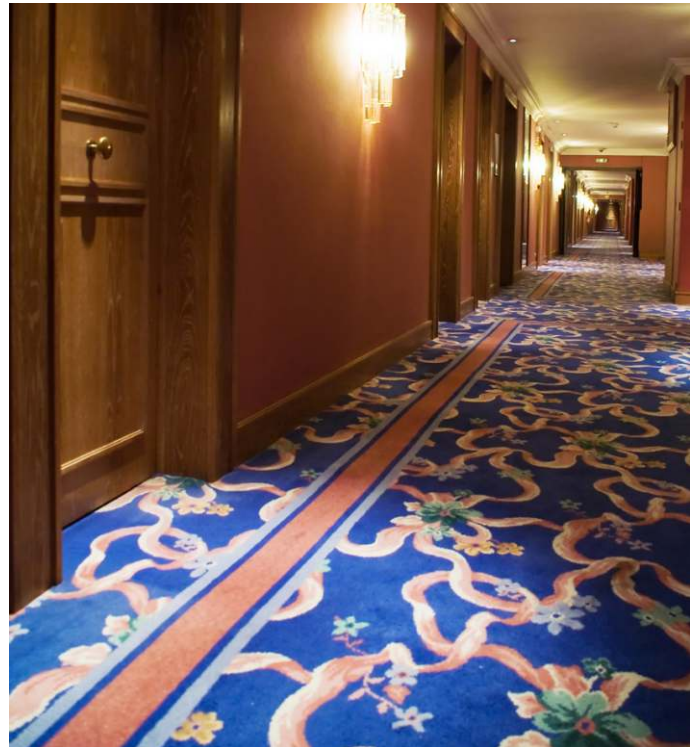
Yamuna Machine

Digital printing systems

There are basically two digital printing systems available. CHROMOJET is based on high speed electromagnetic **valves**, controlled by software, based on information given by the design. The CHROMOJET valve technology is similar to a dot on demand printing system and is available with 25 and 75 dpi print resolution. 25 dpi is a spot colour print system. Colours are pre-mixed as per the shade required and the design is separated into the individual colours. Gradient colours can be achieved, using multiple colour density. Number of printable colours and shades is limited to the layout of the printer (like 8, 12, 16 colors).

The 75 dpi resolution printer is suitable for spot and process colour printing. 12 or up to 16 process colours are used to blend various shades by mixing the filled process colours on the substrate.

COLARIS **digital inkjet** printers are high resolution printers with a minimum of 400/400 dpi, which can be increased by each 200 dpi in carpet width and multiplied in carpet movement direction. As highly purified inks with very dense colours are filled, it is mostly sufficient to use 4 or max. 6 colours, to achieve the full color gamut required by the carpet industry.



Key highlights of COLARIS:

- Pile weight from 200 to 2500 g/m²
- Deep colour penetration supported through penetration booster
- Brilliant and deep colour shades as well as smooth and light gradient colours
- Due to fine resolution, any design, incl. photographic images can be produced
- No pre-treatment of the printing substrate prior to print production required
- Inks for almost any kind of substrate available
- Scalable from a piece good to a roll-to-roll printer



Zimmer Colaris 96-4200

End products:

- Wall to wall carpets
- Rug and mats (logo, welcome and dust control mats)
- Function, exhibition and promotion carpets
- Carpet tiles
- Needle felt products
- Raschel and knitted blankets



Zimmer Colaris 48-4200



Carpet back coating lines

from **Sellers Textile Engineers Limited, England**

Sellers provides complete coating and drying lines for backing of all types of carpets.

- Conventional and powder lamination
- Woven finishing for Axminster and Wilton carpets
- Artificial grass
- Carpet foam backing and bathmat products
- Tile coating lines for bitumen, PVC and PU
- Range of entry and exit equipment including scrays, accumulators, slitting units, nip rolls, and re-roll units:
 - Bow and weft correction equipment with tension control systems
 - Dedicated back and face cleaning units with extraction system
 - Chest steamers, allowing controlled back and face steaming for latex penetration
 - Direct spread and lick roll applicators with full automated control
 - Latex applicators with traversing feed and circulation system
 - Heavy duty vertical chain, pinned stenter, up to 5500 mm wide



Carpet back coating lines

Carpet shearing and trimming machines

from **Sellers Textile Engineers Limited, England**

Versatile machines that combine a unique design with advanced control technology to enable shearing of all types of carpets.

A completely modular construction, with state-of-the-art control systems coupled with high speed performance, ensure superior quality products.

- Multi-head formats
- Comprehensive range of options
- Metered control to prevent carpet staining and prolong blade life by automatic lubrication
- Integrated inverter drives and transducers provide precision tension control
- Completely extracts fibres and other waste from the cylinders, brushes, and carpet



Carpet shearing machines

Evilo carpet confection lines and bobbin winders from Matthys, Belgium



Product range:

- Length cutting (vertical slitting) & long side over-edging
- Cross cutting (horizontal cutting) & short side over-edging
- Gluing machine
- Inspection, rolling & packaging machine
- Finished goods manipulator
- Wall to wall roller



Evilo carpet confection lines

The Matthys product range also includes:

- Bobbin winders for rewinding cylindrical or conical bobbins or hanks to a certain length or diameter
- Contractwinder - specially developed for the contract market. It is controlled by a PC steering unit. Software creates winding jobs based on the information captured from the CAD system
- Profitwinder - enables automatic winding of residual bobbins to a full package

Matthys can also undertake custom-made projects.



Evilo Contractwinder and Profitwinder

Effluent treatment plants

from A.T.E. Huber Envirotech, India



A.T.E. Huber Envirotech, a part of the A.T.E. Group, offers comprehensive, innovative, and cost-effective wastewater treatment and recycling solutions, including zero liquid discharge. The scope covers various breakthrough technologies:

AAA™ – reduces the chemical consumption and sludge generation by around 70% with consistent treated effluent quality.

RDRO – a unique combination of an ultra-fine gravity filter followed by reverse osmosis recycling about 80-85% of the treated water back to process to achieve zero liquid discharge.

EnviroCOLA® – a customised online assistance system designed to provide all the information needed to ensure a healthy performance of the wastewater treatment plant – anytime, anywhere.



Effluent treatment plant

Machinery upgrades and automation

from **A.T.E. Enterprises, India**



A.T.E. provides upgrade and automation solutions for all textile and non-textile machines. It includes the replacement of PLC, drives, HMI, control panel and software. In the carpet machinery range, A.T.E. can upgrade the control systems of tufting machines, heat setting machines, digital printing systems and also extruders, POY+FDY winders, chip conveyors, BCF+PSF lines, etc.

Benefits:

- Improves productivity and product quality
- Improves energy efficiency
- Reduces downtime
- Extends machine life by 10-15 years
- Reduces dependence on labour
- Reduces variability and human error
- Makes machines Textile 4.0 ready



PT Universal Carpet, Indonesia (BCF line upgrade)

Semi- and fully-automated storage management solutions

from **Craftsman Automation, India**



Craftsman Storage Systems, a division of Craftsman Automation provides customised storage solutions through a wide range of storage products.

- Automated storage and retrieval systems (ASRS)
- VStore:
 - Vertical storage and retrieval systems with a small footprint, high density
- Racking:
 - Racks are designed to utilise most of the available space and allow effective storage



ASRS



VStore



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