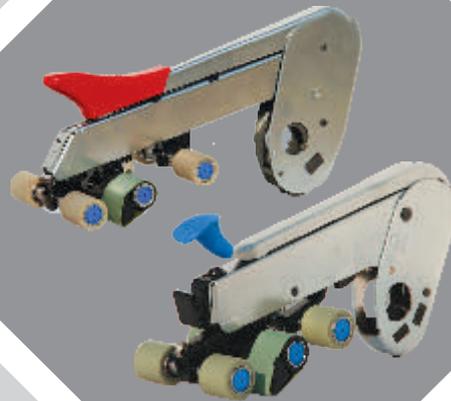
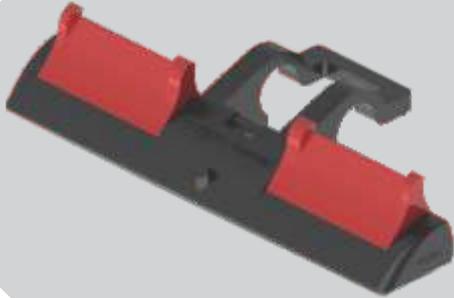


Precision components for  
spinning machines



QUALITY  
RELIABILITY  
INNOVATION



**T**eraSpin, a business unit of A.T.E. Enterprises Private Limited, manufactures precision components for spinning machines at its state-of-the-art eco-friendly manufacturing facility at Sari, near Ahmedabad in Western India. TeraSpin product range includes complete drafting system (weighting arm, top roller and cradle) for roving frame and ring frame and spindles for ring frame. TeraSpin also provides customised upgrade for roving frame and ring frame drafting.

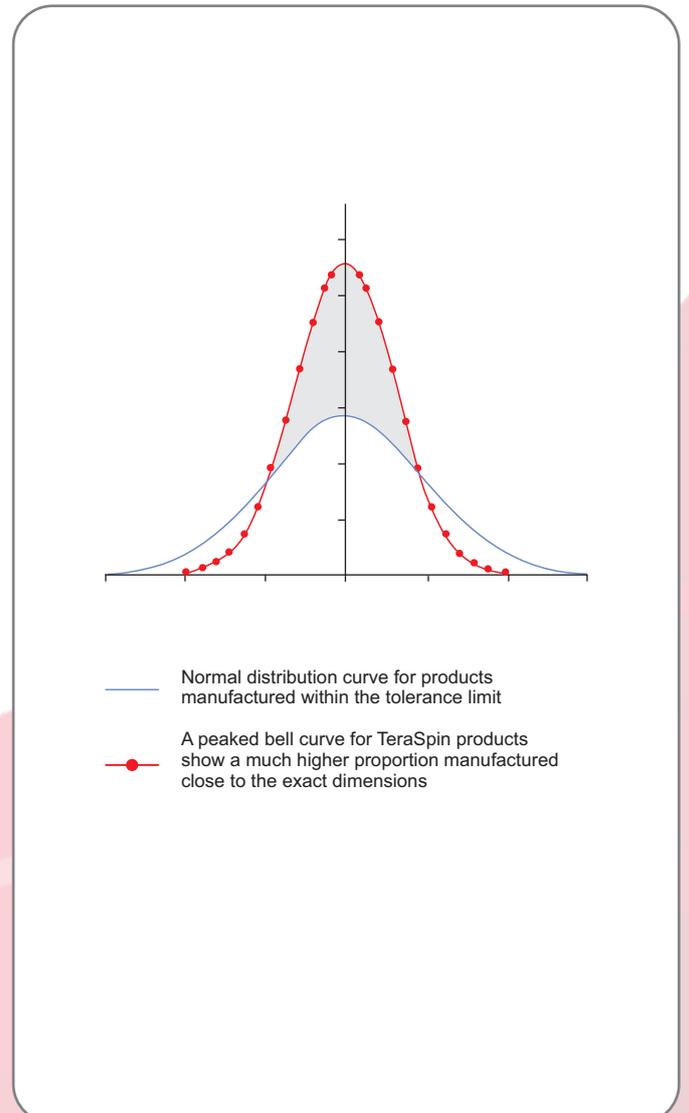
TeraSpin was formed with A.T.E.'s takeover of the textile machinery components business of SKF India Limited in the beginning of 2012. TeraSpin products are thus built on the strong foundation of SKF knowledge and expertise.

Through constant R&D at TeraSpin, some of these products have been further improved upon, thereby ensuring high performance and durability.

With a clear mandate of 'zero defect', 'zero rejection', 'excellence in quality', 'safety' and 'eco-friendly operations', TeraSpin has deployed a series of quality initiatives, such as ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007. Thus, we ensure our products quality at every stage of the production process. All products are manufactured with a high degree of automation that helps achieve consistent quality on a mass scale.

At TeraSpin we manufacture all products as close to their nominal specification limits as possible as shown in the peaked bell curve of the normal distribution – driving towards Six Sigma quality levels.

TeraSpin's products are used by OEMs as well as for upgrades and replacement by spinning mills in all major textile and machinery producing countries like China, Germany, India, Indonesia, Japan, Spain, Turkey, and Vietnam.



## Weighting arms for short staple and worsted ring frames



### Features

- Reliable loading through leveraged force of helical coil springs
- Choice of load selection on each top roller
- Partial load release

### Benefits

- Consistent quality of yarn
- No height gauge setting required after cot buffing within the specified range of the cot diameters
- Free from vagaries of pneumatic pressure loss or pressure variations
- Suitable for a wide variety of fibres and yarn counts
- Virtually maintenance-free
- Long service life

**T**eraSpin weighting arms are characterised by their robust design and corrosion resistant finish. These weighting arms are built to last the lifetime of the ring frame. The loading springs used on TeraSpin weighting arms are pre-calibrated for specified loads and last a life time. Each weighting arm exerts the same load on top rollers irrespective of how long they are in use or at what position in the machine they are fastened.

### For short staple ring frames

- PK 2025-1251331 : for short cradle
- PK 2035-1251784 : for medium & long cradle
- PK 2025-22R : with higher front top roller load suitable for short cradle
- PK 2035-22R : with higher front top roller load suitable for medium & long cradle

### For worsted ring frames

- PK 1601-01 YB : Yellow passivation with black knob
- PK 1601-01 SB : Silver passivation with black knob

## Weighting arms for roving frames



**T**eraSpin weighting arms are characterised by their robust design and corrosion resistant finish. These weighting arms are built to last the lifetime of the roving frame. The loading springs used on TeraSpin weighting arms are pre-calibrated for specified loads and last a life time. Each weighting arm exerts the same load on top rollers irrespective of how long they are in use or at what position in the machine they are fastened.

### 3-roller drafting

for top roller dia. 28/25/28 and 35/33/35 mm

PK 1500-0962604 YB : Yellow passivation with black knob

PK 1500-0962604 SB : Silver passivation with black knob

PK 1500-0962604 SR : Silver passivation with red knob

for top roller dia. 35/25/35 mm

PK 1500-0962602 YB : Yellow passivation with black knob

PK 1500-0962602 SB : Silver passivation with black knob

PK 1500-0962602 SR : Silver passivation with red knob

### 4-roller drafting

with cradle at 3rd roller position

PK 1500-0001938 YB : Yellow passivation with black knob

PK 1500-0001938 SB : Silver passivation with black knob

PK 1500-0001938 SR : Silver passivation with red knob

with cradle at 2nd roller position

PK 1500-0001940 YB : Yellow passivation with black knob

PK 1500-0001940 SB : Silver passivation with black knob

PK 1500-0001940 SR : Silver passivation with red knob

PK 1600-40 YB : Yellow passivation with black knob

PK 1600-40 SB : Silver passivation with black knob

#### Features

- Reliable loading through leveraged force of helical coil springs
- Available in 3-roller and 4-roller drafting configurations
- Choice of load selection on each top roller
- New ergonomic design of knob

#### Benefits

- Consistent quality of yarn
- No height gauge setting required after cot buffing within the specified range of the cot diameters
- Free from vagaries of pneumatic pressure loss or pressure variations
- Suitable for a wide variety of fibres and roving hanks
- Virtually maintenance-free
- Long service life

## Flexi weighting arms



Spinning mills have two basic choices for drafting systems for their ring frames – pneumatic drafting systems or mechanical (spring loaded) drafting systems. Mechanical drafting is generally preferred to pneumatic drafting. This is because spring loaded mechanical weighting arms are maintenance free, hence maintenance time and cost is almost zero. Furthermore, the spring loaded weighting arms give comparatively better yarn quality consistently. Thus, the mechanical weighting arms are “fit and forget” and are user friendly.

Spinning mills with ring frames originally equipped with pneumatic drafting, therefore, prefer to switch to mechanical drafting to optimise the ring frame performance and save maintenance cost, but are deterred by the high cost of the switchover. Because a change from pneumatic to mechanical drafting usually involves the replacement of the complete drafting system (weighting arm, top rollers and cradles) along with other auxiliaries.

TeraSpin's dedicated efforts have paid off with the development of a novel solution to resolve this issue. TeraSpin's Flexi weighting arms for short staple ring frames offer maximum flexibility to use the existing drafting parts, compact systems, and other existing arrangements. This enables the switch over from the pneumatic drafting system to a superior mechanical drafting system most economically.

Besides, the new Flexi weighting arms are very easy to install, are user friendly, and save time in pressure (height) setting, thus making them an even more attractive value proposition.

\*Variants:

PK S 3210	PK S 3240
PK S 3220	PK S 3241
PK S 3230	PK S 3410
PK S 3231	PK S 3420

*\*for details of above mentioned variants please refer to a technical brochure or website*

### Features

- Suitable for hexagonal arm bar
- Can accommodate existing top rollers
- Higher front top roller load
- Options of 5 different loads on each top roller
- Adjustable front top roller off-set
- Easy height (pressure) setting
- Easily replaceable individual weighting elements for each top roller
- Suitable for compact systems
- Reliable loading through leveraged force of helical coil springs

### Benefits

- Minimal investment
- Consistent and better yarn quality
- Improves working of ring frame
- Ease of installation
- Longer service life
- Virtually maintenance free
- Suitable for wide variety of fibres and yarn counts
- Free from vagaries of pneumatic pressure loss or pressure variation
- No height gauge setting required after cot buffing within the specified range of the cot diameters

## Spindles



**T**eraSpin is one of the few complete spindle manufacturers who make spindles and inserts that enable ring frames to attain speeds up to 25,000 rpm (mechanical).

TeraSpin spindles are specially designed for smooth running at high spindle speeds. Optimisation of various design parameters, a high level of manufacturing precision, and high-quality German components reduce the vibration and noise level of the spindle.

### Premium ES spindles

Since energy cost is a major factor that eats away profits of spinning mills, reduction in energy consumption is a top priority for every spinning mill to stay competitive.

TeraSpin Premium ES spindles are the best solution to reduce spinning energy cost. These spindles, which are available with HF1/HF100 spindle bearing units with 18 mm wharve diameter are specifically designed to reduce energy consumption significantly. The well proven, strong, and sturdy design of HF1/HF100 spindle bearing units make the spindles suitable for both manual and auto doffing machines

HF 100: for spindle speeds of up to 25,000\* rpm (mechanical)

HF 1: for spindle speeds of up to 22,000\* rpm (mechanical)

HF 21: for spindle speeds of up to 20,000\* rpm (mechanical)

HF 21C: for spindle speeds of up to 18,000\* rpm (mechanical)

*\*when used under the right conditions*

Spindles are available with many different design combinations:

- Aluminium plug type
- For manual doffing ring frames
- For auto-doffing ring frames
  - with TeraSpin Smart Yarn Catchers
  - with knurling and cutters
  - with seal-band and cutters
- Suitable for
  - 4-spindle tape drives
  - tangential belt drives
- Equipped with
  - self-locking inserts or external locking hooks
  - spring type buttons or centrifugal type buttons

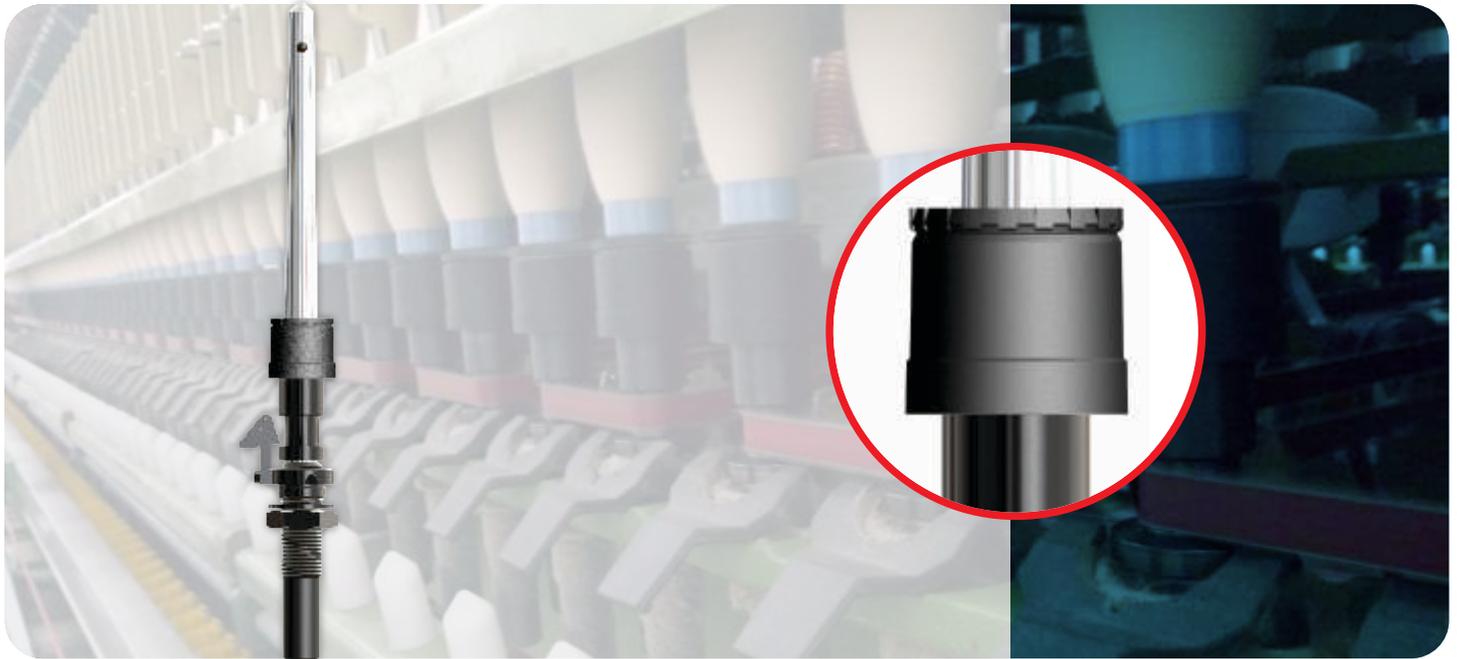
### Features

- Wharve diameter: 18 mm for Premium ES spindles and 18.5 mm minimum for other spindles
- Higher level of manufacturing precision for all spindle components
- Only two-point contact (at footstep and neck bearing)
- Compact neck bearing manufactured with higher precision
- Optimised damping of spindle vibrations with improved design and German components
- Well proven conical footstep design manufactured with higher precision
- Spring support for axial load

### Benefits

- Low vibrations
- Low noise level
- Long life
- Significantly lower energy consumption (with Premium ES spindles)

## Smart Yarn Catcher



**A**ccumulation of residual yarn on ring frame spindles at the end of every doff has been a perennial problem for the spinning industry. The accumulated residual yarn is not only a waste of material, but also needs to be manually cleaned, which takes up many man-hours and also affects the productivity of the ring frames.

**No more accumulation of residual yarn – with the TeraSpin Smart Yarn Catcher (patent applied)**

Continuous innovation is TeraSpin's hallmark. TeraSpin has developed a Smart Yarn Catcher that is self-cleaning. The residual yarn left behind after every doff is expelled by centrifugal forces – putting an end to a major pain area in the operation of ring frames!

### Features

- Automatic opening & closing of clamping faces with change in spindle speed
  - Clamping faces open at about 10500 rpm
  - Clamping faces close at about 4000 rpm
- Firm grip of yarn between upper & lower clamping faces which can align precisely with each other due to unique mechanism
- Special cutter for yarn cutting

### Benefits

- Minimum yarn used for clamping
- No accumulation of residual yarn – the flat annular clamping faces enable the clamped yarn to move out of device easily by centrifugal forces
- No cleaning of residual yarn – less labour hours
- Reduced start-up breaks
- Improved ring frame productivity
- Very long service life

## Cradles



**C**radles discharge the important function of keeping the apron in position over the rotating apron top roller so that fibres are effectively guided in the main draft zone. TeraSpin cradles are made with Fibre Reinforced Plastic (FRP) for long life and ease of handling.

### Ring frame cradles

- OH 62-1275254 (short polymer cradle, 70 mm gauge)
- OH 62-1275267 (short polymer cradle, 75 mm gauge)
- OH 131-1275264 (medium polymer cradle, 70 mm gauge)
- OH 121-000684 (long metal cradle, 70 mm gauge)

### Worsted ring frame cradles

- OH 554-000075 (metal cradle, 75 mm gauge)

### Roving frame cradles

- OH 514-1275261 (short polymer cradle)
- OH 534-1275268 (medium polymer cradle)
- OH 534-000110 (medium metal cradle)
- OH 524-000110 (long metal cradle)

#### Features of FRP cradles

- Rigid and stable structure for use under mill conditions
- Lighter in weight as compared to sheet metal cradles
- Design ensures gentle nipping and effective fibre control
- Clean surface for smooth rotation of top aprons
- Can readily replace existing metal cradles

#### Benefits

- No danger of deformed cradles being used (unlike metal cradles susceptible to deformation) and hence, no danger of producing poor quality of roving/yarn
- Existing spacers can be used on these cradles
- Consistent roving/yarn quality
- Maintenance-free

## Smart cradles



### Features

- Minimum contact area minimises friction during apron rotation
- Unique design ensures a fixed radius and hence a uniform distance between apron nip and front roller nip
- Accommodates variations in apron length & maintains uniform apron tension

### Benefits

- Reduced yarn imperfections
- Longer apron working life
- Easy apron removal and mounting during maintenance

Through continuous R&D, TeraSpin has developed a new range of Smart cradles. The cradles discharge the important function of keeping the apron in position over the rotating apron top roller so that fibres are effectively guided in the main draft zone. New Smart cradles exercise better control over fibres in the front zone and hence give better roving and yarn quality.

### Ring frame cradles

OH S 168 (short polymer cradle, 70 mm gauge)

OH S 175 (short polymer cradle, 75 mm gauge)

### Roving frame cradles

OH P 110 (short polymer cradle)

OH P 310 (medium polymer cradle)

## Distance clips



These small light weight plastic elements in a drafting system can sometimes make the difference between a good and bad yarn. TeraSpin ensures that the distance clips you buy are exactly of the same dimensions thousands after thousands in every order.

## Top rollers



**T**op rollers are a pair of anti-friction, double row ball bearings having a common axle. Each top roller is manufactured such that the clearance between the hardened arbour and shell is perfectly matched with appropriately sized double row steel balls. The top rollers made for ring frames and speed frames are injected with just the right amount of a special grease – TRG 5. The ends are fitted with a uniquely designed seal to prevent leaks while in operation.

### Ring frame top rollers

LP 302-000684	LP 302-000075	LP 302-000825
LP S 3681	LP S 3751	LP S 3821
LP 303-000684	LP 303-000075	LP 303-000825
LP 302-000070	LP 302-000075L	LP 302-000070RLM
LP 302-000070G	LP 302-000080G	LP 302-000090G

### Worsted ring frame top rollers

LP 314-000075	LP 314-000825
LP 316-000075	LP 316-000825

### Roving frame top rollers

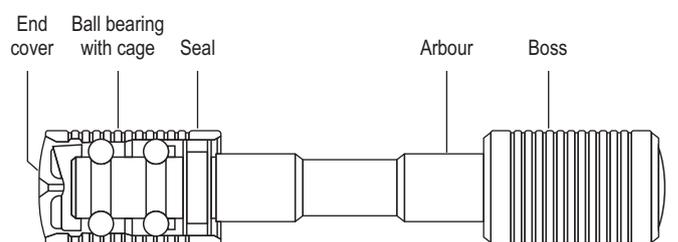
LP 315-000110	LP 317-000110
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#### Features

- Sturdy double row ball bearings ensure smooth and even rotation
- Through hardening of axle and outer shells
- Effective U-type seal
- Lubricated with precise amount of special grease TRG 5

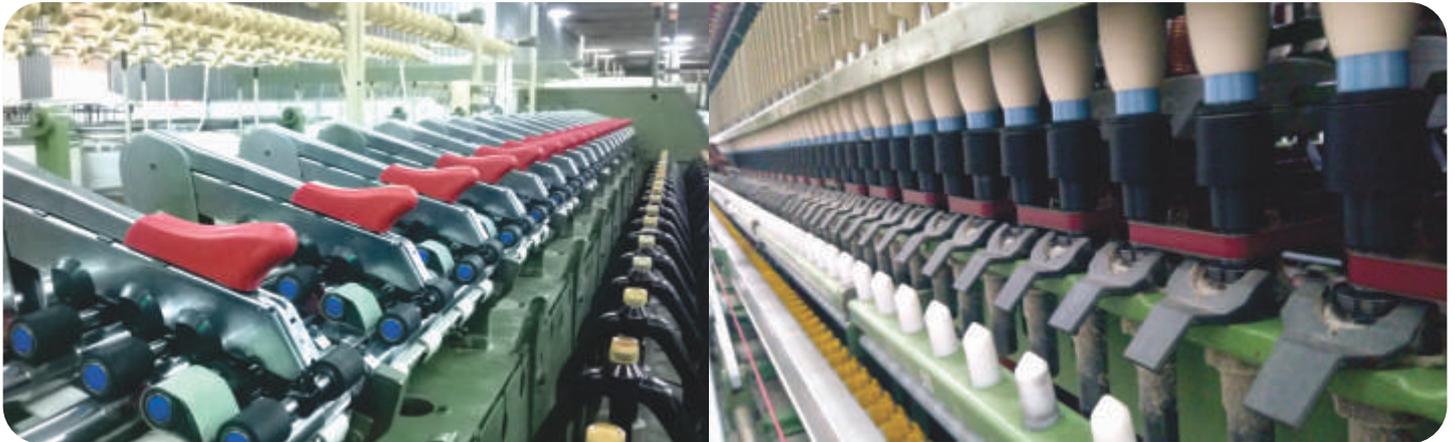
#### Benefits

- Higher load bearing capacity
- No ingress of foreign particles
- Long re-lubrication intervals reduce maintenance
- Smooth trouble-free operation under mill conditions
- Consistent quality output



Double row ball bearings with specially designed end seals to prevent grease leakage during use

## Upgradation kits



**T**eraSpin upgradation kits offer the twin benefits of enhanced performance with low investment. A viable option adopted by many spinning mills across the globe, it improves productivity, quality, and energy efficiency.

### Drafting zone

Drafting upgradation is the preferred way of improving roving frame and ring frame performance. Outdated mechanical and/or old pneumatic drafting systems can be replaced by the more efficient TeraSpin spring loaded weighting systems. No compressed air is required.

### Spindle zone

Ring frames consume almost 60% of the power of the spinning process, out of which spindles and the spindle drive consume approx. 40%. A small saving here will directly reflect in the cost of the yarn. By optimising parameters like spindle wharve diameter, DUI, taper ratio, lift, etc., the power consumption can be considerably reduced.

### Benefits

- Increased spindle speed and productivity
- Reduced power consumption
- Improved and consistent quality of output
- Extended machine life

## Grease TRG 5

**T**eraSpin special grease TRG 5 is specially formulated to meet the stringent working conditions of the spinning industry. TRG 5 keeps drafting top rollers running with longer re-lubrication intervals. Its lubricating properties address the issues of micro dust, fluff, humidity, and temperature in the spinning section. It is also suitable for bottom roller bearings.



### Features

- Barium based grease
- High load carrying capacity
- Good metal affinity
- Excellent water resistant properties
- Wider range of working temperature (-30°C to +140°C)

### Benefits

- Higher load bearing capacity
- No ingress of foreign particles
- Long re-lubrication intervals reduce maintenance
- Smooth trouble-free operation under mill conditions
- Consistent quality output

# Sustainability at TeraSpin

TeraSpin is not only the epitome of quality, but it also embodies A.T.E.'s vision of sustainability. Hence, TeraSpin is certified under ISO 14001:2015 Environment Management System for its sustainable practices.

## Some of TeraSpin's green initiatives:

- Design of the buildings allows optimum use of natural light. Not a single electrical light is used in the office or factory during the day time.
- Green wall structure around the building with various plants and creepers helps to cut down heat coming into the structure.
- A water pipe network inside the structure of the building keeps it cooler.
- A unique two-stage evaporative cooling technology from HMX (a part of the A.T.E. group) provides 100% fresh cool air for people comfort and process efficiency.
- A sewage treatment plant from A.T.E. HUBER Envirotech (a part of the A.T.E. group) treats the wastewater and makes it usable for non-potable purposes like watering the trees and plants around the complex.
- A special type of PU coated flooring in the shop floor, prevents any seepage into the soil and is easy to clean too.
- Hazardous wastes like grinding dust and lubricating oils from the machining centres are carefully collected and handed over to government certified agencies for recycling and disposal.
- Use of IoT based remote monitoring from EcoAxis (a part of the A.T.E. group) ensures that the temperatures, CO<sub>2</sub> levels, etc., are always at the intended levels within the manufacturing facility and the office.
- Rain water harvesting and reverse bore wells replenish the ground water in the area.

## Manufactured by



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(Business Unit: TeraSpin)

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