wrapsolut
by Fährenkämper Engineering

PACKING MACHINES FOR

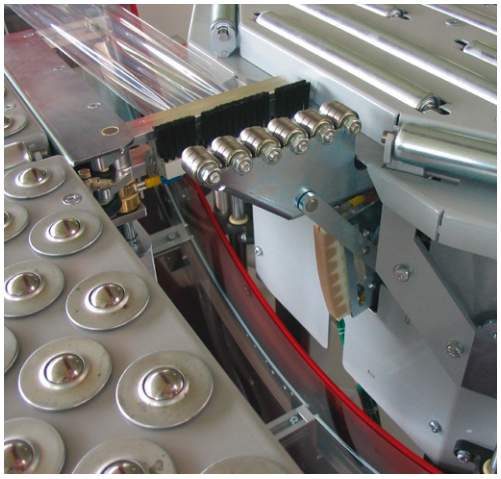
TYRES, WHEELS AND CARDBOARD BOXES

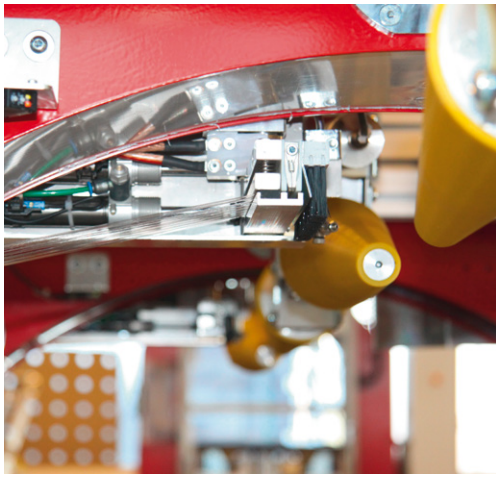
FIXING. WRAPPING. PACKAGING.

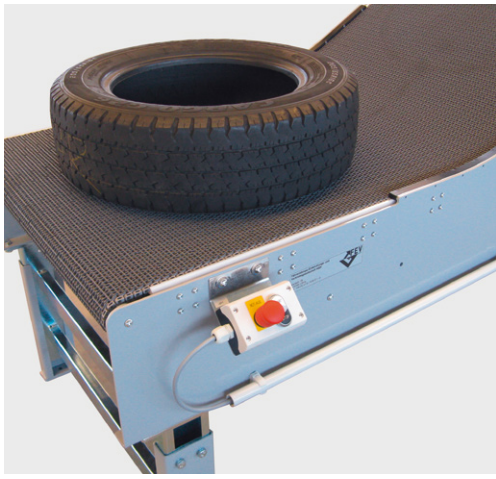
OUR COMPANY

For many years we have been developing and producing packaging technology and machines for the tyre industry and the tyre and wheel trade.

Our team maintains direct customer contact. This allows us to respond to your requirements in a quick and flexible manner. The combination of our know-how in the area of producing efficient machine solutions and your performance requirements concerning economic packaging solutions has allowed us to offer you a comprehensive, modern and reliable machine program for tyre, wheel and cardboard box packaging.







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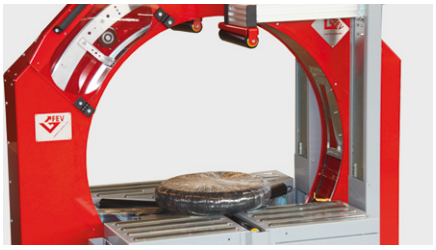
DIVERSE MACHINE APPLICATION

One feature of highly efficient and economic machine systems is that they can be used for diverse packaging variations.



PRODUCTS

- Car tyres and wheels
- Small truck tyres and wheels
- Motorcycle and scooter tyres
- Cardboard packaging (e.g. rim packages)

PACKAGING VARIATIONS

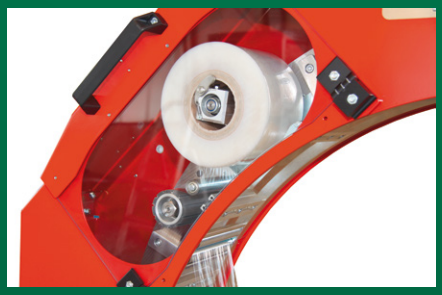
- Individual products or commissions
- Wheel packaging with protective and cardboard covers
- Complete packaging with screw box
- Motorcycle and scooter tyres with tube package
- Tyre and wheel packaging with corrugated cardboard wrapping (rectangular package)
- Cardboard boxes
- Partial or complete wrapping

MACHINE TYPES

We offer you optimised solutions for all requirements and performance features. You can decide between manual, partially-automatic or fully automatic machine solutions and integrations.

TECHNOLOGY AND APPLICATION FEATURES

Sophisticated machine technology must be used to make the machine's diverse areas of application possible. Intelligently developed and well-engineered machine components make for high-quality and cost-efficient packaging results.



FILM ROLL HOLDER WITH BRAKING ROLLER

The film roll can be changed easily and above all very fast (approx. 30 sec.). The film tension is created by means of an external brake roller and is infinitely variable.

AUTOMATIC FILM HOLDER AND CUTTER

The entire width of the film is held, the film is cut and then neatly applied to the previously wrapped film layers. The film cut is carried out by a resistance wire with applied pulse current. Above all, this system distinguishes itself by its reliability and maintainability.

SEALING UNIT

The film end neatly placed by the film holder and cutter is thermally welded to the previously wrapped layers by means of a welding unit with applied pulse current. This procedure ensures that the film end is securely attached to the product, so that no problems occur in the distribution centres of the shipping services.

LINK BRIDGES

The units optimised according to machine types bridge the wrapping area of the tyre, wheel or cardboard box transfer. This facilitates machine operation and prevents smaller products from falling into the wrapping area.

AUTOMATIC LIFTING AND TURNING UNITS:

These units are vital for the diverse areas of application of our machines as well as the ergonomically optimised operation.

For the wrapping process, the products are lifted off the conveying surface by three rollers arranged in a star shape. This ensures that the tyres and wheels can be turned easily. Simultaneously, the rollers lock the products in place when the lateral forces resulting from the film tension during the wrapping process are applied.

In addition, our machines allow for the wrapping of angular products/packages, thereby significantly expanding the areas of use.

HOLD-DOWN UNITS

In case of automatic packaging processes, it is necessary to ensure that above all light-weight products are not lifted off the turning units. For this reason, hold-down rollers approach the products in increments from above and hold them in place during the wrapping process.

COUNTER

The machines can be equipped with a resettable counter, e. g. to obtain information about the daily output.

MOBILE BASE FRAME

All machines can be lifted and moved by means of a manual lift truck. Apart from that, we also offer a base frame equipped with trestle and steering rollers.

WRAPPING PROCEDURE WITH PE STRETCH FILM

Packaging with PE stretch film has many advantages and positively sets itself apart from other packaging methods in many ways.

SAFE AND STURDY PACKAGING

The film neatly and evenly makes contact with the products with the set pre-tension. Holding forces are intentionally created from the film tension.

OPEN OR CLOSED PACKAGING

Depending on your application demands, the products can be fully or partially wrapped.

DIRECTLY ENCLOSING SHIPPING DOCUMENTS

Shipping documents can be enclosed directly prior to the wrapping process and securely fixed by stretch film. An additional shipping bag is not required.

SPACE REQUIREMENT

The machine types are optimally adjusted to the product size and require the smallest possible installation surface.

AFFIXING THE SHIPPING LABEL

The shipping labels can be affixed directly on the stretch film. A label with special glue is not required.

OPTIMISED USE OF THE WRAPPING FILM

The wrapping procedure only uses as much film as the product geometry requires.

LOW ENERGY COSTS

Due to the machine technology used for the wrapping procedure energy costs are only created during the wrapping process.

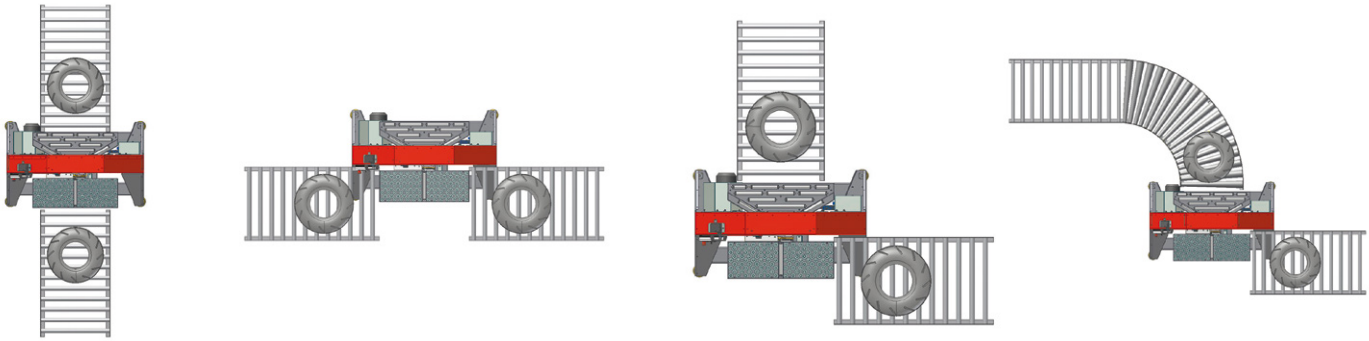
LOWEST PACKAGING COSTS

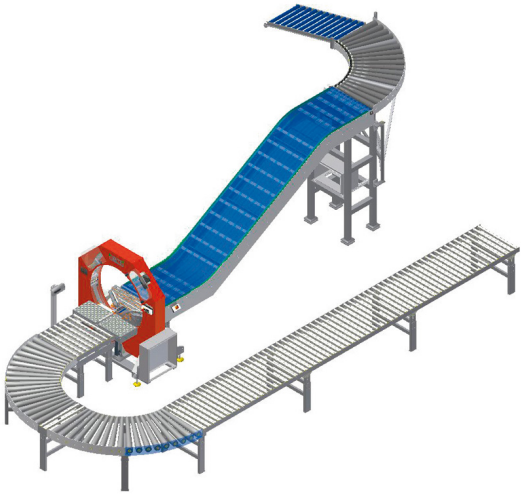
PE stretch film is used in large quantities industrially and can be bought at a low price. Taking into account the other advantages of this procedures, this is one of the most cost-efficient packaging processes for tyre and wheel packaging.

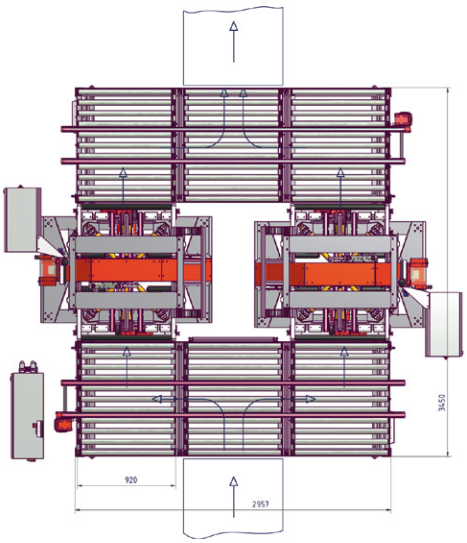
GENERAL QUALITY FEATURES

- Sturdy and compact machine construction
- Use of standard components field-tested over many years
- Low-maintenance machine concept
- Use of components from German brand manufacturers (motors from SEW, pneumatic components from Festo, sensors from Sick, etc.)
- Compliance with European Machinery Directives in accordance with CE conformity
- Fast and reliable service
- Immediate supply of spare parts
- Made in Germany

EXAMPLES OF PRODUCT FLOW AND CONVEYING





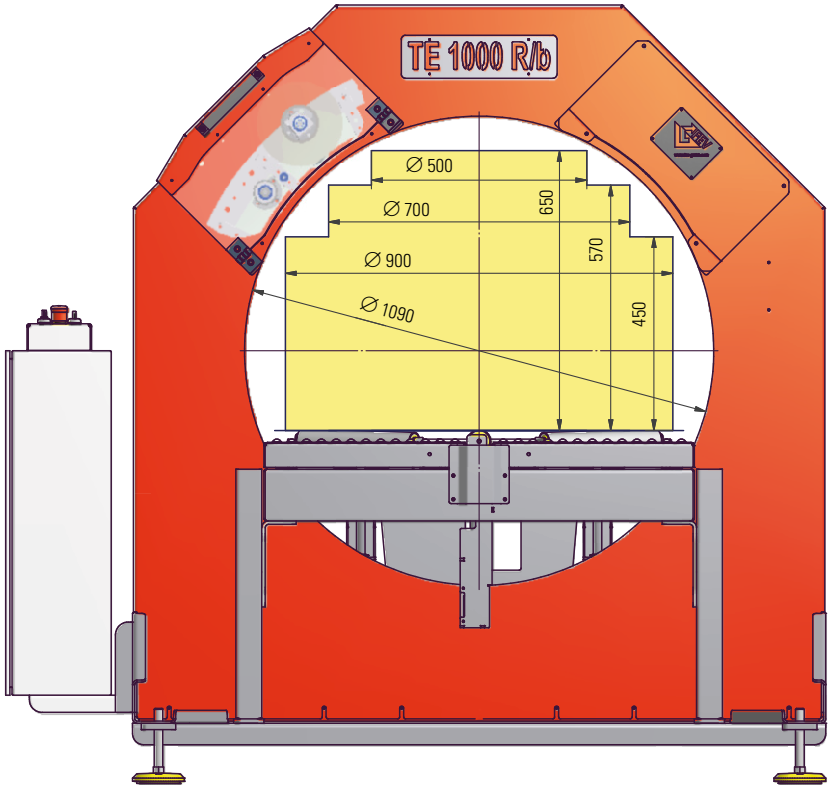


MACHINE SIZES

We have two standard machine sizes available: Wrapping ring size 1000 and 1200. Refer to the following layouts in order to decide which size is best suited for your requirements.

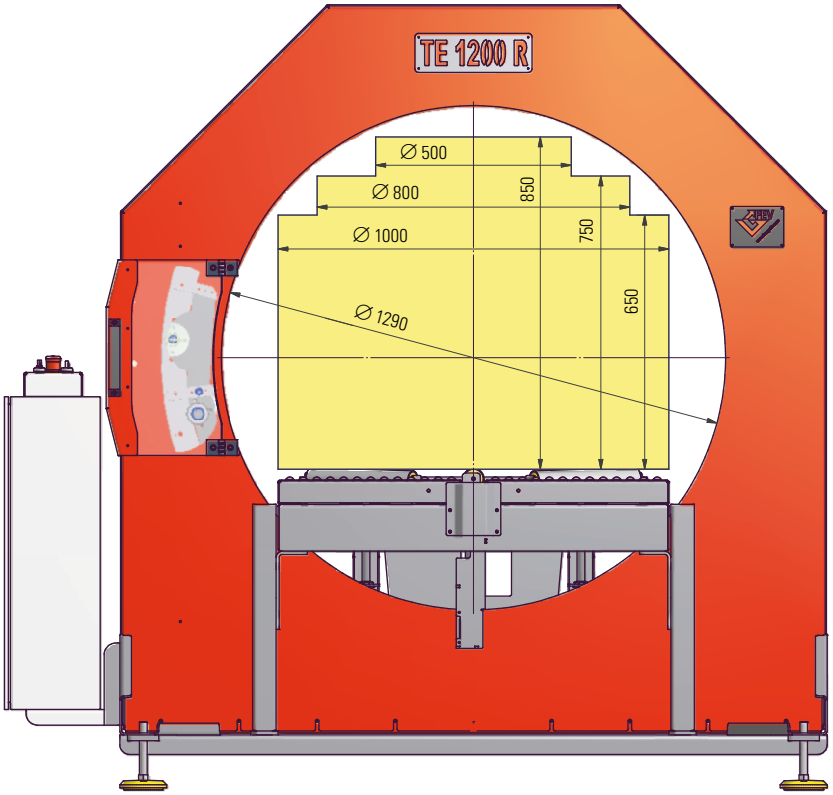
The maximum package size for machine versions equipped with hold-down technology for the machine types

TE 1000 R/II & TE 1000 R/a is 620 mm



The maximum package size for machine versions equipped with hold-down technology for the machine types

TE 1200 R/II & TE 1200 R/a is 820 mm



THE WRAPPING MACHINES TE 1000 R/b & TE 1200 R/b

The wrapping machines TE 1000 R/b and TE 1200 R/b are equipped with all necessary features to package tyres, wheels and cardboard boxes for package shipment in a quick, efficient and inexpensive manner. When developing these machines we took great care to ensure that the basic version of our machine range for tyre and wheel packaging fulfils our quality requirements for reliability, ease of handling and performance.

APPLICATION

During the wrapping process, stretch film is wrapped around the products. If the products are turned during the wrapping process, the film is wrapped around the product diameter. The machine operator decides on the extent of this wrapping:

- Package band on a tyre for applying the forwarding label
- Partial wrapping as cheap packaging alternative for two tyres
- Full wrapping for creating a closed package for forwarding
- Complete wrapping for tyre packaging (prior to packaging, it is possible to place cardboard discs and foam film on the tyre for additional protection of the rims.)
- Tyres and wheels in a cardboard package with crosswise wrapping (rectangular package)
- Closing cardboard boxes with the wrapping procedure

USER

Due to the appealing cost-benefit ratio these machines are especially suitable for the following areas of use:

- Use as initial machine for a lower shipping volume
- Additional machine for the seasonal business

MACHINE FEATURES

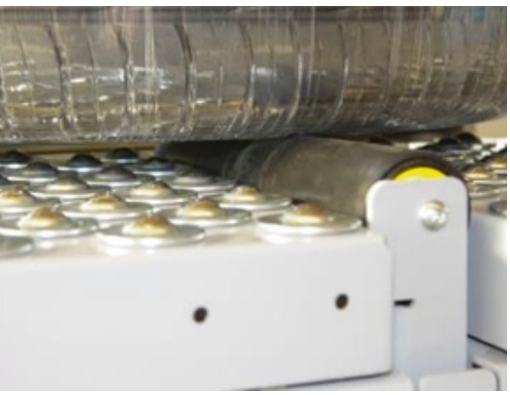
- Special machine for packaging tyres, wheels and cardboard boxes
- Safe, enclosed wrapping ring system
- Infinitely variable film tension
- System for quick film change
- Control of the wrapping process by means of a foot switch
- Lifting device for wheels and tyres to allow free turning during the wrapping process
- Optimised ring holding position so that the film end can be neatly placed on the top side of the package (fixing in place with shipping labels possible)
- Height-adjustable ball roller table upstream from the wrapping head
- Height-adjustable cylinder roller table downstream from the wrapping head
- Special program for wrapping cardboard boxes
- Quick change of the machine location by means of a manual lift truck or a similar device is possible
- Machine layout designed according to ergonomic aspects
- Machine available with RH or LH control system

PERFORMANCE FEATURES

- High wrapping ring speed
  TE 1000 R/a = 144 rpm
  TE 1200 R/a = 114 rpm
- 4 to 5 packages per minute
- Low packaging material costs (approx. 8 ct. for partial wrapping and approx. 12 ct. for full wrapping with a film price of approx. 2.50 euros/kg)

EXPANSION POSSIBILITIES

- Additional attached tables with ball rollers in the infeed
- Counter
- Mobile base frame

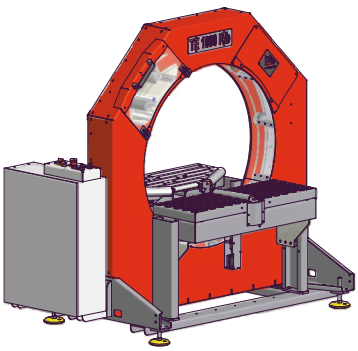


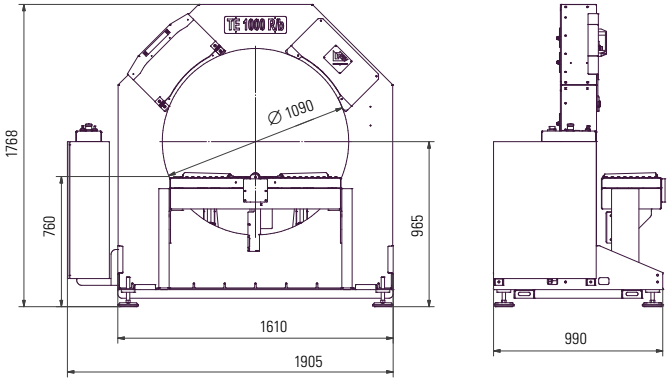
This lifting unit is raised during the wrapping process! It is possible to freely turn the tyres and fix them in place using two fingers. The film does not catch in the ball rollers during the wrapping process.

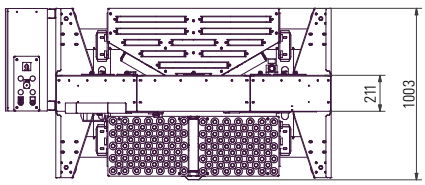
TECHNICAL DATA

	TE 1000 R/b	TE 1200 R/b
Film roll diameter	max. 200 mm	max. 200 mm
Film roll width	max. 125 mm	max. 125 mm
Roll core diameter	38 or 76 mm (can be selected)	38 or 76 mm (can be selected)
Film thickness	15 to 50 µm	15 to 50 µm
Inner diameter of the wrapping ring	1090 mm	1290 mm
Rotational speed of the wrapping ring	144 rpm	114 rpm
Mains voltage	230 V	230 V
Mains plug	Schuko	Schuko
Connected load	1.5 kW	1.5 kW
Pneumatic connection	coupling plug NW 7.2	coupling plug NW 7.2
Supply pressure	6 to 12 bar	6 to 12 bar
Air treatment	dry/oil-free	dry/oil-free
Air consumption	0.66 l/cycle	0.66 l/cycle

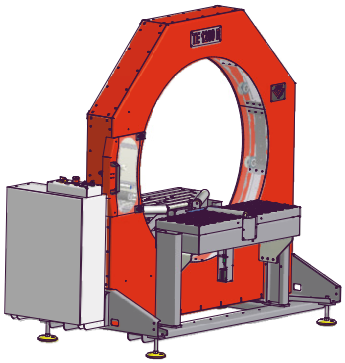
MACHINE LAYOUT: TE 1000 R/b

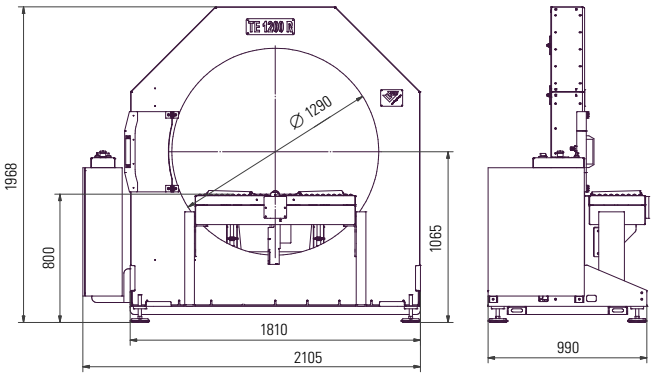


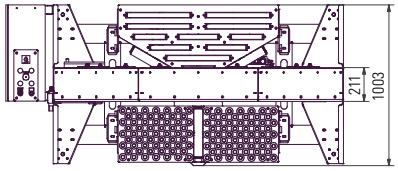




MACHINE LAYOUT: TE 1200 R/b







THE WRAPPING MACHINES TE 1000 R/II & TE 1200 R/II

The wrapping machines TE 1000 R/II and TE 1200 R/II are equipped with all necessary features to package tyres, wheels and cardboard boxes for parcel shipment in a fast, efficient and cost-effective manner. It is possible to have the machines assembled individually for any operational requirement.

Depending on the expansion level, the wrapping process is either manual or automatic. In the case of an automatic procedure, the operator has sufficient time to take care of all occurring additional tasks such as commissioning the next package, scanning the shipping documents, printing and applying the shipping labels, etc, while the machine packages the products independently.

APPLICATION

During the wrapping process, stretch film is automatically wrapped around the products. The individual machine parameters are set by means of the control panel.

- Package band on a tyre for applying the forwarding label
- Partial wrapping as cheap packaging alternative for two tyres
- Complete wrapping for creating a closed package for forwarding
- Complete wrapping for tyre packaging (prior to packaging, it is possible to place cardboard discs and foam film on the tyre for additional protection of the rims.)
- Tyres and wheels in a cardboard package with crosswise wrapping (rectangular package)
- Closing cardboard boxes with the wrapping procedure

USER

Due to the diverse fields of application and the automatic wrapping procedure, these machines are suitable for the following areas of application:

- Use for medium to high shipping volumes
- Suitable as single-user workstation or for a partly automatic overall process

MACHINE FEATURES

- Special machines for packaging tyres, wheels and cardboard boxes
- Safe, enclosed wrapping ring system
- Infinitely variable film tension
- System for quick film change
- Start of the automatic wrapping process by means of a foot switch
- Lifting device for wheels and tyres to allow free turning during the wrapping process
- Automatic film holder and cutter
- Height-adjustable cylinder roller table upstream and downstream from the wrapping head
- Special program for cardboard box packaging
- Quick change of the machine location by means of a manual lift truck or similar devices possible
- Machine layout designed according to ergonomic aspects
- Machine available with RH or LH control system

PERFORMANCE FEATURES

- High wrapping ring speed
  TE 1000 R/a = 144 rpm
  TE 1200 R/a = 114 rpm
- 3 to 4 packages per minute
- Low packaging material costs
  (approx. 8 ct. for partial wrapping and approx. 12 ct.
  for full wrapping with a film price of approx. 2.50 euros/kg)

INDIVIDUAL MACHINE CONFIGURATION

MANUAL WRAPPING PROCESS

The basic machine is designed for a manual wrapping procedure. The machine operator pushes the products into the wrapping area and starts the wrapping procedure by means of a foot switch. The products are lifted by the lifting and turning unit and can easily be turned while wrapping. The automatic film holder and cutter neatly and evenly places the film end on the previously wrapped film layers.

THE BASIC MACHINE IS EQUIPPED WITH THE FOLLOWING EQUIPMENT FEATURES

- automatic film holder and cutter
- height-adjustable work surface with cylinder rollers in the infeed
- height-adjustable work surface with cylinder rollers in the outfeed
- pneumatically driven lifting and turning unit with cylinder rollers arranged in a star shape
- Control system side in conveying direction freely selectable (LH or RH side)

The **operational programs** of the basic machine are partial wrapping/full wrapping, the cardboard box program and the emergency operation program.

The **setting parameter** of the basic machine is the wrapping ring rotational speed.

Additionally, the basic machine can be equipped with the following **accessory equipment:**

- Sealing unit
- Link bridge
- Ball roller table in the infeed
- Attached table in the infeed with ball rollers (LH or RH side)
- Counter
- Mobile base frame

AUTOMATIC WRAPPING PROCESS

The lifting and turning unit of the basic machine is equipped with driven rollers. The machine operator pushes the products into the wrapping area and starts the wrapping process by means of a foot switch. As of this point, the entire wrapping process is carried out fully automatically.

Compared with the basic machine, this machine is equipped with a lifting and turning unit with driven rollers.

The **operational programs** have been expanded by a toggle switch for partial and full wrapping.

The **setting parameters** are equipped with a setting potentiometer for the angle of rotation as well as the rotating speed of the product (film incline).

Additionally, the following **accessory equipment** can be installed in the machine:

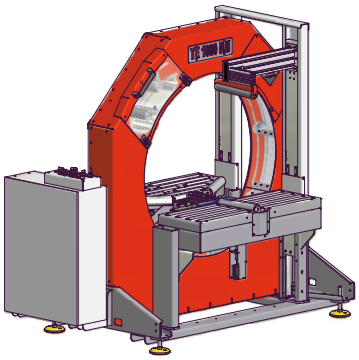
- Sealing unit
- Link bridge
- Ball roller table in the infeed
- Hold-down unit on the infeed and outfeed side
- Counter
- Mobile base frame

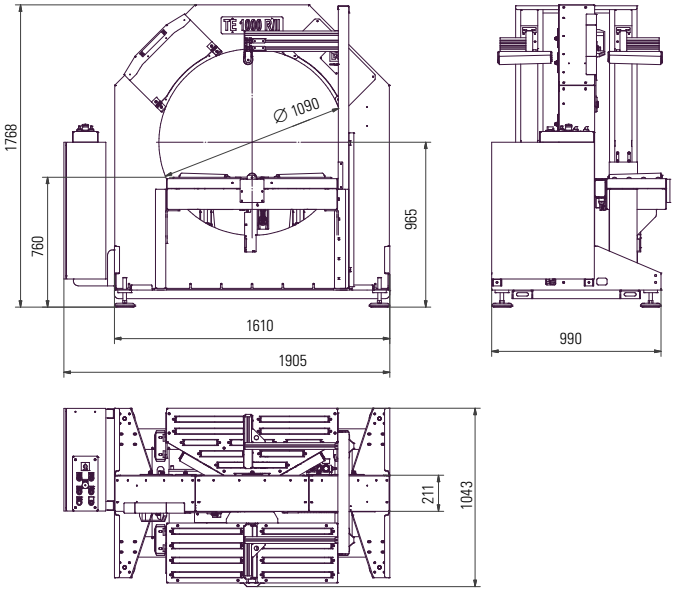
TECHNICAL DATA

	TE 1000 R/II	TE 1200 R/II
Film roll diameter	max. 200 mm	max. 200 mm
Film roll width	max. 125 mm	max. 125 mm
Roll core diameter	38 or 76 mm (can be selected)	38 or 76 mm (can be selected)
Film thickness	15 to 50 µm	15 to 50 µm
Inner diameter of the wrapping ring	1090 mm	1290 mm
Rotational speed of the wrapping ring	144 rpm	114 rpm
Mains voltage	3 x 400 V + N + PE	3 x 400 V + N + PE
Mains plug	16 A / CEE	16 A / CEE
Connected load	1.9 kW	1.9 kW
Pneumatic connection	coupling plug NW 7.2	coupling plug NW 7.2
Supply pressure	6 to 12 bar	6 to 12 bar
Air treatment	dry/oil-free	dry/oil-free
Air consumption	12.18 l/cycle	12.18 l/cycle

This lifting unit is raised during the wrapping process! The tyres are turned manually or automatically. The automatic film holder and cutter neatly places the end of the film on the bottom of the package.

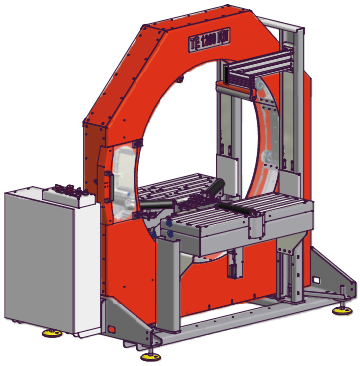
MACHINE LAYOUT: TE 1000 R/II

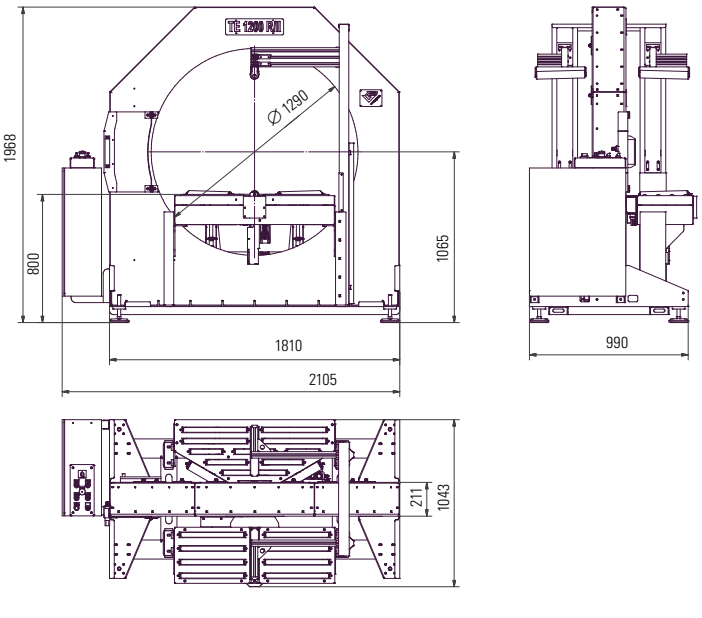




Depiction with complete equipment

MACHINE LAYOUT: TE 1200 R/II





Depiction with complete equipment

THE WRAPPING MACHINES TE 1000 R/a & TE 1200 R/a

The wrapping machines TE 1000 R/a and TE 1200 R/A are equipped with all necessary features to fully automatically wrap tyres, wheels and cardboard boxes in a quick, efficient and cost-effective manner.

These machines are usually used in fully automatic machine lines, meaning that the products are packaged without personnel. Incorporation of the machine control system into higher-level systems, including product monitoring, automatic labelling, etc. is part of the standard of this technology.

APPLICATION

During the wrapping process, stretch film is automatically wrapped around the products. The individual machine parameters can be set by means of the operating panel or are determined by a higher-level control system.

- Package band on a tyre for applying the forwarding label
- Partial wrapping as cheap packaging alternative for two tyres
- Complete wrapping for creating a closed package for forwarding
- Complete wrapping for tyre packaging (prior to packaging, it is possible to place cardboard discs and foam film on the tyre for additional protection of the rims.)
- Tyres and wheels in a cardboard package with crosswise wrapping (rectangular package)
- Closing cardboard boxes with the wrapping procedure

USER

Due to the diverse fields of application and the automatic overall process these machines are suitable for the following areas of application:

- Use in case of high shipping volume
- Incorporation into automatic conveyor paths
- Suitable as single-user workstation or for a fully automatic total procedure

MACHINE FEATURES

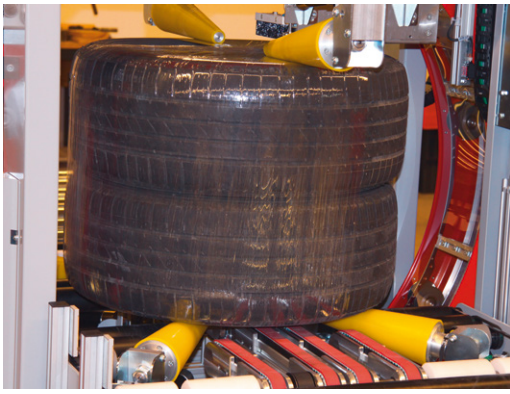
- Special machine for packaging tyres, wheels and cardboard boxes
- Safe, enclosed wrapping ring system
- Infinitely variable film tension
- System for quick film change
- Fully automatic wrapping and conveying process
- Lifting device for wheels and tyres with driven conical rollers
- Hold-down device with driven conical rollers
- Automatic film holder and cutter
- Height-adjustable conveying units upstream and downstream from the wrapping head
- Film tear and end detection device
- Automatic tyre positioning in the conveying direction
- Optical operating condition display
- Machine available with RH or LH control system

PERFORMANCE FEATURES

- High wrapping ring speed
  TE 1000 R/a = 144 rpm
  TE 1200 R/a = 114 rpm
- 3 to 4 packages per minute
- Low packaging material costs (approx. 8 ct. for partial wrapping and approx. 12 ct. for full wrapping with a film price of approx. 2.50 euros/kg)

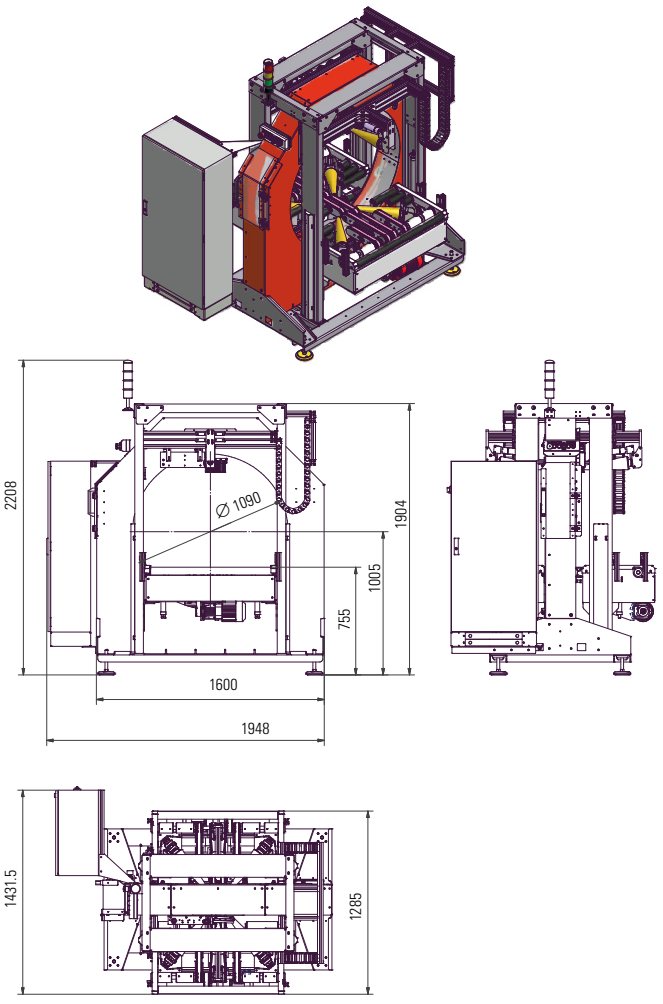
TECHNICAL DATA

	TE 1000 R/a	TE 1200 R/a
Film roll diameter	max. 250 mm	max. 200 mm
Film roll width	max. 125 mm	max. 125 mm
Roll core diameter	38 or 76 mm (can be selected)	38 or 76 mm (can be selected)
Film thickness	15 to 50 µm	15 to 50 µm
Inner diameter of the wrapping ring	1090 mm	1290 mm
Rotational speed of the wrapping ring	144 rpm	114 rpm
Mains voltage	3 x 400 V + N + PE	3 x 400 V + N + PE
Mains plug	16 A / CEE	16 A / CEE
Connected load	2.8 kW	2.8 kW
Pneumatic connection	coupling plug NW 7.2	coupling plug NW 7.2
Supply pressure	6 to 12 bar	6 to 12 bar
Air treatment	dry/oil-free	dry/oil-free
Air consumption	27.70 l/cycle	27.70 l/cycle

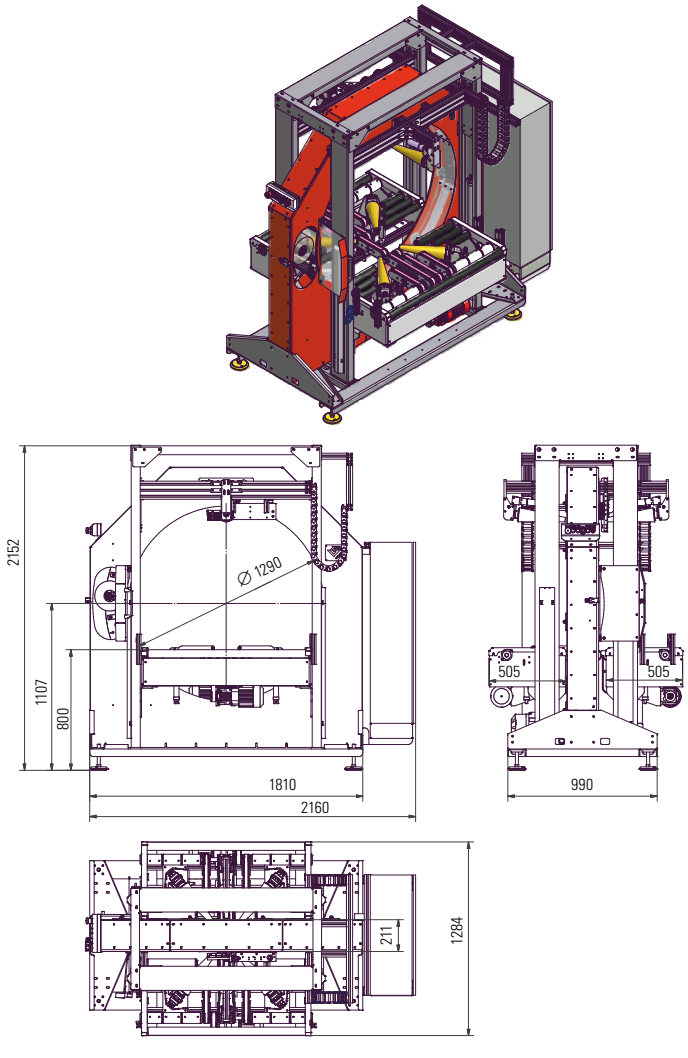


The conveyor units receive and position the products. The lifting and turning unit is raised and the hold-down device is lowered. The wrapping process is carried out. Afterwards, the packaged product is transported out of the machine and the new product is received.

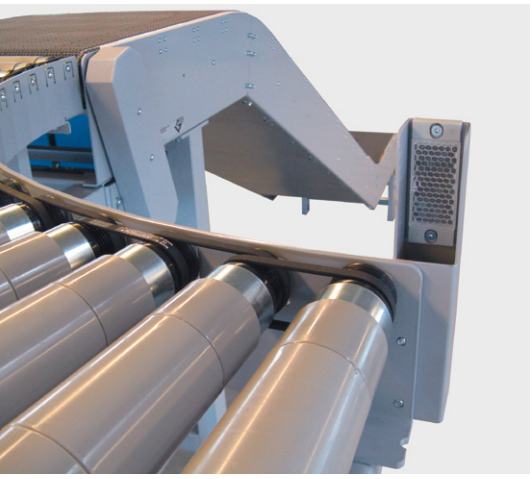
MACHINE LAYOUT: TE 1000 R/a



MACHINE LAYOUT: TE 1200 R/a



FIXING. WRAPPING. PACKAGING.



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