

Customized solutions for the tire and automotive industry



Tire technology

At the Hamburg-Harburg location, this company division develops and manufactures single and co-extruders, extrusion lines, tire building machines, tire curing presses and complete production lines for the tire industry, as well as venting extruders, shear head extruders, process control systems, and production lines for technical rubber profiles.



Machines and complete systems for the caoutchouc and rubber industry

Ever since the construction of the very first machine for the caoutchouc processing industry some 150 years ago, Harburg-Freudenberger in Hamburg-Harburg has been making major contributions to the technical and economic progress in the production of tires and technical rubber goods.

Therefore, our company has become one of the world's leading suppliers of machines and equipment for the processing of caoutchouc and rubber – primarily for car and truck tires – producing all the key machinery for the tire industry.

By introducing hydraulic tire curing presses and developing automated unistage tire building machines, we have significantly contributed to the improvement in uniformity in the production of modern high-quality, high speed and wide tires.

The use of cold feed pin extruders reduces energy consumption and simultaneously optimizes the materials' homogenization. Thus these machines are more advantageous if older extruders are to be replaced or if new machines are to be purchased.

Further benefits are obtained using new multiple extrusion heads in many standard and customized designs for strainer, pellet and hose extrusion as well as profiled pre-products for the tire production.

Harburg-Freudenberger is also constantly setting new standards in the production of technical rubber goods, e.g. in the development of shear head

technology for the continuous production of refined, dimensional stable profiles with and without metal reinforcement.

At the Freudenberg R & D Center state-of-the-art machines and equipment are available for research and testing.

Our comprehensive service ensures a high availability rate for our global customers as our technical standards are continuously updated. These are the reasons why we have so far delivered over 2,000 curing presses worldwide and why our customers can achieve output rates of up to 1,400 on our tire building machines.



View of the Harburger Eisen- und Bronzwerke AG (HEB) works, 1910



Extrusion technology for tire production

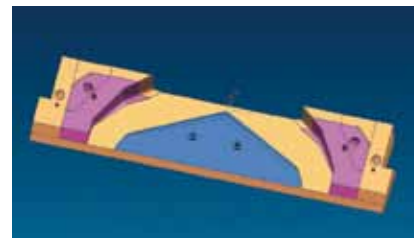
Harburg-Freudenberger's modular designed extrusion lines enjoy an outstanding reputation based on well-engineered technology and durability. We can supply extrusion heads in various widths – according to customer requirements. Our extrusion heads offer a universal flow channel technology with a hammerhead locking system to ensure fast and safe changing of profiles in combination with a high degree of operational reliability and precision.

The screw concept

Based on many years of experience and close cooperation with our customer we have developed screws for high output at low extrusion temperature and optimal homogenization of specific compounds.

The MODULAR INSERT system

This system is part of our innovative concept for the reduction of profile changeover times and making the handling of the tooling easier.



The locking system

Our patented hammerhead locking system for the extrusion head takes up the forces resulting of the extrusion pressure up to 350 bar and reliably seals the flow channels.

The downstream equipment

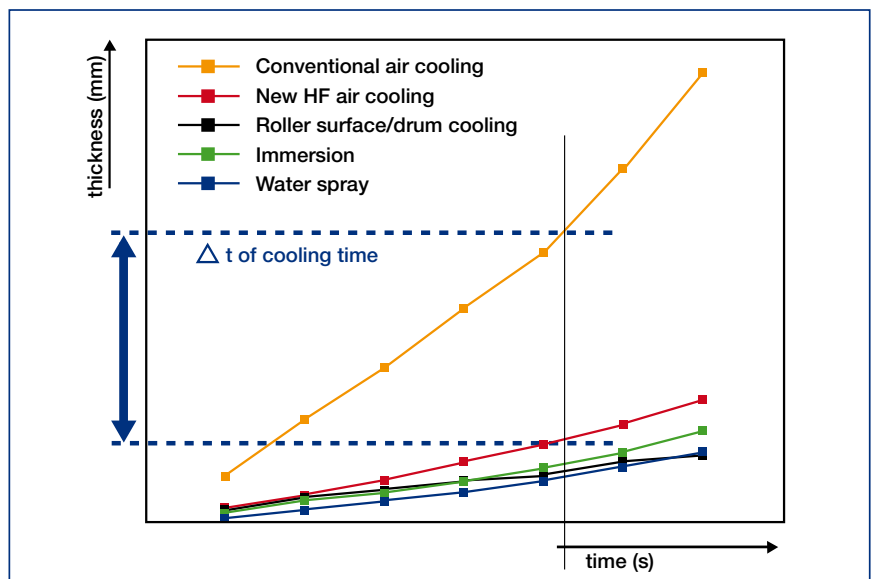
Depending on the profiles to be produced the downstream equipment is selected. For tread, sidewall or innerliner production the downstream equipment could include:

- shrinkage conveyor
- continuous scale
- camera systems
- marking devices
- calendar equipment
- cooling line
- skiver or cross-cutter
- winders
- booking units



The cooling line concept

Cooling line technology comprises immersion cooling, spray cooling, air cooling and drum cooling. According to profile dimensions, compound properties and inlet temperatures the system is designed and its cooling length is calculated.



Extruder for production of technical rubber goods

Thanks to our innovative extrusion technology, the process can be optimised and an efficient and economic production of profiles and hoses is ensured. The benefits of the compact extruder design are particularly significant for frequent product changes and high machine availability.

All technological requirements for hose and profile production are assured as the extruder can be complemented by gear pump, shear head, hydraulic degassing adjustment or hydraulic wall thickness centring. Thus different quality requirements will be steadily met.

Tire building machines for high performance PCR and LTR tires

Tire manufacturers as well as tire building machines must meet the highest quality requirements of the automotive industry.



We meet these challenges in close cooperation with our customers.

A combination of continuing product development, varying degrees of automation, and the modular construction principle of our machines yields optimal results for our customers.

Harburg-Freudenberger offers its customers machine types for a broad range of requirements. The machines are available in standard and special sizes.



PCR/ LTR 1+2

Our standard machine type for tire sizes of up to 20" - more than 200 units have already been supplied.

PLT 3 – P2 "Secondstage", 14-20"

Our second stage high performance machine where external manufactured carcass together with the belt package are assembled for precise green tires.

Leading tire manufacturers have successfully employed this machine type for high-quality tires.

PLT2 „Unistage“, 14-20"

This tire building machine is the alternative to PCR/LTR 1+2; its layout enables modular composition of material feeding devices. By the modular machine construction a fully automatic process configuration is possible.

PLT3-23 plus „Unistage“, 15-24"/18-28"/18-32"

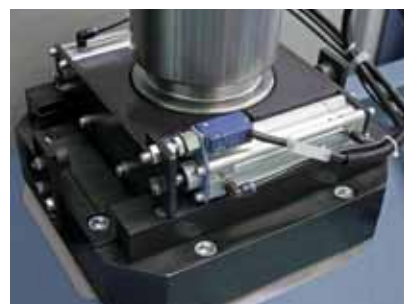
This machine type has been specially designed for high and ultra-high quality tires with large dimensions (PCR and LTR). The quality of these machines has been proven in practice for many years. This Unistage type offers customized solutions thanks to the modular construction.





Curing presses

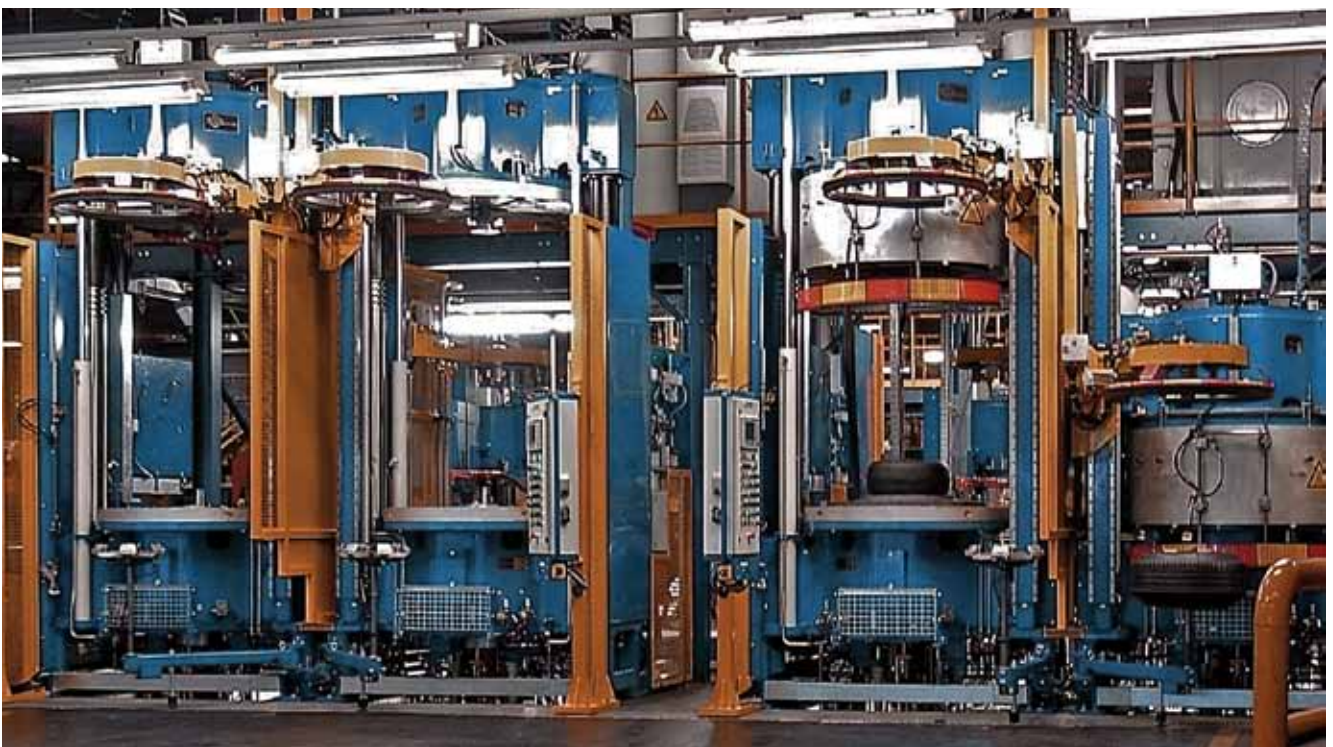
Like all Harburg-Freudenberger machines, curing presses are manufactured according to individual customer requirements. In close cooperation with our customers we create the suitable solution to meet all required well-engineered functions and machine elements. This ensures that each curing press is optimally adapted to the tire processing cycle in each tire plant all over the world.



Moreover, the patented locking system of the press as well as the columns for the head unit movement guarantee quality and reliability of our curing presses.

The assembly groups of our curing presses are manufactured and assembled by using state-of-the-art production methods. All operating functions of the curing press are tested on site, in combination with a pre-commissioning according to the quality standards of the customer. After customers acceptance at the tire plant, each curing press will be integrated into the tire production process.

Harburg-Freudenberger supplies curing presses with common or individual control of the two cavities. Precision, tight tolerance manufacturing of our curing presses is carried out at our own production plant in Croatia, where more than 200 presses are produced annually.





Service – We are always at your service.

For our customers, we offer a comprehensive service from the initial consultations throughout the entire service life of a machine.

Service centers and contractual partners in Europe, Russia, Iran, India, South and East Asia, Australia, South Africa as well as in North and South America, ensure a constant dialog and reliable service for our customers – 24/7, 365 days a year.



We are present on a global scale with our production locations and service points:



Administration as well as caoutchouc and edible oil technology plant in Hamburg-Harburg, Germany



Office and assembly works of HF Rubber Machinery Inc. in Topeka, Kansas/USA



Administration and rubber mixing technology plant in Freudenberg, Germany



Assembly works of Harburg-Freudenberg Belišće d.o.o. in Belišće, Croatia

Harburg-Freudenberger

We develop, build and distribute machines, lines and systems across our three company divisions based on 150 years of company tradition.

Rubber mixing technology

We provide the most comprehensive range of machines for the rubber and caoutchouc industry including all major preparation and processing stages.

- Complete mixing room systems
- Internal mixer
- Mixing mills
- Dump extruder

Caoutchouc technology

Production machines and lines for the manufacture of tires and technical rubbergoods from raw material feeding to vulcanisation:

- Extruder
- Extrusion lines
- Tire building machines
- Curing presses

Edible Oil Technology

Machines for processing oilseed, crude oils of vegetable origin and animal raw materials as well as screw presses for the dewatering of synthetic caoutchouc and similar products:

- Screw presses
- Refining lines
- Process engineering

We are always at your service

With our foreign offices and our service points we have a global presence.

If you would like to learn more about Harburg-Freudenberger or if you require information on specific services, please do not hesitate to contact us.



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