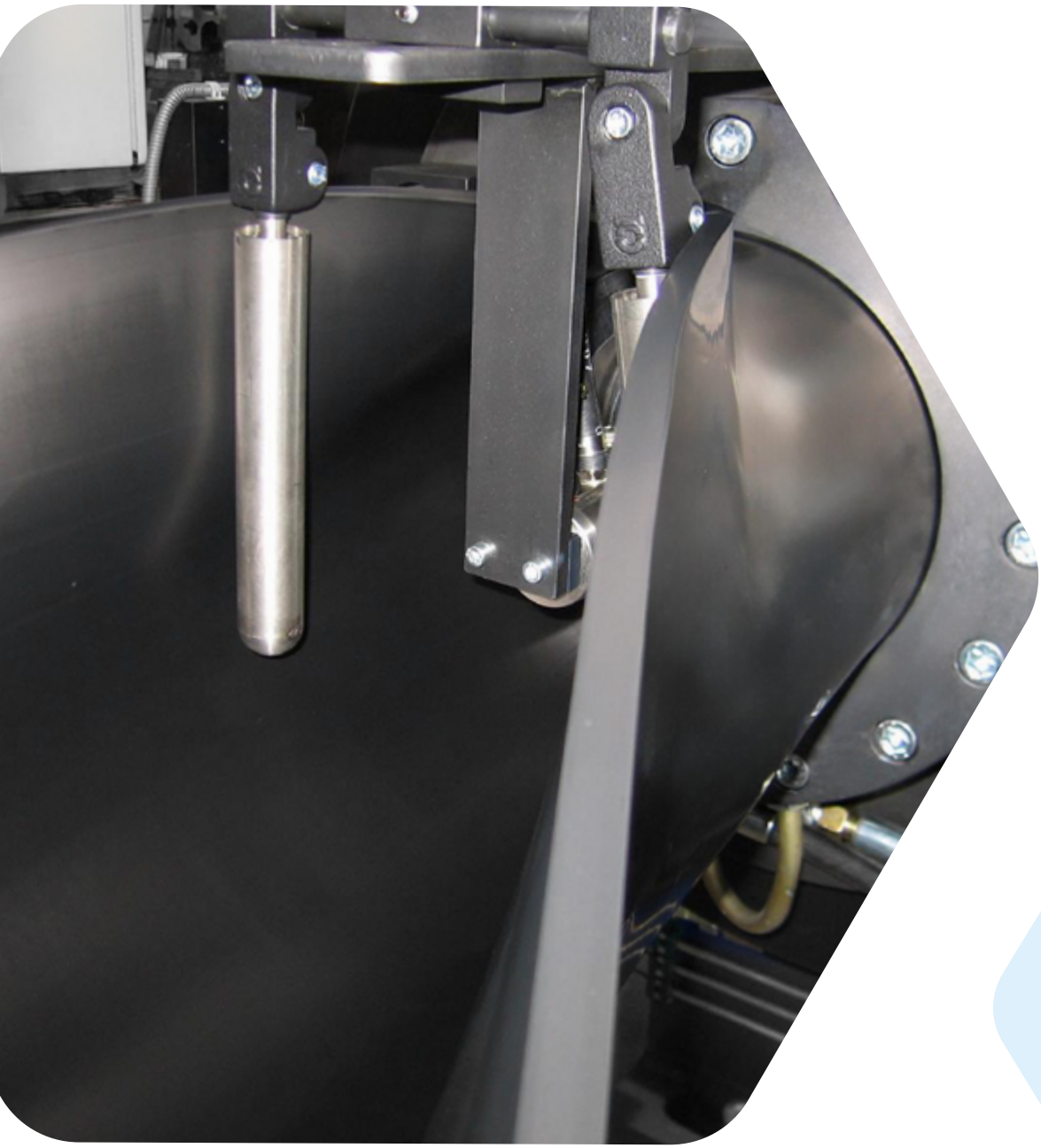
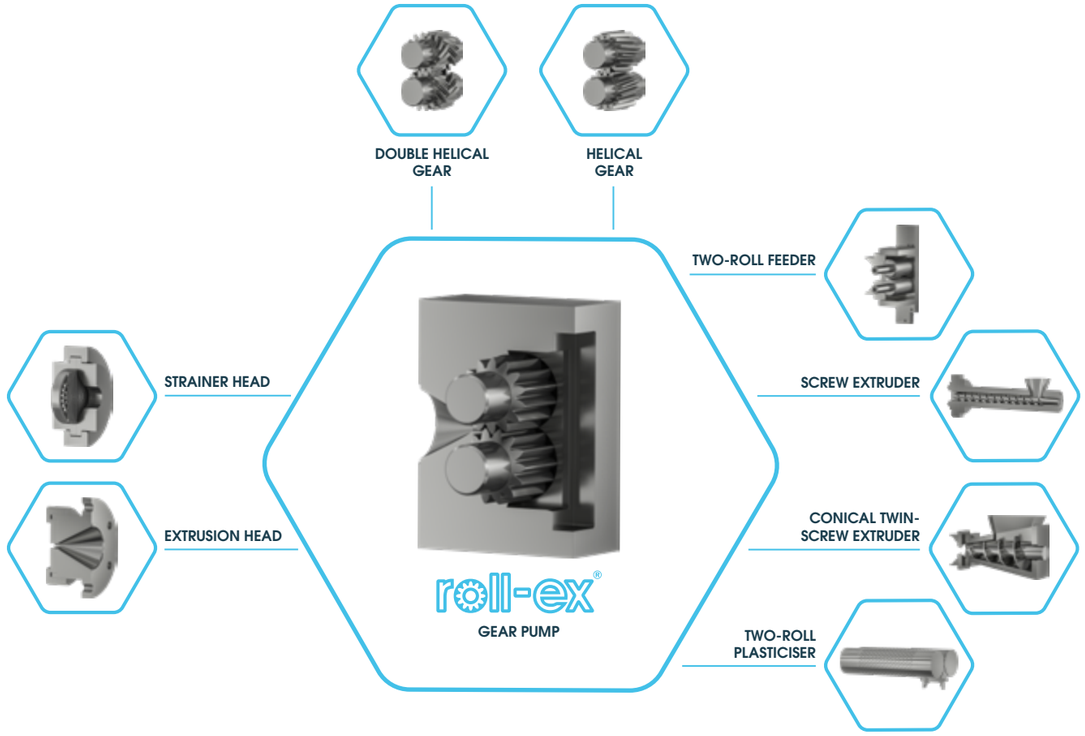


TYRE APPLICATIONS

engineering with precision

THE MODULAR SOLUTION FOR TYRE APPLICATIONS



TYRE APPLICATIONS

Quality and cost-effectiveness are our top priorities. We provide sustainable support to the tyre industry with innovative solutions and intelligent technologies such as the Two-Roll Plasticiser (TRP) and high-performance Fine Mesh Straining solutions with capacities of up to 10,000 kg/h.

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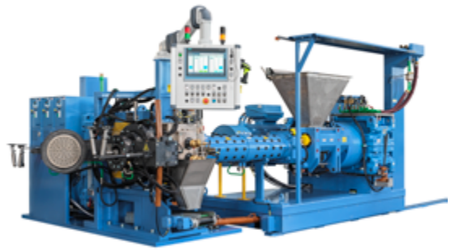
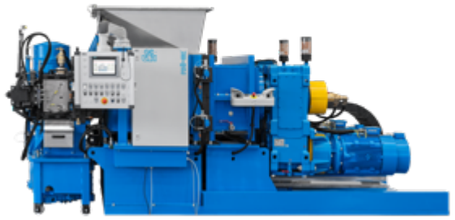
EXPLORE THE roll-ex®-SYSTEM

roll-ex® TWO-ROLL FEEDER



roll-ex® SCREW EXTRUDER



roll-ex® CONICAL TWIN-SCREW EXTRUDER

roll-ex® TWO-ROLL PLASTICISER

YOUR APPLICATIONS

FINE MESH STRAINING

- Masterbatch
- Finalbatch
- Natural rubber

REWORK PROCESSING

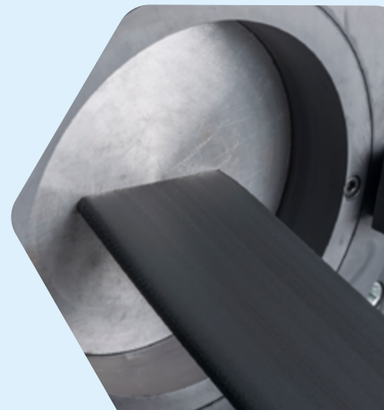
- Tread
- Sidewall
- Apex
- Innerliner

CONTINUOUS MILLING

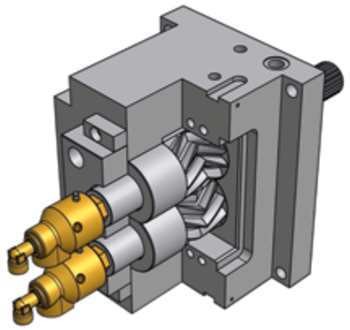
- Mixing of productive compounds
- Blending
- Remilling
- Prewarming
- Reduction of viscosity with stable physicals

PRECISE STRIP EXTRUSION

- Strip winding
- Strip creation
- Shaping



FINE MESH STRAINING – OUR CORE COMPETENCE



UTH FINE MESH STRAINING SYSTEMS OFFER A WIDE RANGE OF OPTIONS

Ever since UTH GmbH was established in 1985, it has been providing innovative machinery and processing techniques for the tyre and rubber industries.

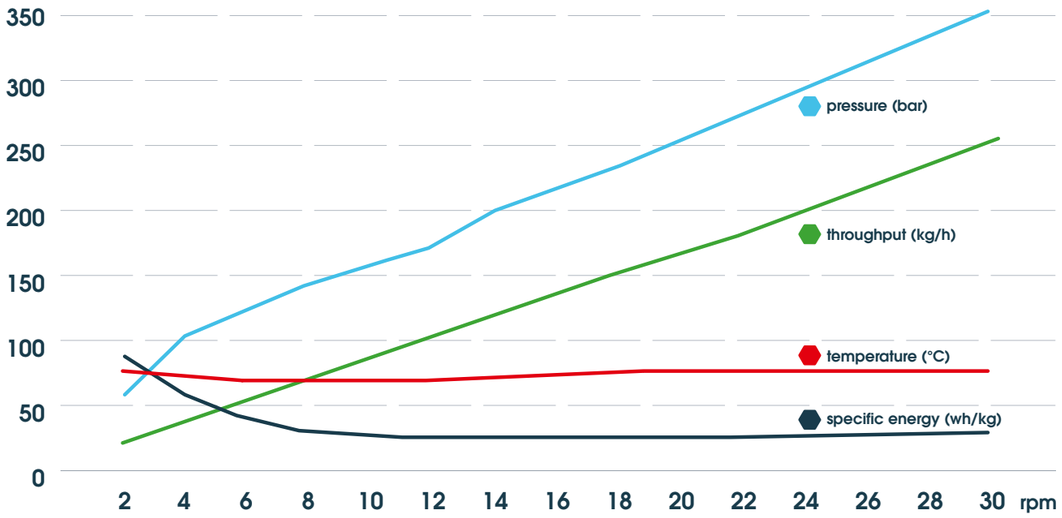
The roll-ex® gear pump extrusion system developed by UTH has become the global benchmark of Fine Mesh Straining of rubber compound for waste reduction and compound quality improvement.

UTH GmbH is a leading pioneer in the development and manufacturing of gear pumps and gear extruders for rubber processing.

ROLL-EX® GEAR PUMP TECHNOLOGY

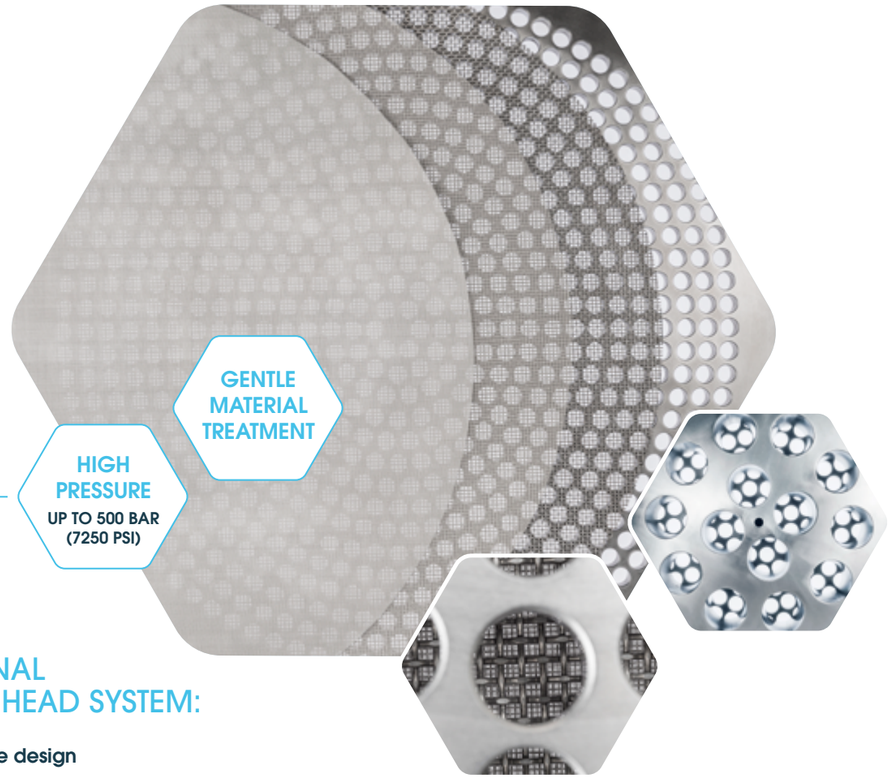
- **Patented roll-ex® gear pump design with special features**
- **Optimised for straining application**
- **Modular concept for individual straining solutions**

TEMPERATURE / PRESSURE CHARACTERISTIC



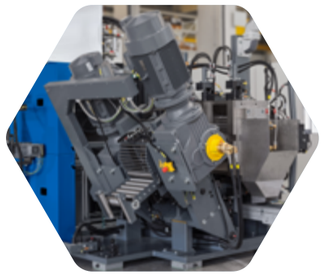
Typical strainer test on a roll-ex® 70, a screen with a mesh aperture of 0.122 mm (120 mesh ≈ 2100 mesh per cm²) and a screen diameter of 200 mm

HIGH LEVEL OF FUNCTIONALITY

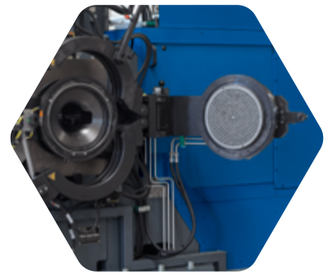


FUNCTIONAL STRAINER HEAD SYSTEM:

- **High-pressure design**
- **Quick screen change**
- **Easy cleaning**

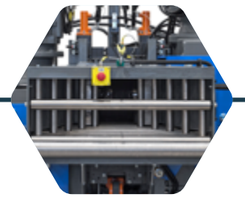


ROLL-EX® GEAR PUMP IN CLEANING MODE



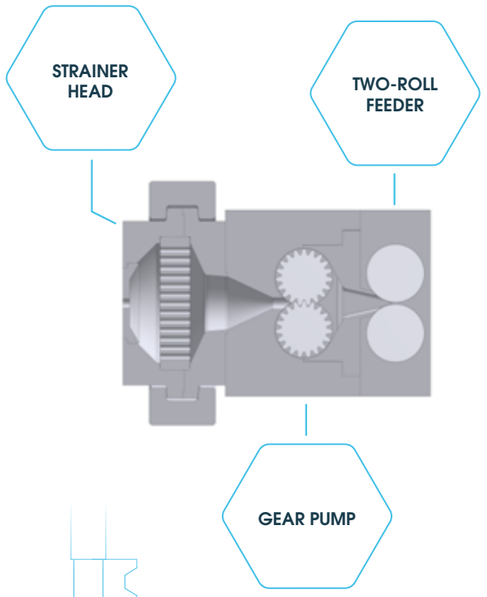
ROLL-EX® STRAINER HEAD WITH HYDRAULIC QUICK CLAMPING

FINE MESH STRAINING WITHIN THE MIXING LINE BY THE ROLL-EX® TRF TYPE



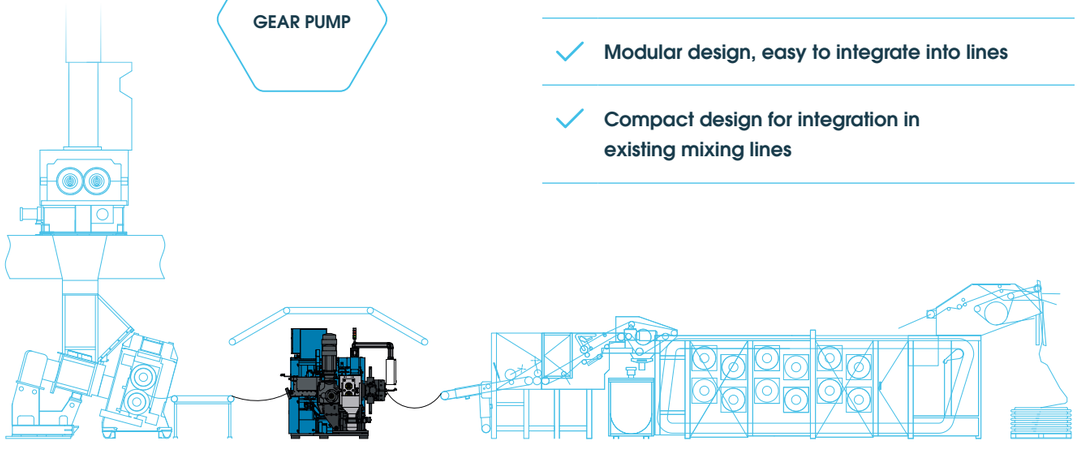
THROUGHPUT:

MODEL	(KG/H)	(LB/H)
120 TRF	1000	2200
150 TRF	1500	3300
220 TRF	2500	5500
300 TRF	3500	7700
600 TRF	6000	13250
1000 TRF	10000	22000

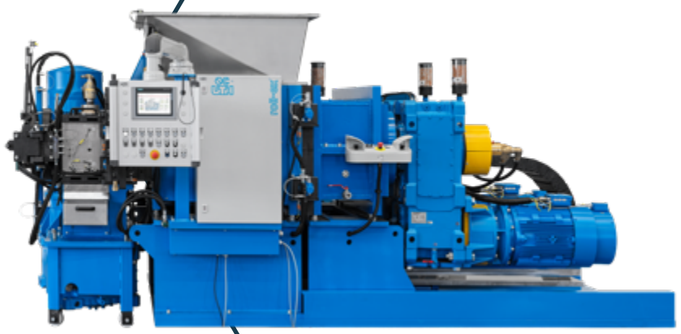


PROCESS-TECHNOLOGICAL BENEFITS:

- Fine Mesh Straining of final compound in a single step together with the mixing process
- Very cost-effective method
- Minimal dwell time
- Low temperature increase
- Easy and quick compound change
- Modular design, easy to integrate into lines
- Compact design for integration in existing mixing lines

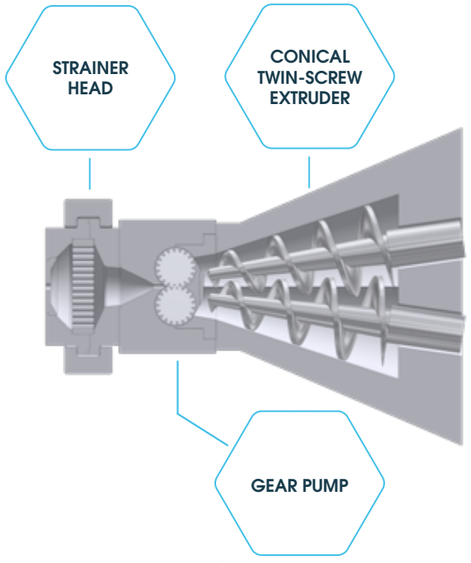


FINE MESH STRAINING WITHIN THE MIXING LINE BY THE ROLL-EX® DSE TYPE



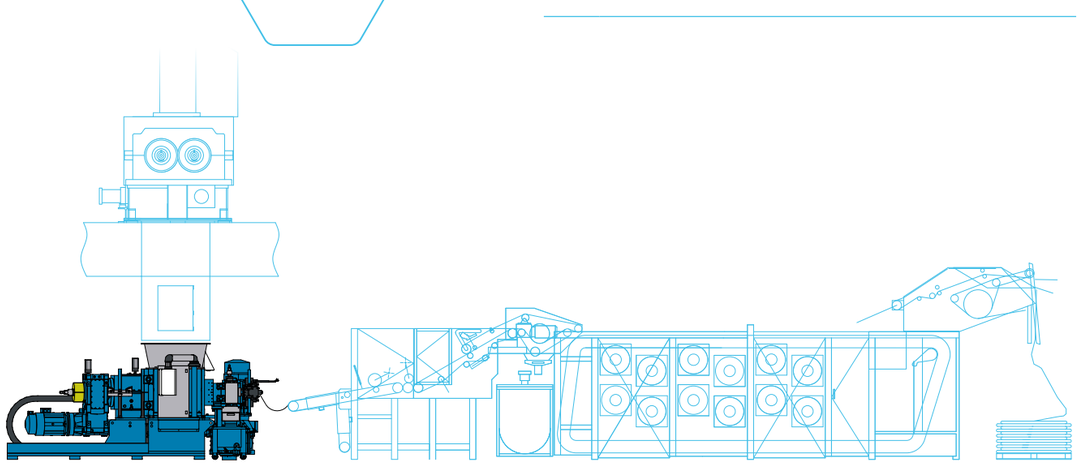
THROUGHPUT:

MODEL	(KG/H)	(LB/H)
150 DSE	1500	3300
220 DSE	2500	5500
300 DSE	3500	7700
600 DSE	6000	13250
1000 DSE	10000	22000

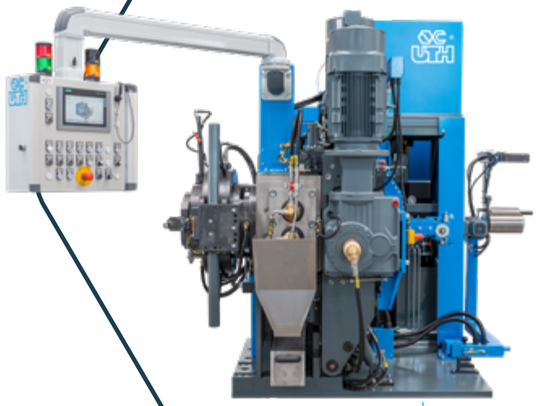


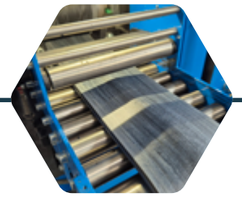
PROCESS-TECHNOLOGICAL BENEFITS:

- Fine Mesh Straining of masterbatch and forming out of slabs in a single step
- Low temperature increase
- Easy compound change
- High automation and low footprint
- Buffering for stable process



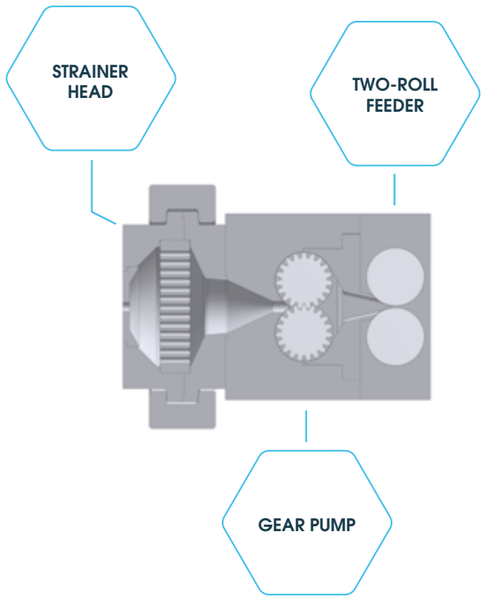
FINE MESH STRAINING OFFLINE BY THE ROLL-EX® TRF TYPE





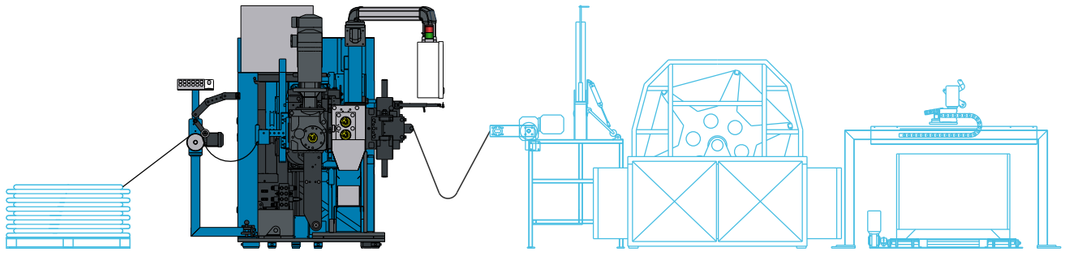
THROUGHPUT:

MODEL	(KG/H)	(LB/H)
70 TRF	250	550
120 TRF	600	1350
150 TRF	1000	2200
220 TRF	1800	4000

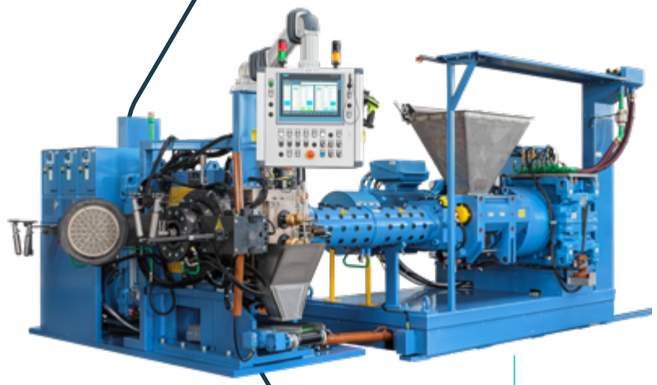


PROCESS-TECHNOLOGICAL BENEFITS:

- Minimal dwell time
- Low temperature increase
- Easy and quick compound change
- Cold strip feed of ultra soft compounds
- Slab or strip creation

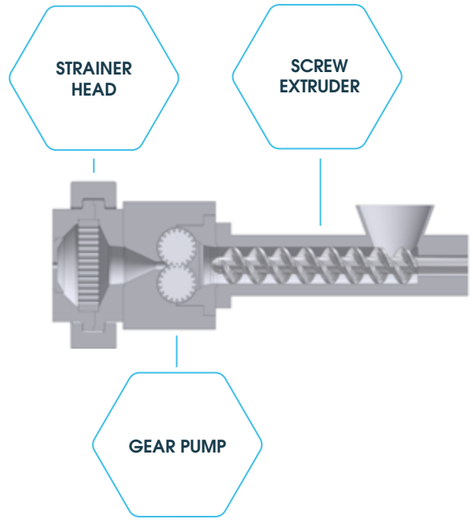


FINE MESH STRAINING OFFLINE BY THE ROLL-EX® SF TYPE



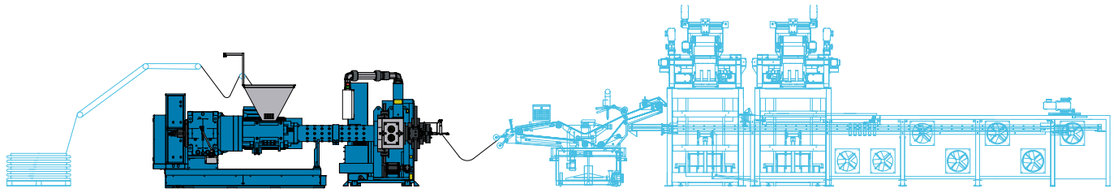
THROUGHPUT:

MODEL	(KG/H)	(LB/H)
70 SF	400	900
120 SF	1000	2200
150 SF	1500	3300
220 SF	2500	5500



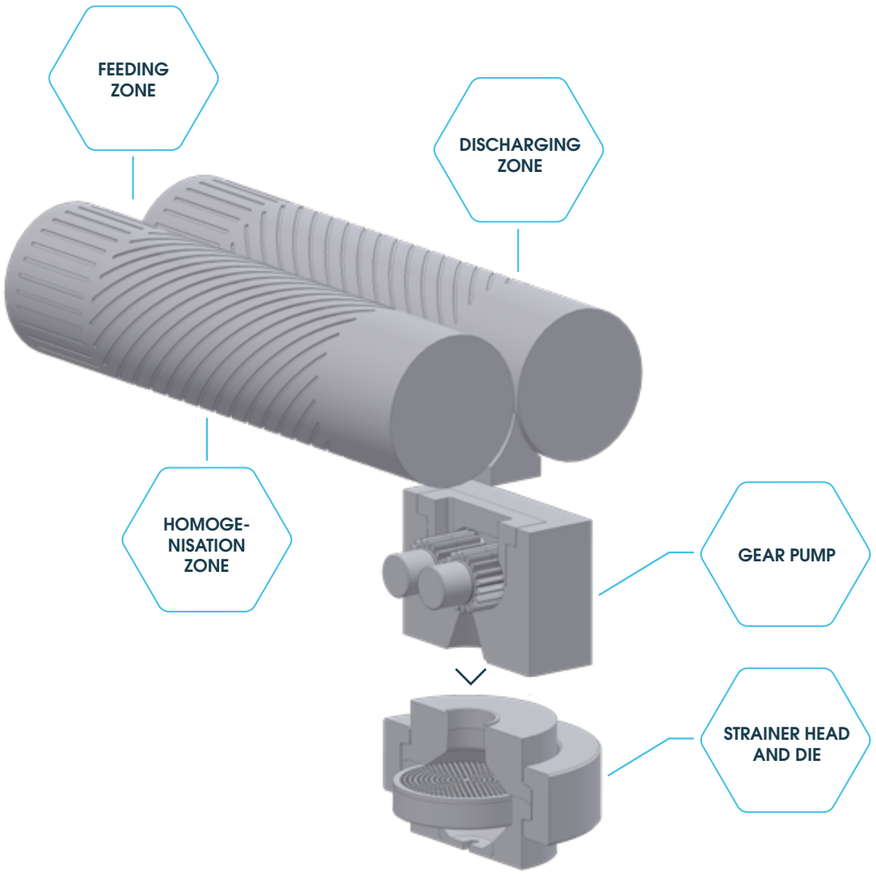
PROCESS-TECHNOLOGICAL BENEFITS:

- Cold slab feed for medium and high viscosity material
- Good plasticising of compound
- Batch blending
- Slab or precise strip creation
- Stand-alone solution incl. cooling and automatic compound laydown



BASIC PRINCIPLES OF TWO-ROLL PLASTICISER (TRP) TECHNOLOGY

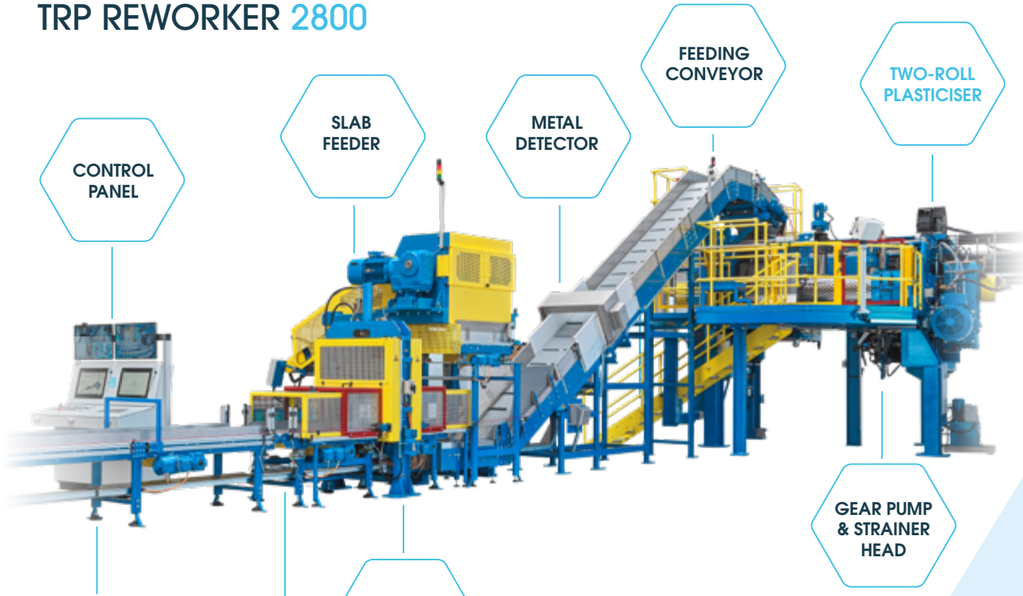
The fully automatic two roll process combines proven methods such as cracking, homogenisation and discharge, thus closing a gap in the processing of rework materials. The concept comprises three zones along the length of the roll, resulting in a continuous, reproducible technology.



PROCESS-TECHNOLOGICAL BENEFITS:

- Innovative process technology for plasticisation and slab extrusion for rubber compounds
- Feeding tyre rubber, unvulcanized rework in various types and shapes, such as tread or component pieces, plates or slab compounds
- Reproducible, continuous and automated processing with less demand of staff
- High safety standards due to encapsulated processing areas with conveyors
- Low temperature increase, easy temperature control
- High level of homogeneity with gentle material treatment
- Less energy consumption in comparison to batch kneader process
- Good access for cleaning during material change
- Option: Fine Mesh Straining of the material

TRP REWORKER 2800



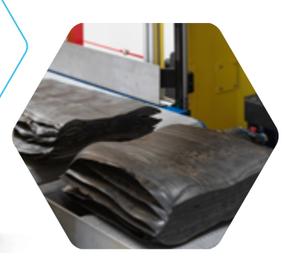
REWORK PROCESSING WITH TWO-ROLL PLASTICISER (TRP) TECHNOLOGY

THE UTH TRP REWORKER IS A RESOURCE-SAVING TECHNOLOGY FOR ECONOMICAL PROCESSING OF REWORK MATERIALS

Unvulcanized rubber is processed continuously and particularly gentle in order to return rework material to the production process. Unavoidable waste such as treads, sidewalls, profiles or sheets can be sustainably reworked with low energy consumption.

The system includes features such as slab feeders, cutters, metal detectors, weighing equipment, an integrated Fine Mesh Strainer and various discharge dies. TRP technology has established itself in the tyre industry as an alternative solution for the processing of rework materials. With a throughput of 2,500 kg/h the system meets the usual rework requirements in a tyre factory.

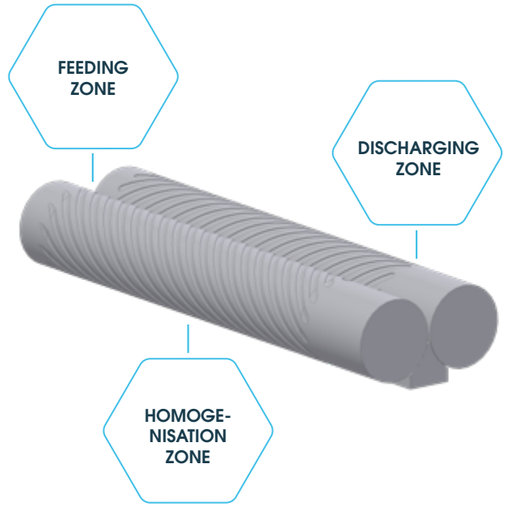
WEIGHING AND CUTTING REWORK MATERIAL



DISCHARGE DIE

CONTINUOUS MILLING WITH TRP TECHNOLOGY

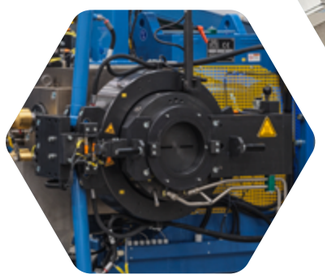
The TRP technology is used for remilling of final- or masterbatch at low temperatures. High viscosity slab materials can easily be blended and prewarmed. Viscosity reduction is achieved without major physical change. Even very sticky compounds can be processed.



SLAB FEEDER

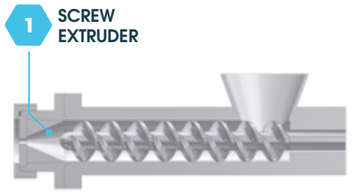
MATERIAL BLENDING
BLACK AND WHITE RUBBER

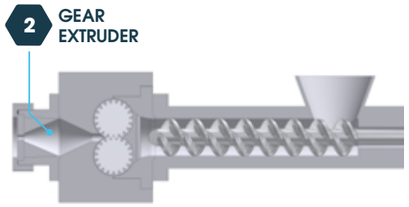
PRECISE STRIP
EXTRUSION



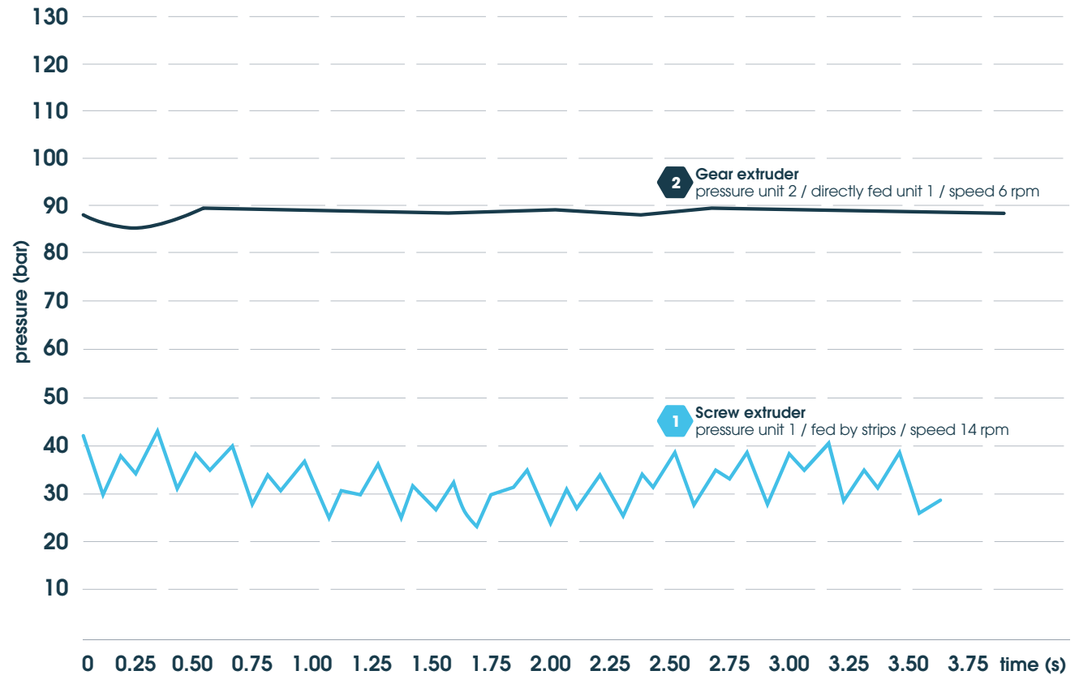
PROCESS-TECHNOLOGICAL BENEFITS:

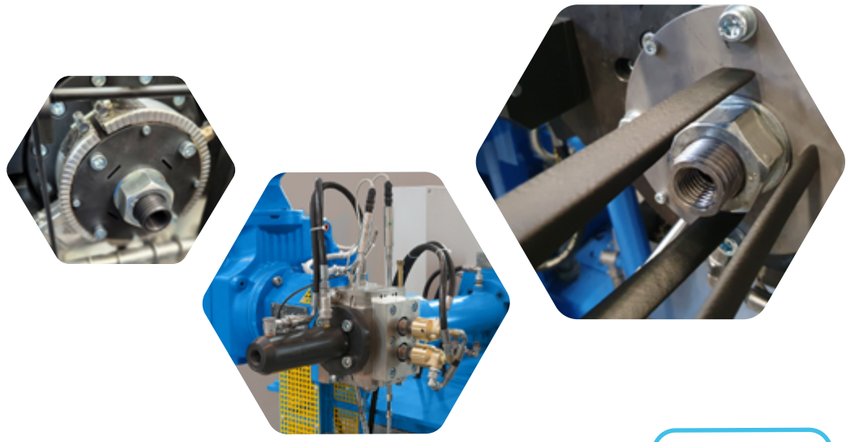
- Constant volumetric transport and stable output pressure ensures lower fluctuations of the extrudate profile
- High pressure up to 800 (500) bar
- Decreased temperature strain of the compound since the screw extruder has to generate the feed pressure only
- Quick dimension stability at start-up is reducing scrap
- Low energy demand (up to 70 % energy savings)
- Small footprint

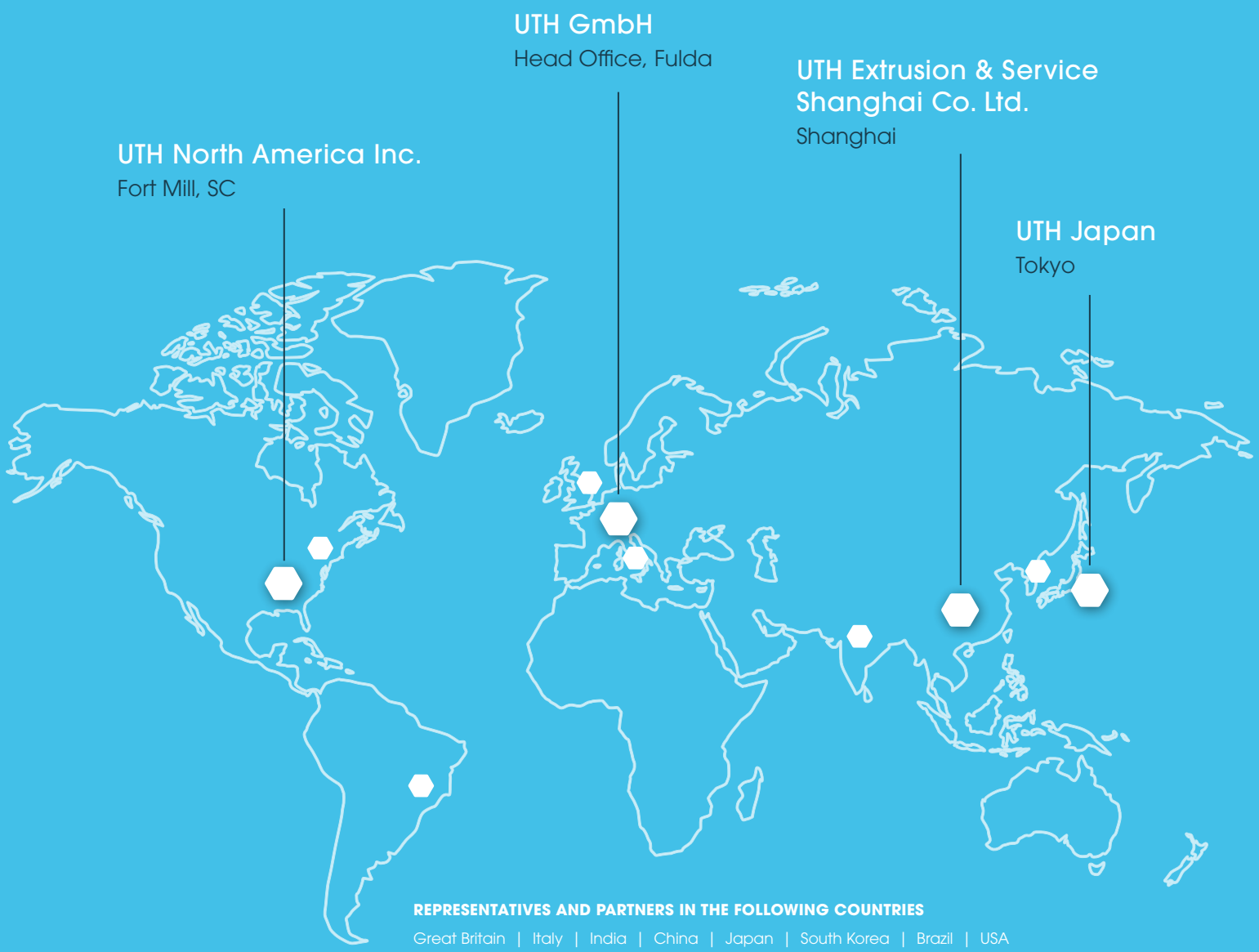




PRESSURE DIAGRAM
SCREW EXTRUDER / GEAR PUMP







REPRESENTATIVES AND PARTNERS IN THE FOLLOWING COUNTRIES

Great Britain | Italy | India | China | Japan | South Korea | Brazil | USA

CONTACT

+49 661 9741-0
roll-ex@UTH-gmbh.com
WWW.UTH-GMBH.COM

GERMANY

UTH GmbH
Eisenhowerstrasse 7-9
36041 Fulda | Germany