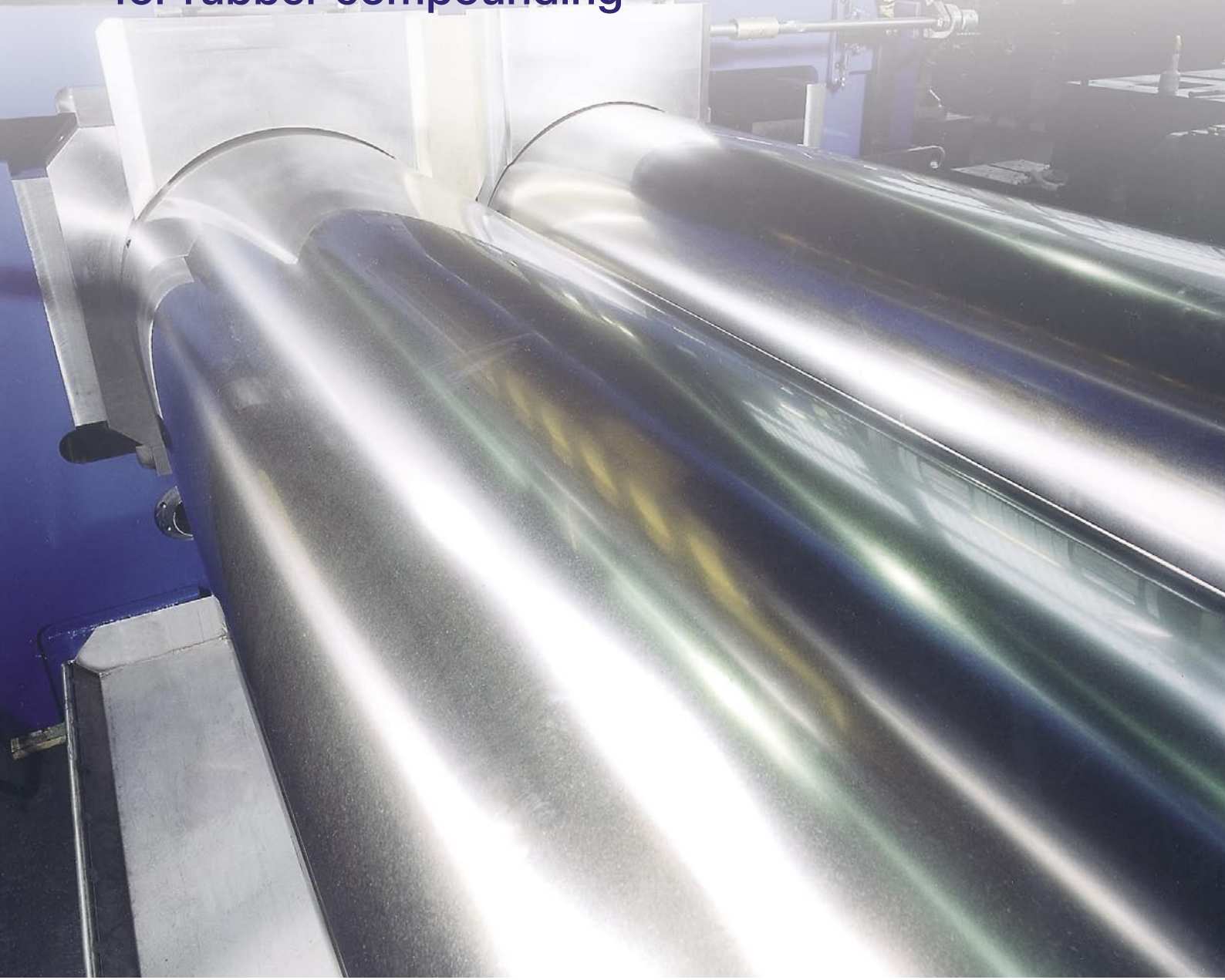


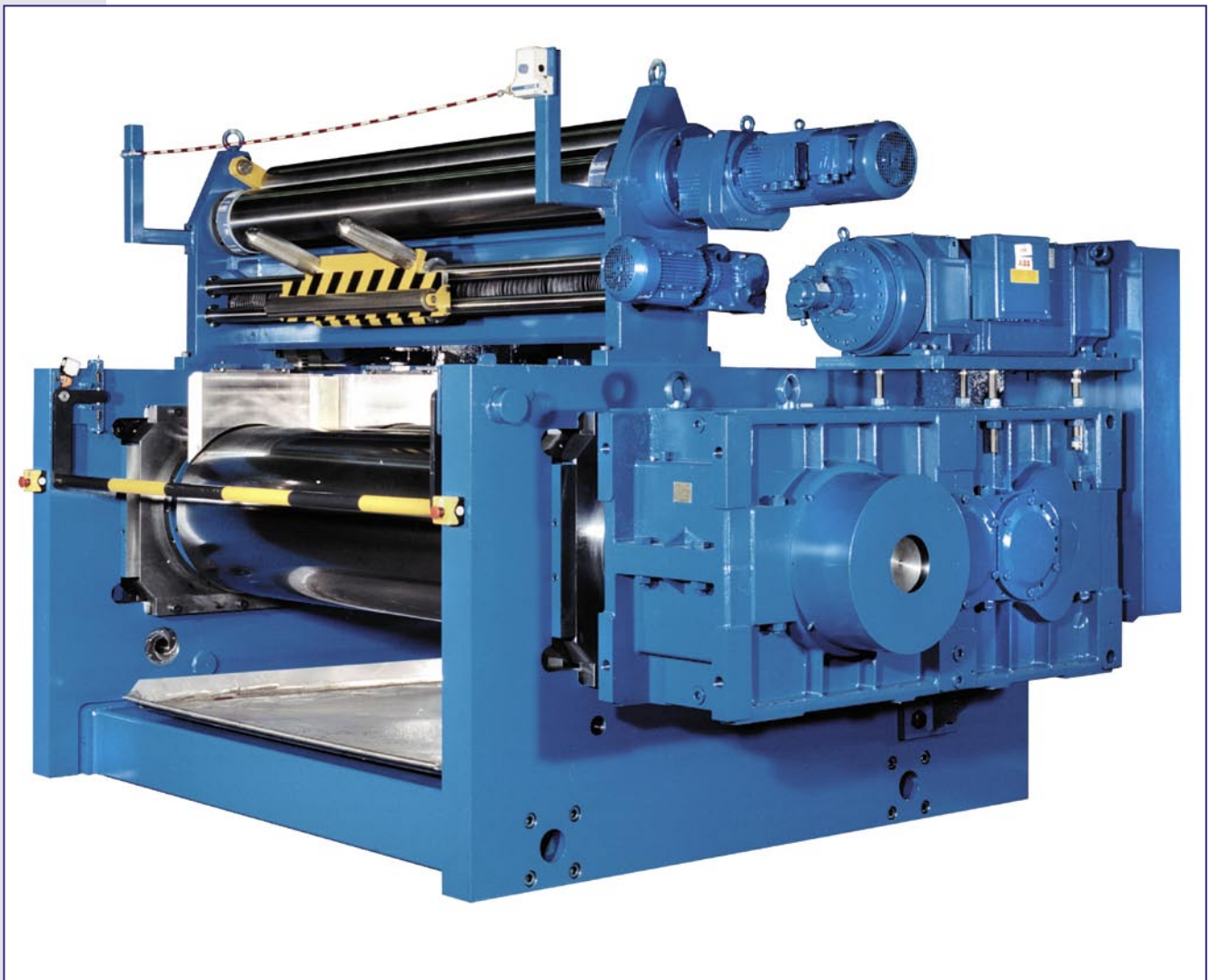
High-performance mixing mills for rubber compounding



Efficient mixing room equipment for optimum quality

Our range of mixing mills includes machine designs and sizes to suit every requirement, either as a standard addition to a mixing line or for other specialized applications.

Our high-performance mixing mills feature the highest quality, reliability and profitability.



Roll mill 660 x 2100 mm with stockblender and individual roll drive through level gear motors (thyristor controlled DC drive motors)

From the smallest to the largest sizes all the mixing mills made by Harburg-Freudenberger have the following quality features:

Base plate and machine frames

Welded to withstand high loads, the machine frames are positioned on the base plate using a key and keyway arrangement and then bolted firmly into place. The machine frames and base plate are of ample proportions for the loadings they carry.

Rolls

Chilled castings with a surface hardness of 510 ± 20 HB (Brinell) and burnished roll faces provide a smooth wear-resistant surface.

Roll cooling

Standard rolls are cored, cooling water being fed into the rolls via rotary unions and cooling pipes. The water also flows back through these rotary unions, which are connected to feed and discharge lines by flexible hoses. On request, either the working roll or both rolls can be supplied with peripheral bores to ensure even more effective cooling of the compound.

Roll bearing

Long service life is guaranteed by the use of generously sized roller bearings.

Bearing lubrication

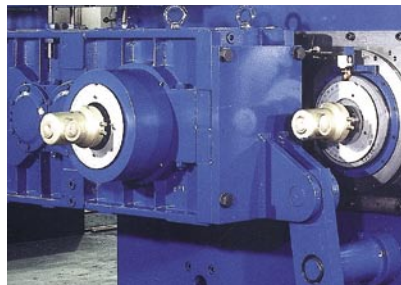
Automatic grease lubrication is standard for the lubrication of the roller bearings.

Roll nip adjustment

The position of the rear roll can be adjusted, even under load, in a parallel or non-parallel plane by two double-acting hydraulic cylinders. A digital display in the control panel gives an exact reading of the roll nip dimensions.



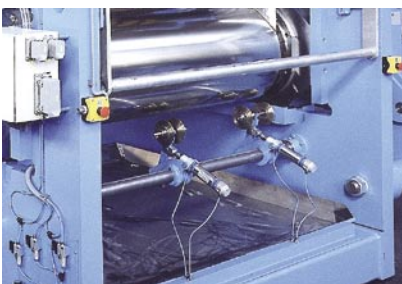
Stockblender (optional), for rapid compound cooling and increased homogeneity.



Individual roll drive through bevel gearbox and thyristor controlled DC motors or frequency controlled AC motors.



Individual roll drive through hydraulic motors and power pack.

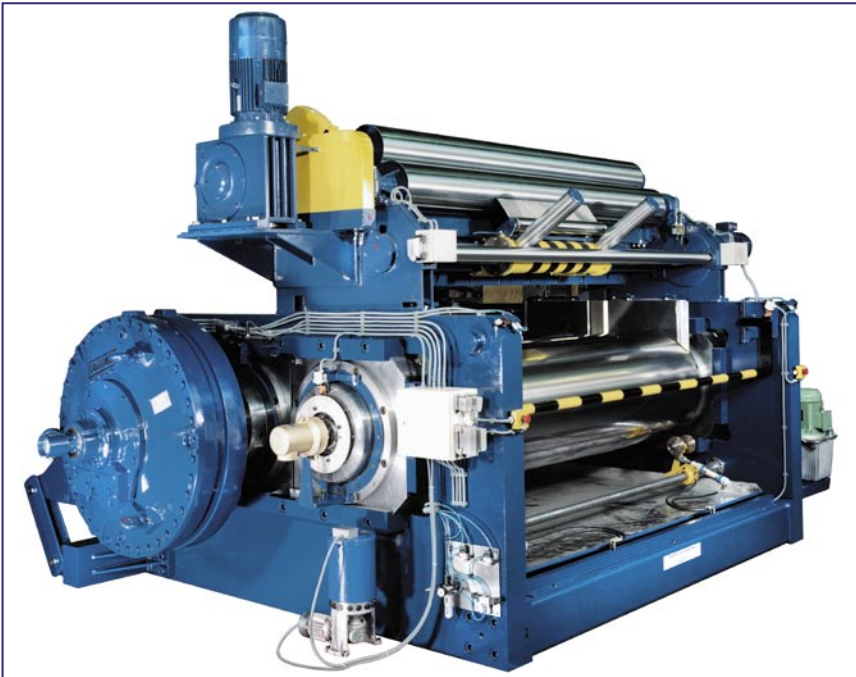


Strip Cutter (optional). Mounted on a swiveling arm and applied by pneumatic cylinder, the cutter is adjustable for position on the roll and for strip width.



Hydraulic roll nip adjustment with pressure accumulator for rapid roll nip opening following the operation of the emergency stop.

The heavy-duty mixing mills from Harburg-Freudenberger can be supplied with the features illustrated, some as standard others as optional equipment. Additional optional equipment can also be quoted on request.



Heavy-duty 750 x 2500 mm mixing mill with stockblender and individual hydraulic roll drives



Overload prevention

Pressure relief valves in the hydraulic system prevent damage to the rolls from overload or the introduction of hard foreign bodies between the rolls. In contrast to mechanical overload protection systems utilizing shear plates or bolts, no time is lost replacing damaged safety components.

Control system

The control system consists of a control cabinet and an operating panel. The control cabinet contains the power supply, main isolator switch, power distribution, PLC control system and the drive control system (for electric drives). The operating panel contains all the operating elements, push buttons, indicator lights and a graphic display showing actual values, functional status and alarm messages. The design of the control system conforms to the VDE and CE regulations and employs a safety logic model certified by the TÜV.

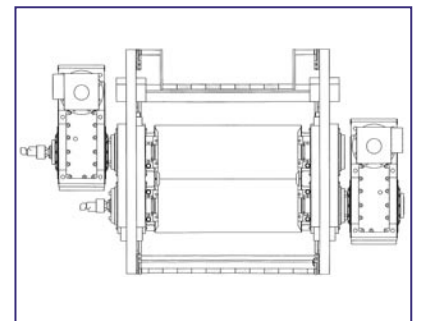
Our PKS-JBA mixing room control system also offers a control module with order and recipe related step-by-step mill control with data acquisition.

Emergency Stop

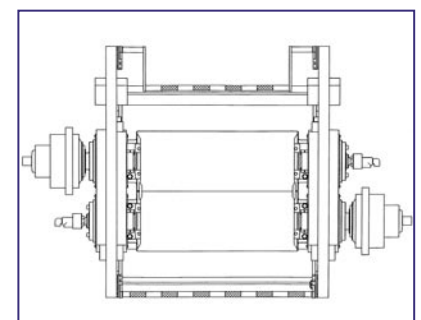
This device, to stop the mill rolls quickly and to open the roll nip in an emergency corresponds to accident prevention regulations. Pushing the emergency stop button or actuating the body bars on the front and rear side of the mixing mill initiates the emergency braking of the roll drives and the automatic opening of the roll nip through a pressure accumulator provided on the hydraulic unit.

Drive systems

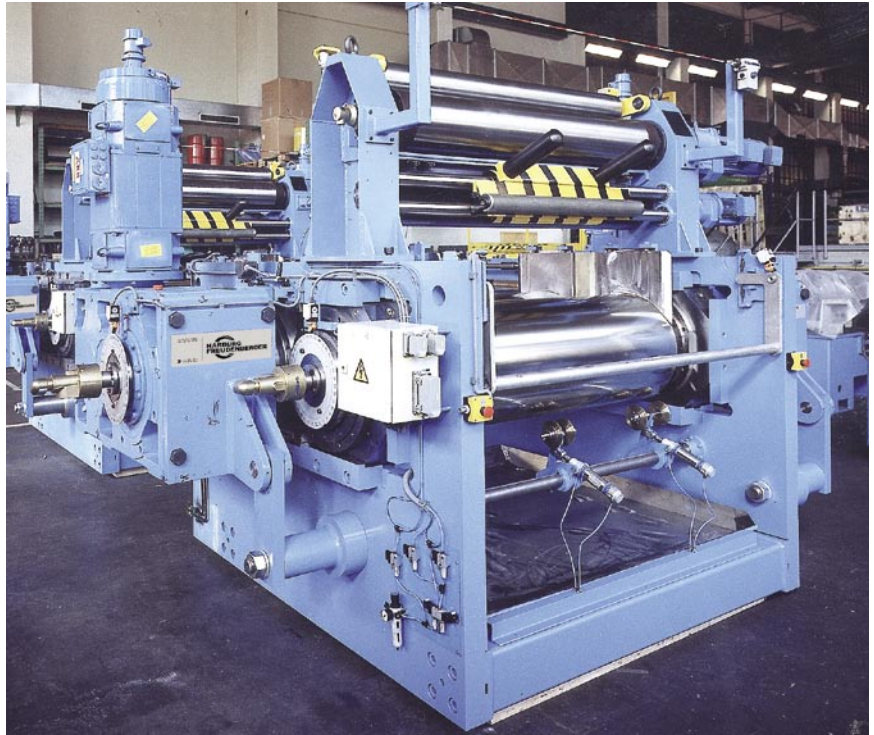
To achieve optimum compound quality in combination with high production flexibility, the heavy duty mixing mills from Harburg-Freudenberger are equipped with individual roll drives to provide infinitely variable roll speed adjustment and friction from 0.65 to 1.35.



Bevel gear drives with thyristor controlled DC motors or frequency controlled AC motors.



Individual hydraulic roll drives.



Two 550 x 1500 mm heavy-duty mixing mills with individual roll drive for variable roll speeds, hydraulic roll nip adjustment and stockblender.

Technical Data

Mixing Mill Size		300 x 700	400 x 1000	550 x 1500	600 x 1800	660 x 2100	750 x 2500
Roll diameter	mm	300	400	550	600	660	750
Roll length (overall)	mm	700	1 000	1 500	1 800	2 100	2 500
Roll length (working)	mm	580	880	1 380	1 680	1 980	2 380
Roll speed	rev/min ⁻¹	24	22	18	15	14.5	12.7
Peripheral speed	m/min	22.62	27.65	31.1	28.3	30	30
Drive rating (individual drive-2 motors)	kW	2 x 18	2 x 32	2 x 72	2 x 95	2 x 130	2 x 200
Friction range		from 0.65 to 1.35 max, infinitely variable.					
Cooling water	approx. m ³ /h	6	8	14	18	20	22
Weight	approx. t	7	11	18	27	35	42

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
- Extraction lines
- 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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