Trias™.
The three-roll mill for highest demands.
Reliability, high raw material yield and gentle dispersion of contamination- and temperature-sensitive products are key properties of Bühler three-roll mills. Different roll materials and concepts permit clean room production according to international standards. The camberless VIVA™ roll technology guarantees even product quality independent of the roll pressure.
Trias™ – setting industry standards.
The flexible, safe and efficient three-roll mill.

Bühler three-roll mills are considered preferred technology in the production of printing inks and pasty products for a wide range of applications in the electronics and high-tech industries. Trias™ represents Bühler’s continuous commitment to further develop long-term established technology.

Reliability, high raw material yield and gentle dispersion of temperature-sensitive products are key properties of Bühler three-roll mills. Bühler three-roll mills also show superiority over other technologies with regards to gloss properties of printing inks. Bühler solutions facilitate contamination-free processing of sensitive products. Different roll materials and concepts permit clean room production according to international standards.

Independent of the roll pressure, the camberless VIVA™ roll technology guarantees even product quality along the entire roll length.

Application examples.

**Printing Inks**
- Sheet fed inks
- Web offset inks
- Screen inks
- Packaging inks
- Security inks for bank notes

**Solar Technology**
- Silver pastes
- Aluminium pastes
- Titanium dioxide pastes
- Glass solder pastes

**Electronic Industry**
- Glass pastes for displays and plasma screens
- Phosphor pastes
- Metal pastes (Ni, Cu, Pt)
- PCB (Printed Circuit Boards)

**Other Applications**
- Cosmetic products/Soaps
- Carbon nano tubes
- Lubricants (grease, oil)
- Sealing pastes
- Artist colours

In respect of operating reliability, the wide range of applications and resulting advantages for the production of pasty products, the Trias™ three-roll mill generation sets industry standards.
Advanced technology from Bühler. 
Highlights at a glance.

- **VIVA™ roller technology** – operation independent of roller pressure: one roll covers the entire roll pressure range. Roller materials: Bühler centrifugally cast and selected ceramics.

- **Product feeding by**
  - Press-out device
  - Product pump
  - Manually

- **Oil-free equipment** for the operation in the clean room

- **Pivoting safety cover** for optimal access and comprehensive operator safety

- **PREMIUM Control** with touch screen (ATEX version shown)

- **Quick and efficient cleaning** due to simple contours in the roller compartment

- **Closed cooling circuit** with integrated heat exchanger and cooling water pump

**The advantages**

- Very wide roller pressure range from approx. 5 N/mm to 120 N/mm (P-rolls 90 to 120 N/mm)
- Products previously produced in gap operation can be processed in low roller pressure range (5 to 25 N/mm)
- Accurate and repeatable roller pressure and gap control
- Electronically controlled operating parameters
- Suitable for the operation in clean rooms according to US Federal Standard 209E – clean room class 1000
- Oil and contamination free operation, optionally with selected ceramic materials
Proven technology for higher performance. 
Improved flexibility, repeatable quality.

Unique product properties
The narrow particle size distribution, typical for three-roll mills, and the high shear rates allow unique product properties. There is no deformation of size or geometry of the primary particles which can be essential for the de-aggregating and de-agglomerating process steps.

In respect of product viscosity, Trias™ offers an extremely wide operating range. Bühler three-roll mills permit production processes which are not feasible with other technologies such as high pressure homogenizers, bead mills or rotor/stator systems.

Enhanced pressure range
The precise and powerful roller pressure unit generates linear loads from 5 to 120 N/mm (P-rolls 90 to 120 N/mm).

Compared to conventional three-roll mills this range is significantly wider for both low and high roller pressure. Products, previously produced in gap operation can be processed in low roller pressure range (5 to 25 N/mm).

Control packages PREMIUM
The control package PREMIUM is equipped with a PLC control and a graphic display touch panel.

The PREMIUM package displays all operating parameters and allows process visualisation and thereby enabling automatic control of roller temperature, speed and pressure.

The Bühler data logging software WinTrend is available as an option allowing continuous process monitoring and supports higher level quality management systems.

Roller pressure or gap are electronically controlled and allow precise production monitoring and repeatable processes.
Intelligent concepts for more productivity.

Easy cleaning and safe production.

The intelligently designed roller compartment allows for easy cleaning. The losses during product changes or due to errors are minimal as the process unit only holds a very small amount of product.

The safety concept of the three-roll mill for the product feeding, either by press-out device or product pump, increases operator safety. The pivoted safety cover is optimized for manual product feeding and secure full access to the roller compartment.

The asymmetrical roll alignment and the elevated apron are designed ergonomically. The Trias™ roller pressure is mechatronically operated. By omitting the hydraulic elements, oil contamination of the product is now impossible.

VIVA™ – unrivalled roller system.

VIVA™ camberless three-roll mills operate reliably – even if requirements differ and with variable roller pressures. In contrast to conventional rolls, the Bühler VIVA™ roller technology is designed to be operated at different roller pressures and accordingly cover the whole pressure range.

VIVA™ camberless roller technology guarantees equal product quality along the entire roll length – independent of the roller pressure. As a result, comprehensive and easily repeatable product qualities are achieved and in so doing boost productivity.
Technical data Trias™.

The three-roll mill for highest demands.

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<th>300</th>
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Dimensions [mm]

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