

Perfect pipe extrusion
Pipeheads for PVC processing

Engineering Value

Krauss Maffei
Berstorff

Facts and figures regarding PVC pipeheads

Applications



PVC foam core pipes



Highly filled PVC pipes



PVC pressure pipes



PVC corrugated pipes*



Various PVC pipes for pressure and non-pressure applications

Other applications

- Mining pipes (M-PVC)
- Biaxially oriented pipes (PVC-O)

High-quality, cost-competitive and flexible pipe production:

KraussMaffei Berstorff offers a range of nine pipehead sizes, covering a broad spectrum of diameters and applications in PVC pipe manufacturing. There is a growing trend to multilayer foamed-core PVC pipe, which offers the prospect of sharply reduced material

costs. Here we offer three pipehead models for combination with twin-screw extruders. Our PVC pipeheads are engineered to support your drive for extremely flexible and profitable production.

Perfect pipe extrusion Pipeheads for PVC processing

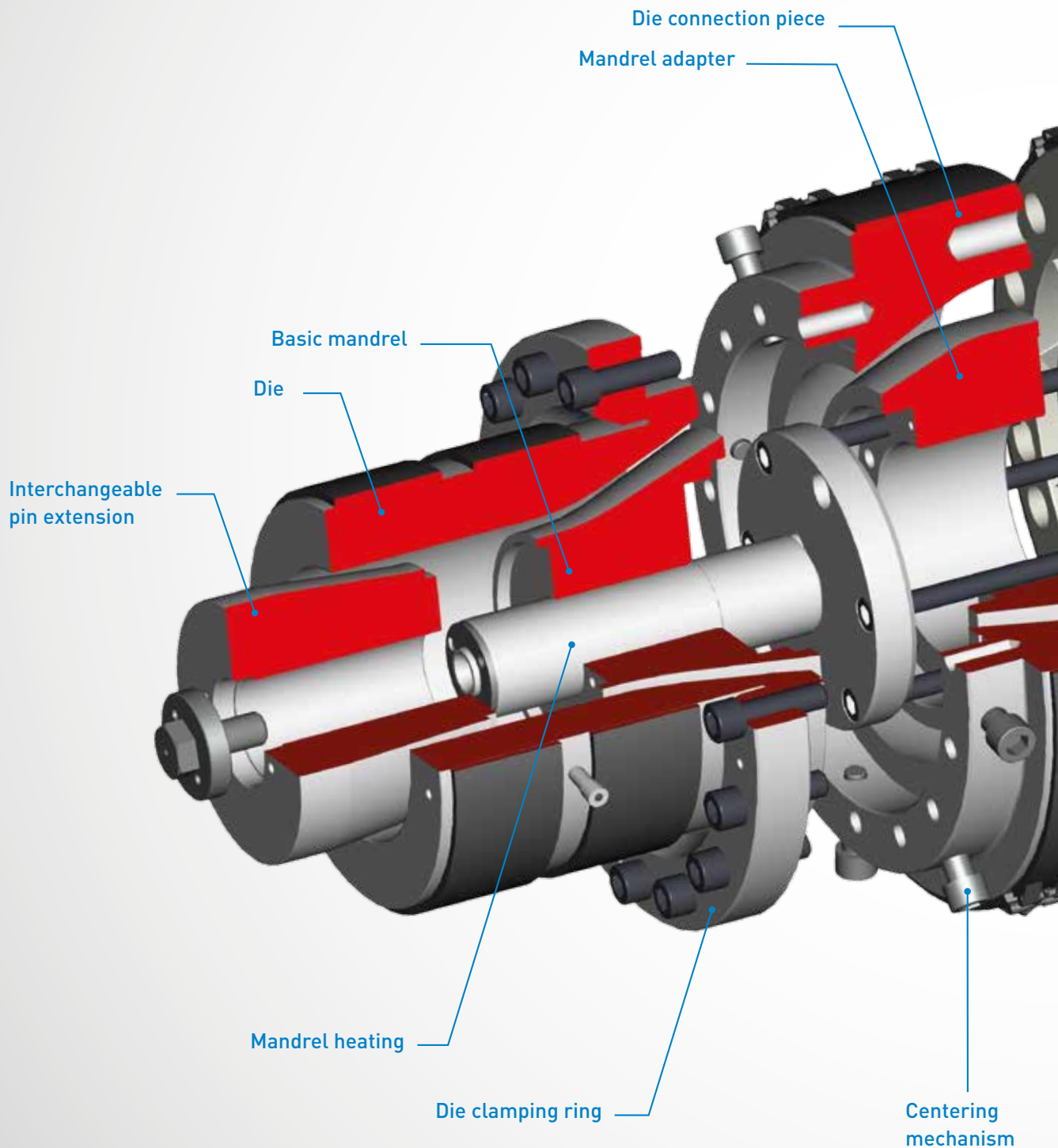
High production outputs coupled with consistently outstanding pipe quality are decisive factors in ensuring cost-effective pipe extrusion. In addition, the use of system components that are free of defects and are optimally tailored to their intended purpose enables a targeted approach to be taken to reduce costs and achieve a high level of flexibility.

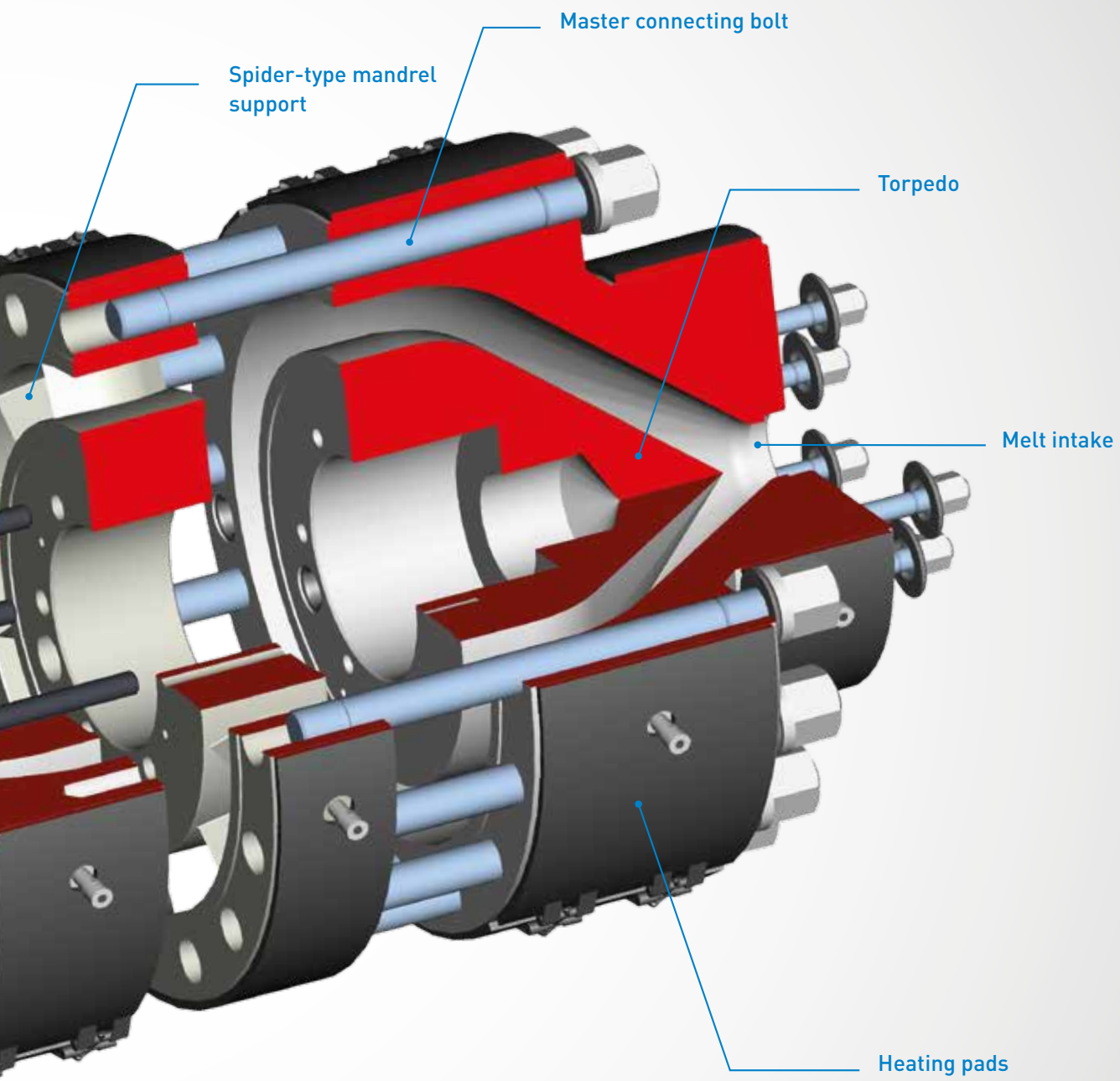
Your benefits at a glance:

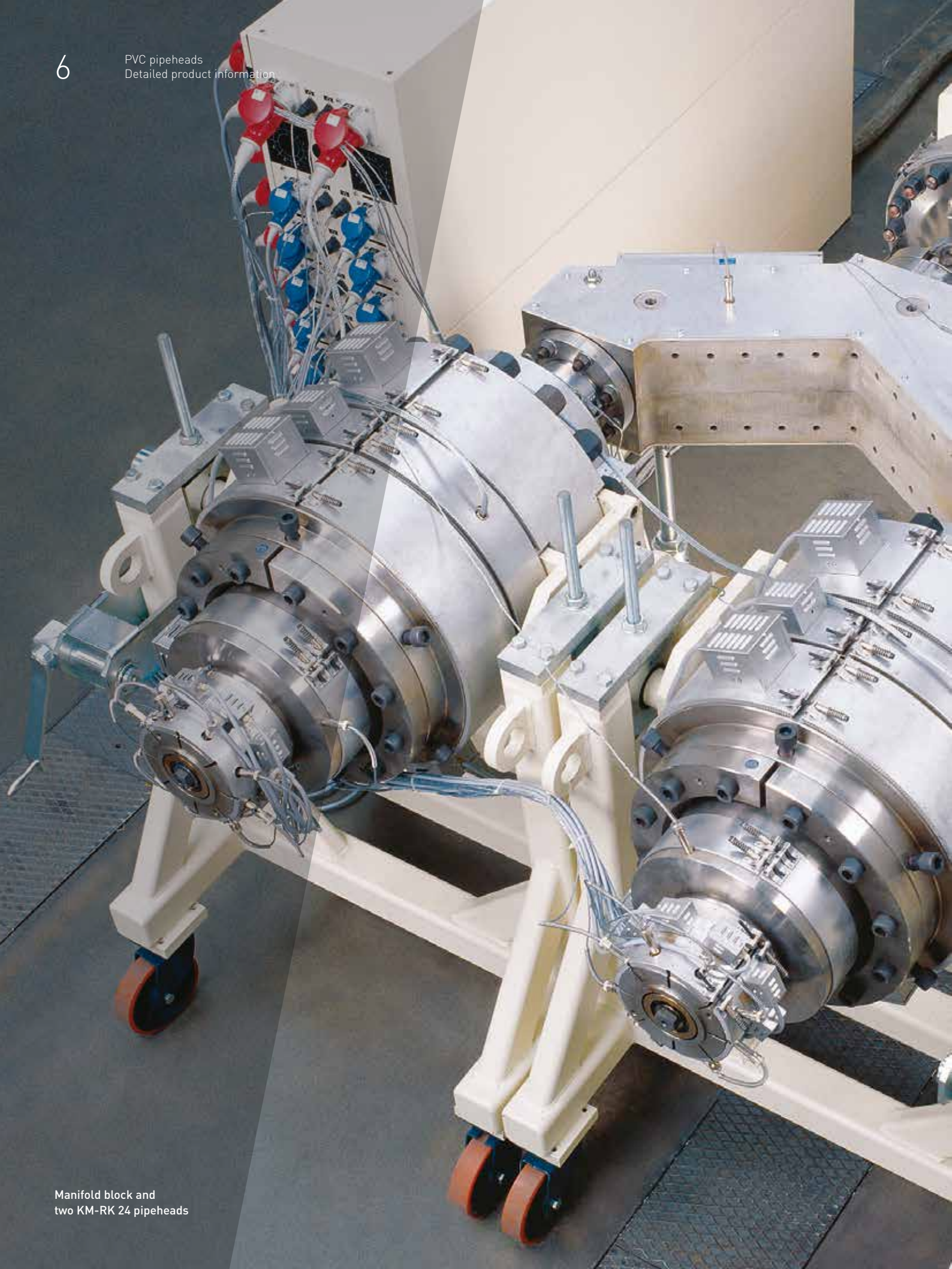
- Perfect pipe quality and a stable, reliable process
- Wide processing window
- Tight wall-thickness tolerances thanks to perfect melt distribution
- Wide range of pipe dimensions
- Quick and easy production start-up with a pipehead that's simple to assemble and disassemble
- Optimal layer thicknesses for multilayer pipes
- Compact, space-saving unit
- High return on investment

Impressive encounter

Take a look inside the high-performance pipehead







Manifold block and
two KM-RK 24 pipeheads



Flexible and cost-competitive pipe production – with precision pipehead systems from KraussMaffei Berstorff

KraussMaffei Berstorff offers a range of nine different pipehead sizes in total, covering a broad spectrum of diameters in PVC pipe manufacturing.

Producing outstanding pipe quality

KraussMaffei Berstorff pipeheads are optimally engineered for processing of the many different U-PVC formulations. We offer special pipehead versions for C-PVC pipe production. All our pipeheads are thermally and rheologically designed to produce very high pipe quality. We employ a spider-type-mandrel-support design in pipeheads for PVC processing, and this has proven to be very well suited in particular to processing thermally sensitive materials.

Complete range of pipeheads for all pressure classes

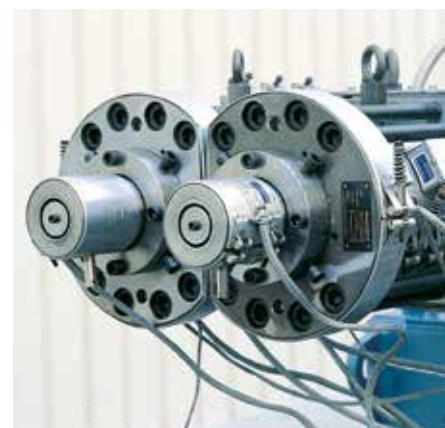
A total of nine pipeheads cover the pipe diameter range from 16 to 800 mm. Reducing adapters are available for each pipehead in order to extend its diameter range to cover the majority of the diameter range for the next smallest pipehead.

The benefits of using smaller die sets:

- Greater flexibility
- Significant cost savings

Twin-strand extrusion makes best use of extruder performance

We also offer a twin-strand extrusion head, the RKD 200, that makes extrusion of small diameter pipes (16 to 63 mm) cost-effective by using the extruder's full output capacity. Another approach to twin-strand extrusion is to split the melt by connecting a manifold block upstream of two standard pipeheads (RK 21 – 24) and configure the downstream components as two parallel production lines placed close together. This type of system can be used to produce pipe diameters between 16 and 250 mm.



KM RKD 200 for twin-strand extrusion

The benefits for your PVC-pipe-production line are in the detail – and ultimately pay dividends



Polishing a spider-type mandrel support

A great many factors contribute to making KraussMaffei Berstorff pipeheads the right choice for cost-effective PVC pipe production and premium pipe quality.

Materials specially selected to suit the operating conditions lower costs

We predominantly use quenched and tempered chrome steel for the pipehead and die set components that come into contact with the melt. This means that any damage that occurs during PVC processing as a result of "scorch marks" can be remedied quickly and cost-effectively by polishing.

Simple handling for faster die changes and start-up

In order to achieve economical production, the lines must attain a stable and continuous production state following a short start-up time. Our pipeheads are therefore characterized by their ease of handling and a design that is suited to the operating conditions.

- Locating bolts ensure that the pipehead segments are fitted in the correct position.
- A hydraulic pretensioning unit ensures that large pipeheads are screwed on evenly and that this fitting is able to withstand the tensile forces that it will encounter in operation.
- Mounting carriages allow precise pipehead alignment.

Optimized temperature control and flow conditions

The flow of KraussMaffei Berstorff's pipeheads for PVC is engineered to ensure the quality and dimensional accuracy of the pipes.

- Generously dimensioned flow channels ensure maximum throughput.
- Flow-optimized mandrel support ribs ensure smoother and more uniform melt flow.
- The die set design enhances pressure balancing in the pipehead.

This design ensures that the melt flows together seamlessly downstream of the ribs at all working points.

Precise melt temperature control

Individually controlled resistance-heating pads ensure that all essential pipehead components are heated to the right temperature. The number of heating pads depends on pipehead size. We also offer a mandrel temperature-control option, which is beneficial particularly in processing temperature-sensitive materials.

Automation cuts material consumption and saves costs

Continuous gravimetric melt throughput measurement and meter-weight adjustment, along with thermal pipehead centering, permit reduced material consumption. Thermal pipehead centering is especially effective in processing resins with temperature-dependent wall-slipping characteristics. The system allows the temperature of different die zones to be individually regulated to minimize wall-thickness fluctuations.

The dies are separated into heating zones for the purpose of thermal centering; slits are provided to thermally separate these heating zones. The heating zones can be regulated individually – either manually, or automatically in conjunction with ultrasonic wall-thickness measurement.

Pipehead	Dimension range	Throughput
RKD 200 ¹⁾	16 x 1.2 mm - 63 x 3.0 mm	max. 520 kg/h
RK 21-75 ²⁾	16 x 1.5 mm - 75 x 3.6 mm	max. 250 kg/h
RK 22-110 ²⁾	25 x 2.6 mm - 110 x 5.3 mm	max. 350 kg/h
RK 22-125 ²⁾	25 x 2.6 mm - 125 x 6.0 mm	max. 450 kg/h
RK 23-160 ²⁾	50 x 3.0 mm - 160 x 7.7 mm	max. 700 kg/h
RK 23-250 ²⁾	75 x 1.8 mm - 250 x 7.3 mm	max. 1000 kg/h
RK 24-280 ²⁾	90 x 3.5 mm - 280 x 8.6 mm	max. 1050 kg/h
RK 25-450	125 x 4.8 mm - 450 x 13.8 mm	max. 1400 kg/h
RK 26-710	200 x 4.9 mm - 710 x 17.4 mm	max. 1900 kg/h
RK 27-800	315 x 6.2 mm - 800 x 23.3 mm	max. 2500 kg/h

¹⁾ Twin-strand pipehead

²⁾ Can be used with a Y piece as a twin-strand pipehead

Reducing costs through PVC multilayer pipe production

The trend in PVC pipes for non-pressure applications is increasingly toward multilayer pipes. Their core layer, which may be compact or foamed, may consist of the following materials:

- Dry blend with up to 20 phr filler
- Highly filled dry blends with up to 100 phr filler
- Regrind (recycled materials or post-consumer plastics) in proportions of 10 – 100%

In a KraussMaffei Berstorff pipehead, the three melt layers are not split by ribs once they have converged.

The following pipehead models are available:

KM -3 LRK 41

For dimensions
32 × 2.0 – 90 × 3.0 mm with maximum
output 500 kg/h

KM -3 LRK 42

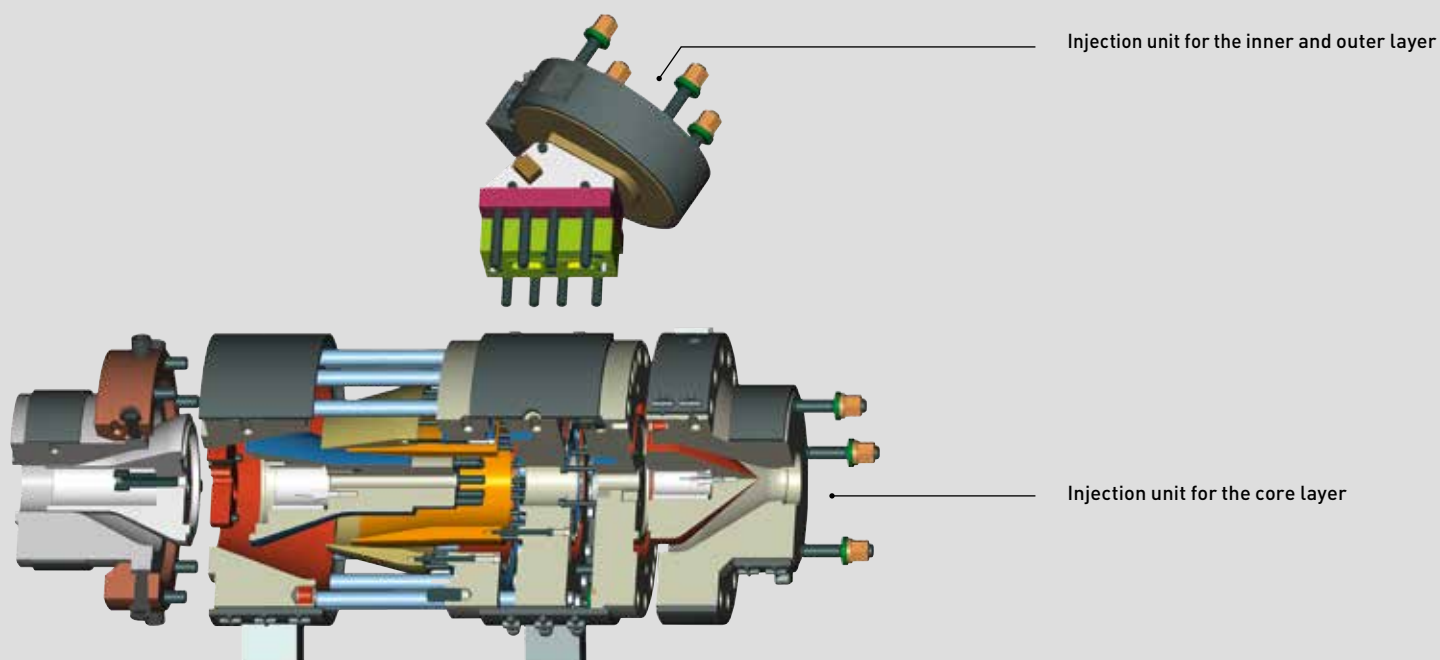
For dimensions
75 × 3.0 - 200 × 5.9 mm with
maximum output 800 kg/h

KM -3 LRK 43

For dimensions
200 × 3.9 - 500 × 14.6 mm with
maximum output 1200 kg/h.

Your benefits:

- Excellent layer adhesion
- Very narrow layer-thickness distribution
- Low densities/meter-weights
- High mechanical strength



OEE Plus Boosting cost-efficiency for you



High overall equipment efficiency (OEE) is a fundamental prerequisite for your company's success. KraussMaffei Berstorff's product portfolio comprises tailored machines and lines along with perfectly matched services that increase the economic efficiency and the sustainability of your production. Benefit from our proven know-how of extrusion technology in any application.



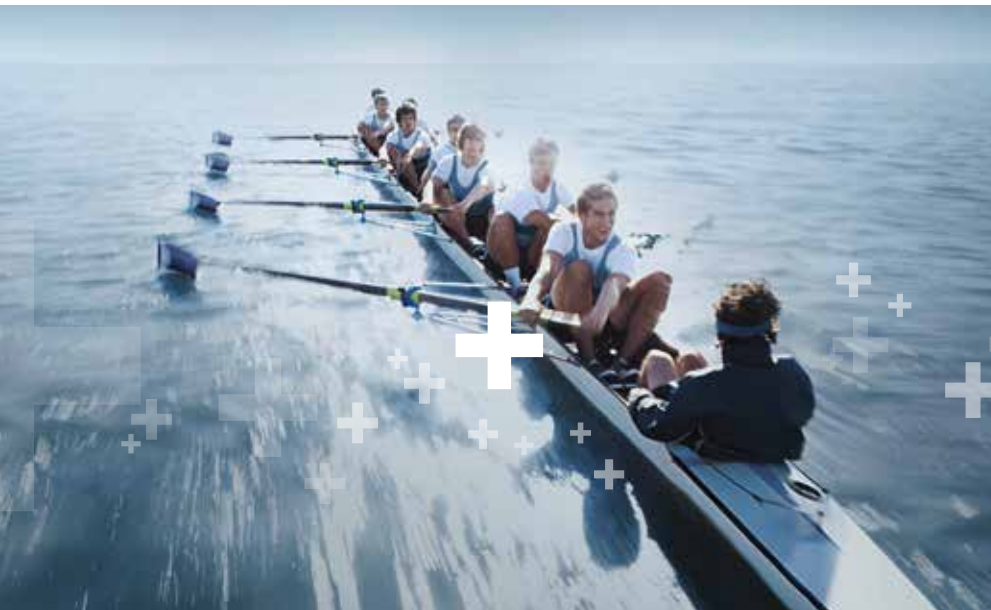
Availability



Performance



Quality



For more information about OEE Plus, visit:
www.kraussmaffeiberstorff.com/oeepus

KraussMaffei Berstorff

A strong brand in a unique global group

Value-proven Extrusion Technology solutions

Around the world, KraussMaffei Berstorff stands for reliable and value-proven solutions in Extrusion Technology. These range from using individual extruders for degassing in polymerization, compounding, pipe, profile, film and sheet extrusion, physical foaming and the manufacture of technical rubber articles and intermediates for tire production up to complete extrusion lines. All machines and systems from KraussMaffei Berstorff are custom-configured, for example for the chemical, automotive, construction, packaging or pharmaceutical industry.

There for you around the world

KraussMaffei Berstorff is your partner – from the first planning meeting through development of the best possible technical and business solution up through commissioning, servicing and production of your system. We guarantee high-quality advice, solution expertise, reliable spare parts logistics and fast-reacting service during each phase. Our goal is increasing your success.

Individualized service

Benefit from KraussMaffei Berstorff's reliable service. Our customer service team and experienced fitters, technicians and engineers are there for you as quickly as possible and even help on location to optimize your systems and processes and to minimize downtime as much as possible. Rely on our highly skilled repair and spare parts service

You can find additional information about KraussMaffei Berstorff at:
www.kraussmaffeiberstorff.com

KraussMaffei Group

Comprehensive expertise

Unique selling proposition Technology³

The KraussMaffei Group is the only provider in the world to possess the essential machine technologies for plastics and rubber processing with its KraussMaffei, KraussMaffei Berstorff and Netstal brands: Injection Molding Machinery, Automation, Reaction Process Machinery and Extrusion Technology.

The group is represented internationally with more than 30 subsidiaries and over ten production plants as well as about 570 commercial and service partners. This is what makes us your highly skilled and integrated partner. Use our comprehensive and unique expertise in the industry.

You can find additional information at:
www.kraussmaffeigroup.com



The KraussMaffei Group has a global presence. Countries with subsidiaries are marked in light blue. In the white-colored regions, the Group is represented by over 570 sales and service partners.

Perfect pipe extrusion

Pipeheads for PVC processing

High output and consistently excellent pipe quality are decisive factors in cost-effective pipe extrusion. Other factors, such as manufacturing costs and flexibility, can be decisively influenced by the use of system components engineered to operate perfectly together. KraussMaffei Berstorff offers a range of nine pipehead sizes, covering a broad spectrum of diameters in PVC pipe manufacturing.

There is a growing trend towards extruding multilayered PVC pipes with a foamed or highly filled core layer. In addition to significant material cost savings, the use of regrind, in particular, achieves a high level of sustainability. Here we offer three pipehead models for combination with twin-screw extruders.

Our PVC pipeheads are engineered to support your drive for extremely flexible and profitable production.

