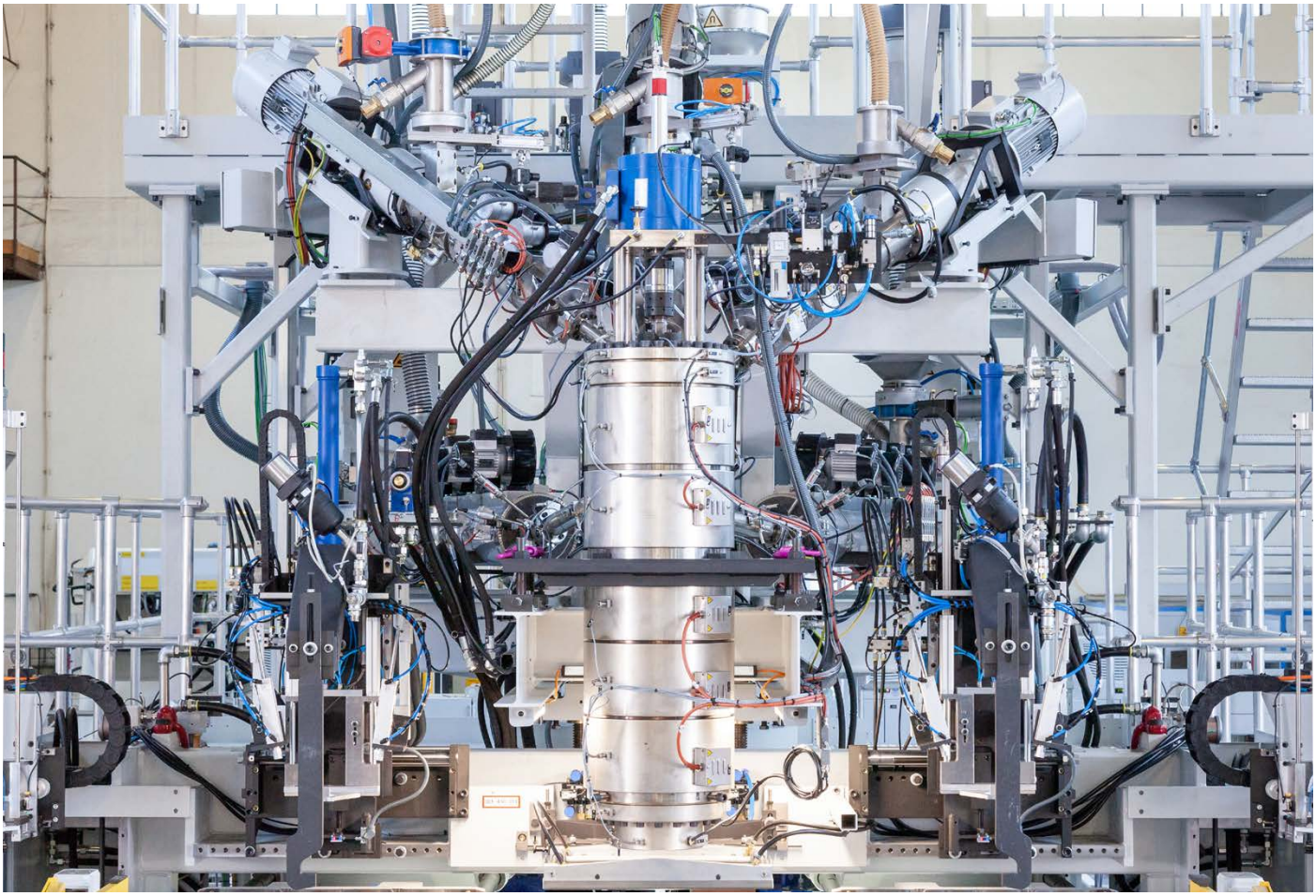
Extrusion heads & Extruder

High Performance Extrusion Systems



SMALL PACKAGING MACHINES

PACKAGING MACHINES

INDUSTRIAL MACHINES

CUSTOMIZED PHARMA MACHINES

ECONOMIC LINE MACHINES

UPGRADING & CONVERSIONS

A CRUCIAL FACTOR FOR SUCCESSFUL PRODUCTS!
EXTRUSION HEADS WITH SPIRAL MANDRELS

At Bekum, we design, produce and install the most important key components of our machines ourselves. In particular, this includes the extrusion unit with extruder and extrusion head. We are able to play a direct role regarding the high quality requirements for components in our in-house mechanical production facility. With know-how gained over years of experience, we produce durable spiral mandrel extrusion heads for continuous and discontinuous extrusion, as well as energy-efficient and high-performance extruders. Together with our customers, we develop exactly the solution that is then customised in line with all production requirements – even for production changeovers or for a replacement on customers‘ existing machines.

SPIRAL MANDREL EXTRUSION HEAD

Spiral Mandrel Extrusion Heads

They are a crucial factor for the production success. Material-specific properties like flow behavior, bulk density of the raw material and temperature control are considered when developing an extrusion head. Article and production cavity criteria such as the wall thickness, parison diameter and constant parison ejection speed are integrated in the design of mono, tri-ex and co-extrusion heads.

8-fold Tri-Ex-spiral mandrel extrusion head

Properties and advantages of our spiral head:

- Very good melt and temperature homogeneity
- Uniform wall thickness distribution over the full circumference around the article

Advantages:

- Repeatable production results lead to an improved quality with potential article weight savings
- Exclusion of thin spots, weld seams and flow lines
- Straight parison drops at production rates
- Reduction of adjustment effort during start-up of production leading to lower material usage
- Reduction of die adjustment times

4BKB 30-2/85(V) extrusion head

3-layer Tri-Ex-view-stripe-extrusion head

Spiral mandrel for extrusion head BKW180

Short, smooth and uniform flow channels
Advantages:

- Reduced color change times and material usage

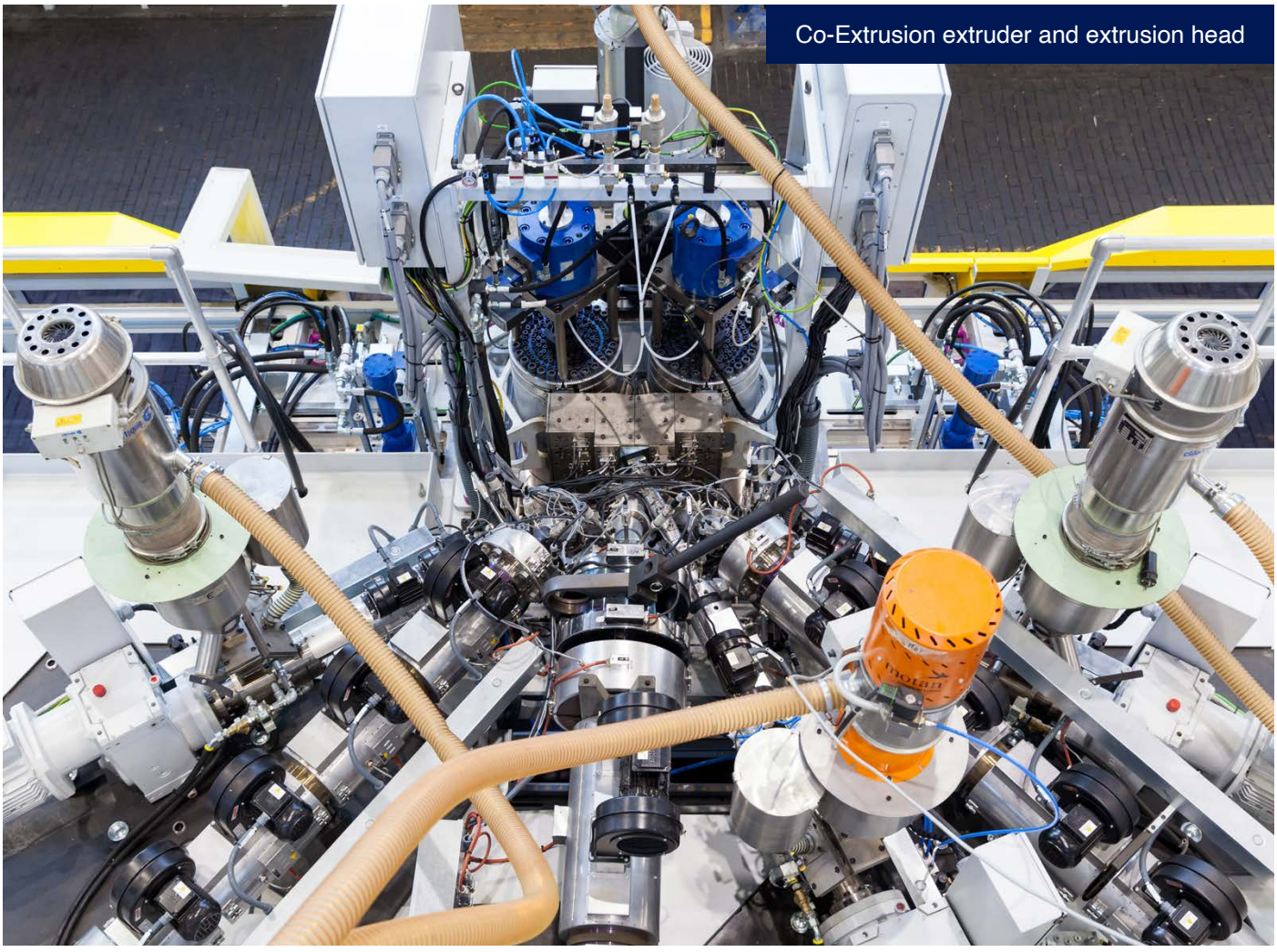
Latest rheological design increases the possible material throughputs and range of applications
Advantages:

- Larger production window and increased application possibilities
- Reliable processing of extrusion blow-mouldable plastics HDPE, PP, PC, HMWPE and PCR (Post-Consumer Recycled) and Regrind
- Long service life and high operation reliability

HIGH-PERFORMANCE EXTRUDER HIPEX 36D

INCREASED OUTPUT. HIGH PROCESS STABILITY. OUTSTANDING ENERGY EFFICIENCY.

A well-coordinated extrusion technology ensures the crucial required product quality. At Bekum you will get this with the blow moulding machine from a single source. Behind the name HiPEx 36 (High Performance Extruder 36D) is a completely newly developed and more powerful extruder technology. The most important noteworthy characteristic, is that this extruder improves the energy and throughput efficiency of the overall system. The new extruders of the HiPEx-series impress due to very high process stability, high maximum throughput and very good melt homogeneity. Bekum attaches particular importance to the energy efficiency of an extrusion design, the extruder being the main energy consumer of every blow moulding machine. With this concept a significant energy saving of up to 20% will be realized, at the same time as high melt quality and low temperatures. The use of longer extruder screws with a length of 36D in conjunction with improved mixing zones ensures a homogeneous melt and better colour mixing.



Co-Extrusion extruder and extrusion head

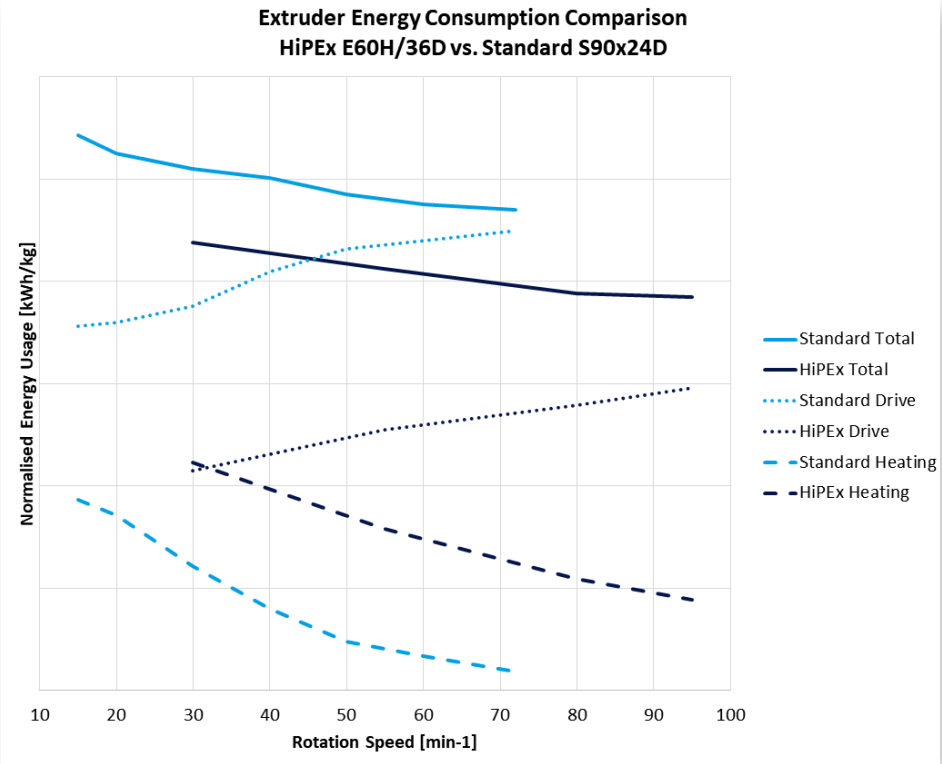
HiPEx 36D extruder

Advantages of the new high-performance extruder HiPEx 36D:

- Energy savings of 20 %
- Direct driven gear boxes and new IE5 extruder motors with high efficiency
- Overall lengths of 36D in combination with improved mixing zones
- Increased output with consistently good melt quality and colour mixing
- Reduced temperatures lead to faster cooling times and productivity optimization
- Lowered pressure profile in the feeding zone reduces the wear for a long life
- The extruder screw and the feeding zone geometry are designed for many blow moulding plastics with high melt strength, lower melted temperature and good homogeneity
- Improved processing of all extrusion blowable plastics HDPE, LDPE, HMWPE, PP, PET, PC as well as PCR and regrind

Grooved barrel extruder 24D:

Our grooved barrel extruder with a length of 24D is electromechanical and speed controlled, with an energy-efficient direct drive using motor and gearbox. The extruder screw and the feeding zone geometry are designed for many blowable plastics with high melt strength, lower melted temperature and good homogeneity. This generation of extruders are proven and tested for many years.



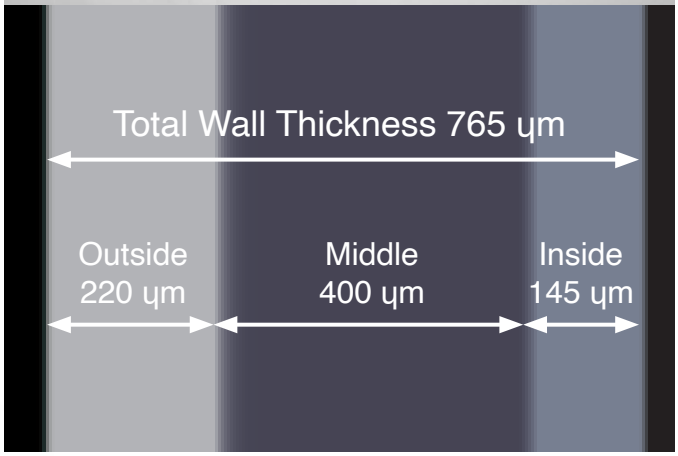
BEKUM'S MULTI-LAYER TECHNOLOGY

FOR DEMANDING MARKETS. PRACTICAL. COST-EFFECTIVE.

The multi-layer or Co-Extrusion process meets increasingly demanding quality requirements for the packaging industry. Two or more different plastics are bonded together. When combined, they have properties which they cannot offer when processed alone. With this process, technical/commercial solutions for the highest requirements are available for a wide variety of markets. The materials, which differ in their molecular structures, are fed into the extrusion head by separate extruders. In the head, they bond together in separate layers over their surface area, i.e. radially without mixing with one another and are extruded to form a parison. When processing different types of material, a bonding agent makes them bond together. Today, containers comprising up to 7 layers are provided by Co-Extrusion for packaging and technical parts.

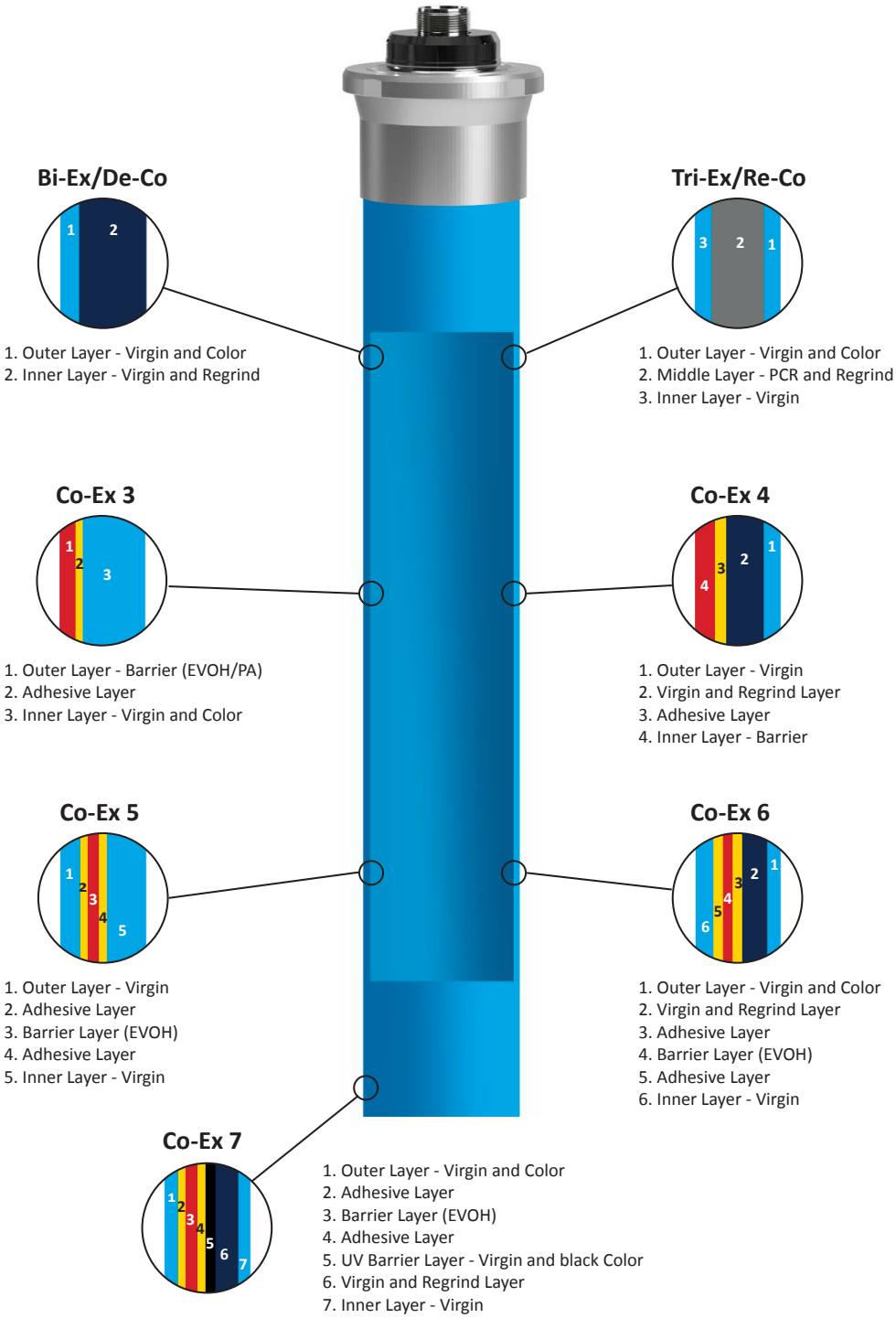
Advantages of Co-Extrusion:

- For blow moulded packaging of the food, pharmaceutical, cosmetics and agrochemical industries
- For technical parts and automotive tanks
- Cost efficient processing of regrind material and chalk
- Glossy surfaces
- Enhanced light and UV barrier
- Gas, permeation and security layer barrier



Multi-Layer-Technology:

The Co-Extrusion offers barrier possibilities and regrind processing. The barrier materials used have outstanding barrier properties with respect to oxygen, carbon dioxide, water vapour, UV-radiation, flavorings and aggressive substances. With its many possibilities for combinations, Co-Extrusion offers markets and consumer “tailor-made” alternatives for packaging. Applications range from 5 ml to 1000 liter containers. The range of machine can also meet any customer specific and production requirements.



Extruder HiPEx 36D

Type	Material	Power	E45H	E60H	E75H	E90H	E100H
Screw ratio			36D	36D	36D	36D	36D
Screw rotation speed, min. - max. *1			10 - 205	10 - 145	5 - 110	5 - 90	5 - 80
Screw rating		kW	47	78	111	163	188
Number of heating zones / with fan			5/5	5/5	5/5	5/5	5/5
Output capacity, min. - max.	HDPE	kg/h	20 - 195	35 - 310	50 - 450	60 - 620	70 - 730
Output capacity, min. - max.	HDPE - regrind (70% - 30%)	kg/h	20 - 180	35 - 285	50 - 415	60 - 580	70 - 680
Output capacity, min. - max.	PP	kg/h	20 - 170	30 - 285	40 - 415	60 - 550	70 - 610

Permanent production throughput is approx. 80 % of the max. plasticising capacity.
Permanent production throughput with masterbatch is approx. 85 % of the permanent production throughput.
The throughputs depend on the bulk density.
Other material types and mixing ratios on request.

Extruder SxxN 24D

Type	Material	Power	S38N	S50N	S60N	S70N	S80N	S90N	S100N	S120N
Screw ratio			24D	24D	24D	24D	24D	24D	24D	24D
Screw rotation speed, min. - max. *1			5 - 145	5 - 120	5 - 95	5 - 85	5 - 75	5 - 72	5 - 65	5 - 65
Screw rating		kW	12	24	32	45	54	80	92	152
Number of heating zones / with fan			4 - 5/3	5/3	6/4	6/4	6/4	6/4	6 - 7/4	6 - 7/4
Output capacity, min. - max. *2	HDPE	kg/h	2 - 40	4 - 70	5 - 120	11 - 150	15 - 220	18 - 280	25 - 350	40 - 500
Output capacity, min. - max. *3	HDPE - regrind (70% - 30%)	kg/h	2 - 36	4 - 63	5 - 110	11 - 125	15 - 200	18 - 250	25 - 315	40 - 450
Output capacity, min. - max. *4	PP	kg/h	2 - 30	4 - 40	7 - 80	10 - 100	12 - 120	18 - 180	27 - 270	35 - 350

*1 The rotation speed is a guide value and material-dependent
*2 Granulate and regrind with bulk density greater than 0.56 kg/L
*3 Dependent on bulk density and melt pressure
*4 Significant differences due to variety of types. Subject to technical changes

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