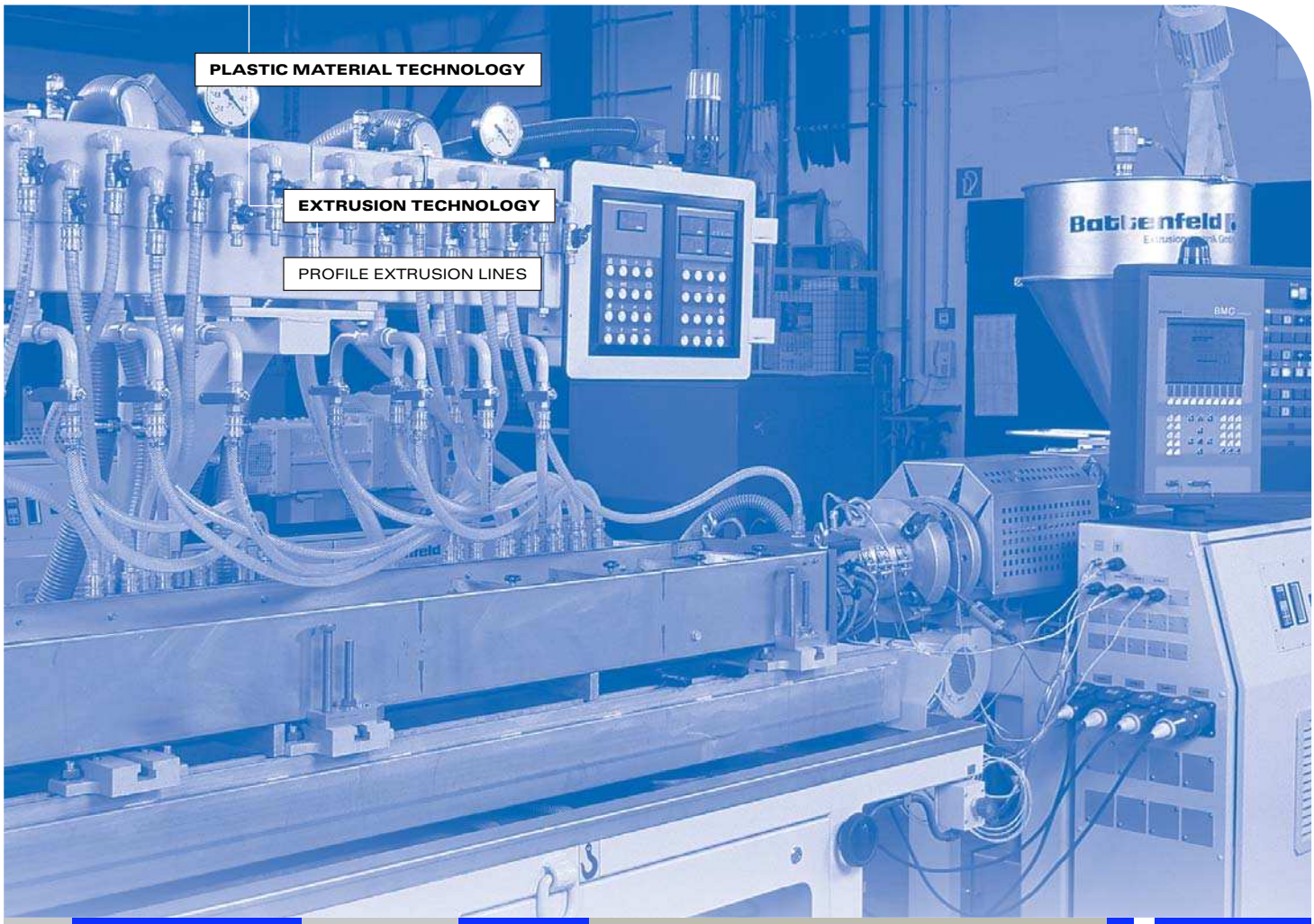
Battenfeld
Extrusionstechnik
SMS group

PROFILE Extrusion Lines



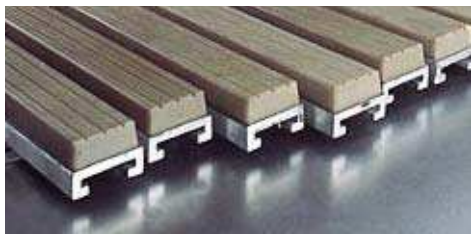


TABLE OF CONTENTS

Complete **PRODUCTION LINES** for profile extrusion

COMPLETE MACHINE LINES

Increased product quality with higher profitability – this is our leitmotif when developing machine lines for profile extrusion. The use of the latest technology, innovative process and processing technology as well as our undisputed know-how in the area of complete machine lines allow us to meet this claim.

From project planning and design through to the implementation on site – our customers rely on tailor-made overall solutions with ideally matched components, on technically mature machine lines convincing under economical aspects.

OUR RANGE

- Twin and single screw extruders for the most varied thermoplastic materials
- Calibration table
- Caterpillar and belt take-off units
- Cutting devices
- Extensive accessories, such as e.g. deposit systems, marking and air blast units, film application and seal roll-in units

EXTRUDERS

Twin screw extruder

PARALLEL TWIN SCREW EXTRUDERS

For high performance extrusion of PVC profiles, parallel twin screw extruders provide a particularly high economical efficiency. Battenfeld have consequently developed this machine type further to be able to also meet growing market requirements for low-cost PVC recipes. As a result, our extruders are already equipped today with high performance transmissions to provide torque reserves for future developments.

ADVANTAGES

- High performance transmission with torque reserves
- High mass throughputs at low screw rotational speeds
- Gentle plastification as well as effective degassing
- Material transport at low pulsation
- Intelligent screw geometries with closed circuit, maintenance-free screw temperature control

Twin screw extruder For specification, please refer to the ‚technik report'

Type	2-50-16V	2-54C		2-72C		2-110-28V	2-135-28V
Output [kg/h]	15 - 60	20 - 130	50 - 180	50 - 250	150 - 350	250 - 500	350 - 800

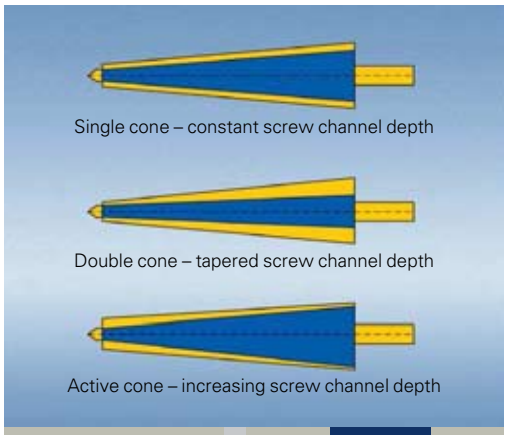
Performance information depending on the PVC recipe used, profile geometry and quality requirements

CONICAL TWIN SCREW EXTRUDERS

The conical twin screw extruder range was developed by Battenfeld especially for the lower and medium capacity range. The active cone principle with a screw channel depth reduced in the haul-in area and enlarged in the ejection zone permits a high output with good homogenising and melt properties. All machine types feature high flexibility and a large processing band width.

- Large processing band width
- High counter-pressures

Conical double screw extruder
BEX 2-54 C



Types of screw channel depth for conical screws

Single screw extruder

SINGLE SCREW EXTRUDERS

The Battenfeld single screw extrudes convince by their large choice of additional equipment intended to allow a wide application spectrum. Thanks to the adapted screw geometry, almost all thermoplastic materials can be processed.

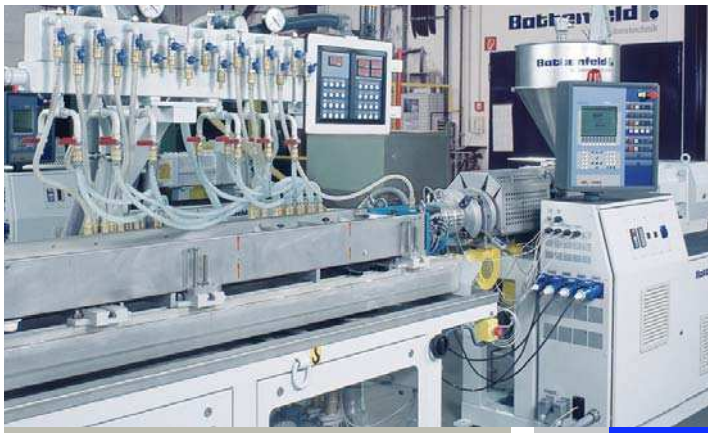
Further performance features:

- Excellent melt quality with a low-pulsation transport
- Low maintenance and repair costs
- Long operating life of screws and barrels

CALIBRATION TABLES

Calibration table for main window profiles (K 402)

Optimum function of the extrusion line is only guaranteed when dies, calibration and cooling form a homogeneous entity. Our calibrating tables are designed for the most common die systems. This is guaranteed by Battenfeld on the basis of their many decades of experience.



Calibration table for small profiles (K 162)

Calibration tables For specification, please refer to the ‚technik report'

Type	K 162 V	K 125	K 402 V	K 404
Clamping table [mm] (length x width)	3500 x 320 5500 x 320 7500 x 320	4000 x 320 6000 x 320	6500 x 400 bzw. 6500 x 800 8500 x 400 bzw. 8500 x 800 10500 x 400 bzw. 10500 x 800 12500 x 400 bzw. 12500 x 800	5500 x 320/400 7500 x 320/400 9500 x 320/400 11000 x 320/400 16500 x 320/400 22000 x 320/400

Calibration table (K 404)
without boom

ADVANTAGES OF THE CALIBRATION TABLES

The Battenfeld calibration tables are designed to further improve the output of extrusion lines.

- Extremely long operating life due to solid construction and the extensive use of stainless steel
- No vibrations as a result of the vacuum pumps being fitted on silent-blocs
- Patented water/air separation for optimum operation of vacuum tank calibration systems
- Reduced noise by the optional use of water/vacuum pump combinations
- Control desk with incorporated functions for calibration table and take-off unit

CENTRAL VACUUM SYSTEM

As an option to our calibration tables, this system offers the computer-controlled possibility to apply the optimal vacuum to the calibration systems. It is possible to set and, above all, reproduce the required vacuum to the calibration systems depending on the profile.

The system offers the following advantages:

- Noise reduction
- Low energy consumption
- Reduction of pump wear
- Increased production reliability
- Maximised fail safety

TAKE-OFF UNITS

Take-off unit / cutting device with film application system

Our range includes a comprehensive choice of belt and caterpillar take-off units for small, medium sized and heavy profiles. All take-off units are designed such that they take off the profile strand under the required force in an absolutely uniform and gentle manner.

BELT TAKE-OFF UNITS

The Battenfeld belt take-off units are perfectly suited for small products extruded at a high speed. They are distinguished by a series of additional performance features:

- Precise belt running properties by high-quality Poly-V take-off belts
- Highly abrasion resistant take-off belts having a Shore hardness adapted to the product

Belt take-off unit

Belt take-off units For specification, please refer to the ‚technik report'

Type	P 100 BVE	P 160 BVE	P 250 BVE
Contact length [mm]	800	1200	2400
Max. take-off force [N]	5000	5000	27000
Speed range [m/min]	0,6 – 30	0,6 – 20	0,2 – 10

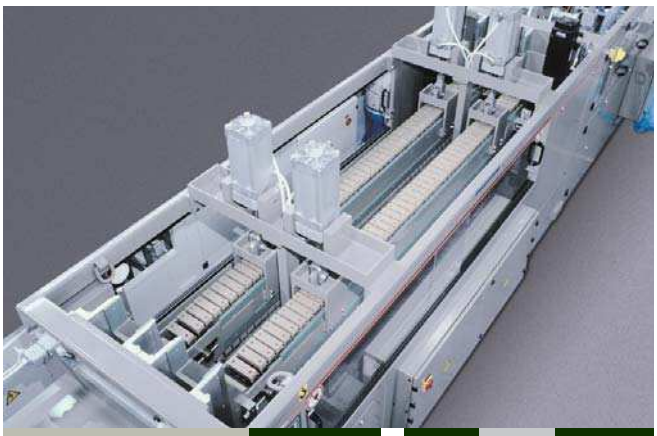
CATERPILLAR TAKE-OFF UNITS

The use of caterpillar take-off units is especially recommended where high take-off forces are required throughout the entire speed range. The caterpillar take-off units from Battenfeld are available with most varied segment systems.

Further features:

- Length measuring system
- Automated chain lubrication
- Parallel guidance of the oscillating top caterpillar at the front side, with pneumatic contact pressure
- Special chain suspension from type P 200 preventing wear increasing sagging of the chain
- Bolted on rubber segments or, optionally, segment quick release system arrested by spring action

Segment exchange aid



Double strand take-off unit

Caterpillar take-off units

For specification, please refer to the ‚technik report'

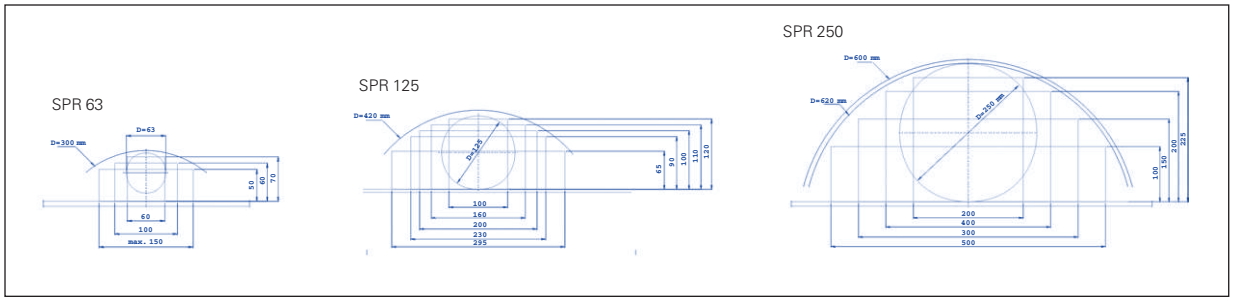
Type	P 100 SE	P 160 SE	P 200 SE	P 250 SE
Contact length [mm]	800	1200/1600	1450/2000	2000/2400
Take-off force [N]	7000	10000	15000	24000
Speed range [m/min]	0,3 – 14,6	0,2 – 10,2	0,3 – 15	0,2 – 9,9

CUTTING DEVICES

Battenfeld profile saws have proven themselves in the market for many years. They are available for small and large profiles. All saws are equipped with high performance chip extraction systems above and below the saw level.

PROFILE SAW UNITS

- Pneumatic saw blade advance vertically upward
- Saw hood with integrated clamping above the saw table
- Good cutting quality due to the clamping directly at the saw blade and the precise guidance on the saw table
- High cutting frequency for small profiles extruded at a high speed
- Especially tight cutting length tolerances of precision saws (type H)



Saw units

For specification, please refer to the ‚technik report'

Type	SPR 63 P	SPR 63 E	SPR 125 P	SPR 125 E	SPR 125 H	SPR 250 P	SPR 250E
Max. profile cross section[mm]	150 x 50	150 x 50	230 x 90	230 x 90	230 x 90	500 x 100	500 x 100
Max. speed [m/min]	15	25	7,5	15	25	5	10

CUTTING BLADE DEVICE

The MTV cutting blade device is especially distinguished by the ability to cut profiles without chips at low noise. For vertical cutting, an optimum cutting surface is created by subjecting the profile to a slight pre-tension by the hydro-pneumatic advance and the pre-heated blade. The cutting blade device is designed to allow blade changes during production.

CROSS CUTTER QTS 600 P / QTS 1000P

This upstroke saw with its pneumatic saw blade advance is ideally suited for cutting wide profiles to length using a maximum saw blade cross section of 600 x 80 mm or 1000 x 800 mm respectively.

LONGITUDINAL CUTTER LTS 600/2

A continuously follower-type double saw to cut wide profiles to final production dimensions.

- Two saw units, each to be positioned max. 300 mm to the left or right of the extrusion centreline
- Max. saw cross section 600 x 80 mm

Cross cutter

Cutting blade device

CO-EXTRUSION

MULTI-LAYER COMPOSITE MATERIALS

The specific properties of various materials can be combined in one profile by the co-extrusion method. In this manner, profile properties can be achieved, which would be impossible by the use of just one single raw material. To reduce costs, cheaper recipes or recycled materials can be used for the core, whereas the product quality is maintained by wrapping the core with high-quality materials. Even combinations with flexible materials are possible.

CO-EXTRUDER

Type	2-42 CC	2-54 CC
Output	15 – 60	20 – 130

DOUBLE STRAND EXTRUSION

Combined take-off unit/saw for the double strand method

PERFORMANCE BY THE POWER OF TWO

Double strand extrusion is a particularly economical concept in the field of high output extrusion. The predominant advantage resides in the possibility to produce different profiles of a similar weight per meter at the same time. The integrated caterpillar take-off units and saws can be individually controlled for each strand.

COMPACT MACHINE LINES

miniBEX

With their miniBex, Battenfeld offer their customers a low-cost and economical compact machine line for small profile extrusion. The machine line configuration according to the modular concept, with optionally four extruders and connected downstream equipment, has already achieved a notable success in the market. Despite of its compact design, the miniBEX features high flexibility and output quantities.

Extruder		Output
Type: 50 mm	16D parallel	15 - 60 kg/h
Type: 54 mm	active cone twin screw	20 - 130 kg/h
Type: 45 mm	single screw	ca. 40 kg/h
Type: 60 mm	single screw	ca. 60 kg/h

Calibration table		
4 m	2 pumps	12 x water connections
6 m	2 pumps	16 x water connections

Take-off unit/saw	
Belt take-off	1100 mm contact length
Caterpillar take-off	1100 mm contact length
Saw	200 x 10 mm to 70 x 70 mm saw blade cross section

winBEX

As the miniBEX, the winBEX is a standardised machine line concept of a modular design, however, designed for the medium and higher output range, such as window profile extrusion.

Depending on requirements, four different extruders can be chosen from. The standard scope of delivery also encompasses a calibration unit, the take-off unit and cutting device. The winBEX productivity and profitability are fully convincing.

COMBINATION EXAMPLES

Extruder type	Output	Calibration length	Take-off	Cutting
2 – 68 – 28 V	50 – 180	KP 404 V4 5,5 m / 7,5 m	RP 250 SE/BVE	SP 125 E / MT 125 E
2 – 72 C	50 – 250	KP 404 V4 7,5 m / 11 m	RP 250 SE/BVE	SP 125 E / MT 125 E
2 – 92 – 28 V	150 – 350	KP 404 V4 11 m / 13 m	RP 250 SE/BVE	SP 125 E / MT 125 E
2 – 110 – 28 V	250 – 500	KP 404 V4 16,5 m / 18,5 m	RP 250 SE/BVE	SP 125 E / MT 125 E

AUTOMATION

BMC plus

BMC Smart

Economically efficient and high quality production of profiles cannot be accomplished without automation. For this reason, the Battenfeld BMC range of control systems includes all components relevant for profile extrusion:

- Central and efficient operation
- Reproducible production
- Documented quality
- Overall line automation

The BMC system is available in two stages. The first stage includes the integration of dosing units, co-extruders and an intelligent sensor system in the central operating unit. The second stage permits mass throughput and weight per meter control. Per extruder, one main component and up to five secondary components can be processed.

TELE-MAINTENANCE

The Battenfeld tele-maintenance provides the fastest support of the operating personnel worldwide in diagnosis, optimisation of process parameters and malfunction remedy. Production downtime is minimised because the knowledge of our qualified personnel is directly available on site.

SPECIAL SOLUTIONS and ACCESSORIES

DEPOSIT DEVICES

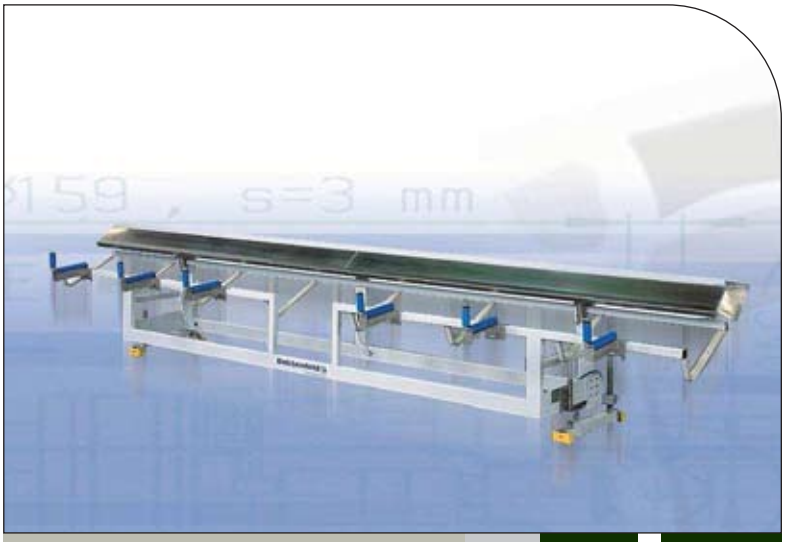
The Battenfeld range is complemented by various deposit devices:

- Profile ejection
- Push-out device
- Deposit belt with push-out device

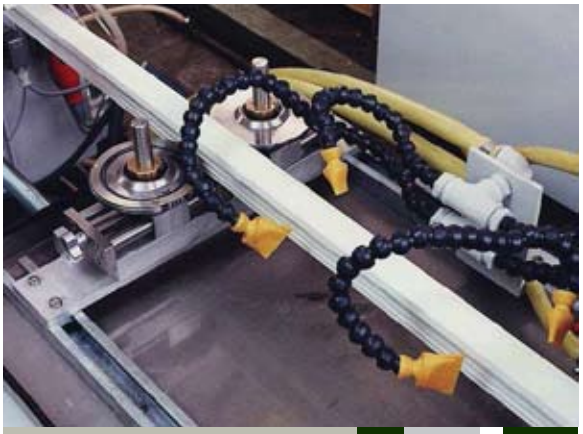
FURTHER ACCESSORIES

On special request, profile extrusion lines can be equipped with the most varied devices, e.g.:

- Marking unit
- Air blast unit
- Film application



Deposit device



Air blast unit

Marking unit

THE POWER to SUCCEED

BATTENFELD EXTRUSIONSTECHNIK GMBH

Königstraße 53
D-32547 Bad Oeynhausen

Fon +49 +5731/242-0
Fax +49 +5731/27124

welcome@bex.battenfeld.com
www.bex.battenfeld.com

BEX 09/04, RT, D, FSW, 4203