conEX

The proven dimension of conical twin screw extruders
Customized solutions for highest demands

conEX, the new series of conical twin screw extruders, is the sixth generation of this machine type from battenfeld-cincinnati and an improved successor to the successful predecessor models. While using a proven modular system, we also provide options to fulfill our customers’ needs and meet their individual requirements with tailor-made solutions. In the conEX series, the complete expertise of the inventors of conical twin screw extruders and the experience from more than 7,000 conical machines already installed has been utilized and optimally applied. The result: a wider processing window, longer service life and an unbeatable price-performance ratio. The series consists of conEX 38, 50, 63 and 72, including special “space saver” co-extruder models.

Your advantages:

- High flexibility through gentle, homogeneous plastification
- AC motors for maximum energy efficiency
- A choice of different screw geometries for processing customer-specific PVC, C-PVC and PE-Xa compounds
- Custom-made anti-wear protection made of tungsten carbide, molybdenum and chrome combined with top-quality nitrided surfaces
- Maintenance-free Intracool® screw tempering system
- Maintenance-free insulated barrel inlet piece
- Insulated barrel with apc® air power cooling system
- Extremely space-saving
- Proven battenfeld-cincinnati quality and an excellent price-performance ratio
- Customized co-extrusion solutions are possible

Our offer:

- Screw diameters from 38 to 72 mm
- Ideal for pipe and profiles
- Outputs from 15 kg/h to 280 kg/h for PVC profiles
- Outputs from 30 kg/h to 550 kg/h for PVC pipe
- Outputs from 35 kg/h to 440 kg/h for C-PVC pipe
- Space-saving co-extruder models
- State-of-the-art technology
conEX profile extruders are primarily used for the production of building/construction profiles. The diversity of profiles is virtually unlimited and includes main and supplementary window profiles as well as technical profiles such as cable conduit, hollow profiles, roller blinds, foamed or co-extruded profiles.

conEX pipe extruders are primarily used for the production of smaller drainage pipes and/or cable conduits. Multi-layer pipes are a special product line – in particular for the building industry. Here, the foamed middle layer serves as a sound absorber and reduces weight and cost.

The conEX extruder is also used for the production of C-PVC and PE-Xa hot/cold water pipe.

Whether melt pressure is high or low, the result is always impeccable. With their modest space requirements, conical extruders are also an ideal solution for co-extrusion. The conEX version offers optimal processability for a great variety of compounds and enables top-quality products.

WPC extrusion: please ask for fiberEX extruders from battenfeld-cincinnati.
Proven technology

Machine design

The footprint of conEX extruders is the smallest in its class in relation to output. With their short design, conEX extruders are ideal as co-extruders or, when used as main extruders, leave more space for the cooling section. Customized solutions in “space saver” co-ex versions favor tooling connections of minimal length.

Motor, drive system

From a range of versions with different gear ratios, torque and drive performance levels, the technically most suitable and most cost-efficient extruder for PVC processing can be selected for each case. The large center distance between gear box input and output shafts allows the use of standardized AC motors with frequency control.

The advantages:

- Maintenance-free
- No brush replacement required
- No external ventilator, no additional source of noise
- The ventilator is mounted on the main shaft
- The large surface of the motor ensures adequate heat radiation

AC motors are extremely energy-efficient even under partial load and have great energy-saving potential for extrusion equipment.

conEX drive units are unique due to the space-saving configuration of the reduction and transmission gears. For co-extrusion, the reduction gear unit, normally in a vertical position, can also be mounted horizontally. The conEX series allows unhindered access to the screw coupling and monitoring of its positions by inductive sensors during operation. The barrel can be swung outward for screw change in the customary way.
Barrels

All conEX twin screw barrels are nitried as standard and come with up to four heating zones, of which at least two zones are equipped with apc® cooling fans. A completely new production method allows the barrels of conEX extruders to be manufactured in one piece with a conical bore of high precision. Extreme surface hardness and durability are the result of a nitriding process applied to the special steel alloy. This is ensured through special process control in certified quality in our in-house nitriding furnaces.

Barrel tempering

The proven apc® air cooling system stands for “air power cooling”, where the degree of efficiency has been optimized through an intelligent air conduit system. This makes it possible to reach a much more even temperature distribution in the barrel. Combined with complete barrel insulation, the outcome is maximum energy-efficiency. The special fins of the air cooling fan promote effective heat transmission and thus ensure quick barrel temperature adjustment.

Screw geometries

battenfeld-cincinnati uses ultra-modern technology and high precision machine tools to manufacture the geometries of the conical twin screws. Drawing on our many years of market experience, we have developed screws with optimal process characteristics for every application.

All screw surfaces come with molybdenum coating as standard. battenfeld-cincinnati uses the fully automatic plasma process to achieve maximum wear resistance through high purity molybdenum coating. In addition, this process enables a 100% coating of the surfaces of the screw flights. This results in the maximum possible bearing surface between screw and barrel, which in turn also contributes to the best wear resistance.

Apart from the proven Intracool® system, screws with oil temperature control systems are offered that enable even more influence on the process characteristics, particularly when processing C-PVC or foamed PVC.

Screw change

The proven swivel mechanism has also been retained for conEX. The barrel is swung out sideways, so that screws can be removed to the rear without shifting the downstream equipment, thus saving time.

Hopper

Various alternatives for material feeding are available, depending on the nature of the material and production requirements. The synchronized horizontal metering unit allows exact setting of the screw filling level for various powder blends, dry blends, regrinds or granulates. The synchronized vertical metering unit has been specially developed for PVC compounds with low pourability and/or high filler content. It consists of a hopper with a vertical metering screw mounted above the barrel feed opening and can be moved aside for access, emptying, etc.
Gravimetric feeding

Gravimetric feeding is recommended for throughput measurement, output control and/or control of weight per meter. In such cases, the conventional hopper is replaced by a gravimetric metering system.

Addition of fillers or colorants

For in-line coloring, the addition of color master batches is effected by either volumetric or gravimetric feeding between the hopper and the horizontal metering unit. Up to four colorant metering units can be connected to the metering station.

Flexibility

The main driving forces in the development of the conical series were adaptation to the demand for flexibility in applications and robustness of the machines, together with market requirements for output per machine size. conEX machines stand out by their wide processing window in terms of output levels and diversity of compounds. The conical extruders are specially recommended for dies with high pressure.

Co-Extrusion – Space Saver

In this version, the reduction gear unit is mounted horizontally with the motor positioned beside the barrel. This enables space-saving support with a flexible extruder adjustment system including swiveling, tilting and height adjustment mechanisms.

Co-Extrusion – piggyback

For this set-up, the co-extruder is mounted on top of the main extruder. The tooling can be connected via a main plug and both extruders can be controlled through one shared control cabinet.
conEX output ranges

The conical extruder series is designed especially for small to medium outputs and co-extrusion applications.

<table>
<thead>
<tr>
<th>Profile</th>
<th>conEX 38</th>
<th>50</th>
<th>63</th>
<th>72</th>
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<tbody>
<tr>
<td>U-PVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>kg/h</td>
<td>15-65</td>
<td>40-140</td>
<td>70-220</td>
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<td>kg/h</td>
<td>30-120</td>
<td>70-230</td>
<td>110-380</td>
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<td></td>
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<tr>
<td></td>
<td>kg/h</td>
<td>-</td>
<td>35-150</td>
<td>70-250</td>
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Output may vary depending on the material processed, tooling, as well as upstream and downstream equipment.