



twinEX

The new dimension
in parallel twin screw extruders

battenfeld-cincinnati 

Customized solutions to meet the most stringent demands

With the new twinEX twin screw extruder concept, we offer the optimal solution for every need and application. To this end, we use a tried-and-tested modular system and simultaneously offer options to fulfill our customers' individual wishes and meet their special needs with customized product development.

Your advantages:

- ✓ Maintenance-free Intracool® screw cooling system
- ✓ Insulated barrel with apc® (air power cooling) system
- ✓ AC motors with optimal degree of efficiency
- ✓ Custom-made anti-wear protection made of tungsten carbide, molybdenum and chrome combined with top-quality nitrided surfaces
- ✓ Maximized output ranges thanks to optimized screw geometries
- ✓ Easy handling through intelligent machine design

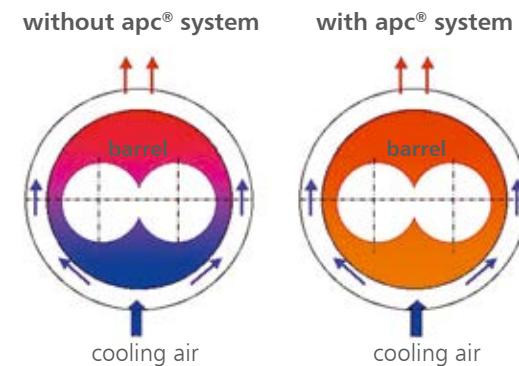
Counter-rotating twin screw:



Our offer:

- ✓ Machine sizes from 72 to 173 mm in diameter
- ✓ L/D ratios: 28:1 and 34:1
- ✓ Worldwide service
- ✓ Process technology counseling and training
- ✓ Individual testing facilities for customers thanks to in-house PVC mixing
- ✓ Extensive choice of solutions in the areas of metering, tooling and calibration

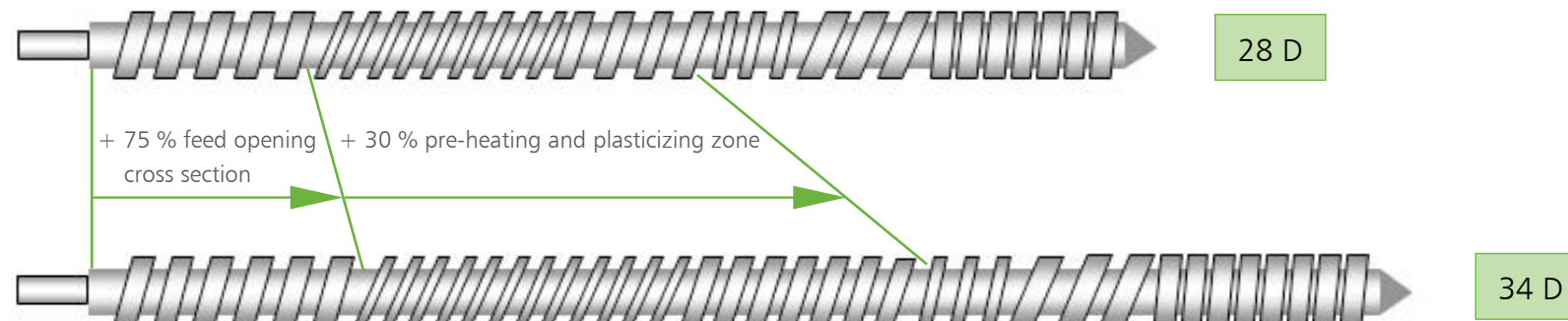
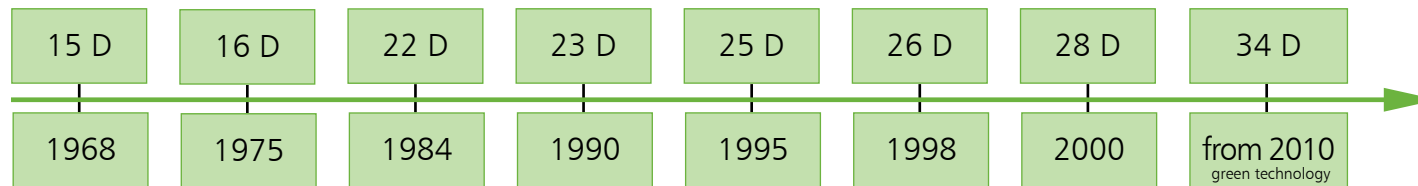
Schematic depiction: apc® system



The twin screw extruder for PVC processing

The processing units of the twinEX series are designed and manufactured by battenfeld-cincinnati with ultimate precision, using latest technologies and machine tools. For most applications, the screw flights are coated with molybdenum, which is applied in a fully automatic plasma coating process to achieve highest purity and complete screw flight covering for maximum wear resistance. Special tungsten carbide coatings are used for applications with extremely high wear potential, primarily compounds with high filler content.

Time bar – technical development of processing lengths (L/D) in parallel twin screw extruders:



Advantages of the 34 D processing unit:

- Greater flexibility and wider output window
- Gentle plasticizing even with high filler content
- Stable process through optimized material feeding
- + 75 % feed opening cross-section for optimal screw filling
- Maximized pre-heating surface for gentle plasticizing and optimized melt homogeneity
- + 30 % longer pre-heating and plasticizing zone

Drive system:

- ✓ Powerful 4-shaft drive concept
- ✓ Water-cooled drive system

Advantages:

- ✓ Pre-adjusted shafts
- ✓ Maintenance-free
- ✓ No screw adjustment required

Material feeding system:

- ✓ Material hopper with outlet valve
- ✓ Horizontal metering unit

Advantages:

- ✓ Precise filling of the screws for dry blend, pellets, granulate and regrind
- ✓ AC drive with directly fixed frequency converter

Drive:

- ✓ Compact AC motor

Advantages:

- ✓ Maintenance-free
- ✓ Robust
- ✓ Energy-efficient



Feed zone:

- 75 % larger feed opening
- Thermally separated filling chute
- Optimized venting system

Advantages:

- No material bridging
- Optimized material feeding

Barrel:

- Insulated barrel
- apc® (air power cooling) cooling system with intelligent air routing

Advantages:

- Maximal occupational safety
- Reduced energy loss through minimized heat radiation

Control system:

- Intuitive touch screen operation via 19" display
- Highly efficient temperature control with auto tuning
- Ergonomic, pivotable / tiltable control panel
- Visualization of automation components directly on the terminal

Advantages:

- Modular automation concept (gravimetrics / wall thickness regulation)
- Integration of components via standardized Euromap CANOpen interface
- Future-proof with Windows® embedded operating system
- Simple remote machine servicing via modem / LAN / Internet
- Data transmission to SCADA systems via OPC interface (optional)
- User-defined screen pages (optional)

Processing unit:

- 28 D or 34 D processing unit
- Product-related screw design
- Individualized metallurgy

Advantages:

- Gentle plasticizing and homogeneous melt quality
- Test facilities in the battenfeld-cincinnati test lab
- Long lifetime

Vacuum system:

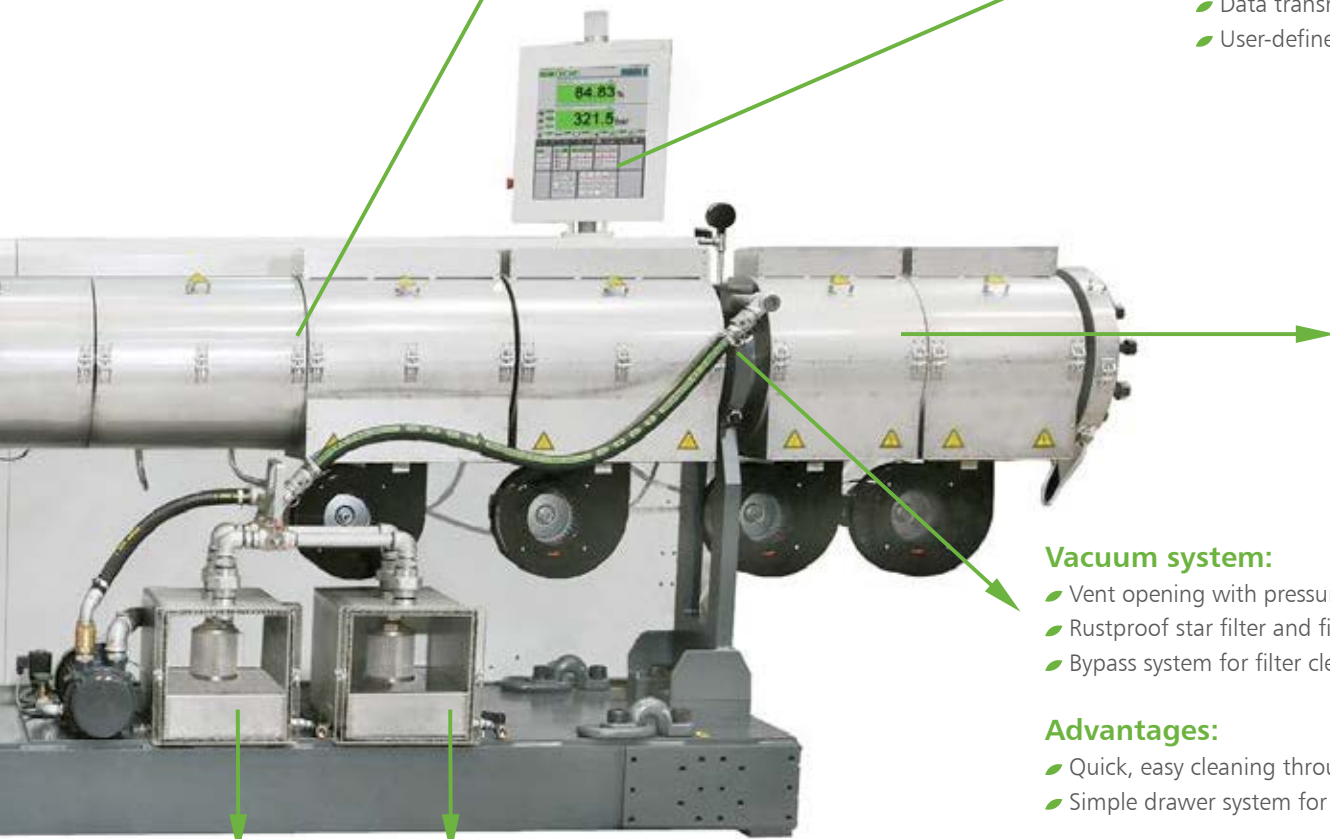
- Vent opening with pressure gauge
- Rustproof star filter and filter box
- Bypass system for filter cleaning (optional)

Advantages:

- Quick, easy cleaning through quick coupling system
- Simple drawer system for optimal handling

Filter box versions:

- Single filter
- Optional: double filter including bypass



Gravimetrics

Serves to monitor throughput and regulate output and weight per meter. Up to eight separate gravimetric units / hopper scales can be integrated.



Triple gravimetric unit (© ConPro GmbH)

Metering unit

Depending on the pourability of the compound, either a horizontal or a vertical metering unit is used to ensure continuous, even screw filling and consequently maximum process reliability in every case.



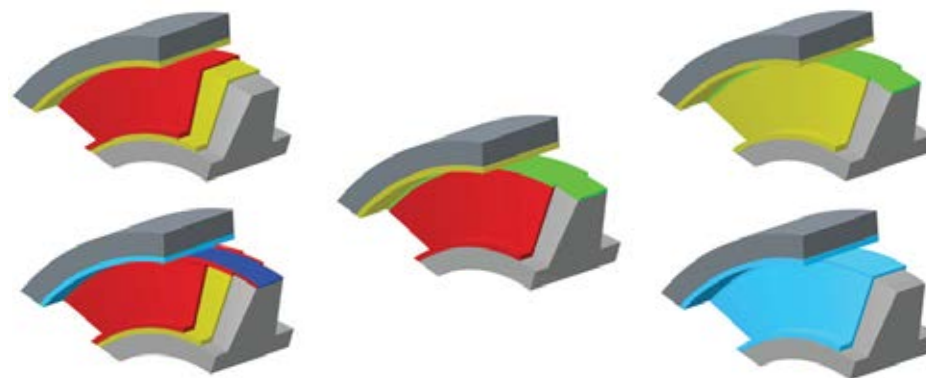
Horizontal metering unit

Metallurgical solutions







battenfeld-cincinnati offers custom-made metallurgical solutions for customers' individual needs. Ranging from cost-efficient nitrided versions to completely tungsten carbide-coated screws and barrels for special applications, an optimized solution for every requirement is available. The materials used are:

- ✓ Top-quality nitriding layers from in-house machinery
- ✓ Extremely pure Molybdenum coating over the entire width of the screw flight
- ✓ Tungsten carbide coatings based on state-of-the-art technology for barrels and parallel and conical screws
- ✓ Further metallurgical combinations with hard chrome, "Bexalit II" and Stellite are possible on customer request

Schematic depiction of metallurgical solutions:



Legend:

	Quality steel, hardened and tempered		Molybdenum layer
	Nitrided layer		Tungsten carbide layer
	"BC" Magnetite layer		"Superior TC" tungsten carbide, hard metal layer

twinEX outputs and technical data:

The outputs range from 115 kg/h to 2,500 kg/h, depending on the application. Outputs can also vary with different materials processed and depending on upstream, tooling / pipe head and downstream equipment used.

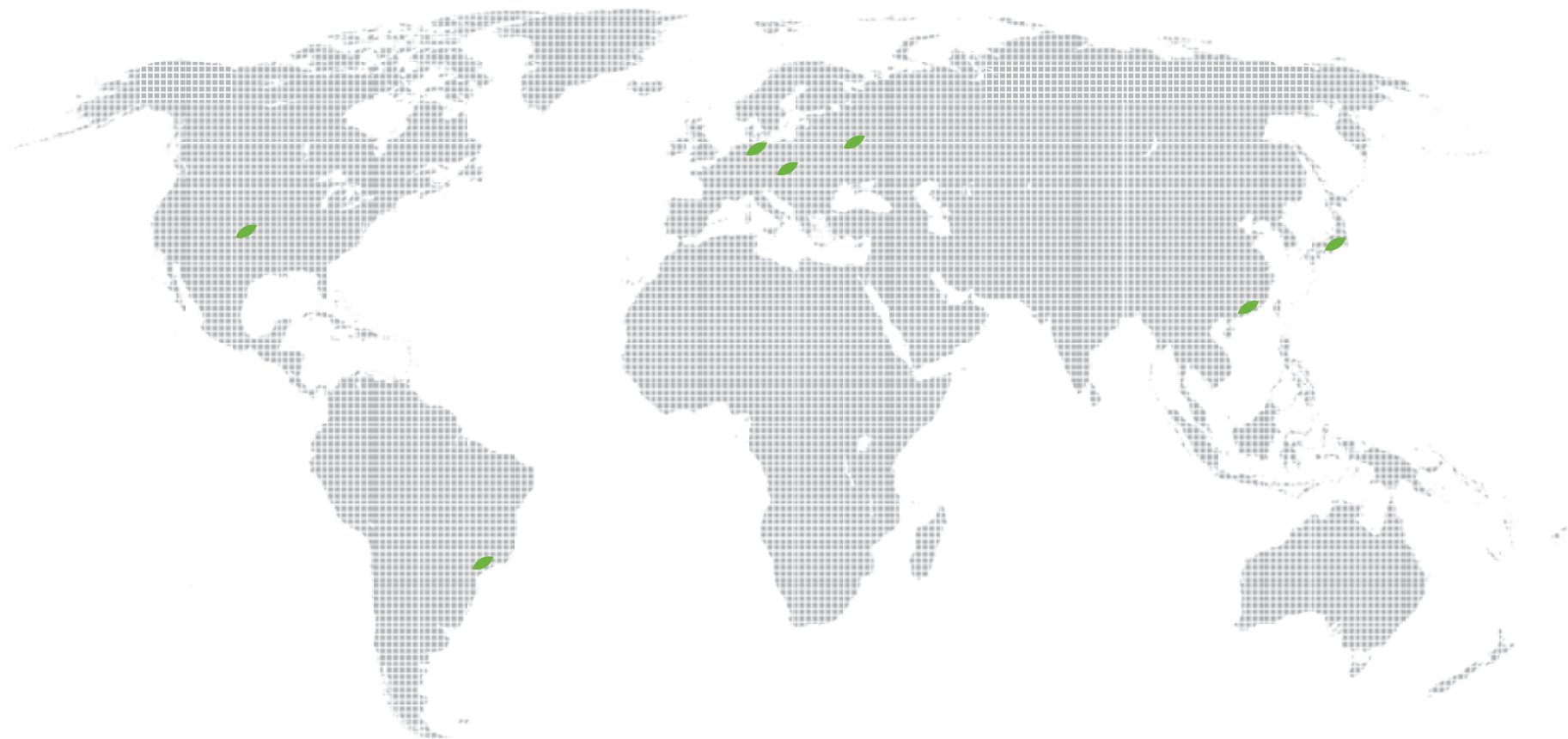
twinEX 28D	Unit	72	93	114	135	148	173
U-PVC / Pipe	kg/h	–	220-650	320-950	500-1,400	700-2,000	850-2,500
C-PVC / Pipe	kg/h	–	180-450	280-560	330-1,000	–	–
U-PVC / Sheet	kg/h	–	–	300-700	400-1,100	u.d.*	800-2,000
U-PVC / Profile	kg/h	115-250	160-350	280-560	–	–	–

twinEX 34D	Unit	78	93	114	135
U-PVC / Pipe	kg/h	150-560	280-840	400-1,200	580-1,600
U-PVC / Profile	kg/h	125-290	180-420	270-600	450-1,100

		72	93		114			135		148	173	
twinEX 28D	Unit	Profile	Pipe	Profile	Pipe	Profile	Sheet	Pipe	Sheet	Pipe	Pipe	Sheet
Drive output	kW	36	75	50	110	75	110	160	160	240	265	265
Screw speed	rpm	34	40	26	30	20	30	27	27	27	22	22
Weight	kg	3,100	5,000	5,000	7,500	7,500	7,500	11,000	11,000	18,000	29,000	29,000

		78	93	114		135	
twinEX 34D	Unit	Pipe	Profile	Pipe	Profile	Pipe	Profile
Drive output	kW	63	45	85	61	118	85
Screw speed	rpm	48	32	40	26	33	20
Weight	kg	4,600	4,600	5,500	5,500	8,200	8,200

* under development



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