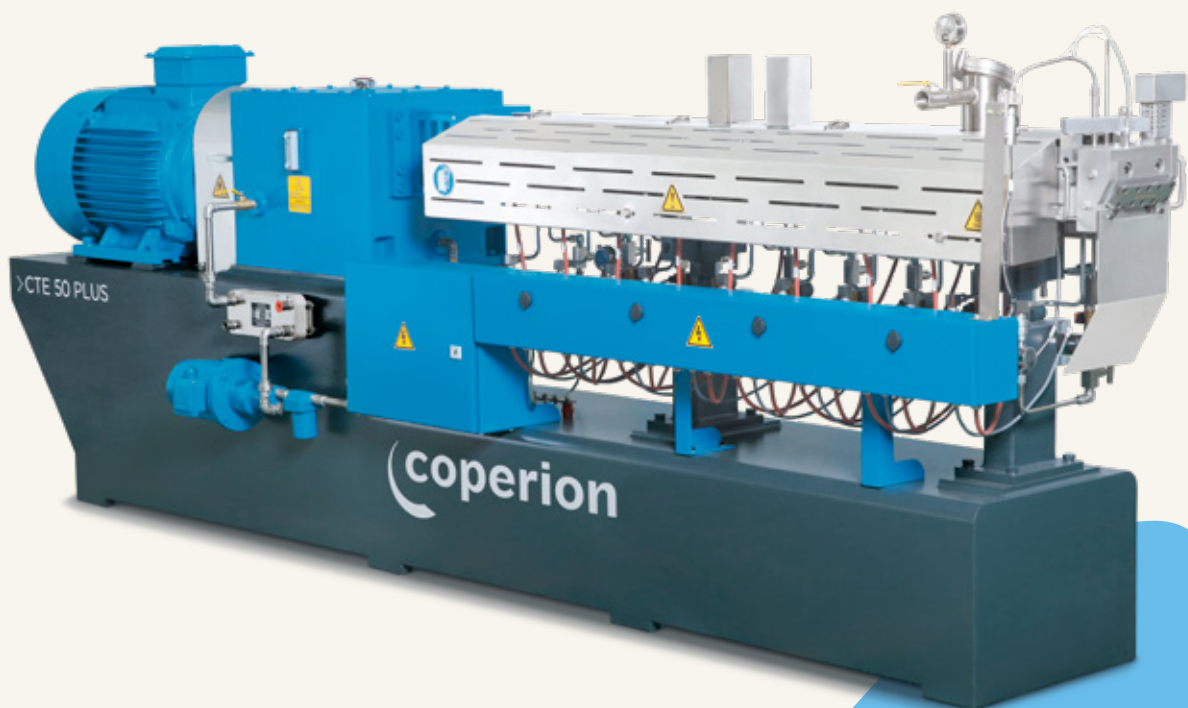




CTE PLUS twin screw extruders.
Perfect combination of German quality mindset
and Chinese innovation.



CTE PLUS – optimal balance of maximum cost effectiveness and high product quality



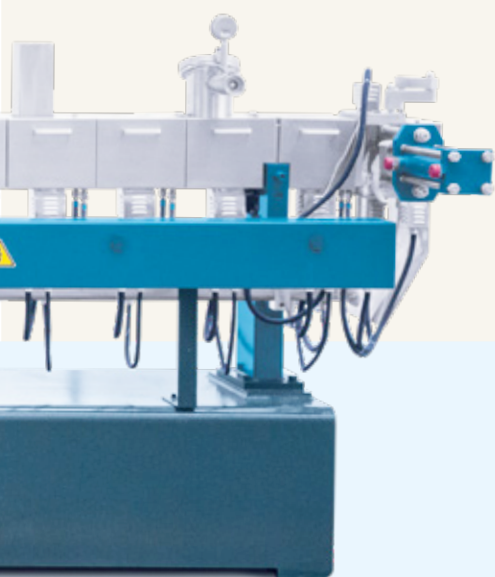
→ CTE 65 PLUS twin screw extruder

The CTE PLUS series from Coperion offers a high quality compounding system at a very attractive cost/performance ratio. It is the result of improved quality standards at Coperion Nanjing and perfectly meets the requirements for efficient processing.

The precise manufacturing of the CTE PLUS series ensures the economical processing of a wide range of applications at high product quality. The CTE PLUS is equipped with a gearbox engineered by Coperion Stuttgart, Germany. It offers a terminal box that meets highest safety standards and is supplied on a unitized base frame at lower cost. Before delivery each CTE PLUS extrusion system is subjected to a Factory Acceptance Test (FAT) at the Coperion Nanjing site

to ensure high quality standards. As an option the CTE PLUS series can be provided with TÜV CE certification. The CTE PLUS series has been developed with a specific focus on the special needs of small and medium-sized companies in China and Asia in terms of technological requirements and price.

CNC machinery with international state-of-the-art equipment, computer controlled machines for grinding of screw parts and for milling of die heads, in-house machining and assembly of gearboxes and our professional quality control are all part of the standards Coperion Nanjing has established to ensure the high reliability of the CTE PLUS compounding systems.



Highlights of the new CTE PLUS

- Gearboxes, engineered by Coperion, Germany, that can bear a specific torque of 7.2 Nm/cm³ and are exchangeable with old generation CTE gearboxes
- Higher process safety due to latest generation of gearboxes
- Base frame designed by Coperion, Germany, to ensure higher stiffness
- Gearbox housing manufactured in-house at Coperion Nanjing with CNC machine of Heller, Germany, and checked with 3-dimensional inspection machine of Carl Zeiss, Germany
- Final assembly check with 3-dimensional check instrument of Faro, Switzerland

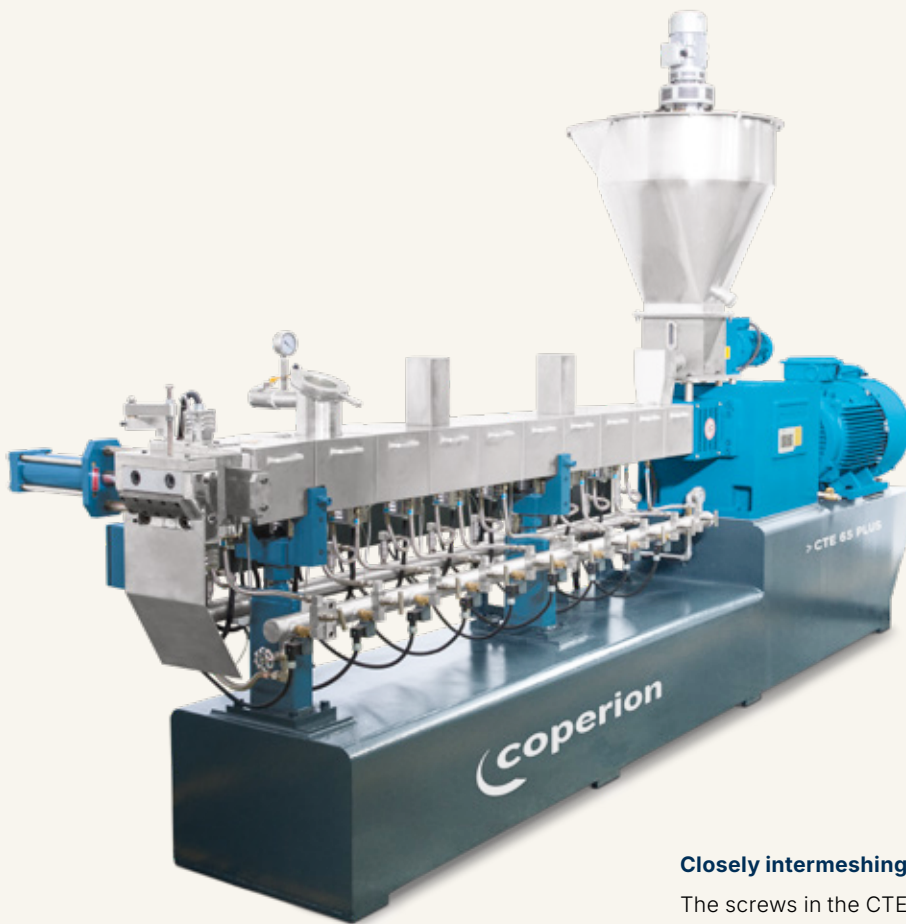
Typical areas of application

- Engineering plastics
- Masterbatch
- Filling
- TPE/TPR/TPV
- Wood composites
- Cable compounds (PVC, HFFR, XLPE, semi-conductive)
- Devolatilization/degassing & reaction
- Direct extrusion
- Recycling
- Sealants & adhesives

Comprehensive product portfolio of Coperion Nanjing

- Co-rotating twin screw extruders (STS and CTE PLUS)
- Gravimetric and volumetric feeders
- Side feeders
- Water cooling unit
- Vacuum systems
- Screen changers
- Air cooled die face cutting systems
- Waterring die face cutting systems

CTE PLUS twin screw compounder for maximum flexibility



→ CTE 65 PLUS twin screw extruder

Ideal configuration due to modular design

The modular design of the CTE PLUS series is a major advantage. The versatile configuration of the process section allows many combinations to cover a large range of applications.

As flexible as the applications – process section according to requirements

The modular principle of the barrels permits precise sequencing for each application. Each barrel section's temperature can be set up separately. Electrical heater shells provide for heating. Cooling is obtained with water. Barrels as well as screw and kneading elements are made out of nitrided steel in the standard version. For demanding applications wear and corrosion resistant construction materials are available.

Standard barrels available

- Barrels with opening on top for feed intake
- Closed barrels
- Barrels with side opening for side feeders
- Liquid injection ports

Closely intermeshing, co-rotating twin screws

The screws in the CTE PLUS compounder consist of solid shafts, each with an individual configured sequence of screw and kneading elements. The freely selectable order of screws and kneading elements ensures that the process section meets the process needs. Different process zones can be set up:

- | | |
|-----------------------|---------------------|
| → Conveying | → Homogenizing |
| → Plasticizing | → Degassing |
| → Mixing and shearing | → Pressure building |

First-class gearboxes for improved reliability and longer life time

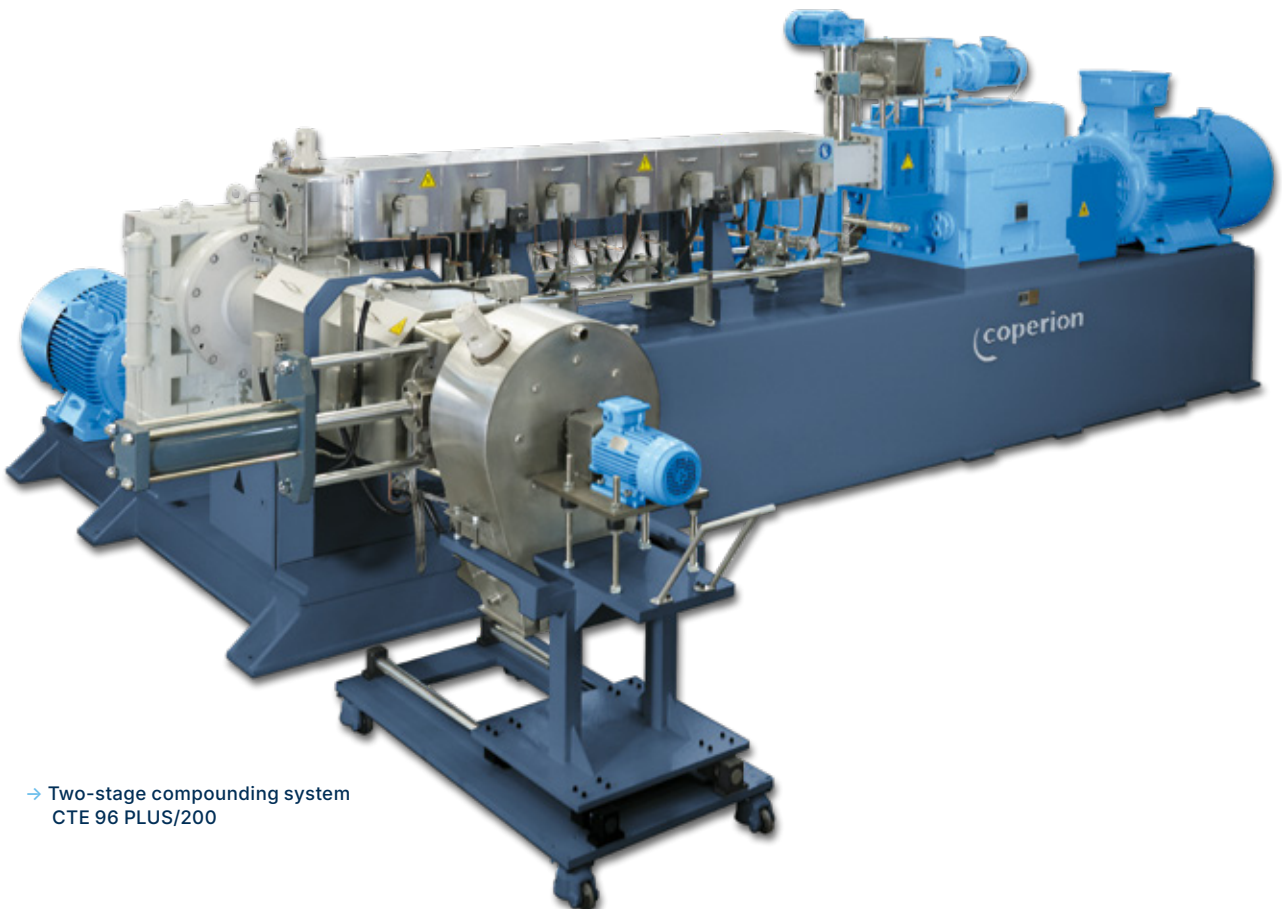
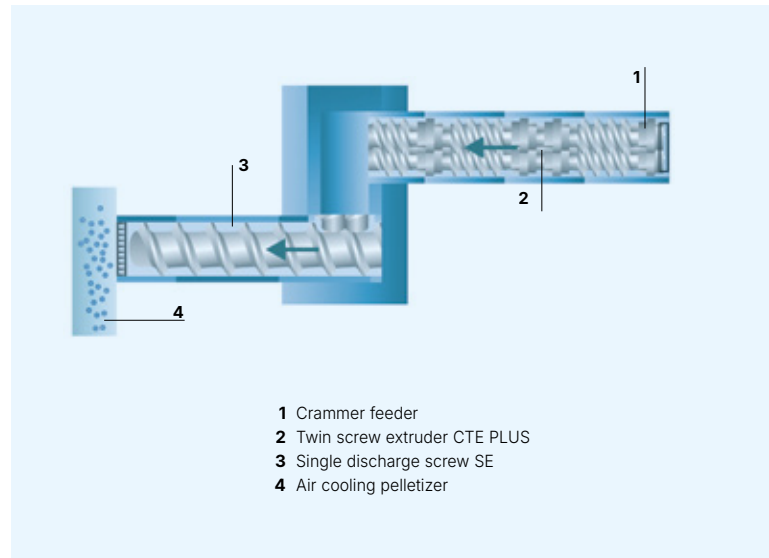
To improve reliability and to ensure longer life time Coperion, Germany, has engineered gearboxes for the CTE PLUS. These gearboxes have the same dimension like the ones used for the previous CTE series and are exchangeable. The rotating parts and bearings of gearboxes have been redesigned, tooth width has been enlarged and tooth flank and profile have been optimized to ensure perfect intermeshing surface. The bearings are supplied by INA, Germany. The gearboxes offer improved cooling and oil supply. The geometry of their housing has been optimized for higher stiffness and prevention of vibrations. Coperion Nanjing manufactures all housings of the CTE PLUS gearboxes with a CNC machine of Heller, Germany. The positioning precision of this CNC machine is 5 µm. After production all gearbox housings are checked in-house with a 3-dimensional inspection machine of Carl Zeiss, Germany. The precision of this machine is 1.4 µm.

CTE PLUS two-stage for optimum product quality

The CTE PLUS two-stage compounding and pelletizing system is mainly designed for the modification and compounding of heat and shear sensitive materials. Its two-stage set-up and the modular principle of the process section allow highly efficient compounding of applications such as PVC, XLPE and HFFR cable compounds, soft PVC, medical compounds, EVA footwear compounds, etc.

Working principle of the CTE PLUS two-stage

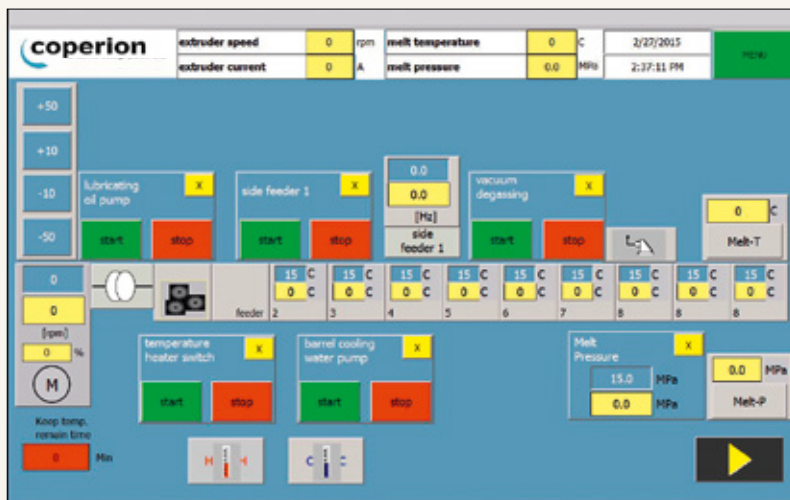
- Plasticizing, mixing and homogenizing in the twin screw process section
- Open, pressureless product transfer into the discharge screw with the possibility of degassing
- Gentle discharge through the die plate with a slow rotating single screw
- Air-cooling pelletizing as well as eccentric pelletizing – optionally available with strand and waterring pelletizing



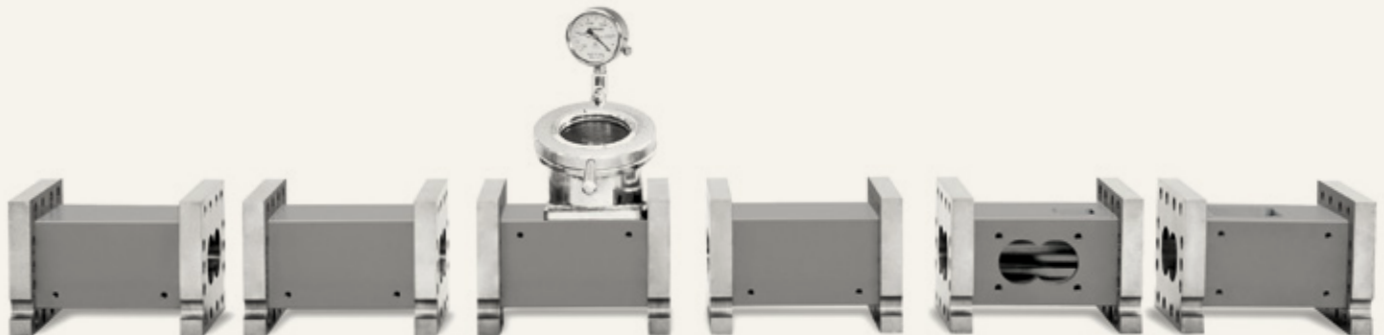
→ Two-stage compounding system
CTE 96 PLUS/200

Control systems. Coperion Nanjing provides different control systems for the CTE PLUS series.

Relay control	Simple, low-cost, but reliable and easy maintenance system
PLC	Visualized touch screen to control the machine. Functions like supervision, alarm, print and parameter tendency can be included
IPC	System with bus control technology (Profinet, Profibus, OPC, etc.). One PC to control several production lines, including functions like supervision, data collection and tendency analysis



→ HMI control system of CTE PLUS series



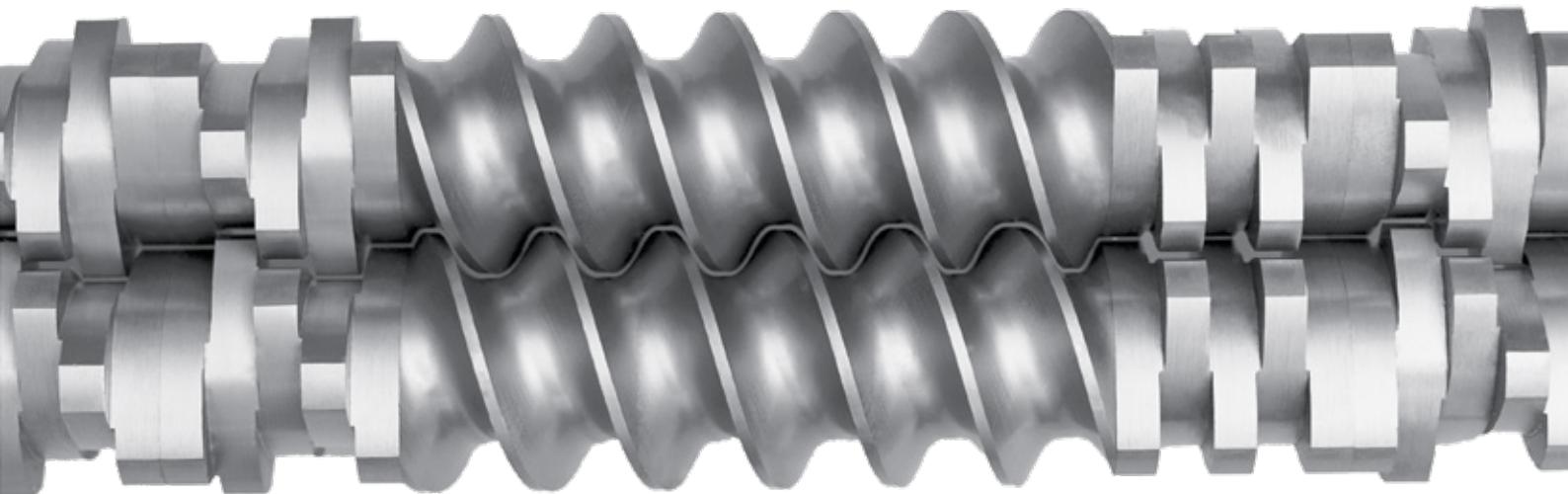
→ Modular design of the process section of the CTE PLUS series

Technical data of the CTE PLUS

	Max. torque per shaft [Nm]	Screw diameter [mm]	Max. screw speed [min ⁻¹]	Main motor power [kW]	Throughput [kg/h]
CTE 20 PLUS	42	22	600	5.5	2-13
CTE 35 PLUS	194	36	600	26	30-90
CTE 50 PLUS	533	51	600	75	90-280
CTE 65 PLUS	1,012	62	600	132	150-460
CTE 75 PLUS	1,555	71	600	200	260-830
CTE 96 PLUS	3,417	94	600	450	500-1,500
CTE 135 PLUS	9,583	132	400/600	600/900	1,400-3,500
CTE 165 PLUS	14,300	165	400	1,200	2,000-5,000

Technical data of the CTE PLUS two-stage

	Model	Screw diameter [mm]	Max. screw speed main motor [min ⁻¹]	Main motor power [kW]	Throughput [kg/h]
CTE 35-100 PLUS two-stage	CTE 35 PLUS	36	400/600	18.5-26	35-100
	SE 100	100	60/85	11/15	
CTE 50-120 PLUS two-stage	CTE 50 PLUS	51	400/600	37-75	100-380
	SE 120	120	60/85	18.5/22	
CTE 65-150 PLUS two-stage	CTE 65 PLUS	62	400/600	75-132	150-640
	SE 150	150	60/85	37/45	
CTE 75-180 PLUS two-stage	CTE 75 PLUS	71	400/600	110-200	300-1,100
	SE 180	180	60/85	45/55	
CTE 96-200 PLUS two-stage	CTE 96 PLUS	94	400/600	200-450	600-2,000
	SE 200	200	60/85	55/75	

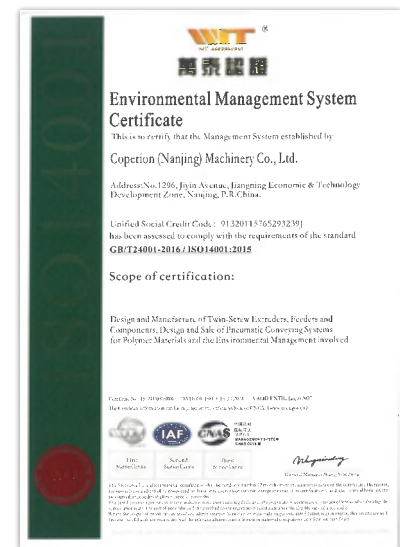


Quality is our benchmark

During the development process of the CTE PLUS series Coperion Nanjing, China, has undertaken comprehensive initiatives to significantly improve its quality standards. Coperion Nanjing is the production site of the CTE series and uses state-of-the-art German machining centers and long-proven Coperion quality production norms. The production process is very closely monitored, using German high-precision, high-level production and quality measuring machinery and equipment. The Quality Check Plan together with Factory Acceptance Tests (FAT) make every step

of manufacturing and assembly traceable to ensure the high quality of our extruders.

Coperion Nanjing manufactures all key components in-house. This includes barrels, screw elements and screw shafts as well as the assembly of control cabinets. In-house production ensures that every single component of the CTE PLUS twin screw extruder is an example of top class technology – so that you can rely on maximum throughput rates and highest product quality.



→ ISO 14001:2015 certificate of Coperion Nanjing



→ ISO 9001:2015 certificate of Coperion Nanjing



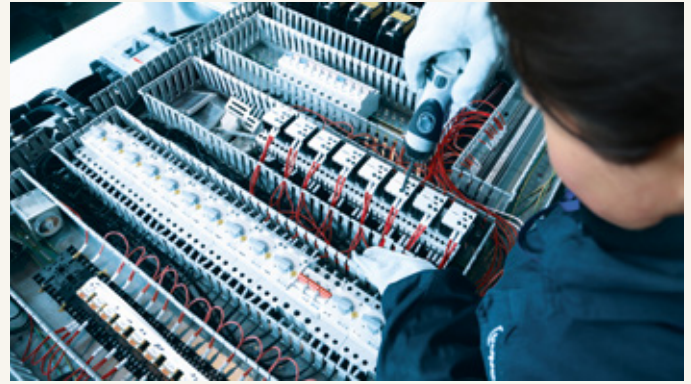
Barrel and gearbox housing manufacturing with Heller CNC machine

The barrels and gearbox housings of the CTE PLUS are manufactured on a machining center of Gebr. Heller Maschinenfabrik, Germany, the leading CNC manufacturer in the world – to ensure high precision machinery parts.



Manufacturing of screw elements with DMG machine

For the manufacturing of screw elements Coperion Nanjing uses a machining center of DMG Gildemeister, Germany. It is a one-step production process to ensure perfectly intermeshing screw profiles.



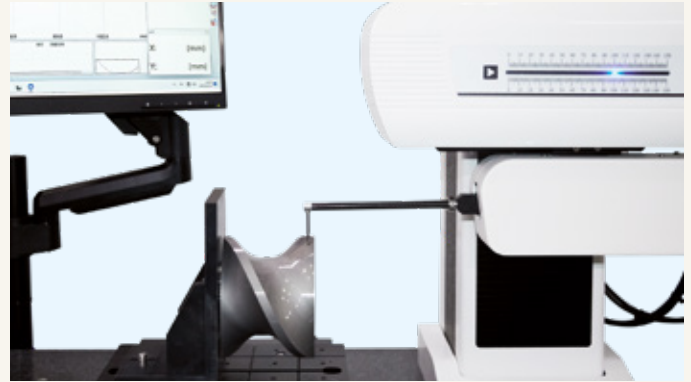
Assembly of control cabinets

Coperion Nanjing assembles all control cabinets in-house – according to European standards and regulations. Main electrical components are of world-renowned brands. Relay control, PLC control as well as IPC control systems are available.



Quality check of raw material composites

The Italian GNR spark direct-reading spectrometer and the American Landau handheld X-ray fluorescence spectrometer together ensure accurate, real-time analysis of raw material composition.



Quality-check of screw elements

The high-precision full-contact profilometer can detect the curve of threaded components and the internal surface roughness.



Carl Zeiss 3-dimensional barrel and gearbox inspection center

The 3-dimensional inspection center by Carl Zeiss AG, Germany, checks the dimension range at micron level. A specially designed temperature sensor offers extremely reliable temperature compensation to ensure highest precision. The quality of every single barrel and gearbox is assured and closely monitored.

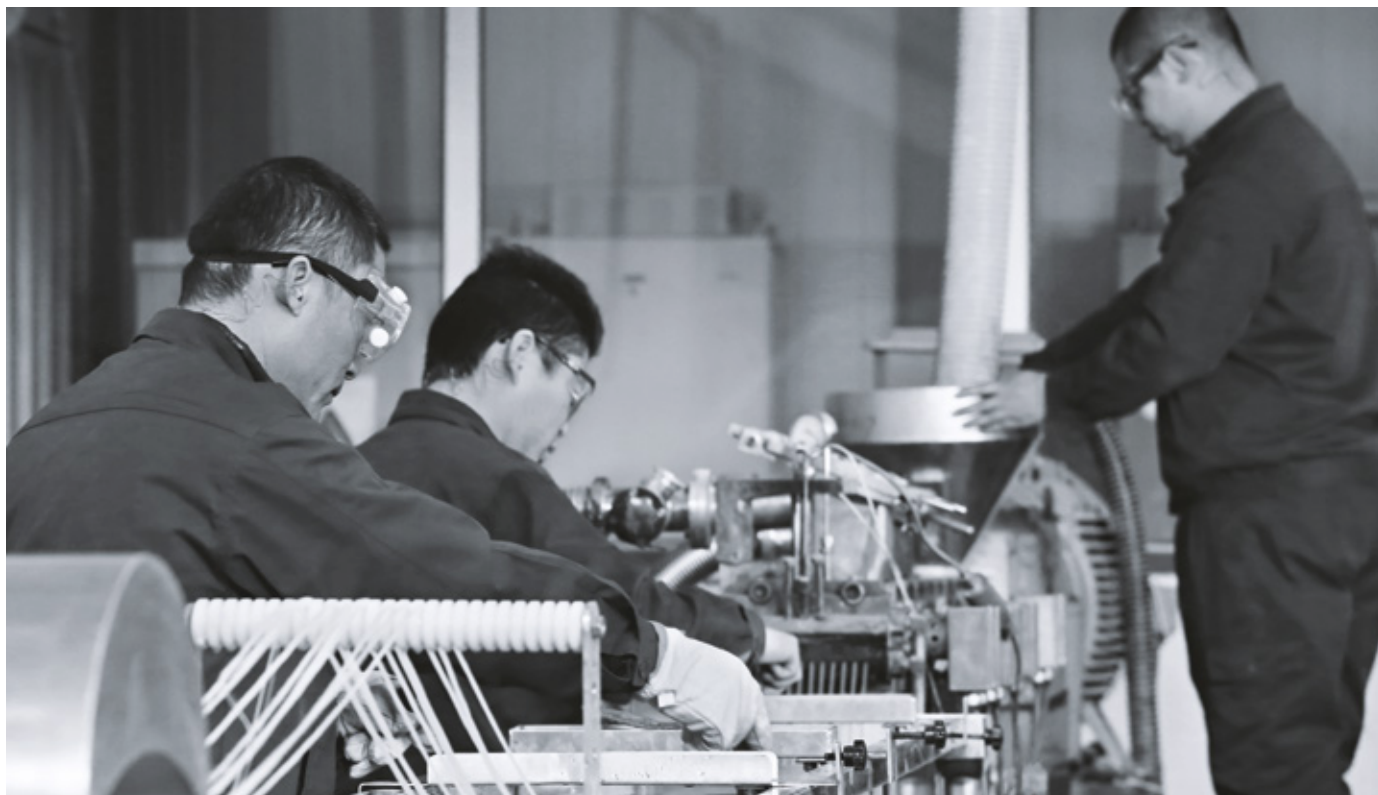


Faro 3-dimensional check equipment for assembly alignment

During assembly Coperion Nanjing aligns each extruder using a portable arm measuring system. It is a 3-dimensional test instrument of Faro, Switzerland, that ensures high precision, reliable operation under high speed and high torque and minimizes abnormal wear of barrels and elements.

Coperion test centers around the world

Helping you optimize your processes



Coperion has the world's most extensive test labs for compounding and extrusion systems. They support the development of the optimal designs for compounding systems under realistic production conditions, while further enhancing our processing technology through internal tests. The modular design of our twin screw extruders permits them to be set up to the exact specifications of each test.

Depending on the processing task, the latest Coperion developments are integrated into the test set-ups. This allows processes with throughput rates from just a few kg/h up to a medium production scale to be developed or optimized. Coperion experts transpose the test results to production scale with proven scale-up methods.

Test labs for compounding & extrusion

- Test labs in Stuttgart (D), Sewell (USA) and Nanjing (CN)
- A total of 30 ZSK and STS compounding systems worldwide permanently available for testing – from laboratory to large-scale extruder
- Throughput rates from 1 kg/h to 2 t/h
- Affiliated laboratories for real-time analyses of product quality
- Over 60 specialists permanently assigned to process development and application optimization for our customers, including 30 process engineers
- Simulation programs to calculate flow processes, optimize existing processes and the design of individual components

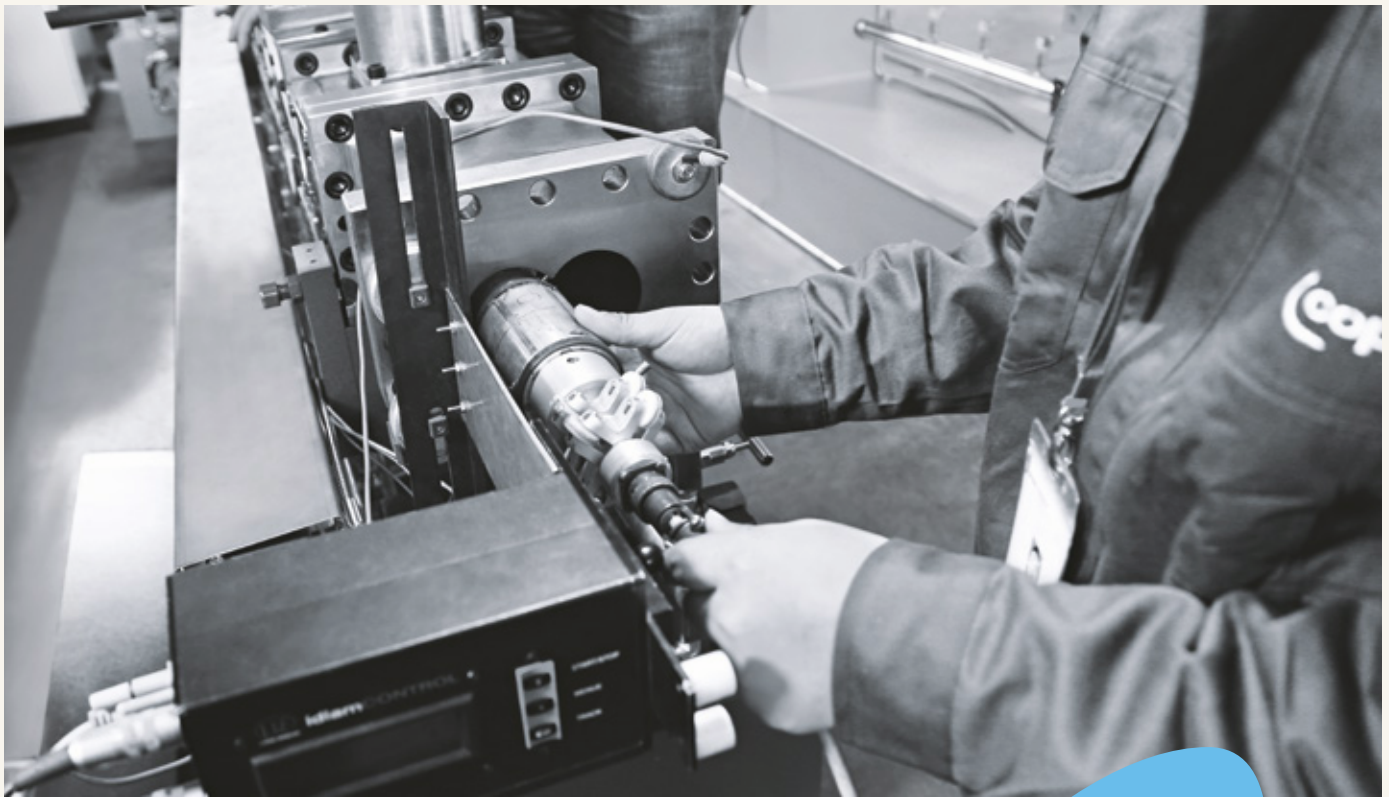


Equipment of Coperion's test lab in Nanjing, China

↗ STS 35 Mc¹¹ ↗ STS 50 Mc¹¹ ↗ ZSK 32 Mc¹⁸

↗ Comprehensive peripheral equipment for feeding (including Coperion K-Tron twin screw, single screw and liquid feeders), conveying and pelletizing

Service that makes a difference



→ Barrel bore measurement of a Coperion extruder barrel

Once your compounding system has been installed, we will remain in close contact with you. Our comprehensive range of services and intensive consulting ensure that you benefit from the maximum performance of your systems in the long term. We inspect your entire extrusion system and evaluate the impact of individual services on your overall process. We advise you in all matters – from investment and analysis of existing plants through maintenance and modernization issues.

Comprehensive services

- Spare parts services
- Barrel bore measurement
- Vibration measurement
- Gearbox overhaul
- Exchange of gearboxes
- Modernization
- Operator training
- Maintenance contracts

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