



coperion

Compounding Solutions for an Optimized Productivity

Gavin Wang | Sales Director

Introduction of Coperion Nanjing



Founded: 2004

Employees: 270+

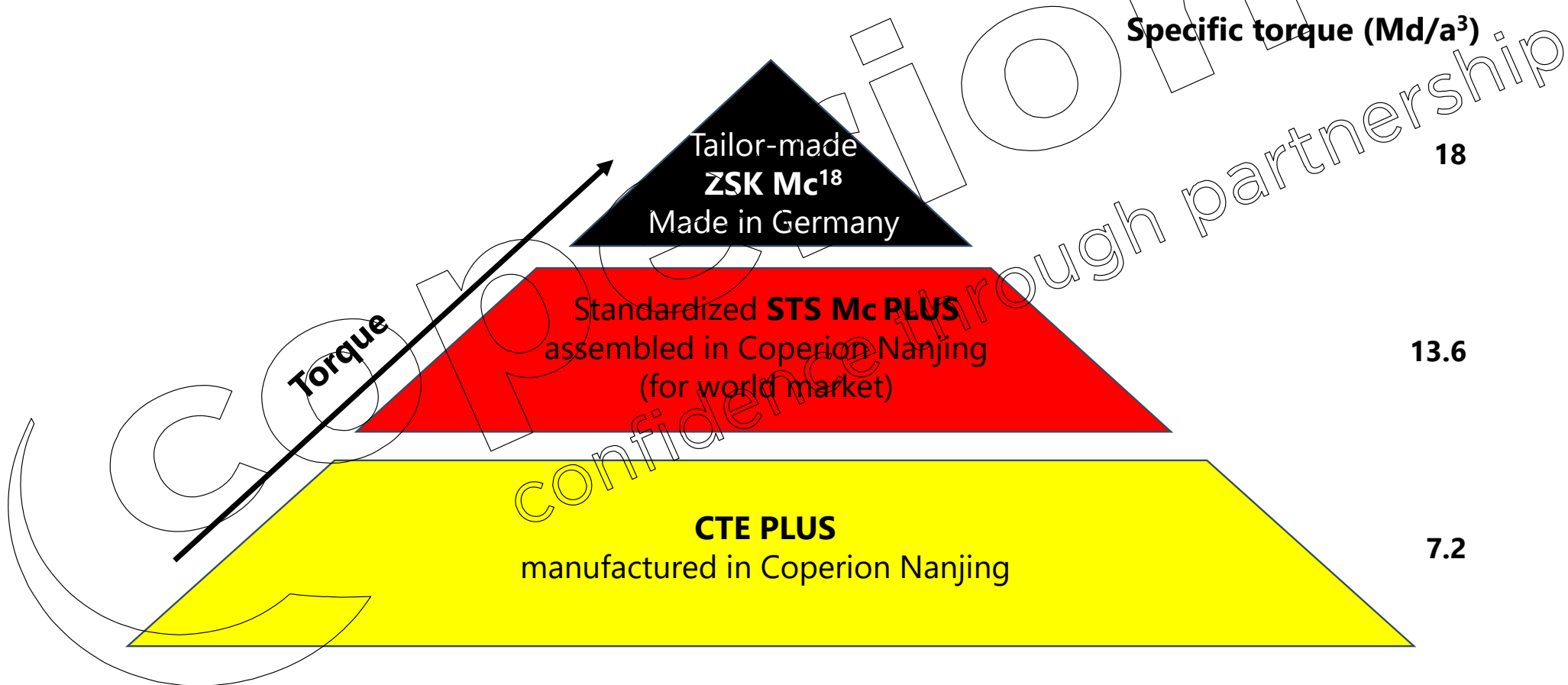
Workshop: 11,000 m²

Office: 5,000 m²

Annual production capacity:

- Twin screw extruder 350 sets
- Loss-in-weight feeder 800 pcs
- Rotary valve 800 pcs
- Gearbox 150 pcs

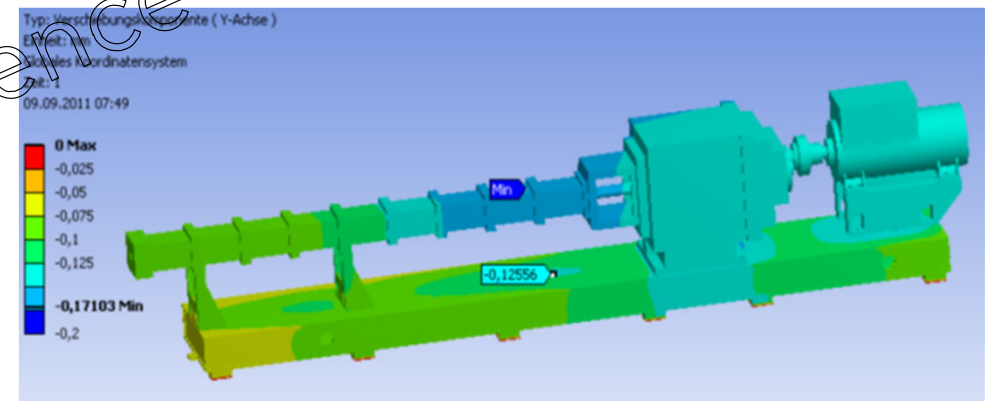
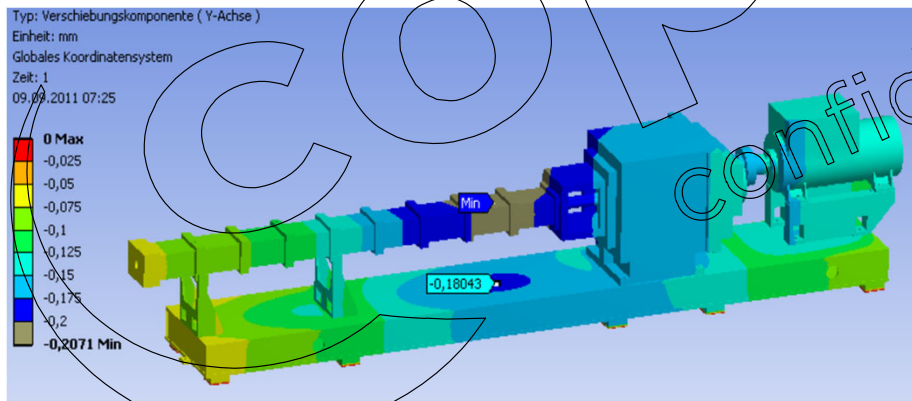
Product Range



FEA for The Power Train of STS

- ✓ Sharing the gearbox design with ZSK extruder, all the gearboxes are analyzed in the whole power train to improve the stiffness and reduce the deformation of the extruder.
- ✓ The noise and vibration of the whole machine is reduced effectively

**ENGINEERED
IN GERMANY** 



Key Components Manufactured in House



In-house manufacturing to ensure **optimum quality**

Welding of Barrels with Special Welding Process

- ✓ Pre-heated in furnace from Germany before welding to avoid stress and afterwards crack and leakage in future.
- ✓ Welding the barrel at high temperature, to avoid stress.
- ✓ Welding with American welding machine to achieve good welding quality
- ✓ Leakage check for every barrel with high pressure

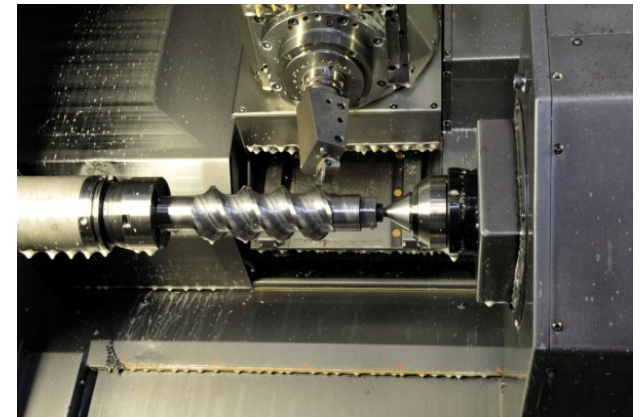
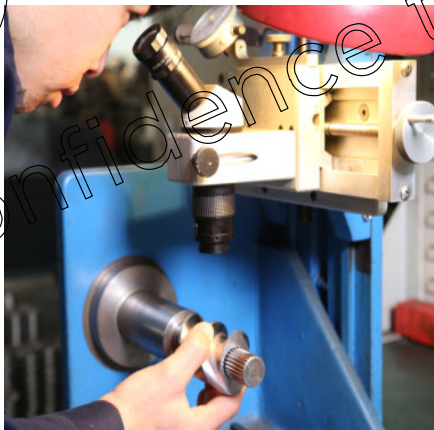
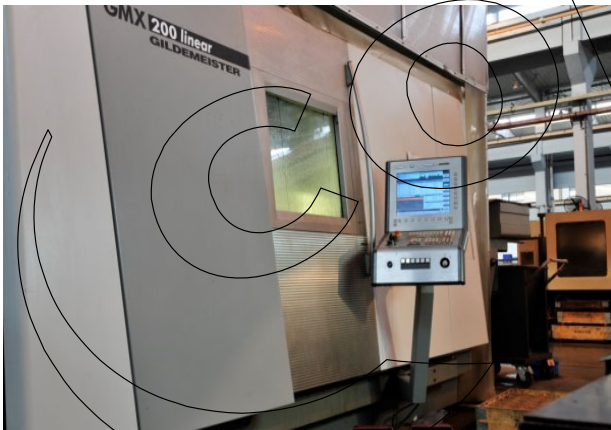


Additional manufacturing procedures to improve machine quality and reliability.

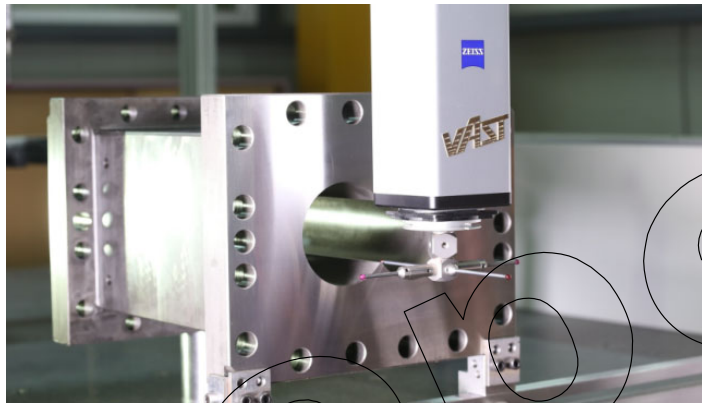
Screw Elements

Advantages

- ✓ High precision of element profiling
- ✓ Better elements conformity
- ✓ High productivity



Zeiss 3-dimension Inspection Center



- ✓ Dimension check range up to micron level (measuring accuracy is 1.4 micron)
- ✓ Special designed temperature sensor can offer extremely reliable temperature compensation to ensure the precision
- ✓ Inspection data of every single barrel is around 80 items
- ✓ Inspection data of every CTE gearbox housing is around 40 items

Historical Developments of ZSK and STS

ZSK Standard

1955

$D_o / D_i = 1,22$
 $M_d / a^3 = 4,0 \text{ Nm/cm}^3$
 $n = 150 \text{ min}^{-1}$

ZSK variable

1963

$D_o / D_i = 1,44$
 $M_d / a^3 = 5,0 \text{ Nm/cm}^3$
 $n = 300 \text{ min}^{-1}$

ZSK Supercompounder

1983

$D_o / D_i = 1,55$
 $M_d / a^3 = 8,7 \text{ Nm/cm}^3$
 $n = 600 \text{ min}^{-1}$

ZSK MEGAcompounder

1995

$D_o / D_i = 1,55$
 $M_d / a^3 = 11,3 \text{ Nm/cm}^3$
 $n = 1200 \text{ min}^{-1}$

ZSK MEGAcompounder PLUS; 2004

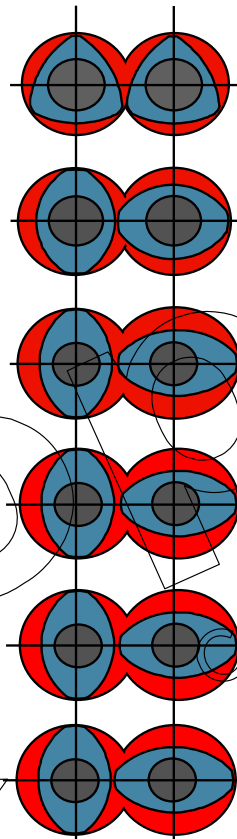
$D_o / D_i = 1,55$
 $M_d / a^3 = 13,5 \text{ Nm/cm}^3$
 $n = 1200 \text{ min}^{-1}$

ZSK Mc¹⁸

2010

$D_o / D_i = 1,55$
 $M_d / a^3 = 18 \text{ Nm/cm}^3$
 $n = 1200 \text{ min}^{-1}$

ZSK



STS

STS
2004

$D_o / D_i = 1,55$
 $M_d / a^3 = 8,7 \text{ Nm/cm}^3$
 $n = 600 \text{ min}^{-1}$

STS advanced
2008

$D_o / D_i = 1,55$
 $M_d / a^3 = 8,7 \text{ Nm/cm}^3$
 $n = 800 \text{ min}^{-1}$

STS advanced
2010

$D_o / D_i = 1,55$
 $M_d / a^3 = 10,0 \text{ Nm/cm}^3$
 $n = 800 \text{ min}^{-1}$

STS Mc11
2015

$D_o / D_i = 1,55$
 $M_d / a^3 = 11,3 \text{ Nm/cm}^3$
 $n = 900 \text{ min}^{-1}$

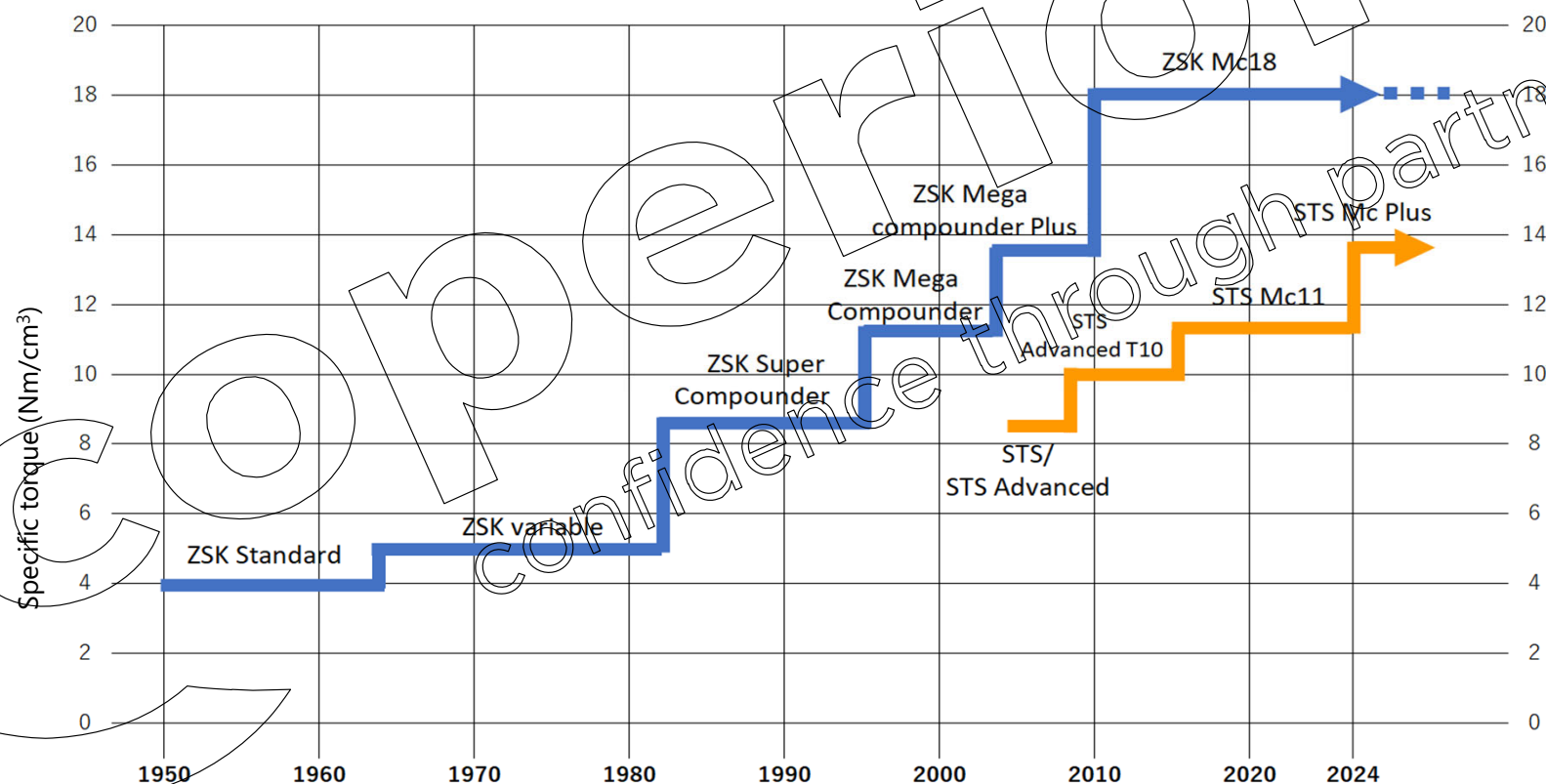
STS McPlus
2024

$D_o / D_i = 1,55$
 $M_d / a^3 = 13,6 \text{ Nm/cm}^3$
 $n = 900 \text{ min}^{-1}$

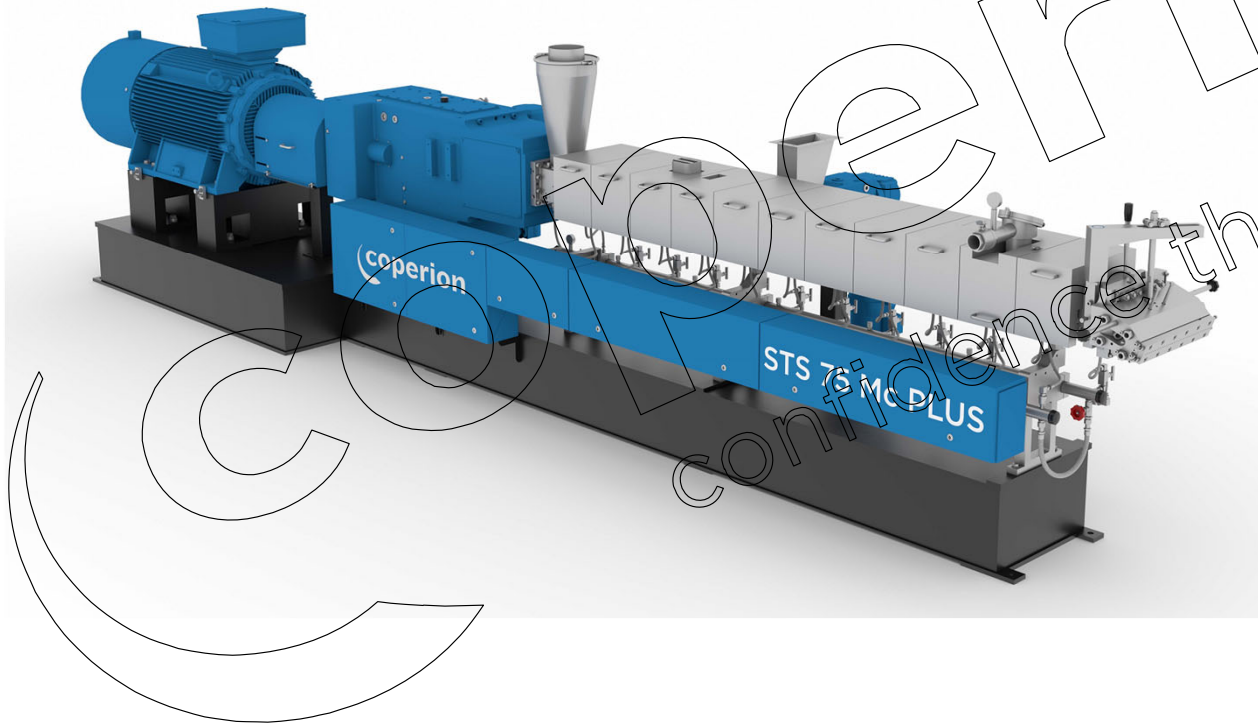
Increase of
free volume (100%)
and of specific torque

Increase of torque

Torque increase of ZSK and STS



STS 75 Mc PLUS



Specific torque (Md/a^3) = 13.6 Nm/cm³

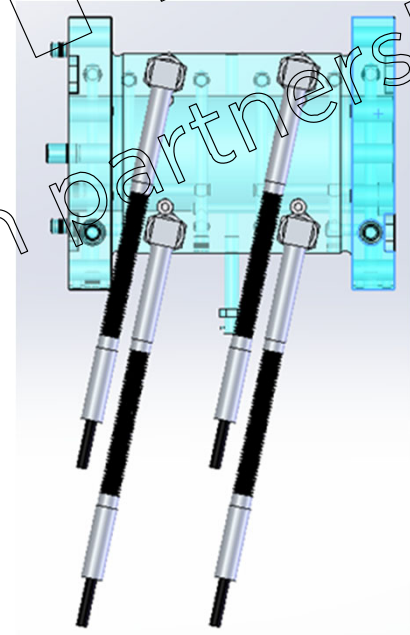
Max. screw speed = 900 rpm

Max. motor power = 513 kW

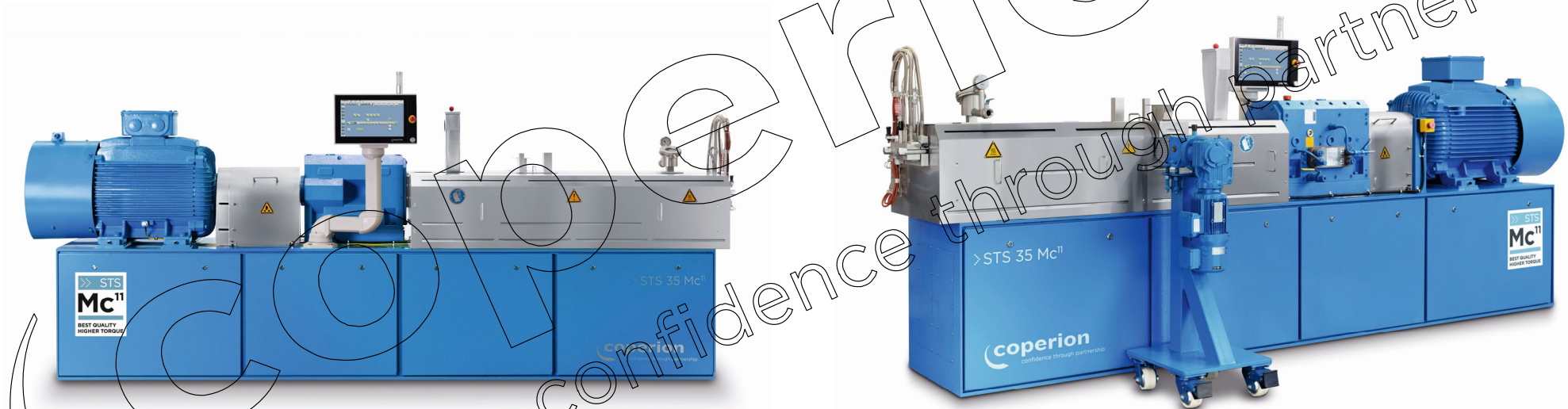
Max. output = 3,000 kg/h

Highlights of STS 75 Mc PLUS

- Specific torque (M_d/a^3) increased from 11.3 Nm/cm³ to 13.6 Nm/cm³
- 20% throughput increase with torque increase
- Lower melt temperature and SEI due to higher filling degree
- Robust and reliable European gearbox with high safety factors
- Optimized screw shaft sealing to avoid powder leakage
- Heating cartridge design for uniform heating
- Optimized cooling channels for better cooling efficiency
- Cold hammered screw shafts
- All key components manufactured in house
- Coperion quality standards



STS 35 with Masterbatch Features

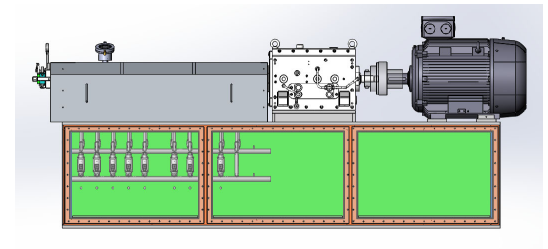
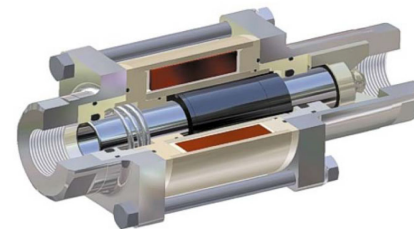
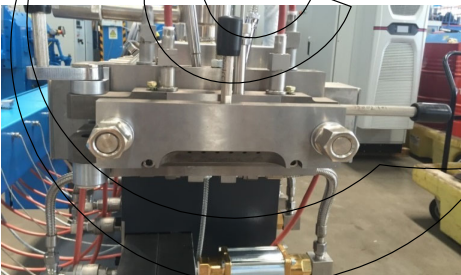


Special designs for masterbatch application (easy cleaning features)
Developed in 2018

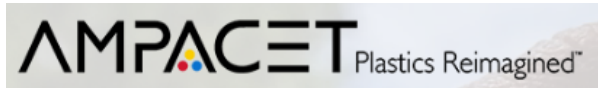
STS Masterbatch Features

- Improved insulation hoods for easy cleaning and handling
- Easy cleaning feed hoppers and insert
- Masterbatch die heads for optimal flow and easy cleaning (STS 35 to 65)
- "Close the gap" collars around vent ports
- Coaxial solenoid valves for best reliability

**EASY
CLEANING**



STS Reference Customers for Masterbatch



STS 25 Lab Line



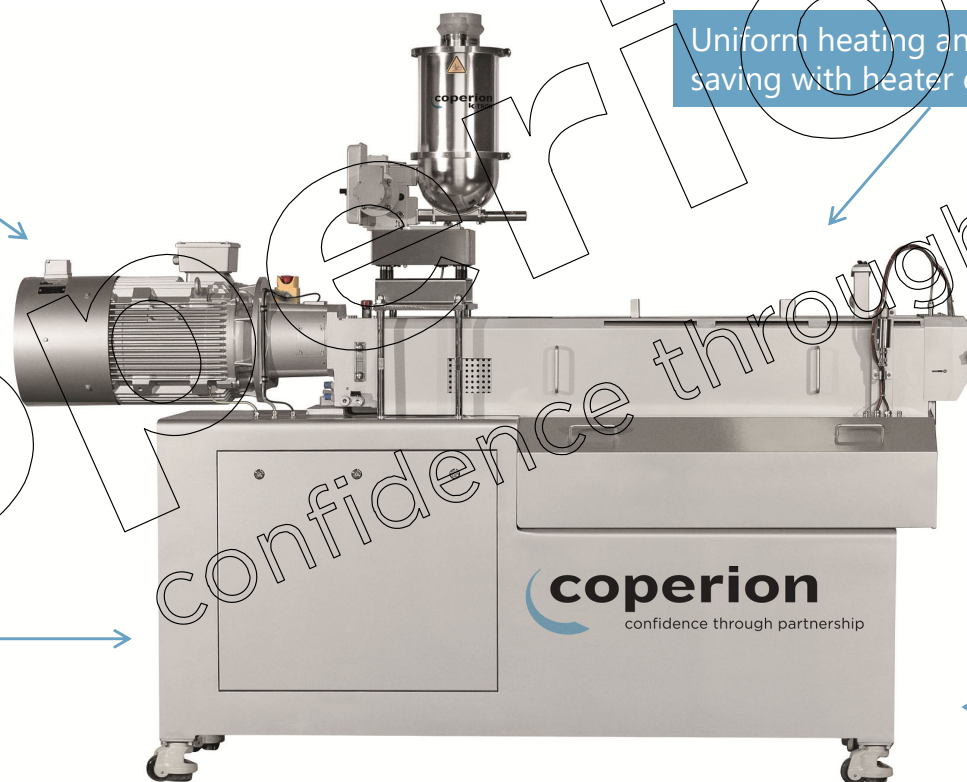
Easy scale up due to constant $Do/Di = 1.55$

Uniform heating and energy saving with heater cartridge

Increased flexibility and time saving barrel changes with the tie rod design

Complete base enclosure to ensure easy cleaning

Small space requirement and movable wherever needed

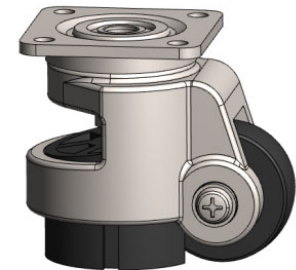
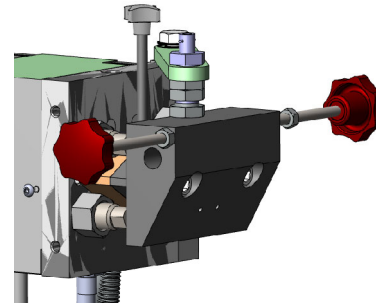
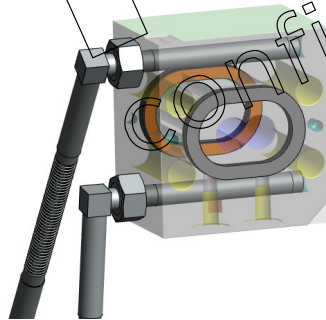
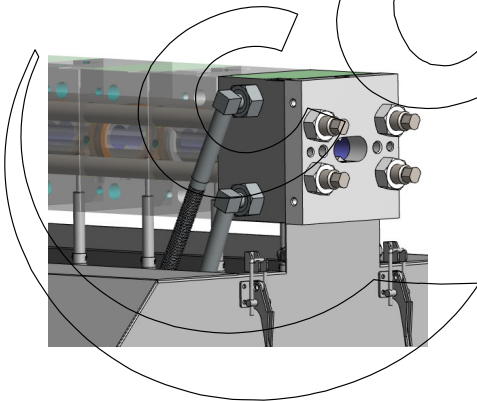


STS 25 Highlights

- Fully engineered in Coperion Germany
- Production of small quantity, as low as 2 kg for R&D and recipe developments with minimum material loss when recipe change
- Increased availability and profitability due to quick change over
- Output up to 80 kg/h, suitable for representative sampling and small production orders
- Precise scale up due to constant $Do/Di = 1.55$ within STS family
- Element flight depth of 4.55 mm enables good pellet feeding performance
- Strict CE conformity

STS 25 Highlights

- Increased flexibility and time saving for barrel exchange with tie rod design
- Heater cartridges for barrel and die head ensure uniform heating and energy saving
- Easy cleaning and user friendly features for the design of base frame, die head
- Small space requirement and movable wherever needed
- Process design flexibility with exchangeable 4D barrels and wide selection of standard screw elements



Summary



- STS is a proven product with 20 years of history and more than 1400 sets installed worldwide.
- All key components are manufactured in house according to Coperion quality standard.
- STS has a very good price and performance ratio.
- Typical applications of STS are engineering plastics, masterbatches, etc.
- STS incorporates the full process and quality know-how of Coperion to offer good product quality and machine reliability to our customers.



Contact

Chang Kyung, Kim

Sales Director / **InFeed Corporation**

14-7, Wonoil-Gil 41 beon-gil
Jeongnam-myeon, Hwaseong-Si

Gyeonggi-do, South Korea 18520

Phone +82 31 8059 4455-5

E-mail chkkim@infeed.co.kr

GAVIN WANG

Sales Director

No. 1296 Jiyin Avenue, Jiangning,
Nanjing 211100, China

Phone +86 (0) 25 5278 6288

E-Mail gavin.wang@coperion.com

www.coperion.com



Thank you
very much for
your attention.

You're very welcome to follow us.

