



# PARA-XYLENE CRYSTALLIZERS





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# Escher Process Modules

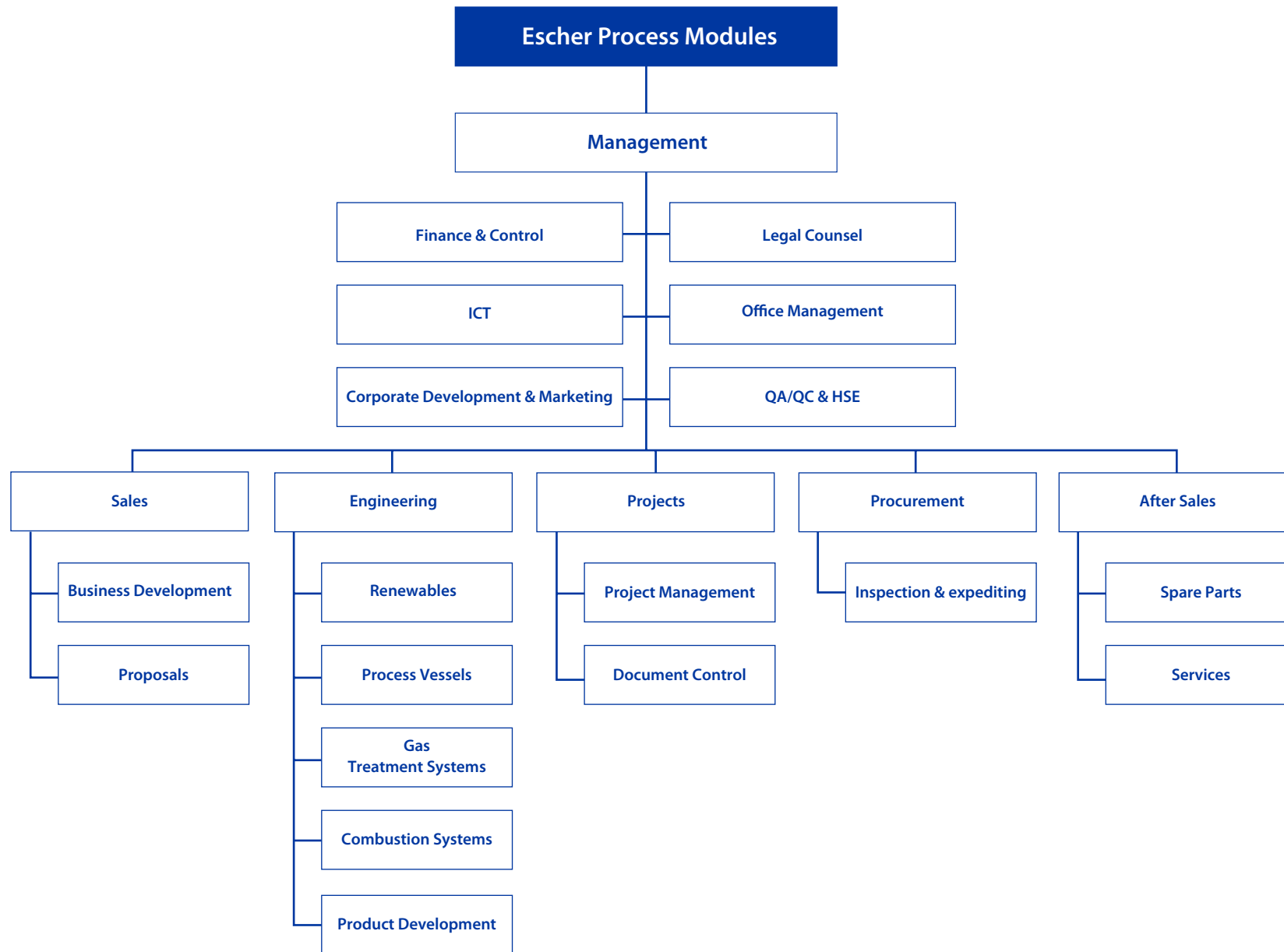
Escher Process Modules is a leading global Process Technology House and provider of process solutions since 1925. Being part of Iy, a worldwide operating engineering company listed in the top 10 of Dutch engineering companies.

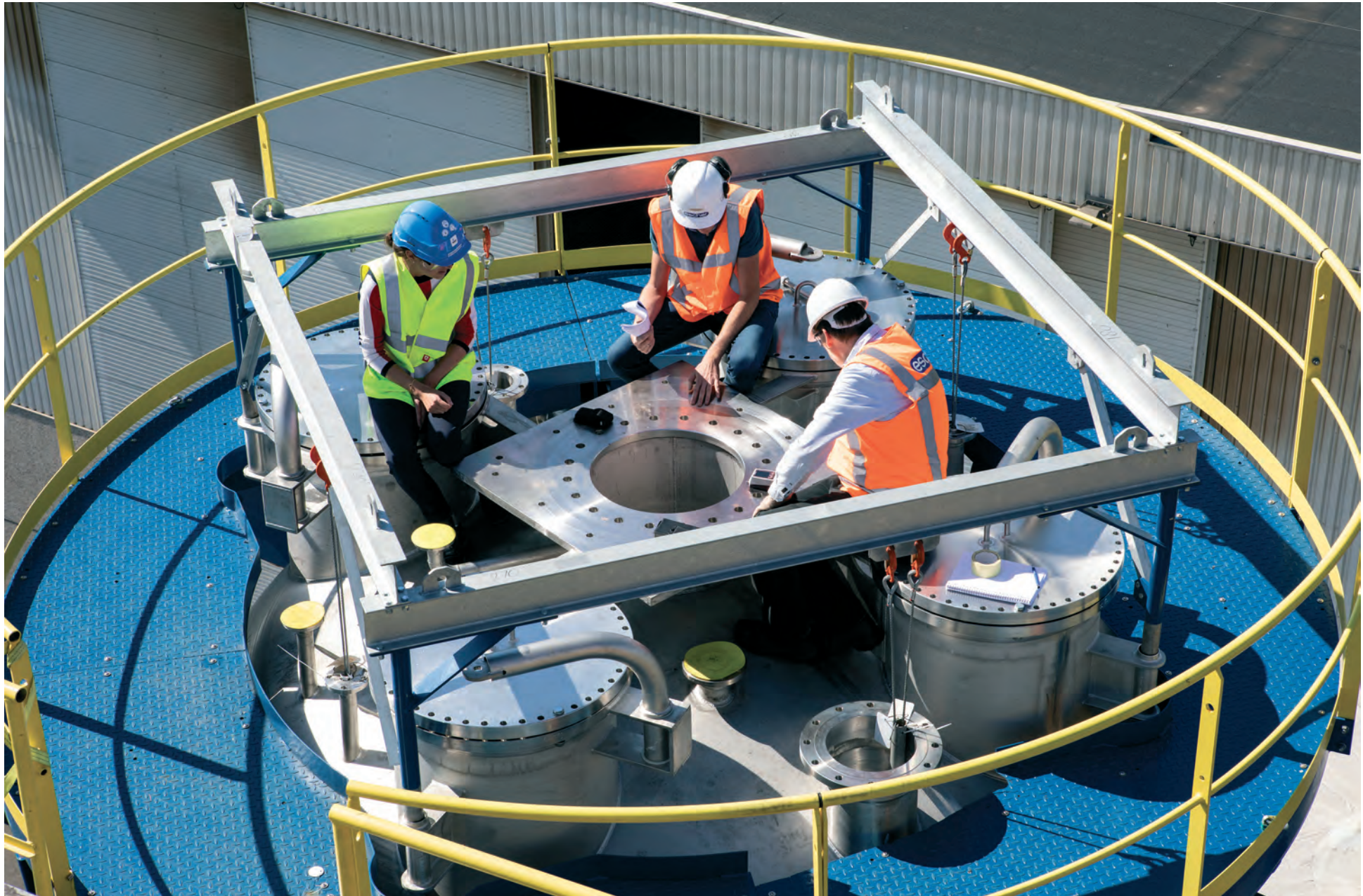
Escher has all disciplines in-house for complete project execution. Our strength is our genuine passion for technology which results in unique and specialist know-how of the markets in which we operate, and enables us to be constantly at the forefront of advanced process solutions. We design and engineer process vessels in accordance with industry design codes to meet the quality and efficiency requirements of our customers. Our product range includes:

- ▶ Renewable systems (such as Ammonia Cracking, Hydrogen Treatment, and Carbon Capture)
- ▶ Process Vessels (such as Separators and PX Crystallizers)
- ▶ Gas Treatment Systems (such as CO<sub>2</sub> and Gas Dehydration, and Fuel Gas Treatment)
- ▶ Combustion Systems (such as Flare and Vent systems)

Our engineers are technicians of the highest level who think outside the box and translate even the most complex issues into solutions that meet the strictest criteria of product integrity and safety. In each project we strive to exceed the expectations of our clients where possible. Escher is recognised for its adherence to SHE and QMS systems (ISO 9001 & ISO 14001), highlighting our reliability, capability and commitment to social responsibility.







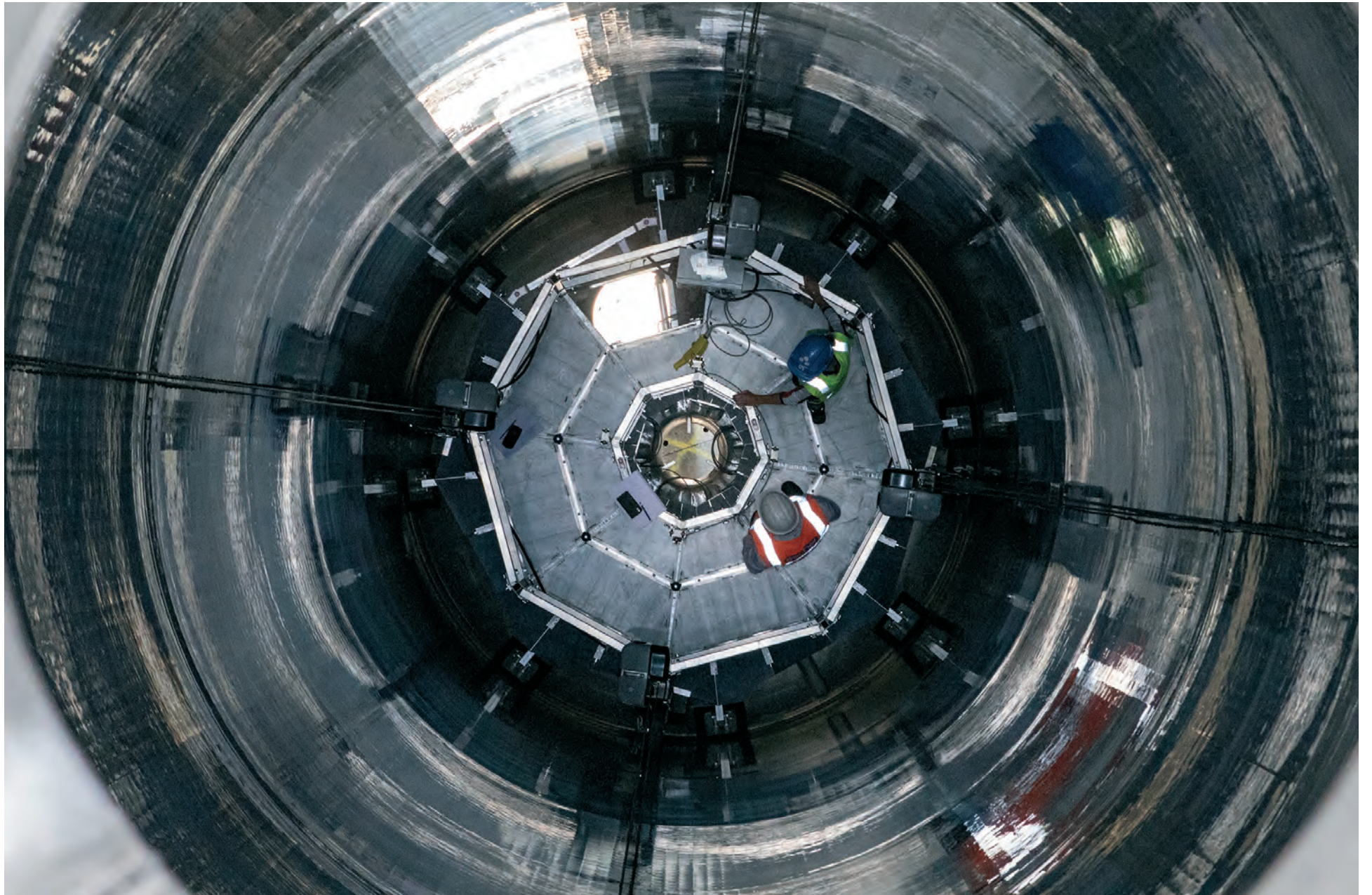


# Para-Xylene Crystallizers

Para-xylene (PX) is a vital chemical used in the production of polyester fibres, films, and packaging materials. The demand for PX is growing at 4-5% annually, driven by increased consumption of PET bottles and polyester fibers, particularly in emerging markets like China and India.

PET, derived from PX, is highly recyclable, enhancing its appeal as a more eco-friendly material. This aligns with global sustainability trends and supports the reuse of these materials.

Escher Process Modules, with over 20 years of experience, leads the market with advanced PX Crystallizers, known for their superior efficiency and reliability. Our crystallizers ensure high purity and optimal performance, making us the preferred choice for clients worldwide.



# The Process

The crystallizer vessel is filled to the brim with a mixture of xylenes and some residues of toluene and benzene. This mixture is then cooled by means of a cooling jacket attached to the outside of the vessel wall.

As the vessel wall is cooled, para-xylene crystals begin to form on the inner side of the vessel wall. The layer of crystals is continuously removed by rotating scrapers. The formed crystals sink to the bottom of the vessel where they are discharged together with the liquid. The crystals are then separated from the liquid by means of a centrifuge. Following this, the concentrated crystals and the remaining liquid are pumped to the next crystallizer.

This process is repeated several times, with each stage increasing the purity of the product. Eventually, the para-xylene is pure enough to be used as a raw material for the production of PET, among other products.



# Key Benefits

## **Advantages of Escher Para-Xylene Crystallizers:**

- ▶ Optimal purification of Para-Xylene
- ▶ Decades of experience in supplying Para-Xylene Crystallizers
- ▶ Fully responsible during engineering, procurement, and construction
- ▶ Customised to meet customers' specifications
- ▶ Designed in accordance with international standards
- ▶ Capable of providing transport services, on-site supervision, and training



# Main Components

## Crystallizer vessel including cooling jacket scraper unit

- ▶ Main shaft
- ▶ Four (4) or three (3) arm scraper designs
- ▶ Rocker arms
- ▶ Spring-loaded scrapers
- ▶ Nylon scraper blades

## In-line drive unit

- ▶ Variable Frequency Drive (VFD)
- ▶ Motor
- ▶ Planetary gearbox
- ▶ Torque limiter
- ▶ Gas mechanical seal
- ▶ Shut-down seal





# Scope of Supply

- ▶ Detailed Design
- ▶ Engineering
- ▶ Procurement
- ▶ Construction
- ▶ Testing
- ▶ Transportation
- ▶ Installation Supervision
- ▶ Operational Support
- ▶ Maintenance Services
- ▶ Spare Parts



# Operational Support

Escher provides life cycle support and around-the-clock assistance, ensuring the quick delivery of essential spare parts to minimise potential downtime. We cover everything from spare parts to support during commissioning, start-up, and normal operations. Upon request, Escher can facilitate Warehouse Services, keeping dedicated critical spares in stock, ready for your immediate needs. Our other services include inspections, maintenance support, and lifetime extension programmes for optimal performance.

For any queries or urgent needs, reach us at [aftersales@escher.nl](mailto:aftersales@escher.nl) or **+31 88 943 3600**.

# Would you like to know more about the possibilities?

Our specialists will be pleased to share ideas and thoughts about Para-Xylene Crystallizers.

E-mail Maarten Brandenburg and/or Martijn In der Maur:  
[sales@escher.nl](mailto:sales@escher.nl) or call **+31 88 943 3600**.



# Contact

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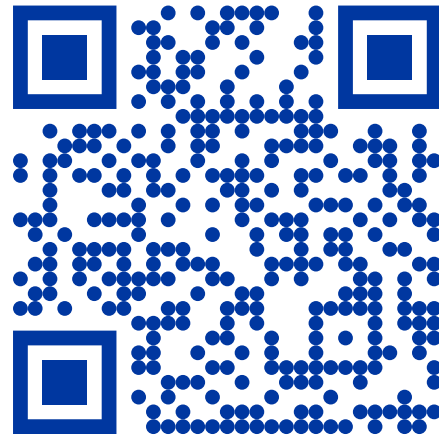
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