



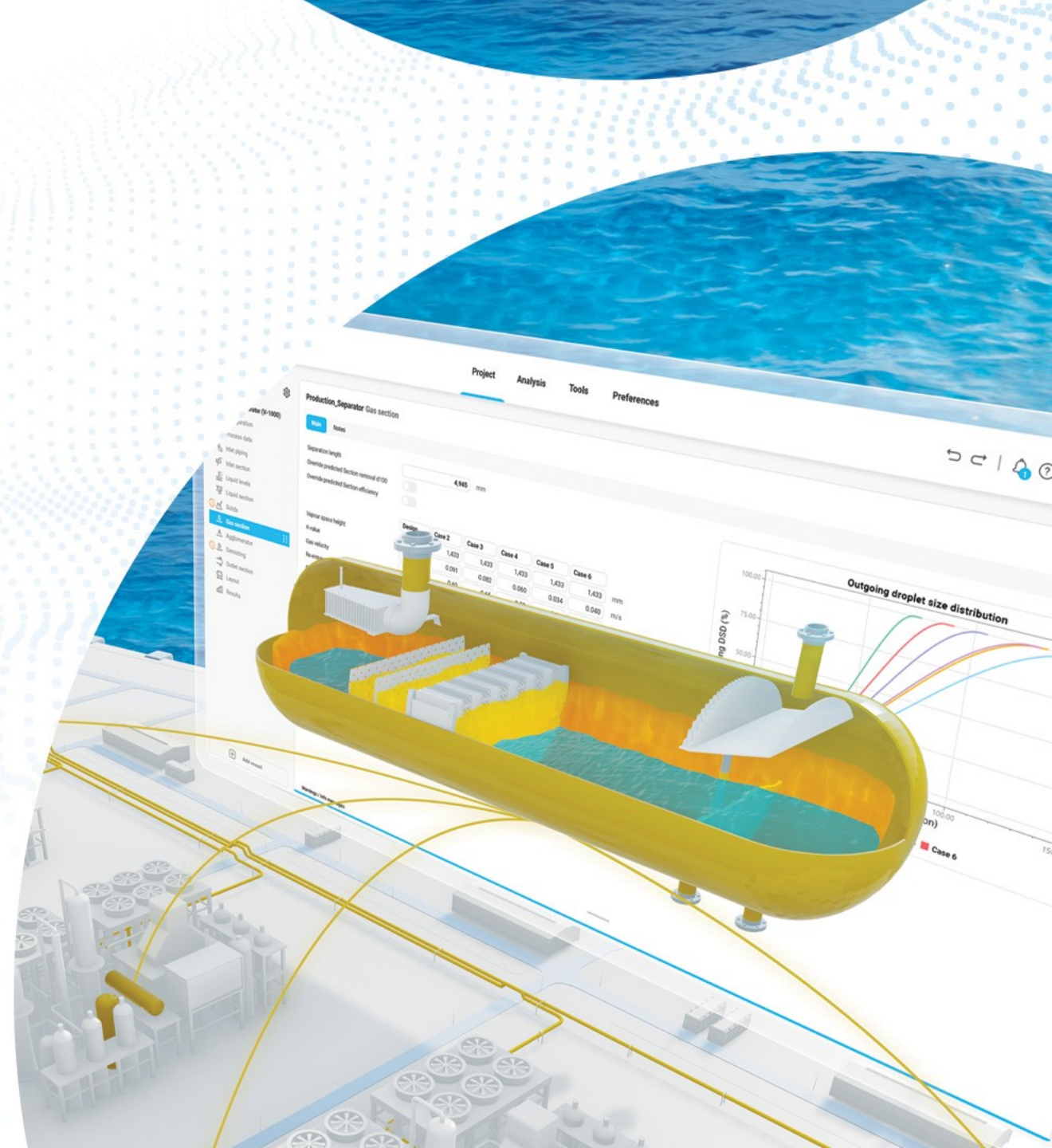
# MySep Studio & MySep Engine

Energy Tech Talks Webinar

1<sup>st</sup> October 2024

[www.technologycatalogue.com](http://www.technologycatalogue.com)

[www.mysp.com](http://www.mysp.com)



Production Separator Gas section

Notes

Separation length  
Olefin predicted Section removal efficiency  
Olefin predicted Section efficiency

4.940 mm

Water inlet height  
K value  
Gas velocity

Design	Case 2	Case 3	Case 4	Case 5	Case 6
Water inlet height	1.433	1.433	1.433	1.433	1.433
K value	0.091	0.082	0.090	0.034	0.040
Gas velocity	0.540	0.540	0.540	0.540	0.540

Outgoing droplet size distribution

mg DSD (%)

100.00  
75.00  
50.00

100.00  
15.00

Case 6

# Outline

- Who are MySep Pte Ltd
- What is the business about
- What's the problem with separators
- Products
  - MySep Studio
  - MySep Engine
- Who are our customers
- The value to customers
  - Project execution
  - Optimized operations



# Who are MySep Pte Ltd ?

- Specialist process engineering software company
- Serving the Oil & Gas Industry
- Founded in 2013 (spin off from Kranji Solutions)
- HQ & development centre – Singapore
- Operations centre – Arnhem, NL
- ≈ 12 staff
  - APAC, Europe, US
- Global customer base

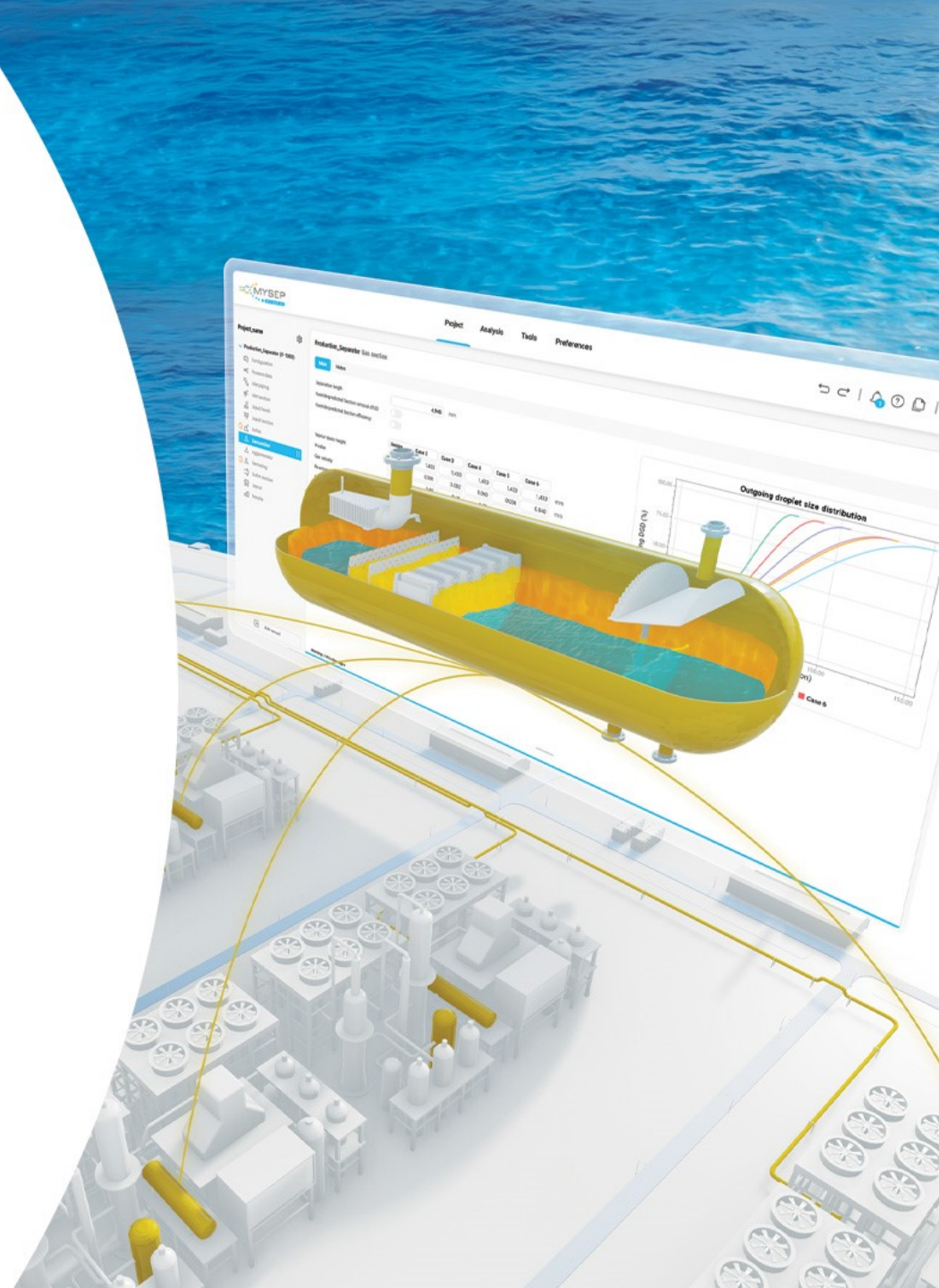




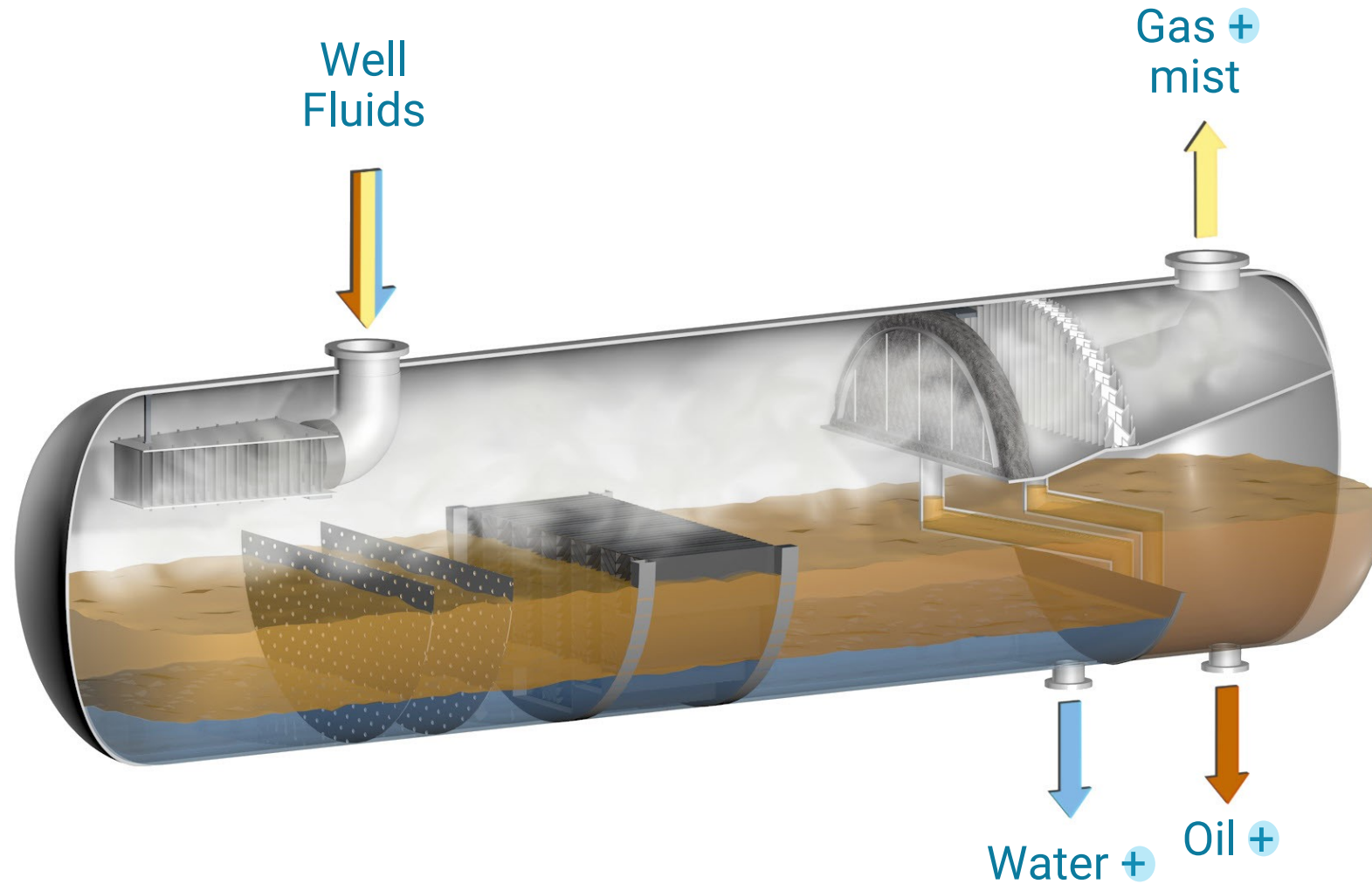
We help Oil & Gas Operators and their supply chain....

*Optimise processes for separation constraints*

**Separation** – what's the problem ?



# Separation, what's the problem ?

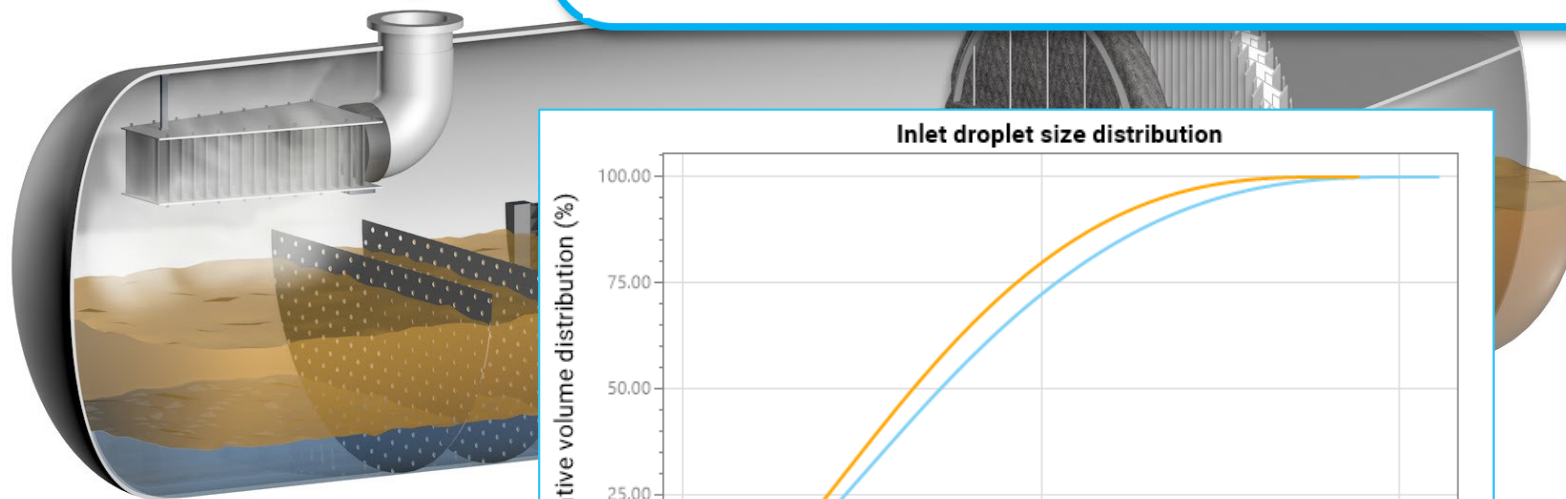
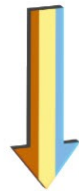


Carry-over !

What does MySep bring ?

# MySep Incremental Modelling - Horizontal Vessel

Well Fluids



## Inlet Piping

Key liquid phase for G-L calcs

Max droplet size - predicted

Mist fraction - predicted

Mist flow rate

Design

Import

HC liquid

HC liquid

1,054

942

micron

5.20

7.46

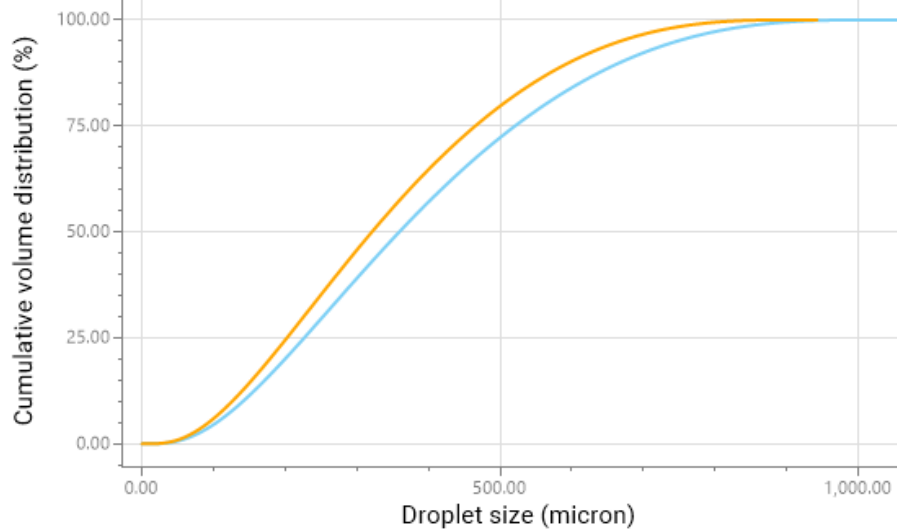
%

42.838

61.422

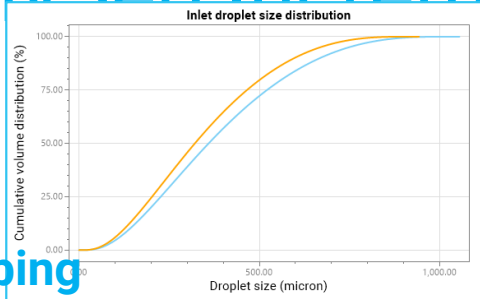
m<sup>3</sup>/hr

Inlet droplet size distribution



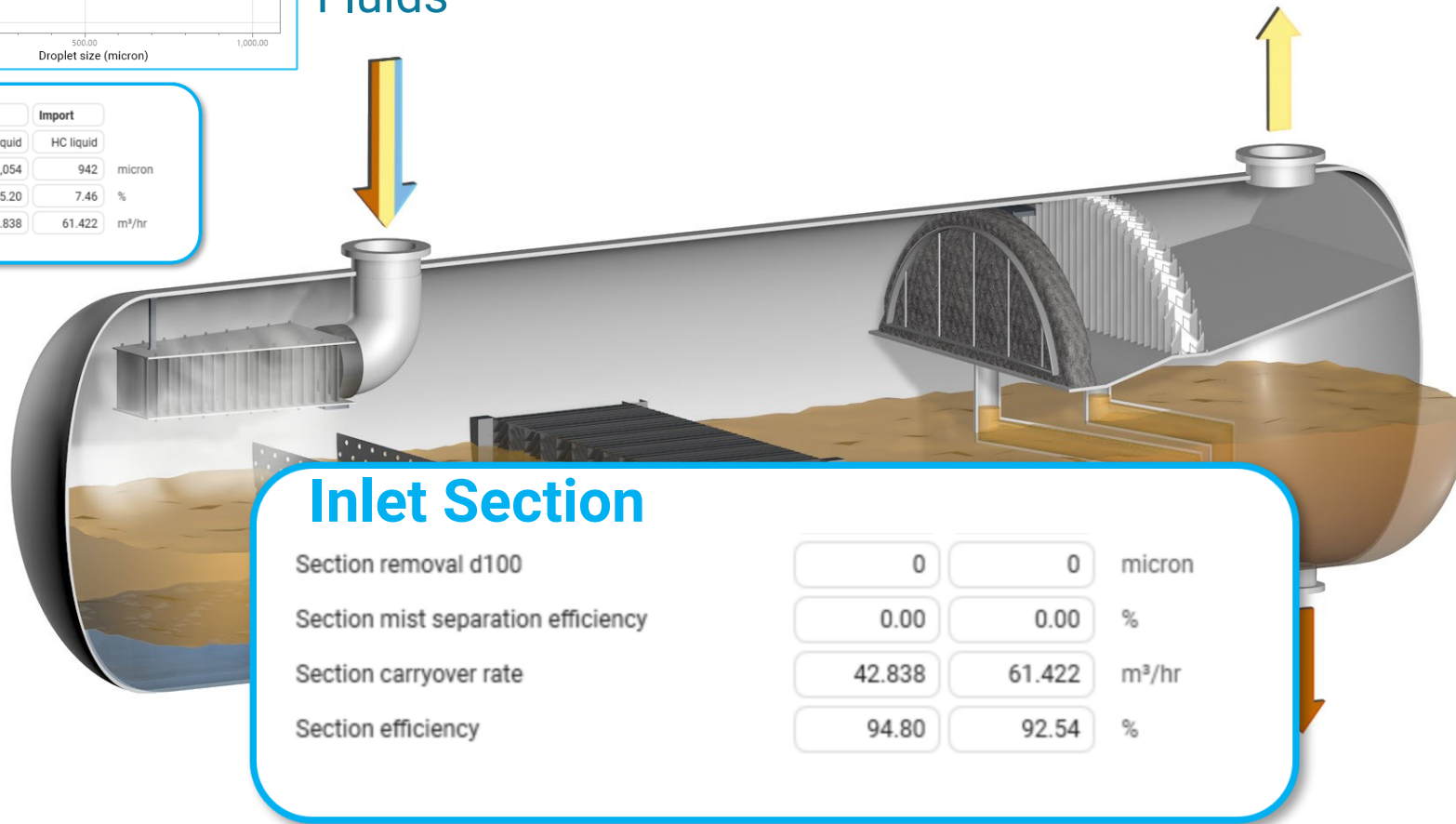
# MySep Incremental Modelling - Horizontal Vessel

## Inlet Piping



## Well Fluids

	Design	Import
Key liquid phase for G-L calcs	HC liquid	HC liquid
Max droplet size - predicted	1,054	942
Mist fraction - predicted	5.20	7.46
Mist flow rate	42.838	61.422

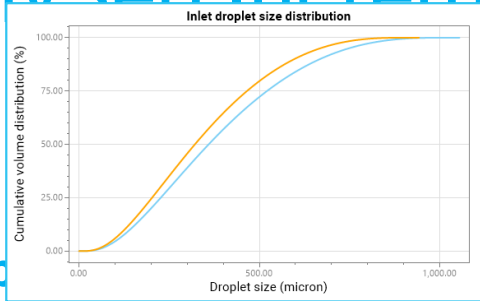


## Inlet Section

Section removal d100	0	0	micron
Section mist separation efficiency	0.00	0.00	%
Section carryover rate	42.838	61.422	m <sup>3</sup> /hr
Section efficiency	94.80	92.54	%

# MySep Incremental Modelling - Horizontal Vessel

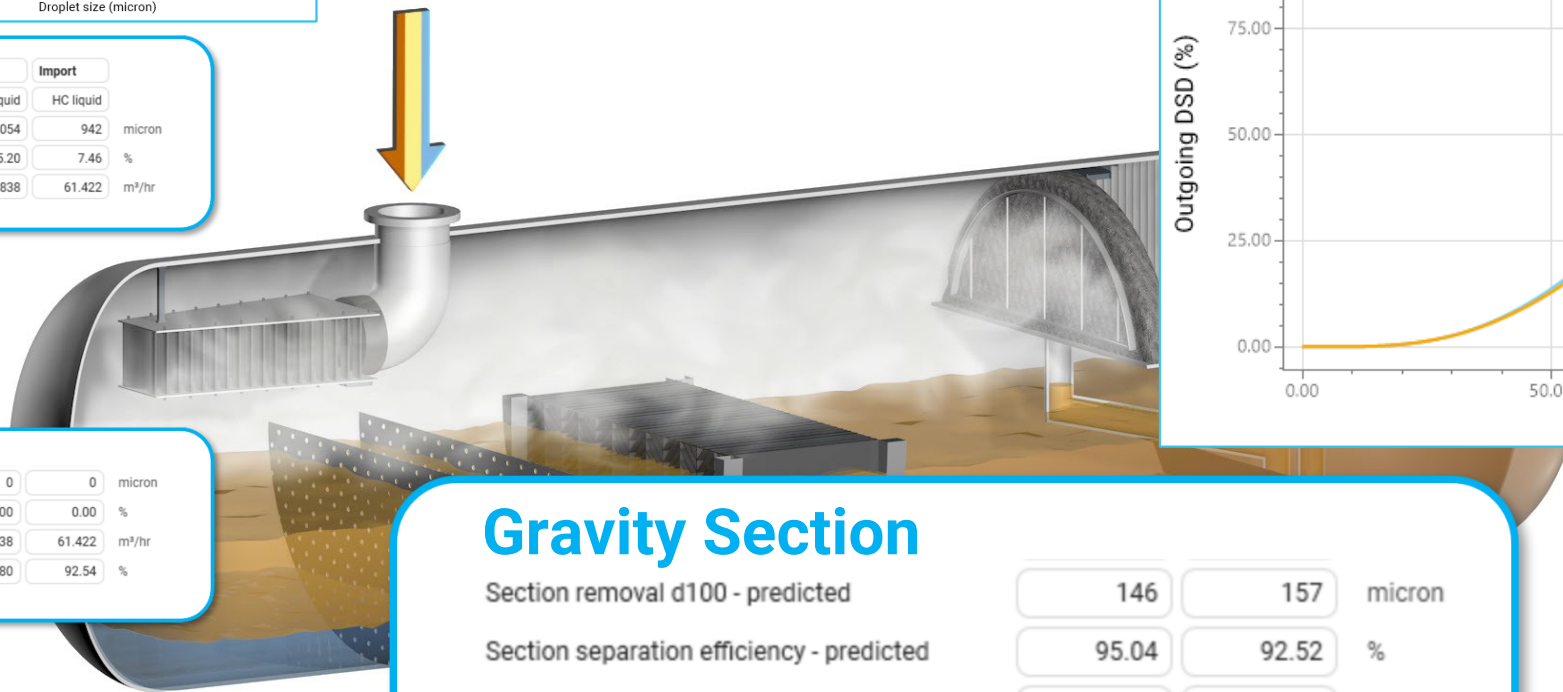
## Inlet Pipe



	Design	Import
Key liquid phase for G-L calcs	HC liquid	HC liquid
Max droplet size - predicted	1,054	942
Mist fraction - predicted	5.20	7.46
Mist flow rate	42.838	61.422
		m <sup>3</sup> /hr

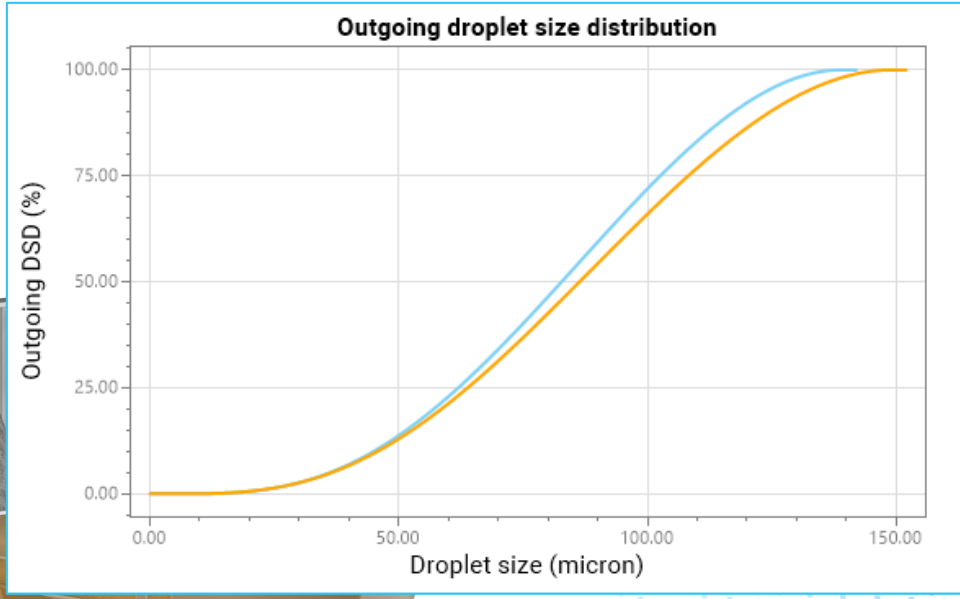
## Inlet Section

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## Gravity Section

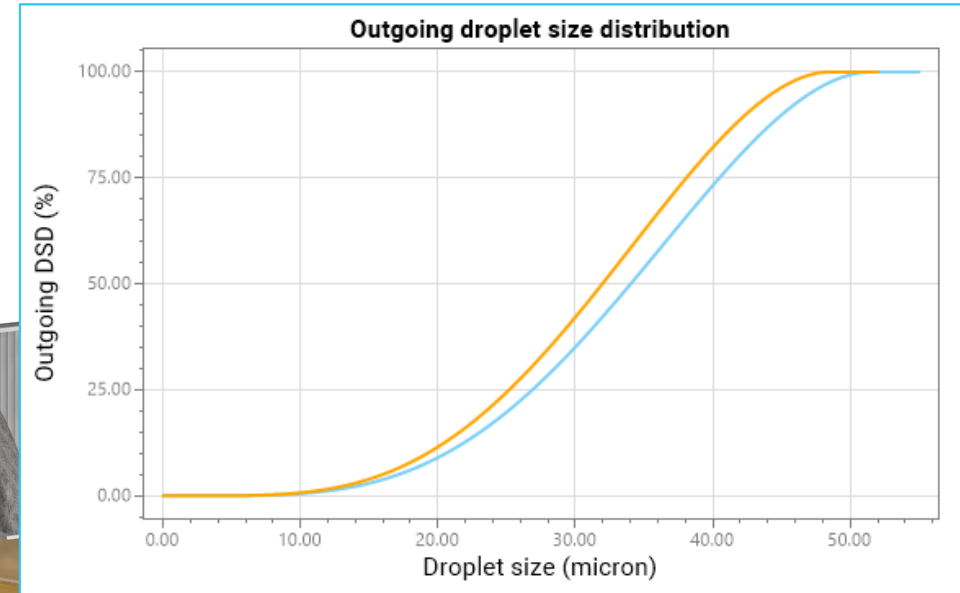
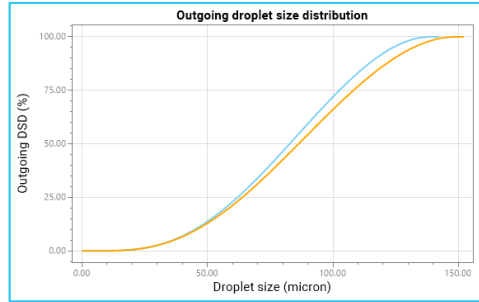
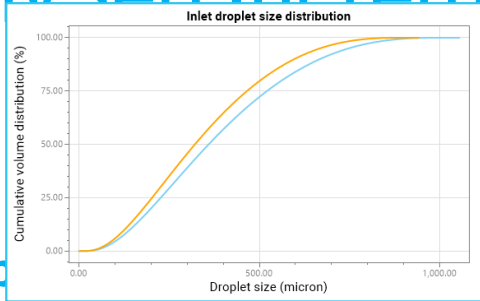
Section removal d100 - predicted	146	157	micron
Section separation efficiency - predicted	95.04	92.52	%
Section carryover rate	2.125	4.593	m <sup>3</sup> /hr
Section efficiency	95.04	92.52	%





# MySep Incremental Modelling - Horizontal Vessel

## Inlet Pipe



	Design	Import	
Key liquid phase for G-L calcs	HC liquid	HC liquid	
Max droplet size - predicted	1,054	942	micron
Mist fraction - predicted	5.20	7.46	%
Mist flow rate	42.838	61.422	m <sup>3</sup> /hr

## Inlet Section

Section removal d100	0	0	micron
Section mist separation efficiency	0.00	0.00	%
Section carryover rate	42.838	61.422	m <sup>3</sup> /hr
Section efficiency	94.80	92.54	%

## Gravity Section

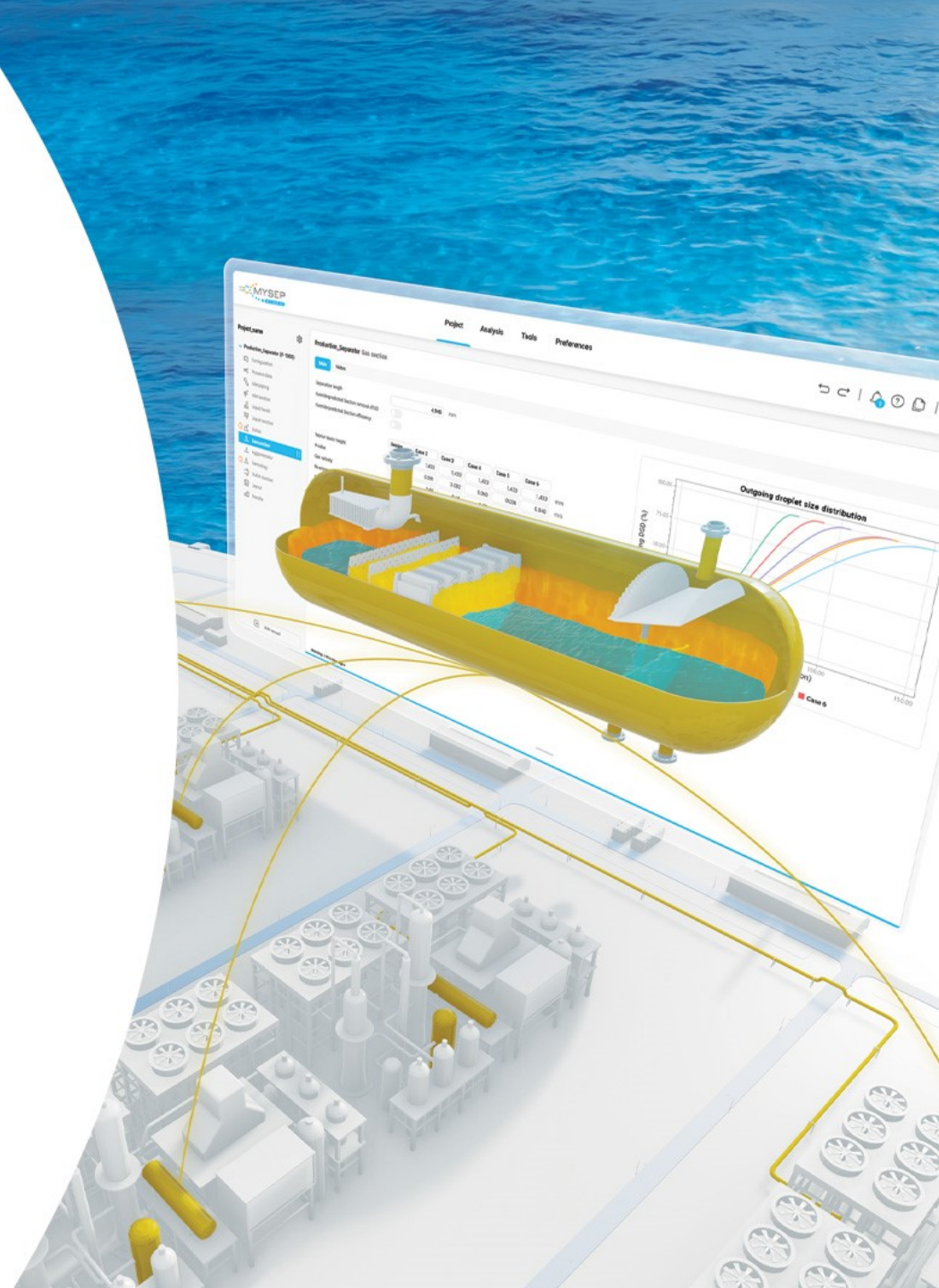
Section removal d100 - predicted	146	157	micron
Section separation efficiency - predicted	95.04	92.52	%
Section carryover rate	2.125	4.593	m <sup>3</sup> /hr
Section efficiency	95.04	92.52	%

## Demisting Section

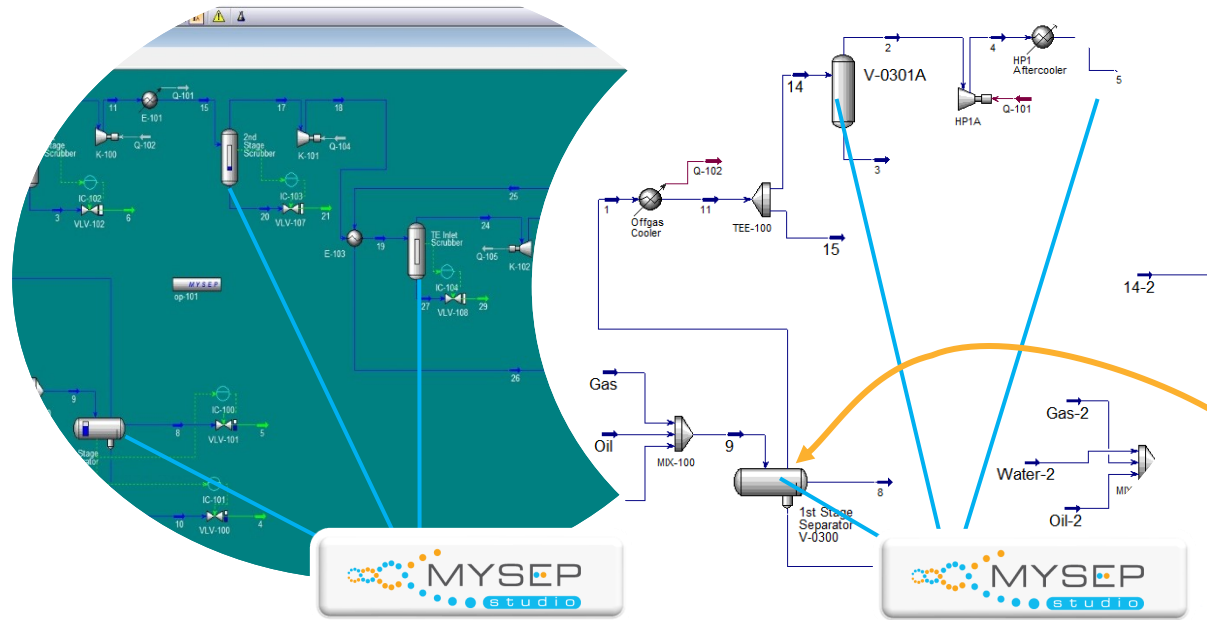
Device removal d100 - predicted	53	50	micron
Device separation efficiency - predicted	94.67	95.74	%
Device carryover rate	0.113	0.196	m <sup>3</sup> /hr
Device efficiency	94.67	95.74	%



# MySep Products

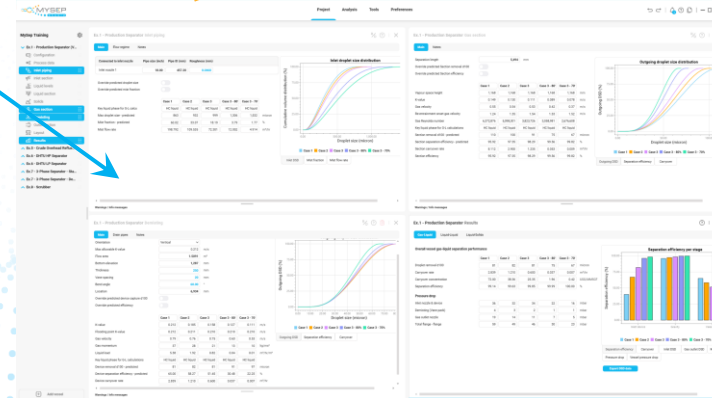
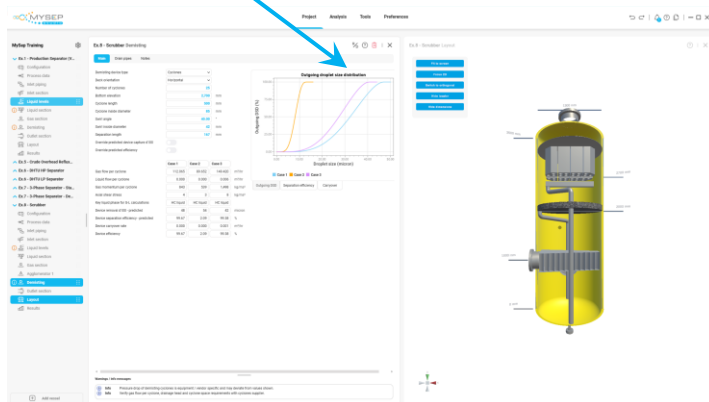


# MySep Products – MySep Studio

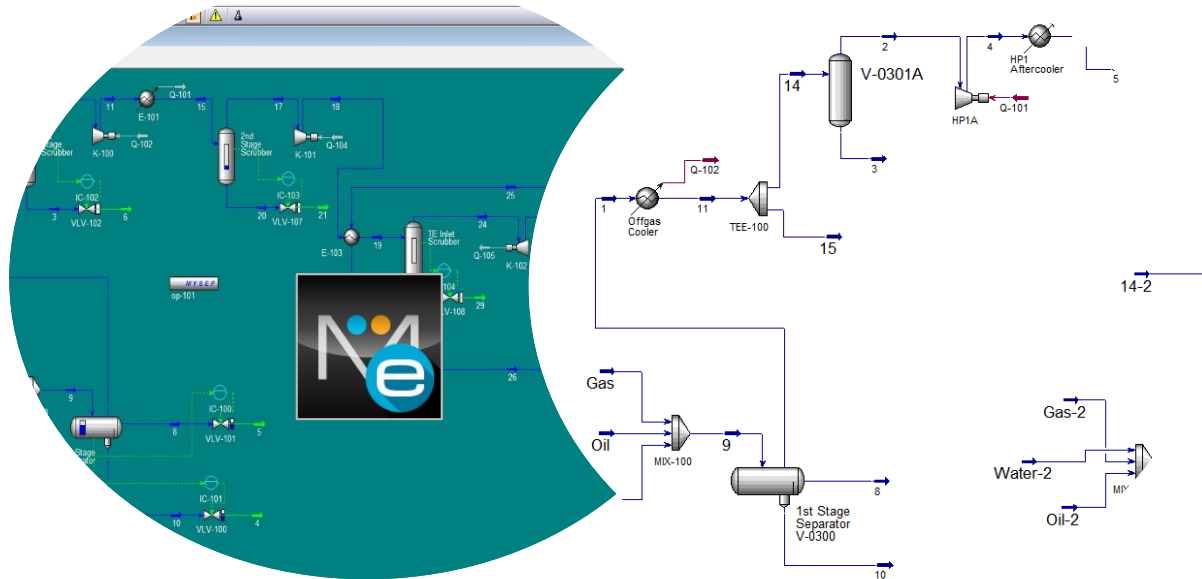


## MySep Studio

- Design & Rating
  - Desktop software
  - Bi-directional linking to – HYSYS, Symmetry, UniSim, PRO/II, Petro-SIM,
- Detailed Performance Analysis



# MySep Products – MySep Engine



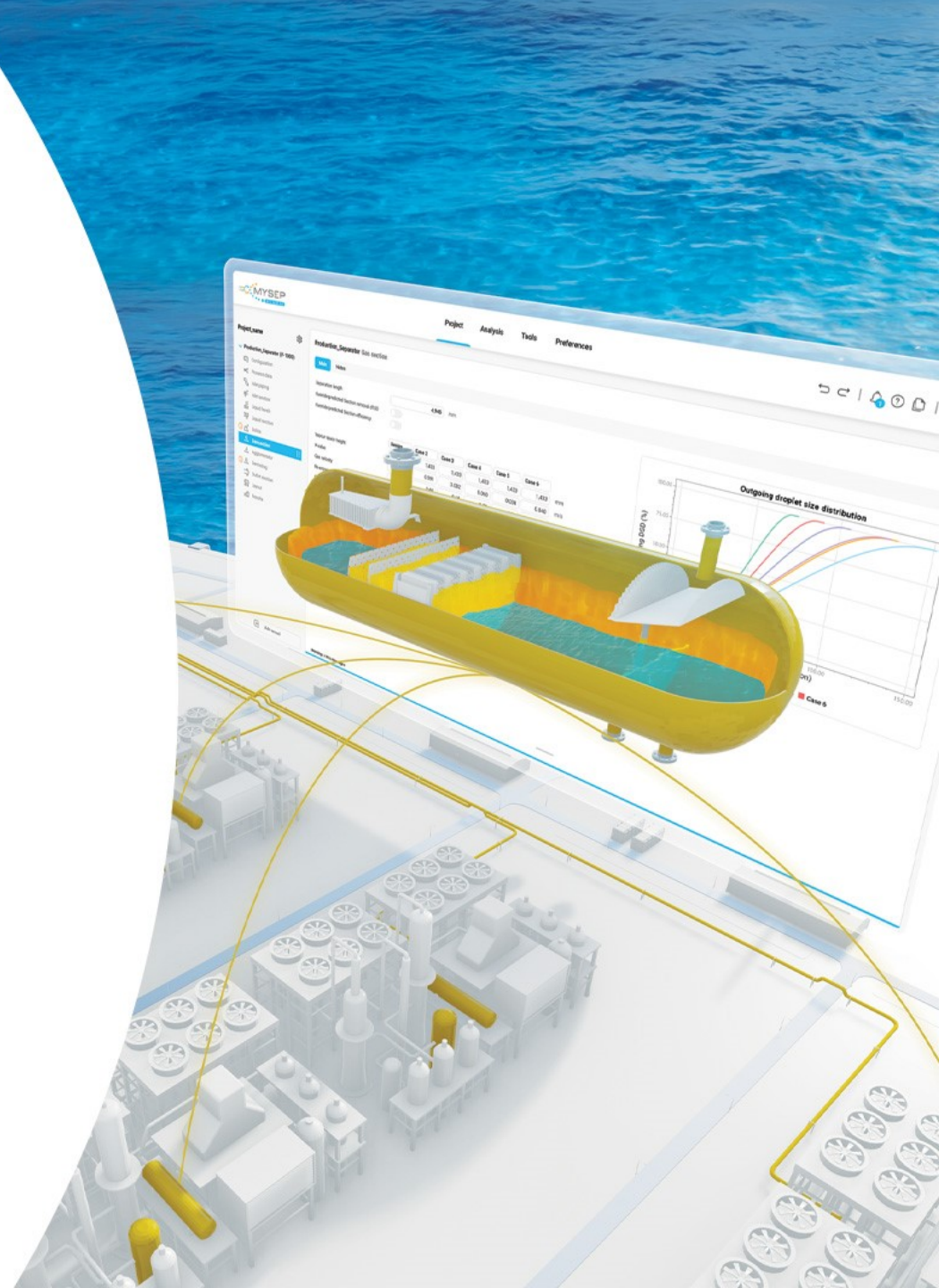
- Aspen HYSYS
- Schlumberger Symmetry
- Honeywell UniSim Design
- KBC Petro-SIM
- AVEVA PRO/II and DYN SIM
- Kongsberg K-Spice

## MySep Engine

- Models separation performance inside simulator
  - *Liquid carry-over*
  - *Pressure drop*
- Steady state and Dynamics



## Our Customers



# Customers and Industry Verticals



Cust



Engi



Engineering Contractor



TECHNIP ENERGIES






energy | chemicals | resources
















Chevron Lummus Global









# Separation Equipment Supply Customers ?



Equipment  
Supplier



TechnipFMC



TOTAL ENERGY  
TECHNOLOGIES



MORIMATSU  
Your Needs - Our Drive



JOHN ZINK



泽华公司  
ZEHUA COMPANY

KOCH-GLITSCH

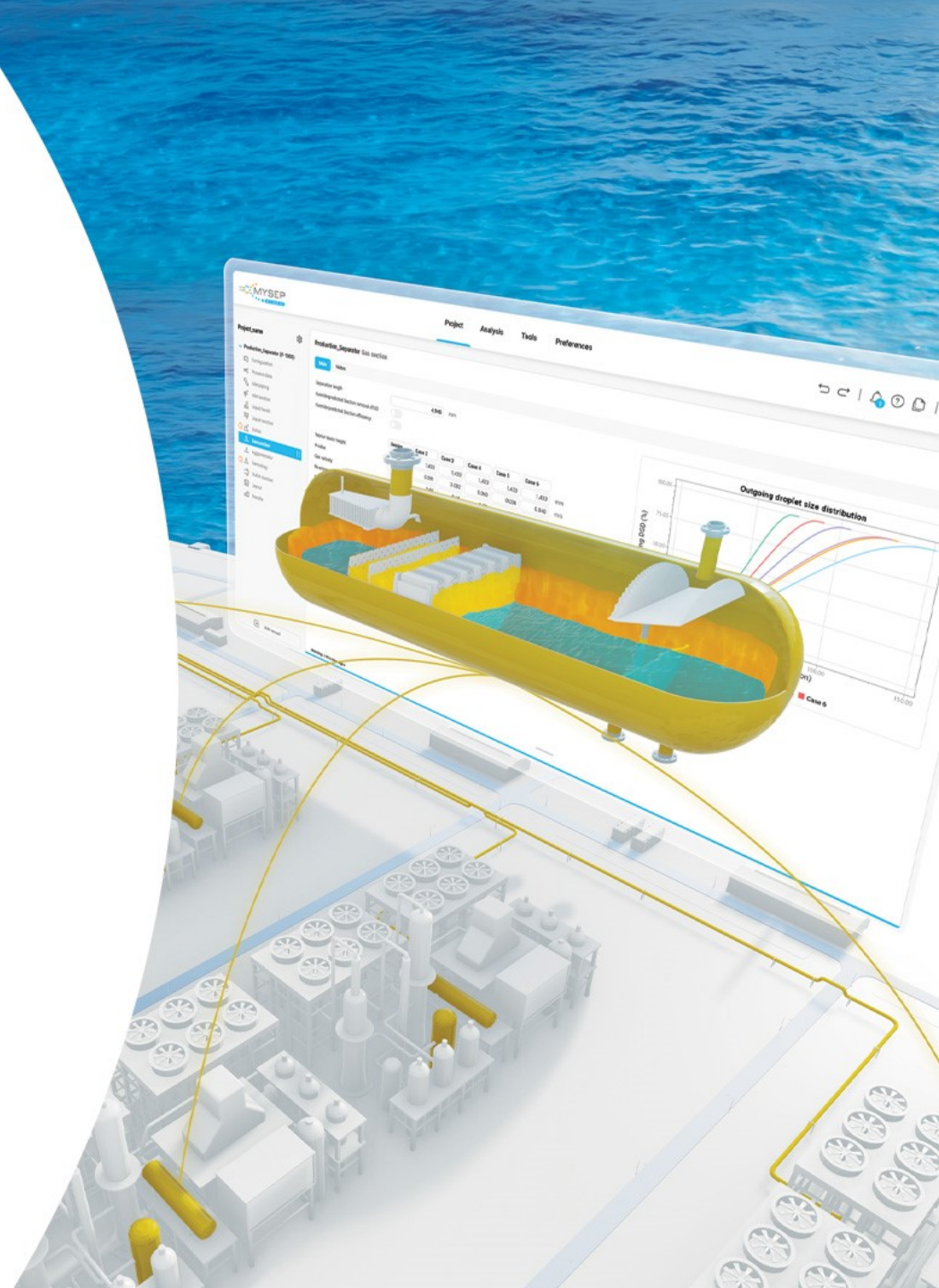
JCONJIN  
ENTECH LTD.

شركة كوالتي وايبر برودكتس ذ.م.م.  
Quality Wire Products Co. W.L.L.

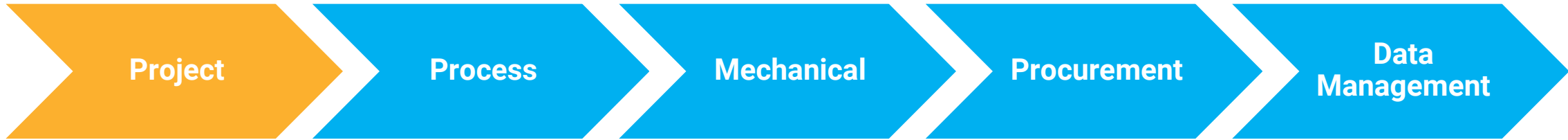
HMT HANBAL MASSTECH LIMITED  
MASS TRANSFER TECHNOLOGY



# The value – Project Execution



# How does MySep enhance your project execution?



- Shorter project schedule
- Enhanced project workflow
- Reduced project cost
- Optimized overall system design and project data management

How does MySep enhance your project execution?

MYSEP

How does MySep enhance your project execution?

MYSEP

How does MySep enhance your project execution?

MYSEP

Project Process Mechanical Procurement Data Management

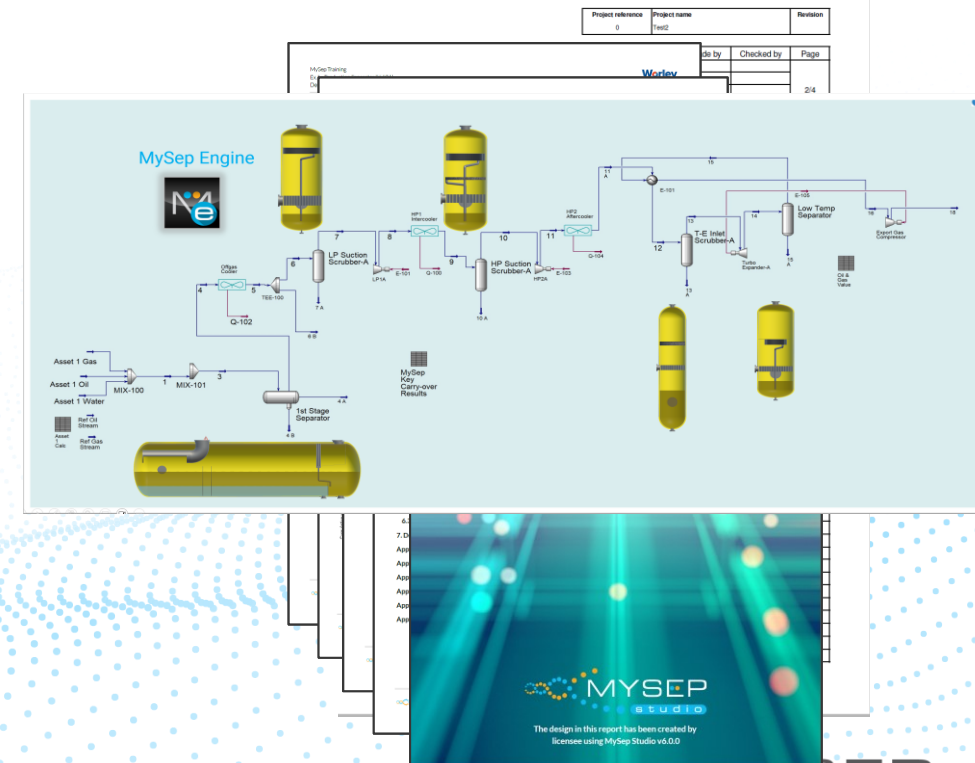
- Less risk & uncertainty through well-founded design practice
  - Channel vendors toward technically viable designs
  - Less degrees of freedom by vendors
- Shortened procurement cycle
  - Less clarifications during procurement stage
  - Saving manhours
- Reduced equipment cost
  - Specified equipment results in more competitive pricing

MySep Pte Ltd 25 MYSEP

# How does MySep enhance your project execution?

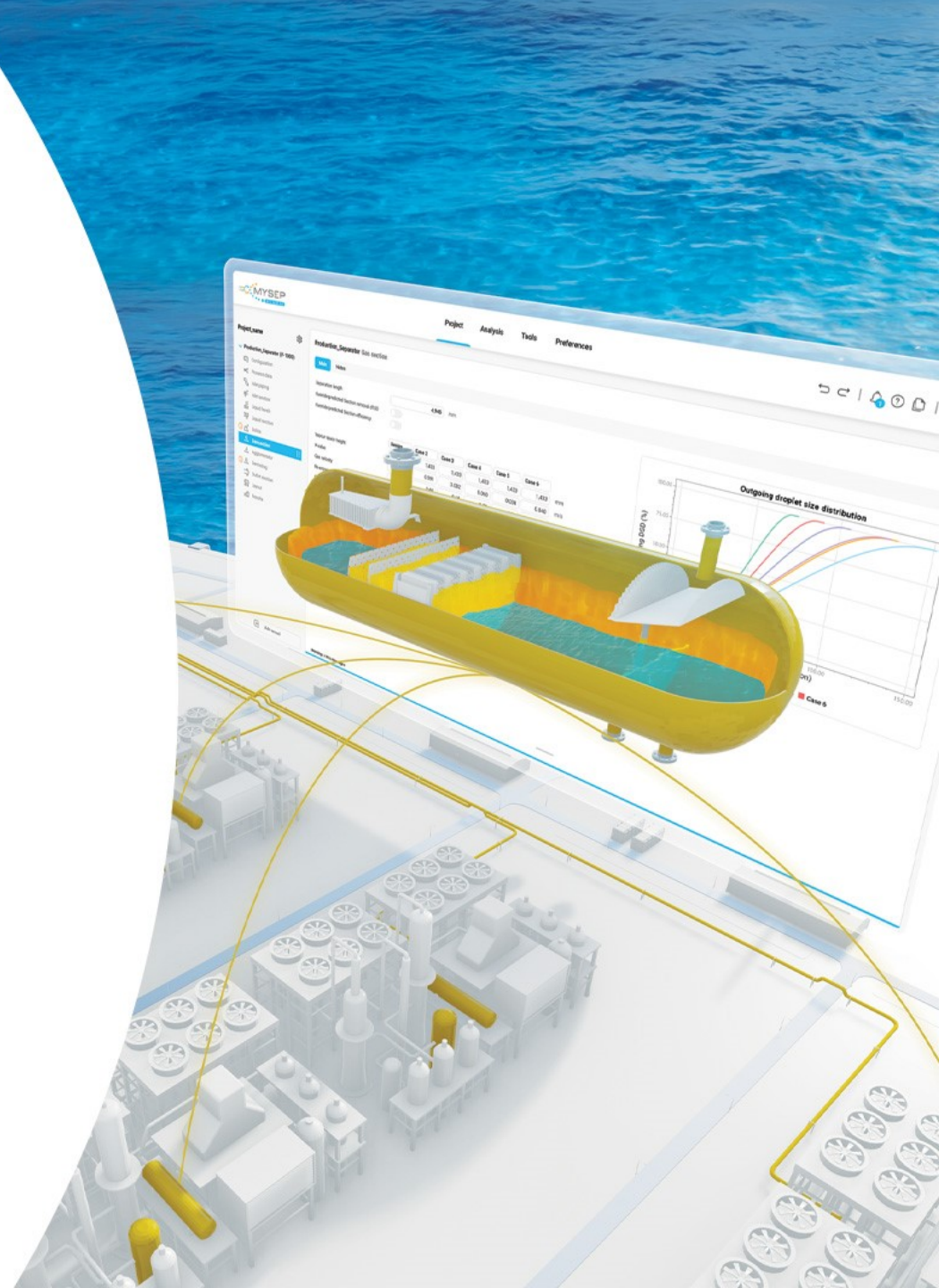


- Single source of truth – “breaking down silos”
  - Data is accessible by multiple departments
  - Separator designs and internals integrated in your digital platforms
- Digitalized datasheets and reports
- Separator designs in your 3D digital twins
- Digital library
  - Native MySep file
  - 3D output
  - Separator geometry file for integration in Process Digital Twin activated with **MySep Engine**





The value – Optimised Operation



# Consider a facility

The main topsides process....

Oil: 74,000 bbl/day

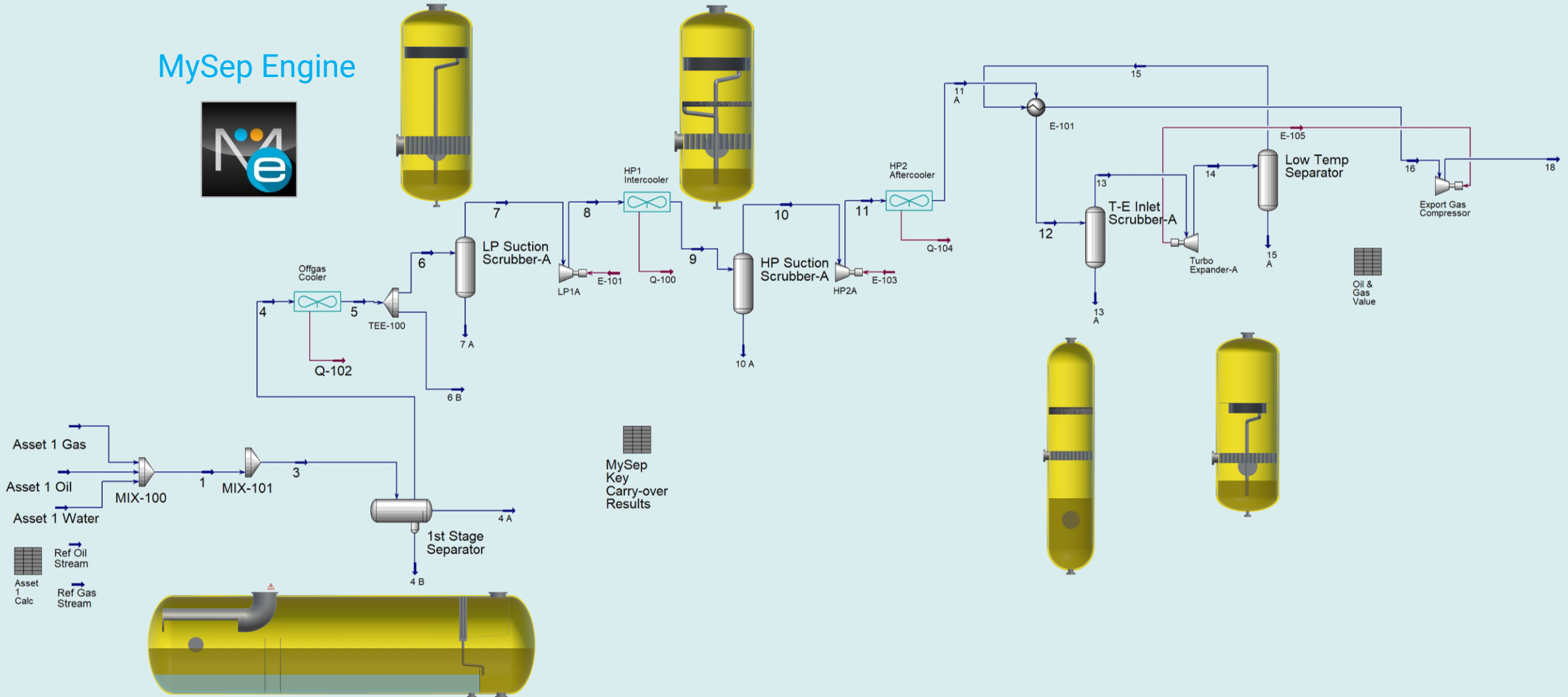
Gas: 79 MMSCF/day

Production revenue  $\approx$  \$6.5 MM/day

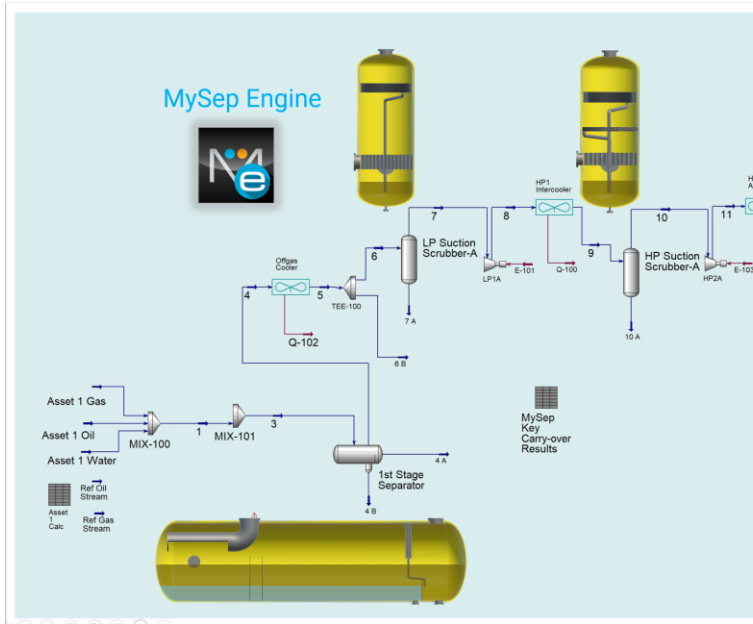


# Build a Digital Twin

MySep Engine



# Explore Vessel Retrofit Upgrades



The screenshot displays the MYSEP software interface for configuring a vessel. The main window shows the configuration for "1st Stage Sep Agglomerator 1".

**Configuration Parameters:**

- Agglomerator type: Vane
- Orientation: Vertical
- Flow area: 3,1000 m<sup>2</sup>
- Bottom elevation: 1,765 mm
- Thickness: 250 mm
- Location: 8,642 mm
- Override predicted efficiency:
- K-value: 0.175 m/s
- Flooding point K-value: 0.215 m/s
- Gas velocity: 1.45 m/s
- Liquid load: 0.56 m<sup>3</sup>/hr/m<sup>2</sup>
- Key liquid phase for G-L calculations: HC liquid

**Warnings / Info messages:**

1st Stage Sep Layout

**Flooding point chart:**

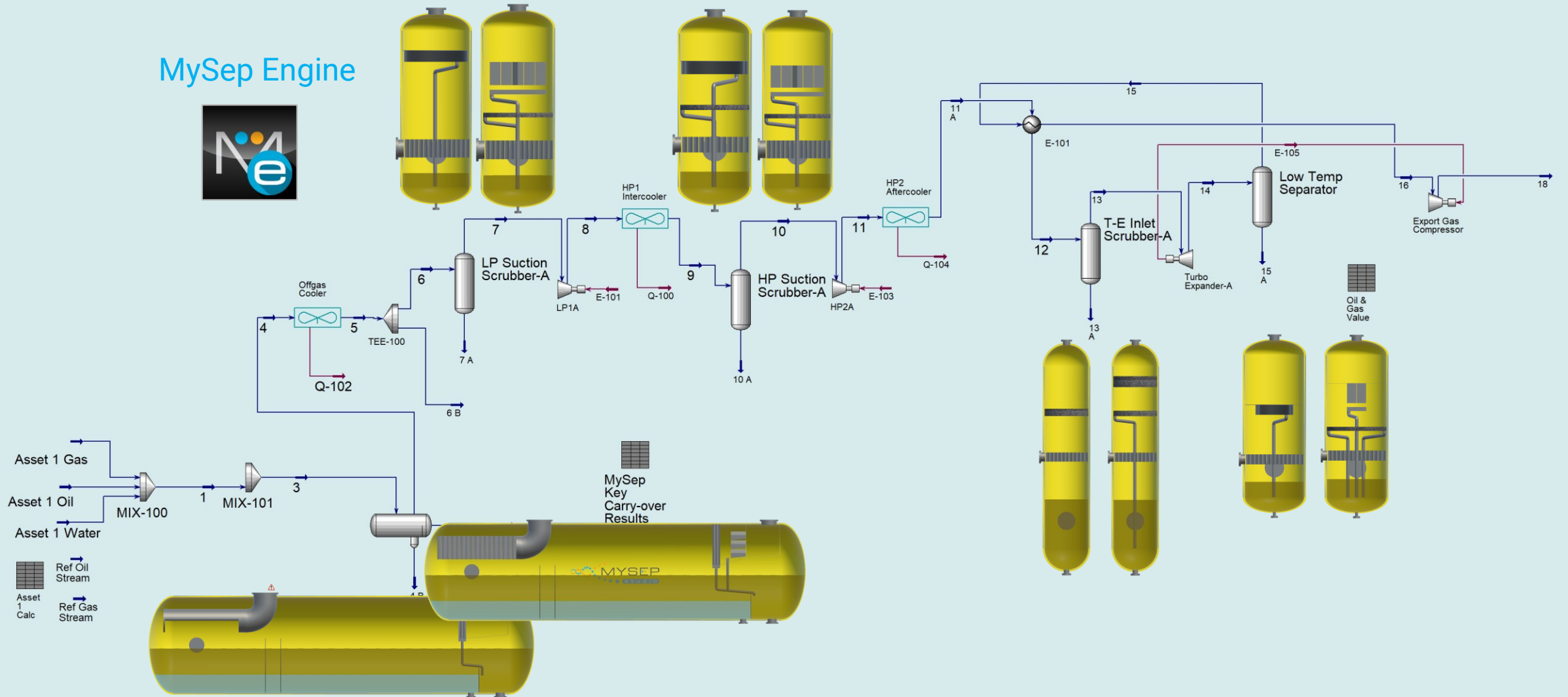
Design	Flooding point K-value (m/s)
Design	0.22

The interface also shows a 3D cutaway view of the vessel layout, highlighting the internal components like the vane stack and liquid collection system.



# Explore effect of upgrades on Production

MySep Engine



# Summary of Digital Twin Result

**Before**

Oil: 74,000 bbl/day

Gas: 79 MMSCF/day

Revenue  $\approx$  \$6.5 MM/day

**After**

Oil: 82,000 bbl/day

Gas: 88 MMSCF/day

Revenue  $\approx$  \$7.4 MM/day

**Increased Annual Revenue  $\approx$  \$325 MM**



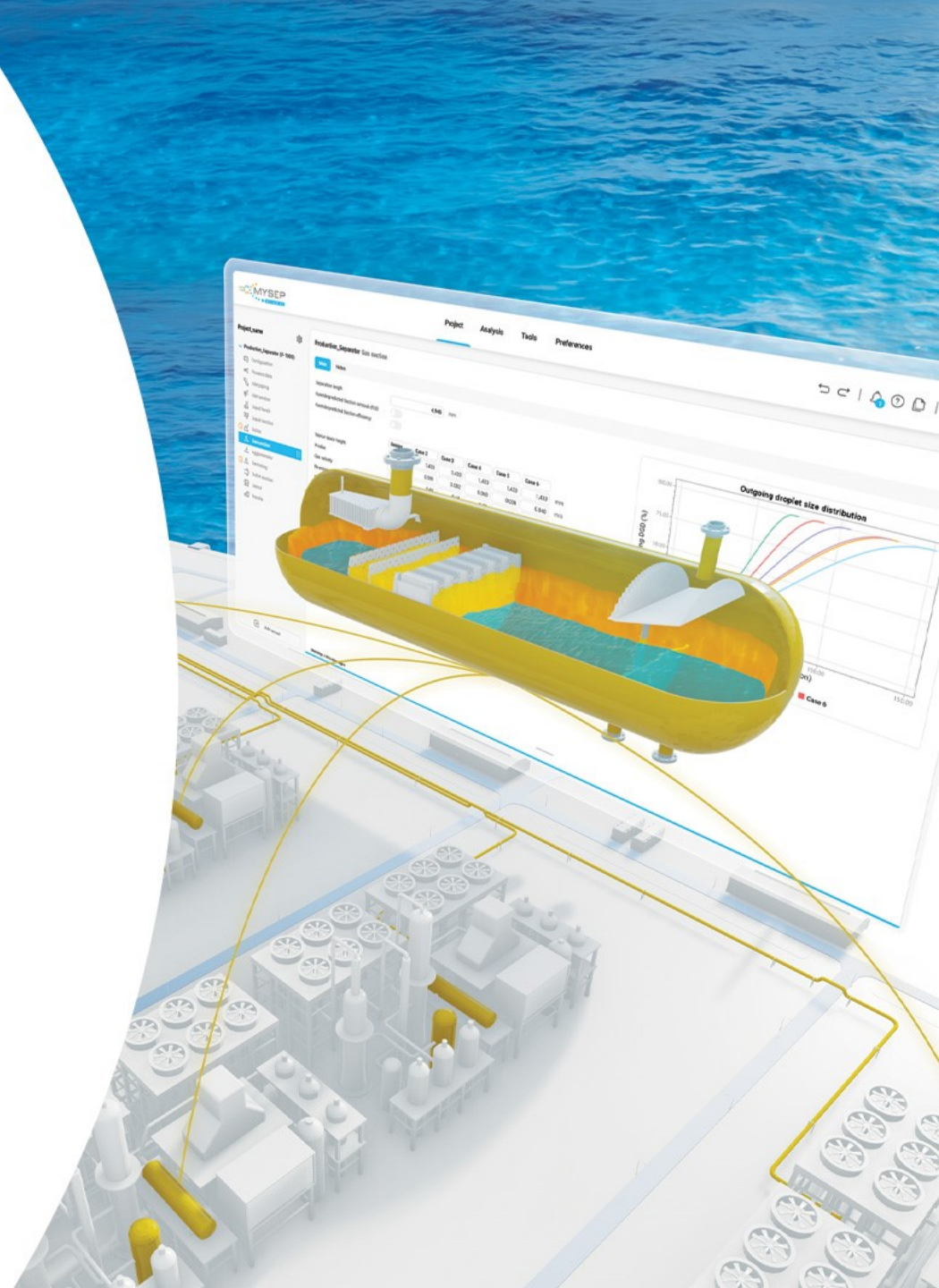
## Other Digital Twin Examples

- Refinery FCC

[Petroleum Technology Quarterly \(PTQ\), Q2 2022, P27-31](#)

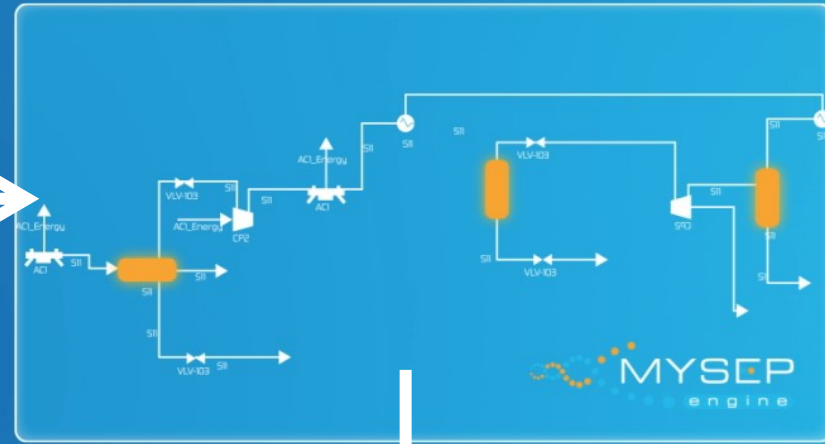
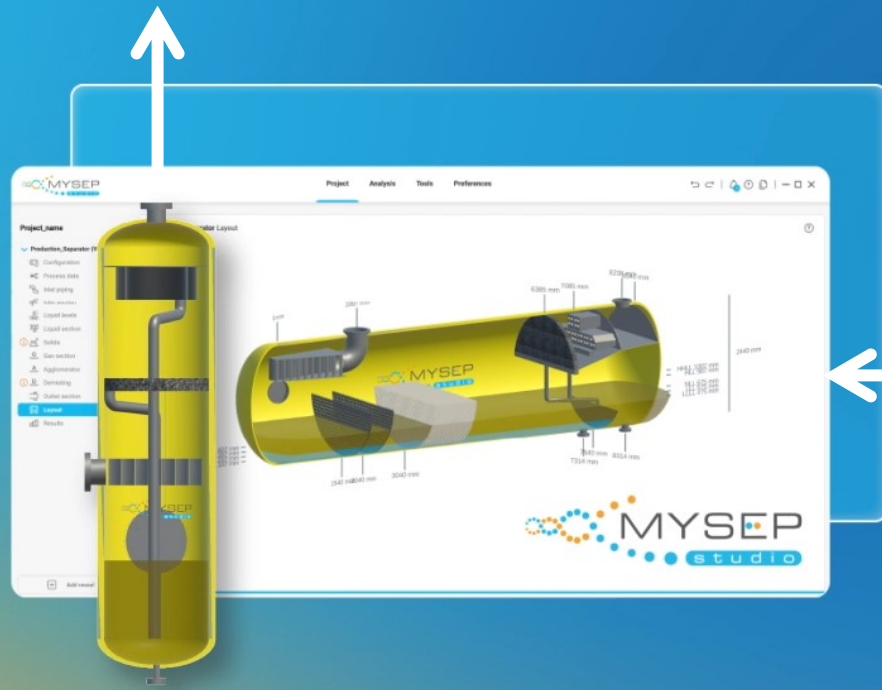
- LNG

[LNG Process - Digital Twin Addresses Separation Constraints | MySep](#)



# MySep Product Summarised

Perfect your separation models with **MySep Studio**



Optimize your process with a **MySep Engine** Activated Digital Twin

# Q & A






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## Connect with us

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