SULZER

Sulzer Chemtech

Refinery Applications
with advanced Mass Transfer Technology

Excellence in Refining Technology

Expertise and experience

Sulzer Chemtech is the process engineering and equipment manufacturing division of the international Sulzer Corporation, with its headquarters in Winterthur, Switzerland.

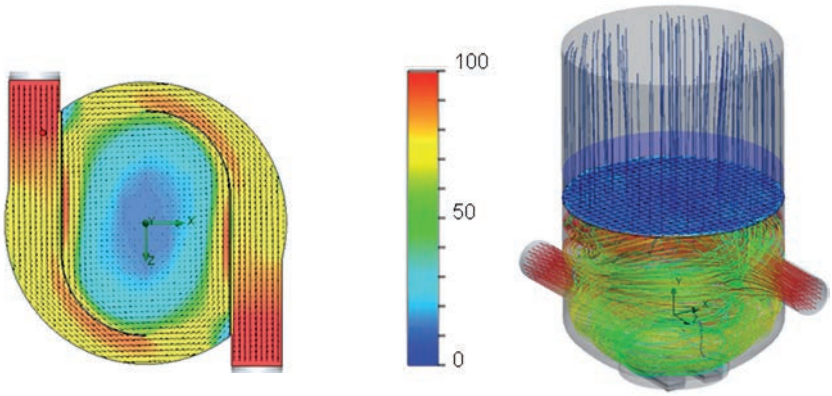
Areas of expertise include equipment and application know-how in separation and mixing technology. Products include trays, structured packing, and random packing for separation columns; internals for separators; fractional crystallization systems; and equipment for mixing and reaction processes.

Leading in research and development

With tried-and-tested design procedures and innovative engineering solutions, Sulzer can meet the most challenging refinery's objectives. Sulzer has the requisite personnel, experience, facilities, as well as engineering capability to model and analyze mass and heat transfer phenomena in distillation, absorption, extraction, mixing, gas-liquid, and liquid-liquid separation. In our large test and pilot facilities we have the competence to extensively test trays, packings, separators and tower internals to maximize performance and reliability.

Computational Fluid Dynamics (CFD)

At Sulzer, the tool is extensively used for developing new products and optimizing the performance of the equipment being delivered. For example the flash zone and the wash section of a vacuum tower.



Flow distribution in the flash zone and below the wash bed of a vacuum column 15300 mm ID

Three-phase separator test facility

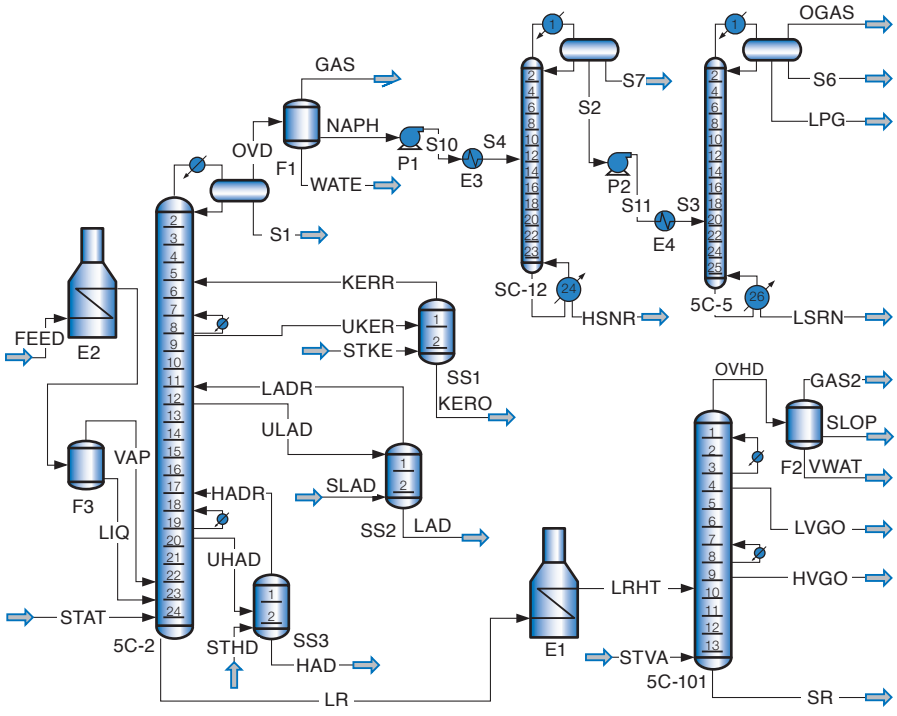
Pilot plant at Sulzer Chemtech

Contents

Excellence in Refining Technology

Process simulation

Sulzer Chemtech makes use of state-of-the-art simulation software. Process simulation experts can model (new) or revamp all the major equipment of a plant, such as distillation columns, pumps, exchangers, valves, flash drums, fired heaters, piping, and fittings. Third-party thermodynamic packages are fine tuned for specific applications based on decades of experience at Sulzer Chemtech.



Process simulation model of a heat integrated crude and vacuum distillation unit

A team of experts optimizing the mass transfer components for a revamp of a crude and vacuum distillation unit to provide customers with maximum benefits while minimizing investment costs

Engineering services and products

For more than 50 years Sulzer Chemtech has provided innovative mass transfer components to the oil and gas, and petrochemical industries. Our company offers a wide range of products and engineering services.

Engineering services

- Process simulation
- CFD study
- Feasibility study
- Basic engineering
- Detailed engineering
- Equipment design
- Installation at site
- Commissioning
- Start-up assistance
- Troubleshooting

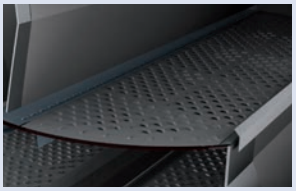
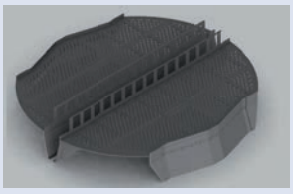
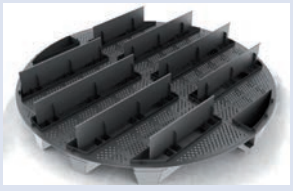
Products

- Fractionation trays
- Structured packing
- Random packing
- Grids
- Distributors
- Static mixers
- Mist eliminators
- Coalescers

for

- Crude oil distillation
- Vacuum distillation
- Lube oil fractionation
- Hydrotreating
- Fluid catalytic cracking
- Hydrocracking
- Coking
- Visbreaking
- Reforming
- Isomerization
- Alkylation
- Aromatics recovery
- Gas concentration
- Gas sweetening
- Liquid-liquid contactor
- Solvent deasphalting

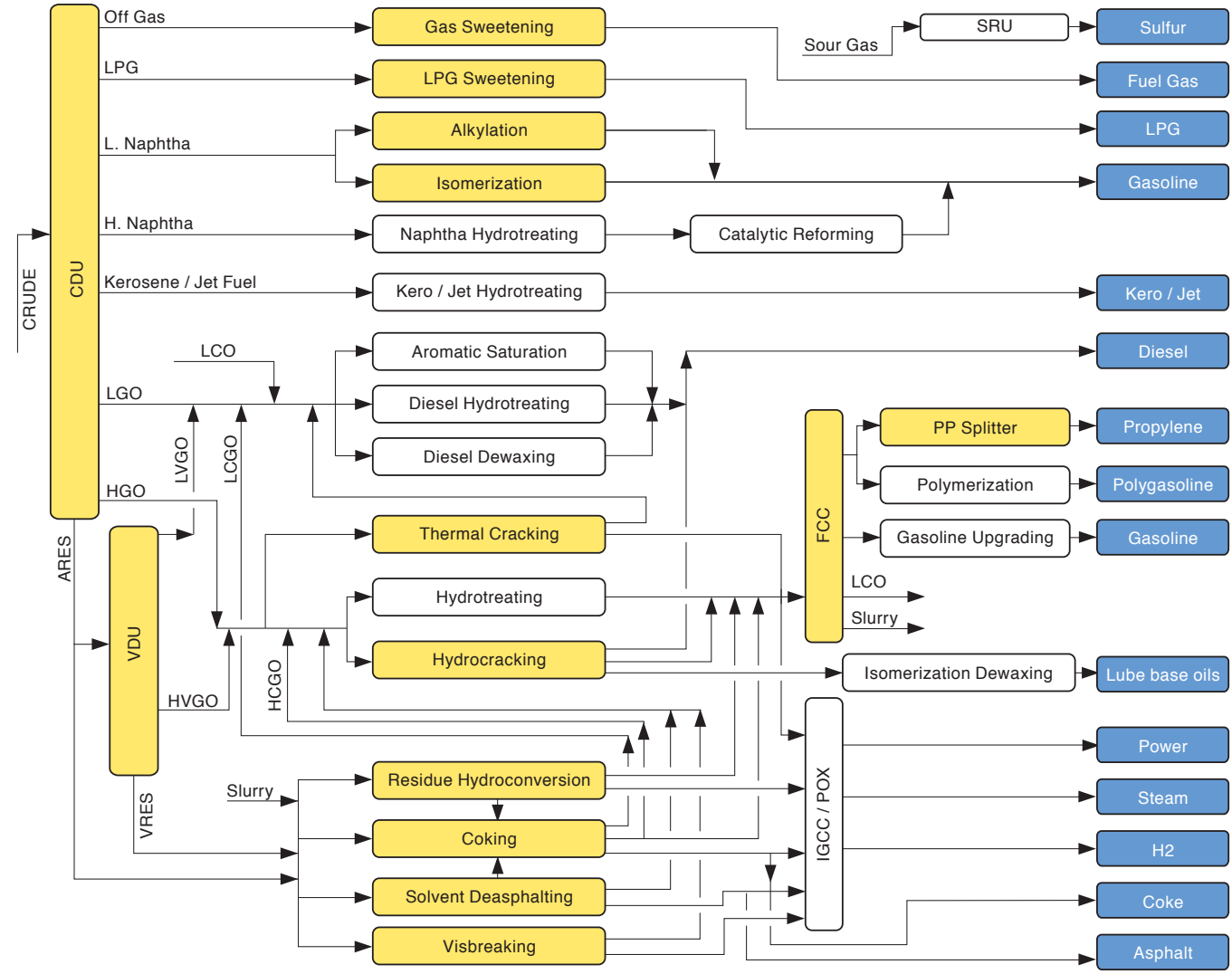
Innovative Components

VG AF™ Tray	The chordal downcomer high performance fractionation tray, featuring devices that enhance fouling resistance and hydraulic capacity.	
VGPlus™ Tray	The chordal downcomer high performance fractionation tray, featuring devices that enhance hydraulic capacity and separation efficiency.	
UFM™ Valve	The movable mini-valve, featuring an innovative shape for maximum hydraulic capacity, separation efficiency, and the widest operating range.	
SVG™ SVG-H™ Valve	High-performance valves, featuring a V shape, a large opening, and high lift for maximum resistance to fouling.	
Shell HiFi™ Plus Tray	The multiple downcomer high performance fractionation tray, suitable for high liquid loading applications.	
Shell ConSep™ Tray	The ultra system limit high performance fractionation tray, suitable for debottlenecking columns which otherwise would require a larger vessel diameter.	
Shell Schoepentoeter Plus™	The high-performance feed inlet distributor for mixed phases, featuring devices that enhance bulk separation efficiency even at the highest feed inlet momentum.	
SMV™ Static Mixer	The high-performance mixer that enables maximum homogeneous mixing with minimum pressure drop, and without moving parts.	

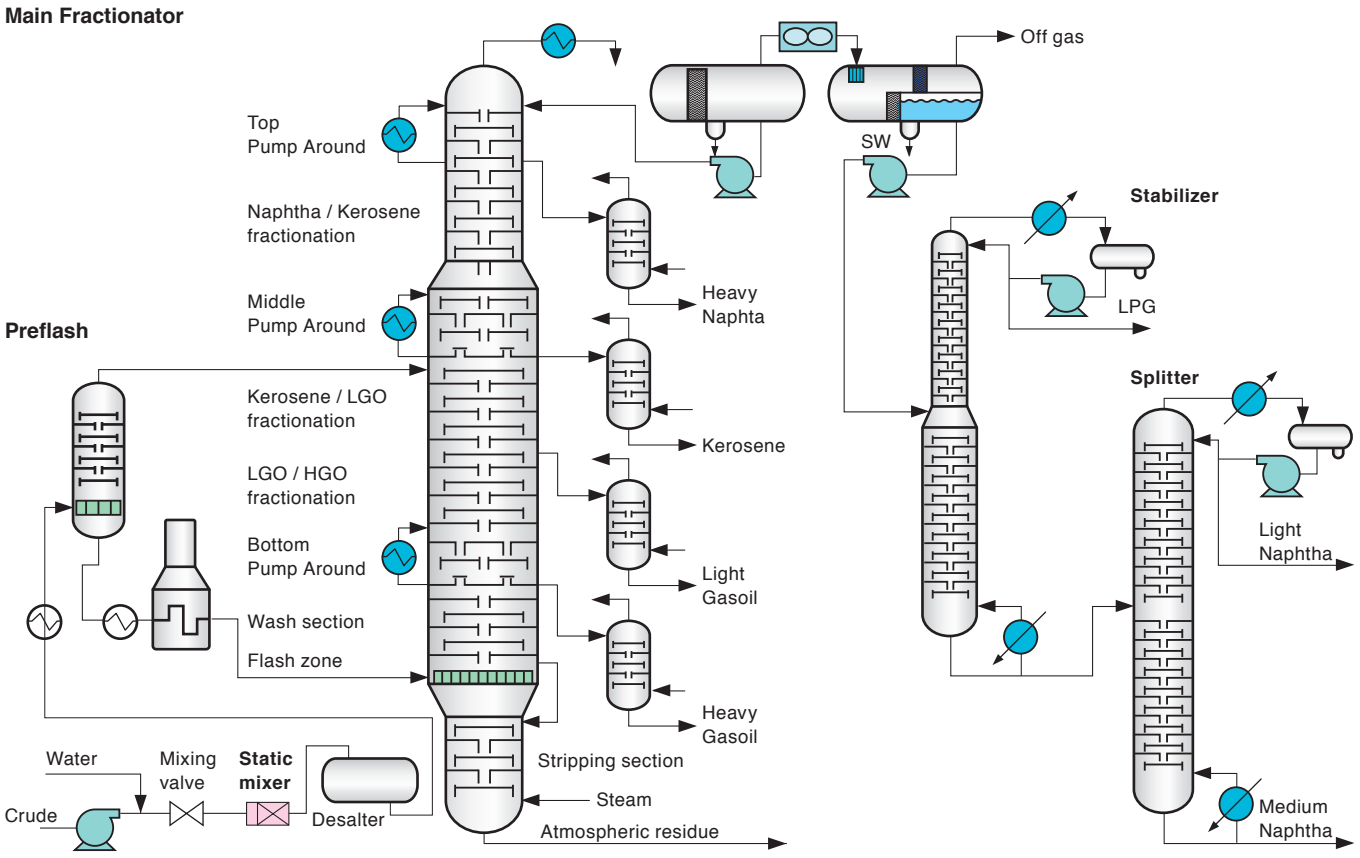
Innovative Components

VEP Liquid Distributor	The state-of-the-art trough type distributor, featuring devices to achieve the highest drip point density for the maximum number of fractionation stages per unit of bed height.	 0600 2503-3
Mellapak™	The high-performance structured packing that is particularly suitable for vacuum distillation and selective absorption.	 0602 2510
MellapakPlus™	The second generation of structured packing, featuring a geometrical shape which drastically enhances the performance of the Mellapak for the highest number of theoretical stages per unit of pressure drop.	 0604 2509-01
Mellagrid™	The high-performance grid, featuring structured geometry for superior mechanical robustness, smooth surface for fouling resistance, and high sheet thickness when used in corrosive environments.	 0694 2507-2
F-Grid™	The conventional type of grid suitable for fouling applications.	 0694 2507-2
Nutter Ring™, I-Ring™	The high-performance random packing suitable for sponge absorbers, amine contactors, and lube cuts aromatic extraction.	 0603 2535-3
SMV, SMVP Extraction Packing	The high-performance structured packing suitable for amine contactors, and lube cuts aromatic extraction.	
Mellachevron™	The high-performance mist eliminator suitable for heavy-duty applications.	

Refinery Flow Chart



Crude Distillation Unit



CDU typical upgrading targets:

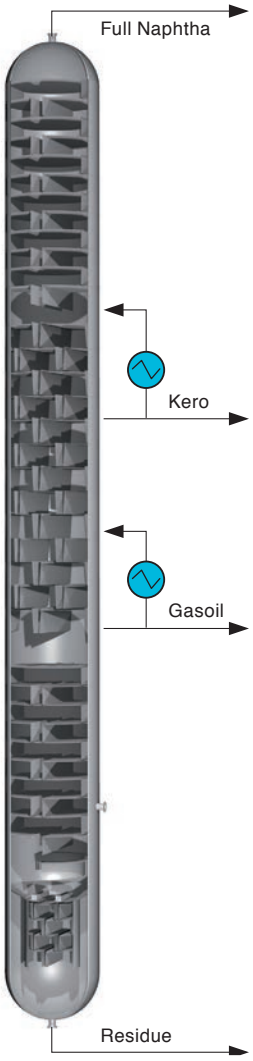
- Up to 30% additional capacity
- Up to 20% additional fractionation efficiency
- Up to 10% energy saving

Shell SchoepentoeterPlus: the radial advanced feed inlet vane device for the flash zone

Mass transfer components best fit

• Top section	VG AF trays, Mellagrid
• Naphtha / Kero • Kero / LGO • LGO / HGO	VGPlus trays
• Middle PA • Bottom PA	VG AF, VGPlus trays, Mellapak, MellapakPlus
• Wash section	MellapakPlus, Mellapak, VGPlus trays
• Flash zone	Shell Schoepentoeter Plus
• Stripping section	VG AF, VGPlus trays, Shell HiFi Plus trays
• Top receiver	Mellaplate coalescer, Mellachevron mist eliminator
• Side strippers • Preflash	VG AF, VGPlus trays
• Stabilizer	VGPlus, Shell HiFi Plus trays
• Splitter	VGPlus trays

CDU Main Fractionator Upgrading



Before revamp

Throughput: 160 KBPD

Naphtha / Kerosene:
12 round valve trays
760 mm tray spacing
10 theoretical stages

Top Pump Around:
5 round valve trays
1070 mm tray spacing
Duty: 26 MMKal / h

Kerosene / Gasoil:
5 round valve trays
990 mm tray spacing
3 theoretical stages

Bottom Pump Around:
3 round valve trays
990 mm tray spacing
Duty: 10 MMKal / h

Wash Section:
10 round valve trays
760 mm tray spacing
5 theoretical stages

Stripping Section:
5 Sieve trays
610 mm tray spacing
2 theoretical stages

After revamp

Throughput: 180 KBPD

Naphtha / Kerosene:
16 BDH valve trays
510 mm tray spacing
13 theoretical stages

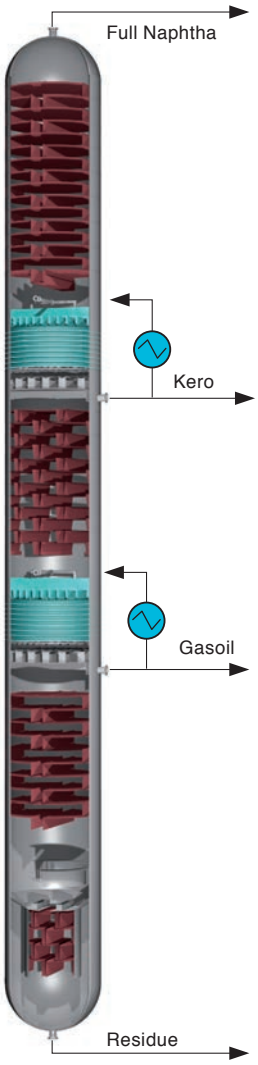
Top Pump Around:
Mellapak equipped with
trough type liquid distributor
Duty: 30 MMKal / h

Kerosene / Gasoil:
12 VGPlus trays
500 mm tray spacing
8 theoretical stages

Bottom Pump Around:
Mellapak equipped with
trough type liquid distributor
Duty: 12 MMKal / h

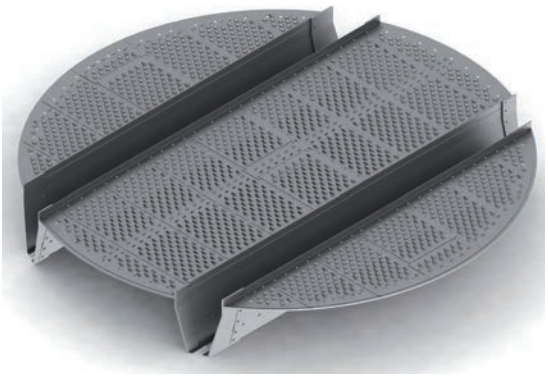
Wash Section:
10 MVG valve trays
550 mm tray spacing
5 theoretical Stages

Stripping Section:
5 MVG valve trays
610 mm tray spacing
over 2 theoretical stages

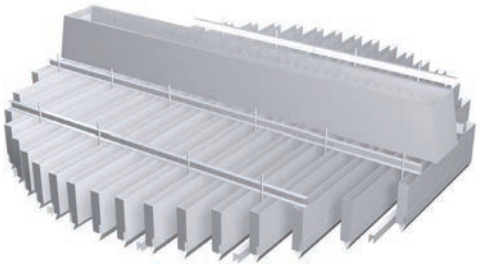


Achievements:

- 10% additional capacity
- Sharper separation naphtha / kerosene
- Sharper separation kerosene / gasoil
- Gasoil suitable for low sulfur diesel production
- Shorter residue

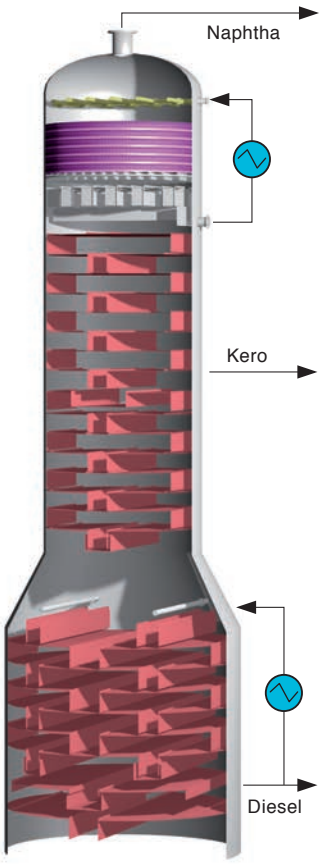


4-pass VGPlus high performance trays equipped with truncated downcomer, MVG, and push valves



VEH high-performance liquid distributor suitable for Pump Around sections

CDU Main Fractionator Upgrading



Upgrading a 130 KBPD CDU main fractionator

Top Pump Around:

4 conventional trays replaced with Mellagrid in Alloy 59

to maximize capacity and improve corrosion resistance

Naphtha / Kerosene Section:

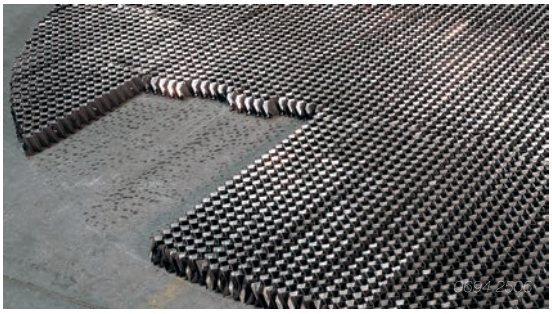
8 VGPlus trays retrofitting conventional trays to maximize capacity and improve the quality of the naphtha

Kerosene / Diesel Section:

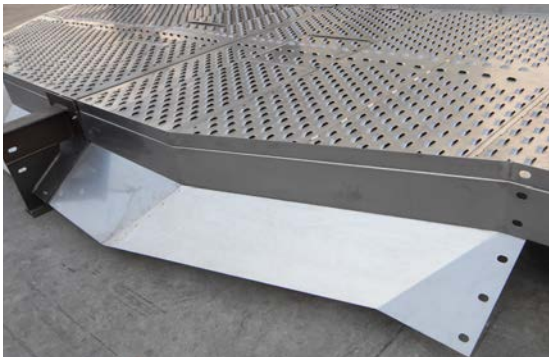
8 MVG trays retrofitting conventional trays to debottleneck the section

Middle Pump Around:

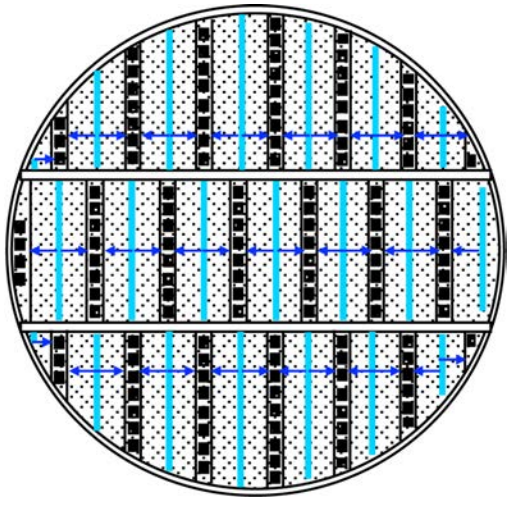
4 MVG trays retrofitting conventional trays to debottleneck the section



Mellagrid: the high-performance structured grid at the top Pump Around



VGPlus high performance trays equipped with ModArc downcomer, MVG, and push valves



13-pass Shell HiFi Plus trays at the top Pump Around

Top Pump Around:

13 pass HiFi Plus retrofitting
4 pass conventional trays

Bottom Pump Around:

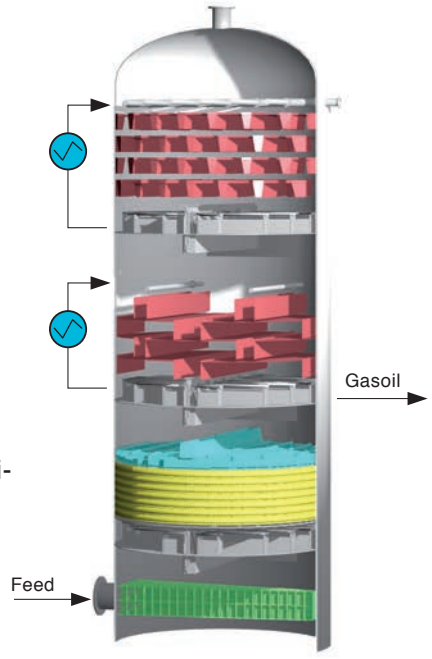
4 pass conventional trays

Wash section:

Mellapak Plus retrofitting
5 conventional trays to maximize gasoil yield and quality

Flash zone:

Schoepentoeter



Upgrading a 400 KBPD CDU Main Fractionator

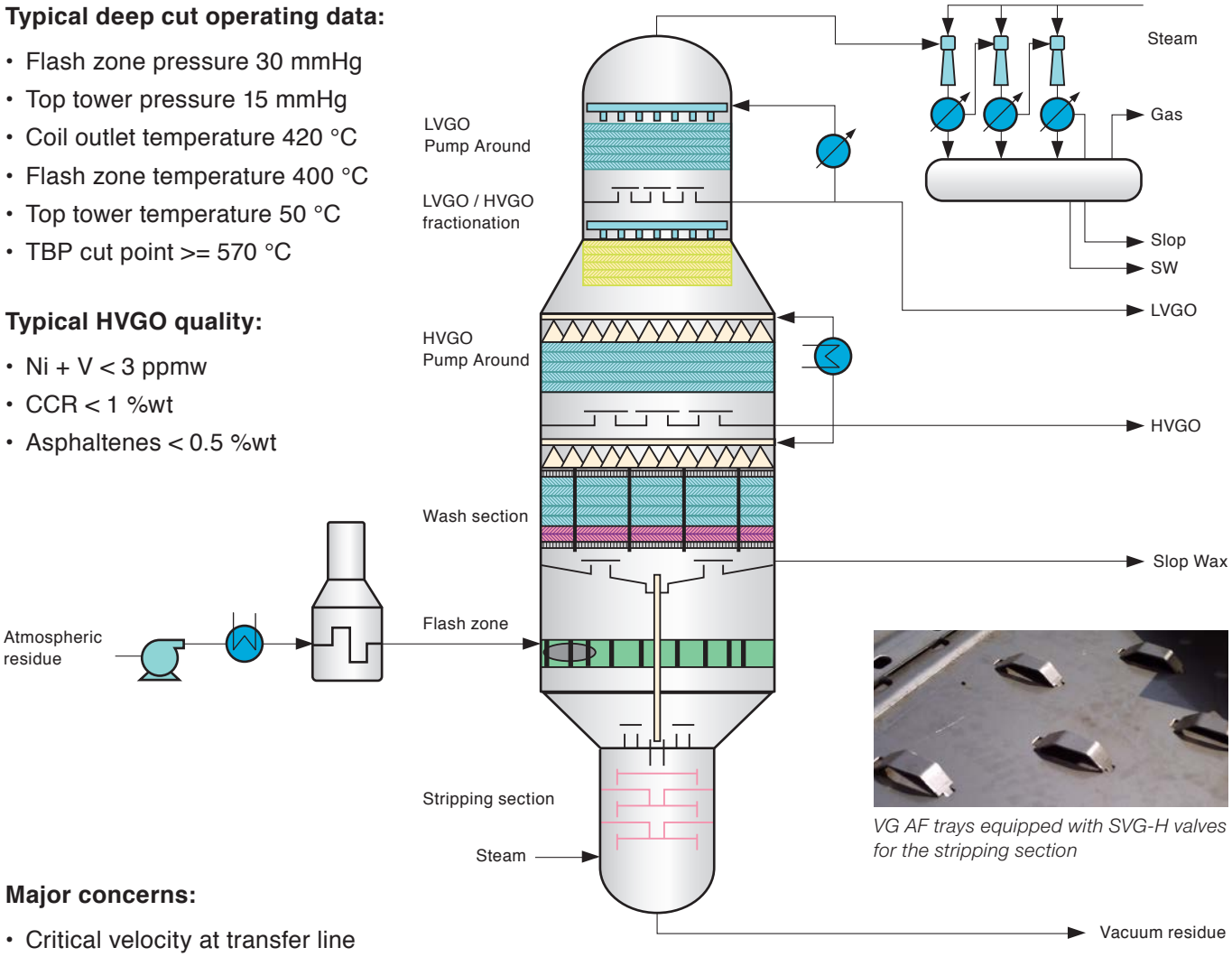
Vacuum Distillation Unit

Typical deep cut operating data:

- Flash zone pressure 30 mmHg
- Top tower pressure 15 mmHg
- Coil outlet temperature 420 °C
- Flash zone temperature 400 °C
- Top tower temperature 50 °C
- TBP cut point >= 570 °C

Typical HVGO quality:

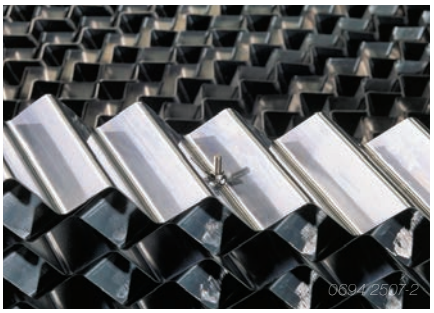
- Ni + V < 3 ppmw
- CCR < 1 %wt
- Asphaltenes < 0.5 %wt



VG AF trays equipped with SVG-H valves for the stripping section

Major concerns:

- Critical velocity at transfer line
- Distillates yield less than expected
- Entrainment from the flash zone
- Coke build up at wash section
- HVGO quality lower than expected
- Run length lower than expected
- Unscheduled shutdown

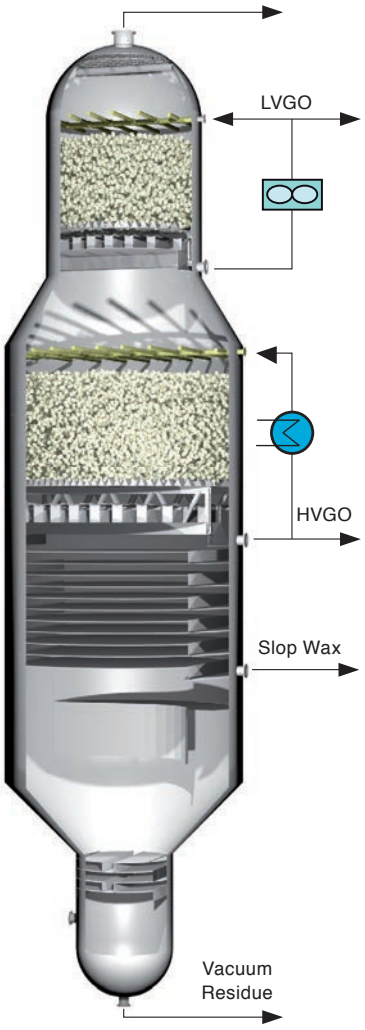


Mellagrid: high-performance structured grids for the wash section

Mass transfer components best fit

• **LVGO PA**	Mellapak, MellapakPlus, VEH gravity distributor
• **LVGO / HVGO**	MellapakPlus, Mellapak, VEP gravity distributor
• **HVGO PA**	Mellapak, MellapakPlus, VRD spray nozzles distributor
• **Wash section**	Mellapak, MellapakPlus, Mellagrid, F-Grid, VRD spray nozzles distributor, Support system to withstand uplift mechanical loadings
• **Flash zone**	Advanced feed inlet vane device
• **Stripping section**	VG AF trays

Vacuum Tower Upgrading



Before Revamp

Before Revamp

Conventional mist eliminator

Top PA:

Ring and spray nozzle distributor

Bottom PA:

Ring and spray nozzle distributor

Wash section:

Conventional Trays

Flash zone:

Conventional feed inlet vapor horn

Stripping section:

Conventional Trays

After Revamp

Throughput: 80 KBPD

Sulzer mist eliminator

Top PA:

Reused Ring, new spray nozzle distributor

Bottom PA:

Mellapak and spray nozzle distributor

New HHVGO section:

Mellapak and through type distributor

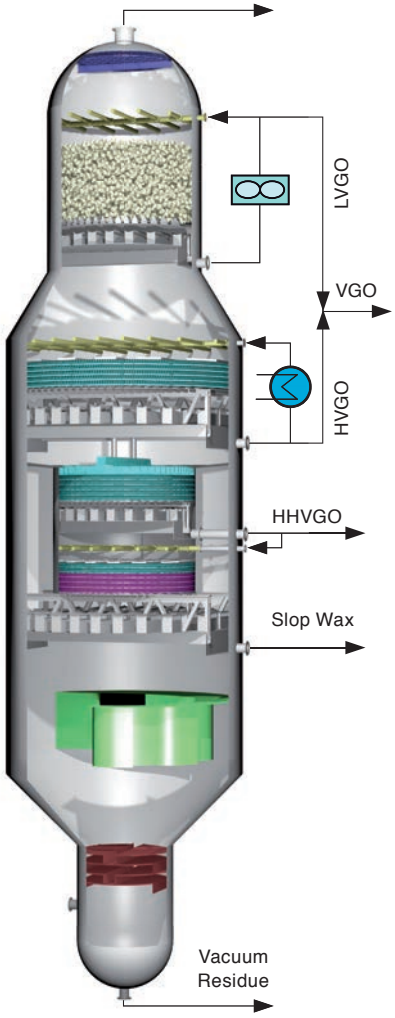
Internal skirt

Wash section:

Mellapak, Mellagrid, and spray nozzle distributor

Flash zone:

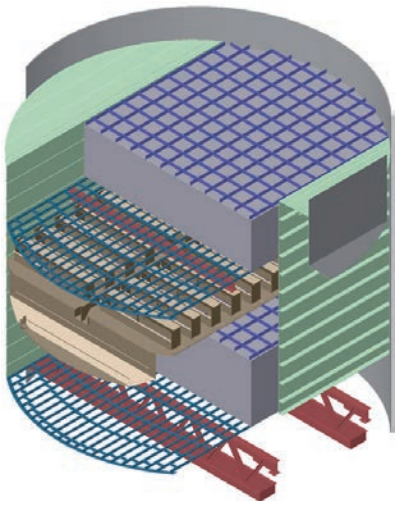
Advanced tangential feed inlet vanes device



Stripping section:

SVG Trays

SVG valves



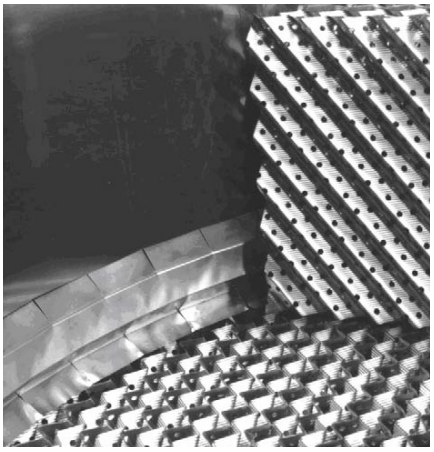
Internal skirt used to fit the required mass transfer components while minimizing the need for new manways and/or process nozzles.

Achievements

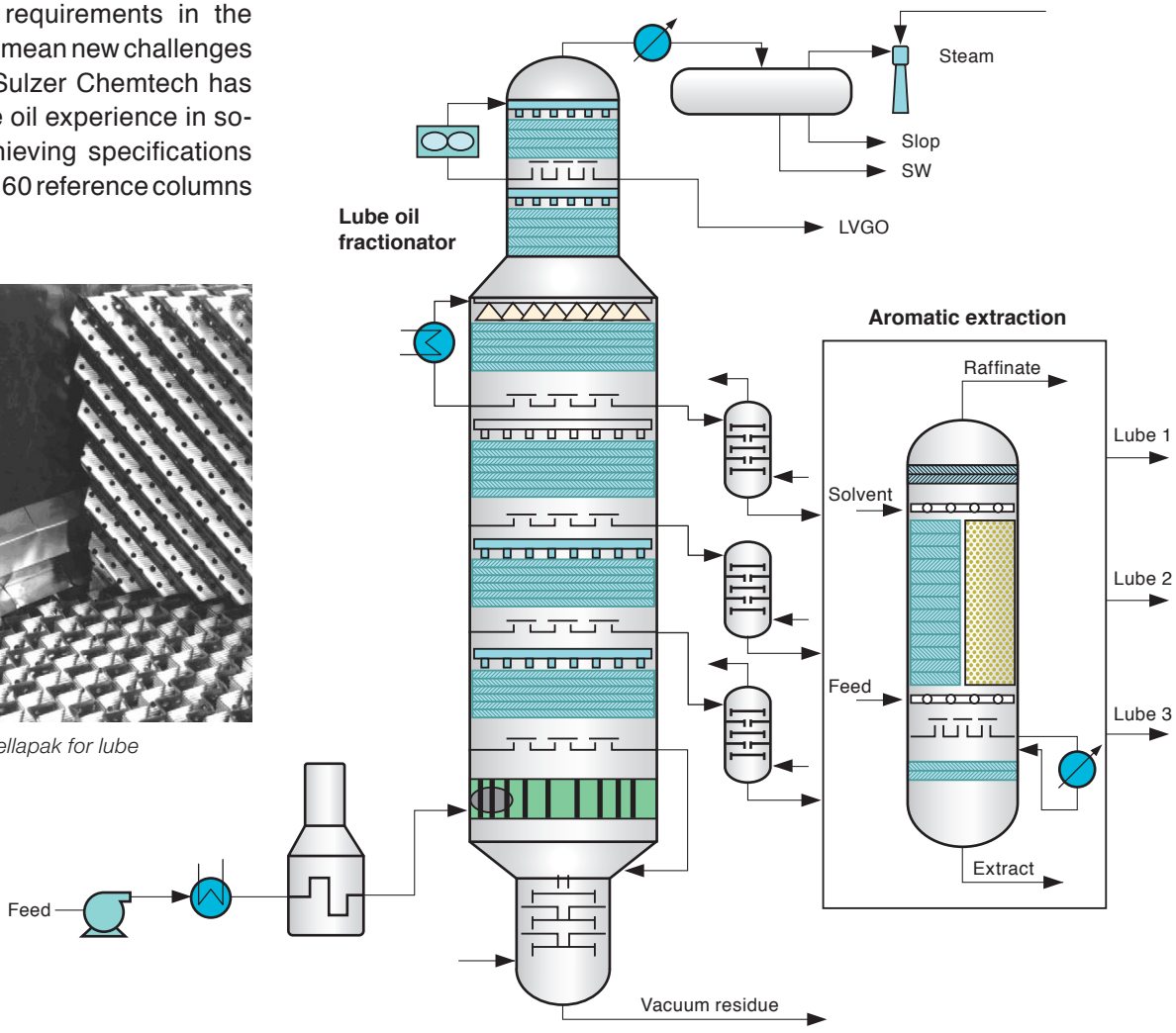
- Over 10% additional capacity
- Premium VGO quality to hydrocracker: CCR < 0.01 %wt
- Additional HHVGO side cut to FCC: Ni + V < 2 ppmw; CCR < 0.7 %wt
- Deeper cut point: 3 %wt on feed basis additional distillates recovery
- Heavier vacuum residue resulting in higher liquid yields at the coker plant

Lube Oil Plant

New product requirements in the lube oil market mean new challenges to refineries. Sulzer Chemtech has extensive lube oil experience in solutions for achieving specifications with more than 60 reference columns worldwide.



High-efficiency Mellapak for lube vacuum tower



Aromatic extraction

Sulzer Chemtech can offer a reliable technology for the extraction of aromatics from lube oil cuts. We have experience with furfurol, phenol, and NMP solvents.

Liquid-liquid contactors equipped with Nutter Ring, I-Ring, or SMV extraction packing provide:

- Additional capacity for debottlenecking existing columns
- No moving parts and therefore low maintenance costs

Features of Mellapak and MellapakPlus:	Achievements
• Low pressure drop	• Maximum throughput and distillate recovery
• High separation efficiency	• Sharp fractionation with minimum operating cost
• Several types of packing with high hydraulic flexibility	• Wide operating range
• Mechanical robustness	• Reliable operation
• Easy and fast installation	• Low installation cost
• Compact internals	• Reduced tower dimensions

Lube Tower Upgrading

Before revamp

Throughput: 39 KBPD

Conventional mist eliminator

LVGO Pump Around:
Mellapak
VEP distributor

LVGO / Lube 1:
Mellapak
VEP distributor

HVGO Pump Around:
Mellapak
VEP distributor

Lube 1 / Lube 2:
Mellapak
VEP distributor

Lube 2 / Lube 3:
Mellapak
VEP distributor

Lube 3 / Lube 4:
Mellapak
Spray nozzle distributor

Wash Section:
Ring
Spray nozzle distributor

Flash Zone:
Annular feed inlet device

Stripping Section:
Conventional sieve trays

After revamp

Throughput:51 KBPD

Sulzer V-MISTER

LVGO Pump Around:
High-capacity Mellapak
VEP distributor

LVGO / Lube 1:
Same arrangement

HVGO Pump Around:
High-capacity Mellapak
VEP distributor

Lube 1 / Lube 2:
MellapakPlus
VEP distributor

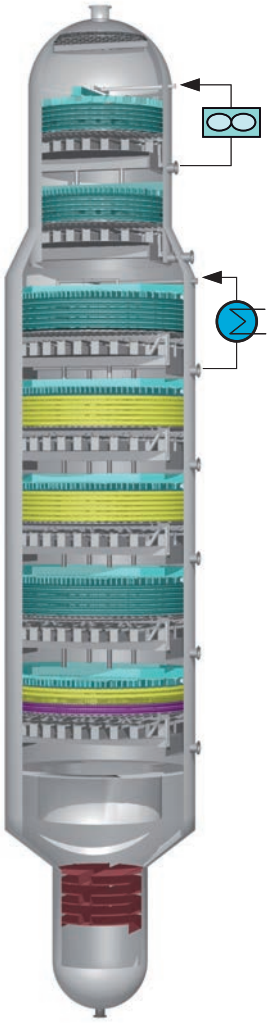
Lube 2 / Lube 3:
MellapakPlus
VEP distributor

Lube 3 / Lube 4:
Same Mellapak, new
VEP distributor

Wash Section:
MellapakPlus, Mellagrid
VEP distributor

Flash Zone:
Reinforced annular feed
inlet device

Stripping Section:
SVG fixed valve trays



MellapakPlus for debottlenecking lube oil fractionator

Achievements:

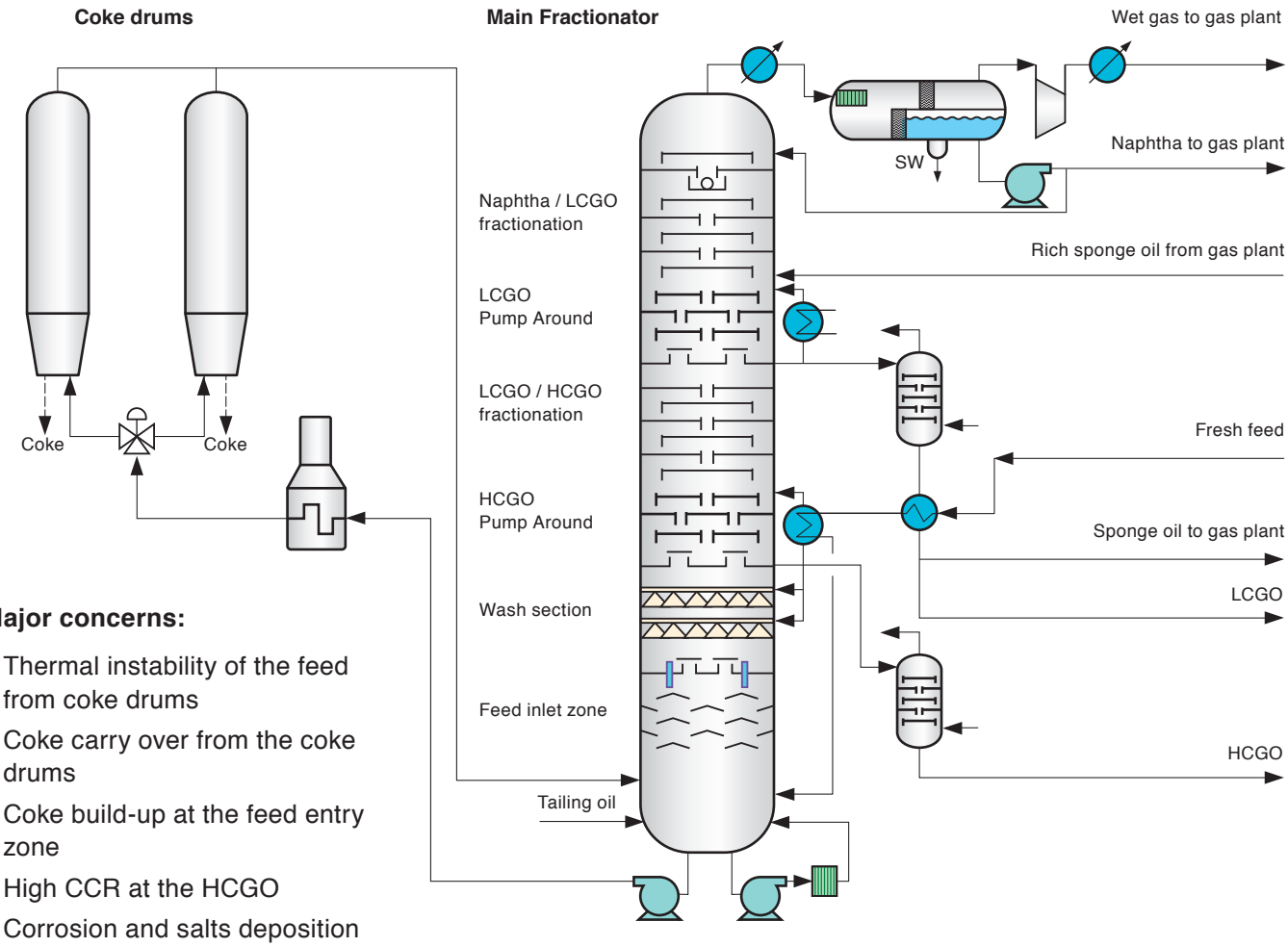
- Additional capacity: over 30%
- Additional lube yield: 0.5 %wt on feed base
- Premium quality lube cuts

Light *Medium* *Heavy*

lube oil samples after revamp

VEP high-performance liquid distributor suitable for fractionation sections

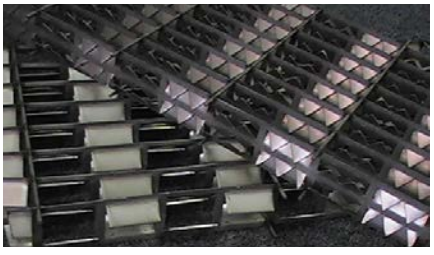
Coking Unit



Major concerns:

- Thermal instability of the feed from coke drums
- Coke carry over from the coke drums
- Coke build-up at the feed entry zone
- High CCR at the HCGO
- Corrosion and salts deposition at the top section
- Unscheduled shutdown

Mellagrid

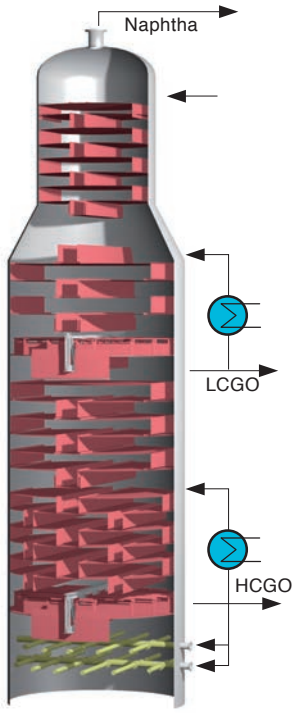


F-Grid

Mass transfer components best fit

• Top section	VG AF trays
• Naph / LCGO	VG AF, VGPlus trays, MellapakPlus
• LCGO PA	VG AF trays, MellapakPlus
• LCGO / HCGO	VG AF, VGPlus trays
• HCGO PA	VG AF trays, Mellagrid
• Wash section	Mellagrid, F-Grid
• Feed inlet zone	Baffle trays
• Top receiver	Mellaplate coalesce Mellachevron mist eliminator

Coker Main Fractionator Upgrading



Naphtha / LCGO
8 VG AF trays retrofitting conventional valve trays

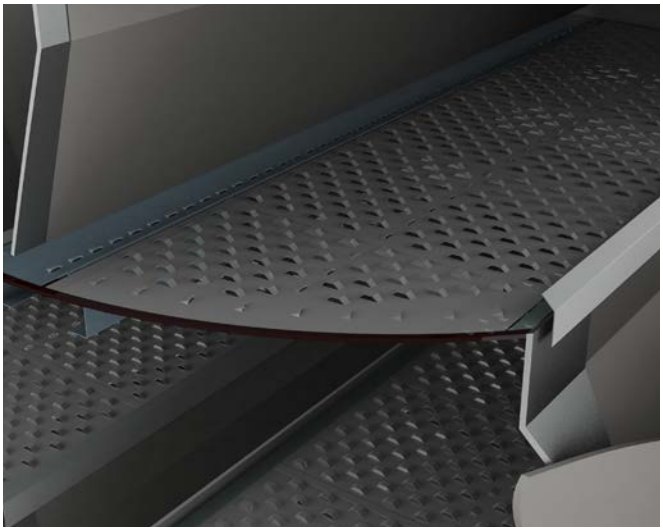
LCGO Pump Around:
4 VG AF trays retrofitting conventional valve trays

LCGO / HCGO:
6 VG AF trays retrofitting conventional trays

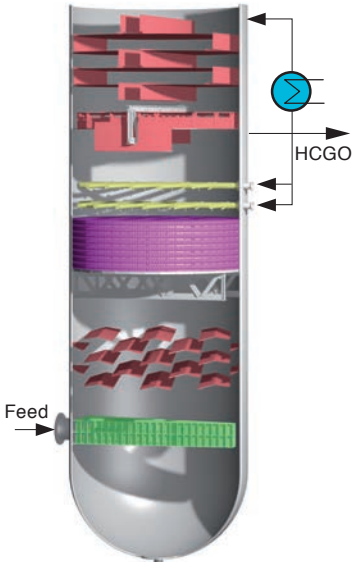
HCGO Pump Around:
4VG AF trays retrofitting conventional trays

Wash section:
New spray nozzle distributor

Upgrading a coker main fractionator to boost the capacity from 140 to 180 KBPD and increase the run length up to 5 years



2-pass VG AF high-performance anti fouling trays equipped with MVG fixed valves, push valves, and stepped outlet weir



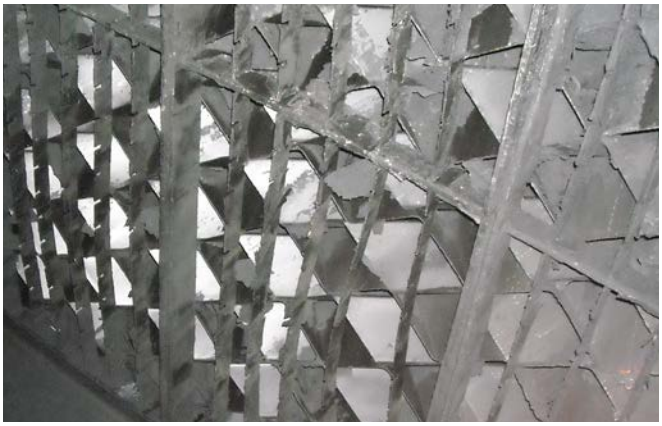
HCGO Pump Around:
4 MVG trays retrofitting conventional trays

Wash section:
New spray nozzles distributor
Mellagrid retrofitting 5 fixed valves trays

Feed inlet zone:
New 6 pass baffle trays

Existing Schoepentoeter cleaned & reused

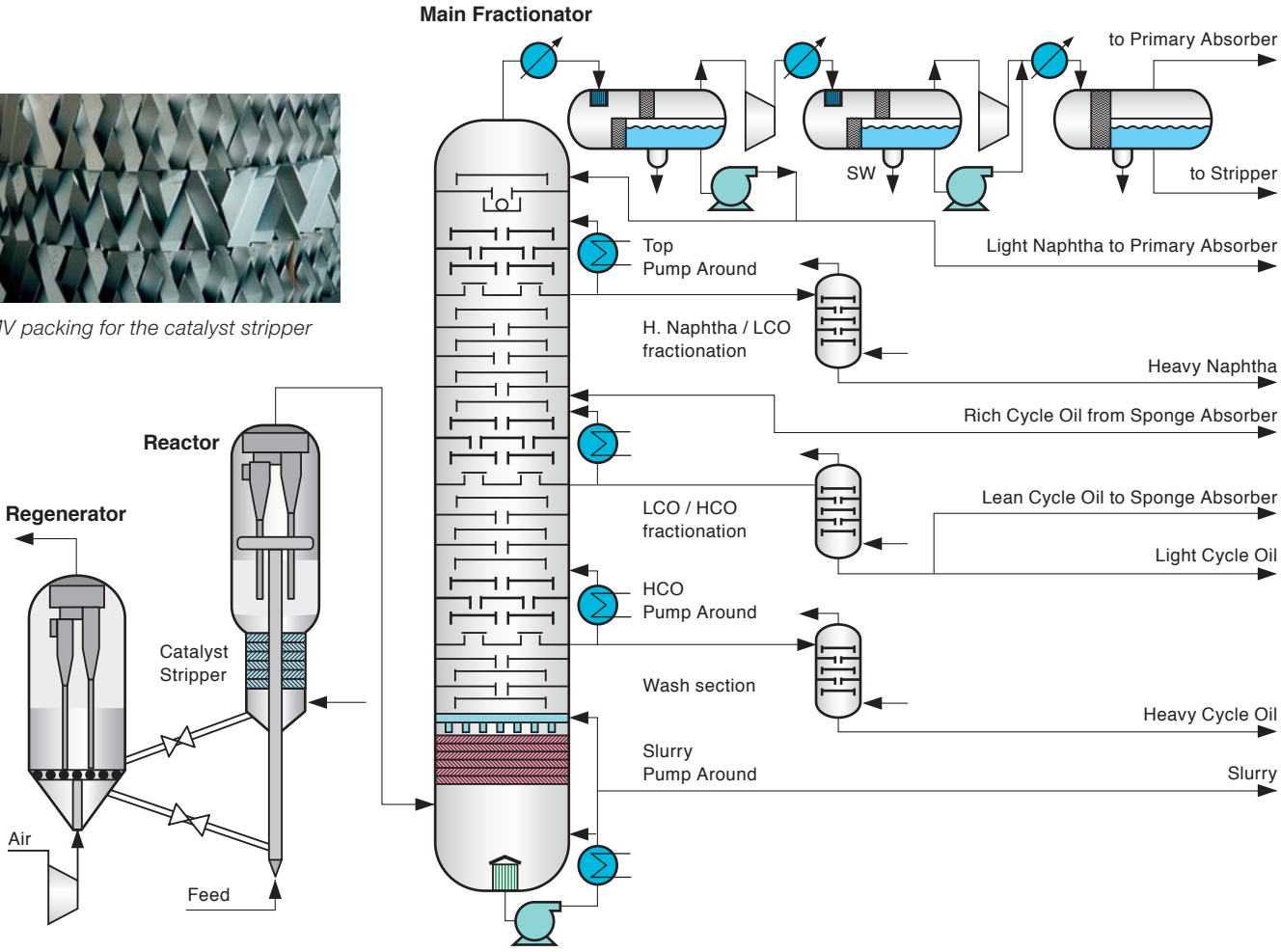
Upgrading a coker main fractionator to double the capacity, increase the liquid yield, and reduce the CCR of the HCGO from 0.4 to 0.3 %wt



Mellagrid high-performance structured grid after 3 years operation, only small amount of coke at the bottom of the bed, washed in place and reused

Fluid Catalytic Cracking

SMV packing for the catalyst stripper



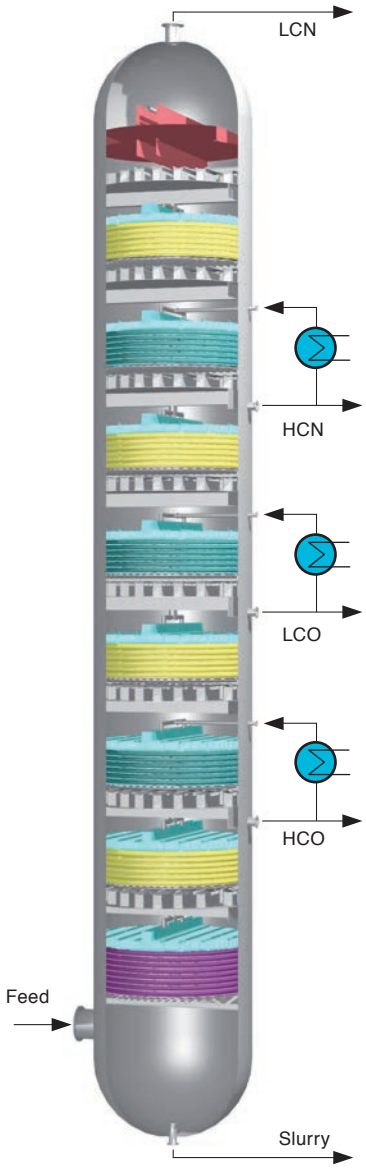
Mellachevron mist eliminator for the top receiver

Mellaplate coalescer for the top receiver

Mass transfer components best fit

• Top section	VG AF trays, Mellagrid
• Naph / LCO • LCO / HCO	VGPlus trays, MellapakPlus, Mellapak
• Top PA • LCO PA • HCO PA	VG AF trays, MellapakPlus, Mellapak
• Wash section	MellapakPlus, Mellapak VG AF trays
• Slurry PA	Mellagrid, F-Grid
• Catalyst stripper	SMV packing
• Top receiver	Mellaplate coalescer Mellachevron mist eliminator

State-of-the-Art FCC Main Fractionator



Water wash:
VG AF trays

LCN / HCN:
Mellapak Plus

HCN PA:
Mellapak

HCN / LCO:
Mellapak Plus

LCO PA:
Mellapak

LCO / HCO:
Mellapak Plus

HCO PA:
Mellapak

Wash:
Mellapak Plus

Slurry PA:
Mellagrid

For large main fractionators, **structured packing** becomes a very attractive solution when compared to fractionation trays.

The low pressure drop across the tower allows the reactor to operate at minimum pressure with the highest conversion rate and distillates yield, while keeping the wet gas compressor and the air blower within a reasonable size.

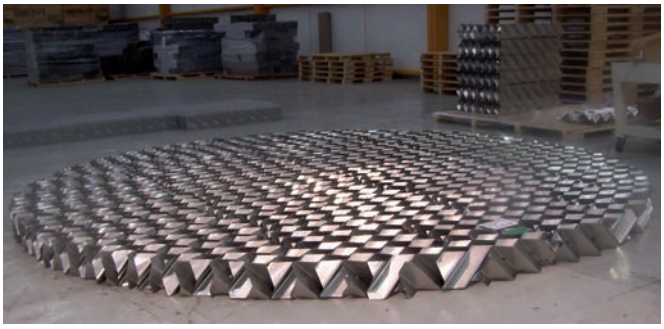
- **MellapakPlus** in the fractionation sections further reduces the pressure drop while maintaining high separation efficiency.

  The top water wash section of the tower is often subject to corrosion and salts deposition.

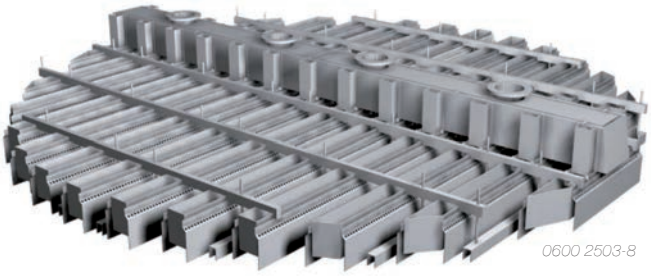
- **VG AF trays** equipped with anti-fouling features and a properly designed draw-off tray are recommended.

  The high operating temperature and consequent mechanical instability, the risk of coke build-up, and the catalyst debris carry-over, make the Slurry Pump Around the most critical section of the tower. Mass transfer components that are specifically developed for this section are essential:

- **VES**, the liquid distributor suitable for handling solid debris and coke particles.
- **Mellagrid**, the high performance grid that features structured geometry for superior mechanical robustness, and smooth surface for fouling resistance. It can often be cleaned with jet washing. Alternatively, a conventional type **F-grid** can be used.
- **Support and hold down grids** equipped with features to withstand uplift loadings.

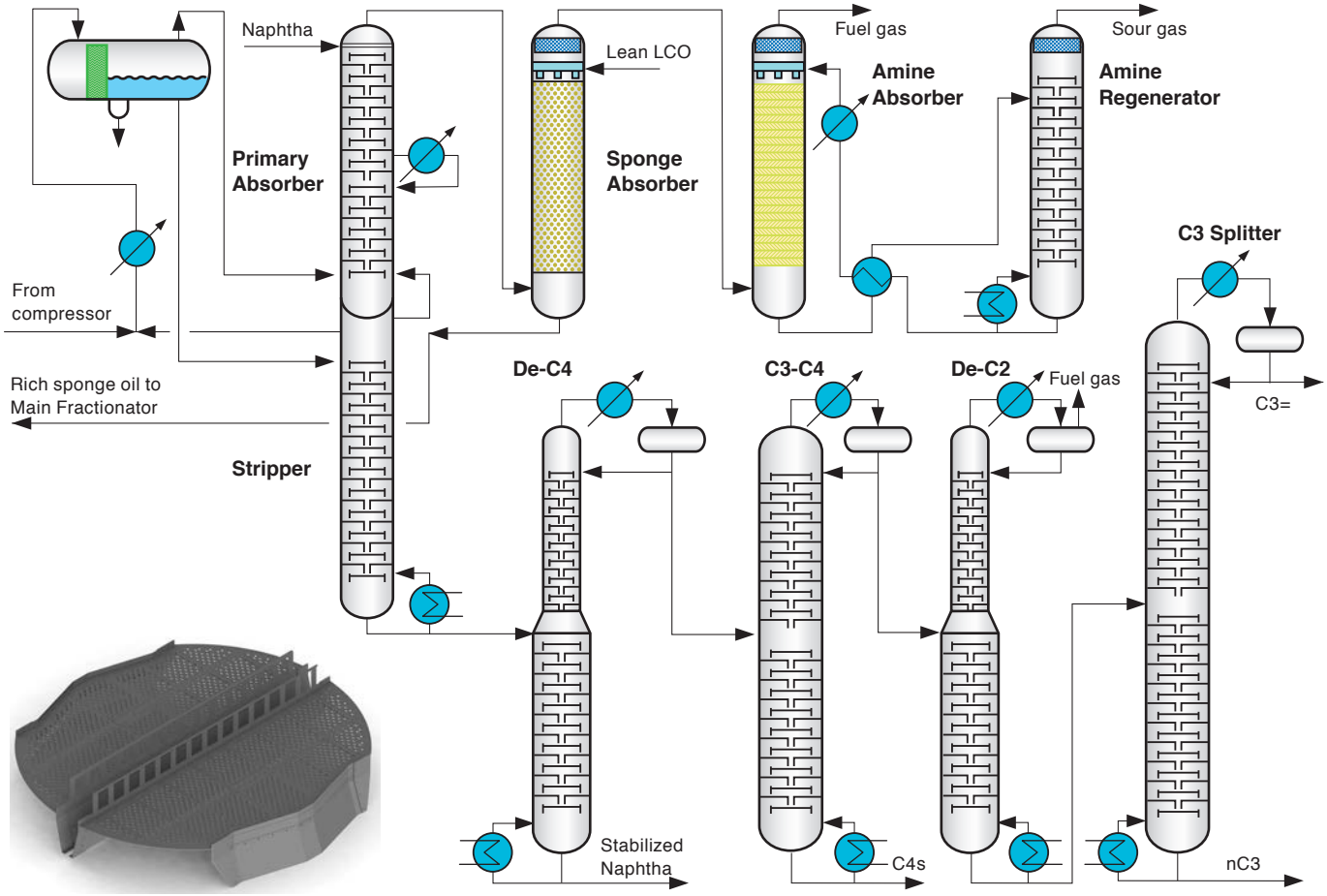


Mellagrid for the Slurry Pump Around



VES distributor for the Slurry Pump Around

Gas Concentration Unit



4-pass VGPlus tray

KnitMesh V-MISTER enhanced performance mist eliminator

Nutter Ring

Mass transfer components best fit

Sulzer Chemtech is able to provide customers with the widest range of high-performance mass transfer components to maximize LPG recovery, energy saving and throughput, while minimizing investment cost.

• C3 Splitter	VGPlus, HiFi Plus trays
• De-C4, C3/C4, De-C2	VGPlus, HiFi Plus, ConSep trays
• Primary and Sponge Absorbers	VG AF trays, I-Ring, Nutter Ring
• Stripper	VG AF trays, I-Ring, Nutter Ring
• Amine Absorber and Regenerator	VG AF, HiFi Plus trays MellapakPlus, Mellapak, I-Ring, Nutter Ring

LPG and Gas Sweetening

Sulzer Chemtech has extensive experience in designing amine absorbers and regenerators equipped with:

- Conventional trays featuring BDH movable valves or V-Grid fixed valves
- VGPlus and VG AF high performance trays
- Mellapak or MellapakPlus structured packing
- Nutter Ring or I-Ring random packing
- Mist eliminators

Selective Absorption

Mellapak or MellapakPlus is recommended for selective absorption of sour gas systems contaminated with CO_2; the advantages are:

- High selectivity due to short residence time
- Minimum solvent requirement
- Minimum solvent regeneration cost
- Minimum investment cost
- Low pressure drop

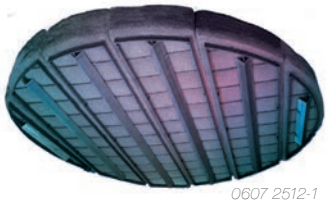
Tail Gas Treatment

For these units, operating at atmospheric pressure, Mellapak or MellapakPlus is strongly recommended for the quench tower and the H2S absorber to minimize pressure drop and energy consumption

LPG Sweetening

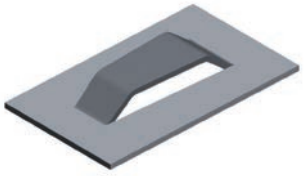
Liquid-liquid amine contactors incorporate the following customized internals:

- SMV and SMVP extraction packing
- Coalescer packing
- Nutter Ring or I-Ring
- VRXK distributor for the continuous phase
- VRXD distributor for the dispersed phase
- VSX disperser / support plate
- Shell HiFi extraction trays
- Sieve trays

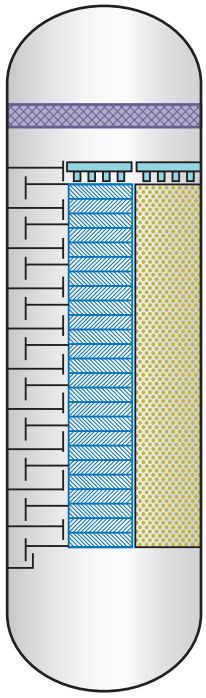


V-MISTER mist eliminator

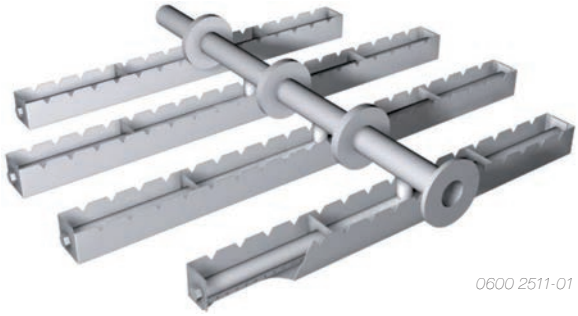
Nutter Ring



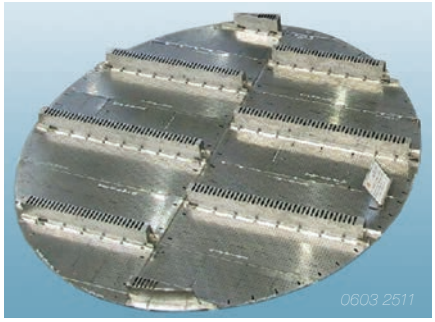
V-Grid fixed valve



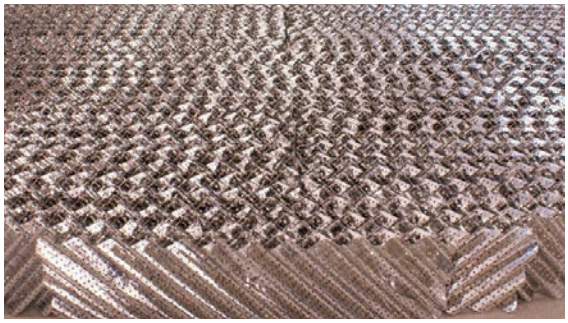
Amine absorbers and regenerators can be equipped with trays, structured or random packings



VRXK high-performance distributor for the continuous phase

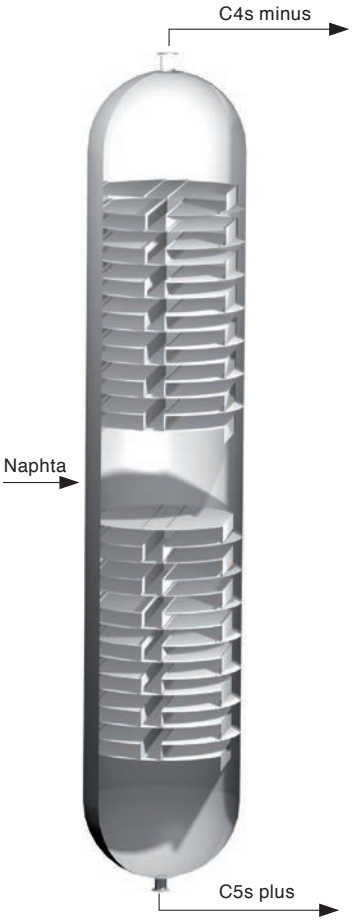


Shell HiFi extraction trays



SMV extraction packing

De-Butanizer Upgrading



Before Revamp

Rectifying Section:
15 Chordal downcomer
High Performance trays

Stripping section:
15 Chordal downcomer
High Performance trays

Feed flow rate:
155 mc / h

Tray Efficiency:
< 70 %

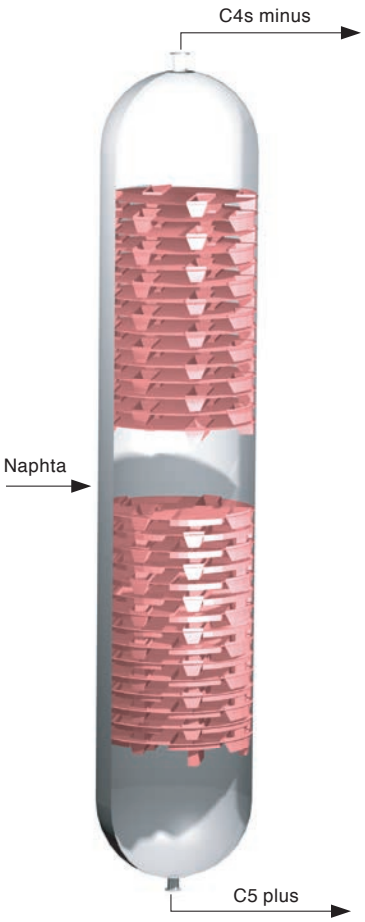
After Revamp

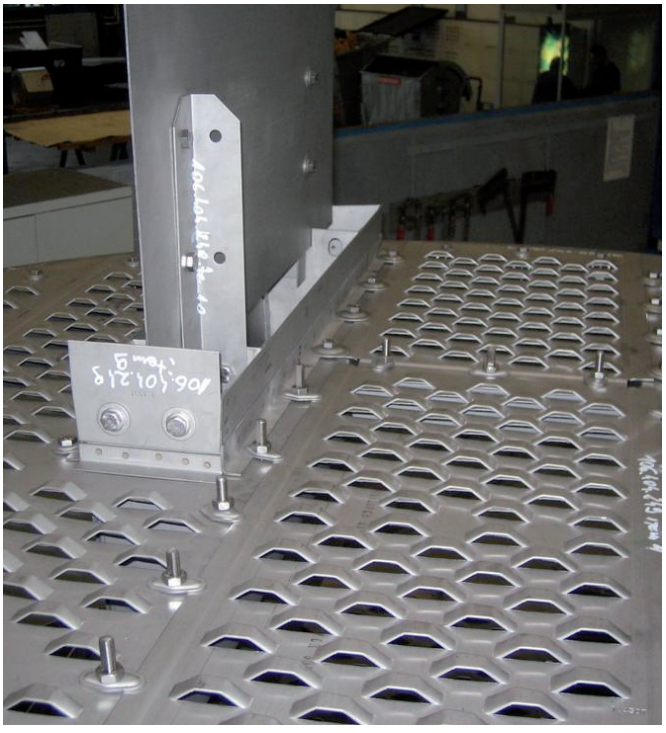
Rectifying Section:
15 HiFi Plus trays

Stripping section:
15 ConSep trays

Feed flow rate:
185 mc / h

Tray Efficiency:
> 85 %





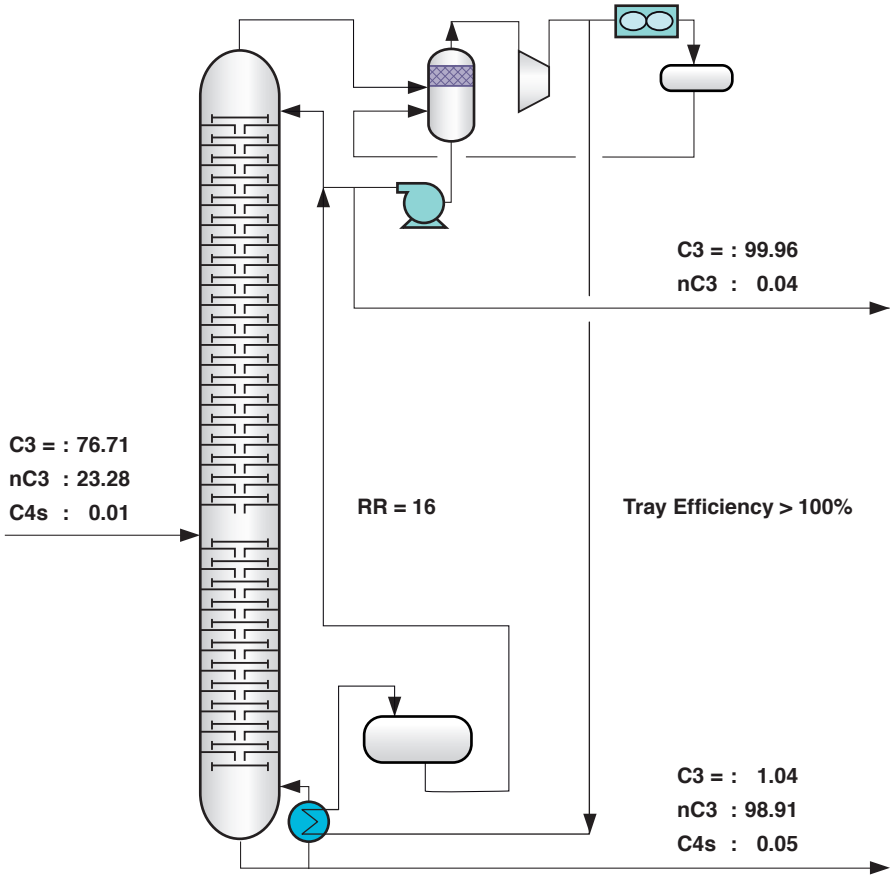
Shell HiFi Plus high-capacity tray equipped with MVG valves

Achievements:

- 20% additional capacity
- 20% additional separation efficiency
- Naphtha and LPG on spec

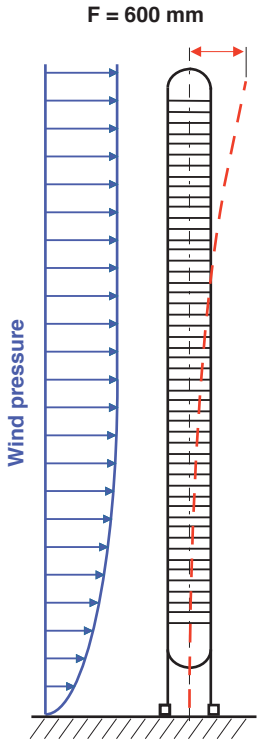
Shell ConSep tray: the ultra system limit high-capacity tray

State-of-the-Art Propylene - Propane Splitter

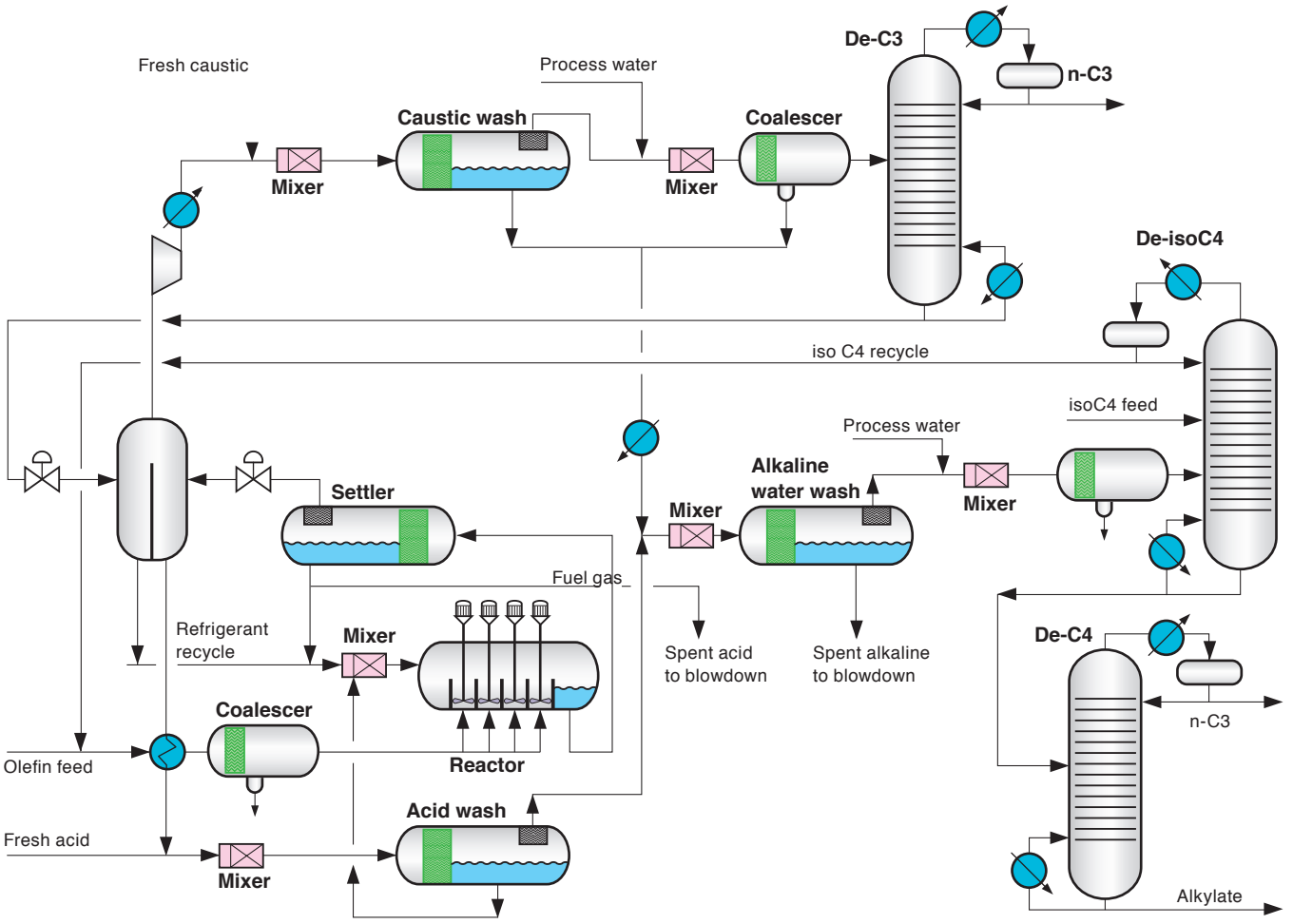


In a superfractionator, the wind deflection at the top section of the vessel is of great concern. This deflection can significantly impact the levelness of the trays, causing maldistribution with consequent loss of the separation efficiency. Sulzer Chemtech can provide tailor-made devices to prevent maldistribution, and enable maximum mass transfer efficiency.

6-pass VGPlus high performance trays equipped with ModArc downcomer, MVG, and push valves, for a 8000 mm diameter PP splitter

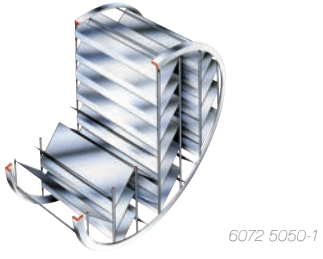


Alkylation



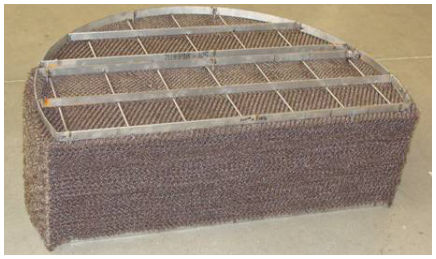
Sulzer separators

Sulzer DC Coalescer and Sulzer Mellaplate are the coalescers used in the acid settler, acid wash tank, alkaline wash tank, and in the caustic wash tank, to drastically reduce the required residence time for phase separation. New units would mean large capital savings. Alternatively, the higher separation efficiencies can be used for debottlenecking existing plants.



Mellaplate™ coalescer

SMV static mixer



DC Coalescer™

Sulzer static mixers

Sulzer SMV static mixers are used to improve the performances of the following equipment:

Reactor: to minimize the formation of undesired products.

Acid wash tank: to maximize the extraction of the free acid and the alkyl / di-alkyl sulfates from the net effluent.

Caustic wash tank: to improve the removal of any traces of acidic components and protect the De-C3 from corrosion.

Alkaline wash tank: to improve the removal of any residual free acid and alkyl / di-alkyl sulfates and protect the De-isoC4 & De-C4 from corrosion.

Additional Offers

Turnaround Services

The Sulzer Chemtech Turnaround Services (TAS) team is known for its fast delivery and quality of the goods, its reliability and customeroriented approach.

TAS is available 24 hours a day, 7 days a week, to provide customers with the best response time and premium quality service.

Our team can provide complete, around-the-clock support for your planned or emergency turnarounds. We offer material replacements with our complete line of products regardless of the original equipment manufacturer.

Our global manufacturing network allows us to bring our service and goods to you, day or night, in almost every country of the world.

Tower Field Service

Sulzer Chemtech's Tower Field Service has the expertise and experience to ensure that projects are executed with the highest standards of safety, quality, and efficiency. Our extensive depth of technical strength and project and construction management skills assist the client in obtaining the process goals they desire, within the constraints of a shutdown or construction environment.

The challenge to complete multiple tower revamps and retrofits safely and on time is what Tower Field Service most prides itself on.

For tower revamps and retrofits, Tower Field Service can provide a streamlined solution to ensure minimal downtime. A systematic, practical approach for tower revamping projects is essential in obtaining a successful outcome.

These capabilities have been tested and proven in thousands of projects around the world.

Sulzer Pumps

Sulzer Pumps is a leading global supplier of reliable products and innovative pumping solutions for all industrial applications, including crude oil refining.

Sulzer Pumps combines more than 135 years of experience in pump research, development and manufacturing with a commitment to fully understand the needs of our customers. Our detailed process and application knowledge, combined with an in-depth understanding of market demand, keeps us consistently at the leading edge of technical development.

Some refining processes produce coke particles and chunks. If these particles are too large, they are trapped between impeller vanes and may reduce or stall flow.

The coke crusher breaks up coke particles, while maintaining pumping output. It is available for all refining pumps operating in severe fouling environments.

BBS: Single Stage Between Bearing, typically used at high temperature, high flow and high head, that is residue and bottom Pump Around of main fractionators

www.sulzer.com

Please check for your local contact

Sulzer Chemtech Ltd, a member of the Sulzer Corporation, with headquarters in Winterthur, Switzerland, is active in the field of process engineering and employs some 4000 persons worldwide.

Sulzer Chemtech is represented in all important industrial countries and sets standards in the field of mass transfer and static mixing with its advanced and economical solutions.

The activity program comprises:

- Process components such as fractionation trays, structured and random packings, liquid and gas distributors, gas-liquid separators, and internals for separation columns
- Engineering services for separation and reaction technology such as conceptual process design, feasibilities studies, plant optimizations including process validation in the test center
- Recovery of virtually any solvents used by the pharmaceutical and chemical industry, or difficult separations requiring the combination of special technologies, such as thin film/short-path evaporation, distillation under high vacuum, liquid-liquid extraction, membrane technology or crystallization.
- Complete separation process plants, in particular modular plants (skids)
- Advanced polymerization technology for the production of PLA and EPS
- Tower field services performing tray and packing installation, tower maintenance, welding, and plant turnaround projects
- Mixing and reaction technology with static mixers
- Cartridge-based metering, mixing and dispensing systems, and disposable mixers for reactive multi-component material

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