

Innovative Solutions / Reliable Performance



Corporate Overview

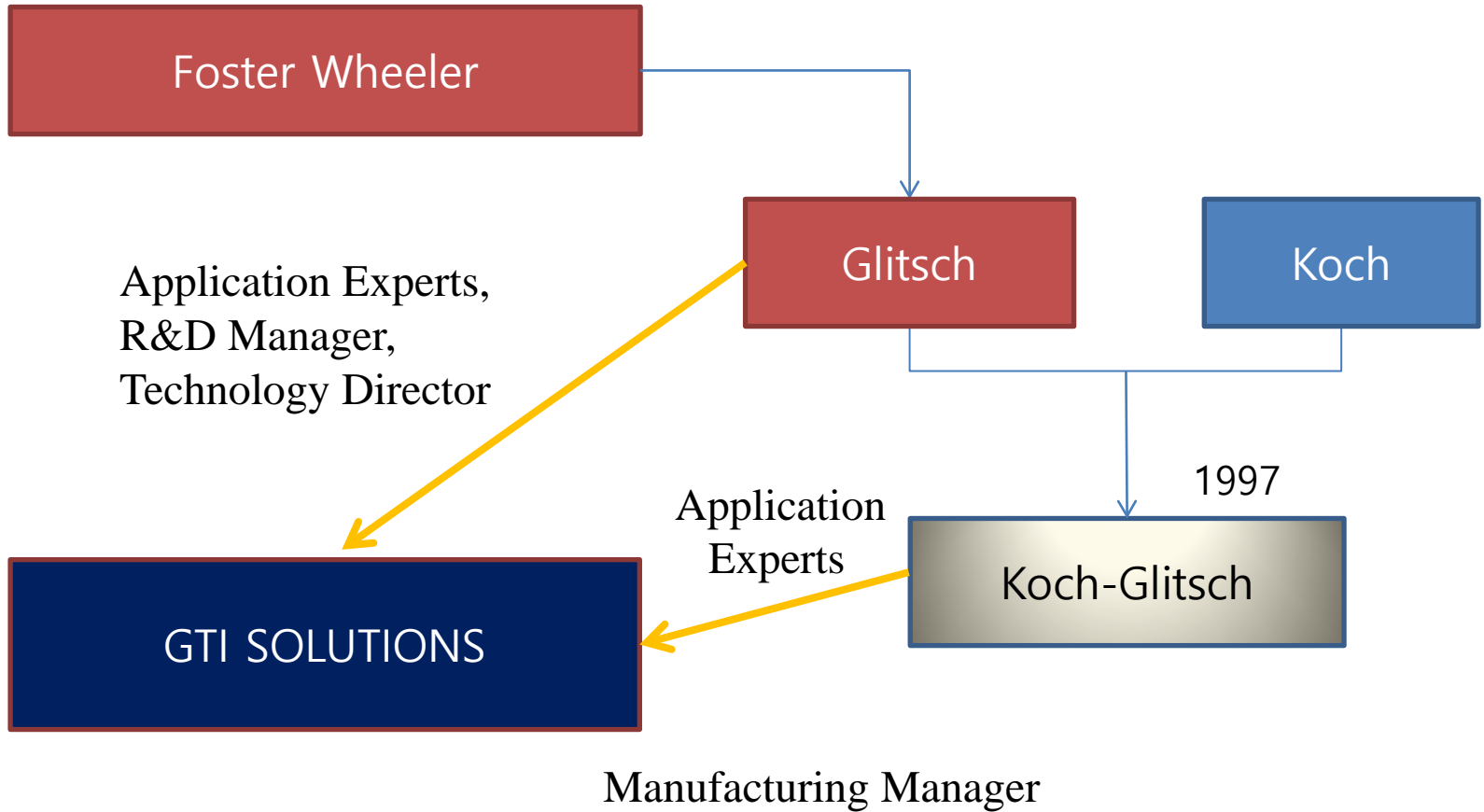


- Mass Transfer & Separation Equipment
- Solutions provider for:
 - Petrochemicals
 - Chemicals
 - Refining
 - Gas processing
 - Offshores
- HQ in Dallas, Texas
- Engineering & sales offices in Japan, Korea, India, Czech Republic & USA
- Engineering & supply of mass transfer, separation equipment, revamps, troubleshooting, startup services & training courses

Brief Introduction on GTIS

- ❖ Complete mass transfer/separation product portfolio & technologies.
- ❖ State of the art manufacturing facility.
- ❖ Engineering centers are ISO-9001, ISO-14001 & ISO-45001 certified.
- ❖ Tower internal experts with an average experience of 20+ years.
- ❖ GTIS having references with more than 3,600 columns worldwide.
- ❖ Proprietary & patented high performance products are commercially proven.
- ❖ Strength in tower revamps, quick turnaround replacement projects including performance and hydraulic guarantees.

GTI SOLUTIONS



Global Presence



● GTI Solutions

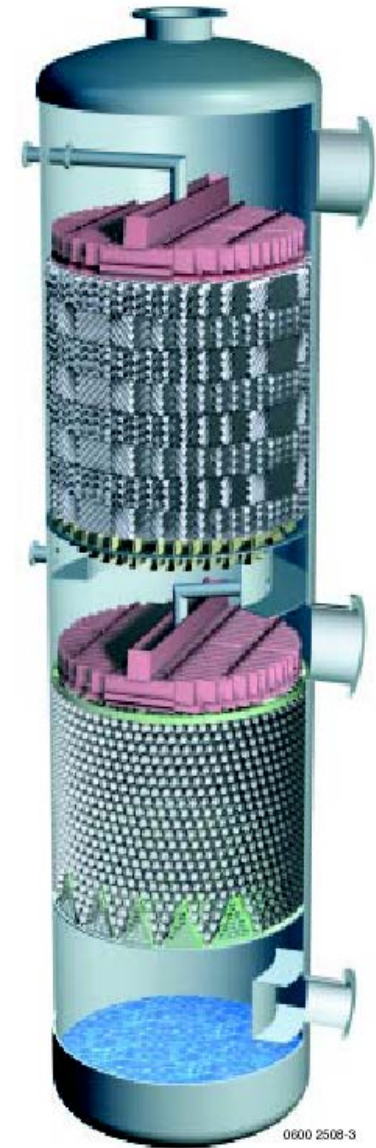
▲ Sales Rep

What is Distillation?

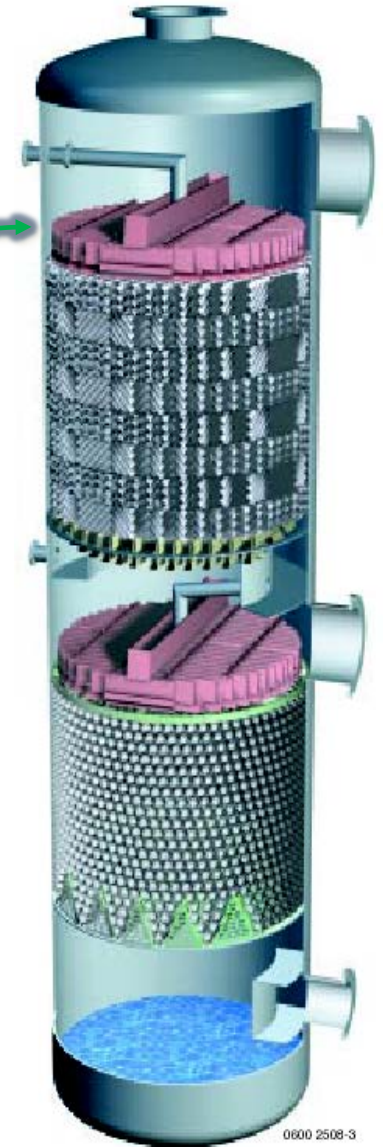
Distillation is the most common separation technique employed in the energy sector

Distillation is the most energy intensive process consuming more than 50% of all energy in a process plant

Separation devices can be categorized as Trays & Packings



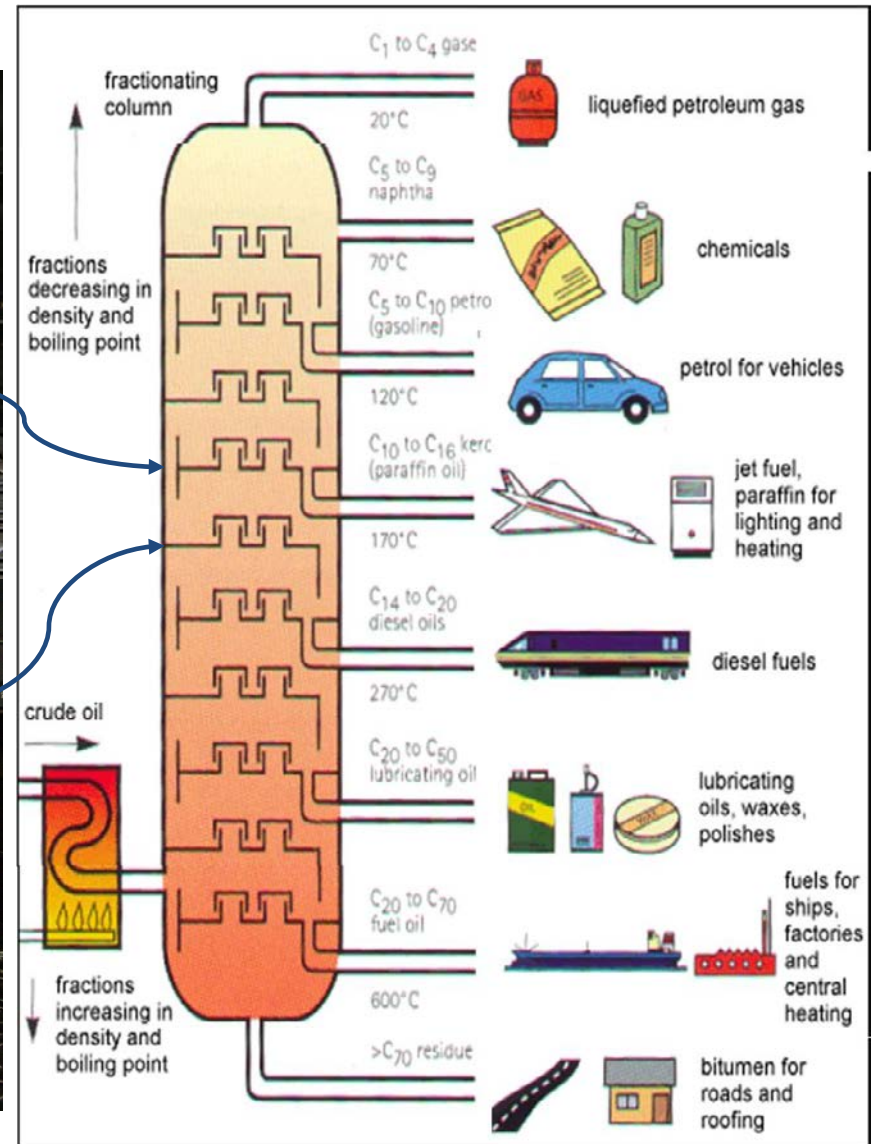
What Are Distillation Towers



0600 2508-3

- Scope includes the following:
 - Proprietary equipment to meet clients' needs
 - Troubleshooting
 - Plant data collection
 - Simulation modelling
 - Plant optimization via energy saving studies
 - Customized solution with proprietary equipment and/or change in operating conditions
 - Equipment dismantling, installation & field advisory capabilities
 - Start-up & commissioning assistance
 - Performance test run to validate the design
 - Training courses covering column sizing, packing/tray selections or any of the above topics

Applications



Typical Clients: 3 Categories

1. End-users:



2. Engineering, procurement & construction (EPC)



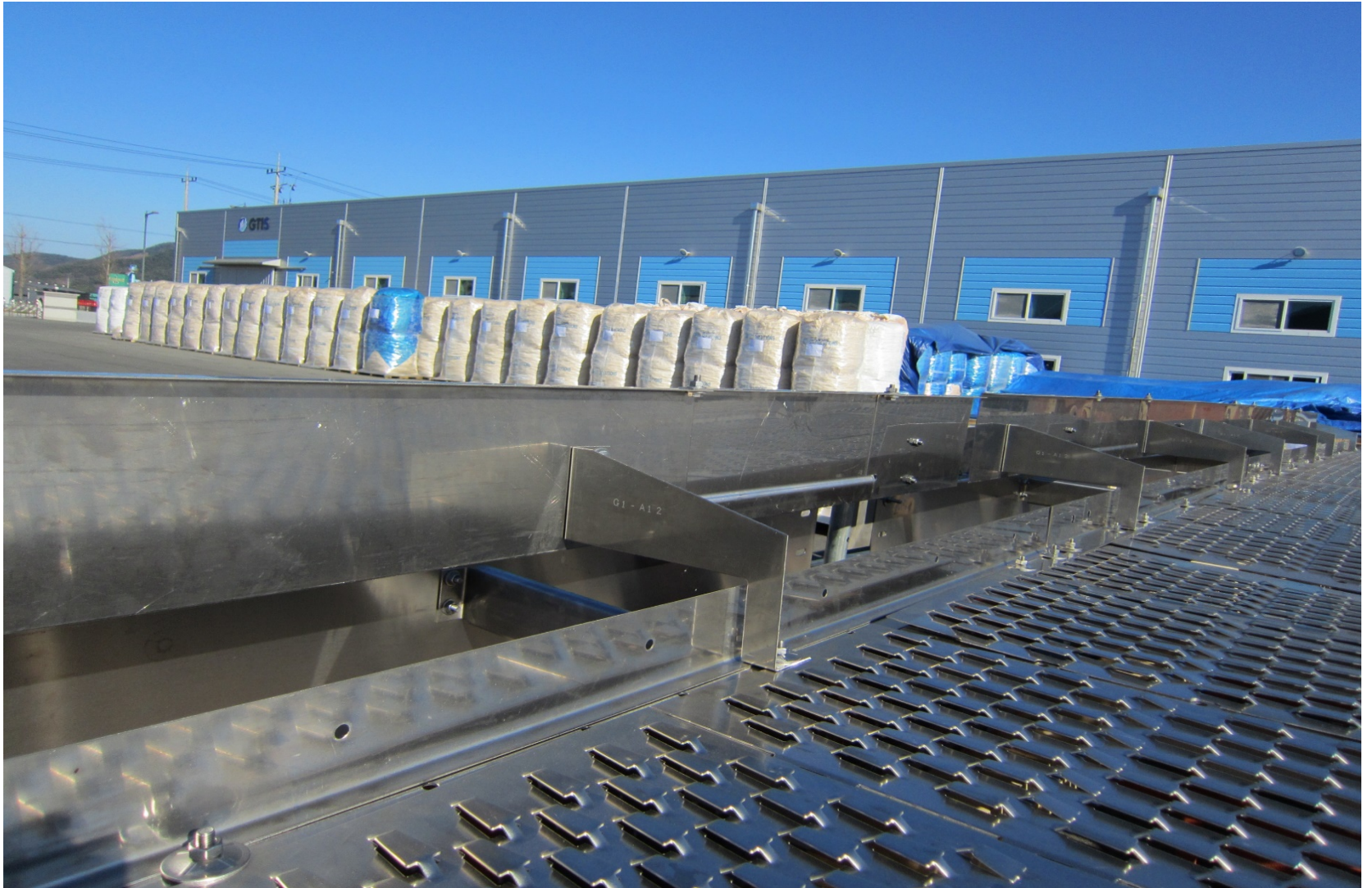
3. Technology Licensors



Manufacturing Facility



Manufacturing Facility



ISO-9001 & 14001 / OHSAS 18001 Facility



Synchronized ETO lines
streamlined for trays & internals



Automated packing
production line



Wide Experience Base

- Ability to engineer and manufacture equipment in exotic metallurgy including but not limited to Alloy 625, Alloy 825, C-276, Titanium and or Zirconium
- Column as large as 15,240+ mm and as high 100+ m
- Distributor testing facility to validate designs
- Experience for designing equipment for Azotropic, Extractive and Reactive distillation applications

C2 splitter tray revamp installation



Horizontal tray installation



Our Experiences & Expertise



Super Fractionator References

Scope included simulation modeling,
equipment supply, performance
guarantee & start-up services



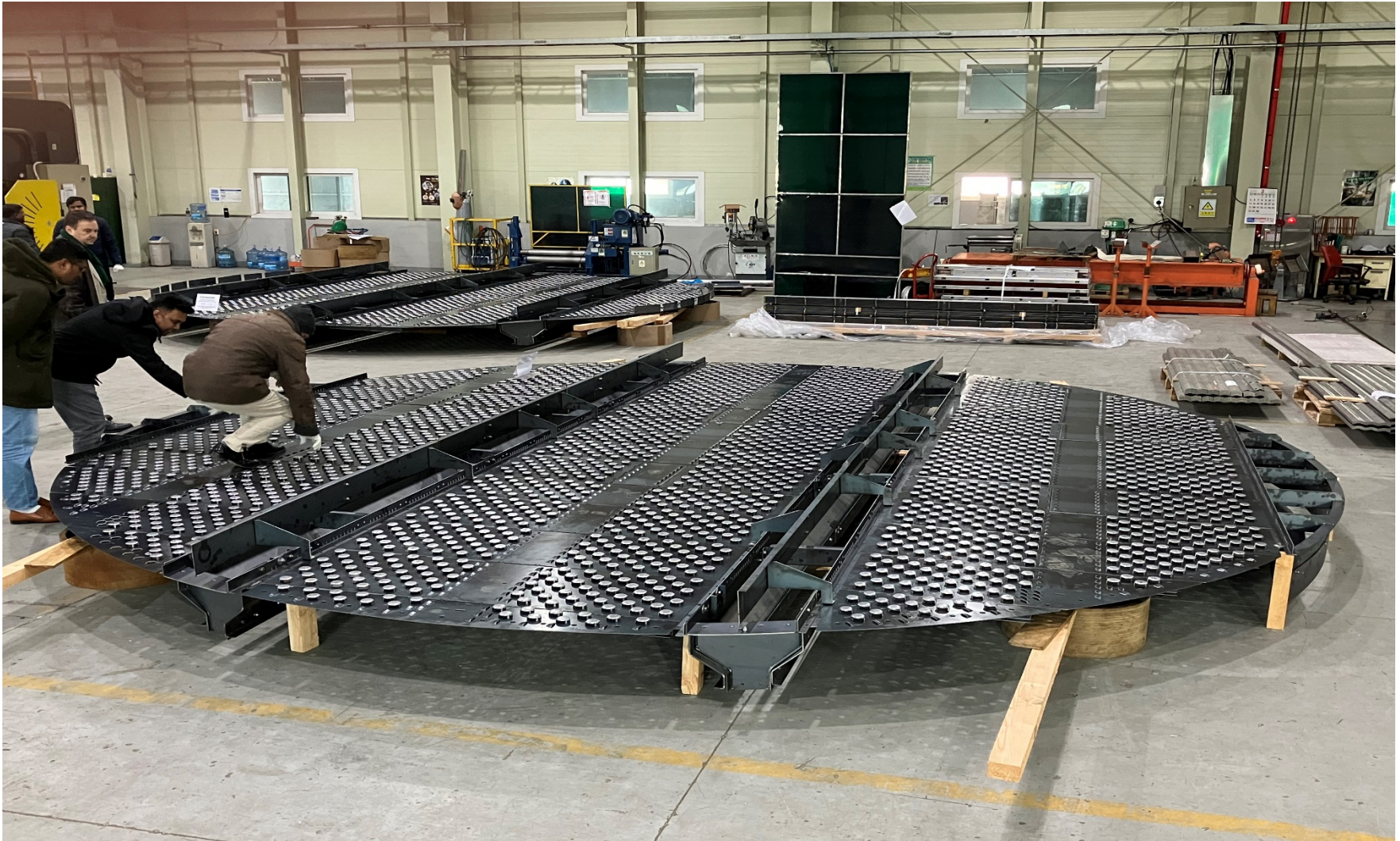
Liquid Flow Test Facility

- ❖ All trough distributors are flow tested against design
- ❖ Can test up to 10 meter ID distributors.



6,553mm 6-pass Deisobutanizer revamp

- Replaced ECMD trays to achieve 15% higher throughput (135 trays)
- Process guarantee includes energy savings, purity & yields



Site Installations



Troubleshooting vacuum tower

Job Site

Packing Mock-up



Customer Appreciation Letter



2017. 05. 25

Attn. Mr. Jaeman Cho

President

CC : Mr. David Lin

GTI Solutions Korea Co., Ltd.

Subject: GS Caltex – Item 502C-102 VDU Vacuum Column Revamping

Dear Mr. Cho,

We are pleased to inform you that our 15.24 meter vacuum column (502C-102) has been operating successfully after revamp of column internals/packed beds with technical service and equipment supplied by GTI Solutions.

Overall, the revamp objectives have been met. Specifically, column operation and product yields have improved. Furthermore, the fouling accumulation has reduced as well. As of now, column pressure drops and product qualities have been maintained at improved levels compared to pre-revamp operations.

We highly appreciate your team's efforts and the technical support and look forward to continuing our business relationships.

Best regards,

Jay J. Ha

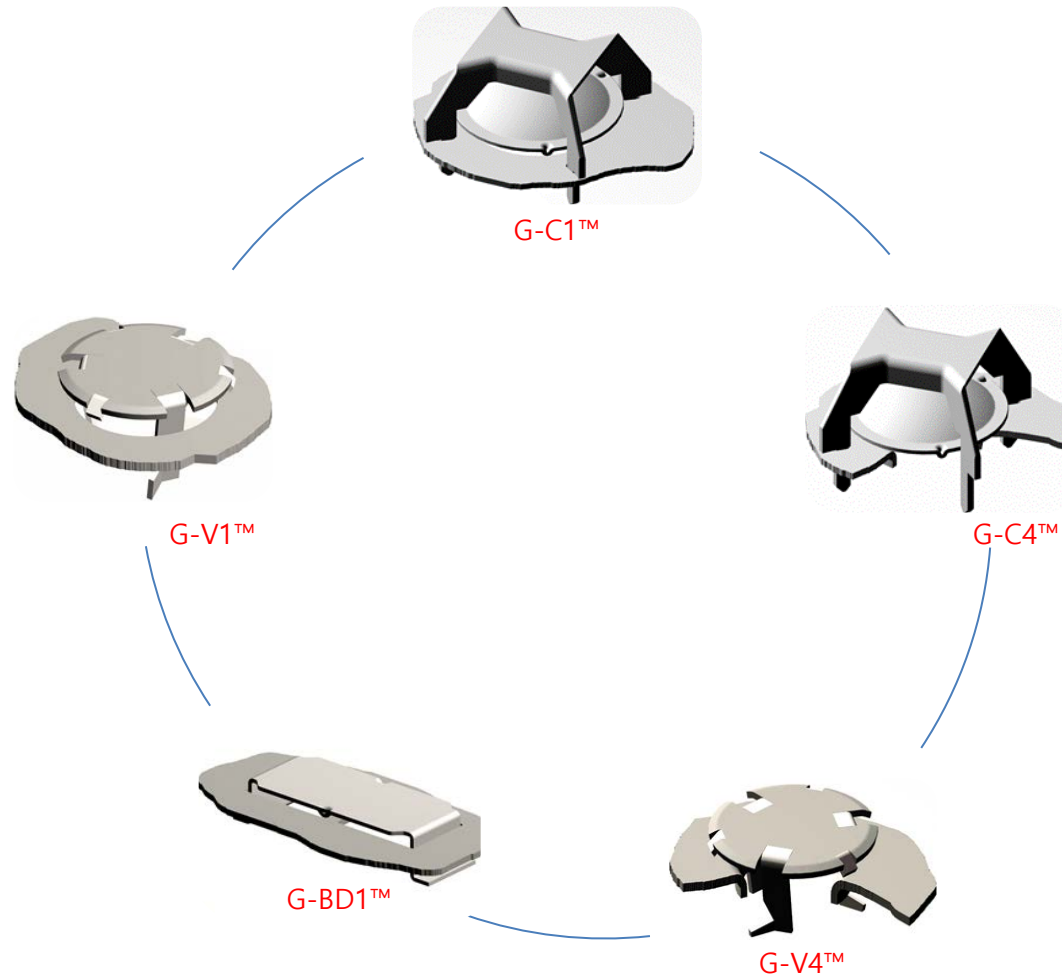
HCR2 Team Leader

GS Caltex Corp.

A handwritten signature in black ink, appearing to read 'Jay J. Ha', written over a faint circular stamp.

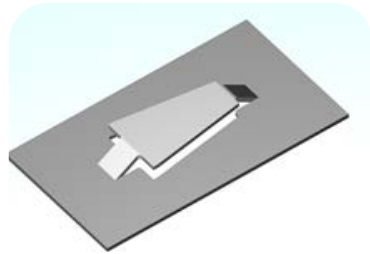
Conventional Valve Portfolio (Movable)

A wide range of choices to suit specific applications

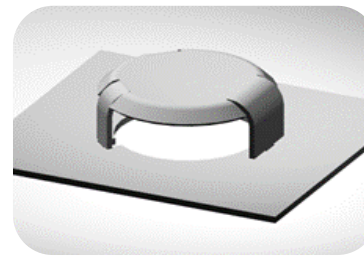


High Performance Valve Portfolio

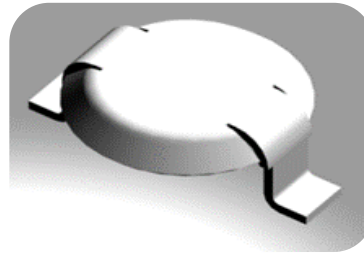
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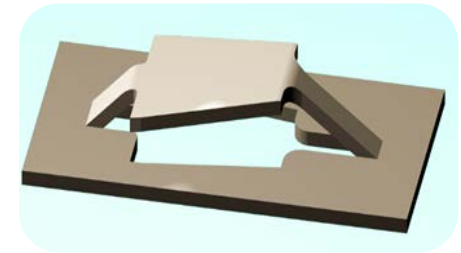
G-mF1
Mini Fixed Valve



G-sF2
Snap in Fixed Valve



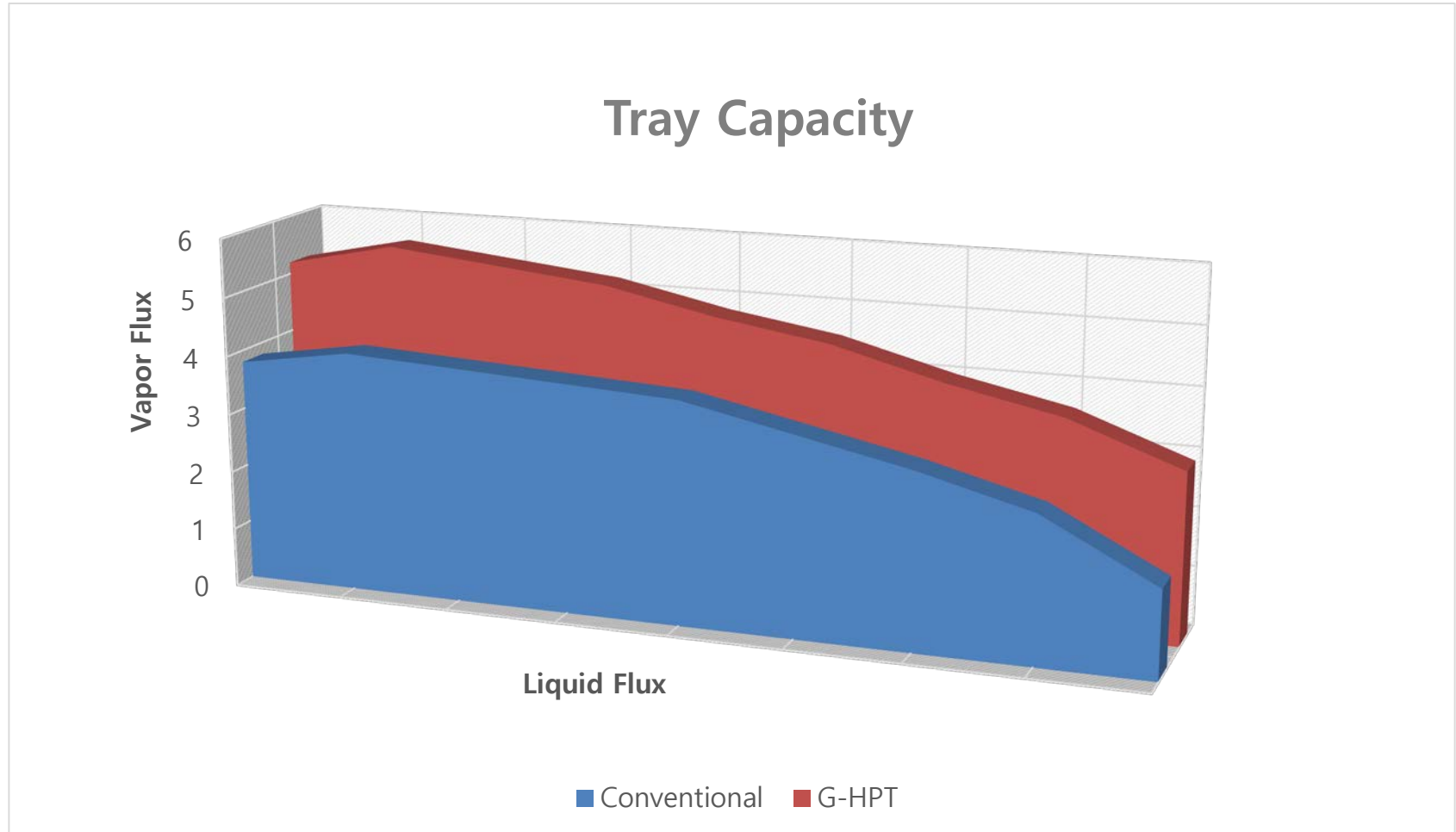
G-mV1
Mini Movable Valve



G-pF1
Mini Fixed Valve (push type)

G-HPT Capacity Comparison

20% - 30% additional capacity with better performance

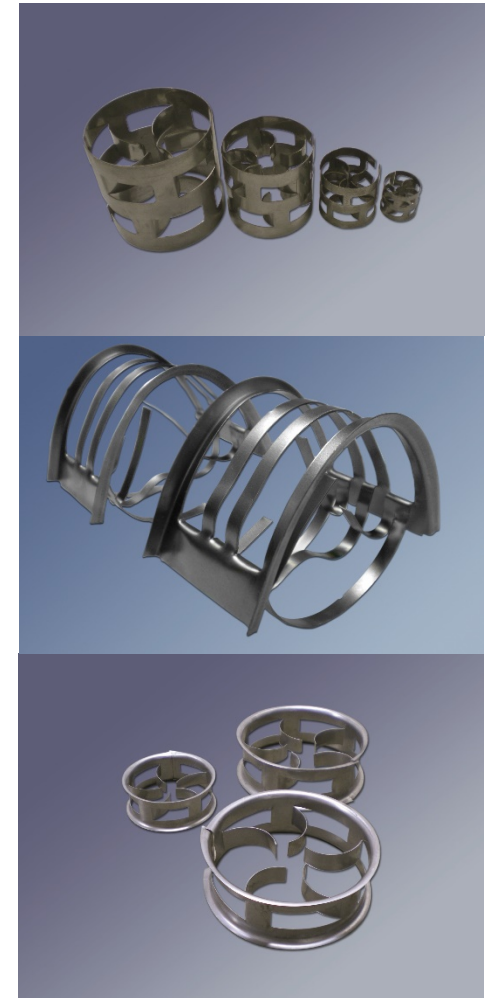


Random Packing Product Portfolio

→ G-PR™ Conventional Random Packing

→ G-IR™ High Performance Random Packing

→ G-CR™ High Performance Random Packing



Structured Packing Product Portfolio

G-sPAC™ → Standard Corrugated Sheet Packing including BX Gauze Packing

G-MxPAC™ → High Capacity Structured Packing including BX Plus Packing

G-AQPAC™ → Aqueous Service Structured Packing

G-eGRID™ → Lattice-Grating Grid Type Structured Packing

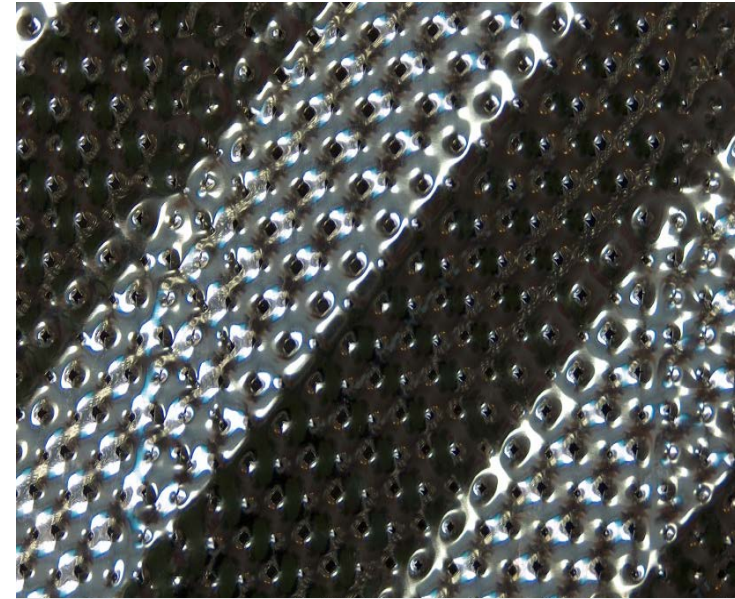
G-sGRID™ → Corrugated Sheet type Grid Packing



Other High Performance Structured Packing

G-AQPAC™ Structured Packing

- Specially developed for aqueous service where using structured packing with conventional texturing results in poor performance
- G-AQPAC™ use innovative aggressive texturing that's ensure complete wetting of packing surface
- Ideal choice for aqueous application such as PTA dehydration tower, alcohol-water distillation etc.



G-BX™ Gauze Structured Packing

- Highest separation stages with lowest pressure drop per meter of packed bed
- Ideal for deep vacuum application as fatty acid distillation, glycol distillation and fine chemicals



Your Partner in Mass Transfer Technology

- Innovative solution provider with complete product portfolio
- Engineers with application knowledge
- Design away from problems!
- Reliable solutions with quality products & services
- Start-up & commissioning services (process guarantees)
- On-time delivery and quick-replacement services
- Training courses

One stop for mass transfer / separation equipment needs,

A COMPLETE SOLUTION PROVIDER

INNOVATIVE SOLUTIONS / RELIABLE PERFORMANCE™