

COMPANY PRESENTATION



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Land Space – 23,794 M²
(약 180m X 132m)
약 7,200평



한발매스테크주식회사
HANBAL MASSTECH LIMITED

COMPANY IN GENERAL

Establishment : July, 1971

**The date of move to current Engineering building and Plant
: 1st of November, 2014**

**Main Products : Tower Trays, Internals, Packings, Wire Mesh,
Vane type Mist/Dust Eliminators and React
or Internals**

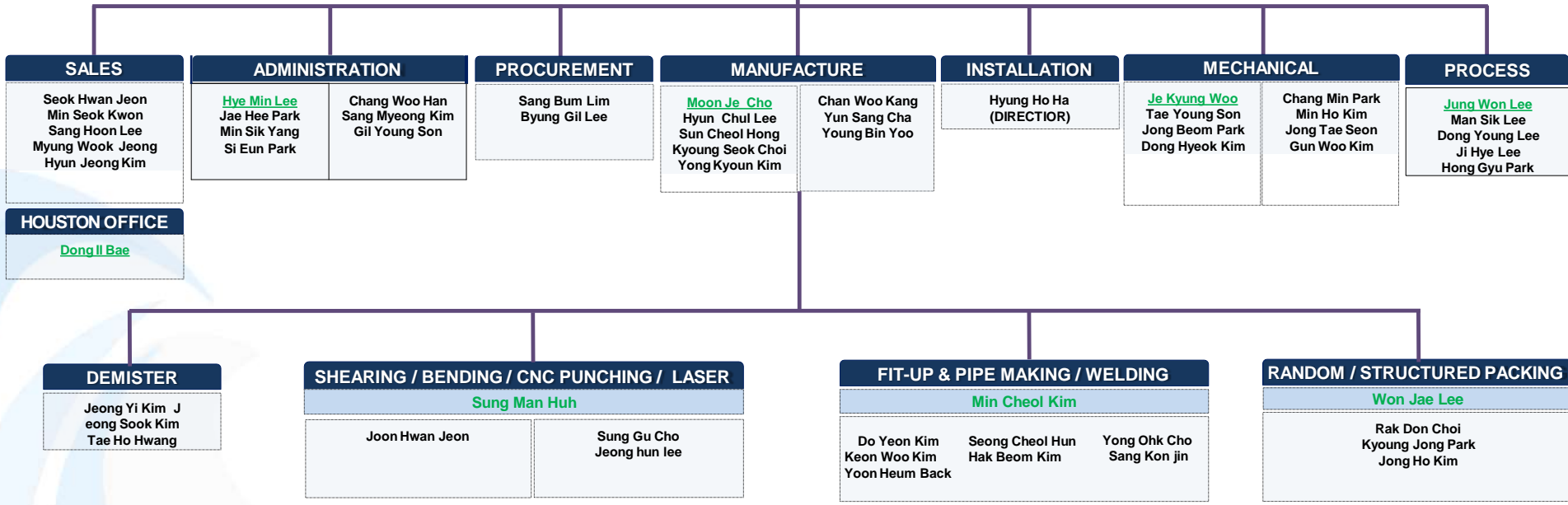
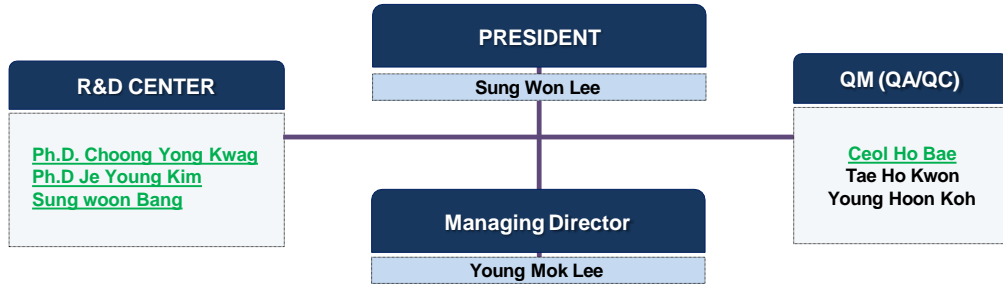
Size of Plant

Land Space – 23,794 M² or 256,112 FT²

Bldg. Space – 14,733 M² or 158,580 FT²

ORGANIZATION CHART

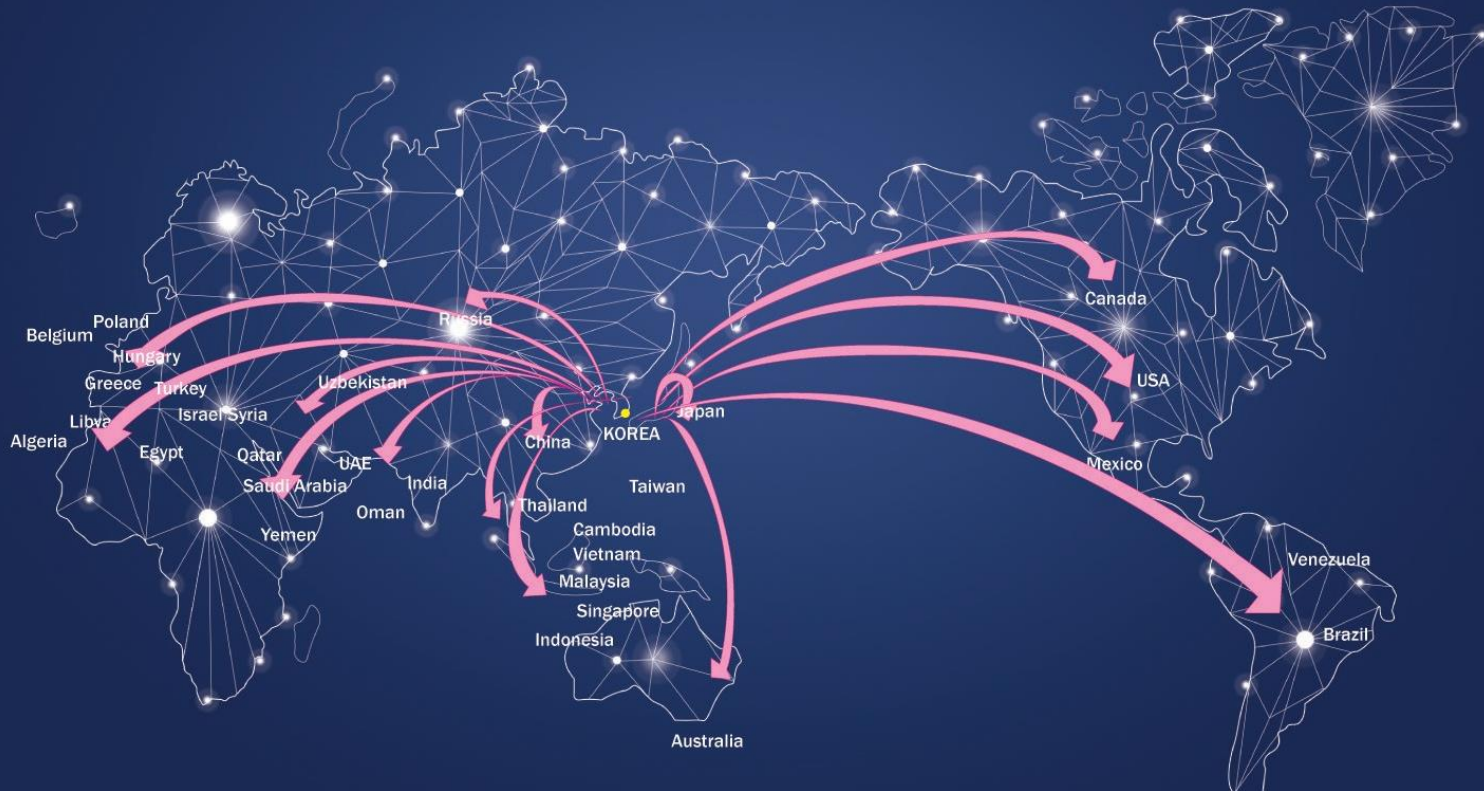
As of Sep 7, 2021	
SHOP	19
OFFICE	44
TOTAL	63



BRIEF HISTORY

- **Started to manufacture Demisters, Tower Trays, Internals and Packings as the pioneer in Korea.**
- **1989 to 2002, Sales representative, Design and Manufacturer, Joint venture, Licensee of Norton Chemical Process Products Corp. U.S.A.**
- **May 2002, Started to run by ourselves for Replacement, Revamp and Plant Engineering & Construction Companies World Wide.**

WORLD WIDE SERVICE



Authorized Representative Agreement & Business Partner

*Cal Gavin Ltd.
England*

*A.H.AL Sager & Brothers Co.
Kuwait*

*Siam East Co.
Thailand*

*Song Shan Iron Works Ltd.
Taiwan*

*Jaeger Products Inc.
USA*

*FRC-Agencies Ltd.
Israel*

*Hanbal General Trading
UAE*

*SENDAN International Co.
Saudi Arabia*

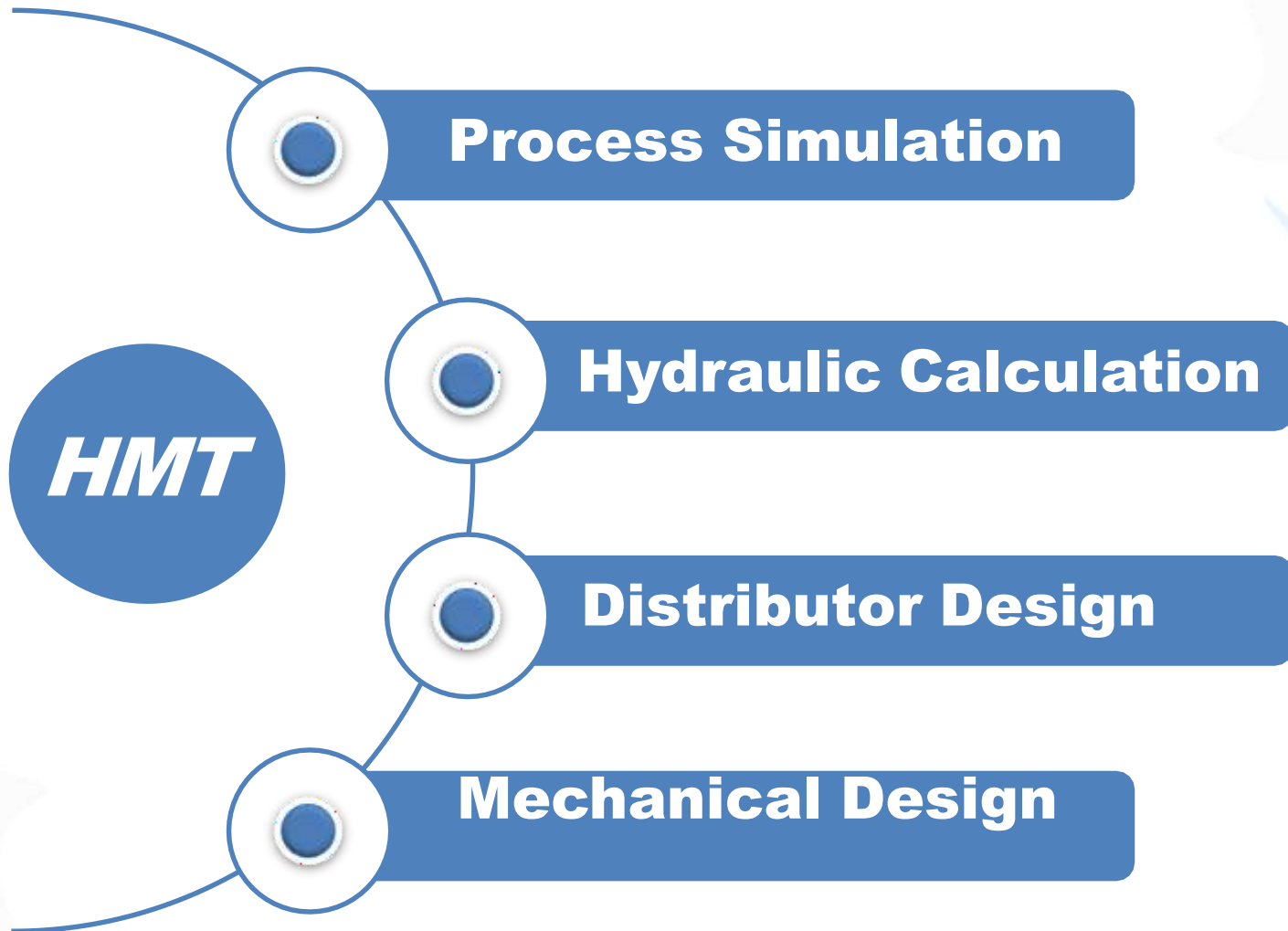
*Rakannusa Corp.
Malaysia*

*Sojitz Machinery Co.
Japan*

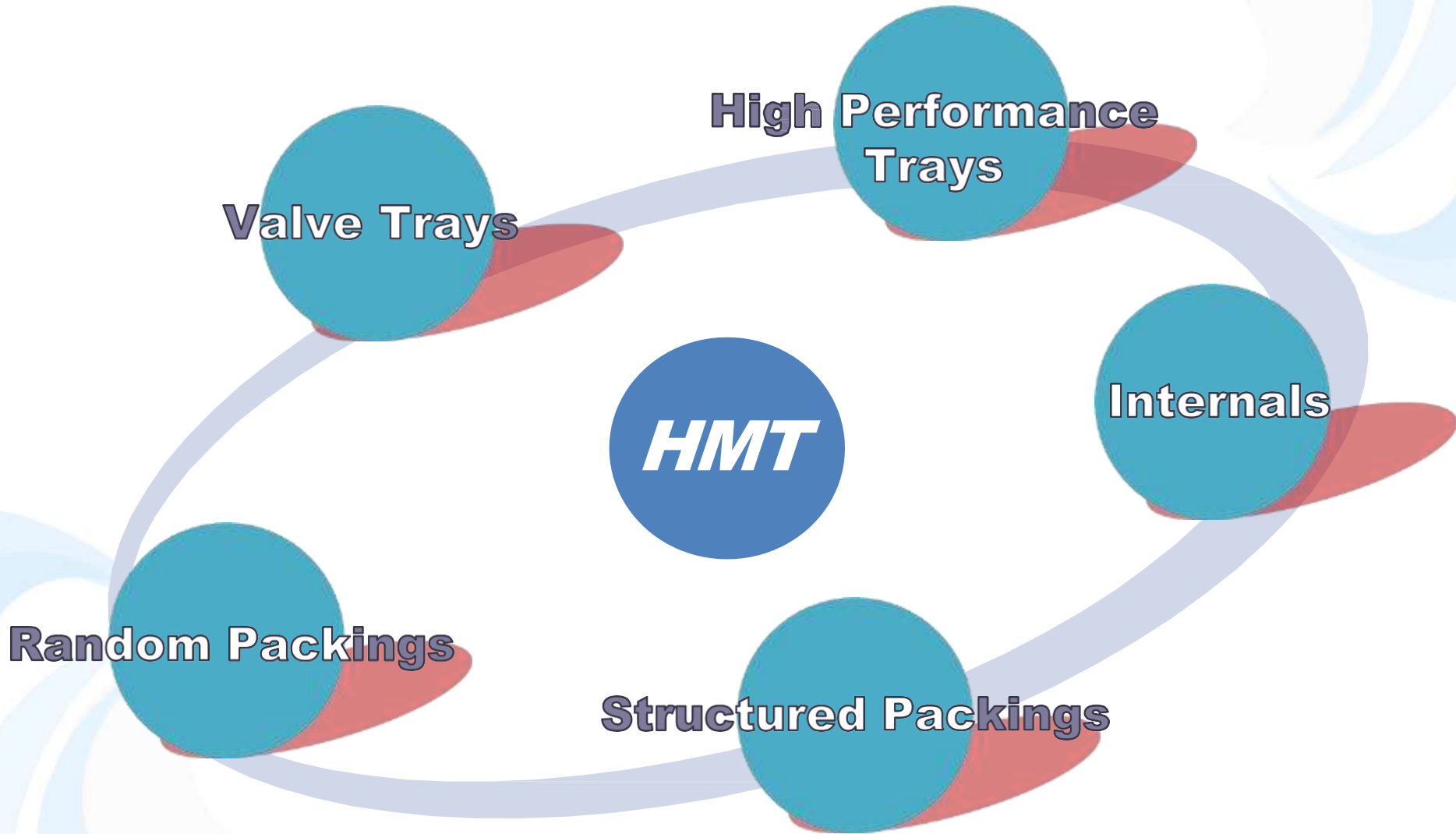
CUSTOMERS



ENGINEERING

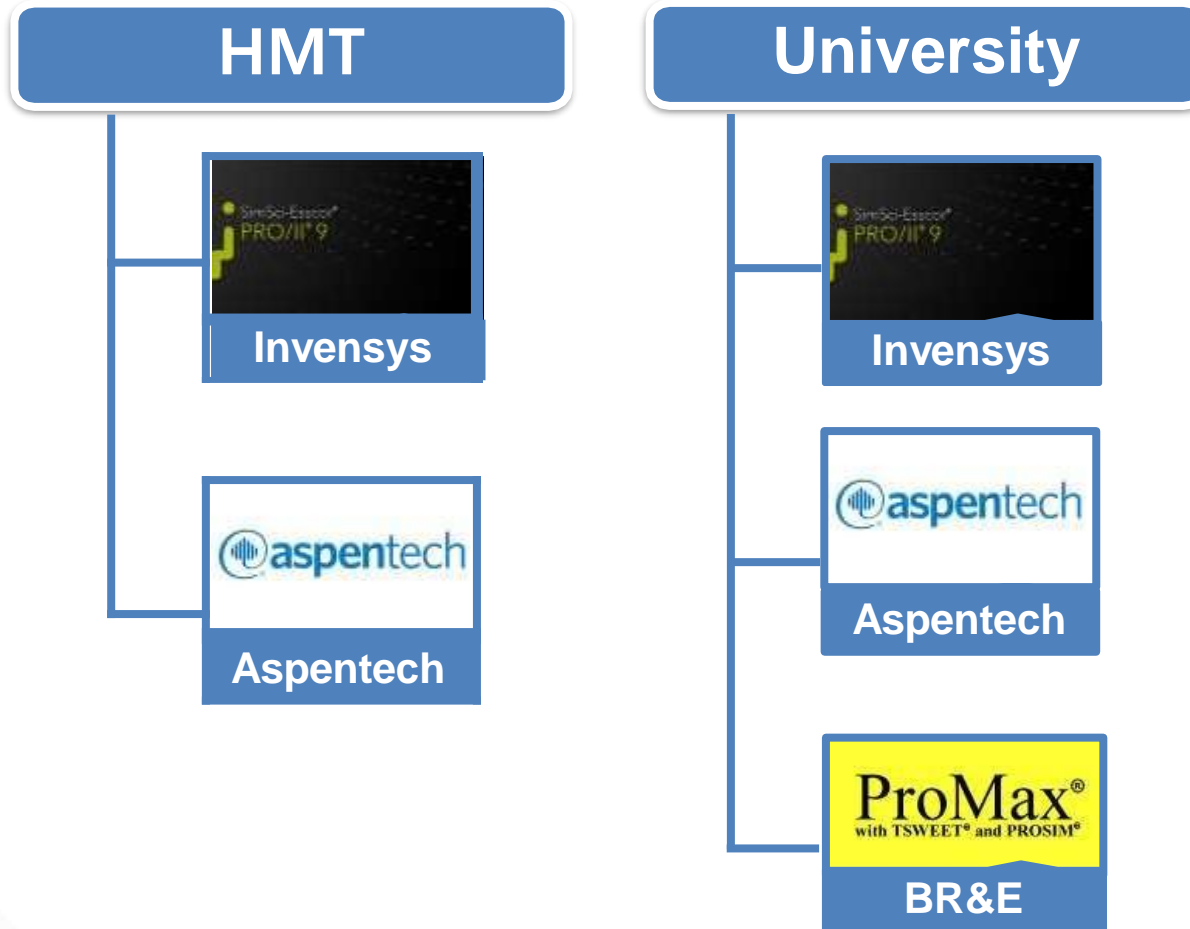


TECHNOLOGIES



PROCESS SIMULATION SERVICES


Technical advice & co-work with



QUALITY ASSURANCE

ISO 9001 : 2015

Awarded by BVQI / UKAS



Bureau Veritas Certification

HANBAL MASSTECH LIMITED

66, GOLDEN ROOT-RO GGEON-GIL, BUCHON-MYEON, GANHAE-SI,
GYEONGSANGNAM-DO, KOREA, 50969

Bureau Veritas Certification Holding SAS - UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below


ISO 9001:2015
Scope of certification

DESIGN, PRODUCTION, INSTALLATION AND SERVICING OF TOWER INTERNALS (TRAYS, PACKING, DEMISTER AND INTERNALS) FOR OIL REFINERY PETRO-CHEMICAL AND FINE CHEMICAL PLANT


Original cycle start date:	28-07-2000
Expiry date of previous cycle:	13-01-2021
Certification / Recertification audit date:	24-12-2020
Certification / Recertification cycle start date:	12-01-2021

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 13-01-2024

Certificate No.: BR002025 Version: 1 Issue Date: 13-01-2021




Signer as authorised by UKAS Ltd
Branch



0001

Certification Body Address: 3th Floor, 50 Prescott Street, London, E1 1PH, United Kingdom
Local Office: 1102, Bunkel Plaza, 223 Sehaem-ro, Guro-gu, Seoul, Republic of Korea 08142

Further certification regarding the scope and validity of this certificate, and the applicability of the management system requirements, please visit www.bvq.com



QUALITY ASSURANCE

ISO 14001:2015

Awarded by ABS Quality Evaluations

ABS Quality Evaluations
Certificate Of Conformance

This is to certify that the Environment Management System of:
HANBAL MASSTECH LIMITED
46, Golden root-ro 66beon-gil, Juchon-myeon, Gimhae-si
Gyeongsangnam-do
Korea

has been assessed by ABS Quality Evaluations, Inc. and found to be in conformance with the requirements set forth by:
ISO 14001:2015
The Environment Management System is applicable to:

MANUFACTURE OF MECHANICAL PARTS FOR PETROCHEMICAL TOWER

This certificate may be found on the ABS CE Website (www.abs-qe.com). For certificates issued in the People's Republic of China information may also be verified on the CNCA website (www.cnca.gov.cn).

Certificate No:	48166	 Dominic Townsend, President
Certification Date:	19 February 2013	
Effective Date:	15 February 2022	
Expiration Date:	17 February 2025	
Revision Date:	15 February 2022	

Validity of this certificate is based on the successful completion of the periodic surveillance audits of the management system defined by the above scope and is contingent upon prompt written notification to ABS Quality Evaluations, Inc. of significant changes to the management system or components thereof.
ABS Quality Evaluations, Inc. 1701 City Plaza Drive, Spring, TX 77389, U.S.A.
Validity of this certificate may be confirmed at www.abs-qe.com/qaen_validation.
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QUALITY ASSURANCE

ISO 45001 : 2018

Awarded by ABS Quality Evaluations

ABS Quality Evaluations
Certificate Of Conformance

This is to certify that the Health and Safety Management System of:

HANBAL MASSTECH LIMITED
46, Golden root-ro 66beon-gil, Juchon-myeon, Gimhae-si
Gyeongsangnam-do
Korea

has been assessed by ABS Quality Evaluations, Inc. and found to be in conformance with the requirements set forth by:

ISO 45001:2018

The Health and Safety Management System is applicable to:

MANUFACTURE OF MECHANICAL PARTS FOR PETROCHEMICAL TOWER

This certificate may be found on the ABS QE Website (www.abs-qe.com). For certificates issued in the People's Republic of China information may also be verified on the CNCA website (www.CNCA.gov.cn).

Certificate No:	48166
Certification Date:	18 February 2013
Effective Date:	16 February 2022
Expiration Date:	17 February 2025
Revision Date:	16 February 2022

Dominic Townsend
Dominic Townsend, President





Validity of this certificate is based on the successful completion of the periodic surveillance audits of the management system defined by the above scope and is contingent upon prompt written notification to ABS Quality Evaluations, Inc. of significant changes to the management system or components thereof.
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Validity of this certificate may be confirmed at www.abs-qe.com/qa-cert_validation.

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Use F.R.I Technologies



Sieve Tray

Bubble-Cap / Valve Tray

Dual Flow Tray

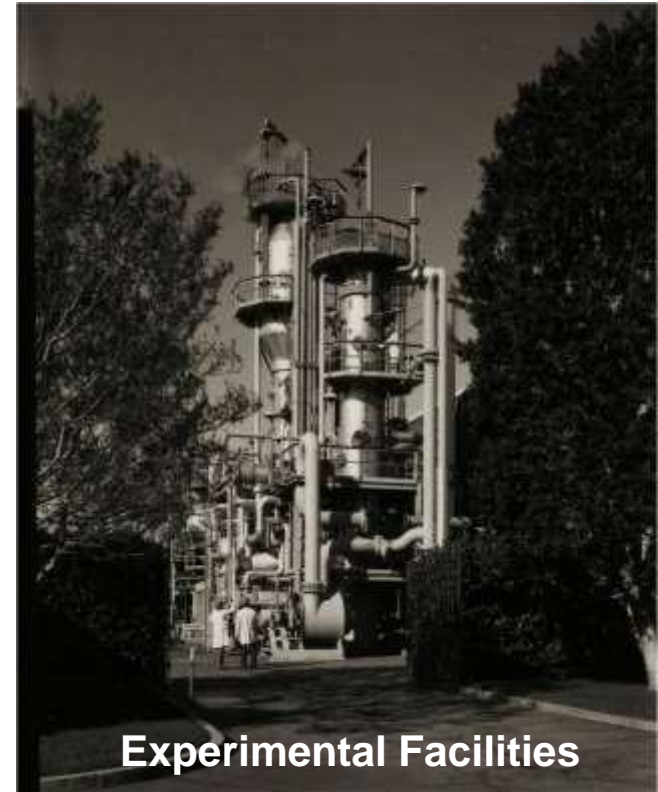
Baffle Tray

New Type Random Packing

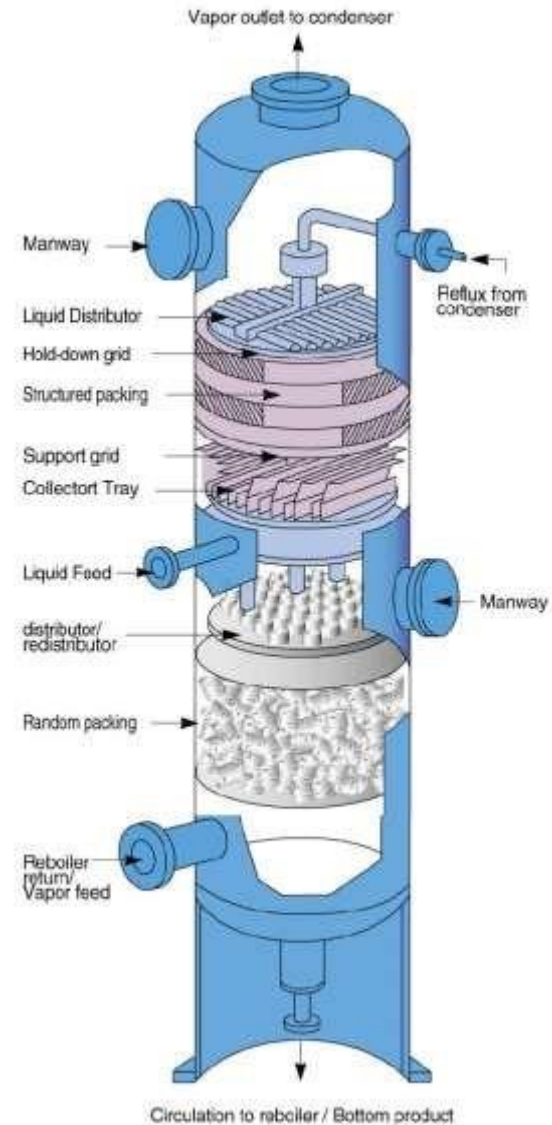
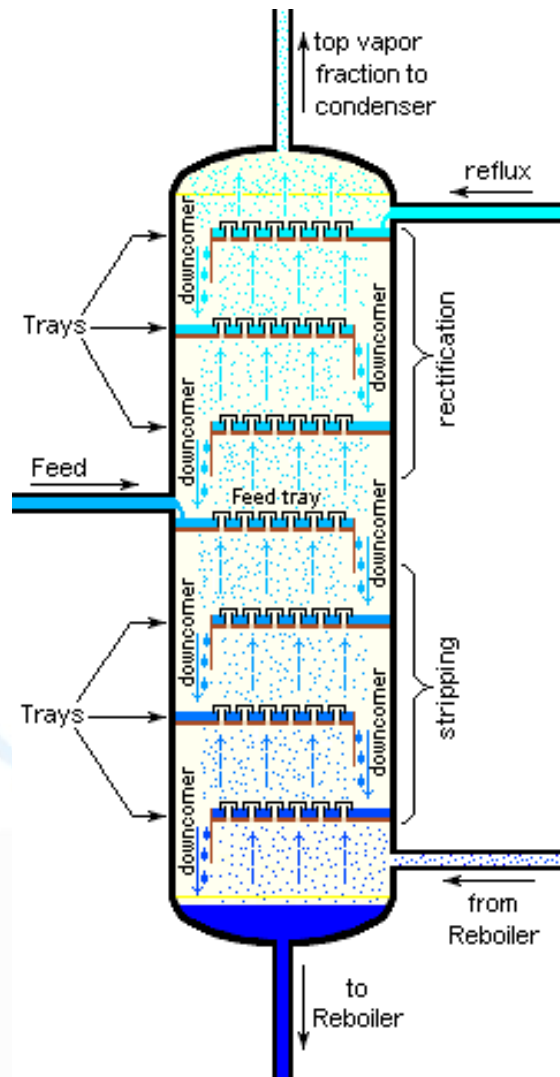
Structured Packing

Computing & Calculation

Fractionation Research, Inc.



TRAY & PACKING COLUMN LAYOUT



FRACTIONATION TRAYS

- **The three basic types of fractionation trays are the sieve, valve and bubble cap trays**
- **In general, tray type selection is determined by evaluation various factors, such as process, cost, mechanical, installation and maintenance considerations.**

TRAYS

Bubble Cap Tray



Sieve Tray



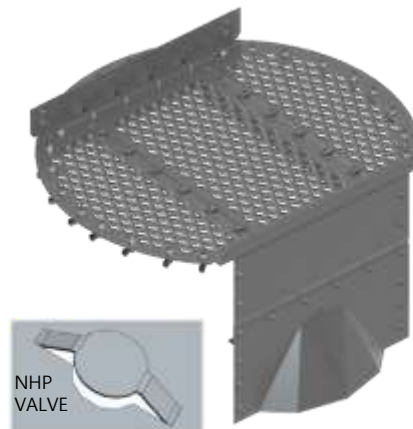
Valve Tray



Dual Flow Tray



High Performance Tray



High Performance Tray



TOWER PACKINGS

- **Packing has as broad a range of applicability as any mass transfer device.**
- **It has been heavily used in distillation - from deep vacuum towers, where its low pressure drop is crucial, to high pressure, where its capacity easily surpasses trays.**
- **Packings are generally divided into three classes (Random, Structured, Grids)**

RANDOM PACKINGS

◆ Metal Packing



NMTP



PALL RING



RASCHIG RING



N-PAK

◆ PP, PVC, PVDF Packing

NEW FROSTFLAKE



NEW SUPER SADDLE



NEW PALL RING



STRUCTURED PACKINGS



HMT Structured Packing "S" Series



Double-Corrugated Sheet



HMT Structured Packing "H" Series

HMT NSP Structured Packing	0.5Y	1Y	1.5Y	1.5H	250X	2Y	3Y	4Y	5Y	5S	WG
Surface Area - m ² /m ³	498	312.3	250	250	250	214.1	170.2	133	88.7	88.7	492
Inclination Angle - °	45	45	45	45	60	45	45	45	45	45	60



OTHER A

HMT

OTHER B

PACKED TOWER INTERNALS

- **Modern tower packings have generated an increasing need to update the technology concerning column internals.**
- **In today, the column internals must function as an integral part of the total packed column design, rather than limit the performance of the packing.**
- **We have designed, manufactured and supplied packed tower internals**

INTERNALS

Support Plates

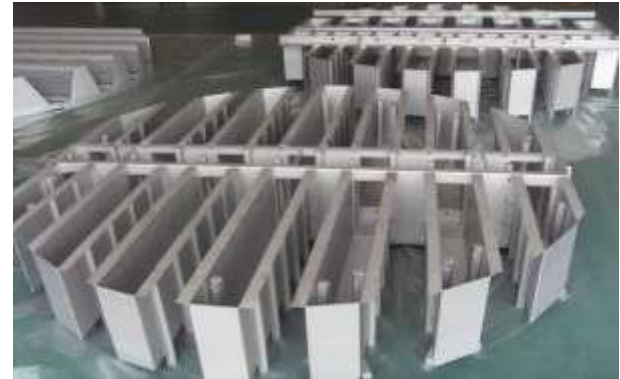
Bed Limiters

Liquid (Re)distributors

Feed Devices

Collectors

Liquid/Liquid Extraction Devices



DISTRIBUTOR TEST FACILITY

Capable of testing up to 12 meters in diameter



REACTOR INTERNALS

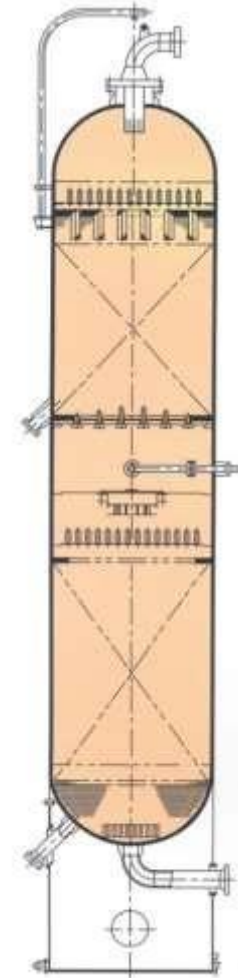
Inlet Diffuser

Distributor

Mixing Tray

Catalyst Support Grid

Outlet Collector



SEPARATION EQUIPMENTS

Wire Mesh/Vane Type Mist Eliminators

High Performance Demisters Plus

Coalescer Media

Cyclonic Separator

◆ Wide variety of Metal & Plastic Materials

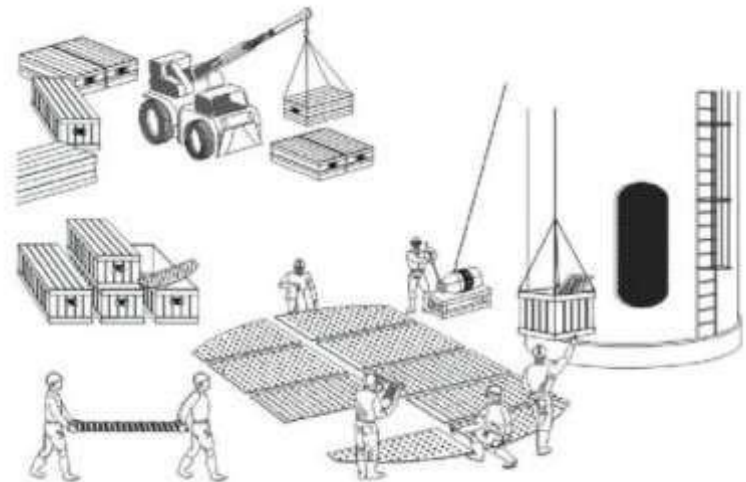
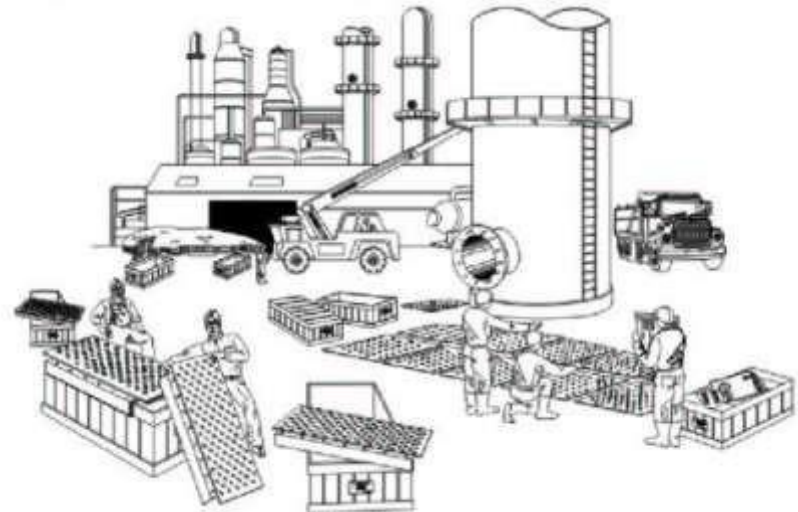


INSTALLATION SERVICES

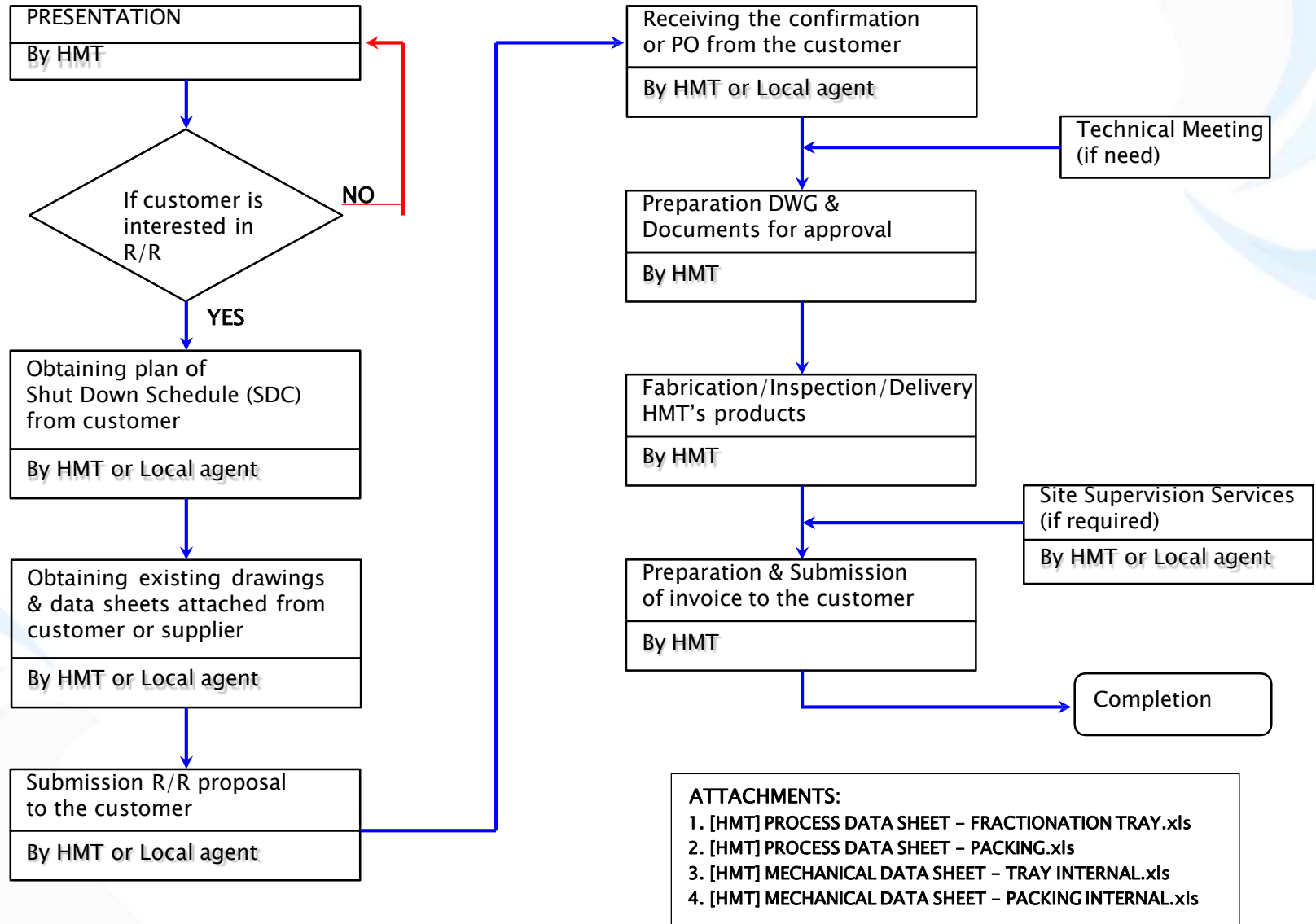
Field Installation (Vertical)

Shop Installation (Horizontal)

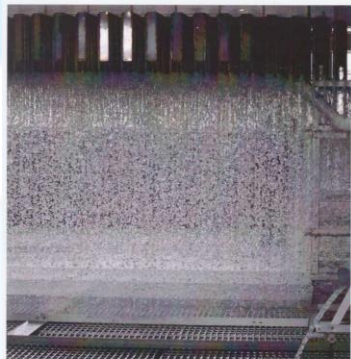
Site Supervision Services



REPLACEMENT / REVAMPING



- **Novel process systems**
 - Carbon Capture
 - Marine De-SO_x & NO_x Scrubbers
 - Special Gas for Semiconductor
- **Advanced equipment and internals**
 - 4th Generation Packing
 - Novel liquid & gas distributors



Chemical Engineering and Processing - Process Intensification	
Advanced and intensified reactor for gas desulfurization process: recent developments, challenges and perspectives	
November 13, 2018	
Research Number:	Process 0102
Area Type:	Process 0102
Keywords:	Advanced and intensified reactor for gas desulfurization process: recent developments, challenges and perspectives
Contributing Author:	Changhoon Lee, Process Integration, Process Intensification, Process
Project Leader:	Changhoon Lee, Process Integration, Process Intensification, Process
Project Author:	Changhoon Lee, Process Integration, Process Intensification, Process
Order of Author:	Changhoon Lee, Process Integration, Process Intensification, Process
Abstract:	Process intensification (PI) is a key technology to improve the efficiency of chemical processes. In this paper, the recent developments, challenges and perspectives of advanced and intensified reactor for gas desulfurization process are reviewed. The paper focuses on the development of advanced and intensified reactor for gas desulfurization process. The paper reviews the recent developments, challenges and perspectives of advanced and intensified reactor for gas desulfurization process. The paper reviews the recent developments, challenges and perspectives of advanced and intensified reactor for gas desulfurization process.
Keywords:	Advanced and intensified reactor for gas desulfurization process: recent developments, challenges and perspectives



Thank for your attention !

HMT

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