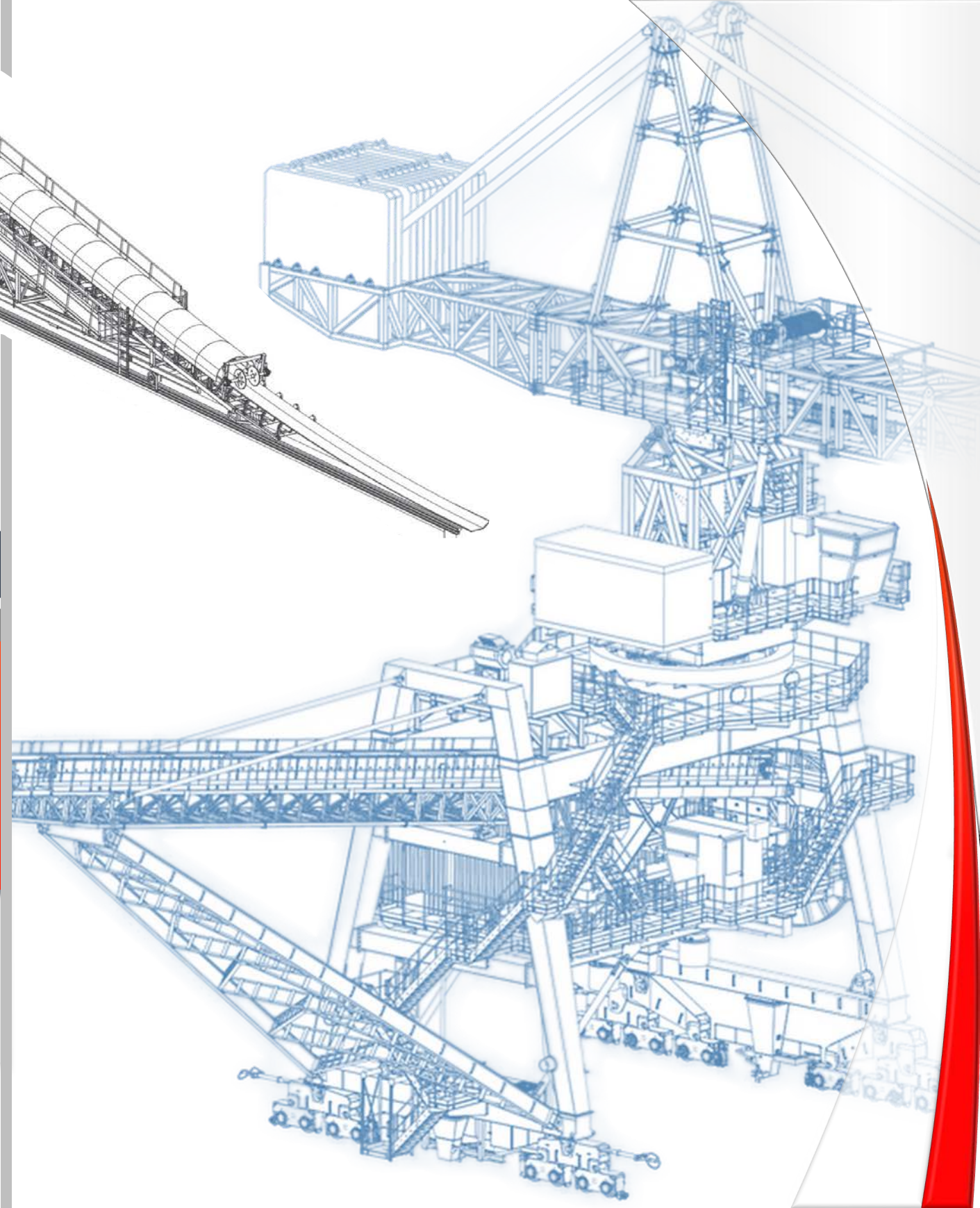


# DESIGN & ENGINEERING



## ABOUT DEHA TECH

Deha Tech is an International acting EPC (Engineering, Procurement and Construction) Company committed to obtain the highest standard of client satisfaction and providing long-term business relations with its clients. Since 2009 we're proud to have completed more than 100 projects and work every day to be a global partner with the promise of excellence.

+ We offer services in the fields of design & engineering,  
+ procurement & logistic, fabrication, construction, and  
+ commissioning for various industries

Deha Tech is always improving its know-how, rich human resources and capacity. Making use of its values and capabilities today, Deha Tech has turned into a leading international EPC contractor.

On behalf of the company's board of directors, executives, employees, and subsidiaries, we would like to thank all our clients, partners, business allies to rely on us and support our business all along.





**CEMENT & MINING INDUSTRY**



**FUEL, OIL & GAS INDUSTRY**



**ENERGY SECTOR**



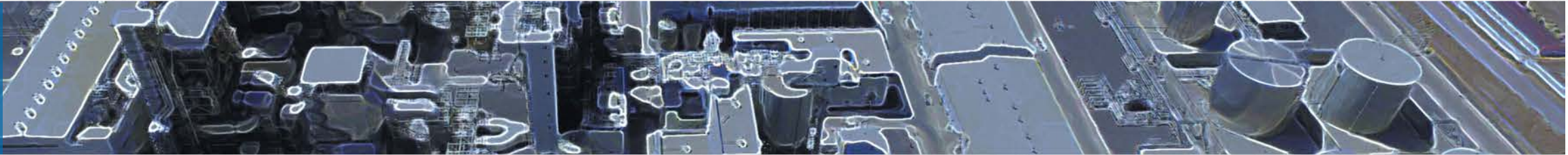
**WALZ (ZINC RECOVERY) TECHNOLOGY**



**CONSTRUCTION & CIVIL WORKS**



## MAIN BUSINESS AREAS



### CEMENT & MINING INDUSTRY

Clinker Production Plant, Gypsum Production Plant, Cement Grinding Plant, Coal Grinding Plant, Process and Non-Process Equipment, Waelz Plant, Zinc Plant



### WAE LZ (ZINC RECOVERY) TECHNOLOGY

Process Design, Rotary Kiln, Settling Chamber, Product Collecting Filter, Gas Treatment Filter, Material Transportation and Electric & Automation



### REFINERY, OIL AND GAS INDUSTRY

Liquid Fuel Storage Systems, LNG – LPG Facilities, Onshore/ Downstream, Topping Plant, Asphalt Production Plant, Air Separation Units.



### ENERGY SECTOR

Thermal Power Plants, Renewable Power Plants, Electric Substation, High Voltage Transmission Line



### CONSTRUCTION & CIVIL WORKS

Civil and Steel Construction, Industrial Buildings, Process and Non-Process Infrastructure and Superstructure

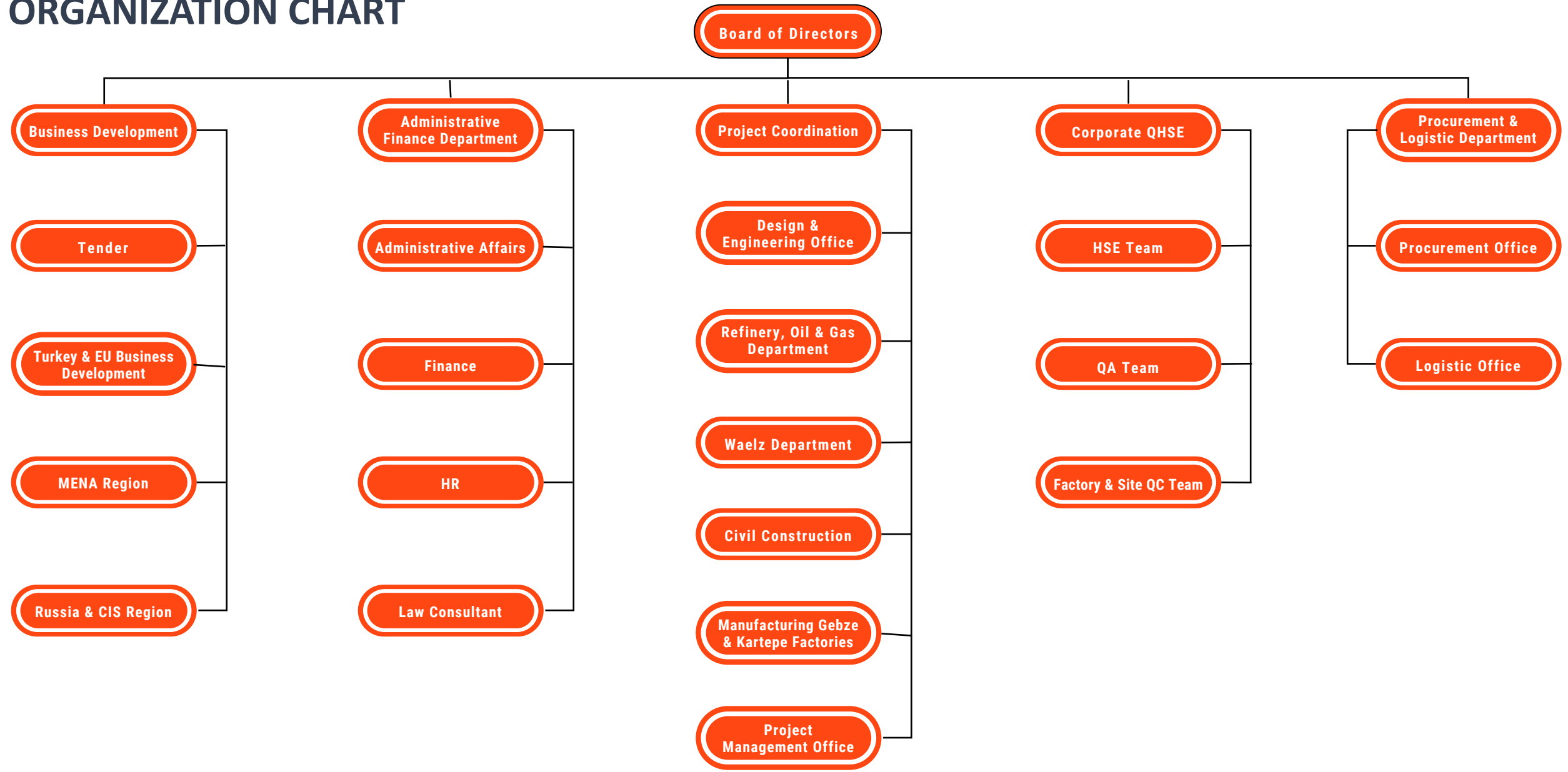


### FABRICATION

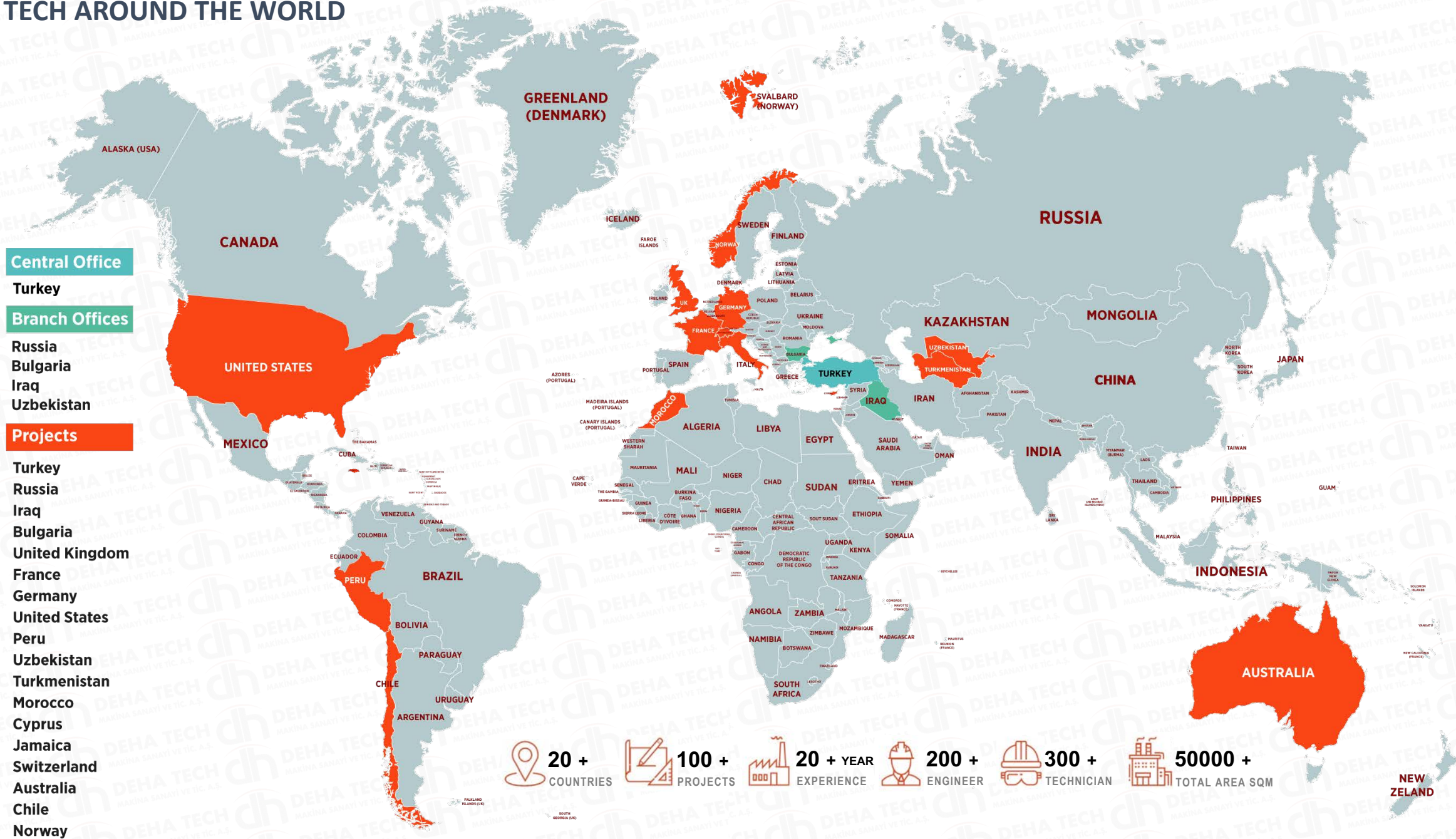
Tanks, Pressure Vessels, Rotary Kiln and Dryer, Cement Plant Equipment, Steel Structure, Conveying and Material Handling Systems, Plate Works, Silo / Bunkers, Water/Wastewater Treatment Equipment, DeNOx/DeSOx Systems, Dedusting Filters and Systems.



## ORGANIZATION CHART



## DEHA TECH AROUND THE WORLD



**Central Office**

Turkey

**Branch Offices**

Russia  
Bulgaria  
Iraq  
Uzbekistan

**Projects**

Turkey  
Russia  
Iraq  
Bulgaria  
United Kingdom  
France  
Germany  
United States  
Peru  
Uzbekistan  
Turkmenistan  
Morocco  
Cyprus  
Jamaica  
Switzerland  
Australia  
Chile  
Norway

**20 +** COUNTRIES  
 **100 +** PROJECTS  
 **20 +** YEAR EXPERIENCE  
 **200 +** ENGINEER  
 **300 +** TECHNICIAN  
 **50000 +** TOTAL AREA SQM

## QUALITY POLICY

Deha Tech minimizes accidents by preventing the possibility of an accident at its source during all of its activities and makes an effort to prevent occupational diseases.

Deha Tech provides consultancy and participation to OHS activities with the awareness that all subcontractors, visitors and employees are responsible for their own safety in order to achieve the targets for occupational health and safety of all employees.

Seeing as the most important priority of applicable Occupational Health & Safety Legislation and to comply with the terms of Membership Organizations, Hazard & Risk assessment, identifying existing hazards and risks and to provide possible protection, activities and products are brought into an integral commitment, work environment and occupational Health & Continuous improvement in safety practices adopted as policy.

Deha Tech provides customer satisfaction with Quality, Price and On-time Delivery. Quality is the first principle of DEHA TECH. Our Quality System is certified in under the requirements of EN ISO 9001 standard.



## ENVIRONMENTAL POLICY

Deha Tech works in an environmentally and friendly way without harming the environment with its works and manufacturing methods in its sector and activity fields.

Deha Tech is aware of its responsibilities regarding the efficient use of the limited resources of the environment and the earth we live in.

We adopt to be respectful to the environment in its activities and comply with the legal regulations regarding the environment.



### Rights / Responsibility / Aim

As Deha Tech, we believe and follow all that social responsibility projects are part of the criteria of sustainability.

## SOCIAL RESPONSIBILITY

As part of its sustainability approach, Deha Tech has planned its studies on **Education**, Art, Nature and **Environment**, Employment, of Women and Youth, Animal Rights and will share it in the near future



ITU Races sponsored by Deha Tech

**WE'RE PROUD OF OUR SAFETY, INTEGRITY, TEAMWORK AND EXCELLENCE COMMITMENT**

## SUSTAINABILITY



The importance of every drop in water management



Collection and classification of waste at source at solid waste management



The contribution of shared decision-making, training and participation in our processes to our productivity principle



Our belief in the contribution of women and youth



We give priority to education with the awareness that there are no limits in personal development.



Social Approach



Environment



Management

## OCCUPATIONAL HEALTH AND SAFETY

Our priority is to maintain the health and safety of our employees and public, to minimise the environmental impact associated with our activities.

Working at Deha Tech means becoming a part of energetic team committed to obtain objectives in international conditions.

We ensure that Deha Tech Group Companies have effective occupational health and safety systems to generate customer confidence and protecting employees.



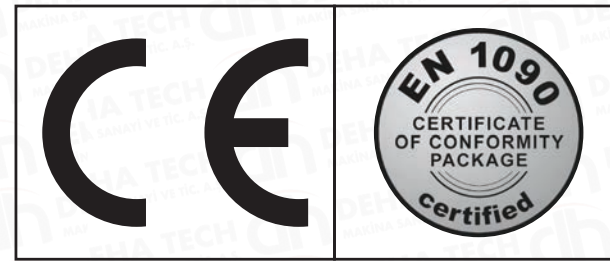
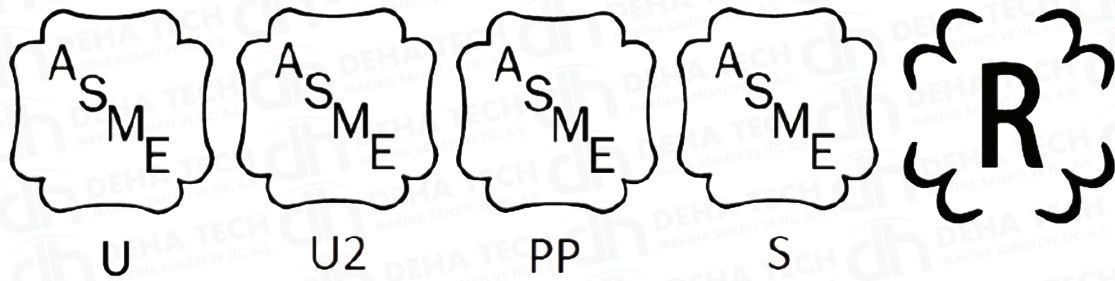
### SAFETY FIRST



We ensure that organizations have effective occupational health and safety systems in place to protect employees

- ★ Think Safe
- ★ Act Safe
- ★ Stay Safe

## OUR CERTIFICATES



EXC - 4 CERTIFICATED



## BUSINESS PARTNERS



We are ready to help you achieve your goals.  
No matter the complexity of the challenge.

Our designers and engineers know how to design cost-effective products in terms of engineering and production.

Industry & Municipal Utilities / Energy Operators

Technical Specifications For Tendering

Strength, Dynamic and Thermal Analysis

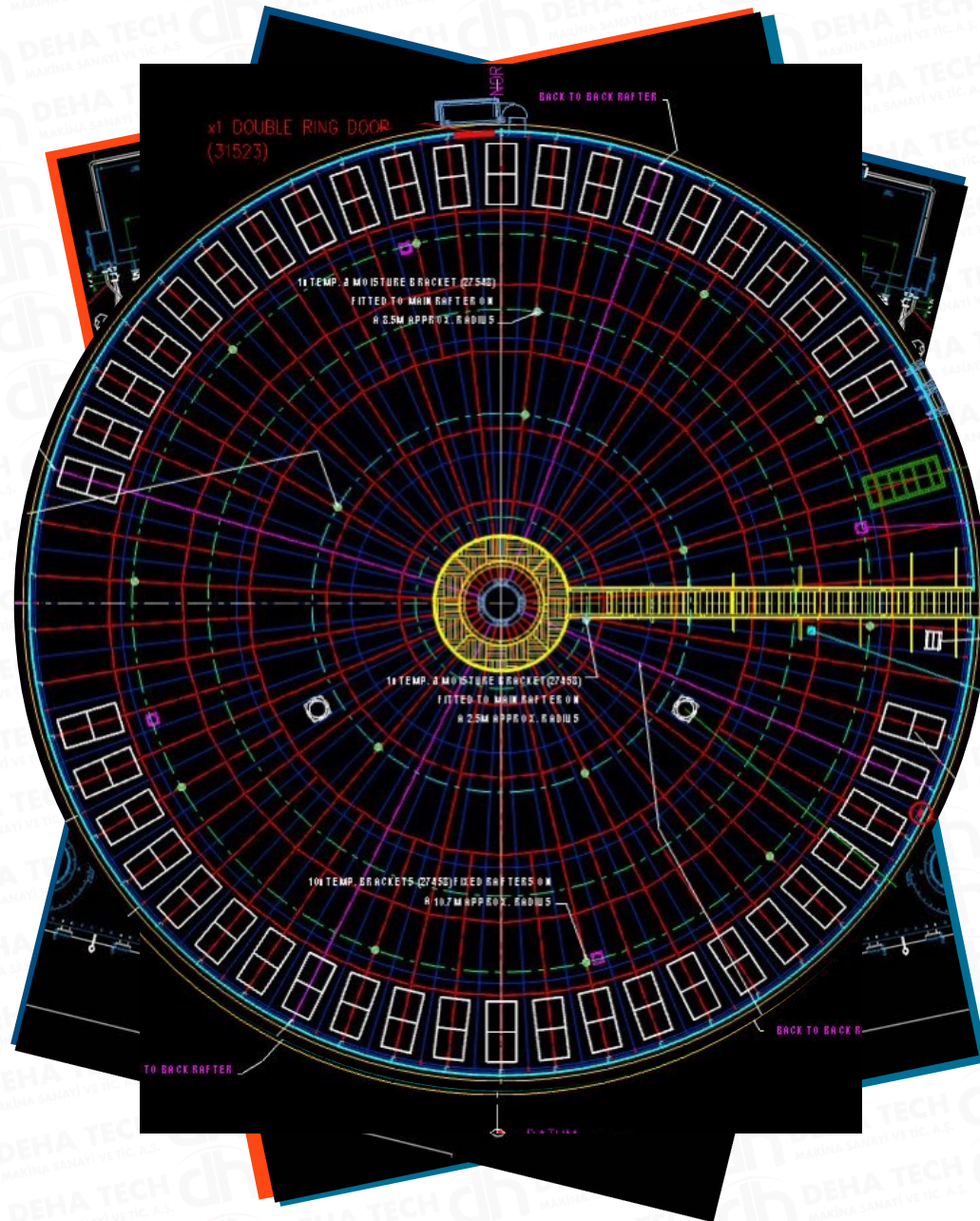
Software Development and Reduce Design Cost

Structural & Mechanical Project Design

Building and Fire Fighting 3D+ Design

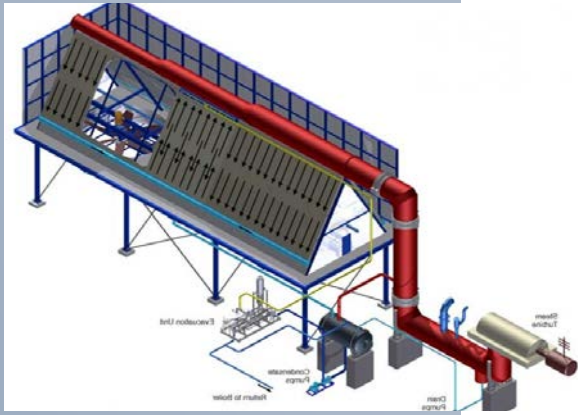
# Design Tool Competence

On Top of Hand Calculation, We Also Use Leading Software Programs to Assist Our Work in Structural and Mechanical Designs



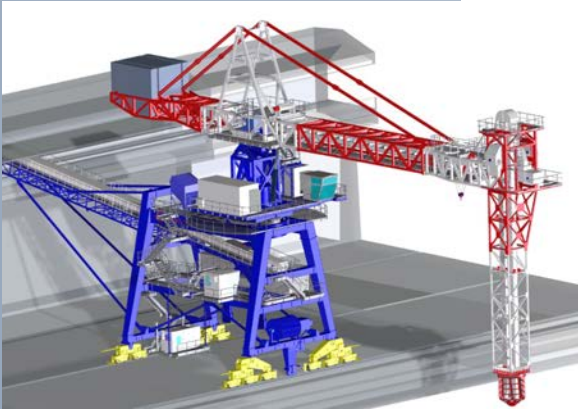
AutoCAD Plant 3	P&ID, 3D Modelling And Piping Software For Plant Design
AutoCAD Mechanical	Design And Drafting Software For Manufacturing
AutoCAD Electrical	Design And Document Software For Electrical Control
AutoCAD Architecture	Architectural Design And Drafting Software
AutoCAD MEP	Mechanical, Electrical, Plumbing Design Software
AutoCAD Map 3	Geographic Information System And 3D Mapping Software
Autodesk Inventor	3D Machine And Equipment Design Software
Solidworks	3D Machine And Equipment Design Software
Navisworks	3D Design Simulation And Project Review Software

# Deha Tech Calculation Tools



Pipe Flow Expert

Flow Rate and Pressure Drop Software

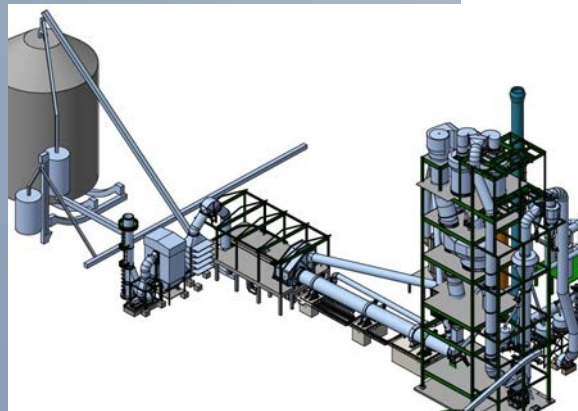


Profis Anchor

Anchor Design Calculation Software

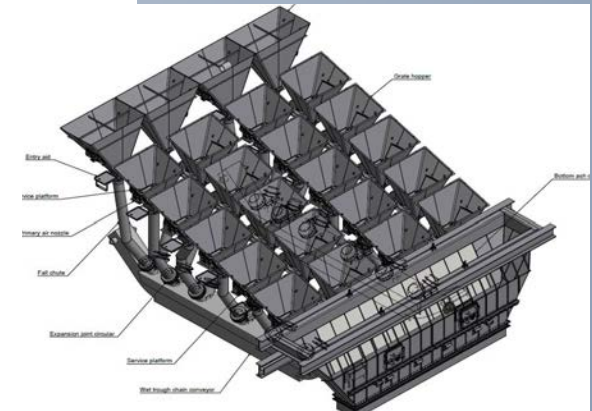
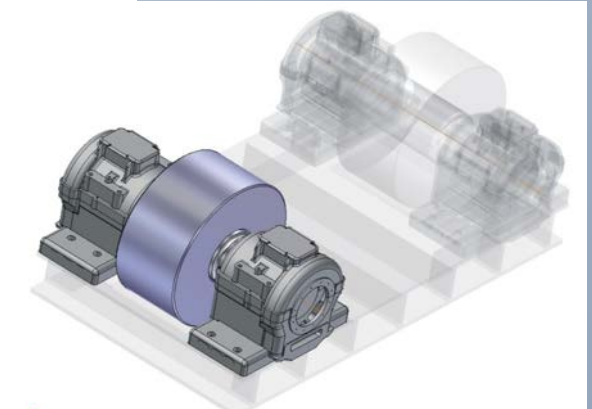
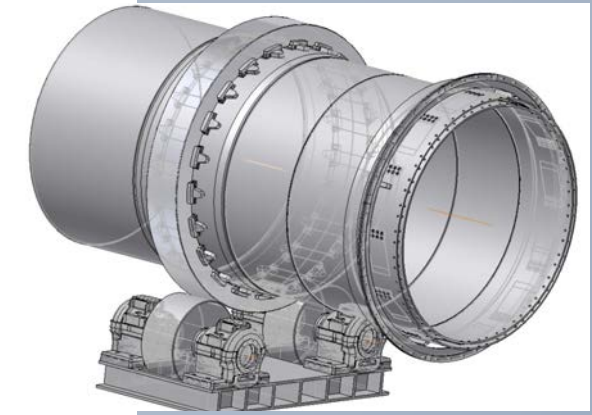
Deha Tech Heat Exchanger Tool

Heat Exchanger Design and Calculation Tool  
Tank Design Calculation Tool To API 650



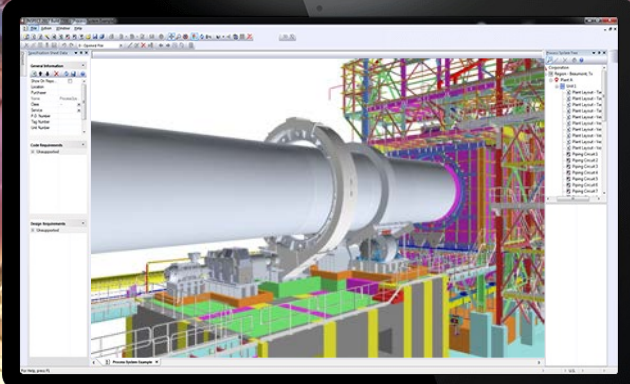

Deha Tech Tank Tools

Tank Heating, Insulation and Coil Sizing  
Calculation Tool Suction Heater Design  
Calculation Tool to TEMA Tank Venting  
Calculation Tool to API 2000  
Tank Fire Fighting Calculation Tool to NFPA  
11 / NFPA 15

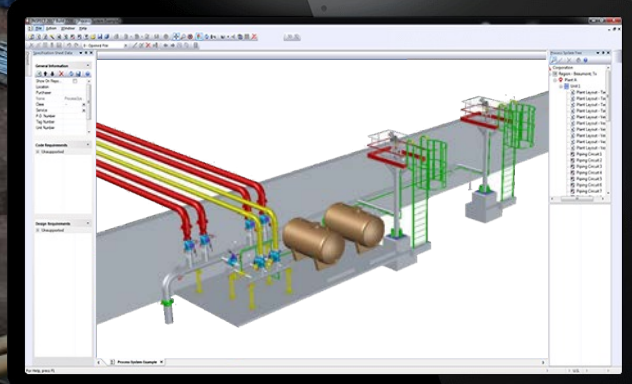





5000 TPD CEMENT PLANT DESIGN



WAEZ PLANT ROTARY KILN



FIRE FIGHTING SYSTEM DESIGN

PROCESS ENGINEERING

1

STRESS ANALYSIS

2

EQUIPMENT ENGINEERING

3

STRUCTURAL ENGINEERING

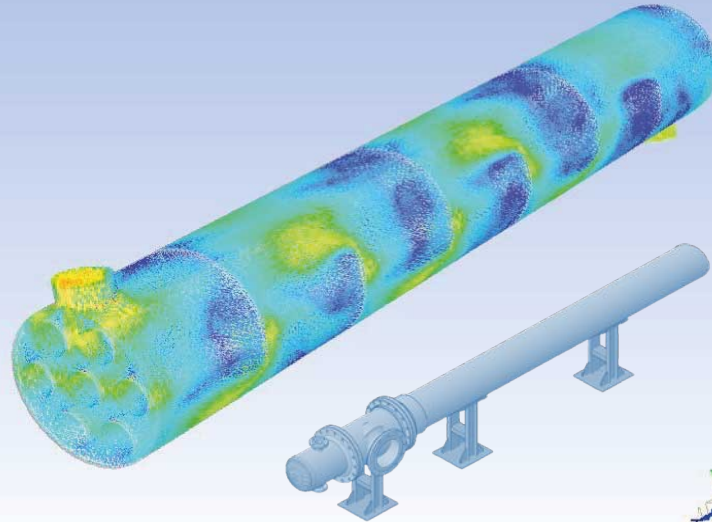
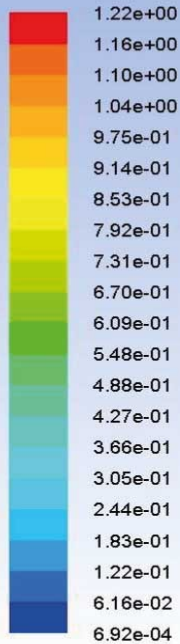
4

ENGINEERING ANALYSIS

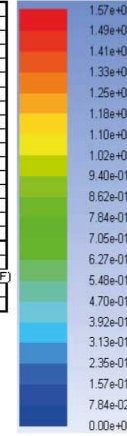
5

BASIC & DETAIL ENGINEERING

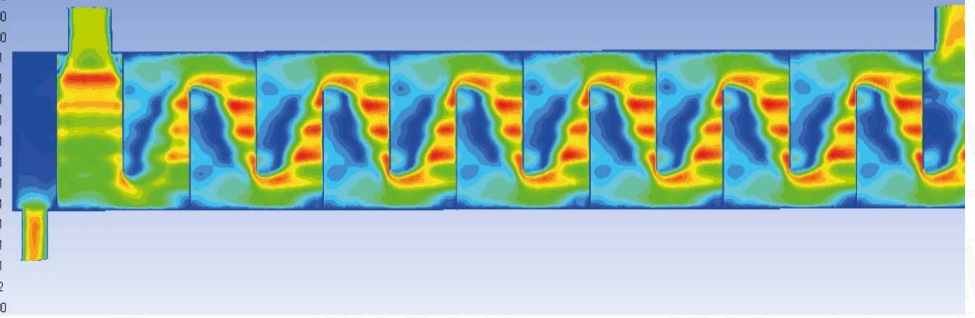
6



THERMAL & HEAT TRANSFER			
1	STEAM / COND. FLD' (Gz) / (Gt) INPUT	685.97	kg/hr
2	NO. OF FLOW TUBES	151	
3	FLOW PERTUBE	4	
4	HEAT DUTY	507	Kilowatt
5	STEAM TEMP. Ts	143.8	C
6	WALL TEMP Tw	142.8	C
7	FILM TEMPERATURE (Ts-Tw)/2	143.1	C
8	STEAM ENTHALPY (hfg) INPUT	2739	kJ/kg
9	STEAM / COND. DENS (kg) / (m3) INPUT	219	kg/m <sup>3</sup>
10	STEAM / COND. SP. H (kJ) / (kg) INPUT	2096	kJ/kgC
11	STEAM / COND. THER. (kj) / (K) INPUT	0.0288	W/mC
12	CONDENSATE DYN. VISCOSITY INPUT	1.38E-05	Pa.sec
13	STEAM / COND. KIN. VISCOSITY INPUT	6.35E-06	m <sup>2</sup> /sec
14	STEAM / COND. MASS FLUX INPUT	7.636	kg/s.m <sup>2</sup>
15	STEAM / COND. VELOCITY INPUT	3.27	m/sec
16	RE NUMBER, STEAM Re <sub>s</sub> / Rm	5,830	
17	CONDENSATE REYNOLDS No	262	
18	FRICTION FACTOR f	0.03842	
19	PRANDTL NO. STEAM Pr / Pt	1.002738	
20	HEAT TRANSFER COEFFICIENT h	3,311	W/m <sup>2</sup> C
21	TUBE ID / X-SECTION AREA	14.83	mm / m <sup>2</sup>
22	TUBE OD	18.38	mm



Thermal-Hydraulic Design



ANALYSIS FOR HIGHER STEAM REYNOLDS NUMBERS

QUALITY OF STEAM	X1	X2	X mean	ReL	F2	F2	F2	Xrt	F(Xrt)	F2	LOCAL Re	LOCAL he	he <sub>s</sub>
1	0.9	0.35	13	6.46	16.46	0.0047	###	6.46	257.11	11,530	10,954		
0.9	0.8	0.65	39	11.19	9.73	18.69	0.0139	14.11	11.19	128.93	5,782	4,915	
0.8	0.7	0.75	66	14.45	13.88	19.73	0.0246	8.60	13.88	93.27	4,183	3,137	
0.7	0.6	0.65	92	17.10	15.83	20.41	0.0378	6.00	15.83	73.15	3,281	2,132	
0.6	0.5	0.55	118	19.39	17.08	20.92	0.0551	4.42	17.08	59.82	2,693	1,475	
0.5	0.4	0.45	144	21.44	18.00	21.33	0.0791	3.33	18.00	49.04	2,199	990	
0.4	0.3	0.35	171	23.30	18.73	21.67	0.1162	2.50	18.73	39.39	1,767	618	
0.3	0.2	0.25	197	25.03	19.32	21.96	0.1774	1.82	19.32	30.16	1,353	338	
0.2	0.1	0.15	223	26.65	19.83	22.21	0.3144	1.22	19.83	20.75	930	140	
0.1	0.05	0.075	243	27.80	20.16	22.39	0.6332	0.77	20.16	14.24	639	79	
0.05	0.01	0.03	254	28.47	20.35	22.48	1.5074	0.45	20.35	10.16	439	19	
			5,055						3,311	SUM	####		
									4,905	h mean	4,905		

S NO.	DESCRIPTION	SYMBOL	UNIT	VALUE	FORMULA	REF.
1	SHELL ID	Z	inch	21.25	SELECTION	
2	NO. OF BAFFLES	N	#	6	INPUT	
3	LENGTH OF TUBES	L	m	3.20	INPUT	
4	BAFFLE SPACING	B	mm	457	(L) / ((N)+1) x 1000	
5	SHELL SIDE CROSSFLOW AREA	a	ft <sup>2</sup>	0.664	Z x B x C / (Pt x 144)	4.
6	EQUIVALENT DIAMETER	Zc	inch	0.71	4x(1/2.Pt x 0.86.Pt - 1/2.@PI.OD <sup>2</sup> /4)	5.
			ft.	0.06	/ 1/2.@PI.OD	



Heat Exchanger



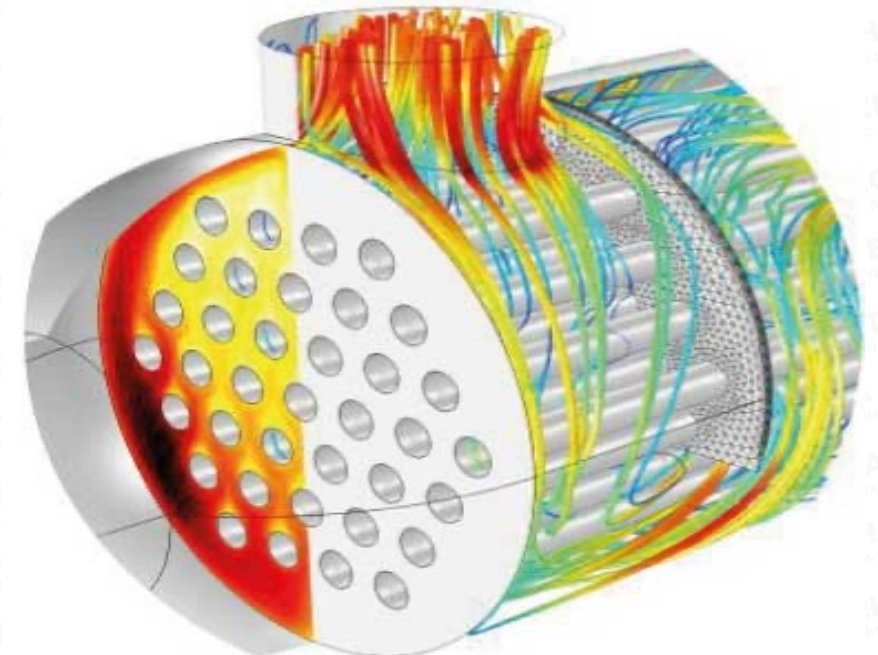
Tube-bundle



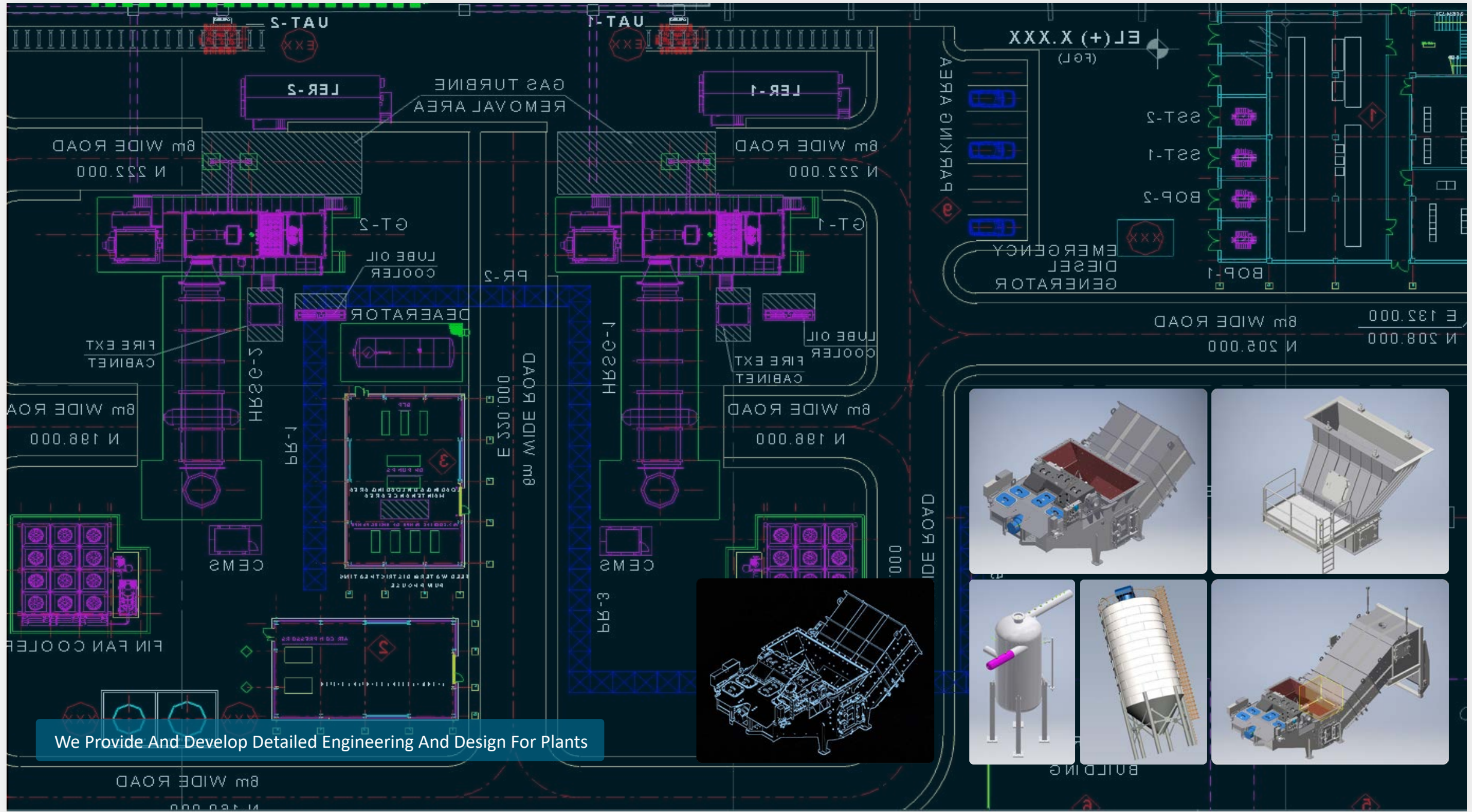
Channels



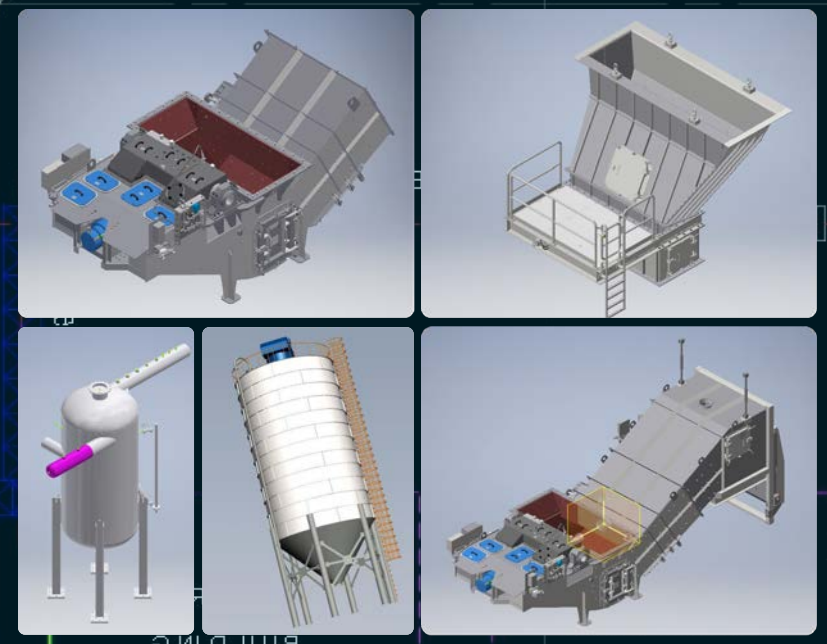
Tube Sheet & Baffles



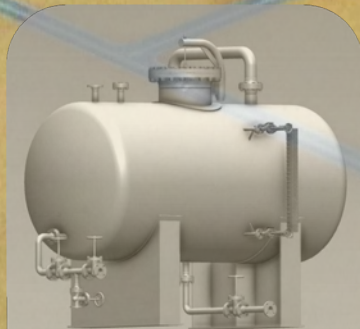
## CFD SIMULATION AND OPTIMIZATION OF SHELL AND TUBE HEAT EXCHANGER



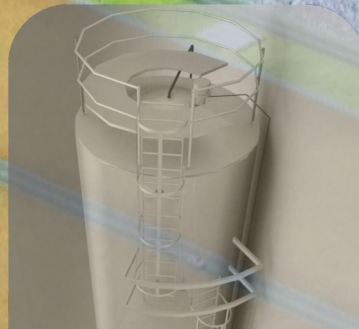
We Provide And Develop Detailed Engineering And Design For Plants



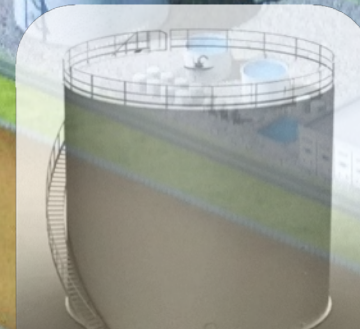
Khabat Thermal Power Plant 3D View



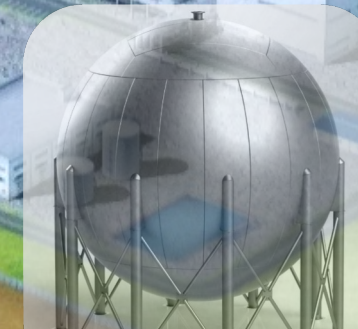
Pressure Vessel



Storage Silo



Fuel Oil Tank

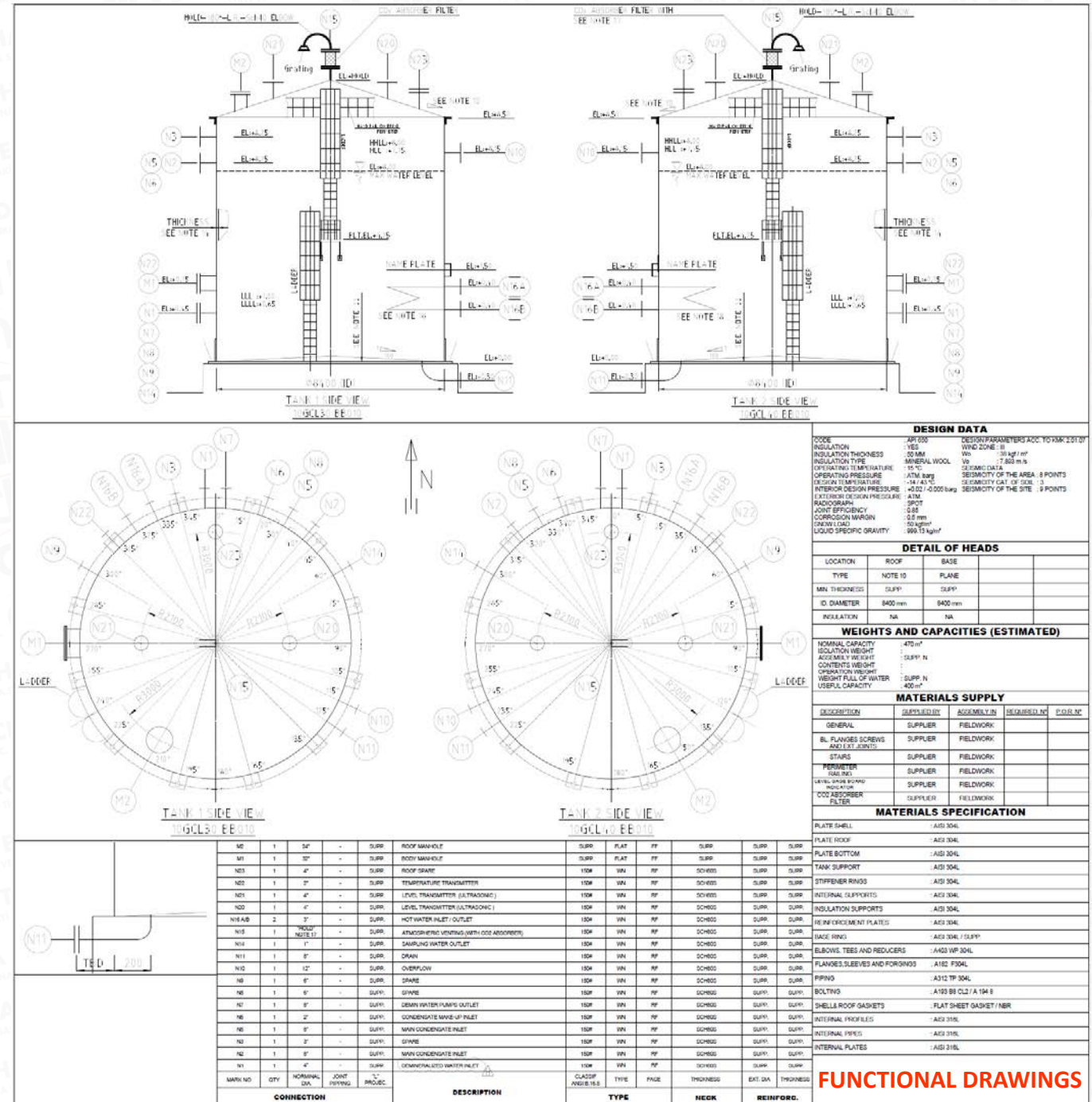
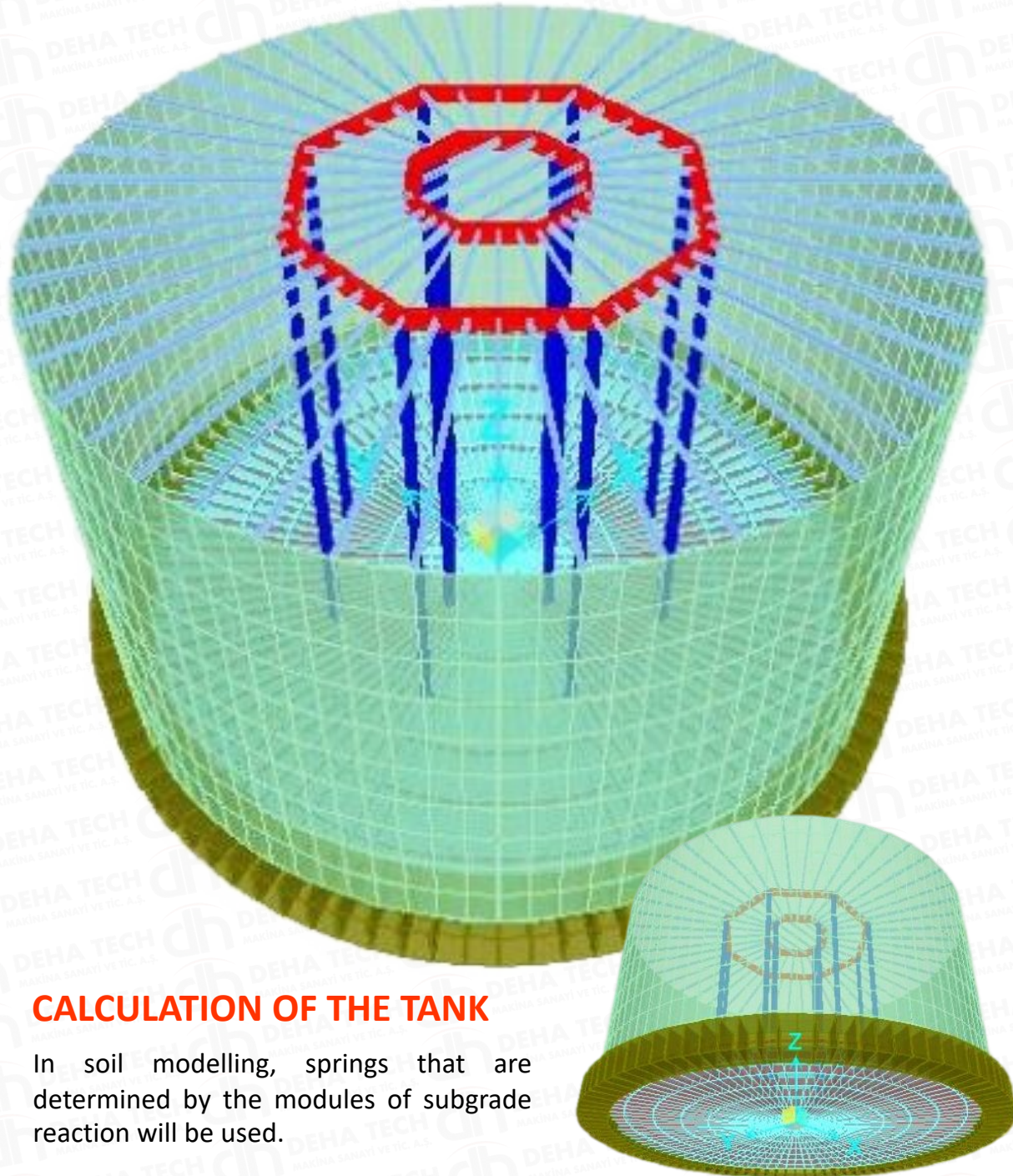


Spherical Storage Tank



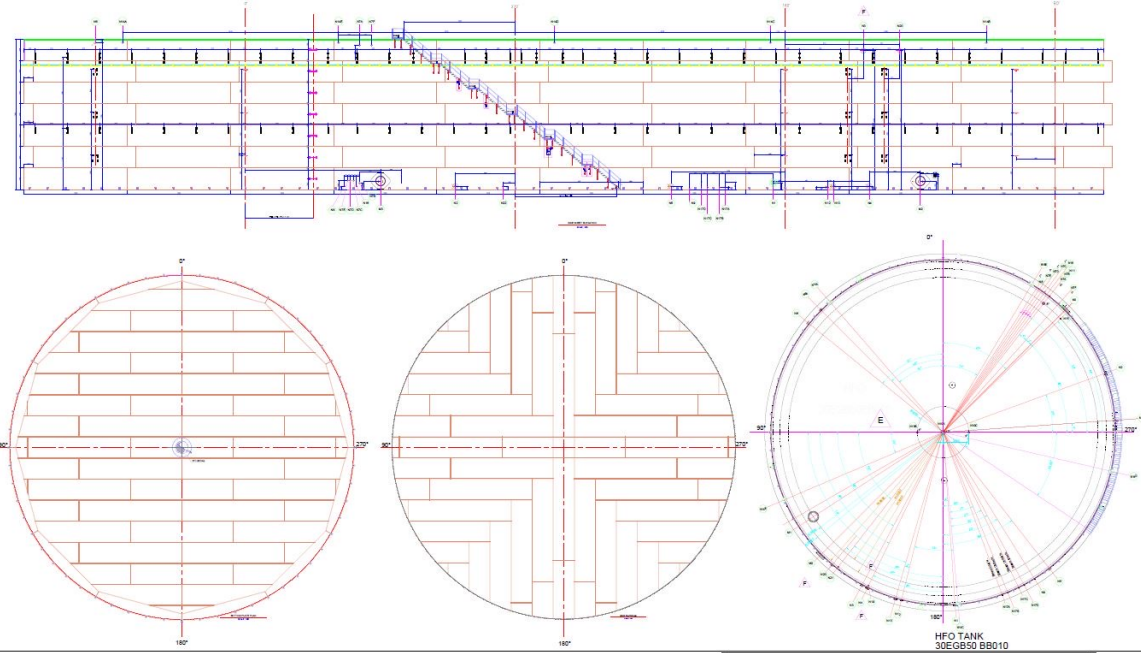
Analysis of Storage Tank



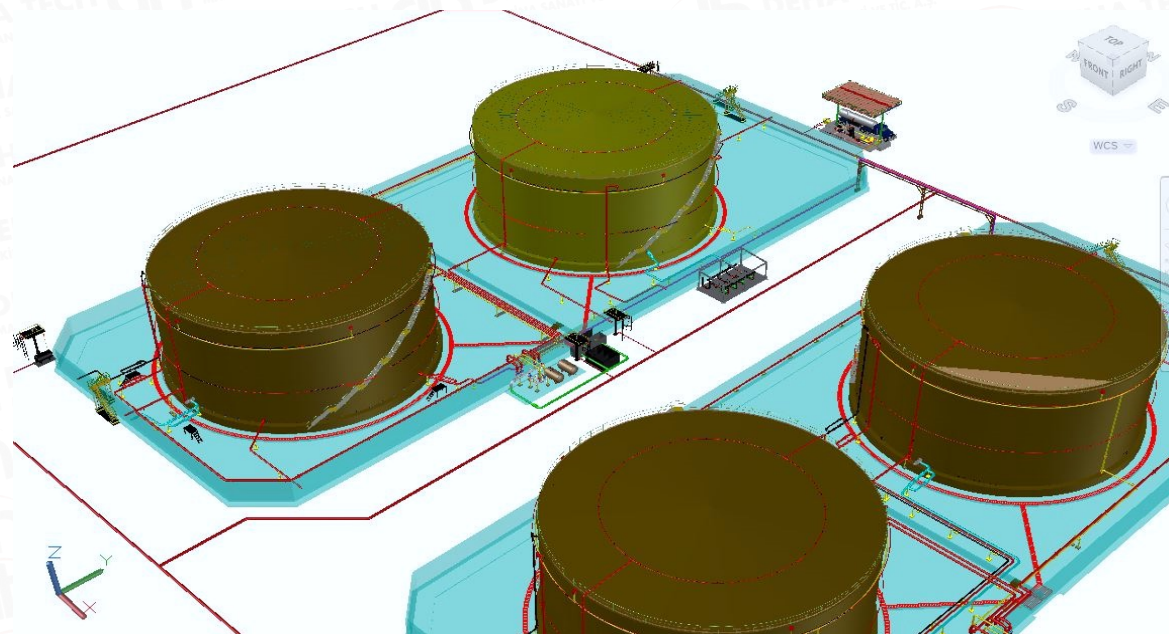


## CALCULATION OF THE TANK

In soil modelling, springs that are determined by the modulus of subgrade reaction will be used.



TANK FARM DESIGN

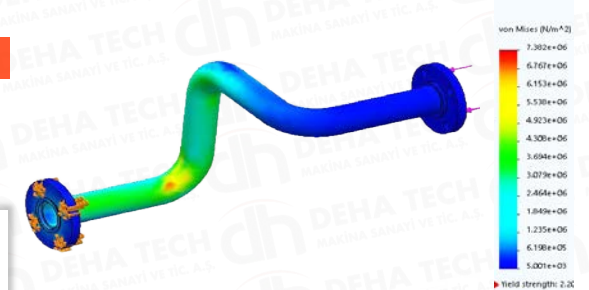




## MANUFACTURING OF METERING SKIDS

### Scope

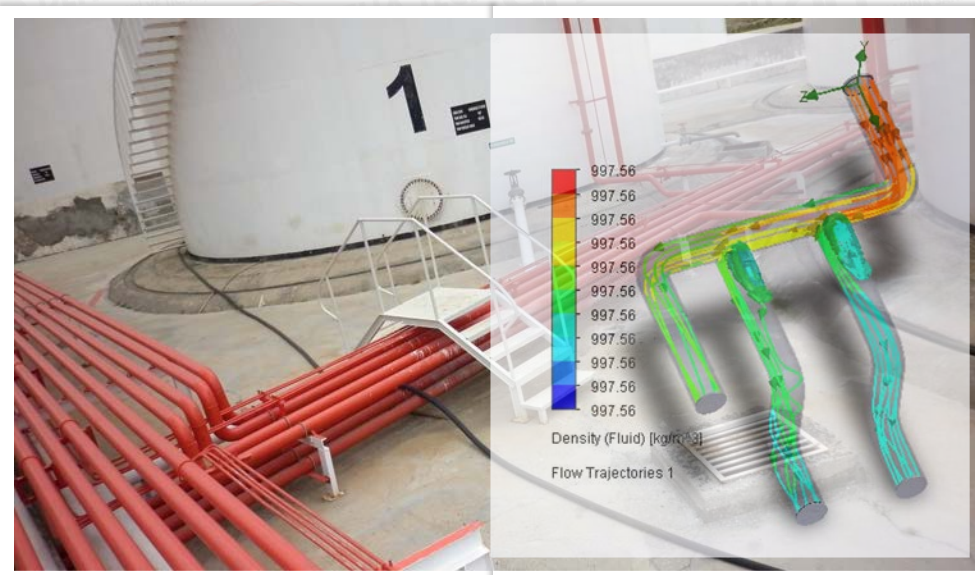
Our project management encompasses detailed design and planning, seamless implementation, perfect interface management as well as compliance with the time schedule and budget.



PIPE STRESS CALCULATIONS



PIPING DESIGN ANALYSIS

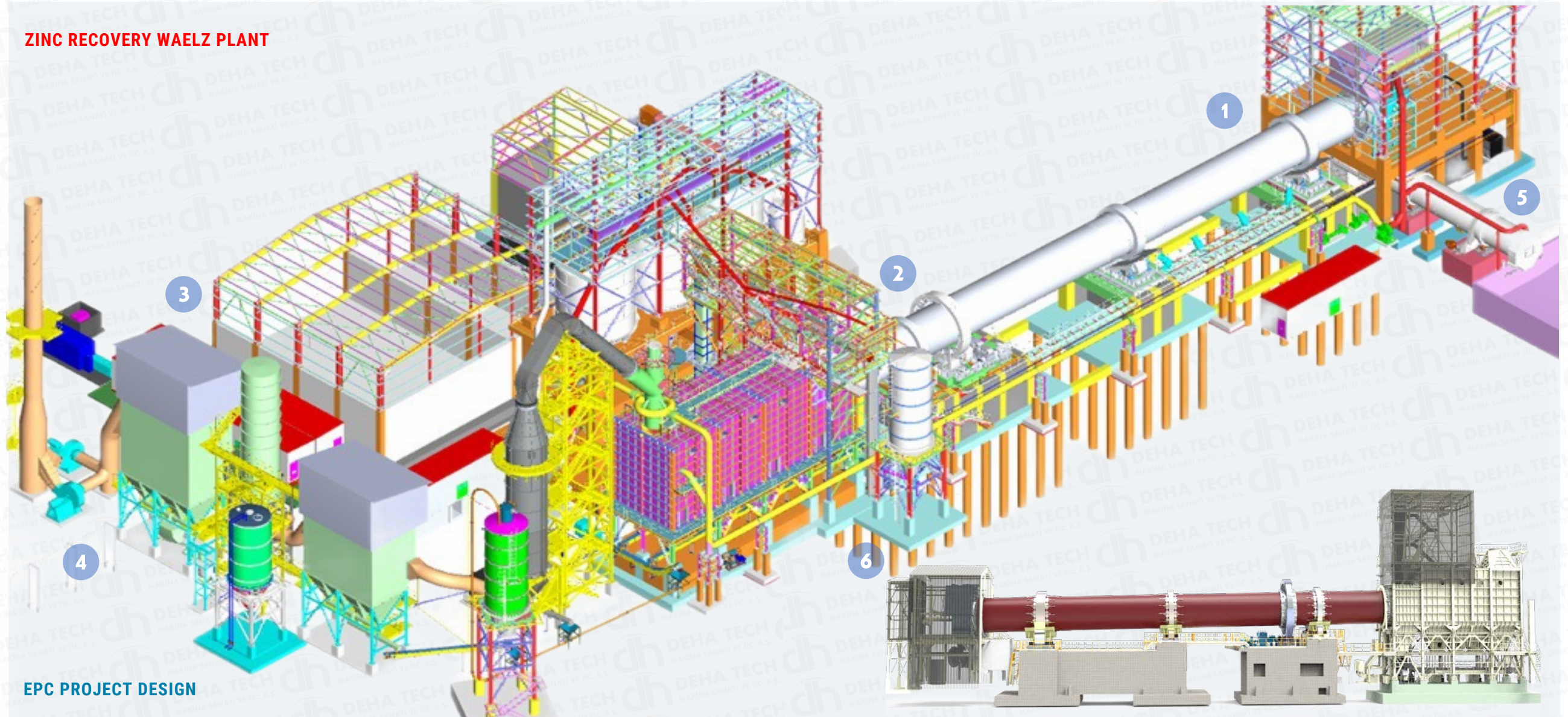


Pipeline Services	Consulting
Pipeline System and Constructions	Design Examination
Industrial Piping Installation	Piping Planning
Carbon Steel Piping	Consultancy During Pipeline
Spool Piping	Management Erection for Pipelines
Special Piping	Repair Concepts for Pipelines
Stainless Steel Piping	Failure Analysis



ENGINEERING

## ZINC RECOVERY WAEZ PLANT



### EPC PROJECT DESIGN

ROTARY KILN  
STATION

1

ROLLER STATION &  
BURNER BUILDIN

2

RAW MATERIAL  
STORAGE

3

FEED HOPPER  
BUILDING

4

DRUM COOLER &  
CLINKER PIT

5

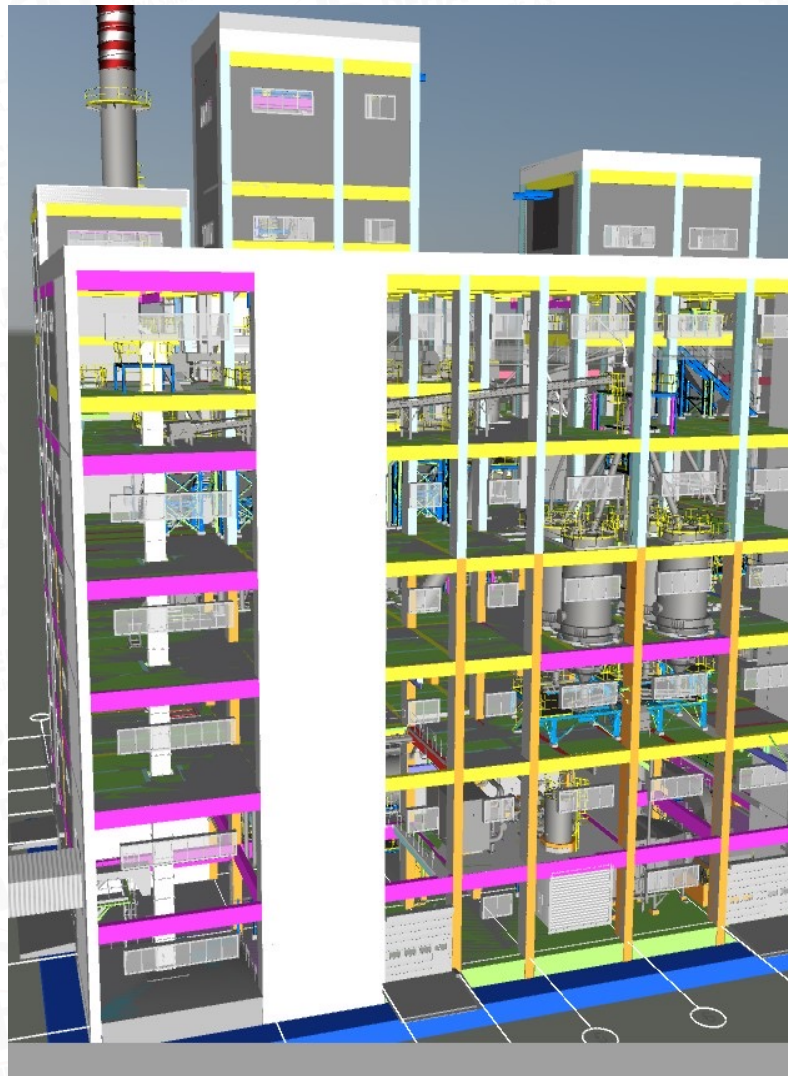
STAIR TOWER &  
SILO BUILDING

6

## ENGINEERING

### Scope

Preparation of Manufacturing drawings of Dry Cutting equipment, material supply, manufacturing, assembly, transportation, lifting, lowering, horizontal vertical transport, welding sandblasting and painting works.

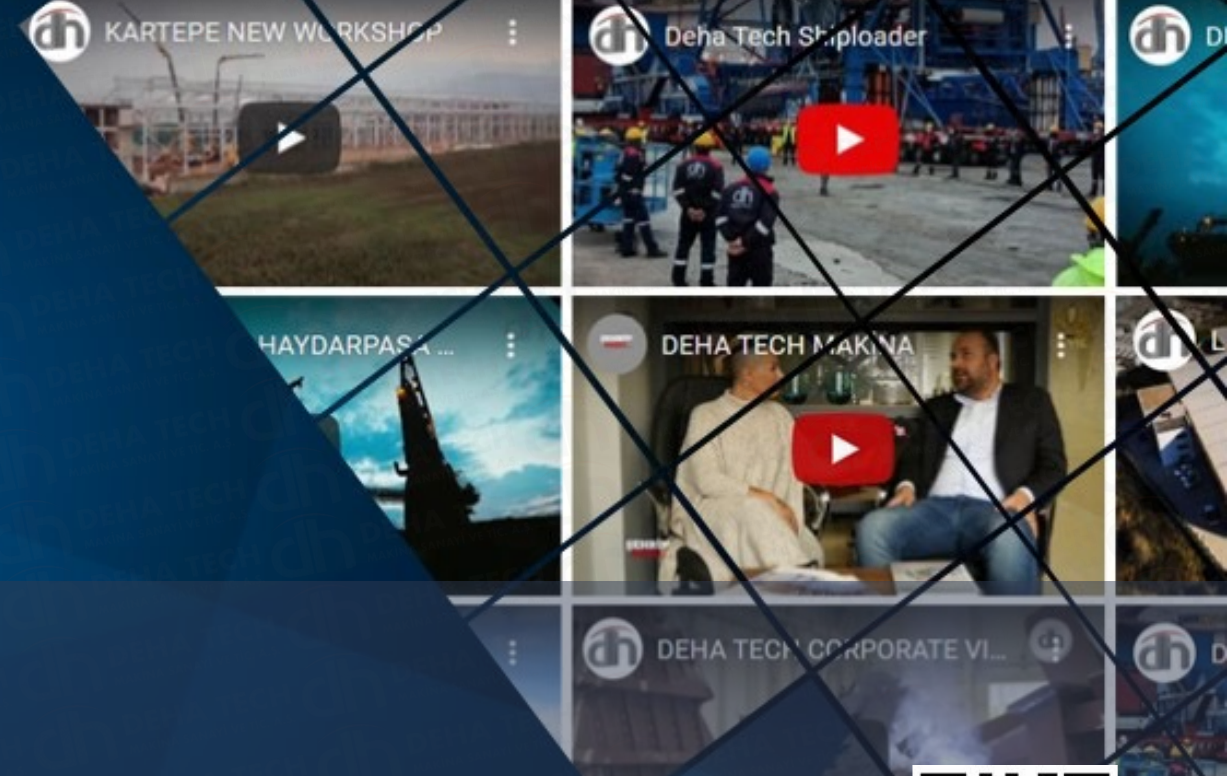


A large group of employees, mostly men wearing yellow hard hats and dark work uniforms with reflective stripes, are posed in several rows in front of a modern building. The building has large glass windows and a prominent logo consisting of the letters 'dh' in a stylized font with an orange arc above it, followed by the text 'DEHA TECH' in large, bold, grey letters. Some employees in the front row are wearing white hard hats and high-visibility yellow safety vests. The scene is set outdoors during the day.

# dh DEHA TECH

## MANUFACTURING PLANTS

# DEHA TECH`S CONTACT DETAILS



www.dehatech.com

## ▶ Deha Tech Headquarters

**A :** Kemeraltı Caddesi No:28, Pk:34425,  
Müeyyetzade Mahallesi, Karaköy /  
İSTANBUL / TR

**W :** info@dehatech.com

**W :** www.dehatech.com

**T :** +90 212 252 48 00

## ▶ Kartepe Factories

**A :** Arslanbey Mahallesi, Yeşilevler Sokak,  
No:5, Pk:41285, Kartepe / KOCAELİ / TR

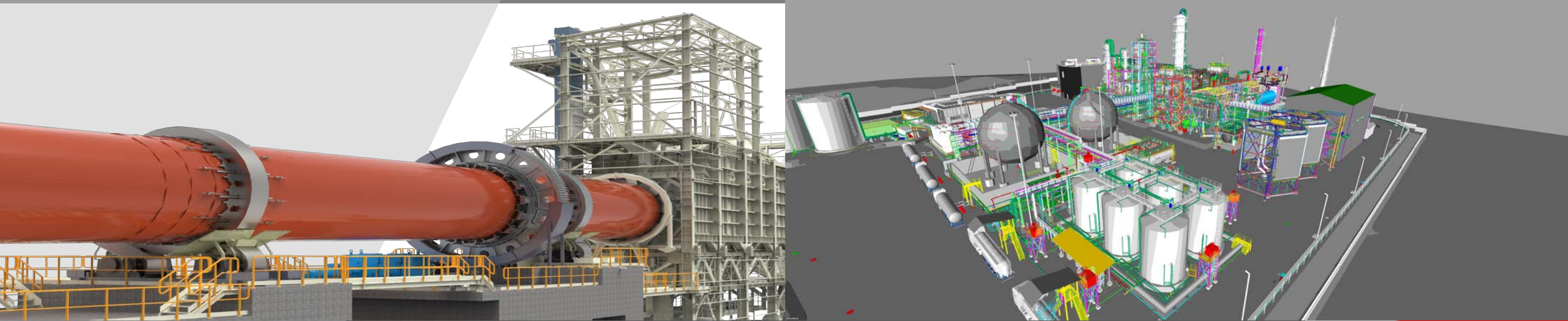
**A :** Arslanbey OSB Mahallesi, 3. Sokak,  
No:12, Pk:41285, Kartepe / KOCAELİ / TR

## ▶ Gebze Factory

**A :** Barış, Koşuyolu Cd. No:23, Pk: 41400  
Gebze/Kocaeli



Genius Solutions For Industrial Projects



THANK YOU

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