



INDUSTRIAL PRODUCTS & SYSTEMS



POWER PLANT INSTALLATION & MANUFACTURING

1. CoGeneration Facilities
2. Tri-Generation Facilities
3. Bio mass Power Plant Construction
4. Waste Incineration Power Plants
5. Bio-Gas Power Plant Construction
6. CCPP Power Plant Construction
7. Solar Power Plants

INDUSTRIAL INSTALLATION & MANUFACTURING

1. Mining Facility Installation
2. Mining Equipment Manufacturing
3. Asphalt Plant
4. Cement Factory Installation
5. Chemical Complex Construction
6. Food & Beverage Facility Construction
7. Chemical & Food Industry Equipment
8. Water And Wastewater Treatment Systems
9. Oil&Gas Pipeline Construction Works
10. Clean Water Pipeline Construction Works
11. Waste Water Pipeline Construction Works
12. Industrial Steel Structure Facility Construction
13. Industrial Plant Construction Including Process Equipment
14. Storage Facility Construction

LIFTING AND CARRYING EQUIPMENT & VEHICLES

1. Marine Sector
 - Deck Crane
 - Knuckle Boom Crane
 - Folding Boom Crane
 - Anchor Windlass
 - Mooring Winch
 - Towing Winch
 - Steering Gear
 - Rescue Boat Davit
 - Free Fall Davit
 - Gantry Crane
 - Deck Equipment (Bollards, Chocks etc)
 - Watertight Door and Manholes, Ladder

2. Shipyard Sector

- Self-Sliding Transporters
- It also provides project-based solutions for unloading and carrying hightonnage products.
- Heavy-Tonnage Transporters
- Yacht Cranes
- Yacht Transporters
- Jib Cranes

3. Industrial Sector

- Hydraulic Jacks
- Truck Mounted Hydraulic Mobile Cranes
- Telescopic Cranes
- Hydraulic Tree Trans Planters
- Hydraulic Platforms (ManLift)
- Scissor Lift
- Rough Terrain Crane
- Recovery Crane
- Car Parking System

4. Transporters

5. Foldable Mobile Cranes

6. Telescopic Boom Crane

7. Rough Terrain Crane

8. Bogie Transfer Lift

9. Tree Trans Planter

10. Man Lift (Telescopic Or Self Propelled Platform)

11. Handling Machinery And Knuckle Boom Crane

12. Hatch Cover Gantry Crane

13. Free Fall Davit -Rescue Boat Davit

14. Car Parking System And Scissor Lift

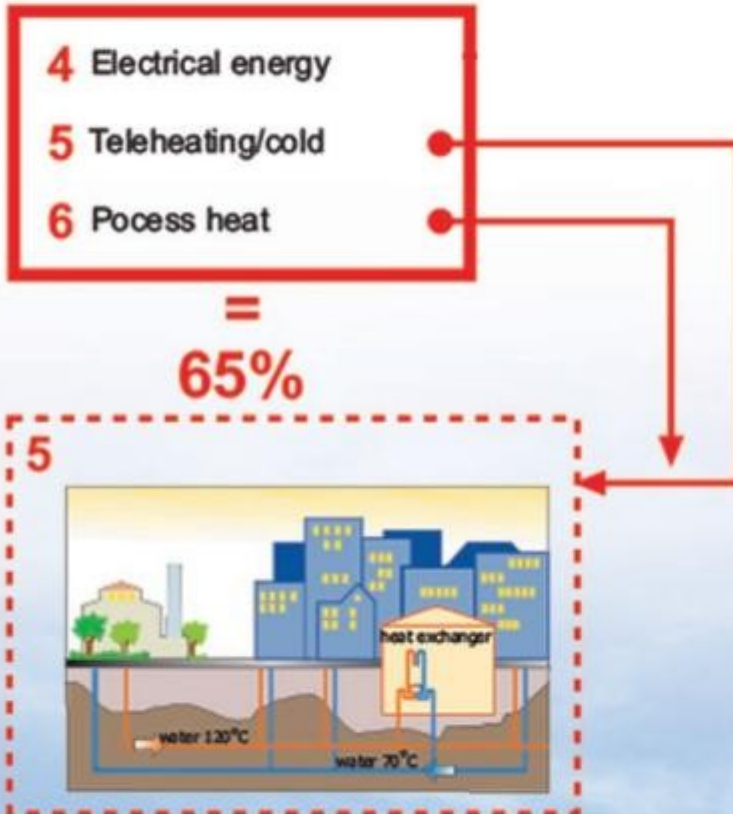


BIOMASS COGENERATION

**MODERN TECHNOLOGIES FOR
BETTER ENVIRONMENTAL**

1. Akış şeması / Flow diagram

R1 Energy recovery (EU)



Emissions

7 EU limit values
(Average daily value 24h)

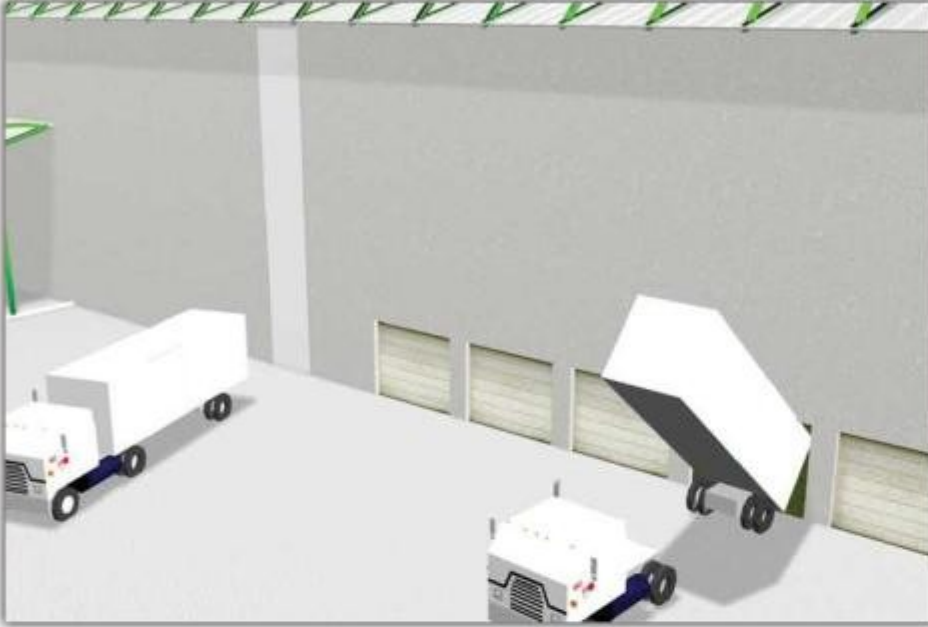
C.ges	10 mg/m ³
CO	50 mg/m ³
Cd/Tl	0,05 mg/m ³
HCl	10 mg/m ³
Hg	0,03 mg/m ³
NO2	200 mg/m ³
SO2	50 mg/m ³
Gesamtstaub	10 mg/m ³
PCDD/F	0,1 ng/m ³

8 expected limit values
(Average daily value 24h)

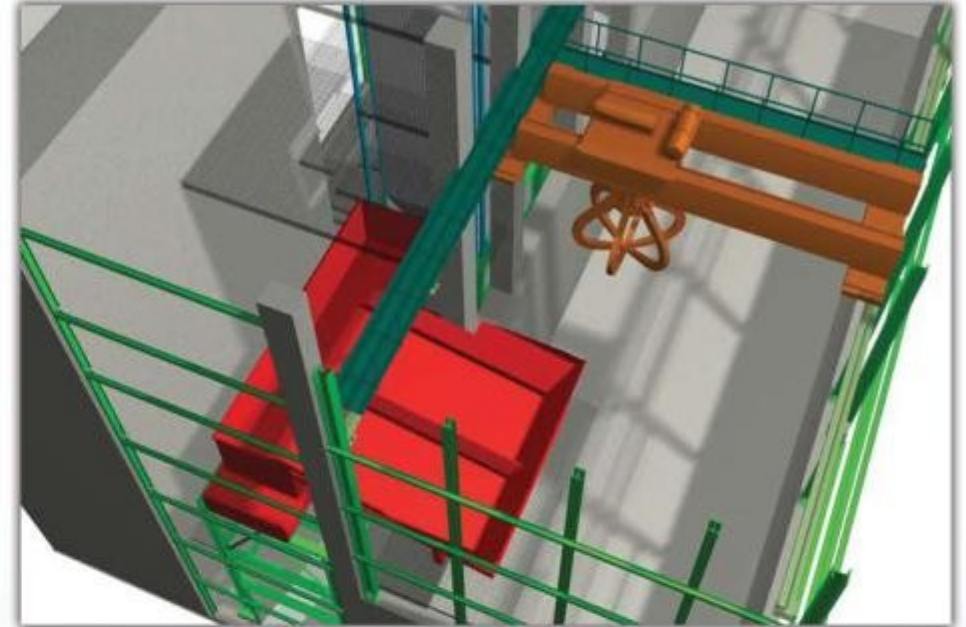
C.ges	8 mg/m ³	25%
CO	15 mg/m ³	333%
Cd/Tl	0,03 mg/m ³	166%
HCl	7 mg/m ³	142%
Hg	0,01 mg/m ³	300%
NO2	80 mg/m ³	250%
SO2	30 mg/m ³	156%
Gesamtstaub	2 mg/m ³	500%
PCDD/F	0,01 ng/m ³	125%

Emission reduction:

2. Atık deposu / Waste bunker



2. Çeneli kepçe / Grab



3. Atık besleme

Materyal sevk aracından kazana boşaltılır. Anahtarla çalışan bir şalter tarafından kontrol edilen ışık bariyerli yuvarlama vanası sayesinde tesisatın çalışmadığı durumlarda yakıt iletilebilir.

Kazan ve fırını kontrol etmek için bir köprü vinci kullanılır. Ray yolu ve trolley ile vinç bütün kazan alanına ulaşabilir. Çeneli kepçe kaldırma düzeneği ile kaldırılabilir ve manüel, otomatik veya telsiz ile çalıştırılabilir.

Hidrolik sürgü materyali besleme kanalından atık yakma ızgarasına iletir.

3. Waste feeding

The material is tipped from the delivery vehicles into the bunker. Thanks to a rolling gate with light barrier controlled by a key-operated switch fuel can be delivered also when the facility is not being operated.

For the bunker management and the feeding of the kiln a bridge crane is used. With its runways and trolley the crane can reach over the entire bunker area. The grab is moved by the lifting gear and can be operated manually, by radio or automatically.

A hydraulic slide conveys the material through the feeding duct onto the incineration grate.



4. Atık yakma ızgarası / Incineration grate



Besleme ızgarasının dört parçası vardır. Tıpkı besleme silindrinde olduğu gibi hidrolik olarak orantısız valflerle çalıştırılır.

Besleme, bir ızgara seviyesinden diğerine çevrimin ayarlanmasıyla değişir.

İlk önce yanma gazları aşağı doğru itilir.

Gazlar daha sonra başka yöne sevk edilir ve yukarıya doğru buharlaştırıcıya, üst ısıtıcı 1 ve 2 en son olarak da 5 ısı alıcıya doğru itilir.

Buharlaştırıcı ısı eşanjör yüzeyleri doğal evrim akışına göre çalışır.

The feeding grate has four parts. It is driven hydraulically via proportional valves, just as it happens in the feeding cylinder.

The feeding changes from one grate segment to the other by tuning the cycles.

First the combustion-flue gases are pushed upwards.

The gases are then diverted and pushed downwards to the evaporator, the superheaters 1 and 2 and finally to the 5 economizers.

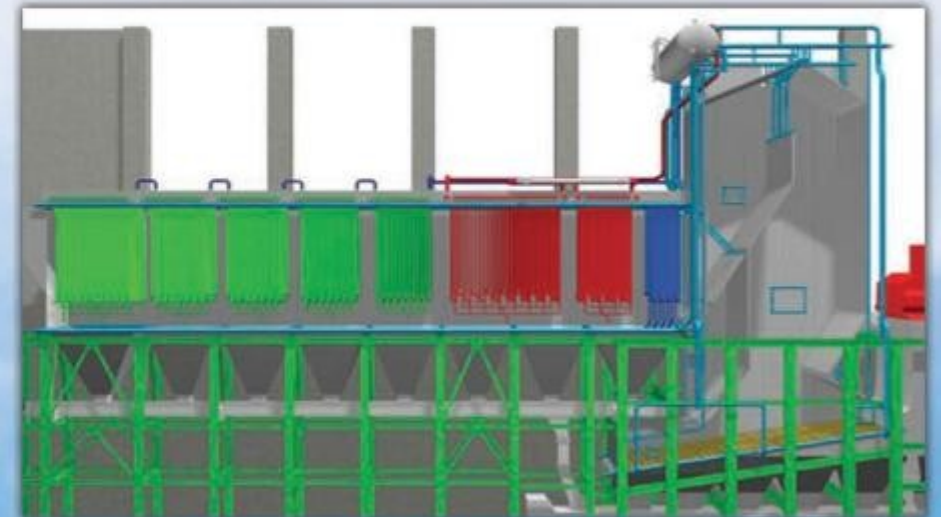
The evaporator heat exchange surfaces work according to the natural circulation flow.

5. Kazan / Boiler



Kazan doymuş buhar üretmek için çeşitli membranlardan oluşur.

The boiler consists of various membranes in order to produce saturated steam.



6. Kazanların planlanması ve üretimi Planning and production of boilers



5-150 ton arası buhar kazanlarını 10-110 bar ve 450°C sıcaklık için hesaplamasını yapar, planlar ve üretir.

calculates, plans and produces complete steam boilers of 5 – 150 tons with a pressure of 10 -110 bar and a temperature of up to 450°C.

7. Kazan ve buhar tamburu Boiler and steam drum

Besleme suyu öncelikle ön ısı eşanjörünün boru demeti içinden son olarak buhar tamburuna girmeden önce ısıtıldığı ön hava ısıtıcılanna akar.

Buhar tamburu kazanın çatısına yerleştirilmiştir.

Çekiş tüplerinin içinden akan su, akışkan halden gaza dönüştüğü membranlara ulaşır.

Sonuçta meydana gelen doymuş gaz buhar tamburundan doğrudan üst ısıtıcıya iletilir.

The feedwater flows first through the economizer heat exchange tube bundles and then through the economizer air pre-heaters, where it is heated before finally flowing into the steam drum. The steam drum is placed on the boiler roof.

Flowing through draught tubes the water reaches the membranes where water is transformed from liquid to gas. The resulting saturated steam is conveyed from the steam drum directly to the superheater.



8. Duman gazlarının çevrimi Recirculation of flue gases

Düzeltilme faktörleri yardımıyla, her ızgara segmentinde cüruf üretiminde çevrim sayısı aşağıya düşecek şekilde ayarlanır, dolayısıyla besleme hızı ızgaranın sonuna doğru azalır.

Burada amaç, sürekli olarak aşırı ısınmaya karşı koruma sağlamak için ızgarada atık ve cüruf olmasını sağlamaktır. Iızgara segmenti çevrimlerinin sayısı fırın ana kontrolörü tarafından yönetilir.

Besleme ızgarası hareket ettiğinde yanmayı artıran bir kanştırma etkisi yaratır.

Duman gazlarının bir kısmı NOX emisyonu azaltması ve ızgara sıcaklığı düşürmeye yardımcı olması için primer hava ile kanştırılır.

Çevrim hava fanı manuel çalışma moduna getirilir, hava miktar hızın önceden seçilmesi ile belirlenir.

Genel olarak hızın ayarlanması otomatik olarak fırın sıcaklığı ile bağlantılı olarak meydana gelir.

By means of correction factors the number of cycles per grate segment against slag production is being adjusted in a declining manner, the feeding speed thus decreasing towards the end of the grate.

The aim is, to guarantee the constant covering of the grate with waste and slag as a protection against overheating. The number of cycles of the grate segments is managed by the kiln master controller.

By its movement the feeding grate has a poking effect which improves the burn-out.

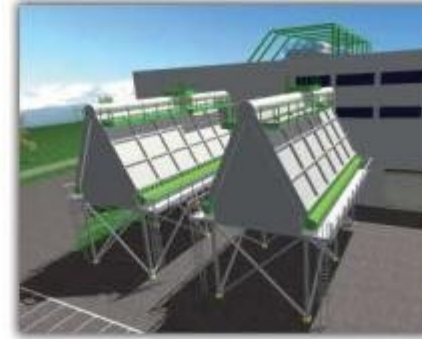
Part of the stream of flue gases is being mixed with primary air which helps to reduce the NOX emissions and to lower the grate temperature.

The recirculation air blower is being put into manual operation mode, the amount of air being defined by speed pre-selection.

Generally speed regulation can also occur automatically in relation to kiln temperature.



9. Kondansör / Condenser



Bu resim kazan çatısının arka soğutucularını göstermektedir.

Türbinden gelen buhar, kondansör tarafından soğutulup iletilerek gazdan sıvı madde hale dönüştürülür. Buhar, dışardaki fanlarla hava akışı yaptırılan oluklu boru demetlerinin içinden geçer.

Besleme tankının içinde (gaz gidericisi olan) 50°C ile 55°C arasında yoğunlaşmış su, çevrime geri verilmeden önce 104°C'ye kadar ısıtılır.

This view shows the back coolers on the roof of the boiler.

The steam coming out of the turbine is being changed from gas into the liquid state of matter by being cooled and transformed by the condenser. The steam passes through various bundles of fluted tubes which are streamered on with air by fans from outside.

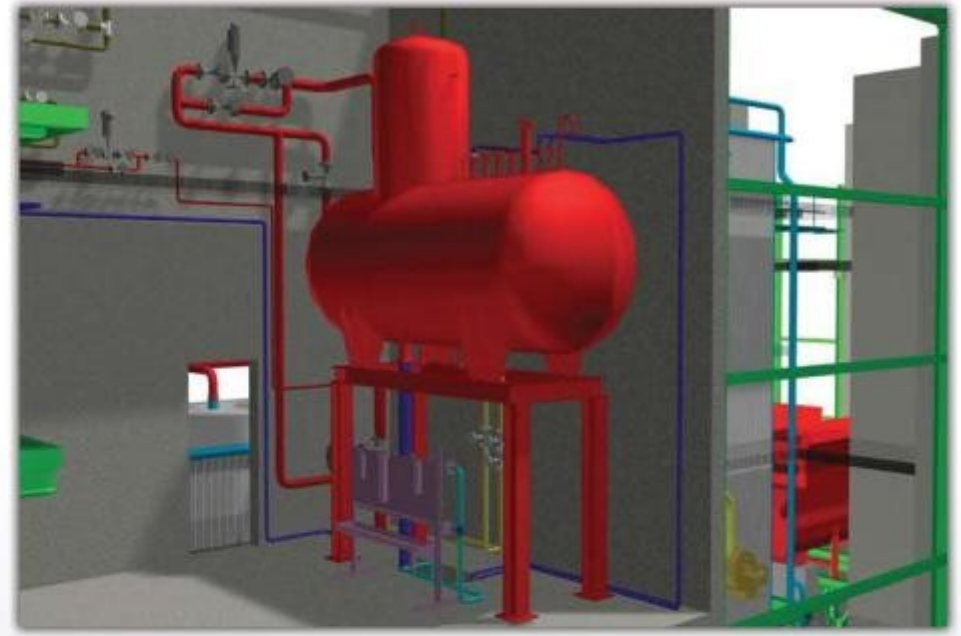
In the feed water tank (with deaerator) the condensed water at a temperature of 50°C - 55°C is heated up to 104°C before being led back to circulation.



10. Brülör *(Dumeco ultraözelkazan) Burner *(Dumeco-ultraspecialburner)



11. Kazanın fonksiyonu Function of the boiler



Brülör tamburundan çıkan doymuş buhar önce birinci sonrada ikinci üst ısıtıcıya ulaşır.

İki üst ısıtıcı arasında, buhar su püskürtme sistemi ile soğutulur, bu da buhar sıcaklığını düzenler ve buhar türbine iletir.

Saturated steam purged from the boiler drum reaches the first and then the second superheater.

Between the two superheaters the steam is cooled by a waterspray-system, which regulates steam temperature, and conveys it to the turbine.

12. Buhar giderici / Steam deareator

Besleme suyu tankı, bir tank ve kazan suyunu gazdan arındıran bir kontrol deliğinden oluşur.

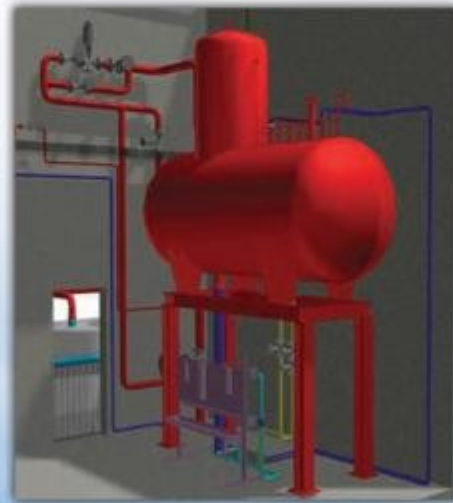
Kazandaki su ikmalî ön ısıtıcıdan geçen besleme su tankı besleme suyu ile sağlanır.

Yoğunlaşmış buhar (yaklaşık 50°C) hava soğutucudan besleme suyu tankına akar ve buhar zerk edilerek 104°C'ye kadar ısıtılır (çıkarmı türbini). Blöf suyu pompalar yolu ile değiştirilir.

The feedwater tank consists of a tank and a manhole to degasify the boiler feedwater.

The water supply in the boiler is granted by the pumps of the feedwater tank feeding water through the economizer entry.

Condensed water (approx. 50°C) flows from the air cooler into the feedwater tank and is heated up to 104°C by injecting steam (extraction turbine). The blowdown water is replaced via the pumps.



13. Toz filtresi / Dust filter

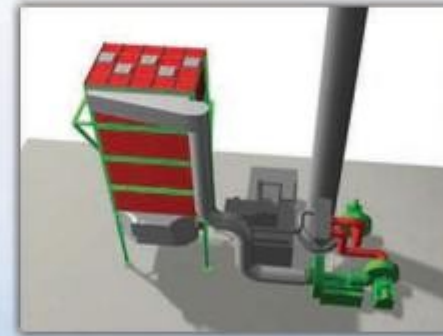
Uçucu kül toz filtresinde asılı duran filtre torbalannın üzerine düşer. Sıkıştırılmış hava periyodik olarak filtre torbalannı körükler (impulse-jet sistemi) ve uçucu külün spiral benzeri mil tarafından dışarı atılmadan önce toz filtresi hunisinin içine düşer.

Proses kılavuz sistemi, önceden seçilebilen farklı basınçlarda sıkıştırılmış havayla temizleme prosesini başlatır. Temizleme prosesi "filtre temizleme" cihazı ile otomatik olarak kapatılır. Huniye "hava şoku" verilir. Sıkıştırılmış havanın üflenmesi toz köprülerinin oluşmasını önler.

Fly ash falls down on filter bags hanging in the dust filter. Compressed air is periodically blown onto the filter bags (impulse-jet system) making fly ash fall down into the hopper of the dust filter before being ejected by a spirallike screw.

Process guidance system starts off the cleaning process by means of compressed air once the preselectable differential pressure is exceeded.

The cleaning process triggered off automatically by the "filter cleaning" device. The hopper is also provided with "air-shocks". Blowing in compressed air prevents the formation of dust bridges.



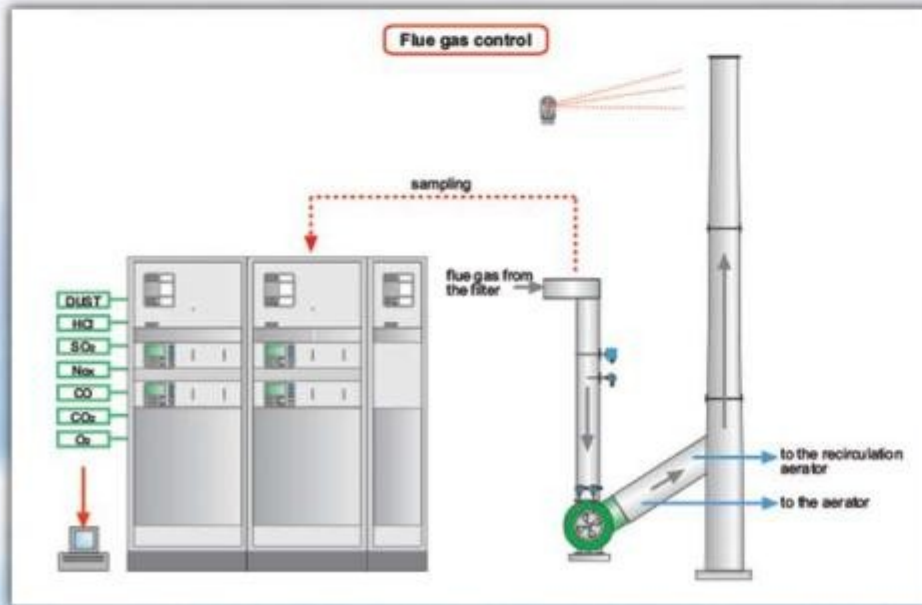
14. Egzoz gazlarının temizlenmesi Cleaning of exhaust gases

Brülörden sonra duman gazları reaktörün dikey olan üst kısmına ulaşır. Sodyum bikarbonat ve etkinleştirilmiş karbon katkıları, uygun hale getirilmiş duman gazları reaktörün altından çıkıp toz filtresine ulaşmadan önce reaktörün içine nozüller sayesinde duman gazlarına eklenebilir.

Reaktörün üst kısmında bir kontrol kapağı vardır. Aşırı ısınma durumunda, atık gaz dumanında reaktörden sonra yapılacak ölçüme göre, duman gazlarının sıcaklığını azaltmak ve dolayısıyla filtre torbasını (filtreleme tesisatı) korumak için bu kapak açılır.

After the boiler the flue gases are introduced into the upper part of the reactor which is a vertical vessel. The additives sodium bicarbonate and activated carbon can be added to the flue gases through nozzles inside the reactor before the conditioned flue gases exit at the bottom of the reactor, reaching the ensuing bag filter.

There is a control flap on the upper part of the reactor. In case of overheating, according to the measurement taken in waste gas flue after the reactor, this flap opens in order to lower flue gas temperature thus protecting the bag filter (filtration plant).



15. Döner fırın tesisatı Rotary kiln plant

Döner fırın temel olarak aşağıdaki parçalardan oluşur:

1. Atık besleme
2. Art yakıcı odası ve döner fırında atık yakımı
3. Atık sıcaklığı yeniden kullanım
4. Duman gazlarının temizlenmesi
5. Emisyon ölçümü

The rotary kiln incineration plant can basically be divided into the following parts:

1. Waste feeding
2. Incineration in rotary kiln and afterburner chamber
3. Waste heat reuse
4. Cleaning of flue gases
5. Emission measurement

Atık yükleme / Waste loading

Verilen atık menüsü tekrar kullanılmayan evsel ve endüstriyel atıklar içerir. Sevkiyattan sonra, atık ilgili kazana iletilmeden önce tartılır ve kayıt edilir.

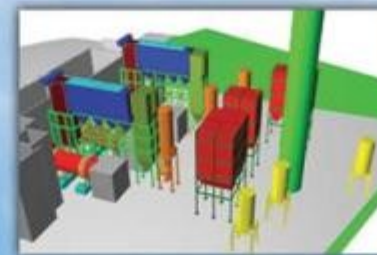
Bu şekilde yapılarak, atık, ikmal bacası yoluyla kazana aktarılır. Gerekli olursa, atık doğrama makinesi ile kesilir. Atık vincinin çeneli keçesi ile atık karıştırılır, homojen hale getirilir ve besleme bacasına sevk edilir. Atık kazanının depolama kapasitesi tamamen kullanıldığında yaklaşık 5 gündür.

Kazandan gelen egzoz havası primer hava ventilatörü ile vakumlanır ve yanma havası olarak döner fırına yönlendirilir. Parçalanmış atık O₂ ile ayarlanan valf iletilici ile sürekli olarak yanma odasına sevk edilir.

The given waste menu usually consists of not reusable household and industrial waste. After delivery the waste is weighed and registered before being conveyed into the corresponding bunker.

When doing so the waste is fed into the bunker via delivery chutes. If necessary the waste is cut in a shredding machine. With the hydraulic grab of the waste crane the waste is mixed, homogenized and transported towards the feeding chute. The storage capacity of the waste bunker is of approx. 5 days if fully operated.

Exhaust air from the bunker is withdrawn by suction via the primary air ventilator and is led into the rotary kiln as combustion air. Shredded waste is being continually transported into the combustion chamber by means of an O₂-regulated screw conveyor.



16. Döner fırın / Rotary kiln

Besleme spiral benzeri cıvata aracılığı ile atık yanması için tuğla kaplanmış döner fırına aktarılır. Her döner fırın modülünün 25,000 t/a. Kapasitesi vardır. Her ünitenin çalışma kapasitesi 950°C yanma sıcaklığında 3.5 t/s'dir.

Gösterilen kullanım modelinde, meydana gelen egzoz gazları art yakıcı odasına doğru fırının zıt yönünde ilerler. Dönme hızı ve besleme sıcaklık ve oksijen tüpü ile ayarlanır.

Çeşitli nozüllerle, primer hava türbülansın artması ve iyi oksidasyon sağlanmasına sebep olacak şekilde enjekte edilir. Fırının sonunda, yalnızca başlangıçta ateşlenebilen bir kazan vardır.

Atıkların yanması sonucu oluşan cüruf fırının sonundaki su banyosuna düşer. Zincirli bir konveyör ile sinterlenmiş materyal bir konteynıra sevk edilir (33m³). Her döner fırının yaklaşık 15 metre uzunluğu vardır ve 18 metre uzunluğunda yapı modüllerinin üzerine kurulur (konteynır).

Gerekirse, menü ve yanma sıcaklığına bağlı olarak, perdahlı cüruf bir yanma ürünü olarak üretilebilir. Bunu yapmak için döner fırın "paralel akış" içinde çalıştırılır.

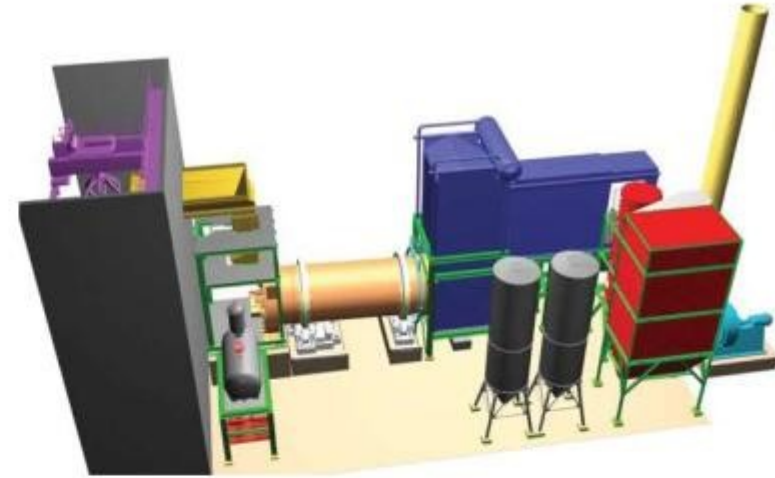
By means of the feeding spirallike screw conveyor waste is fed into the brick-lined rotary kiln for incineration. Every rotary kiln module has a capacity of 25,000 t/a. Operational capacity per unit is of 3.5 t/h with an incineration temperature of 950°C.

In the projected operational model the arising exhaust gases stream in the opposite direction of the kiln into the afterburner chamber. Rotating speed and the feeding are regulated by a temperature- and oxygen tube.

Through various nozzles primary air is being injected causing increased turbulence and guaranteeing good oxidation. At the end of the kiln a burner has been installed which is ignited only at the beginning (or in case of decreasing waste with low heating capacity).

The slag resulting from incineration falls into a water bath at the end of the kiln. With a chain conveyor the sintered material is transported into a container (33m³). Every rotary kiln has a length of some 15 metres and it is erected on an 18-metre-long building module (container).

If required and depending on menu and incineration temperature glazed slag can be produced as incineration product. To do so the rotary kiln is run "in parallel flow".



17. Art yakıcı oda / Afterburner chamber

Döner fırından çıkan sıcak duman gazları art yakıcıya akar ve burada 950°C'de yaklaşık 2 saniye kalır. Uçucu kül alt kısımdaki konveyörde toplanır. Sekonder hava O₂-kontrollü bir fan ile enjekte edilir.

Hot flue gases flow from the rotary kiln into the afterburner chamber where they are held for about 2 seconds at a temperature of 950°. Fly ash is collected in a spiral-like screw conveyor at the bottom. Secondary air is being injected by an O₂-controlled fan.

Isı eşanjör ve kazan Heat exchanger and boiler

Art yakıcı odasının çıkışında, iki temel görevi olan duman gazı ısı eşanjörü vardır; bir taraftan sıcak duman gazlarını 700°C'ye kadar soğuturken, diğer taraftan temizlenmiş duman gazını NO_x katalizör hazırlığı için ısıtır.

Duman gazları buhar jeneratöründe 700°C ile 300°C arasında soğutulur, ortaya çıkan ısı sıcak su, buhar veya elektrik için yeniden kullanılabilir.

Egzoz gaz temizleme prosesinden ortaya çıkan atık su su püskürtme reaktöründe toplanır ve buradan doğrudan sıcak duman gazına enjekte edilir (300°C).

Sonuç olarak, katı partiküller (tuzlar) filtre torbası içinde ayrılırken su buharlaşır.

At the exit of the afterburner chamber there is a flue gas heat exchanger which has two main tasks; on the one hand it cools the hot flue gases down to about 700°, on the other hand it heats the cleaned flue gases up for NO_x catalytic preparation.

Flue gases are cooled down from 700° to 300° in a steam generator, the resulting heat being reused for warm water, steam or electricity.

The waste water resulting from the exhaust gas cleaning process is collected in the water spray reactor from which it is directly injected into the hot flue gas (300°C).

Consequently, water evaporates while the solid particles (salts) are separated in the bag filter.

18. Brülör / Burner

Döner fırının ön kısmındaki brülör kendi çekimini kullanan çok yakıtlı bir brülördür (gaz, sıvı).

Ara bağlantı sistemi orantısız olarak hava ve gaz ekler

Her brülör kanunlarca gerekli kontrol ekipmanı ve kapatma düzeneğine sahiptir.



The burner, placed on the front of the rotary kiln, is a multi fuel burner (gas, liquid) disposing of its own draught.

An interconnection system adds proportional quantity of air and gas.

Every burner disposes of the checking equipment and shut-off arrangements required by law.



Yakıt basıncı ve yanma hava basıncı Fuel pressure and combustion air pressure

Brülör çekişleri, fırın sıcaklığı 300°C'yi aştığında, hava besleme ünitesinin aşırı ısınmasını önlemek için, otomatik "brülör" havasını aktive ederek ya da otomatik olarak kapatılacak şekilde ayarlanmıştır.

Brülörler otomatik olarak çalıştırılır.

Yanma odasındaki sıcaklık brülörün kontrol sisteminde belirlenmiş değerlerine göre ayarlanabilir.



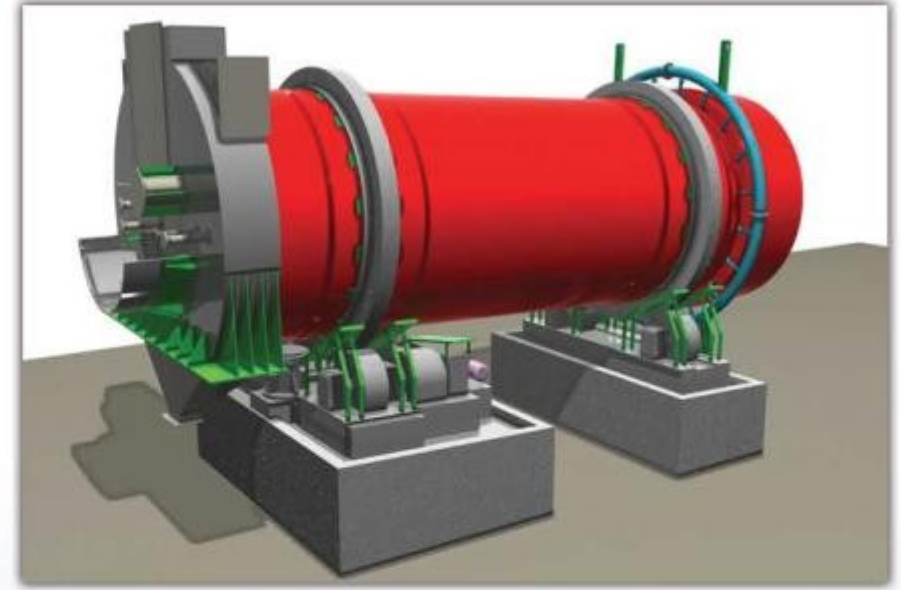
Burner draughts are set off by activating the automatic "burner air" system or automatically when the kiln temperature exceeds 300°C in order to avoid the overheating of the air feeding unit.

Burners are operated automatically.

The temperature in the burning chamber can be regulated according to burner set values indicated by the control system.



19. Brülörlü döner fırın Rotary kiln with burner



Toz olması veya düşük frekanslı vibratörlere rağmen kazanın alt kısmında sıcaklığın artması halinde, ultrason temizleyiciler aktive edilir. Ultrason temizleyiciler de çalışma-mola süresi kontrol sistemi ile ayarlanır ve kazanın bu kısmının periyodik olarak temizlenmesini sağlar.

Case of powdery dust or increased temperature at the bottom of the boiler in spite of low frequency vibrators the ultrasound cleaners are activated. The ultrasound cleaners, too, are regulated by an operation – break time control system providing for a periodical cleaning of this part of the boiler.



20. Kazandan külün çıkarılması Ash removal from the boiler



Temizleme prosedürlerimiz, üst ısıtıcı için düşük frekanslı vibratörlerin ve fırının ön ısıtıcısının kurulumunu öngörmektedir. Düşük frekanslı vibratörler çalışma mola süreleri, kontrol sistemine göre periyodik olarak aktive edilir, kazan külünden temizlenir. Kazan hunilerinin uç kısmının altında, kazan külünü çıkaran bir link konveyörü vardır.

Eko parça ilave olarak ultrason temizleyici ile eklenmiştir.

Toz olması veya düşük frekanslı vibratörlere rağmen kazanın alt kısmında sıcaklığın artması halinde, ultrason temizleyiciler aktive edilir. Ultrason temizleyiciler de çalışma-mola süresi kontrol sistemi ile ayarlanır ve kazanın bu kısmının periyodik olarak temizlenmesini sağlar.



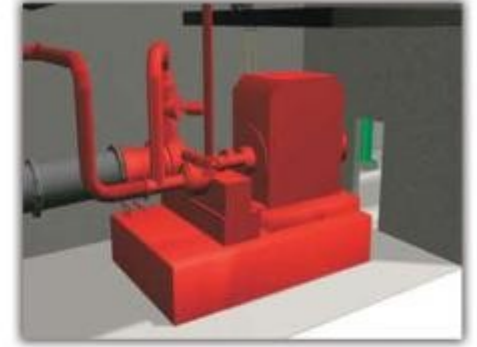
Our cleaning procedures foresee the installation of low frequency vibrators for the superheater and economizer of the kiln. Low frequency vibrators are periodically activated in accordance with an operation – break times control system, cleaning the boiler from boiler ash. Beneath the ends of the boiler's hoppers there is a drag link conveyor taking the boiler ash away.

The eco part is additionally provided with an ultrasound cleaner. In case of powdery dust or increased temperature at the bottom of the boiler in spite of low frequency vibrators the ultrasound cleaners are activated. The ultrasound cleaners, too, are regulated by an operation break time control system providing for a periodical cleaning of this part of the boiler.

21. Buhar türbini / Steam turbine

Buhar türbini yüksek basınç ve düşük basınç parçasından oluşur. Bunların arasında çeşitli kullanıcılar için ekstraksiyon buhar valfleri vardır. Miktar, basınç ve sıcaklığa bağlı olarak, ana buhar türbin çarklarını hareket ettirir ve bir kaplin aracılığıyla ortaya çıkan mekanik enerji jeneratöre iletilir.

Jeneratör bir transformatör tarafından ağa verilen elektrige dönüşür. 0.15 bar egzoz buhar hava kondansörüne ulaşır ve burada soğutulur ve kondansat olarak besleme suyu konteynırına yönlendirilir.

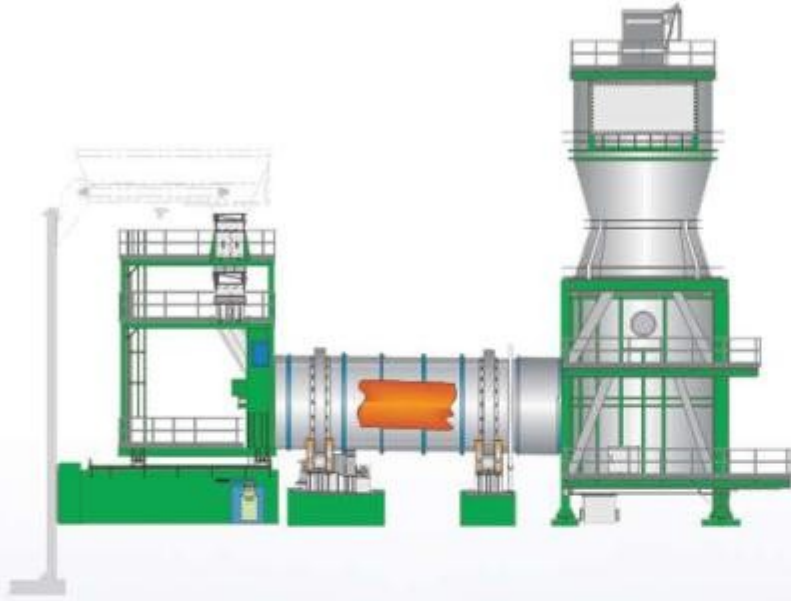


The steam turbine consists of a high-pressure and a low-pressure part. Between them there is the extraction steam valve aimed at various users. Depending on quantity, pressure, and temperature the main steam moves the turbine wheel(s) and by means of a coupling the resulting mechanic power is transmitted to the generator.

The generator produces electricity which is supplied into the net via a transformer. Exhaust steam of 0.15 bar reaches the air condenser where it is cooled down and led into the feed water container as condensate.

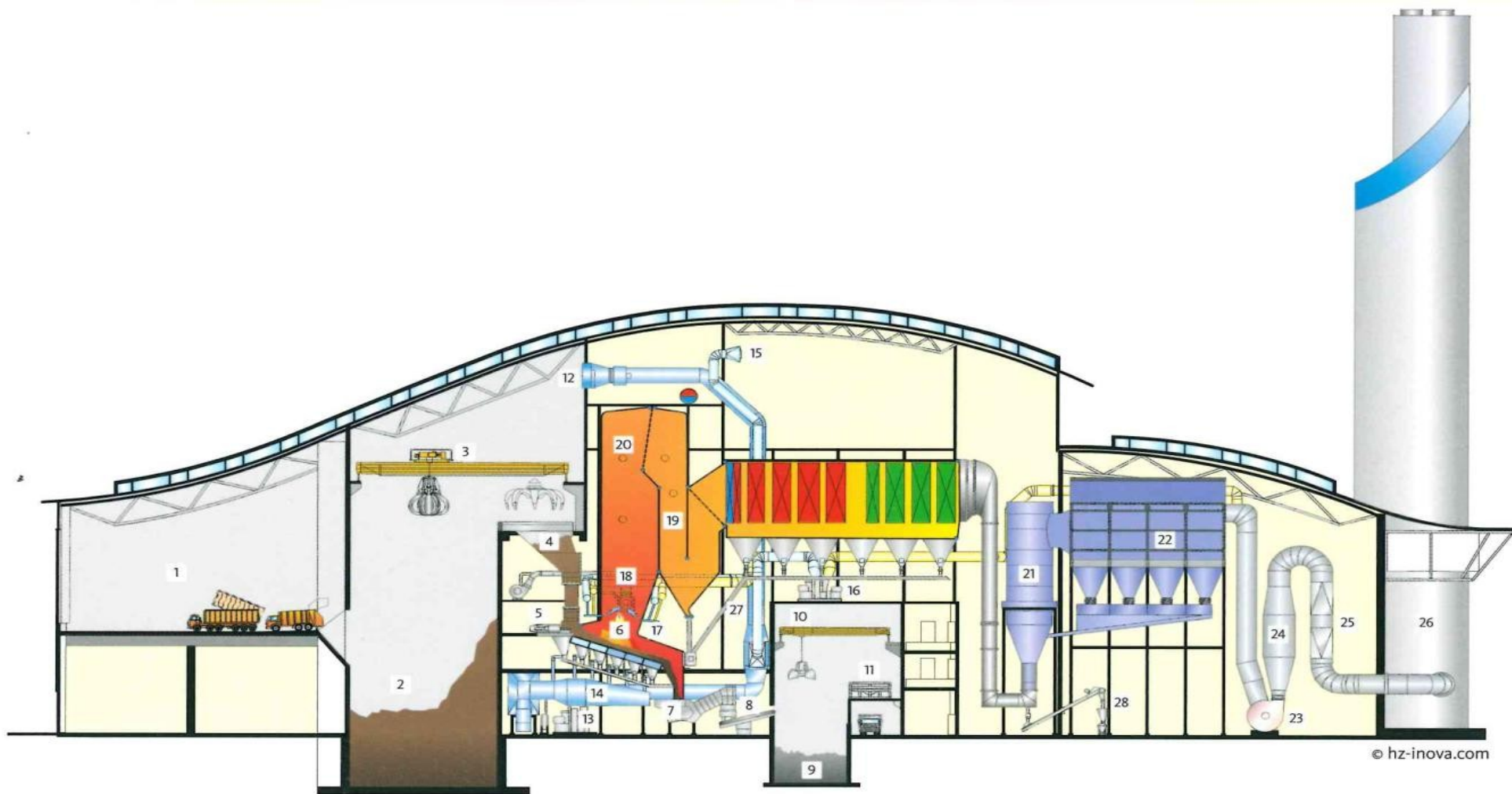


22. Brülörlü döner fırın tesisatı/şasi
Rotary kiln plant with burner/Rack



23. Art yakıcı odalı döner fırın tesisatı
Rotary kiln plant with afterburner chamber





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Waste receiving and storage

- 1 Tipping hall
- 2 Waste pit
- 3 Waste crane

Combustion and steam generator

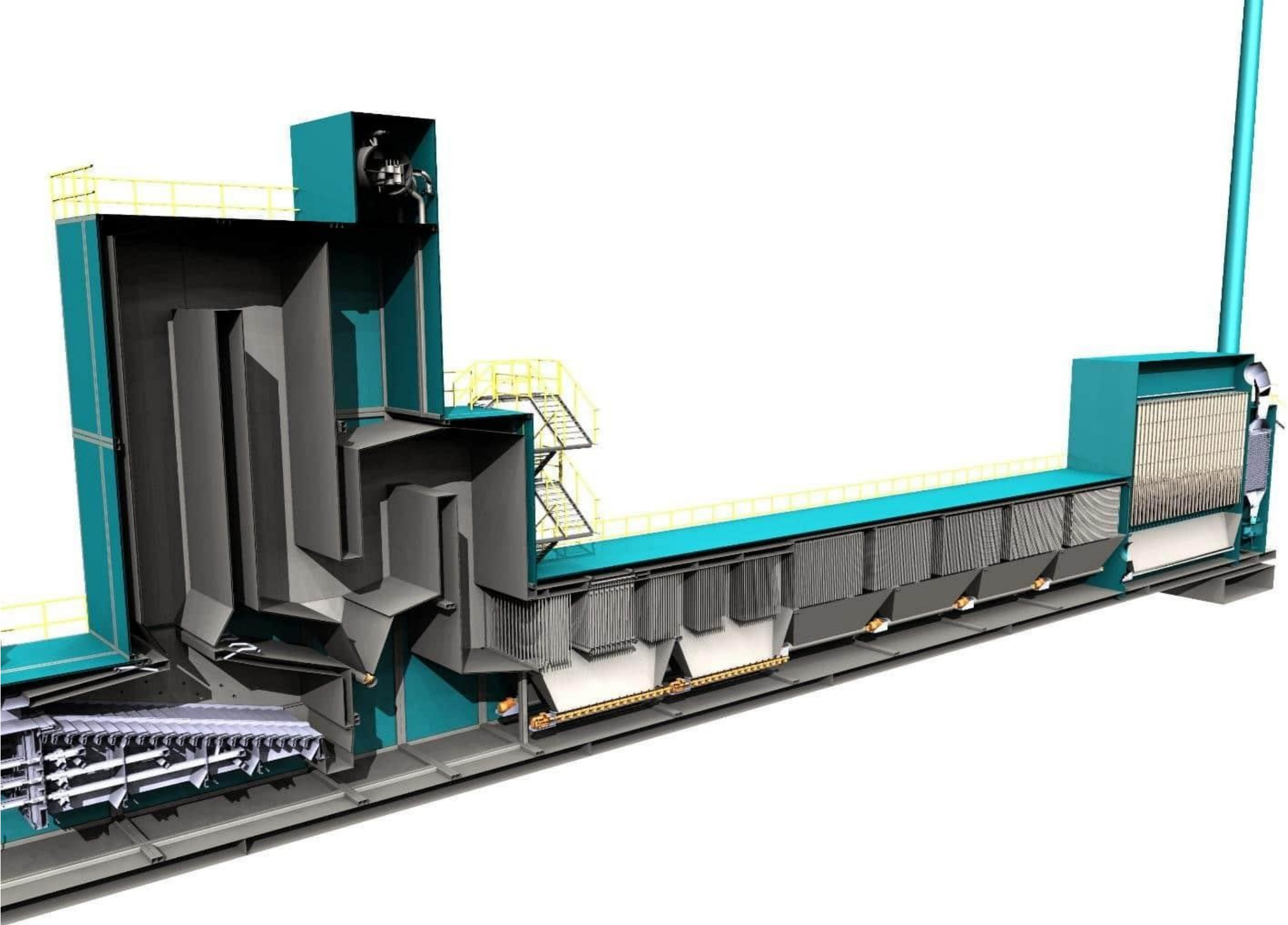
- 4 Feed hopper
- 5 Ram feeder
- 6 Reciprocating incineration grate
- 7 Bottom ash discharger
- 8 Bottom ash conveyor
- 9 Bottom ash pit
- 10 Bottom ash crane
- 11 Bottom ash loading station
- 12 Primary air intake
- 13 Primary air fan
- 14 Primary air distribution
- 15 Secondary air intake
- 16 Secondary air / flue gas recirculation fan
- 17 Secondary air / flue gas recirculation injection
- 18 Start-up burner
- 19 4-pass steam generator

Flue Gas Treatment

- 20 SNCR injection levels
- 21 Semi-dry reactor
- 22 Fabric filter
- 23 Induced draft fan
- 24 Silencer
- 25 Condensate preheater
- 26 Stack

Consumables and residues

- 27 Ash conveying system
- 28 Residue conveying system





**FIELD ASSEMBLY & PIPELINE
CONSTRUCTION**





***FIELD of
ACTIVITIES***

-
- ✓ INDUSTRIAL PLANT INSTALLATIONS
 - ✓ PIPELINE CONSTRUCTION WORKS
-

INDUSTRIAL PLANT INSTALLATIONS

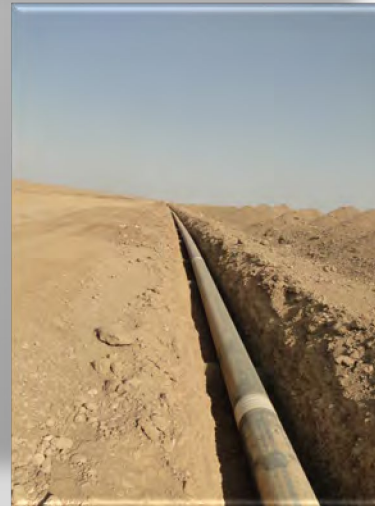
- ✓ Mechanical Assembly Works
 - ❑ Pre-Fabrication
 - ❑ Field Applications
 - ❑ Logistic
- ✓ Assembly of Machinery Equipment
- ✓ Mechanical Piping Works
- ✓ Electric-Automation Works
- ✓ Civil Works



PIPELINE CONSTRUCTION WORKS

Within the scope of Pipeline Construction Works:

- ✓ Stocking of pipes
- ✓ Pipeline Transfer from Stockyard to Line
- ✓ Stringing of Pipes
- ✓ Pipeline Channel Excavation
- ✓ Assembly and Welding Works
- ✓ Winding and Insulation Works
- ✓ Lowering the Pipe into the Channel
- ✓ Channel Filling
- ✓ Cathodic Protection Works
- ✓ Station Installations
- ✓ Hot-Top Operations
- ✓ Tests and Commissioning





**SPECIAL PRESSURE EQUIPMENT
& CEMENT INDUSTRY**

CRANE AND ROPE DRUMS

OMTIS is capable to produce big cranes and crane rope drums with large welding and machining capacity



GEARS

Gears are machine elements that used to transfer movement. Gears are used crushers, mixers, drilling, gear cutting machines in mining industry. OMTIS can produce bigger gears with large welding and machining capacity and experience team.



SHAFTS

Shafts materials should be readily shaped, machined and heat-treated, and have adequate strength, toughness, hardness, and high fatigue strength. Mechasol has large experience about shaft manufacturing and machining.



Cement , Mining And Energy Industries

Mills

Mills are machines for used that reduce the particle size by way of cutting ,grinding and crushing. Such process is an important operation in many sector. Mills are used in the different industries of mining,cement,plastic,ceramic,painting,cosmetic,food etc. There are many different types of mill and materials processed in them. OMTIS has the capacity to manufactures mill (rod mill,ball mill etc.) in accordance with your request in international quality and standards



Rotary Dryer

Rotary Dryers are used to preheat the material prior to processing. Rotary Dryers have many applications but are most commonly seen in the mining industry for drying sands, limestone, stones and soil, ores, fertilizers, wood chips, coal, iron sulphate, filter cakes, sewage sludge, etc. OMTIS is ready to meet your requests with large production capacity



Rotary Kiln

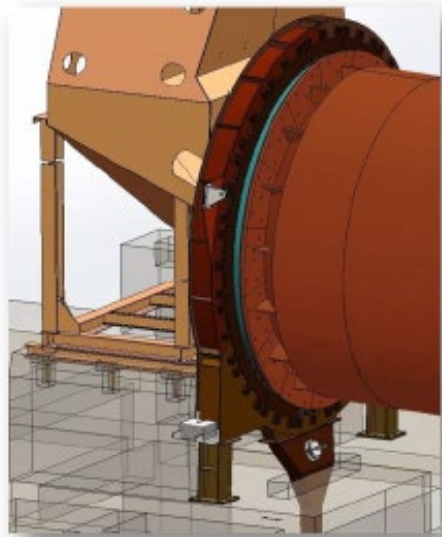
Rotary Kiln is a kind of thermal equipment calcines lump, bulk and slurry materials. It is widely used in cement & construction. Wasteln cineration. Non-ferrous metals , lime, Aluminum, Copper, Lead. Zincoxide, chemistry calcining petroleum coke. Ferrous metals, refractory materials, industrial chemicals, paper making industries etc. Mechasol can produce rotary kiln with diameter until 5000 mm, thickness until 110mm and manufacturing capacity only piece of weight 100 tons which is widely used in cement industry.



Tyre and Roller

The purpose of tires (often called riding rings) and rollers is to support the kiln and allow it to rotate with minimal friction. The first rule of operating a rotary kiln without any problem is distributing the forces equally to each piers. This can be done best, by full contact on ring and supporter roller surfaces and minimum ovality in kiln shell. Mechasol has extensive experiences in rotary kiln tyre until 120 tones and supporter rollers machining until 30 tones.







Salt Washing Unit

OMTIS offers Salt washing equipment in a salt and brine countercurrent screw system in a double helix and open axis. With a suspension and washing system of salt and brine.

Dust Collecting Cyclone

They are used to separate coarse dust particles from air and to decrease the dust particle load on the filter by operating as the pre-separator before operation of dust collection filters in industrial facilities. While cyclones can hold all coarse dust particles up to 50 μ , the ones below 50 μ cannot be caught. The leaking dusts have to be kept in bagged filters.



Mining Filter Press



Mining filter press is widely use to filter water from ore concentrates and tailings in metal smelting industry . Especially very good for tailings dry discharge. Press filter machine used to tailing dry discharge field ,can reduce the pollution of the environment ,save the tailings warehouse build invest, promote the recycling of water . This machine can help the customers to save cost . And this press filter machine widely used to washing coal in coal mine .Greatly improve the coal quality .

Mining Thickeners

The thickening process is a fundamental step in modern mining separation processes. Thickening is the separation of suspended particles from a liquid by gravity settling. For effective thickener control, six measurements are critical: bed mass inventory, bed level, underflow density and flow, flocculent dosing and overflow clarity. As the plant conditions are very dirty, these measurements are not easy and require a lot of attention to select and install the proper equipment.





BOILERS



ÜRÜNLER-PRODUCTS

ENDÜSTRİYEL KAZANLAR

INDUSTRIAL BOILERS

- BUHAR KAZANLARI -STEAM BOILERS
- BUHAR JENERATÖRLERİ-STEAM GENERATOR
- SICAK SU KAZANLARI -HOT WATER BOILER
- KIZGIN YAĞ KAZANLARI-THERMAL OIL BOILER
- KIZGIN SU KAZANI HIGH HOT WATER BOILER-
- MOBİL KAZAN DAİRESİ-MOBILE BOILER ROOM
- ATIK ISI KAZANI -WASTE HEAT RECOVERY BOILERS
- SU BORULU KAZANLAR -WATER TUBE TYPE BOILER
- WATER BATH HEATER-INDİRECT GAS HEATERS
- AKIŞKAN YATAKLI KAZAN-FLUIDIZED BED BOILER

ISI EŞANJÖRLERİ

HEAT EXCHANGERS

- BORULU EŞANJÖR-TUBE HEAT EXCHANGER
- ÇİFT BORULU ISI EŞANJÖRÜ-PIPE IN PIPE TUBE HEAT EXCHANGER
- EVAPORATÖRLER- EVAPORATORS
- HELİS TİP ISI EŞANJÖRLERİ-HELİX TYPE HEAT EXCHANGERS
- REBOILER-REBOILER
- SPIRAL PLAKALI EŞANJÖR- SPIRAL PLATE HEAT EXCHANGERS
- YÜZE KAFALI ISI EŞANJÖRLERİ-FLOATİNG HEAD HEAT EXCHANGERS

TAMAMLAYICI ÜRÜNLER

COMPLEMENTARY PRODUCTS

- DEGAZÖR -DEAERATOR
- EKONOMİZER-ECONOMIZER
- KONDENS TANKI-CONDENS TANK
- KONTROL PANOSU -CONTROL PANEL
- BRÜLÖRLER-BURNERS



BUHAR KAZANI STEAM BOILER

Sıvı ve Gaz Yakıtlı, Üç Geçişli, Yüksek Basıncılı Skoç Tip Buhar Kazanı Liquid and Gas Fired, Three-Pass, High-Pressure Scotch Type Steam Boiler

Sıvı ve Gaz Yakıtlı, Üç Geçişli, Yüksek Basıncılı Skoç Tip Buhar Kazanı

- *250 -25.000 kg/h arası buhar üretim kapasitesi
- *1-20 bar arası işletme basıncı
- *Sıvı ve gaz yakıtlı
- *Optimum su-buhar hacmi oranı ile ani buhar çekişlerine uygun
- *Paket olarak, güvenlik ve önemli ekipmanları yedekli şekilde teslim edilir.
- *EN 12953, EN 12952 ve ASME standartları ile TRD 403 ve VDI 2050 gibi dünya üzerinde kabul edilmiş standartlara uygun olarak üretilir.
- *Kompakt ve tek blok yapıya sahip tasarımıyla kolay montaj ve kullanım imkanı
- *Düşük emisyon değerleriyle çevre dostu
- *Otomatik kontrol sistemi sayesinde kullanıcı dostu işletim
- *Üstün izolasyon özellikleri ile enerji tasarrufu sağlar

Liquid and Gas Fired, Three-Pass, High-Pressure Scotch Type Steam Boiler

- * Steam production capacity ranging from 250 to 25,000 kg/h
- * Operating pressure range of 1-20 bar
- * Suitable for liquid and gas fuels
- * Designed with optimum water-steam volume ratio for accommodating sudden steam demands
- * Delivered as a package with redundant safety and essential equipment
- * Manufactured in compliance with internationally accepted standards such as EN 12953, EN 12952, ASME, TRD 403, and VDI 2050.
- *With its compact and single-block design, it offers easy installation and usability.
- *Environmentally friendly with low emission values.
- *User-friendly operation thanks to the automatic control system.
- *Provides energy savings with superior insulation properties.

YAKIT VE STANDARTLAR

Kullanılan Yakıt Çeşitleri:
Firmamız, buhar kazanlarında çeşitli yakıt tiplerini kullanmaktadır. Bu yakıt tipleri şunlardır:
- Doğal Gaz
- LPG (Sıvılaştırılmış Petrol Gazı)
- Propan-Butan
- Dizel Yakıt
- Fuel Oil ve Sıvı ve Gaz Yakıtların Diğer Türleri

Bu yakıt çeşitleri, müşterilerimizin ihtiyaçlarına ve uygulama alanlarına bağlı olarak tercih edilebilir. Her bir yakıt tipi için uygun yemce sistemleri ve emisyon kontrol mekanizmaları kullanarak çevresel düzenlemelere uyum sağlanmaktadır.

Firmamız, EN 12953, EN 12952, ASME, TRD 403 ve VDI 2050 standartlarına tam uyum sağlayarak, güvenli, yüksek verimli ve çevre dostu buhar kazanları üretmektedir. Ürünlerimiz, 250 kg/saat ile 25.000 kg/saat arasındaki kapasitelerde çalışabilen ve farklı yakıt çeşitlerini kullanabilen çeşitli model ve seçeneklere sahiptir.

FUEL AND STANDARDS

Fuel Types Used:
Our company utilizes various fuel types in steam boilers. These fuel types include:
- Natural Gas
- LPG (Liquefied Petroleum Gas)
- Propane-Butane
- Diesel Fuel
- Fuel Oil and other liquid and gaseous fuels

The choice of fuel depends on our customers' needs and application areas. We ensure compliance with environmental regulations by employing appropriate combustion systems and emission control mechanisms for each fuel type.

By fully complying with EN 12953, EN 12952, ASME, TRD 403, and VDI 2050 standards, our company manufactures safe, high-efficiency, and environmentally friendly steam boilers. Our products come in various models and options, capable of operating within the range of 250 kg/h to 25,000 kg/h, accommodating different fuel types.

PAKET SİSTEMDE ARMATÜRLER

"Paket ünite, kontrol ve güvenlik ekipmanları (kontrol kolektörü, elektronik seviye kontrol cihazı, limit basınç prestatostatı, emniyet prestatostatı, emniyet propları, yaylı emniyet ventilleri), pompa grubu (pompa, filtreler, çekvalfler, vanalar), su seviye göstergesi, basınç göstergesi, ana kesme vanası, blof vanaları, havalık vanası, kontrol paneli ve brülör (sıvı, gaz veya kombine) gibi standart ve isteğe bağlı ekipmanlar içerir."

"Bu ünite, 70°C sıcak su beslemesine göre hesaplanan buhar kapasitesi ile donatılmıştır. Kazan siparişlerinizde kullanılan buhar kapasitesi, dizayn basıncı, yakıt cinsi ve paket ünite olarak tercih edilip edilmediği hakkında bilgi veririz."

LUMINAIRES IN THE PACKAGE SYSTEM

"Package unit includes standard and optional equipment such as control and safety devices (control manifold, electronic level control device, limit pressure prestatostat, safety prestatostat, spring-loaded safety valves), pump group (pumps, filters, check valves, valves), water level indicator, pressure gauge, main cut-off valve, blow-off valves, air vent valve, control panel, and burner (liquid, gas, or combined).

This unit is equipped with a steam capacity calculated based on the supply of hot water at 70°C. When placing boiler orders, please provide information about the steam capacity, design pressure, fuel type, and whether the package unit option is preferred."

WWW.NORTHBOUND.CO

MODEL	KAPASİTE	VERİM	L	WWW.NORTHBOUND.CO	D	D	F	
	kg/h	(range) %	mm	mm	mm	mm	mm	
HEAT-11	500	90-94	2920	1410	1720	1210	640	260
HEAT-12	750	90-94	3430	1610	1930	1420	690	310
HEAT-13	1100	90-94	3570	1610	1930	1420	690	310
HEAT-14	1300	90-94	3735	1610	1930	1420	690	310
HEAT-15	1500	90-94	3865	1720	2040	1530	730	310
HEAT-16	1700	90-94	3925	1720	2040	1530	740	310
HEAT-17	1900	90-94	3930	1720	2040	1530	740	310
HEAT-18	2100	90-94	4250	1940	2280	1720	860	360
HEAT-19	2300	90-94	4350	1940	2280	1720	860	360
HEAT-20	2500	90-94	4450	1940	2280	1720	860	360
HEAT-21	2700	90-94	4500	1940	2280	1720	860	410
HEAT-22	2900	90-94	4400	2150	2580	1940	920	410
HEAT-23	3100	90-94	4480	2150	2580	1940	970	470
HEAT-24	3300	90-94	4700	2150	2580	1940	990	470
HEAT-25	3500	90-94	5540	2270	2680	2070	1000	470
HEAT-26	4100	90-94	5550	2270	2680	2070	1000	470
HEAT-27	5200	90-94	5860	2470	2880	2270	1020	520
HEAT-28	6200	90-94	6170	2470	2880	2270	1020	560
HEAT-29	7200	90-94	6580	2750	3180	2520	1230	620
HEAT-30	8200	90-94	6790	2750	3180	2520	1230	660
HEAT-31	9200	90-94	7300	2950	3340	2730	1270	720
HEAT-32	11000	90-94	7450	2950	3340	2730	1270	720
HEAT-33	13000	90-94	7980	2950	3340	2730	1270	760
HEAT-34	15000	90-94	8410	3280	3680	3020	1270	830
HEAT-35	17000	90-94	8925	3280	3680	3020	1320	870
HEAT-36	19000	90-94	10500	3480	3940	3230	1380	930
HEAT-37	21000	90-94	10100	3580	4050	3230	1480	960
HEAT-38	25000	90-94	12000	3680	4160	3450	1530	1020

ÜÇ GEÇİŞLİ SKOÇ TİPİ BUHAR KAZANININ ÇALIŞMA PRENSİBİ

Üç geçişli Skoç Tipi Buhar Kazanı, daha yüksek verimlilik ve daha iyi ısı transferi sağlamak amacıyla tasarlanmış bir buhar kazanıdır. Çalışma prensibi şu adımları içerir:

1. Birinci Geçiş: Yanma odasında yer alan yakıt aletlerini ve sıcak gazlar oluşur. Bu sıcak gazlar, kazanın içerisindeki ısı transfer yüzeylerine yönlendirilir. Isı transfer yüzeyleri, genellikle borular veya boru demetleri şeklindedir. Sıcak gazlar, bu yüzeylere dokunarak ısıyı transfer eder ve soğurken, suyu ısıtır.

2. İkinci Geçiş: Isınan su, kazanın ikinci geçiş bölümüne yönlendirilir. Bu geçişte, sıcak gazlarla bakiye temas ederek daha fazla ısı almasını gerçekleştirir. Böylece, su daha da ısıtılır ve buharlaşma noktasına yaklaşıp.

3. Üçüncü Geçiş: Bu geçişte, su buharlaşma noktasına ulaşır ve buhar haline döner. Buhar, kazanın üçüncü geçiş bölümünden geçerek toplanır ve kazan dışına yönlendirilir.

Üç geçişli Skoç Tipi Buhar Kazanının çalışma prensibi, sıcak gazların kazan içerisindeki ısı transfer yüzeylerine üç aşamada temas etmesini sağlayarak daha fazla ısı transferi sağlar. Bu, kazanın daha yüksek bir verimlilikle çalışmasını ve daha fazla buhar üretmesini mümkün kılar. Aynı zamanda, kazanın yüzeylerindeki sıcaklık düşer, bu da daha düşük yanma gaz sıcaklıklarına ve daha az enerji kaybı anlamına gelir.

Üç geçişli Skoç Tipi Buhar Kazanı, endüstriyel uygulamalarda yaygın olarak kullanılan bir buhar kazanıdır ve enerji üretimi, ısıtma, proses ısıtma ve buhar türbinleri gibi çeşitli alanlarda kullanılır.

BUHAR KAZANI AVANTAJLARI

1. Yüksek Verimlilik: Buhar kazanları, yüksek ısı transfer verimliliği sağlar ve enerji tasarrufu sağlar.
2. Çevre Dostu: Buhar kazanları, gelecekteki yakıtların yanması sırasında oluşan emisyonları azaltarak çevreye daha az zarar verir.
3. Güvenlik: Buhar kazanları, dayanıklı ve sağlam yapıdadır. Güvenlikleri nedeniyle endüstriyel işletmelerde yaygın olarak tercih edilir.
4. Esneklik: Buhar kazanları, çeşitli yakıt türlerini kullanabilir ve farklı uygulamalara uygun olarak tasarlanabilir.
5. Yüksek Basınç ve Sıcaklık: Buhar kazanları, yüksek basınç ve sıcaklıkta çalışabilme yeteneği sayesinde birçok endüstriyel süreçte kullanılabilir.

WORKING PRINCIPLE OF THREE PASS SCOTCH TYPE STEAM BOILERS

1. First Pass: The fuel in the combustion chamber is ignited, resulting in the generation of hot gases. These hot gases are directed towards the heat transfer surfaces inside the boiler. The heat transfer surfaces typically consist of tubes or tube bundles. The hot gases flow through these surfaces, transferring heat and heating up the water.

2. Second Pass: The heated water from the first pass is directed to the second pass section of the boiler. In this pass, the water comes into contact with the hot gases once again, allowing for further heat exchange. As a result, the water temperature rises, approaching its boiling point.

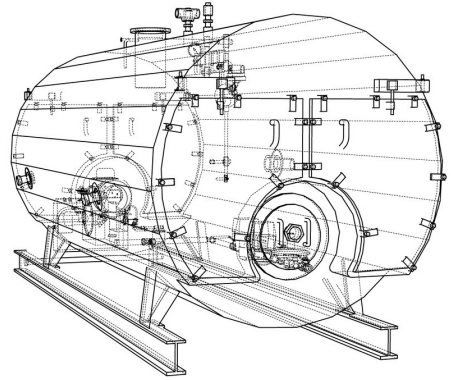
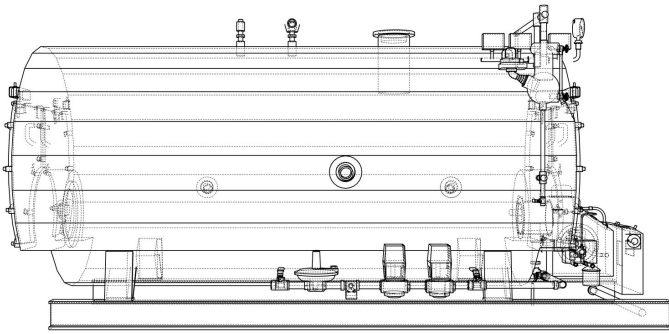
3. Third Pass: In the third pass, the water reaches its boiling point and transforms into steam. The steam is collected as it passes through the third pass section of the boiler and is directed out of the boiler for various applications.

The three-pass Scotch type steam boiler's working principle focuses on maximizing heat transfer efficiency by allowing the hot gases to come into contact with the heat transfer surfaces in three stages. This leads to improved heat transfer and increased efficiency. Additionally, the reduced surface temperatures contribute to lower flue gas temperatures and reduced energy losses.

The three-pass Scotch type steam boiler is widely used in industrial applications for energy generation, heating, process heating, and steam turbine operations. It offers efficient and reliable steam generation for various industrial processes and systems.

STEAM BOILER ADVANTAGES

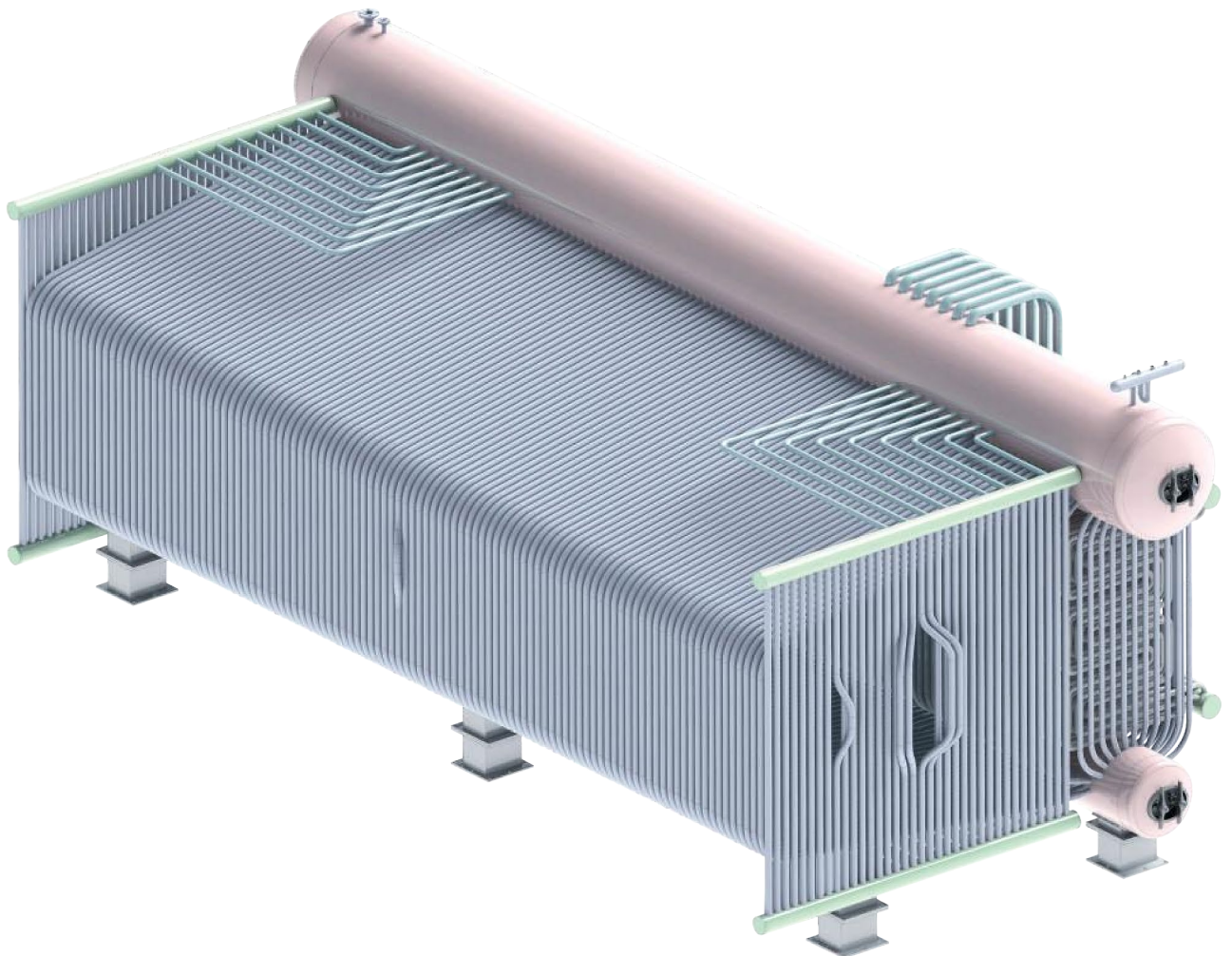
1. High Efficiency: Steam boilers provide high heat transfer efficiency and save energy.
2. Environmentally Friendly: Steam boilers cause less harm to the environment by reducing the emissions generated during the combustion of conventional fuels.
3. Reliability: Steam boilers are durable and long-lasting. Due to their reliability, they are widely preferred in industrial enterprises.
4. Flexibility: Steam boilers can use various types of fuel and can be designed to suit different applications.
5. High Pressure and Temperature: Steam boilers can be used in many industrial processes thanks to their ability to operate at high pressure and temperature.



WATER TUBE D TYPE STEAM BOILER

TECHNICAL DESCRIPTION

Capacity (Steam)	Width (m)	Lenght (m)	Height (m)	Static Weight (Ton)
15 ton/h	3900	3900	7000	230
20 ton/h	4000	4000	7200	245
25 ton/h	4050	4050	7600	265
30 ton/h	4100	4100	7900	245
35 ton/h	4200	4200	8200	265
40 ton/h	4314	4314	9600	300



FEATURES OF WATER TUBE D TYPE STEAM BOILER

Fuel: Natural Gas, LNG, Diesel, Fuel Oil

OMTIS manufactures liquid and gas fuel water tube boilers for high capacity and high pressure liquid & gas fuel applications in compliance with EN 12952 standards.

It is possible to reach high capacities with these boilers where the steam dome is at the top and the water domes at the bottom and the water is circulating in the membrane walls.

The Weldings of high quality Boilers manufactured by certified Welders are subjected to Non Destructive Test Methode (NDT) and the entire manufacturing process takes place under the supervision of independent third party auditing firms.





FLUIDIZED BED COMBUSTION TECHNOLOGIES

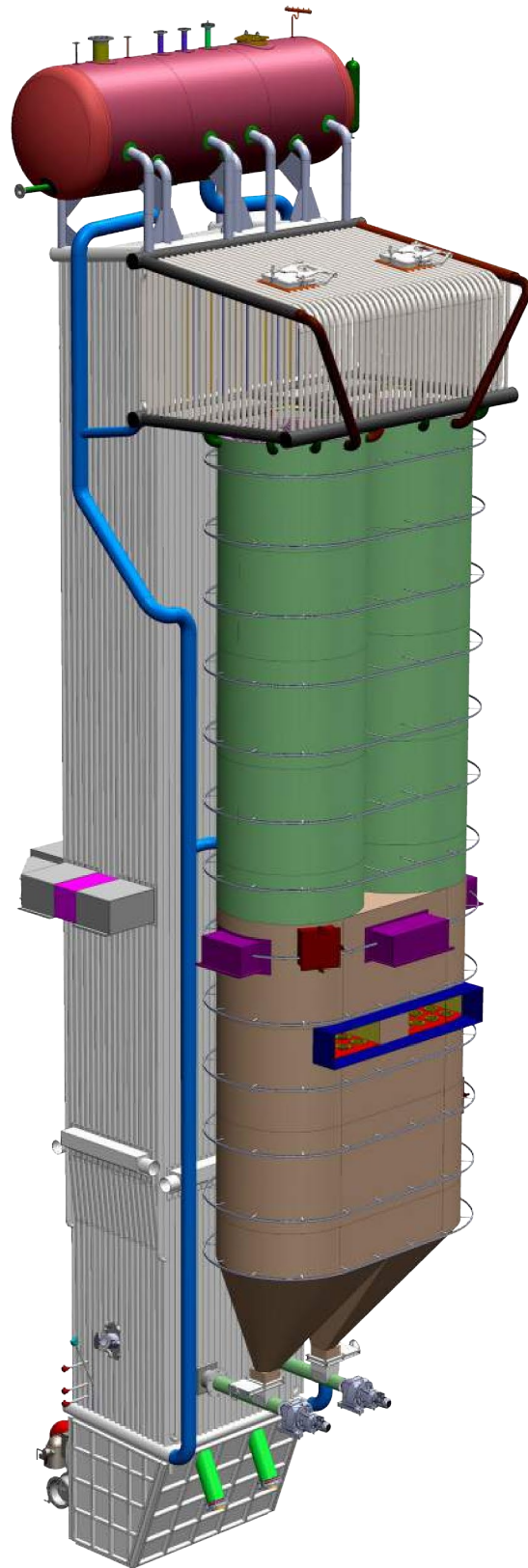
FLUIDIZED BED COMBUSTION TECHNOLOGIES

Coal can be burned efficiently and environmentally with only proper furnace temperature and homogeneous air distribution. That is, each coal particle should be mixed thoroughly with heat and oxygen.

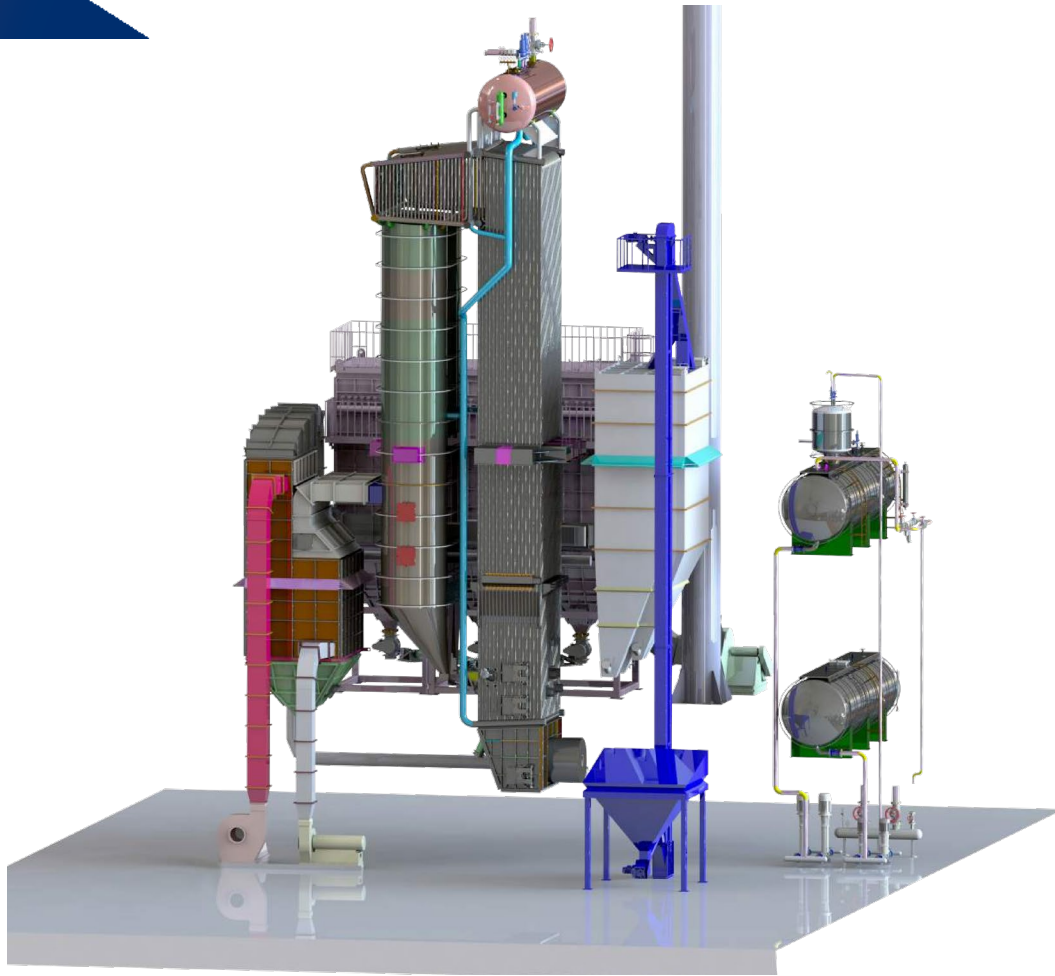
Fluidized Bed Technology is the process of burning suspended dust coal on a fluidized bed with the help of hot and compressed air. The main purpose is to provide the optimum combination of heat, fuel and air mixture.

Fluidized bed boilers were first designed to burn high ash containing low calorific solid fuels efficient and in compliance with environmental regulations.

As for New Generation Circulating Fluidized Bed Technology; they are designed to obtain fully burning of the unburned particles returned back to the furnace. In this respect, both low calorie and high calorie lignites can be burned with high efficiency. With this technology, it is possible to provide energy economy in every period, according to periodic variability of fuel alternatives.



CIRCULATING TYPE FLUIDIZED BED STEAM BOILERS



- **High Modulation Rate:**

- Can work at 20-100% capacity without problems

- **Low Steam Cost:**

- Low fuel cost with the cheap powder lignite
- Low electricity consumption
- Short start-up time
- Low diesel oil consumption

- **Low Service Cost:**

- No serpentine puncturing problem
- No bag exchange cost

- **Fuel Variety:**

- Any kind of coal between 2500-6500 kcal can be burned.

- **High Efficiency:**

- 88% system efficiency
- 99% combustion efficiency
- Low unburned particle rate
- Use of ash as cement raw material

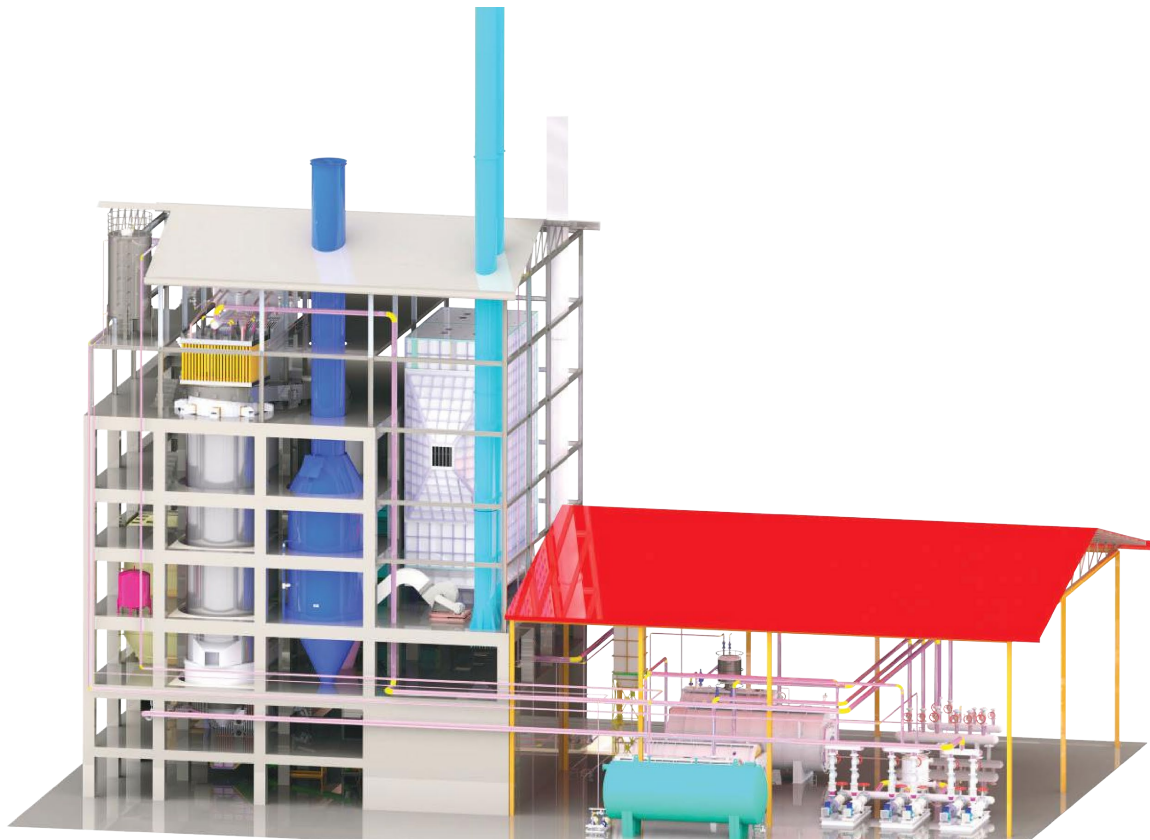
- **Low Emission Value:**

- Emission value in compliance with EU norms.

- **Ease of Operation:**

- Completely PLC controlled systems
- Plant specific software
- Online tracking of system parameters

CIRCULATING TYPE FLUIDIZED BED COMBINED (STEAM + THERMAL OIL) BOILERS



STEAM AND THERMAL OIL WITH ONE BOILER

- **Low Investment Cost:**

- 40% efficiency with one boiler, one boiler room and one operator for plants needing both Thermal oil and Steam.

- **High Modulation Rate:**

- Can work at 20-100% capacity without any problem.

- **Low Energy Cost:**

- Low fuel cost with the cheap powder lignite
- Low electricity consumption
- Short start-up time
- Low diesel oil consumption

- **Low Service Cost:**

- No serpentine puncturing problem
- No bag exchange cost

- **Fuel Variety:**

- Any kind of coal between 2500-6500 kcal can be burned

- **High Efficiency:**

- 88% system efficiency
- 99% combustion efficiency
- Low unburned particle rate
- Use of ash as cement raw material

- **Low Emission Value:**

- Emission value in compliance with EU norms

- **Ease of Operation:**

- Completely PLC controlled systems
- Plant specific software
- Online tracking of system parameters

CIRCULATING TYPE FLUIDIZED BED THERMAL OIL BOILERS ▼



- **High Modulation Rate:**

- Can work at 20-100% capacity without any problem.

- **Low Energy Cost:**

- Low fuel cost with the cheap powder lignite
- Low electricity consumption
- Short start-up time
- Low diesel oil consumption

- **Low Service Cost:**

- No serpentine puncturing problem
- No bag exchange cost

- **Fuel Variety:**

- Any kind of coal between 2500-6500 kcal can be burned

- **High Efficiency:**

- 88% system efficiency
- 99% combustion efficiency
- Low unburned particle rate
- Use of ash as cement raw material

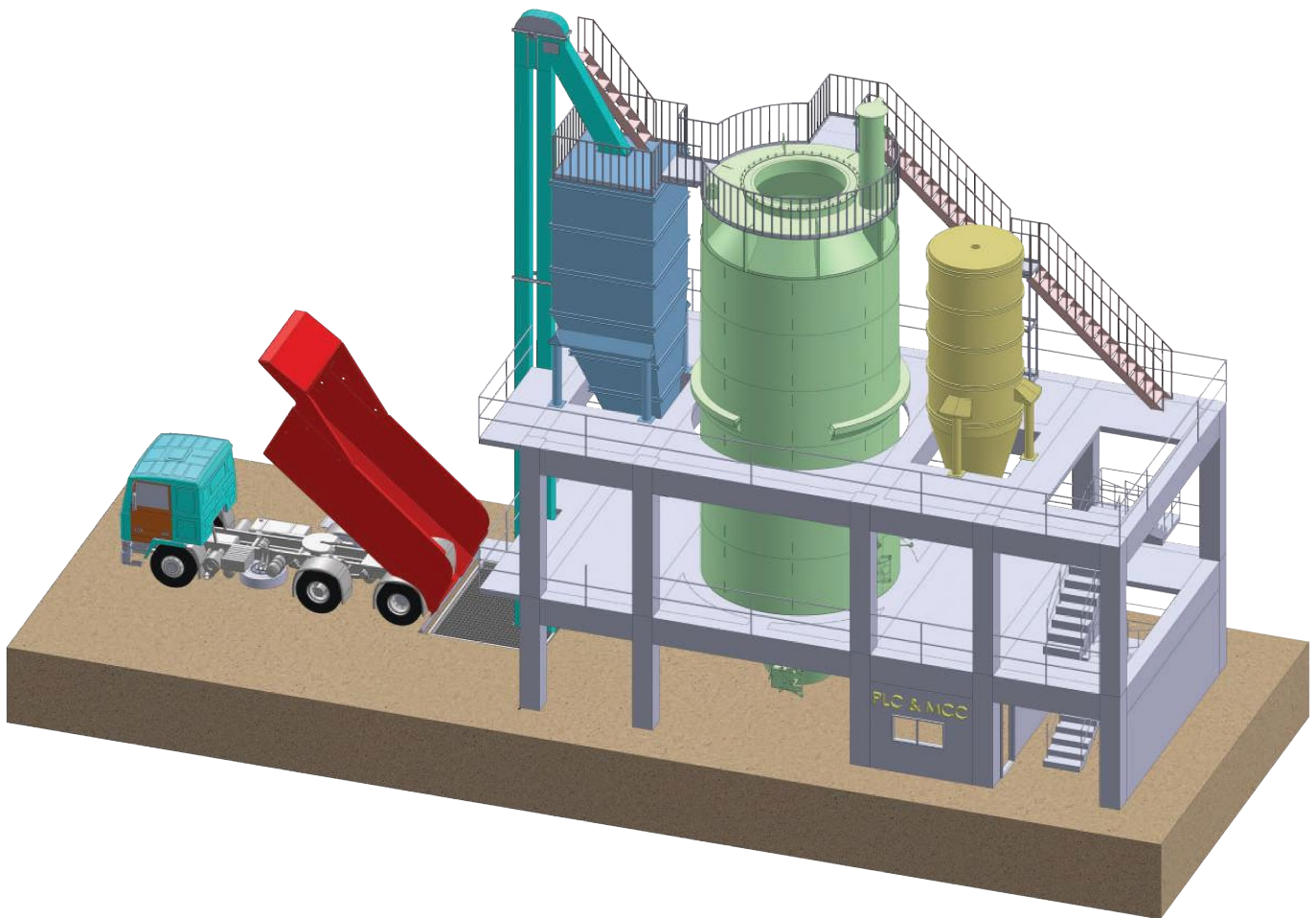
- **Low Emission Value:**

- Emission value in compliance with EU norms

- **Ease of Operation:**

- Completely PLC controlled systems
- Plant specific software
- Online tracking of system parameters

FLUIDIZED BED HOT GAS GENERATOR



- **Custom Design for Cement Industry:**

- Designed to produce hot gas to be used in ore drying.
- In fluidized bed systems, the amount of unburned carbon and the ratio of SO₂ in the produced gas can be controlled, thus prevents damaging of the material to be dried.

- **Low Energy Cost:**

- Low fuel cost with the cheap powder lignite
- Low electricity consumption
- Short start-up time
- Low diesel oil consumption

- **Fuel Variety:**

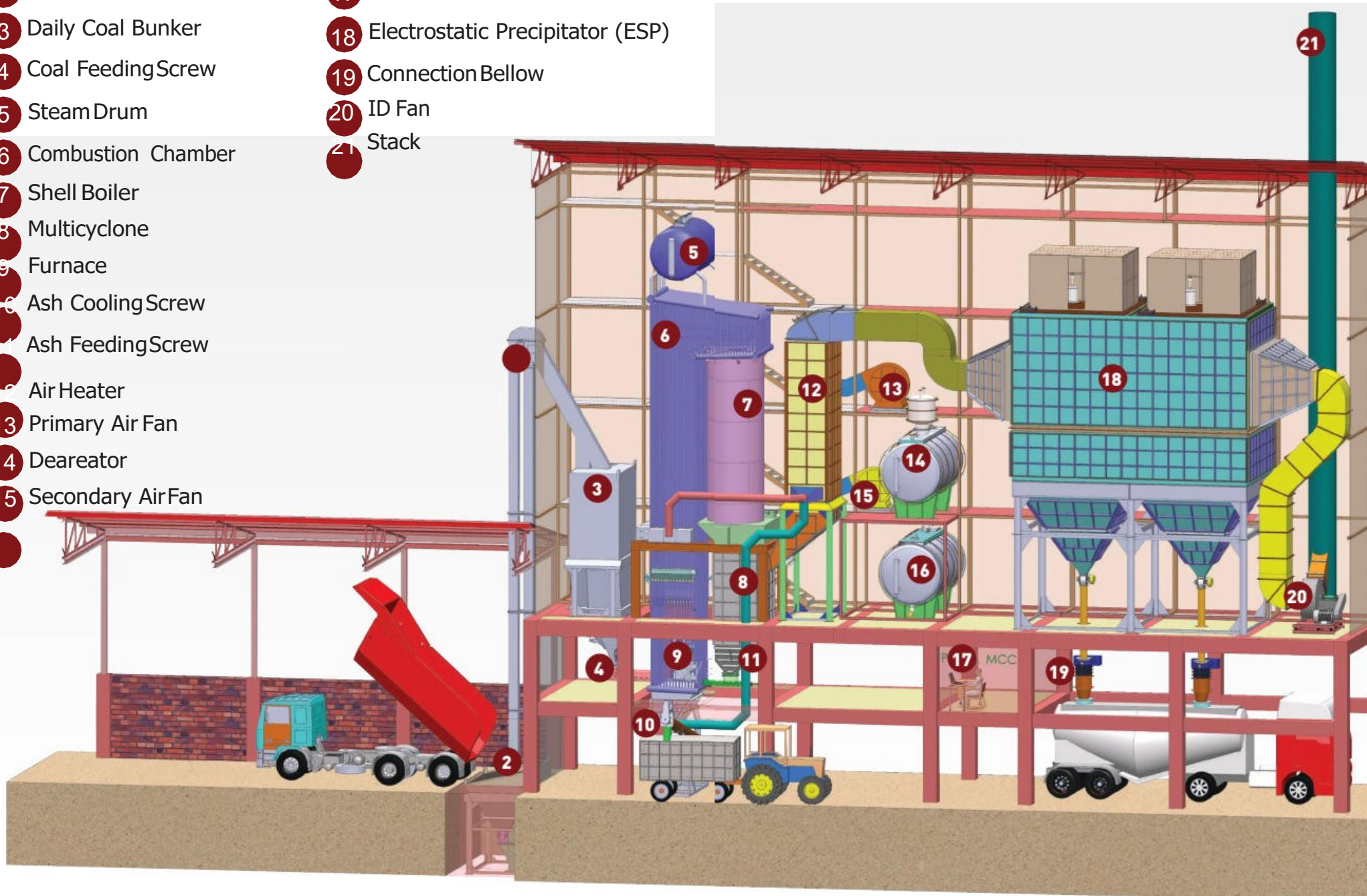
- Any kind of coal between 2500-6500 kcal can be burned

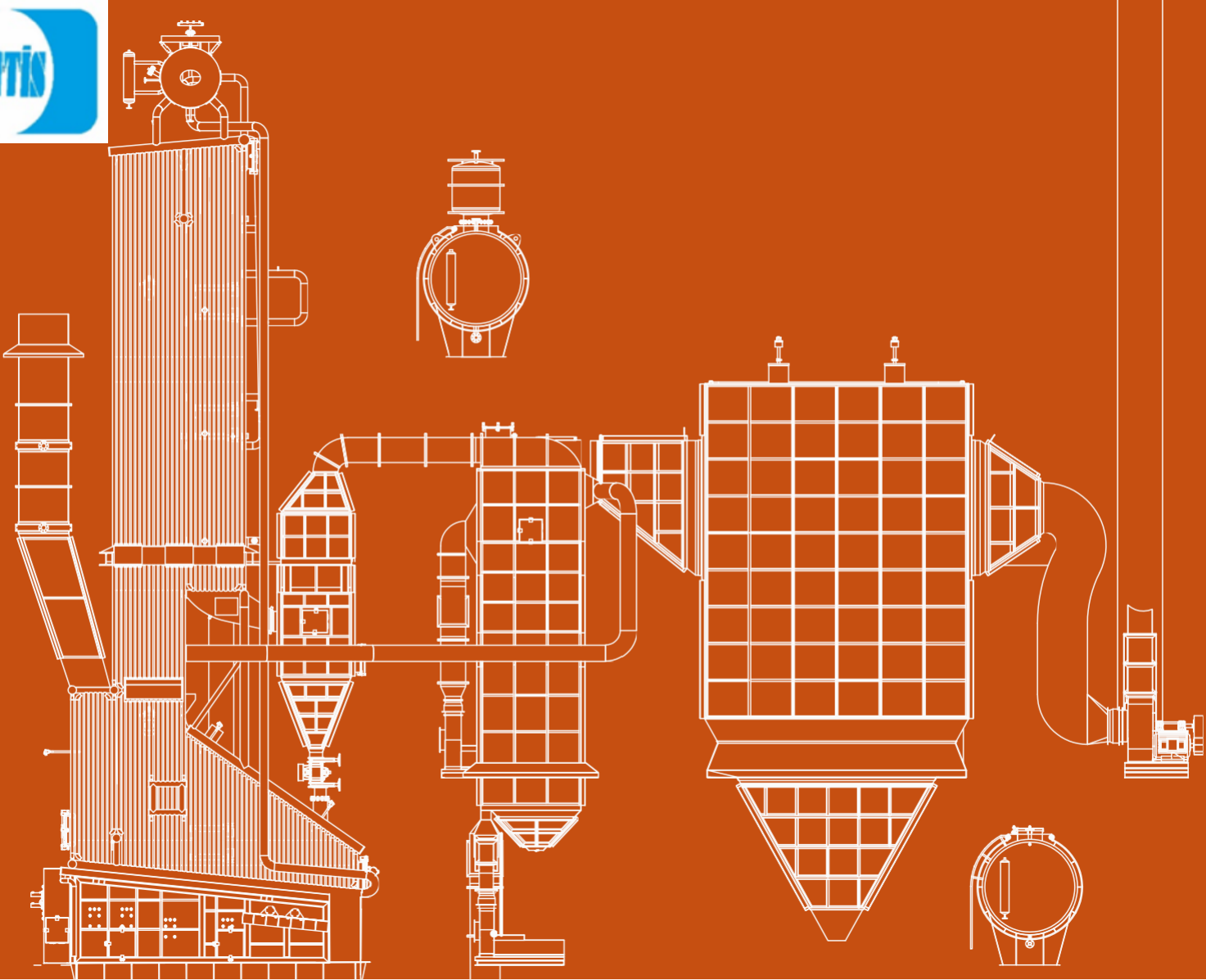
- **High Combustion Efficiency:**

- Below the limit NO_x and CO values due to the furnace heat optimization and high combustion efficiency.
- Low unburned particle rate

CIRCULATING TYPE FLUIDIZED BED BOILER FLOW CHART

- 1 Elevator
- 2 Main Bunker Feeding System
- 3 Daily Coal Bunker
- 4 Coal Feeding Screw
- 5 Steam Drum
- 6 Combustion Chamber
- 7 Shell Boiler
- 8 Multicyclone
- 9 Furnace
- 10 Ash Cooling Screw
- 11 Ash Feeding Screw
- 12 Air Heater
- 13 Primary Air Fan
- 14 Deareator
- 15 Secondary Air Fan
- 16 Condense Tank
- 17 PLC & MCC Room
- 18 Electrostatic Precipitator (ESP)
- 19 Connection Bellow
- 20 ID Fan
- 21 Stack





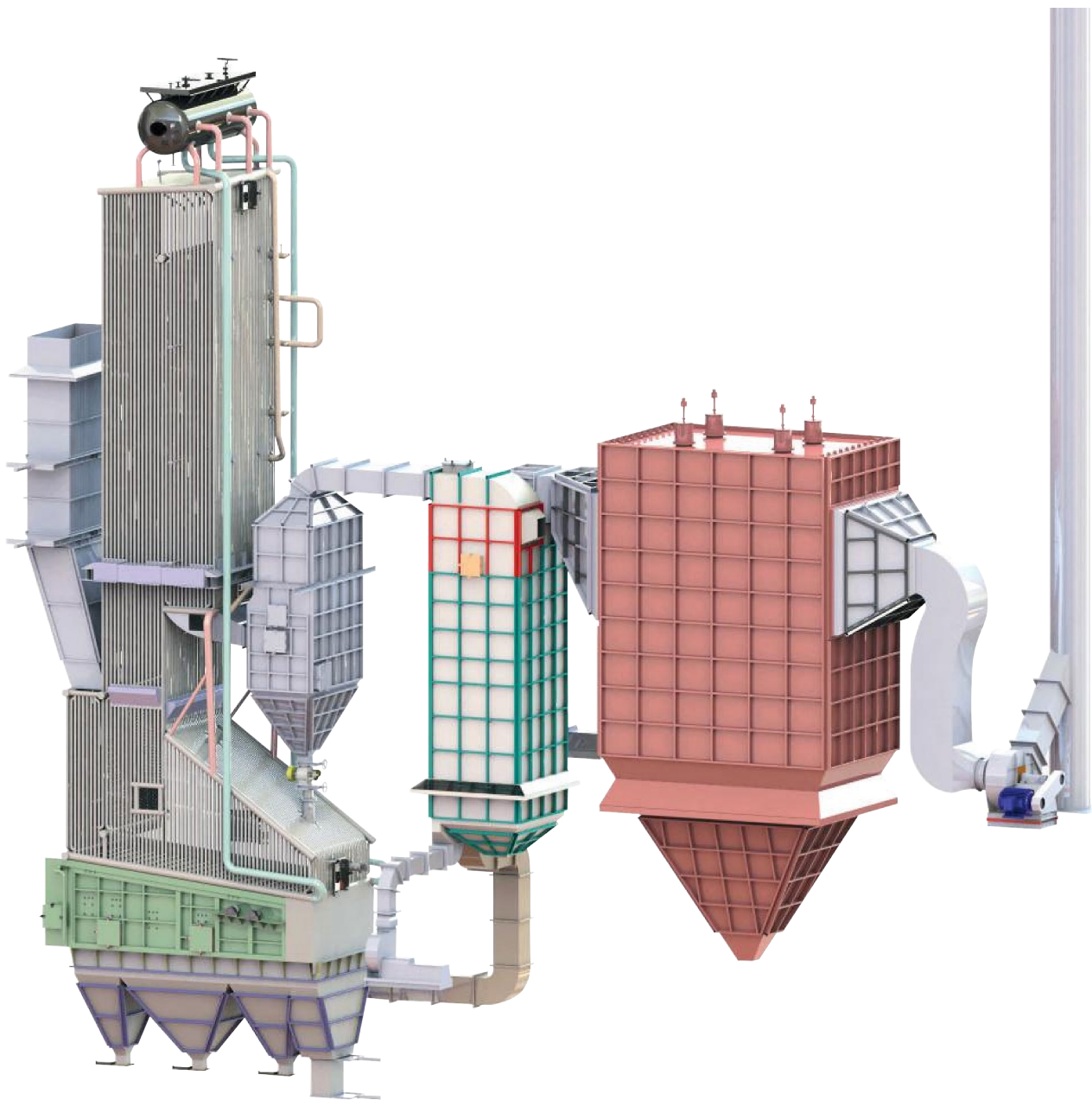
Reciprocating Grate Combustion Technologies



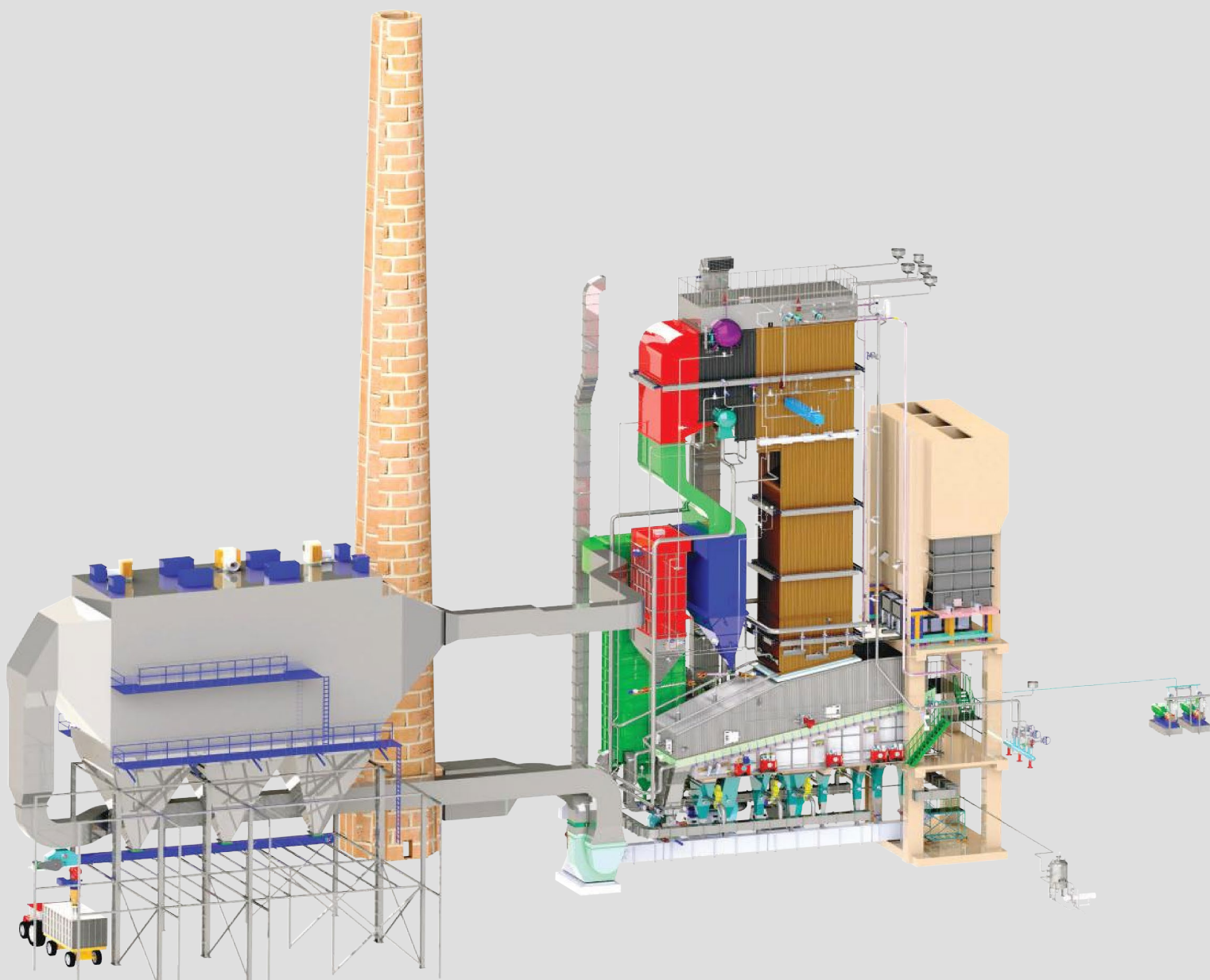
THE OPERATION PRINCIPLE OF RECIPROCATING GRATE BURNING TECHNOLOGIES ▼

They are designed to combine the fuel, heat and air in a moving furnace to provide combustion and flow. In Reciprocating grate systems, one row of grate elements is fixed and other row is mobile. In this way, the fuel moves respectively through drying, ignition, combustion and slag zones from the top to the bottom of the grill. The system has been used for years for the coal

types with heterogeneous properties. However, developments in coal burning technologies have created more ideal systems for Coal burning. (Circulating Type Fluidized Bed Boiler) is one of the most common systems for burning Biomass fuel types with heterogeneous properties.



RECIPROCATING GRATE BIOMASS FIRED STEAM & THERMAL OIL BOILERS



Fuel Types:

Reciprocating grate boiler systems are designed to burn biomass (tree bark, agricultural wastes, poultry manure, etc.) at 10-30mm size. Mechasol produces combustion systems that produce biomass-fueled steam and hot oil according to the customer's needs.

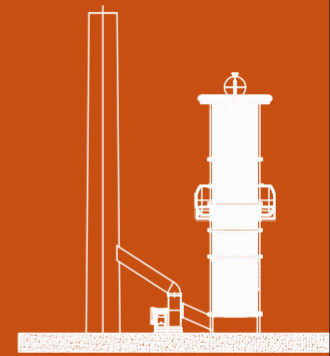
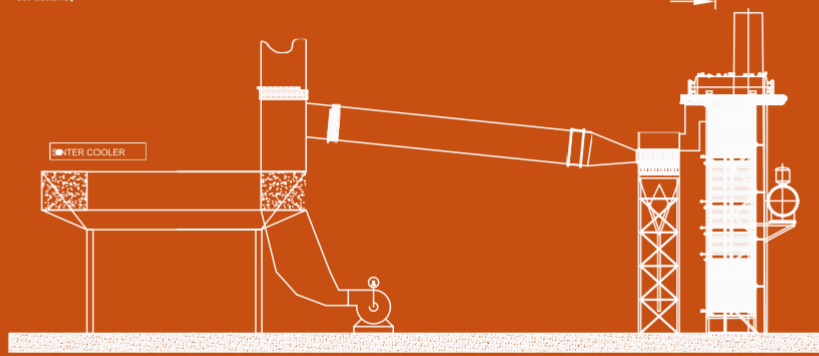
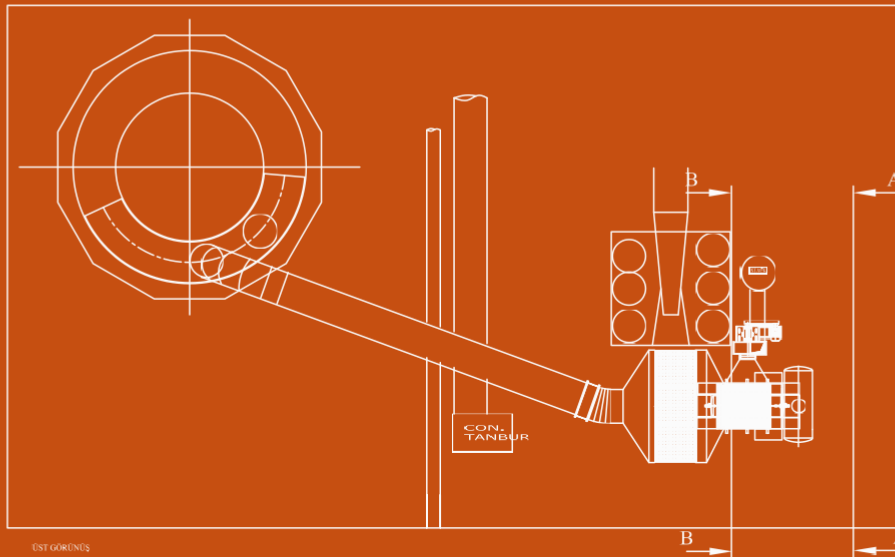
High Temperature Resistant Grate:

As the temperature in the combustion zone rises to 900°C, the grate elements are manufactured from high temperature resistant, Cr-Ni alloyed steel castings.

PLC Controlled Systems:

Reciprocating grates are driven by a hydraulic system. The fuel inlet flow, the running speed of the moving elements and the combustion settings are controlled by PLC.

With PLC software, capacity modulation can work from 15% to 100%. This system can be designed as a low pressure steam boiler and/or it can be designed as a high pressure steam boiler.



Special Industrial Solutions ▼

- WASTE HEAT RECOVERY BOILERS
- COAL-FIRED COGEN PLANTS
- BIOMASS-FIRED COGEN PLANTS

WASTE HEAT RECOVERY BOILERS

The energy in the waste gas can be transformed into steam, hot water and hot oil. The transformed heat energy can be used as saturated steam or it can be converted into electricity by steam and ORC turbines.

OMTiS waste heat recovery boilers are designed as water tube or fire tube.

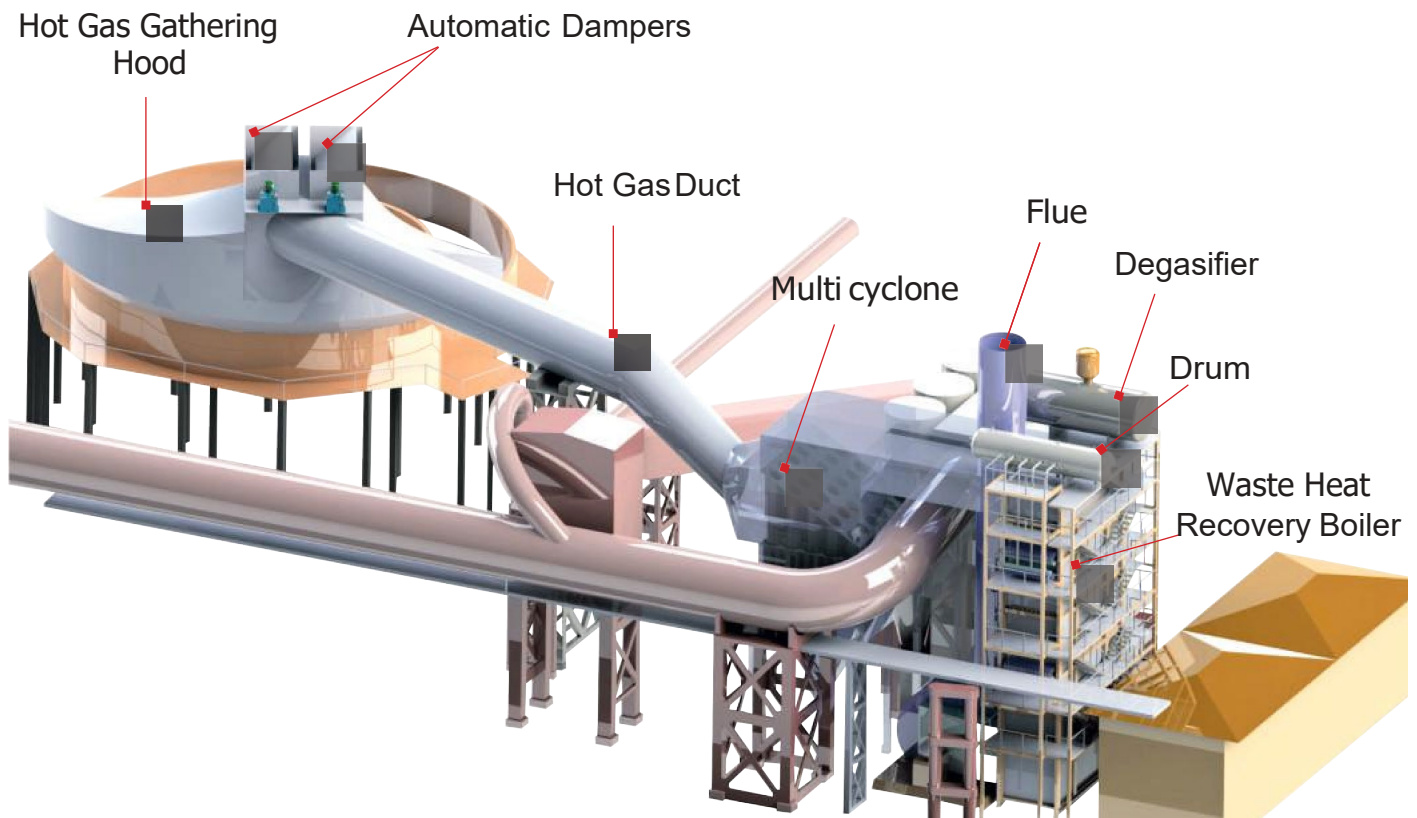
FIELD OF APPLICATION

- Power Plants

- Cement and Lime Plants

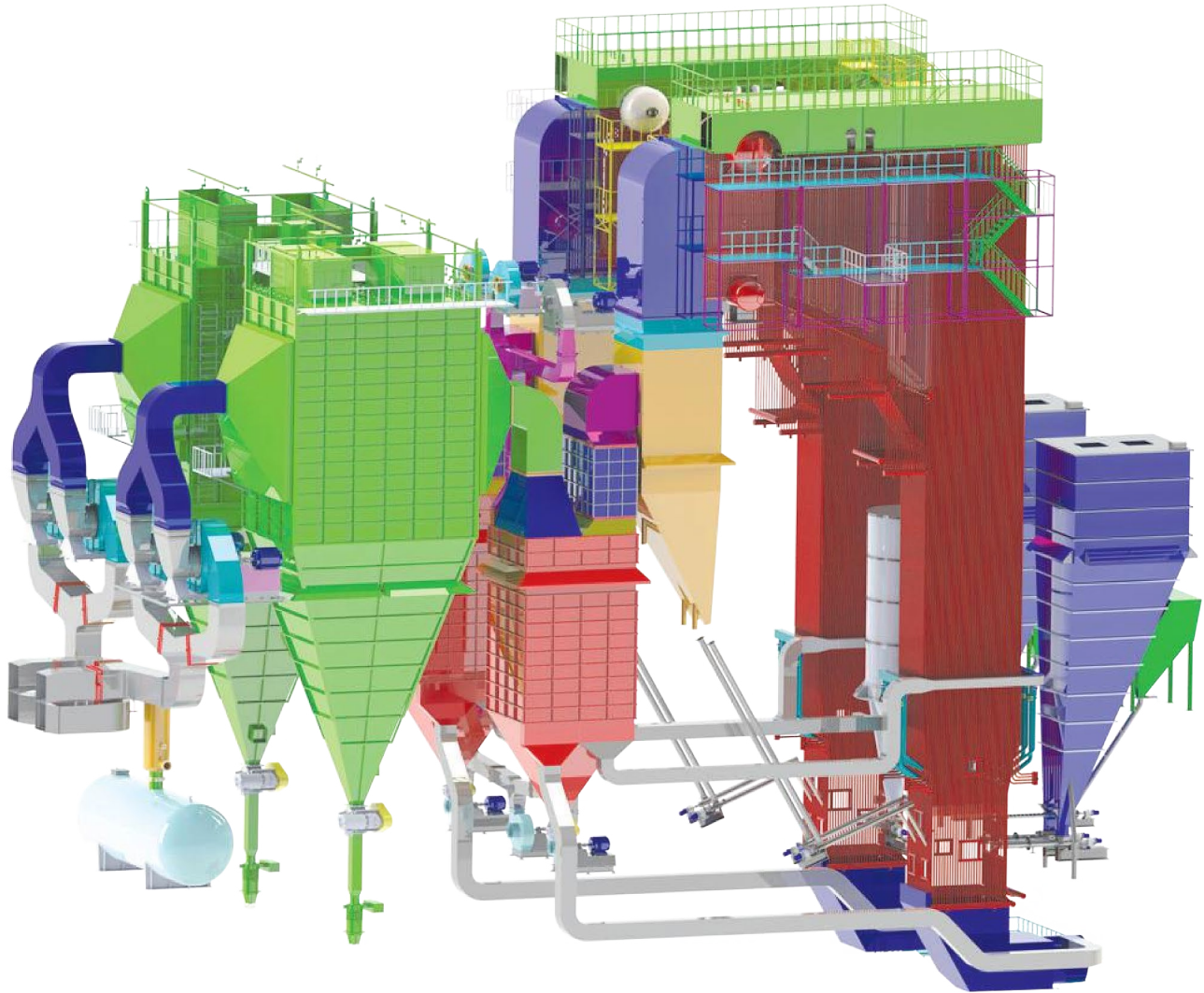
- Arc furnaces in Iron and Steel Industry, iron ore enrichment and purification units

- Various industrial furnaces.



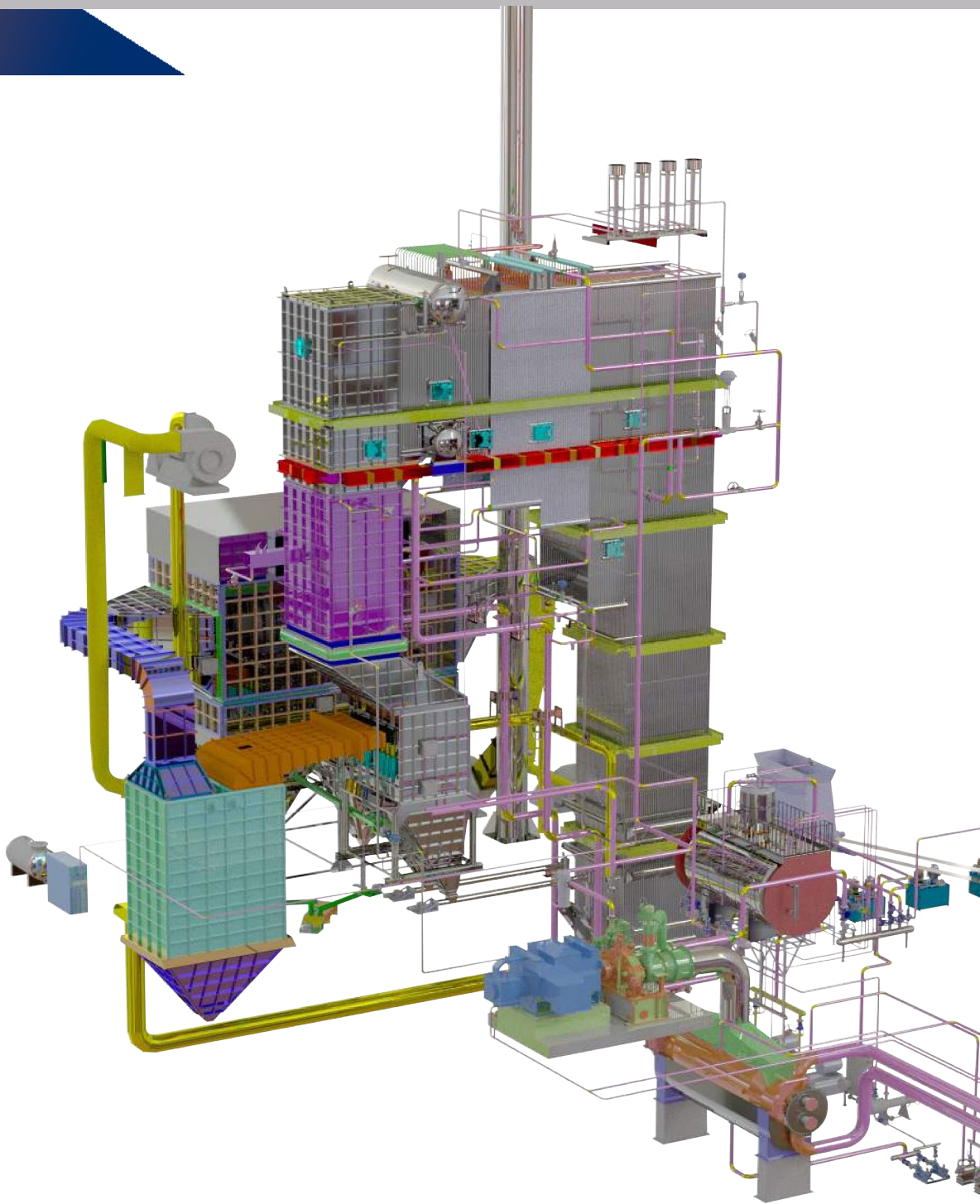
COGENERATION FACILITIES ▼

PRODUCTION OF ELECTRIC AND PROCESS STEAM TOGETHER



- OMTIS transforms the new generation small sized coal power plants and cheap dust coal into clean, environment friendly and safe energy.
- These plants have all of the technological infrastructure equipments that large thermal powerplants have.
- With OMTIS Power Plant technologies, it is possible to produce electricity and/or industrial steam together by using extraction type steam turbine.
- Such energy investments can be undertaken as turnkey projects.
- This technology meets international quality standards of European Union environmental and emission criteria.

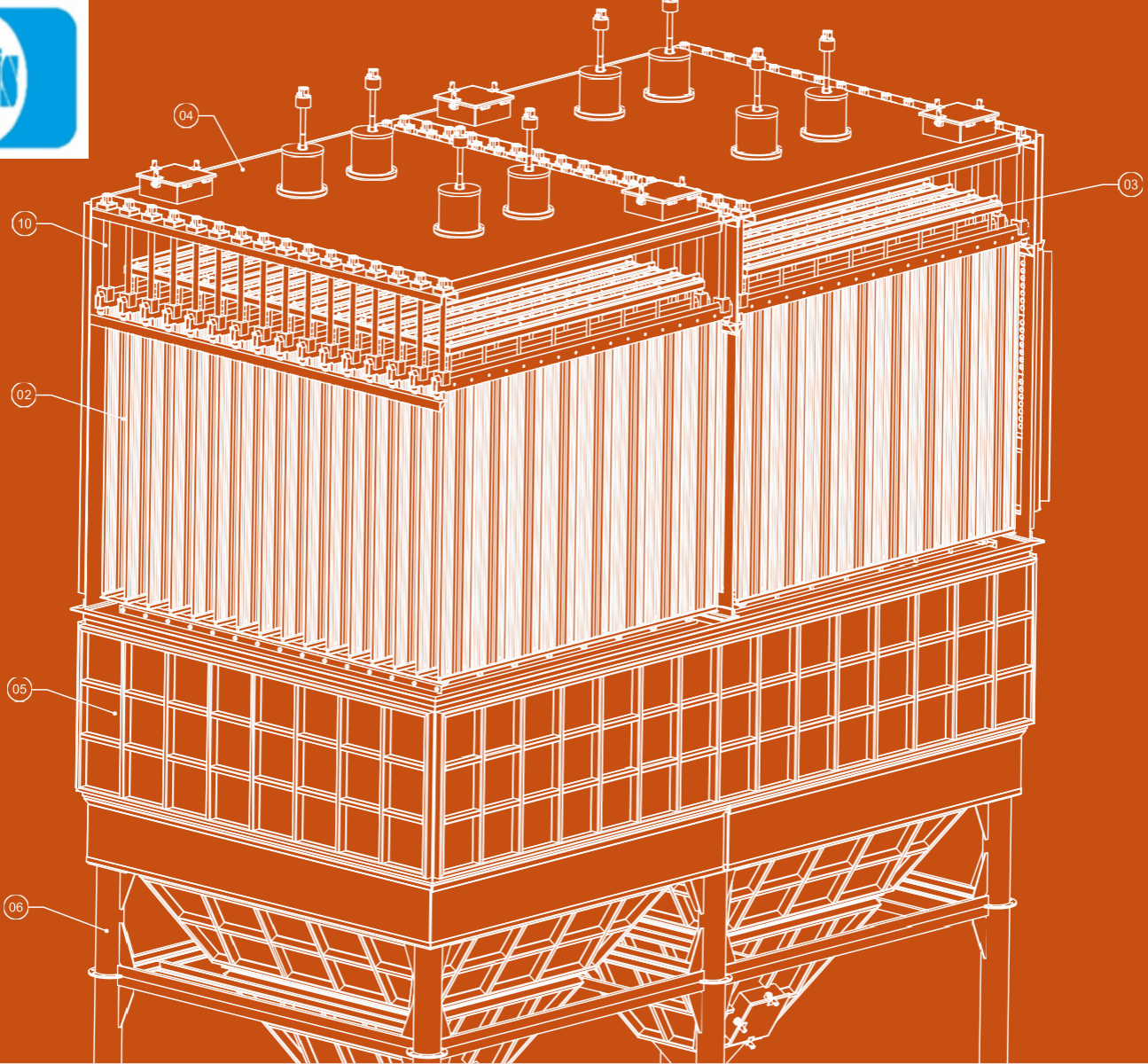
BIOMASS ENERGY POWER PLANT



OMTiS can transform the heat energy generated by the burning of vegetable and agricultural wastes into a high-pressure superheated steam form and can deliver it to Turnkey Power Plants.

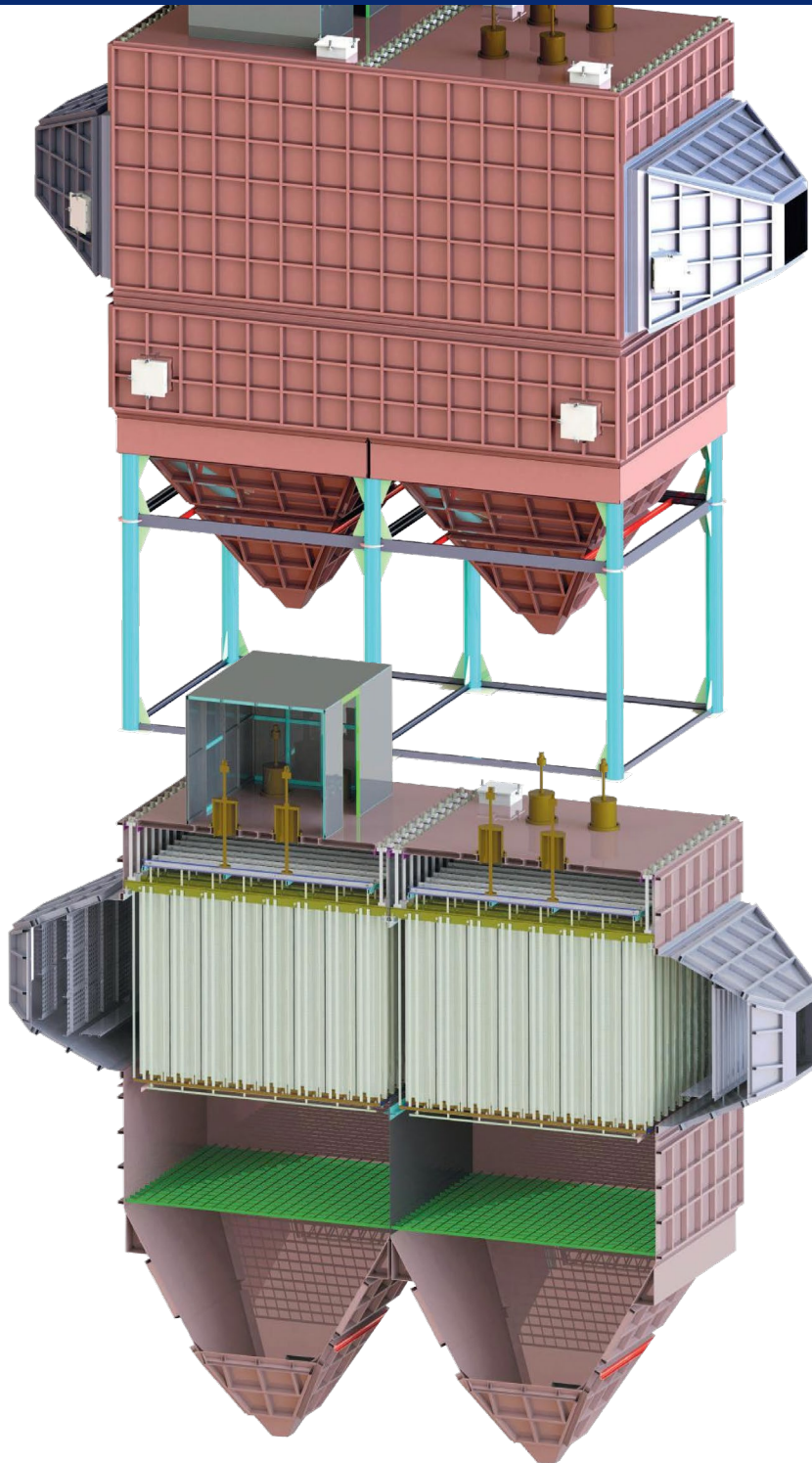
For Biomass Power Plants, it is possible to design and manufacture the plant with **Fluidized bed** and also **Reciprocating grate**.

This technology, which meets international quality standards, meets European Union environment and emission criteria. Electricity generated in these power plants is in an incentive purchase status in many countries as in our country. As OMTiS, we can meet the standards required by renewable energy status.



FLUE GAS FILTRATION SYSTEMS

- ELECTROSTATIC PRECIPITATOR
- DESULPHURIZATION SYSTEMS
- BAGFILTER



FEATURES OF ELECTROSTATIC PRECIPITATOR (ESP)

Electrostatic chimney filter works with static electricity principle. The dust collected electrodes are periodically shaken and the dust is collected in the bunker. In our country, it is produced only by "Mechasol."

- **Easy installation and Comissioning:**

- OMTiSI Electrostatic filters are produced as finished modules and shipped to boiler houses.

- **Low Service Cost:**

- No bag replacement problem
- Compared to bag and wet filter technologies, the maintenance-repair costs are 60% less.

- **Low Operating Cost:**

- There is no settling pool, caustic and water consumption required, which is required in the wet filter.

- **Low electricity consumption:**

- The power consumption of the chimney fan is 50% less than the bag filter.

- **High performance:**

- With PLC controlled automation, it works with high performance and efficiency.
- Since there is no problem of bag puncture, the risk of unplanned sudden stop is very low.

Desulphurization is used to reduce the sulfur content to harmless levels in systems using high sulfur containing fuel.

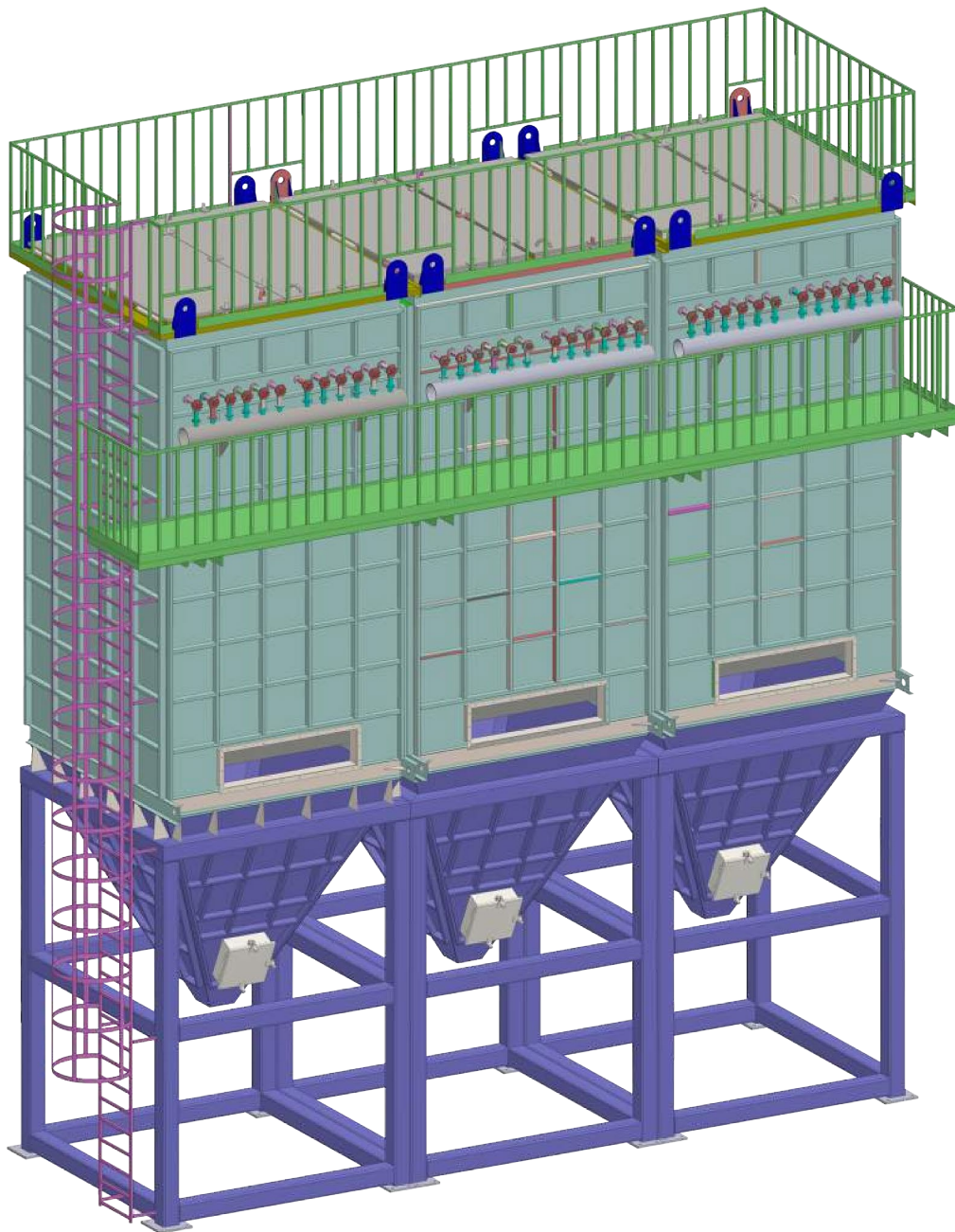
The working principle of this system is as follows. The flue gas containing sulfur and oxide components is sprayed with a liquid containing calcium sulphite/sulphate. The solids formed in the melt are eliminated in the settling pool. Particular matter is kept at 90-99%.

AISI 316L material is used for corrosion resistance.



BAG FILTER

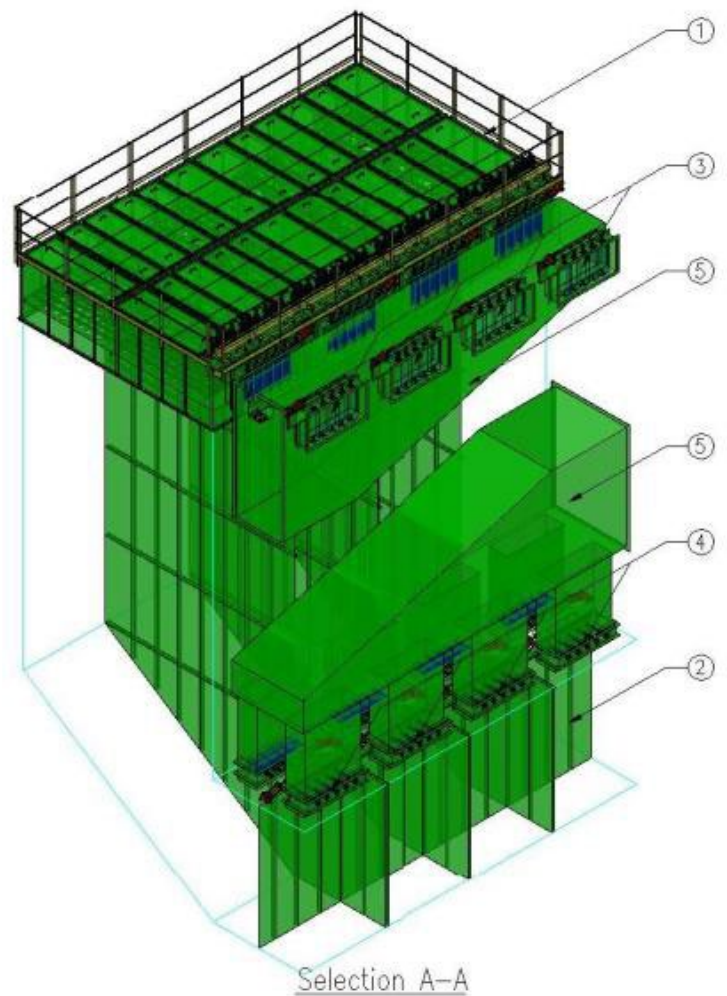
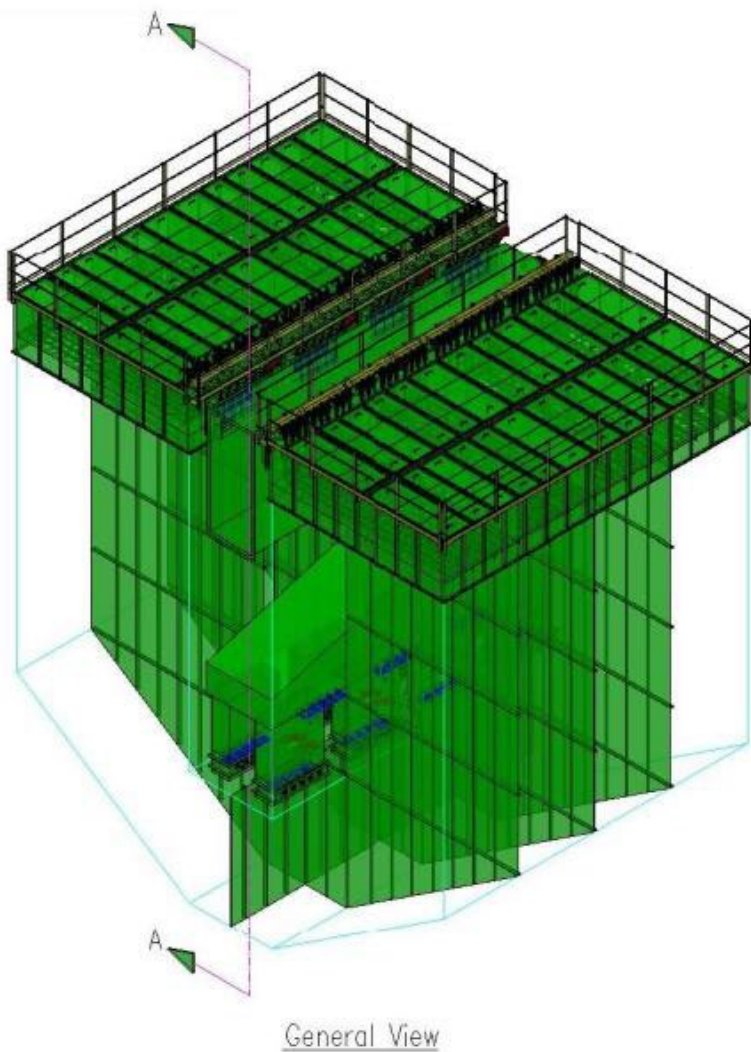
Our company produces single zone and double zones according to the requirements of the industrial plants. When compared to an electrostatic filter, the initial investment cost is lower. However, due to the bag resistance, the chimney fan increases the electricity consumption.



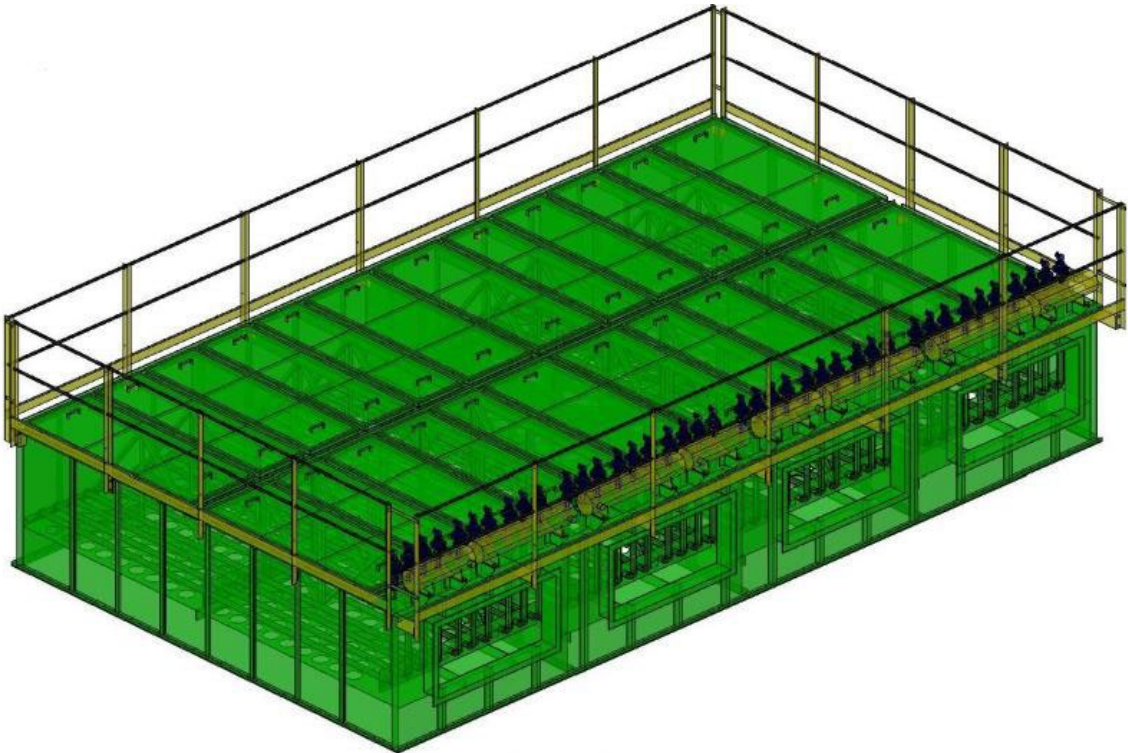
- **Conversion of the Electrostatic Precipitator (ESP) to Bag Filter**

Equipment List

1. Jet Pulse Filter Cell
2. Jet Pulse Filter Partitions
3. Gas Outlet Jalousie Flap
4. Gas Inlet Jalousie Flap
5. Gas inlet - Outlet Ducts
6. Pneumatic Emergency Clean Air Damper

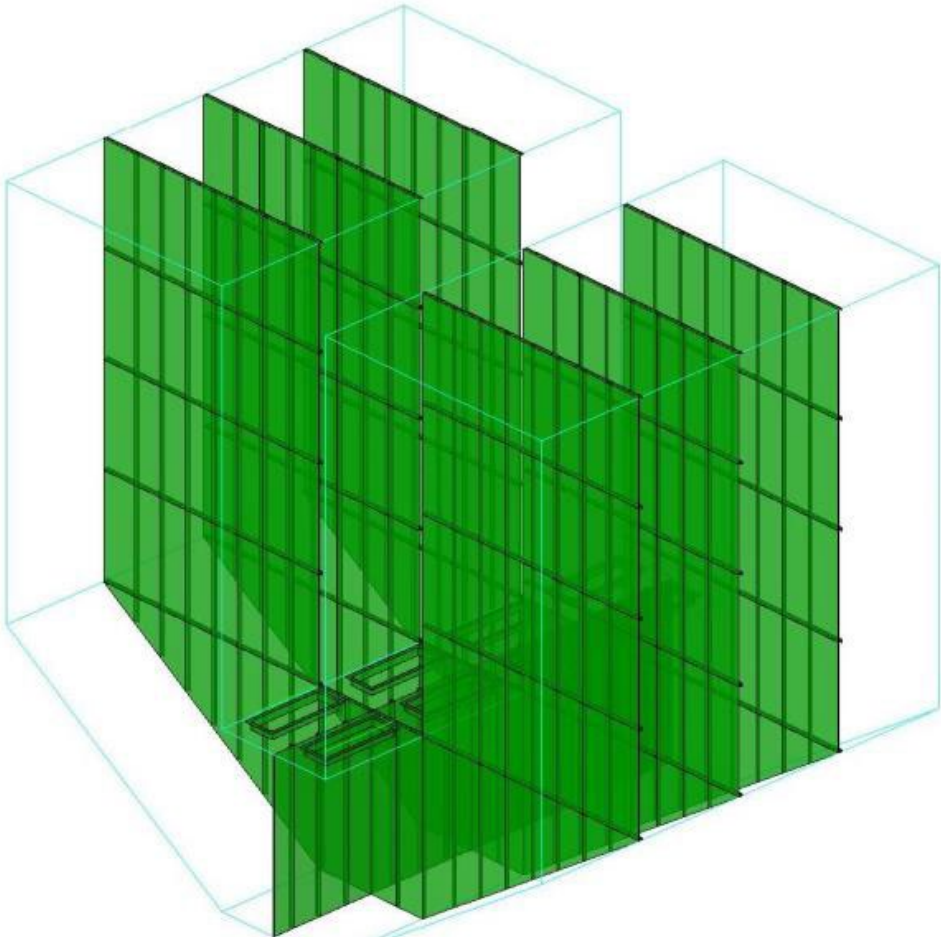


1. Jet Pulse Filter Cell



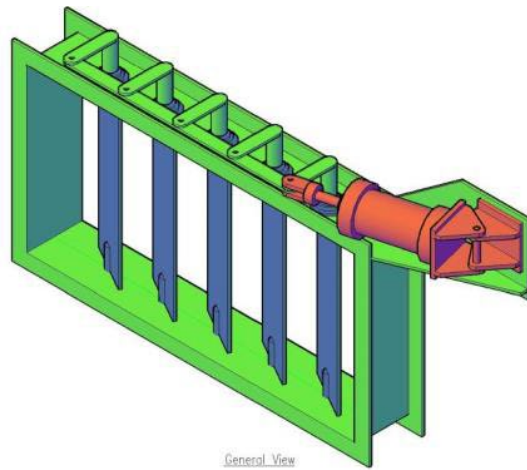
General View

2. Jet Pulse Filter Partitions

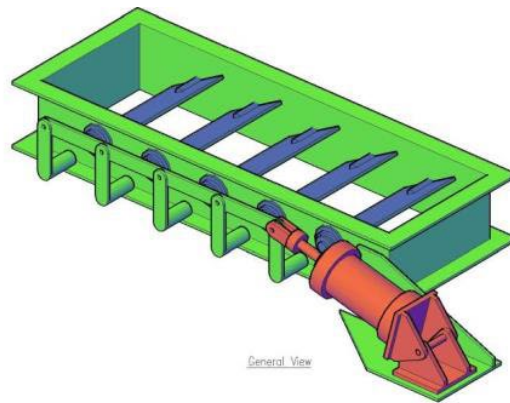


General View

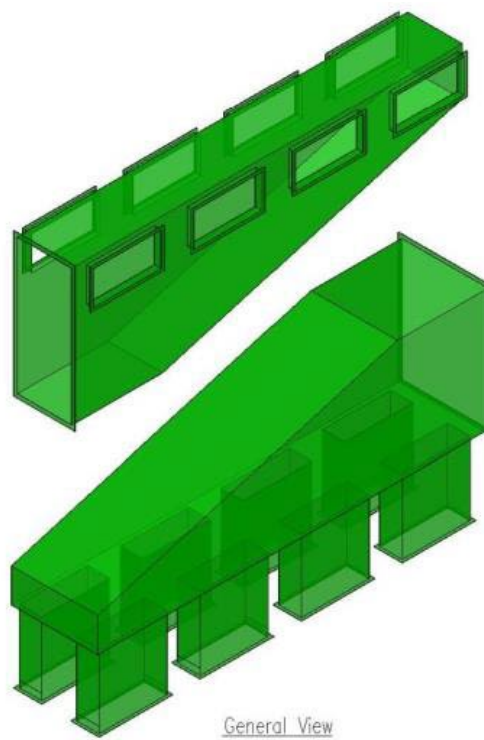
3. Gas Outlet Jalousie Flap



4. Gas Outlet Jalousie Flap



5. Gas inlet - Outlet Ducts



6. Pneumatic Emergency Clean Air Damper





Aboveground Storage Tanks

Aboveground Storage Tanks

- API 650 Field Erected Storage Tanks
- AWWA D100 Field Erected Water Storage Tanks
- Acids & Alkalis
- Asphalt Tanks
- Asphalt Oxidizers
- Biodiesel & Ethanol
- Brine Water
- Clarifiers & Digesters
- Crude Oil & Petroleum Fuels
- Drilling Fluids & Muds
- Fertilizers UAN Solutions
- Fire Water FM Tanks
- Vapor Recovery Tanks
- Vegetable Oils
- Waste Water



Turnkey projects

OMTIS can satisfy a customer's needs from the "beginning to the end" of the contract by the turnkey concept. The Company will act as the Project Manager and General contractor, performing much of the project with our own personnel, and sub-contracting other parts as needed to specialty contractors. In this way, we eliminate multiple contractors and sub-contractors and place control of the project at a single source.

New Tanks

OMTIS can provide new tank construction for all types of Above Ground Storage Tanks. Our field erection crews utilize the latest construction techniques to provide a safe, dependable new tank at competitive prices. OMTIS constructed tanks adhere to strict compliance guidelines in accordance with API, AWWA and FM. New tank construction services includes: Tank Erection, Foundations, Protective Coating & Linings, Insulation, Cathodic Protection.

Our field erection crews utilize the latest construction techniques to provide safe, dependable new tank.

Typical API 650 Tank Sizes

NOMINAL CAPACITY		TANK DIMENSIONS in feet and inches		APPROXIMATE WEIGHT IN POUNDS	SHELL RING THICKNESS (In Inches)						TOP ANGLE SIZE
BBLs	GALLONS	DIA.	Nominal Height		1	2	3	4	5	6	
500	23,000	15-0	18-0	12,600	1/4	3/16	3/16				2 x 2 x 3/16
1,000	42,000	20-0	18-0	18,000	1/4	3/16	3/16				2 x 2 x 3/16
1,500	63,000	25-0	18-0	24,200	1/4	3/16	3/16				2 x 2 x 3/16
2,000	87,000	25-0	24-0	28,300	1/4	3/16	3/16	3/16			2 x 2 x 3/16
2,500	109,000	25-0	30-0	33,700	1/4	3/16	3/16	3/16	3/16		2 x 2 x 3/16
3,000	126,000	30-0	24-0	37,000	1/4	3/16	3/16	3/16			2 x 2 x 3/16
4,000	168,000	30-0	32-0	43,600	1/4	3/16	3/16	3/16	3/16		2 x 2 x 3/16
5,000	210,000	30-0	40-0	51,000	1/4	3/16	3/16	3/16	3/16		2 x 2 x 3/16
5,000	210,000	35-0	30-0	52,000	1/4	3/16	3/16	3/16	3/16		2 x 2 x 3/16
7,500	324,000	36-8	40-0	68,000	1/4	3/16	3/16	3/16	3/16		2 x 2 x 1/4
7,500	324,000	40-0	34-0	70,000	1/4	3/16	3/16	3/16	3/16		2 x 2 x 1/4
8,900	374,000	40-0	40-0	76,000	1/4	3/16	3/16	3/16	3/16	3/16	2 x 2 x 1/4
10,000	420,000	44-0	37-6	84,650	1/4	3/16	3/16	3/16			2 x 2 x 1/4
10,000	420,000	42-6	40-0	85,000	1/4	1/4	3/16	3/16	3/16		2 x 2 x 1/4
10,000	420,000	45-0	36-0	85,000	1/4	3/16	3/16	3/16	3/16		2 x 2 x 1/4
12,540	525,000	45-0	44-0	98,575	.29	1/4	3/16	3/16	3/16	3/16	2 x 2 x 1/4
12,500	525,000	48-0	40-0	110,000	.27	1/4	3/16	3/16	3/16		2 x 2 x 1/4
15,000	630,000	48-0	48-0	122,000	.34	.27	1/4	3/16	3/16	3/16	2 x 2 x 1/4
15,000	630,000	52-0	40-0	128,000	.31	1/4	1/4	1/4	1/4		2 x 2 x 1/4
16,000	670,000	60-0	32-0	138,000	.27	1/4	1/4	1/4			2 x 2 x 1/4
20,000	846,000	60-0	40-0	164,000	.34	.27	1/4	1/4	1/4		2 x 2 x 1/4
24,000	1,010,000	60-0	48-0	195,000	.41	.34	.27	1/4	1/4	1/4	2 x 2 x 1/4
20,000	840,000	67-0	32-0	169,000	.31	1/4	1/4	1/4			3 x 3 x 3/8
25,000	1,055,000	67-0	40-0	200,000	.38	.31	1/4	1/4	1/4		3 x 3 x 3/8
30,000	1,266,000	67-0	48-0	237,000	.46	.38	.31	1/4	1/4	1/4	3 x 3 x 3/8
30,000	1,266,000	73-4	40-0	237,000	.42	.34	1/4	1/4	1/4		3 x 3 x 3/8
28,500	1,200,000	80-0	32-0	227,000	.38	.27	1/4	1/4			3 x 3 x 3/8
35,000	1,504,000	80-0	40-0	270,000	.46	.38	.27	1/4	1/4		3 x 3 x 3/8
42,500	1,790,000	80-0	48-0	323,000	.55	.46	.38	.27	1/4	1/4	3 x 3 x 3/8
45,000	1,900,000	90-0	40-0	331,000	.52	.41	.31	1/4	1/4		3 x 3 x 3/8
44,500	1,870,000	100-0	32-0	333,000	.46	.34	1/4	1/4			3 x 3 x 3/8
55,000	2,350,000	100-0	40-0	402,000	.57	.46	.34	1/4	1/4		3 x 3 x 3/8
67,000	2,810,000	100-0	48-0	485,000	.69	.57	.46	.34	1/4	1/4	3 x 3 x 3/8
64,000	2,700,000	120-0	32-0	480,000	.55	.41	5/16	5/16			3 x 3 x 3/8
80,000	3,384,000	120-0	40-0	575,000	.69	.55	.41	.27	5/16		3 x 3 x 3/8
96,000	4,030,000	120-0	48-0	690,000	.83	.69	.55	.41	5/16	5/16	3 x 3 x 3/8
87,500	3,680,000	140-0	32-0	653,000	.64	.47	.31	5/16			3 x 3 x 3/8
100,000	4,200,000	134-0	40-0	721,000	.76	.61	.46	.31	5/16		3 x 3 x 3/8
100,000	4,200,000	150-0	32-0	734,000	.68	.52	.34	5/16			3 x 3 x 3/8
109,500	4,606,000	140-0	40-0	780,000	.80	.64	.47	.31	5/16		3 x 3 x 3/8
125,000	5,288,000	150-0	40-0	882,000	.86	.68	.52	.34	5/16		3 x 3 x 3/8
131,500	5,480,000	140-0	48-0	937,000	.96	.80	.64	.47	.31	5/16	3 x 3 x 3/8
150,000	6,300,000	150-0	48-0	1,060,000	1.03	.86	.68	.52	.34	5/16	3 x 3 x 3/8

THICKNESS		WEIGHT
Fractions of Inch	Decimals of Inch	Lbs. per Sq. Ft.
3/16	.1875	7.65
7/32	.2187	8.925
1/4	.2500	10.20
9/32	.2813	11.475
5/16	.3125	12.75
11/32	.3437	14.02
3/8	.3750	15.30
13/32	.4062	16.57
7/16	.4375	17.85
15/32	.4687	19.12
1/2	.5000	20.40
17/32	.5312	21.67
9/16	.5625	22.95
19/32	.5937	24.22
5/8	.6250	25.50
21/32	.6562	26.77
11/16	.6875	28.05
23/32	.7187	29.32
3/4	.7500	30.60
25/32	.7812	31.87
13/16	.8125	33.15
27/32	.8437	34.42
7/8	.8750	35.70
29/32	.9062	36.97
15/16	.9375	38.25
31/32	.9687	39.52
1	1.0000	40.80
1 1/32	1.0312	42.07
1 1/16	1.0625	43.35

Liquid	Specific Gravity	Weight Pounds Per U.S. Gallon	Wt. in Pounds per Cubic Ft.
Acetic Acid (100%)	1.05	8.7	66
Alcohol – Commercial	0.833	6.95	52
Asphaltum	1.3	10.8	81
Benzene	0.88	7.3	55
Butane	0.585	5.00	37
Castor Oil	0.964	8.02	60
Caustic Soda (100%)	2.13	17.8	133
Cottonseed Oil.....	0.93	7.75	58
Creosote	1.1	9.16	69
Crude Oil	0.82-0.97	6.86-8.11	50-62
Cylinder Stock	0.91-0.94	7.58-7.93	57-59
Cocanut Oil	0.925	7.7	58
Diesel Oil90	7.51	56
Ethane	0.446	3.71	28
Ethyl Fluid	1.71	14.2	107
Fuel Oil96	8.0	60
Gasoline (motor fuel)	0.71-0.82	5.93-6.86	44-51
Gas Oil	0.843	7.0	52
Kerosene	0.81	6.75	51
Lard Oil	0.918	7.64	57
Linseed Oil – Raw ...	0.93	7.75	58
Liquid Ammonia (100%)	0.62	5.17	39
Lubricating Oil – Light	0.86-0.90	7.17-7.51	54-56
Lubricating Oil – Heavy	0.89-0.93	7.42-7.76	55-58
Methyl Alcohol	0.791	6.6	50
Molasses	1.47	12.2	92
Muriatic Acid, 40%	1.194	9.9	75
Naphtha	0.729	6.07	45
Naphthalene	1.15	9.58	72
Nitric Acid (100%) ...	1.56	13.0	97
Olive Oil	0.919	7.65	57
Phenol	1.0677	8.89	67
Pitch	1.11	9.27	69
Propane	0.509	4.24	32
Solvent Naphtah (abt)870	7.2	54
Soya Bean Oil	0.926	7.7	58
Sulphuric Acid (100%)	1.84	15.3	115
Sulphurous Acid	1.43	11.9	89
Tar	1.2	10.03	75
Turpentine	0.86	7.17	54
Water (Sea)	1.03	8.60	63.6
Water.....	1.0	8.33	62.428
Mercury.....	13.5959	114.	849.





ASPHALT PLANT & EQUIPMENT



FAALİYETLER / PRODUCT RANGE

▶ ASFALT PLENTLERİ /Asphalt Plants

- Batch Tipi Sabit /Batch Type Fixed
- Batch Tipi Mobil /Batch Type Mobile
- Durummix Tipi Sabit /Drum Mix Type Fixed
- Durummix Tipi Mobil /Drum Mix Type Mobile
- Yardımcı Ekipmanları /Auxiliary Equipments

▶ TOZ TUTUCULAR /Dust Collectors

- Ters Hava /Reversed Air Flow Type
- Ters Akışkan Tipi /Counter Fluid Flow Type
- Kaset Tipi /Casette Type
- Jet Pulse Tipi /Jet Pulse Type
- Multisiklon Tipi /Multicyclon Type

▶ YEDEK PARÇA /Spare Parts

▶ ASFAL PLENTİ /Asphalt Plants

- Bakım - Onarım /Maintenance and repair
- Revizyon /Revision
- Taşıma ve Montaj /Transportation and Montage

BATCH TİPİ ASFALT TİPİ

OMTis 60-400 t/h kapasiteye sahip dünya standartlarına asphalt üretebilen modern plantler geliştirmiştir. Teknofalt Sabit Asphalt Plantleri müşteri isteklerine ve ihtiyacına göre çok değişik alternatif tasarımlarla üretilmektedir. Asphalt plantleri ses, toz, ısı, gürültü açısından güvenli, çevre ve kullanıcı dostudur. Ünite ölçüleri karayolları gabarilerine uygun olarak tasarlanmıştır. Kolay hızlı montaj-demontaj için modüler bir yapı geliştirilmiştir. Üniteler maksimum verimi alabilecek şekilde düşünülmüş birim asphalt maliyeti minimize edilmiştir. Değişik asphalt üretimine (mastik asphalt, renkli asphalt, sökülmüş (re-cycling) malzeme kullanımı vb.) imkan sağlar. Tamamen bilgisayar kontrollü olup manüel, yarı otomatik ve tam otomatik çalıştırılabilir. Üretimlerimiz teknolojik yeterlilik ve çevre koruma açısından dünyadaki tüm standartları karşılamakta hatta daha üstün özellikler göstermektedir. Ürünlerimizin modüler yapısı, kolay montaj edilmesini ve yer değiştirmeleri çok kısa sürelerde gerçekleştirilmesini sağlamaktadır.

BATCH TYPE ASPHALT TYPE

has developed modern plants capable of producing world-class asphalt with a capacity of 60-400 t/h. Teknofalt can produce Fixed Asphalt Plants with very different alternative designs according to the customer requests and needs. The asphalt plants are safe in terms of voice, dust, heat, noise and environment and user friendly. Unit dimensions are designed in accordance with highway clearances. A modular structure has been developed for easy and fast assembly and disassembly. The units are designed to obtain maximum efficiency and the unit asphalt cost is minimized. It enables the production of various asphalt (mastic asphalt, colored asphalt, use of stripped (recycling) materials, etc.). It is fully computer controlled, and can be operated manually, semi-automatically and fully automatically. Our production meets all the standards in the world in terms of technological competence and environmental, protection, even have superior features. Modular structure of our products enables easy assembly and replacement in a very short time.





SB 220 SABİT BATCH TİPİ ASFALT PLENTİ



OMTİS mobil ve sabit olmak üzere 30-300 t/h kapasiteye sahip dünya standartlarına asfalt üretebilen modern plantler geliştirmiştir. Müşteri İsteklerine göre çok değişik alternatif tasarımlara sahiptir. Asfalt plantleri ses, toz, ısı, gürültü açısından güvenli, çevre ve kullanıcı dostudur. Ünite ölçüleri karayolları gabarilerine uygun olarak tasarlanmıştır. Kolay hızlı montaj-demontaj için modüler bir yapı geliştirilmiştir.



SB 160 SABİT BATCH TİPİ ASFALT PLENTİ

OMTİS enhanced mobile and fixed modern asphalt plants which has 30-300 t/h capacity and can produce world class asphalt. It has alternative designs according to customer needs. Asphalt plants have safety about voice, dust, temperature, noise and they are nature friendly. Units dimensions are designed up to Highway Commission Gabarite's. Modular constructs were designed for easy and fast montage-demontage processes.



Ürünlerimizin en önemli özelliği maliyet ve işletme giderleri açısından daha ekonomik olmasıdır. *One of the most important property of our products is being economic about cost and operational expenditure.* Üniteler maksimum verimi alabilecek şekilde düşünülmüş birim asfalt maliyeti minimize edilmiştir.

ştir.

Units were designed by thinking of maximum efficiency and unit cost was minimalized.

Düşük enerji ihtiyacı, yakıt sarfiyatı optimize edilmiş olması, 2 kişi ile (plant operatörü ve yükleme operatörü) çalıştırılabilmesi yanında, uzun ömürlü sistem ve donanımlar, minimize edilmiş bakım ihtiyaçları sayesinde işletme maliyetleri düşüktür.

Operational expenditure is very low because of the low energy needs, minimized fuel consumption, long lived system and equipments, minimized maintenance needs and it is able to be runned by 2 persons (1 plant operator and 1 loading operator).

TEKNİK BİLGİ TABLOSU

PLENT TİPİ PLANT TYPE	SB-MB 60	SB-MB 80	SB-MB 100	SB-MB 120	SB-MB 160	SB-MB 200	SB-MB 250	SB-MB 340	SB-MB 400
Sıcak Agregat Siloları Tip Silo Kapasitesi M3 (Type/Silo Capacity m3)	8	10	12	15	20	25	30	30	30
Düz Toplama Bantı Bant Geniği (mm) Bant Boyu	650mm'ye kadar boşaltma genişliği frekans kontrolü								
Eğik Bant Bant Geniği (mm)	Silo sayısına bağlı olarak değişmektedir.								
Kurutucu Kurutucu Çapı Kurutucu Boyu	650	650	650	650	650	650	800	800	800
Elek	Screen								
Sıcak Agregat Siloları Kapasite (ton)	1.50 6.50	1.80 8.00	1.80 8.00	2.00 8.00	2.20 8.60	2.20 8.60	2.40 9.00	2.40 10.0	2.70 12.0
Agregat Tartı Tartım Kapasitesi (kg)	Aggragate Weight Weighing Capacity (kg)								
Filler Tartı Tartım Kapasitesi (kg)	Filler Weight Weighing Capacity (kg)								
Bitüm Besleme Kapasitesi (m3) Mikser Karışım Kapasitesi (kg) Otomasyon	9	9	9	16	16	20	25	30	30
Bitüm - Yakıt Tankı Kapasitesi (m3) Kızgın Yağ Sistemi X 1000 (kcal/saat) Elektrikli Isıtma	1000 150	1250 150	1500 150	1500 200	2000 200	2500 250	3000 300	4000 400	5000 500
	6	6	6	6	6	6	6	6	6
	800	1000	1250	1500					
					10	10	15	15	20
					2000	2500	3000	4000	5000
	Otomasyon Sistemi								
	20, 40, 50, 60, 80								
	500	500	500	750	750	1000	1000	1000	1000
	Her kapasite isteğe bağlı olarak istenilen kapasitede yapılmaktadır.								



SOĞUK BESLEME SİLOSU VE BANTLAR *COLD FEEDING SILO AND BELT*



- 8-18 m³ kapasiteli, ihtiyaca göre 3/4/5/6 adet veya daha fazla kullanılabilir,
- Frakans kontrollü hassas dozajlama, sorunsuz akış,
- İnce malzeme akışı için vibratör,
- Kumanda kabininden izlenebilir/kontrol edilebilir.
- İri malzeme girişini önlemek için ızgara sistemi.

- 8-18 m³ capacity, 3/4/5/6 pieces or more can be used if needed,
- Frequency controlled sensitive dosing
- Issueless flow
- Vibrator for fine material flow
- To be controlled and checked from control room
- Gridiron system to stem coarse materials

KURUTUCU / *DRAYER*

- Isı ve aşınmaya dayanıklı özel alaşım malzeme
- 4 makaradan veya zincirle tahrik edilebilir
- Ring ve makaraların sertleştirilmesi sayesinde uzun dayanım süresi
- Kurutucu kovalarının mükemmel tasarımı ile tüm malzemeye eşit ısı aktarımı,
- Kolay değiştirilebilir yapıda kova sistemi,
- Kurutucu iç dizaynı ve brülör sisteminin tam uyumu sayesinde maksimum ısı aktarımı ve yüksek verim

- *Heat and abrasion resisting special alloy material*
- *4 capstan roller or chain driven system*
- *Long strength period under auspices of tempering rings and rollers*
- *Equal heat transfer to whole material with the perfect design of the dryer buckets*
- *Bucket system which is designed for changing easily*
- *Maximum heat transfer and high efficiency because of the perfect match between dryer interior design and burner system*



JET PULS FİLTRE / *JET PULS FILTER*

- 200 C'ye dayanıklı NOMEX filtre torbaları, (daha yüksek sıcaklık durumunda torbaların yanmasını önleyen temiz hava sistemi)
- Otomatik çalışma sistemi, kumanda kabininden izleme
- 20mg/m³ ün altında dünya standartlarına uygun emisyon
- Kompakt, daha küçük hacimle daha büyük filtrasyon alanı
- Preseperörden alınan kaba malzeme ve filtreden elde edilen filler malzemenin geri kullanımı
- Çok düşük işletme maliyeti, çok uzun ömür

- *200 C heat resistant NOMEX filter bags, (in higher heat situations, clear air systems to avoid burning of bags)*
- *Automatic operation system and controlling from cockpit*
- *Less than 20 mg/m³ world class emission system*
- *Compact, with less volume larger filtration zone*
- *Recycling of bulk material which is getting from preseperator and filler material which is getting from filter*
- *Very low operational expenditure and long life*



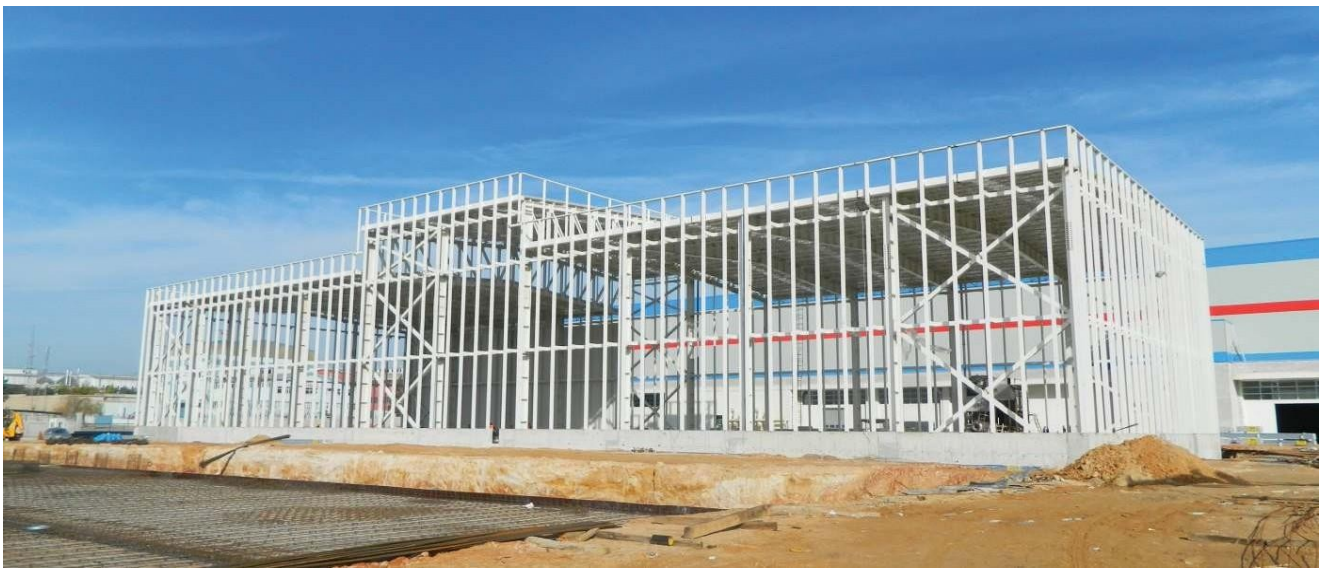
ELEK / *SCREEN*

- İsteğe bağlı 4/5/6 katlı elek
- Vibratör veya eksantrik ağırlık sistemi ile tahrik
- Gerdirme, mükemmel eğim, mükemmel yük dağılımı sayesinde sorunsuz kapasite
- Malzemelerin karışımını önleyen mükemmel iç tasarım
- Kolay elek değişimi, kolay bakım için bakım kapakları, platformlar
- 0-5 bölmesi üzerinden by-pass çalışma

- *4/5/6 storey units up to needs*
- *Vibrator or eccentrically loaded driven system*
- *Issueless capacity because of turnbuckle, wonderful slope and wonderful load distribution*
- *Wonderful interior design with the localising system*
- *Easy to change screen parts, inspection hatch for easy maintenance*
- *By-pass system through 0-5 divisions*









MECHALIFT HYDRAULIC SYSTEMS



Marine Sector

- Deck Crane
- Knuckle Boom Crane
- Folding Boom Crane
- Anchor Windlass
- Mooring Winch
- Towing Winch
- Steering Gear
- Rescue Boat Davit
- Free Fall Davit
- Gantry Crane
- Deck Equipment (Bollards, Chocks etc)
- Watertight Door and Manholes, Ladder

Shipyards Sector

- Self-Sliding Transporters
- It also provides project-based solutions for unloading and carrying high-tonnage products.
- Heavy-Tonnage Transporters
- Yacht Cranes
- Yacht Transporters
- Jib Cranes

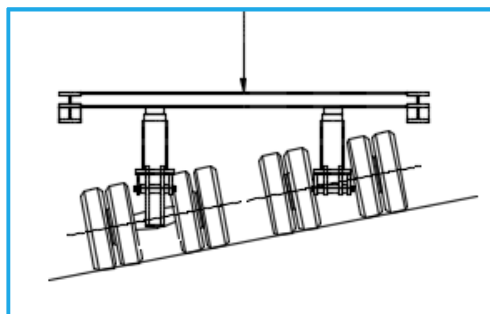
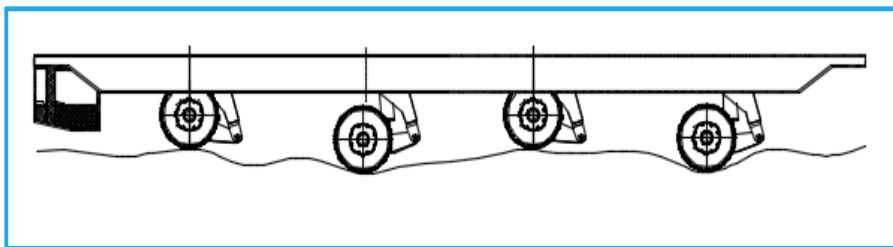
Industrial Sector

- Hydraulic Jacks
- Truck-Mounted Hydraulic Mobile Cranes
- Telescopic Cranes
- Hydraulic Tree Trans Planters
- Hydraulic Platforms (Man-Lift)
- Scissor Lift
- Rough Terrain Crane
- Recovery Crane
- Car Parking System

PRODUCTS OVERVIEW

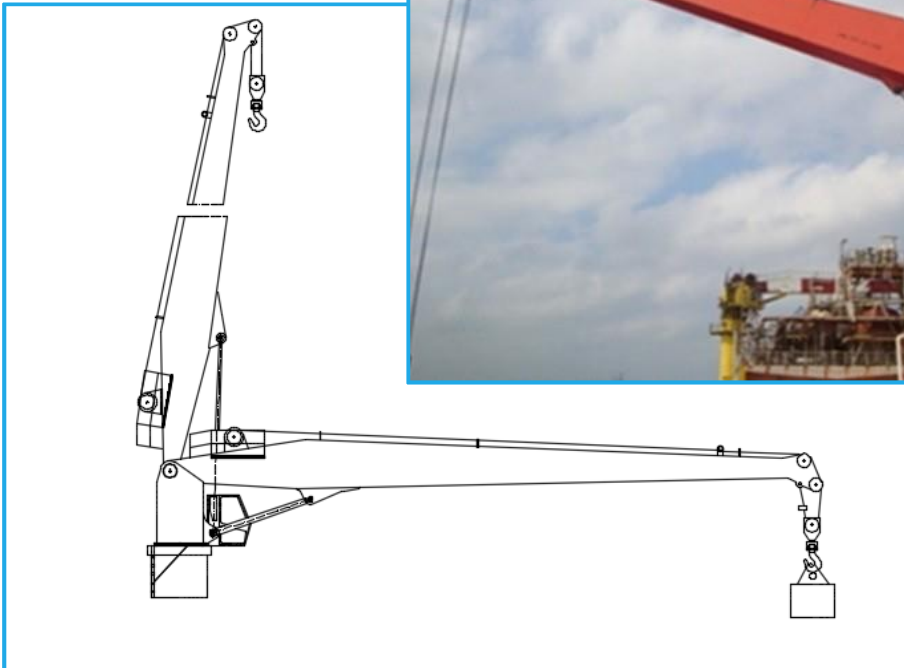
1. TRANSPORTERS

They are used for carrying heavy-duty goods from one place to the other, and it has various models that have a carrying capacity of 60 tons to 1,200 tons. Hydraulically-propelled, self-propelled and pull-type transporters are available and all functions can be controlled by a remote-control system that can be used from cabinets or via radios. Transporters are used by transport companies, shipyards, iron and steel factories, yacht manufacturers, bridge applications and any other facilities where heavy-duty works are handled.



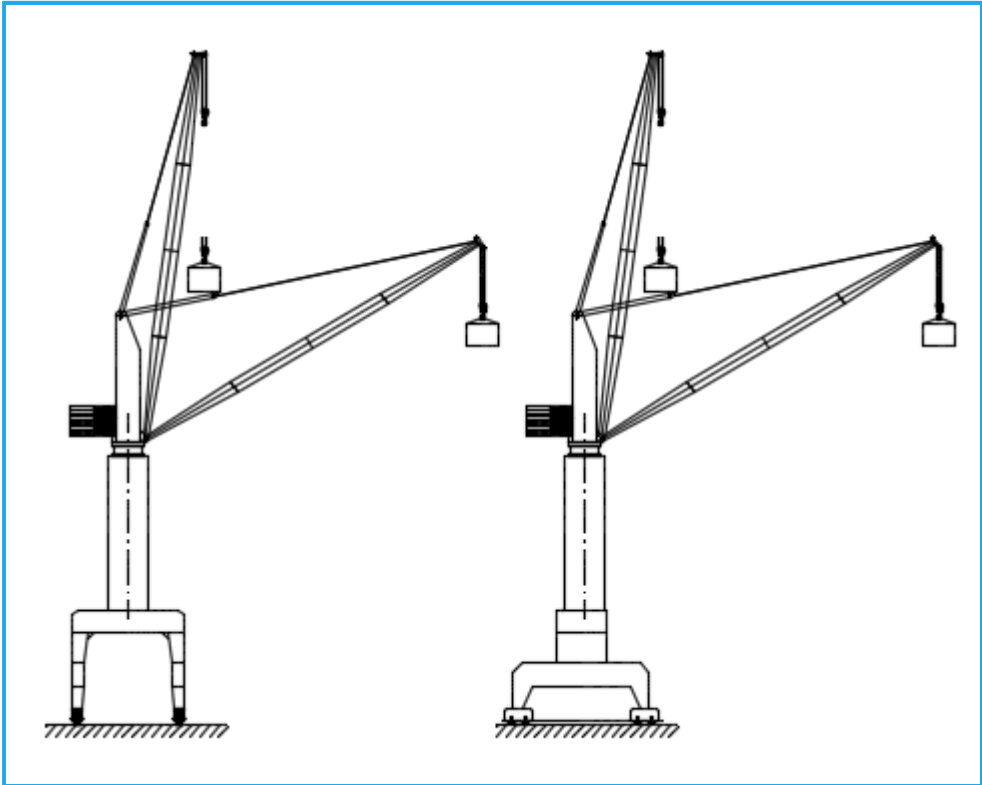
2. DECK CRANE

Deck cranes are deck-mounted and they are used for unloading or loading goods from/into vessels. They can be manufactured or designed at a capacity of up to 200 ton-meters.



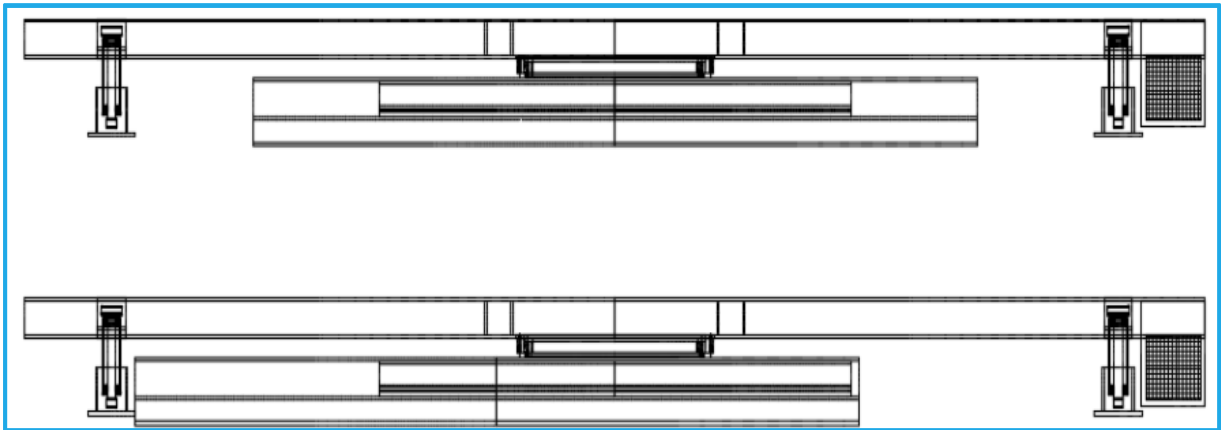
3. JIB CRANE

Jib Cranes are used by ports, shipyards, factories and constructions sites for loading and unloading heavy-duty goods and can move on rails.



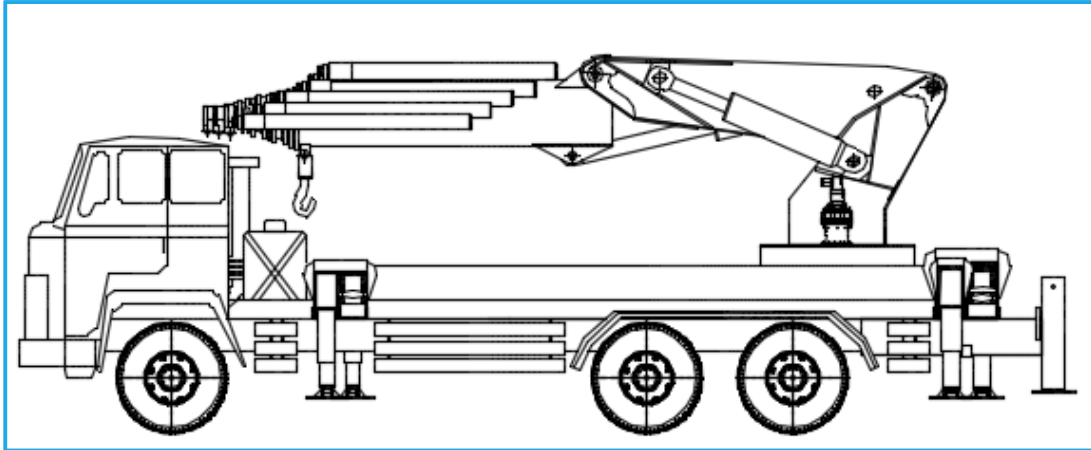
4. SELF - SLIDING TRANSPORTER

They have a hydraulically-propelled system that can move on own slides. All functions can be controlled via a radio-controllable remote-control system. They can have various models of up to 200 tons. They can be used in shipyards and any other facilities where heavy-duty goods need to be carried. It offers a solution that significantly reduces costs for carrying such heavy-duty goods. These vehicles that have features such as normal propelling, 90 degrees lateral propelling, point propelling etc. offer an ideal solution for carrying heavy-duty goods in environments where no wheeled vehicles can be operated.



5. FOLDABLE MOBILE CRANE

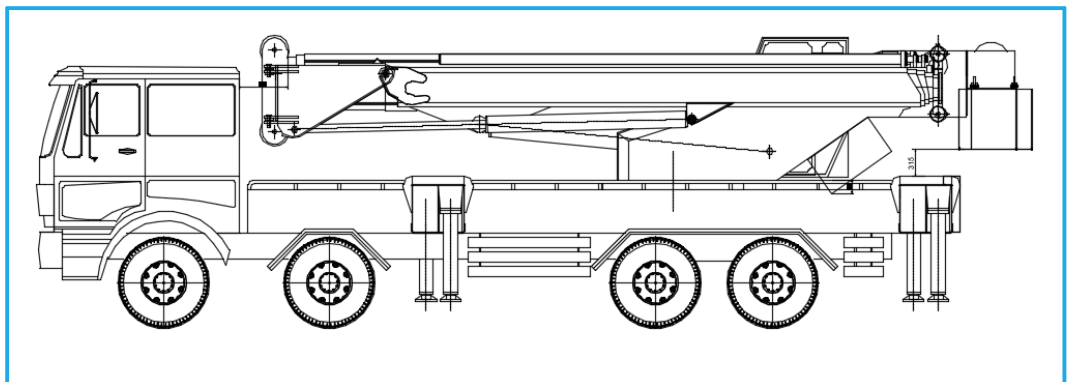
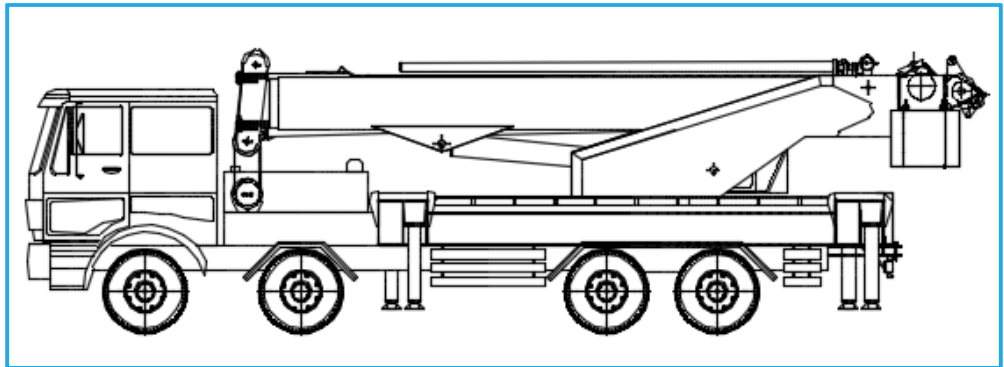
Crane capacity is 9-ton meters to 360-ton meters. Crane is truck-mounted.



6. TELESCOPIC BOOM CRANE

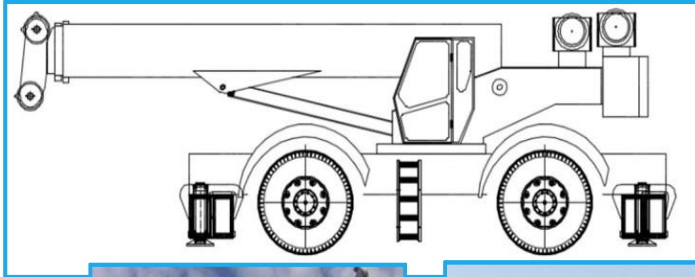
Telescopic Boom Crane capacity is 9-ton meters to 360-ton meters.

Crane is truck-mounted and All terrain.

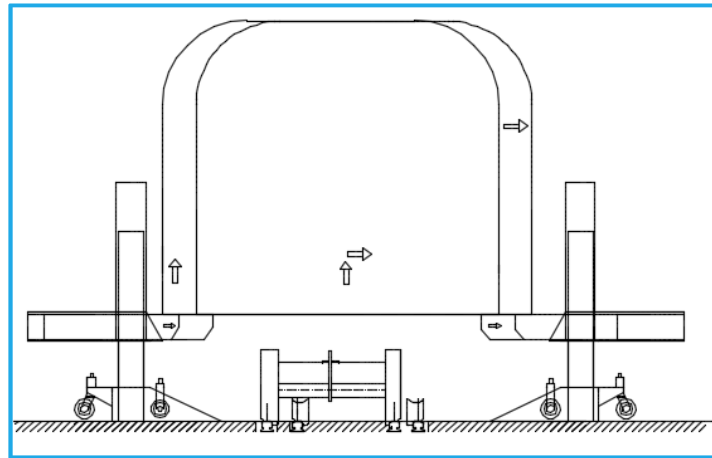


7. ROUGH TERRAIN CRANE

Rough terrain Crane capacity is 9-ton meters to 360-ton meters. Crane is self-driven type. Operator use crane in cabinet.

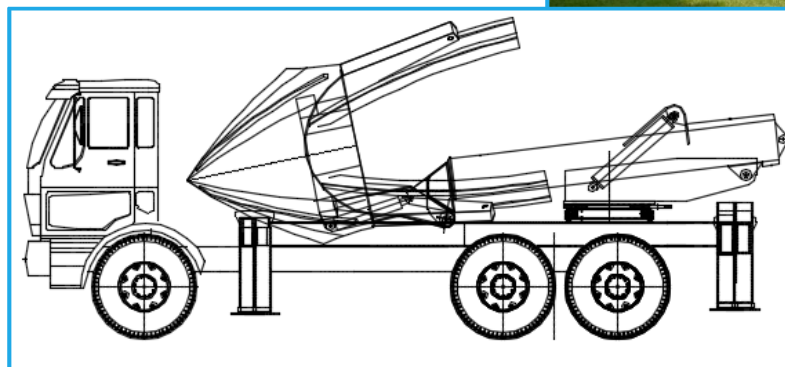


8. BOGIE TRANSFER LIFT



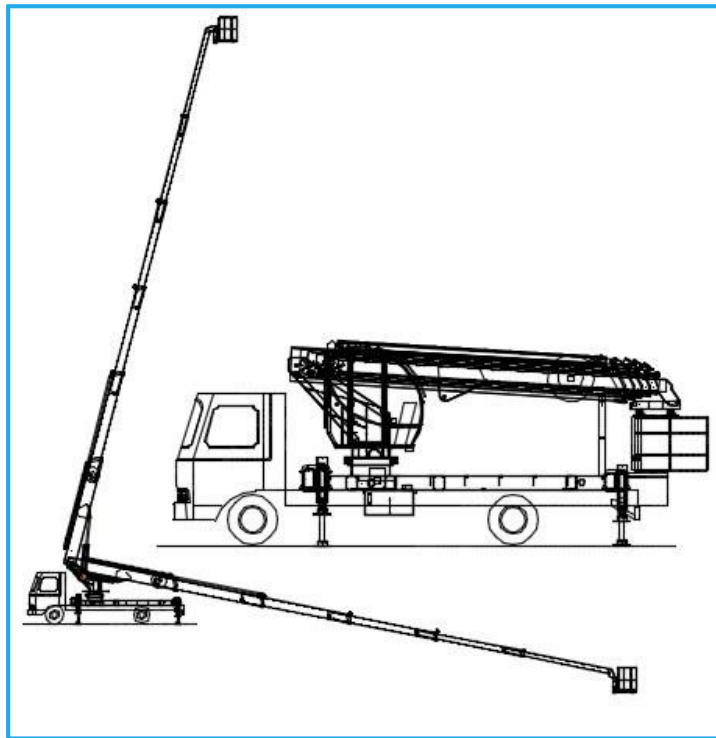
9. TREE TRANSPLANTER

They are used for carrying bushes and trees from one place to the other and this procedure can be successfully handled without giving any damage to bushes and trees. They have rotating and fixed types. Small models can be mounted on tractors, and larger models on trucks.

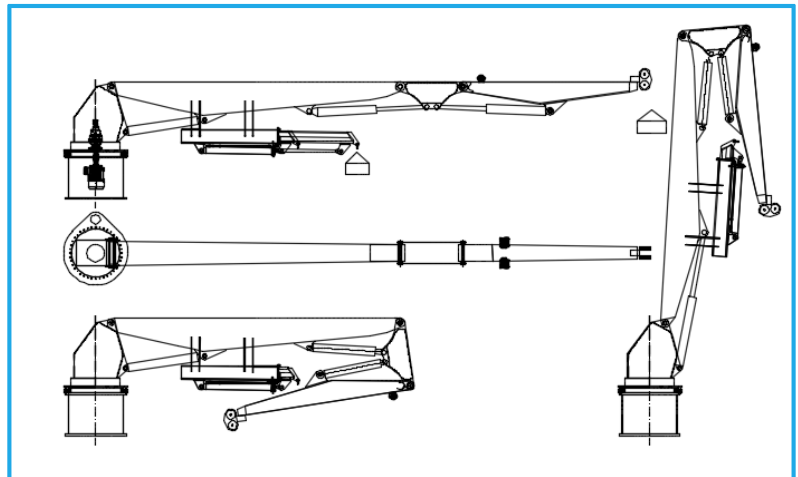
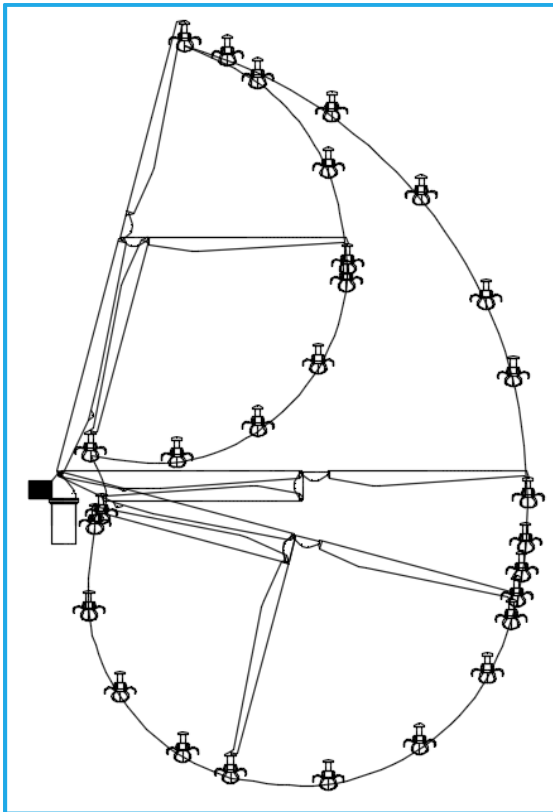


10. MAN-LIFT (TELESCOPIC OR SELF PROPELLED PLATFORM)

They are basket platforms used for performing works requiring man-power on higher levels. They can be truck-mounted; they can also be manufactured as self-propelled models. They have various of up to 70 meters.

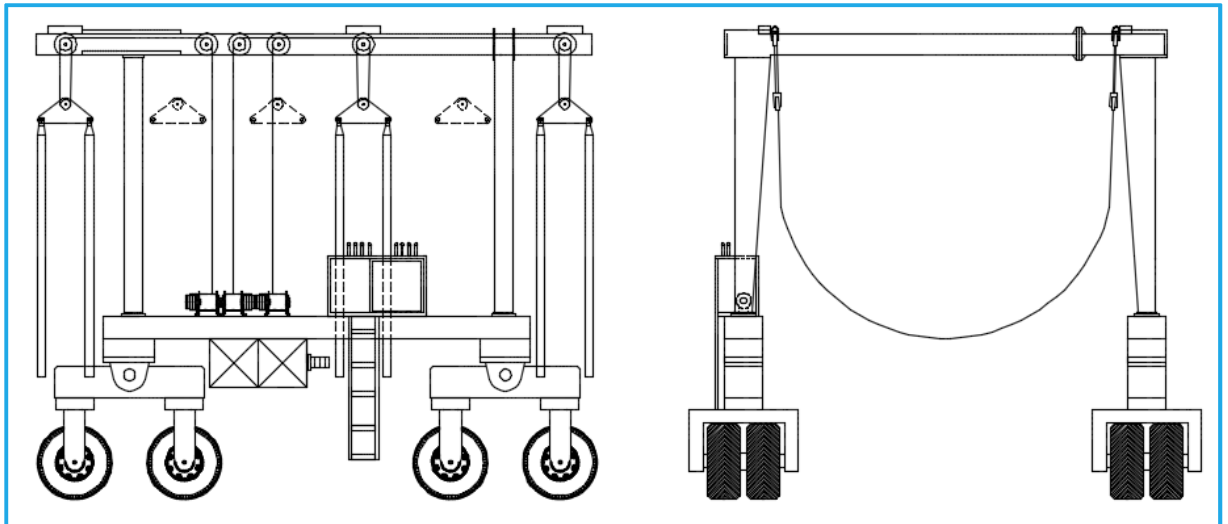


11. HANDLING MACHINERY- AND KNUCKLE BOOM CRANE



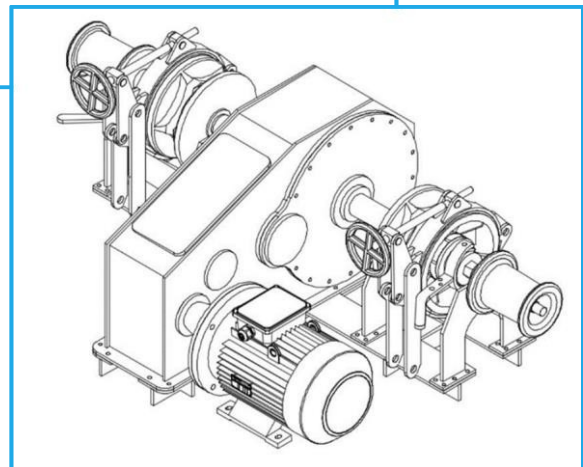
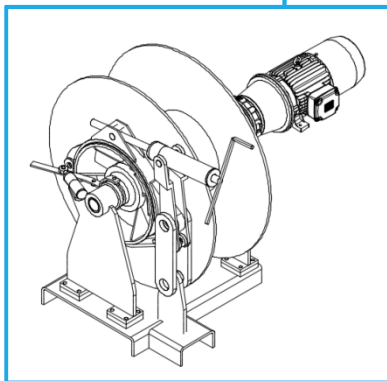
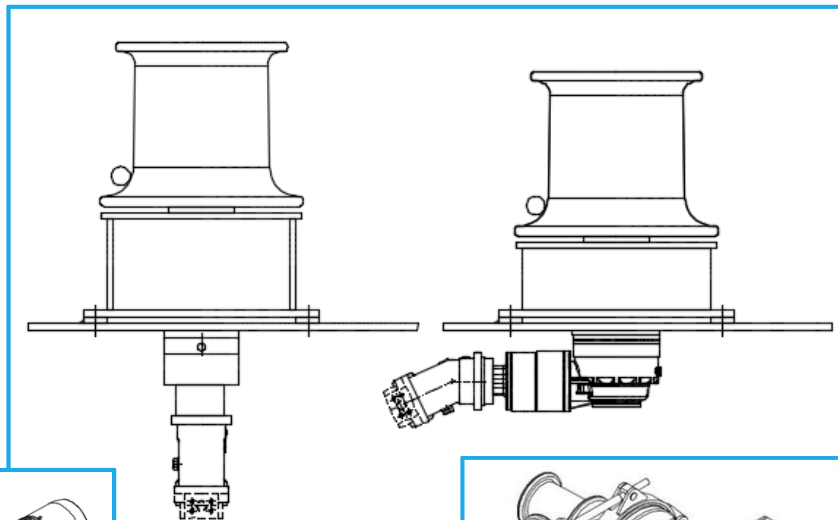
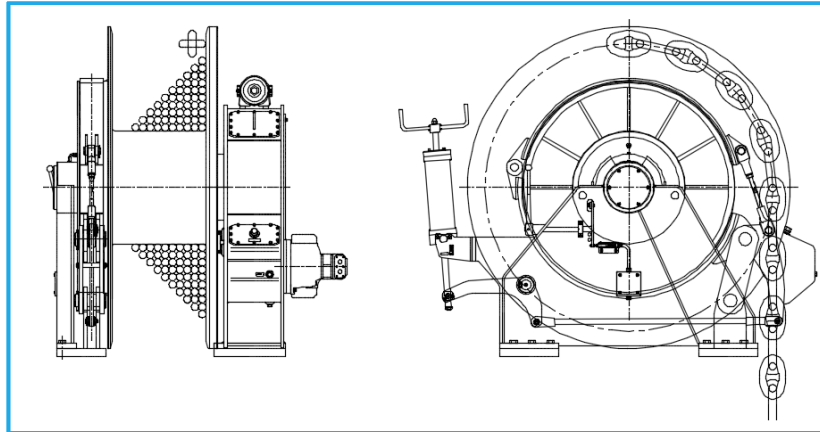
12. YACHT TRANSFER CRANE

Yacht transfer from 50 tonnes to 500 tonnes.

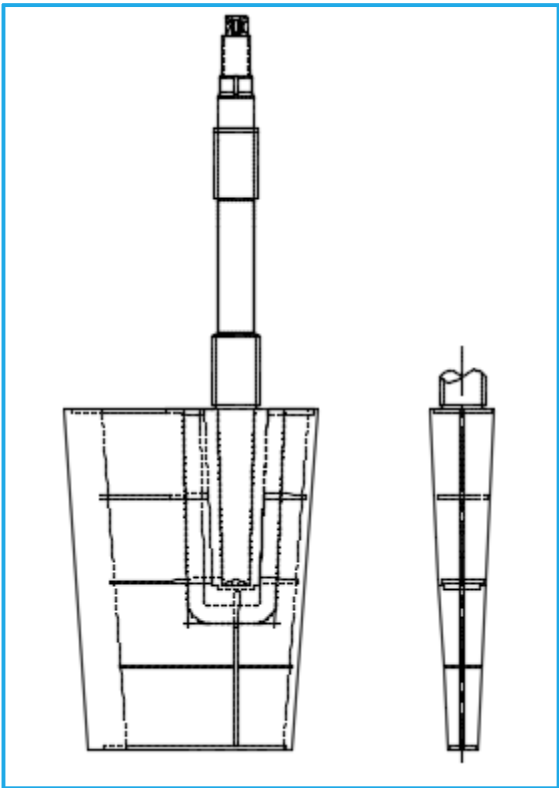


13. WINDLASS -WINCHES -CAPSTAN

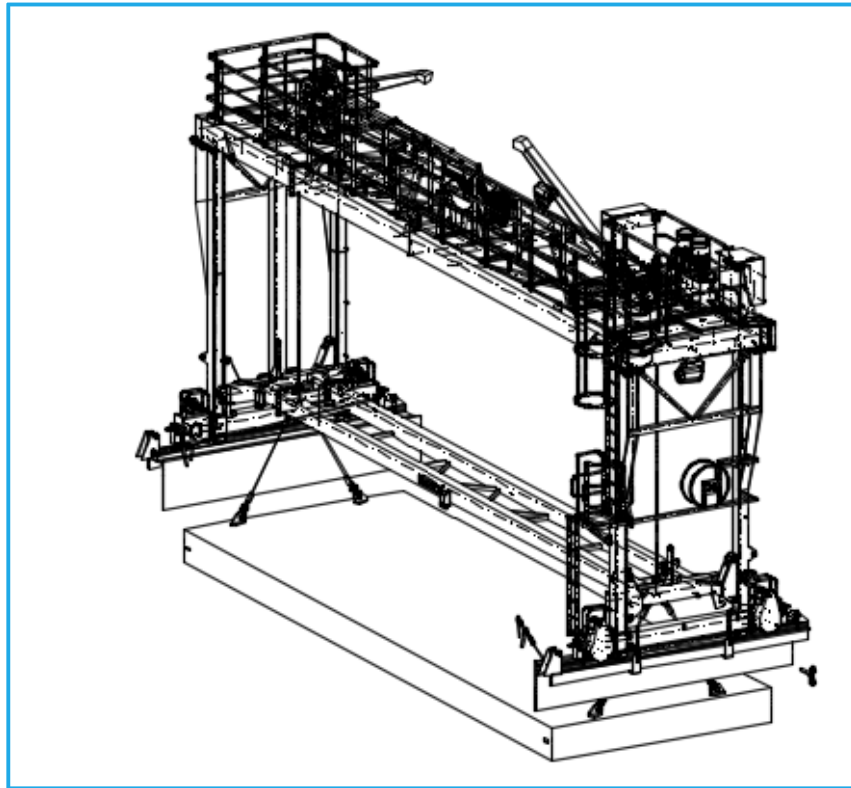
Hoisting, lowering and mooring anchor with chain or rope. From chain 20 to 60.



14. RUDDER STOCK -PROPELLER SHAFT



15. HATCH COVER GANTRY CRANE



TECHNICAL DATA

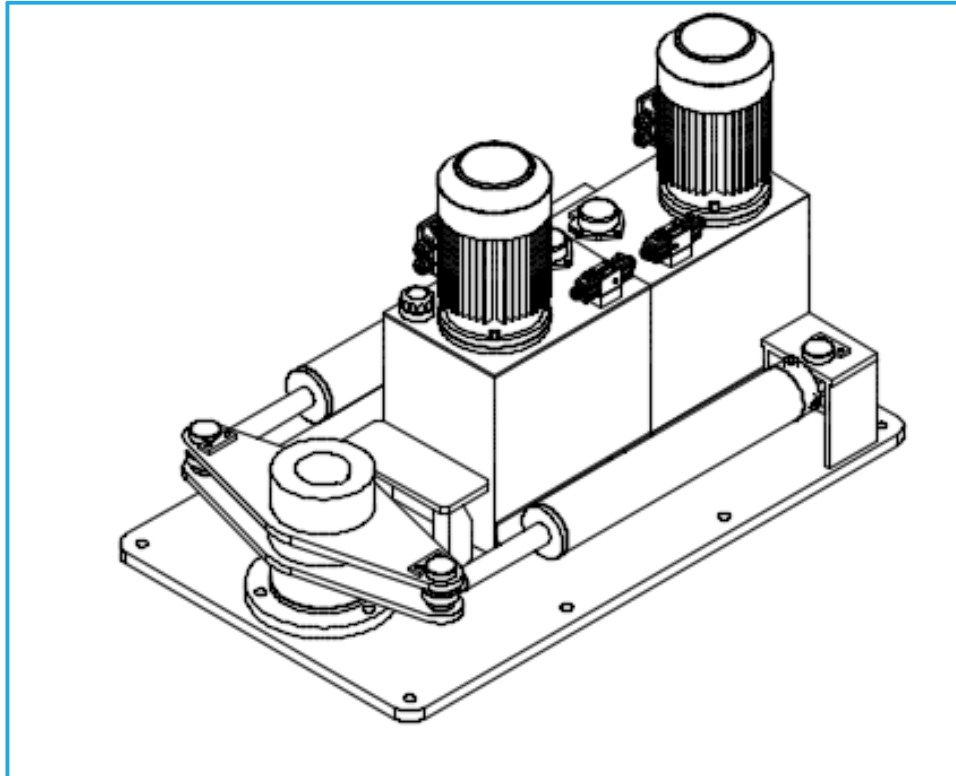
SWL	: 20000 kg
Type	: Electro-Mechanic
Lifting speed with full load	: 2 m/min
Travelling Speed	: 20 m/min
List	: 5°
Trim	: 2°
Hoisting Winch	: 50 kN x 2
Lifting Hook distance from Ship Centre	: 5365 (Both Port & Starboard)

Lifting Hook distance from centre to centre : 1500mm

Slewing Crane	: 1 Qty- SWL:1000 kgs @4 meters
Hatch cover store Capacity	: 5 stack (height : 450 mm)
Wheel Drive	: Electrical- Two Wheel drive with brake two Wheel Drive without Brake
Lights	: 8 pcs of 1000 W Halogen floodlights.
Electrical supply	: 2 x 15 kW, 440 V 50 Hz, IP56.

16. STEERING GEAR

From 1000 Nm to 300000 Nm



TECHNICAL DATA

RAM Type Steering Gear with 2 (two) cylinder.

Model: HBSG 15000 - 35

Electro-hydraulic type working with max.

Working pressure 108 bars.

Control of Steering Gear :

NFU control from bridge.

Local control valves on hydraulic power pack.

Local control on panels.

Emergency manual control via helm pump

Design Torque : 20 kN.m

Working Torque : 15 kN.m

Working angle : 35 – 0 - 35.

Working durations at :35 – 0 – 35

. with 1 pump 26 sec.

. with 2 pumps 13 sec.

Max. Shaft dia. : 100 mm

Electric Motors : 2 x 2,2 kW,

380 V, Insulation F, protection IP55

Pumps : 2 x Fix

displacement

Electric starters : Individual

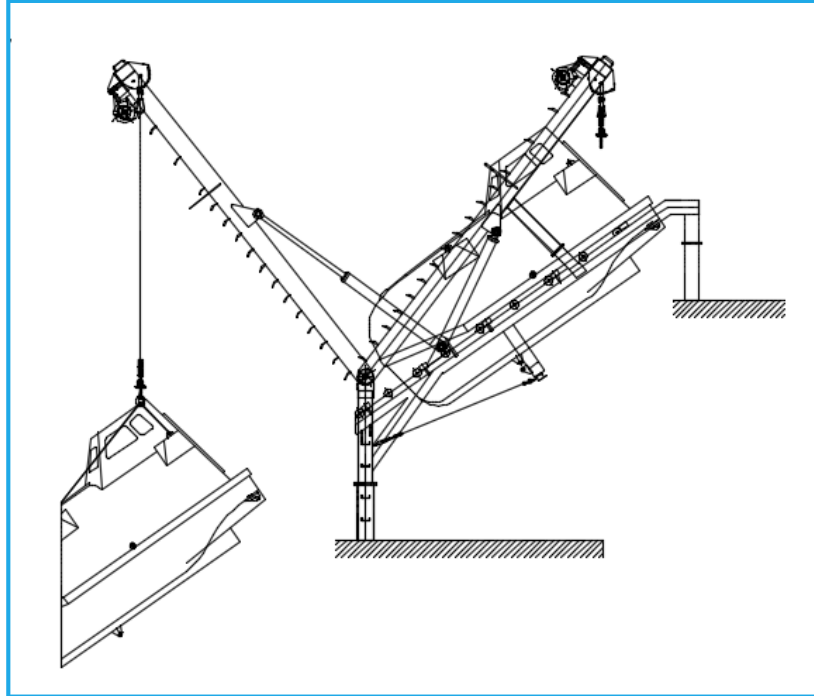
wall mounted type.

Class and certificates : NONE.

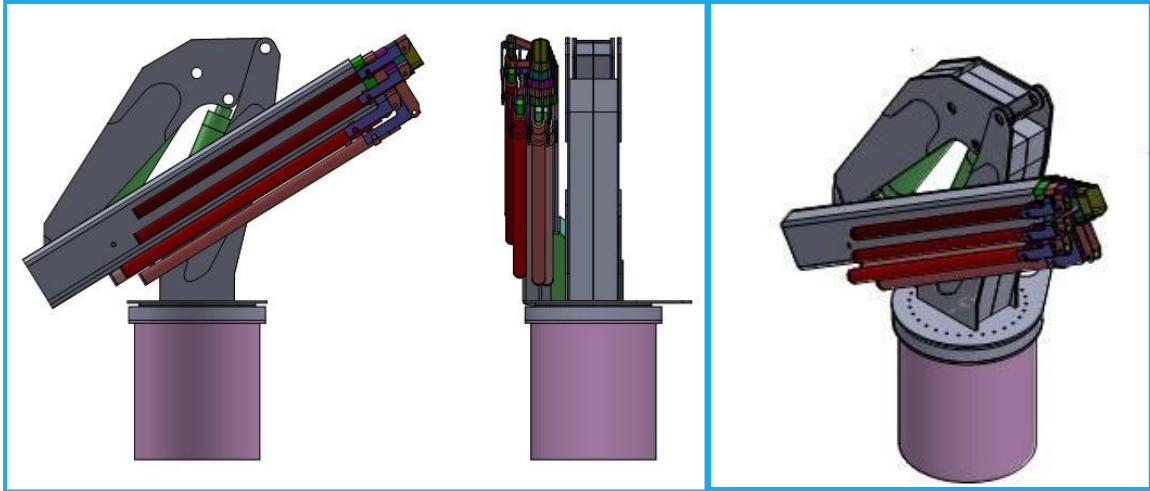
All pipes, fittings **and cables** are included on hydraulic power pack.

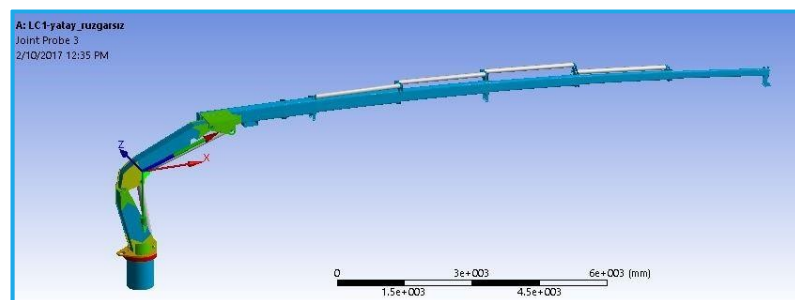
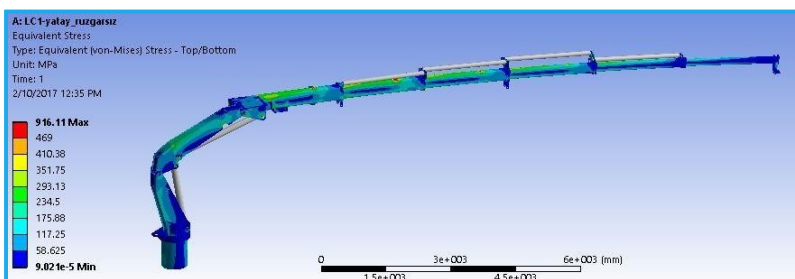
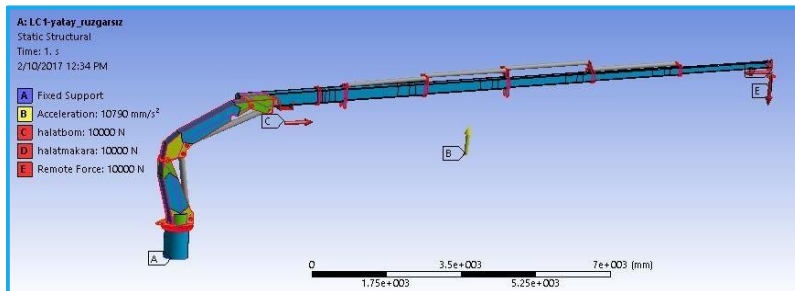
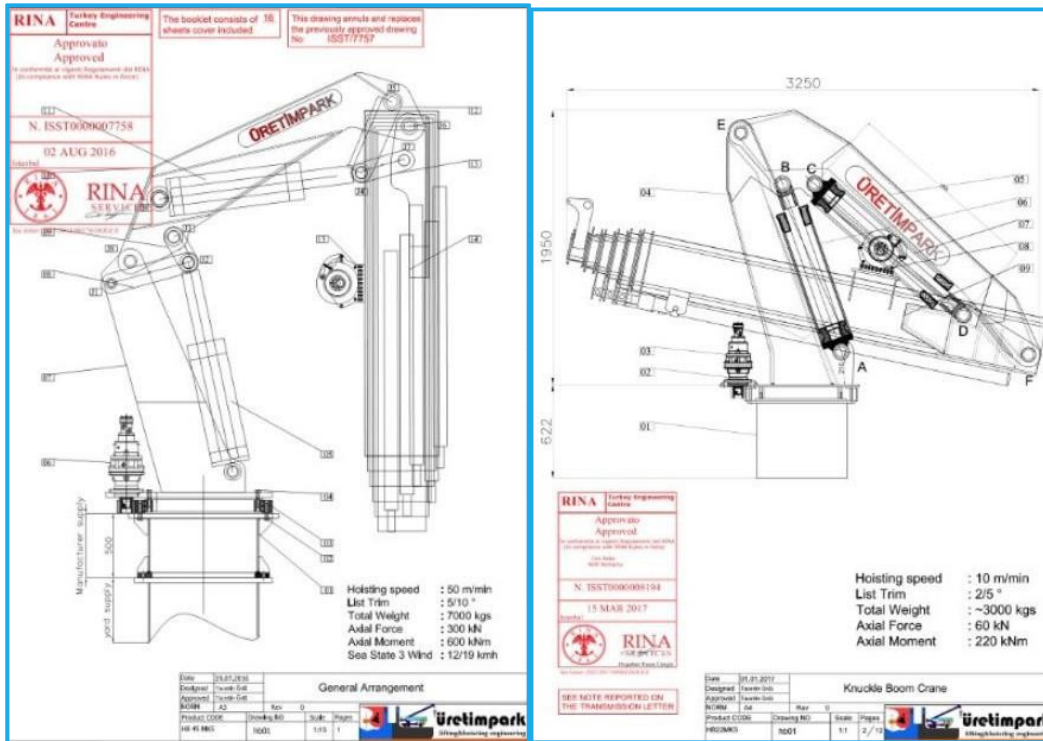
17. FREE FALL DAVIT - RESCUE BOAT DAVIT

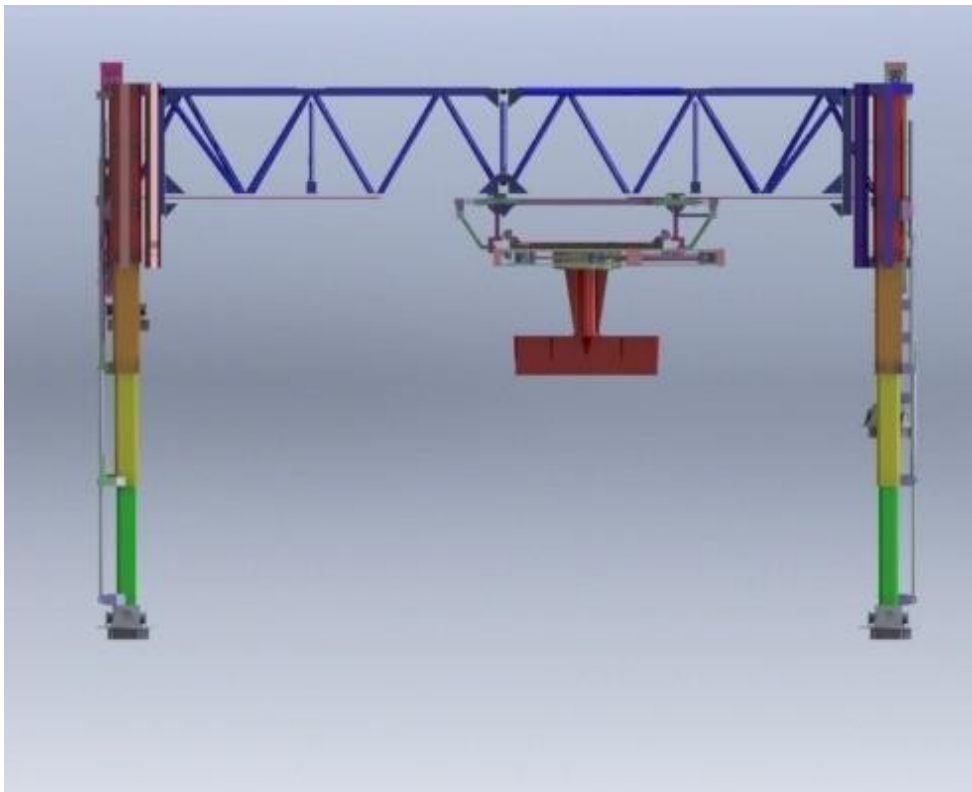
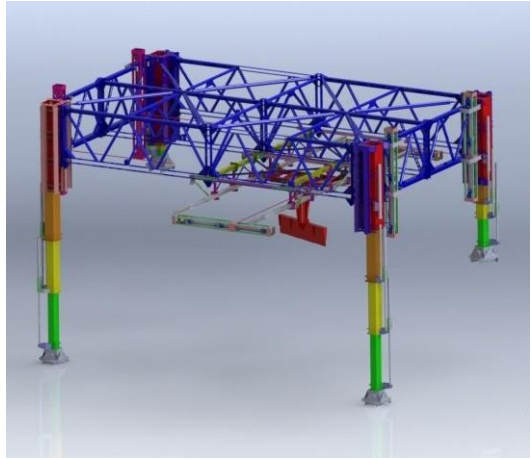
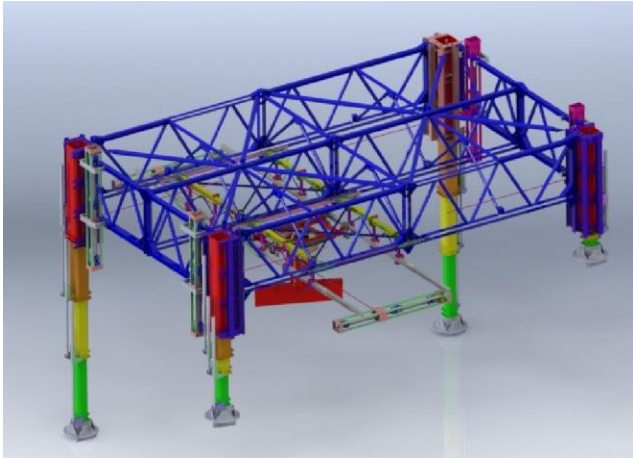
According to IMO- SOLAS rules.

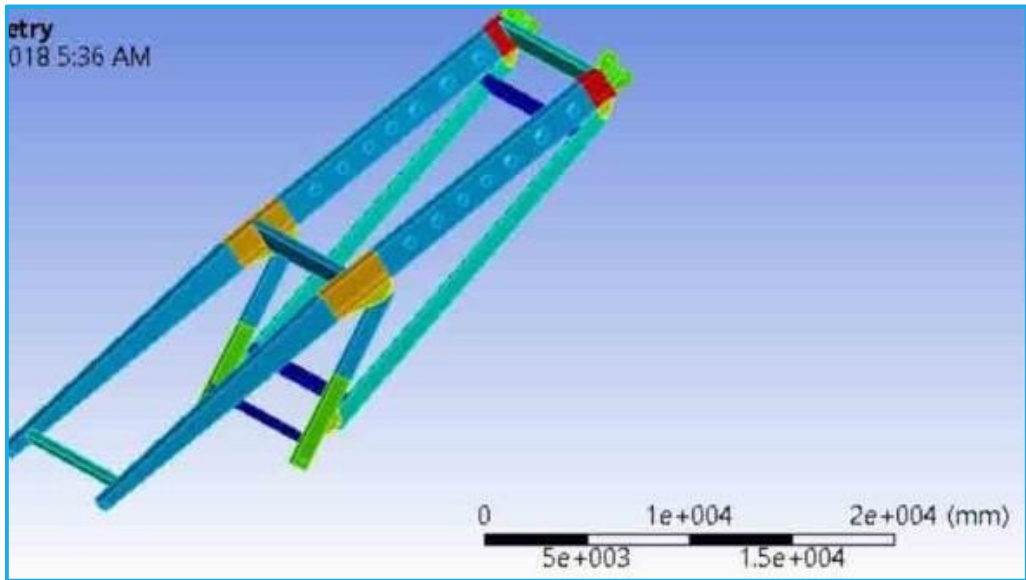
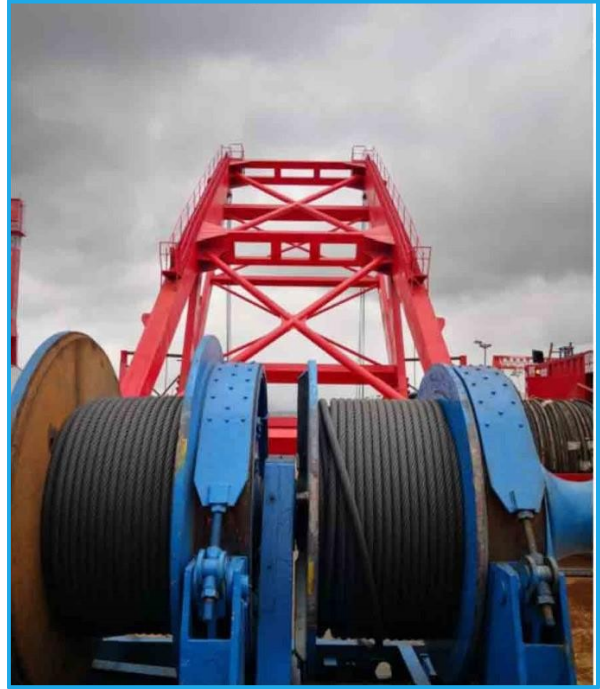
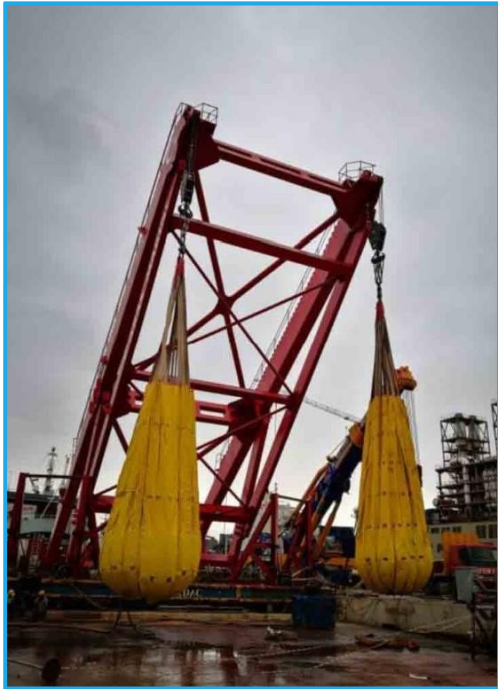


18. MARINE TYPE KNUCKLE BOOM CRANE

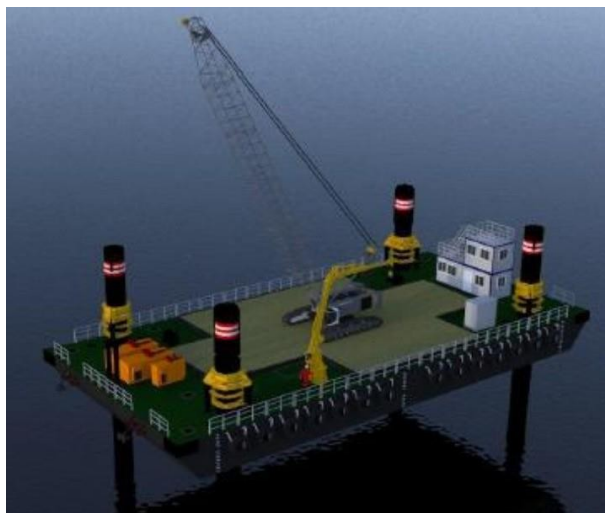
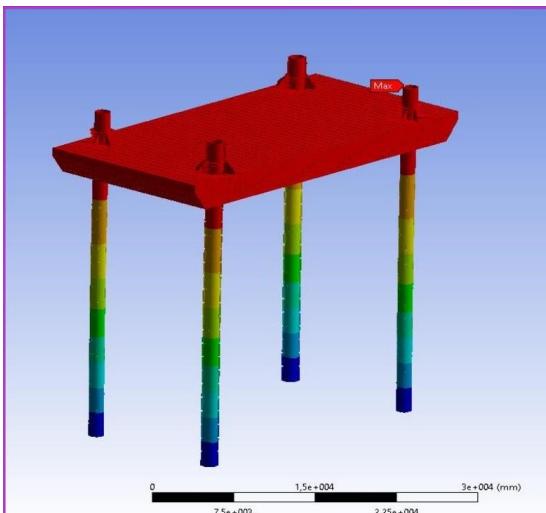
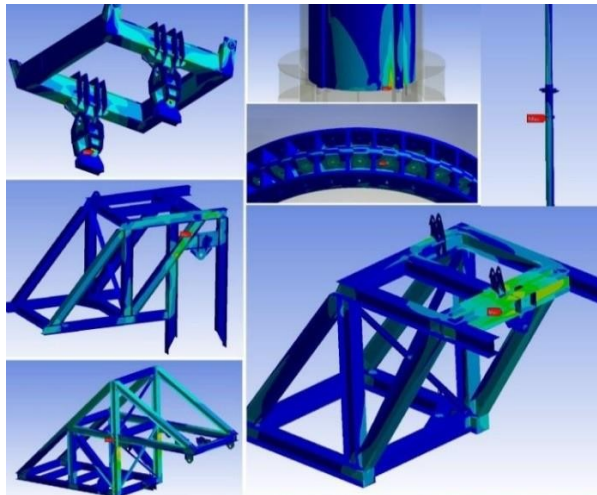




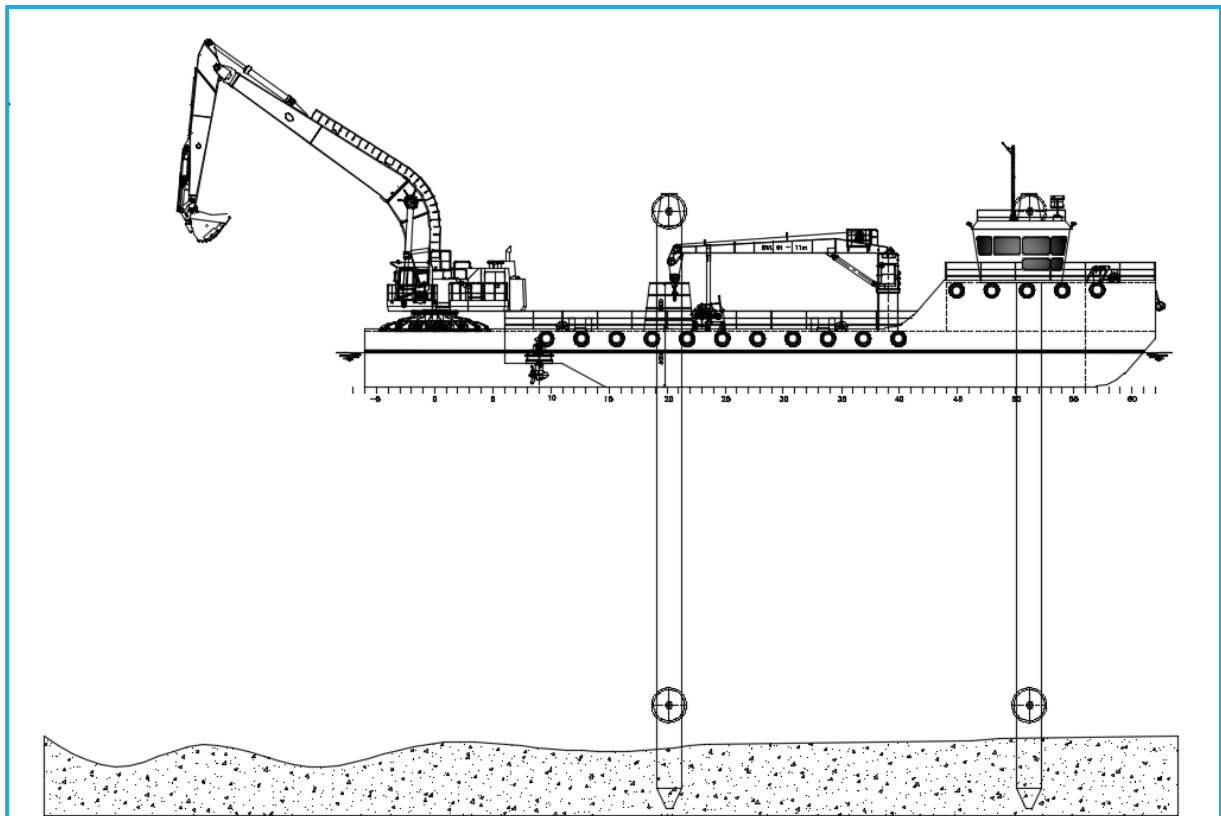
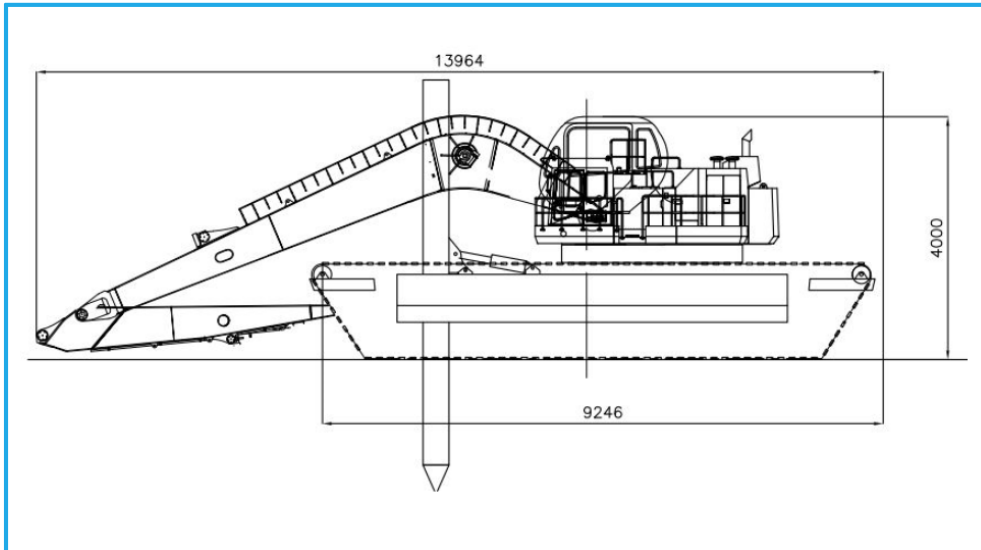








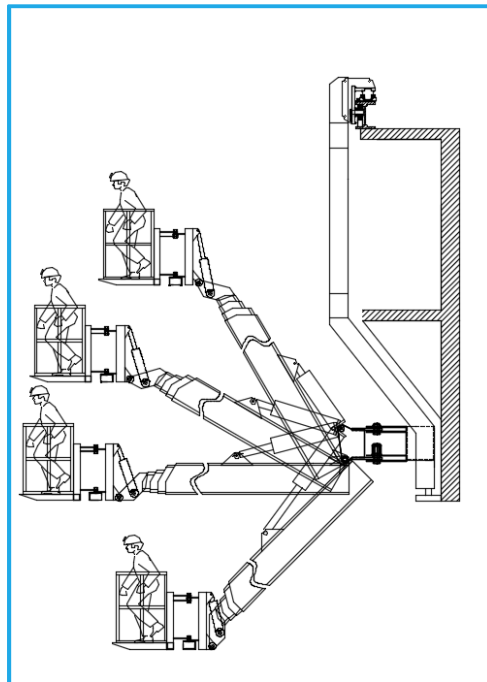
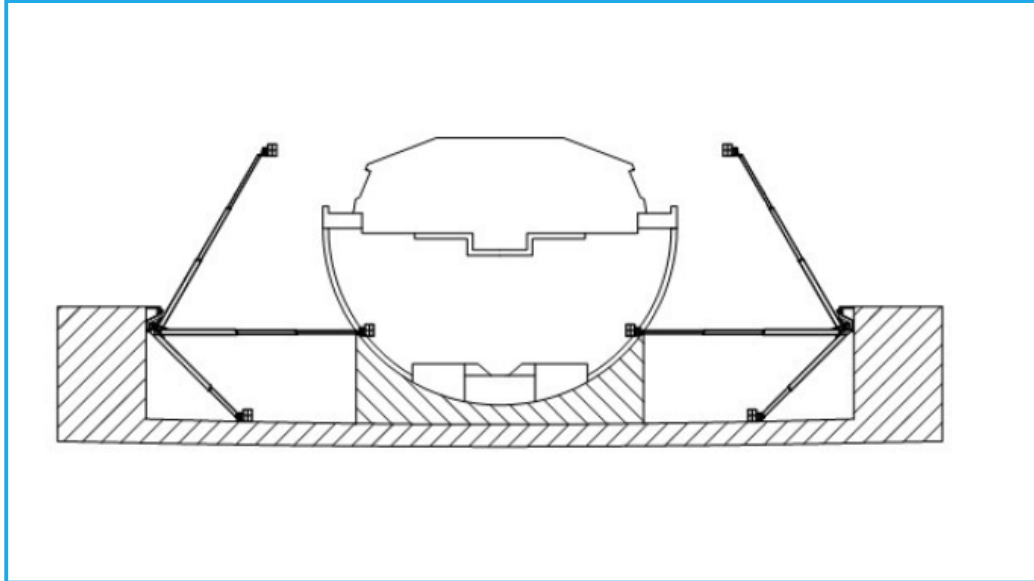
**20. SPECIAL
PROJECTS
(AMPHIBIOUS
EXCAVATOR AND
DREDGING)**



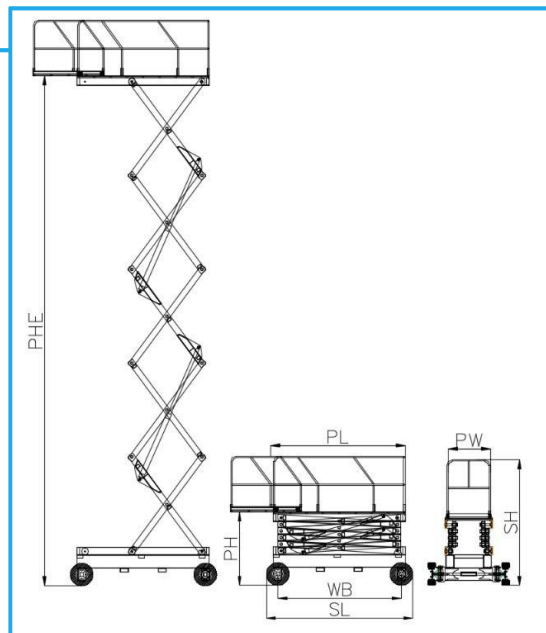
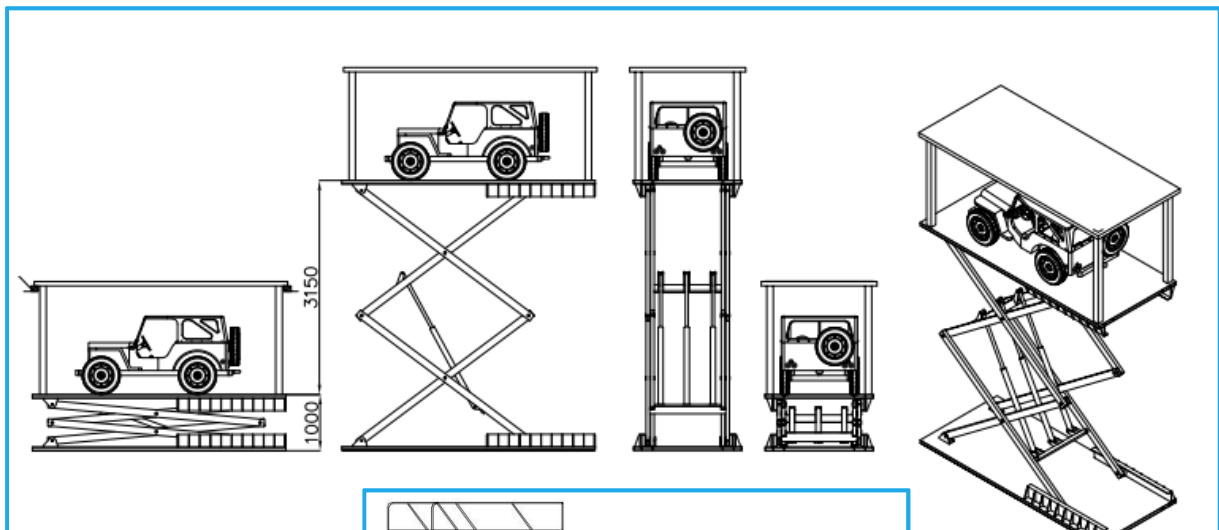
Bucket Capacity	:	
0,4 cum		
Digging Depth	:	
7500 mm		
Reach on Ground	:	
13180 mm		
Digging Height	:	
12950 mm		
Dumping Height	:	
11080 mm		
Stowed Height	:	
4000 mm		
Operati		
ng		
Water		
Depth	:	1000 mm Overall Machine Width (Fully Retracted) : 4
Travel Speed	:	
4 kmh		
Gradient	:	
30 deg		
Motor Power	:	
120 kW- 2200 rpm		
Motor Country	:	
Cummins or eq		
<u>1</u> Stroke -6 cyclinder,		
Turbocharged,Direct		
injection,Water		
cooled,Diesel Engine,		
Fuel Tank	:	600 Liters
Electrical system	:	2*12 V - 110Ah - Two 12 V - maintenance free batteries
Electrical System	:	Siemens,Scnheider or eq Hydraulic System
Pump : 2*210 l/min Axial Piston type (Parker- Rexrothe or eq)		
Travel Motor : Brewini or Eaton or Eq. (Italy)		

21. VESSEL SELF PROPELLED PLATFORM

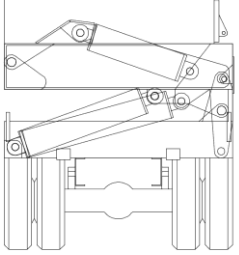
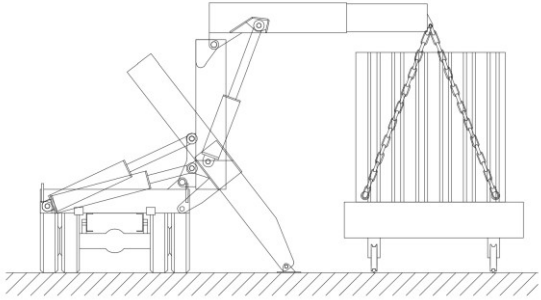
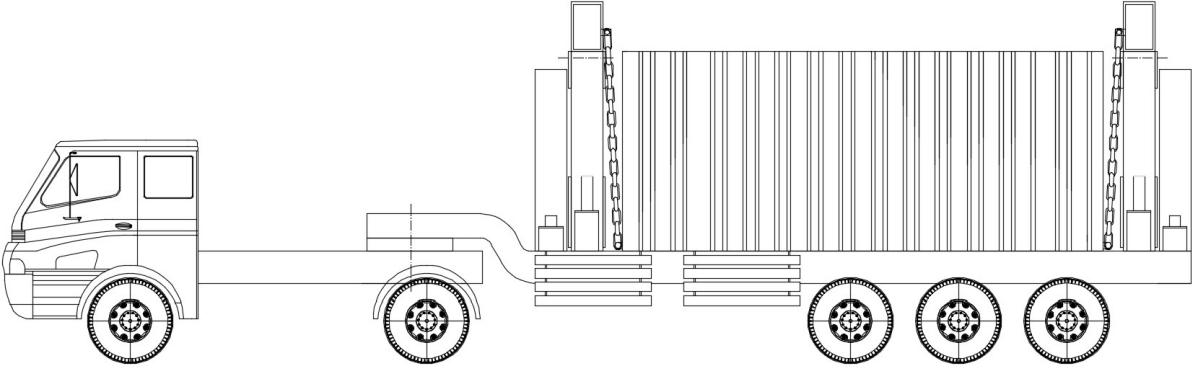
(CLEANING ,MAINTENANCE AND PAINTING)



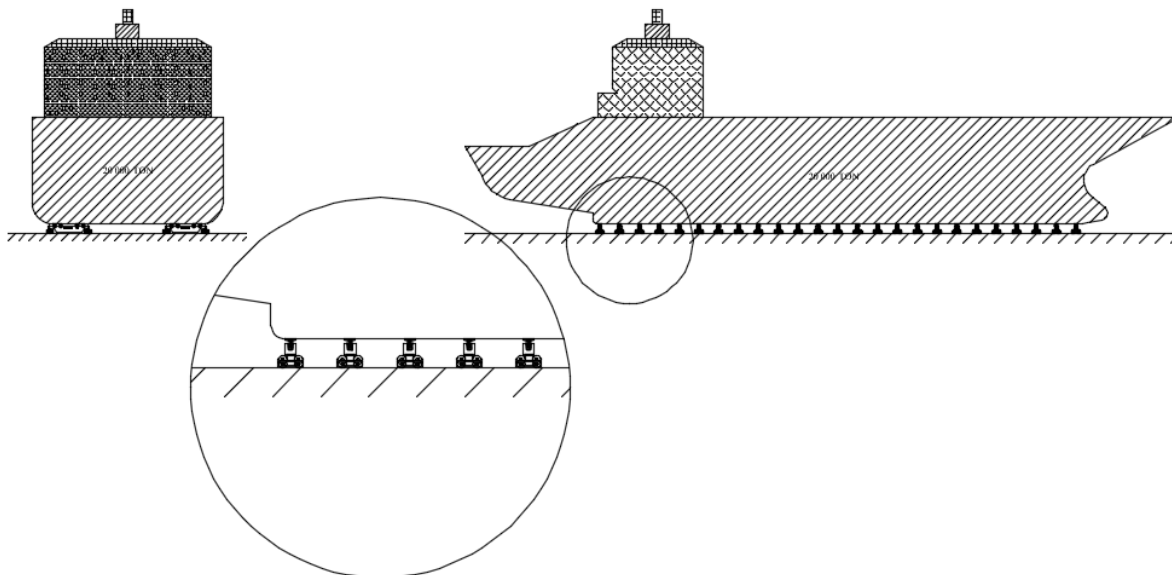
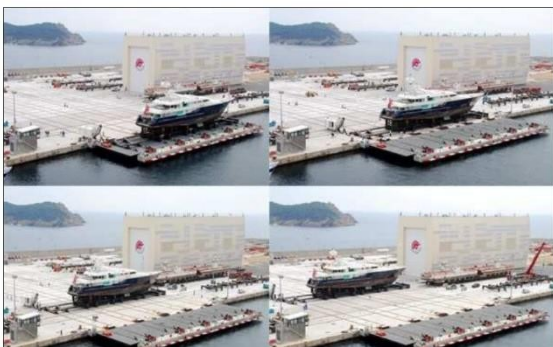
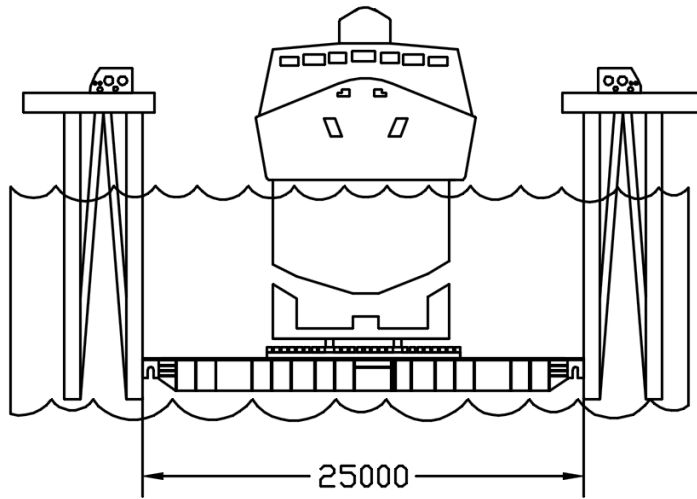
22. CAR PARKING SYSTEM AND SCISSOR LIFT



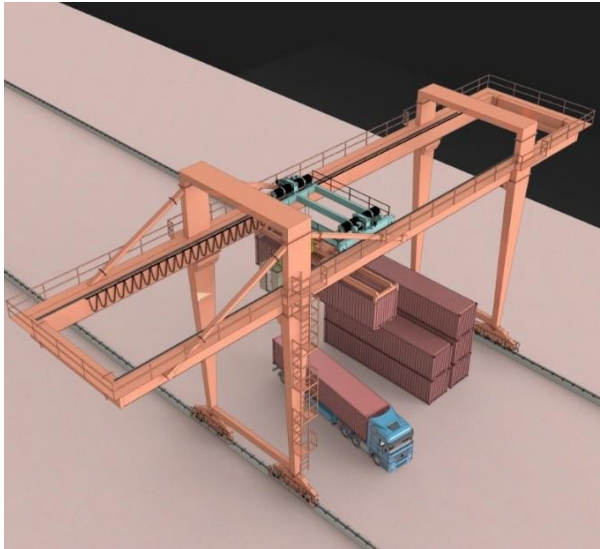
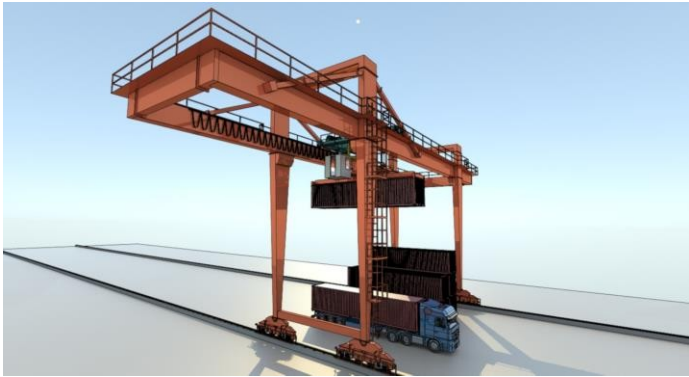
23. CONTAINER TILTING EQUIPMENTS

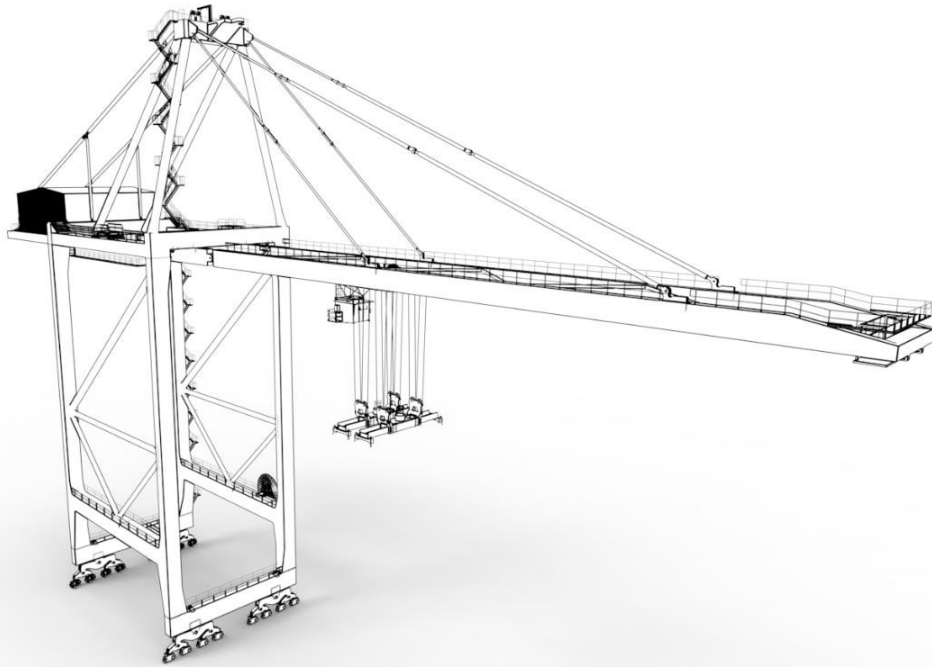


24. FLOATING DOCKS ,VESSEL LIFT (SYNCROLIFT)



25. PORT HANDLING CRANE

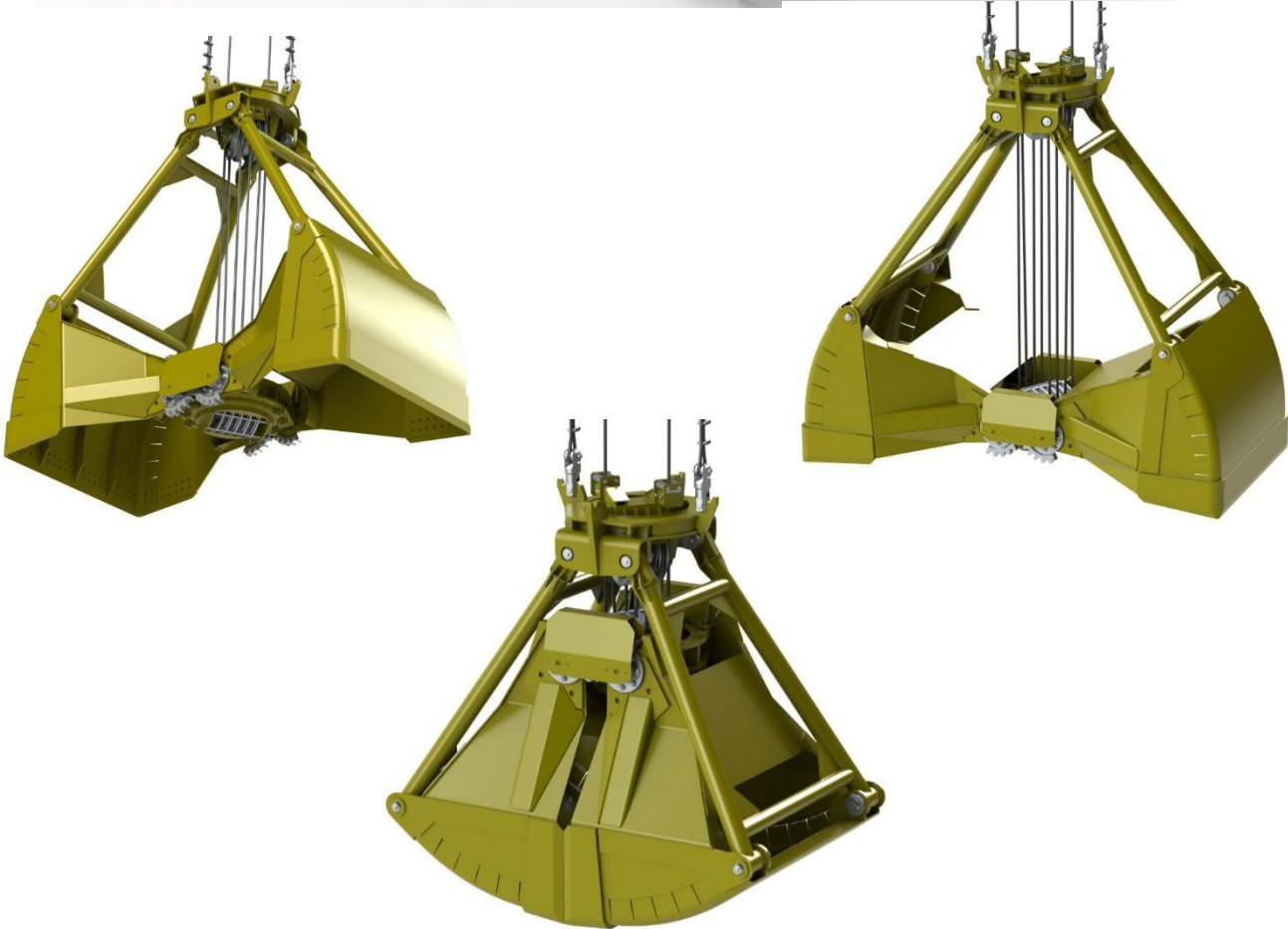
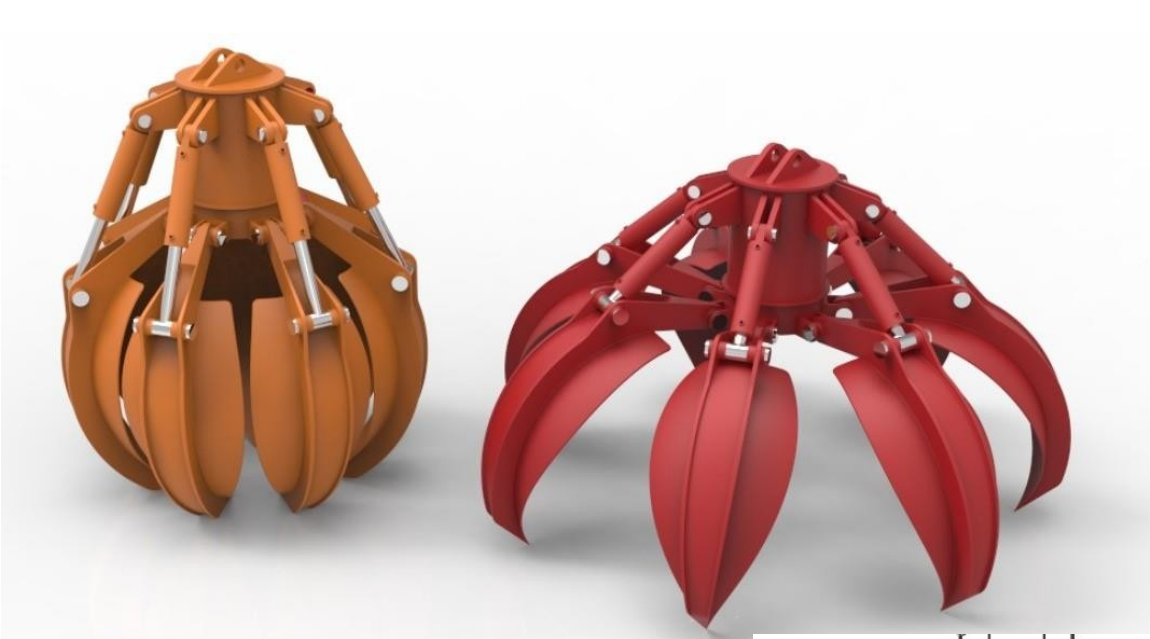




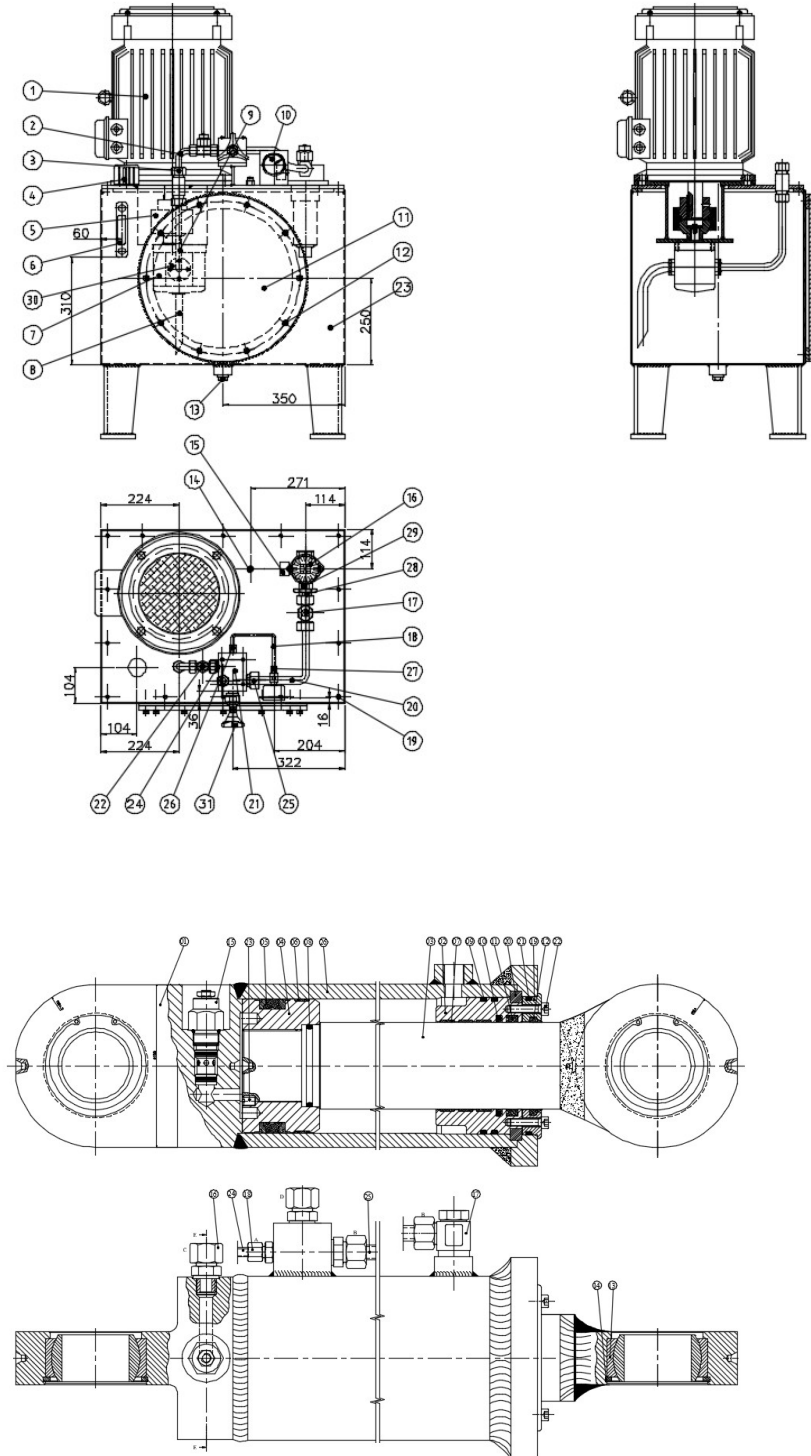
26. STACKER FORKLIFT

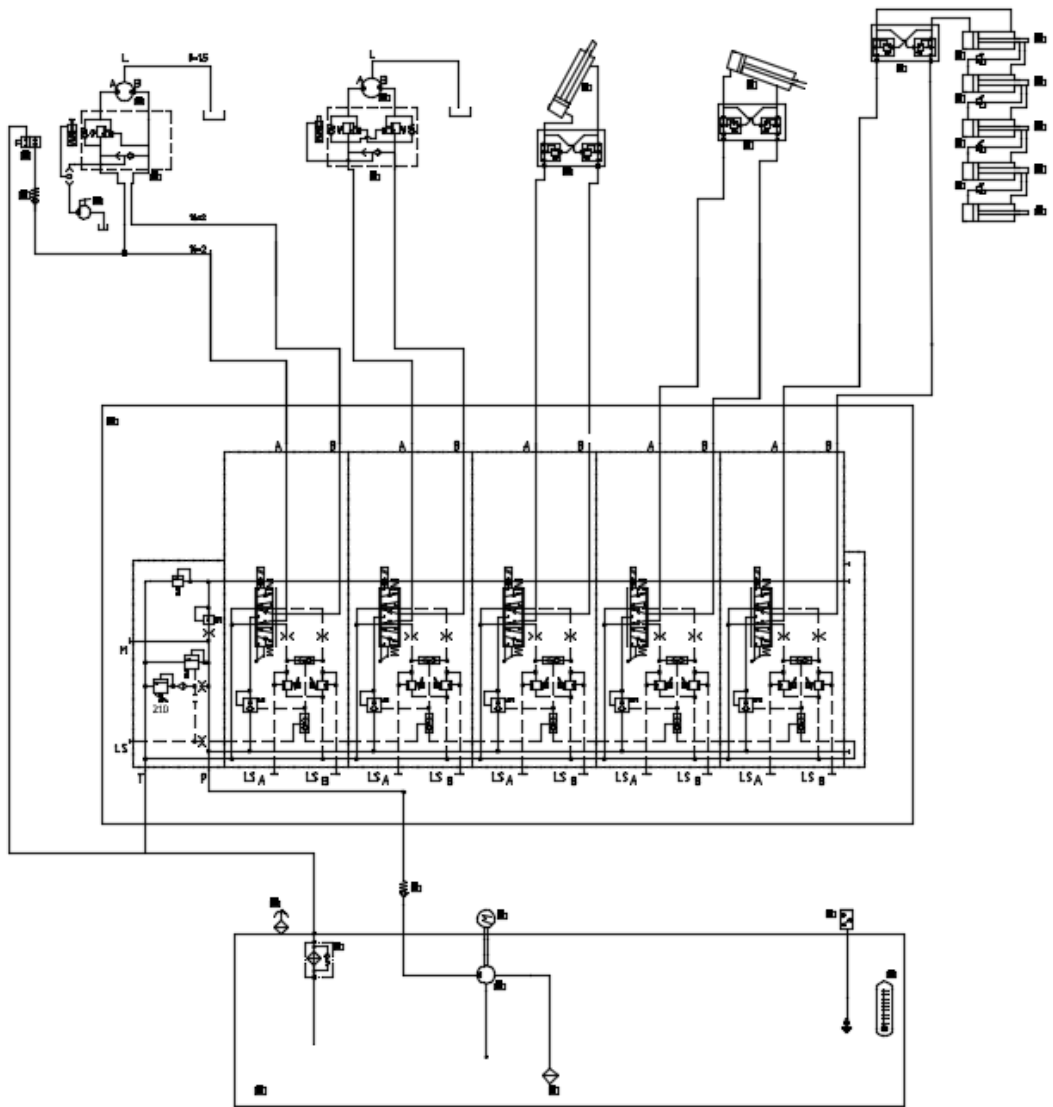


27. GRAB COMPONENT



28. HYDRAULIC EQUIPMENTS AND POWER PACKS





29. ARCHITECTURAL PROJECTS

Umbrella for sunny place

Hydraulic Mechanic Control

Variety size and capacity

