

# HADI H AL-HAMMAM Trading Company



## Company Profile



# Hadi Hamad Al Hammam Group of Companies



- Hadi Hamad Al-Hammam Est.
- Hadi Hamad Al-Hammam – Trading Co.
- Hadi International Marine Services , Dubai (HIMS).
- Hadi Hamad Al Hammam Marine Services SPC, Bahrain.
- Hadi International Marine Services , Singapore.
- Hadi Hamad Al-Hammam – Catering Division
- Al-Najm Al- Thaqib Contracting Est.
- Al-Najm Al- Thaqib Marine Est.
- Al-Najm Al- Thaqib Scaffolding Est.
- Al-Najm Al- Thaqib Equipment Est.
- Mohammed Hammam & Partners Co.
- Mohammed Hammam Tours & Travels.

# Company Profile



- Hadi Al Hammam Est. was established in 1978 Headquartered in RasTanura, Kingdom of Saudi Arabia.
- Over 37 years of service to the Oil & Gas, Petrochemical and power industries.
- Engaged in providing General Contracting services to Oil and Gas and Petrochemical industries in particular, as well to other private industries in the Kingdom of Saudi Arabia.
- Engaged in providing Marine Services for the offshore industries in the Oil and Gas sector.
- Provider of speciality materials and services.



**Mr. HADI H. AL-HAMMAM**  
**PRESIDENT**  
**HADI H AL-HAMMAM GROUP**





## Company Profile



- Established in 1978, Hadi H. AL-Hammam Group., is a proprietary Saudi Arabian Establishment engaged in Marine Services and General Contracting work for the Oil & Petrochemical Industries in the Middle East for more than 3 decades.

# Company Profile



- Saudi Arabian operations is headquartered in Ras Tanura, with operational offices in Safaniya / Tanajib, Jubail, Abqaiq, Riyadh, Jeddah, Yanbu and Rabigh which covers Eastern, Southern, Central and Western regions of the Kingdom.
- International branch offices in Bahrain, Dubai and Singapore.

## Company Profile



- Hadi H. Al-Hammam currently employs over 2200 multinationals and Saudi nationals in its current operations in the Kingdom.
- Hadi Hamad Al- Hammam Group is marked as **PLATINUM** under **Nitaqat** system.
- Hadi Hamad Al-Hammam is certified ISO integrated management system.



هادي حمد آل همام  
Hadi Hamad Al - Hammam  
التجارية | TRADING CO.

HADI Trading Company is a well established reliable Supply & Services source to Oil & Gas, Petrochemical, Power and other Industrial sectors providing Supply, Installation, Commissioning and Maintenance of Equipment manufacturers in the USA, Europe and Asia. The products list includes :

- ❖ Heat Exchangers - Shell & Tube, Tube Bundle.
- ❖ Tubes - Bare, Finned, Studded etc.
- ❖ Pressure Vessels.
- ❖ Pipes and Pipe Fittings.
- ❖ Pumps & Spares.



هادي حمد آل حمام  
Hadi Hamad Al - Hammam  
التجارية | TRADING CO.

- ❖ Compressor Valves, Accessories Gas and steam Turbine Spare parts.
- ❖ Chemicals – Drilling & Industrial.
- ❖ Cathodic Protection System & Devices.
- ❖ Cable Trays & Glands.
- ❖ Electrical and Instrumentation Supplies.
- ❖ High Performances Polymer System for Rebuilding and Resurfacing.
- ❖ Filtration Equipment and Spares.
- ❖ Marine Equipment and Spares.
- ❖ Hoses and Special Purpose Flexible.
- ❖ Connectors for Process Plants.
- ❖ Fire & Gas Detection Monitoring & Protection Systems and spares.
- ❖ Insulation & Refractory.



## List Of Manufacturers Represented



### ALLEGHENY TECHNOLOGIES Incorporated

Flat Rolled Stainless Steel,  
Duplex, Zirconium, Hafnium,  
Niobium, Titanium and nickel  
based alloys



Reformer Furnace Tube Coils and Manifolds,  
Radiant Tube Trees, Vertical Cast Flanges, Bull  
Head Tees,  
Custom Shapes



contd.

### List Of Manufacturers Represented



**GODREJ and Boyce Mfg Co. Ltd., India**  
Designing, fabricating and supplying critical unit equipment used in process plants such as heat exchangers & high pressure vessels.



**PROFINS LIMITED, UK**  
Plain Heat Exchanger Tubes  
Hellically Wound High Fins Tubes  
U Tubes  
Integral Low Fin Tubes  
Longitudinal Finned Tube  
Studded Tubes  
High Frequency Welded Tubes  
Special Alloys



contd.

**List Of Manufacturers Represented**



**ALBANY PUMPS U.K**

**Rotary Gear Pumps**

**Screw Pumps**

**Vertical Centrifugal Pumps**



**GATES Saudi arabia**

**Hydraulic Hoses, Hose fittings & Adapters,**

**Tubes and Compression, Fittings**

**Air Hoses, Water Suction, Hoses, Petrol Delivery**

**Hoses, All kinds of Belts, including V-Belts,  
Synchronous Belts, etc.**

**Hydraulic Tubing & Piping**

**Hydraulic System Refurbishment**

**Fluid Power Equipment Design & Build**



contd.

### List Of Manufacturers Represented



#### Baretti Italy

**Distillation trays and Packed towers for Vapor / Liquid distillation and absorption, Liquid / Liquid extraction, Heat transfer, Catalytic separation, Reactions, Demisting**



#### U L O SYSTEMS LLC

**Fabric Formwork and Grouting Offshore Supporting, Stabilization, Protection of offshore and onshore pipelines**



contd.

### List Of Manufacturers Represented



#### MiR VALVES

Supply of API 6D and API 6A ball and gate valves, standard and engineered products for the oil and gas, refining and petrochemical industry

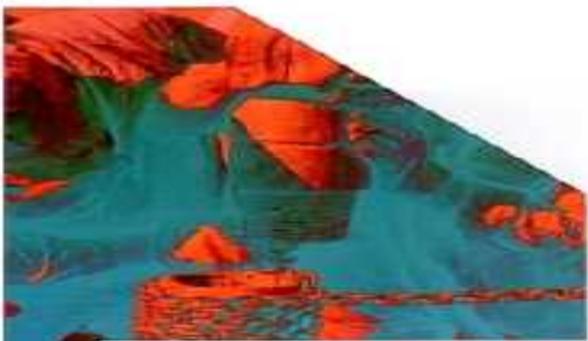


# ATI

# Allegheny Technologies (ATI)

One of the worlds leading specialty metals company •

- **ATI's Austentic Stainless Steel:** More Strength and corrosive resistance -
- **ATI's Duplex Stainless Steel:** includes industry standard 2205 plus our breakthrough products ATI 2102™ and ATI 2003™. Used for subsea flexible flow lines, and severe corrosive offshore environments.
- **ATI's Nickel Based Alloys:** Includes Nickelav® 925 Alloy used which is a corrosive-resistant alloy developed for downhole sour well production. Resistant to hydrogen sulfide gas.
- **ATI's Reactive Metals:** Includes Zirconium products and other titanium grades, these are used in offshore where they can be used because of their resistance to corrosive effects of warm sea water.
- **Problem Solving materials:** Including Zirconium, tungstem carbide powders, tungsten Carbide and titanium for pumps and valves, heat Exchangers.
- **Tooling Solutions for Exploration:** Cemented Carbide compacts and mud nozzles used in rotary cone earth drilling bits, key components of diamond-base, earth drilling bits, premium threading tools for cutting or rolling pipe, patented tungsten carbide composite miling, turning and drilling cutting tools for machining valves.



**Alloys for Tomorrow's  
Challenging Environments**





## Integrated Capabilities

### Technical Depth

- Alloy Development
- New Materials
- Carbide Cutting Tools
- Corrosion Engineering
- High-Temperature Metallurgy
- Surface Science
- Metallurgical & Corrosion Testing
- Failure Analysis
- Machining Specialty Metals
- Wear Resistance

### Unsurpassed Manufacturing Capabilities

- Plate, Sheet, Coil, Strip & Foil
- Extrusions/ Near-Net Shapes & Forged Products
- Rod, Bar
- Tube & Pipe
- Precision Finishing
- Extraction & Reduction – Ti, Zr
- Premium Melt & Remelt Methods – Ti / Ni / Stainless & Specialty Steel

### Value-Added Resources

- Next-Generation Applications
- Integrated Supply Chain
- Material & Product Optimization
- Application Engineering
- Long Term Agreements
- Engineered Parts
- Cutting Tool Solutions

### Investing to Meet Customer Needs

- Greenfield & Brownfield Expansion
- Stable Value Chain
- Quality & Reliability
- Security of Supply
- NORSOK Quality Accreditation

### Enabling Sustainability

- Longer Product Life
- Pollution Control
- Demanding Environments
- Efficient Energy Transmission
- Recyclable
- Improved Resource Extraction
- Safety & Security

**ATI's Austenitic Stainless Steels** deliver more strength and corrosion resistance.

- Our AL6XN<sup>®</sup> plate, sheet, pipe and tube are used in oil and gas applications, including subsea control lines, valves, flow lines and Liquefied Natural Gas (LNG) vaporizers. AL-6XN alloy is the recognized industry leader in "6 Moly" alloys.
- ATI's patented Datalloy<sup>™</sup> 2 steel boosts the performance of downhole and oil well drilling equipment, especially in tough drilling environments. It's a preferred, non-magnetic, reduced-thickness solution for slim hole tubular components and compressive drill pipe for directional Measurement Well Drilling (MWD) and Logging Well Drilling (LWD).

**ATI's Duplex Stainless Steels** include the industry standard 2205 plus our breakthrough products ATI 2102<sup>™</sup> and ATI 2003<sup>™</sup> lean duplex stainless steels.

- ATI lean-duplex stainless steels are the stronger, next-generation materials for subsea flexible flow lines and umbilical tubing and for off-shore platform topside applications, including process piping and structural applications. They were developed to meet our customers' needs for innovative alloys reducing project costs, particularly in times of booming demand and volatile raw material prices.



- Zeron®100 super-duplex stainless steel (of Weir Materials) is well suited for severe, corrosive offshore environments. Flat-rolled products were developed in cooperation with Weir to meet needs for subsea flexible flow lines, umbilical tubing and manifolds, for seawater cooling pipe and heat exchangers and for water separators.

**TI's Nickel-Based Alloys** provide solutions for oil and gas processing.

- Nickelvac® 925 Alloy is a proprietary, corrosion-resistant alloy developed for downhole, sour well production. It is heat treatable for high strength while maintaining a high degree of corrosion resistance to the effects of hydrogen sulfide gas.

**TI's Reactive Metals** include zirconium products and our titanium grades. Their resistance to the harsh, corrosive effects of warm seawater make them ideal for offshore applications. Our titanium grades are used in products from pumps and impellers to heat exchangers, piping systems and LNG vaporizers.



## An Unmatched Array of Problem-Solving Materials

In addition to our alloys for exploration and production, ATI Oil & Gas offers products for a number of related applications, such as:

- Corrosion Resistant Alloys, including duplex stainless and super stainless alloys, for biofuels and LNG applications.
- Tungsten carbide powders and crystalline tungsten powders for exploration drilling applications, drill bits, downhole pumps and flow regulators.
- Special tungsten carbide, corrosion-resistant components for downhole pumps (ball/seal) and flow control equipment (hard trim).
- Zirconium products for refinery byproducts, such as sulfuric, nitric, acetic and formic acids and urea processing.
- Ductile iron castings for compression and pumping equipment.
- Titanium for pumps, valves, heat exchangers and as "long products" to lighten drill strings for ultra-deep oil and gas exploration projects.

1. Carbon and alloy steel forgings for flow control products and downhole tools.
2. Milling, turning, threading and drilling cutting tools for machining valves and components.
3. Tungsten heavy alloys used to shield gamma and neutron radiation generated in downhole logging applications.  
(Photo courtesy of Baker Atlas)

## Downhole Applications for Drilling and Completions

### PDC Drill Bit

- Polycrystalline Diamond Compact (PDC) Cutting Insert
- Diamond Layer on Tungsten Carbide Substrate



### Drill Bit Body

- Solid Tungsten Carbide
- Tungsten Carbide Particles infiltrated with Copper-based Alloys

### Wellhead Equipment

- ATI 718-OP<sup>®</sup> Nickel
- ATI 925<sup>™</sup> Nickel
- ATI 625<sup>™</sup> Nickel
- ATI A256 Nickel

### Tubing Hanger

- ATI 718-OP<sup>®</sup> Nickel
- ATI 925<sup>™</sup> Nickel

### Armor Cable

- ATI 35N<sup>™</sup> Nickel

### Sub-surface Safety Valve

- ATI 718-OP<sup>®</sup> Nickel
- ATI 925<sup>™</sup> Nickel
- Titanium Alloys

### Wireline Components & Pressure Vessels

- ATI 35N<sup>™</sup> Nickel
- ATI 6-2-4-9<sup>™</sup> Titanium
- ATI 6-6-2<sup>™</sup> Titanium
- ATI 6-4<sup>™</sup> Titanium

### Measurement While Drilling Housings & Intertails

- Datalloy<sup>®</sup> 2 Stainless
- ATI 718-OP<sup>®</sup> Nickel
- ATI 925<sup>™</sup> Nickel
- ATI 6-2-4-6<sup>™</sup> Titanium
- ATI 6-6-2<sup>™</sup> Titanium
- ATI 6-4<sup>™</sup> Titanium

### Stabilization

- ATI 718-OP<sup>®</sup> Nickel
- ATI 925<sup>™</sup> Nickel
- Datalloy<sup>®</sup> 2 Stainless
- Staballoy AG17<sup>®</sup> Stainless

### Instrumentation & Chemical Injection Tubing Contained in Completion String

- ATI E003<sup>™</sup> Lean Duplex
- ATI 2205<sup>™</sup> Duplex
- ZEPON<sup>™</sup> 100<sup>™</sup> Super Duplex
- ATI E25<sup>™</sup> Nickel
- ATI E25<sup>™</sup> Nickel

### Shafts for Electronic Submersible Pumps (ESPs)

- ATI 718 Nickel
- ATI 925<sup>™</sup> Nickel
- ATI K 500<sup>™</sup> Nickel
- ATI 625<sup>™</sup> Nickel

### Production & Completion Tubulars

- ATI 718-OP<sup>®</sup> Nickel
- ATI 925<sup>™</sup> Nickel
- ATI 6-2-4-6<sup>™</sup> Titanium
- ATI 6-6-2<sup>™</sup> Titanium
- ATI 6-4<sup>™</sup> Titanium

### Fishing Tools

- ATI S240<sup>®</sup> Stainless
- ATI 718-OP<sup>®</sup> Nickel
- ATI 925<sup>™</sup> Nickel

### Mud Motor

- ATI S240<sup>®</sup> Stainless
- ATI 718-OP<sup>®</sup> Nickel
- ATI 925<sup>™</sup> Nickel

### Non-magnetic Drill Collar

- Datalloy<sup>®</sup> 2 Stainless
- Staballoy AG17<sup>®</sup> Stainless

### Rotary Core Earth Drilling Drill Bit

- Cutting Insert
- Tungsten Carbide

### Rotary Steerable Drilling

- ATI 718-OP<sup>®</sup> Nickel
- ATI 925<sup>™</sup> Nickel
- Datalloy<sup>®</sup> 2 Stainless
- Staballoy AG17<sup>®</sup> Stainless

### Pump & Motor Assemblies

- ATI S240<sup>®</sup> Stainless
- ATI 718 Nickel
- ATI 718Plus<sup>®</sup> Nickel

### Mud Nozzle

- Tungsten Carbide

## Offshore Applications for Topsides



Floating Production Storage & Offloading (FPSO) Vessel



Instrumentation Tubing,  
Piping & Pipe Racks

- ATI 2003™ Lean Duplex
- ATI 2005™ Lean Duplex
- ATI 316L Stainless

Accommodation Modules, Firewalls/Blastwalls,  
Cable Trays & Ladders

- ATI 2000™ Lean Duplex
- ATI 2102™ Lean Duplex
- ATI 316L Stainless

Water Separation, Desalination  
and Fire Suppression

- ATI 2205™ Lean Duplex
- ZERON® 100 Super Duplex
- AL-6XN® Stainless
- AL-6XN PLUS® Stainless
- Titanium Pipe & Tubing
- Titanium Pump Castings
- Titanium Valve Castings

Tanks, Process Vessels & Heat Exchangers

- ATI 2003™ Lean Duplex
- ATI 2205™ Lean Duplex
- ZERON® 100 Super Duplex
- AL-6XN® Stainless
- ATI 316L Stainless
- ATI 625™ Nickel
- ATI B26™ Nickel
- ATI 276™ Nickel
- ATI BCO™ Nickel
- Titanium Alloys

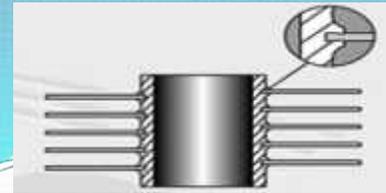


# PROFINS (Finned & Plain Tubes)



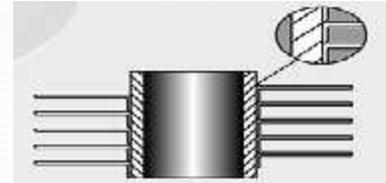
**A Quality product in Operation throughout the World**

- ✓ **ISO 9001:2000 Quality Certification**
- ✓ **Established in 1978; output greater than 35,000 meters per week**
- ✓ **Stock of more than 1000 Tonnes with length more than 15 meters**
- ✓ **Tubes are multi certified to ASME, BS, DIN, AFNOR Specifications**
- ✓ **Special Alloy tubes like Duplex, Nickel, Titanium are supplied**



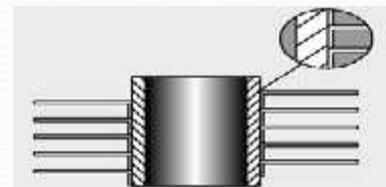
G'

Fin



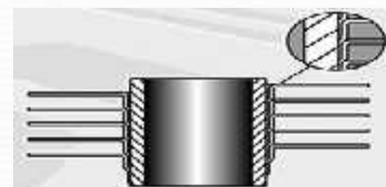
L'

Fin



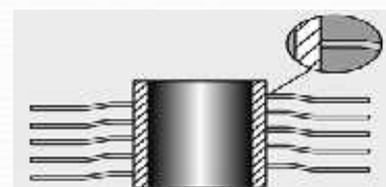
KL'

Fin



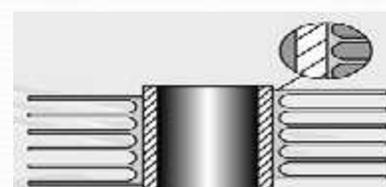
LL'

Fin



Semi

Crimped



Extruded

High Fin

## HELICAL WOUND HIGH FIN TUBES

**Fin Material – Aluminum or Copper**

**Tube Material – Carbon Steel, Cr-MO, etc.**

### McElroy finning equipment

Base tube O/D:	From 5/8" (15.88mm) to 2" (50.8mm)
Fin height :	From 1/4" (6.35mm) to 1" (25.4mm)
Fin pitch :	From 5 fins per inch to 12 fins per inch (196 fins/metre to 473 fins/metre)
Fin Thickness:	From 0.012" (0.30mm) to 0.031"(0.76mm)
Base tube material:	Dependent on fin type
Fin material:	Aluminium or copper
Fin types :	L, LL, KL, G

### Razmussen finning equipment

Base tube O/D:	From 5/8" (15.88mm) to 4" (101.6mm)
Fin height :	From 1/4" (6.35mm) to 1" (25.4mm)
Fin pitch :	From 2 fins per inch to 9 fins per inch (78 fins/metre to 351 fins/metre)
Fin Thickness:	From 0.012" (0.30mm) to 0.040" (1mm)
Base tube material:	Carbon / stainless steel or copper and copper based alloys
Fin material:	Carbon / stainless steel or copper based alloys
Fin types :	Semi Crimped





**Welded Fin Tubes used in  
Heat recovery, boilers and  
Gas turbines are high  
Frequency welded (450000 HZ)**

**Longitudinal Fin Tubes are  
Supplied in a range of size  
And materials (alloys)**

### **U Tubes**

**Excellent turn round times on U Tubes**

**Cut to length, bent, heat treated and hydro tested**

**We manufacture Carbon & Stainless Steel tubes**

**To TEMA R Standard**



## **Integral Low Fin Tubes**

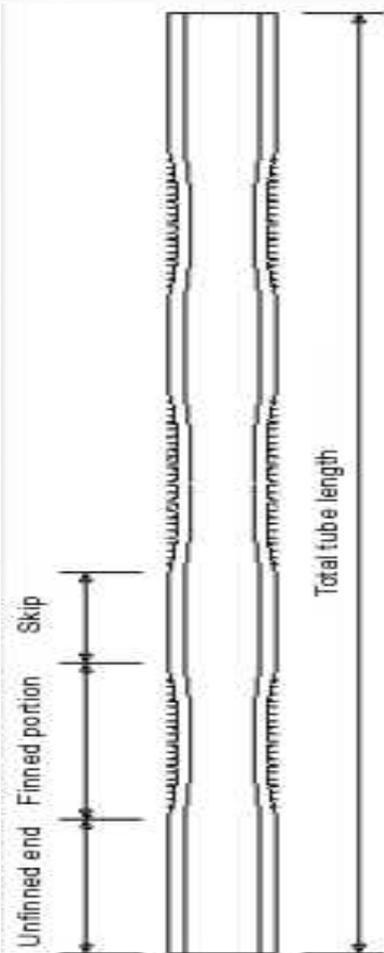
**Used where extended surface is required**

**Improve thermal performance of Exchanger**

**Without change in shell size or flow arrangement**

**“Low Fins” are formed by direct extrusion**

**From material base tube**



## **ACHE (Air Cooled Heat Exchanger) Parts**

**Direct Replacement**

**Engineered Upgrades**

**Fan, Fan Rings & Motors**

**Louvers & Support Boxes**

**Bearing Blocks**

**Plenum Chambers**

# ALBANY – a positive pump solution

Pumping almost every type of liquid from aviation spirit to plastics.



BS EN ISO 9001:2000



Certificate No. EAL 205766

ROTARY GEAR PUMPS  
SCREW PUMPS  
LOBE PUMPS  
CENTRIFUGAL PUMPS

- ✓ Pumps tested on computer based test rigs
- ✓ Complies with API Code
- ✓ BS EN ISO 9001 Quality Assurance



## ALBANY PUMPS Features

**Method of Drive:** Coupled to gear motors, electric motors, engines or variable speed drives.

**Corrosion Resistance:** In stainless Steel, bronzes , Ni resistant cast iron or specialised alloys.

**Relief Valves:** incorporated relief valves to adjust for pressure and direction of pump rotation and can be used on all but highest viscosity liquids

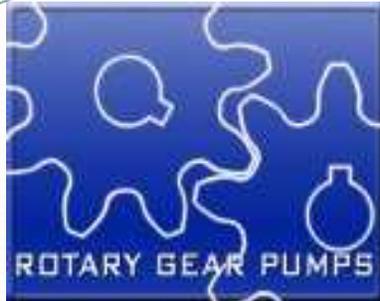
**Sealing:** Mechanical Seals or Packed Glands can be used based on duty.

**Timing gears:** For foodstuffs or abrasive materials, timing Gears are provided to prevent metallic contact between pumping rotors.

**Bearings:** Remote ball and roller bearings can be provided where the nature of the fluid rules out the use of internal bearings . Internal bearings can be supplied in PTFE based materials or bronze. Even graphite lubricated forms can be used for high temperature.

**Oil or steam Jacketed pumps:** Standard jacket pressure are around 8 bars.

# Gear Pump



## Applications

Lubricating & Fuel Oils

Road Tanker Pumps

Heated pumps for asphalt

Molten Sulphur

High temperature liquids

Viscous resins

Fire foam Compound

Corrosion resistant pumps

**Capacity 2000 l/m**

**Horizontal / Vertical and  
Tank Mounted**

## Range

**25, 40, 56 – 10 kg/cm<sup>2</sup>**

**AP & HD Range – 40 kg/cm<sup>2</sup>**

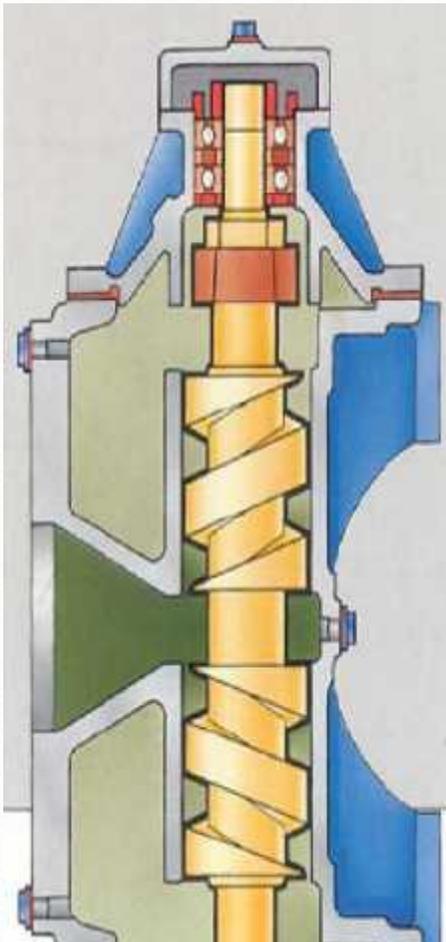
**FF Range – 7 kg/cm<sup>2</sup>**

**Foam Concrete – 24 kg/cm<sup>2</sup>**

**Heated Range – 7 kg/cm<sup>2</sup>**

**VP Range – 17 kg/cm<sup>2</sup>**

# Screw Pump



## Applications

Crude Oil

Bitumen, Asphalt

Fuel Oil

Aviation Fuel

Cargo Pumping

Fresh / Sea Water

Oily Water / Slops

Flare Scudding

Fire Foam Injection

Capacity 400 m<sup>3</sup>/hr

Pressure 25 to 50 Bar

Internal or External Bearing

Configuration, Steam Heating

And Horizontal / Vertical

Mounting

Range

Twin Screw – 50 kg/cm<sup>2</sup>

# Centrifugal Pump



## Applications

Aviation Fuels

Salty Formation water

Slop Oil

Fresh Water

Seawater

Low Viscosity

petroleum products

Paraffin

Solvents and Water



Capacities – 300 m<sup>3</sup>/hr

Pressure – 200 psi

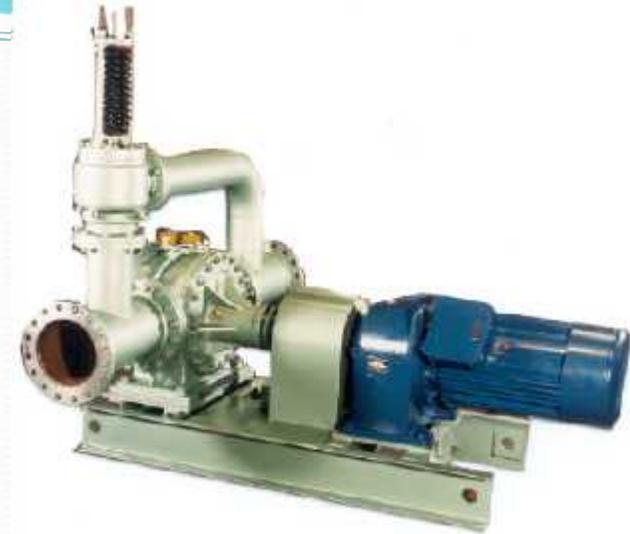
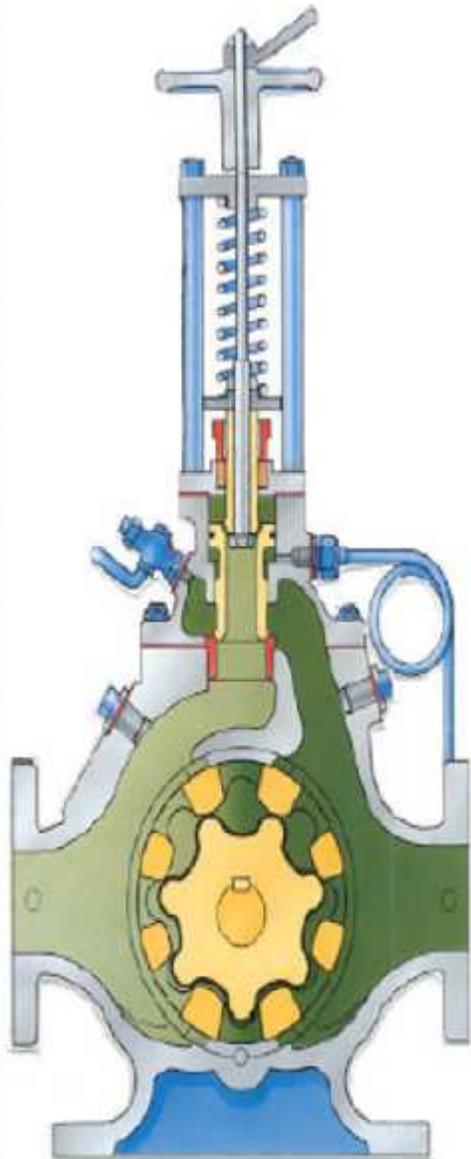
Horizontal Mounted

Vertical Mounted

Range

GS – 11 kg/cm<sup>2</sup>

# Lobe Pump



## Applications

Heavy Crude Oil

Fuel / Lube Oil

Molasses

Sugar Syrups

Soap

Paint

High Viscosity

Capacity – 350 m<sup>3</sup>/hr

Pressure – 25 Bar

Internal Bearing

Configuration – 3:4 or 7:8

Rotor lobe

Steam Heating Jackets

Range

Lobe – 25 kg/cm<sup>2</sup>

# GATES FLEXIMAK



**Onsite Mobile Van Services**  
**Container Workshops**  
**Inspection, Maintenance & Repair**  
**Onsite Surveys**  
**Safe Hydraulic Training**  
**Belt Drive System Design**  
**Gates Reliability System (GRS)**

**World Most trusted name in**  
**Belts, Hoses, Hydraulics**

**Stock Products semi – finished**  
**Industrial Power Transmission**  
**Industrial Fluid Power**



# Industrial Power Transmission



<b>HYDRAULIC HOSES</b>	<b>1</b>
<b>HYDRAULIC HOSE FITTINGS &amp; ADAPTORS</b>	<b>2</b>
<b>HYDRAULIC TUBE &amp; COMPRESSION FITTINGS</b>	<b>3</b>
<b>INDUSTRIAL &amp; LARGE BORE HOSES</b>	<b>4</b>
<b>INDUSTRIAL FITTINGS</b>	<b>5</b>
<b>STAINLESS STEEL METALLIC HOSES</b>	<b>6</b>
<b>BELLOWS &amp; EXPANSION JOINTS</b>	<b>7</b>
<b>HEATING &amp; VENTILATION FLEXIBLES</b>	<b>8</b>
<b>THERMOPLASTIC HOSES</b>	<b>9</b>
<b>THERMOPLASTIC HP JETTING HOSES</b>	<b>10</b>
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# Industrial Fluid Power



**Hydraulic Hoses, Fittings & Adaptors**

**Compression Tube & Adaptors**

**Industrial Hose & Large Bore Marine Hose**

**Industrial Hose Fittings**

**SS Metallic Hose**

**Bellows & Expansion Joint**

**Heating & Ventilation Flexibles**

**Thermoplastic Hose**

**High Pressure Sewer Jetting Hose**

**PTFE Teflon Hose**

**Pressure Gauges**

**Quick Release Couplers**

**Composite / Drilling Hose**





# FILTRATION PRODUCTS

## **FILTER HOUSING & ELEMENTS**

> Hydraulics, Lube Oil, Water, Fuel, Chemicals

## **FLUID CONDITIONING EQUIPMENT**

> Filtration Trolleys

> High Flow Skids

> Oil Purifiers

> Varnish Removal Units

## **FLUID ANALYSIS AND MONITORING**

> Oil Particle Counters

> Online Particle Monitors

> Varnish Potential Test Kits

## **PROCESS FILTRATION**

> Automatic Self-Cleaning and Manual Strainers

> Gas Liquid Separators

> Bag and Cartridge Filters

## **COMPRESSED AIR UNITS**

> Air Compressors

> Air Dryers (Desiccant / Refrigerant Type)





# Pumps

The following finished products are available in the Gates Engineering & Services standard pumps range:

- > Horizontal End Suction Pumps
- > Vertical In-Line Pumps
- > Horizontal Multi Stage Pumps
- > Vertical Multi Stage Pumps
- > Horizontal (Vertical) Split Case Pumps
- > Fire Fighting Pumps
- > Booster Pumps Sets
- > Vertical Turbine Pumps
- > Submersible Pumps
- > Self-Priming Pumps
- > High Pressure Pumps
- > Ultra High Pressure Pumps





# Hydraulic Components

- > Pumps
- > Pump Dismantle Units
- > Motors
- > Valves
- > Cylinders
- > Couplings
- > Tubing
- > Clamps
- > Accumulators
- > Air-Oil / Water Coolers
- > Direction Control Valves
- > Pressure Gauges
- > Bellows
- > Limit Switches
- > Deck Machinery Products and Hardware





## Belt Drive System

If you have a V-belt or synchronous belt drive, Gates has a belt for you, but that's not all. Gates offers a full range of pulleys, sprockets, bushes, drive accessories and maintenance tools. We have product application specialists available to provide new drive designs, problems solving analysis, energy reduction analysis and drive upgrades





# Hose Management

- 1) AUDIT & SURVEY
- 2) SUPPLY & INSTALLATION
- 3) INSPECTION, MAINTENANCE & RECERTIFICATION (IMR)
- 4) ENGINEERING

- > Reduce safety risks and environmental impact
- > Reduce operating downtime
- > Maintain peak operating performance
- > Manage data and offer technical support
- > Assist with quality control and assurance





# HEAVY-DUTY SERVICE FOR BELT APPLICATIONS

- > Belt identification
- > Belt construction
- > Features and benefits
- > Belt drive problems
- > Pulley and belt inspection, installation and alignment
- > Guard maintenance
- > Shutdown procedures
- > Belt tensioning techniques and re-tension periods
- > Usage of tension and laser alignment tools
- > Troubleshooting failure modes

Gates engineers are available to perform onsite:

- > Failure analysis of drive systems
- > Energy reduction analysis
- > Inspection and survey work for drive systems
- > Tensioning and alignment of belt drives
- > Belt drive upgrades





# HYDRAULIC TUBING & PIPING

Gates Engineering & Services has a highly-experienced piping and tubing team which can handle specifications of SS and CS material. Piping includes weld joints and compression type, flanged, threaded, flared, and wall forming type fittings. Our services cover hydraulic systems for lube oil, fuel oil, gear oil, grease, air, nitrogen, gas and utility pipelines. Some

applications and services include:

- > Hydraulic tubing for hydraulic systems
- > Rack choke systems on rigs
- > Jack-up piping systems for oil rigs
- > Ballast control systems for barges and ocean-going vessels
- > Well head control lines
- > Steering, bow thruster and deck machinery for vessels
- > Underground well head control lines on land-based oil rigs
- > Land drilling rig hydraulic systems for mast-raising, jack-up, winch systems, etc.
- > Navigation hydraulic systems
- > Controllable Pitch Propeller (CPP) systems
- > Skidding systems for offshore rigs





# HYDRAULIC PRESSURE TESTING & HOT OIL FLUSHING

Gates Engineering & Services can assess a system's cleanliness level using oil samples and input from the customer on system performance, maintenance and operating conditions. This is supported by our capabilities, which include:

- > A fleet of flushing and pressure testing rigs. Fleet includes remote operating pumps should there be space constraints.
- > Applications in oilfield, marine and industrial operations to meet offshore standards.
- > Flushing rigs from 10 lpm to 2000 lpm, fitted with the best quality filters, flow indicators, oil heaters and other related components to achieve the required NAS level standards.
- > Temperature control to achieve the desired turbulent flows to maintain required Reynold No's so as to optimize the flushing operation and minimize activity duration.





# FILTRATION SERVICES

- > Fleet of filtration systems
  - > Finest filters to 1 micron level
  - > Suitable for offline filtration jobs at fluid reservoir without affecting production schedules
  - > Systems are built with dual frequency electrical motors with 50/60 Hz to serve both oilfield / marine and industrial sectors
  - > Sampling lab test instrumentation – oil particle analysis and patch test kit
  - > Fleet includes duplex filtration skids of up to 6000gpm for diesel/fuel oil purification
  - > State of the art Gates Engineering & Services purifiers remove 100% water and gases, making them ideal for contamination control on hydraulic and lubricating oil systems
- Advantages
- > Reduced fluid consumption
  - > Acceptable dirt levels
  - > Little or no breakdown time
  - > Longer system life
  - > Increased productivity





# PUMPING SERVICES

## CHEMICAL CLEANING

1. Degreasing
2. Pickling
3. Neutralization
4. Passivation
5. Drying



## Advantages

- > No dismantling or reassembly of the system is required
- > Equipment is not damaged during the cleaning process
- > Longer system life
- > Base metal is strengthened and protected
- > Process is non-toxic, safe and eco-friendly
- > Easy disposal of waste
- > Process is cost efficient





## **DISTRICT COOLING**

District cooling provides residential, commercial and retail units with cooled water from centralized plants, which is then used to provide air-conditioning at reduced costs. Chemicals are added to the system, and throughout the process the iron content is below or equal to 3 PPM and the total suspended solids to less than or equal to 30 PPM.

Proven to meet the strictest of standards, this cost-effective solution saves water and is environmentally friendly.



## **ULTRA HIGH PRESSURE (UHP) CLEANING**

We also provide machine on a hire-basis with technicians.

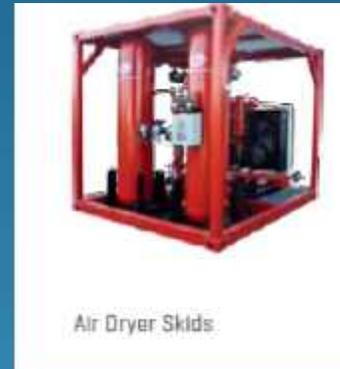
- > Machines are used mainly for surface preparation on docked vessels.
- > UHP machines are designed for pressures of up to 40,000 PSI.
- > High Pressure (HP) machines, rated at 10,000 PSI, are used for tank-cleaning.
- > Gates Engineering & Services' magnetic hull crawlers increase productivity by up to three times that of conventional blaster and gun technology.





# RENTAL EQUIPMENT

- > Hydraulic power units for all applications, ranging from 10 to 1000 lpm at maximum 320 bar
- > Hydraulic flushing rigs with flow capacities of 10 to 2000 lpm
- > Oil filtration units
- > Duplex filter skids for water and diesel filtration
- > Air dryers with capacities ranging from 800 to 3200 cfm at 24 bar
- > Air dryer and compressor packages
- > High pressure machines for blasting, surface preparation and concrete cutting applications
- > Centrifugal pumps for sea and fresh water applications with capacities ranging from 150m<sup>3</sup> to 1200m<sup>3</sup> at a maximum of 10 bar
- > HPP machines for tank cleaning
- > Containerized onsite workshops





# HYDRAULIC SYSTEM REFURBISHMENT

## HYDRAULIC SERVICES

- > Emergency assistance to vessels, offshore and onshore rigs and industries to diagnose and troubleshoot hydraulic breakdowns
- > Installation and renewal of hydraulic components for preventative maintenance
- > Refurbishment of hydraulic cylinders
- > Full technical surveys to assess repair requirements ahead of dry docking
- > Dismantling complete systems to enable them to be brought to an onshore workshop for repair
- Hydraulic maintenance contracts with full service support

## COMMISSIONING

The service team carries out the installation and commissioning of these systems. Our scope of work covers a location study, client interaction and coordination, with the engineering team to carry out work onsite.





# HYDRAULIC SYSTEM REFURBISHMENT

## RETROFIT & UPGRADES

- > Winches for BMC 900 cranes
- > Hydrostatic components
- > Hydraulic pumps and motors
- > Hydraulic power pack components
- > Control valves for ship deck machinery
- > Control consoles for land rig hydraulic systems
- > Skidding systems
- > Rig jack-up controls
- > PTO pumps for mobile trucks
- > Turbine starter facilities
- > Rotary table conversion
- > Hydraulic system piping work
- > Refurbishment of jacking and pin mast cylinders
- > Hose installation, repair and assembly
- > Upgrading of radio controls





# FLUID POWER EQUIPMENT DESIGN & BUILD

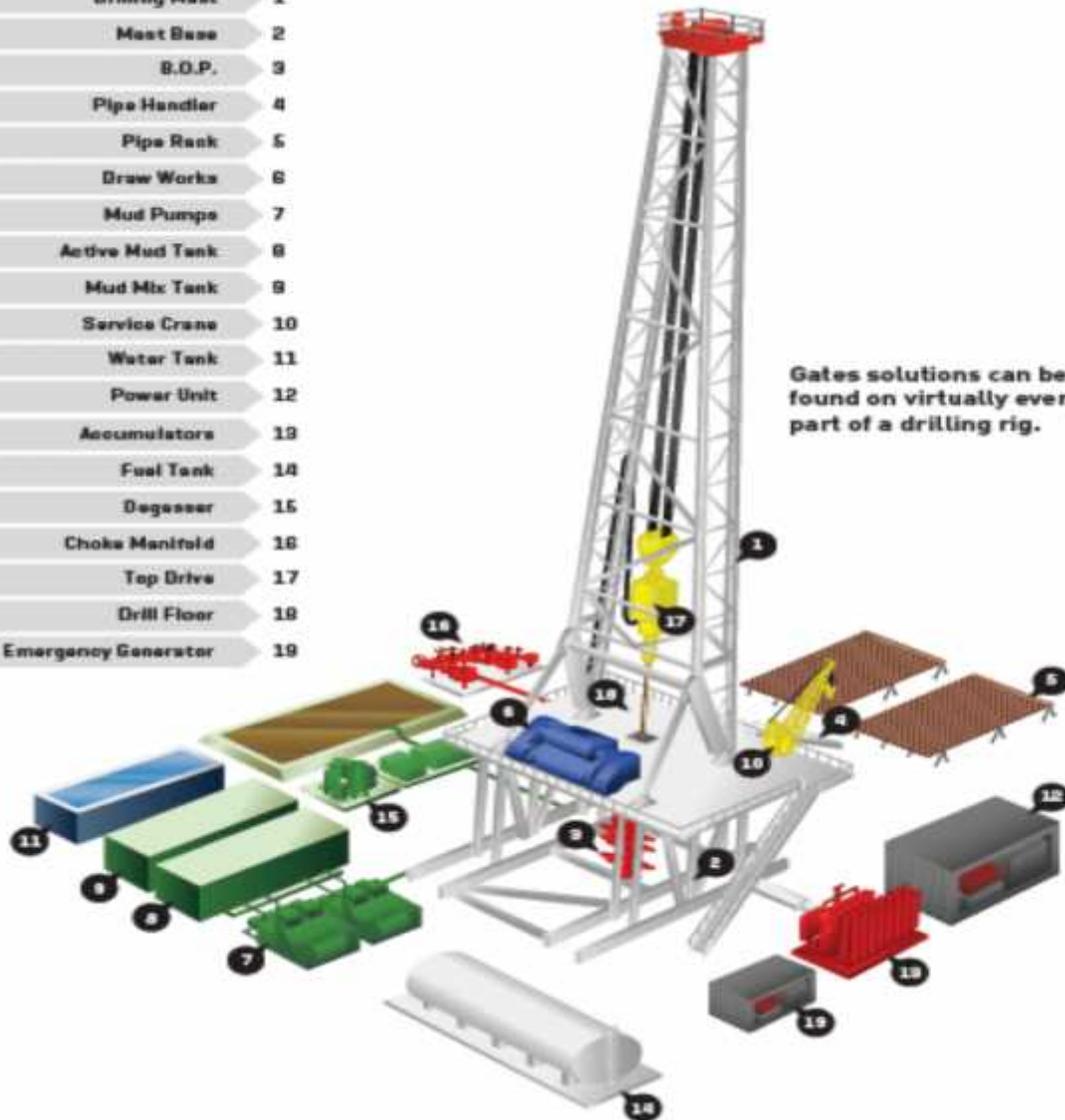
- > Air Dry Skids
- > Duplex Filter Skids
- > Fluid Purifier Units
- > Flushing Rigs
- > Portable Filter Units
- > Centrifugal Pumps
- > High Pressure & Ultra High Pressure Pumps
- > Fire Fighting Pumps
- > Coiled Tubing Spooler Systems
- > Spooler Units
- > Mobile Hydraulic Workshops
- > Offshore Jetting & Testing Units
- > Hydraulic Power Units
- > Skidding Systems
- > Wireline Units
- > Hydraulic Test Benches
- > Rotary Tables
- > Transformer Skids



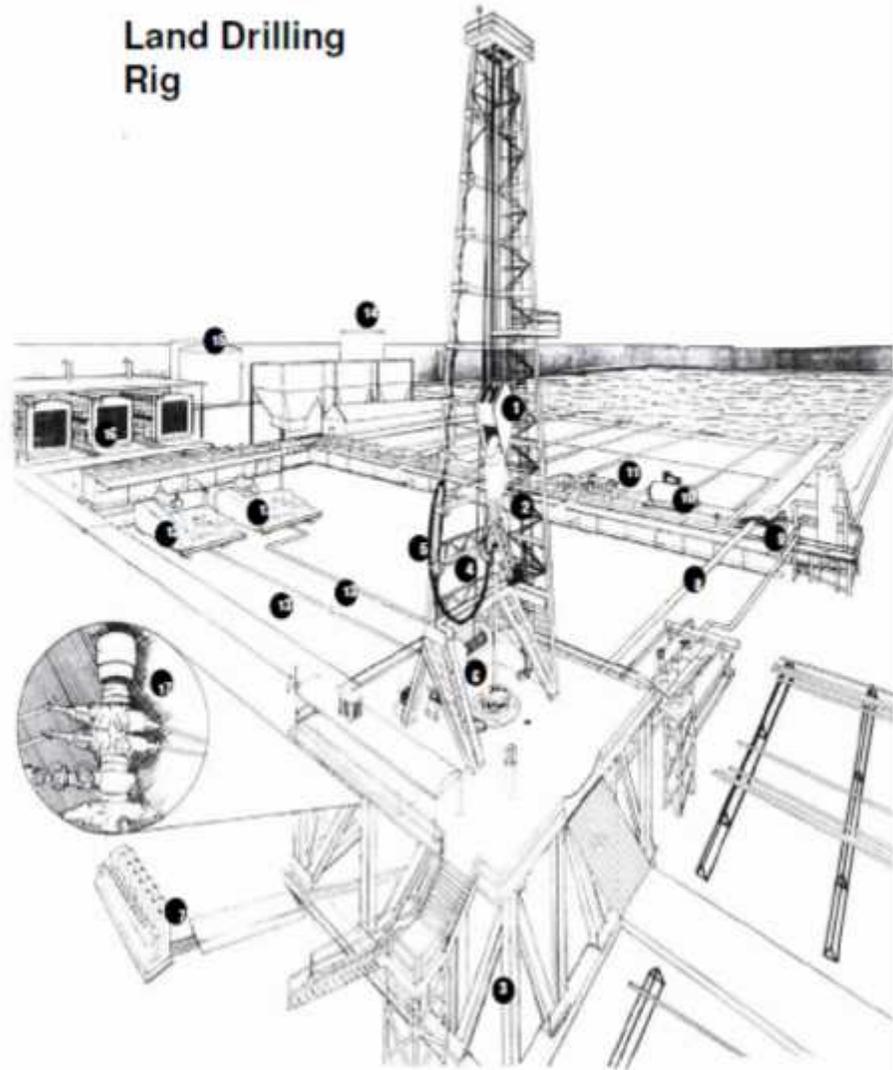


# Gates Oilfield Applications

- Drilling Mast 1
- Mast Base 2
- B.D.P. 3
- Pipe Handler 4
- Pipe Rack 5
- Draw Works 6
- Mud Pumps 7
- Active Mud Tank 8
- Mud Mix Tank 9
- Service Crane 10
- Water Tank 11
- Power Unit 12
- Accumulators 13
- Fuel Tank 14
- Degasser 15
- Choke Manifold 16
- Top Drive 17
- Drill Floor 18
- Emergency Generator 19



# Land Drilling Rig





OFFSHORE



LAND RIG



No.	Rig Component	Gates Recommended Hose	Gates Recommended Belts
1	Traveling Block		
2	Hook		
3	Substructure		
4	Swivel/ Top Drive	Black Gold <sup>®</sup> Rotary Drilling Hose	
5	Stand Pipe	Black Gold <sup>®</sup> Rotary Drilling Hose	
6	Drawworks		
7	Accumulator Unit (Kookey)	16 B.O.P. Hose Insert	<ul style="list-style-type: none"> <li>• Super HC V-Belts and Powerband</li> </ul>
8	Mud-Return Line	<ul style="list-style-type: none"> <li>• 6" Super-Vac<sup>®</sup> Hose</li> <li>• Longhorn<sup>®</sup></li> </ul>	
9	Shale Shaker		<ul style="list-style-type: none"> <li>• Predator</li> <li>• Super HC V-Belt and Powerband</li> <li>• Hi-Power II V-Belt and Powerband</li> </ul>
10	Degasser		<ul style="list-style-type: none"> <li>• Predator</li> <li>• Super HC V-Belt and Powerband</li> <li>• Hi-Power II V-Belt and Powreband</li> </ul>



OFFSHORE



LAND RIG



11	Desilter		<ul style="list-style-type: none"> <li>• Predator</li> <li>• Super HC V-Belt and Powerband</li> <li>• Hi-Power II V-Belt and Powerband</li> </ul>
12	Mud Pumps		<ul style="list-style-type: none"> <li>• Predator</li> <li>• Super HC V-Belt and Powerband</li> <li>• Hi-Power II V-Belt and Powerband</li> </ul>
13	Mud-Discharge Lines	Black Gold <sup>®</sup> Vibrator Hose	
14	Water Tank	<ul style="list-style-type: none"> <li>• Super-Vac<sup>®</sup></li> <li>• Trident<sup>®</sup> 400</li> <li>• Premo Flex<sup>®</sup></li> </ul>	
15	Fuel Storage	<ul style="list-style-type: none"> <li>• Longhorn<sup>®</sup></li> <li>• Sea Horse<sup>®</sup></li> <li>• Sea Horse<sup>®</sup> HW</li> </ul>	
16	Engines and Generators	Radiator Hoses	<ul style="list-style-type: none"> <li>• Predator</li> <li>• Super HC V-Belt and Powerband</li> <li>• Hi-Power II V-Belt and Powerband</li> </ul>
17	Blowout Preventer Stack	<ul style="list-style-type: none"> <li>• 16 B.O.P. Insert Hose</li> <li>• Black Gold<sup>®</sup> Choke &amp; Kill Hose</li> <li>• G5K, G6K, C12M</li> </ul>	



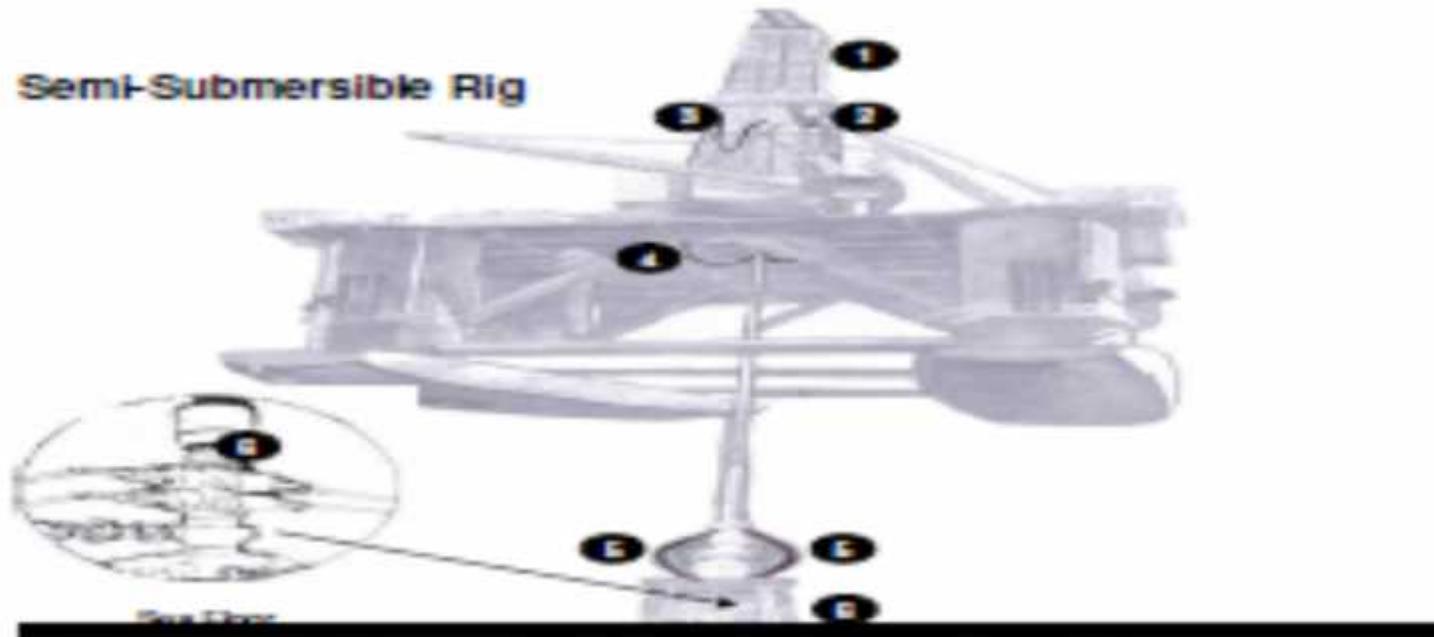
OFFSHORE



LAND RIG



### Semi-Submersible Rig



### Top View Drilling Floor

(Same components as the Land Drilling Rig - refer to Land Drilling Rig Sketch)





OFFSHORE



LAND RIG



No.	Rig Component	Gates Recommended Hose
1	Derrick	
2	Motion Compensator	Black Gold® Motion Compensator hoses
3	Rotary (Kelly) Hose	Black Gold® Rotary Drilling Hose
4	Droop Hoses	Black Gold® Choke & Kill Hoses
5	Flexible Joint & Annular Preventer	Black Gold® Choke & Kill Hoses
6	Blowout Preventer Stack	<ul style="list-style-type: none"><li>• 16 B.O.P.</li><li>• Black Gold® Choke &amp; Kill Hose</li><li>• G5K, G6K, C12M</li></ul>

**The semi-submersible drilling floor components are the same as the Land Drilling Rig components - refer to the Land Drilling Rig sketch and components to determine Gates recommended products.**



## Black Gold Products

### Choke & Kill 15000



Hose I.D.		Hose O.D.		Max. W.P.		Min. Bend Radius		Wt. Per Ft. (hose)		Max. Hose Length
(In.)	(mm)	(In.)	(mm)	(psi)	(Bar)	(In.)	(mm)	(Lbs.)	(Kg)	(ft)
2 1/2	64	5.66	144	15,000	1034	60	1524	29.4	13.3	90
3	76	6.16	156	15,000	1034	60	1524	33.2	15.1	90

**RECOMMENDED FOR:** Flexible hose between the riser and manifold or around the ball joint of offshore drilling rigs. Specially designed to withstand flexing and high pressures encountered in offshore applications.

**CAUTION:** Hoses are manufactured to handle up to 20% hydrogen sulfide (H<sub>2</sub>S) for 1 hour at 200°F (93°C) at rated working pressure. Field welding of couplings is not recommended.

**TEMPERATURE:** -4°F to +200°F (-20°C to +93°C) continuous service.

**CONSTRUCTION:**

- Tube:** Type V (Fluoroelastomer). Black.
- Reinforcement:** Multiple layers of textile fabric and steel cable
- Cover:** Type C4 (Modified Nitrile). Black with gold stripe.
- Design Factor:** 15,000 Working Pressure, 22,500 Test Pressure, 33,750 Burst Pressure

**COUPLINGS:** Built-in couplings. Meets NACE MR0175. Contact Gates E&S or a Gates Black Gold® distributor for a full range of fitting options such as hammer unions, flanges, hubs, etc.

**PACKAGING:** Each length packaged in a heavy-duty wooden crate.

**OPTIONS:** Accessories such as safety clamps, hose lift eyes and stainless steel armor are available upon request. Test certificates are shipped with every order. Coupling material traceability, letters of conformance, 3rd party witness tests and NACE certificates are available for an additional fee.

**STANDARDS:** NACE MR0175. Made in the U.S.A.



## Black Gold Products

### Choke & Kill XTreme™ 10000



Hose I.D.		Hose O.D.		Max. W.P.		Min. Bend Radius		Wt. Per Ft. (hose)		Max. Hose Length
(in.)	(mm)	(in.)	(mm)	(psi)	(Bar)	(in.)	(mm)	(Lbs.)	(Kg)	(ft)
3	76	5.88	149	10,000	690	69	1750	34.7	15.7	50

**RECOMMENDED FOR:** Flexible Choke and Kill lines that require API 16C certification. The tube is specially compounded to resist abrasion, corrosion, oil, drilling muds, methane and H<sub>2</sub>S. The UltraBraslon™ cover is compounded to protect against abrasion, corrosion, cutting, gouging, oil and weather.

**CAUTION:** Survival temperature is 350°F [177°C] for 1 hour per API 16C 10.5.2. Field welding of couplings is not recommended.

**TEMPERATURE:** -4°F to +212°F [-20°C to +100°C] continuous service.

**CONSTRUCTION:**

- Tube:** Synthetic Polymer. Black.
- Reinforcement:** Multiple layers of textile fabric and steel cable
- Cover:** Type C4 [Modified Nitrile]. Black with gold stripe.
- Design Factor:** 10,000 Working Pressure, 15,000 Test Pressure, 22,500 Burst Pressure

**COUPLINGS:** Crimped couplings. Meets NACE MR0175/ISO 15156. Contact Gates E&S or a Gates Black Gold® distributor for a full range of fitting options such as flanges and hubs.

**PACKAGING:** Each length packaged in a heavy-duty wooden crate.

**OPTIONS:** Accessories such as safety clamps, hose lift eyes and stainless steel armor are available upon request. Test certificates are shipped with every order. Coupling material traceability, letters of conformance, 3rd party witness tests and NACE certificates are available for an additional fee.

**STANDARDS:** API 16C FSL and NACE MR0175/ISO 15156. Made in the U.S.A.



## Black Gold Products

### Choke & Kill 10000



Hose I.D.		Hose O.D.		Max. W.P.		Min. Bend Radius		Wt. Per Ft. (hose)		Max. Hose Length
(in.)	(mm)	(in.)	(mm)	(psi)	(bar)	(in.)	(mm)	(Lbs.)	(Kg)	(ft)
2 1/2	64	5.14	131	10,000	689	48	1219	20.6	9.3	90
3	76	5.64	143	10,000	689	48	1219	23.0	10.4	90
3 1/2	89	6.05	154	10,000	689	54	1372	24.6	11.2	90

**RECOMMENDED FOR:** Flexible hose between the riser and manifold or around the ball joint of offshore drilling rigs. Specially designed to withstand flexing and high pressures encountered in offshore applications.

**CAUTION:** Hoses are manufactured to handle up to 20% hydrogen sulfide (H<sub>2</sub>S) for 1 hour at 200°F (93°C) at rated working pressure. Field welding of couplings is not recommended.

**TEMPERATURE:** -4°F to +200°F (-20°C to +93°C) continuous service.

**CONSTRUCTION:**

- Tube:** Type V (Fluoroelastomer). Black.
- Reinforcement:** Multiple layers of textile fabric and steel cable
- Cover:** Type C-4 (Modified Nitrile). Black with gold stripe.
- Design Factor:** 10,000 Working Pressure, 15,000 Test Pressure, 22,500 Burst Pressure

**COUPLINGS:** Swaged couplings. Meets NACE MR0175. Contact Gates EGS or a Gates Black Gold® distributor for a full range of fitting options such as hammer unions, flanges, etc.

**PACKAGING:** Each length packaged in a heavy-duty wooden crate.

**OPTIONS:** Accessories such as safety clamps, hose lift eyes and stainless steel armor are available upon request. Test certificates are shipped with every order. Coupling material traceability, letters of conformance, 3rd party witness tests and NACE certificates are available for an additional fee.

**STANDARDS:** NACE MR0175. Lloyd's Fire Test 00/1000/499. Made in the U.S.A.



## Black Gold Products

### Choke & Kill XTreme™ 5000



Hose I.D.		Hose O.D.		Max. W.P.		Min. Bend Radius		Wt. Per Ft. (hose)		Max. Hose Length
(In.)	(mm)	(In.)	(mm)	(psi)	(Bar)	(In.)	(mm)	(Lbs.)	(Kg)	(ft)
3	76	5.88	149	5,000	345	69	1750	22.8	33.9	50

**RECOMMENDED FOR:** Flexible Choke and Kill lines that require API 16C certification. The tube is specially compounded to resist abrasion, corrosion, oil, drilling muds, methane and H<sub>2</sub>S. The UltraBraslon™ cover is compounded to protect against abrasion, corrosion, cutting, gouging, oil and weather.

**CAUTION:** Survival temperature is 350°F [177°C] for 1 hour per API 16C 10.5.2. Field welding of couplings is not recommended.

**TEMPERATURE:** -4°F to +212°F [-20°C to +100°C] continuous service.

**CONSTRUCTION:** **Tube:** Synthetic Polymer. Black.

**Reinforcement:** Multiple layers of textile fabric and steel cable

**Cover:** Type C4 (Modified Nitrile). Black with gold stripe.

**Design Factor:** 5,000 Working Pressure, 7,500 Test Pressure, 15,000 Burst Pressure

**COUPLINGS:** Crimped couplings. Meets NACE MR0175/ISO 15156. Contact Gates E&S or a Gates Black Gold® distributor for a full range of fitting options such as flanges and hubs.

**PACKAGING:** Each length packaged in a heavy-duty wooden crate.

**OPTIONS:** Accessories such as safety clamps, hose lift eyes and stainless steel armor are available upon request. Test certificates are shipped with every order. Coupling material traceability, letters of conformance, 3rd party witness tests and NACE certificates are available for an additional fee.

**STANDARDS:** API 16C FSL and NACE MR0175/ISO 15156. Made in the U.S.A.



# Well Completion Applications

## FRAC FLEET

Hydraulic fracturing fleets can consist of a variety of oilfield service trucks that feature applications in which Gates can be a solutions provider.

1 PUMP TRUCKS

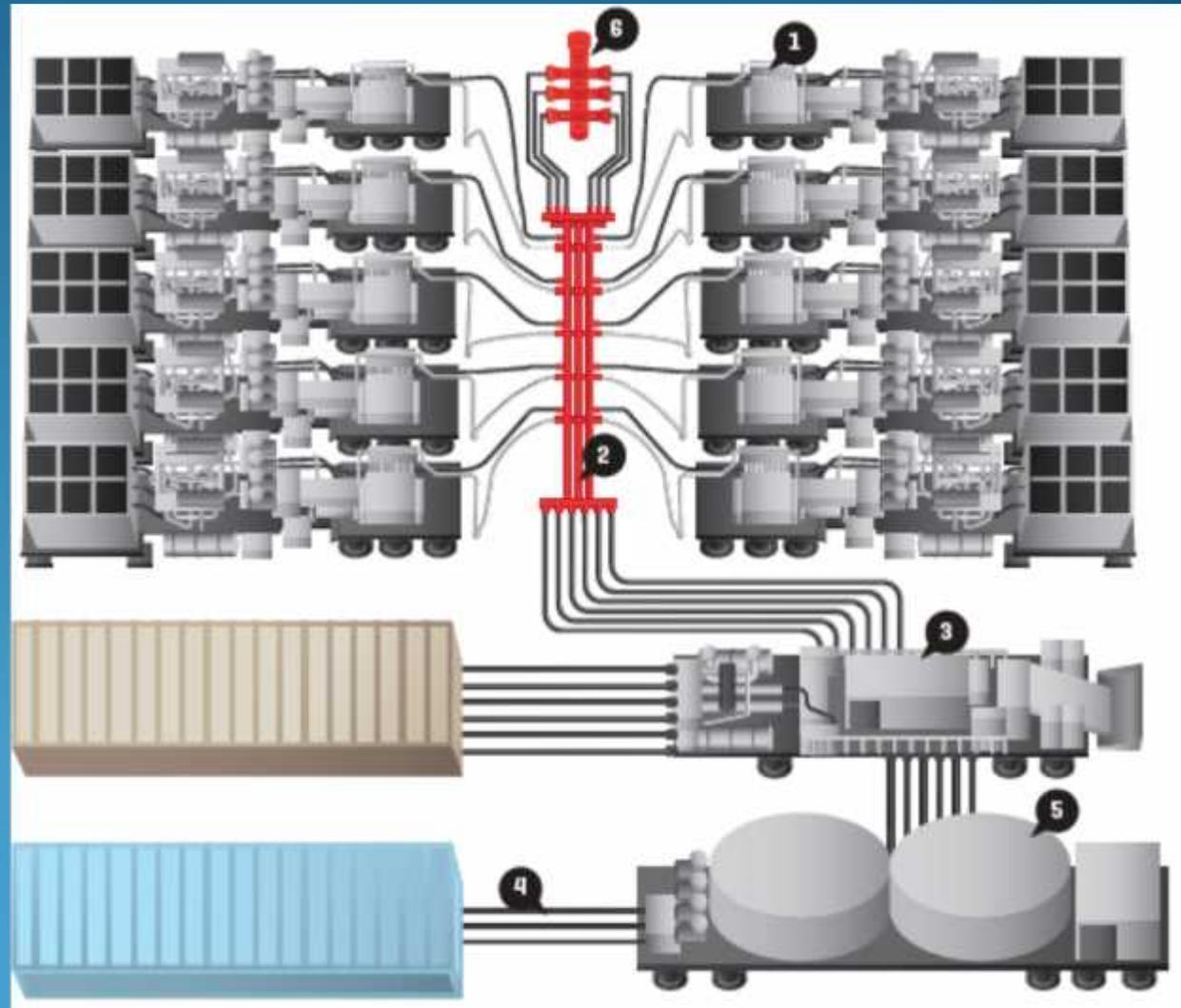
2 MISSILE

3 BLENDER TRUCKS

4 WATER TRANSFER SYSTEM

5 HYDRATION UNIT

6 WELLHEAD





# Hose Management System



# Gates Coiled Tubing “Drop In Drum” Spooler system



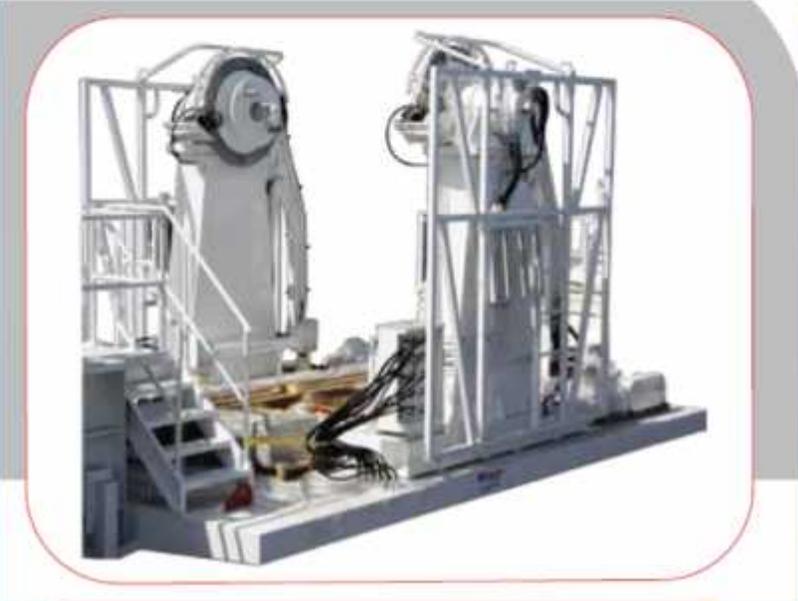
## 65 Ton Coil Tubing Unit CTU-65

The Gates Engineering & Services Coil Tubing Unit CTU-65 is a telescopic coiled tubing spooler that can be hydraulically adjusted to a wide range of drum diameters and widths.

It features the industry’s most robust Hagglunds direct drive motors, offering superior reliability over chain sprocket systems.

The unit utilises standard shipping drums – wood and steel.

Where necessary, spoolers can be tailored to specific customer requirements.



### STANDARD SPECIFICATION

#### Weight and Dimensions \*

Unladen weight (without drum)	: 12,000kg (26,455lbs)
Length of CTU (closed)	: 3800mm (149")
Length of CTU (extended)	: 5400mm (212")
Width of CTU	: 2900mm (114")
Height of skid (without drum)	: 3700mm (146")
Drum size maximum	: 204"x105"
Drum size minimum	: 135"x70"

#### Shaft

Internal bore	: 48mm (1.88")
Continuous working pressure	: 690bar (10,000psi)

#### Other features

- Up to 50,000Nm (36,000lb-ft) torque at 350 bar(5,000psi).
- Capacity (incl. mud/water) : 65,000kg (143,000lbs).
- Shaft with WECO threaded fittings for swivel and slip ring.
- Level wind arm inclination up to 50° (horizontal).
- Electronic control of hydraulic spool mechanism.
- Local and remote control stations – both with manual and electronic control.
- High utilization capability for continuous use.
- With out Drum

# Gates Coiled Tubing “Drop In Drum” Spooler system

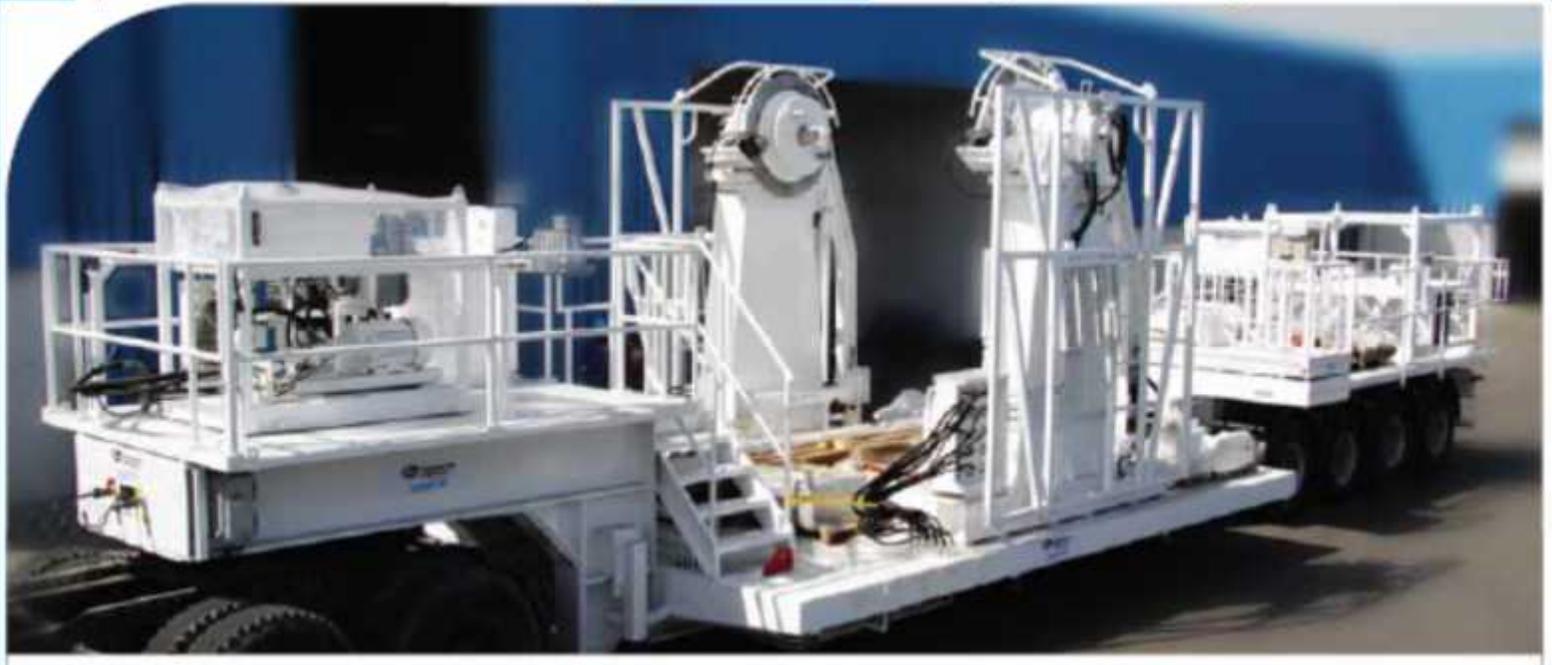


STANDARD SPECIFICATION	
<b>Trailer details</b>	
Type	: Step deck, goose neck
Loading deck length	: 7000mm (276")
Loading deck width	: 4300mm (169")
<b>Dimensions</b>	
Length	: 17000mm (669")
Width	: 4300mm (169")
Height	: 2000mm (79")
Rated capacity	: Payload on road speed – 80 tons Payload on static position – 80 tons
<b>Electric Power Pack Unit</b>	
<b>Details</b>	
Power	: 22kW (29.5hp)
Flow	: 42lpm (11US gpm)
<b>Dimensions</b>	
Length	: 1850mm (73")
Width	: 1100mm (61")
Height	: 1540mm (61")
Working Pressure	: 320bar (4640psi) (MAX)
Weight (With oil)	: 1500kg (3306lbs)

## Trailer – Mounted 65 Ton Coil Tubing Unit CTU-65-TM

The Trailer – Mounted 65 Ton Coil Tubing Unit System employs an electric powered unit, coil tubing, scissor-lift platform, spreader beam and lifting seats, and a step step-deck goose-neck trailer. Other functionary assemblies maybe attached as needed to complement the system.

**Features**  
Easy Connection and Mobility. The unit can be moved from one work operation to another since its designed to fit a trailer system





# Well Completion Applications

**WHAT MAKES GATES HOSE MANAGEMENT SYSTEMSM \* SO UNIQUE?**

**SENTRY™ TAG & TRACK :**

All Flexible Hose Assembly data collected from the Rig-Site Survey is downloaded, tracked, and documented in our industry-leading, web-based application into a central database in real-time, allowing for life cycle hose management, preventive maintenance, and substantial cost savings.

**SENTRY™ DAT :**

This is the report engine of Sentry Services that allows users to see replacement cycles, activities, inspection, and performance data. Only Sentry DAT allows users to do a full data analysis on performance or costs within the application, run reports, and make smarter decisions.



## **DISCOVER GATES® INSPECTION, MAINTENANCE & RE-CERTIFICATION SERVICES.**

In harsh environments such as oil drilling, Inspection, Maintenance & Re-Certification (IMR) Services are critical to maximizing asset life, reliability, and uptime. Gates IMR Services provide periodic inspection and thorough testing of a customer's drilling and service hoses, making sure the critical hose assembly meets both regulatory standards and certifications.

Gates IMR is an essential component to any successful equipment maintenance program, and includes:

- A visual inspection through an endoscopic hose analysis
- Thorough cleaning of the hose — both internally and externally, and
- A pass/fail rating at every stage

Gates then performs hose maintenance, makes replacement recommendations, and runs a hydrostatic test to ensure the integrity of the hose meets the demands of the flexible pipe or hose assembly application





## THE PRODUCT LINE: BETTER DESIGN & SHORTER LEAD TIME

- **Hydraulic, Industrial, and Rotary Hoses** rated up to 15,000 psi working pressure.
- **Rig-Site Survey** where a Gates hose specialist performs a full, onsite risk assessment of your FHA.
- **Large Bore Cut & Couple** program for big, critical application hose assemblies.
- **MobileCrimp®** for lightweight, versatile crimpers powerful enough to crimp 4 spiral-wire hose on location.
- **Hydraulic Fluid Flushing** descales sediment and removes contaminants from the fluid, reducing wear on the line.
- **Breathing Air Manifolds** to be used in oil & gas environments where toxic gases (H<sub>2</sub>S) are present.
- **Hose Rental services** for short-term projects, as an onsite back up contingency during Frac jobs





## Gates Coiled Tubing

- **Hydraulic, Industrial, and Rotary Hoses** rated up to 15,000 psi working pressure.
- **Rig-Site Survey** where a Gates hose specialist performs a full, onsite risk assessment of your FHA.
- **Large Bore Cut & Couple** program for big, critical application hose assemblies.
- **MobileCrimp®** for lightweight, versatile crimpers powerful enough to crimp 4 spiral-wire hose on location.
- **Hydraulic Fluid Flushing** descales sediment and removes contaminants from the fluid, reducing wear on the line.
- **Breathing Air Manifolds** to be used in oil & gas environments where toxic gases (H<sub>2</sub>S) are present.
- **Hose Rental services** for short-term projects, as an onsite back up contingency during Frac jobs



# **GODREJ & BOYCE – Critical Equipment**

**Refineries / Petrochemicals**  
**LNG / Oil & Gas / Power**

## **Certification**

**ISO 9001-2000, 14001, 18000**  
**ASME Stamps U, U2, U3, S**  
**Accredited with Chinese SELO**

## **Columns & Towers**

**Distillation Columns**  
**Fractioning Columns**  
**Trays & Tower Internals**  
**Waste Heat Exchangers**  
**Cold Collector**

## **Reactors & Pressure Vessels**

**ULSD/DHDS Reactors**  
**High Pressure Thick Walled Reactors**  
**Polypropylene Reactors**  
**High Pressure Separators**  
**Reactor Internal & Trays**  
**Secondary Reformers**

## **Shell & Tube Heat Exchangers**

**High Pressure Heat Exchangers**  
**Lummus Advanced Breech-lock**  
**Helix changers**  
**Feed Water Heaters**



**(Code stamping: 'U2')**

<u>MOC</u>	<u>Dimensions in mm</u>	<u>Weight in kgs</u>
SA516 Gr. 70	ID : 8826 / 5563 mm Length : 47682 mm Thk : 50-135 mm	800,000
Design pressure (kg/cm <sup>2</sup> )	44.7 / 0	
Design Temperature (°C)	180 / 0	

**Equipment: POLYPROPYLENE REACTOR**

**Client: SABIC – Ibn Zahr III Expansion,  
Saudi Arabia**

**Year: 2007**



**(Code stamping: 'U')**

<u>MOC</u>	<u>Dimensions in mm</u>	<u>Weight in kgs</u>
Shell SA 516 Gr. 70	ID : 3810 mm Length : 17230 mm Thk : 52 mm	96,500
Design pressure (kg/cm <sup>2</sup> )	34.16	
Design Temperature (°C)	260	

**Equipment: SECONDARY REFORMER**

**Client: Ammonia Casale, Switzerland  
Al-Bayroni Fertiliser Co. (SABIC),  
Saudi Arabia**

**Year: 2008**



**(Code stamping: 'U2')**

	<u>Shell</u>	<u>Tubes</u>	<u>Tube Sheet</u>
<b>MOC</b>	SA 516 Gr. 60	SS 316 L	SA 765 Gr. 2 + SS 316 L
<b>Dimensions (in mm)</b>	I.D. : 1760 THK : 87 LEN : 19734	Qty.: 2972 O.D.: 19.05 Thk.: 2.11 Len.: 14000	THK : 336 + 10
<b>Des. Pr.</b>	122 kg/cm <sup>2</sup>	122 kg/cm <sup>2</sup>	<u>Weight in Kgs</u> : 161,000
<b>Des. Temp.</b>	119 °C	119 °C	

**Equipment: GAS / GAS HEAT EXCHANGER**

**Client: Petrofac, Sharjah / PDO, Oman  
Kauther Gas Project**

**Year: 2006**



**(Code stamping: 'U2')**

<b>MOC</b>	<b>Dimensions in mm</b>	<b>Weight in kgs</b>
SA 516 M Gr. 485 + SB 424 NO 8825	ID : 2800 mm Length : 12214 mm Thk : 64 + 3 mm	60,950
Design pressure (kg/cm <sup>2</sup> )	70 / FV	
Design Temperature (°C)	86 / -25	

**Equipment: 2<sup>nd</sup> STAGE SEPARATOR**

**Client: Petrofac, Sharjah / PDO, Oman  
Harweel Cluster Phase 2 Project**

**Year: 2007**



**(Code stamping: 'U2')**

<u>MOC</u>	<u>Dimensions in mm</u>	<u>Weight in kgs</u>
SA 240 316L	ID : 4575 mm Length : 61305 mm Thk : 83 to 87 mm	640,000
Design pressure (kg/cm <sup>2</sup> )	41 / 0.7	
Design Temperature (°C)	151 / -102	

**Equipment: DEMETHANISER**

**Client: Eastern Bechtel Co. Ltd.,  
London**

**GASCO OGD III Project**

**Year: 2006**



<u>MOC</u>	<u>Dimensions in mm</u>	<u>Weight in Kgs</u>
SA 516 Gr. 70	ID : 3048 mm Length : 21580 mm Thk : 116 mm	215,000
Design pressure (kg/cm <sup>2</sup> )	104 / -1	
Design Temp (°C)	176 / 60	

**Equipment: RECYCLE GAS SCRUBBER**

**Client: CB & I – Matrix Engineering, USA  
Valero St. Charles Refinery  
Norco, L. A., USA**

**Year: 2006**



<u>MOC</u>	<u>Dimensions in mm</u>	<u>Weight in kgs</u>
SA 516 Gr. 70 + SS 304L	ID : 5480 / 4570 mm Length : 30630 mm Thk : 18 + 3 / 22 + 3 mm	200,000 (including internals)
Design pressure (kg/cm <sup>2</sup> )	4 / FV	
Design Temperature (°C)	175 / 16	

**Equipment: SOLVENT REGENERATOR**

**Client: Bectel, USA**

**EG LNG Train I Project**

**Equatorial Guinea**

**Year: 2005**



**Equipment dispatched from GODREJ JETTY**

**(Code stamping: 'U')**

<b><u>MOC</u></b>	<b><u>Dimensions in mm</u></b>	<b><u>Weight in kgs</u></b>
<b>SA 516 M Gr. 485</b>	ID : 6000 mm Length : 29600 mm Thk : 22 mm	<b>174,000</b>
<b>Design pressure (kg/cm<sup>2</sup>)</b>	<b>3.6</b>	
<b>Design Temperature (°C)</b>	<b>343 / 2</b>	

**Equipment: HYDROGENATION REACTOR**

**Client: Black & Veatch, USA**

**Reliance Jamnagar Export Refinery Project**

**Year: 2007**



<u>MOC</u>	<u>Dimensions in mm</u>	<u>Weight in Kgs</u>
SA 336 Gr. F 22 Cl. 3	ID : 356 mm Length : 1378 mm Thk : 150 mm	3,100
Design pressure	1054.59 kg/cm <sup>2</sup>	
Hydrotest Pressure	1532.38 kg/cm	
Design Temperature	177 °C	

**Equipment: HIGH PRESSURE SAND SEPARATORS, BOTTOM VESSEL**

**Client: Tetra Production Testing Services, L.P., Texas, USA**

**Year: 2008**



**(Code stamping: 'U2')**

<b><u>MOC</u></b>	<b><u>Dimensions in mm</u></b>	<b><u>Weight in Kgs</u></b>
SA 516 M Gr. 415 + SS 316L (overlay)	ID : 4108 mm Length : 12965 mm Thk : 152+3 mm	179,500
Design pressure (kg/cm <sup>2</sup> )	98.6	
Design Temperature (°C)	70	

**Equipment: PRODUCTION SEPARATOR**

**Client: Reliance industries Ltd.,  
KG-D6 Block Field Development**

**Year: 2007**



Equipment manufactured in accordance with CHINESE SQL and PED requirements

<u>MOC</u>	<u>Dimensions in mm</u>	<u>Weight in kgs</u>
DN 10208 Part 2 / P2 65 GH (Carbon Steel)	ID : 3500 mm Length : 25982 mm Thk : 12 mm	52,500
Design pressure (kg/cm <sup>2</sup> )	Vessel : 6 & Coil : 18	
Design Temperature (°C)	160 / 6	
Design Code: AD Merkblatter		

**Equipment: DEGASSING VESSEL**

**Client: Tecnimont Spa, Italy  
CSPC Project, China  
Royal Dutch Shell Group**

**Year: 2004**



	<u>Shell</u>	<u>Tubes</u>	<u>Channel</u>	<u>Tube Sheet</u>
<b>MOC</b>	SA 516 Gr. 70	SB 338 Gr. 2 (TITANIUM)	SB 265 Gr.1 (TITANIUM)	SA 516 Gr. 70 + SB 265 Gr.1 (TITANIUM)
<b>Dimensions (in mm)</b>	I.D. : 2200 THK : 28	Qty.: 3946 O.D.: 25.4 Thk.: 01(min) Len.: 9200	I.D. : 2200 THK : 14	THK : 78 + 6 <u>Tube to Tube Sheet joint:</u> Welded
<b>Des. Pr.</b>	25 kg/cm2	6 kg/cm2	<u>Weight in Kgs</u> : 39,500	
<b>Des. Temp.</b>	170 °C	80 °C		

**Equipment: AMMONIA CONDENSER**

**Client: UHDE Germany / QAFCO**

**Year: 2003**



<b>MOC</b>	<b>Dimensions ( mm)</b>	<b>Weight (Kgs)</b>	<b>Equipment:</b>	<b>SECONDARY REFORMER</b>
SA 516 Gr. 70 / SA387 Gr.12 Cl.2 Air ring Assembly of SA 335 Gr. P91	ID : 4950/ 3650 Length : 19835 Thk : 115/ 90	250,000	<b>Client:</b>	<b>Uhde GmbH/ Ma'aden-Saudi Arabia Mining Company</b>
<b>Design Pressure (Kg/cm<sup>2</sup>)</b>	49		<b>Year:</b>	<b>2009</b>
<b>Design Temperature (°C)</b>	Inside / Outside water Jacket : 150 /400			



## Fractionation Trays

**Baretti**   
EQUIPMENT FOR OIL AND CHEMICAL INDUSTRIES  
*Your Worldwide Partner*

## Fractionation Trays

### The new frontiers for tray fractionation

#### High Performance Trays

##### FEATURES

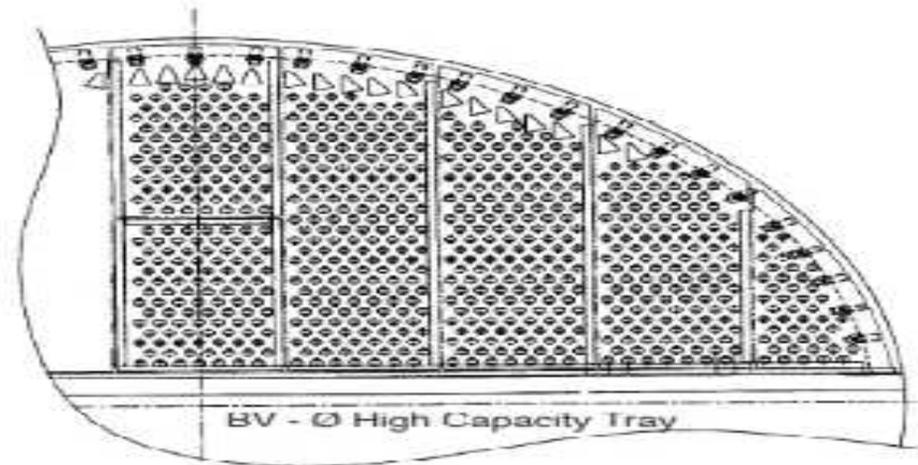
- Maximized active area
- Swept-back Downcomers
- Sloped Downcomers
- Micro Valves
- Jet Tabs
- Clear Liquid Separators

##### RESULTS

- Increased Tray Efficiency
- Increased Capacity

##### ADVANTAGES

- More trays in the same space
- Lower reflux ratio
- Lower pressure drop



**BUBBLE PROMOTORS**

Bubble promoters installed at Downcomer outlet enhance tray activity across the trays and reduce pressure drops. Placing push valves around the tray periphery prevents liquid stagnation zones.

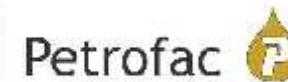


**PUSH VALVES**

# Main Customer – End Users



# Main Customer – E/C Companies



# Tray Devices and Design Features



**Trough Bolted Joints**



**Valves**



**Bubble Caps**

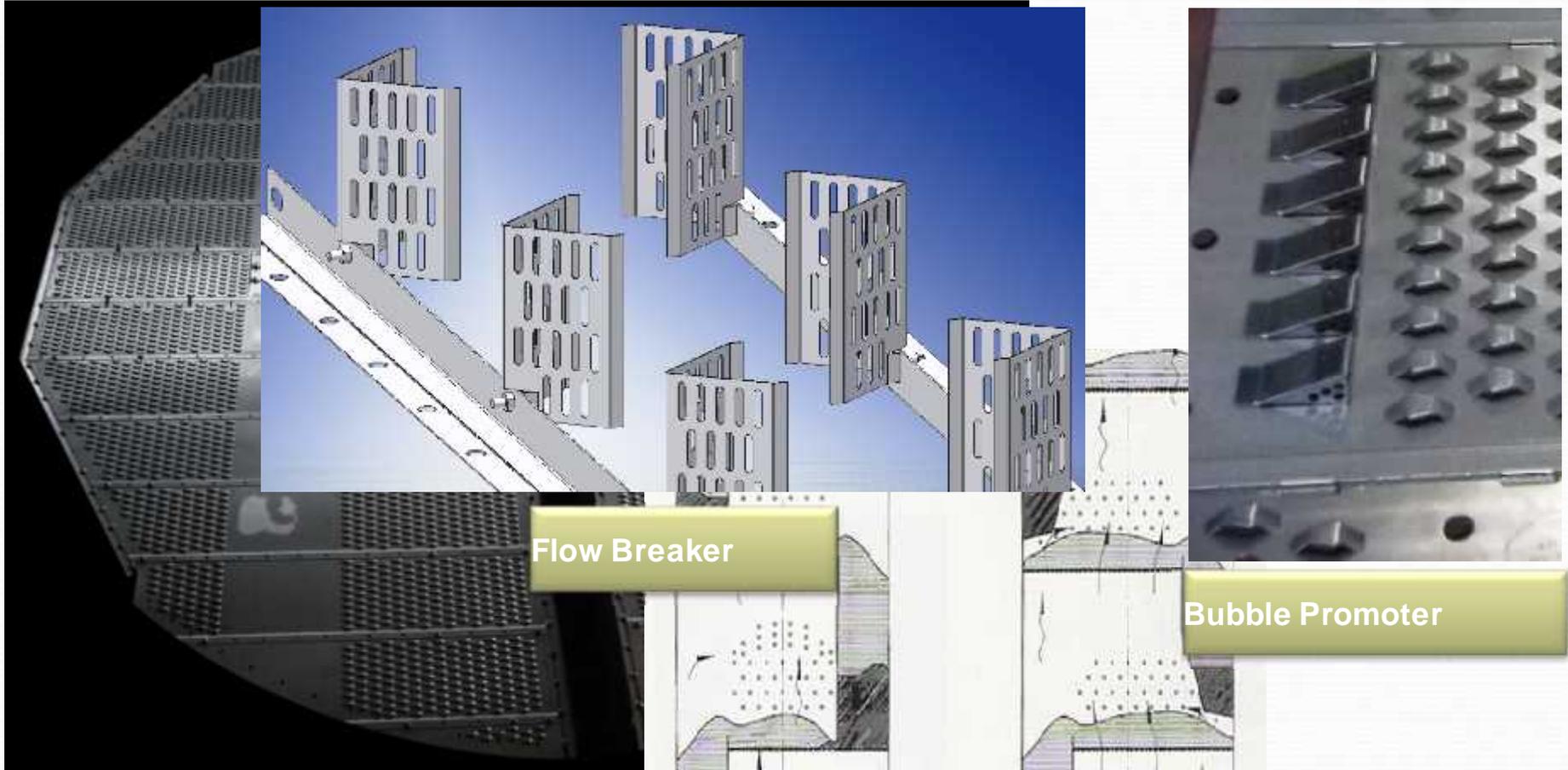


**Lip Joint Connection**



**Cartridge Trays**

# Baretti High Performance Trays



Flow Breaker

Bubble Promoter

4-Pass BV-0 Multi Chordal Side Weirs

Sloped Downcomers

# High Capacity Structured Packing



2015 Baretti Profile

# High Fouling and Corrosion Resistant-Packing



2015 Barette Profile

# Structured Packing Trial Assembly



2015 Baretti Profile

# Packaging Area



2015 Baretti Profile

# Liquid distributor test rig

Gravity Distributor B-186-L



2015 Baretti Profile

# ULO Systems LLC – Fabric Formwork



ULO provides solutions using fabric formwork to contain a cementitious grout and or Precast Concrete solutions for supporting and protecting subsea pipelines and cables.

A comprehensive range of standard pipeline supports are available

- Pipeline and cable crossings
- Stabilization and protection for various subsea structures
- Pipeline and cable stabilization
- Anti-scour protection
- Pipeline and cable protection

**Grouting** : The well proven colloidal mixing principle used by ULO guarantees excellent grout quality especially suited to underwater grouting, combined speed production with quality of output and manpower efficiency.

## **Offshore Services**

To guarantee the correct application of the custom engineered fabric formwork in conjunction with the purpose designed grouting plant, ULO provides a comprehensive offshore operations service comprising:

- Qualified and experienced personnel
- Technologically advanced equipment
- Operational back-up
- Operating procedures
- Grout mix designs
- Logistics back-up







# Mir Valves



**Complete range of standard and engineered ball and gate valves API 6D / 6DSS / 6A / 17D for standard and special services and applications for the oil and gas, refining and petrochemical industry. Suitable for onshore, offshore and subsea installations.**

# Mir Valves supplies



## **TRANSWATER / SABAH SHELL MALAYSIA**

NS (North Sabah) Allocation Metering at St. Joseph, Onshore Malaysia

MV4 Twin Ball Valves 4" CL.600, FB, RF, Body: SS, Trim: SS, Metal-Seated + TCC, Seal: Fugitive Emission Testing, manual (8 pcs)

# Mir Valves



**SAPURAKENCANA / PETRONAS CARIGALI MALAYSIA**

Layang Development (Facilities) – HIP, Subsea Malaysia

MV4-SS **Subsea** Twin Ball Valves 1" CL.300/900, FB, BW, Body: CS, Trim: Superduplex,  
Devlon Insert, Seal: HNBR/Viton AED, Pup Piece, API 6DSS Testing, 100m water depth



Year 2015  
M20150079

# Mir Valves



## PETROBRAS BRAZIL

Rota 3 Project, Offshore Brazil

MV3 Side-Entry Ball Valves 14"-24" CL. 1500 FB RTJ Body CS / Trim: Duplex, DPE seats  
c/w Rotork Electric Actuator (8 pcs)



Year 2015  
M20140135

# Mir Valves



## **PDO OMAN**

Zauliyah Gas Plant, Onshore Oman

MV1 Top-Entry Ball Valves 6"x4", 12" CL.600, FB/RB, RF, Body: LTCS, Weld Overlay  
AISI 316 at Static & Dynamic Sealing Area, Trim: SS, PEEK Insert, Seal: Lipseals, Dual  
Seat Design (DPE+SR), Fugitive Emission Test



# Mir Valves



## ENBRIDGE CANADA

South Edmonton Terminal, onshore

MV3 Side-Entry Ball Valves 10" CL.150, FB, RF (15 pcs.)

Body: LTCS, Trims: LTCS/CS+ENP, Seat insert: rPTFE, Seal: Viton, Double Piston Effect



Year 2014  
M20130090



**THANK YOU**