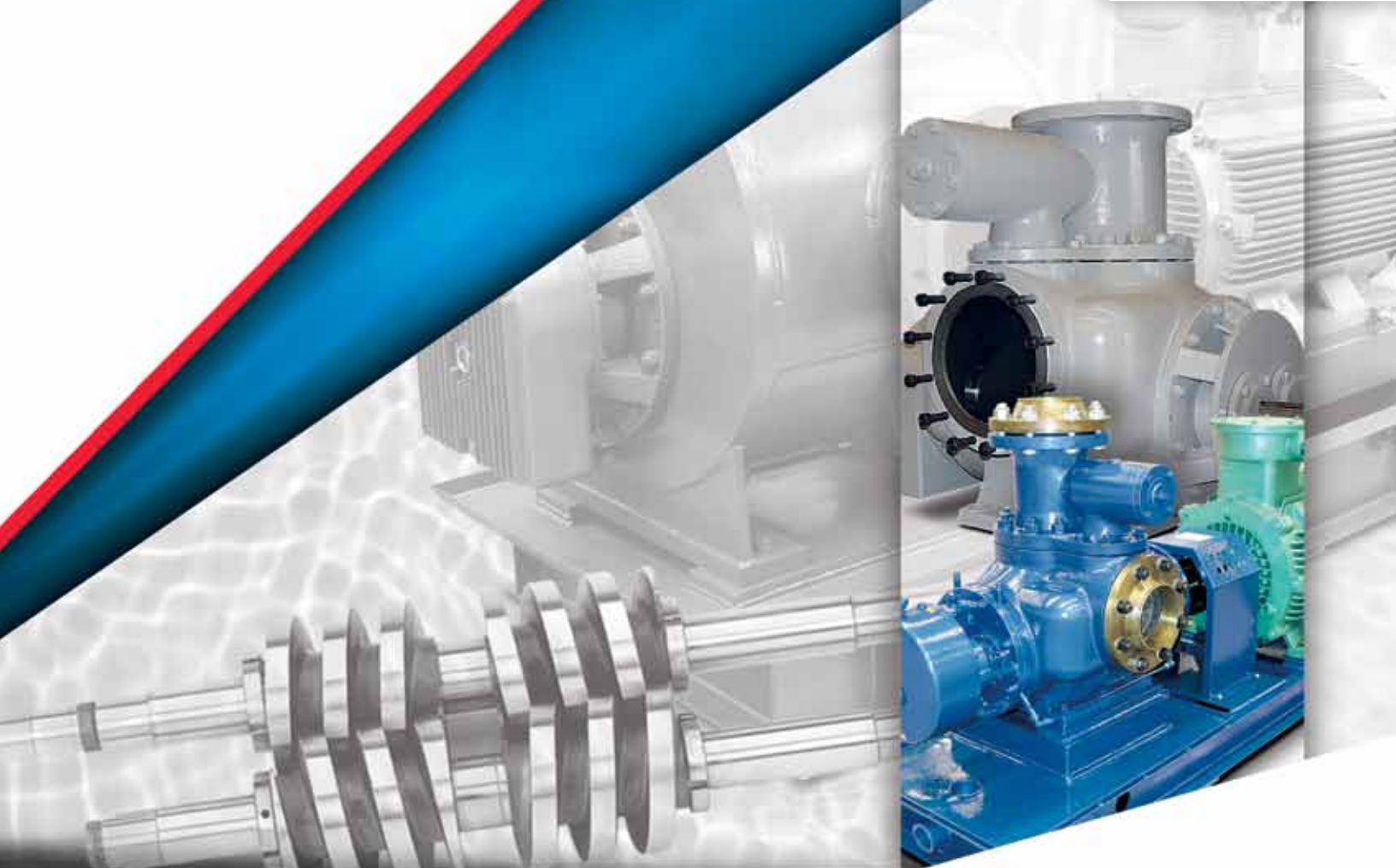




# Twin Screw Pump SERIES

PRODUCT  
Portfolio



*Where Innovation Flows*

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

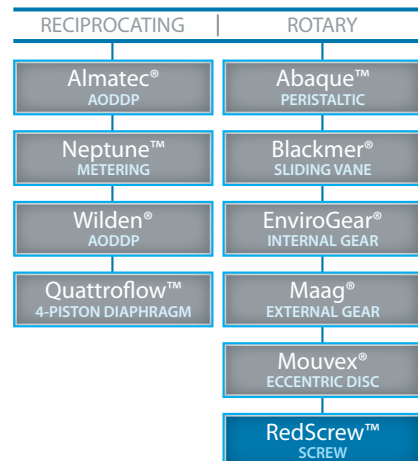
TWIN SCREW PUMPS  
MULTIPHASE PUMPS



Dover's **Pump Solutions Group (PSG®)**, a global leader in positive displacement pump and supporting technologies, delivers value-added pumps and systems that serve customers requiring the safe and efficient transfer of critical and valuable materials. PSG features world-class pump brands and has multiple facilities on three continents (North America, Europe and Asia) that are ISO certified. We are passionately committed to innovative technologies that will positively impact the world. Our priority is providing the market expertise you need by delivering tomorrow's innovative fluid and material transfer solutions today.

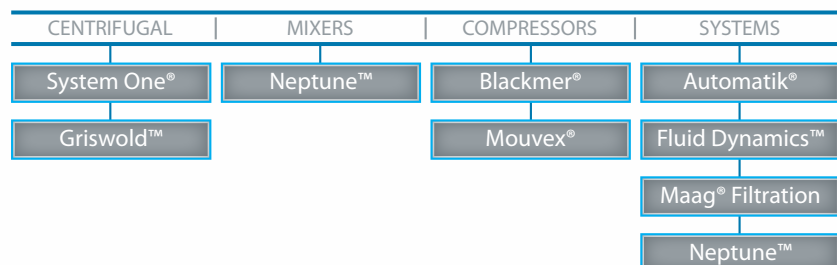
## Where Innovation Flows

### POSITIVE DISPLACEMENT PUMPS



### PSG® Technologies:

#### PUMPS & SYSTEMS TECHNOLOGIES



# Who We Are



RedScrew™, part of Pump Solutions Group (PSG®), is a globally recognized screw pump manufacturer based in China. RedScrew is an operating company within Dover Corporation's Pump Solutions Group, Oakbrook Terrace, IL, USA. PSG features a broad array of leading pump technologies as well as world-class facilities in the U.S., Germany, France, Italy, India and China. PSG's leading infrastructure, knowledge base and intellectual capital drives our commitment to performance and innovation.



**Tianjin, China** – RedScrew is headquartered in Tianjin, China. Our state-of-the-art ISO 9001:2008 office building and manufacturing facility is 4,000 sq. meters (43,056 ft<sup>2</sup>). Our operational facility includes research and development, quality control, and engineering, as well as our own fabrication shop and professional testing facilities. RedScrew offers a wide range of highly customizable screw pumps and systems technologies. We have the production capacity, technical and engineering capabilities, and product quality to meet the global demands required by your industry.

**Commitment to Innovation** – Since 1995, RedScrew has been driven by a relentless pursuit of product perfection and constantly searching for new ideas in fluid transfer technologies. Our engineering department is home to application and design engineers who are focused on developing new products and solving problems for our customers. This commitment to excellence and continuous improvement has provided RedScrew the platform to deliver World-Class screw pumps for the petrochemical, shipping, pharmaceutical, food and metallurgy industries.

TWIN SCREW PUMPS

MULTIPHASE PUMPS

## How it Works

RedScrew twin screw pumps are rotary, positive displacement pumps capable of handling various clean liquids that contain no solids. The pump is composed of two sets of opposed screws. During pump operation, the screws on the two shafts are engaged, and form a sealed cavity with the surrounding pump casing. The pumped liquid is shifted axially as the screw shafts turn and steadily and constantly convey the liquid to the center of the pump where the discharge port is located. Since hydraulic forces on two screws are opposite and equal, the hydraulic axial stress on shafts is automatically balanced.

The special profile of the screw flanks with patented technology can ensure fluids pushed with high efficiency, nearly pulsation-free, continuation and good NPSH-values.

Double-array ball bearing can offset against balanced axial power.

Relief valve installation can realize overload protection.

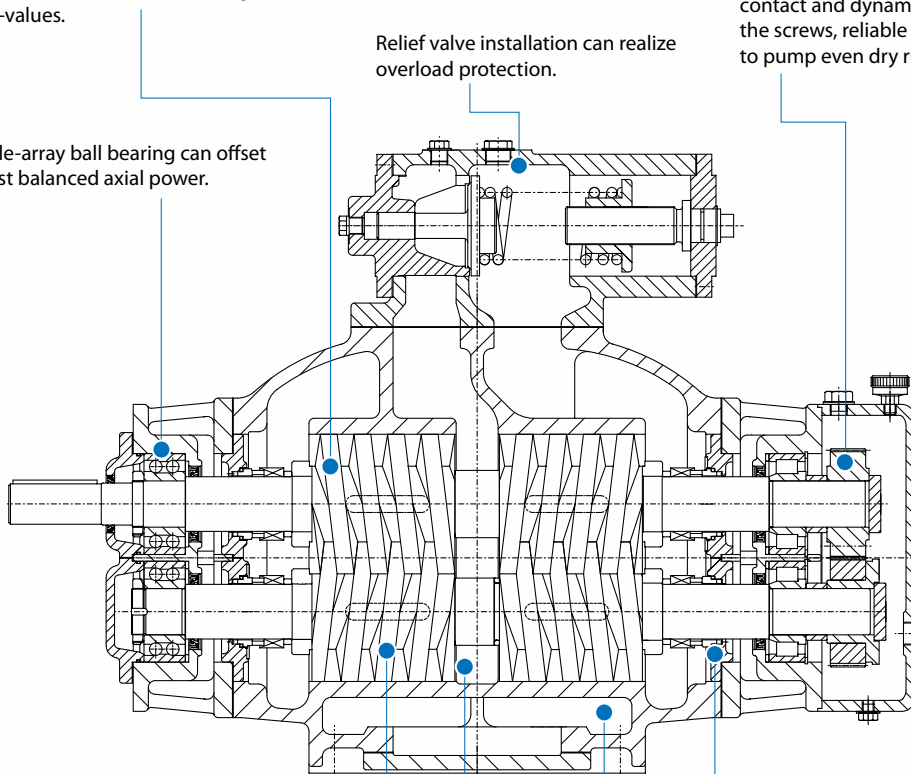
With WTG pumps, the timing gear is adopted to transfer the torque from power screw to idler screw, ensuring no metallic contact and dynamic transferring between the screws, reliable rotation and no danger to pump even dry running in a short time.

Separate construction between shaft and screw allows for a choice of materials for each.

Axial forces are balanced through double entry screws.

The single mechanical seal is lubricated by pumped medium.

Heating of the pump foot is by means of vapor or transfer-heat oil.





## Facility



RedScrew operational facility began with the clear vision of becoming a World-Class manufacturer of screw pump technologies. As we continue to execute our vision through integrated facility design, lean manufacturing and operational effectiveness, we are committed to offering screw pumps that are safe, reliable and efficient.

RedScrew recognizes that having the latest manufacturing equipment, procedures and infrastructure is critical to designing world class product. Our facilities are ISO 9001 and CCS certified. We also have the scalability to support large production runs while maintaining world-class quality.

RedScrew manufacturing features a state-of-the-art building, designed with the environment, our customers and future growth in mind. Centered around twin and triple screw pump technologies, RedScrew's 4,000 sq. meters (43,056 ft<sup>2</sup>) operational facility employs over 110 employees including; skilled production personnel, customer service support and seasoned engineers.

### RedScrew Patents

- Patent No: ZL 99200405.5: Twin Screw Pump
- Patent No. ZL 99201251.1: New Tooth-Profile Screw of Twin Screw Pump
- Patent No. ZL 00245885.3: Twin Screw Granular Making Machine Special for PAM
- Patent No. ZL 200520025537.x: Single-Suction Double-Side External Bearing Twin Screw Pump
- Patent No. ZL 200520025564.x: Cast Casing for Horizontal Double-Suction Twin Screw Pump
- Patent No. ZL200620026000.x: Low-Inlet Quick-Open Easy-for-Clean Filter
- Patent No. ZL200620027775.9: Multiphase Twin Screw Pumps for High Gas Content Condition
- Patent No. 2008820143478.x: Gas-Liquid Separation Device of LPG Twin Screw Pump

### Certifications and Associations

CCS ISO 9001:2008  

### Customer Care

At RedScrew, our most important resource is our highly experienced people. The intellectual capital at RedScrew continues to be the largest asset that distinguishes RedScrew from other screw pump manufacturers.

RedScrew's customer-focused staff is dedicated to customer satisfaction, product knowledge, and application solutions. Our customer care specialists and application engineers are action-oriented specialists committed to making sure every order receives immediate attention, is accurately processed and followed up to keep your process flowing smoothly.

Our goal is to support our customers through technical and application expertise by assisting them in making cost effective and efficient use of our technologies globally.

## MARKETS SERVED

### PROCESS

RedScrew's attention to detail, quality assurance procedures, and expertise in the chemical process market, ensures your success. Our application experts can assist in your toughest applications to ensure maximum efficiency and Mean Time Between Repair (MTBR).

#### Typical Applications Handled:

- Chemical
- Caustics
- Adhesives
- Food and beverage
- Petrochemicals
- Acids
- Polymers

### ENERGY

RedScrew's knowledge and proven success in the power generation, oil & gas industries have instilled confidence in users worldwide. Consult our experts at RedScrew today, to ensure your success in the energy market.

#### Typical Applications Handled:

- Crude oil
- Asphalt
- Kerosene
- Oil field
- Residuals
- Electric generation

### TRANSPORT

Whether it's tankers, railcars, or terminals, RedScrew's solutions offer top-notch reliability in the transport industry. Keep your products moving with one of our application engineer's today.

#### Typical Applications Handled:

- Bulk transfer
- Loading / unloading
- Terminals
- Shipping

### MARINE

RedScrew is here with proven success, to support the marine and shipbuilding industries. With a wide range of compatibility, the safe, swift and reliable transfer of marine fluids is a core function of RedScrew pumps.

#### Typical Applications Handled:

- Shipbuilding
- Bilge and ballast
- Diesel
- Seawater
- Lube oil
- Fire suppression







TECHNOLOGY: SCREW

## WTG Series Twin Screw with Timing Gears

RedScrew's twin screw pumps are offered with a double suction design configuration. Twin Screw pumps with timing gear transmissions are perfectly suited for transferring low-lubricity fluids, or even abrasive mediums. The WTG pump series offer no metal contact between the hydraulic components and automatic axial balancing. RedScrew's WTG Series pumps can be applied in a variety of different operating conditions and fluids that includes, but is not limited too: corrosive and non-corrosive, low or high viscosities, clean or abrasive fluids.

### Applications

- Petroleum
- Petrochemical
- Refineries
- Chemical
- Storage and transportation
- Shipping
- Oil terminals
- Food & beverage
- Lubricating oil

### Features and Benefits:

- Low noise
- Overload protection
- Nearly pulsation-free
- Increased reliability
- Direct drive
- No fluid agitation
- No emulsified shear
- Suitable for a wide range of viscosity

### Technical Data:

- More than 80 sizes

### Performance Data:

- Flow rate: 1 – 2200 m<sup>3</sup>/h (5 – 10,000 gpm)
- Max. differential pressure: 60 bar (900 psi)
- Max. temperature: 350° C (650° F)

### Certifications & Associations:





TECHNOLOGY: SCREW

## NTG Series Twin Screw Pumps

The twin screw pumps non-timing gear pumps are a single suction design. The axial hydraulic force on the components is compensated by a balance piston. Metal contact exists between the screw profiles; however there is no metal contact between the screws and casing. The NTG series pumps are especially suitable to deliver various lubricating fluids with high viscosity, e.g. bitumen and residual oil, at medium or high temperatures.

### Applications

- Asphalt
- Heavy fuel oil
- Petrochemical
- Chemical fiber
- Chemical
- Oil terminals
- Lubricating oil
- Shipping

### Features and Benefits:

- Low noise
- Low pulsation reliability
- No fluid agitation
- No emulsified shear
- Suitable to wide range of viscosity

### Technical Data:

- Four models to fit your application

### Performance Data:

- Flow rate: 1 – 480 m<sup>3</sup>/h (5 – 2,200 gpm)
- Max. differential pressure: 16 bar (230 psi)
- Max. temperature: 350° C (650° F)

### Certifications & Associations:



ISO 9001:2008





TECHNOLOGY: SCREW

## Multiphase Twin Screw Pumps

Designed for medium to low pressure applications, the Multiphase Twin Screw Pumps are robust, reliable and built to last within the Oil & Gas industry. RedScrew multiphase pumps are commonly used in the oil fields that have untreated streams. The 2MP Series is designed for higher differential pressure and higher suction pressure applications.

### Applications

- Crude oil
- Natural gas
- Desert oil field
- Beach-sea oil field
- Offshore platform
- Wellhead

### Features and Benefits:

- Reduces backpressure
- Increased production
- Quick installation
- Reduced downtime
- Unique materials for extreme operating conditions

### Technical Data:

- Three models to fit your application

### Performance Data:

- Flow rate: 30 – 1500 m<sup>3</sup>/h (130 – 6,500 gpm)
- Max. differential pressure: 60 bar (870 psi)
- Max. temperature: 120° C (250° F)

### Certifications & Associations:

**CCS ISO 9001:2008**

TECHNOLOGY: SCREW

## 2HE Horizontal General Twin Screw Pumps, WTG

2HE series is a horizontal, self-priming, positive displacement pump, with middle to low pressure and low noise lubrication oil pump. The power screw and idler screw together with the surrounding pump casing form the sealed chambers, the contents of which are shifted axially as the shaft is delivered to the discharge side.

### Applications

- Petroleum
- Petrochemical
- Lubricating oil
- Storage and transportation
- Food & beverage
- Loading / unloading

### Features and Benefits:

- Meshed power screw shaft and idler screw shaft in the pump casing form sealed chambers
- Torque is safely transferred by the timing gears
- No metal contact
- Convenient to change the location of the suction and discharge

### Technical Data:

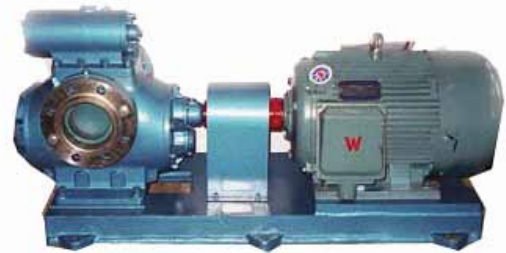
- Pump casing: Cast iron/ductile iron/cast steel/cast stainless steel
- Shaft: Alloy steel/ stainless steel
- Screws: Ductile iron/alloy steel/stainless steel
- Bearing Housing: Grey cast iron
- Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN50-DN300
- Two casings constructions to select:
  1. Side inlet, Side outlet
  2. Side Inlet, up outlet

### Performance Data:

- Flow rate: 2 – 2,200 m<sup>3</sup>/h (8.81 – 9,687 gpm)
- Suction pressure: -0.08 – 0.8 MPa (-11.60 – 116.03 psi)
- Discharge Pressure: 0.1 – 2.5 MPa (14.50 – 362.59 psi)
- Min. and Max. temperature: -20° – 120° C (-4° – 248° F)

### Certifications & Associations:

   **ISO 9001:2008**





TECHNOLOGY: SCREW

## 2HC Twin Screw Pumps, WTG

2HC series is designed for marine applications where space is highly confined. Its compact, light weight design can be used to transfer liquid without solid contents, including lubricating or non-lubricating liquids, low or high viscosity liquids, and corrosive liquids. It features a high flow rate, strong self-suction capability, smooth operation, and is simple to operate and maintain.

### Applications

- Petrochemical
- Chemical
- Oil terminals
- Shipping

### Features and Benefits:

- No metal-to-metal contact
- Specially constructed relief valve
- Rotor, screw and pump casing form the seal chamber
- Split shaft and screw
- Great suction performance
- Low operating noise
- Small capacity and quick flashing

### Technical Data:

- Pump casing: Cast iron/ductile iron/cast steel/cast stainless steel
- Shaft: Alloy steel/ stainless steel
- Screws: Ductile iron/alloy steel/stainless steel
- Bearing Housing: Grey cast iron
- Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN125-DN300

### Performance Data:

- Flow rate: 50 – 1,000 m<sup>3</sup>/h (220 – 4,403 gpm)
- Suction pressure: -0.05 – 0.5 MPa (-7.25 – 72.52 psi)
- Differential Pressure: 0.1 – 1.6 MPa (14.50 – 232.06 psi)
- Min. and Max. temperature: -20° – 120° C (-4° – 248° F)

### Certifications & Associations:



TECHNOLOGY: SCREW

## 2HM Horizontal General Twin Screw Pumps, WTG

These double suction, self-priming twin screw pumps have external bearings and timing gear transmission. They are especially suitable for the delivery of various fluids in a wide range of viscosities that are free of solid substances or with a little abrasiveness and at a moderate temperature.

### Applications

- Petrochemical
- Chemical
- Paint & Coatings
- Oil terminals
- Storage and transportation
- Food & beverage
- Loading / unloading
- Shipping

### Features and Benefits:

- Meshed power screw shaft and idle screw shaft in the pump casing form sealed chambers
- Torque is safely transferred by the timing gears
- No metal-to-metal contact
- Convenient to change the location of the suction and discharge

### Technical Data:

- Pump casing: Cast iron/ductile iron/cast steel/cast stainless steel
- Shaft: Alloy steel/ stainless steel
- Screws: Ductile iron/alloy steel/stainless steel
- Bearing Housing: Grey cast iron
- Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN50-DN300

### Performance Data:

- Flow rate: 2 – 2,200 m<sup>3</sup>/h (8.81 – 9,687 gpm)
- Suction pressure: -0.08 – 0.8 MPa (-11.60 – 116.03 psi)
- Discharge Pressure: 0.1 – 2.5 MPa (14.50 – 362.59 psi)
- Min. and Max. temperature: -20° – 120° C (-4° – 248° F)

### Certifications & Associations:

 **CE CCS ISO 9001:2008**





TECHNOLOGY: SCREW

## 2MPS Multiphase Twin Screw Pumps, WTG

Multiphase pumps are boost and delivery equipment, commonly used in oil fields that have untreated streams. In order to satisfy multiphase delivery of oil, gas and water, containing small particulates, RedScrew multiphase pumps adopt a unique screw profile and design along with a special pump casing chamber to achieve boosting for gas in mixture and heat distribution.

In order to meet a variety of adverse operating conditions in the field, RedScrew multiphase pumps use specially selected materials, hardening treatment, and specialty seals.

To allow our customers simple, convenient and quick installation RedScrew can provide a multiphase skid system that includes filter, valve, connecting pipeline, and control equipment.

### Applications

- Crude oil
- Natural gas
- Desert oil field
- Beach-sea oil field
- Offshore platform
- Wellhead

### Features and Benefits:

- Reduces backpressure
- Increased production
- Quick installation
- Reduces downtime
- Unique materials for extreme Operating conditions

### Technical Data:

- Pump casing: Cast iron/ductile iron/cast steel/cast stainless steel
- Shaft: Alloy steel/ stainless steel
- Screws: Ductile iron/alloy steel/stainless steel
- Bearing Housing: Grey cast iron
- Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN50-DN300

### Performance Data:

- Flow rate: 30 – 120 m<sup>3</sup>/h (130 – 528 gpm)
- Suction pressure: ≤1.6 MPa, Maximum 2.5 MPa (≤232.06 psi, Maximum 362.59 psi)
- Discharge pressure: ≤4.0 MPa, Maximum 6.0 MPa (≤580.15 psi, Maximum 870.23 psi)
- Medium temperature: 20° – 80° C (68° – 176° F)
- Dry running: 10 minutes
- Pressure ratio: ≤18 (Maximum 20)
- Air content: ≤98% (Maximum 100%)

### Certifications & Associations:

**CCS ISO 9001:2008**

## 2VM Vertical General Twin Screw Pumps, WTG

### Applications

- Suitable for handling various mediums without solids including various oil products, chemical products and high polymer mediums.
- Also suitable for clean liquids with entrained gas content less than 60%.

### Technical Data:

- Pump casing: Grey cast iron/ductile iron/cast steel/cast stainless steel; Shaft: Alloy steel/ stainless steel; Screw: Ductile iron/alloy steel/stainless steel; Bearing Housing: Carbon steel.
- Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN80-DN300

## 2VE Vertical General Twin Screw Pumps, WTG

### Applications

- Mainly used in ship building and other applications where installation space is limited
- Delivers various oil products with lubricating qualities and no solids

### Technical Data:

- Pump casing: Grey cast iron/ductile iron/cast steel/cast stainless steel; Shaft: Alloy steel/ stainless steel; Screw: Ductile iron/alloy steel/stainless steel; Bearing Housing: Carbon steel.
- Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN80-DN300

## 2VR Vertical Twin Screw Pumps, WTG

### Applications

- Especially suitable for the delivery of various fluids that are free of solid substances or with a little abrasiveness at higher temperature, or the fluid needs to be heated.

### Technical Data:

- Pump casing: Grey cast iron/ductile iron/cast steel/cast stainless steel; Shaft: Alloy steel/ stainless steel; Screw: Ductile iron/alloy steel/stainless steel; Bearing Housing: Carbon steel.
- Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN80-DN300

## 2HR Horizontal, High Temperature, High Viscosity Twin Screw Pumps, WTG

### Applications

- Installed in applications where the median temperature is much higher than 120° C (248° F) or needs to be heated to maintain high temperatures.
- Suitable for applications where the viscosity is ultra-high and can accept a wide range of mechanical seal types.
- This pump casing construction is suitable for application requiring heat jacketing.

### Technical Data:

- Pump casing: Carbon Steel; Liner: Ductile iron/Nickel cast iron; Shaft: Alloy steel/ stainless steel; Screws: Alloy steel/stainless steel; Bearing Housing: Grey cast iron/ carbon steel Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN80-DN500





## 2HH High Pressure Twin Screw Pumps, WTG

### Applications

- Used as a long distance delivery pump for large capacity and high pressure applications or as main filling pumps for high pressure and large capacity units.
- Suitable to deliver various fluids with viscosities higher than 100 mm<sup>2</sup>/s.

### Technical Data:

- Pump casing: Carbon Steel; Liner: Ductile iron/Nickel cast iron; Shaft: Alloy steel/ stainless steel; Screws: Alloy steel/stainless steel; Bearing Housing: Grey cast iron/ carbon steel
- Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN80-DN300



## 2H Single End Twin Screw Pumps, WTG

### Applications

- Used in applications where operating pressure is  $\Delta P < 1.2 \text{ MPa}$  and capacity is  $< 60 \text{ m}^3/\text{h}$ .
- Suitable for various low, middle, and high viscosity fluid without solids.
- Pump can be provided in mobile configurations, whether or not the medium is lubricating or corrosive.

### Technical Data:

- Pump casing: Grey cast iron/ductile iron; Shaft: Alloy steel/ stainless steel; Screws: Ductile iron/alloy steel/stainless steel; Bearing Housing: Grey cast iron.
- Pump Nozzle Flange: GB/DIN/ANSI
- Flange: DN50-DN80



## LPG Single End Twin Screw Pumps, WTG

### Applications

- Twin screw pump which uses a special screw profile.
- Superior ability to transfer the mixture of gas and fluid allowing the pump to start up quickly and smoothly transfer the LPG from the under-ground tanks to waiting vehicles.
- RedScrew LPG pumps maintain their performance when the pump is located up to ten meters away from the tanks or when the pumps are working in high temperature conditions.
- RedScrew LPG pumps are also widely utilized in urban LPG storage & distribution stations as well as LPG bottling plants.

### Technical Data:

- Under-floor and floor LPG tanks, the maximum allowable installation height of 6m
- Low pulsation and low noise level
- Variable flow direction
- Stronger ability of multiphase delivery, pump works well even when suction pressure is lower than saturated vapor pressure of LPG.





## 2LA Horizontal Twin Screw Pumps, NTG

### Applications

- Self-priming, single suction twin screw pump especially suitable to deliver various lubricating fluids with high viscosity at medium or high temperature.

### Technical Data:

- Two series pump, typical non-timing gear transmission
- Strong Self-priming capability
- Low pulsation
- Low noise level
- No agitation to the fluids and no emulsified shear
- High Viscosity and poor lubricity application



## 2KA Vertical Twin Screw Pumps, NTG

### Applications

- Self-priming, single suction twin screw pump especially suitable to deliver various lubricating fluids with high viscosity at medium or high temperature.

### Technical Data:

- Two series pump, typical non-timing gear transmission
- Strong self-priming capability
- Low pulsation
- Low noise Level
- No agitation to the fluids and no emulsified shear
- High viscosity and poor lubricity application

## 2LE Horizontal Twin Screw Pumps, No Timing Gear

### Applications

- Self-priming, single suction twin screw pump especially suitable to deliver various lubricating fluids with high viscosity at medium or high temperature.

### Technical Data:

- Two series pump, typical non-timing gear transmission
- Strong Self-priming capability
- Low pulsation
- Low noise level
- No agitation to the fluids and no emulsified shear
- High Viscosity and poor lubricity application

## 2KE Vertical Twin Screw Pumps, No Timing Gear

### Applications

- Self-priming, single suction twin screw pump especially suitable to deliver various lubricating fluids with high viscosity at medium or high temperature.

### Technical Data:

- Two series pump, typical non-timing gear transmission
- Strong self-priming capability
- Low pulsation
- Low noise Level
- No agitation to the fluids and no emulsified shear
- High viscosity and poor lubricity application



- ABAQUE™**  
PERISTALTIC PUMPS  
[mouvex.com](http://mouvex.com)
- ALMATEC®**  
AIR-OPERATED  
DOUBLE-DIAPHRAGM PUMPS  
[almatec.de](http://almatec.de)
- BLACKMER®**  
VANE PUMPS & COMPRESSORS  
[blackmer.com](http://blackmer.com)
- ENVIROGEAR®**  
INTERNAL GEAR PUMPS  
[envirogearpump.com](http://envirogearpump.com)
- FLUID DYNAMICS™**  
POLYMER BLENDING SYSTEMS  
[fluiddynamics1.com](http://fluiddynamics1.com)
- GRISWOLD™**  
CENTRIFUGAL PUMPS  
[griswoldpump.com](http://griswoldpump.com)
- MAAG®**  
PUMP SYSTEMS  
PELLETIZING SYSTEMS  
FILTRATION SYSTEMS  
[maag.com](http://maag.com)
- MOUVEX®**  
ECCENTRIC DISC PUMPS,  
VANE PUMPS &  
COMPRESSORS  
[mouvex.com](http://mouvex.com)
- NEPTUNE™**  
DIAPHRAGM (METERING) PUMPS,  
POLYMER SYSTEMS & MIXERS  
[neptune1.com](http://neptune1.com)
- QUATTROFLOW™**  
4-PISTON DIAPHRAGM  
[quattroflow.com](http://quattroflow.com)
- REDSCREW™**  
SCREW PUMPS  
[redscrowpump.com](http://redscrowpump.com)
- SYSTEM ONE®**  
CENTRIFUGAL PUMPS  
[blackmer.com](http://blackmer.com)
- WILDEN®**  
AIR-OPERATED  
DOUBLE-DIAPHRAGM PUMPS  
[wildenpump.com](http://wildenpump.com)

## Where Innovation Flows



PSG reserves the right to modify the information and illustrations contained in this document without prior notice. This is a non-contractual document. 01-2012



No.2, Hai Tai Hua Ke Er Road  
Hua Yuan Industry Park  
Tianjin 300384, P.R.China  
T: +86-(0)22-27944570  
F: +86-(0)22-27944565  
[www.redscrowpump.com](http://www.redscrowpump.com)

Authorized Partner: