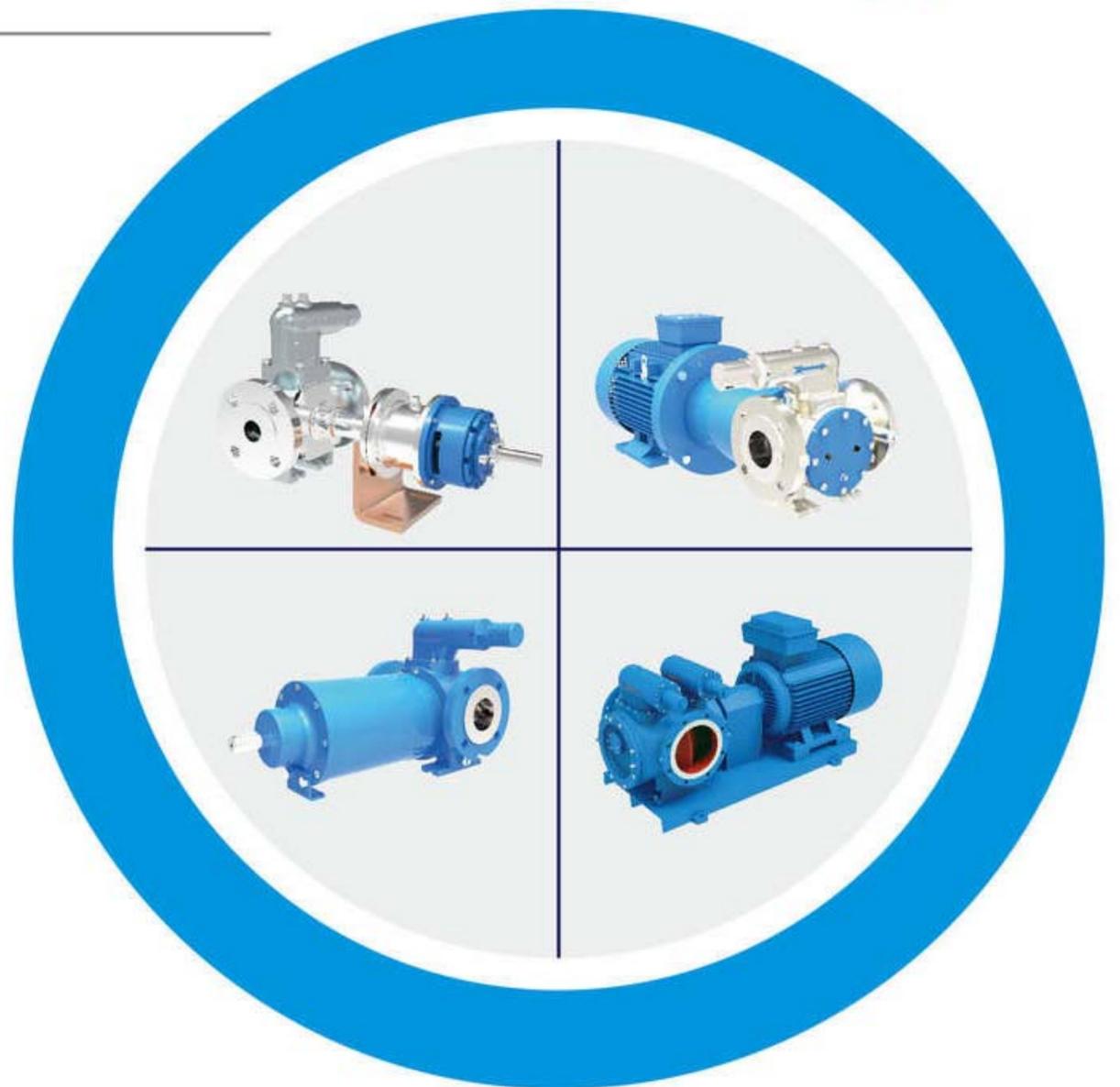


浦川流体设备 (无锡)

# PUTRONS FLUID EQUIPMENT (WUXI)



N<sup>®</sup> 系列齿轮泵  
N<sup>®</sup> Series Gear Pump



# INTRODUCTION

## 企业简介

浦川流体设备（无锡）有限公司是一家集科研、生产、工程为一体的高科技中外合资企业，专注于工业流体设备的解决方案。浦川拥有发明专利12项，实用新型专利28项。目前共有员工50多名，占地3500 m<sup>2</sup>。

浦川流体始终如一致力于科技创新，凭借我们多年来在齿轮泵和离心泵领域所积累的丰富经验，以及我们拥有的专业泵研发中心、测试中心与精良的加工和铸造设备，我们不仅为客户量体裁衣，提供久经时间考验并具创新技术的解决方案，还可以帮助客户降低设备维修费用、减少资金投入、减低调试成本并提高过程利用率。



Putrons Fluid Equipment (Wuxi) Co., Ltd. is a high-tech joint venture integrating research, production and engineering, focusing on solutions for industrial fluid equipment. Putrons currently owns 12 invention patents and 28 utility model patents. The factory is located in Wuxi, Jiangsu Province, with total area of 3500 m<sup>2</sup> and around 50 employees.

Putrons has always been committed to scientific and technological innovation. With our years of accumulated experience in the field of pumps, especially gear pumps and centrifugal pumps, as well as the professional pump R&D center, testing center, excellent machining and casting equipment, Putrons provides standard and tailor-made products for our customers, with time-tested and innovative technology solutions which help customers reduce equipment maintenance costs, capital investment, commissioning costs as well as increase process utilization.



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• For selection of pumps, please email [psales@putrons.com](mailto:psales@putrons.com) or contact Putrons sales engineer.

泵选型请电邮 [psales@putrons.com](mailto:psales@putrons.com) 或直接联系浦川流体销售工程师。

Using the latest invention patented technology, the PUTRONS N<sup>®</sup> series super energy-saving internal gear pump has the features of high efficiency, low noise and high reliability, and is designed for petroleum, chemical, coating, grease, paper, dye, food and wind power industry, and is API compliant. Compared with similar internal gear pumps on the market, the efficiency of Putrons pumps is increased by about 10%, the noise is reduced by about 10dB (A), and the applicable flow range and viscosity are even wider.

1. Why do traditional internal gear pumps have lower performance?

The internal gear pump was invented more than 100 years ago, but the invention at that time had significant drawbacks - the engagement ratio was low, therefore the internal gear pump using this invention technology had lower efficiency, larger vibration, higher noise, larger leakage, and shorter life. It can not meet the requirements of API standards. In fact, this traditional technology is currently still widely used by some of internationally renowned gear pump manufacturers.

2. How to identify the internal gear pump using traditional technology?

- Observe the tooth profile: The tooth profile of the internal gear pump using traditional technology is shown in picture at right side.
- Turn the pump shaft: Due to the low engagement ration, uneven rotation can be felt easily and impact noise can be heard.
- Listen to noise: When the pump is running, loud bong sound can be heard.

3. How to upgrade the internal gear pump using traditional technology?

PUTRONS N<sup>®</sup> series internal gear pumps have the same assembly dimensions of rotors and idlers as the traditional internal gear pumps have. Upgrade can be easily done by replacing the original rotors and idlers by using Putrons parts.

使用最新发明专利技术的浦川N系列超级节能内齿轮泵具有高效率，低噪音，高可靠性的特点，是为石油、化工、涂料、油脂、造纸、染料、食品和风电等应用领域设计，并且符合API标准。浦川泵比市场上同类型内齿轮泵的效率提高约10%，噪音降低约10dB(A)，适用的流量范围及粘度更广。

1. 为什么传统内齿轮泵的性能已经落伍？

100多年前人们发明了内齿轮泵，但是那时的发明有显著的缺陷-啮合率较低，故使用此发明技术的内齿轮泵就存在效率低、振动大、噪音大、泄漏大、寿命短等现象，不能满足API标准的要求。事实上，目前此传统技术仍然被齿轮泵制造商广泛使用，其中不乏一些号称技术创新的国际知名公司。

2. 如何识别使用传统技术的内齿轮泵？

- 看齿型：使用传统技术的内齿轮泵齿形如下图所示。



- 转动泵轴：由于啮合率较低，能感觉到不均匀的转动和听到撞击声。
- 听噪音：当泵运行时，能听到当当的响声。

3. 如何升级使用传统技术的内齿轮泵？

浦川N系列内齿轮泵的转子和惰轮具有和传统内齿轮泵的转子和惰轮相同的装配尺寸，因此客户只需更换使用无锡浦川泵的转子和惰轮就能实现从传统低效到节能高效的升级。

专利号: ZL 2010 2 0575021.3

## Comparison of Patented Technology 专利技术对比介绍

### Super-energy Saving Internal Gear Pump

- 10% reduction in noise
- 10% increase in efficiency
- Vibration reduction 0.8 mm/s
- Pressure balance design

### 超节能内齿轮泵

- 噪音降低10dB
- 效率提高10%
- 振动降低0.8mm/s
- 压力平衡设计



**低效高噪音齿轮泵**  
非平衡设计, 压力低, 零件磨损快!  
Unbalanced design, low pressure, fast wear

## Compared with well-known brand internal gear pump

Content	Putrons	Others
Engagement overlap ratio (industrial standards require >1.2)	1.3	0.6
Pressure balance design	Yes	No
Whether increased clearance design at high temperature reduces the engagement overlap ratio	No	Yes
Quiet design or high-speed design	Yes	No
Single mechanical seal at temperature above 150 °C or at high viscosity	Yes	No
Mechanical seal with temperature ≥150 °C or with high viscosity without external cooling flushing solution	Yes	No
Pumping, helical or magnetic fluid seal	Yes	No
Multiple composite bearing or composite inner rotor (with FDA certificate)	Yes	No
Multiple anti-wear protection pads	Yes	No
Drain port design at the bottom of the pump casing	Yes	No
Application for high temperature (350 °C), high pressure (80 Bar)	Yes	No

## 国外知名内齿轮泵主要 技术参数对比

内容	浦川	其它
齿轮啮合重合度 (行业标准>1.2)	1.3	0.6
压力平衡设计	是	否
高温采用加大间隙设计是否降低啮合重合度	否	是
静音设计或高速运行设计	是	否
温度大于150 °C 或高粘度下用单机封	是	否
温度大于150 °C 或高粘度下用机封并无需外接冷却冲洗密封方案	是	否
水泵密封、螺杆密封或磁液密封选项	是	否
多种复合材料轴承或复合材料内转子 (有FDA证书)	是	否
多重防磨损保护垫	有	无
泵壳底部放液口设计	有	无
350°C 度高温, 80 Bar 高压应用	是	否

## 01 CHEMICALS 化学品

- Personal Care Products
- Ethyl Alcohol Manufacturing
- Explosives
- Basic Inorganic Chemicals
- Synthetic Dyes & Pigments
- Basic Organic Chemicals
- Plastics & Rubber Products
- Drug & Pharmaceutical
- Petrochemicals
- Plastics/Resins/Rubbers
- Paint & Applied Products
- Printing Inks
- Agricultural Chemicals
- Polyurethane Foam Products
- Soaps & Cleaning Compounds
- 个人护理产品
- 酒精生产
- 炸药
- 无机化学剂
- 合成染料及颜料
- 有机化学剂
- 塑料和橡胶制品
- 药品和制药
- 石化
- 塑料/树脂/橡胶
- 油漆及应用产品
- 印刷油墨
- 农业化学品
- 聚氨酯泡沫产品
- 肥皂和清洗化合物



## 02 REFINED PETROLEUM & COAL 炼油和煤炭



- Oil & Gas Extraction
- Petroleum Refining
- Refined Fuel, LPG & CNG Distribution
- Lubricating Oil & Grease Manufacturing
- Asphalt Paving Mixtures
- Roofing Products
- Lubricant & Conditioning
- Coal Tar Pitch & Coke
- 石油天然气开采
- 炼油
- 精炼燃料，液化石油气和天然气输送
- 润滑油和油脂生产
- 沥青摊铺混合物
- 屋面产品
- 润滑油和处理
- 煤焦油沥青和可口可乐

## 03 MACHINERY 机械设备



- Pumps & Compressors
- Engines & Turbines
- Commercial Cooking Machinery
- Semiconductor Machinery
- Farm Machinery
- Packing Machinery
- Printing Machinery
- Medical Machinery
- Construction/Mining/Material
- Handling Equipment
- Machine Tools
- 泵和压缩机
- 引擎&涡轮
- 商业烹饪机械
- 半导体机械
- 农业机械
- 包装机械
- 印刷机械
- 医疗机械
- 建筑/矿山/材料机械
- 搬运设备
- 机床



## 04 FOOD PROCESSING 食品加工

- Chocolate & Confectionery
- Dairy Products
- Beverages
- Edible Oils
- Sugar
- Animal Food



- 巧克力和糖果
- 乳制品
- 饮料
- 食用油
- 糖
- 动物食品

## 05 TRANSPORTATION 交通运输

- Railroads
  - Military
  - Pipelines
  - Automotive
  - Trucks
  - Aircraft Equipment
  - Marine
  - Terminal
- 铁路
  - 军事
  - 管道
  - 汽车
  - 卡车
  - 航空
  - 海运
  - 枢纽



## 06 OTHER 其它行业



- Utilities
  - Industrial Refrigeration
  - Metal
  - Water Treatment/Conditioning
  - Printing & Publishing
  - Electronics / Electrical Equipment
  - Pulp / Paper / Applied Products
  - Heating Equipment
  - Textiles
- 公用事业
  - 工业制冷
  - 金属
  - 水处理/调节
  - 印刷和出版
  - 电子/电气设备
  - 纸浆/纸/应用产品
  - 加热设备
  - 纺织

Description	General Purpose		Heavy Duty
	NM	NC	NL
Series	NM	NC	NL
Max. Capacity, m <sup>3</sup> /h / USgpm	50/220	45/200	250/1100
Max. Pressure, bar / PSI	18/261	16/232	20/290
Max. Viscosity, cSt	7500	7500	250,000
Max. Temperature, °C / °F	150/302	150/302	250/480
Number of port / Max. port size	7/DN100	6/DN80	10/DN200
Ductile Iron	●	●	●
Carbon Steel	●	●	●
Stainless Steel	●	●	●
Packing Seal			●
Mechanical Seal	●	●	●
Jacket			●
180° opposite 180°	●	●	●
90° right angle 90°	●	●	●
Flanged Connection	●	●	●
Threaded Connection	●	●	●
Foot Mount	●	●	●
Driver Mount		●	
High Temperature	●	●	●
Abrasion			●
Corrosion			●
High Viscosity	●	●	●
Medium Viscosity	●	●	●
Low Viscosity	●	●	●

类别	通用		重载
	NM	NC	NL
系列	NM	NC	NL
最大流量, m <sup>3</sup> /h / USgpm	50/220	45/200	250/1100
最大压力, bar / PSI	18/261	16/232	20/290
最大粘度, cSt	7500	7500	250,000
最高温度, °C / °F	150/302	150/302	250/480
口径数量/最大口径	7/DN100	6/DN80	10/DN200
球铁	●	●	●
碳钢	●	●	●
不锈钢	●	●	●
填料密封			●
机械密封	●	●	●
夹套			●
180° 进出口	●	●	●
90° 进出口	●	●	●
法兰连接	●	●	●
螺纹连接	●	●	●
底脚固定	●	●	●
驱动端固定		●	
高温	●	●	●
磨蚀			●
腐蚀			●
高粘度	●	●	●
中粘度	●	●	●
低粘度	●	●	●

## PUTRONS N<sup>®</sup> NM – General Purpose Pump 浦川 N<sup>®</sup> NM 通用型泵

Pumps in cast iron, for clean oil, nonabrasive liquids. The simple and compact construction makes it low-cost, frequently used in modified versions by OEM customers.

NM pumps are designed for use with IEC or NEMA flange motors.

用于干净的无颗粒的介质的铸铁泵。简单和紧凑的结构使用户投入的成本更低，常用于OEM用户的变更方案。

NM 泵设计用于与IEC 和NEMA法兰连接的电机。

### Typical application:

- Clean oil
- Glycol
- Vegetable oil
- Solvents
- Lube oil
- Waste oil
- Fish oil

### 典型应用:

- 清洁的油
- 乙二醇
- 植物油
- 溶剂
- 润滑油
- 废油
- 鱼油



Capacity Range:	Up to 50 m <sup>3</sup> /h (220 USgpm)
Speed:	Up to 1750 rpm
Differential Pressure:	Up to 18 bar (261 PSI)
Suction Lift:	Up to 0.5 bar Vacuum while priming
	Up to 0.8 bar Vacuum while pumping
Viscosity Range:	Up to 7,500 cSt
Temperature:	Up to 150°C (302°F)
Casing Material:	Ductile iron/CS/SS
Sealing:	Mechanical seal
Ports:	Opposite (180°)
	Right angle (90°)
	Flanged (DIN or ANSI)
	Threaded (BSP or NPT)
Mounting:	Foot mount

流量范围:	最大50 m <sup>3</sup> /h (220 USgpm)
转速:	最高1750 rpm
压差:	最高18 bar (261 PSI)
自吸高度:	自吸时, 最高0.5 bar 真空
	输送时, 最高0.8 bar 真空
粘度范围:	最高 7,500 cSt
温度:	最高 150°C (302°F)
壳体材料:	球铁/碳钢/不锈钢
密封:	机械密封
连接方式:	进出口180°
	进出口90°
	法兰连接 (DIN或ANSI标准)
	螺纹连接 (BSP或NPT标准)
固定方式:	底脚固定

Pumps in cast iron, for clean oil, non-abrasive liquids. The simpler and more compact construction makes it an ultra low-cost pump, frequently used in modified versions by OEM customers.

NC pumps are designed for use with IEC or NEMA flange motors.

用于干净的无颗粒的介质的铸铁泵。更简单和更紧凑的结构使用户投入的成本更低，常用于OEM用户的变更方案。

NC 泵设计用于与IEC 和NEMA法兰连接的电机。

#### Typical application:

- Clean oil
- Glycol
- Vegetable oil
- Solvents
- Lube oil
- Waste oil
- Fish oil

#### 典型应用:

- 清洁的油
- 乙二醇
- 植物油
- 溶剂
- 润滑油
- 废油
- 鱼油



Capacity Range:	Up to 45 m <sup>3</sup> /h (200 USgpm)
Speed:	Up to 1750 rpm
Differential Pressure:	Up to 16 bar (232 PSI)
Suction Lift:	Up to 0.5 bar Vacuum while priming
	Up to 0.8 bar Vacuum while pumping
Viscosity Range:	Up to 7,500 cSt
Temperature:	Up to 150°C (302°F)
Casing Material:	Ductile iron/CS/SS
Sealing:	Mechanical seal
Ports:	Opposite (180°)
	Right angle (90°)
	Flanged (DIN or ANSI)
	Threaded (BSP or NPT)
Mounting:	Motor mount/Foot mount

流量范围:	最大45 m <sup>3</sup> /h (200 USgpm)
转速:	最高1750 rpm
压差:	最高16 bar (232 PSI)
自吸高度:	自吸时, 最高0.5 bar 真空
	输送时, 最高0.8 bar 真空
粘度范围:	最高 7,500 cSt
温度:	最高 150°C (302°F)
壳体材料:	球铁/碳钢/不锈钢
密封:	机械密封
连接方式:	进出口180°
	进出口90°
	法兰连接 (DIN或ANSI标准)
	螺纹连接 (BSP或NPT标准)
固定方式:	电机固定/底脚固定

## PUTRONS N<sup>®</sup> NL – Heavy Duty Multi-function Pump 浦川<sup>®</sup> NL 重载多功能泵

NL pumps are specially designed for tough applications including highly viscous liquid.

Higher speed operation is allowed. Direct drive eliminates the use of speed reducer, and makes higher pressure possible.

Pumps in cast iron, are designed for a wide range of viscous, non-corrosive liquids.

Pumps in carbon steel, are designed for refinery and petrochemical applications which meet API 676 standard.

Pumps in stainless steel, are designed for handling corrosive liquids, primarily used in chemical, food and pharmaceutical industries.

NL重载泵专为苛刻的应用而设计，包括高粘度介质。

可高速运行，直接驱动减少了减速器的使用，可满足更高压力要求的场合。

铸铁泵专为处理各种粘度的、非腐蚀性介质而设计。

碳钢泵专为石化和炼油应用设计，符合API676标准。

不锈钢泵专为处理腐蚀性介质而设计，主要用于化工、食品、医药等行业。



### Typical application:

- oil
- Asphalt
- Polyol
- Viscose
- Polyester
- Wax
- Hydrocarbon
- Fatty acid
- Caustic soda
- Paint
- Soap
- Syrup
- Chocolate
- Polystyrene
- Fat
- Organic acid
- Alkali

### 典型应用:

- 油
- 沥青
- 多元醇
- 粘胶
- 聚脂
- 蜡
- 碳氢化合物
- 脂肪酸
- 苛性钠
- 油漆
- 肥皂
- 糖浆
- 巧克力
- 聚苯乙烯
- 脂肪
- 有机酸
- 碱

Capacity Range:	Up to 250 m <sup>3</sup> /h (1100 USgpm)
Speed:	Up to 1750 rpm
Differential Pressure:	Up to 20 bar (290 PSI)
Suction Lift:	Up to 0.5 bar Vacuum while priming
	Up to 0.8 bar Vacuum while pumping
Viscosity Range:	Up to 250,000 cSt
Temperature:	Up to 350°C (660°F)
Casing Material:	Ductile iron/CS/SS
Sealing:	Mechanical seal/Packing
Ports:	Opposite (180°)
	Right angle (90°)
	Flanged (DIN or ANSI)
	Threaded (BSP or NPT)
Mounting:	Foot mount
Optional:	Jacket (Front cover /rear cover)

流量范围:	最大250 m <sup>3</sup> /h (1100 USgpm)
转速:	最高1750 rpm
压差:	最高20 bar (290 PSI)
自吸高度:	自吸时, 最高0.5 bar 真空
	输送时, 最高0.8 bar 真空
粘度范围:	最高 250,000 cSt
温度:	最高 350°C (660°F)
壳体材料:	球铁/碳钢/不锈钢
密封:	机械密封/填料密封
连接方式:	进出口180°
	进出口90°
	法兰连接 (DIN或ANSI标准) 螺纹连接 (BSP或NPT标准)
固定方式:	底脚固定
选配:	前后夹套

NE environmental protection magnetic pump is designed to meet the stringent requirements of non-leakage applications, completely solve the problem of liquid or gas leakage. Usually, most customers use double sealing and auxiliary flushing system to solve leakage, but this solution requires frequent maintenance and frequent replacement of parts, so maintenance costs are high. The total life cycle cost of NE environmental protection magnetic pump is much lower than that of traditional double mechanical seal scheme.

NE环保磁力泵专为满足无泄漏苛刻要求的应用而设计，彻底解决液体或气体的泄漏问题。通常大多数客户采用双机封加辅助冲洗系统来解决泄漏，但这种方案要经常维护和频繁更换零件，因此维护成本很高。NE环保磁力泵在生命周期内的成本远低于传统的双机封方案。



#### Typical application:

- Asphalt
  - Isocyanate
  - Hydrocarbon
  - Alkali
  - Coal tar
  - Resin
- Coal chemical process
  - Dangerous or toxic liquid
  - Organic acids
  - Caustic soda
  - Polyols
  - Corn syrup

#### 典型应用:

- 沥青
  - 异氰酸酯
  - 碳氢化合物
  - 碱
  - 煤焦油
  - 树脂
- 煤化工流程
  - 危险或有毒液体
  - 有机酸
  - 苛性钠
  - 多元醇
  - 玉米糖浆

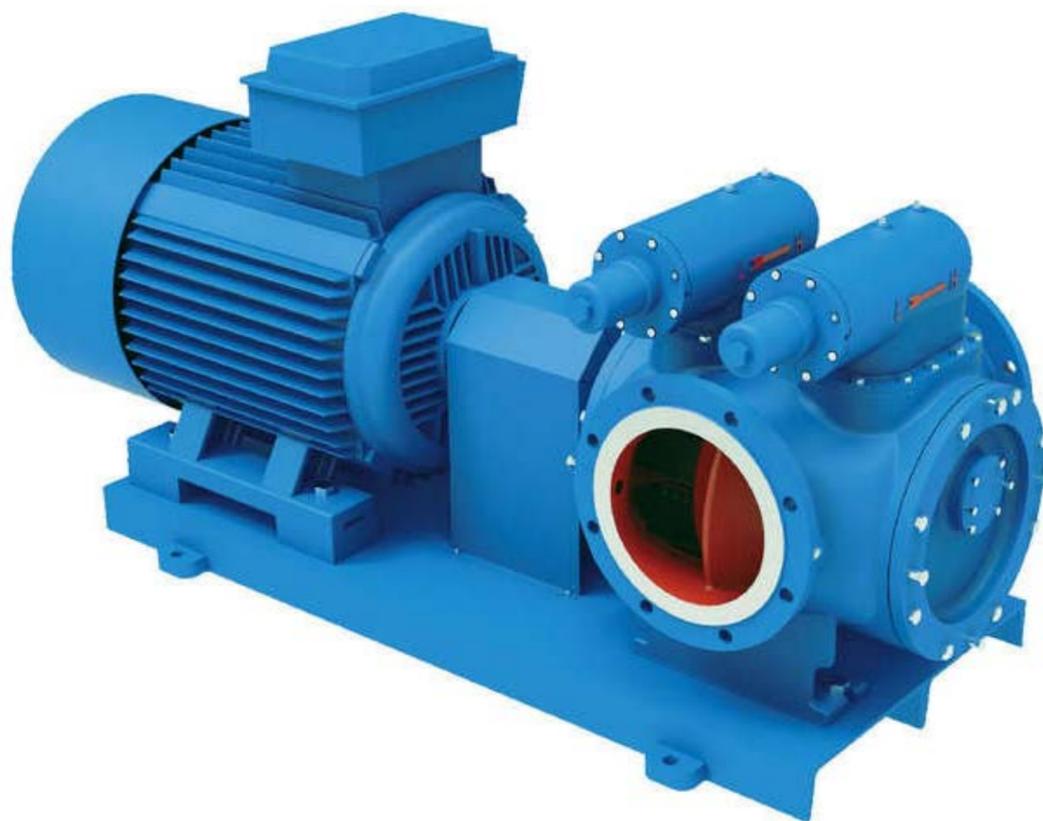
Capacity Range:	Up to 90 m <sup>3</sup> /h (396 USgpm)
Speed:	Up to 1750 rpm
Differential Pressure:	Up to 20 bar (290 PSI)
Suction Lift:	Up to 0.5 bar Vacuum while priming
	Up to 0.8 bar Vacuum while pumping
Viscosity Range:	Up to 250,000 cSt
Temperature:	Up to 250°C (480°F)
Casing Material:	Ductile iron/CS/SS
Sealing:	Mechanical seal/Packing
Ports:	Opposite (180°)
	Right angle (90°)
	Flanged (DIN or ANSI)
	Threaded (BSP or NPT)
Mounting:	Foot mount
Optional:	Jacket (Front cover /rear cover)

流量范围:	最大90 m <sup>3</sup> /h (396 USgpm)
转速:	最高1750 rpm
压差:	最高20 bar (290 PSI)
自吸高度:	自吸时, 最高0.5 bar 真空
	输送时, 最高0.8 bar 真空
粘度范围:	最高 250,000 cSt
温度:	最高 250°C (480°F)
壳体材料:	球铁/碳钢/不锈钢
密封:	机械密封/填料密封
连接方式:	进出口180°
	进出口90°
	法兰连接 (DIN或ANSI标准)
	螺纹连接 (BSP或NPT标准)
固定方式:	底脚固定
选配:	前后夹套

## PUTRONS N<sup>®</sup> ND – Large Flow Double Suction Pump 浦川 N<sup>®</sup> ND 大流量双吸泵

ND double suction internal gear pump is a new and unique patented product developed for large flow, high pressure and low weight requirements of petrochemical industry.

ND双吸内齿轮泵是为石油化工行业大流量高压低重量要求而开发的全新独一无二的专利产品。



### The features are:

- Axial force balance
- Maximum flow is 350 m<sup>3</sup>/h, with built-in speed reducer
- Maximum pressure is 80 bar with balanced radial force design
- Light weight and small floor space



### 其特点是：

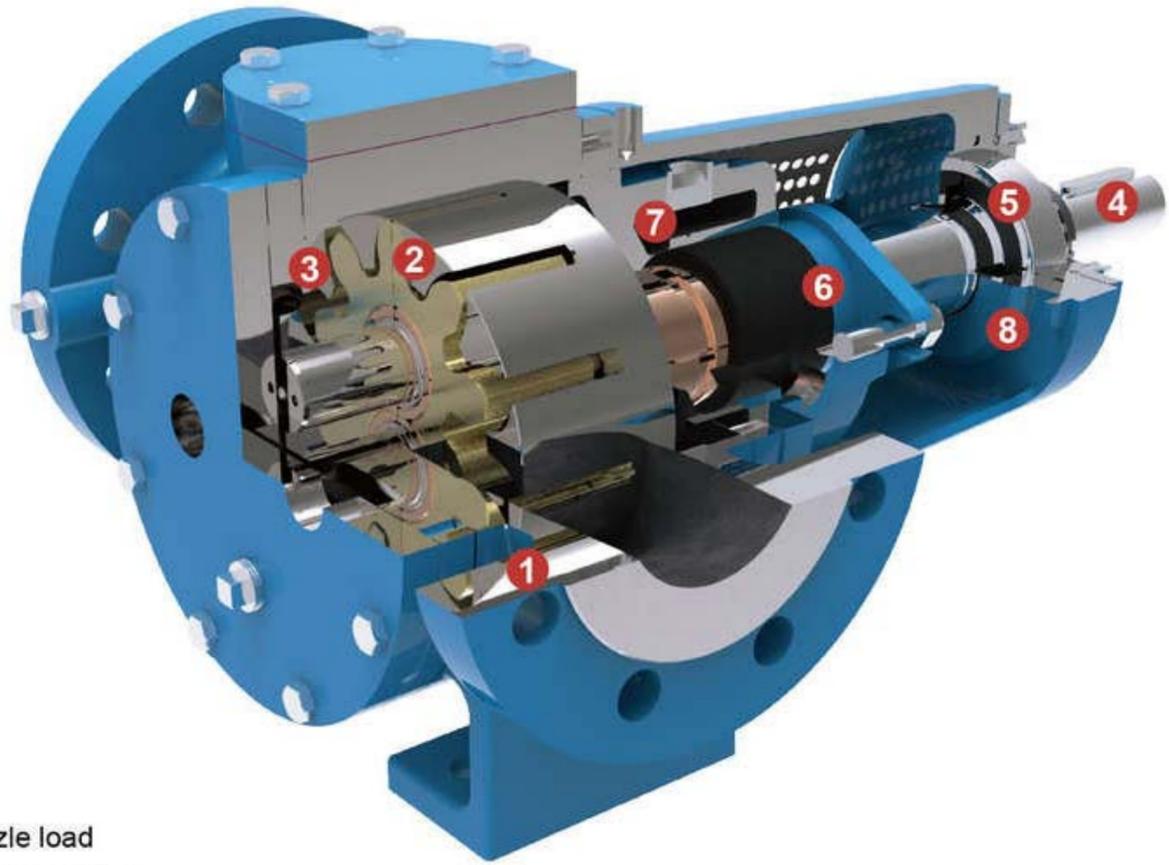
- 轴向力平衡
- 最大流量可达350 m<sup>3</sup>/h，内置减速机
- 压力最大可达80 bar，径向力平衡
- 重量轻，占地面积小

### API610 Material Class options:

I, S, C, A, D Class  
Or tailor-made

### API610 材料等级选择:

I, S, C, A, D 等级  
或特殊材料定制



#### 1 Heavy-duty design pump casing 重载设计泵体

- Withstand more than 2 times of API nozzle load
- Balanced design for high pressure and temperature
- Optional Jacket
- 可承受2倍以上API管口载荷
- 高压、高温、平衡设计
- 可选配夹套

#### 2 Rotor/Idler 转轮/惰轮

- Patented design, higher efficiency and quieter
- Engagement overlap ratio doubled
- Multiple clearance options for different viscosities and temperatures
- 专利设计，高效低噪
- 重合度提高一倍
- 多种间隙选择以适配不同粘度和温度

#### 3 Anterior crescent 月牙前盖

- Reversible heavy load design
- Optional wear-resistant design
- 可换向重载荷设计
- 可选耐磨配置

#### 4 Rigid shaft design 刚性轴设计

- Improve vibration
- Longer seal life
- Reduce wear due to deformation
- 改善振动
- 更长的密封寿命
- 减少由于变形引起的磨损

#### 5 Bearing 轴承

- Reliable, long-life bearing system design
- Sleeve + Ball or
- Ball + Ball
- 可靠、长寿命的轴承系统设计
- 滑动轴承+球轴承 或
- 球轴承+球轴承

#### 6 Seal 密封

- Mechanical or packing seal available
- Optional patented vortex, dynamic or magnetic fluid seal
- 可选机械密封或填料密封
- 可选专利的漩涡、动力或磁液密封

#### 7 Back cover 后盖

- Optional heating or cooling jacket
- Standardized design for multiple applications
- 可选配加热或冷却套
- 标准化设计适应多种应用场合

#### 8 Bearing housing 轴承箱体

- Precise and convenient axial adjustable design
- Heavy-load design
- 精确便捷轴向可调节设计
- 高承载设计



● 浦川流体办公室和工厂  
PUTRONS Factories and Offices

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