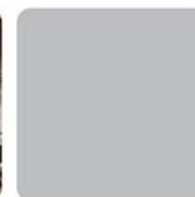
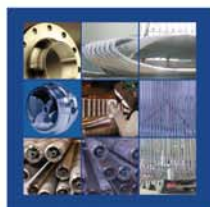


石化用高等级合金制造专家  
Specialist in High Grade Alloys for Petrochemical Applications



**烟台玛努尔高温合金有限公司**  
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真诚合作 共铸辉煌  
Cooperate For Mutual Excellence

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## 企业简介 | company profiles

烟台玛努尔高温合金有限公司，前身为中法合资-玛努尔（烟台）工业有限公司，自2010年起成为法国玛努尔工业集团在华的全资子公司。

从1994年同法国玛努尔开始合作起，烟台玛努尔就全套引进了法国玛努尔专利合金的专有技术工艺和诀窍，并配备了最先进的合金炉管自动化生产线及检验设备，专业致力于各种耐热合金离心浇铸管和静态铸造件的生产。多年来为国内外客户提供了大量的转化炉管、裂解管排、热辐射管、炉辊、玻璃辊等产品，广泛应用于石油化工、钢铁以及浮法玻璃行业。

自2002年起，基于法国玛努尔集团的全球销售网络，烟台玛努尔的产品已远销海外20多个国家和地区，并顺利通过了20余家国际主要工程公司、专利商的审核认可；仅通过三年时间，年度出口销售额即突破2千万美元，单笔合同金额达9千万元，连续数年保持高速膨胀的态势。

自2006年起，烟台玛努尔进行了大规模地扩建和升级改造，新建成1.2万平米的铸造新厂，离心铸管产能达6000吨，同时对原有设备和工艺进行了升级优化，是目前国内最大的离心铸造厂，也成为法国玛努尔石化全球市场战略的两大核心生产厂之一。

领先的技术、先进的设备、强大的材料研发和数十年的制造经验，使玛努尔工业集团与烟台玛努尔成为可靠质量和有效成本解决方案的提供者。

Yantai Manoir Heat resistant Alloys Co., Ltd, formerly as a Sino-French joint venture - Manoir (Yantai) Industrial Co., Ltd., has become a 100% owned subsidiary of Manoir Industries France beginning of 2010.

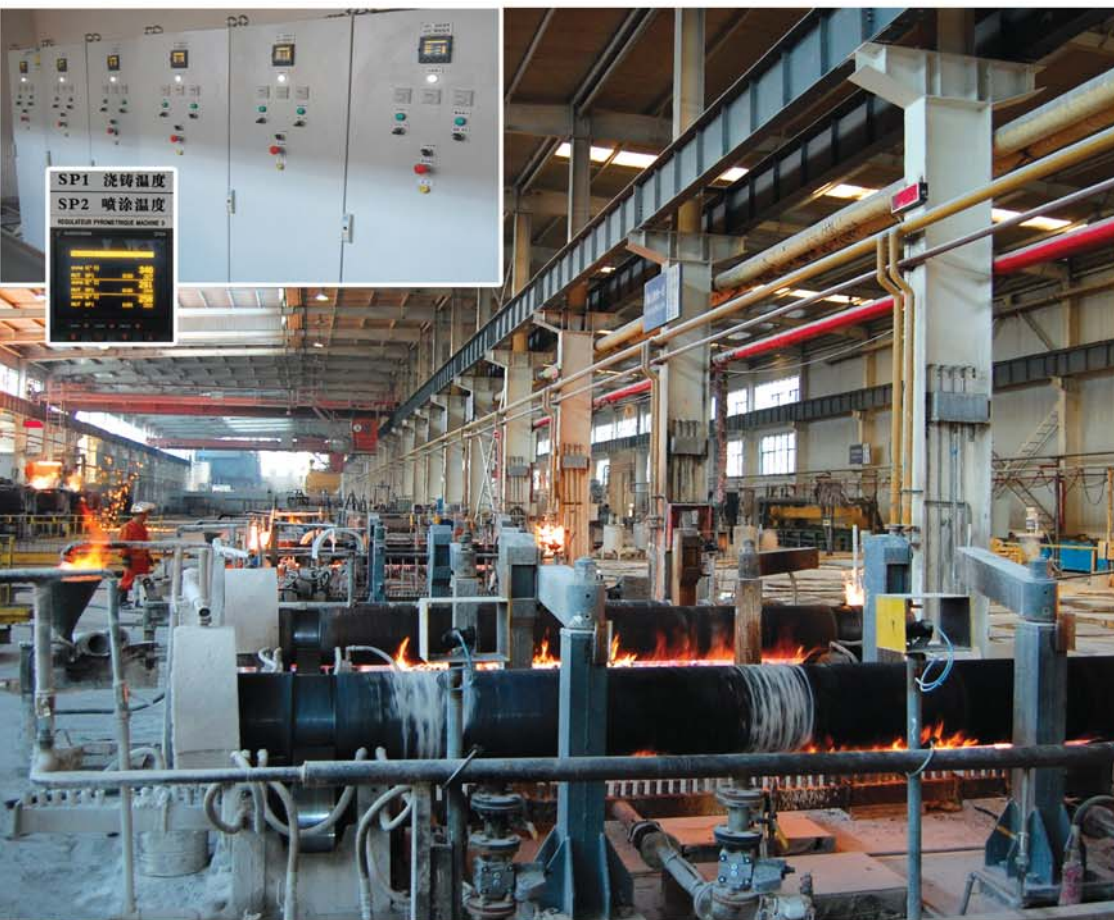
From the beginning of the cooperation with Manoir France in 1994, Yantai Manoir has acquired, through the years, a know-how and a strong expertise in the manufacturing of the proprietary alloys of Manoir Industries. Also, Manoir Yantai has been equipped with the latest and most advanced tube automatic production line and inspection facilities. Yantai Manoir is specialized in the manufacturing of centrifugally cast tubes and static casting fittings made of heat-resistant alloys. The production includes reformer tubes, cracking radiant coils, radiant tubes, hearth rolls, Lehr rolls designed for the petrochemical, the steel and the float glass industries.

Since 2002, through Manoir group's global sales network, Yantai Manoir has sold to more than 20 different countries. The plant has been audited and approved by more than 20 main international engineering companies and licensors. Within three years, Yantai Manoir has achieved annual exporting sales of more than 20 millions USD with single order up to 90 million RMB. Since then, activity has continuously been growing fast.

Since 2006, Yantai Manoir has developed an ambitious expansion program with the setting up of a brand-new 12,000 M<sup>2</sup> casting shop with an annual capacity up to 6,000 tons of spun cast tubes, this has been made through an upgrade and an optimization of this existing equipments. Yantai Manoir is today the largest centri-cast plant in China and plays a leading role in the Manoir group global strategies in petrochemical market.

Latest technology, advanced equipments, strong metallurgical research and developments, combined with decades of experience, lead Manoir Industries and Yantai Manoir to become the provider of highly reliable and cost effective solutions.





## 先进的生产工艺 | production process

烟台玛努尔全套进口了一条完整的离心铸管自动生产线，关键设备完全按照法国的型号引进，以确保实现法国玛努尔专有制造工艺和技术的特点：

- 离心机为法国进口，独特的地基及型筒设计，保证了型筒转速高振动小，运转平稳，生产的炉管组织更加致密，长度更长；同时独家采用红外自动控制、型筒预热形成温度梯度，确保整个管长度首尾结晶和组织一致，并按用户要求控制柱状晶、等轴晶比例，保证了炉管内在质量。
- 内孔加工采用意大利进口的拉镗床，而非推镗，确保较高的加工光洁度及加工炉管的壁厚差减至最小；
- 炉管对接焊采用法国进口自动 Tig 焊机打底、自动 Mig 焊机填充，均由电脑控制，消除了人为因素的影响，重复性好，一级片率大于 99%；同时 Tig 焊机打底不加焊丝，直接采用母材的金属熔解，从而保证了焊缝质量及性能更接近母材。

Yantai Manoir has imported a complete automatic production line for centrifugally cast tubes for which the key equipments are the same than Manoir France. Thus, Yantai Manoir has been able to easier maintain the specificities of Manoir know-how and procedures :

- France imported centrifugal spinning machines, performing high rotation speed and limited vibrations thanks to the unique foundation and mold designs, can lead to more sound tube structure and longer cast length. Moreover, mold pre-heating automatically infrared controlling temperature units generates the defined thermal gradient on molds, so that the homogeneous solidification and structure on full tube length as well as the required columnar/equiaxed ratios can be guaranteed.
- Italy imported pull-boring machines, instead of pushing boring, has ensured higher machining surface finish and has minimized the eccentricities of machined tubes.
- France imported CNC controlled automatic TiG welding machine for root passes + automatic MiG machine for filler passes, has secured and made the welding operation reproducible. It also has minimized the instabilities of welds, and led to the class I films over 99%. In addition, automatic TiG self-fusion of base metal with no filler wires on root passes has also resulted in higher weld properties and more similarities of welds to the base metal.







## ○ 完善的质量体系 |

quality assurance & quality control

烟台玛努尔按 ISO9001:2000 标准建立了完善的质量保证体系，并确立了“用户满意、国际领先”的质量方针。

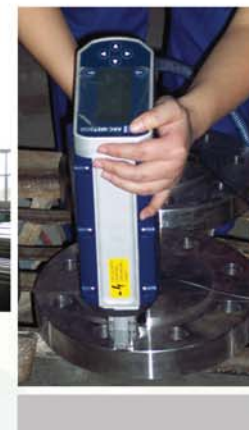
烟台玛努尔配备了最为完善的质量检验手段，除可满足任何国家、地区或企业的标准常规要求外，并具备以下独到之处：

- 引进德国、瑞士光谱分析仪，采用法国玛努尔专利材料的标钢，能快捷准确的分析包括 Ti、Zr、RE 等微量元素的四十多种化学元素，从而保证了冶金成分尤其是微合金质量；
- 独家采用法国进口的气密 + 荧光探伤在线检验系统，对毛坯管段进行 100% 检验，消除表面微裂纹等目视检查无法发现的缺陷，提高了毛坯外表面的质量要求；
- 采用法国进口涡流探伤系统对加工后的炉管管段进行 100% 的内孔检查；
- 两台 PMI 便携式光谱仪检查外协件和焊缝的化学成份。

Yantai Manoir implemented its quality insurance system in conformity with ISO9001:2000 and established its quality policy as “Customer Satisfaction and International Level”.

Yantai Manoir was equipped with the most sophisticated inspection facilities, not only to satisfy the usual requirements of international codes and standards of any country, region or enterprise, but also to show distinctive with its own specialties:

- Swiss/German imported spectrometers, calibrated by the standard coupons of Manoir proprietary alloys, provide quick and precise analysis of more than 40 elements including Ti, Zr, RE and trace elements. Thanks to this material metallurgical composition is ensured, especially for micro-alloys.
- Exclusive Air-test + Fluorescent test machine, imported from France, making 100% on-line inspection of as-cast sections, can eliminate such defects like micro-cracks which could not be found by visual checks, and enhances the quality requirements of as-cast surface.
- France imported Eddy current test machine can guarantee a 100% inspection of the internal quality after the tube inside boring.
- Two PMI machines can verify the chemical analysis of all buyouts and welds.





## 产品业绩 - 石化裂解 | product reference - steam cracking

烟台玛努尔至今共完成 200 余单合同，为国内外 70 余家（包括道化学、杜邦、瑞恩工业等世界著名厂家）提供了大量的乙烯裂解辐射管排及备件。产品类型涵盖了鲁姆斯、SW、德希尼布、林德、SEI 等主要炉型。

Yantai Manoir is supplying ethylene radiant coils or spares to more than 70 domestic and international customers (including worldwide clients such as Dow Chemicals, Dupont, Reliance). Yantai Manoir has carried out more that 200 project, covering the main designs like CBI Lummus, Stone & Webster, Technip, Selas Linde, SEI

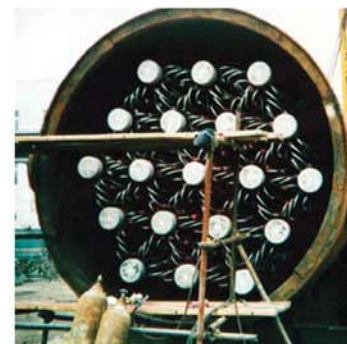




## ○ 产品业绩 - 石化转化 | product reference - steam reforming

鉴于合成氨、甲醇、制氢、DRI 转化炉长周期高温高压的操作条件对材料高可靠性的要求，烟台玛努尔一直是备受转化炉客户青睐的制造厂家。多年来共承接了超过 200 个项目、80 余套整台转化炉管系的供货，其中包括壳牌 1248 套、Essar864 套、巴西石化 624 套转化管的大型项目。产品涵盖了托普索、德希尼布、FW、林德、凯洛格、DPT 等设计炉型。

With the higher material reliabilities demanded by the reformers of ammonia, methanol, hydrogen and DRI under long term operating with high temperature and pressure, Yantai Manoir has always the favor of reforming clients, thus has taken till now more than 200 jobs and about 80 complete reformer tube systems. These include large jobs such as 1248 tubes for Shell, 864 tubes for Essar Oil and 624 tubes for Petrobras, covering the main designs like Haldor Topsoe, Technip, Foster Wheeler, Selas Linde, Kellogg, DPT and etc.





## 产品业绩 - 石化集合管 | product reference - collectors



烟台玛努尔可为客户提供一站式服务，在工厂内完成管系的全部部件制造和供货，这包括热壁集合管（尤以离心铸造的 MAN900/900B 材料为主）、冷壁集合管（有衬里或无衬里）、输气管线、猪尾管等；专业的焊接队伍和多年的现场经验也使我们为客户提供了大量的现场服务。

Yantai Manoir shows experience in providing customers with one-shop services, supplying all the components of tube system, including hot collectors (especially made of cast materials like MAN900/900B), cold collectors (with or without insulation lining), transfer lines, pigtail etc. Further, expertised welding team with years of experience enables us to provide clients with numerous field welding services.



## 产品业绩 - 冶金玻璃 | product reference - steel & glass

除了传统的辐射管、炉辊以外，烟台玛努尔也提供了最新设计的双 P 型辐射管。多年的冶金经验使烟台玛努尔可以根据客户使用条件提供新型合金，以及更加严格的材料控制的加工精度。

On top of the traditional radiant tubes and rollers, Yantai Manoir has also fabricated the latest designed double P radiant tubes. With years of metallurgical experiences, Yantai Manoir is able to bring the new alloy solutions to clients, more stringent controls on material and machining finish.





## 现有材料/Current materials

玛努尔合金 Manoir Alloy	成份 Composition (Cr/Ni)	蠕变特性 Creep	渗碳特性 Carburization	耐热冲击性 Thermal shock resistance
900	20/32 LC	+	+	+++
900B	25/35 LC	+	++	++
XTM LC	35/45 LC	+	+++	+

## 低碳合金/Low Carbon alloys

玛努尔合金 Manoir Alloy	成份 Composition (Cr/Ni)	蠕变特性 Creep	渗碳特性 Carburization	最高使用温度 Max operating Temperature
XM	25/35	+++	+	1 100 °C
40X	30/40	++	++	1 150 °C
XTM	35/45	+	+++	1 200 °C

## 高碳合金/High carbon alloys

## 最新进展/Latest developments

应用 Applications	牌号 Grade	成份 Composition	业绩 Reference
转化管 Reformer	XMR	XM改良 XM Modified	Total
裂解管 Cracker	XO 40XO	XM+Ta+Al 40X+Ta+Al	Sabic (NL & UK) Dow Chemical Polimeri Total Reliance

## 新材料 - 新技术

new alloys & technologies

作为冶金材料研发界的领跑者，法国玛努尔在过去的数十年间开发了一系列创新的专利合金，牌号为 *Manaurite*，持续优化材料的抗蠕变、抗渗碳、抗热冲击性能以及在特定环境下的抗腐蚀性能，以满足不断提高的操作条件要求和更长的材料寿命的预期。

从 1995 年起，烟台玛努尔最早引进了法国玛努尔的专利合金，尤其是将 MAN XM/XTM 等微合金材料成功地在中国加以推广，并使之成为石化行业的材料标准。

Long time pioneer in the metallurgical research and development, Manoir Industries France has developed a range of innovative proprietary alloys, called *Manaurite*, consistently offered new solutions to optimize creep and carburization resistance, thermal shock resistance, and specific corrosion resistance. All above are dedicated to stand up against more severe operating conditions offering a longer material life expectancy.

Since 1995, Yantai Manoir has introduced Manoir's proprietary alloys and especially succeeded in marketing micro-alloys like *Manaurite* XM/XTM all through China, and made these becoming the industrial standards of the petrochemical market.

## 最新发展: ■■

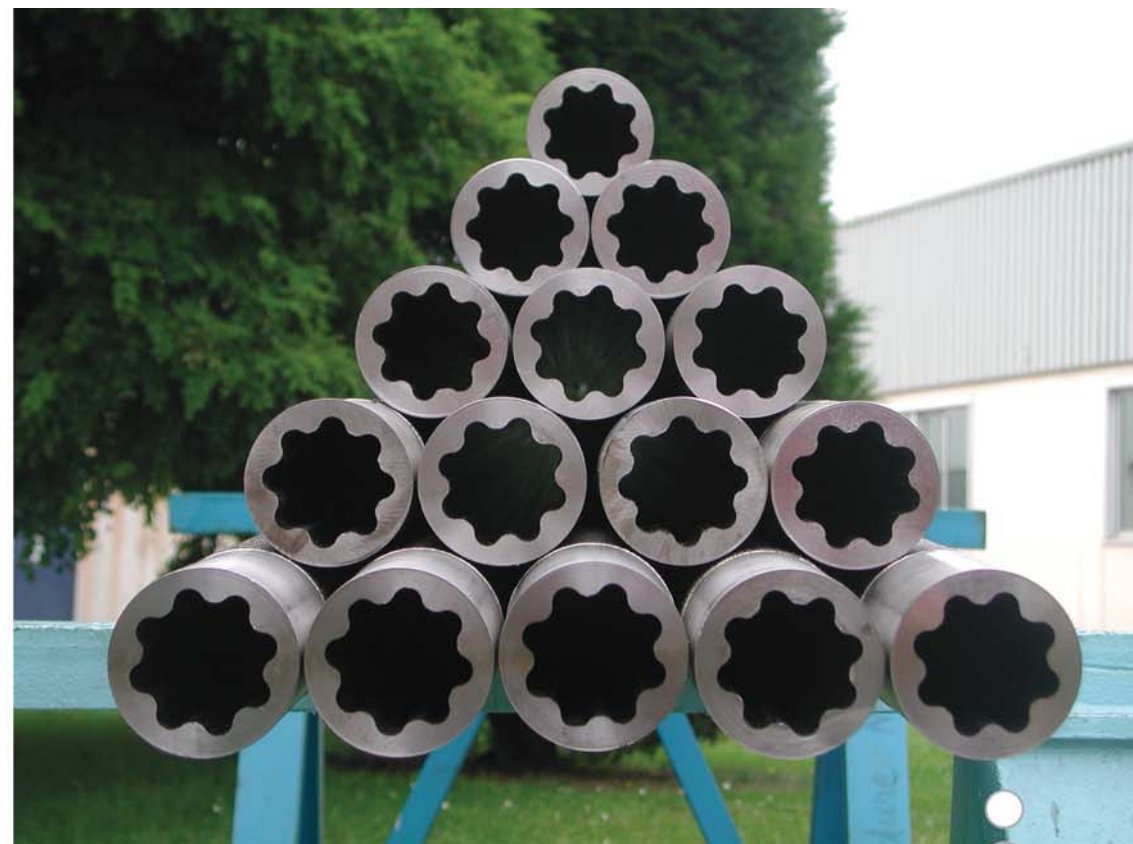
目前为裂解炉开发了新型特种合金，如 XO (25/35 Nb Ta Al) 及 40XO (30/40 Nb Ta Al)，在现有 35/45 材料基础上进一步提高了抗渗碳和抗蠕变性能。这些合金是通过加入 Al 提高了抗渗碳性能，通过添加 Ta 维持了高蠕变性能。

针对转化炉也开发了新型特种合金，牌号为 XMR (25/35 Nb Ti++)，显著提高了蠕变性能。

## Latest developments

Specific grades are developed for crackers such as XO (25/35 Nb Ta Al) & 40XO (30/40 Nb Ta Al), being a carburization and creep resistance improvement to the current 35/45 material. Improved carburization resistance is obtained by adding Al and high creep properties is maintained by adding Ta.

Specific grades are developed for reformers, such as XMR (25/35 Nb Ti ++), with significant higher creep properties.



## 内翅片管: ■■

玛努尔工业集团新开发了一种机加工工艺，可提高内翅片管的内表面面积超过 25%，从而显著提升炉管的热交换。

内翅片管已应用到意大利、美国、印度、加拿大等国家的炉子内，从机械性能方面，离心浇铸的内翅片管完全可以替代目前的轧制管。

由于提高了热交换，在同样产量的情况下，使用内翅片管可以降低管壁温度，从而延长炉管使用寿命，并起到节能的效果。

## Finned tubes

Manoir Industries is using a new developed machining process allowing to increase the heat transfer for our finned tubes. It leads to an increase of the tube ID surface by more than 25%.

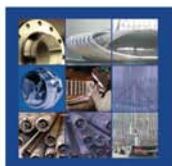
Furnaces equipped with finned tubes have been already delivered to Italy, France, USA, India and Canada. Internally finned cast tubes are an adequate substitute to current extruded tubes from a mechanical properties perspective.

The use of finned tubes increases tube life as tube metal temperatures are lower with an identical production rate since heat transfer is higher. Energy savings also occur.

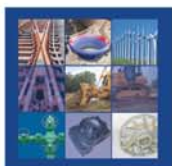
■■ 目前，新型合金和内翅片管仅在法国生产。  
Currently new alloys & finned tubes are only produced in France.



玛努尔航天事业部  
Manoir Aerospace BU



玛努尔石化核电事业部  
Manoir Petrochemical  
& Nuclear BU



玛努尔特种工业事业部  
Manoir Specialties BU



依托于玛努尔集团 3 大事业部、3200 名员工、遍布全球的专业队伍和销售网络，烟台玛努尔将随时随地为您提供服务！  
Backup by Manoir Group's 3 Business Units, 3200 workforce, expertise team and global network, Yantai Manoir is ready for your services, any time, anywhere.