

辉门环新（安庆）粉末冶金有限公司介绍

- Key Products :
 - Sintered Valve Seats & Valve Guides
- Technologies :
 - Sintered valve seats & valve guides
 - Lean production line & auto final inspection line
 - CNC Machining for fully finished VSI(HD Application)

• 主要产品:

- 气门座圈和气门导管

• 核心技术:

- 新型的粉末冶金材料
- 精益化生产线和全自动终检设备
- 精加工座圈加工设备 (HD应用)

• Key Customers 主要客户:



Founded 成立	2014	Area 建筑面积	10,000m ²
F-M Share 份额	50.1%	Partner 合资方	TPR, ARN
Cap. 产能	Valve Guides 导管: 33M pcs Valve Seats 座圈: 24M pcs		



Valve Seat Inserts 座圈



Valve Guides 导管



Turbo Charger Components 涡轮衬套配件



Shock Absorber & Turbo Rings 减震器和涡轮环

- VSG products are in Leading Position in the Industry
座圈、导管产品线都处于市场领导地位

Products 产品

- Sintered valve train products (Valve Seats & Valve Guides) 气门烧结类产品（座圈和导管）
- Sintered exhaust system components (Turbo Charger, EGR) 排气烧结产品配件（涡轮衬套, EGR）
- Shock absorber rings 减震环

Location - Anqing, Anhui 地点-安徽安庆



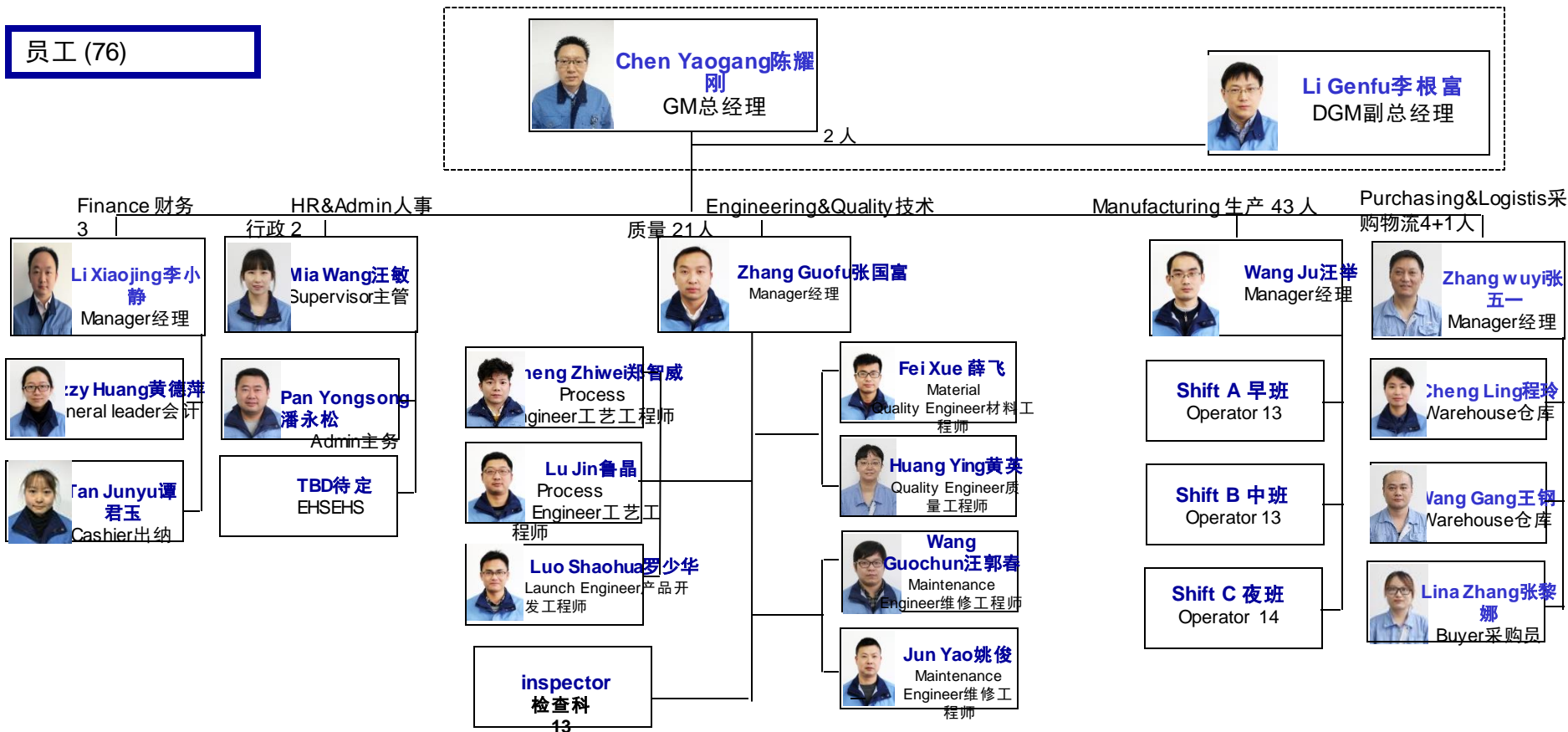
Milestones 里程碑

- Begin Construction 开始建造 Jun'14
- Building complete 建筑完成 Dec'14
- 1st Equipment Arrival 第一台设备进场 Dec'14
- Workers ready 人员就位 Jan'15
- Sample Production 样品生产 Feb'15
- First PPAP submission 第一份PPAP提交 Jun'15
- Start of Production 开始生产 Oct'15
- Grand Opening 开幕式 Oct'15
- 1st Customer Production Delivery 第一次客户产品交付 Dec'15
- Phase 1 objective achieved 一期目标达成 Dec'17
- FMAP Phase 2 approved 二期方案通过 Jan'18
- FMAP Phase 2 construction 二期建设 Oct'18
- FMAP Phase 2 equipment 二期设备 Jun'19

FMAP Plant Organization Chart

辉门环新工厂组织结构图

员工 (76)



气门导管生产工艺-工艺路线 VG Process

1. 粉末混合
blending



2. 成型
pressing



3. 烧结
sintering



4. 回火
tempering



5. 浸油
oiling



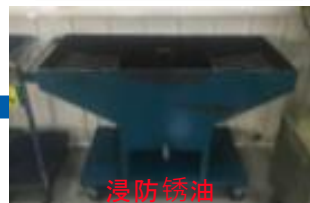
6. 精整
restriking



11. 外观检查~包装
appearance
inspection-package



10. 防锈
anti-rusting



9. 成品检查
FG inspection



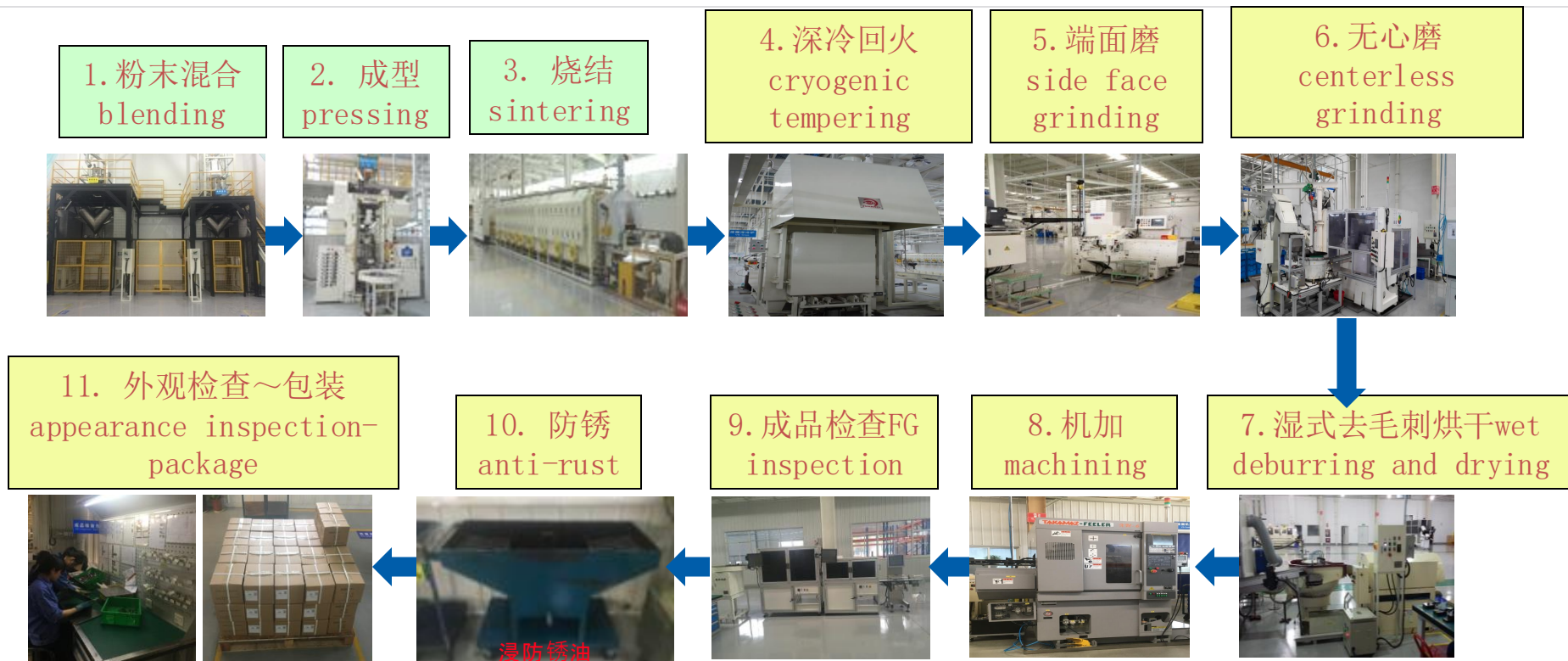
8. 机加
machining



7. 外圆磨 OD
grinding



气门座圈生产工艺-工艺路线 VS Process



原材料仓库RM warehouse



- 原材料仓库和成品库严格遵守先进先出原则
RM warehouse and FG warehouse always obey to first in first out principal
- 原材料仓库湿度恒定控制<70%
RM warehouse humidity control <70%.

混合机blending machine



- 每种材质的粉末有相对应的很合速度和时间，使粉末混合更加均匀、稳定混合物，确保摩擦力最小化
Each kind of powder has its certain speed and time, which make powder mixing more even and stable, to guarantee the minimum friction force.

压机press



- 进口7腔压机，使压制成型的毛坯尺寸更加稳定、高效
The import 7 cavity press achieve the more stable and efficient dimension of parts.

烧结 sintering



深冷 cryogenic



回火 tempering



- Passing “green” parts through a furnace in a controlled atmosphere
生坯在烧结炉可控的温度下烧结
- Bonds the powder particles together, making a solid steel part
使粉末各材质更好地粘合，做成坚固的产品

- 深冷、回火稳定组织去应力，提高零件的机械性能
Cryogenic and tempering to stabilize organization and remove stress, so as to improve mechanical properties of parts.

浸油oiling



- 真空浸油 vacuum oiling
- 非渗铜座圈和导管需要浸油 **Non-infiltrated Valve Seat and Valve Guide Are Impregnated with Oil**
- 产品润滑性增强 **Parts Become Self Lubricating**

精整restriking



- 高效高精度对导管进行外圆倒角工作 **High efficiency and high precision on OD chamfering of VG**
- 1pcs/sec

端面磨 side face grinding



无心磨 centerless grinding



- 先进的日本磨床 Advanced Japan grinder
- 加工更高的尺寸精度和表面粗糙度 Higher machining accuracy and surface roughness

导管机加 VG machining



座圈机加 VS machining



- 日本进口的高精度车床 The imported Japan high precision machine
- 双头双主轴精加工高效高精度 double sides, double shaft, high efficiency and high precision

Blending check facilities 混合检查设施



Carbon and Sulfur
Analyzer 碳硫分析仪



Flowmeter 流量计



Lab Scale 实验室秤

VS Inspection Equipment 座圈自动检查设备



VG Inspection Equipment 导管自动检查设备



100% Automatic Inspection for Key Feature 对于关键尺寸100%自动全检。

High Class Quality Inspection Lab 高级的质量检测实验室

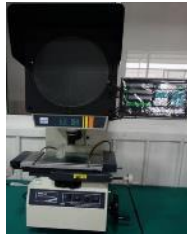


Machining check facilities 机加检测设施

Apparent Density
Cup + Lab Scale 外观
密度杯+实验室秤



Optical
Comparator 光学
比较仪



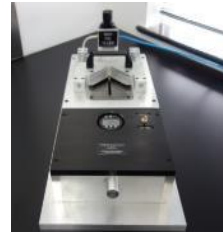
Height Stand with
digital indicator 数显高
度架



OD Air Gage
外圆气压计



VG Bore
gage/split ball 导
管球孔规/分球



Hardness tester
硬度计



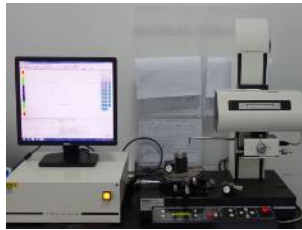
Microscope
显微镜



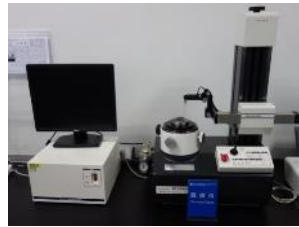
Surface Finish Tester 表面
光洁度测试仪



Calibrated contracer
校准仪



Roundness Tester 圆
度测量仪



XRF-bench optical
emission spectrometer
XRF光电直读光谱仪



CMM 三坐标测量
仪



- Strong material development capability
强大的材料开发能力
- Wide portfolio of material solutions for high performance engines
高性能发动机材料解决方案的广泛组合
- System solution with Valve
气门系统解决方案
- Lean Inline Manufacturing with 100% Automatic Inspection for Key Features
精益的制造工艺和关键尺寸100%自动全检
- High Class Quality Inspection Lab
高级的质量检测实验室
- Strong local support, Fast Response
强大的当地服务，快速响应



System Certification 体系认证



DNV-GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No.: 197914-2016-AQ-40C-IATF VAM URL: 31 May, 2016 - 14 September, 2018
IATF Certificate No.: 0239939

This is to certify that the management system of

FEDERAL-MOGUL (Anqing) Powder Metallurgy Co. Ltd.

No. 24, 3.9 Square Kilom Industry Park, Anqing Development Zone, Anhui Province, 246005 P.R. China and, if applicable, the remote support locations as mentioned in the Appendix accompanying this Certificate

has been found to conform to quality management system standard:
ISO/TS 16949:2009

This certificate is valid for the following Scope:
MANUFACTURE OF VALVE SEAT AND VALVE GUIDE

EXCLUSION: 7.3 PRODUCT DESIGN

Place and date:
Kang, TX, 31 May, 2016



For the issuing office:
DNV GL - Business Assurance
Shanghai, China
Robert Korah
Robert Korah
Management Representative

Link of full text of conditions as set out in the Certification Agreement may be seen via Certificate URL:
ACCREDITED BODY: DNV GL - Business Assurance, 1400 Krambo Blvd., Kang, TX 77449 TX, 281-359-1000, www.dnvgl.com

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ISO TS16949 Certification released on May 31st 5月31日拿到ISO TS16949证书



Ford



SWW



FAW-VW



SGM



JLR



Dongfeng
Renault



GAC-FIAT



PSA



DPCA



VOLVO



SAIC



DFCV



CAT



CNHTC



Cummins



DCEC



JMC



SFH

THANK YOU!

