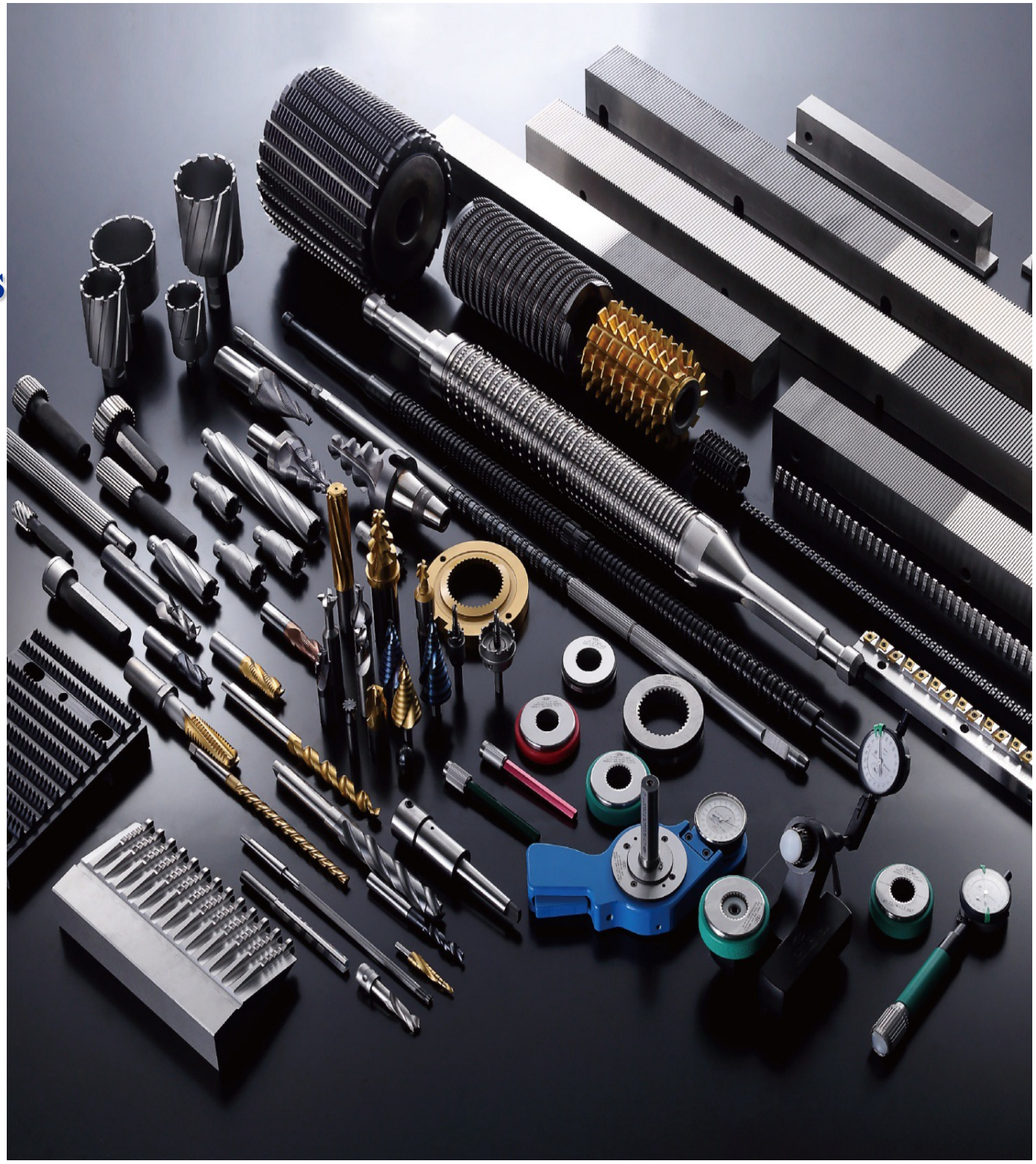
Spline Measuring Tools
Product Introduction



EST TOOLS CO., LTD

Company Overview



EST is located in Haiyan-Jiaxing-Zhejiang, it’s the origin of China's nuclear power industry. And it is adjacent to Shanghai and Hangzhou, the transportation is very convenient.

恒心致远 锋行未来

Company Overview

EST built the factory in 1990 and listed on the GEM in July,2015. EST covers an area of 100,000 square meters, with a plant area of more than 60,000 square meters and more than 500 employees. There are two factories on Haixing Road and Hengfeng Road, with a hob plant in Taizhou and a subsidiary in Michigan, USA.



New office& workshop in Haixing Road



office& workshop in Hengfeng Road



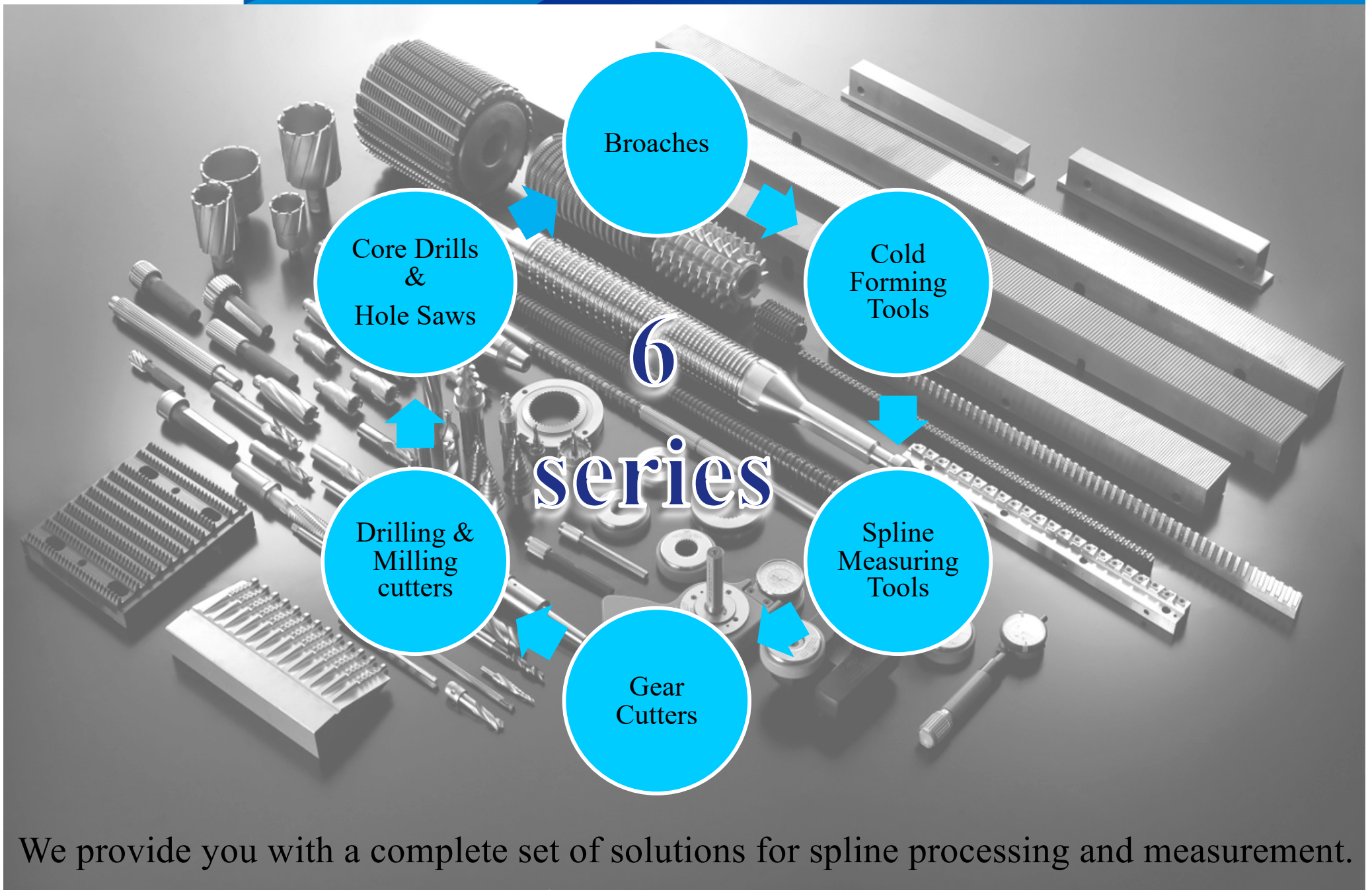
Hob plant in Taizhou



Sales center in Michigan

EST
恒 | 锋 | 工 | 具

恒心致远 锋行未来



We provide you with a complete set of solutions for spline processing and measurement.

恒心致远 锋行未来

company culture

Mission	Best tools for manufacturing
Vision	To be first-class complex tools manufacturer
Core Value	Quality, integrity, innovation





Spline Measuring Tools

Typical Clients

大众	通用	上海汽车变速器
纳铁福	博世	采埃孚
宝马	利纳马	舍弗勒
SKF	NSK	万向
本田	丰田	日产
爱信	双环传动	天海
许昌传动	重汽	格特拉克
比亚迪	长城	加特可
贺尔碧格	吉利	法雷奥

上海汽轮机厂	东汽	哈汽
杭汽	南京汽轮机厂	无锡叶片
上海电气核电	中国一重	西安陕鼓

中国商飞	中国航发	西飞

利勃海尔	日本电产	伊顿
丹弗斯	中国兵装集团	中船重工

Processing Equipment

EST has over 500 sets of specialized processing equipment and heat treatment equipment, over 100 sets of imported advanced precise CNC grinding equipment and instruments





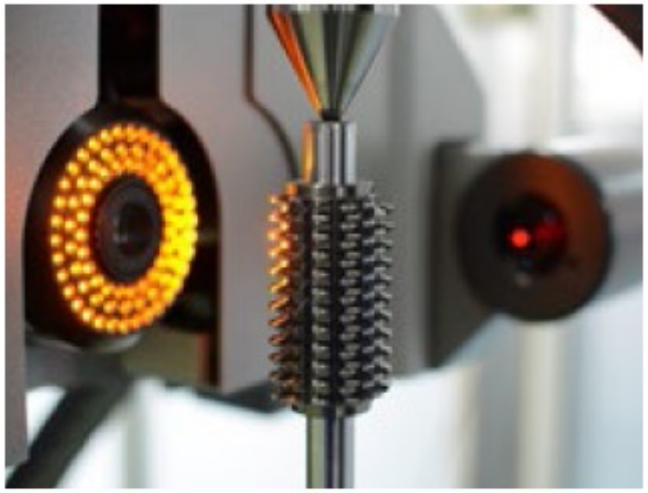




Measuring Equipment

EST has over 30 sets of advanced inspection lab sites









The position in industry


ICS 17.040.30
J 42

GB

中华人民共和国国家标准

GB/T 5106—2012
代替 GB/T 5106—2006

圆柱直齿渐开线花键 量规

Straight cylindrical involute splines—Gauge

2012-12-31 发布 2013-10-01 实施

中华人民共和国国家质量监督检验检疫总局
中国国家标准化管理委员会 发布


ICS 17.040.30
J 42
备案号：53601—2016

JB

中华人民共和国机械行业标准

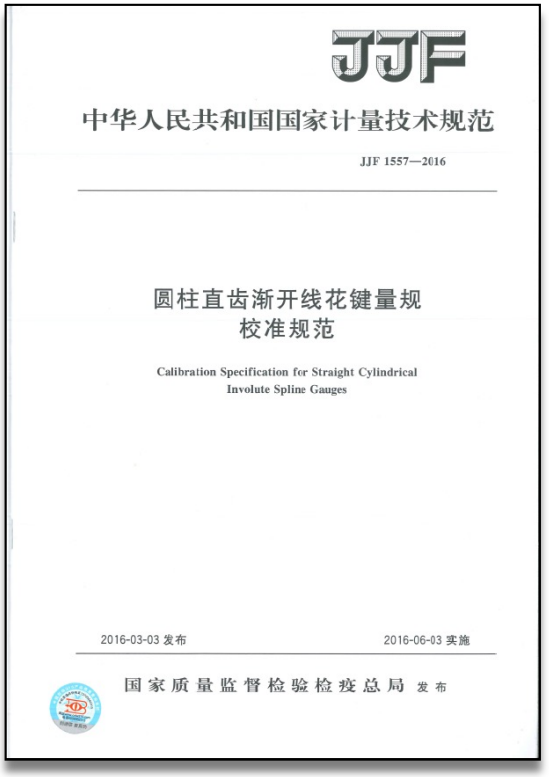
JB/T 12641—2016

圆柱直齿渐开线花键 量仪

Straight cylindrical involute splines—Meter

2016-01-15 发布 2016-06-01 实施

中华人民共和国工业和信息化部 发布


JJF

中华人民共和国国家计量技术规范

JJF 1557—2016

圆柱直齿渐开线花键量规
校准规范

Calibration Specification for Straight Cylindrical
Involute Spline Gauges

2016-03-03 发布 2016-06-03 实施

国家质量监督检验检疫总局 发布

- **GB/T 5106-2012** “Straight cylindrical involute splines—Gauge” drafting unit .
- **JB/T 12641-2016** “Straight cylindrical involute splines—Meter” drafting unit .
- **JJF1557-2016** “Calibration specification for Straight cylindrical involute splines Gauges ” drafting unit .

The position in industry



浙江制造认证证书

证书编号：CZJM2017P1000501R0M

认证委托人：恒锋工具股份有限公司
地址：浙江省海盐县武原镇新桥北路 239 号
产品生产者：恒锋工具股份有限公司
地址：浙江省海盐县武原镇新桥北路 239 号
生产企业：恒锋工具股份有限公司
地址：浙江省海盐县武原镇新桥北路 239 号

认证标准：DB33/T 944.1-2014；DB33/T 944.2-2014；T/ZZB 0054-2016
认证模式：自我声明+产品检验+“浙江制造”评价规范”标准要求评价+获证后监督
产品名称：综合通端环规（圆柱直齿渐开线花键量规）
型号规格：1≤D≤100

以上产品符合《“浙江制造”认证实施细则—ZJM-001-4823-2016 圆柱直齿渐开线花键量规》的要求，授权使用如图所示的标志。本证书的有效性通过监督保持，证书状态可登陆认证机构网站查询。

发证日期：2017/06/12　　有效期至：2020/06/11

（发证机构公章）　签发人：王克娇

浙江制造国际认证联盟

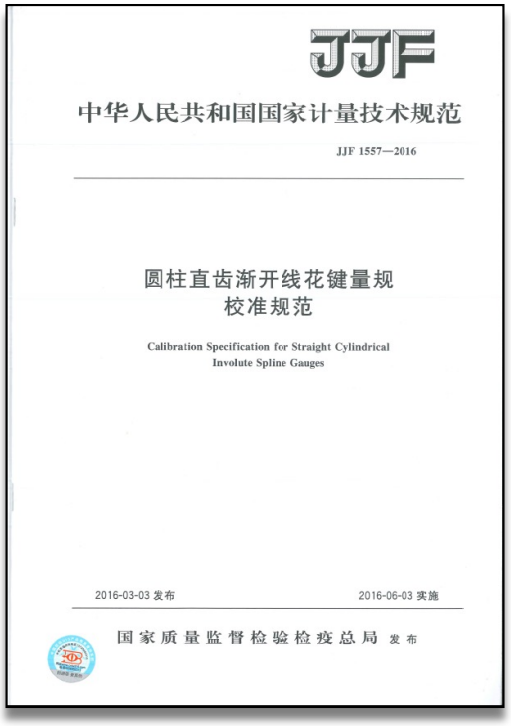
发证机构：中国质量认证中心　　网站：http://www.cqc.com.cn/

浙江制造 ZHEJIANG MADE

In 2017, EST passed the ZHEJIANG MADE certification. It is to certify Zhejiang products that meet high standards and high-quality requirements, and it is a regional brand image for Zhejiang advanced manufacturing. its basic characteristics are excellent quality, independent innovation, industrial coordination, and social responsibility.

The position in industry

- JJF1557-2016 “Calibration specification for Straight cylindrical involute splines Gauges ” drafting unit .
- On August 29, 2019, EST laboratory passed the CNAS site audit and obtained the national laboratory accreditation certificate.


JJF

中华人民共和国国家计量技术规范

JJF 1557—2016

圆柱直齿渐开线花键量规
校准规范

Calibration Specification for Straight Cylindrical Involute Spline Gauges

2016-03-03 发布　　2016-06-03 实施

国家质量监督检验检疫总局 发布


中国合格评定国家认可委员会

实验室认可证书

（注册号：CNAS L12537）

兹证明：

恒锋工具股份有限公司实验室

（法人：恒锋工具股份有限公司）

浙江省嘉兴市海盐县武原街道海兴东路 68 号，314300

符合 ISO/IEC 17025：2017《检测和校准实验室能力的通用要求》（CNAS-CL01《检测和校准实验室能力认可准则》）的要求，具备承担本证书附件所列服务能力，予以认可。

获认可的能力范围见标有相同认可注册号的证书附件，证书附件是本证书组成部分。

生效日期：2019-08-29

截止日期：2025-08-28

中国合格评定国家认可委员会授权人


中国认可
国际互认
检测
TESTING
CNAS L12537

检测报告编号：EST-2020-027-A
Test report No.

检 测 报 告

Test Report

委 托 者 Customer	恒锋工具股份有限公司 EST Tools Co., Ltd.
使 用 者 End User	Fairfield Manufacturing
样 品 名 称 Name of sample	圆柱直齿渐开线花键量规（花键环规） Straight cylindrical involute spline gauge（Spline ring gauge）
型 号 / 规 格 Model/Specification	DP20/40- z46-α37.5°-B5℃
样 品 编 号 Gauge DWG No.	246-16440GO 118755-1

批 准 人 Approved by

检测日期 Date for test 2020 Year 2 Month 24 Day

恒锋工具股份有限公司实验室

EST Tools Co., Ltd. Laboratory

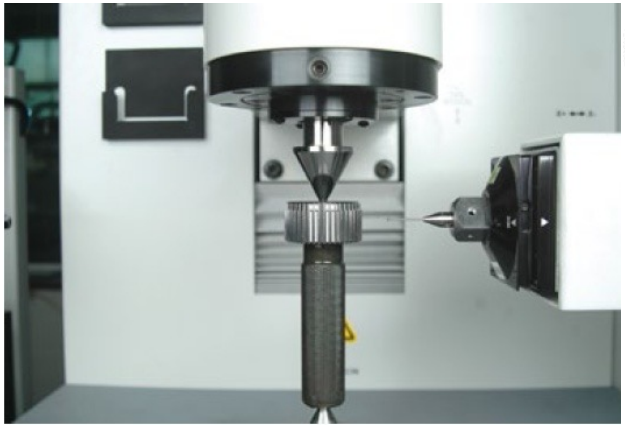
地 址：浙江省嘉兴市海盐县武原街道海兴东路 68 号
Address NO.68 Haixing East Road,Haiyan ,Jiaxing, Zhejiang ,China

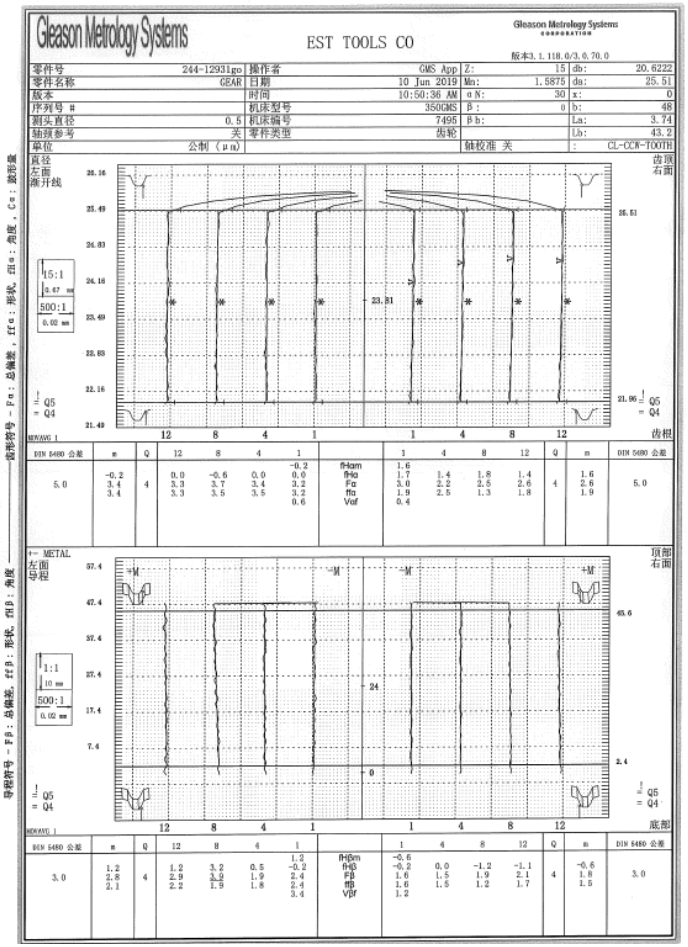
电 话：0573-86113755 传 真：0573-86122456 邮 编：314300
Tel. Fax. Post Code.

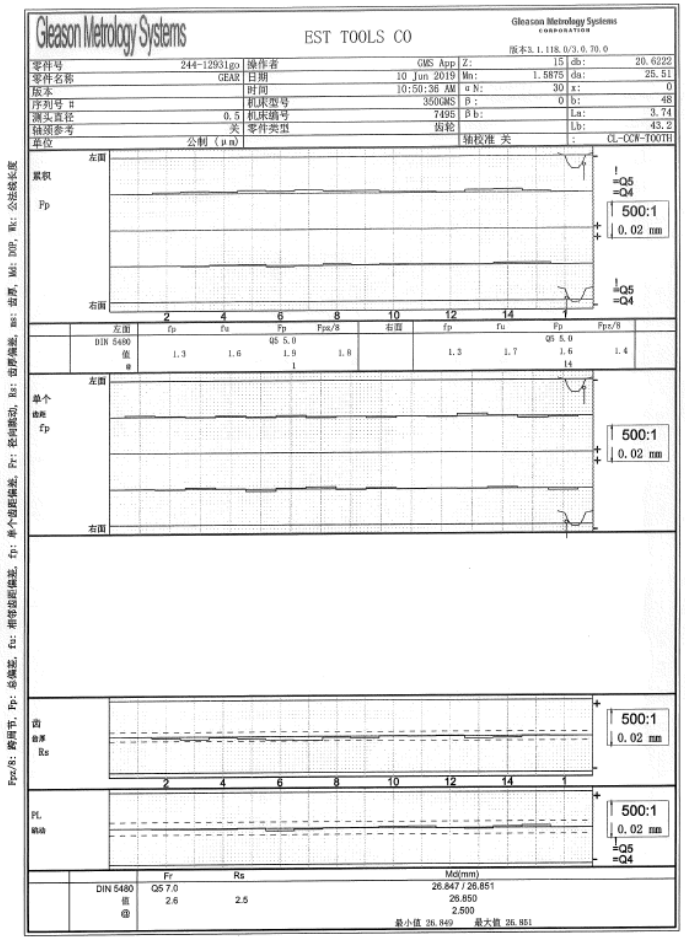
第 1 页 共 3 页
Page of total pages

Spline Geometric Tolerance measurement









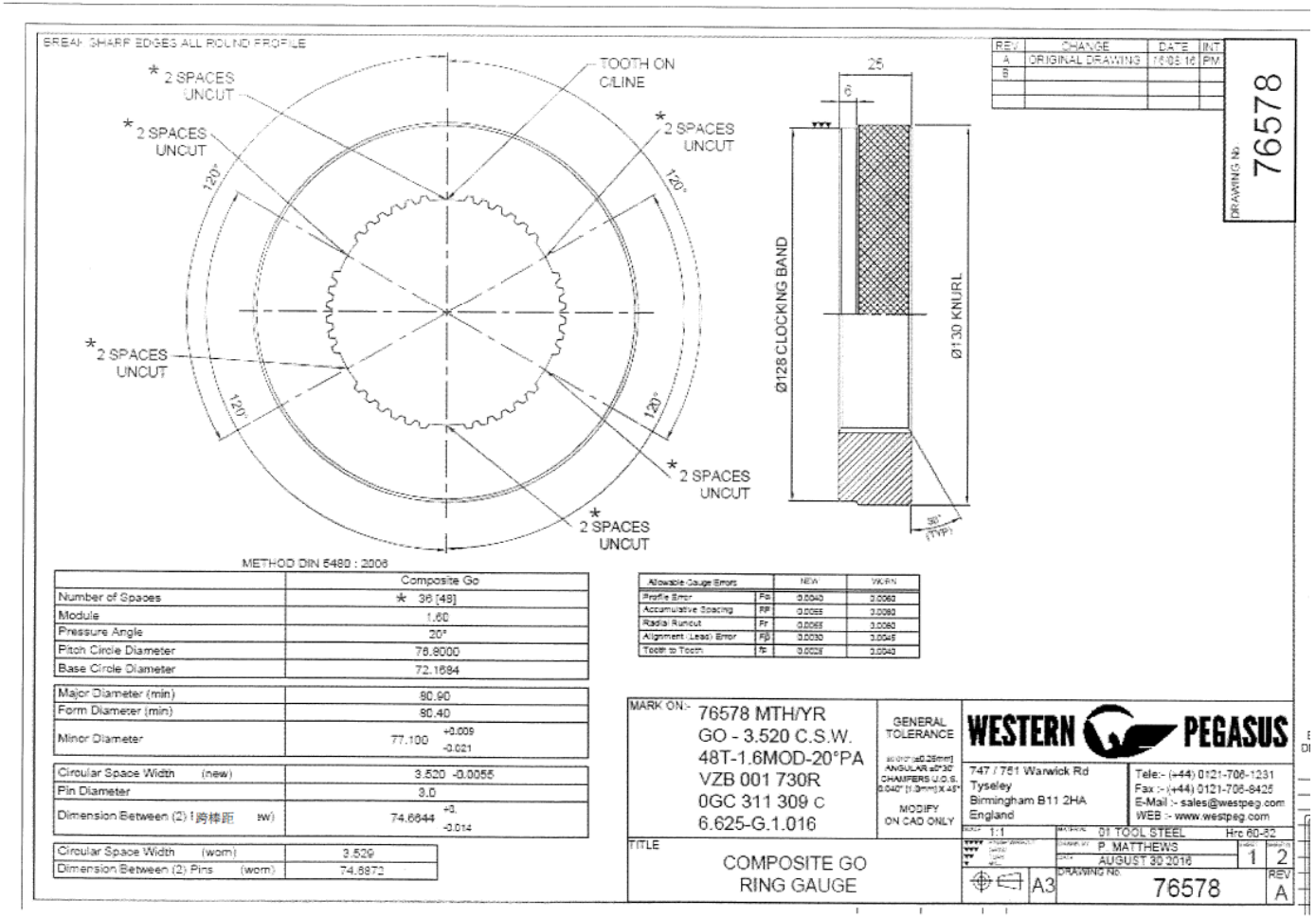
EST
|恒|锋|工|具|

恒心致远 锋行未来

Product Introduction

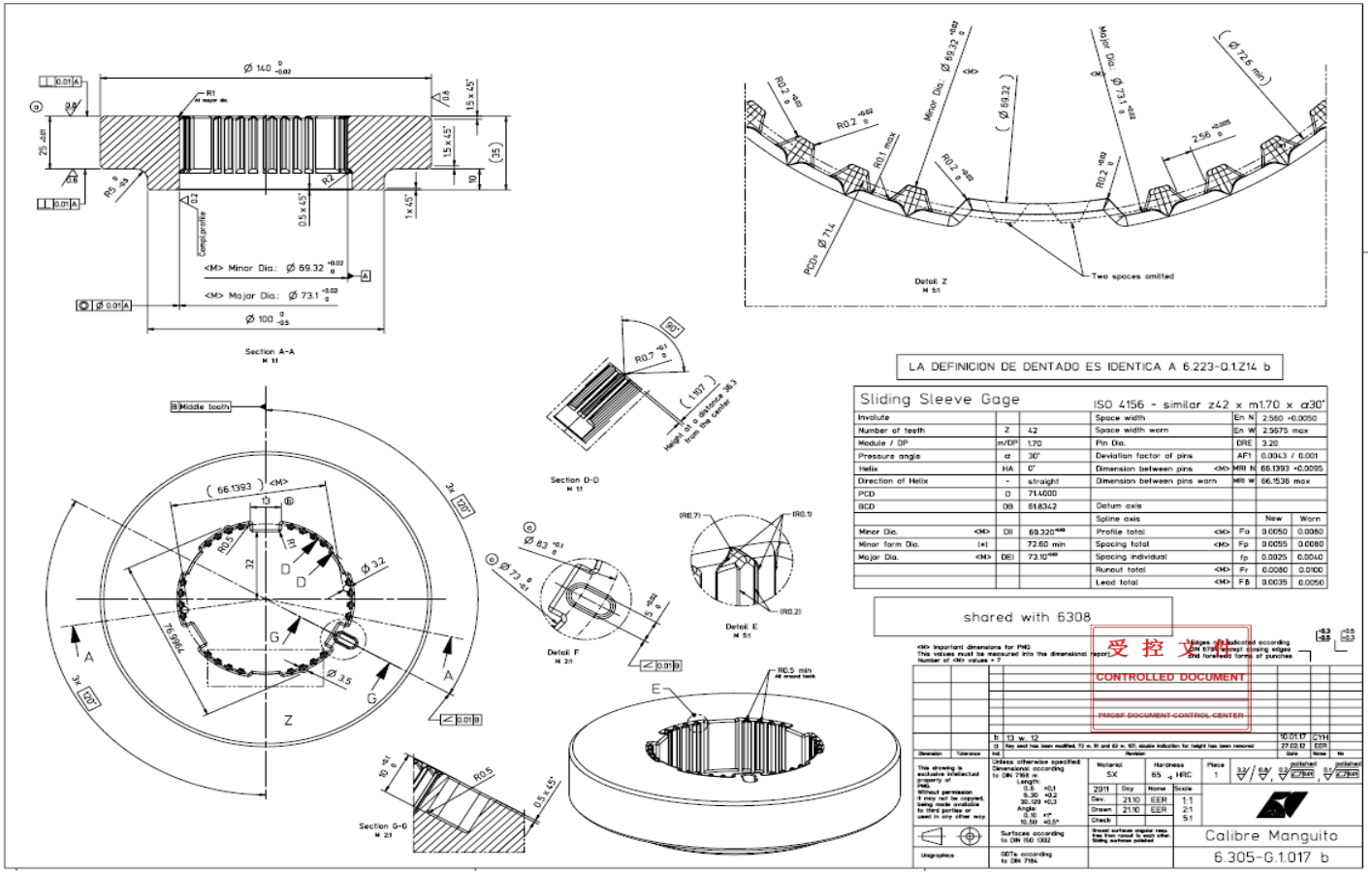


Spline Ring Gauge



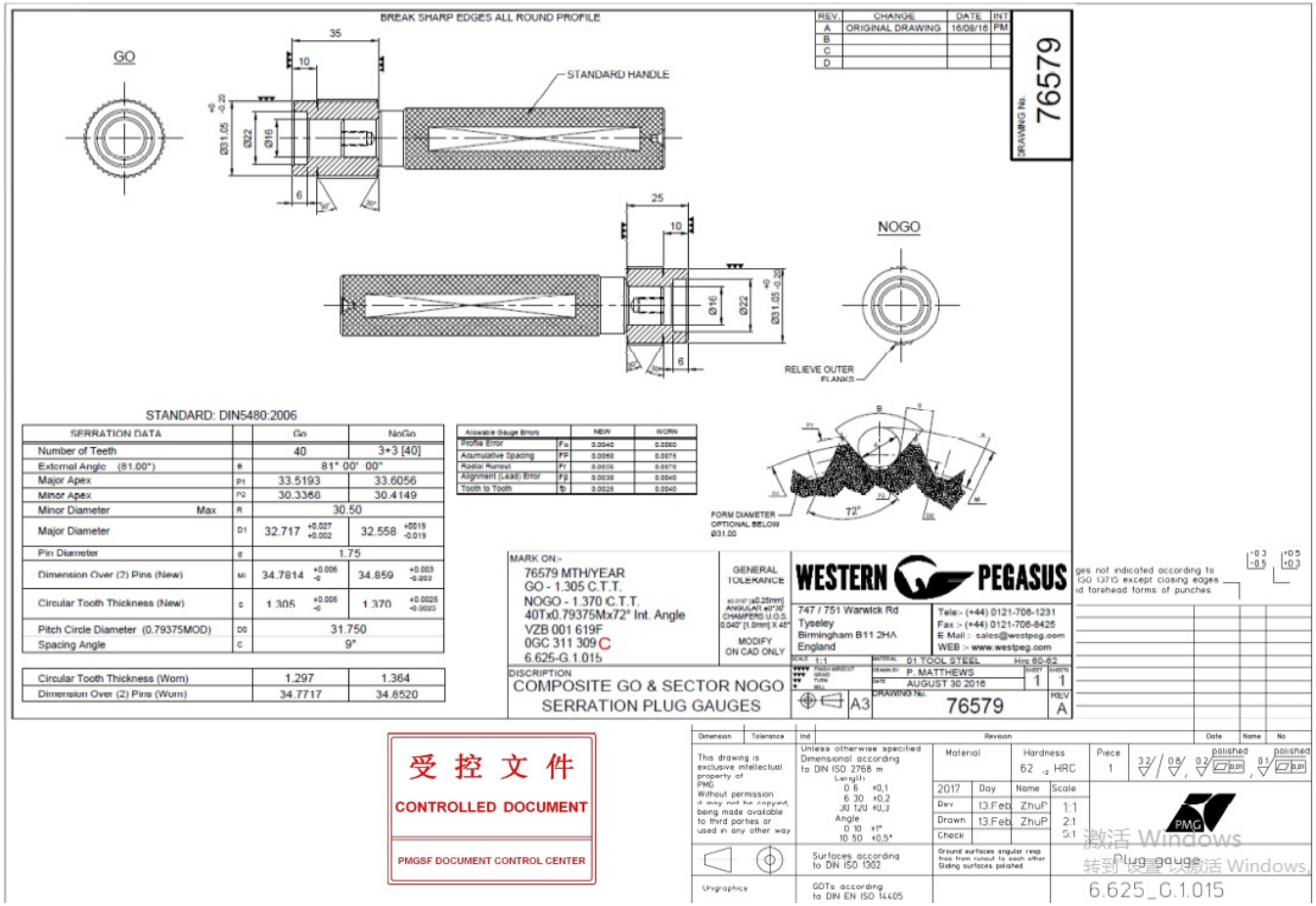
High-precision wedm-ls processing equipment & grinding process , ensure the accuracy of the gauge.

Spline Ring Gauge



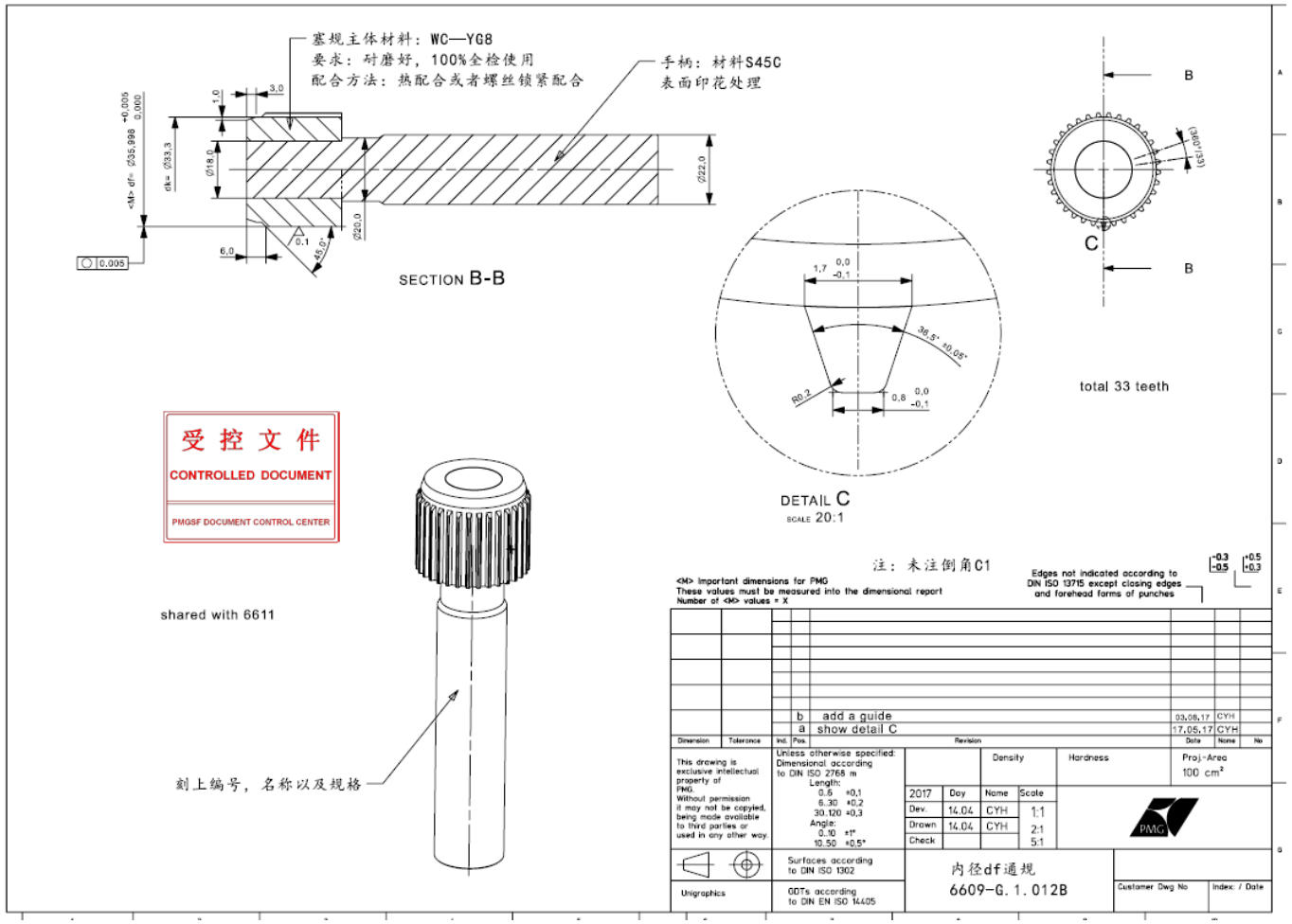
Automatic detection： High-precision wedm-ls machines ensure spline size and keyway position . Advanced CNC machine center processes the chamfers of end-beveling & teeth ， meet the various size requirements of the drawings.

Spline Plug Gauge



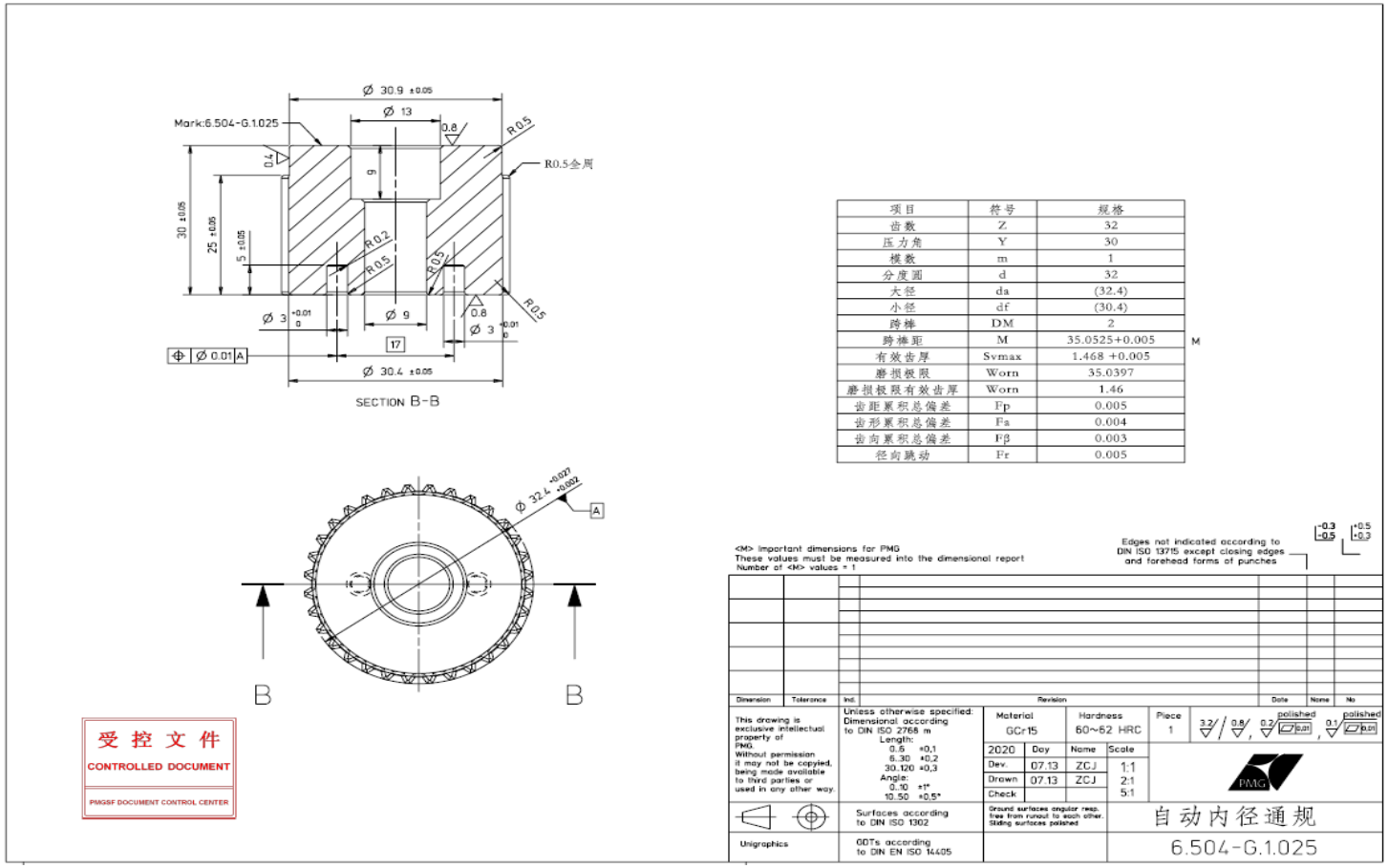
Advanced equipment processes the spline with multibank structure， and the handle is made of aluminum alloy and painted with color ,which can reduce the weight of the gage and make it easier to distinguish .

Spline Plug Gauge



High hardness cemented carbide plug gauges increase the service life of gauges.

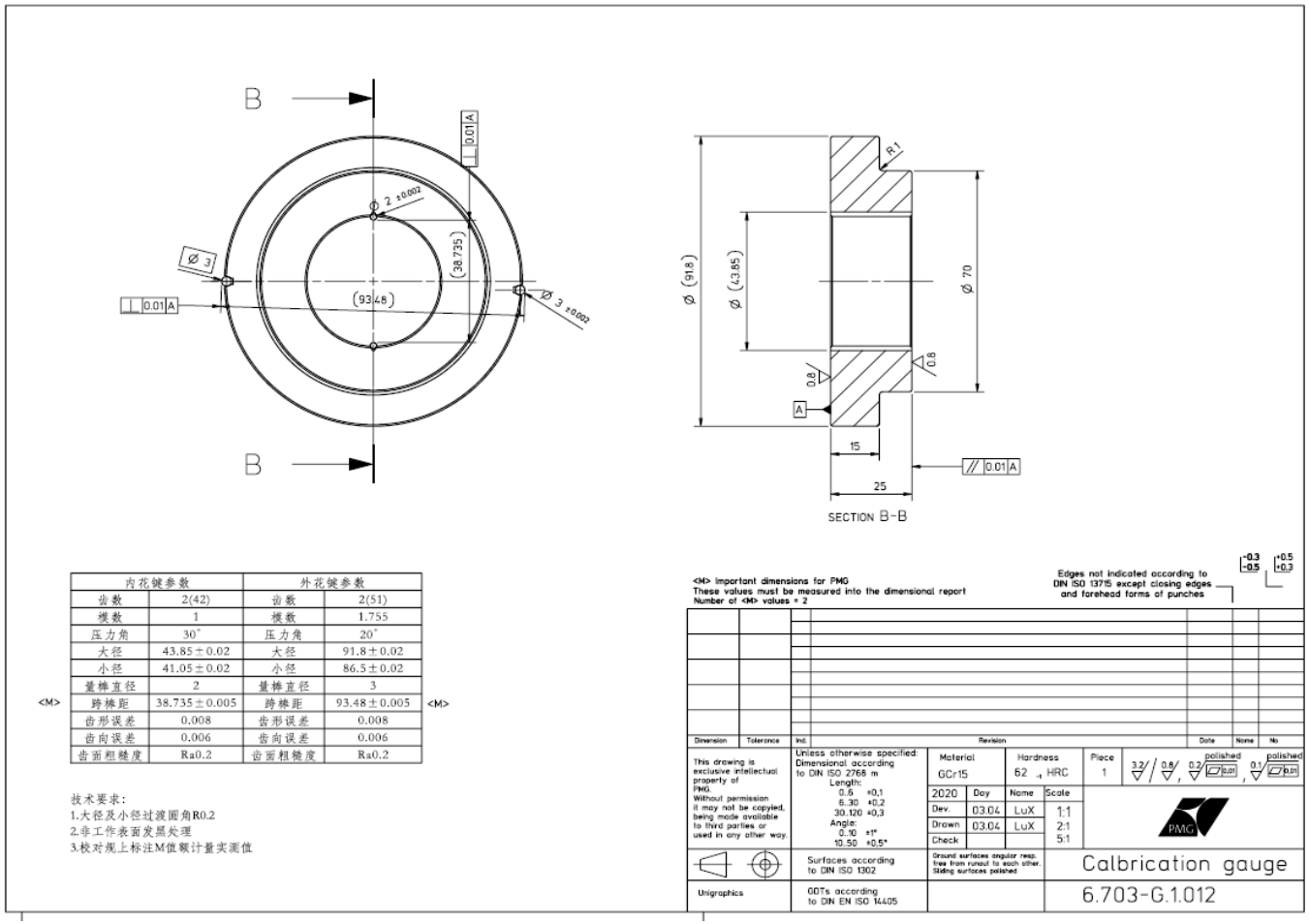
Spline Plug Gauge



项目	符号	规格
齿数	Z	32
压力角	Y	30
模数	m	1
分度圆	d	32
大径	da	(32.4)
小径	df	(30.4)
跨棒	DM	2
跨棒距	M	35.0525+0.005 M
有效齿厚	Svmax	1.468 +0.005
磨损极限	Worn	35.0397
磨损极限有效齿厚	Worn	1.46
齿距累积总偏差	Fp	0.005
齿形累积总偏差	Fa	0.004
齿向累积总偏差	Fβ	0.003
径向跳动	Fr	0.005

Automatic detection： High-precision CNC machine center ensures the position of the two holes, and the advanced CNC spline machine center ensures the spline parameter and meets the requirements of online automatic detection.

Standard Parts



Advanced equipment processes the spline ,high-precision measuring equipment detects spline size， mark the actual size on the gauges.

Involute Spline Ring Gauge





Involute Spline Plug Gauge



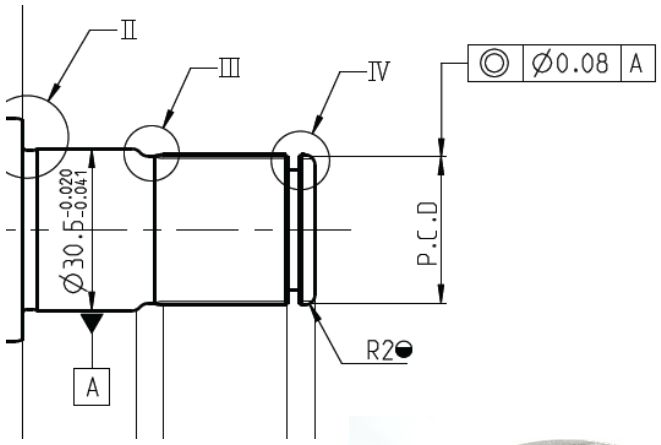


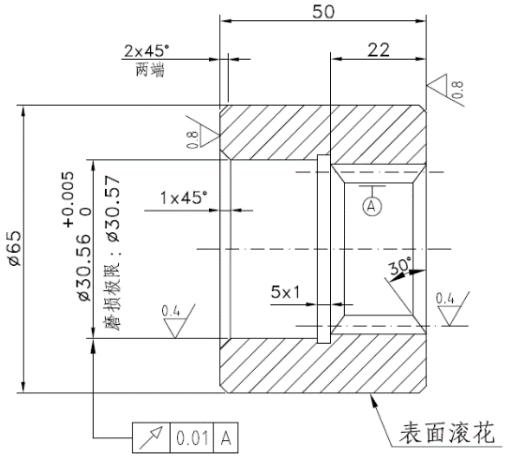
Appearance Patent

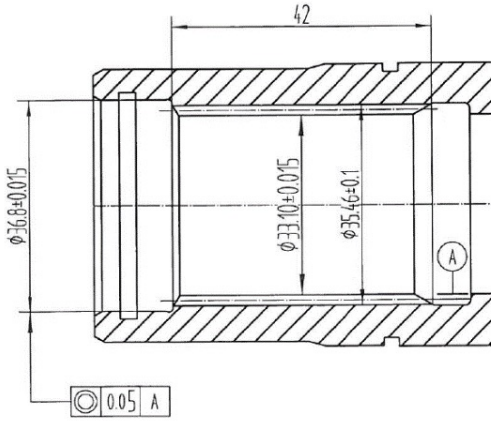




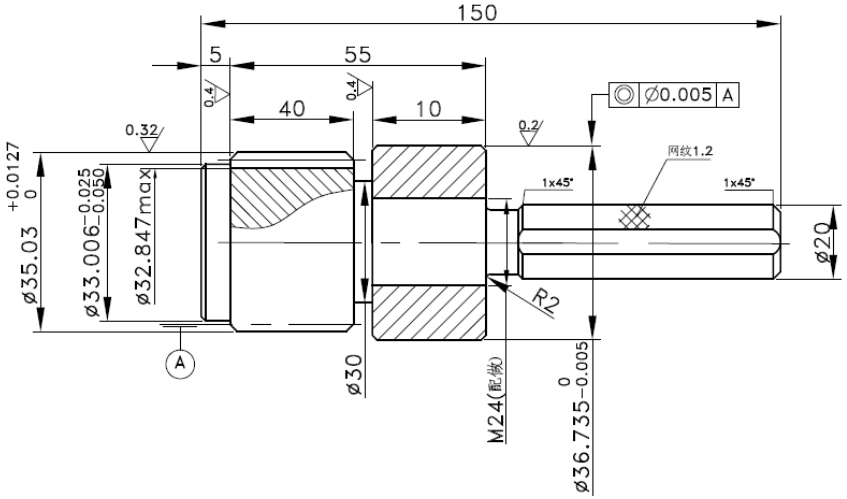
Spline Position Plug Gage









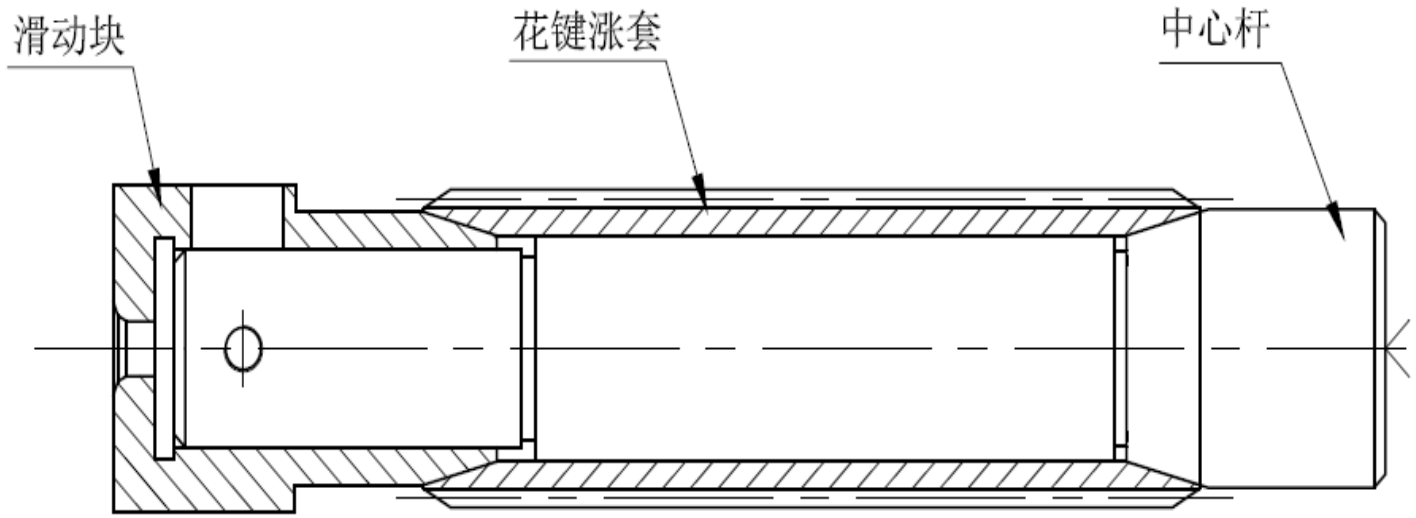


Spline Tapered Arbor



There are various spline tapered arbors in EST, such as major dia spline tapered arbors , key side spline tapered arbors , and plain round tapered arbors .The main function of the tapered arbors is to measure or process the outer circle and end face of the coupons

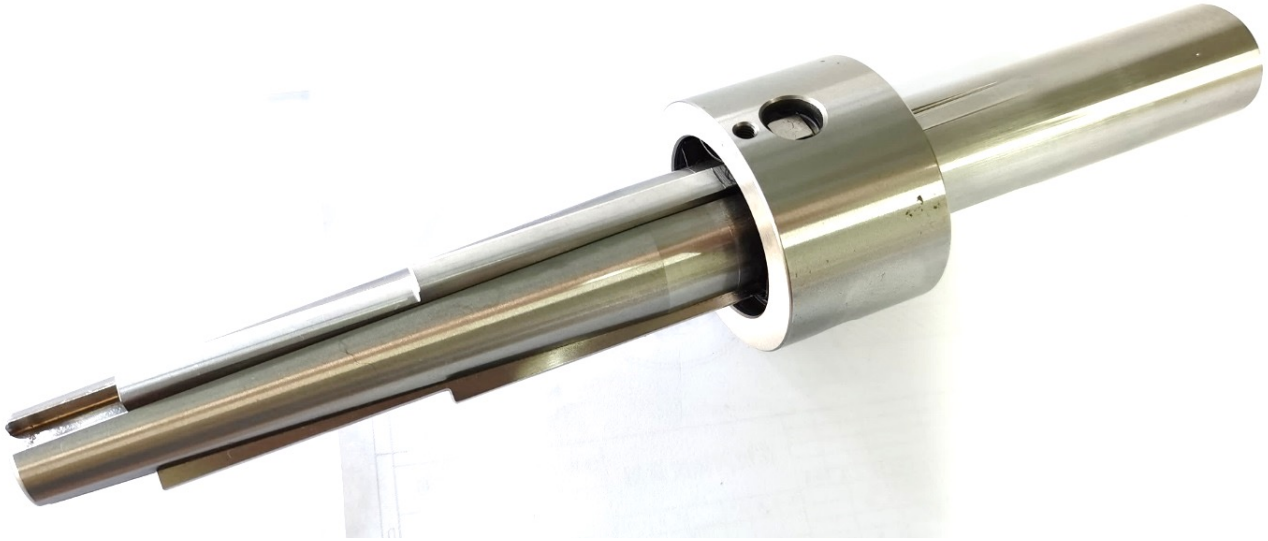
Spline Tapered Arbor

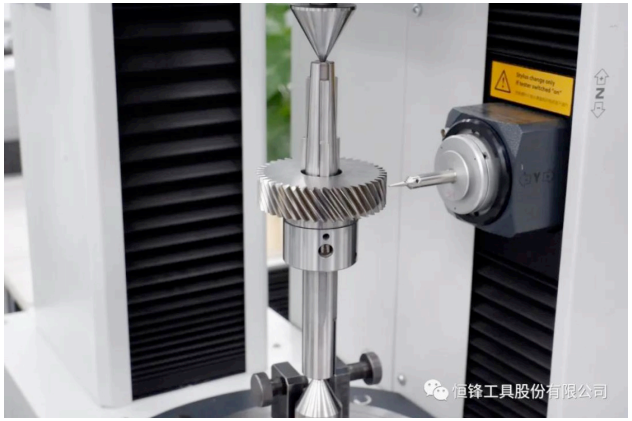


Elastic Tapered Arbor：

Core parts—spline shrink disk , Several keyways are made on the side of the tapered arbor , then move it to expand the spline Shrink disk . This kind of tapered arbor is mainly used for processing products.

Spline Tapered Arbor





- The adjustable shrink disk detection tapered arbor is mainly positioned by the inner hole, and expands and tightens the coupons, then use the combined fixtures for measurement. It is mostly used for positioning and radial beating detection,
- Compared with the straight shank tapered arbor , the adjustable one has a wide measuring range, and we no longer need to replace it often when measuring, so the accuracy is higher.

STRAIGHT SIDE RING/PLUG GAGE







HELICAL RING/PLUG GAGE



Go composite site fit helical plug gage:
Test the virtual pitch dia. & major dia. of the inside coupons.

Nogo sector helical plug gage :
Test the single pitch dia. of the inside coupons.

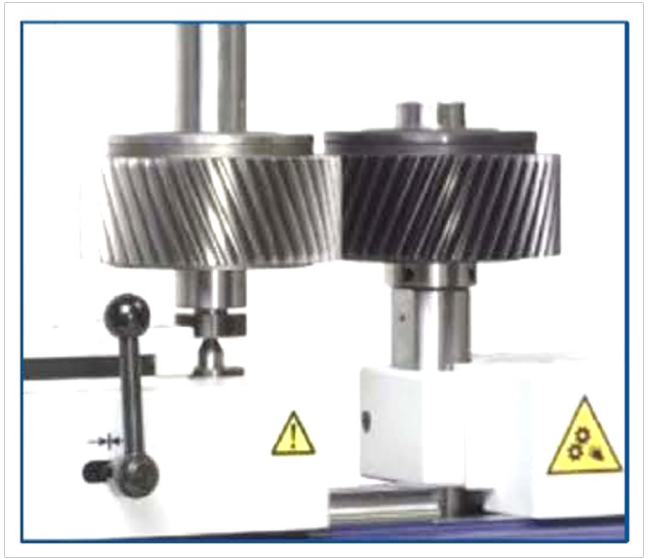
Go composite site fit helical ring gage:
Test the virtual pitch dia. & minor dia. of the outside coupons.

Nogo sector helical ring gage :
Test the single pitch dia. of the outside coupons.

Non-standard customization, with HSS & coating, greatly improving the service life.

Master Gear

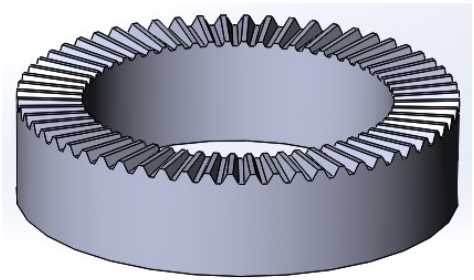


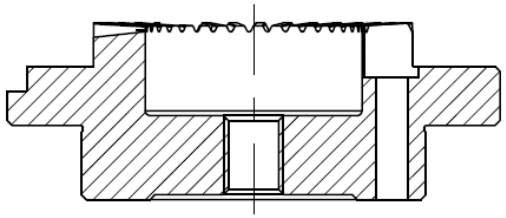


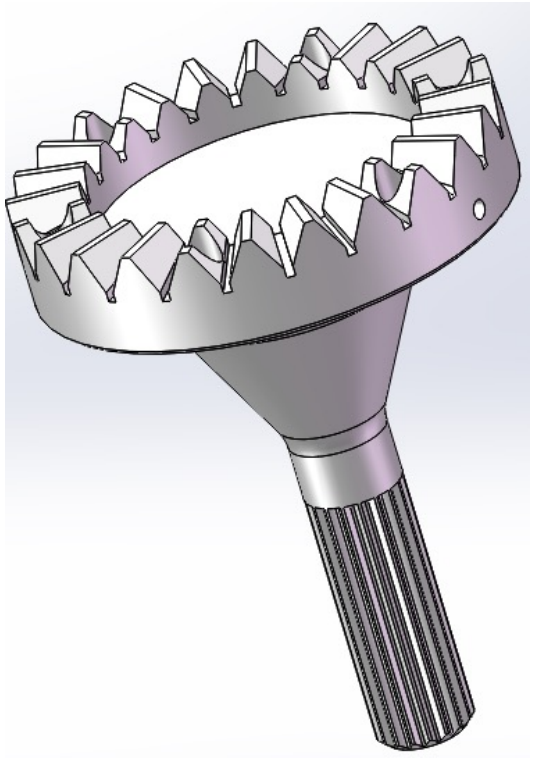


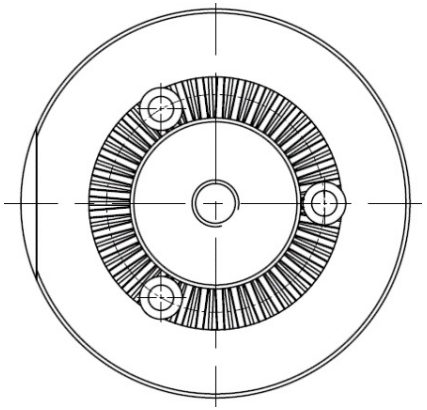
- Master gears are used for the engaging test of gears. The precision of EST master gears meet Grade IV or above specified in DIN3962.

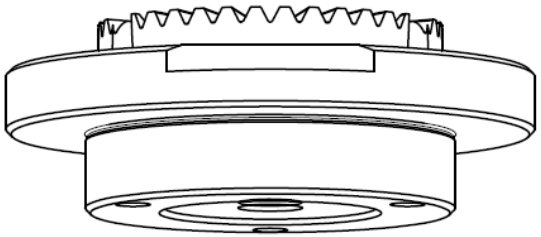
Spline end face measuring tools











Spline Forming Dies



Solid carbide materials are used to make die core and the external layer is made of steel substrate. Profiting from stable processing quality, the processed parts after rolling can meet the Standard GB/T3478, Grade 5 spline requirement.



Spline Forming Mandril



The advantages:

I. A continuous fibre flow.

II. Unique process effects.

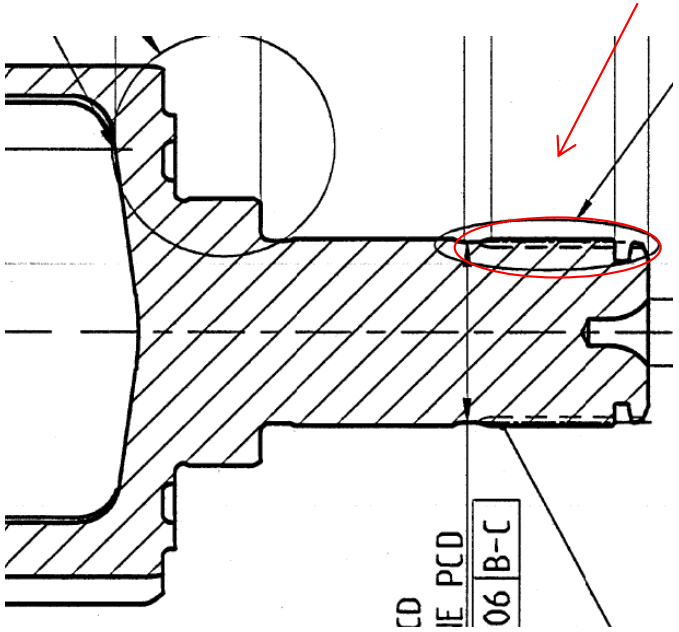
III. Improve the quality of surface roughness.

IV. Increase the bending strength.

External Spline Desktop Spline Meters

Measure actual size of the external spline measurement between two pins.

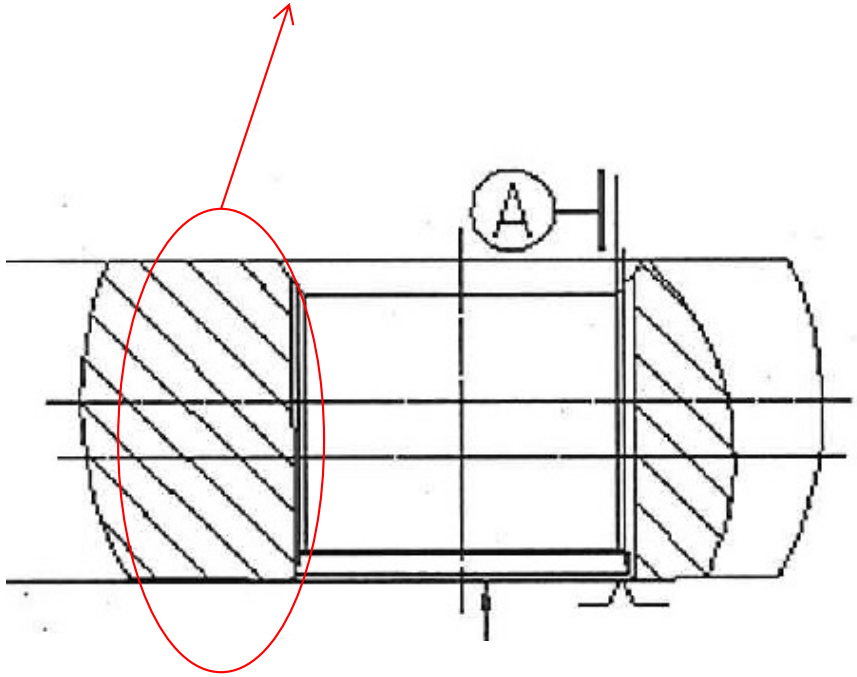




Internal Spline Desktop Spline Meters

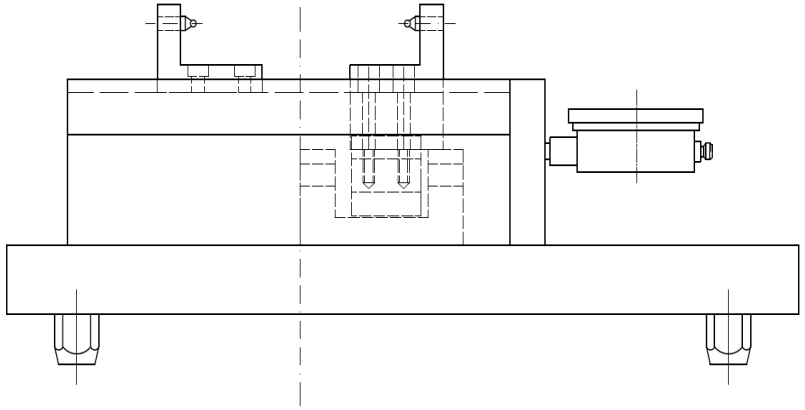
Measure actual size of the internal spline measurement between two pins.

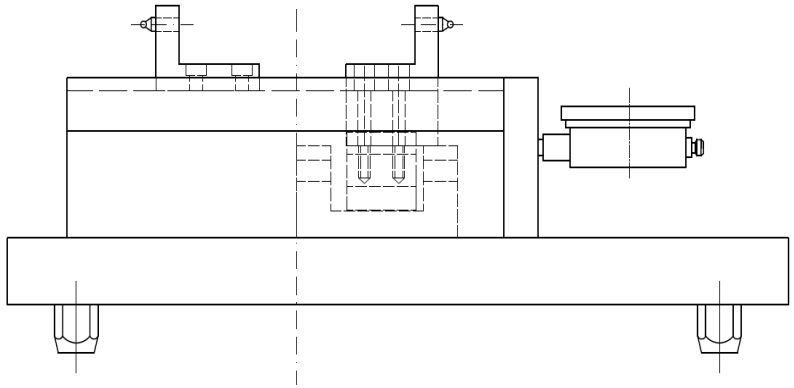




Gear & Ring Gear M-Value Spline Meters







恒锋工具

General Handheld Bar Distance Meters



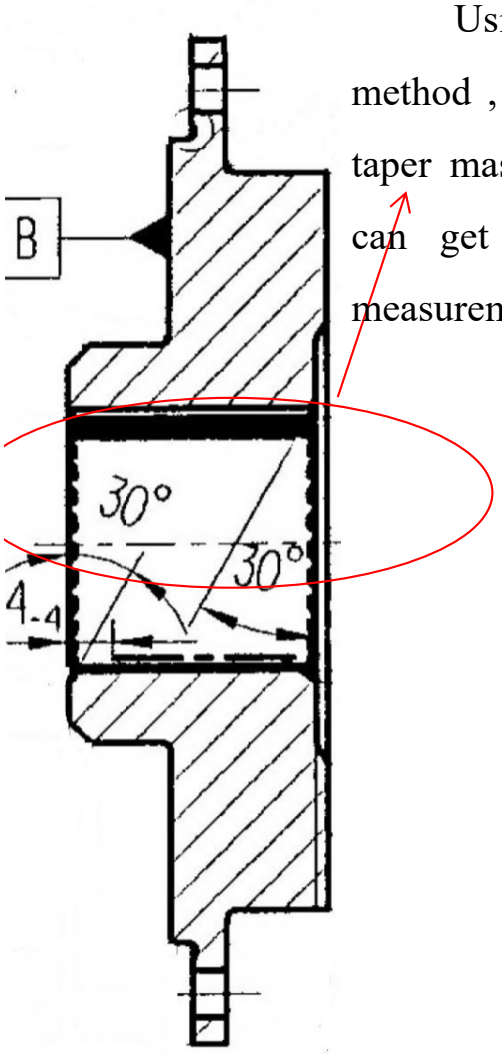
The meters can measure the M value of the coupons within the range of 15-50mm by replacing parts.

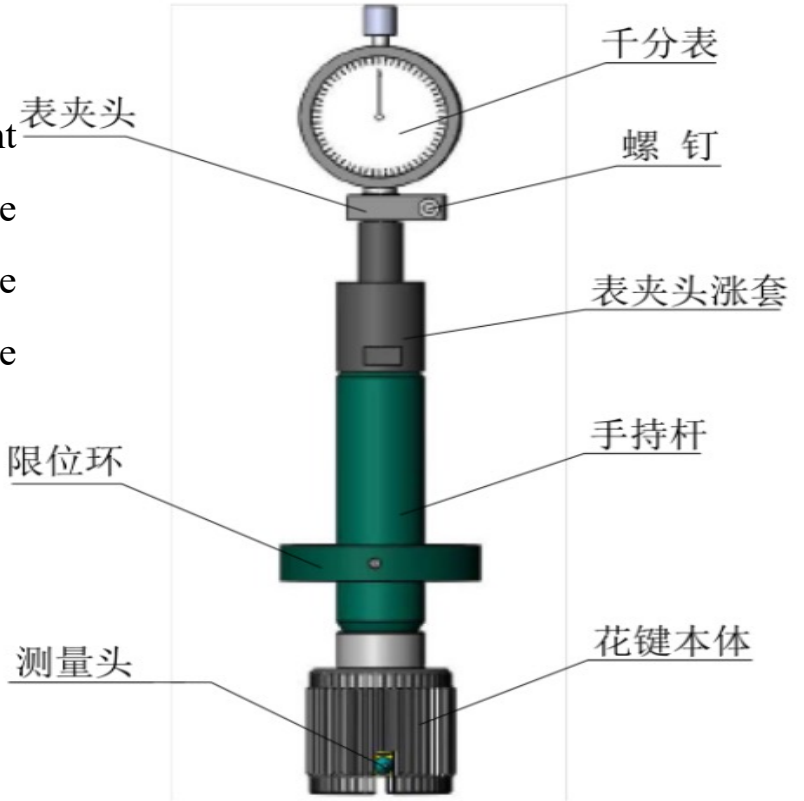


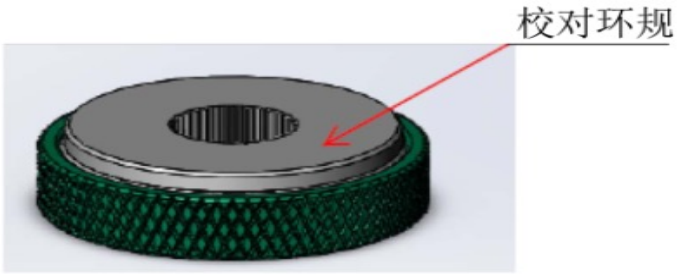
Using the comparative measurement method , basing on the calibration value of the taper master plug measurements with pins, we can get actual size of the internal spline measurement between two pins.

Special Handheld Bar Distance Spline Meters

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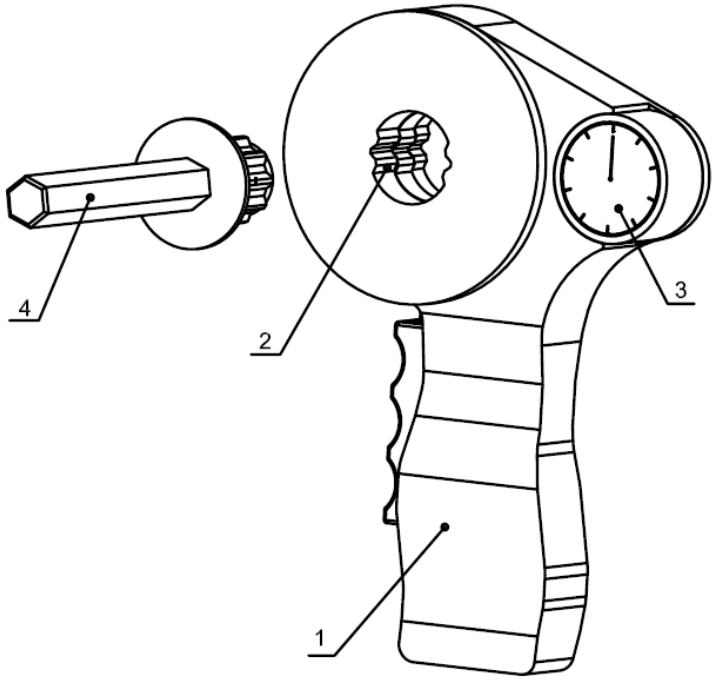






Handheld Tooth Thickness/Space Width Spline Meters

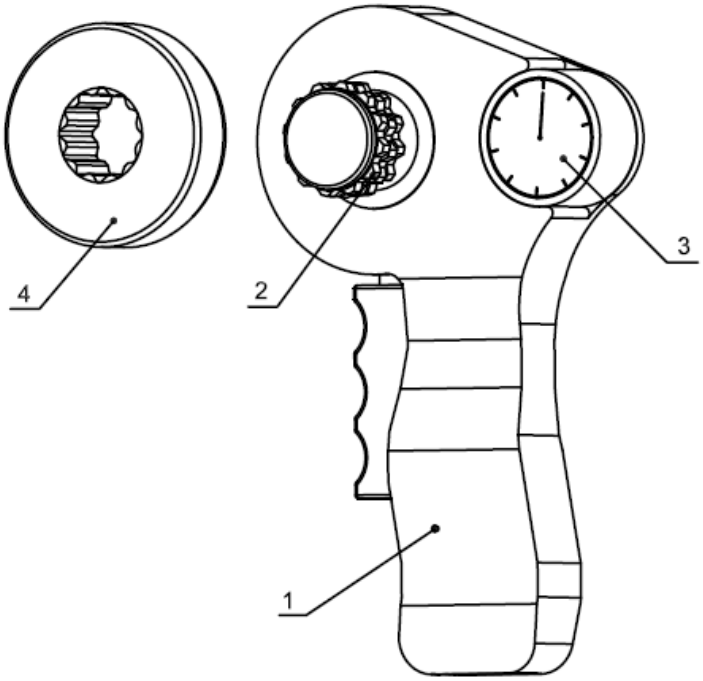




Hold the handle first, put the plug gauge into the meters, then loosen the handle, adjust the micrometer to zero , hold the handle again, take out the taper master plug, and replace it with the coupon to be tested, then the tooth thickness can be measured.

Handheld Tooth Thickness/Space Width Spline Meters





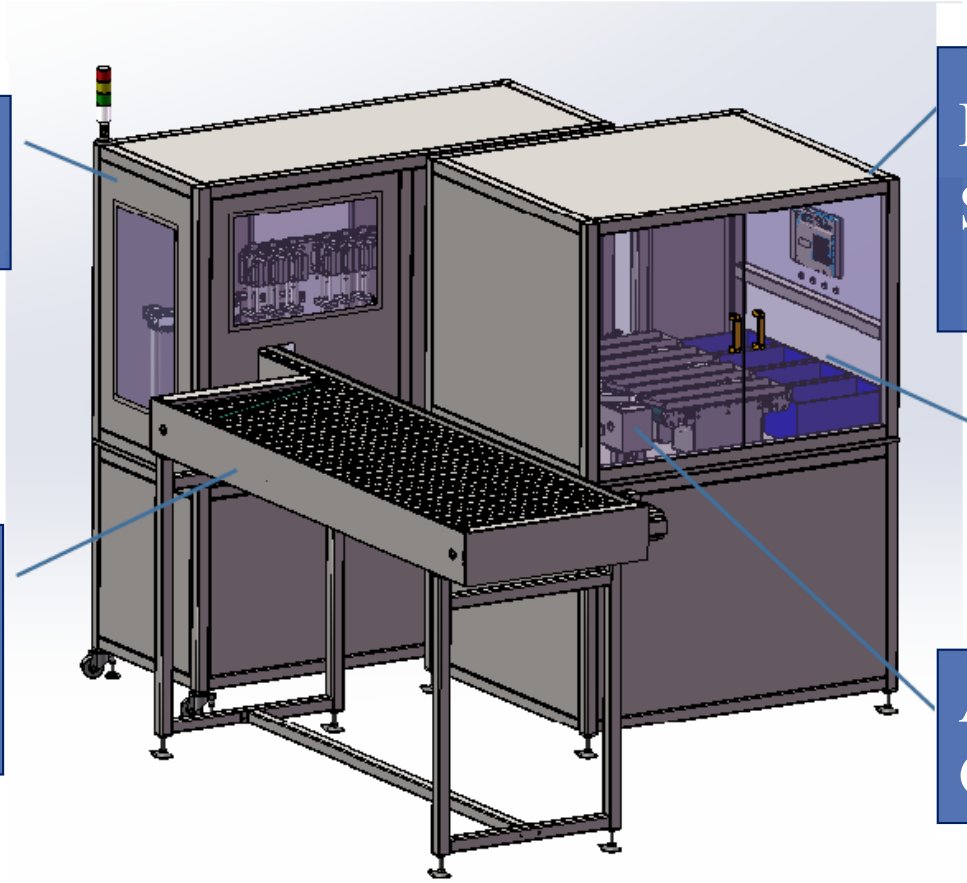
Hold the handle first, put the ring gauge into the meters, then loosen the handle, adjust the micrometer to zero , hold the handle again, take out the taper master plug, and replace it with the coupon to be tested, then the space width can be measured.

Desktop Digital Spline Meters



Quickly and accurately transmit and record the measurement data of the three cross-sections through visual operation and digital sensors, and then perform data calculations as required.

Large Online Detection & Grouping Spline Meters

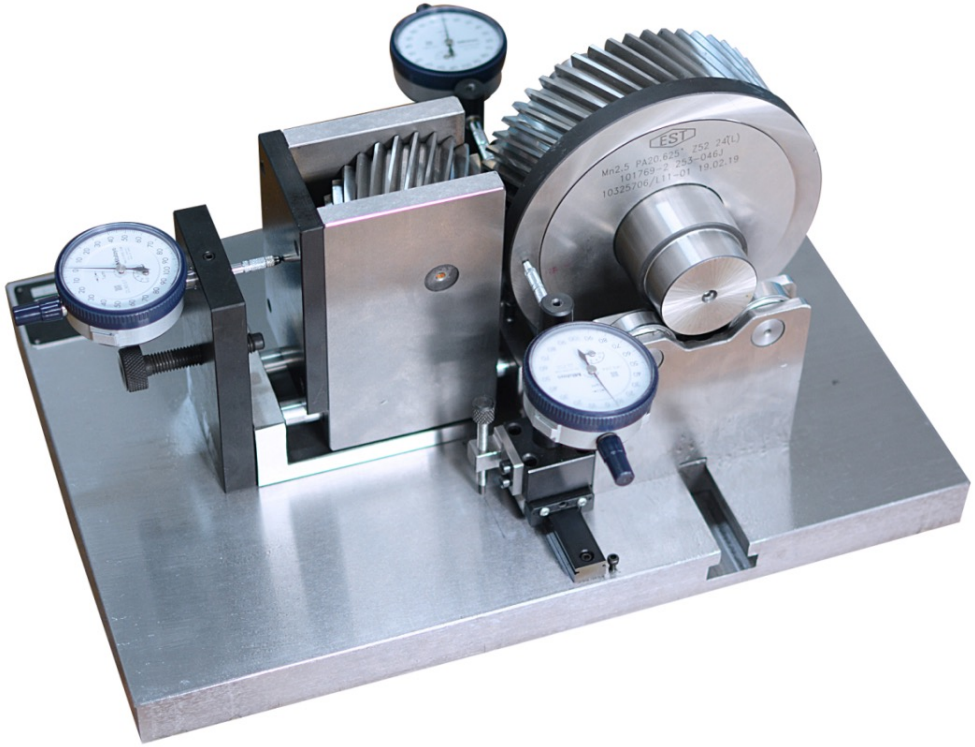


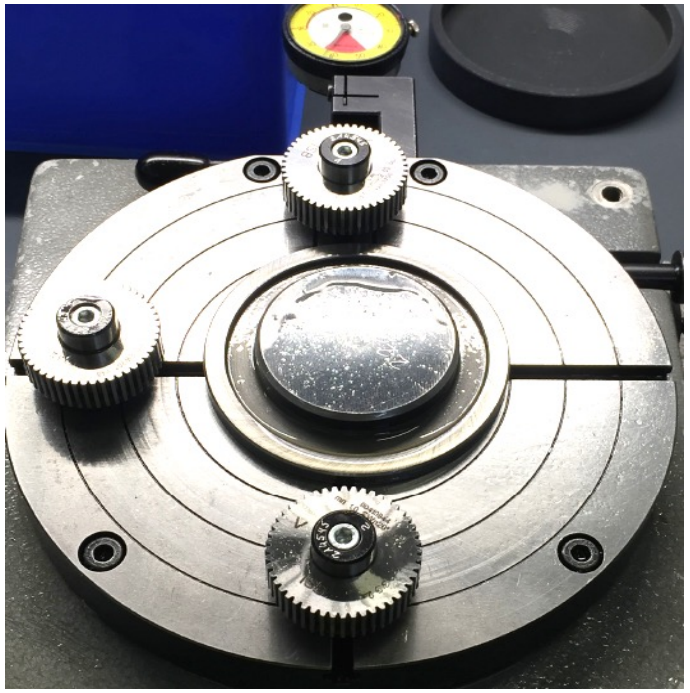
Data Wireless Transmission Spline Meters



Effective data can be wirelessly transmitted to the data sheet on the computers, so that the data obtained by the measurement becomes fast, accurate and efficient.

Stationary Simple Gear Meshing Instrument





Design Standards

- GB/T5106-2012
- ANSI B 92.1
- DIN5480、DIN5481、DIN5482
- JIS & SES
- Other company standards

Thank You

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