国机精工 | 成都工具研究所有限公司
CHENGDU TOOL RESEARCH INSTITUTE CO.,LTD

- 地 址/Add：四川省成都市新都工业大道东段601号
  No.601,Eastern Sec Industrial Rd, Xindu Dist, Sichuan, China
- 公司电话/Tel：
  028-83243828
- 销售电话：028-83242134

  华东片区（江苏、上海、浙江、福建）：
  028-83258061　021-33703787

  华北片区（山东、河北、河南、）：
  028-83249579

  华中片区（安徽、湖北、湖南、江西、广东、广西）：
  028-83243290　028-83257552

  西部片区（重庆、四川、贵州、云南、甘肃、陕西、青海、宁夏、西藏、新疆）：
  028-83246516　028-83242077

  北方片区（黑龙江、吉林、辽宁、天津、北京、山西、内蒙古）：
  028-83246702
- 外贸及相关业务/Tel：028-83271096　028-83246491
- 传真/Fax：028-83242075
- 网址/Web：www.ctri.com.cn

品质源于
1956

求实创新，追求卓越
PRAGMATIC INNOVATION
THE PURSUIT OF EXCELLENCE

硬质合金
可转位螺纹刀具
Indexable Threading Inserts

国机精工 | 成都工具研究所有限公司
CHENGDU TOOL RESEARCH INSTITUTE CO.,LTD

COMPANY PROFILE
公司简介

成都工具研究所有限公司于1999年成为中国机械工业集团有限公司全资子公司，集团2017年世界500强排名334位。我公司前身是成都工具研究所，创建于1956年，是原国家机械工业部直属的我国机械工业唯一的综合性工具科研开发机构，主要从事精密切削刀具，精密测量仪器和表面改性技术三大类机械产品共性技术研究及其高新技术产品的开发与生产，并担负着全国工具行业发展规划、产品标准、产品质量监督检测等行业技术工作，出版有中文核心技术物《工具技术》。

成都工具研究所有限公司是我国工具行业唯一的综合性科技型企业，是国家刀具、量具、量仪产品质量监督检测中心以及中国机械工业金属切削刀具技术协会、中国机床工具工业协会工具分会和中国仪器仪表学会机械测试仪器分会等十多个行来、社会组织的归口挂靠单位。

Chengdu Tool Research Institute Co.,Ltd(CTRI),was accepted into China National Machinery Industry Corporation (SINOMACH) in1999.SINOMACH ranked 334 th on World Top 500 List in 2017 .CTRI,founded in 1956 formerly under the direction of China's Machinery Ministry,is the sole comprehensive tool researching and scientific developing institution in China's machinery industry.CTRI is principally engaged in researching,developing,manufacturing and selling tools,measuring instruments and surface modified technique and equipment.Also,CTRI is the bellwether in China's tool industry development,products standards,and products quality control etc.And CTRI publishes Chinese Core Periodicals Tool Engineering.

These following organizations are subordinate to CTRI:National Center of Supervision and Inspection on Cutting Tool Products Quality China Metal Cutting Tool Engineering Association (CMCTEA)Tool Session of China Machine Tool&Tool Builder's Association State Tool Quality Supervision&Inspection Center Branch of China Instrument Society for Mechanical Measuring Instruments.

精益求精
促进机械加工技术进步

品质源于
1956

可转位螺纹刀具 Indexable Threading Inserts

行业地位

POSITION IN INDUSTRY

成都工具研究所是我国工具行业科研、技术的领头羊、行业归口所，以下组织挂靠在我所：

中国机械工业金属切削刀具技术协会
中国机床工具工业协会工具分会
中国仪器仪表学会机械量测试仪器学会
国机刀具质量监督检测中心
机械工业量具量仪产品质量监督监测中心
国家进出口商品检验局刀具认可实验室
国家进出口商品检验局量具量仪认可实验室
科技成果检测鉴定国家级检验机构（刀具）
科技成果检测鉴定部级检验机构（量具量仪）
全国刀具标准化技术委员会秘书处
全国量具量仪标准化技术委员会秘书处
ISO/TC 29（工具）P成员国内归口单位
TSO/TC213（产品的几何和几何技术规范及检验）P成员国内归口单位
CNACL国家认可实验室
《工具技术》杂志社
国家精密工具产生力促进中心
中国机械工业金属切削刀具技术协会
中国机械工程学会生产工程分会切削专业委员会
四川省机械工程学会机加工专业委员会

Chengdu Tool Research Institute Co.,Ltd is the bellwether and centralized R&D institution in China’s Tool industry. There following organizations are subordinate to CTRI:

•China Metal Cutting Tool Engineering Association (CMCTEA)
•Branch of China Machine Tool & Tool Builder’s Association
•China Instrument and Control Society for Mechanical Measuring Instruments
•China National Supervision & Inspection Center for Cutting Tool Quality
•Supervision & Inspection Center for Measuring Instrument in Mechanical Industry
•National Approved Cutter Laboratory of China Import and Export Comedy Inspection Bureau
•National Approved Measuring Instruments Laboratory of China Import and Export Comedy Inspection Bureau
•China National Inspection and Testing Agency of Scientific and Technological Achievements (Cutting Tools)
•China National Cutter Standardization Technical Committee Secretariat
•China National Measuring Instrument Standardization Technical Committee Secretariat
•China Domestic Focal Point of ISO/TC29(Tool) P member
•China Domestic Focal Point of ISO/TC213 (Geometry, Geometry technical criterion and inspection of Products) P member
•China National Accreditation Committee for Laboratory (CNACL)
•Tool Engineering
•China National Precision Tools Productivity Promotion Center
•China Profession Committee, Production Engineering Branch, China Mechanical Engineering Society
•Machining Profession Committee, Sichuan Mechanical Engineering Society

人力资源

HUMAN RESOURCES

全所共有职工500余人，其中科技人员320人，有突出贡献的国家级专家3人，享受国家政府津贴26人，省部级专家15人，研究人员高级工程师27人，高级工程师103人，高级会计师、高级经济师10人、中级技术人员140人，硕士研究生14人，大中专生146人，专业涉及机械、金属材料、电子、计算机、机电一体化等专业。

CTRI presently has around 500 employees, 320 scientific technical personnel, 3 state-level experts with outstanding contribution, 26 recipients of government special allowance, 15 ministerial level experts, 27 professor level senior engineers, 103 senior engineers, 10 senior accountants and senior economists, 140 intermediate technical staff , 14 with master degree, 146 with college diploma and employees are widely involved in machinery, metal materials, electronic,computer specialty.

科研成果

ACHIEVEMENTS IN SCIENTIFIC RESEARCH

自成都工具研究所成立以来，主要取得以下科研成果：

一、国家发明奖三项：

齿轮整体误差测量新技术发明二等奖
单晶金刚石钎焊工艺及焊科发明二等奖
五钻易磨高性能高速钢发明三等奖

二、国家科技进步奖八项

量具刀具产品标准的制定和贯彻二等奖
中模数硬质合金齿轮滚刀三等奖
立方氮化硼聚晶机理及其应用三等奖
涂层硬质合金刀片成套技术及装备研究三等奖
QPQ盐浴复合处理技术及成套设备二等奖
机电一体化发展预测与综合分析（合作项目）三等奖
材料动态断裂性能研究及其在典型机械零部件上的应用（合作项目）三等奖
机械工业共性数据库（合作项目）二等奖

三、省部科技进步奖

121项（略）

Followings are main scientific achievements since the establishment of CTRI:

1.Three National Invention Awards

•Invention of gear’s integrated error measuring technology-the second prize
•Invention of brazing process and solder of monocrystal diamond-the second prize
•Invention of high speed steel with non-cobalt and high performance-the third prize

2.Eight National Prizes for Progress in Science and Technology

•The formulation and implementation of measuring instruments and cutting tools standard the second prize
•Middle-Modulus Carbide Gear Hob Cutting Tools- the third prize
•The Mechanism and Application of PCBN-the third Prize
•Research of Complete technology and equipment to coat carbide inserts-the third prize
•Research of QPQ technology and equipment-the second prize
•Forecast and comprehensive analysis of mechanotronics (cooperation project)-the third prize
•Material Dynamic Crackability analysis and application to typical mechanical components (cooperation project)-the third prize
•Machine Industry Common Database (Cooperation Project)-the second prize

3.Provincial and Ministerial Prizes for Progress in Science and Technology

128 items (omitted)

核心竞争力

CORE COMPETITIVENESS

目前成都工具研究所已在刀具材料、精密复杂成型刀具与数控刀具设计及加工技术、刀具表面强化改性技术与装备、大型精密量仪设计制造、激光测量及光电传感器技术以及计算机软件等技术领域，形成了独特整体、核心成套技术优势，初步构成了以硬质合金石油管螺纹梳刀、硬质合金精密异形刀具、超硬刀具、刀具表面强化技术及设备、齿轮测量仪、激光测量仪等六项主导产品，包含30多项核心、高新技术产品的产品技术结构，这些产品和技术大都处于国内领先或国际先进水平。

Chengdu Tool Research Institute has formed complete and unique technical competitive advantages in tool blank, precise and complex profiled cutting tools and CNC tool design and processing technology, cutting tool surface modification and strengthening technology and equipment, large-scale design precision instrument manufacturing, laser and photoelectric sensor technology and computer software technology. It initially formed six leading products including carbide treading tools for oil pipe, carbide precision special-profiled inserts, PCBN/PCD cutting tools, tool surface strengthening technology and equipment, gear measuring instrument, laser measuring instrument. Those products are supported by more than 30 core, high-tech products technology structure and most of these products and technology are leading technologies in the domestic and international advanced level.

品质源于
1956

质量控制

QUALITY CONTROL

质量认证：ISO9001:2008
质量方针：以技术创新为先导，以质量管理为保证，以持续改进为核心，以顾客满意为目标。
质量目标：
· 贯彻ISO9001:2008标准，通过ISO9001:2008质量管理体系认证，并保持体系有效运行。
· 技术不断创新，每年设计开发新产品或新项目2项以上。
· 以质量管理为保证，加强过程控制，实施持续改进，产品质量精益精，确保产品出厂合格率达100%。三年内使主导产品合格率提高到95%以上，成品交检批次合格率达到95%。
· 以顾客为关注焦点，增进顾客满意，三年内使顾客满意率达98%以上，顾客投诉解决率达到100%。
· 顾客重大投诉为零，重大质量事故为零，重大设备安全事故为零。

Quality Certification: ISO9001:2008
Quality Policy: To make technical innovation as the guide, the quality management as the guarantee, continuous improvement as the core and take customer satisfaction as the goal.
Quality Objectives:
· in carrying out the standard of ISO9001:2008, through the ISO9001:2008 quality management system certification, and keep the system running effectively.
· technology innovation, design and develop more than 2 new products or new projects each year
· to guarantee the quality management, strengthen the process control, carry out continuous improvement, refine on product quality, ensure 100% products manufactured pass rate. Increase leading products pass rate to 95% in three years and the finished product inspection pass rate to 95%.
· to focus on the customer satisfaction, increase ing the rate over 98% in three years, resolving customer complaints rate over 95%;
· No major customer complaints, no quality accidents, no equipment safety accidents.

企业合作

ENTERPRISE COOPERATION

与联合国合作建立中国量仪基地
与德国KlingeInberg 公司合作，锥齿轮测量技术出口德国
广范与国外公司进行技术交流与合作
与国内大专院校、大型企业进行广范的技术交流与合作
与英国普法永道咨询公司合作，全面提升企业形象和管理能力

Established China Instrument Base Center with the U.N
Exported the bevel gear measuring technology to Germany with KlingeInberg (Germany)
Widely carry out technology exchanges and cooperation with foreign companies
Widely carry out technological exchanges and cooperation with domestic universities and large enterprises of China
Cooperate with consulting company to comprehensively promote CTRI’s image and management ability.

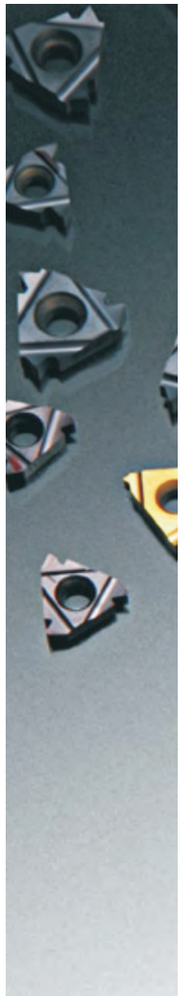
服务管理

SERVICE MANAGEMENT

服务宗旨：全心全意为用户服务
服务承诺：尽可能满足用户的合理需求
服务标准：快速、及时、有效，向用户提供一流产品和一流服务。

Service Rules: full service to customer’s request
Service Commitment: meeting the reasonable users’ requirements
Service Standard: effectively and efficiently providing top level products and service

目录
Table of Content



可转位螺纹刀具

Indexable threading inserts

成都工具研究所生产销售的各类可转位螺纹刀片，可以用在国外同类产品的刀杆上，其精度及切削性能已达到国际同类产品水平。该刀具是加工不锈钢、铸铁、铸钢、高强度钢及有色金属等材料的高效精密螺纹刀具。其销售的主要品种有：公制螺纹刀片（M）、统一螺纹刀片（UN）、惠氏螺纹刀片(W)、英国管螺纹刀片（BSPT）、美国管螺纹刀片（NPT）、局部剖面60度截顶形螺纹刀片、局部剖面55度截顶形螺纹刀片，公制梯形螺纹刀片（TR）、美制梯形(爱克母)螺纹刀片（ACME）、美制矮牙梯形(爱克母)螺纹刀片（STACME）、公制锯齿形螺纹刀(3°/30°)（B）、美制锯齿形螺纹刀片(7°/45°)（ABUTT）、英制锯齿形螺纹刀片(7°/45°)（B.S.BUTTRESS）、美国石油管螺纹刀片（API）、同时还可提供螺纹刀杆（外内螺纹刀杆），有方柄、圆柄两种。

All kinds of indexable threading inserts provided and sold by CTRI can be used on similar foreign products. Its precision and cutting performance has reached international level. The inserts can be regarded as effective and precise threading inserts which can be used on stainless steel, cast iron, cast steel, high strength steel and non-ferrous metal materials. The main varieties are: metric thread inserts (M), unified National Fixed Pitch Series (UN), whitworth thread inserts (W), British Standard Pipe thread (BSPT), National(American) Pipe Thread inserts (NPT), Partial Section 60° top-section thread inserts , Partial Section 55° top section thread inserts, metric trapezoidal thread inserts (Tr), ACME, SACME, metric buttress thread cutter (3°/30°) (B), ABUTT (7°/45°), B.S.BUTTRESS (7°/45°), API and also thread tool-holder (internal and external thread tool-holders) with square shank and round shank.

沉孔压紧式螺纹刀片型号编制说明

Descriptions for standards of Indexable Threading Inserts

沉孔压紧式螺纹刀片 Indexable Threading Inserts

16	V	E	R	2.00	ISO	2M	LW20
1	2	3	4	5	6	7	8

1.刀片尺寸 Size of insert

切削刃长度<MM) Cutting Length(mm)	内切圆 Inscribed circle	
	mm	IC
06	3.96	5/32
08	4.76	3/16
11	6.35	1/4
16	9.525	3/8
22	12.7	1/2
27	15.875	5/8

2.刀片安装类型

：	卧式(平装)螺纹刀片 Horizontal threaded inserts
V：	立式(立装)螺纹刀片 Vertical (vertical installation) threaded inserts
U：	卧式对中螺纹刀片 Lay down central threading insert

3.机加工类型 Type of cutting

E(external)：	外螺纹刀片 External threading inserts
N(internal)：	内螺纹刀片 Internal threading inserts

4.刀片手式 Hand of tools

R(Right-handed)：	右手式
L(Left-handed)：	左手式

5.螺距 Pitch width

完全形(全牙形)-(螺距范围用数字表示)
Omni-tooth (Range of pitch indicated in numerals)

完全形 Omni-tooth	mm	TPI
螺距 pitch width	0.5～5	48～4

V牙形(螺距范围用字母表示)
V-tooth (Range of pitch indicated in letters)

局部部面 partial profile	mm	TPI
A	0.5～1.5	48～16
AG	0.5～3.0	48～8
G	1.75～3.0	14～8
N	3.5～5.0	7～5
Q	5.5～6.0	4.5～4
U	5.5～9.0	4.5～2.75

6.螺纹标准 Thread Standards

螺纹牙形 Thread type	
60	局部剖面60° (60° general pitch threads)
55	局部剖面55° (55° general pitch threads)
ISO	ISO公制60° 螺纹 (60° ISO metric threads)
UN	美制统一螺纹60° (60° Unified threads(American standard))
W	英国惠氏螺纹标准55° (55° Whitworth threads)
NPT	美国管螺纹标准60° (60° American standard taper pipe threads)
NPTF	美国干密封管螺纹标准60° (60° National (American) Pipe Thread)
BSPT	英国管螺纹标准55° (55° British standard taper pipe threads)
API	美国石油管螺纹标准60° (60° American Petroleum Institute)
TR	公制梯形螺纹刀片30° (30° TR)
ACME	美国爱克母螺纹标准29° (29° ACME)
SACME	美国矮牙爱克母螺纹标准29° (29° SACME)
B	公制锯齿形螺纹刀片3° /30° (3° /30° B)
ABUTT	美国锯齿形螺纹标准7° /45° (7° /45° ABUTT)
B.S.BUTTRESS	英国锯齿形螺纹刀片7° /45° (7° /45° B.S.BUTTRESS)
RD	消防食品机械螺纹刀片 Round(DIN405)

7.每个切削刃上的牙齿数 Number of teeth on each cutting edge

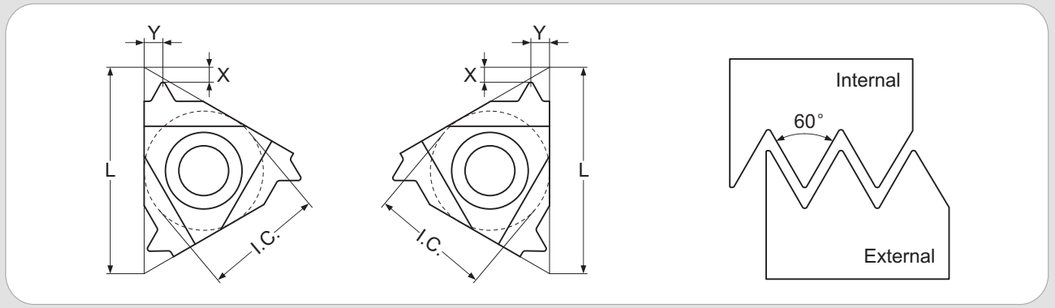
2M-2齿 3M-3等等 2M-2 3M-3 etc

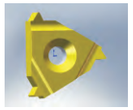
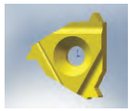
8.刀片材质 the material of the inserts

刀片材料 Material of the inserts	涂层颜色 Coating Color	被加工材料 Machined Materials
LW20 LW20	黄 Yellow	45碳钢、铸钢 45 carbon steel, cast steel
LK30 LK30	不涂层 No Coating	有色金属 Nonferrous metal
GY30 GY30	黑 Black	合金结构钢、铸钢、高强度钢 Alloy structural steel, cast steel, high strength steel

局部剖面60° 截面顶型

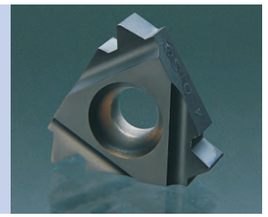
Partial profile 60° top-section



刀片形状 Shape of inserts	I.C.	螺距 Pitch width		符号表示 Model No.		L	X	Y	库存情况 Stock		
		mm	TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	3/8″	0.5～1.5	48～16	16ERA60	16ELA60	16.5	0.6	0.8	●	○	○
		1.75～3.0	14～8	16ERG60	16ELG60	16.5	1.1	1.5	●	○	○
		0.5～3.0	48～8	16ERAG60	16ELAG60	16.5	1.1	1.5	●	●	○
	1/2″	3.5～5.0	7～5	22ERN60	22ELN60	22	1.8	2.5	●	○	○
	5/8″	5.5～6.0	4.5～4	27ERQ60	27ELQ60	27.5	2.1	3.1	○	○	○
内螺纹刀片 Internal threading inserts 	1/4″	0.5～1.5	48～16	11NRA60	11NLA60	11	0.6	0.8	●	○	○
	3/8″	0.5～1.5	48～16	16NRA60	16NLA60	16.5	0.6	0.8	●	○	○
		1.75～3.0	14～8	16NRG60	16NLG60	16.5	1.1	1.5	●	○	○
		0.5～3.0	48～8	16NRAG60	16NLAG60	16.5	1.1	1.5	●	●	○
	1/2″	3.5～5.0	7～5	22NRN60	22NLN60	22	1.8	2.5	●	○	○
	5/8″	5.5～6.0	4.5～4	27NRQ60	27NLQ60	27.5	1.8	2.7	○	○	○

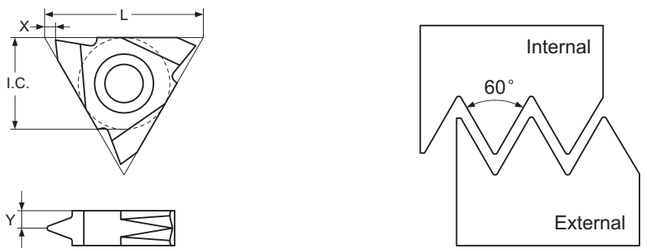
注：●为常被库存 ○为按订单生产
●standing inventory ○made according to purchase order

品质源于
1956



局部剖面60° 立式

Partial profile 60° Vertical



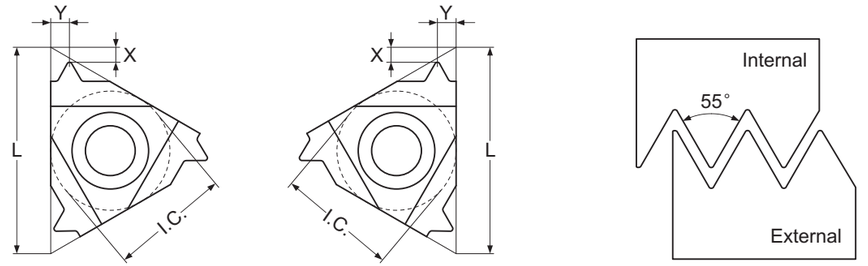
刀片形状 Shape of inserts	I.C.	螺距 Pitch width		符号表示 Model No.	T	X	Y	库存情况 Stock		
		mm	TPI	右刀 (Right-handed)				LW20	GY30	LK30
外螺纹刀片 External threading inserts	3/8″	0.5～1.5	48～16	16VERA60	3.6	1	0.9	○	○	○
		1.75～3.0	14～8	16VERG60	3.6	1	1.8	○	○	○
		0.5～3.0	48～8	16VERAG60	3.6	1	1.8	○	●	○
	1/2″	1.75～3.0	14～8	22VERG60	4	1.2	1.7	○	○	○
		3.5～5.0	7～5	22VERN60	4.8	1.2	2.5	○	○	○

注：●为常被库存 ○为按订单生产
●standing inventory ○made according to purchase order

品质源于
1956

局部剖面55° 截面顶型

Partial profile 55° top-section

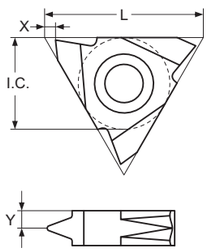


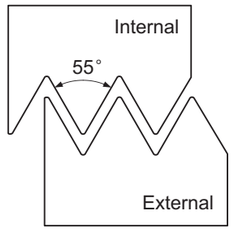
刀片形状 Shape of inserts	I.C.	螺距 Pitch width		符号表示 Model No.		L	X	Y	库存情况 Stock		
		mm	TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts	3/8″	0.5～1.5	48～16	16ERA55	16ELA55	16.5	0.6	0.8	●	○	○
		1.75～3.0	14～8	16ERG55	16ELG55	16.5	1.1	1.5	●	○	○
		0.5～3.0	48～8	16ERAG55	16ELAG55	16.5	1.1	1.5	●	●	○
	1/2″	3.5～5.0	7～5	22ERN55	22ELN55	22	1.8	2.5	●	○	○
	5/8″	5.5～6.0	4.5～4	27ERQ55	27ELQ55	27.5	2	2.9	○	○	○
内螺纹刀片 Internal threading inserts	1/4″	0.5～1.5	48～16	11NRA55	11NLA55	11	0.6	0.8	●	○	○
	3/8″	0.5～1.5	48～16	16NRA55	16NLA55	16.5	0.6	0.8	●	○	○
		1.75～3.0	14～8	16NRG55	16NLG55	16.5	1.1	1.5	●	○	○
		0.5～3.0	48～8	16NRAG55	16NLAG55	16.5	1.1	1.5	●	●	○
	1/2″	3.5～5.0	7～5	22NRN55	22NLN55	22	1.8	2.5	●	○	○
	5/8″	5.5～6.0	4.5～4	27NRQ55	27NLQ55	27.5	2	2.9	○	○	○

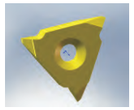
注：●为常被库存 ○为按订单生产
●standing inventory ○made according to purchase order

局部剖面55° 立式

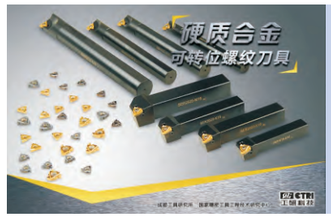
Partial profile 55° Vertical





刀片形状 Shape of inserts	I.C.	螺距 Pitch width		符号表示 Model No.	T	X	Y	库存情况 Stock		
		mm	TPI	右刀 (Right-handed)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	3/8″	0.5～1.5	48～16	16VERA55	3.6	1	0.9	○	○	○
		1.75～3.0	14～8	16VERG55	3.6	1	1.7	○	○	○
		0.5～3.0	48～8	16VERAG55	3.6	1	1.8	○	○	○
	1/2″	3.5～5.0	7～5	22VERN55	4.8	1.2	2.5	○	○	○

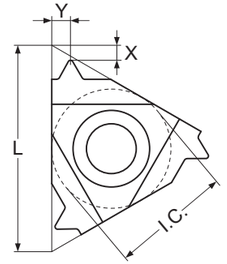
注：●为常被库存 ○为按订单生产
●standing inventory ○made according to purchase order

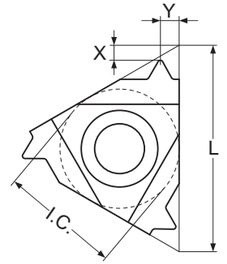


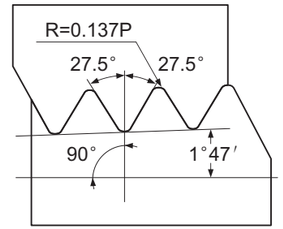
品质源于 1956

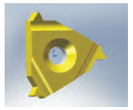
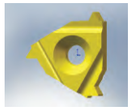
英国标准管螺纹 BSPT

BSPT omni-tooth





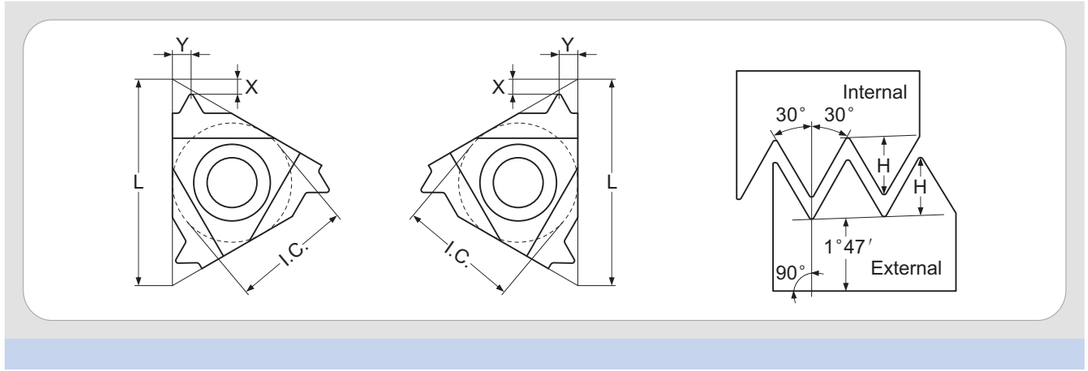


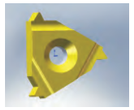
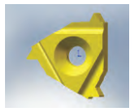
刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	3/8″	28	16ER28BSPT	16EL28BSPT	16.5	0.6	0.6	○	○	○
		19	16ER19BSPT	16EL19BSPT		0.8	0.9	●	○	○
		14	16ER14BSPT	16EL14BSPT		1	1.2	●	○	○
		11	16ER11BSPT	16EL11BSPT		1.1	1.5	●	○	○
内螺纹刀片 Internal threading inserts 	3/8″	28	16NR28BSPT	16NL28BSPT	16.5	0.6	0.6	○	○	○
		19	16NR19BSPT	16NL19BSPT		0.8	0.9	●	○	○
		14	16NR14BSPT	16NL14BSPT		1	1.2	●	○	○
		11	16NR11BSPT	16NL11BSPT		1.1	1.5	●	○	○

注：●为常被库存 ○为按订单生产
●standing inventory ○made according to purchase order

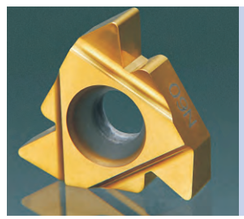
美国标准管螺纹 NPT

NPT omni-tooth



刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	3/8″	27	16ER27NPT	16EL27NPT	16.5	0.8	0.7	○	○	○
		18	16ER18NPT	16EL18NPT		0.8	0.7	●	○	○
		14	16ER14NPT	16EL14NPT		1.5	1.1	●	○	○
		11.5	16ER11.5NPT	16EL11.5NPT		1.5	1.1	●	○	○
		8	16ER8NPT	16EL8NPT		1.5	1.1	●	○	○
内螺纹刀片 Internal threading inserts 	3/8″	27	16NR27NPT	16NL27NPT	16.5	0.8	0.7	○	○	○
		18	16NR18NPT	16NL18NPT		0.8	0.7	●	○	○
		14	16NR14NPT	16NL14NPT		1.5	1.1	●	○	○
		11.5	16NR11.5NPT	16NL11.5NPT		1.5	1.1	●	○	○
		8	16NR8NPT	16NL8NPT		1.5	1.1	●	○	○

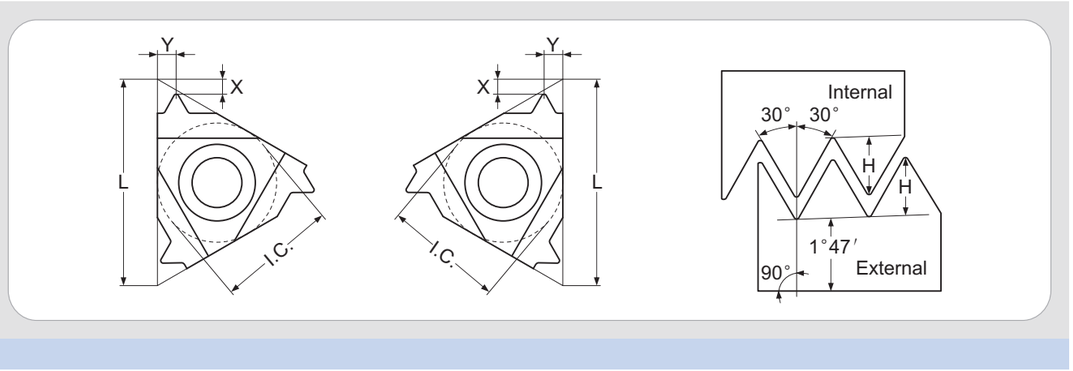
注：●为常被库存　　○为按订单生产
●standing inventory ○made according to purchase order

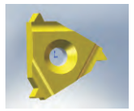
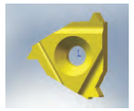


品质源于 1956

美国干密封管螺纹标准 NPTF

NPTF omni-tooth

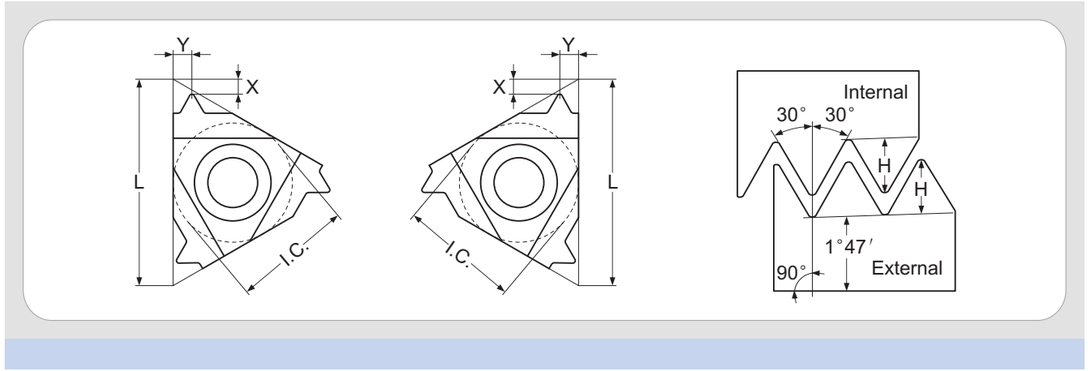


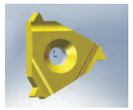
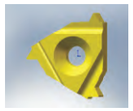
刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	1/4″	27	11ER27NPTF	11EL27NPTF	11	0.8	0.7	○	○	○
		18	11ER18NPTF	11EL18NPTF		0.8	0.7	○	○	○
		14	11ER14NPTF	11EL14NPTF		1.2	1	○	○	○
	3/8″	27	16ER27NPTF	16EL27NPTF	16.5	0.8	0.7	○	○	○
		18	16ER18NPTF	16EL18NPTF		0.8	0.7	●	○	○
		14	16ER14NPTF	16EL14NPTF		1.5	1.1	●	○	○
		11.5	16ER11.5NPTF	16EL11.5NPTF		1.5	1.1	●	○	○
		8	16ER8NPTF	16EL8NPTF		1.5	1.1	○	○	○
内螺纹刀片 Internal threading inserts 	1/4″	27	11NR27NPTF	11NL27NPTF	11	0.8	0.7	○	○	○
		18	11NR18NPTF	11NL18NPTF		0.8	0.7	○	○	○
		14	11NR14NPTF	11NL14NPTF		1.2	1	○	○	○
	3/8″	27	16NR27NPTF	16NL27NPTF	16.5	0.8	0.7	○	○	○
		18	16NR18NPTF	16NL18NPTF		0.8	0.7	●	○	○
		14	16NR14NPTF	16NL14NPTF		1.5	1.1	●	○	○
		11.5	16NR11.5NPTF	16NL11.5NPTF		1.5	1.1	●	○	○
		8	16NR8NPTF	16NL8NPTF		1.5	1.1	○	○	○

注：●为常被库存　　○为按订单生产
●standing inventory ○made according to purchase order

美国石油管螺纹标准 API

API omni-tooth



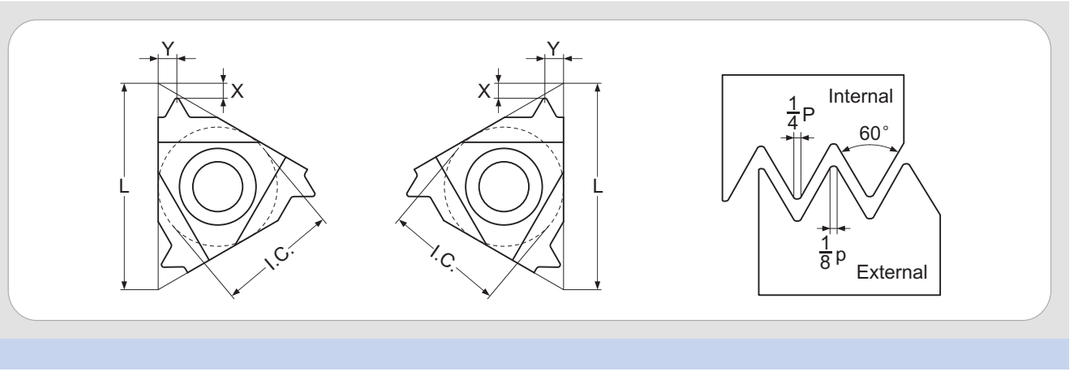
刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	3/8″	10	16ER10 API RD	16EL10 API RD	16.5	1.1	1.2	○	○	○
		8	16ER8 API RD	16EL8 API RD		1.4	1.3	●	●	○
	1/2″	10	22ER10 API RD	22EL10 API RD	22	1.5	1.7	○	○	○
		8	22ER8 API RD	22EL8 API RD		2.2	2.3	●	○	○
内螺纹刀片 Internal threading inserts 	3/8″	10	16NR10 API RD	16NL10 API RD	16.5	1.1	1.2	○	○	○
		8	16NR8 API RD	16NL8 API RD		1.4	1.4	●	●	○
	1/2″	10	22NR10 API RD	22NL10 API RD	22	1.5	1.7	○	○	○
		8	22NR8 API RD	22NL8 API RD		2.2	2.3	●	○	○

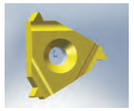
注：●为常被库存　　○为按订单生产
●standing inventory ○made according to purchase order

品质源于
1956

ISO 公制 完全型

ISO metric thread inserts

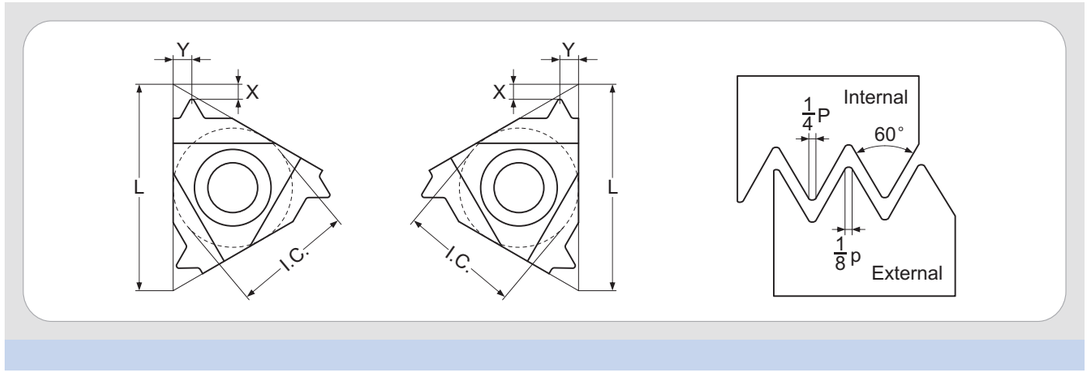


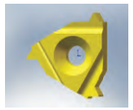
刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		mm	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	3/8″	0.75	16ER0.75ISO	16EL0.75ISO	16.5	0.8	0.8	○	○	○
		1	16ER1.0ISO	16EL1.0ISO		0.8	0.8	●	○	○
		1.25	16ER1.25ISO	16EL1.25ISO		0.8	0.8	○	○	○
		1.5	16ER1.5ISO	16EL1.5ISO		0.8	0.8	●	●	○
		1.75	16ER1.75ISO	16EL1.75ISO		1.2	1.5	○	○	○
		2	16ER2.0ISO	16EL2.0ISO		1.2	1.5	●	●	○
		2.5	16ER2.5ISO	16EL2.5ISO		1.2	1.5	●	○	○
		3	16ER3.0ISO	16EL3.0ISO		1.2	1.5	●	●	○
	1/2″	3.5	22ER3.5ISO	22EL3.5ISO	22	1.8	2.5	○	○	○
		4	22ER4.0ISO	22EL4.0ISO		1.8	2.5	●	○	○
		4.5	22ER4.5ISO	22EL4.5ISO		1.8	2.5	○	○	○
		5	22ER5.0ISO	22EL5.0ISO		1.8	2.5	●	○	○
		5.5	22ER5.5ISO	22EL5.5ISO		2.2	3.2	○	○	○
		6	22ER6.0ISO	22EL6.0ISO		2.2	3.2	●	○	○

注：●为常被库存　　○为按订单生产
●standing inventory ○made according to purchase order

ISO 公制 完全型

ISO metric thread inserts



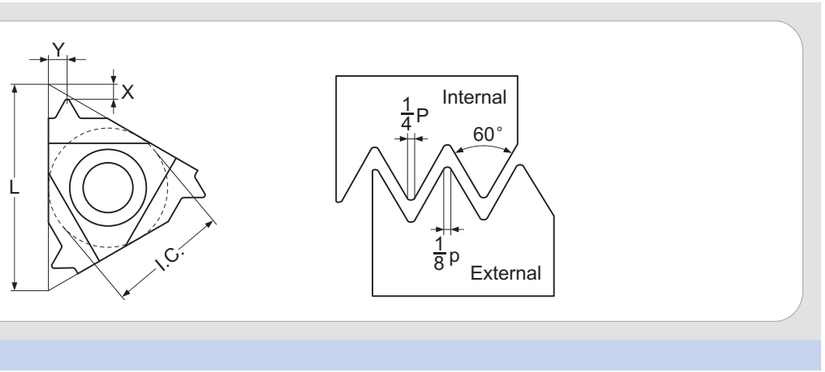
刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		mm	右刀 (R)	左刀 (L)				LW20	GY30	LK30
内螺纹刀片 Internal threading inserts 	1/4″	0.75	11NR0.75ISO	11NL0.75ISO	11	0.8	0.8	○	○	○
		1	11NR1.0ISO	11NL1.0ISO		0.8	0.8	●	○	○
		1.25	11NR1.25ISO	11NL1.25ISO		0.8	0.8	○	○	○
		1.5	11NR1.5ISO	11NL1.5ISO		0.8	0.8	●	○	○
		1.75	11NR1.75ISO	11NL1.75ISO		0.8	0.8	○	○	○
	3/8″	0.75	16NR0.75ISO	16NL0.75ISO	16.5	0.8	0.8	○	○	○
		1	16NR1.0ISO	16NL1.0ISO		0.8	0.8	●	○	○
		1.25	16NR1.25ISO	16NL1.25ISO		0.8	0.8	○	○	○
		1.5	16NR1.5ISO	16NL1.5ISO		0.8	0.8	●	●	○
		1.75	16NR1.75ISO	16NL1.75ISO		1.2	1.5	○	○	○
		2	16NR2.0ISO	16NL2.0ISO		1.2	1.5	●	●	○
		2.5	16NR2.5ISO	16NL2.5ISO		1.2	1.5	●	○	○
		3	16NR3.0ISO	16NL3.0ISO		1.2	1.5	●	●	○
	1/2″	3.5	22NR3.5ISO	22NL3.5ISO	22	1.8	2.5	○	○	○
		4	22NR4.0ISO	22NL4.0ISO		1.8	2.5	●	○	○
		4.5	22NR4.5ISO	22NL4.5ISO		1.8	2.5	○	○	○
		5	22NR5.0ISO	22NL5.0ISO		1.8	2.5	●	○	○
		5.5	22NR5.5ISO	22NL5.5ISO		2.2	3.2	○	○	○
		6	22NR6.0ISO	22NL6.0ISO		2.2	3.2	●	○	○

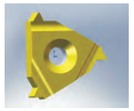
注：●为常被库存　　○为按订单生产
●standing inventory ○made according to purchase order

可转位螺纹刀具 Indexable Threading Inserts

ISO 英制60° 完全形（UN、UNC、UNF）

UN、UNC、UNF 60° omni-tooth

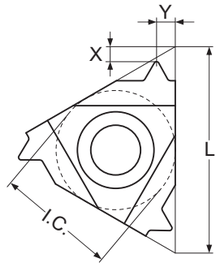


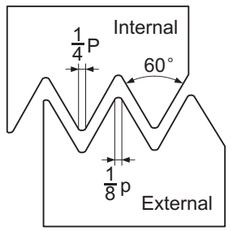
刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	3/8″	32	16ER32UN	16EL32UN	16.5	0.8	0.8	○	○	○
		28	16ER28UN	16EL28UN		0.8	0.8	○	○	○
		24	16ER24UN	16EL24UN		0.8	0.8	○	○	○
		20	16ER20UN	16EL20UN		0.8	0.8	○	○	○
		18	16ER18UN	16EL18UN		0.8	0.8	●	○	○
		16	16ER16UN	16EL16UN		0.8	0.8	●	●	○
		14	16ER14UN	16EL14UN		1.2	1.5	●	○	○
		12	16ER12UN	16EL12UN		1.2	1.5	●	●	○
		11	16ER11UN	16EL11UN		1.2	1.5	●	○	○
		10	16ER10UN	16EL10UN		1.2	1.5	●	○	○
		9	16ER9UN	16EL9UN		1.2	1.5	○	○	○
		8	16ER8UN	16EL8UN		1.2	1.5	●	●	○
	1/2″	7	22ER7UN	22EL7UN	22	2	2.5	○	○	○
		6	22ER6UN	22EL6UN		2.2	2.5	○	○	○
		5	22ER5UN	22EL5UN		1.8	2.5	○	○	○
	5/8″	4.5	27ER4.5UN	27EL4.5UN	27.5	2.2	3.2	○	○	○
		4	27ER4UN	27EL4UN		2.2	3.2	○	○	○

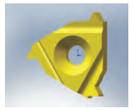
注：●为常被库存　　○为按订单生产
●standing inventory ○made according to purchase order

ISO 英制60° 完全形 (UN、UNC、UNF)

UN、UNC、UNF 60° omni-tooth

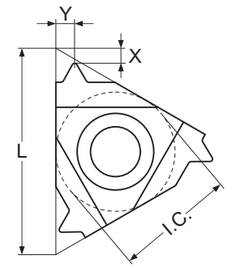


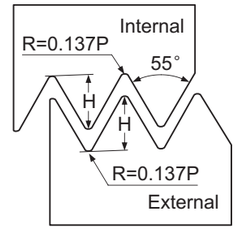


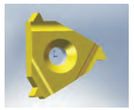
刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
内螺纹刀片 Internal threading inserts 	1/4″	32	11NR32UN	11NL32UN	11	0.8	0.8	○	○	○
		28	11NR28UN	11NL28UN		0.8	0.8	○	○	○
		24	11NR24UN	11NL24UN		0.8	0.8	○	○	○
		20	11NR20UN	11NL20UN		0.8	0.8	○	○	○
		18	11NR18UN	11NL18UN		0.8	0.8	○	○	○
		16	11NR16UN	11NL16UN		0.8	0.8	○	○	○
		14	11NR14UN	11NL14UN		0.8	0.8	○	○	○
	3/8″	32	16NR32UN	16NL32UN	16.5	0.8	0.8	○	○	○
		28	16NR28UN	16NL28UN		0.8	0.8	○	○	○
		24	16NR24UN	16NL24UN		0.8	0.8	○	○	○
		20	16NR20UN	16NL20UN		0.8	0.8	○	○	○
		18	16NR18UN	16NL18UN		0.8	0.8	●	○	○
		16	16NR16UN	16NL16UN		0.8	0.8	●	●	○
		14	16NR14UN	16NL14UN		1.2	1.5	●	●	○
		12	16NR12UN	16NL12UN		1.2	1.5	●	●	○
		11	16NR11UN	16NL11UN		1.2	1.5	●	○	○
		10	16NR10UN	16NL10UN		1.2	1.5	●	○	○
		9	16NR9UN	16NL9UN		1.2	1.5	○	○	○
		8	16NR8UN	16NL8UN		1.2	1.5	●	●	○
	1/2″	7	22NR7UN	22NL7UN	22	2	2.5	○	○	○
		6	22NR6UN	22NL6UN		2.2	2.5	○	○	○
		5	22NR5UN	22NL5UN		1.8	2.5	○	○	○
	5/8″	4.5	27NR4.5UN	27NL4.5UN	27.5	2.2	3.2	○	○	○
		4	27NR4UN	27NL4UN		2.2	3.2	○	○	○

惠氏55° 完全形 BSW、BSF、BSP

BSW、BSF、BSP 55° omni-tooth



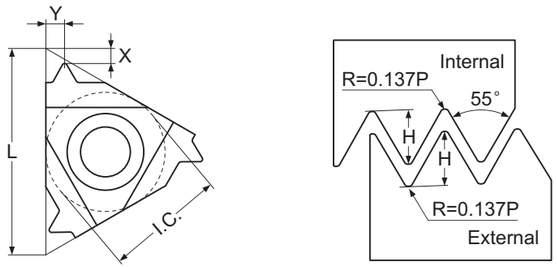


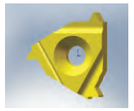
刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	3/8″	28	16ER28W	16EL28W	16.5	0.8	0.8	○	○	○
		26	16ER26W	16EL26W		0.8	0.8	○	○	○
		24	16ER24W	16EL24W		0.8	0.8	○	○	○
		22	16ER22W	16EL22W		0.8	0.8	○	○	○
		20	16ER20W	16EL20W		0.8	0.8	○	○	○
		19	16ER19W	16EL19W		0.8	0.8	●	●	○
		18	16ER18W	16EL18W		0.8	0.8	○	○	○
		16	16ER16W	16EL16W		1.2	1.5	○	○	○
		14	16ER14W	16EL14W		1.2	1.5	●	●	○
		12	16ER12W	16EL12W		1.2	1.5	○	○	○
		11	16ER11W	16EL11W		1.2	1.5	●	●	○
		10	16ER10W	16EL10W		1.2	1.5	○	○	○
		9	16ER9W	16EL9W		1.2	1.5	○	○	○
		8	16ER8W	16EL8W		1.2	1.5	●	●	○
	1/2″	7	22ER7W	22EL7W	22	1.8	2.5	○	○	○
		6	22ER6W	22EL6W		1.8	2.5	○	○	○
		5	22ER5W	22EL5W		1.8	2.5	○	○	○
	5/8″	4.5	27ER4.5W	27EL4.5W	27.5	2.2	3.2	○	○	○
		4	27ER4W	27EL4W		2.2	3.2	○	○	○

注：●为常被库存 ○为按订单生产
●standing inventory ○made according to purchase order

惠氏55° 完全形 BSW、BSF、BSP

BSW、BSF、BSP 55° omni-tooth

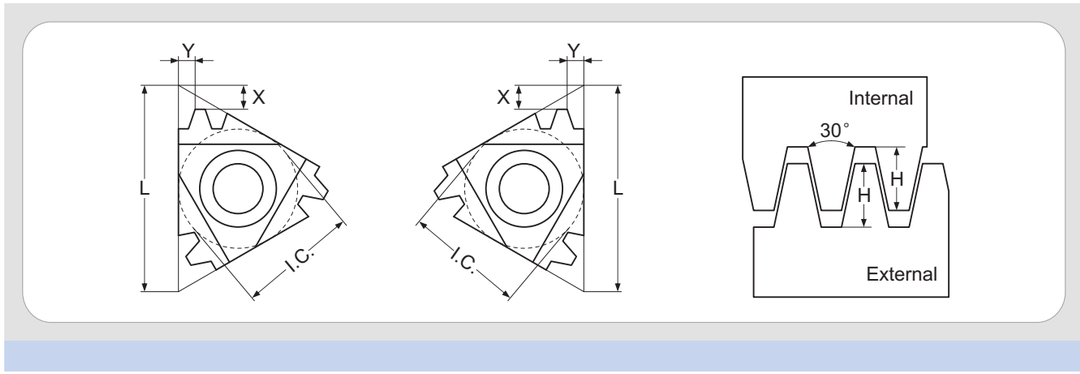


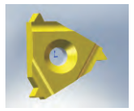
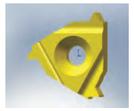
刀片形状 Shape of inserts	I.C.	螺距 Pitch width TPI	符号表示 Model No. 右刀 (R)	左刀 (L)	L	X	Y	库存情况 Stock LW20	GY30	LK30
内螺纹刀片 Internal threading inserts 	1/4″	19	11NR19W	11NL19W	11	0.8	0.8	○	○	○
		14	11NR14W	11NL14W		0.8	0.8	●	○	○
	3/8″	28	16NR28W	16NL28W	16.5	0.8	0.8	○	○	○
		26	16NR26W	16NL26W		0.8	0.8	○	○	○
		24	16NR24W	16NL24W		0.8	0.8	○	○	○
		22	16NR22W	16NL22W		0.8	0.8	○	○	○
		20	16NR20W	16NL20W		0.8	0.8	○	○	○
		19	16NR19W	16NL19W		0.8	0.8	●	●	○
		18	16NR18W	16NL18W		0.8	0.8	○	○	○
		16	16NR16W	16NL16W		1.2	1.5	○	○	○
		14	16NR14W	16NL14W		1.2	1.5	●	●	○
		12	16NR12W	16NL12W		1.2	1.5	○	○	○
		11	16NR11W	16NL11W		1.2	1.5	●	●	○
		10	16NR10W	16NL10W		1.2	1.5	○	○	○
		9	16NR9W	16NL9W		1.2	1.5	○	○	○
		8	16NR8W	16NL8W		1.2	1.5	●	●	○
	1/2″	7	22NR7W	22NL7W	22	1.8	2.5	○	○	○
		6	22NR6W	22NL6W		1.8	2.5	○	○	○
		5	22NR5W	22NL5W		1.8	2.5	○	○	○
	5/8″	4.5	27NR4.5W	27NL4.5W	27.5	2.2	3.2	○	○	○
		4	27NR4W	27NL4W		2.2	3.2	○	○	○

注：●为常被库存 ○为按订单生产
●standing inventory ○made according to purchase order

公制梯形螺纹刀片 TR

Metric trapezoidal threading inserts (TR)

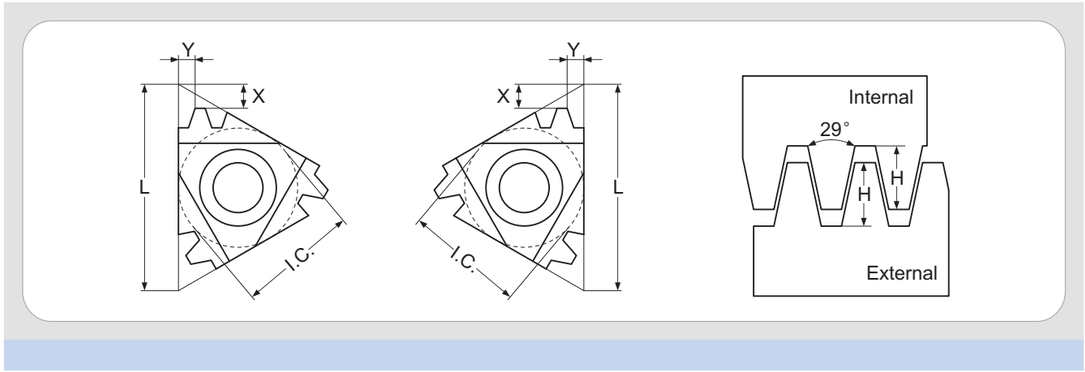


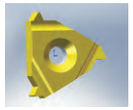
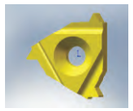
刀片形状 Shape of inserts	I.C.	螺距 Pitch width mm	符号表示 Model No. 右刀 (R)	左刀 (L)	L	X	Y	库存情况 Stock LW20	GY30	LK30
外螺纹刀片 External threading inserts 	3/8″	1.5	16ER1.5TR	16EL1.5TR	16.5	1	1.1	●	○	○
		2	16ER2.0TR	16EL2.0TR		1.1	1.3	●	○	○
		3	16ER3.0TR	16EL3.0TR		1.3	1.5	●	○	○
	1/2″	4	22ER4.0TR	22EL4.0TR	22	1.8	1.9	●	○	○
		5	22ER5.0TR	22EL5.0TR		2	2.4	●	○	○
		6	27ER6.0TR	27EL6.0TR		2.3	2.7	●	○	○
	5/8″	7	27ER7.0TR	27EL7.0TR	27.5	2.2	2.6	○	○	○
内螺纹刀片 Internal threading inserts 	3/8″	1.5	16NR1.5TR	16NL1.5TR	16.5	0.8	0.7	○	○	○
		2	16NR2.0TR	16NL2.0TR		1.2	1	○	○	○
		3	16NR3.0TR	16NL3.0TR		0.8	0.7	○	○	○
	3/8″	4	22NR4.0TR	22NL4.0TR	16.5	0.8	0.7	●	○	○
		5	22NR5.0TR	22NL5.0TR		1.5	1.1	●	○	○
		6	27NR6.0TR	27NL6.0TR		1.5	1.1	●	○	○
	3/8″	7	27NR7.0TR	27NL7.0TR	16.5	1.5	1.1	○	○	○

注：●为常被库存 ○为按订单生产
●standing inventory ○made according to purchase order

美国爱克母螺纹标准 ACME

American trapezoidal threading inserts(ACME)

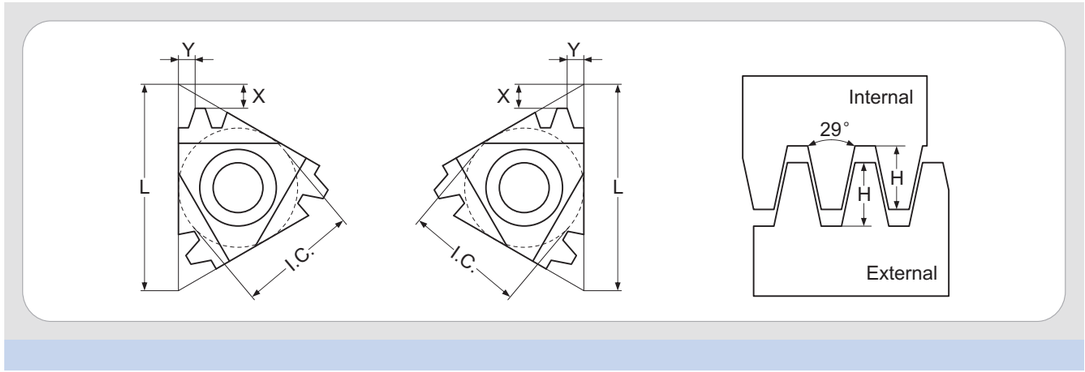


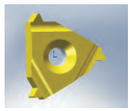
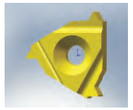
刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	1/4″	16	11ER16ACME	11EL16ACME	11	0.9	1	○	○	○
	3/8″	16	16ER16ACME	16EL16ACME	16.5	0.9	1	○	○	○
		14	16ER14ACME	16EL14ACME		1	1.2	○	○	○
		12	16ER12ACME	16EL12ACME		1.1	1.2	○	○	○
		10	16ER10ACME	16EL10ACME		1.3	1.3	○	○	○
		8	16ER8ACME	16EL8ACME		1.5	1.5	●	○	○
	1/2″	6	22ER6ACME	22EL6ACME	22	1.8	2.1	○	○	○
		5	22ER5ACME	22EL5ACME		2	2.3	○	○	○
	5/8″	4	27ER4ACME	27EL4ACME	27.5	2.3	2.7	●	○	○
内螺纹刀片 Internal threading inserts 	1/4″	16	11NR16ACME	11NL16ACME	11	0.9	1	○	○	○
	3/8″	16	16NR16ACME	16NL16ACME	16.5	0.9	1	○	○	○
		14	16NR14ACME	16NL14ACME		1	1.2	○	○	○
		12	16NR12ACME	16NL12ACME		1.1	1.2	○	○	○
		10	16NR10ACME	16NL10ACME		1.3	1.3	○	○	○
		8	16NR8ACME	16NL8ACME		1.5	1.5	●	○	○
	1/2″	6	22NR6ACME	22NL6ACME	22	1.8	2.1	○	○	○
		5	22NR5ACME	22NL5ACME		2	2.3	○	○	○
	5/8″	4	27NR4ACME	27NL4ACME	27.5	2.3	2.7	●	○	○

注：●为常被库存　　○为按订单生产
●standing inventory ○made according to purchase order

美国矮牙爱克母螺纹标准 STACME

American short-tooth trapezoidal threading inserts(STACME)



刀片形状 Shape of inserts	I.C.	螺距 Pitch width	符号表示 Model No.		L	X	Y	库存情况 Stock		
		TPI	右刀 (R)	左刀 (L)				LW20	GY30	LK30
外螺纹刀片 External threading inserts 	1/4″	16	11ER16STACME	11EL16STACME	11	1	1	○	○	○
	3/8″	16	16ER16STACME	16EL16STACME	16.5	1	1	○	○	○
		14	16ER14STACME	16EL14STACME		1.1	1.1	○	○	○
		12	16ER12STACME	16EL12STACME		1.2	1.2	●	○	○
		10	16ER10STACME	16EL10STACME		1.3	1.3	●	○	○
		8	16ER8STACME	16EL8STACME		1.5	1.5	○	○	○
	1/2″	6	22ER6STACME	22EL6STACME	22	1.8	1.8	○	○	○
		5	22ER5STACME	22EL5STACME		2	2.3	○	○	○
		4	27ER4STACME	27EL4STACME		2.3	2.4	●	○	○
	5/8″	3	27ER3STACME	27EL3STACME	27.5	2.8	2.9	○	○	○
内螺纹刀片 Internal threading inserts 	1/4″	16	11NR16STACME	11NL16STACME	11	1	1	○	○	○
	3/8″	16	16NR16STACME	16NL16STACME	16.5			○	○	○
		14	16NR14STACME	16NL14STACME		1.1	1.1	○	○	○
		12	16NR12STACME	16NL12STACME				●	○	○
		10	16NR10STACME	16NL10STACME		1.3	1.3	●	○	○
		8	16NR8STACME	16NL8STACME				○	○	○
	1/2″	6	22NR6STACME	22NL6STACME	22	1.8	1.8	○	○	○
		5	22NR5STACME	22NL5STACME				○	○	○
		4	27NR4STACME	27NL4STACME		2.3	2.4	●	○	○
	5/8″	3	27NR3STACME	27NL3STACME	27.5			○	○	○

刀片选用指南
Guideline for Inserts Selection

为了使您有良好的加工质量，在选购和使用时请考虑以下几点：
To enable a good processing quality, please consider the following points during purchase and subsequent process:

1、根据加工内、外螺纹、螺纹旋向及工件螺距、牙数/英吋，按我们提供的“车削外（内）螺纹用刀片”表选择合适型号的螺纹刀片，（样本）并请与我们的销售人员沟通，根据被加工零件的材料，选择最适合您使用的刀片牌号。

Selecting suitable type of threading inserts according to the processing of internal or external thread, thread pitch, number of teeth and the table of “external and internal threading inserts” we provided. Please consult to our sales staff on detailed workpiece material for the most suitable inserts.

刀片材料 Material of the inserts	被加工材料 Machined Materials
LW20 (黄) LW20 (Yellow)	45碳钢、铸钢 45 carbon steel, cast steel
GY30 (黑) GY30 (Black)	不锈钢、合金结构钢、铸钢、高强度钢 Alloy structural steel, cast steel, high strength steel
LK30 (不涂层) LK30 (No Coating)	有色金属 Nonferrous metal

2、根据您所采用的车床的型号，加工方式及已选用的刀片型号来选择适当的刀杆型号。
Selecting the appropriate shaft according to the type of the lathe, processing methods and the selected inserts.

3、刀垫选择：螺纹的螺旋升角必须和刀片的倾斜角一致，尽可能避免后刀面一侧的不利磨损，致使刀具寿短。
我们在制造螺纹刀杆时已经将λ值设计为1°。
Selection of the shim: leaning thread helix angle and blade angle must be consistent to avoid short service life of the inserts due to adverse side flank wear.
We set the value of λ=1° during the the manufacture of threading shank

4、切削速度的选择：
selection of cutting speed
切削速度vc、转速n之间的转换:

$$vc=\frac{\Pi \times D \times n}{1000}$$

(vc:m/min, D:mm , n:转/min)
Conversion between Cutting speed VC and rotating speed

$$vc=\frac{\Pi \times D \times n}{1000}$$

对于不锈钢的螺纹切削，最重要的是切削速度Vc要足够高，以避免“积屑瘤”现象。
For thread cutting of stainless steel , the most important is keeping the cutting speed high enough to avoid B.U.E.
为了提高小刀尖角刀片的寿命，比如NPT螺纹，可先用较大刀尖角刀片先加工一次，或将切削参数相应改变（增加切削次数）。
In order to expand the life service of corner cutter with small tool nose, such as the NPT thread, we can use corner cutter with larger tool nose for the first time cutting process, or change the cutting parameters (increase cutting times).

			切削速度Vc：m/min Cutting speed Vc：m/min
碳钢 Carbon steel	低合金钢 low alloyed steel	HB180	125
		HB250	100
		HB275	95
	高合金钢 High alloyed steel	HB200	110
		HB325	80
	铸钢 Cast steel	HB180	200
		HB200	110
不锈钢 Stainless steel	易切钢 Free electron	HB220	120~140
	铁素体/马氏体 ferrite	HB330	90
	奥化体 austenite	HB200	90
		HB330	65
铸铁 Cast iron	球墨铸铁 spheroidal graphite cast iron	HB130	135
		HB230	65
	灰口铸铁 Grey cast iron	HB180	130
		HB260	110
	冷硬铸铁 Chilled cast iron	HB400	15~45

5、进刀方式选择

Selection of feeding mode

1）径向进刀：通常车削螺纹时，应先选择径向进刀的方式进行，此法操作简单，且对有加工硬化倾向材料如奥氏体不锈钢材料的首选。当加工大螺距时，易产生振动，可改为侧向进刀法或交互式进刀方法。

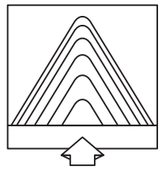
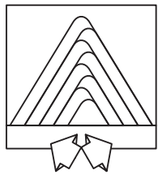
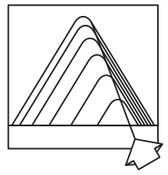
1) Radial feed: radial feed mode should be chosen first during threading process. The operation is simple, and it is the first choice if working on hardening materials such as austenitic stainless steel. When processing large pitch, it is easy to produce vibration, so it can be changed into a lateral feed or interactive feed method.

2）侧向进刀法：易于对切屑流向的控制，便于切屑的排出及减轻车削螺纹时的振动。为了在侧向进刀时保持刀片齿形仍能获得均匀的磨损，对600公制螺纹采用在径向切深aP的同时，在轴向进给1/2 aP的方法获得

2) Lateral feed: it is easy to control the chip flow for removing and reducing the vibration time. To remain equal wear on inserts in lateral feed, 60° metric thread with deep aP cut and1/2 aP in the radial and axial feed in method

3）交互式进刀：可明显减少刀片磨损，提高刀具寿命适合CNC数控机床上使用。

3) interactive feed: It can significantly reduce the wear of inserts and prolong the service life of the tool for the CNC machine.

		
直进进刀方式 Radial feed	交互进刀方式 Interactive feed	侧向进刀方式 Lateral feed

6、进刀量推荐值

Recommended Feed Values

在大多数CNC机床上，螺纹加工的一个周期中，（如螺纹加工的固定循环）总的螺纹深度和第一刀或最后一刀的切深aP值应给出而在第一次进刀时采用最大的进刀深度（刀尖圆弧半径的1.5~2倍），随后的进刀深度应逐渐减小。最后一刀的进刀深度应不小于0.05mm的单边进刀量，否则易造成刀尖的磨损和工件齿面光洁度较差。

On most CNC machines, aP value of total cutting depth and the first cut or last cut should be given in a periodic thread process (such as fixed cycle of thread processing) . And the maximum feed depth should be in the first feed (1.5~2 times of corner radius) then the feeding depth can be gradually reduced. Unilateral feeding depth of the last cut should not be less than 0.05mm, otherwise it will easily lead to tool wear and the poor workpiece surface smoothness.

在目前的数控机床中，螺纹切削（固定循环）有两种加工方法：

There are two kinds of processing methods in the NC machine tool at present:

径向进刀法均采用G32方式；（G33、G34、G35）；

Radial feed method using G32; (G33, G34, G35);

侧向进刀法较多采用G76方式；

Lateral feed method use of G76;

由于切削方法不同，编程方法不同，造成的加工误差不同。

Because of the different cutting method, programming methods, the processing errors are caused differently.

（1）两种加工方式的编程指令。

Programming instructions of the two cutting method.

（a）G32X（U）---Z（W）---F------；

G32编程:切削深度分配方式一般为常量值，双刃切削，每次的切削深度aP编程人员给出。

G32 programming: cutting depth is generally a constant value, double-edged cutting and programming staff distributes the aP value.

径向进刀法由于双侧刃同时工作，切削刀较大，而且排屑困难。因此在切削时，两切削刃容易磨损。在切削螺距较大的螺纹时，由于切削深度较大，刀刃磨损较快，从而造成螺纹中径产生误差。由于其加工的牙形精度较高，多用于小螺距螺纹加工中，注意一点的是，刃口容易磨损，因此加工中要做到勤测量。

Because both of the edges work at the same time and the cutting inserts are larger, so it is not easy to remove the chips in radial feed. Therefore, it is easy to wear the cutting edges when cutting. When cutting thread with larger pitch width, the errors in the diameter of thread are easily caused by the deeper cutting depth and faster inserts wear. Because of the high tooth precision in processing, it is often used for fine pitch thread processing. It is important to do ground measurements because of the easier wear of the cutting edge.

（b）G76P（m）R（2）Q（Δdmin）R(d)；
G76X（U）Z（W）R（ ）Q（ ）F（ ）；

G76编程：切削深度分配方式为递减式，其切削为单刃切削，其切削深度由控制系统自动计算给出。

G76 programming: cutting depth is decreasing and the cutting for single point cutting, the cutting depth is calculated by automatic system.

G76侧向进刀法，由于为单侧刃加工，加工刃容易损坏和磨损，使加工的螺纹表面不直，刀尖角发生变化，而造成牙形精度降低。同时其为单刃切削，刀具负载较小，排屑容易，及减轻车削时振动。此种方法一般适用于大螺距螺纹加工。在加工较高精度螺纹时，建议采用“双刀”切削，即是先按G76方法时行粗加工，G32方法进行精加工。注意一点的是刀具起始点要准确定位一致，否则易造成乱扣。

Due to the unilateral edge processing, G76 redial feeding will cause damaged and wore processing edge, uneven thread surface, changing tool angle, and decreased tooth precision. At the same time as it is single point cutting, tool load is small, chips are easy to remove, and vibration can be reduced while turning. This method is generally applicable to coarse pitch thread processing. In the processing of high precision thread, it is recommended to use “double cutting”, which is rough machining by G76 and precise process by G32.

可转位螺纹各型号刀片切削参数

Cutting parameters for each type of indexable threading inserts

公制 ISO 有修光刃内螺纹进刀参数
Cutting parameters for Metric ISO thread insert with Wiper

螺距 (mm) Pitch (mm)	1	1.25	1.5	1.75	2	2.5
总进刀量(ap) Total amount of feeding	0.62	0.77	0.92	1.07	1.21	1.49
走刀次数(nap) Number of cutting	5	6	7	8	9	11
走刀顺序 Cutting sequence	径向进刀(X) Radial feed 齿侧进刀(Z) tooth flank feed					
	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	0.20/-	0.20/-	0.21/-	0.22/-	0.24/-	0.25/-
2	0.18/0.10	0.18/0.10	0.18/0.10	0.20/0.12	0.22/0.13	0.24/0.14
3	0.16/0.09	0.16/0.09	0.18/0.10	0.18/0.10	0.20/0.12	0.21/0.12
4	0.10/0.06	0.14/0.09	0.15/0.09	0.15/0.09	0.15/0.09	0.18/0.10
5	0.08/-	0.10/0.06	0.12/0.07	0.13/0.08	0.12/0.07	0.15/0.09
6		0.08/-	0.10/0.06	0.11/0.06	0.12/0.07	0.12/0.07
7			0.08/-	0.10/0.06	0.10/0.06	0.12/0.07
8				0.08/-	0.09/0.05	0.10/0.06
9					0.08/-	0.10/0.06
10						0.08/0.05
11						0.08/-

公制 ISO 有修光刃外螺纹进刀参数
Cutting parameters for Metric ISO thread insert with Wiper

螺距 (mm) Pitch (mm)	1	1.25	1.5	1.75	2	2.5
总进刀量(ap) Total amount of feeding	0.72	0.86	1.02	1.17	1.33	1.63
走刀次数(nap) Number of cutting	5	6	7	8	9	11
走刀顺序 Cutting sequence	径向进刀(X) Radial feed 齿侧进刀(Z) tooth flank feed					
	X/Z	X/Z	X/Z	X/Z	X/Z	X/Z
1	0.20/-	0.20/-	0.21/-	0.22/-	0.24/-	0.25/-
2	0.18/0.10	0.18/0.10	0.18/0.10	0.20/0.12	0.22/0.13	0.24/0.14
3	0.16/0.09	0.16/0.09	0.18/0.10	0.18/0.10	0.20/0.12	0.21/0.12
4	0.10/0.06	0.14/0.09	0.15/0.09	0.15/0.09	0.15/0.09	0.18/0.10
5	0.08/-	0.10/0.06	0.12/0.07	0.13/0.08	0.12/0.07	0.15/0.09
6		0.08/-	0.10/0.06	0.11/0.06	0.12/0.07	0.12/0.07
7			0.08/-	0.10/0.06	0.10/0.06	0.12/0.07
8				0.08/-	0.09/0.05	0.10/0.06
9					0.08/-	0.10/0.06
10						0.08/0.05
11						0.08/-

可转位螺纹各型号刀片切削参数

Cutting parameters for each type of indexable threading inserts

NPT 内\外螺纹进刀参数
Cutting parameters for NPT internal and external thread inserts

螺距 (mm) Pitch (mm)	11.5	14	18
总进刀量(ap) Total amount of feeding	1.767	1.451	1.129
走刀次数(nap) Number of cutting	12	10	8
走刀顺序 Cutting sequence	径向进刀(X) Radial feed 齿侧进刀(Z) tooth flank feed		
	X/Z	X/Z	X/Z
1	0.24/-	0.24/-	0.22/-
2	0.208/0.12	0.200/0.115	0.181/0.104
3	0.182/0.105	0.170/0.098	0.152/0.088
4	0.168/0.097	0.150/0.086	0.141/0.081
5	0.155/0.089	0.140/0.081	0.131/0.075
6	0.145/0.084	0.130/0.075	0.121/0.070
7	0.138/0.079	0.120/0.069	0.101/0.058
8	0.124/0.072	0.010/0.063	0.082/0.047
9	0.117/0.067	0.100/0.058	
10	0.105/0.060	0.090/0.052	
11	0.095/0.055		
12	0.090/0.052		

美制统一螺纹 UN 外螺纹进刀参数
Cutting parameters for UN external thread inserts

螺距 (mm) Pitch (mm)	12	16	18	20
总进刀量(ap) Total amount of feeding	1.299	0.974	0.866	0.779
走刀次数(nap) Number of cutting	9	7	6	6
走刀顺序 Cutting sequence	径向进刀(X) Radial feed 齿侧进刀(Z) tooth flank feed			
	X/Z	X/Z	X/Z	X/Z
1	0.229/-	0.226/-	0.233/-	0.210/-
2	0.222/0.128	0.188/0.109	0.181/0.104	0.163/0.094
3	0.170/0.098	0.145/0.083	0.139/0.080	0.125/0.072
4	0.143/0.083	0.122/0.070	0.117/0.068	0.105/0.072
5	0.126/0.073	0.107/0.062	0.103/0.059	0.093/0.054
6	0.114/0.066	0.097/0.056	0.093/0/054	0.084/0.048
7	0.105/0.061	0.089/0.052		
8	0.098/0.056			
9	0.092/0.053			

可转位螺纹各型号刀片切削参数

Cutting parameters for each type of indexable threading inserts

美制统一螺纹UN内螺纹进刀参数
Cutting parameters for UN internal thread inserts

螺距 (mm) Pitch (mm)	12	14	18	20
总进刀量(ap) Total amount of feeding	1.222	0.916	0.815	0.733
走刀次数(nap) Number of cutting	9	7	6	6
走刀顺序 Cutting sequence	径向进刀(X) Radial feed 齿侧进刀(Z) tooth flank feed			
	X/Z	X/Z	X/Z	X/Z
1	0.222/-	0.230/-	0.174/-	0.191/-
2	0.207/0.120	0.173/0.10	0.161/0.093	0.155/0.089
3	0.159/0.092	0.132/0.076	0.124/0.072	0.119/0.069
4	0.134/0.077	0.112/0.064	0.104/0.060	0.100/0.058
5	0.118/0.068	0.098/0.057	0.092/0.053	0.088/0.051
6	0.107/0.062	0.089/0.051	0.083/0.048	0.08/0.046
7	0.098/0.057	0.082/0.047	0.077/0.044	
8	0.091/0.053			
9	0.086/0.050			

BSPT 内\外螺纹进刀参数
cutting parameters for BSPT internal and external thread inserts

螺距 (mm) Pitch (mm)	11	14	19
总进刀量(ap) Total amount of feeding	1.479	1.162	0.856
走刀次数(nap) Number of cutting	10	8	6
走刀顺序 Cutting sequence	径向进刀(X) Radial feed 齿侧进刀(Z) tooth flank feed		
	X/Z	X/Z	X/Z
1	0.214/-	0.222/-	0.223/-
2	0.242/0.126	0.213/0.111	0.181/0.094
3	0.186/0.097	0.163/0.085	0.139/0.072
4	0.157/0.082	0.138/0.072	0.117/0.061
5	0.138/0.072	0.121/0.063	0.103/0.054
6	0.125/0.065	0.110/0.057	0.093/0.049
7	0.115/0.060	0.101/0.052	
8	0.107/0.056	0.094/0/049	
9	0.100/0.052		
10	0.095/0.049		

在螺纹加工中应注意的事项

Precautions in threading process

1. 首先是刀杆的安装，根据所使用的机床，选购符合本机床中心高的螺纹刀杆。外螺纹不论工件直径大小选用一把刀杆即可。内螺纹要根据工件内径大小选用不同直径刀杆，主要是考虑刀杆的强度。 在安装刀杆时,应充分了解所使用机床的实际中心高,由于现生产机床的厂家众多,在所接触的客户中,同一厂家的同一型号机床的中心高都有不同。

1. First of all, the installation of the tool-holders. Select threading tool-holder that conforms to the central height of the machine according to machine tools used. External thread tool-holders can be selected regardless of the workpiece diameter. Internal thread tool-holders have to be chosen according to the workpiece internal diameter and the strength of the tool-holder. When installing tool-holders, we should fully understand the actual central height of machine tools used. There are many manufacturers providing machine tools, and central height could be different even made by the same manufacturer.

(1) 外螺纹刀杆安装时,选定同一中心高(机床、刀杆)的刀杆直接安装即可，我们在制造刀杆时已将中心高控制在最佳尺寸。

(1) When installing external thread tool-holder, consumers can select tool-holder with the same central height as the machine tool. The central height has been controlled at the best dimensions during manufacturing process.

(2) 圆螺纹刀杆安装时应注意：（如果是使用园柄刀杆，而使用机床的刀台本身是使用园柄的刀杆，压紧后就无须调整。如果是四方刀台，使用园柄刀杆，不可避免地要将刀杆垫到合适的中心高，就可能造成中心高不准确，而且容易造成加工后的螺纹半角不正确。加工时最好将中心高调整到机床中心线上（垫高）0.1-0.2mm，不能太高否则造成后刀面的磨损，如中心高低于机床中心线，则容易将刀尖打掉。另外可选用方柄的内螺纹刀杆，中心高已在制造时控制在最佳尺寸。

(2) When installing internal thread tool-holder, we need to pay attention to: If the machine tool itself is for round tool-holder, then you don't need to adjust after compaction. But if it is a square head machine, then we inevitably have to put the tool-holder onto central height, which could lead to incorrect central height and cause inaccurate thread half angle after processing. It is suggested to adjust 0.1 -0.2 mm over the machine tool center line. It cannot be too high in case of the wear of inserts, however, it is also easy to tip off the inserts if central height is below the center line of the machine tools. Also, internal thread tool-holder with squaring handle is available and the central height has been made to the best dimension during manufacturing process.

(3) 选用刀垫:（参考选用指南资料）不正确刀垫将导致刀片侧后刀面的过度磨损。

(3) Selection of shims: (refer to selection guide data) Incorrect shims will lead to the excessive wear of flank side of the inserts.

2. 其二考虑机床的性能，要求有较好的刚性及足够高的转速和良好的冷却系统。在螺纹加工中往往要求的切削速度较高，一般都在80---120转/分之间，这是为了避免在切削加工中产生积屑瘤和得到较低的表面粗糙度（较高的表面光洁度）。切削速度的选用根据被加工材料来确定（参考选用指南资料）。

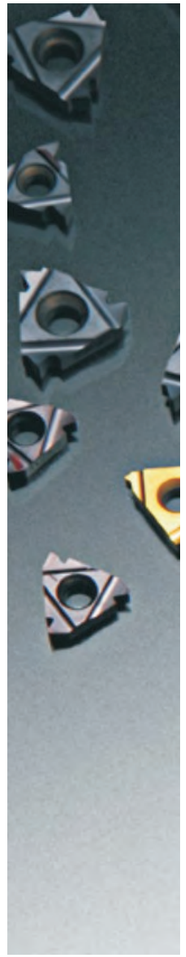
在螺纹加工中应注意的事项

Precautions in threading process

2. Secondly, the performance of the machine tool. It requires a good rigidity, high speed and good cooling system. To avoid the generation of BUE and lower surface roughness in machining (higher glossiness degree), it often requires higher cutting speed in the process of thread which is generally in the 80---120 revolutions per minute. Selection of cutting speed is determined on the workpiece (refer to selection guide data).

在螺纹加工中另一个值得注意的问题就是冷却。一般我们都是将冷却液冲到工件上就可以了，其是不然，应将冷却液直接冲到刀尖与工件接触的地方，并且冷却液要从冷却系统中要得到足够高的流量15—20升/分（压力），这是因为在加工中刀尖处产生很高的温度，一般无冲力（压力）的冷却液体还没有到达刀尖处就已经气化了，基本上没有起到冷却刀尖处的作用，而只是冷却了被加工的零件，而这时刀尖就容易被烧掉。

In the process of thread, another noteworthy problem is cooling. Normally we pour the coolant directly into the workpiece, however, it is not the case. The cooling liquid has to be poured directly into the contact area between the tool and workpiece, and high enough flow rate of the cooling liquid at 15 - 20 liters / minute (pressure) has to be ensured from the cooling system because the temperature at the insert tip is so high that the cooling liquid without any pressure will be vaporized before reaching the inserts tips. Basically it did not play the role of cooling the tool tip and it only cools the workpiece, and then the insert tip is easy to be burned.



3. 选用合理的切削参数也是提高刀片寿命的因素。

3. Reasonable selection of cutting parameters is a key factor in improving the service life of inserts.

(1) 外螺纹加工时，由于排屑顺利，一般为了编程方便，我们采用直进式的加工方式，而只是在螺纹要求极高的情况下，才采用控制切屑流向的加工方式。

(1) When processing external thread, the chips go smoothly. For convenience of programming, we generally use the way of straight processing. We control the chip flow only in the case of extremely demanding threading inserts.

(2) 内螺纹加工时，对于大内径的工件，由于排屑顺利，大多数情况下，采用直进式加工方式；对于内径较小的内螺纹，由于排屑空间很小，采用直进式加工方式切屑缠绕在刀杆上很容易将刀尖打掉，同时切屑使已加工表面产生划道从而影响工件的表面质量，这时可采用斜进式加工方式，控制切屑使切屑沿刀体背向切削方向排出，这样可使刀片的寿命延长及得到较好的表面质量（参数选用见附表）。

(2)When processing internal thread, we use straight processing for workpieces with large diameters because of smooth chip flow in most cases. For internal thread with smaller diameter, the oblique processing mode is used. Straight processing in this case can lead to the fallen inserts and influence the surface quality of the workpiece while the oblique processing mode can control chip to flow along the opposite cutting direction so that the inserts service life and better surface quality are ensured (see parameter selection table).

在螺纹加工中应注意的事项

Precautions in threading process

4. 被加工另件毛坯的加工：(适用于有修光刃螺纹刀片)

4. Processing on the semi-finished products: (suitable for polishing edge threading inserts)

(1) 加工外螺纹时，毛坯外径尺寸应大于螺纹的名义尺寸。如M30 x 1.5, 毛坯外径尺寸为φ30.1mm。

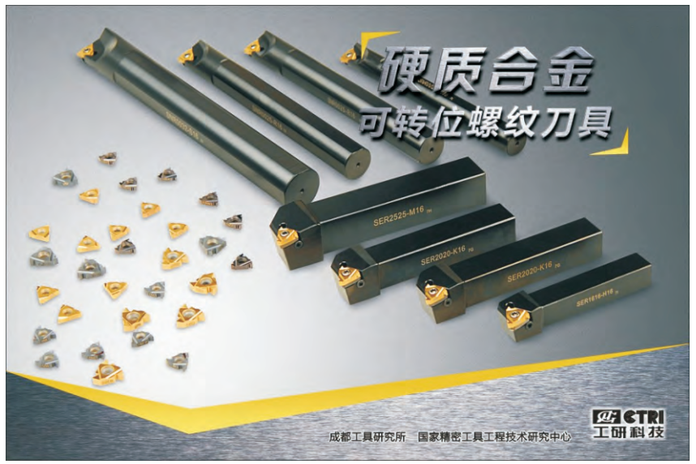
(1) When processing external thread, the diameter of the semi-finished products should be larger than the nominal size of thread. Such as to process M30 1.5, diameter of semi-finished products should be φ30.1mm.

(2) 加工内螺纹时，毛坯外径尺寸应小于螺纹的名义尺寸。如M30 x 1.5, 毛坯外径尺寸为φ29.9mm。

(2) When processing internal thread, the diameter of the semi-finished products should be smaller than the nominal size of thread. Such as to processM30 1.5, diameter of semi-finished products should be φ 29.9mm.

5. 如在加工中刀片崩掉，重新换刀片（或转位）加工时应仔细检查工件上有无残留的合金碎渣。如有，应全部将其去除后，方能继续加工。

5. If insert is broken in the process then a new insert (or indexable inserts) is needed to be replaced. Carefully examine the workpiece and check the residual alloy slags, if there are any, remove the residuals before further process.

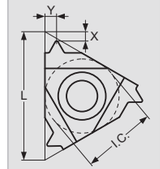


螺纹车削刀杆
Thread turning holders

可转位螺纹车刀刀柄型号说明 Description of indexable toolholders model

S E R 25 25 K 16 T B

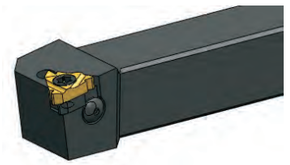
- **S** — 刀片压紧方式 pressing mode of the inserts
  S—螺钉 screw
  D—压板 clamp
- **E** — 机加工类型 Machining type
  E—外径 external diameter
  N—内径 internal diameter
- **R** — 机加工手式 Machining handed type
  R—右手 right handed
  L—左手 left handed
- **25** — 刀杆(刀尖)中心高25 tool-holder central height
- **25** — 刀杆类型尺寸 tool-holder dimension
  内外螺纹刀柄刀方: Internal and external threading tool-holder
  25=刀柄宽度25
  25=width of the tool handle 25
  内螺纹圆柄刀杆直径: Diameter of internal threading round shank
  0025=直径Φ25
  0025=Diameter Φ25
- **K** — 刀杆长度尺寸
  D=60
  F=80
  H=100
  K=125
  L=140
  M=150
  P=170
  Q=180
  R=200
  S=250
  T=300
  U=350
  V=400
- **16** — 刀片尺寸 sizes of the inserts

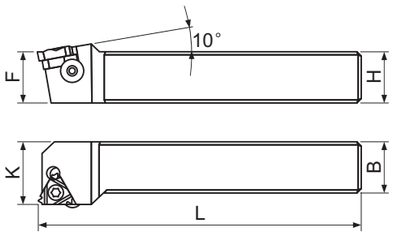


L	I.C.
06	5/32″
08	3/16″
08U	3/16″ U
11	1/4″
16	3/8″
22	1/2″
22U	1/2″ U
27	5/8″
27U	5/8″ U

- **T** — T—有补偿 with compensation
  L—无补偿 without compensation
- **B** — 刀杆类型 type of the tool-holder
  B—带冷却液孔 coolant holes
  C—硬质合金 carbide
  V—立式 vertical
  D—头部下降刀杆 headed down tool-holders
  G—横向刀杆 transverse tool-holders
  U—U型刀杆 U tool-holder

外螺纹刀杆 External Tool-holders

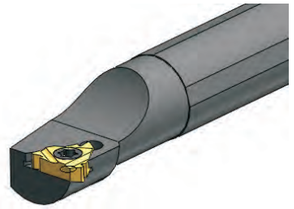


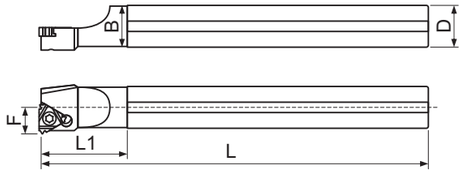


刀杆型号 Size of toolholders	主要尺寸 Dimensions					刀片 Inserts	梅花螺钉 Screw	梅花扳手 Wrench	刀垫 Shims	螺钉 Screw	扳手 lever
	K	B	H	L	F						
SER0808H11	8	8	8	100	11	11ER/□ □	M2.5×6	T08	Y11E	SM3×10	S2.0
SER1010H11	10	10	10	100	11						
SER1212H11	12	12	12	100	12						
SER1616H16	16	16	16	100	20	16ER/□ □	M3.5×14	T15	Y16E	SM4×12	S2.5
SER2020K16	20	20	20	125	25						
SER2525M16	25	25	25	150	32						
SER3225P16	32	32	25	170	32						
SER3232P16	32	32	32	170	40						
SER2525M22	25	25	25	150	32	22ER/□ □	M4×15	T20	Y22E	SM4×12	S2.5
SER3225P22	32	32	25	170	32						
SER3232P22	32	32	32	170	40						
SER2525M27	25	25	25	150	35	27ER/□ □	M6×15	T20	Y27E	SM4×12	S2.5
SER3232P27	32	32	32	170	40						
SER4040R27	40	40	40	200	40						
SER5050S27	50	50	50	250	40						

配件 Fittings	刀片 Inserts	刀垫 Shims	梅花螺钉 Screw	梅花扳手 Wrench	螺钉 Screw	扳手 lever
图例 Illustrations						

内螺纹刀杆 Internal Tool-holders





刀杆型号 Size of toolholders	主要尺寸 Dimensions					刀片 Inserts	梅花螺钉 Screw	梅花扳手 Wrench
	K	B	H	L	F			
SNR0006H06	6	3.3	100	6.0	10	06NR□ □	M2×5	T6
SNR0008H08	8	4.6	100	7.6	15	08NR□ □	M2.5×6	T8
SNR0010H11	10	7.2	100	9.5	25	11NR□ □	M3×6	T8
SNR0012H11	12	9	125	11.5	32	11NR□ □	M3×6	T8
SNR0016M16	16	12	150	15.5	32	16NR□ □	M3.5×12	T15
SNR0020Q16	20	14	180	19	40	16NR□ □	M3.5×12	T15
SNR0025R16	25	17.5	200	24	50	16NR□ □	M3.5×12	T15
SNR0032S16	32	22	250	31	55	16NR□ □	M3.5×12	T15
SNR0032S22	32	22	250	31	55	22NR□ □	M4×12	T15
SNR0032S27	32	22.6	250	31	55	27NR□ □	M6×12	T20
SNR0040T27	40	26.6	300	39	60	27NR□ □	M6×12	T20

配件 Fittings	刀片 Inserts	梅花螺钉 Screw	梅花扳手 Wrench
图例 Illustrations			

螺纹车削问题及解决方法

Problems in thread turning and solutions

问题 Problems	可能原因 Possible reasons	解决方法 Solutions
振动 Vibration	工件装夹不正确 Incorrect workpiece clamping 刀具安装不正确 Incorrect tools installation 切削参数不正确 Incorrect cutting parameters 刀具中心高不正确 Incorrect tool center	选择较软的夹头 selection of soft clamp 加少刀具悬伸 reduce tool overhang 检查刀具是否压紧 check the tools tightness 提高线速度，如不行则大大降低线速度 increase the line speed otherwise reduce the line speed greatly 使用连续恒定进给量0.1-0.16 selection of constant feed 0.1-0.16 采用正确的中心高 correct tool center
刃边压力过大 High levels of stress on the cutting edge	加工硬化倾向的材料 process on hardening material 时切深太浅 shallow cutting depth 切削刃压力过大 too much pressure on the cutting edge 螺纹牙型角太小 small threading tooth angle	减少进刀次数 reduce feeding frequency 选用更硬牌号 selection of harder material 选择侧向进刀方式加工 Selection of lateral feeding process
螺纹表面质量差 Poor thread surface quality	切削速度过低 Slow cutting speed 刀片在中心线以上 Inserts over the central line 切削控制较差 Poor cutting control	提高切削速度 increase cutting speed 采用正确的中心高 selection of appropriate tool center 选择侧向进给方式加工 Selection of lateral feeding process
螺纹牙型过平 Flat thread teeth	错误的中心高 incorrect tool center 刀片损坏 damaged inserts 刀片没有加工至螺纹顶 Inserts have not reached the top of thread	采用正确的中心高 selection of appropriate tool center 更换刀片 change the inserts 检查刀片及工件毛坯尺寸 Check the sizes of inserts and workpiece

螺纹铣刀片
Thread milling inserts

螺纹铣刀的优势 Advantage of thread milling inserts

- ●同样的刀杆和刀片可加工左旋和右旋螺纹
- ●一种刀杆和刀片的组合能加工一系列不同直径的螺纹
- ●一次走刀完成螺纹加工
- ●降低成本，比使用丝锥划算
- ●通过多齿能有效提高切削速度提高生产效率
- ●有利于加工盲孔
- ●大多数刀片有两个切削刃
- ●对机床功率要求低，一台小型机器能生产大型螺纹，并能减少更多的加工时间
- ●The same toolholder and inserts can be processed with both left-hand and right-hand thread
- ●One combination of toolholder and inserts can be processed on series of threads with different diameters
- ●Thread processing can be completed in one feed, which is much cheaper and reasonable than taps. Cost is reduced in this way
- ●Cutting speed and production efficiency can be increased through the use of multi-tooth
- ●It is better for processing blind holes
- ●There are two cutting edges in most of the inserts
- ●Little power requirement, large threads can be produced with a small machine in less machining time

产品编号
Product standard code

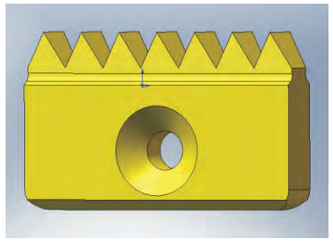
螺纹铣刀片表示方法 Specifications on thread milling inserts

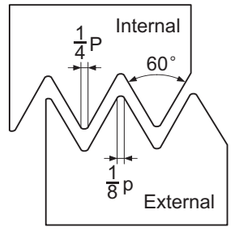
21 E 12 UN

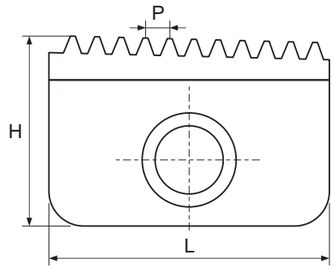
- **21** — 切削刃长 cutting length
- **E** — E =外径 external diameters; N =内径 internal diameters; 一=外径+内径 external diameters & internal diameters
- **12** — 牙距或牙数 Pitch or number of threads
- **UN** — 螺纹规格 Thread specification: ISO, UN, W, NPT, NPTF, BSPT

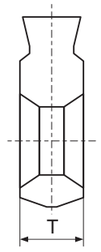
ISO 公制 完全形

ISO metric thread inserts





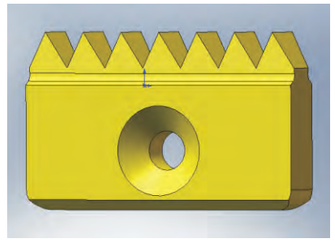


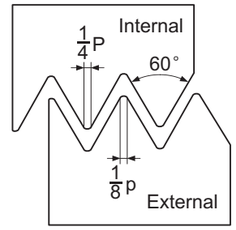


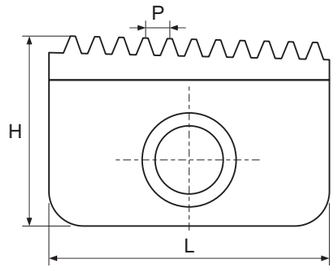
螺距 Pitch mm		切削刃长 (Cutting length) L				
		12mm	14mm	21mm	30mm	40mm
0.5	Ext.					
	Int.	12 N 0.5 ISO	14 N 0.5 ISO			
0.75	Ext.		14 E 0.75ISO			
	Int.	12 N 0.75ISO	14 N 0.75ISO			
1	Ext.		14 E 1.0 ISO	21 E 1.0 ISO		
	Int.	12 N 1.0 ISO	14 N 1.0 ISO	21 N 1.0 ISO		
1.25	Ext.		14 E 1.25ISO			
	Int.	12 N 1.25ISO	14 N 1.25ISO			
1.5	Ext.		14 E 1.5 ISO	21 E 1.5 ISO	30 E 1.5 ISO	40 E 1.5 ISO
	Int.	12 N 1.5 ISO	14 N 1.5 ISO	21 N 1.5 ISO	30 N 1.5 ISO	40 N 1.5 ISO
1.75	Ext.		14 E 1.75ISO			
	Int.		14 N 1.75ISO	21 N 1.75ISO		
2	Ext.		14 E 2.0 ISO	21 E 2.0 ISO	30 E 2.0 ISO	40 E 2.0 ISO
	Int.		14 N 2.0 ISO	21 N 2.0 ISO	30 N 2.0 ISO	40 N 2.0 ISO
2.5	Ext.		14 E 2.5 ISO	21 E 2.5 ISO		
	Int.		14 N 2.5 ISO	21 N 2.5 ISO		

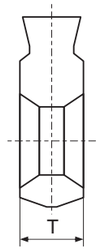
ISO 公制 完全形

ISO metric thread inserts





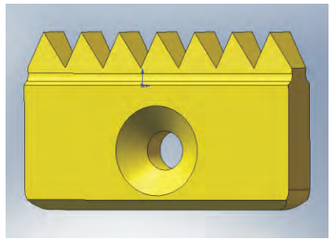


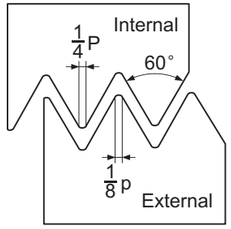


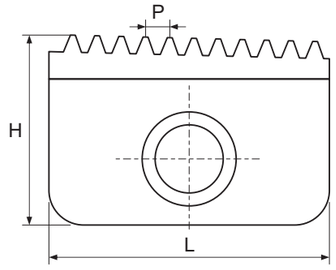
螺距 Pitch mm		切削刃长 (Cutting length) L				
		12mm	14mm	21mm	30mm	40mm
3	Ext.			21 E 3.0 ISO	30 E 3.0 ISO	40 E 3.0 ISO
	Int.			21 N 3.0 ISO	30 N 3.0 ISO	40 N 3.0 ISO
3.5	Ext.				30 E 3.5 ISO	
	Int.			21 N 3.5 ISO	30 N 3.5 ISO	40 N 3.5 ISO
4	Ext.				30 E 4.0 ISO	40 E 4.0 ISO
	Int.				30 N 4.0 ISO	40 N 4.0 ISO
4.5	Ext.					
	Int.				30 N 4.5 ISO	40 N 4.5 ISO
5	Ext.					40 E 5.0 ISO
	Int.					40 N 5.0 ISO
5.5	Ext.					
	Int.					40 N 5.5 ISO
6	Ext.					40 E 6.0 ISO
	Int.					40 N 6.0 ISO
H		6.3	7.5	12	16	20
T		2.9	3.1	4.7	5.5	6.3

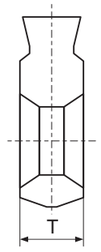
ISO 英制60° 完全形（UN、UNC、UNF)

Unified National Fixed Pitch Series (UN) Unified National Coarse Series (UNC) Unified National Fine Series (UNF)





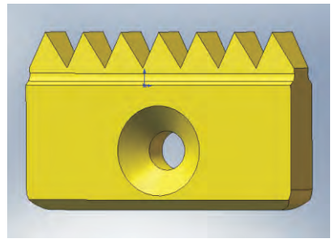


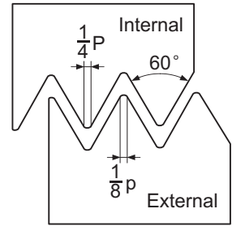


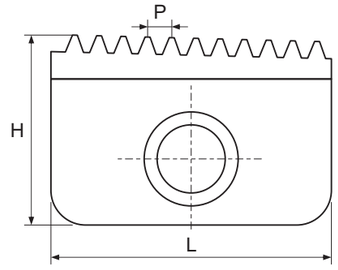
螺距 Pitch TPI		切削刃长 (Cutting length) L				
		12mm	14mm	21mm	30mm	40mm
32	Ext.		14 E 32 UN			
	Int.	12 N 32 UN	14 N 32 UN			
28	Ext.		14 E 28 UN			
	Int.	12 N 28 UN	14 N 28 UN			
27	Ext.					
	Int.		14 N 27 UN			
24	Ext.		14 E 24 UN	21 E 24 UN		
	Int.	12 N 24 UN	14 N 24 UN	21 N 24 UN		
20	Ext.		14 E 20 UN	21 E 20 UN	30 E 20 UN	
	Int.	12 N 20 UN	14 N 20 UN	21 N 20 UN	30 N 20 UN	
18	Ext.		14 E 18 UN	21 E 18 UN	30 E 18 UN	
	Int.	12 N 18 UN	14 N 18 UN	21 N 18 UN	30 N 18 UN	
16	Ext.		14 E 16 UN	21 E 16 UN	30 E 16 UN	40 E 16 UN
	Int.	12 N 16 UN	14 N 16 UN	21 N 16 UN	30 N 16 UN	40 N 16 UN
14	Ext.		14 E 14 UN	21 E 14 UN	30 E 14 UN	40 E 14 UN
	Int.		14 N 14 UN	21 N 14 UN	30 N 14 UN	40 N 14 UN

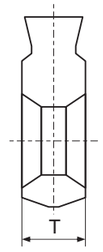
ISO 英制60° 完全形（UN、UNC、UNF)

Unified National Fixed Pitch Series (UN) Unified National Coarse Series (UNC) Unified National Fine Series (UNF)





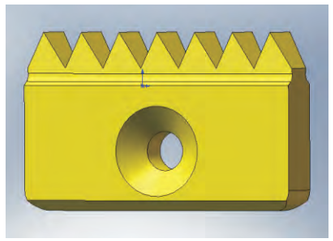


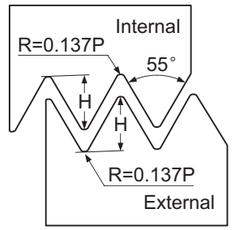


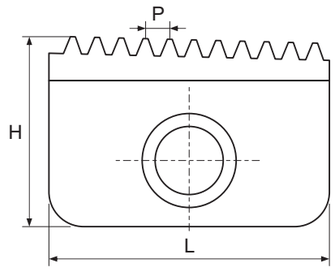
螺距 Pitch TPI		切削刃长 (Cutting length) L				
		12mm	14mm	21mm	30mm	40mm
12	Ext.		14 E 12 UN	21 E 12 UN	30 E 12 UN	40 E 12 UN
	Int.		14 N 12 UN	21 N 12 UN	30 N 12 UN	40 N 12 UN
10	Ext.			21 E 10 UN	30 E 10 UN	40 E 10 UN
	Int.		14 N 10 UN	21 N 10 UN	30 N 10 UN	40 N 10 UN
8	Ext.				30 E 8 UN	40 E 8 UN
	Int.			21 N 8 UN	30 N 8 UN	40 N 8 UN
7	Ext.					
	Int.			21 N 7 UN		
6	Ext.				30 E 6 UN	40 E 6 UN
	Int.				30 N 6 UN	40 N 6 UN
4.5	Ext.					
	Int.					40 I 4.5 UN
4	Ext.					
	Int.					40 I 4 UN
H		6.3	7.5	12	16	20
T		2.9	3.1	4.7	5.5	6.3

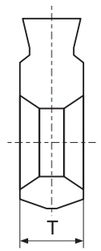
惠氏55° 完全形

British Standard Whitworth (BSW)
British Standard Fine Thread (BSF)
British Standard Pipe (BSP)









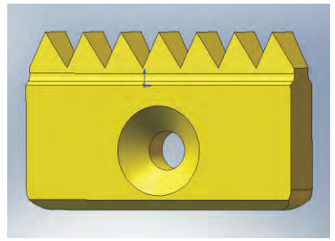
螺距 Pitch TPI	切削刃长 (Cutting length) L				
	12mm	14mm	21mm	30mm	40mm
24		14-24 W			
20		14-20 W	21-20 W		
19	12-19 W	14-19 W	21-19 W		
16		14-16 W	21-16 W	30-16 W	
14		14-14 W	21-14 W	30-14 W	
11			21-11 W	30-11 W	40-11 W
8					40-8 W

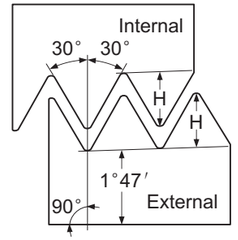
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

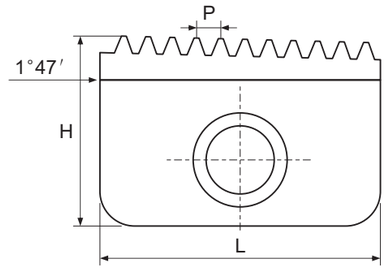
可转位螺纹刀具 Indexable Threading Inserts

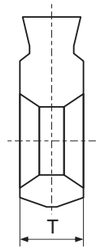
美国标准管螺纹

National (American) Pipe Thread (NPT)









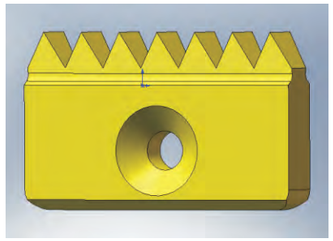
螺距 Pitch TPI	切削刃长 (Cutting length) L				
	12mm	14mm	21mm	30mm	40mm
18	12-18 NPT	14-18 NPT			
14		14-14 NPT	21-14 NPT		
11.5			21-11.5 NPT	30-11.5 NPT	40-11.5 NPT
8				30-8 NPT	40-8 NPT

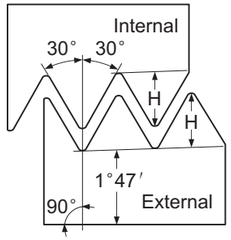
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

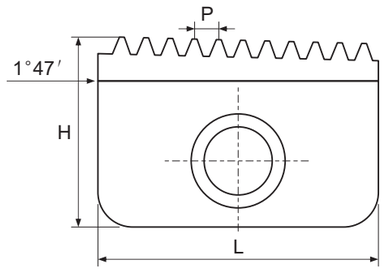
品质源于
1956

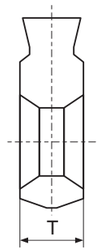
美国干密封管螺纹标准

National (American) Pipe Thread Fuel (NPTF)









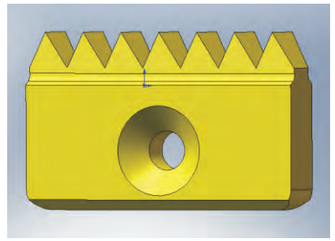
螺距 Pitch TPI	切削刃长 (Cutting length) L				
	12mm	14mm	21mm	30mm	40mm
18	12-18 NPTF	14-18 NPTF			
14		14-14 NPTF	21-14 NPTF		
11.5			21-11.5 NPTF	30-11.5 NPTF	40-11.5 NPTF
8				30-8 NPTF	40-8 NPTF

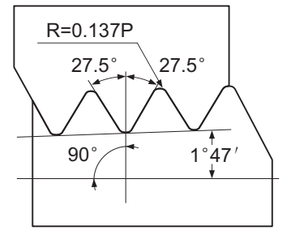
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

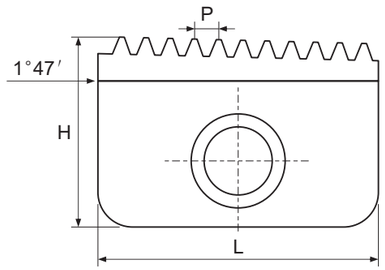
品质源于
1956

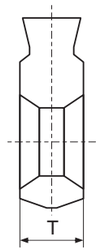
英国标准管螺纹

British Standard Pipe Taper (BSPT)









螺距 Pitch TPI	切削刃长 (Cutting length) L				
	12mm	14mm	21mm	30mm	40mm
19	12-19 BSPT	14-19 BSPT			
14		14-14 BSPT	21-14 BSPT		
11			21-11 BSPT	30-11 BSPT	40-11 BSPT

H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

品质源于
1956