

Anti-vibration and Anti-loosening Thread

抗震防松螺纹



安可牢防松螺母
ARC LOCK NUTS

ANTI-VIBRATION AND ANTI-LOOSENING
SOLUTIONS FOR FASTENERS

紧固件抗震防松 解决方案



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企业资质
 COMPANY QUALIFICATION



公司简介
 COMPANY PROFILE

阳江市贯虹五金科技有限公司前身是东莞市大朗贯虹五金制品厂，成立于2010年，2018年与阳江市签订产业转移协议，现位于阳江市阳东区（阳江万象）产业转移工业园，总投资3000万元打造新型节能厂房，建筑面积接近1.5万平方米。专业生产防松紧固件、防松螺纹丝锥、防松螺纹量规等配套产品。

贯虹五金所生产的防松螺母产品采用安可牢® R型变牙防松螺纹。此项螺纹技术具有自主知识产权，在第一代变牙防松螺纹基础上进行改进升级并取得了十几项国家专利和多个国际专利。安可牢® R型防松螺纹具有单体防松、结构简单、防松性能好、可重复使用、保护螺栓螺纹、延长螺栓寿命、安装快捷等优点，是对传统螺纹连接技术的一项重大突破！安可牢系列防松螺母按ISO16130、DIN65151、GB/T10431标准检测，防松性能稳定，产品可广泛应用于工程机械、轨道交通、桥梁道路工程、港口机械、钢结构建筑、新能源行业、电力能源行业、汽车行业、模具制造等众多行业和领域。

贯虹五金科技有限公司已通过ISO9001、IATF16949质量管理体系认证，经过不断研发、持续改善，已成为一家以安可牢®防松螺纹技术为核心，拓展出防松螺母、防松丝锥、防松螺纹量规、以及防松紧固件实验检测设备等相关技术为一体的综合性公司。

贯虹人将以诚信、利他、创新、精进的经营理念，用永不松动的螺母为工业发展提供安全保障，为人类社会的文明进步做出贡献。

Yangjiang Guanhong Hardware Technology Co., Ltd., formerly known as Dongguan Dalang Guanhong Hardware Products Factory, was established in 2010 and signed an industrial transfer agreement with Yangjiang City in 2018. Now the Company is located in (Yangjiang Wanxiang) Industrial Transfer Industrial Park, Yangjiang City, with a total investment of 30 million yuan in building a new energy-saving plant, covering an area of nearly 15,000 square meters. The Company has a wide range of business, specializing in the production of anti-loosening fasteners, anti-loosening thread screw taps, anti-loosening thread gauges and other supporting products.

The anti-loosening of nuts produced by Guanhong Hardware are made of ARC LOCK® R-type variable anti-loosening threads. With independent intellectual property rights, this thread technology has been improved and upgraded based on the first generation of variable anti-loosening threads with more than a dozen national patents and several international patents. With the advantages of single anti-loosening, simple structure, excellent anti-loosening performance, reusability, extended bolt life, and easy installation, the ARC LOCK® R-type anti-loosening thread is a breakthrough in the traditional thread connection technology! With the standard tests of ISO16130, DIN65151 and GB/T10431, the locknuts of ARC LOCK series feature stable anti-loosening performance and can be widely used in industrial fields such as construction machinery, rail transportation, bridge and road engineering, port machinery, steel-structured building, the new energy industry, electric power and energy industry, automobile industry and mold manufacturing.

With ISO9001 and IATF16949 quality management system certifications, the Company has developed and progressed to a comprehensive company with the core technology of ARC LOCK® anti-loosening thread, expanding into locknuts, anti-loosening screw taps, anti-loosening thread gauges, and anti-loosening fastener experimental testing equipment and other related technologies.

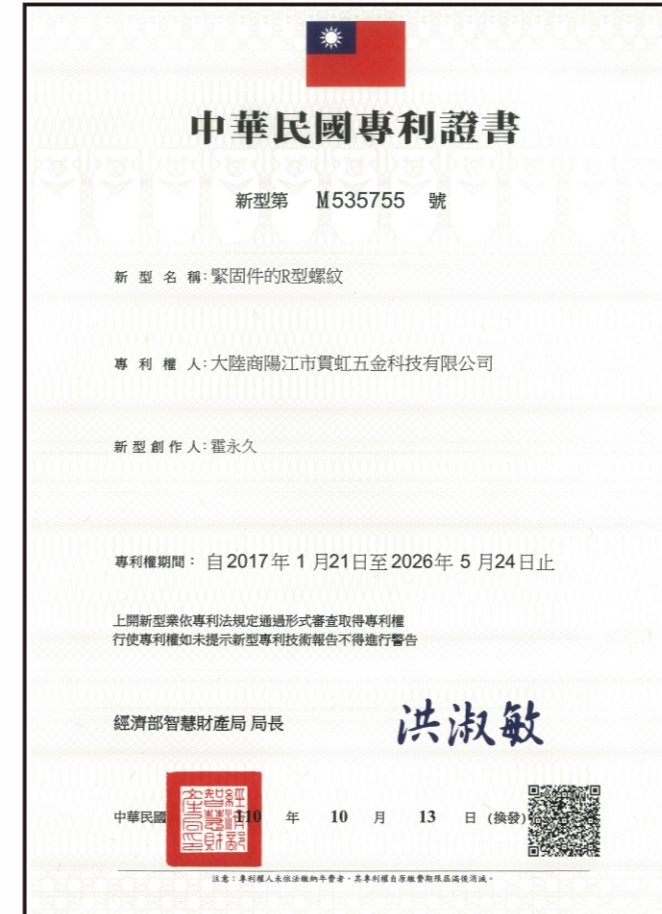
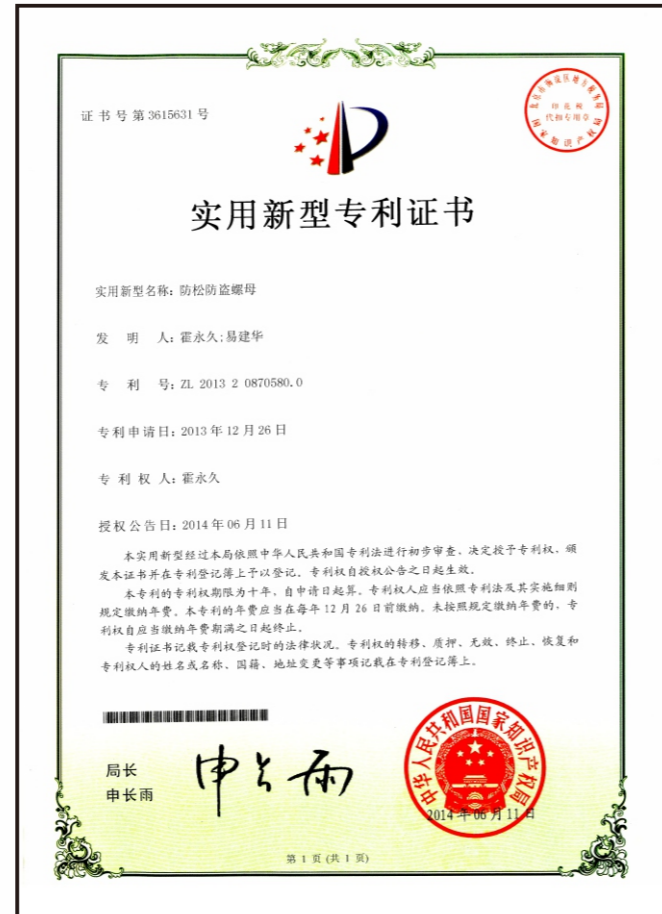
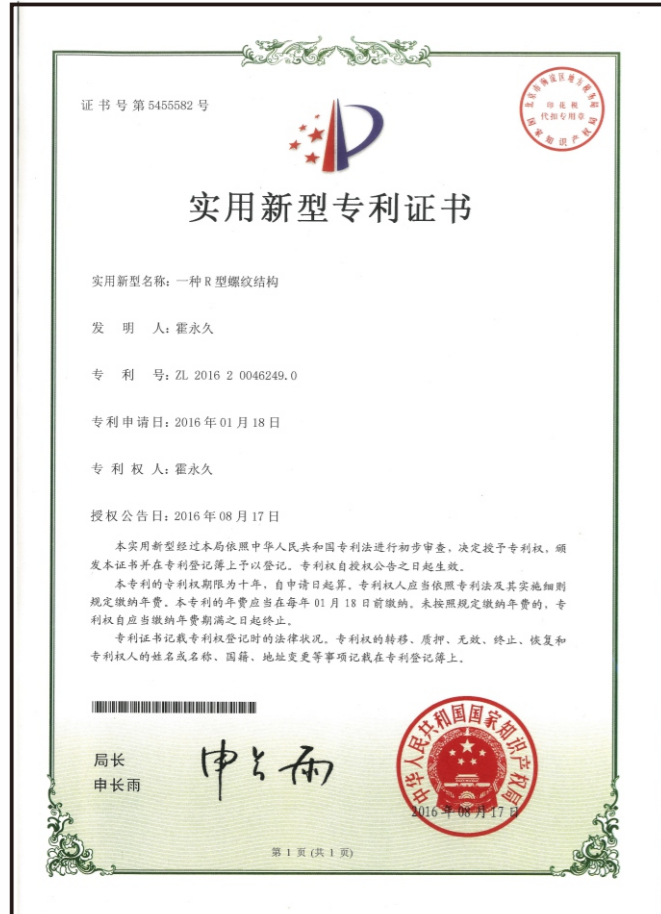
With the business philosophy of honesty, mutual benefit, innovation and refinement, all the Guanhongers will contribute to the progress of civilization in human society like the never loosening nut providing security for industrial development.





企业资质
COMPANY QUALIFICATION

企业资质
COMPANY QUALIFICATION



企业资质 COMPANY QUALIFICATION



安可牢螺纹的防松原理 Principle of ARC LOCK Anti-loosening Thread



一、螺纹的诞生 BIRTH OF THE THREAD

公元前3世纪,阿基米德发明了螺旋式抽水 泵,通过旋转可以省力的将水从低处抽往高处, 这应该是螺纹紧固件的设计灵感。16世纪,螺纹 紧固件诞生。

自19世纪以来,由于螺纹加工设备的自动化 程度提高,制造成本大幅下降,螺纹紧固件被广 泛应用。如今,螺纹紧固件为社会的发展进步提 供着重要支持。它为人们的衣、食、住、行而默默 工作。小到生活中的洁具、卫浴、厨具,大到汽车、 火箭、建筑都有螺纹紧固件的存在。

1 Birth of the thread

In the 3rd century B.C., Archimedes invented the spiral water pump that pumped water from low to high by rotating with less effort, which is supposed to be the design inspiration for threaded fasteners. In the 16th century, threaded fasteners were born;

Since The 19th Century, the automation of thread processing equipment has increased with manufacturing costs dropping dramatically, leading to the widespread use of threaded fasteners. Today, threaded fasteners provide strong support for social progress as well as for people's necessities. Threaded fasteners are everywhere in life, such as in sanitary ware, bathrooms, kitchenware, and even in cars, rockets, and buildings.

二、螺纹松脱的原因 CAUSES OF THREAD LOOSENING

螺纹紧固件连接副是通过螺纹旋入使外螺纹紧固件产生拉力,并转换为夹紧力将被连接件固定。在静止的环境下,被锁紧的紧固件连接副是不会松动的。但是,绝大部分的紧固连接场景都是非静止的。甚至会存在强烈的交变载荷。如:汽车发动机工作时、工程机械机器运转时等。在交变载荷的作用下,螺纹接触面出现了局部滑移从而产生旋转松动。这是促使紧固件连接松动失效的根本原因。

螺纹紧固件的松脱问题,主要是由螺纹结构造成的。传统螺纹紧固件在咬合时存在横向间隙,当有振动时,螺纹的基本要素“螺纹升角”就变成了“螺纹松角”。因此,重新设计螺纹的几何形状,才能从根本上解决紧固件的松脱问题。

上世纪七十年代,美国工程师发明了楔形螺纹。楔形螺纹的内牙尖角处与轴线成30°角以提高螺纹自锁能力。优点是从根本上解决了螺纹配合时的横向间隙,提高了防松性能。但是,根据应力分析,外螺纹的局部应力还很大,无法达到紧固件最优锁紧效果。

2 Causes of thread loosening

To secure the connected part with the threaded fastener set, screw the threaded fastener set into the external threaded fastener to generate tensile force, which will be converted into clamping force. In a static environment, the locked fastener set will not loosen. However, most of the fastening scenarios are non-static, and even have strong alternating loads. For example: when an automobile engine is working or a machine is running, engineering machinery, under the action of alternating load, local slippage occurs on the thread contact surface, resulting in loosening during rotation. This is exactly the root cause of fastener connection looseness and failure.

The loosening of threaded fasteners is mainly caused by the threaded structure. Traditional threaded fasteners have lateral clearance when they are engaged, and in case of vibration, the "lead angle" will turn into "loosening angle". Therefore, to fundamentally solve the problem of fastener loosening, it can be done only by reengineering the geometry of the thread.

In the 1970s, American engineers invented the wedge thread, which has a 30° angle to the axis at the crest to improve its self-locking performance. The advantage is that it fundamentally solves the lateral clearance during the thread fit and improves the anti-loosening performance; according to the stress analysis, however, the local stress of the external thread is still large.

三、安可牢螺纹的防松原理 PRINCIPLE OF ARC LOCK ANTI-LOOSENING THREAD

安可牢防松螺纹在螺纹的牙底处设有一个弧形面,当外螺纹紧固件与安可牢螺纹紧固件预紧时,外螺纹紧固件的牙尖轻微内收顶在弧形面上,这样可以有效的保护外螺纹的牙尖。当螺纹紧固件与安可牢螺纹紧固件拧紧时,螺纹紧固件的牙尖就紧紧地顶在弧形面上,并传导到螺纹以下紧固件“身部”,从而产生很大的锁紧力。

安可牢防松螺母的防松性能经过横向振动试验进行检测,在实验室条件下使用容克式横向振动试验机,试验按国家标准GB/T 10431-2008《紧固件横向振动试验方法》执行,方法如下:

- 试验设备:百若FPL-200 容克式紧固件横向振动试验机
- 试验标准:GB/T 10431-2008
- 润滑条件:无
- 预紧力:70%保证载荷
- 试验螺栓:8.8级M12六角螺栓
- 试验螺母:10级安可牢M12六角螺母
- 对照组:10级M12六角螺母

3 Anti-loosening Principle of ARC LOCK Threads

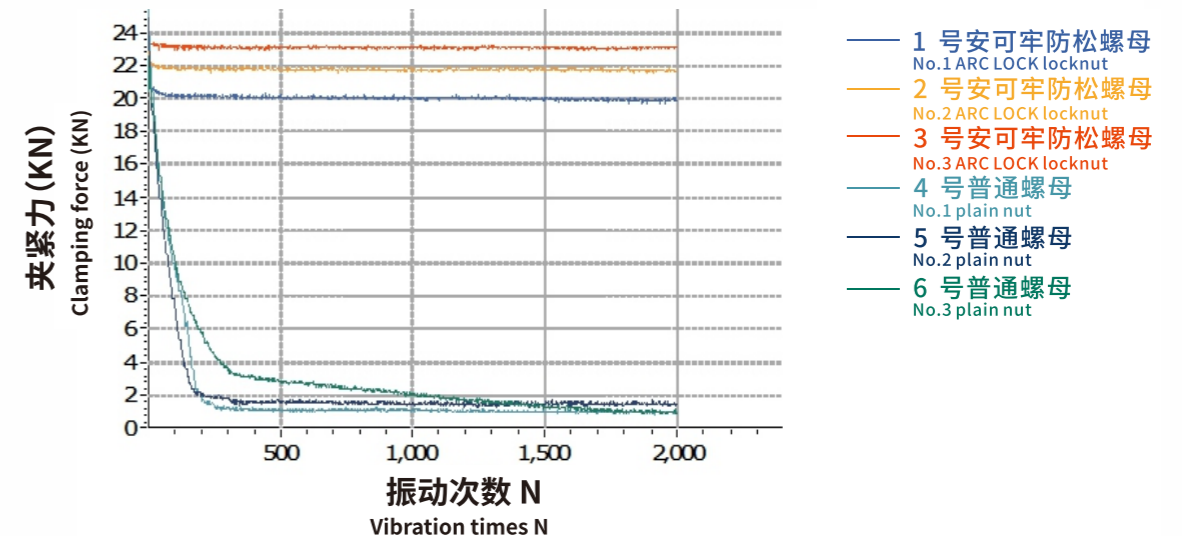
There is an arc-shaped surface at the root of the ARC LOCK anti-loosening thread, when the external threaded fastener is pre-tightened with the said threaded fastener, its crest is slightly retracted on the arc-shaped surface, which effectively protects the crest of the external thread. When a threaded fastener is tightened with an ARC LOCK threaded fastener, the crest of the threaded fastener is tightened against the curved surface and transmitted to the "body" of the fastener below the thread, resulting in a heavy locking force.

The anti-loosening performance of ARC LOCK locknut is tested by transverse vibration test, with the Junker transverse vibration tester under laboratory conditions, the test is performed according to the national standard GB/T10431-2008 Fastener Transverse Vibration Test Methods, with the following methods.

- Test equipment: BAIROE FPL-200 Junker fastener transverse vibration tester
- Test Standard: GB/T 10431-2008
- Lubrication conditions None
- Pretightening force: 70% proof load
- Test bolt: Grade 8.8 M12 hexagon bolt
- Test nut: Grade 10 ARC LOCK M12 hexagon nut
- Control group: Grade 10 M12 hexagon nut

横向振动试验报告 Transverse Vibration Test Report

一、试验及标准 Tests and Standards							
试验设备 Test equipment	横向振动试验机 Transverse vibration tester		试验标准 Test Standard	GB/T10431-2008		试验环境 Test environment	常温 Room temperature
二、试验条件 Test Condition							
试验夹紧力 Test the clamping force	26.4kN		试验螺母 Test nut	六角螺母 Hexagon nut			
试验振幅 Test amplitude	1.2mm		规格 Specifications	M12			
振动频率 Vibration frequency	12.5Hz		配套用螺栓 Matching bolt	六角螺栓 Hexagon bolt			
振动次数 Vibration times	2000		规格 Specifications	M12			
三、试验结果 Test Result							
序号 S/N	初始轴力(kN) Initial axial force (kN)	200次轴力(kN) 200 axial forces (kN)	500次轴力(kN) 500 axial forces (kN)	1000次轴力(kN) 1,000 axial forces (kN)	2000次轴力(kN) 2,000 axial forces (kN)	残余/初始(%) Residual/Initial (%)	
1	21.4	20.1	20.1	20	19.9	93	
2	23.1	21.7	21.8	21.8	21.8	94.2	
3	23.9	23	23.2	23.1	23.1	96.9	
4	24	2	1	1.1	1	4	
5	24.5	2	1.7	1.5	1.4	5.7	
6	20.4	5.7	2.8	2	1	4.8	
四、试验曲线 Test Curve							



测试数据说明:

TEST DATA DESCRIPTION:

1、安可牢防松螺母实验数据结果:

Experimental data results of ARC LOCK locknut:

序号 S/N	初始轴力(kN) Initial axial force (kN)	200次轴力(kN) 200 axial forces (kN)	500次轴力(kN) 500 axial forces (kN)	1000次轴力(kN) 1,000 axial forces (kN)	2000次轴力(kN) 2,000 axial forces (kN)	残余/初始(%) Residual/Initial (%)
1	21.4	20.1	20.1	20	19.9	93
2	23.1	21.7	21.8	21.8	21.8	94.2
3	23.9	23	23.2	23.1	23.1	96.9

2、普通螺母实验数据结果:

Experimental data results of plain nut:

序号 S/N	初始轴力(kN) Initial axial force (kN)	200次轴力(kN) 200 axial forces (kN)	500次轴力(kN) 500 axial forces (kN)	1000次轴力(kN) 1,000 axial forces (kN)	2000次轴力(kN) 2,000 axial forces (kN)	残余/初始(%) Residual/Initial (%)
1	24	2	1	1.1	1	4
2	24.5	2	1.7	1.5	1.4	5.7
3	20.4	5.7	2.8	2	1	4.8

实验总结:根据安可牢防松螺母与普通六角螺母的测试结果和动态曲线对比,安可牢防松螺母的防松性能稳定,动态曲线走势平稳,测试后螺母无脱扣,牙纹无变形并可正常拆卸。在以上试验基础上,对安可牢螺母重复使用做进一步测试,安可牢防松螺母经过多次锁紧和拆卸,结果防松性能依旧稳定。

普通六角螺母测试过程中动态曲线下滑,测试后螺母脱扣,牙纹严重变形,无法正常拆卸,普通螺母的防松性能较差。

Experiment conclusion: Compared with the test results and dynamic curves of the plain hexagon nuts, the anti-loosening performance of the ARC LOCK locknuts is stable, with smooth dynamic curves, and no unbuckling of the nuts after the test, without deformation of the thread pattern, which can be removed properly. According to the above tests, the repeated use of the ARC LOCK nut was further tested and found that the anti-loosening performance of its thread remained stable after several locking and dismantling.

In addition, the dynamic curve of the plain hexagon nut slipped in the test, and the nut was disengaged after the test, the thread pattern was seriously deformed and could not be disassembled, which was found to have poor anti-loosening performance.



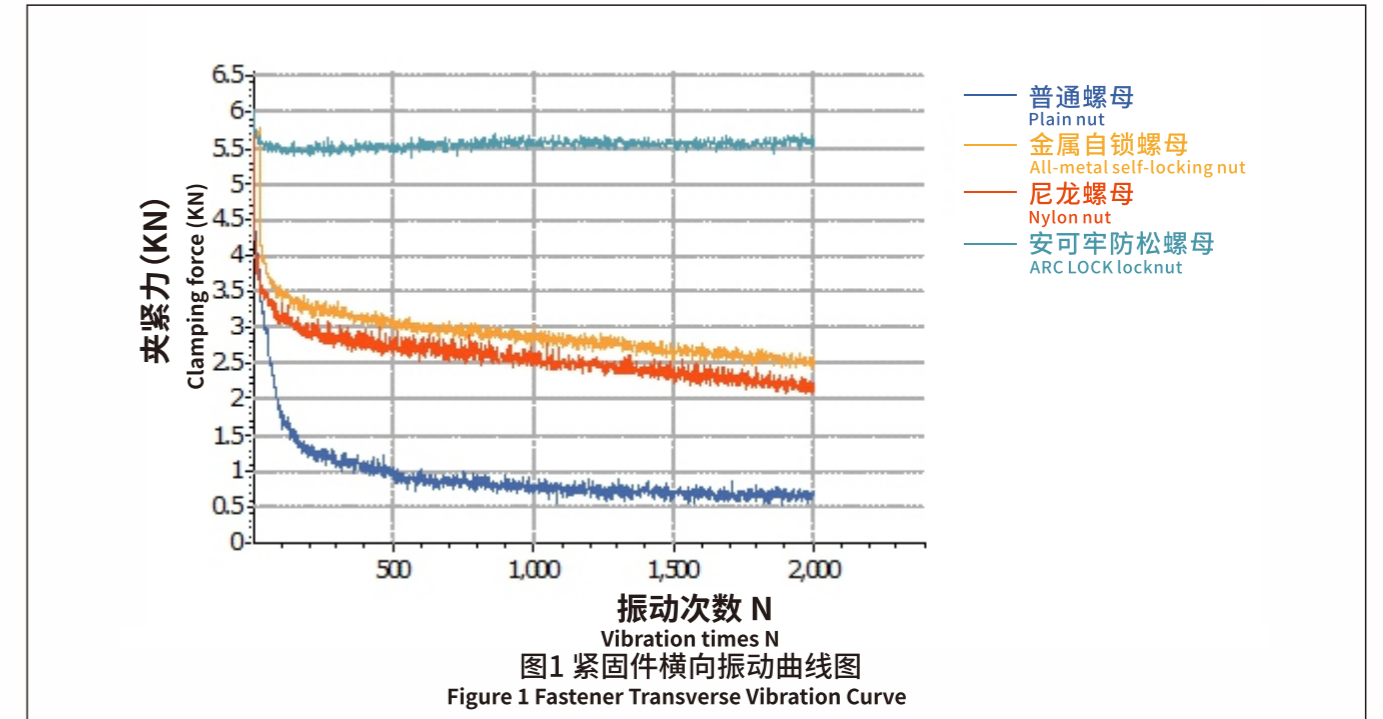
防松螺母剖开图

Locknut Cut-out Diagram

我们同时对普通螺母、金属自锁螺母、尼龙螺母、安可牢防松螺母进行防松性能检测。所有实验都按国家标准GB/T10431-2008《紧固件横向振动试验方法》执行,实验条件完全一致,测试螺母规格为M6×1.0;性能等级10级;振动频率为12.5赫兹;振动幅度为1.2mm;实验结果如图1、图2所示:

We tested the anti-loosening performance of plain nuts, nylon nuts and all-metal self-locking nuts at the same time, which are all executed according to the national standard GB/T10431-2008 Fastener Transverse Vibration Test Method with identical experimental conditions. The test nut specification is M6X1.0, performance grade is 10, the vibration frequency is 12.5 Hz, with vibration amplitude of 1.2 mm. The actual results are shown in Figures 1 and 2.

紧固件横向振动曲线图
Fastener Transverse Vibration Curve



横向振动试验结果
Transverse Vibration Test Result

序号 S/N	试验产品 Trial product	初始轴力(kN) Initial axial force (kN)	200次轴力(kN) 200 axial forces (kN)	500次轴力(kN) 500 axial forces (kN)	1000次轴力(kN) 1,000 axial forces (kN)	2000次轴力(kN) 2,000 axial forces (kN)	残余/初始(%) Residual/Initial (%)
1	普通螺母 Plain nut	5.5	1.2	1	0.8	0.7	12
2	金属自锁螺母 All-metal self-locking nut	5.5	3.2	3.1	2.9	2.5	45.8
3	尼龙螺母 Nylon nut	6	3	2.7	2.6	2.1	34.9
4	安可牢防松螺母 ARC LOCK locknut	5.9	5.5	5.5	5.6	5.5	93.6

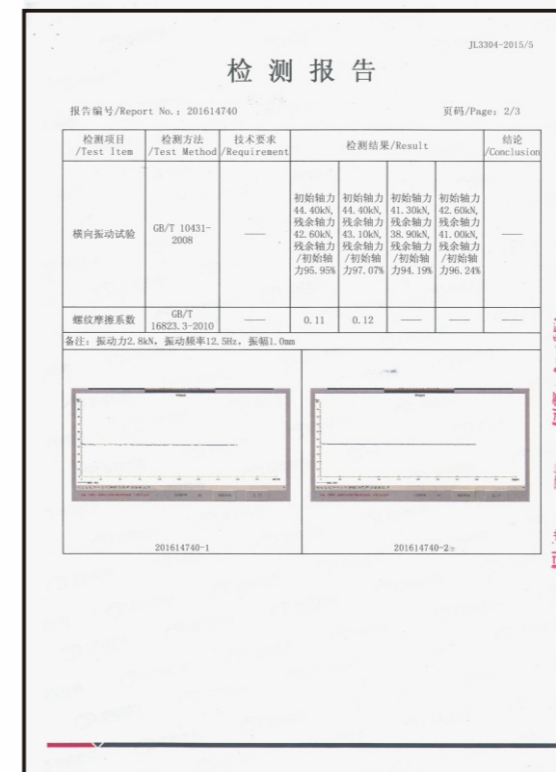
图2 横向振动试验结果
Figure 2 Transverse Vibration Test Result

保证载荷试验报告

Proof Load Test Report

一、试验标准及条件 Test Standards and Conditions				
试验规格 Test specifications	M12螺母 M12 nut	检测依据 Test basis	GB/T3098.2	
检测单位 Test unit	阳江市贯虹五金科技有限公司 Yangjiang Guanhong Hardware Technology Co., Ltd.	送检单位 Examination unit	安可牢 ARC LOCK	
温度 Temperature	25°C	试验员 Tester	王勇 Wang Yong	
湿度 Humidity	50%	复核 Reviewer	刘怀文 Liu Huaiwen	
试验日期 Test date	2022-06-02			
二、试验结果 Test Result				
序号 S/N	规格mm Specifications mm	原始标距mm Original gauge length mm	保载力kN Proof load force kN	保持时间S Holding time S
1	M12	50	89.7	15
2	M12	50	89.9	15
三、试验曲线 Test Curve				
<p>紧固件保载力曲线图 Fastener Proof Load Force Curve</p>		<p>测试数据说明: Test data description:</p> <p>1、样件1为10级普通六角螺母,保载力89700N,保载测试保持时间为15秒,测试后螺母可以顺畅拆卸,保载实验合格。 1. The sample is a grade 10 plain hexagon nut, with a proof load force of 89700 N and a test holding time of 15 seconds. It was tested that the nut could be removed smoothly and the proof load test was passed.</p> <p>2、样件2为10级安可牢防松螺母,保载力89900N,保载测试保持时间为15秒,测试后螺母可以顺畅拆卸,保载实验合格。 2. The sample is a grade 10 ARC LOCK locknut, with a proof load force of 89900 N and a test holding time of 15 seconds. It was tested that the nut could be removed smoothly and the proof load test was passed.</p>		
<p>普通六角螺母 Plain hexagon nut</p>		<p>安可牢防松螺母 ARC LOCK Locknut</p>		
<p>实验总结:根据安可牢防松螺母与普通六角螺母的测试结果和动态曲线对比,安可牢防松螺母的动态曲线走势平稳,测试后螺母无脱扣,牙纹无变形并可正常拆卸。 Experiment conclusion: compared with the test results and dynamic curves of the plain hexagon nuts, ARC LOCK locknuts have smooth dynamic curves, no unbuckling of the nuts after the test, without deformation of the thread pattern, which can be removed properly.</p>				

浙江国检检测中心对安可牢防松螺母性能检测报告如下: THE TEST REPORT OF THE TESTING CENTER BY ZHEJIANG GUOJIAN TESTING TECHNOLOGY CO., LTD. ON THE PERFORMANCE OF ARC LOCK LOCKNUT IS AS FOLLOWS.



浙江国检检测中心对安可牢防松螺母性能检测报告如下:
THE TEST REPORT OF THE TESTING CENTER BY ZHEJIANG GUOJIAN TESTING TECHNOLOGY CO., LTD. ON THE PERFORMANCE OF ARC LOCK LOCKNUT IS AS FOLLOWS.

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国检检测 CHINA COMPONENTS TEST 检测报告 Test Report 报告编号/Report No.: 2021480570 报告日期/Date: 2021/11/29 页码/Page: 1/3

委托单位/Client: 阳江市贯虹五金科技有限公司 Yangjiang Guanhong Hardware Technology Co., Ltd.
地址/Address: 广东省东莞市桥头镇湖厦村华厦路48号04楼
样品名称/Product: 安可牢ARC LOCK防松螺母ARC LOCK NUT
型号规格/Dimension: M16
送样数量/Quantity: 5pcs
等级/Grade: 10
材料/Material: 45#

样品来源/Sample Source: 委托方送样 Supplied by client
样品描述/Sample Description: 完好 Integrity
到样日期/Receiving Date: 2021-10-22
检验日期/Test Date: 2021-11-04

检测结果/Test Result: 参见下页See next page

国检检测 CHINA COMPONENTS TEST 检测报告 Test Report 报告编号/Report No.: 2022421550 报告日期/Date: 2022/09/05 页码/Page: 1/3

委托单位/Client: 阳江市贯虹五金科技有限公司 Yangjiang Guanhong Hardware Technology Co., Ltd.
地址/Address: 阳江市阳东区珠梅(阳江万象)产业转移工业园兴平五路以北 North of Xingping Fifth Road, Zhumei (Yangjiang Wanxiang) Industry Transfer Industrial Park, Yangdong District, Yangjiang City
样品名称/Product: 安可牢ARC LOCK防松螺母ARC LOCK NUT
型号规格/Dimension: M12
送样数量/Quantity: 6pcs
等级/Grade: 10
材料/Material: 45#

样品来源/Sample Source: 委托方送样 Supplied by client
样品描述/Sample Description: 见来样照片 See sample photos
到样日期/Receiving Date: 2022-09-23
检验日期/Test Date: 2022-09-01-2022-09-02

检测结果/Test Result: 参见下页See next page

国检检测 CHINA COMPONENTS TEST 检测报告 Test Report 报告编号/Report No.: 2021480570 报告日期/Date: 2021/11/29 页码/Page: 2/3

检测项目/Test Item	检测方法/Test Method	技术要求/Requirement	检测结果/Result	结论/Conclusion
横向振动试验 Transverse vibration testing	GB/T 10431-2008	—	初始轴 初始轴 初始轴 初始轴 初始轴	初始轴 初始轴 初始轴 初始轴 初始轴
			残余轴 残余轴 残余轴 残余轴 残余轴	残余轴 残余轴 残余轴 残余轴 残余轴
			力/初始 力/初始 力/初始 力/初始 力/初始	力/初始 力/初始 力/初始 力/初始 力/初始
			轴力 轴力 轴力 轴力 轴力	轴力 轴力 轴力 轴力 轴力
			82.75%, 84.00%, 87.98%, 84.77%, 83.84%	82.75%, 84.00%, 87.98%, 84.77%, 83.84%
			振动次数 振动次数 振动次数 振动次数 振动次数	振动次数 振动次数 振动次数 振动次数 振动次数
			1500次 1500次 1500次 1500次 1500次	1500次 1500次 1500次 1500次 1500次
			Initial axial force residual axis force residual axis force residual axis force	Initial axial force residual axis force residual axis force residual axis force
			Initial axial force residual axis force residual axis force residual axis force	Initial axial force residual axis force residual axis force residual axis force
			Initial axial force residual axis force residual axis force residual axis force	Initial axial force residual axis force residual axis force residual axis force
			Initial axial force residual axis force residual axis force residual axis force	Initial axial force residual axis force residual axis force residual axis force
			Initial axial force residual axis force residual axis force residual axis force	Initial axial force residual axis force residual axis force residual axis force

备注: 振动力12N, 频率12.9Hz; 试验螺母M10x12-9, 发黑; 螺母支面及螺栓螺柱涂二硫化钼相润滑。
Remark: Vibration force ±12N, test frequency 12.9Hz; Test bolt M10x12-9, black; Apply molybdenum disulfide lubricant to nut support surface and bolt threads.

审核/Reviewed by: 崔强 批准/Approved by: 王是

国检检测 CHINA COMPONENTS TEST 检测报告 Test Report 报告编号/Report No.: 2021480570 报告日期/Date: 2021/11/29 页码/Page: 3/3

202148057-1-横向振动-曲线图
202148057-2-横向振动-曲线图
202148057-3-横向振动-曲线图
202148057-4-横向振动-曲线图
202148057-5-横向振动-曲线图

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REPORT FINIALIZED

国检检测 CHINA COMPONENTS TEST 检测报告 Test Report 报告编号/Report No.: 2022421550 报告日期/Date: 2022/09/05 页码/Page: 2/3

检测项目/Test Item	检测方法/Test Method	技术要求/Requirement	检测结果/Result	结论/Conclusion
振动试验 vibration test	GB/T 715.3A-2002	After 2 hours of vibration, there should be no loose phenomena.	安装扭矩 124.6 N·m	安装扭矩 124.6 N·m
			安装扭矩 124.8 N·m	安装扭矩 124.8 N·m
			安装扭矩 125.4 N·m	安装扭矩 125.4 N·m
			安装扭矩 123.2 N·m	安装扭矩 123.2 N·m
			安装扭矩 123.6 N·m	安装扭矩 123.6 N·m
			安装扭矩 106.4 N·m	安装扭矩 106.4 N·m
			安装扭矩 109.6 N·m	安装扭矩 109.6 N·m
			安装扭矩 100.1 N·m	安装扭矩 100.1 N·m
			安装扭矩 103.8 N·m	安装扭矩 103.8 N·m
			安装扭矩 107.0 N·m	安装扭矩 107.0 N·m
			安装扭矩 124.6 N·m	安装扭矩 124.6 N·m
			安装扭矩 124.8 N·m	安装扭矩 124.8 N·m

备注: 振动频率30Hz, 全振幅为11.43mm.
Remark: The vibration frequency is 30Hz, and the full amplitude is 11.43mm.

审核/Reviewed by: 董程浩 批准/Approved by: 李波

国检检测 CHINA COMPONENTS TEST 检测报告 Test Report 报告编号/Report No.: 2022421550 报告日期/Date: 2022/09/05 页码/Page: 3/3

来样照片/Sample photos
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安可牢防松螺母(螺纹)的优势

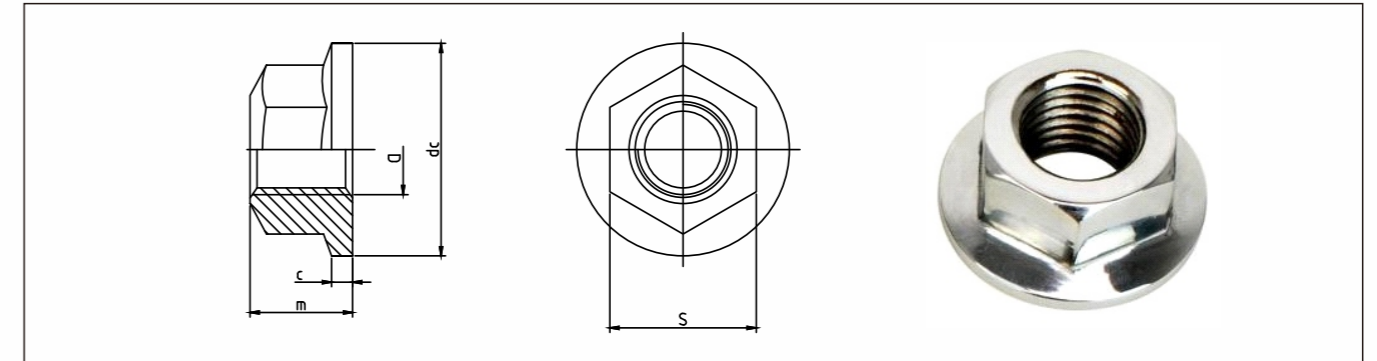
ADVANTAGES OF ARC LOCK ANTI-LOOSENING THREAD

- 1、单螺母即可防松,安装空间不受限制;
1.The anti-loosening effect can be achieved with a single nut, without the restriction of installation space.
- 2、消除了螺纹的横向间隙,外螺纹紧固件的牙尖始终与内螺纹的R面接触,从而能提供可靠抗振动防松性能。
2.By eliminating lateral clearance of the threads, the crest of the external threaded fastener stays in contact with the R side of the internal threads, allowing for reliable anti-vibration and anti-loosening properties.
- 3、锁紧时,锁紧力通过外螺纹紧固件的牙尖传导到“身部”,让所有应力点受力更均匀,可显著地提高内外螺纹紧固件的机械性能。
3. When locking, the locking force is transmitted to the "body" through the crest of the external threaded fastener, allowing a more uniform force to be applied to all stress points and significantly improving the mechanical properties of the internal and external threaded fasteners.
- 4、可多次重复使用;非预置扭力型,拧紧时才需施加力矩,方便拆卸并保护内外螺纹。
4. This product can be reused many times and is a non-pre-set torque type; the torque is required only when tightening, which facilitates disassembly and protects the internal and external threads.
- 5、无需改变紧固件外形设计,在标准紧固件的基础上更换为安可牢螺纹,即达到自锁效果,降低了使用成本。
5. Without changing the shape of the fastener design, the standard fasteners can be replaced by the ARC LOCK threads to achieve the self-locking effect, reducing the cost of use.
- 6、对克服软质材料(如铜材、铝合金等)及薄螺母滑牙问题有显著效果。
6. It can effectively solve the problem of soft materials (such as copper and aluminum) and thin nuts slipping.
- 7、可以与标准公制、美制、英制螺纹匹配,符合通配原则;可根据需要使用,制成左旋或右旋。
7. It can be matched with the standard metric, American, or imperial threads, in line with the principle of general matching. In addition, it can be made levorotatory or dextrorotatory as required for use.
- 8、通过螺纹结构的改变达到防松效果,受温度剧烈变化的影响小。
8. The effect of anti-loosening is achieved through the change of thread structure, and it is less affected by the drastic change in temperature.

安可牢防松螺母

ARC LOCK LOCKNUT

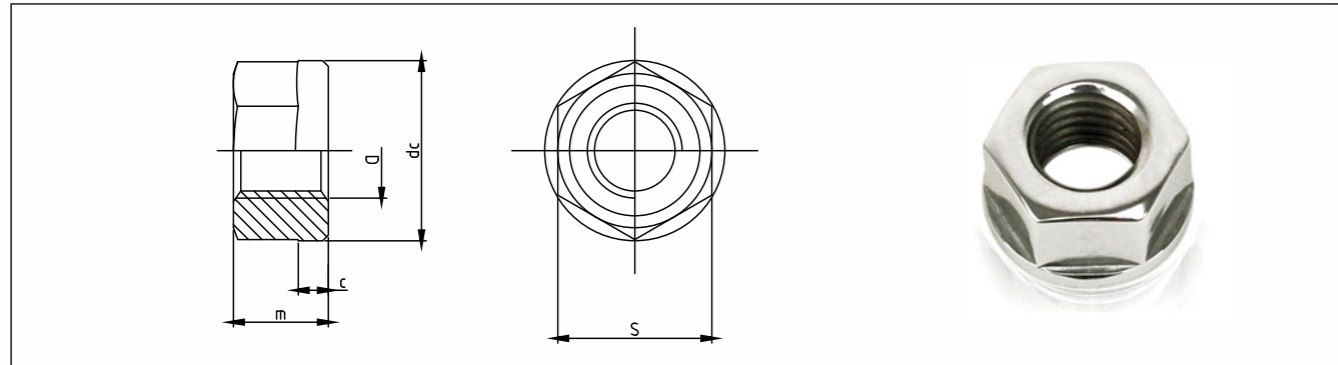
1.安可牢六角法兰面防松螺母 ARC6177.1, ARC6177.2 ARC LOCK hexagon flange locknut ARC6177.1 and ARC6177.2



螺纹规格 D Thread specification D		M5	M6	M8	M10	M12	M14	M16	M20
Thread pitch 螺距	ARC6177.1	0.8	1.0	1.25	1.5	1.75	2.0	2.0	2.5
	ARC6177.2	-	-	1.0	1.25	1.5	1.5	1.5	2.0
s		8	10	13	15	18	21	24	30
dc		11.8	14.2	17.9	21.8	26	29.9	34.5	42.8
c		1	1.1	1.2	1.5	1.8	2.1	2.4	3
m		5	6	8	10	12	14	16	20

△ 安可牢六角法兰面防松螺母外形尺寸等同于GB/T6177.1,GB/T6177.2《六角法兰面螺母》
ARC LOCK hexagon flange locknut outline dimensions in line with GB/T6177.1 and GB/T6177.2 Hexagon Flange Nuts.
△ 材料:碳钢、合金钢、不锈钢
Material: Carbon steel, alloy steel and stainless steel
△ 机械性能等级:8、10、12、A2-70、A4-80
Mechanical property grade: 8, 10, 12, A2-70, A4-80

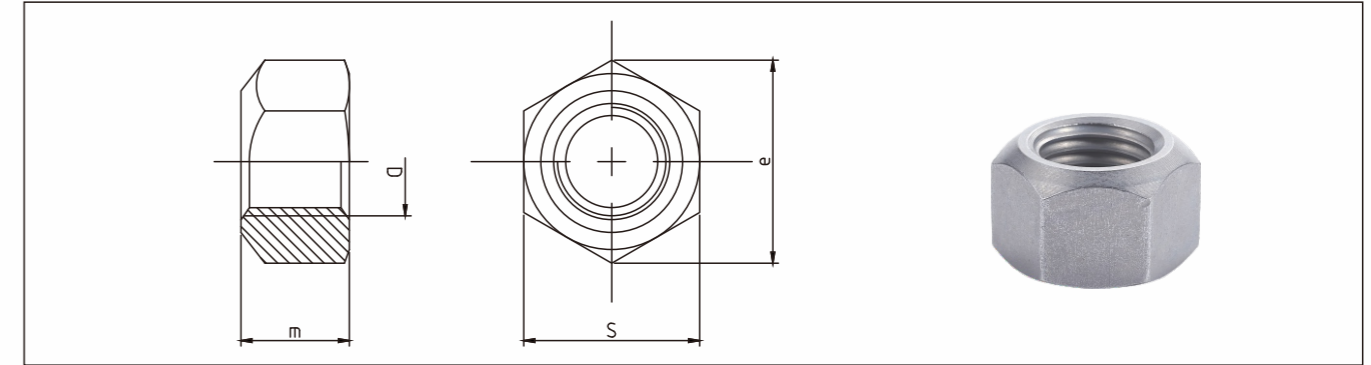
2.安可牢六角凸缘防松螺母ARC-TB-3019
ARC LOCK hexagon flanged locknut ARC-TB-3019



螺纹规格 D Thread specification D		M12	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36	M39	M42	M48
Thread pitch 螺距	粗牙 Coarse thread	1.75	2.0	2.0	2.5	2.5	2.5	3.0	3.0	3.5	3.5	4.0	4.0	4.5	5.0
	细牙 Fine thread	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	4.0	4.0
s		18	21	24	27	30	34	36	41	46	50	55	60	65	75
dc		23	25.5	29	33	36	41	43	49	55.5	65.5	72	77	88	
c		2.1	3.0	3.4	4.2	4.2	4.2	5.3	5.3	6.4	7	7.5	8	8.5	10
m		12	14	16	18	20	22	24	27	30	33	36	39	42	48

△ 材料:碳钢、合金钢、不锈钢
 Material: Carbon steel, alloy steel and stainless steel
 △ 机械性能等级:8、10、12、A2-70、A4-80
 Mechanical property grade: 8, 10, 12, A2-70, A4-80

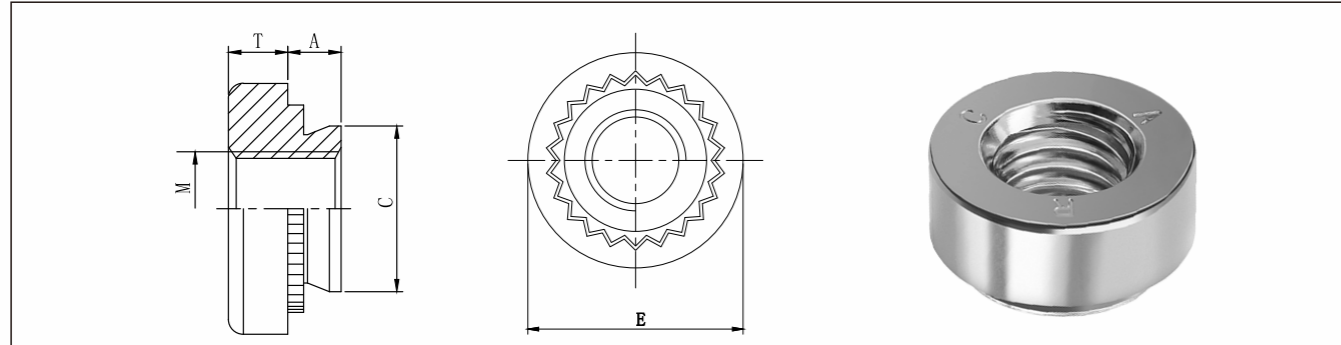
3.安可牢 2 型六角自锁防松螺母 ARC6185
ARC LOCK 2-type hexagon self-locking locknut ARC6185



螺纹规格 Thread specification	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
s	16	18	21	24	27	30	34	36	41	46
e min	17.77	20.03	23.36	26.75	29.56	32.95	37.29	39.55	45.2	50.85
h	9.3	12	14.1	16.4	17.6	20.3	21.8	23.9	26.7	28.6

△ 材料:碳钢、合金钢
 Material: Carbon steel, alloy steel
 △ 机械性能等级:8、10、12
 Mechanical property grade: 8, 10, 12

4. 安可牢防松压铆螺母 ARC-RT ARC LOCK anti-loosening riveted nut ARC-RT



螺纹尺寸×螺距 Thread size Thread pitch	材质 Material			嘴位编码 Thread mouth code	A嘴位高最大值 The maximum value of the high of the thread mouth A	安装板最小厚度 Minimum thickness of the mounting plate	安装板孔径 +0.08 Mounting plate aperture +0.08	C最大尺寸 Maximum size of C	E±0.25	T±0.25	孔中心到安装板边缘最小距离 Minimum distance from the center of the hole to the edge of the mounting plate
	碳钢 Carbon steel	不锈钢 Stainless steel	不锈钢 Stainless iron								
M2*0.4	S	CLS	SP	0	0.77	0.8	4.22	4.2	6.3	1.5	4.8
				1	0.97	1.0					
				2	1.38	1.4					
M2.5*0.45	S	CLS	SP	0	0.77	0.8	4.22	4.2	6.3	1.5	4.8
				1	0.97	1.0					
				2	1.38	1.4					
M3*0.45	S	CLS	SP	0	0.77	0.8	4.22	4.2	6.3	1.5	4.8
				1	0.97	1.0					
				2	1.38	1.4					
M3.5*0.6	S	CLS	SP	0	0.77	0.8	4.75	4.73	7.1	1.5	5.6
				1	0.97	1.0					
				2	1.38	1.4					
M4*0.7	S	CLS	SP	0	0.77	0.8	5.41	5.38	7.9	2.0	6.9
				1	0.97	1.0					
				2	1.38	1.4					
M5*0.8	SS	CLSS	SP	0	0.77	0.8	6.35	6.33	8.7	2.0	7.1
				1	0.97	1.0					
				2	1.38	1.4					
M6*1.0	S	CLS	SP	00	0.89	1.0	8.75	8.72	11.05	4.08	8.6
				0	1.15	1.2					
				1	1.38	1.4					
				2	2.21	2.3					
M8*1.25	S	CLS	SP	1	1.38	1.4	10.5	10.47	12.65	5.47	9.7
				2	2.21	2.3					
M10*1.5	S	CLS	SP	1	2.21	2.3	14.0	13.97	17.35	7.48	13.5
				2	3.05	3.2					

注:所有内螺纹的产品都可以用防松丝锥来攻牙。
Note: All internal thread products can be tapped with anti-loosening screw taps.

螺栓预紧力和拧紧扭矩对照表 Bolt Preload Force and Tightening Torque Comparison Table

公制螺纹 Metric thread	5.6级 Grade 5.6		6.8级 Grade 6.8		8.8级 Grade 8.8		10.9级 Grade 10.9		12.9级 Grade 12.9	
	预紧力N Pretightening force N	拧紧扭矩N.M Tightening torque N.M	预紧力N Pretightening force N	拧紧扭矩N.M Tightening torque N.M	预紧力N Pretightening force N	拧紧扭矩N.M Tightening torque N.M	预紧力N Pretightening force N	拧紧扭矩N.M Tightening torque N.M	预紧力N Pretightening force N	拧紧扭矩N.M Tightening torque N.M
M3	1056	0.70	1690	1.12	2253	1.49	2716	1.79	3259	2.15
M3.5	1424	1.10	2278	1.75	3037	2.34	3661	2.82	4393	3.38
M4	1844	1.62	2950	2.60	3933	3.46	4741	4.17	5689	5.01
M5	2982	3.28	4771	5.25	6362	7.00	7668	8.43	9202	10.12
M6	4221	5.57	6754	8.91	9005	11.89	10854	14.33	13025	17.19
M7	6069	9.35	9710	14.95	12947	19.94	15606	24.03	18727	28.84
M8	7686	13.53	12298	21.64	16397	28.86	19764	34.78	23717	41.74
M10	12180	26.80	19488	42.87	25984	57.16	31320	68.90	37584	82.68
M12	17703	46.74	28325	74.78	37766	99.70	45522	120.18	54626	144.21
M14	24150	74.38	38640	119.01	51520	158.68	62100	191.27	74520	229.52
M16	32970	116.05	52752	185.69	70336	247.58	84780	298.43	101736	358.11
M18	40320	159.67	64512	255.47	86016	340.62	103680	410.57	124416	492.69
M20	51450	226.38	82320	362.21	109760	482.94	132300	582.12	158760	698.54
M22	63630	307.97	101808	492.75	135744	657.00	163620	791.92	196344	950.30
M24	74130	391.41	118608	626.25	158144	835.00	190620	1006.47	228744	1207.77
M27	96390	572.56	154224	916.09	205632	1221.45	247860	1472.29	297432	1766.75
M30	117810	777.55	188496	1244.07	251328	1658.76	302940	1999.40	363528	2399.28
M33	145740	1058.07	233184	1692.92	310912	2257.22	374760	2720.76	449712	3264.91

- 附表数据引用机械设计手册第六版(成大先),依机械设计手册8.8级及以下按屈服强度的70%,10.9级及以上按屈服强度60%;
The data in the appendix refer to the 6th version of *Handbook of Mechanical Design* (Written by Cheng Daxian), according to which, the yield strength of 8.8 grade and below is 70%, and that of 10.9 grade and above is 60%;
- 如有更高防松夹紧力需求,可适当增加锁紧扭矩,参照螺栓的屈服强度。
Note: If there is a need for a higher anti-loosening clamping force, the locking torque can be increased appropriately, with referenceto the yield strength of the bolt.

安可牢防松螺纹丝锥

ARC LOCK ANTI-LOOSENING THREAD SCREW TAP

安可牢防松螺纹的防松性能稳定。任何内螺纹紧固件, 只需选用合适的安可牢丝锥类型, 将内螺纹加工成安可牢螺纹, 就可以达到理想的防松性能。

为了满足不同场景的需求, 安可牢丝锥有三种类型可供选择, 具体分类见表一。

The anti-loosening properties of the ARC LOCK threads are stable. With any internal threaded fastener, the desired anti-loosening performance can be achieved by selecting the appropriate ARC LOCK screw taps and machining the internal threads into ARC LOCK threads.

There are three types of ARC LOCK screw taps available for different scenarios, as classified in Table 1.



表一 安可牢丝锥分类及特点

Table 1 Classification and characteristics of ARC LOCK screw taps

分类 Classification	代号 Code	特点 Features	规格 Specifications
螺旋丝锥 Spiral screw tap	SFT	<ul style="list-style-type: none"> 结构简单、通用性强, 适合大多数金属材料的切削。 Simple structure with wide versatility, suitable for cutting most metal materials. 螺旋槽, 向上排屑, 适用于盲孔。 With upward chip discharge spiral groove for blind holes. 	M3~M200 8-32~6"-4
先端丝锥 Tip screw tap	POT	<ul style="list-style-type: none"> 容屑槽前部有斜槽, 向下排屑, 适用于通孔。 The front of the chip-hold groove has an inclined groove for downward chip discharge and is suitable for through holes. 端部锋利, 阻力小, 可高速攻丝。 Sharp ends and low resistance for high speed tapping. 	M3~M200 8-32~6"-4
挤压丝锥 Fluteless screw tap	NRT	<ul style="list-style-type: none"> 适用于软材质(如: 铝、铜等)的螺纹成型, 增加螺纹强度。 Suitable for thread forming of soft materials (such as aluminum and copper) to increase thread strength. 	M3~M200 8-32~6"-4

丝锥使用指南:

Guidance on the use of screw taps:

1. 安可牢丝锥外形尺寸与普通丝锥相同, 将普通丝锥取下换装安可牢丝锥即可使用。外形尺寸参见表三。

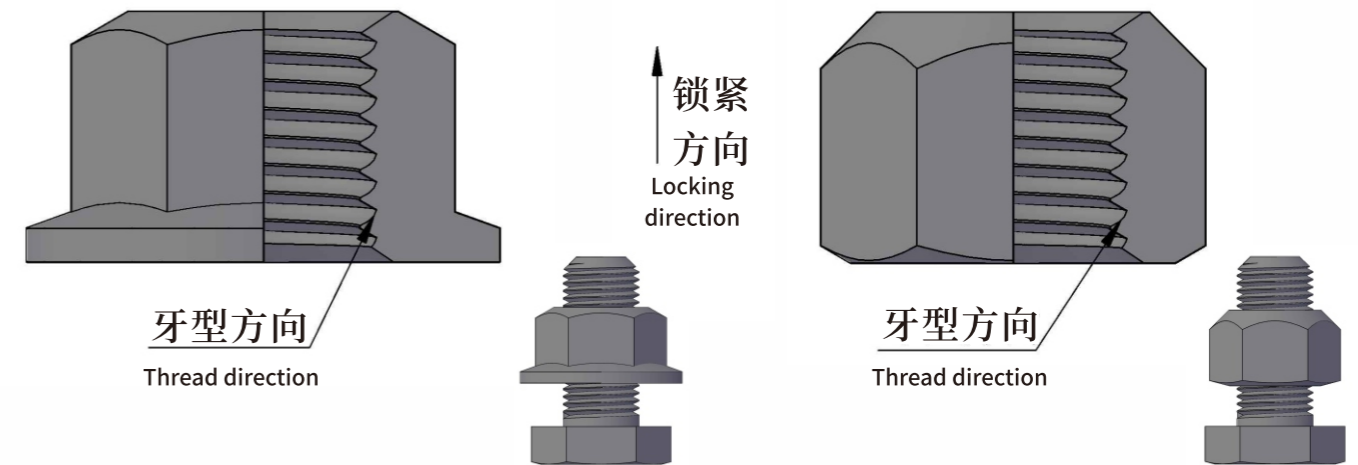
1. ARC LOCK screw taps have the same dimensions as ordinary ones, and can be used directly by changing. See Table 3 for external dimensions.

2. 安可牢螺纹是有方向性的, 因此, 使用安可牢丝锥时需注意产品的攻入方向。特别是攻通孔安可牢螺纹时, 因为丝锥可以从任一端攻入, 而错误的攻入方向将造成安可牢螺纹防松功能丧失, 因此, 为了避免加工错误, 应在零件图和工艺文件上注明“牙型方向”, 必要时还需在零件上做方向标识。

2. ARC LOCK threads are directional, so please distinguish the tapping direction when using ARC LOCK screw taps. Especially when tapping through-hole ARC LOCK threads, since the screw tap can be tapped from either end and the wrong direction of tapping will cause the loss of the anti-loosening function of ARC LOCK threads, therefore, to avoid processing errors, the "thread direction" should be indicated on the part drawing and process documentation, and if necessary, the direction should be marked on the part.

牙型示意图

Thread diagram



3. 盲孔攻丝

a. 攻盲孔时, 在加工条件许可的情况下, 建议在底孔底部设退刀槽。无退刀槽也可攻丝, 但对丝锥寿命会有影响。

b. 无论有无退刀槽, $ht > 4XP$ 为最佳。

c. 盲孔攻丝完毕后, 清理底部遗留切屑。

3. Blind hole tapping

a. When tapping a blind hole, it is recommended to set a relief groove at the bottom of the bottom hole if the machining conditions permit. Tapping is also possible without a relief groove, but it will affect screw tap life.

b. $ht > 4XP$ is the best solution regardless of a relief groove.

c. After tapping the blind hole, please clean up the chips left at the bottom.

4. 安可牢螺纹底孔

安可牢底孔直径与普通螺纹底孔不同, 见表三。

4. The bottom hole of ARC LOCK thread.

The diameter of the ARC LOCK bottom hole is different from that of the plain thread bottom hole, see Table 3.

5. 安可牢螺纹在图纸上的标注

安可牢螺纹在图纸上标注形式为在螺纹规格前面加注“ARC”字样。如：M3*0.5标注为ARC M3*0.5。

5. ARC LOCK threads on the drawing.

ARC LOCK threads are marked on the drawing with the "ARC" in front of the thread specification. For example:

M3*0.5 is marked as ARC M3*0.5.

6. 攻丝切削速度

推荐的攻丝速度见表二

6. Tapping cutting speed

The recommended tapping speed is shown in Table 2.

表二 攻丝切削速度*
Table 2 Tapping cutting speed*

加工材料 Processing materials	切削速度 M/min Cutting speed (M/min)		
	先端丝锥 Tip screw tap	螺旋丝锥 Spiral screw tap	挤压丝锥 Fluteless screw tap
低碳钢, CW0.25% Low carbon steel, CW0.25%	8-13	15-25	12-20
中碳钢, 0.25% VCW0.45% Medium carbon steel, 0.25% VCW0.45%	7-12	10-15	10-15
不锈钢 Stainless steel	2-7	8-13	6-15
铸钢 Cast steel	6-11	10-15	10-15
铸铁 Cast iron	10-15	—	—
铝合金 Aluminum alloy	10-12	10-25	15-25

注:

Note:

- *本表仅提供使用者一个参考的切削速度范围, 使用者须根据具体加工条件进行适当的调整。
1.* This table only provides the user with a reference cutting speed range, the user must make appropriate adjustments according to specific machining conditions.
- 被削材料容易切削、加工较短, 并能充分提供切削油时, 攻牙速度可设定较快些。
2. The tapping speed can be set faster when the material to be cut is easy to cut with a shorter processing and adequate cutting oil.
- 若被削材料为难削或不清楚其特性时, 建议按下限值设定攻牙速度。
3. If the material to be cut is unmanageable or its characteristics are not clear, it is recommended to set the tapping speed at the lower limit.

表三 先端丝锥外形尺寸表

Table 3 Size Table of the Tip Screw Tap

导向牙数 (ls) Number of guiding threads (ls)	2-3牙 2-3 threads	4-5牙 4-5 threads				
适用范围 Scope of application	盲孔 Blind hole	通孔 Through hole				
适用孔深 Applicable hole depth	$h_{max} \leq 2d$	$h_{max} \leq 2d$				
螺纹规格 Thread specification	L	L1	d1	a	L2	底孔径 Bottom hole diameter
M5	60	16	5.5	4.5	7	4.39-4.5
M6	62	19	6.0	4.5	7	5.2-5.32
M8	70	22	6.2	5	8	7.01-7.17
M10	75	24	7.0	5.5	8	8.9-9.07
M10x1.25	75	24	7.0	5.5	8	9.01-9.17
M10x1.0	75	24	7.0	5.5	8	9.2-9.23
M12	82	29	8.5	6.5	9	10.62-10.83
M12x1.5	82	29	8.5	6.5	9	10.9-11.07
M12x1.25	82	29	8.5	6.5	9	11.01-11.17
M14	88	30	10.5	8	11	12.4-12.6
M14x1.5	88	30	10.5	8	11	12.9-13.07
M16	95	32	12.5	10	13	14.4-14.6
M16x1.5	95	32	12.5	10	13	14.9-15.07
M18	100	37	14	11	14	15.78-15.99
M18x1.5	100	37	14	11	14	16.9-17.07
M20	105	37	15	12	15	17.78-17.99
M20x1.5	105	37	15	12	15	18.9-19.07

螺纹规格 Thread specification	L	L1	d1	a	L2	底孔径 Bottom hole diameter
M22	115	38	17	13	16	19.78-19.99
M22x1.5	115	38	17	13	16	20.9-21.07
M24	120	45	19	15	18	21.23-21.49
M24x2.0	120	45	19	15	18	22.4-22.6
M27	130	45	20	15	18	24.6-24.9
M27x2.0	130	45	20	15	18	25.4-25.6
M30	135	48	23	17	20	26.8-27.1
M30x2.0	135	48	23	17	20	28.4-28.6

安可牢量规 ARC LOCK GAUGE

安可牢量规一套为三个测头(分别是:通规、中径止规、斜面止规)以及2个手柄。

ARC LOCK gauges come in a set with three probes (respectively: go gauge, middle diameter no-go gauge, bevel no-go gauge) and two handles.

1. 通规

Go gauge



2. 止规

No-go gauge



量规使用注意事项

Precautions for the use of gauges

1. 安可牢量规使用规则详见下表。

See the following table for details of the rules for the use of the ARC LOCK gauge.

2. 使用量规测量时, 严禁使用强力旋转, 避免量规磨损。

It is strictly forbidden to rotate strongly when measuring with gauges.

3. 为预防量规磨损后对产品造成误判, 必须定期对量规做校准。

To prevent the gauges from misjudging the products after wear and tear, the gauges must be calibrated regularly.

安可牢螺母使用技术要求

TECHNICAL REQUIREMENTS FOR THE USE OF ARC LOCK NUTS

安可牢螺母检验标准

Test Standards

由于安可牢螺纹的牙型特殊, 因此安可牢防松螺母检测螺纹时, 必须采用安可牢专用量规。安可牢专用量规一套为三件: 一支通规、一支斜面止规、一支中径止规。使用安可牢专用量规时, 量规的牙型方向需与螺母的牙型方向相同。

Due to the special type of the ARC LOCK threads, the ARC LOCK locknuts must be inspected with ARC LOCK special gauges. There are three pieces in a set of ARC LOCK special gauges: a go gauge, a bevel no-go gauge, and a middle diameter no-go gauge. The thread direction of the gauge must be the same as that of the nut when using the ARC LOCK special gauges.

安可牢螺母检验方法 Checking method of ARC LOCK nuts

量规名称 Gauge name	量规外形特征 Gauge profile characteristics	使用规则 Applicable rules
螺纹通规 Thread go gauge	螺纹牙顶尖(T)且单侧有弧度 The thread tops the crest (T) with the curvature on one side.	1、能正常旋入被测螺纹。 Proper screwing into the measured thread; 2、量规可以通过, 即使有一定阻碍, 亦可视为合格。 Once the gauge can be passed, even if there is obstruction, it can be regarded as qualified.
螺纹斜面止规 Thread bevel no-go gauge	螺纹牙顶尖(Z)且单侧有弧度 The thread tops the crest (Z) with the curvature on one side.	1、允许旋入被测螺纹, 但旋入量不能超过3颗螺纹。 It is allowed to screw into the measured thread, but the amount of screwing cannot exceed 3 threads.
螺纹中径止规 Thread middle diameter no-go gauge	螺纹牙顶较平(Z) The thread crest is flatter (Z)	1、不能正常旋入螺纹。 Unable to screw in the thread properly. 2、在有一定阻滞的情况下, 止规完全通过可视为合格, 但感受阻滞应在第三颗螺纹之前。 When there is obstruction, the no-go gauge can be regarded as qualified if it passes completely, but the obstruction should be before the third thread.

注: 螺纹表面有镀层的产品通规不通时, 可去镀层后检验。如退镀后通规能通, 亦视为产品合格。

Note: When the product with plating on the thread surface cannot pass the go gauge, it can be inspected after removing the plating. If the go gauge can be passed after plating, the product is regarded as qualified.

安可牢螺纹使用指南

USER GUIDE

1. 安可牢螺纹安装方向

Installation direction

a、安可牢螺纹安装是有方向性的, 它是一种单向螺纹形式, 只有按正确方向安装才具备防松效果, 安装方向错误只能达到普通螺纹效果。

As a product with the unidirectional thread form, the installation of ARC LOCK thread has directional requirements, only in the correct direction to achieve the effect of anti-loosening, otherwise, only to achieve the effect of plain thread use.

b、对于法兰螺母、凸缘螺母、六角螺母等, 我司产品图纸均有安装方向说明。

There are installation directions for hexagon nuts with flange, flanged nuts, hexagonal nuts, etc. in our product drawings.

c、在采用丝锥自行攻牙前, 建议咨询我司技术部, 避免造成防松效果不良。

Before tapping with screw taps, it is recommended to consult our technical department to avoid undesirable anti-loosening effects.

2、安可牢螺纹装配扭矩

ARC LOCK thread assembly torque

a. 安可牢螺纹装配扭矩应根据螺栓性能等级、表面处理、润滑条件综合取值。

ARC LOCK thread assembly torque should be based on the bolt performance grade, surface treatment, lubrication conditions for a comprehensive value.

b. 扭矩计算

$$T=K P_0 d$$

T-紧固件扭矩(安装扭矩), N·m

K-扭矩系数

P₀-预紧力, KN (预紧力一般取值螺栓屈服强度的70%-80%)

d-螺纹公称直径, mm

b. Torque calculation

$$T=K P_0 d$$

T-Fastener torque (installation torque), N·m

K-Torque coefficient

P₀ - preload force, KN (preload force is generally taken as 70% to 80% of the yield strength of the bolt)

d-thread nominal diameter, mm

c. 最佳安装扭矩对每个具体的应用, 应通过试验取得。因为被紧固零件的材质、硬度、表面粗糙度、表面处理、螺栓的状态等诸多因素都会影响到扭矩系数。

The optimum installation torque for each application should be obtained by test. This is because many factors such as the material, hardness, surface roughness, surface finish, and condition of the bolt of the part being fastened will affect the torque coefficient.

d. 具体安装时, 可根据工况咨询我司技术部。

Please feel free to consult our technical department for installation according to the working conditions.

3、使用注意事项

Precautions for the use of gauges

1. 装配工具: 推荐采用扭矩扳手。

Recommended assembly tools: the torque wrench

2. 性能等级选择: 螺栓、螺母性能等级应正确匹配, 通常情况下, 高性能等级螺母可以在一定程度上替代低性能等级螺母(详见下表)。

Performance grade: the performance grade of the bolt and nut should be correctly matched, usually, the nut with a high performance grade can replace a lower one to some extent (see the following table for details).

3. 配套螺栓: 与安可牢防松螺母配套的螺栓, 外螺纹公差精度未做表面处理前为 6g 标准螺纹。

Supporting bolt refers to the bolts mating with the ARC LOCK locknuts, the external thread tolerance accuracy before surface treatment should be 6 g (the standard thread).

6g 外螺纹大径尺寸详见下表。

The 6 g external thread major diameter dimensions are detailed in the table below.

4、连接工况

Working condition of the connection

a. 刚性联结: 为安可牢防松螺母的正常应用领域。

Rigid connection refers to the normal field of application of the ARC LOCK locknut.

b. 柔性联结: 通过采用简单的安装方案, 安可牢防松螺母可适用于柔性联结领域, 并实现相同的防松效果。

具体使用前建议咨询我司技术部确认。

Flexible connection: with a simple installation solution, ARC LOCK locknuts can be applied in the field of flexible connection and achieve the same anti-loosening effect. It is recommended to consult our technical department for confirmation before use.

螺栓与螺母强度等级匹配 Matching strength grade of bolt and nut

螺栓等级 Bolt grade	5.8级 Grade 5.8	8.8级 Grade 8.8	10.9级 Grade 10.9	12.9级 Grade 12.9
螺母等级 Nut grade	≥6级 ≥ Grade 6	≥8级 ≥Grade 8	≥10级 ≥ Grade 10	≥12级 ≥ Grade 12

6g 外螺纹大径尺寸

The 6 g external thread major diameter dimensions

螺纹规格 Thread specification	螺距 Thread pitch	大径 (min) Major diameter (min)	大径 (max) Major diameter (max)	螺纹规格 Thread specification	螺距 Thread pitch	大径 (min) Major diameter (min)	大径 (max) Major diameter (max)		
M3	0.5	2.874	2.980	M24	3	23.577	23.952		
M4	0.7	3.838	3.978		1.5	23.732	23.968		
M5	0.8	4.826	4.976		2	23.682	23.962		
M6	1.0	5.794	5.974	M27	3	26.577	26.952		
M8	1.25	7.76	7.972		1.5	26.732	26.968		
	1	7.794	7.974	2	26.682	26.962			
M10	1.5	9.732	9.968	M30	3.5	29.522	29.947		
	1	9.794	9.974		1.5	29.732	29.968		
	1.25	9.76	9.972		2	29.682	29.962		
M12	1.75	11.701	11.966	M33	3	29.577	29.952		
	1	11.794	11.974		3.5	32.522	32.947		
	1.25	11.76	11.972		1.5	32.732	32.968		
	1.5	11.732	11.968		2	32.682	32.962		
M14	2	13.682	13.962	M36	3	32.577	32.952		
	1	13.794	13.974		4	35.465	35.94		
	1.5	13.732	13.968		1.5	35.732	35.968		
M16	2	15.682	15.962	M39	2	35.682	35.962		
	1	15.794	15.974		3	35.577	35.952		
	1.5	15.732	15.968		4	38.465	38.94		
M18	2.5	17.623	17.958	M42	1.5	38.732	38.968		
	1	17.794	17.974		2	38.682	38.962		
	1.5	17.732	17.968		3	38.577	38.952		
	2	17.682	17.962		4.5	41.437	41.937		
M20	2.5	19.623	19.958	M45	4.5	44.437	44.937		
	1	19.794	19.974		M48	5	47.399	47.929	
	1.5	19.732	19.968			M52	5	51.399	51.929
	2	19.682	19.962						
M22	2.5	21.623	21.958						
	1.5	21.732	21.968						
	2	21.682	21.962						

注: 与安可牢螺纹配合时, 建议外螺纹大径尽量接近大径最大值(Max值)。

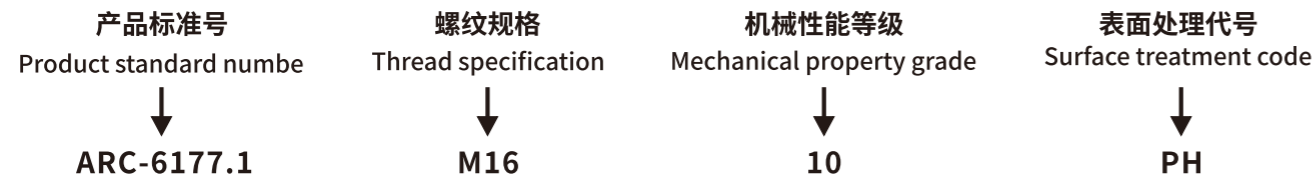
Note: When mating with ARC LOCK threads, it is recommended that the large diameter of the male thread be as close to the large diameter maximum (Max value) as possible.

安可牢防松螺母型号说明

TYPE DESCRIPTION OF ARC LOCK LOCKNUT

安可牢防松螺母标记方法:

ARC LOCK locknuts are marked in the following way.



示例:

Example:

螺纹规格为 M16, 性能等级为10级, 表面处理为磷化的安可牢六角法兰面防松螺母的标记方法为:

ARC-6177.1-M16-10-PH

The ARC LOCK hexagon flange locknut with thread size M16, performance grade 10 and phosphate surface treatment marking method is :

ARC-6177.1-M16-10-PH

螺纹规格为 M20×1.5, 性能等级为 10 级, 表面处理为镀锌安可牢六角凸缘防松螺母的标记方法为:

ARC-TB-3019-M20×1.5-10-DX

The ARC LOCK hexagon flanged locknut with thread size M20×1.5, performance grade 10 and surface treatment galvanized marking method is :

ARC-TB-3019-M20×1.5-10-DX

表面处理类型 Surface treatment type	代号 Code	表面处理类型 Surface treatment type	代号 Code
磷化 Phosphating	PH	钝化 Passivation	DH
镀锌(蓝白锌) Galvanized	DX	锌镍合金 Zinc Nickel Alloy	XN
彩锌 Color Zinc	CX	发黑 Black oxide	FH
蓝锌 Blue Zinc	LX	达克罗 Zn-Al Flake Coating	DKL

