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Made By:	Sophia Yang	07.04.04					
Checked:							
Approved:				Rev.0	Sophia	07.04.04	

1. Objective 目的

Provide detail information for every step about how to perform the test about the tapered male thread.

Standardize the actions of the inspectors and clarify the determining way in different conditions of the test.

就如何检验锥形内螺纹提供详细的各步骤说明. 规范检验人员动作及阐明各种情形下的判断方法.

2. Scope 范围

It is applicable for all the female tapered threads such as NPT, BSPT etc.

适用于所有锥形内螺纹, 比如 N P T , B S P T 等.

3. Definitions 定义

3.1 Thread 螺纹

There are two main types of threads used presently around the world, one being a normal straight thread and the other is tapered thread. Tapered threads are used when pressure tight joint are made on the threads. Straight thread is only otherwise. Tapered thread is also known as conical thread. The angle of the tapered thread is $1^{\circ}47'$. NPT and BSPT are tapered threads mostly used when the faucet industry.

目前世界上主要有两种螺纹. 一种是平形螺纹, 另一种是锥形螺纹. 锥形螺纹主要用于压力密封连接上. 而平形螺纹则用于其它方面. 锥形螺纹锥度为 $1^{\circ}47'$. NPT 和 B S P T 是两种主要用于水龙头行业的锥形螺纹


NPT: National Pipe Tapered; The angle of thread is 60° . 美标管锥螺纹, 牙形角 60° .

BSPT: British Standard Pipe Tapered; The angle of thread is 55° . 英标管锥螺纹, 牙形角 55° .

3.2 Plug Gauge 塞规

Thread plug gauge is the tool for an all-around checking about the female threads which with the male threads.

螺纹塞规是一个对内螺纹进行全面综合检查的一个工具.

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3.3 Accuracy class 精度等级

There are 3 accuracy classes for American Standard thread in inch unit. The class 2 is the most widely used one. The class 3 is only for exact industry. The class 1 is for the loose match, while there is only one accuracy class for R in DIN.


对于美标的英制螺纹有三个精度等级。等级 2 应用的最广泛，等级 3 则一般用于精工，等级 1 则适用于非常松的允差配合。而 DIN 标准的 R 螺纹则只有一个精度等级。

3.4 Standard 标准

The DIN R thread gauges are designed for Parallel / Tapered Match System. So must be careful to choose the right gauge marked with DIN. The manufacturer and the clients should use the gauge following the same standard.

对于 DIN 标准的 R 螺纹量规是为柱 / 锥配合体系设计的，选择量具时请注意量具上应有 DIN 标记。生产商和客户应当使用同一标准下的量规。



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4 Tools 工具

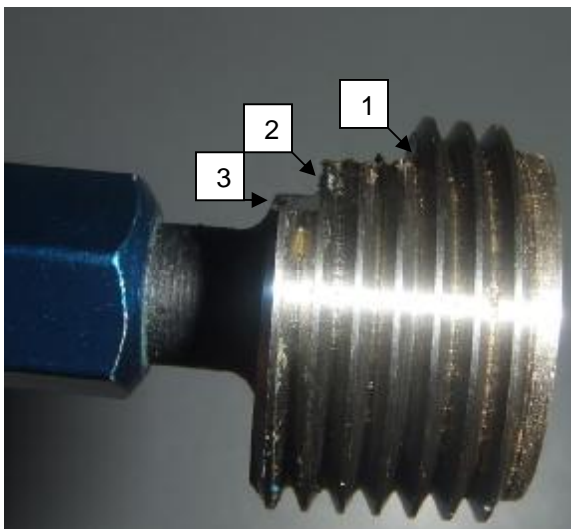
4.1 Plug Gauge 塞规

First choose the correct matched plug gauge according to the thread standard and specification of the product. Because different standards specify thread per inch, angle of thread, roots, crests, truncations and many others differently.

首先根据产品螺纹的种类及规格选择匹配的塞规。因为不同种类螺纹的牙数，牙形角，齿顶，齿跟等都不相同。

The plug gauge for tapered thread has three surfaces. The number 1 surface is the low limit and the number 3 surface is the up limit. The number 2 surface is the base level.

检验锥形螺纹的塞规有三个面。1号面是下限，3号面是上限。而2号面是基面。



Accuracy class: 2B (NPT)

精度等级: 2B (NPT)

Standard:

ISO7-2:2000/Nch1594-1-1979/DIN(BSPT); ANSI(NPT)

标准 :ISO7-2:2000/Nch1594-1-1979/ DIN (BSPT);ANSI(NPT)

Symbol of BSPT: R

BSPT 代号: R


Symbol of NPT: NPT / Z

NPT 代号: NPT / Z

4.2 Calliper 卡尺

The specification of the calliper should cover the range of the thread length.

卡尺的量程应足够可测量螺纹长度

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5 Instructions 步骤

Step 1 : Turn lightly the plug gauge into the product completely. No extrusion.No distortion.

步骤 1 : 轻轻将塞规旋入产品内. 不可挤压, 不允许有变形.

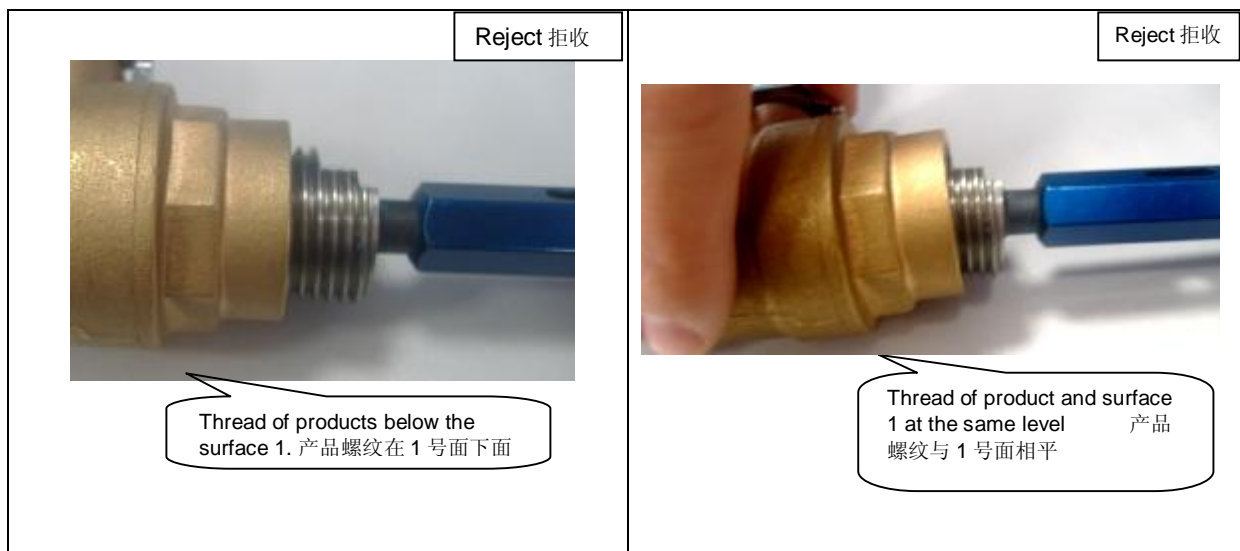



Determine 判断: You can't turn more even by small force (No distortion) .This status means the fitting threads already at the end position.




当你用很小的力（没有产生变形）不能继续旋进螺纹时则螺纹已经旋到底了

Step 2: Check the relative position of the thread of product to the surface of the gauge.

步骤 2 : 检查产品螺纹与塞规各面的相对位置.



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OK	 <p>Thread of product is at between surface 1 and surface 3 产品螺纹在 1 号面和 3 号面之间</p>	OK	 <p>Thread of product and surface 3 at the same level 产品螺纹与 3 号面相平</p>
Reject 拒收	 <p>Thread of product over surface 3 产品螺纹超出 3 号面</p>		

Determine 判断: The position must be between 1# surface and 3# surface. The same level to 3# can be accepted too, but can't be accepted if the same level to 1# surface.

产品螺纹的位置必须在环规的 1 号面和 3 号面之间。可以和 3 号面相平但不可与 1 号面相平

Step 步骤 3 : Check the useful length " L " of the thread by calliper.

用卡尺测量螺纹的有效长度。

Specification		R3/8	R1/2	R3/4	R1	R1 1/4	R1 1/2	R2
L	Min	7	9.1	10.2	11.6	13.4	13.4	16.9

Determine 判断: The useful length of the thread should meet the requirements of the table attached.

螺纹的有效长度需符合上表的要求。