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YS

中华人民共和国有色金属行业标准

YS/T 80—20XX

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| 代替 YS/T 80-2011 |

硬质合金拉伸模坯

Cemented carbide drawing dies

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20XX - XX - XX发布

20XX - XX - XX实施

中华人民共和国工业和信息化部   发布

前  言

本文件按照GB/T 1.1-2020《标准化工作导则 第1部分：标准化文件的结构和起草规则》的规定起草。

本文件代替YS/T 80-2011《硬质合金拉伸模坯》，与YS/T 80-2011相比，除结构调整和编辑性修改外，主要技术变化如下：

1. 删除了30型拉丝模（见第4章，2011年版的3.4.1.5）；
2. 删除了41型拉丝模（见第4章，2011年版的3.4.1.8）；
3. 增加了A型拉丝模（见附录A.8）；
4. 增加了W型拉丝模（见附录A.10）；

e）增加了产品化学成分、物理与力学性能及金相组织结构的要求（见5.1、5.2、5.3）；

f）修改了圆孔型拉伸模内径、外径和高度的允许偏差（见5.4.1）；

d）修改了外观质量要求（见5.5,1994年版的4.4、4.6、4.7）；

e）修改了试验方法与检验规则（见第6章、第7章，1994年版的第5章）；

f）增加了产品随行文件要求（见8.2）；

g）增加了订货单要求（见第9章）。

请注意本文件的某些内容可能涉及专利。本文件的发布机构不承担识别专利的责任。

本文件由全国有色金属标准化技术委员会（SAC/TC243）提出并归口。

本文件起草单位：株洲硬质合金集团有限公司、自贡硬质合金有限责任公司、株洲长江硬质合金工具有限公司、

本文件主要起草人：

本文件及其所代替文件的历次版本发布情况为：

——YS/T 80-2011

硬质合金拉伸模坯

1. 范围

本文件规定了硬质合金拉伸模坯的分类、技术要求、试验方法、检验规则、标志、包装、运输、贮存及随行文件、订货单内容。

本文件适用于硬质合金拉伸模坯。

1. 规范性引用文件

下列文件对于本文件的应用是必不可少的。凡是注日期的引用文件，仅所注日期的版本适用于本文件。凡是不注日期的引用文件，其最新版本（包括所有的修改单）适用于本文件。

GB/T 5242 硬质合金制品检验规则与试验方法

GB/T 5243 硬质合金制品的标志、包装、运输和贮存

1. 术语和定义

本文件没有需要界定的术语和定义。

1. 产品分类和型号表示规则

4.1 产品分类

根据被拉伸加工的材料及拉伸模坯的型式将拉伸模分为10类：

20型 金属管材拉伸模

22型 金属管材拉伸模

40型 金属正方形型材拉伸模

42型 金属带材拉伸模

60型 金属六方形型材拉伸模

S11型 金属线材拉伸模

S13型 金属线材拉伸模

A型 金属线、棒材拉伸模

31型 金属管材拉伸用芯头

W型 金属线材拉伸模

产品典型型号尺寸及示意图见附录A。

4.2 型号表示规则

硬质合金拉伸模坯型号由型号类别、外径、高度、压缩角、内孔参数五个部分组成。

硬质合金拉伸模坯型号表示见示例。

示例:

S11 — 008 06 12 — 1.2

：拉伸模坯型号类别代号，见4.1。

：拉伸模坯外径代号，用三位数字表示，单位为mm ，不足三位时，则前面加“0”填位。

：位伸模坯高度代号，用两位数字表示，单位为mm ，不足两位时，则前面加“0”填位。

：拉伸模坯压缩角代号，用两位数字表示，单位为（º），如没有压缩角，则用“00”表示。

：拉伸模坯内孔代号，圆形内孔用内径尺寸d表示，单位为mm，当内径尺寸不大于1mm时取两位整数，当内径尺寸大于1mm时取一位整数；四边形内孔用孔长a×孔宽b表示，单位为mm，取一位小数位；六边形内孔用内切圆尺寸s表示，单位为mm，取一位小数位。

1. 技术要求

5.1 化学成分

硬质合金拉伸模坯推荐钴含量6.0%～8.0%的WC-Co硬质合金。若需方对化学成分有特殊要求时，由供需双方协商确定,并在合同中注明。

5.2 物理与力学性能

硬质合金拉伸模坯的物理与力学性能应符合表1的规定。若有特殊要求由供需双方协商确定。

表1 硬质合金拉伸模坯的物理与力学性能

|  |  |  |
| --- | --- | --- |
| 密度  g/cm3 | 硬度  HRA | 横向断裂强度a  MPa |
| 14.40～15.10 | ≥87.0 | ≥2000 |
| a 横向断裂强度等同采用B试样鉴定结果。 | | |

5.3 金相组织结构

硬质合金拉伸模坯的金相组织结构应符合表2的规定。若有特殊要求由供需双方协商确定。

表2 硬质合金拉伸模坯的金相组织结构

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 孔隙度  不大于 | 宏观孔洞分档/个 | | | 非化合碳  不大于 | η相 |
| ＞25μm～75μm | ＞75μm～125μm | ＞125μm |
| A04B02 | ≤4 | ≤2 | ≤1 | C00 | 不存在 |

5.4 尺寸允许偏差

5.4.1 圆形孔模坯的尺寸允许偏差

5.4.1.1 内径尺寸允许偏差应符合表3的规定。

表3 内径尺寸允许偏差

单位为毫米

|  |  |  |  |
| --- | --- | --- | --- |
| 基本尺寸 | 允许偏差 | 基本尺寸 | 允许偏差 |
| 0.10～0.30 | 0  -0.05 | ＞12.0～16.0 | 0  -0.40 |
| ＞0.30～0.40 | 0  -0.06 | ＞16.0～24.0 | 0  -0.60 |
| ＞0.40～1.0 | 0  -0.10 | ＞24.0～32.0 | 0  -0.70 |
| ＞1.0～2.0 | 0  -0.15 | ＞32.0～40.0 | 0  -0.80 |
| ＞2.0～4.0 | 0  -0.20 | ＞40.0～55.0 | 0  -1.00 |
| ＞4.0～6.0 | 0  -0.25 | ＞55.0～90.0 | 0  -1.20 |
| ＞6.0～12.0 | 0  -0.35 | — | — |

5.4.1.2外径尺寸允许偏差应符合表4的规定。

表4 外径尺寸允许偏差

单位为毫米

|  |  |
| --- | --- |
| 基本尺寸 | 允许偏差 |
| ≤10 | +0.30  0 |
| ＞10～16 | +0.40  0 |
| ＞16～30 | +0.50  0 |
| ＞30～35 | ±0.35 |
| ＞35～40 | ±0.45 |
| ＞40～45 | ±0.50 |
| ＞45～50 | ±0.55 |
| ＞50 | ±1.2%D |

5.4.1.3 高度尺寸允许偏差应符合表5的规定。

表5 高度尺寸允许偏差

单位为毫米

|  |  |
| --- | --- |
| 基本尺寸 | 允许偏差 |
| ≤10 | ±0.20 |
| ＞10～20 | ±0.30 |
| ＞20～30 | ±0.40 |
| ＞30～50 | ±0.50 |
| ＞50～60 | ±0.75 |

5.4.2 多边形模坯的尺寸允许偏差

5.4.2.1 内径尺寸允许偏差应符合表6的规定。

表6 内径尺寸允许偏差

单位为毫米

|  |  |
| --- | --- |
| 基本尺寸 | 允许偏差 |
| ≤2 | 0  -0.25 |
| ＞2～4 | 0  -0.35 |
| ＞4～6 | 0  -0.40 |
| ＞6～12 | 0  -0.50 |
| ＞12～16 | 0  -0.65 |
| ＞16～20 | 0  -0.75 |
| ＞20～25 | 0  -0.85 |
| ＞25～32 | 0  -0.90 |
| ＞32～40 | 0  -1.00 |
| ＞40～50 | 0  -1.40 |
| ＞50～60 | 0  -1.80 |
| ＞60～75 | 0  -2.00 |

5.4.2.2 外径尺寸允许偏差应符合表7的规定。

表7 外径尺寸允许偏差

单位为毫米

|  |  |
| --- | --- |
| 基本尺寸 | 允许偏差 |
| 7～30 | ±0.50 |
| ＞30～50 | ±0.80 |
| ＞50～65 | ±1.30 |
| ＞65～80 | +1.80  -1.30 |
| ＞80～120 | +2.30  -1.80 |

5.4.2.3 高度尺寸允许偏差应符合表8的规定。

表8 高度尺寸允许偏差

单位为毫米

|  |  |
| --- | --- |
| 基本尺寸 | 允许偏差 |
| ≤20 | ±0.40 |
| ＞20～30 | ±0.50 |
| ＞30～40 | ±0.60 |
| ＞40～50 | ±0.80 |
| ＞50～60 | ±1.00 |

5.4.3 拉伸模固定芯头31型尺寸允许偏差

5.4.3.1 外径允许偏差应符合表9的规定。

表9 外径尺寸允许偏差

单位为毫米

|  |  |
| --- | --- |
| 基本尺寸 | 允许偏差 |
| ＞10～20 | +0.60  +0.20 |
| ＞20～30 | +0.70  +0.20 |
| ＞30～40 | +0.80  +0.20 |
| ＞40～50 | +0.90  +0.20 |
| ＞50～60 | +1.00  +0.20 |
| ＞60 | +1.20  +0.20 |

5.4.3.2 芯头内孔尺寸允许偏差应符合表10的规定。

表10 内孔尺寸允许偏差

单位为毫米

|  |  |
| --- | --- |
| 基本尺寸 | 允许偏差 |
| ≤20 | +0.80  0 |
| ＞20～30 | +1.00  0 |

5.4.3.3 芯头高度尺寸允许偏差应符合表11的规定。

表11 高度尺寸允许偏差

单位为毫米

|  |  |
| --- | --- |
| 基本尺寸 | 允许偏差 |
| ＞10～20 | ±0.45 |
| ＞20～30 | ±0.50 |
| ＞30～40 | ±0.55 |
| ＞40～50 | ±0.60 |

5.4.4 其它线量尺寸允许偏差作为参考值，见表12。

表12 其它线量尺寸允许偏差

单位为毫米

|  |  |
| --- | --- |
| 基本尺寸 | 允许偏差 |
| 0.2～0.5 | ±0.10 |
| ＞0.5～1.0 | ±0.15 |
| ＞1.0～3.0 | ±0.20 |
| ＞3.0～6.0 | ±0.30 |
| ＞6.0～10.0 | ±0.40 |
| ＞10.0～15.0 | ±0.50 |

5.5 外观质量

5.5.1 产品不得有分层、裂纹和孔洞等缺陷。

5.5.2 工作部位不允许有掉边掉角，非工作部位掉边掉角长度不大于1.0mm，宽度不大于0.5mm。

5.5.3 工作部位不允许麻孔，其它部位允许深度不大于0.3mm的麻孔。

5.5.4 定径区不允许有痕迹，其它部位允许有深度不大于0.3mm的痕迹。

1. 试验方法

6.1 产品的化学成分分析按供需双方协商确定的方法进行。

6.2 产品的物理与力学性能、金相组织结构的检验按GB/T 5242规定的试验方法进行。

6.3 产品尺寸及允许偏差用相应精度的游标卡尺、千分尺等量具检测。

6.4 产品的外观质量用目视检查，必要时采用相应精度的量具测量。

1. 检验规则

7.1 检查和验收

7.1.1 产品应由供方质量检验部门进行检验，保证产品符合本文件及订货单的规定。

7.1.2 需方可对收到的产品按本文件及订货单的规定进行检验。如检验结果与本文件及订货单的规定不符时，应在收到产品之日起三个月内以书面形式向供方提出，由供需双方协商解决。如需仲裁，应由供需双方在需方共同取样或协商确定。

7.2 组批

产品应成批提交检验，每批应由同一原料、同一化学成分、同一批次的产品组成。

7.3 检验项目及取样

产品的检验项目及取样应符合表6的规定。

表6 检验项目及取样规则

|  |  |  |  |
| --- | --- | --- | --- |
| 检验项目 | 取样数量 | 技术要求的章条号 | 试验方法的章条号 |
| 化学成分 | 按GB/T 5242的规定进行 | 5.1 | 6.1 |
| 物理与力学性能 | 按GB/T 5242的规定进行 | 5.2 | 6.2 |
| 金相组织结构 | 按GB/T 5242的规定进行 | 5.3 | 6.2 |
| 尺寸允许偏差 | 逐件 | 5.4 | 6.3 |
| 外观质量 | 逐件 | 5.5 | 6.4 |

7.4 检验结果的判定

7.4.1 产品的化学成分检验结果不合格时，应重新取样对不合格项进行重复检验，若仍有一个重复检验结果不合格，判该批产品不合格。

7.4.2 产品的物理与力学性能、金相组织结构检验结果不合格时，应对不合格项加倍取样重复检验；若仍有一个重复检验结果不合格，判该批产品不合格。

7.4.3 产品的尺寸允许偏差检验结果不合格时，判该件制品不合格。

7.4.4 产品的外观质量检验结果不合格时，判该件制品不合格。

1. 标志、包装、运输、贮存及随行文件

8.1 标志、包装、运输和贮存

产品的标志、包装、运输和贮存按GB/T 5243的规定进行。

8.2 随行文件

每批产品应附有随行文件，其中除应包括供方信息、产品信息、本文件编号、出厂日期或包装日期外，还宜包括：

* 1. 产品质量保证书，内容如下：
* 产品的主要性能及技术参数；
* 产品特点（包括制造工艺及原材料的特点）；
* 对产品质量所负的责任；
* 产品获得的质量认证及带供方技术监督部门检印的各项分析检验结果。
  1. 产品合格证，内容如下：
* 检验项目及其结果或检验结论；
* 批量或批号；
* 检验日期；
* 检验员签名或盖章。
  1. 产品质量控制过程中的检验报告及成品检验报告。
  2. 产品使用说明：正确搬运、使用、贮存方法等。
  3. 其他。

1. 订货单内容

订购本文件所列产品的订货单应包括下列内容:

a）产品名称；

b) 产品型号；

c) 产品净重或数量；

d) 本文件编号；

e) 其他要求。

附录A

(资料性)

硬质合金拉伸模坯典型型号尺寸及示意图

A.1 20型 金属管材减径拉伸模坯



20型金属管材减径拉伸模坯尺寸见表A.01，如图A.1所示。

图A.1

表A.1 20型金属管材减径拉伸模坯尺寸

单位为毫米

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | 参考尺寸 | | | |
| D | H | d | 2α° | 2γ° | h | h1 | h2 | e |
| 20-0161406-2.0 | 16 | 14 | 2 | 6 | 60 | 1 | 1 | 2.5 | 1 |
| 20-0161406-3.0 | 3 | 1.5 | 3.5 |
| 20-0221806-4.0 | 22 | 18 | 4 | 2 | 4.5 |
| 20-0302206-5.0 | 30 | 22 | 5 | 3 | 2 | 7 | 1.2 |
| 20-0302206-6.0 | 6 |
| 20-0302206-7.0 | 7 |
| 20-0302206-8.0 | 8 |
| 20-0352506-9.0 | 35 | 25 | 9 |
| 20-0352506-10.0 | 10 |
| 20-0352506-11.0 | 11 |
| 20-0402806-12.0 | 40 | 28 | 12 | 1.5 |
| 20-0402806-13.0 | 13 |
| 20-0402806-14.0 | 14 |
| 20-0453006-15.0 | 45 | 30 | 15 |
| 20-0453006-16.0 | 16 |
| 20-0453006-17.0 | 17 |
| 20-0503206-18.0 | 50 | 32 | 18 |
| 20-0503206-19.0 | 19 |

表A.1（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | 参考尺寸 | | | |
| D | H | d | 2α° | 2γ° | h | h1 | h2 | e |
| 20-0503206-20.0 | 50 | 32 | 20 | 6º | 60º | 3 | 2 | 8 | 1.5 |
| 20-0503206-21.0 | 21 |
| 20-0553206-22.0 | 55 | 22 |
| 20-0553206-23.0 | 23 |
| 20-0553206-24.0 | 24 |
| 20-0553206-25.0 | 25 |
| 20-0603406-26.0 | 60 | 34 | 26 |
| 20-0603406-27.0 | 27 |
| 20-0603406-28.0 | 60 | 34 | 28 |
| 20-0653606-29.0 | 65 | 36 | 29 |
| 20-0653606-30.0 | 30 |
| 20-0653606-31.0 | 31 |
| 20-0754206-33.0 | 75 | 42 | 33 | 5 | 3 | 10 |
| 20-0754206-35.0 | 35 |
| 20-0854506-37.0 | 85 | 45 | 37 |
| 20-0854506-39.0 | 39 |

A.2 22型 金属管材拉伸模坯

22型金属管材拉伸模坯尺寸见表A.2，如图A.2所示。



图A.2

表A.2 22型金属管材拉伸模坯尺寸

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | | 参考角度 | | 参考角度 | | | |
| D | H | d | 2α° | | D | H | d | R | D |
| 22-0201324-2.8 | 20 | 13 | 2.8 | 24 | | 60 | 1.5 | 3.0 | 3.0 | 1.0 |
| 22-0201324-3.0 | 3.0 |
| 22-0201324-3.2 | 3.2 |
| 22-0201324-3.4 | 3.4 |
| 22-0201324-3.6 | 3.6 |
| 22-0201324-3.8 | 3.8 |
| 22-0201324-4.0 | 4.0 |
| 22-0201324-4.3 | 20 | 13 | 4.3 |
| 22-0201324-4.6 | 4.6 |
| 22-0201324-4.7 | 4.7 |
| 22-0201324-5.0 | 5.0 |
| 22-0201324-5.3 | 5.3 |
| 22-0201324-5.6 | 5.6 |
| 22-0201324-5.7 | 5.7 |
| 22-0301824-6.7 | 30 | 18 | 6.7 | 2.0 | 4.0 | 1.2 |
| 22-0301824-7.0 | 7.0 |
| 22-0301824-7.3 | 30 | 18 | 7.3 |
| 22-0301824-7.6 | 7.6 |
| 22-0301824-8.1 | 8.1 |
| 22-0301824-8.6 | 8.6 |
| 22-0301824-9.1 | 9.1 |
| 22-0301824-9.6 | 9.6 |
| 22-0301824-10.1 | 10.1 |
| 22-0301824-10.5 | 10.5 |
| 22-0301824-11.5 | 11.5 |
| 22-0301824-13.5 | 30 | 18 | 13.5 |
| 22-0452424-12.5 | 45 | 24 | 12.5 | 3.0 | 4.5 | 5.0 |
| 22-0452424-13.5 | 13.5 |
| 22-0452424-14.5 | 14.5 |
| 22-0452424-15.5 | 15.5 |
| 22-0452424-16.5 | 16.5 |
| 22-0452424-17.5 | 17.5 |
| 22-0452424-18.5 | 18.5 |
| 22-0452424-19.5 | 19.5 |
| 22-0452424-20.5 | 20.5 |
| 22-0452424-21.5 | 21.5 |
| 22-0452424-22.5 | 22.5 |

表A.2（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 型号 | 基本尺寸 | | | | 参考角度 | | 参考尺寸 | | | |
| D | h | h | 2α° | | 2γ° | h | h1 | R | e |
| 22-0452424-23.5 | 45 | 24 | 23.5 | 24 | | 60 | 3.0 | 4.5 | 5.0 | 1.2 |
| 22-0603024-24.5 | 60 | 30 | 24.5 | 3.5 | 5.0 | 6.0 | 1.5 |
| 22-0603024-25.5 | 25.5 |
| 22-0603024-26.5 | 26.5 |
| 22-0603024-27.5 | 27.5 |
| 22-0603024-28.5 | 28.5 |
| 22-0603024-29.5 | 29.5 |
| 22-0603024-30.5 | 30.5 |
| 22-0603024-31.5 | 31.5 |
| 22-0603024-32.5 | 32.5 |
| 22-0603024-33.5 | 33.5 |
| 22-0803524-34.5 | 80 | 35 | 34.5 | 6.5 | 10.0 |
| 22-0803524-35.5 | 35.5 |
| 22-0803524-36.5 | 36.5 |
| 22-0803524-37.5 | 37.5 |
| 22-0803524-38.5 | 38.5 |
| 22-0803524-39.5 | 39.5 |
| 22-0803524-40.0 | 40.0 |
| 22-0803524-41.5 | 41.5 |
| 22-0803524-42.0 | 42.0 |
| 22-0803524-43.5 | 43.5 |
| 22-0803524-44.5 | 44.5 |
| 22-0803524-45.5 | 45.5 |
| 22-0803524-46.5 | 46.5 |
| 22-0803524-47.0 | 47.0 |
| 22-0904024-49.0 | 90 | 40 | 49.0 | 6.5 | 10.0 |
| 22-0904024-50.0 | 50.0 |
| 22-0904024-51.0 | 51.0 |
| 22-0904024-52.0 | 52.0 |
| 22-0904024-53.0 | 53.0 |
| 22-0904024-54.0 | 54.0 |
| 22-1004024-55.0 | 100 | 40 | 55.0 |
| 22-1004024-56.0 | 56.0 |
| 22-1004024-57.0 | 57.0 |
| 22-1204524-59.0 | 120 | 45 | 59.0 |
| 22-1204524-60.0 | 60.0 |
| 22-1204524-61.0 | 61.0 |
| 22-1204524-62.0 | 62.0 |
| 22-1204524-63.0 | 63.0 |
| 22-1204524-64.0 | 64.0 |
| 22-1204524-65.0 | 65.0 | 2.0 |
| 22-1204524-66.0 | 66.0 |
| 22-1204524-67.0 | 67.0 |

表A.2（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | | 参考角度 | | 参考尺寸 | | | |
| D | h | h | 2α° | | 2β° | H | d | R | D |
| 22-1305024-69.0 | 130 | 50 | 69.0 | 24º | | 60º | 6.5 | 5.0 | 10.0 | 2.0 |
| 22-1305024-70.0 | 70.0 |
| 22-1305024-71.0 | 71.0 |
| 22-1305024-72.0 | 72.0 |
| 22-1305024-73.0 | 73.0 |
| 22-1305024-74.0 | 74.0 |
| 22-1305024-75.0 | 75.0 |
| 22-1305024-76.0 | 76.0 |
| 22-1305024-77.0 | 77.0 |
| 22-1405024-79.0 | 140 | 79.0 |
| 22-1405024-80.0 | 80.0 |
| 22-1405024-81.0 | 81.0 |
| 22-1405024-82.0 | 82.0 |
| 22-1405024-83.0 | 83.0 |
| 22-1405024-84.0 | 84.0 |
| 22-1405024-85.0 | 85.0 |
| 22-1405024-86.0 | 86.0 |
| 22-1405024-87.0 | 87.0 |
| 22-1405024-88.0 | 88.0 |

A.3 40型 金属正方形型材拉伸模坯

40型金属正方形型材拉伸模坯尺寸见表A.3，如图A.3所示。



图A.3

表A.3 40型金属正方形型材拉伸模坯尺寸

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | | | 参考尺寸 | | | | |
| D | H | a | | 2α° | 2β° | 2γ° | h | h1 | h2 | R | e |
| 40-0161214-1.8 | 16 | 12 | 1.8 | | 14º | 40º | 60º | 1.0 | 1.5 | 5.0 | 1.5 | 1.0 |
| 40-0161214-2.4 | 2.4 | |
| 40-0221814-2.8 | 22 | 18 | 2.8 | | 1.5 | 2.0 | 7.0 | 2.0 | 1.2 |
| 40-0221814-3.2 | 3.2 | |
| 40-0221814-3.6 | 3.6 | |
| 40-0221814-4.0 | 4.0 | |
| 40-0302114-4.6 | 30 | 21 | 4.6 | | 2.0 | 11.0 | 3.0 | 1.5 |
| 40-0302114-5.0 | 5.0 | |
| 40-0302114-5.7 | 5.7 | |
| 40-0302114-6.7 | 6.7 | |
| 40-0352514-7.7 | 35 | 25 | 7.7 | | 3.0 | 3.0 | 13.0 |
| 40-0352514-8.7 | 8.7 | |
| 40-0352514-9.7 | 9.7 | |
| 40-0452514-10.7 | 45 | 10.7 | | 3.5 | 4.0 |
| 40-0452514-11.7 | 11.7 | |
| 40-0452514-12.7 | 12.7 | |
| 40-0452514-13.7 | 13.7 | |
| 40-0452514-14.7 | 14.7 | |
| 40-0502814-15.7 | 50 | 28 | 15.7 | | 4.0 | 14.0 |
| 40-0502814-16.7 | 16.7 | |
| 40-0502814-17.7 | 17.7 | |
| 40-0502814-18.7 | 18.7 | |
| 40-0603016-19.7 | 60 | 30 | 19.7 | | 16º | 5.0 | 4.0 |
| 40-0603016-20.7 | 20.7 | |
| 40-0603016-21.7 | 21.7 | |
| 40-0603016-22.7 | 22.7 | |
| 40-0603016-23.7 | 23.7 | |
| 40-0653216-24.7 | 65 | 32 | 24.7 | | 6.0 | 5.0 | 14.0 | 5.0 |
| 40-0653216-25.5 | 25.5 | |
| 40-0653216-26.5 | 26.5 | |
| 40-0653216-27.5 | 27.5 | |
| 40-0703516-28.5 | 70 | 35 | 28.5 | | 8.0 | 6.0 | 16.0 |
| 40-0703516-29.5 | 29.5 | |
| 40-0703516-30.5 | 35 | 30.5 | |
| 40-0703516-31.5 | 31.5 | |
| 40-0803516-32.5 | 80 | 32.5 | | 2.0 |
| 40-0803516-33.5 | 33.5 | |

表A.3（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | | 参考尺寸 | | | | |
| D | H | a | 2α° | 2β° | 2γ° | h | h1 | h2 | R | e |
| 40-0803516-34.5 | 80 | 35 | 34.5 | 16º | 40º | 60º | 8.0 | 6.0 | 16.0 | 5.0 | 2.0 |
| 40-0803516-35.5 | 35.5 |
| 40-0803516-36.5 | 36.5 |
| 40-0803516-37.5 | 37.5 |
| 40-0904020-38.5 | 90 | 40 | 38.5 | 20º | 6.0 |
| 40-0904020-39.5 | 39.5 |
| 40-0904020-40.5 | 40.5 |
| 40-0904020-41.5 | 41.5 |
| 40-1004020-42.5 | 100 | 42.5 |
| 40-1004020-44.5 | 44.5 |
| 40-1004020-47.5 | 47.5 |
| 40-1204520-49.5 | 120 | 45 | 49.5 |
| 40-1204520-51.5 | 51.5 |
| 40-1204520-53.5 | 53.5 |

A.4 42型 金属带材拉伸模坯

42型金属带材拉伸模坯尺寸见表A.4，如图A.4所示。



图A.4

表A.4 42型金属带材拉伸模坯尺寸

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | | 角度 | | | 参考尺寸 | | | | | |
| D | H | a | b | D | H | a | h | D | H | a | r | D |
| 42-0201218-1.9×1.0 | 20 | 12 | 1.9 | 1.0 | 18º | 60º | 60º | 2.0 | 2.0 | 4.0 | 3.0 | 0.5 | 1.0 |
| 42-0201218-1.9×1.4 | 1.9 | 1.4 | 0.6 |
| 42-0201218-2.4×1.0 | 2.4 | 1.0 | 0.5 |
| 42-0201218-2.4×1.4 | 2.4 | 1.4 | 0.6 |
| 42-0201218-3.1×1.0 | 3.1 | 1.0 | 0.5 |
| 42-0201218-3.1×1.4 | 3.1 | 1.4 | 0.6 |
| 42-0201218-3.1×1.9 | 3.1 | 1.9 |
| 42-0251518-3.9×1.0 | 25 | 15 | 3.9 | 1.0 | 18º | 60º | 60º | 2.5 | 2.5 | 5.0 | 0.5 | 1.2 |
| 42-0251518-3.9×1.5 | 1.5 | 0.6 |
| 42-0251518-3.9×1.9 | 1.9 |
| 42-0251518-3.9×2.4 | 2.4 | 0.8 |
| 42-0251518-4.5×1.1 | 4.5 | 1.1 | 0.5 |
| 42-0251518-4.5×1.5 | 1.5 | 0.6 |
| 42-0251518-4.5×1.9 | 1.9 |
| 42-0251518-4.5×2.4 | 2.4 | 0.8 |
| 42-0251518-4.5×2.8 | 2.8 |
| 42-0251518-5.3×1.1 | 5.3 | 1.1 | 0.5 |
| 42-0251518-5.3×1.5 | 5.3 | 1.5 | 0.6 | 1.2 |
| 42-0251518-5.3×1.9 | 1.9 |
| 42-0251518-5.3×2.3 | 2.3 | 0.8 |
| 42-0251518-5.3×3.1 | 3.1 |
| 42-0251518-5.3×3.9 | 3.9 | 1.0 |
| 42-0251518-6.2×1.1 | 6.2 | 1.1 | 0.5 | 1.2 |
| 42-0251518-6.2×1.5 | 1.5 | 0.6 |
| 42-0251518-6.2×1.9 | 1.9 |
| 42-0251518-6.2×2.4 | 2.4 | 0.8 |
| 42-0251518-6.2×3.1 | 3.1 |
| 42-0251518-6.2×3.9 | 25 | 15 | 6.2 | 3.9 | 18º | 60º | 60º | 2.5 | 2.5 | 5.0 | 0.8 | 1.2 |
| 42-0351818-7.2×1.1 | 35 | 18 | 7.2 | 1.1 | 6.0 | 4.0 |
| 42-0351818-7.2×1.5 | 1.5 | 0.6 |
| 42-0351818-7.2×1.9 | 1.9 |
| 42-0351818-7.2×2.4 | 2.4 | 0.8 |
| 42-0351818-7.2×3.1 | 3.1 |
| 42-0351818-7.2×3.9 | 3.9 | 1.0 |
| 42-0351818-7.2×4.9 | 4.9 |
| 42-0351818-8.4×1.2 | 8.4 | 1.2 | 0.5 |

表A.4（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | | 角度 | | | 参考尺寸 | | | | | |
| D | H | a | b | 2α° | 2β° | 2γ° | h | h1 | h2 | R | r | e |
| 42-0351818-8.4×1.5 | 35 | 18 | 8.4 | 1.5 | 18º | 60º | 60º | 2.5 | 2.5 | 6.0 | 4.0 | 0.6 | 1.2 |
| 42-0351818-8.4×1.9 | 1.9 |
| 42-0351818-8.4×2.4 | 2.4 | 0.8 |
| 42-0351818-8.4×3.1 | 3.1 |
| 42-0351818-8.4×3.9 | 3.9 | 1.0 |
| 42-0351818-8.4×4.9 | 4.9 |
| 42-0351818-9.1×1.0 | 9.1 | 1.0 | 0.5 |
| 42-0351818-9.1×1.7 | 1.7 | 0.6 |
| 42-0351818-9.1×2.0 | 2.0 |
| 42-0351818-9.1×2.4 | 2.4 | 0.8 |
| 42-0351818-9.1×3.0 | 3.0 |
| 42-0351818-9.1×3.8 | 3.8 | 1.0 |
| 42-0351818-9.1×4.9 | 4.9 |
| 42-0351818-9.8×1.2 | 9.8 | 1.2 | 0.5 |
| 42-0351818-9.8×1.8 | 1.8 | 0.6 |
| 42-0351818-9.8×2.3 | 2.3 | 0.8 |
| 42-0351818-9.8×3.1 | 3.1 |
| 42-0351818-9.8×4.9 | 4.9 | 1.0 |
| 42-0351818-9.8×6.3 | 6.3 | 1.2 |
| 42-0351818-10.8×1.0 | 10.8 | 1.0 | 0.5 |
| 42-0351818-10.8×1.5 | 1.5 | 0.6 |
| 42-0351818-10.8×1.9 | 1.9 |
| 42-0351818-10.8×2.4 | 2.4 | 0.8 |
| 42-0351818-10.8×2.9 | 2.9 |
| 42-0351818-10.8×3.8 | 3.8 | 1.0 |
| 42-0351818-11.4×1.1 | 11.4 | 1.1 | 0.5 |
| 42-0351818-11.4×1.5 | 1.5 | 0.6 |
| 42-0351818-11.4×1.9 | 1.9 |
| 42-0351818-11.4×2.4 | 2.4 | 0.8 |
| 42-0351818-11.4×3.1 | 3.1 |
| 42-0351818-11.4×3.9 | 3.9 | 1.0 |
| 42-0351818-11.4×4.9 | 4.9 |
| 42-0351818-11.4×6.3 | 6.3 | 1.2 |
| 42-0452018-12.8×1.4 | 45 | 20 | 12.8 | 1.4 | 3.0 | 3.0 | 0.6 | 1.5 |
| 42-0452018-12.8×1.9 | 1.9 |
| 42-0452018-12.8×2.6 | 2.6 | 0.8 |
| 42-0452018-12.8×3.4 | 3.4 |

表A.4（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | | 角度 | | | 参考尺寸 | | | | | |
| D | H | a | b | 2α° | 2β° | 2γ° | h | h1 | h2 | R | r | e |
| 42-0452018-12.8×4.1 | 45 | 20 | 12.8 | 4.1 | 18º | 60º | 60º | 3.0 | 3.0 | 6.0 | 4.0 | 1.0 | 1.5 |
| 42-0452018-12.8×4.9 | 4.9 |
| 42-0452018-12.8×5.9 | 5.9 |
| 42-0452018-14.6×1.6 | 14.6 | 1.6 | 0.6 |
| 42-0452018-14.6×2.1 | 2.1 |
| 42-0452018-14.6×2.8 | 2.8 | 0.8 |
| 42-0452018-14.6×3.4 | 3.4 | 0.8 |
| 42-0452018-14.6×4.1 | 4.1 | 1.0 |
| 42-0452018-14.6×4.9 | 4.9 |
| 42-0452018-14.6×5.9 | 5.9 |
| 42-0452018-14.6×3.4 | 3.4 | 0.8 |
| 42-0452018-14.6×4.1 | 4.1 | 1.0 |
| 42-0452018-14.6×4.9 | 4.9 |
| 42-0452018-14.6×5.9 | 5.9 |
| 42-0502018-16.5×1.9 | 50 | 20 | 16.5 | 1.9 | 18º | 60º | 60º | 3.0 | 3.0 | 6.0 | 4.0 | 0.6 | 1.5 |
| 42-0502018-16.5×2.4 | 2.4 | 0.8 |
| 42-0502018-16.5×3.1 | 3.1 |
| 42-0502018-16.5×3.9 | 3.9 | 1.0 |
| 42-0502018-16.5×4.9 | 4.9 |
| 42-0502018-16.5×6.3 | 6.3 | 1.2 |
| 42-0502018-17.6×1.0 | 17.6 | 1.0 | 0.5 |
| 42-0502018-17.6×1.5 | 1.5 | 0.6 |
| 42-0502018-17.6×2.1 | 2.1 |
| 42-0502018-17.6×2.8 | 2.8 | 0.8 |
| 42-0502018-17.6×3.4 | 3.4 |
| 42-0502018-17.6×4.1 | 4.1 | 1.0 |
| 42-0502018-17.6×4.9 | 4.9 |
| 42-0502018-17.6×5.9 | 5.9 |
| 42-0502018-19.2×1.0 | 19.2 | 1.0 | 0.5 |
| 42-0502018-19.2×1.5 | 1.5 | 0.6 |
| 42-0502018-19.2×2.0 | 2.0 |
| 42-0502018-19.2×2.8 | 2.8 | 0.8 |
| 42-0502018-19.2×3.9 | 3.9 | 1.0 |
| 42-0502018-19.2×4.9 | 4.9 |
| 42-0502018-19.2×5.9 | 5.9 |
| 42-0502018-20.8×2.1 | 20.8 | 2.1 | 5.0 | 0.6 |
| 42-0502018-20.8×2.8 | 2.8 | 0.8 |

表A.4（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 42-0502018-20.8×3.4 |  |  |  | 3.4 |  |  |  |  |  |  |  | 0.8 |  |
| 42-0502018-20.8×4.1 | 4.1 | 1.0 |
| 42-0502018-20.8×4.9 | 4.9 |
| 42-0502018-20.8×5.9 | 5.9 |
| 42-0502018-23.2×1.0 | 23.2 | 1.0 | 0.5 |
| 42-0502018-23.2×1.4 | 1.4 | 0.6 |
| 42-0502018-23.2×1.9 | 1.9 |
| 42-0502018-23.2×2.4 | 2.4 | 0.8 |
| 42-0502018-23.2×3.0 | 3.0 |
| 42-0502018-23.2×3.8 | 3.8 | 1.0 |
| 42-0502018-23.2×4.9 | 4.9 |
| 42-0502018-23.2×5.9 | 5.9 |
| 42-0602018-24.5×1.0 | 60 | 24.5 | 1.0 | 0.5 |
| 42-0602018-24.5×1.4 | 1.4 | 0.6 |
| 42-0602018-24.5×2.6 | 2.6 | 0.8 |
| 42-0602018-24.5×3.3 | 3.3 |
| 42-0602018-24.5×3.8 | 3.8 | 1.0 |
| 42-0602018-27.0×1.4 | 27.0 | 1.4 | 0.6 |
| 42-0602018-27.0×1.9 | 1.9 |
| 42-0602018-27.0×2.4 | 2.4 | 0.8 |
| 42-0602018-27.0×3.0 | 3.0 |
| 42-0602018-31.0×1.5 | 20 | 31.0 | 1.5 | 3.0 | 5.0 | 0.6 |
| 42-0602018-31.0×3.0 | 3.0 | 0.8 |
| 42-0602018-31.0×3.8 | 3.8 | 1.0 |

A.5 60型 金属六方形型材拉伸模坯

60型金属六方形型材拉伸模坯尺寸见表A.5，如图A.5所示。



图A.5

表A.5 60型金属六方形型材拉伸模坯尺寸

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 角度 | | | 参考尺寸 | | | | |
| D | H | s | 2α° | 2β° | 2γ° | h | h1 | h2 | R | e |
| 60-0302114-2.5 | 30 | 21 | 2.5 | 14º | 40º | 60º | 1.5 | 2.0 | 10.0 | 3.0 | 1.2 |
| 60-0302114-3.0 | 3.0 |
| 60-0302114-4.0 | 4.0 |
| 60-0302114-4.7 | 4.7 | 2.0 | 10.5 |
| 60-0302114-5.7 | 5.7 |
| 60-0302114-6.7 | 6.7 |
| 60-0302114-7.7 | 7.7 |
| 60-0352114-8.6 | 35 | 8.6 | 3.0 | 3.0 | 11.0 |
| 60-0352114-9.6 | 9.6 |
| 60-0352114-10.6 | 10.6 |
| 60-0402514-11.5 | 40 | 25 | 11.5 | 3.5 | 12.5 | 4.0 | 1.5 |
| 60-0402514-12.5 | 12.5 |
| 60-0452514-13.5 | 45 | 25 | 13.5 | 4.0 | 3.0 | 13.0 | 4.0 |
| 60-0452514-14.5 | 14.5 |
| 60-0452514-15.5 | 15.5 |
| 60-0452514-16.5 | 16.5 |
| 60-0452514-17.5 | 17.5 |
| 60-0452514-18.5 | 18.5 |
| 60-0552814-19.5 | 55 | 28 | 19.5 | 5.0 | 4.0 | 14 | 5.0 |
| 60-0552814-20.5 | 20.5 |
| 60-0552814-21.5 | 21.5 |
| 60-0552814-22.5 | 22.5 |
| 60-0552814-23.5 | 23.5 |
| 60-0653016-24.5 | 65 | 30 | 24.5 | 16º | 6.0 | 4.5 |
| 60-0653016-25.5 | 25.5 |
| 60-0653016-26.5 | 26.5 |
| 60-0653016-27.5 | 27.5 |
| 60-0653016-28.5 | 28.5 |
| 60-0753516-29.5 | 75 | 35 | 29.5 | 7.0 | 5.0 | 15.0 | 6.0 | 1.5 |
| 60-0753516-30.5 | 30.5 |
| 60-0753516-31.3 | 31.3 |
| 60-0753516-32.3 | 32.3 |
| 60-0753516-33.3 | 33.3 |
| 60-0753516-34.3 | 34.3 |
| 60-0753516-35.3 | 35.3 |
| 60-0753516-36.3 | 36.3 |

表A.5（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 角度 | | | 参考尺寸 | | | | |
| D | H | s | 2α° | 2β° | 2γ° | h | h1 | h2 | R | e |
| 60-0753516-37.3 | 75 | 35 | 37.3 | 16º | 40º | 60º | 7.0 | 5.0 | 15.0 | 6.0 | 1.5 |
| 60-0903516-38.3 | 90 | 38.3 | 2.0 |
| 60-0903516-39.3 | 39.3 |
| 60-0903516-41.0 | 41.0 |
| 60-0903516-42.0 | 42.0 |
| 60-0903516-44.0 | 44.0 |
| 60-0903516-47.0 | 47.0 |
| 60-0903516-49.0 | 49.0 |
| 60-1004016-52.0 | 100 | 40 | 52.0 | 8.0 | 6.0 |
| 60-1004016-54.0 | 54.0 |
| 60-1004016-57.5 | 57.5 |
| 60-1204216-59.5 | 120 | 42 | 59.5 |
| 60-1204216-61.5 | 61.5 |
| 60-1204216-64.5 | 64.5 |
| 60-1204216-67.5 | 67.5 |
| 60-1204216-70.5 | 70.5 |
| 60-1204216-74.5 | 74.5 |

A.6 S11型 金属线材、棒材拉伸模坯

S11型金属线材、棒材拉伸模坯尺寸见表A.6，如图A.6所示。



图A.6

表A.6 S11型金属线材、棒材拉伸模坯尺寸

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | | 参考尺寸 | | | | |
| D | H | d | 2α° | 2β° | 2γ° | h | h1 | h2 | R | e |
| S11-0080612-0.30 | 8 | 6 | 0.30 | 12 | 40º | 60º | 0.3 | 1.0 | 1.2 | 2.0 | 0.5 |
| S11-0080612-0.40 | 0.40 | 12º | 0.3 |
| S11-0080612-0.60 | 0.60 | 12º | 0.4 | 1.4 |
| S11-0080610-0.60 | 0.60 | 10º | 0.3 |
| S11-0080612-0.80 | 0.80 | 12º | 0.6 | 1.8 |
| S11-0080610-0.80 | 0.80 | 10º | 0.4 |
| S11-0080612-1.0 | 1.0 | 12º | 0.6 | 1.8 |
| S11-0080610-1.0 | 1.0 | 10º | 0.5 | 2.0 |
| S11-0131014-0.40 | 13 | 10 | 0.40 | 14º | 0.3 | 1.2 | 4.0 | 1.0 |
| S11-0131010-0.40 | 0.40 | 10º | 0.2 |
| S11-0131014-0.60 | 0.60 | 14º | 0.4 |
| S11-0131010-0.60 | 0.60 | 10º | 0.3 | 2.2 |
| S11-0131014-0.80 | 0.80 | 14º | 0.6 | 2.5 |
| S11-0131010-0.80 | 0.80 | 10º | 0.4 |
| S11-0131014-1.0 | 1.0 | 14º | 0.6 | 3.0 |
| S11-0131010-1.0 | 1.0 | 10º | 0.5 |
| S11-0131016-1.3 | 1.3 | 16º | 1.0 |
| S11-0131010-1.3 | 1.3 | 10º | 0.6 |
| S11-0131016-1.6 | 1.6 | 16º | 1.0 | 3.5 |
| S11-0131010-1.6 | 1.6 | 10º | 0.8 | 3.0 |
| S11-0131016-1.8 | 1.8 | 16º | 1.2 | 3.5 |
| S11-0131010-1.8 | 1.8 | 10º | 0.9 | 4.0 |
| S11-0131016-2.0 | 2.0 | 16º | 1.2 | 3.5 |
| S11-0131010-2.0 | 2.0 | 10º | 1.0 | 4.0 |
| S11-0131016-2.2 | 2.2 | 16º | 1.2 | 3.5 |
| S11-0131010-2.2 | 2.2 | 10º | 1.1 | 4.0 |
| S11-0131016-2.3 | 2.3 | 16º | 1.4 | 3.5 |
| S11-0131010-2.3 | 2.3 | 10º | 1.1 | 4.0 |
| S11-0131016-2.5 | 2.5 | 16º | 1.1 | 3.5 |
| S11-0131010-2.5 | 2.5 | 10º | 4.0 |
| S11-0131016-2.6 | 2.6 | 16º | 2.0 | 3.5 | 3.0 |
| S11-0161316-0.40 | 16 | 13 | 0.40 | 16º | 45º | 0.2 | 1.5 | 4.0 | 5.0 |
| S11-0161310-0.40 | 0.40 | 10º | 44º | 2.0 | 4.0 |
| S11-0161316-0.60 | 0.60 | 16º | 45º | 0.3 | 4.0 | 5.0 |
| S11-0161310-0.60 | 0.60 | 10º | 44º | 2.2 | 4.0 |
| S11-0161316-0.80 | 0.80 | 16º | 45º | 0.4 | 4.0 | 5.0 |
| S11-0161310-0.80 | 0.80 | 10º | 44º | 2.2 | 4.0 |

表A.6（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | | 参考尺寸 | | | | |
| D | H | d | 2α° | 2β° | 2γ° | h | h1 | h2 | R | e |
| S11-0161316-1.0 | 16 | 13 | 1.0 | 16º | 45º | 60º | 0.5 | 1.5 | 4.0 | 5.0 | 1.0 |
| S11-0161310-1.0 | 1.0 | 10º | 44º | 2.5 | 4.0 |
| S11-0161316-1.2 | 1.2 | 16º | 45º | 0.6 | 4.0 | 5.0 |
| S11-0161312-1.2 | 1.2 | 12º | 44º | 2.8 | 4.0 |
| S11-0161316-1.3 | 1.3 | 16º | 45º | 4.0 | 5.0 |
| S11-0161312-1.3 | 1.3 | 12º | 44º | 3.0 | 4.0 |
| S11-0161316-1.6 | 1.6 | 16º | 45º | 0.8 | 4.0 | 5.0 |
| S11-0161312-1.6 | 1.6 | 12º | 44º | 3.6 | 4.0 |
| S11-0161316-1.8 | 1.8 | 16º | 45º | 0.9 | 4.0 | 5.0 |
| S11-0161312-1.8 | 1.8 | 12º | 44º |  | 4.0 |
| S11-0161316-2.0 | 2.0 | 16º | 45º | 1.0 | 4.0 | 5.0 |
| S11-0161312-2.0 | 2.0 | 12º | 44º | 4.2 | 4.0 |
| S11-0161316-2.3 | 2.3 | 16º | 45º | 4.0 | 5.0 |
| S11-0161312-2.3 | 2.3 | 12º | 44º | 4.5 | 4.0 |
| S11-0161316-2.6 | 2.6 | 16º | 45º | 1.3 | 4.0 | 5.0 |
| S11-0161312-2.6 | 2.6 | 12º | 44º | 4.8 | 4.0 |
| S11-0161316-2.8 | 2.8 | 16º | 45º | 1.4 | 4.0 | 5.0 |
| S11-0161312-2.8 | 2.8 | 12º | 44º | 5.0 | 4.0 |
| S11-0161316-3.0 | 3.0 | 16º | 45º | 4.0 | 5.0 |
| S11-0161312-3.0 | 3.0 | 12º | 44º | 5.0 | 4.0 |
| S11-0161312-3.2 | 3.2 | 12º | 45º | 4.0 |
| S11-0161312-3.5 | 3.5 | 12º | 44º | 5.0 |
| S11-0201718-1.6 | 20 | 17 | 1.6 | 18º | 40º | 2.3 | 2.5 | 6.0 | 3.0 | 1.2 |
| S11-0201718-1.8 | 1.8 | 6.0 |
| S11-0201718-2.0 | 2.0 |
| S11-0201718-2.2 | 2.2 | 6.5 | 4.0 |
| S11-0201718-2.3 | 2.3 | 7.0 | 5.0 |
| S11-0201718-2.5 | 2.5 |
| S11-0201718-2.7 | 2.7 |
| S11-0201718-2.8 | 2.8 |
| S11-0201718-3.0 | 3.0 |
| S11-0201718-3.3 | 3.3 |
| S11-0201718-3.5 | 3.5 |
| S11-0201718-3.8 | 3.8 |
| S11-0201718-4.0 | 4.0 |
| S11-0201718-4.2 | 4.2 |
| S11-0201718-4.4 | 4.4 |

表A.6（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | | 参考尺寸 | | | | |
| D | H | d | 2α° | 2β° | 2γ° | h | h1 | h2 | R | e |
| S11-0201718-4.7 | 20 | 17 | 4.7 | 18º | 40º | 60º | 2.6 | 2.5 | 7.0 | 5.0 | 1.2 |
| S11-0201718-5.0 | 5.0 |
| S11-0201718-5.2 | 5.2 |
| S11-0211718-5.2 | 21 | 5.2 | 3.0 |
| S11-0211718-5.7 | 5.7 |
| S11-0221818-1.8 | 22 | 18 | 1.8 | 18º | 40º | 60º | 1.2 | 2.5 | 6.0 | 5.0 | 1.2 |
| S11-0221814-1.8 | 1.8 | 14º | 0.9 |
| S11-0221818-2.0 | 2.0 | 18º | 1.4 | 5.0 |
| S11-0221814-2.0 | 2.0 | 14º | 1.0 | 6.0 |
| S11-0221814-2.2 | 2.2 | 1.1 |
| S11-0221818-2.2 | 2.2 | 18º | 1.4 |
| S11-0221818-2.3 | 2.3 | 18º | 1.4 |
| S11-0221814-2.3 | 2.3 | 14º | 1.1 |
| S11-0221818-2.5 | 2.5 | 18º | 1.4 | 5.0 |
| S11-0221814-2.5 | 2.5 | 14º | 1.2 | 6.5 |
| S11-0221818-2.8 | 2.8 | 18º | 1.4 | 6.0 |
| S11-0221814-2.8 | 2.8 | 14º | 7.0 |
| S11-0221818-3.0 | 3.0 | 18º | 5.0 |
| S11-0221818-3.1 | 3.1 | 1.6 | 6.0 |
| S11-0221814-3.1 | 3.1 | 14º | 1.5 | 7.0 |
| S11-0221818-3.3 | 3.3 | 18º | 1.6 | 6.0 |
| S11-0221814-3.3 | 3.3 | 14º | 1.6 | 7.0 |
| S11-0221818-3.5 | 3.5 | 18º | 1.6 | 7.0 |
| S11-0221814-3.5 | 22 | 18 | 3.5 | 14º | 1.7 | 7.0 |
| S11-0221818-3.8 | 3.8 | 18º | 1.6 | 6.0 |
| S11-0221814-3.8 | 3.8 | 14º | 1.8 | 7.0 |
| S11-0221818-4.0 | 4.0 | 18º | 1.6 |
| S11-0221814-4.0 | 4.0 | 14º | 2.0 |
| S11-0221818-4.2 | 4.2 | 18º | 1.8 | 6.0 |
| S11-0221814-4.2 | 4.2 | 14º | 2.1 | 7.0 |
| S11-0221818-4.4 | 4.4 | 18º | 1.8 |
| S11-0221818-4.5 | 4.5 | 18º | 1.8 |
| S11-0221814-4.5 | 4.5 | 14º | 2.2 |
| S11-0221818-4.7 | 4.7 | 18º | 1.8 | 6.0 |
| S11-0221814-4.7 | 4.7 | 14º | 2.4 | 7.0 |
| S11-0221818-5.0 | 5.0 | 18º | 2.6 |
| S11-0221814-5.0 | 5.0 | 14º | 2.4 |

表A.6（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | | 参考尺寸 | | | | |
| D | H | d | 2α° | 2β° | 2γ° | h | h1 | h2 | R | e |
| S11-0221818-5.2 |  |  | 5.2 | 18º |  |  | 2.0 |  | 6.0 |  |  |
| S11-0222014-5.2 | 20 | 5.2 | 14º | 2.6 | 7.0 |
| S11-0221818-5.4 | 18 | 5.4 | 18º | 2.0 |
| S11-0222014-5.5 | 20 | 5.5 | 14º | 2.7 | 7.5 |
| S11-0221818-5.7 | 18 | 5.7 | 18º | 2.0 | 6.0 |
| S11-0221818-6.0 | 18 | 6.0 | 18º | 3.0 |  | 4.0 |

* + 1. A.7 S13型 金属棒材拉伸模坯

S13型金属棒材拉伸模坯尺寸见表A.7，如图A.7所示。



图A.7

表A.7 S13型金属棒材拉伸模坯尺寸

单位为毫米

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 型号 | 基本尺寸 | | | 参考角度 | | 参考尺寸 | | | |
| D | H | d | 2αº | 2γº | h | h1 | R | e |
| S13-0302119-5.7 | 30 | 21 | 5.7 | 19° | 60° | 2.5 | 3 | 7 | 1.2 |
| S13-0302119-6.7 | 6.7 |
| S13-0302119-7.7 | 7.7 | 3.5 |
| S13-0302119-8.6 | 8.6 | 4 |
| S13-0302119-9.6 | 9.6 |
| S13-0402519-10.5 | 40 | 25 | 10.5 | 4 | 1.5 |
| S13-0402519-11.5 | 11.5 |

表A.7（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 型号 | 基本尺寸 | | | 参考角度 | | 参考尺寸 | | | |
| D | H | d | 2αº | 2γº | h | h1 | R | e |
| S13-0402519-12.5 | 40 | 25 | 12.5 | 19° | 60° | 4 | 4 | 7 | 1.5 |
| S13-0402519-13.5 | 13.5 | 4.5 |
| S13-0402519-14.5 | 14.5 |
| S13-0402519-15.5 | 15.5 |
| S13-0502819-16.5 | 50 | 28 | 16.5 | 5.5 | 5 |
| S13-0502819-17.5 | 17.5 |
| S13-0502819-18.5 | 18.5 |
| S13-0502819-19.5 | 19.5 |
| S13-0502819-20.5 | 20.5 | 6 |
| S13-0502819-21.5 | 21.5 |
| S13-0502819-22.5 | 22.5 |
| S13-0502819-23.5 | 23.5 |
| S13-0502819-24.5 | 24.5 | 5.5 |
| S13-0653519-29.5 | 65 | 35 | 29.5 | 8 |
| S13-0653519-30.5 | 30.5 |
| S13-0653519-31.5 | 31.5 |
| S13-0653519-32.5 | 32.5 |
| S13-0653519-33.5 | 33.5 |
| S13-0753520-34.5 | 75 | 34.5 | 20° | 7 |
| S13-0753520-35.5 | 35.5 |
| S13-0753520-36.5 | 36.5 |
| S13-0753520-37.5 | 37.5 |
| S13-0753520-38.5 | 38.5 |
| S13-0753520-39.5 | 39.5 |
| S13-0753520-40.5 | 40.5 |
| S13-0803520-41.5 | 80 | 35 | 41.5 | 20° | 60° | 8.5 | 5.5 | 8 | 1.5 |
| S13-0803520-42.5 | 42.5 |
| S13-0803520-43.5 | 43.5 |
| S13-0803520-44.5 | 44.5 | 6 |
| S13-0803520-45.0 | 85 | 45 |
| S13-0853520-41.5 | 41.5 |
| S13-0853520-42.5 | 42.5 |
| S13-0853520-43.5 | 43.5 |
| S13-0853520-44.5 | 44.5 |
| S13-0853520-45.0 | 45 |
| S13-0903520-45.0 | 90 | 45 | 2 |
| S13-0903520-46.0 | 46 |

表A.7（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 型号 | 基本尺寸 | | | 参考角度 | | 参考尺寸 | | | |
| D | H | d | 2αº | 2γº | h | h1 | R | e |
| S13-0903520-47.0 | 90 | 35 | 47 | 20° | 60° | 8.5 | 6 | 8 | 1.5 |
| S13-0903520-48.0 | 48 |
| S13-0903520-49.0 | 49 |
| S13-0903520-50.0 | 50 |
| S13-0903520-51.0 | 51 |
| S13-0903520-52.0 | 52 | 2 |
| S13-0903520-54.0 | 54 |
| S13-0903520-56.0 | 56 |
| S13-0903520-58.0 | 58 |
| S13-0953520-54.0 | 95 | 54 |
| S13-0953520-55.0 | 55 |
| S13-0953520-56.0 | 56 |
| S13-0953520-57.0 | 57 |
| S13-1003520-51.0 | 100 | 51 |
| S13-1003520-52.0 | 52 |
| S13-1003520-53.0 | 53 |

A.8 A型 金属线材、棒材拉伸模坯

A型金属线材、棒材拉伸模坯尺寸见表A.8，如图A.8所示



图A.8

表A.8 A型金属线材、棒材拉伸模坯尺寸

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | | | 参考尺寸 | | | | | |
| D | H | d | | 2α | 2β | 2γ | h | h1 | h2 | R | e | εº |
| A-0100812-0.40 | 10 | 8 | 0.40 | | 12º | 90º | 90º | ≤0.1 | 1.6 | 3.7 | 5.0 | 1.0 | 45º |
| A-0100812-0.60 | 0.6 | | 0.5 | 3.5 | 0.5 |
| A-0100812-0.80 | 0.8 | | 0.6 |
| A-0100812-1.0 | 1.0 | |
| A-0121012-0.40 | 12 | 10 | 0.4 | | 12º | 0.4 | 2.0 | 5.0 | 2.0 | 1.0 |
| A-0121012-0.60 | 0.6 | | 0.5 |
| A-0121012-0.80 | 0.8 | | 0.6 |
| A-0121012-1.0 | 1.0 | | 0.7 | 1.8 | 4.8 |
| A-0121012-1.2 | 1.2 | | 0.8 |
| A-0121012-1.4 | 1.4 | | 1.0 |
| A-0121012-1.6 | 1.6 | | 1.1 |
| A-0121012-1.8 | 1.8 | | 1.2 |
| A-0141212-0.40 | 14 | 12 | 0.4 | | 60º | 75º | 0.4 | 2.0 | 5.0 | 2.5 |
| A-0141212-0.60 | 0.6 | | 12º | 0.5 |
| A-0141212-0.80 | 0.8 | | 0.6 |
| A-0141212-1.0 | 1.0 | | 0.7 |
| A-0141212-1.2 | 1.2 | | 0.8 |
| A-0141212-1.4 | 1.4 | | 1.0 |
| A-0141212-1.6 | 1.6 | | 1.1 |
| A-0141212-1.8 | 1.8 | | 1.2 |
| A-0141212-2.0 | 2.0 | |
| A-0141212-2.2 | 2.2 | |
| A-0141214-2.3 | 2.3 | | 14º | 1.3 |
| A-0161312-0.60 | 16 | 13 | 0.6 | | 12º | 0.5 | 2.5 | 4.5 |
| A-0161312-0.80 | 0.8 | | 0.6 |
| A-0161312-1.0 | 1.0 | | 0.7 |
| A-0161312-1.2 | 1.2 | | 0.8 |
| A-0161312-1.4 | 1.4 | | 1.0 |
| A-0161312-1.6 | 1.6 | | 1.1 |
| A-0161312-1.8 | 1.8 | | 1.2 | 4.0 |
| A-0161312-2.0 | 2.0 | |
| A-0161314-2.2 | 2.2 | | 14º | 1.3 |
| A-0161314-2.4 | 2.4 | |
| A-0161314-2.6 | 16 | 13 | 2.6 | | 14º | 60º | 75º | 1.3 | 2.5 | 4.0 | 2.5 | 1.0 | 45º |
| A-0161314-2.8 | 2.8 | | 1.4 |
| A-0161314-3.0 | 3.0 | |
| A-0201712-1.0 | 20 | 17 | 1.0 | | 12º | 60º | 0.7 | 3.0 | 8.0 | 2.5 | 1.2 |

表A.8（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | | | 参考尺寸 | | | | | |
| D | H | d | | 2α | 2β | 2γ | h | h1 | h2 | R | e | εº |
| A-0201712-1.2 |  |  | 1.2 | | 12º | 60º | 60º | 0.7 | 3.0 | 8.0 | 2.5 | 1.2 | 45º |
| A-0201712-1.3 | 1.3 | | 1.0 |
| A-0201712-1.4 | 1.4 | | 7.5 |
| A-0201712-1.6 | 1.6 | | 1.1 |
| A-0201714-1.8 | 1.8 | | 14º | 1.2 | 7.0 |
| A-0201714-2.0 | 2.0 | | 1.3 |
| A-0201714-2.2 | 20 | 17 | 2.2 | | 14º | 1.3 | 2.5 | 1.2 | 45º |
| A-0201714-2.4 | 2.4 | |
| A-0201714-2.6 | 2.6 | |
| A-0201714-2.8 | 2.8 | | 1.4 |
| A-0201714-3.0 | 3.0 | | 1.5 |
| A-0201714-3.2 | 3.2 | |
| A-0201714-3.3 | 3.3 | | 1.6 |
| A-0201714-3.5 | 3.5 | | 1.7 |
| A-0201714-3.7 | 3.7 | | 1.8 |
| A-0201714-3.8 | 3.8 | | 1.9 |
| A-0201714-4.0 | 4.0 | |
| A-0201714-4.2 | 4.2 | |
| A-0201714-4.5 | 4.5 | |
| A-0201714-4.7 | 4.7 | |
| A-0201714-4.8 | 4.8 | | 2.0 |
| A-0252014-2.3 | 25 | 20 | 2.3 | | 1.3 | 4.0 | 8.5 | 3.0 |
| A-0252014-2.4 | 2.4 | | 14º | 1.3 |
| A-0252014-2.6 | 2.6 | |
| A-0252014-2.8 | 2.8 | | 1.4 |
| A-0252014-3.0 | 3.0 | | 1.5 |
| A-0252014-3.2 | 3.2 | |
| A-0252014-3.3 | 3.3 | | 1.6 |
| A-0252014-3.5 | 3.5 | | 1.7 | 8.3 |
| A-0252014-3.7 | 3.7 | | 1.8 |
| A-0252014-3.8 | 3.8 | | 1.9 | 8.0 |
| A-0252014-4.0 | 4.0 | |
| A-0252014-4.2 | 4.2 | |
| A-0252016-4.5 | 4.5 | | 16º | 1.9 |
| A-0252016-4.7 | 4.7 | |
| A-0252016-4.8 | 4.8 | |
| A-0252016-5.1 | 5.1 | |

表A.8（续）

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 新型号 | 基本尺寸 | | | 参考角度 | | | | 参考尺寸 | | | | | |
| D | H | d | | 2α | 2β | 2γ | h | h1 | h2 | R | e | εº |
| A-0252016-5.2 | 25 | 20 | 5.2 | | 16º | 60º | 60º | 1.9 | 4.0 | 8.0 | 3.0 | 1.2 | 45º |
| A-0252016-5.5 | 5.5 | | 2.2 | 7.5 |
| A-0252016-5.7 | 5.7 | | 2.4 |
| A-0252016-6.0 | 6.0 | | 2.5 |
| A-0252016-6.2 | 6.2 | | 2.6 |
| A-0252118-6.5 | 21 | 6.5 | | 18º | 2.1 | 3.0 | 9.6 |
| A-0252118-6.8 | 6.8 | | 2.3 |
| A-0252118-7.0 | 7.0 | | 2.5 |
| A-0252118-7.5 | 7.5 | |
| A-0252118-8.0 | 8.0 | |
| A-0252118-8.5 | 8.5 | | 18º |
| A-0292014-6.9 | 29 | 20 | 6.9 | | 14º | 4.0 | 8.0 | 4.5 |
| A-0302416-3.8 | 30 | 24 | 3.8 | | 16º | 5.0 |
| A-0302416-4.0 | 30 | 24 | 4.0 | | 16º | 60º | 60º | 2.5 | 5.0 | 8.0 | 4.5 | 1.2 | 45º |
| A-0302416-4.2 | 4.2 | |
| A-0302416-4.5 | 4.5 | |
| A-0302416-4.7 | 4.7 | |
| A-0302416-5.0 | 5.0 | |
| A-0302416-5.2 | 5.2 | |
| A-0302416-5.5 | 5.5 | | 3.0 | 5.0 |
| A-0302416-5.7 | 5.7 | | 2.6 | 5.0 | 4.5 |
| A-0302416-6.0 | 6.0 | |
| A-0302416-6.2 | 6.2 | | 5.0 |
| A-0302416-6.5 | 6.5 | | 2.5 | 4.5 |
| A-0302416-6.7 | 6.7 | | 2.6 | 8.5 |
| A-0302416-7.0 | 7.0 | | 2.8 |
| A-0302416-7.3 | 7.3 | |
| A-0302416-7.7 | 7.7 | | 3.0 |
| A-0302416-8.2 | 8.2 | | 3.1 |
| A-0302416-8.7 | 8.7 | | 3.3 |
| A-0302416-9.0 | 9.0 | | 3.5 | 3.0 | 5.0 |
| A-0302416-9.5 | 9.5 | |
| A-0302416-9.7 | 9.7 | | 8.0 | 4.5 |

A.9 31型 金属管材拉伸用芯头

31型金属管材拉伸用芯头尺寸见表A.9，如图A.9所示。



图A.9

表A.9 31型金属管材拉伸用芯头尺寸

单位为毫米

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 型 号 | 基本尺寸 | | | 参考尺寸 | |
| D | H | d | e1 | e |
| 31-0142500-7.0 | 14 | 25 | 7 | 1.0 | 0.5 |
| 31-0152500-7.0 | 15 |
| 31-0162500-7.0 | 16 |
| 31-0172500-8.0 | 17 | 8 |
| 31-0182500-8.0 | 18 |
| 31-0193000-10.0 | 19 | 30 | 10 |
| 31-0203000-10.0 | 20 |
| 31-0213000-10.0 | 21 |
| 31-0223000-10.0 | 22 |
| 31-0233000-12.0 | 23 | 12 |
| 31-0243000-12.0 | 24 |
| 31-0253000-12.0 | 25 |
| 31-0263000-12.0 | 26 |
| 31-0273000-12.0 | 27 |
| 31-0283500-16.0 | 28 | 35 | 16 |
| 31-0293500-16.0 | 29 |
| 31-0303500-16.0 | 30 |
| 31-0313500-16.0 | 31 | 2.0 | 0.5 |
| 31-0323500-16.0 | 32 |
| 31-0333500-20.0 | 33 | 35 | 20 | 2.0 | 0.5 |
| 31-0343500-20.0 | 34 |
| 31-0353500-20.0 | 35 |
| 31-0364000-20.0 | 36 | 35 |
| 31-0374000-20.0 | 37 |
| 31-0384000-20.0 | 38 |
| 31-0394000-20.0 | 39 |
| 31-0404000-20.0 | 40 |
| 31-0414000-20.0 | 41 | 1.0 |

表A.9（续）

单位为毫米

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 型 号 | 基本尺寸 | | | 参考尺寸 | |
| D | H | d | e1 | e |
| 31-0424000-20.0 | 42 | 35  更正35mm 0 | 20 | 2.0 | 1.0 |
| 31-0434000-22.0 | 43 | 40 | 22 |
| 31-0444000-22.0 | 44 |
| 31-0454500-26.4 | 45 | 45 | 26.4 |
| 31-0464500-26.4 | 46 |
| 31-0474500-26.4 | 47 |

A.10 W型金属线材拉伸模坯

W型金属线材拉伸模坯尺寸见表A.10，如图A.10所示。



图A.10

表A.10 W型金属线材拉伸模坯尺寸

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 型号 | 基本尺寸 | | | 参考角度 | | 参考尺寸 | | | | | |
| D | H | d | 2α,º | 2γ,º | h | h1, | R | D1 | e | ε,° |
| W-0060412-0.20 | 6 | 4 | 0.2 | 12 | 90 | ≤0.1 | 0.8 | 2.8 | 4.2 | 0.8 | 45° |
| W-0060412-0.25 | 0.25 |
| W-0060412-0.30 | 0.3 |
| W-0060412-0.35 | 0.35 |
| W-0060412-0.40 | 0.4 |
| W-0080612-0.15 | 8 | 6 | 0.15 | 1 | 4.5 | 5.7 | 1 |

表A.10 (续)

单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 型号 | 基本尺寸 | | | 参考角度 | | 参考尺寸 | | | | | |
| D | H | d | 2α,º | 2γ,º | h | h1, | R | D1 | e | ε,° |
| W-0080612-0.20 | 8 | 6 | 0.2 | 12 | 90 | ≤0.1 | 1 | 4.5 | 5.7 | 1 | 45° |
| W-0080612-0.25 | 0.25 |
| W-0080612-0.30 | 0.3 |
| W-0080612-0.35 | 0.35 |
| W-0080612-0.40 | 0.4 |
| W-0080612-0.50 | 0.5 | 5.8 |
| W-0080612-0.60 | 0.6 |
| W-0080612-0.70 | 0.7 | 5.9 |
| W-0080612-0.80 | 8 | 6 | 0.8 | 12 | 90 | ≤0.1 | 1 | 4.2 | 5.9 | 1 | 45° |
| W-0080612-0.90 | 0.9 | 6 |
| W-0080612-1.0 | 1 | 4 |
| W-0090612-0.12 | 0.12 | 4.5 | 6.4 | 1.15 | 15° |
| W-0090612-0.15 | 9 | 0.15 |
| W-0090612-0.16 | 0.16 |
| W-0090612-0.17 | 0.17 |
| W-0090612-0.18 | 0.18 |
| W-0090612-0.20 | 0.2 |
| W-0090612-0.22 | 0.22 |
| W-0090612-0.25 | 0.25 |
| W-0090616-0.25 | 0.25 | 16 | 4.5 |
| W-0090612-0.30 | 0.3 | 12 | 4.3 |
| W-0090612-0.35 | 0.35 | 4.3 | 6.4 | 1.15 |
| W-0090612-0.40 | 0.4 |
| W-0090612-0.50 | 0.5 | 6.6 |
| W-0090612-0.60 | 0.6 | 4.2 |
| W-0090612-0.70 | 0.7 | 6.8 |
| W-0090612-0.80 | 0.8 |
| W-0090612-0.90 | 0.9 |