**《舰船用铜镍合金无缝铜管》**

**标准（预审稿）编制说明**

1. 任务来源

根据国标委综合[2017]128号及有色标委[2018] 2号文件《关于转发2018年第一批有色金属国家标准制（修）定项目计划的通知》，其中附件1《2018年第一批有色金属国家标准项目计划表》序号第91项（项目计划为20173791-T-610），《舰船用铜镍合金无缝铜管》国家标准由浙江海亮股份有限公司、江阴新华宏铜业有限公司、无锡隆达金属材料有限公司、上虞金鹰铜业有限公司、江苏萃隆精密铜管股份有限公司参与起草修订，完成年限2019年12月。

1. 工作简况
2. 立项目的和意义

铜及铜合金管在海洋工程领域中的主要应用分为两大类，一类是热交换用管，第二类是输液管道管系用管，本标准主要是应用于舰船制造等海洋工程的管道系统。管系管网管道是海洋工程各系统的重要组成部分，其不仅要求与舰船、海上采油平台等特殊的独立自给自救的生存方式和传输介质有不同水域的海水、污染海水等环境特点相适应，同时还受到海洋恶劣气候环境的影响，从而决定了舰船管路系统传输管的材质不仅要有比内陆管道用管有更高的机械性能、工艺性能，同时还要有足够的乃至稳定的耐蚀安全性。

目前， 我国加大力度发展海洋经济，船舶制造业也发展迅猛。该铜镍合金无逢管主要应用于舰船制造等海洋工程的管道系统，是舰船的重要组成部分。 GB/T 26291-2010《舰船用铜镍合金无逢管》标准于2009年组织起草，该标准已不能满足当前的产品需求，所以要对原标准进行修订。

据了解，我国舰船制造数量每年以约30%的比例递增，该铜镍合金无逢管的需求数量也是大幅度增加，但进口产品的比例还是占相当大的比例。通过该标准的修订，可以提升舰船用铜镍合金无缝管的产品质量，增加我国产品与进口产品之间的竞争力。

1. 申报单位简况

本标准编制单位为浙江海亮股份有限公司 江阴新华宏铜业有限公司 无锡隆达金属材料有限公司 上虞金鹰铜业有限公司 江苏萃隆精密铜管股份有限公司 金龙精密铜管集团股份有限公司。

浙江海亮股份有限公司（以下简称海亮股份 002203）是海亮集团有限公司(中国企业500强第110位)控股的中外合资股份有限公司，成立于1989年，目前总资产154亿元，现有员工5300余名。2017年度，公司总收入298亿元，同比上涨66.41%，利润总额77832万元，同比上涨12.40%。税收30072万元，同比上涨了68.74%。

公司现拥有浙江海亮、上海海亮、安徽海亮、越南海亮、广东海亮、中山海亮奥托、泰国海亮、重庆海亮、美国海亮等十个产地，下属浙江科宇金属材料有限公司、浙江铜加工研究院有限公司等10多家控股子公司。企业连续年荣获浙江省信用AAA级企业，公司是高新技术企业，全国企事业知识产权试点单位，国家级博士后科研工作站设站单位，省级创新型企业，省级三名示范企业、省级标准创新型企业，省绿色企业，省工业循环经济示范企业，拥有国家企业技术中心、浙江省首批省级企业研究院、省级高新技术研发中心、教育部重点实验室“海亮铜加工技术开发实验室”、省级重点创新团队。

海亮股份是全球规模最大的铜加工企业，国际知名铜加工企业。核心业务主要分为三大系列（铜管、铜棒和管件；铝型材；铜铝复合材）、八大主导产品（铜合金管、制冷用空调管、无缝铜水（气）管、精密铜棒、管件、微通道铝扁管、铝型材、铜铝复合材）。产品囊括了近百个牌号、数千种规格，广泛用于核电、航空航天、舰船及海洋工程、海水淡化、空调和冰箱制冷、建筑水管、装备制造、汽车工业、电子信息等军工和民用行业。海亮股份近年来不断推出高效能内螺纹铜管、新型铜合金管、环保型无铅精密铜棒等高端产品，使企业的产品结构日趋优化。

自2000年开始，海亮股份通过积极牵头主持、参与国家标准起草制订，为我国铜管行业的整体技术进步、行业有序发展做出突出贡献。至今，行业中铜管材产品标准80%以上由海亮股份主起草，相关行业发展的管理性标准（如能耗标准、安全生产标准等）也都由公司作为第一起草单位起草。公司还积极参与国际标准化组织的活动，是我国有色金属标准化委员会委员单位，公司总裁曹建国同志承担了国际标准化组织铜和铜合金技术委员会（ISO/TC26）主席职务，也是我国有色金属标准化委员会副主任委员，公司踊跃参加国家标准对国际标准的转化工作等。企业已牵头起草制定和计划起草制定的国家行业标准共44项，其中行业标准15项。

1. 主要工作过程

2.3.1项目分工

标准制订计划任务正式下达后，项目成立了标准编制组，并落实起草任务，确定标准的主要起草人，拟定该标准的工作计划。具体分工为：浙江海亮股份有限公司总负责、市场和同行业信息收集、资料汇总及执笔；江阴新华宏铜业有限公司、无锡隆达金属材料有限公司、上虞金鹰铜业有限公司、江苏萃隆精密铜管股份有限公司负责补充市场信息和标准数据的验证。各企业分工明确，紧密合作，进行了全面的市场调研、资料查询，收集了产品测试、用户使用方面的相关技术数据，比较全面和准确地了解舰船用铜镍合金无缝管应用领域的需求及其技术要求，为本标准的制定提供了依据。本标准在制定过程中，与用户进行了多次沟通，以此来保证本标准的数据采集和各项技术指标的验证以及标准文本的编制任务的顺利完成。

2.3.2 主要起草过程

该铜镍合金无逢管主要应用于舰船制造等海洋工程的管道系统，是舰船的重要组成部分。目前， 我国加大力度发展海洋经济，船舶制造业迅猛发展，市场前景十分看好。

经过编制小组工作人员对国内外资料的分析，该产品国外相关标准主要有：GJB 8757-2015《舰船用白铜管材规范》、DIN 86019-2016《管道用拉制CuNi10Fe1.6Mn无缝管与精密管的尺寸》和MIL-T-16420K(SH)1988《铜镍合金无缝管及焊接管》三项相关标准。

经具体分析：GJB 8757-2015《舰船用白铜管材规范》包括一个牌号BFe10-1.6-1(T70620),一个状态O60；DIN 86019-2016《管道用拉制CuNi10Fe1.6Mn无缝管与精密管的尺寸》包括一个牌号CuNi10Fe1.6Mn（相当于中国牌号BFe10-1.6-1）；MIL-T-16420K(SH)1988《铜镍合金无缝管及焊接管》包括两个牌号C71500和C70600,包括两个状态O60和H55。

经分析国内外资料和用户的使用要求及企业的生产情况，编制小组对GB/T 26291-2010《舰船用铜镍合金无逢管》的主要修订如下：

1. ——按新国标修改合金牌号和状态表示方法；

——删减了Y2状态，只保留O60状态；

——规格范围进行了变化：外径由8～458 mm变为4～458 mm，壁厚由为0.6～12.0mm变为0.4～12.0mm，长度由≤8000mm变为≤15000mm；

——将表3中的公称尺寸由70mm改为65（70）mm；

——增加了对单位长度重量的计算规定；

——力学性能根据客户实际需要增加维氏硬度要求；

——增加管材电化学腐蚀性能检验，试验结果要求ΔE≤0.07V；

1. ——增加附录A，管材电化学腐蚀性能检验方法材料性附录。

按照以上修订意见，编制小组于2018年7月形成了GB/T26291-XXXX《舰船用铜镍合金无缝管》的讨论稿。

该讨论稿于2018年7月在哈尔滨召开了讨论会，会上专家对该标准进行了认真详尽的讨论和沟通，给出了有效的修改意见，会后，编制小组根据专家给出的意见重新进行了数据分析和查阅相关资料，经过修改后，与2019年3月份形成了该预审稿，具体的修订意见见《意见处理汇总表》。

1. 编制原则

本标准本着提升产品质量、节能降耗、绿色环保的编制原则，以提升我国舰船制造水平为目标，按照GB/T 1.1-2009《标准化工作导则 第1部分：标准的结构和编写》给出的规则进行起草。同时参照了

GJB 8757-2015《舰船用白铜管材规范》、DIN 86019-2016《管道用拉制CuNi10Fe1.6Mn无缝管与精密管的尺寸》、MIL-T-16420K(SH)1988《铜镍合金无缝管及焊接管》和我国舰船用铜镍合金无缝管是实际需求进行编制。目的是满足和稳定应用市场，增强国际市场竞争力，助推我国铜镍合金无缝管技术进步。

1. 确定标准主要内容的论据

4.1标准题目与适用范围

## 4.1.1本标准立项名称为“舰船用铜镍合金无缝铜管”，英文名称“Copper-nickel seamless pipe for ships

”,在标准征求意见的过程中未提出其他建议，仍确定为此项标准的名称。

4.1.2规定了本标准适用范围：舰船制造等海洋工程管路系统用铜镍合金无缝管材。

4.2 术语与定义

为使使用者清楚了解公称尺寸的定义和其他尺寸之间的关系，本标准增加了DN（公称尺寸）的定义，具体内容如下：

管材DN（公称尺寸）的定义应符合GB/T 1047的规定。

4.2要求

4.2.1产品分类

产品分类是对产品的牌号、状态、规格进行规定，同时规定了产品标记方法。相关情况分别说明如下：

（1）通过对实际需求及国内外资料分析确认：本标准规定三个牌号：BFe10-1-1（T70590）、BFe10-1.6-1

（T70620）、BFe30-1-1（T71510）。结合生产实际情况和客户要求产品的状态为：软化退火（O60）

（2）产品尺寸规格范围：根据目前市场需求和生产现状，确定本标准尺寸规格为：外径为4～458 mm，壁厚为0.4～12.0mm，长度≤15000mm。

（3）产品标记方法：按照GB/T 1.1-2009的规定，产品标记按产品名称、标准编号、牌号、状态、规格的顺序表示，标准中给出了导电铜棒的典型标记示例。

4.2.2化学成分

产品BFe10-1-1和BFe30-1-1的化学成分符合GB/T 5231的规定，BFe10-1.6-1的化学成分应符合表1的规定。

表1 管材的化学成分

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 牌号 | 主要成分/% | | | | 杂质元素/%，不大于 | | | | | |
| Ni | Fe | Mn | Cu | Pb | S | C | Zn | P | 铜加表中所列元素 |
| BFe10-1.6-1 | 9.0~11.0 | 1.5~1.8 | 0.5~1.0 | 余量 | 0.02 | 0.01 | 0.05 | 0.02 | 0.01 | ≥99.9 |

4.2.3尺寸偏差

4.2.3.1管材的外径及其允许偏差主要参照DIN 86019-2016《管道用拉制CuNi10Fe1.6Mn无缝管与精密管的尺寸》进行的制定，同时参照了GJB 8757-2015《舰船用白铜管材规范》，并根据我国的实际生产情况进行的制定，规定见表2。其中，按照GJB8757-2015和DIN86019:2006-02的规定，删除了76.1、88.9、193.7、219.1、323.9等5个规格，将419.1修改为419，457.2修改为458。

表2　管材的尺寸系列及其外径允许偏差 单位为毫米

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 外径 | | | 壁厚 | | | | | | | | | | | | | | | | | | |
|  | | |  | | | | | | | | | | | | | | | | | | |
| 公称  尺寸 | 公称  外径 | 平均外径允许偏差 | 0.4 | 0.6 | 0.8 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 8.0 | 10.0 | 12.0 |
| 2 | 4 | ＋0.045  －0.035 | O | O | O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | ＋0.045  －0.035 | O | O | O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | 8 | ＋0.045  －0.035 |  | O | O | O | — | O | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 6 | 10 | ＋0.045  －0.035 |  | O | O | O | — | O | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 8 | 12 | ＋0.045  －0.035 |  | O | O | O | — | — | O | — | — | — | — | — | — | — | — | — | — | — | — |
| 12 | 15 | ＋0.045  －0.035 |  | — | — | O | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 16 | ＋0.045  －0.035 |  | — | — | O | O | O | O | — | — | — | — | — | — | — | — | — | — | — | — |
| 16 | 18 | ＋0.045  －0.035 |  | — | — | — | O | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 20 | ＋0.055  －0.025 |  | — | — | O | — | O | — | O | — | — | — | — | — | — | — | — | — | — | — |
| 20 | 22 | ＋0.055  －0.025 |  | — | — | O | O | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 25 | ＋0.055  －0.025 |  | — | — | — | O | O | — | — | — | O | — | — | — | — | — | — | — | — | — |
| 25 | 28 | ＋0.055  －0.025 |  | — | — | — | O | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 30 | ＋0.055  －0.025 |  | — | — | — | O | O | O | — | — | O | — | — | — | — | — | — | — | — | — |
| 32 | 35 | ＋0.07  －0.01 |  | — | — | — | O | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 38 | ＋0.07  －0.01 |  | — | — | — | O | O | O | — | — | — | — | — | — | — | — | — | — | — | — |
| 40 | 42 | ＋0.07  －0.01 |  | — | — | — | O | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 44.5 | ＋0.07  －0.01 |  | — | — | — | O | O | O | — | — | — | — | — | — | — | — | — | — | — | — |
| 50 | 54 | ＋0.1  ＋0.05 |  | — | — | — | O | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 57 | ＋0.2  ＋0.12 |  | — | — | — | O | O | O | O | — | — | — | — | — | — | — | — | — | — | — |
| 65 | 76 | ＋0.2  ＋0.05 |  | — | — | — | — | O | O | O | O | — | — | — | — | — | — | — | — | — | — |
| 80 | 89 | ＋0.25  ＋0.10 |  | — | — | — | — | O | O | O | O | O | — | — | — | — | — | — | — | — | — |
| 100 | 108 | ＋0.25  0 |  | — | — | — | — | — | O | O | — | O | O | O | — | — | — | — | — | — | — |
| 125 | 133 | ＋0.5  ＋0.25 |  | — | — | — | — | — | O | O | O | — | — | O | — | O | — | — | — | — | — |
| 150 | 159 | ＋0.5  ＋0.25 |  | — | — | — | — | — | O | O | O | — | — | O | — | — | — | — | O | — | — |
| 175 | 194 | ＋0.8  ＋0.55 |  | — | — | — | — | — | O | O | O | O | — | — | — | — | — | — | — | — | — |
| 200 | 219 | ＋0.8  ＋0.4 |  | — | — | — | — | — | — | O | O | O | O | — | O | O | — | — | — | O | — |
| 250 | 267 | ＋1.0  -0.6 |  | — | — | — | — | — | — | O | — | O | O | — | — | — | — | O | — | — | O |
| 300 | 324 | ＋1.0  -0.6 |  | — | — | — | — | — | — | — | — | O | O | O | O | O | — | O | O | — | — |
| 350 | 368 | ＋1.0  -1.0 |  | — | — | — | — | — | — | — | — | O | O | O | O | O | O | — | O | — | — |
| 400 | 419 | ＋1.0  -1.5 |  | — | — | — | — | — | — | — | — | O | — | O | — | O | — | O | O | — | — |
| 450 | 458 | ＋1.0  -2.0 |  | — | — | — | — | — | — | — | — | O | O | — | — | O | — | O | — | — | — |

4.2.3.2壁厚及其允许偏差

按照实际生产情况，管材壁厚的允许偏差应按照不同的级别进行规定，具体内容如下：

表3 管材的壁厚允许偏差 单位为毫米

|  |  |  |
| --- | --- | --- |
| 公称外径 | 平均壁厚允许偏差 | 任意壁厚允许偏差 |
| 4～159 | 公称壁厚的±10% | 最小壁厚的＋15% |
| >159～458 | 公称壁厚的±12% |

4.2.3.3 单位长度重量

规定单位长度重量没有实际意义，所以本版本标准删除了单位长度重量的规定。

4.2.3.4产品长度尺寸偏差

根据实际检测数据，长度允许偏差见以下内容：

表4　　管材的长度允许偏差 单位为毫米

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 公称外径 | 长度允许偏差 | | | | | |
| ≤1000 | 1000～2000 | 2000～4000 | 4000～6000 | 6000～8000 | 8000～15000 |
| 4～12 | ＋2  0 | ＋3  0 | ＋4  0 | ＋5  0 | ＋6  0 | ＋7  0 |
| ＞12～57 | ＋3  0 | ＋4  0 | ＋5  0 | ＋6  0 | ＋7  0 | ＋8  0 |
| ＞57～133 | ＋4  0 | ＋5  0 | ＋6  0 | ＋7  0 | ＋8  0 | ＋9  0 |
| ＞133～267 | ＋5  0 | ＋6  0 | ＋7  0 | ＋8  0 | ＋9  0 | ＋10  0 |
| ＞267～419 | ＋6  0 | ＋7  0 | ＋8  0 | ＋9  0 | ＋10  0 | ＋12  0 |
| ＞419～458 | ＋8  0 | ＋10  0 | ＋12  0 | ＋15  0 | ＋20  0 | ＋25  0 |

4.2.4直度

经查阅GJB8757-2015和MIL-T-16420K(SH)1988，里面都是分档次对直度进行了规定，同时统计分析了公司的实际生产数据，将直度按照公称外径分为≤80mm、>80 mm ~150 mm、>150 mm三档，并按照普通级和高精级进行个规定，具体见以下内容：

直管的直度应符合表5的规定，全长直度不应超过每米直度与总长度（m）的乘积。

表5 管材的直度 单位为毫米

|  |  |  |
| --- | --- | --- |
| 公称外径 | 每米直度 , 不大于 | |
| 高精级 | 普通级 |
| ≤80 | 2 | 3 |
| >80~150 | 3 | 5 |
| >150 | 4 | 7 |

4.2.5圆度

管材的圆度应不大于公称外径的2%。

4.2.6切斜度

4.2.6.1管材端部应锯切平整，切口在不使管材长度超出允许偏差的条件下，管材的切斜度应符合表3的规定。

4.2.6.2 当用户有要求管端为加工焊接坡口时，管材的端口应符合相应的焊接坡口型式及几何尺寸规范要求。

表3　　管材端部的切斜度 单位为毫米

|  |  |
| --- | --- |
| 公称外径 | 切斜度，不大于 |
| 4～30 | 公称外径的0.50% |
| ＞30～108 | 公称外径的1.4% |
| ＞108 | 公称外径的2.0% |

4.2.7室温拉伸力学性能

力学性能是衡量导电用铜棒的重要指标之一，是衡量其抗变形能力和断裂能力的指标，质量稳定产品合格的产品需要具备一定的抗变形能力。力学性能可以通过拉伸试验进行测试，测得抗拉强度和断后伸长率。基于生产实际情况和客户不同侧重点需求，标准还规定了硬度（维氏硬度），同时还规定了屈服强度。为确定管材的力学性能指标，编制小组在编制前收集了浙江海亮股份有限公司、佛山市华鸿铜管有限公司 金龙精密铜管集团股份有限公司 青岛宏泰铜业有限公司等生产单位的生产实测数据，主要指标为抗拉强度Rm、规定塑性延伸强度Rp、伸长率%和硬度HV，具体指标数据见附表1-3。

对现有产品抽样实测，不同规格规定如下，具体见表4。

表4　　管材的力学性能

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 牌号 | 状态 | 公称外径  mm | 抗拉强度Rm  N/mm2 | 规定非比例延伸强度Rp0.2  N/mm2 | 断后伸长率 A50mm  % | 硬度  HV |
| BFe10-1-1  BFe10-1.6-1 | 软化退火（O60） | ＜115 | ≥290 | ≥105 | ≥35 | 75-110 |
| ≥115 | ≥290 | ≥90 | ≥35 |
| BFe30-1-1 | 软化退火（O60） | ＜115 | ≥400 | ≥140 | ≥35 | 75-110 |
| ≥115 | ≥345 | ≥120 | ≥35 |

4.2.8工艺性能

当需方有要求时，管材应进行扩口试验、压扁试验或双向弯曲试验，扩口试验和压扁试验任选其一。

4.2.8.1 扩口试验

外径不大于108mm的管材可进行扩口试验。顶心锥度为45°，扩口率不小于30%，管材不应出现目视可见的裂纹或破损。

4.2.8.2 压扁试验

外径不大于108mm的管材进行压扁试验时，压扁后管材的内壁距离等于1倍名义壁厚，管材不应出现目视可见的裂纹或破损。

4.2.8.3双向弯曲试验

外径大于108mm的管材，需方要求进行扩口试验或压扁试验时，可用双向弯曲试验代替，弯曲后不应出现目视可见裂纹或破损。

4.2.9晶粒度

管材的平均晶粒度为0.010 mm～0.045mm。

4.2.10 非破坏性试验

每根管材均应进行涡流探伤或水压试验。

4.2.10.1涡流探伤

管材进行涡流探伤检验时，其人工标准缺陷（钻孔直径）应符合GB/T 5248中表3的规定进行。超出标准规格范围的管材，采用水压试验。

4.2.10.2 水压试验

管材的最大工作压力按（1）式计算。

管材进行水压试验时，其试验压力按（2）式计算。在该压力下，持续10S～15S后，管材应无渗漏和永久变形，最大试验压力不超过6.9 N/mm2，如超出由双方协商确定。

2*S*•*t*

p= ……………………(1)

D-0.8*t*

p t=np -------------------------　 (2)

式(1)、(2)中：　p　　――最大工作压力，单位为牛顿每平方毫米（N/mm2）；

pt ――试验压力，单位为牛顿每平方毫米（N/mm2）；

　　 t ――管材名义壁厚，单位为毫米（mm）；

　　　　 D　 ――管材公称外径，单位为毫米（mm）；

　　　　 n　 ――安全系数（1.50～1.65）；

　　　　 S　 ――材料允许应力。室温条件下，取表6中相应牌号及状态Rp0.2最小值的50%。

4.2.11电化学腐蚀性能试验

1. 管材应进行电化学腐蚀性能试验，试验结果要求ΔE≤0.07V。
   * 1. 表面质量

管材内外表面应光滑、清洁，不应有影响使用的有害缺陷。

1. 标准水平分析：
2. 与现行相关法律、法规、规章及相关标准，特别是强制性标准的协调性：

本标准的制定过程、技术指标的选定、检验项目的设置符合现行法律、法规和强制性国家标准的规定。

1. 重大分歧意见的处理经过和依据

无

1. 标准作为强制性或推荐性标准的建议

本标准建议作为推荐性行业标准

1. 贯彻标准的要求和措施建议
2. 废止现行有关标准的建议

建议废止原标准：GB/T 26291-2010《舰船用铜镍合金无缝管》

11 预期效果

2019.3.15

舰船用铜镍合金无缝管编制小组

附表1：

附表1 BFe10-1-1数据统计表

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 状态 | 外径 | 壁厚 | 壁厚允许偏差±0.071 | 任意外径允许偏差+0.045/-0.035 | 抗拉强度Rm N/mm2 | 屈服强度Rp0.2 N/mm2 | 延伸A50mm % | 硬度HV |
| 1 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 336 | 126 | 39.3 | 78.7 |
| 2 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 338 | 130 | 38.2 | 79.3 |
| 3 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.740-4.780 | 341 | 132 | 37.4 | 79.6 |
| 4 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 333 | 137 | 36.6 | 78.4 |
| 5 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 335 | 124 | 40.4 | 78.8 |
| 6 | O60 | 4.76 | 0.71 | 0.650-0.750 | 4.730-4.780 | 335 | 141 | 37.3 | 78.4 |
| 7 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 329 | 132 | 40.5 | 78.1 |
| 8 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.790 | 331 | 129 | 39.3 | 78.3 |
| 9 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 337 | 135 | 36.7 | 79.5 |
| 10 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 342 | 125 | 38.4 | 80.3 |
| 11 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 340 | 134 | 36.1 | 79.9 |
| 12 | O60 | 4.76 | 0.71 | 0.660-0.750 | 4.730-4.780 | 335 | 119 | 42.3 | 78.2 |
| 13 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 331 | 133 | 37.8 | 77.8 |
| 14 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 337 | 127 | 38.3 | 78.4 |
| 15 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 340 | 124 | 39.7 | 80.2 |
| 16 | O60 | 4.76 | 0.71 | 0.660-0.750 | 4.730-4.780 | 328 | 134 | 36.4 | 78.3 |
| 17 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 323 | 131 | 39.6 | 77.6 |
| 18 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 340 | 123 | 39.3 | 79.9 |
| 19 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 335 | 126 | 38.4 | 78.2 |
| 20 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 334 | 127 | 40.3 | 78.4 |
| 21 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 333 | 118 | 40.6 | 78.1 |
| 22 | O60 | 4.76 | 0.71 | 0.650-0.760 | 4.730-4.780 | 336 | 124 | 38.2 | 78.7 |
| 23 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 324 | 132 | 39.6 | 79.1 |
| 24 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 339 | 127 | 37.7 | 78.8 |
| 25 | O60 | 4.76 | 0.71 | 0.670-0.760 | 4.730-4.780 | 313 | 115 | 41.1 | 77.6 |
| 26 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 328 | 123 | 38.6 | 78.3 |
| 27 | O60 | 4.76 | 0.71 | 0.650-0.760 | 4.730-4.780 | 331 | 127 | 39.4 | 78.2 |
| 28 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 340 | 131 | 39.3 | 80.1 |
| 29 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 330 | 125 | 38.2 | 78.4 |
| 30 | O60 | 4.76 | 0.71 | 0.660-0.750 | 4.730-4.780 | 319 | 118 | 39.8 | 78.1 |
| 31 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 333 | 134 | 37.7 | 78.5 |
| 32 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 332 | 128 | 39.6 | 78.3 |
| 33 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 335 | 131 | 38.4 | 78.8 |
| 34 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 319 | 126 | 37.6 | 77.8 |
| 35 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 338 | 133 | 37.1 | 79.1 |
| 36 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 329 | 127 | 38.3 | 78.4 |
| 37 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 338 | 123 | 39.6 | 79.6 |
| 38 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 331 | 124 | 38.1 | 79.2 |
| 39 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.740-4.780 | 336 | 128 | 38.4 | 79.5 |
| 40 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 336 | 134 | 36.8 | 79.8 |
| 41 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 340 | 124 | 40.2 | 80.2 |
| 42 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 342 | 136 | 38.9 | 80.4 |
| 43 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 331 | 127 | 40.7 | 79.2 |
| 44 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 333 | 122 | 41.2 | 79.4 |
| 45 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 329 | 119 | 41.8 | 79.1 |
| 46 | O60 | 4.76 | 0.71 | 0.650-0.760 | 4.730-4.780 | 351 | 135 | 36.4 | 81.5 |
| 47 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 313 | 124 | 39.6 | 77.6 |
| 48 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 338 | 126 | 38.3 | 79.6 |
| 49 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 329 | 121 | 39.7 | 78.3 |
| 50 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.790 | 329 | 134 | 36.6 | 78.5 |
| 51 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 333 | 128 | 39.4 | 79.3 |
| 52 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 319 | 119 | 42.2 | 77.7 |
| 53 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 346 | 125 | 40.9 | 80.8 |
| 54 | O60 | 4.76 | 0.71 | 0.660-0.750 | 4.730-4.780 | 342 | 120 | 41.4 | 80.1 |
| 55 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 314 | 123 | 38.6 | 77.4 |
| 56 | O60 | 4.76 | 0.71 | 0.670-0.760 | 4.730-4.780 | 330 | 124 | 37.7 | 79.1 |
| 57 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 351 | 132 | 36.2 | 81.3 |
| 58 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 343 | 124 | 40.4 | 80.6 |
| 59 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 332 | 123 | 41.6 | 79.3 |
| 60 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 321 | 126 | 41.8 | 78.4 |
| 61 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 324 | 132 | 38.6 | 78.7 |
| 62 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 345 | 135 | 37.7 | 80.8 |
| 63 | O60 | 4.76 | 0.71 | 0.670-0.760 | 4.730-4.780 | 336 | 124 | 41.3 | 79.6 |
| 64 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 322 | 132 | 38.7 | 77.3 |
| 65 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 331 | 126 | 40.3 | 79.2 |
| 66 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 320 | 122 | 41.9 | 78.4 |
| 67 | O60 | 4.76 | 0.71 | 0.660-0.750 | 4.730-4.780 | 336 | 124 | 41.7 | 79.1 |
| 68 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 338 | 123 | 42.6 | 79.8 |
| 69 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 318 | 134 | 38.1 | 78.1 |
| 70 | O60 | 4.76 | 0.71 | 0.670-0.760 | 4.730-4.780 | 314 | 128 | 36.5 | 77.6 |
| 71 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 332 | 129 | 36.4 | 79.3 |
| 72 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 319 | 119 | 43.6 | 78.2 |
| 73 | O60 | 4.76 | 0.71 | 0.660-0.750 | 4.730-4.780 | 322 | 131 | 37.2 | 78.4 |
| 74 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 334 | 136 | 38.7 | 79.6 |
| 75 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 332 | 133 | 37.3 | 79.5 |
| 76 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 336 | 138 | 36.8 | 79.8 |
| 77 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 328 | 127 | 39.6 | 78.9 |
| 78 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 339 | 141 | 37.4 | 80.1 |
| 79 | O60 | 4.76 | 0.71 | 0.660-0.750 | 4.730-4.780 | 324 | 129 | 38.3 | 78.3 |
| 80 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 328 | 132 | 36.6 | 78.7 |
| 81 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 331 | 134 | 37.7 | 79.2 |
| 82 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 342 | 137 | 39.6 | 79.6 |
| 83 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 330 | 134 | 38.4 | 78.9 |
| 84 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.790 | 327 | 131 | 36.5 | 78.7 |
| 85 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 333 | 136 | 37.9 | 79.4 |
| 86 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 336 | 134 | 39.2 | 79.5 |
| 87 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 324 | 126 | 41.4 | 78.5 |
| 88 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 335 | 135 | 37.7 | 79.6 |
| 89 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 338 | 137 | 38.6 | 79.8 |
| 90 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 326 | 129 | 40.5 | 78.5 |
| 91 | O60 | 4.76 | 0.71 | 0.670-0.760 | 4.730-4.780 | 337 | 134 | 39.3 | 79.6 |
| 92 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 340 | 138 | 37.8 | 79.9 |
| 93 | O60 | 4.76 | 0.71 | 0.660-0.750 | 4.730-4.780 | 328 | 127 | 38.8 | 78.7 |
| 94 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 323 | 123 | 42.2 | 78.4 |
| 95 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 336 | 127 | 39.3 | 79.5 |
| 96 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 336 | 132 | 41.7 | 79.6 |
| 97 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.740-4.790 | 340 | 134 | 39.4 | 79.8 |
| 98 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 337 | 132 | 36.6 | 79.5 |
| 99 | O60 | 4.76 | 0.71 | 0.660-0.750 | 4.730-4.780 | 331 | 129 | 38.7 | 79.1 |
| 100 | O60 | 4.76 | 0.71 | 0.660-0.760 | 4.730-4.780 | 335 | 133 | 37.3 | 79.4 |
| 101 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 327 | 115 | 43 | 77 |
| 102 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 331 | 117 | 44 | 82 |
| 103 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 329 | 117 | 43 | 85 |
| 104 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 325 | 115 | 43 | 83 |
| 105 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 325 | 115 | 42 | 83 |
| 106 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 329 | 115 | 42.5 | 85 |
| 107 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 317 | 116 | 42 | 76 |
| 108 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 318 | 119 | 43 | 76 |
| 109 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 327 | 129 | 43 | 81 |
| 110 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 328 | 115 | 44 | 81 |
| 111 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 331 | 117 | 44 | 83 |
| 112 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 316 | 121 | 44 | 79 |
| 113 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 312 | 117 | 42 | 76 |
| 114 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 312 | 117 | 43 | 76 |
| 115 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 314 | 116 | 42 | 77 |
| 116 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 322 | 118 | 42.5 | 81 |
| 117 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 324 | 117 | 42 | 83 |
| 118 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 314 | 119 | 42 | 76 |
| 119 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 317 | 116 | 42.5 | 77 |
| 120 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 318 | 116 | 42 | 77 |
| 121 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 313 | 117 | 44 | 77 |
| 122 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 317 | 118 | 44 | 76 |
| 123 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 326 | 118 | 44 | 85 |
| 124 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 323 | 120 | 43 | 84 |
| 125 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 322 | 117 | 44 | 84 |
| 126 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 317 | 118 | 43 | 79 |
| 127 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 331 | 118 | 43 | 83 |
| 128 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 333 | 120 | 44 | 83 |
| 129 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 333 | 119 | 41 | 84 |
| 130 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 319 | 120 | 42 | 80 |
| 131 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 317 | 117 | 42 | 78 |
| 132 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 321 | 119 | 42 | 80 |
| 133 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 317 | 120 | 42 | 78 |
| 134 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 321 | 117 | 42 | 79 |
| 135 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 323 | 119 | 42.5 | 81 |
| 136 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 323 | 120 | 42.5 | 80 |
| 137 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 316 | 117 | 42 | 79 |
| 138 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 332 | 115 | 42.5 | 84 |
| 139 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 328 | 115 | 42 | 83 |
| 140 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 322 | 121 | 43 | 82 |
| 141 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 327 | 118 | 42 | 84 |
| 142 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 324 | 116 | 43 | 83 |
| 143 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 318 | 115 | 42 | 77 |
| 144 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 322 | 116 | 43 | 79 |
| 145 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 331 | 116 | 42 | 81 |
| 146 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 318 | 121 | 42.5 | 78 |
| 147 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 319 | 115 | 41.5 | 78 |
| 148 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 324 | 115 | 42.5 | 82 |
| 149 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 325 | 117 | 42 | 83 |
| 150 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 320 | 120 | 43 | 82 |
| 151 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 328 | 116 | 42 | 84 |
| 152 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 332 | 119 | 43 | 85 |
| 153 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 326 | 119 | 42 | 85 |
| 154 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 333 | 115 | 43 | 85 |
| 155 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 328 | 115 | 42 | 83 |
| 156 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 332 | 115 | 43 | 83 |
| 157 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 326 | 115 | 42 | 83 |
| 158 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 333 | 117 | 43 | 84 |
| 159 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 330 | 123 | 43 | 82 |
| 160 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 324 | 123 | 42 | 82 |
| 161 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 331 | 118 | 43 | 84 |
| 162 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 330 | 119 | 43 | 83 |
| 163 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 324 | 116 | 42 | 82 |
| 164 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 331 | 121 | 43 | 84 |
| 165 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 330 | 123 | 43 | 83 |
| 166 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 324 | 123 | 42 | 81 |
| 167 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 331 | 118 | 43 | 82 |
| 168 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 325 | 119 | 43 | 81 |
| 169 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 316 | 116 | 43 | 77 |
| 170 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 327 | 121 | 43 | 81 |
| 171 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 331 | 123 | 43 | 84 |
| 172 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 312 | 123 | 42 | 76 |
| 173 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 313 | 118 | 42 | 76 |
| 174 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 323 | 119 | 42 | 79 |
| 175 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 312 | 116 | 42 | 77 |
| 176 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 332 | 121 | 43 | 83 |
| 177 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 325 | 117 | 43 | 81 |
| 178 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 320 | 118 | 42 | 80 |
| 179 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 319 | 116 | 42 | 77 |
| 180 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 322 | 118 | 43 | 79 |
| 181 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 325 | 116 | 43 | 80 |
| 182 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 333 | 118 | 42 | 85 |
| 183 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 326 | 119 | 42.5 | 81 |
| 184 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 333 | 117 | 42 | 84 |
| 185 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 326 | 115 | 42.5 | 81 |
| 186 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 327 | 116 | 42 | 82 |
| 187 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 326 | 117 | 42.5 | 82 |
| 188 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 318 | 116 | 44 | 78 |
| 189 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 322 | 121 | 42 | 80 |
| 190 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 322 | 120 | 42 | 79 |
| 191 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 323 | 118 | 42 | 80 |
| 192 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 333 | 118 | 42 | 85 |
| 193 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 330 | 118 | 43 | 84 |
| 194 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 333 | 118 | 42.5 | 84 |
| 195 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 330 | 121 | 42.5 | 84 |
| 196 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 317 | 122 | 42 | 77 |
| 197 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 315 | 121 | 43 | 76 |
| 198 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 326 | 118 | 42.5 | 81 |
| 199 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 325 | 118 | 42 | 80 |
| 200 | O60 | 9.9 | 0.6 | 0.56-0.750 | 9.87-9.93 | 324 | 118 | 42 | 80 |
| 201 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 312 | 112 | 41 | / |
| 202 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 316 | 120 | 37 | / |
| 203 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 309 | 118 | 39 | / |
| 204 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 117 | 38 | / |
| 205 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 320 | 116 | 39 | / |
| 206 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 317 | 120 | 39 | / |
| 207 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 312 | 120 | 40 | / |
| 208 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 319 | 116 | 41 | / |
| 209 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 120 | 37 | / |
| 210 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 115 | 39 | / |
| 211 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 325 | 118 | 39 | / |
| 212 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 312 | 120 | 39 | / |
| 213 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 315 | 121 | 40 | / |
| 214 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 318 | 120 | 38 | / |
| 215 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 119 | 39 | / |
| 216 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 320 | 113 | 37 | / |
| 217 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 324 | 117 | 37 | / |
| 218 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 319 | 120 | 37 | / |
| 219 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 319 | 121 | 39 | / |
| 220 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 325 | 114 | 40 | / |
| 221 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 325 | 113 | 40 | / |
| 222 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 320 | 120 | 41 | / |
| 223 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 118 | 40 | / |
| 224 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 323 | 121 | 39 | / |
| 225 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 117 | 37 | / |
| 226 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 324 | 119 | 37 | / |
| 227 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 319 | 118 | 40 | / |
| 228 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 121 | 40 | / |
| 229 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 324 | 119 | 41 | / |
| 230 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 320 | 119 | 39 | / |
| 231 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 118 | 39 | / |
| 232 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 119 | 93 | / |
| 233 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 317 | 120 | 41 | / |
| 234 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 117 | 39 | / |
| 235 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 319 | 119 | 40 | / |
| 236 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 312 | 120 | 40 | / |
| 237 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 121 | 39 | / |
| 238 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 115 | 41 | / |
| 239 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 327 | 117 | 39 | / |
| 240 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 121 | 39 | / |
| 241 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 327 | 118 | 40 | / |
| 242 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 324 | 115 | 37 | / |
| 243 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 320 | 113 | 37 | / |
| 244 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 116 | 38 | / |
| 245 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 319 | 115 | 41 | / |
| 246 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 121 | 41 | / |
| 247 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 323 | 120 | 41 | / |
| 248 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 324 | 119 | 39 | / |
| 249 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 325 | 120 | 39 | / |
| 250 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 320 | 118 | 38 | / |
| 251 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 328 | 116 | 39 | / |
| 252 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 112 | 39 | / |
| 253 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 119 | 37 | / |
| 254 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 115 | 37 | / |
| 255 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 328 | 116 | 38 | / |
| 256 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 118 | 39 | / |
| 257 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 119 | 39 | / |
| 258 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 323 | 117 | 41 | / |
| 259 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 318 | 120 | 41 | / |
| 260 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 324 | 121 | 41 | / |
| 261 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 318 | 118 | 39 | / |
| 262 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 117 | 38 | / |
| 263 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 324 | 116 | 39 | / |
| 264 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 319 | 121 | 41 | / |
| 265 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 120 | 39 | / |
| 266 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 324 | 119 | 39 | / |
| 267 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 118 | 41 | / |
| 268 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 325 | 117 | 41 | / |
| 269 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 316 | 116 | 41 | / |
| 270 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 327 | 121 | 39 | / |
| 271 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 325 | 120 | 39 | / |
| 272 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 119 | 38 | / |
| 273 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 119 | 38 | / |
| 274 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 323 | 120 | 37 | / |
| 275 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 318 | 121 | 39 | / |
| 276 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 121 | 41 | / |
| 277 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 325 | 119 | 41 | / |
| 278 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 320 | 118 | 41 | / |
| 279 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 320 | 121 | 39 | / |
| 280 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 120 | 39 | / |
| 281 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 325 | 117 | 38 | / |
| 282 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 121 | 41 | / |
| 283 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 119 | 41 | / |
| 284 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 123 | 39 | / |
| 285 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 121 | 39 | / |
| 286 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 327 | 116 | 41 | / |
| 287 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 319 | 121 | 40 | / |
| 288 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 114 | 40 | / |
| 289 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 121 | 39 | / |
| 290 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 326 | 122 | 38 | / |
| 291 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 323 | 118 | 40 | / |
| 292 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 320 | 117 | 39 | / |
| 293 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 327 | 118 | 39 | / |
| 294 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 322 | 119 | 39 | / |
| 295 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 319 | 121 | 40 | / |
| 296 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 325 | 119 | 41 | / |
| 297 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 315 | 121 | 39 | / |
| 298 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 321 | 120 | 38 | / |
| 299 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 327 | 121 | 39 | / |
| 300 | O60 | 12 | 0.7 | 0.65-0.75 | 11.96-12.02 | 328 | 117 | 41 | / |
| 301 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 330 | 118 | 40 | 81 |
| 302 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 331 | 117 | 42 | 80 |
| 303 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 329 | 116 | 41 | 83 |
| 304 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 324 | 117 | 43 | 83 |
| 305 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 325 | 116 | 40 | 82 |
| 306 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 329 | 116 | 42 | 81 |
| 307 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 322 | 120 | 43 | 80 |
| 308 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 319 | 119 | 42 | 80 |
| 309 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 327 | 129 | 41 | 81 |
| 310 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 328 | 115 | 44 | 81 |
| 311 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 331 | 117 | 43 | 86 |
| 312 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 330 | 120 | 41 | 84 |
| 313 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 325 | 123 | 40 | 80 |
| 314 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 324 | 120 | 43 | 79 |
| 315 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 121 | 42 | 81 |
| 316 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 322 | 118 | 43 | 81 |
| 317 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 324 | 117 | 41 | 83 |
| 318 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 327 | 124 | 42 | 83 |
| 319 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 321 | 120 | 44 | 80 |
| 320 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 328 | 127 | 43 | 80 |
| 321 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 325 | 121 | 45 | 83 |
| 322 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 123 | 44 | 83 |
| 323 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 118 | 44 | 80 |
| 324 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 323 | 120 | 42 | 84 |
| 325 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 322 | 117 | 45 | 84 |
| 326 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 324 | 127 | 43 | 80 |
| 327 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 331 | 118 | 43 | 83 |
| 328 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 333 | 120 | 43 | 83 |
| 329 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 333 | 119 | 41 | 87 |
| 330 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 320 | 120 | 46 | 80 |
| 331 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 124 | 42 | 86 |
| 332 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 321 | 119 | 42 | 80 |
| 333 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 317 | 120 | 41 | 82 |
| 334 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 321 | 117 | 42 | 81 |
| 335 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 323 | 119 | 44 | 81 |
| 336 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 323 | 120 | 44 | 80 |
| 337 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 124 | 45 | 86 |
| 338 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 332 | 115 | 41 | 84 |
| 339 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 328 | 115 | 42 | 83 |
| 340 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 322 | 121 | 44 | 82 |
| 341 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 327 | 118 | 42 | 84 |
| 342 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 324 | 116 | 43 | 83 |
| 343 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 320 | 115 | 42 | 80 |
| 344 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 322 | 116 | 40 | 82 |
| 345 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 331 | 116 | 42 | 81 |
| 346 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 121 | 42 | 83 |
| 347 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 323 | 126 | 43 | 80 |
| 348 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 324 | 124 | 44 | 82 |
| 349 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 325 | 124 | 42 | 83 |
| 350 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 320 | 120 | 46 | 82 |
| 351 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 328 | 116 | 42 | 84 |
| 352 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 332 | 119 | 43 | 85 |
| 353 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 119 | 44 | 85 |
| 354 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 333 | 115 | 43 | 85 |
| 355 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 328 | 115 | 41 | 83 |
| 356 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 332 | 115 | 43 | 83 |
| 357 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 115 | 43 | 83 |
| 358 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 333 | 117 | 43 | 84 |
| 359 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 330 | 123 | 43 | 82 |
| 360 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 324 | 123 | 45 | 83 |
| 361 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 331 | 118 | 43 | 84 |
| 362 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 330 | 119 | 41 | 86 |
| 363 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 324 | 116 | 42 | 82 |
| 364 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 331 | 121 | 43 | 84 |
| 365 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 330 | 123 | 43 | 83 |
| 366 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 324 | 123 | 42 | 81 |
| 367 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 331 | 118 | 44 | 80 |
| 368 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 325 | 119 | 43 | 81 |
| 369 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 316 | 116 | 43 | 83 |
| 370 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 327 | 121 | 44 | 86 |
| 371 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 331 | 123 | 43 | 84 |
| 372 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 329 | 126 | 45 | 83 |
| 373 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 127 | 43 | 80 |
| 374 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 323 | 120 | 42 | 83 |
| 375 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 330 | 130 | 42 | 83 |
| 376 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 332 | 121 | 43 | 84 |
| 377 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 325 | 117 | 43 | 83 |
| 378 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 320 | 118 | 42 | 80 |
| 379 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 332 | 130 | 42 | 86 |
| 380 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 322 | 127 | 42 | 80 |
| 381 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 325 | 126 | 43 | 85 |
| 382 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 333 | 124 | 42 | 86 |
| 383 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 124 | 43 | 81 |
| 384 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 333 | 123 | 42 | 84 |
| 385 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 121 | 44 | 83 |
| 386 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 327 | 116 | 42 | 82 |
| 387 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 326 | 121 | 45 | 84 |
| 388 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 330 | 120 | 44 | 80 |
| 389 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 322 | 121 | 43 | 81 |
| 390 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 322 | 120 | 44 | 83 |
| 391 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 323 | 118 | 42 | 80 |
| 392 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 333 | 118 | 43 | 85 |
| 393 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 330 | 118 | 43 | 85 |
| 394 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 333 | 118 | 43 | 86 |
| 395 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 330 | 121 | 46 | 84 |
| 396 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 325 | 125 | 41 | 90 |
| 397 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 315 | 121 | 43 | 87 |
| 398 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 321 | 120 | 45 | 85 |
| 399 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 327 | 126 | 42 | 84 |
| 400 | O60 | 16 | 1 | 0.96-1.05 | 15.86-15.91 | 328 | 127 | 41 | 86 |
| 401 | O60 | 18.9 | 1.68 | 1.65-1.67 | 18.87-18.91 | 315 | 93 | 36 |  |
| 402 | O60 | 18.9 | 1.68 | 1.64-1.69 | 18.89-18.93 | 318 | 97.5 | 35.5 |  |
| 403 | O60 | 18.9 | 1.68 | 1.65-1.69 | 18.89-18.93 | 317 | 98 | 35.5 |  |
| 404 | O60 | 18.9 | 1.68 | 1.64-1.7 | 18.88-18.94 | 309 | 94.5 | 37 |  |
| 405 | O60 | 18.9 | 1.68 | 1.66-1.7 | 18.89-18.91 | 319 | 101 | 36 |  |
| 406 | O60 | 18.9 | 1.68 | 1.65-1.71 | 18.9-18.93 | 309 | 97.5 | 37.5 |  |
| 407 | O60 | 18.9 | 1.68 | 1.65-1.69 | 18.88-18.92 | 330 | 94 | 35.5 |  |
| 408 | O60 | 18.9 | 1.68 | 1.64-1.7 | 18.89-18.93 | 324 | 91.5 | 37 |  |
| 409 | O60 | 18.9 | 1.68 | 1.64-1.68 | 18.87-18.91 | 318 | 98 | 35.5 |  |
| 410 | O60 | 18.9 | 1.68 | 1.65-1.7 | 18.89-18.93 | 304 | 94.5 | 38 |  |
| 411 | O60 | 18.9 | 1.68 | 1.65-1.69 | 18.88-18.92 | 332 | 102 | 35.5 |  |
| 412 | O60 | 18.9 | 1.68 | 1.66-1.7 | 18.89-18.93 | 317 | 97.5 | 38 |  |
| 413 | O60 | 18.9 | 1.68 | 1.65-1.69 | 18.88-18.89 | 327 | 107 | 35.5 |  |
| 414 | O60 | 18.9 | 1.68 | 1.66-1.7 | 18.89-18.91 | 319 | 98.97 | 38 |  |
| 415 | O60 | 18.9 | 1.68 | 1.64-1.68 | 18.89-18.93 | 318 | 95 | 35.5 |  |
| 416 | O60 | 18.9 | 1.68 | 1.65-1.69 | 18.9-18.94 | 307 | 93.5 | 37 |  |
| 417 | O60 | 18.9 | 1.68 | 1.63-1.67 | 18.89-18.92 | 313 | 94 | 36 |  |
| 418 | O60 | 18.9 | 1.68 | 1.64-1.69 | 18.9-18.93 | 304 | 92 | 39 |  |
| 419 | O60 | 18.9 | 1.68 | 1.64-1.66 | 18.9-18.92 | 313 | 93 | 35.5 |  |
| 420 | O60 | 18.9 | 1.68 | 1.63-1.69 | 18.89-18.93 | 307 | 91 | 38 |  |

附表2：

附表2 BFe10-1.6-1数据统计表（规格≤115mm）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 状态 | 外径 | 壁厚 | 壁厚允许偏差±0.071 | 任意外径允许偏差±0.05 | 抗拉强度Rm N/mm2 | 屈服强度Rp0.2 N/mm2 | 延伸A50mm % | 硬度HV |
| 1 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 367 | 148 | 37.5 | 81.8 |
| 2 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 358 | 139 | 38.4 | 80.2 |
| 3 | O60 | 9.53 | 0.71 | 0.670-0.760 | 9.510-9.570 | 374 | 151 | 36.5 | 82.7 |
| 4 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 378 | 153 | 36.1 | 82.9 |
| 5 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 356 | 136 | 38.5 | 79.8 |
| 6 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 352 | 132 | 38.9 | 79.3 |
| 7 | O60 | 9.53 | 0.71 | 0.660-0.750 | 9.500-9.560 | 364 | 143 | 37.6 | 81.3 |
| 8 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 368 | 145 | 37.4 | 81.7 |
| 9 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 372 | 149 | 36.6 | 82.4 |
| 10 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 359 | 138 | 38.3 | 80.4 |
| 11 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.510-9.570 | 352 | 133 | 38.8 | 79.5 |
| 12 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 361 | 143 | 37.9 | 80.4 |
| 13 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 377 | 152 | 36.3 | 82.8 |
| 14 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 372 | 147 | 36.4 | 82.1 |
| 15 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.560 | 353 | 134 | 38.6 | 79.4 |
| 16 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 356 | 137 | 38.2 | 79.7 |
| 17 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 351 | 132 | 38.9 | 79.3 |
| 18 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 367 | 145 | 37.2 | 81.4 |
| 19 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 364 | 142 | 37.1 | 81.1 |
| 20 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.560 | 371 | 148 | 36.9 | 82.2 |
| 21 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 368 | 144 | 37.2 | 81.8 |
| 22 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 374 | 150 | 36.5 | 82.3 |
| 23 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 358 | 138 | 38.3 | 79.9 |
| 24 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 352 | 133 | 38.7 | 79.6 |
| 25 | O60 | 9.53 | 0.71 | 0.670-0.760 | 9.500-9.570 | 366 | 145 | 37.4 | 81.8 |
| 26 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 372 | 148 | 36.7 | 82.3 |
| 27 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 376 | 151 | 36.3 | 82.6 |
| 28 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 371 | 147 | 36.8 | 82.2 |
| 29 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.510-9.570 | 374 | 152 | 36.4 | 82.5 |
| 30 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 377 | 154 | 36.2 | 82.8 |
| 31 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 373 | 151 | 36.5 | 82.1 |
| 32 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 376 | 153 | 36.2 | 82.7 |
| 33 | O60 | 9.53 | 0.71 | 0.660-0.750 | 9.500-9.570 | 367 | 146 | 37.3 | 81.6 |
| 34 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 364 | 143 | 37.7 | 81.2 |
| 35 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 361 | 140 | 37.9 | 80.7 |
| 36 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 365 | 144 | 37.4 | 81.1 |
| 37 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 366 | 147 | 37.2 | 80.9 |
| 38 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 364 | 146 | 37.6 | 81 |
| 39 | O60 | 9.53 | 0.71 | 0.670-0.760 | 9.500-9.570 | 362 | 142 | 37.7 | 80.7 |
| 40 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 358 | 136 | 38.3 | 79.8 |
| 41 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.510-9.570 | 364 | 144 | 37.5 | 81.5 |
| 42 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 368 | 147 | 37.1 | 81.8 |
| 43 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 363 | 145 | 37.6 | 81.2 |
| 44 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 372 | 149 | 36.4 | 82.3 |
| 45 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 368 | 143 | 37.2 | 81.6 |
| 46 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 365 | 145 | 37.4 | 81.3 |
| 47 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 367 | 141 | 37.1 | 81.5 |
| 48 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 364 | 146 | 37.5 | 81.2 |
| 49 | O60 | 9.53 | 0.71 | 0.670-0.760 | 9.500-9.570 | 362 | 143 | 37.8 | 80.7 |
| 50 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 374 | 151 | 36.2 | 82.6 |
| 51 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 357 | 136 | 38.2 | 79.9 |
| 52 | O60 | 9.53 | 0.71 | 0.660-0.750 | 9.500-9.570 | 359 | 138 | 38.0 | 80.1 |
| 53 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 376 | 154 | 36.3 | 82.8 |
| 54 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 361 | 141 | 37.8 | 80.6 |
| 55 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.510-9.570 | 363 | 144 | 37.7 | 80.6 |
| 56 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 355 | 133 | 38.4 | 79.4 |
| 57 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 359 | 137 | 38.2 | 82.3 |
| 58 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 352 | 131 | 38.8 | 79.3 |
| 59 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 357 | 135 | 38.4 | 79.6 |
| 60 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.510-9.570 | 363 | 143 | 37.8 | 80.5 |
| 61 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 354 | 133 | 38.7 | 79.3 |
| 62 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 359 | 138 | 38.3 | 79.6 |
| 63 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 351 | 129 | 38.8 | 79.1 |
| 64 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 356 | 134 | 38.4 | 79.4 |
| 65 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 352 | 130 | 38.9 | 79.3 |
| 66 | O60 | 9.53 | 0.71 | 0.670-0.760 | 9.500-9.570 | 358 | 137 | 38.2 | 79.8 |
| 67 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 373 | 152 | 36.4 | 82.4 |
| 68 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 364 | 145 | 37.7 | 81.1 |
| 69 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 361 | 142 | 37.9 | 80.7 |
| 70 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 366 | 147 | 37.3 | 81.4 |
| 71 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 362 | 143 | 37.8 | 81.1 |
| 72 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 368 | 149 | 37.1 | 81.6 |
| 73 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 367 | 149 | 37.3 | 81.8 |
| 74 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 363 | 144 | 37.7 | 81.4 |
| 75 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 364 | 146 | 37.5 | 81.7 |
| 76 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 362 | 142 | 37.9 | 81.3 |
| 77 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.560 | 365 | 147 | 37.4 | 80.6 |
| 78 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 375 | 152 | 36.4 | 82.5 |
| 79 | O60 | 9.53 | 0.71 | 0.660-0.750 | 9.500-9.570 | 379 | 154 | 36.0 | 82.8 |
| 80 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 372 | 150 | 36.5 | 82.3 |
| 81 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 366 | 145 | 37.3 | 80.8 |
| 82 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 362 | 143 | 37.7 | 80.3 |
| 83 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 364 | 144 | 37.6 | 80.5 |
| 84 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 368 | 147 | 37.3 | 81.1 |
| 85 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 361 | 142 | 37.8 | 80.5 |
| 86 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 366 | 145 | 37.2 | 80.8 |
| 87 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.560 | 363 | 144 | 37.6 | 80.4 |
| 88 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 365 | 142 | 37.7 | 80.6 |
| 89 | O60 | 9.53 | 0.71 | 0.670-0.760 | 9.500-9.570 | 362 | 143 | 37.9 | 80.4 |
| 90 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 368 | 147 | 37.1 | 81.3 |
| 91 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 360 | 138 | 37.8 | 80.1 |
| 92 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 354 | 133 | 38.7 | 79.5 |
| 93 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 377 | 156 | 36.3 | 82.6 |
| 94 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 362 | 141 | 37.9 | 80.1 |
| 95 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 371 | 151 | 36.8 | 82.3 |
| 96 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.560 | 355 | 134 | 38.6 | 79.6 |
| 97 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 367 | 145 | 37.3 | 80.8 |
| 98 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 361 | 143 | 37.8 | 80.4 |
| 99 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.510-9.570 | 358 | 137 | 38.3 | 79.9 |
| 100 | O60 | 9.53 | 0.71 | 0.660-0.760 | 9.500-9.570 | 366 | 144 | 37.5 | 81.3 |
| 101 | O60 | 76 | 2 | 1.8-2.2 | 76.05-76.2 | 330 | 127 | 36 | 78.6 |
| 102 | O60 | 76 | 2 | 1.81-2.17 | 76.05-76.2 | 325 | 124 | 38 | 76.3 |
| 103 | O60 | 76 | 2 | 1.93-2.06 | 76.05-76.2 | 335 | 130 | 36 | 79.5 |
| 104 | O60 | 76 | 2 | 1.83-2.14 | 76.05-76.2 | 320 | 122 | 39 | 76.8 |
| 105 | O60 | 76 | 2 | 1.86-2.13 | 76.05-76.2 | 330 | 126 | 37 | 77.9 |
| 106 | O60 | 76 | 2 | 1.88-2.12 | 76.05-76.2 | 330 | 129 | 37 | 78.2 |
| 107 | O60 | 76 | 2 | 1.89-2.10 | 76.05-76.2 | 320 | 120 | 39 | 76.5 |
| 108 | O60 | 76 | 2 | 1.96-2.01 | 76.05-76.2 | 320 | 119 | 39 | 76.9 |
| 109 | O60 | 76 | 2 | 1.84-2.15 | 76.05-76.2 | 325 | 124 | 38 | 77.6 |
| 110 | O60 | 76 | 2 | 1.89-2.11 | 76.05-76.2 | 325 | 125 | 38 | 77.9 |
| 111 | O60 | 76 | 2 | 1.94-2.04 | 76.05-76.2 | 320 | 117 | 39 | 76.8 |
| 112 | O60 | 76 | 2 | 1.89-2.09 | 76.05-76.2 | 335 | 131 | 36 | 79.1 |
| 113 | O60 | 76 | 2 | 1.84-2.11 | 76.05-76.2 | 330 | 128 | 37 | 78.7 |
| 114 | O60 | 76 | 2 | 1.92-2.05 | 76.05-76.2 | 330 | 127 | 37 | 79.2 |
| 115 | O60 | 76 | 2 | 1.81-2.17 | 76.05-76.2 | 325 | 123 | 39 | 78.9 |
| 116 | O60 | 76 | 2 | 1.95-2.04 | 76.05-76.2 | 325 | 124 | 38 | 78.6 |
| 117 | O60 | 76 | 2 | 1.86-2.13 | 76.05-76.2 | 320 | 118 | 40 | 77.3 |
| 118 | O60 | 76 | 2 | 1.88-2.13 | 76.05-76.2 | 335 | 132 | 37 | 79.9 |
| 119 | O60 | 76 | 2 | 1.96-2.04 | 76.05-76.2 | 330 | 130 | 38 | 79.7 |
| 120 | O60 | 76 | 2 | 1.91-2.07 | 76.05-76.2 | 330 | 125 | 38 | 79.4 |
| 121 | O60 | 89 | 2.5 | 2.25-2.75 | 89.1-89.25 | 335 | 129 | 38 | 77.8 |
| 122 | O60 | 89 | 2.5 | 2.36-2.63 | 89.1-89.25 | 345 | 137 | 36 | 80.2 |
| 123 | O60 | 89 | 2.5 | 2.28-2.73 | 89.1-89.25 | 330 | 125 | 39 | 76.2 |
| 124 | O60 | 89 | 2.5 | 2.46-2.53 | 89.1-89.25 | 335 | 132 | 37 | 78.1 |
| 125 | O60 | 89 | 2.5 | 2.45-2.56 | 89.1-89.25 | 335 | 133 | 38 | 78.3 |
| 126 | O60 | 89 | 2.5 | 2.41-2.59 | 89.1-89.25 | 345 | 139 | 37 | 80.6 |
| 127 | O60 | 89 | 2.5 | 2.31-2.68 | 89.1-89.25 | 325 | 121 | 40 | 7.5 |
| 128 | O60 | 89 | 2.5 | 2.37-2.63 | 89.1-89.25 | 330 | 136 | 39 | 79.3 |
| 129 | O60 | 89 | 2.5 | 2.28-2.72 | 89.1-89.25 | 330 | 128 | 39 | 79.1 |
| 130 | O60 | 89 | 2.5 | 2.35-2.64 | 89.1-89.25 | 335 | 136 | 38 | 78.6 |
| 131 | O60 | 89 | 2.5 | 2.43-2.56 | 89.1-89.25 | 325 | 124 | 40 | 78.9 |
| 132 | O60 | 89 | 2.5 | 2.35-2.66 | 89.1-89.25 | 330 | 130 | 39 | 78.8 |
| 133 | O60 | 89 | 2.5 | 2.48-2.53 | 89.1-89.25 | 320 | 119 | 40 | 76.6 |
| 134 | O60 | 89 | 2.5 | 2.36-2.65 | 89.1-89.25 | 315 | 115 | 42 | 77.6 |
| 135 | O60 | 89 | 2.5 | 2.44-2.56 | 89.1-89.25 | 320 | 122 | 39 | 77.4 |
| 136 | O60 | 89 | 2.5 | 2.46-2.55 | 89.1-89.25 | 330 | 129 | 37 | 78.3 |
| 137 | O60 | 89 | 2.5 | 2.26-2.73 | 89.1-89.25 | 335 | 131 | 36 | 78.9 |
| 138 | O60 | 89 | 2.5 | 2.35-2.65 | 89.1-89.25 | 320 | 120 | 38 | 78.6 |
| 139 | O60 | 89 | 2.5 | 2.29-2.70 | 89.1-89.25 | 335 | 133 | 38 | 79.1 |
| 140 | O60 | 89 | 2.5 | 2.39-2.61 | 89.1-89.25 | 315 | 112 | 41 | 76.9 |
| 141 | O60 | 108 | 3 | 2.7-3.3 | 108-108.25 | 335 | 135 | 39 | 79.2 |
| 142 | O60 | 108 | 3 | 2.78-3.20 | 108-108.25 | 340 | 139 | 39 | 80.5 |
| 143 | O60 | 108 | 3 | 2.81-3.18 | 108-108.25 | 335 | 133 | 39.5 | 79.3 |
| 144 | O60 | 108 | 3 | 2.76-3.24 | 108-108.25 | 330 | 130 | 40 | 78.9 |
| 145 | O60 | 108 | 3 | 2.96-3.03 | 108-108.25 | 320 | 125 | 44 | 77.6 |
| 146 | O60 | 108 | 3 | 2.93-3.06 | 108-108.25 | 315 | 118 | 44 | 77.1 |
| 147 | O60 | 108 | 3 | 2.78-3.22 | 108-108.25 | 330 | 133 | 40 | 78.6 |
| 148 | O60 | 108 | 3 | 2.91-3.10 | 108-108.25 | 340 | 140 | 39 | 79.9 |
| 149 | O60 | 108 | 3 | 2.74-3.26 | 108-108.25 | 345 | 145 | 39 | 81 |
| 150 | O60 | 108 | 3 | 2.87-3.02 | 108-108.25 | 345 | 144 | 39.5 | 81.2 |
| 151 | O60 | 108 | 3 | 2.89-3.12 | 108-108.25 | 330 | 131 | 40 | 79.6 |
| 152 | O60 | 108 | 3 | 2.77-3.23 | 108-108.25 | 335 | 136 | 40 | 80.2 |
| 153 | O60 | 108 | 3 | 2.87-3.13 | 108-108.25 | 320 | 123 | 44 | 78.1 |
| 154 | O60 | 108 | 3 | 2.93-3.08 | 108-108.25 | 320 | 122 | 43.5 | 78 |
| 155 | O60 | 108 | 3 | 2.89-3.11 | 108-108.25 | 315 | 118 | 44 | 77.2 |
| 156 | O60 | 108 | 3 | 2.86-3.13 | 108-108.25 | 305 | 114 | 44 | 76.1 |
| 157 | O60 | 108 | 3 | 2.79-3.20 | 108-108.25 | 310 | 116 | 43 | 77.9 |
| 158 | O60 | 108 | 3 | 2.88-3.13 | 108-108.25 | 315 | 119 | 42 | 78.2 |
| 159 | O60 | 108 | 3 | 2.74-3.27 | 108-108.25 | 320 | 123 | 42 | 78.3 |
| 160 | O60 | 108 | 3 | 2.79-3.21 | 108-108.25 | 330 | 131 | 38 | 78.9 |

附表3：

附表3 BFe10-1.6-1数据统计表（规格≥115mm）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 状态 | 外径 | 壁厚 | 壁厚允许偏差±0.35 | 平均外径允许偏差+0.2～+0.5 | 抗拉强度Rm N/mm2≥290 | 屈服强度Rp0.2 N/mm2≥105 | 延伸A % | 硬度HV |
|
| 1 | O60 | 133 | 3.5 | 3.15-3.85 | 133.2-133.5 | 330 | 136 | 39 | 79.2 |
| 2 | O60 | 133 | 3.5 | 3.21-3.79 | 133.2-133.5 | 325 | 127 | 42 | 78.1 |
| 3 | O60 | 133 | 3.5 | 3.17-3.84 | 133.2-133.5 | 320 | 125 | 44 | 77.6 |
| 4 | O60 | 133 | 3.5 | 3.35-3.66 | 133.2-133.5 | 345 | 140 | 38 | 81.6 |
| 5 | O60 | 133 | 3.5 | 3.31-3.68 | 133.2-133.5 | 340 | 140 | 39 | 81.3 |
| 6 | O60 | 133 | 3.5 | 3.29-3.72 | 133.2-133.5 | 335 | 136 | 39 | 80.3 |
| 7 | O60 | 133 | 3.5 | 3.47-3.54 | 133.2-133.5 | 330 | 133 | 38 | 79.6 |
| 8 | O60 | 133 | 3.5 | 3.43-3.57 | 133.2-133.5 | 330 | 129 | 39 | 79.3 |
| 9 | O60 | 133 | 3.5 | 3.33-3.68 | 133.2-133.5 | 335 | 134 | 39 | 79.8 |
| 10 | O60 | 133 | 3.5 | 3.39-3.62 | 133.2-133.5 | 330 | 132 | 39.5 | 78.9 |
| 11 | O60 | 133 | 3.5 | 3.46-3.55 | 133.2-133.5 | 325 | 120 | 41 | 78.1 |
| 12 | O60 | 133 | 3.5 | 3.19-3.82 | 133.2-133.5 | 315 | 116 | 43 | 76.9 |
| 13 | O60 | 133 | 3.5 | 3.27-3.74 | 133.2-133.5 | 320 | 123 | 40 | 77.9 |
| 14 | O60 | 133 | 3.5 | 3.39-3.60 | 133.2-133.5 | 335 | 131 | 40.5 | 79.3 |
| 15 | O60 | 133 | 3.5 | 3.43-3.58 | 133.2-133.5 | 320 | 122 | 42 | 78 |
| 16 | O60 | 133 | 3.5 | 3.37-3.62 | 133.2-133.5 | 330 | 129 | 40 | 79.2 |
| 17 | O60 | 133 | 3.5 | 3.45-3.56 | 133.2-133.5 | 335 | 136 | 39 | 79.3 |
| 18 | O60 | 133 | 3.5 | 3.26-3.74 | 133.2-133.5 | 340 | 142 | 38 | 81.5 |
| 19 | O60 | 133 | 3.5 | 3.25-3.76 | 133.2-133.5 | 345 | 144 | 37 | 82.3 |
| 20 | O60 | 133 | 3.5 | 3.73-3.57 | 133.2-133.5 | 330 | 135 | 39 | 79.5 |
| 21 | O60 | 159 | 4 | 3.6-4.4 | 159.25-159.50 | 330 | 136 | 39 | 80.5 |
| 22 | O60 | 159 | 4 | 3.67-4.35 | 159.25-159.50 | 335 | 139 | 39 | 81 |
| 23 | O60 | 159 | 4 | 3.72-4.31 | 159.25-159.50 | 330 | 133 | 38 | 80.2 |
| 24 | O60 | 159 | 4 | 3.61-4.4 | 159.25-159.50 | 320 | 125 | 42 | 79.5 |
| 25 | O60 | 159 | 4 | 3.78-4.23 | 159.25-159.50 | 315 | 109 | 44 | 78.3 |
| 26 | O60 | 159 | 4 | 3.95-4.07 | 159.25-159.50 | 335 | 138 | 40 | 81.3 |
| 27 | O60 | 159 | 4 | 3.76-4.23 | 159.25-159.50 | 330 | 131 | 39 | 80.6 |
| 28 | O60 | 159 | 4 | 3.86-4.16 | 159.25-159.50 | 325 | 129 | 42 | 79.6 |
| 29 | O60 | 159 | 4 | 3.81-4.20 | 159.25-159.50 | 325 | 123 | 41 | 79.9 |
| 30 | O60 | 159 | 4 | 3.64-4.36 | 159.25-159.50 | 330 | 130 | 39 | 80.4 |
| 31 | O60 | 159 | 4 | 3.69-4.30 | 159.25-159.50 | 335 | 132 | 38 | 81.2 |
| 32 | O60 | 159 | 4 | 3.72-4.28 | 159.25-159.50 | 340 | 139 | 38 | 82.2 |
| 33 | O60 | 159 | 4 | 3.7-4.32 | 159.25-159.50 | 335 | 129 | 39 | 80.2 |
| 34 | O60 | 159 | 4 | 3.92-4.11 | 159.25-159.50 | 330 | 126 | 37 | 79.9 |
| 35 | O60 | 159 | 4 | 3.84-4.17 | 159.25-159.50 | 330 | 125 | 39 | 80.1 |
| 36 | O60 | 159 | 4 | 3.72-4.31 | 159.25-159.50 | 340 | 132 | 38 | 82.3 |
| 37 | O60 | 159 | 4 | 3.87-4.14 | 159.25-159.50 | 315 | 105 | 42.5 | 78.1 |
| 38 | O60 | 159 | 4 | 3.95-4.06 | 159.25-159.50 | 320 | 113 | 41 | 78.8 |
| 39 | O60 | 159 | 4 | 3.68-4.33 | 159.25-159.50 | 325 | 121 | 42 | 79.3 |
| 40 | O60 | 159 | 4 | 3.89-4.13 | 159.25-159.50 | 325 | 119 | 42 | 79.6 |
| 41 | O60 | 219 | 4.5 | 3.94-5.06 | 219.4-219.8 | 325 | 125 | 39 | 79.3 |
| 42 | O60 | 219 | 4.5 | 4.08-4.92 | 219.4-219.8 | 335 | 131 | 38 | 80.5 |
| 43 | O60 | 219 | 4.5 | 4.32-4.69 | 219.4-219.8 | 340 | 142 | 37 | 82.3 |
| 44 | O60 | 219 | 4.5 | 4.47-4.54 | 219.4-219.8 | 315 | 108 | 44 | 78.1 |
| 45 | O60 | 219 | 4.5 | 4.19-4.83 | 219.4-219.8 | 325 | 119 | 40 | 78.6 |
| 46 | O60 | 219 | 4.5 | 4.23-4.78 | 219.4-219.8 | 330 | 129 | 39 | 79.2 |
| 47 | O60 | 219 | 4.5 | 4.27-4.74 | 219.4-219.8 | 330 | 127 | 40 | 79 |
| 48 | O60 | 219 | 4.5 | 4.35-4.66 | 219.4-219.8 | 320 | 118 | 42 | 78.8 |
| 49 | O60 | 219 | 4.5 | 4.14-4.86 | 219.4-219.8 | 310 | 106 | 43 | 76.5 |
| 50 | O60 | 219 | 4.5 | 4.27-4.72 | 219.4-219.8 | 315 | 111 | 43 | 77.1 |
| 51 | O60 | 219 | 4.5 | 4.38-4.63 | 219.4-219.8 | 325 | 122 | 40 | 77.9 |
| 52 | O60 | 219 | 4.5 | 4.46-4.54 | 219.4-219.8 | 335 | 126 | 39 | 80.3 |
| 53 | O60 | 219 | 4.5 | 4.36-4.65 | 219.4-219.8 | 330 | 136 | 40 | 79.6 |
| 54 | O60 | 219 | 4.5 | 4.28-4.73 | 219.4-219.8 | 325 | 124 | 40.5 | 79.3 |
| 55 | O60 | 219 | 4.5 | 4.33-4.68 | 219.4-219.8 | 335 | 129 | 40 | 80.6 |
| 56 | O60 | 219 | 4.5 | 4.39-4.62 | 219.4-219.8 | 320 | 117 | 41 | 78.8 |
| 57 | O60 | 219 | 4.5 | 4.45-4.56 | 219.4-219.8 | 325 | 121 | 40.5 | 79.4 |
| 58 | O60 | 219 | 4.5 | 4.37-4.64 | 219.4-219.8 | 310 | 106 | 44 | 76.6 |
| 59 | O60 | 219 | 4.5 | 4.25-4.76 | 219.4-219.8 | 315 | 109 | 43.5 | 77.1 |
| 60 | O60 | 219 | 4.5 | 4.18-4.82 | 219.4-219.8 | 335 | 130 | 41 | 81.2 |
| 61 | O60 | 267 | 5 | 4.38-5.62 | 266.4-2.68 | 320 | 118 | 40 | 78.9 |
| 62 | O60 | 267 | 5 | 4.53-5.47 | 266.4-2.68 | 315 | 106 | 44 | 77.3 |
| 63 | O60 | 267 | 5 | 4.48-5.53 | 266.4-2.68 | 320 | 120 | 41 | 79.1 |
| 64 | O60 | 267 | 5 | 4.62-5.39 | 266.4-2.68 | 325 | 122 | 40.5 | 79.3 |
| 65 | O60 | 267 | 5 | 4.78-5.23 | 266.4-2.68 | 325 | 123 | 40.5 | 79.2 |
| 66 | O60 | 267 | 5 | 4.69-5.34 | 266.4-2.68 | 330 | 130 | 39 | 78.6 |
| 67 | O60 | 267 | 5 | 4.56-5.43 | 266.4-2.68 | 315 | 118 | 43 | 76.5 |
| 68 | O60 | 267 | 5 | 4.89-5.12 | 266.4-2.68 | 330 | 129 | 40 | 80.3 |
| 69 | O60 | 267 | 5 | 4.74-5.26 | 266.4-2.68 | 335 | 136 | 39.5 | 81.2 |
| 70 | O60 | 267 | 5 | 4.96-5.05 | 266.4-2.68 | 335 | 139 | 39 | 82 |
| 71 | O60 | 267 | 5 | 4.66-5.35 | 266.4-2.68 | 340 | 144 | 39 | 82.5 |
| 72 | O60 | 267 | 5 | 4.87-5.14 | 266.4-2.68 | 335 | 140 | 40.5 | 81.6 |
| 73 | O60 | 267 | 5 | 4.46-5.54 | 266.4-2.68 | 325 | 121 | 41 | 80.2 |
| 74 | O60 | 267 | 5 | 4.73-5.26 | 266.4-2.68 | 320 | 118 | 43 | 78.4 |
| 75 | O60 | 267 | 5 | 4.53-5.47 | 266.4-2.68 | 315 | 113 | 44.5 | 78 |
| 76 | O60 | 267 | 5 | 4.9-5.12 | 266.4-2.68 | 310 | 108 | 44 | 77.1 |
| 77 | O60 | 267 | 5 | 4.67-5.34 | 266.4-2.68 | 315 | 114 | 43.5 | 77.3 |
| 78 | O60 | 267 | 5 | 4.59-5.40 | 266.4-2.68 | 335 | 127 | 41 | 79.6 |
| 79 | O60 | 267 | 5 | 4.83-5.18 | 266.4-2.68 | 330 | 132 | 42 | 79.9 |
| 80 | O60 | 267 | 5 | 4.54-5.47 | 266.4-2.68 | 325 | 123 | 42 | 78.5 |
| 81 | O60 | 324 | 5.5 | 4.82-6.18 | 323.2-325 | 340 | 136 | 41 | 81.5 |
| 82 | O60 | 324 | 5.5 | 5.34-5.67 | 323.2-325 | 335 | 130 | 43 | 80.3 |
| 83 | O60 | 324 | 5.5 | 4.96-6.04 | 323.2-325 | 330 | 131 | 42 | 79.8 |
| 84 | O60 | 324 | 5.5 | 5.08-5.92 | 323.2-325 | 345 | 145 | 41 | 82.9 |
| 85 | O60 | 324 | 5.5 | 5.17-5.84 | 323.2-325 | 345 | 144 | 40.5 | 82.7 |
| 86 | O60 | 324 | 5.5 | 5.45-5.6 | 323.2-325 | 335 | 140 | 42 | 81.6 |
| 87 | O60 | 324 | 5.5 | 5.23-5.77 | 323.2-325 | 335 | 139 | 43 | 80.5 |
| 88 | O60 | 324 | 5.5 | 4.93-6.08 | 323.2-325 | 330 | 133 | 44 | 80.6 |
| 89 | O60 | 324 | 5.5 | 5.11-5.89 | 323.2-325 | 345 | 147 | 40 | 82.6 |
| 90 | O60 | 324 | 5.5 | 5.35-5.66 | 323.2-325 | 340 | 143 | 40.5 | 82.1 |
| 91 | O60 | 324 | 5.5 | 5.40-5.61 | 323.2-325 | 345 | 145 | 39.5 | 81.6 |
| 92 | O60 | 324 | 5.5 | 5.13-5.88 | 323.2-325 | 325 | 129 | 44 | 80.3 |
| 93 | O60 | 324 | 5.5 | 4.92-6.09 | 323.2-325 | 325 | 128 | 43 | 79.9 |
| 94 | O60 | 324 | 5.5 | 5.34-5.67 | 323.2-325 | 320 | 125 | 44 | 78.4 |
| 95 | O60 | 324 | 5.5 | 5.38-5.63 | 323.2-325 | 335 | 137 | 42 | 79.8 |
| 96 | O60 | 324 | 5.5 | 4.24-5.86 | 323.2-325 | 345 | 148 | 42 | 82.5 |
| 97 | O60 | 324 | 5.5 | 4.79-5.25 | 323.2-325 | 340 | 144 | 41 | 82.4 |
| 98 | O60 | 324 | 5.5 | 4.81-5.22 | 323.2-325 | 345 | 146 | 41 | 82.9 |
| 99 | O60 | 324 | 5.5 | 5.44-5.56 | 323.2-325 | 335 | 132 | 43 | 81.3 |
| 100 | O60 | 324 | 5.5 | 5.18-5.84 | 323.2-325 | 325 | 128 | 44 | 79.6 |
| 101 | O60 | 368 | 6 | 5.25-6.75 | 367-369 | 315 | 110 | 45 | 78.5 |
| 102 | O60 | 368 | 6 | 5.40-6.62 | 367-369 | 325 | 115 | 44 | 79.3 |
| 103 | O60 | 368 | 6 | 5.67-6.35 | 367-369 | 330 | 130 | 44 | 80.6 |
| 104 | O60 | 368 | 6 | 5.82-6.21 | 367-369 | 315 | 108 | 44 | 77.6 |
| 105 | O60 | 368 | 6 | 5.26-6.75 | 367-369 | 310 | 107 | 45 | 76.9 |
| 106 | O60 | 368 | 6 | 5.78-6.24 | 367-369 | 330 | 129 | 43 | 81.5 |
| 107 | O60 | 368 | 6 | 5.69-6.34 | 367-369 | 325 | 123 | 44 | 80.3 |
| 108 | O60 | 368 | 6 | 5.74-6.30 | 367-369 | 335 | 132 | 42 | 82.6 |
| 109 | O60 | 368 | 6 | 5.32-6.60 | 367-369 | 315 | 109 | 46 | 79.1 |
| 110 | O60 | 368 | 6 | 5.68-6.37 | 367-369 | 325 | 118 | 43 | 80.2 |
| 111 | O60 | 368 | 6 | 5.29-6.73 | 367-369 | 320 | 114 | 45 | 79.6 |
| 112 | O60 | 368 | 6 | 5.97-6.08 | 367-369 | 335 | 129 | 43 | 81.6 |
| 113 | O60 | 368 | 6 | 5.83-6.20 | 367-369 | 340 | 136 | 41.5 | 82.6 |
| 114 | O60 | 368 | 6 | 5.43-6.59 | 367-369 | 345 | 139 | 40.5 | 83 |
| 115 | O60 | 368 | 6 | 5.66-6.40 | 367-369 | 330 | 124 | 43 | 82.1 |
| 116 | O60 | 368 | 6 | 5.49-6.54 | 367-369 | 335 | 131 | 42 | 79.9 |
| 117 | O60 | 368 | 6 | 5.71-6.32 | 367-369 | 325 | 120 | 43 | 78.4 |
| 118 | O60 | 368 | 6 | 5.63-6.40 | 367-369 | 340 | 142 | 41 | 82.6 |
| 119 | O60 | 368 | 6 | 5.86-6.14 | 367-369 | 340 | 140 | 41 | 82.5 |
| 120 | O60 | 368 | 6 | 5.62-6.40 | 367-369 | 325 | 126 | 43.5 | 78.6 |
| 121 | O60 | 419 | 6.5 | 5.69-7.31 | 417.5-420 | 345 | 145 | 42 | 82.3 |
| 122 | O60 | 419 | 6.5 | 6.21-6.80 | 417.5-420 | 340 | 144 | 42 | 81.9 |
| 123 | O60 | 419 | 6.5 | 5.76-7.25 | 417.5-420 | 340 | 142 | 42.5 | 81.6 |
| 124 | O60 | 419 | 6.5 | 5.98-7.05 | 417.5-420 | 345 | 146 | 41 | 82.6 |
| 125 | O60 | 419 | 6.5 | 6.38-6.65 | 417.5-420 | 330 | 132 | 44 | 80.9 |
| 126 | O60 | 419 | 6.5 | 6.17-6.86 | 417.5-420 | 335 | 136 | 43 | 81.1 |
| 127 | O60 | 419 | 6.5 | 5.84-7.20 | 417.5-420 | 325 | 129 | 44 | 80 |
| 128 | O60 | 419 | 6.5 | 5.79-7.24 | 417.5-420 | 320 | 121 | 45 | 79.6 |
| 129 | O60 | 419 | 6.5 | 6.26-6.79 | 417.5-420 | 335 | 136 | 43 | 80.3 |
| 130 | O60 | 419 | 6.5 | 6.07-6.98 | 417.5-420 | 335 | 137 | 43 | 80.6 |
| 131 | O60 | 419 | 6.5 | 6.17-6.83 | 417.5-420 | 335 | 138 | 42 | 81 |
| 132 | O60 | 419 | 6.5 | 6.45-6.57 | 417.5-420 | 320 | 122 | 45 | 79.4 |
| 133 | O60 | 419 | 6.5 | 6.24-6.80 | 417.5-420 | 340 | 140 | 41 | 82.1 |
| 134 | O60 | 419 | 6.5 | 5.79-7.23 | 417.5-420 | 340 | 141 | 42 | 82.3 |
| 135 | O60 | 419 | 6.5 | 5.86-7.18 | 417.5-420 | 335 | 137 | 43 | 81.9 |
| 136 | O60 | 419 | 6.5 | 6.37-6.65 | 417.5-420 | 335 | 136 | 42 | 82 |
| 137 | O60 | 419 | 6.5 | 5.76-7.28 | 417.5-420 | 325 | 123 | 43.5 | 80.3 |
| 138 | O60 | 419 | 6.5 | 5.71-7.30 | 417.5-420 | 335 | 132 | 42 | 81.6 |
| 139 | O60 | 419 | 6.5 | 6.12-6.90 | 417.5-420 | 330 | 129 | 43 | 81.1 |
| 140 | O60 | 419 | 6.5 | 6.40-6.62 | 417.5-420 | 335 | 134 | 42.5 | 82.1 |
| 141 | O60 | 457 | 5 | 4.38-5.62 | 455.5-458 | 335 | 131 | 44 | 81.3 |
| 142 | O60 | 457 | 5 | 4.36-5.71 | 455.5-458 | 340 | 140 | 42 | 82.2 |
| 143 | O60 | 457 | 5 | 4.53-5.51 | 455.5-458 | 320 | 123 | 45 | 78.6 |
| 144 | O60 | 457 | 5 | 4.47-5.58 | 455.5-458 | 345 | 142 | 40 | 82.8 |
| 145 | O60 | 457 | 5 | 4.87-5.17 | 455.5-458 | 335 | 139 | 43 | 81.3 |
| 146 | O60 | 457 | 5 | 4.65-5.41 | 455.5-458 | 330 | 131 | 43 | 81.1 |
| 147 | O60 | 457 | 5 | 4.58-5.46 | 455.5-458 | 335 | 135 | 43.5 | 81.6 |
| 148 | O60 | 457 | 5 | 4.69-5.36 | 455.5-458 | 340 | 140 | 41 | 82.3 |
| 149 | O60 | 457 | 5 | 4.96-5.09 | 455.5-458 | 340 | 142 | 41 | 82 |
| 150 | O60 | 457 | 5 | 4.81-5.23 | 455.5-458 | 325 | 125 | 43 | 81.5 |
| 151 | O60 | 457 | 5 | 4.64-5.40 | 455.5-458 | 315 | 110 | 44 | 78.3 |
| 152 | O60 | 457 | 5 | 4.86-5.18 | 455.5-458 | 320 | 118 | 44 | 79.5 |
| 153 | O60 | 457 | 5 | 4.63-5.40 | 455.5-458 | 325 | 122 | 42 | 80.1 |
| 154 | O60 | 457 | 5 | 4.59-5.46 | 455.5-458 | 315 | 117 | 44 | 78.4 |
| 155 | O60 | 457 | 5 | 4.86-5.21 | 455.5-458 | 310 | 109 | 45 | 77.9 |
| 156 | O60 | 457 | 5 | 4.57-5.49 | 455.5-458 | 325 | 126 | 43 | 79.6 |
| 157 | O60 | 457 | 5 | 4.96-5.10 | 455.5-458 | 330 | 133 | 42 | 81.5 |
| 158 | O60 | 457 | 5 | 4.7-5.32 | 455.5-458 | 335 | 138 | 41.5 | 81.7 |
| 159 | O60 | 457 | 5 | 4.69-5.35 | 455.5-458 | 320 | 121 | 42 | 79.4 |
| 160 | O60 | 457 | 5 | 4.41-4.64 | 455.5-458 | 315 | 114 | 44 | 78.3 |

附表4：

附表4 BFe30-1-1数据统计表（规格≤115mm）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 状态 | 外径 | 壁厚 | 壁厚允许偏差±0.2 | 平均外径允许偏差+0.2～+0.05 | 抗拉强度Rm N/mm2≥ | 屈服强度Rp0.2 N/mm2 | 延伸A % | 硬度HV |
| 1 | O60 | 70 | 2 | 1.83-2.14 | 70.05-70.2 | 430 | 175 | 36 | 124.7 |
| 2 | O60 | 70 | 2 | 1.88-2.12 | 70.05-70.2 | 425 | 169 | 38 | 122.3 |
| 3 | O60 | 70 | 2 | 1.92-2.05 | 70.05-70.2 | 435 | 177 | 37 | 125.6 |
| 4 | O60 | 70 | 2 | 1.82-2.15 | 70.05-70.2 | 420 | 165 | 38 | 118.6 |
| 5 | O60 | 70 | 2 | 1.85-2.12 | 70.05-70.2 | 415 | 162 | 38 | 117.3 |
| 6 | O60 | 70 | 2 | 1.87-2.11 | 70.05-70.2 | 435 | 176 | 37 | 126.3 |
| 7 | O60 | 70 | 2 | 1.88-2.09 | 70.05-70.2 | 420 | 161 | 37.5 | 118.3 |
| 8 | O60 | 70 | 2 | 1.96-2.01 | 70.05-70.2 | 435 | 174 | 37 | 123.5 |
| 9 | O60 | 70 | 2 | 1.83-2.14 | 70.05-70.2 | 445 | 179 | 35 | 129.5 |
| 10 | O60 | 70 | 2 | 1.88-2.10 | 70.05-70.2 | 425 | 165 | 38 | 121.3 |
| 11 | O60 | 70 | 2 | 1.95-2.05 | 70.05-70.2 | 435 | 169 | 36 | 125.8 |
| 12 | O60 | 70 | 2 | 1.87-2.07 | 70.05-70.2 | 415 | 160 | 38 | 118.4 |
| 13 | O60 | 70 | 2 | 1.83-2.10 | 70.05-70.2 | 420 | 163 | 38 | 119.6 |
| 14 | O60 | 70 | 2 | 1.90-2.03 | 70.05-70.2 | 425 | 164 | 39 | 122.7 |
| 15 | O60 | 70 | 2 | 1.80-2.16 | 70.05-70.2 | 435 | 171 | 36 | 127.7 |
| 16 | O60 | 70 | 2 | 1.94-2.03 | 70.05-70.2 | 425 | 168 | 38 | 121.5 |
| 17 | O60 | 70 | 2 | 1.85-2.12 | 70.05-70.2 | 420 | 162 | 39 | 120.4 |
| 18 | O60 | 70 | 2 | 1.89-2.14 | 70.05-70.2 | 435 | 169 | 38 | 126.8 |
| 19 | O60 | 70 | 2 | 1.95-2.03 | 70.05-70.2 | 415 | 159 | 39 | 117.6 |
| 20 | O60 | 70 | 2 | 1.90-2.06 | 70.05-70.2 | 410 | 156 | 39 | 115.3 |
| 21 | O60 | 76 | 2.5 | 2.24-2.74 | 76.10-76.25 | 425 | 165 | 38 | 124.3 |
| 22 | O60 | 76 | 2.5 | 2.36-2.62 | 76.10-76.25 | 420 | 163 | 38.5 | 123.1 |
| 23 | O60 | 76 | 2.5 | 2.27-2.70 | 76.10-76.25 | 425 | 166 | 38 | 125 |
| 24 | O60 | 76 | 2.5 | 2.42-2.50 | 76.10-76.25 | 435 | 168 | 38 | 125.7 |
| 25 | O60 | 76 | 2.5 | 2.46-2.52 | 76.10-76.25 | 430 | 165 | 37 | 124.8 |
| 26 | O60 | 76 | 2.5 | 2.40-2.60 | 76.10-76.25 | 425 | 165 | 38.5 | 124.2 |
| 27 | O60 | 76 | 2.5 | 2.30-2.67 | 76.10-76.25 | 430 | 166 | 38 | 125.3 |
| 28 | O60 | 76 | 2.5 | 2.36-2.61 | 76.10-76.25 | 415 | 160 | 39 | 120.6 |
| 29 | O60 | 76 | 2.5 | 2.27-2.70 | 76.10-76.25 | 410 | 158 | 39 | 119.5 |
| 30 | O60 | 76 | 2.5 | 2.42-2.55 | 76.10-76.25 | 405 | 155 | 42 | 117.3 |
| 31 | O60 | 76 | 2.5 | 2.34-2.64 | 76.10-76.25 | 415 | 162 | 39 | 118.9 |
| 32 | O60 | 76 | 2.5 | 2.47-2.53 | 76.10-76.25 | 420 | 163 | 38 | 121.6 |
| 33 | O60 | 76 | 2.5 | 2.36-2.64 | 76.10-76.25 | 430 | 167 | 37 | 124.5 |
| 34 | O60 | 76 | 2.5 | 2.42-2.55 | 76.10-76.25 | 425 | 163 | 38 | 124.1 |
| 35 | O60 | 76 | 2.5 | 2.44-2.55 | 76.10-76.25 | 435 | 169 | 36 | 125.8 |
| 36 | O60 | 76 | 2.5 | 2.25-2.71 | 76.10-76.25 | 435 | 170 | 36.5 | 122.8 |
| 37 | O60 | 76 | 2.5 | 2.34-2.64 | 76.10-76.25 | 420 | 165 | 37 | 122.7 |
| 38 | O60 | 76 | 2.5 | 2.27-2.69 | 76.10-76.25 | 415 | 159 | 39 | 118.5 |
| 39 | O60 | 76 | 2.5 | 2.38-2.60 | 76.10-76.25 | 415 | 160 | 39 | 118.2 |
| 40 | O60 | 76 | 2.5 | 2.37-2.61 | 76.10-76.25 | 420 | 162 | 38 | 121.4 |
| 41 | O60 | 89 | 3 | 2.69-3.28 | 89.10-89.25 | 435 | 172 | 36 | 127.5 |
| 42 | O60 | 89 | 3 | 2.77-3.21 | 89.10-89.25 | 415 | 161 | 38 | 119.1 |
| 43 | O60 | 89 | 3 | 2.80-3.17 | 89.10-89.25 | 420 | 166 | 38 | 120.4 |
| 44 | O60 | 89 | 3 | 2.75-3.22 | 89.10-89.25 | 425 | 164 | 37 | 122.6 |
| 45 | O60 | 89 | 3 | 2.95-3.01 | 89.10-89.25 | 420 | 167 | 37 | 131.5 |
| 46 | O60 | 89 | 3 | 2.92-3.04 | 89.10-89.25 | 415 | 159 | 39 | 118.8 |
| 47 | O60 | 89 | 3 | 2.77-3.20 | 89.10-89.25 | 410 | 155 | 39 | 117.5 |
| 48 | O60 | 89 | 3 | 2.90-3.08 | 89.10-89.25 | 415 | 160 | 39 | 117.8 |
| 49 | O60 | 89 | 3 | 2.75-3.25 | 89.10-89.25 | 405 | 154 | 39 | 116.5 |
| 50 | O60 | 89 | 3 | 2.86-3.20 | 89.10-89.25 | 400 | 152 | 40 | 114.3 |
| 51 | O60 | 89 | 3 | 2.89-3.10 | 89.10-89.25 | 415 | 158 | 39 | 117.9 |
| 52 | O60 | 89 | 3 | 2.78-3.22 | 89.10-89.25 | 425 | 166 | 38 | 123.4 |
| 53 | O60 | 89 | 3 | 2.86-3.11 | 89.10-89.25 | 425 | 165 | 37 | 123.9 |
| 54 | O60 | 89 | 3 | 2.92-3.04 | 89.10-89.25 | 430 | 169 | 36 | 125.1 |
| 55 | O60 | 89 | 3 | 2.88-3.07 | 89.10-89.25 | 425 | 168 | 36 | 124 |
| 56 | O60 | 89 | 3 | 2.85-3.12 | 89.10-89.25 | 435 | 171 | 35 | 125.8 |
| 57 | O60 | 89 | 3 | 2.78-3.21 | 89.10-89.25 | 425 | 169 | 37 | 123.7 |
| 58 | O60 | 89 | 3 | 2.87-3.11 | 89.10-89.25 | 415 | 161 | 39 | 118.3 |
| 59 | O60 | 89 | 3 | 2.73-3.28 | 89.10-89.25 | 420 | 163 | 38 | 119.9 |
| 60 | O60 | 89 | 3 | 2.78-3.22 | 89.10-89.25 | 425 | 165 | 38 | 120.7 |
| 61 | O60 | 108 | 3.5 | 3.14-3.83 | 108-108.25 | 415 | 159 | 39 | 117.5 |
| 62 | O60 | 108 | 3.5 | 3.20-3.78 | 108-108.25 | 415 | 160 | 38 | 116.9 |
| 63 | O60 | 108 | 3.5 | 3.16-3.81 | 108-108.25 | 420 | 163 | 38 | 122.4 |
| 64 | O60 | 108 | 3.5 | 3.3-3.62 | 108-108.25 | 425 | 167 | 37 | 125.6 |
| 65 | O60 | 108 | 3.5 | 3.30-3.66 | 108-108.25 | 425 | 167 | 36.5 | 125.8 |
| 66 | O60 | 108 | 3.5 | 3.28-3.70 | 108-108.25 | 430 | 169 | 36 | 127.6 |
| 67 | O60 | 108 | 3.5 | 3.46-3.53 | 108-108.25 | 430 | 170 | 36 | 126.9 |
| 68 | O60 | 108 | 3.5 | 3.42-3.56 | 108-108.25 | 425 | 166 | 37 | 124.6 |
| 69 | O60 | 108 | 3.5 | 3.32-3.67 | 108-108.25 | 420 | 162 | 38.5 | 123.1 |
| 70 | O60 | 108 | 3.5 | 3.38-3.61 | 108-108.25 | 415 | 159 | 39 | 118.7 |
| 71 | O60 | 108 | 3.5 | 3.45-3.52 | 108-108.25 | 425 | 163 | 37 | 121.3 |
| 72 | O60 | 108 | 3.5 | 3.18-3.80 | 108-108.25 | 425 | 164 | 36.5 | 124.3 |
| 73 | O60 | 108 | 3.5 | 3.26-3.72 | 108-108.25 | 435 | 168 | 35 | 125.9 |
| 74 | O60 | 108 | 3.5 | 3.37-3.57 | 108-108.25 | 435 | 169 | 36 | 126.3 |
| 75 | O60 | 108 | 3.5 | 3.72-3.56 | 108-108.25 | 415 | 160 | 39 | 117.1 |
| 76 | O60 | 108 | 3.5 | 3.36-3.60 | 108-108.25 | 420 | 161 | 38.5 | 121.2 |
| 77 | O60 | 108 | 3.5 | 3.44-3.53 | 108-108.25 | 425 | 162 | 38 | 122.2 |
| 78 | O60 | 108 | 3.5 | 3.25-3.72 | 108-108.25 | 435 | 167 | 36 | 127.3 |
| 79 | O60 | 108 | 3.5 | 3.22-3.75 | 108-108.25 | 415 | 158 | 39 | 117.3 |
| 80 | O60 | 108 | 3.5 | 3.42-3.56 | 108-108.25 | 405 | 155 | 39.5 | 116.5 |

附表5：

附表5 BFe30-1-1数据统计表（规格≥115mm）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 状态 | 外径 | 壁厚 | 壁厚允许偏差±0.3 | 平均外径允许偏差+0.2～+0.5 | 抗拉强度Rm N/mm2 | 屈服强度Rp0.2 N/mm2 | 延伸A50mm % | 硬度HV |
| 1 | O60 | 133 | 3 | 2.72-3.32 | 133.2-133.50 | 415 | 157 | 39 | 117.6 |
| 2 | O60 | 133 | 3 | 2.76-3.18 | 133.2-133.50 | 410 | 155 | 39 | 115.6 |
| 3 | O60 | 133 | 3 | 2.80-3.17 | 133.2-133.50 | 405 | 153 | 40 | 114.5 |
| 4 | O60 | 133 | 3 | 2.74-3.22 | 133.2-133.50 | 425 | 165 | 37 | 122.3 |
| 5 | O60 | 133 | 3 | 2.95-3.01 | 133.2-133.50 | 420 | 166 | 37 | 120.6 |
| 6 | O60 | 133 | 3 | 2.91-3.04 | 133.2-133.50 | 420 | 165 | 37 | 120.1 |
| 7 | O60 | 133 | 3 | 2.7-3.21 | 133.2-133.50 | 425 | 169 | 37 | 123.4 |
| 8 | O60 | 133 | 3 | 2.90-3.08 | 133.2-133.50 | 425 | 168 | 36.5 | 123.5 |
| 9 | O60 | 133 | 3 | 2.72-2.24 | 133.2-133.50 | 435 | 172 | 36 | 127.1 |
| 10 | O60 | 133 | 3 | 2.85-3.20 | 133.2-133.50 | 430 | 170 | 36 | 126.8 |
| 11 | O60 | 133 | 3 | 2.88-3.11 | 133.2-133.50 | 425 | 166 | 37.5 | 124.1 |
| 12 | O60 | 133 | 3 | 2.76-3.22 | 133.2-133.50 | 415 | 162 | 39 | 118.6 |
| 13 | O60 | 133 | 3 | 2.86-3.12 | 133.2-133.50 | 425 | 165 | 37 | 125.5 |
| 14 | O60 | 133 | 3 | 2.92-3.07 | 133.2-133.50 | 430 | 168 | 36 | 127.2 |
| 15 | O60 | 133 | 3 | 2.88-3.10 | 133.2-133.50 | 415 | 157 | 39 | 117.3 |
| 16 | O60 | 133 | 3 | 2.85-3.12 | 133.2-133.50 | 405 | 154 | 39 | 114.6 |
| 17 | O60 | 133 | 3 | 2.78-3.18 | 133.2-133.50 | 415 | 160 | 39 | 115.8 |
| 18 | O60 | 133 | 3 | 2.87-3.12 | 133.2-133.50 | 420 | 161 | 37 | 120.5 |
| 19 | O60 | 133 | 3 | 2.72-3.25 | 133.2-133.50 | 415 | 159 | 39 | 120.1 |
| 20 | O60 | 159 | 3 | 2.68-3.28 | 159.25-159.50 | 435 | 175 | 38 | 128.3 |
| 21 | O60 | 159 | 3 | 2.76-3.21 | 159.25-159.50 | 425 | 165 | 38 | 125.1 |
| 22 | O60 | 159 | 3 | 2.79-3.19 | 159.25-159.50 | 425 | 166 | 39 | 125.6 |
| 23 | O60 | 159 | 3 | 2.77-2.25 | 159.25-159.50 | 435 | 173 | 37 | 126.5 |
| 24 | O60 | 159 | 3 | 2.95-3.06 | 159.25-159.50 | 435 | 171 | 37 | 127.1 |
| 25 | O60 | 159 | 3 | 2.94-3.08 | 159.25-159.50 | 425 | 166 | 37.5 | 126.4 |
| 26 | O60 | 159 | 3 | 2.79-3.21 | 159.25-159.50 | 425 | 164 | 37 | 125.9 |
| 27 | O60 | 159 | 3 | 2.90-3.12 | 159.25-159.50 | 420 | 162 | 38.5 | 122.4 |
| 28 | O60 | 159 | 3 | 2.75-3.27 | 159.25-159.50 | 420 | 161 | 39 | 121.8 |
| 29 | O60 | 159 | 3 | 2.89-3.25 | 159.25-159.50 | 415 | 158 | 39 | 117.5 |
| 30 | O60 | 159 | 3 | 2.91-3.13 | 159.25-159.50 | 435 | 174 | 36 | 126.9 |
| 31 | O60 | 159 | 3 | 2.79-3.24 | 159.25-159.50 | 435 | 175 | 36 | 127.3 |
| 32 | O60 | 159 | 3 | 2.88-3.16 | 159.25-159.50 | 425 | 168 | 37 | 124.7 |
| 33 | O60 | 159 | 3 | 2.96-3.12 | 159.25-159.50 | 425 | 169 | 37 | 125.3 |
| 34 | O60 | 159 | 3 | 2.91-3.13 | 159.25-159.50 | 415 | 158 | 39 | 118.2 |
| 35 | O60 | 159 | 3 | 2.88-3.16 | 159.25-159.50 | 425 | 164 | 38 | 123.5 |
| 36 | O60 | 159 | 3 | 2.82-3.22 | 159.25-159.50 | 425 | 165 | 38 | 122.8 |
| 37 | O60 | 159 | 3 | 2.89-3.14 | 159.25-159.50 | 435 | 173 | 36 | 127.2 |
| 38 | O60 | 159 | 3 | 2.75-3.29 | 159.25-159.50 | 430 | 171 | 36.5 | 126.8 |
| 39 | O60 | 159 | 3 | 2.81-3.23 | 159.25-159.50 | 425 | 168 | 37 | 124.6 |
| 40 | O60 | 219 | 3.5 | 3.16-3.93 | 219.4-219.8 | 435 | 175 | 39 | 127.5 |
| 41 | O60 | 219 | 3.5 | 3.25-3.86 | 219.4-219.8 | 430 | 170 | 40 | 124.3 |
| 42 | O60 | 219 | 3.5 | 3.16-3.92 | 219.4-219.8 | 425 | 168 | 40 | 124 |
| 43 | O60 | 219 | 3.5 | 3.36-3.78 | 219.4-219.8 | 435 | 173 | 40 | 125.4 |
| 44 | O60 | 219 | 3.5 | 3.30-3.75 | 219.4-219.8 | 425 | 163 | 42 | 123.5 |
| 45 | O60 | 219 | 3.5 | 3.28-3.86 | 219.4-219.8 | 425 | 166 | 41.5 | 123.8 |
| 46 | O60 | 219 | 3.5 | 3.46-3.68 | 219.4-219.8 | 435 | 178 | 40 | 124 |
| 47 | O60 | 219 | 3.5 | 3.42-3.65 | 219.4-219.8 | 435 | 175 | 39 | 125.3 |
| 48 | O60 | 219 | 3.5 | 3.32-3.71 | 219.4-219.8 | 425 | 165 | 41 | 122.6 |
| 49 | O60 | 219 | 3.5 | 3.38-3.69 | 219.4-219.8 | 425 | 62 | 40.5 | 123.5 |
| 50 | O60 | 219 | 3.5 | 3.45-3.75 | 219.4-219.8 | 420 | 160 | 40 | 122.1 |
| 51 | O60 | 219 | 3.5 | 3.20-3.95 | 219.4-219.8 | 415 | 158 | 43 | 118.6 |
| 52 | O60 | 219 | 3.5 | 3.28-3.79 | 219.4-219.8 | 415 | 159 | 43 | 117.5 |
| 53 | O60 | 219 | 3.5 | 3.40-3.68 | 219.4-219.8 | 425 | 165 | 41 | 124.4 |
| 54 | O60 | 219 | 3.5 | 3.48-3.77 | 219.4-219.8 | 430 | 169 | 40 | 126.3 |
| 55 | O60 | 219 | 3.5 | 3.38-3.68 | 219.4-219.8 | 415 | 157 | 43.5 | 118.1 |
| 56 | O60 | 219 | 3.5 | 3.36-3.69 | 219.4-219.8 | 435 | 178 | 39 | 127.8 |
| 57 | O60 | 219 | 3.5 | 3.45-3.87 | 219.4-219.8 | 425 | 170 | 40 | 123.4 |
| 58 | O60 | 219 | 3.5 | 3.36-3.92 | 219.4-219.8 | 440 | 182 | 38 | 128.6 |
| 59 | O60 | 219 | 3.5 | 3.27-3.88 | 219.4-219.8 | 435 | 177 | 39 | 127.2 |
| 60 | O60 | 267 | 3 | 2.68-3.38 | 266.4-268 | 425 | 167 | 39 | 124.3 |
| 61 | O60 | 267 | 3 | 2.75-3.26 | 266.4-268 | 435 | 172 | 39 | 125.6 |
| 62 | O60 | 267 | 3 | 2.86-3.22 | 266.4-268 | 435 | 173 | 39 | 126.1 |
| 63 | O60 | 267 | 3 | 2.74-3.25 | 266.4-268 | 440 | 178 | 38 | 128.5 |
| 64 | O60 | 267 | 3 | 2.93-3.16 | 266.4-268 | 445 | 182 | 38 | 127.3 |
| 65 | O60 | 267 | 3 | 2.92-3.17 | 266.4-268 | 435 | 173 | 40 | 126.9 |
| 66 | O60 | 267 | 3 | 2.77-3.29 | 266.4-268 | 425 | 169 | 42 | 124.5 |
| 67 | O60 | 267 | 3 | 2.93-3.16 | 266.4-268 | 425 | 167 | 41 | 125.1 |
| 68 | O60 | 267 | 3 | 2.70-3.28 | 266.4-268 | 445 | 184 | 38 | 127.8 |
| 69 | O60 | 267 | 3 | 2.89-3.29 | 266.4-268 | 430 | 175 | 39 | 126.8 |
| 70 | O60 | 267 | 3 | 2.90-3.17 | 266.4-268 | 425 | 168 | 41 | 123.5 |
| 71 | O60 | 267 | 3 | 2.75-3.28 | 266.4-268 | 415 | 161 | 43 | 117.6 |
| 72 | O60 | 267 | 3 | 2.86-3.22 | 266.4-268 | 420 | 163 | 40 | 120.5 |
| 73 | O60 | 267 | 3 | 2.92-3.16 | 266.4-268 | 425 | 168 | 40 | 122.8 |
| 74 | O60 | 267 | 3 | 2.92-3.25 | 266.4-268 | 435 | 175 | 39.5 | 127.6 |
| 75 | O60 | 267 | 3 | 2.87-3.20 | 266.4-268 | 425 | 169 | 40.5 | 124.3 |
| 76 | O60 | 267 | 3 | 2.85-3.31 | 266.4-268 | 415 | 158 | 43 | 118.6 |
| 77 | O60 | 267 | 3 | 2.85-3.18 | 266.4-268 | 425 | 162 | 42 | 124.1 |
| 78 | O60 | 267 | 3 | 2.76-3.32 | 266.4-268 | 435 | 169 | 40 | 126.5 |
| 79 | O60 | 267 | 3 | 2.83-3.26 | 266.4-268 | 430 | 167 | 40 | 125.8 |
| 80 | O60 | 273 | 4 | 3.62-4.48 | 272.4-274 | 420 | 161 | 42 | 124 |
| 81 | O60 | 273 | 4 | 3.69-4.42 | 272.4-274 | 425 | 165 | 41 | 125.6 |
| 82 | O60 | 273 | 4 | 3.77-4.38 | 272.4-274 | 425 | 166 | 42 | 125.9 |
| 83 | O60 | 273 | 4 | 3.60-4.45 | 272.4-274 | 435 | 171 | 39 | 127.5 |
| 84 | O60 | 273 | 4 | 3.71-4.26 | 272.4-274 | 425 | 169 | 40.5 | 125.8 |
| 85 | O60 | 273 | 4 | 3.97-4.26 | 272.4-274 | 415 | 15 | 43.5 | 118.7 |
| 86 | O60 | 273 | 4 | 3.86-4.37 | 272.4-274 | 440 | 183 | 39 | 128.1 |
| 87 | O60 | 273 | 4 | 3.88-4.20 | 272.4-274 | 445 | 187 | 38 | 128.9 |
| 88 | O60 | 273 | 4 | 3.85-4.28 | 272.4-274 | 440 | 176 | 38.5 | 127.8 |
| 89 | O60 | 273 | 4 | 3.67-4.39 | 272.4-274 | 435 | 170 | 41 | 127.1 |
| 90 | O60 | 273 | 4 | 3.72-4.37 | 272.4-274 | 425 | 165 | 42 | 125.5 |
| 91 | O60 | 273 | 4 | 3.70-4.34 | 272.4-274 | 435 | 176 | 40 | 126.7 |
| 92 | O60 | 273 | 4 | 3.68-4.36 | 272.4-274 | 425 | 168 | 42 | 126.2 |
| 93 | O60 | 273 | 4 | 3.95-4.25 | 272.4-274 | 425 | 164 | 41 | 125.6 |
| 94 | O60 | 273 | 4 | 3.86-4.23 | 272.4-274 | 420 | 162 | 43 | 124.3 |
| 95 | O60 | 273 | 4 | 3.74-4.36 | 272.4-274 | 415 | 157 | 43 | 119.2 |
| 96 | O60 | 273 | 4 | 3.89-4.21 | 272.4-274 | 425 | 166 | 41 | 123.4 |
| 97 | O60 | 273 | 4 | 3.92-4.18 | 272.4-274 | 425 | 168 | 40 | 124.6 |
| 98 | O60 | 273 | 4 | 3.71-4.37 | 272.4-274 | 435 | 175 | 38 | 127.1 |
| 99 | O60 | 273 | 4 | 3.76-4.29 | 272.4-274 | 425 | 171 | 43 | 125.3 |