

设计参数

DESIGN DATA

容器类别  
VESSEL CLASSIFICATION

壳程  
SHELL

管程  
TUBE

设计压力  
DESIGN PRESS.

工作压力  
WORKING PRESS.

设计温度  
DESIGN TEMP.

操作温度  
MIN/MAX

金属材料  
METAL TEMP.

介质名称  
FLUID

介质特性  
FLUID PERFORMANCE

介质密度  
FLUID DENSITY

接管规格  
CONN. ALLOW

设计使用年限  
DESIGN LIFE

焊接接头系数  
WELDING JOINT EFF.

换热面积 (外径)  
TRANSFER SURFACE (O.D.)

管程数  
NUMBER OF PASS

管壳容积  
TUB. CAPACITY

主要承压元件材料  
MAIN MATERIAL

管与管板连接形式  
TUBE TO TUBESHEET JOIN

换热管外径/管程/管长  
TUBE O.D./THICKNESS/LENGTH

换热管壁厚  
TUBE WALL THICKNESS

换热管布置  
TUBE PATTERN

保温层材料/厚度  
MATL. OF INSULATION/THK

表面处理  
SURFACE TREATMENT

设备重量与运输重量  
EQUIPMENT WEIGHT & CARRYING WEIGHT

接口、法兰要求  
CONNECTION AND FLANGES

设计、制造与检验标准

STANDARD OF DESIGN, FABRICATION AND INSPECTION

1. GB/T 151-2014《热交换器》  
HEAT EXCHANGERS  
2. GB/T 150.1-150.4-2014《压力容器》  
PRESSURE VESSELS  
3. HG/T 20584-2020《钢制化工容器制造技术规范》  
TECHNICAL STANDARD OF FABRICATION FOR STEEL CHEMICAL VESSELS  
4. NB/T 47042-2014《卧式容器》  
HORIZONTAL VESSELS ON SADDLE SUPPORTS

制造与检验标准  
FABRICATION AND INSPECTION

焊接接头型式尺寸检测中应注明, 其余按 JG/T 20583-2020 中规定。  
WELDING JOINT TYPE AND SIZE OF WELDED JOINTS SHALL BE INDICATED WITH THE PROVISION OF WELDING JOINT CHECKY AS INDICATED IN THE DRAWING.  
接头按图样中的尺寸按表规定的厚度, 法兰的焊接按符合 JB 标准中规定。

对接  
butt joint

XX 与 XX 之间的焊接  
THE WELDING BETWEEN XX AND XX

焊条  
ROD

焊丝/焊剂  
WIRE/FLUX

0.35-0.52 级  
S16103 级  
BETWEEN CWS1 AND CWS3

焊接由焊接工艺评定决定  
WELDING CONSUMABLES ARE TO BE DETERMINED BY WELDING PROCESS QUALIFICATION

在壳程和管程之间  
BETWEEN S.S AND C.S

检测率  
EXAMINATION RATE

检测标准  
STANDARD

技术要求  
REQD OF MATERIAL

合格标准  
ACCEPTANCE CRITERIA

壳程  
SHELL

管程  
TUBES

壳程管头  
HEAD OF SHELL

管程管头  
HEAD OF TUBE

壳程管板  
SHELL SIDE SDR

管程管板  
TUBESHEET

壳程接管  
SHELL SIDE SDR

管程接管  
TUBES

壳程法兰  
BODY FLANGE

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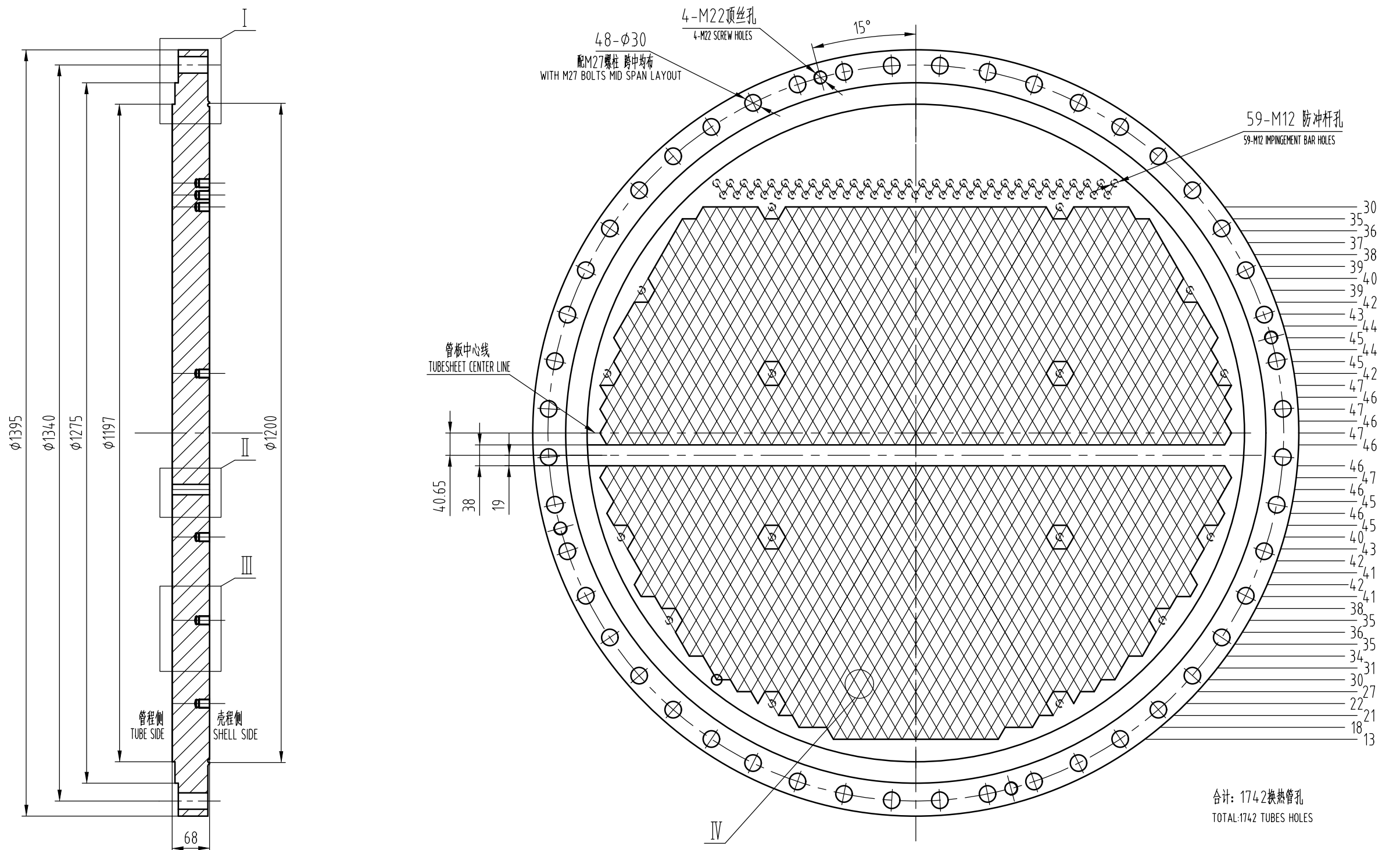
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						<div></div> <div>荆门宏图特种飞行器制造有限公司</div> <div>JINGMEN HONGTU SPECIAL AIRCRAFT MANUFACTURING CO., LTD.</div>					
标记 MARK	图样 ALPH	变更前号 PREV NO	版本 SIG	日期 DATE	人员 STAFF	版本 SIG	日期 DATE	数量 MEASURE 材料 MATERIAL	组合件	设备名称 EQUIPMENT NAME	轻组分塔冷凝器 E-2402 LIGHT COMPONENT TOWER CONDENSER
人员 STAFF 姓名 BRANAME					设计 DESIGN			规格 SPEC			
设计 DESIGN	刘芳杏	2025.5.6			焊接 WELDING			版次 REV	D		
校核 CHECK	刘源	2025.5.6			标准号 STANDARD			比例 SCALE	1:16		
审核 REVIEW	张芳	2025.5.6			批准 APPROVAL			第 1 套 共 2 套 SHEET NO. 1 OF 2		图号 DWG NO.	HRQ01-00128(1/2)

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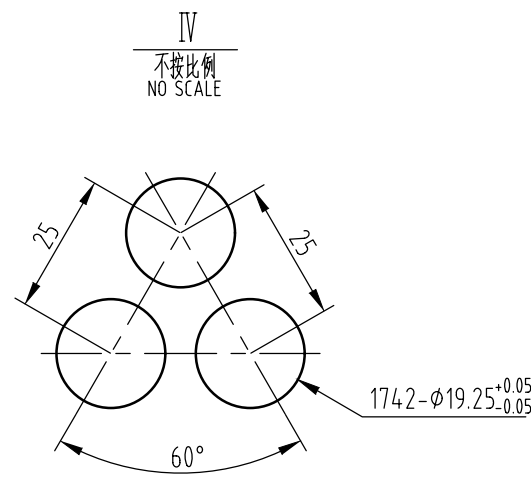
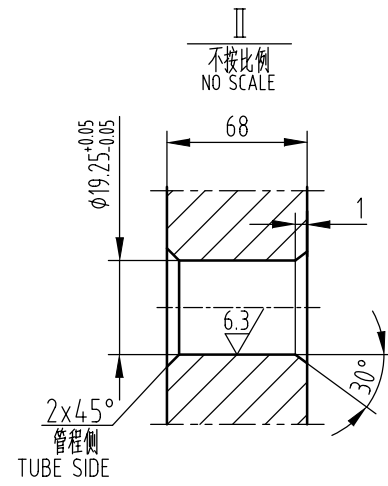
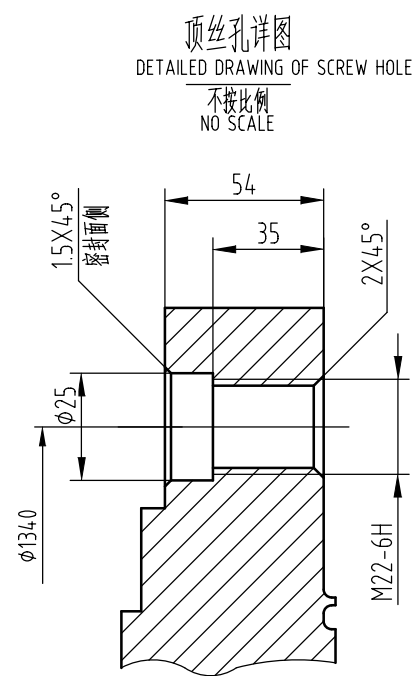
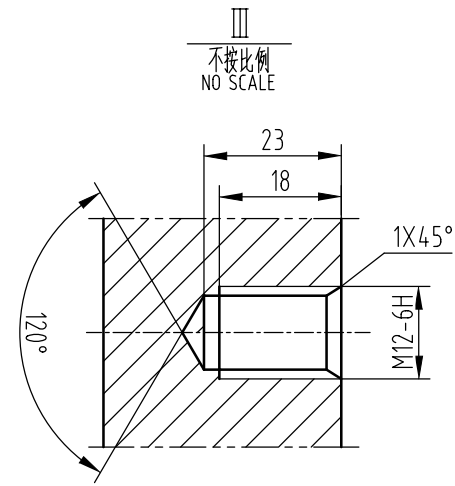
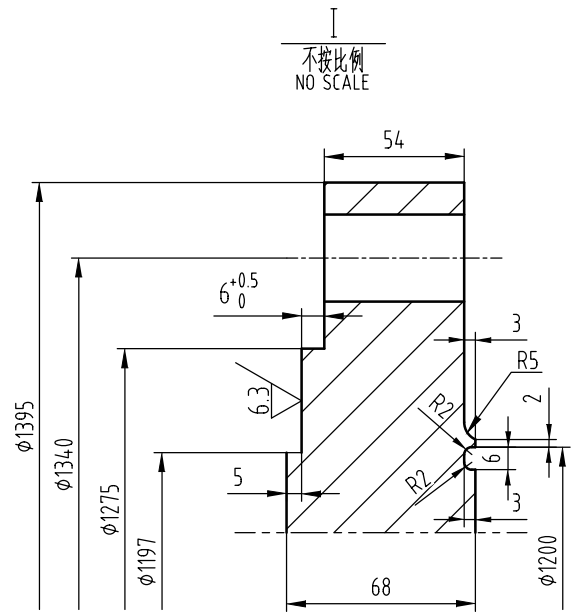




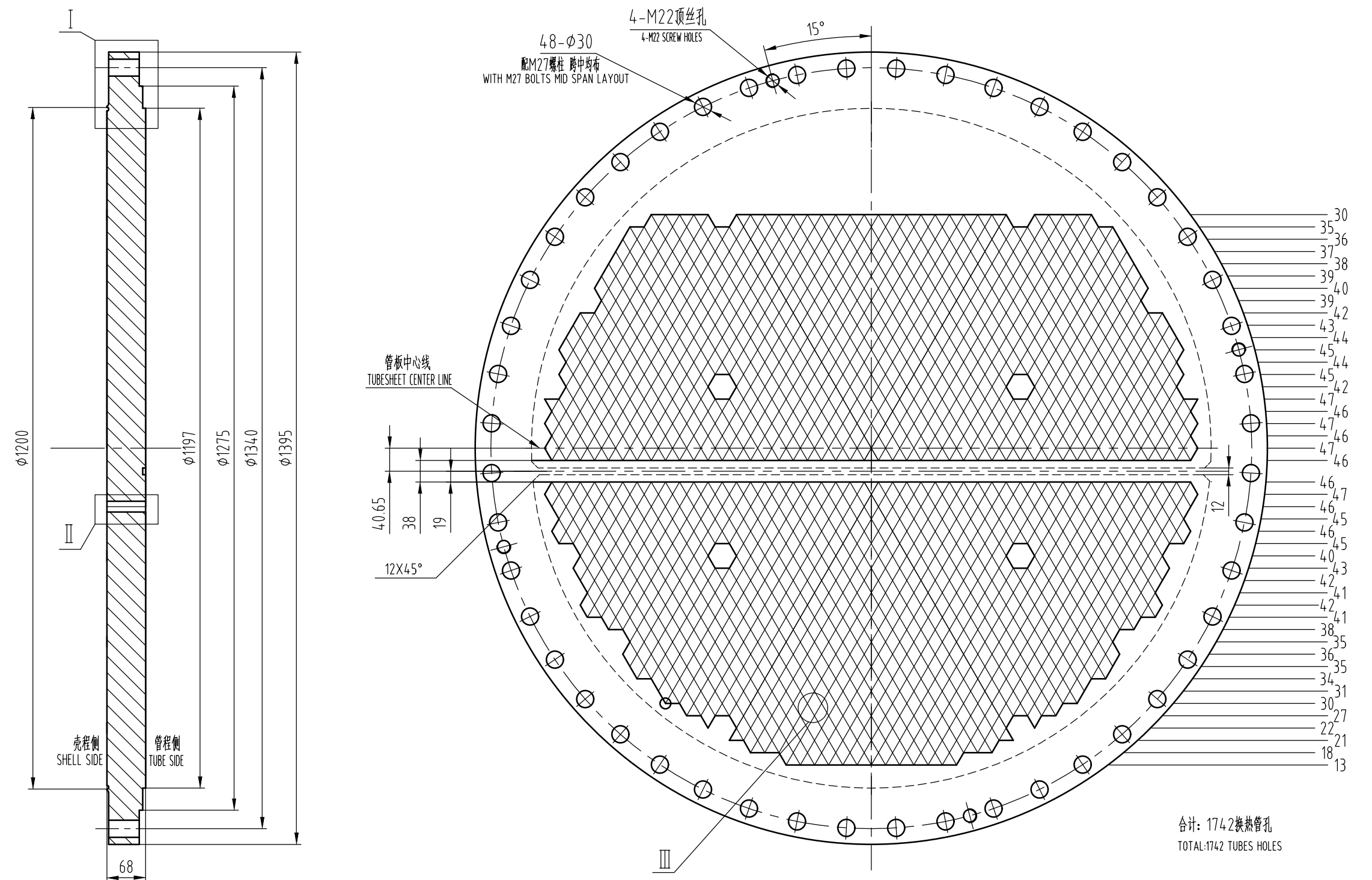


- 技术要求:
- 管板材料应按NB/T 47010—2017《承压设备用不锈钢和耐热钢锻件》规定制造和验收。
  - 管板密封面与轴线垂直，其垂直度公差为0.40mm。
  - 管板管孔直径，允许有不大千4%的管孔上偏差超出φ19.25<sup>+0.05</sup><sub>0</sub>，但不超出相应上偏差的50%。
  - 管孔应严格垂直管板密封面，其垂直度公差为 0.10mm。管板管孔表面应清理干净，不应有影响胀接或焊接连接质量的毛刺、铁屑、锈斑、油污等；孔表面不应有影响胀接质量的纵向或螺旋状划痕等缺陷。
  - 管板钻孔后≥96%的孔距宽度公差≥4.70mm，允许(<4%的孔距数)的最小孔距宽度为3.45mm。
  - 管板上螺栓孔中心圆直径和相邻两螺栓孔弦长极限偏差为±0.6mm;任意两螺栓孔弦长极限偏差为±1.5mm。
  - 除注明外，加工面线性尺寸未注明公差按GB/T 1804—2000《一般公差未注公差的线性尺寸和角度的公差》m级。
  - 管板密封面及表面上不得有划痕、毛刺等降低强度和密封可靠性的缺陷。
  - S31603材料及其焊接接头(包括焊接工艺评定)按GB/T4334—2020方法进行晶间腐蚀试验，平均腐蚀速率应不大于1.6g/m2·h，腐蚀试验数量和部位按GB/T21433-2008第8条要求执行。

- TECHNICAL REQUIREMENTS:
- THE TUBESHEET MATERIAL SHALL BE MANUFACTURED AND ACCEPTED IN ACCORDANCE WITH GRADE III OF NB/T 47010-2017 "STAINLESS AND HEAT-RESISTING STEEL FORGINGS FOR PRESSURE EQUIPMENT".
  - THE SEALING SURFACE OF THE TUBESHEET SHALL BE PERPENDICULAR TO THE AXIS, WITH A VERTICALITY TOLERANCE OF 0.40mm.
  - THE TUBESHEET HOLE DIAMETER SHALL ALLOW NO MORE THAN 4% OF THE HOLES TO EXCEED THE UPPER TOLERANCE OF φ19.25+0.05-0.05, BUT NOT EXCEEDING 50% OF THE CORRESPONDING UPPER TOLERANCE.
  - THE TUBE HOLES SHALL BE STRICTLY PERPENDICULAR TO THE SEALING SURFACE OF THE TUBESHEET, WITH A VERTICALITY TOLERANCE OF 0.10mm. THE SURFACE OF THE TUBE HOLES SHALL BE CLEANED AND FREE OF BURRS, IRON CHIPS, RUST STAINS, OIL STAINS, OR ANY OTHER IMPURITIES THAT MAY AFFECT THE QUALITY OF EXPANSION OR WELDED CONNECTIONS. THE HOLE SURFACE SHALL NOT HAVE LONGITUDINAL OR SPIRAL MARKS THAT MAY AFFECT THE QUALITY OF EXPANSION.
  - AFTER DRILLING, ≥96% OF THE LIGAMENT WIDTHS ON THE TUBESHEET MUST BE ≥4.70mm. THE MINIMUM LIGAMENT WIDTH ALLOWED (FOR NO MORE THAN 4% OF THE LIGAMENTS) SHALL BE 3.45mm.
  - THE DIAMETER OF THE BOLT HOLE CENTER CIRCLE ON THE TUBESHEET AND THE LIMIT DEVIATION OF THE CHORD LENGTH BETWEEN ADJACENT BOLT HOLES SHALL BE ±0.6mm. THE LIMIT DEVIATION OF THE CHORD LENGTH BETWEEN ANY TWO BOLT HOLES SHALL BE ±1.5mm.
  - UNLESS OTHERWISE SPECIFIED, THE LINEAR DIMENSIONS OF MACHINED SURFACES WITHOUT TOLERANCE SPECIFICATIONS SHALL COMPLY WITH THE m GRADE OF GB/T 1804-2000 "GENERAL TOLERANCES - TOLERANCES FOR LINEAR AND ANGULAR DIMENSIONS WITHOUT INDIVIDUAL TOLERANCE INDICATIONS".
  - THE SEALING SURFACE AND OTHER SURFACES OF THE TUBESHEET SHALL NOT HAVE SCRATCHES, BURRS, OR OTHER DEFECTS THAT MAY REDUCE STRENGTH AND SEALING RELIABILITY.
  - THE S31603 MATERIAL AND ITS WELDED JOINTS (INCLUDING WELDING PROCEDURE QUALIFICATION) SHALL BE SUBJECTED TO INTERGRANULAR CORROSION TESTING ACCORDING TO METHOD B OF GB/T 4334-2020. THE AVERAGE CORROSION RATE SHALL NOT EXCEED 1.6g/m2·h. SAMPLING AND BATCHING OF CORROSION TEST SPECIMENS SHALL BE CARRIED OUT IN ACCORDANCE WITH CLAUSE 8 OF GB/T 21433-2008.

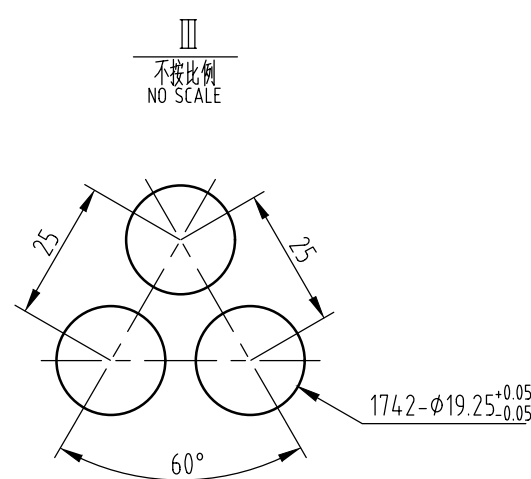
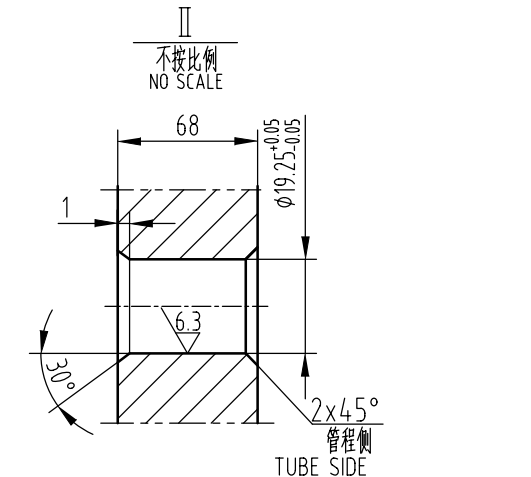
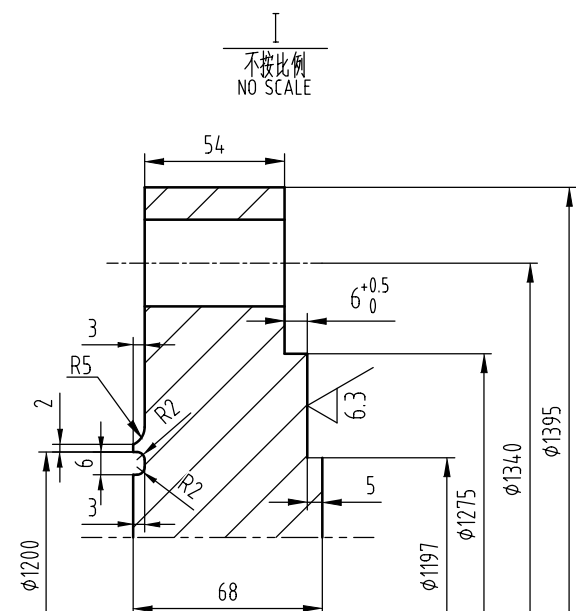
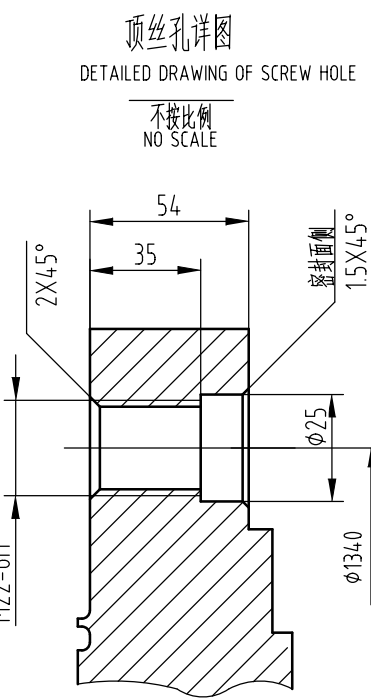
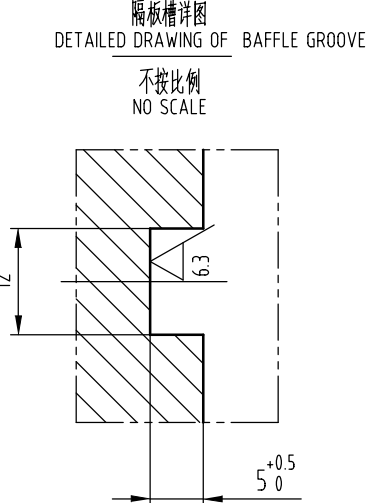


7	左管板 8=68 LEFT TUBESHEET	S31603Ⅲ	499	HRQ.01-00128-01	HRQ01-00128
件号 ITEM NO.	名称 DESCRIPTION	材料 MATERIAL	重量(kg) WEIGHT	所在图号 DWG. NO.	图号 ASSEMBLY DWG. NO.



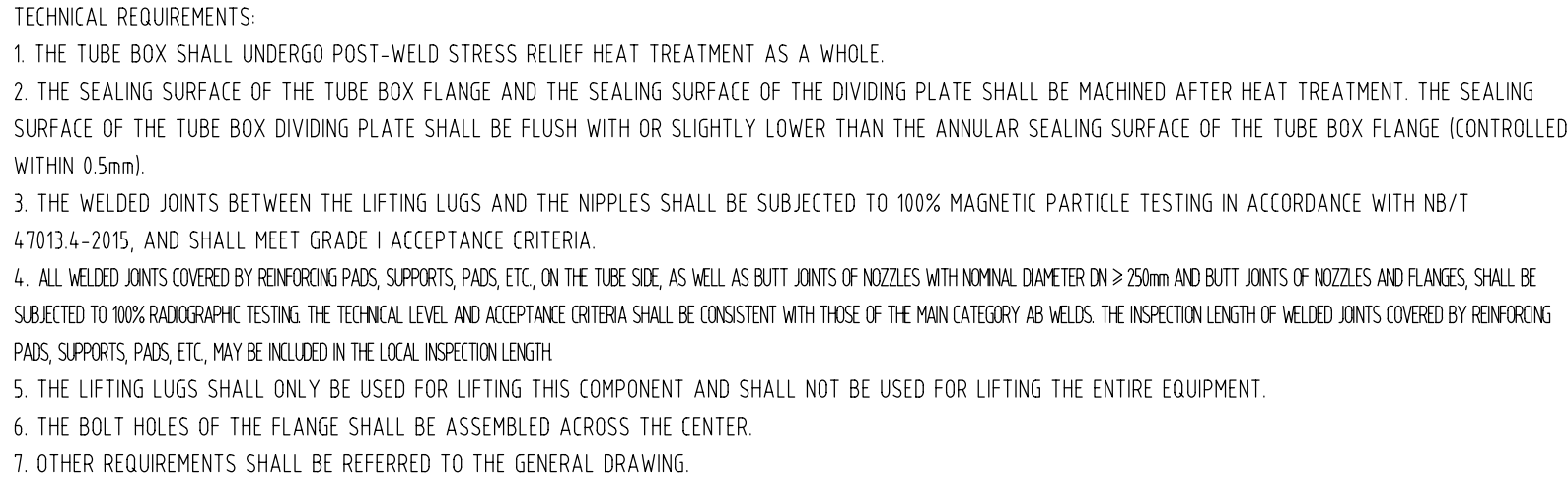
- 技术要求:
- 管板材料应按NB/T 47010—2017《承压设备用不锈钢和耐热钢锻件》规定制造和验收。
  - 管板密封面与轴线垂直，其垂直度公差为0.40mm。
  - 管板管孔直径，允许有不大千4%的管孔上偏差超出φ19.25<sup>+0.05</sup><sub>0</sub>，但不超出相应上偏差的50%。
  - 管孔应严格垂直管板密封面，其垂直度公差为 0.10mm。管板管孔表面应清理干净，不应有影响胀接或焊接连接质量的毛刺、铁屑、锈斑、油污等；孔表面不应有影响胀接质量的纵向或螺旋状划痕等缺陷。
  - 管板钻孔后≥96%的孔距宽度公差≥4.70mm，允许(<4%的孔距数)的最小孔距宽度为3.45mm。
  - 管板上螺栓孔中心圆直径和相邻两螺栓孔弦长极限偏差为±0.6mm;任意两螺栓孔弦长极限偏差为±1.5mm。
  - 除注明外，加工面线性尺寸未注明公差按GB/T 1804—2000《一般公差未注公差的线性尺寸和角度的公差》m级。
  - 管板密封面及表面上不得有划痕、毛刺等降低强度和密封可靠性的缺陷。
  - S31603材料及其焊接接头(包括焊接工艺评定)按GB/T4334—2020方法进行晶间腐蚀试验，平均腐蚀速率应不大于1.6g/m2·h，腐蚀试验数量和部位按GB/T21433-2008第8条要求执行。

- TECHNICAL REQUIREMENTS:
- THE TUBESHEET MATERIAL SHALL BE MANUFACTURED AND ACCEPTED IN ACCORDANCE WITH GRADE III OF NB/T 47010-2017 "STAINLESS AND HEAT-RESISTING STEEL FORGINGS FOR PRESSURE EQUIPMENT".
  - THE SEALING SURFACE OF THE TUBESHEET SHALL BE PERPENDICULAR TO THE AXIS, WITH A VERTICALITY TOLERANCE OF 0.40mm.
  - THE TUBESHEET HOLE DIAMETER SHALL ALLOW NO MORE THAN 4% OF THE HOLES TO EXCEED THE UPPER TOLERANCE OF φ19.25+0.05-0.05, BUT NOT EXCEEDING 50% OF THE CORRESPONDING UPPER TOLERANCE.
  - THE TUBE HOLES SHALL BE STRICTLY PERPENDICULAR TO THE SEALING SURFACE OF THE TUBESHEET, WITH A VERTICALITY TOLERANCE OF 0.10mm. THE SURFACE OF THE TUBE HOLES SHALL BE CLEANED AND FREE OF BURRS, IRON CHIPS, RUST STAINS, OIL STAINS, OR ANY OTHER IMPURITIES THAT MAY AFFECT THE QUALITY OF EXPANSION OR WELDED CONNECTIONS. THE HOLE SURFACE SHALL NOT HAVE LONGITUDINAL OR SPIRAL MARKS THAT MAY AFFECT THE QUALITY OF EXPANSION.
  - AFTER DRILLING, ≥96% OF THE LIGAMENT WIDTHS ON THE TUBESHEET MUST BE ≥4.70mm. THE MINIMUM LIGAMENT WIDTH ALLOWED (FOR NO MORE THAN 4% OF THE LIGAMENTS) SHALL BE 3.45mm.
  - THE DIAMETER OF THE BOLT HOLE CENTER CIRCLE ON THE TUBESHEET AND THE LIMIT DEVIATION OF THE CHORD LENGTH BETWEEN ADJACENT BOLT HOLES SHALL BE ±0.6mm. THE LIMIT DEVIATION OF THE CHORD LENGTH BETWEEN ANY TWO BOLT HOLES SHALL BE ±1.5mm.
  - UNLESS OTHERWISE SPECIFIED, THE LINEAR DIMENSIONS OF MACHINED SURFACES WITHOUT TOLERANCE SPECIFICATIONS SHALL COMPLY WITH THE m GRADE OF GB/T 1804-2000 "GENERAL TOLERANCES - TOLERANCES FOR LINEAR AND ANGULAR DIMENSIONS WITHOUT INDIVIDUAL TOLERANCE INDICATIONS".
  - THE SEALING SURFACE AND OTHER SURFACES OF THE TUBESHEET SHALL NOT HAVE SCRATCHES, BURRS, OR OTHER DEFECTS THAT MAY REDUCE STRENGTH AND SEALING RELIABILITY.
  - THE S31603 MATERIAL AND ITS WELDED JOINTS (INCLUDING WELDING PROCEDURE QUALIFICATION) SHALL BE SUBJECTED TO INTERGRANULAR CORROSION TESTING ACCORDING TO METHOD B OF GB/T 4334-2020. THE AVERAGE CORROSION RATE SHALL NOT EXCEED 1.6g/m2·h. SAMPLING AND BATCHING OF CORROSION TEST SPECIMENS SHALL BE CARRIED OUT IN ACCORDANCE WITH CLAUSE 8 OF GB/T 21433-2008.

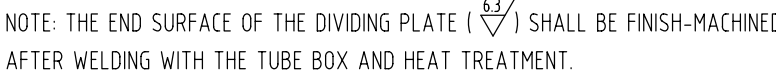


18	右管板 8=68 RIGHT TUBESHEET	S31603Ⅲ	499	HRQ.01-00128-01	HRQ01-00128
件号 ITEM NO.	名称 DESCRIPTION	材料 MATERIAL	重量(kg) WEIGHT	所在图号 DWG. NO.	图号 ASSEMBLY DWG. NO.
<div><div></div><div>荆门宏图特种飞行器制造有限公司 JINGMEN HONGTU SPECIAL AIRCRAFT MANUFACTURING CO., LTD.</div></div>					
标记 MARK	数量 QTY	规格 SPEC	日期 DATE	名称 NAME	日期 DATE
人员 STAFF	姓名 SIC	日期 DATE	人员 STAFF	姓名 SIC	日期 DATE
制图 DRAWING	姓名 SIC	日期 DATE	工艺 OUTWORK	姓名 SIC	日期 DATE
设计 DESIGN	姓名 SIC	日期 DATE	焊接 WELDING	姓名 SIC	日期 DATE
校核 CHECK	姓名 SIC	日期 DATE	标准 STANDARD	姓名 SIC	日期 DATE
审核 REVIEW	姓名 SIC	日期 DATE	批准 APPROVAL	姓名 SIC	日期 DATE
第 1 页 共 1 页 SHEET NO. 1 OF 1					
设备名称 EQUIPMENT NAME					
轻组分塔冷凝器 E-2402 LIGHT COMPONENT TOWER CONDENSER					
图号 DWG. NO.					
HRQ01-00128-01					

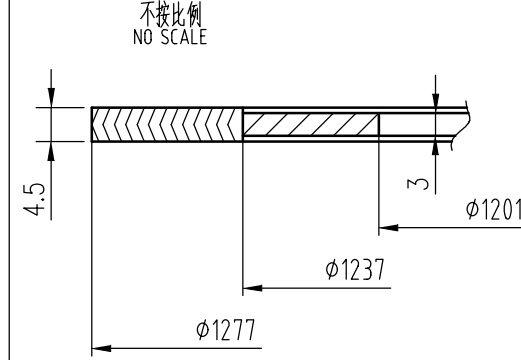
This drawing is the property of LML. It shall not be copied or distributed without prior approval from LML. 本图属中集(LMC)机密文件,未经授权(LMC)许可,不得对主图进行修改或在公开场合发表。



19	右修漏部件 RIGHT TUBE	组合件 ASSEMBLY	850	HRQ.01-00128-02	HRQ.01-00128
件号 ITEM NO.	名称 DESCRIPTION	材料 MATERIAL	重量(kg) WEIGHT	所在图号 DWG. NO.	总图号 ASSEMBLY DWG. NO.



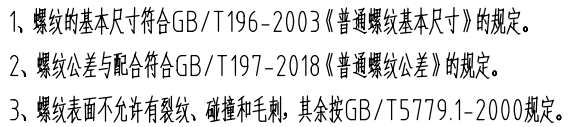
19-4	分程隔板 8-16 PASS PARTITION	Q345R	163.6	HRQ01-00128-02	HRQ01-00128-02
件号	名 称	材 料	重量(kg)	所在图号	视图号



1. 垫片的制造、检验与验收按 GB/T 29463-2023《管壳式热交换器用垫片》的要求。

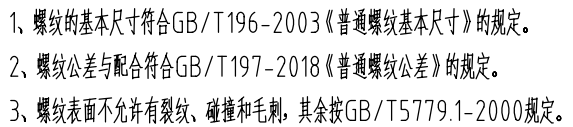
1. THE MANUFACTURING, INSPECTION, AND ACCEPTANCE OF GASKETS SHALL COMPLY WITH THE REQUIREMENTS OF GB/T 29432-2023 "GASKETS FOR SHELL-AND-TUBE HEXCHANGERS".
2. THE MANUFACTURER SHALL ENSURE THAT THE PERFORMANCE PARAMETERS OF THE SPIRAL WOUND GASKETS USED ARE AS FOLLOWS: GASKET FACTOR  $m = 3$ ; SEATING STRESS  $y = 69$ .
3. THE FILLET WELDS BETWEEN THE INNER METAL RING AND THE OUTER METAL RING SHALL BE SUBJECTED TO 100% PENETRANT TESTING IN ACCORDANCE WITH NB/T 47013.5-2015, AND SHALL MEET GRADE I ACCEPTANCE CRITERIA.

20	右臂衬垫片 DN1200 GASKET	S30408+柔性石墨	--	HRQ01-00128-02	HRQ01-00128
件号	名 称	材 料	重量(kg)	所在图号	总图号



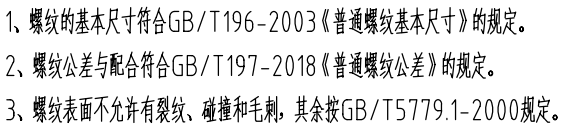
1. THE BASIC DIMENSIONS OF THREADS COMPLY WITH THE PROVISIONS OF GB/T196-2003 "BASIC DIMENSIONS OF GENERAL THREADS".
2. THE THREAD TOLERANCE AND FIT SHALL COMPLY WITH THE PROVISIONS OF GB/T197-2018 GENERAL THREAD TOLERANCE.
3. CRACKS, COLLISIONS, AND BURRS ARE NOT ALLOWED ON THE SURFACE OF THE THREAD, AND THE REST SHALL COMPLY WITH THE PROVISIONS OF GB/T5779.1-2000.

26	长拉杆 Φ12 L=3568 TIE ROD	S31603	3.2	HRQ01-00128-02	HRQ01-00128
件号	名 称	材 料	重量(kg)	所在图号	总图号



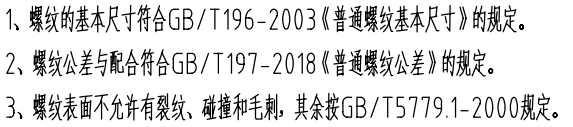
1. THE BASIC DIMENSIONS OF THREADS COMPLY WITH THE PROVISIONS OF GB/T196-2003 "BASIC DIMENSIONS OF GENERAL THREADS".
2. THE THREAD TOLERANCE AND FIT SHALL COMPLY WITH THE PROVISIONS OF GB/T197-2018 GENERAL THREAD TOLERANCE.
3. CRACKS, COLLISIONS, AND BURRS ARE NOT ALLOWED ON THE SURFACE OF THE THREAD, AND THE REST SHALL COMPLY WITH THE PROVISIONS OF GB/T5779.1-2000.

28	镀锌杆 $\phi 12$ L=3232 THE ROD	S31603	2.9	HRQ01-00128-02	HRQ01-00128
件号	名称	材料	重量(kg)	所在图号	总图号



1. THE BASIC DIMENSIONS OF THREADS COMPLY WITH THE PROVISIONS OF GB/T196-2003 "BASIC DIMENSIONS OF GENERAL THREADS".
2. THE THREAD TOLERANCE AND FIT SHALL COMPLY WITH THE PROVISIONS OF GB/T197-2018 GENERAL THREAD TOLERANCE.
3. CRACKS, COLLISIONS, AND BURRS ARE NOT ALLOWED ON THE SURFACE OF THE THREAD, AND THE REST SHALL COMPLY WITH THE PROVISIONS OF GB/T5779.1-2000.

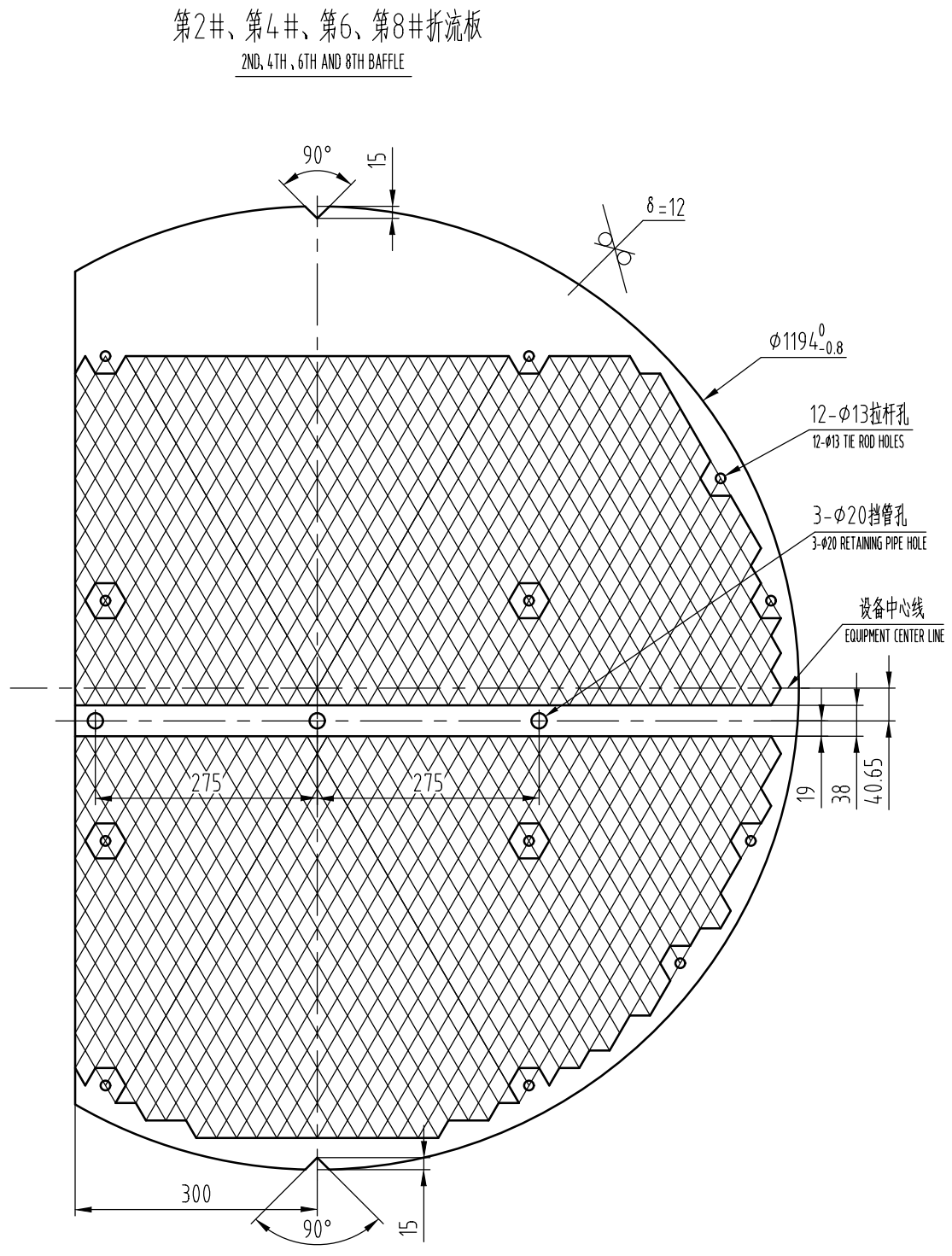
9	防冲杆 1 $\phi 12$ L=895 IMPINGEMENT BAR	S31603	0.8	HRQ01-00128-02	HRQ01-00128
件号	名称	材料	重量(kg)	所在图号	总图号



1. THE BASIC DIMENSIONS OF THREADS COMPLY WITH THE PROVISIONS OF GB/T196-2003 "BASIC DIMENSIONS OF GENERAL THREADS".
2. THE THREAD TOLERANCE AND FIT SHALL COMPLY WITH THE PROVISIONS OF GB/T197-2018 GENERAL THREAD TOLERANCE.
3. CRACKS, COLLISIONS, AND BURRS ARE NOT ALLOWED ON THE SURFACE OF THE THREAD, AND THE REST SHALL COMPLY WITH THE PROVISIONS OF GB/T5779.1-2000.

15	脉冲杆 Φ12 L=835 IMPINGMENT BAR	S31603	0.75	HRQ01-00128-02	HRQ01-00128
件号	名称	材料	重量(kg)	所在图号	总图号
 <div> <p>荆门宏图特种飞行器制造有限公司</p> <p>JINGMEN HONGTU SPECIAL AIRCRAFT MANUFACTURING CO., LTD.</p> </div>					
板号 MARK	规格 SPEC	材料牌号 MATERIAL	重量 WEIGHT	日期 DATE	备注 REMARK
卷号 STATE	卷号 STATE	日期 DATE	日期 DATE	材料 MATERIAL	组合件 SUB-ASSEMBLY
制图 DRAWING	工号 WORKING	件号 PART NO.	重量 WEIGHT	比例 SCALE	图号 DRAWING NO.
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校核 CHECK	刘锦	2025.5.6	标准图 STANDARD	1:1	HRQ01-00128-02
审核 REVIEW	张	2025.5.6	标准图 STANDARD	1:1	HRQ01-00128-02
标题 TITLE	轻组分塔冷器 E-2402 LIGHT COMPONENT TOWER CONDENSER				

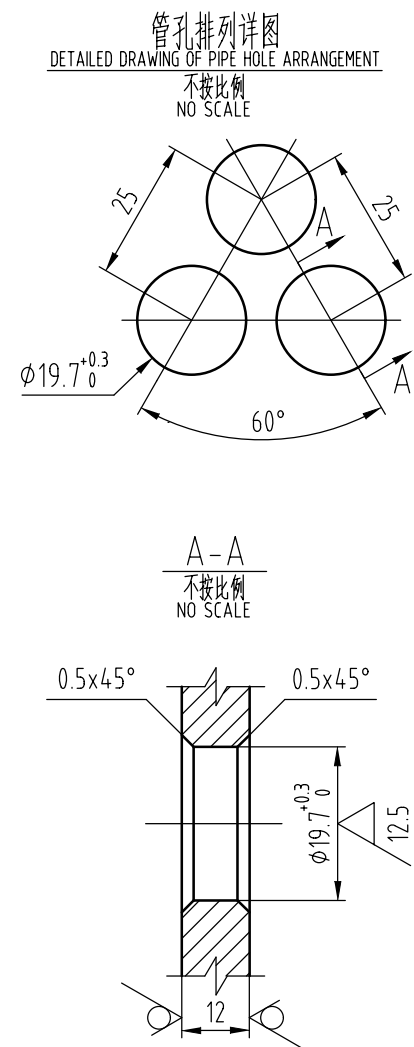




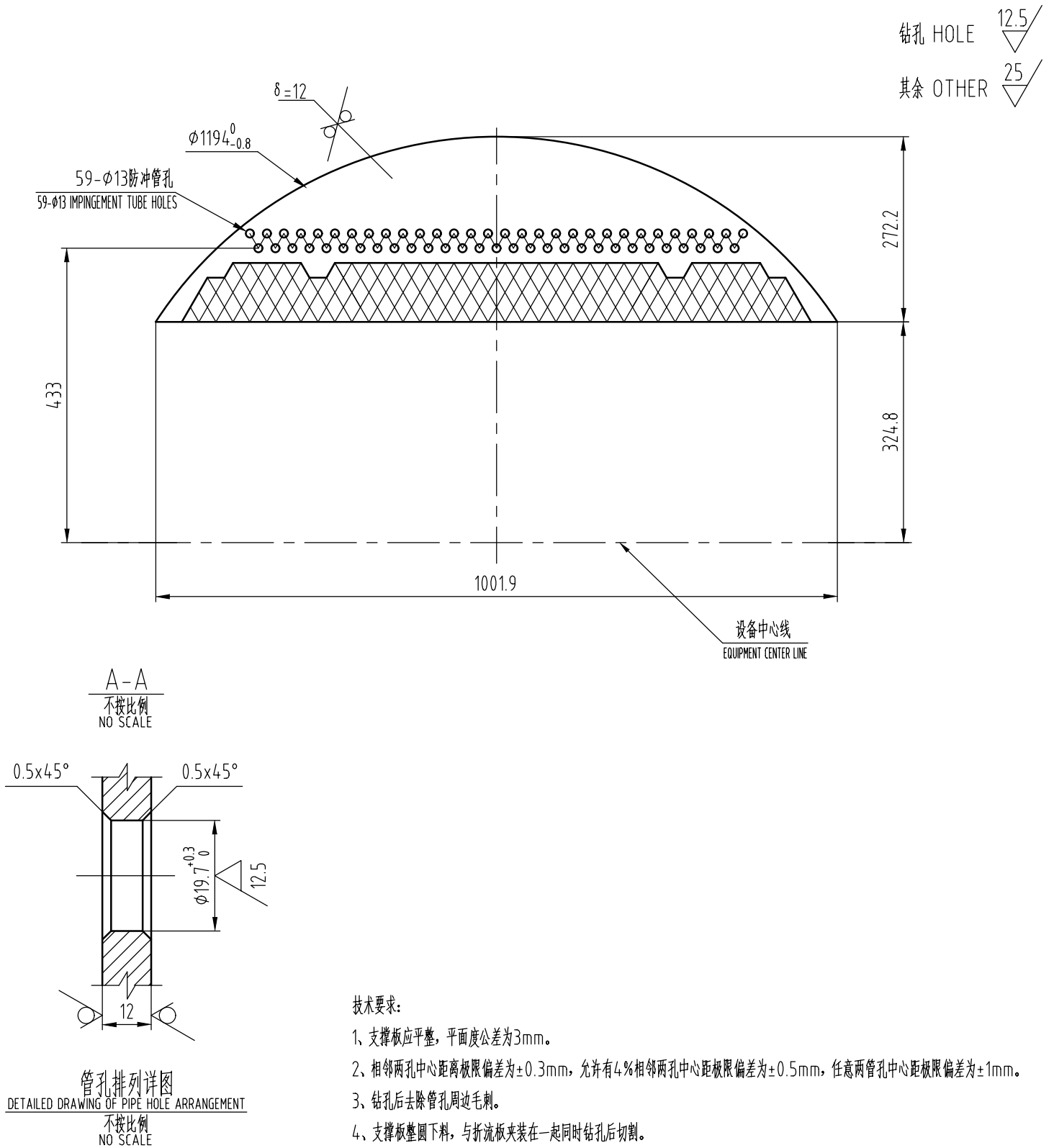
技术要求:  
1、折流板应平整, 平面度公差为3mm。  
2、相邻两孔中心距离偏差为±0.3mm, 允许有4%相邻两孔中心距极限偏差为±0.5mm, 任意两管孔中心距极限偏差为±1mm。  
3、钻孔后去除管孔周边毛刺。  
4、折流板整圆下料, 所有折流板夹装在一起同时钻孔后切割。

TECHNICAL REQUIREMENTS:  
1. THE BAFFLE SHOULD BE FLAT WITH A FLATNESS TOLERANCE OF 3MM.  
2. THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ADJACENT TWO HOLES IS ± 0.3MM, WITH A ALLOWABLE DEVIATION OF 4%. THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ADJACENT TWO HOLES IS ± 0.5MM, AND THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ANY TWO PIPE HOLES IS ± 1MM.  
3. REMOVE BURRS AROUND THE PIPE HOLE AFTER DRILLING.  
4. ROUND CUTTING OF BAFFLE PLATES, ALL BAFFLE PLATES CLAMPED TOGETHER AND DRILLED SIMULTANEOUSLY BEFORE CUTTING.

27	2#、4#、6#、8#折流板 δ=12 BAFFLE PLATE	S31603	45.5	HRQ01-00128-03	HRQ01-00128
件号	名 称	材 料	重量(kg)	所在图号	总图号



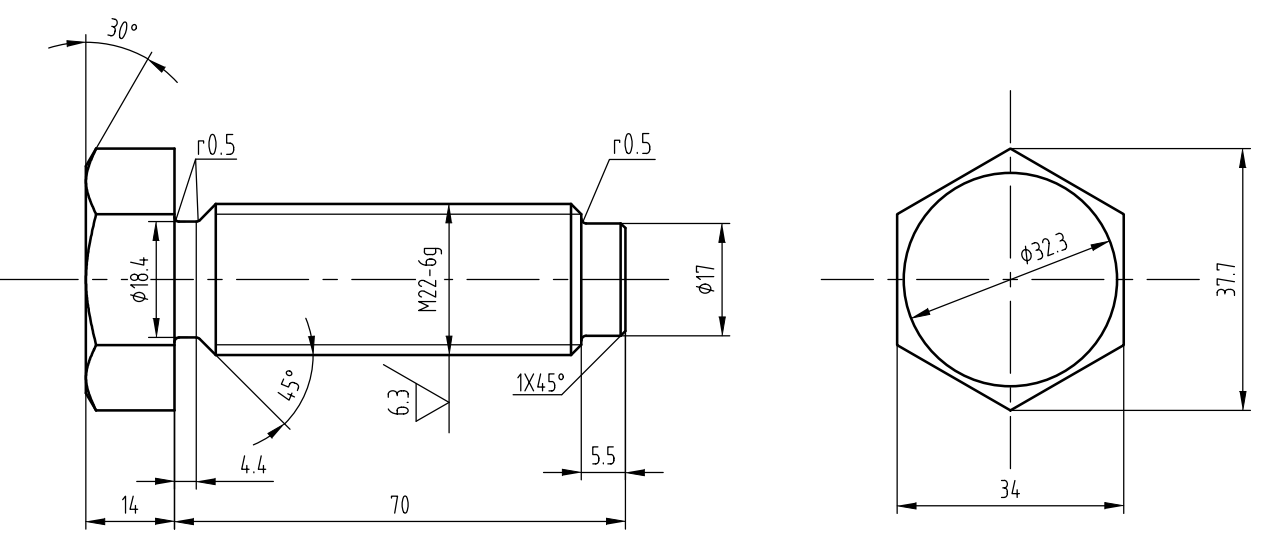
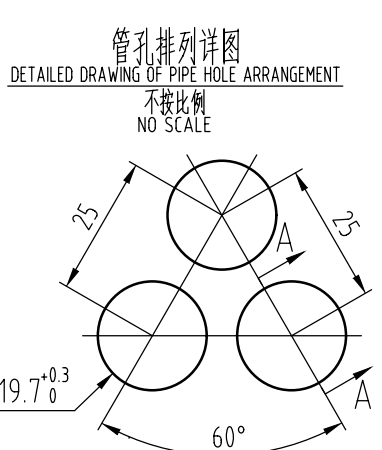
钻孔 HOLE 12.5  
其余 OTHER 25



技术要求:  
1、支撑板应平整, 平面度公差为3mm。  
2、相邻两孔中心距离偏差为±0.3mm, 允许有4%相邻两孔中心距极限偏差为±0.5mm, 任意两管孔中心距极限偏差为±1mm。  
3、钻孔后去除管孔周边毛刺。  
4、支撑板整圆下料, 与折流板夹装在一起同时钻孔后切割。

TECHNICAL REQUIREMENTS:  
1. THE SUPPORT PLATE SHOULD BE FLAT WITH A FLATNESS TOLERANCE OF 3MM.  
2. THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ADJACENT TWO HOLES IS ± 0.3MM, WITH A ALLOWABLE DEVIATION OF 4%. THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ADJACENT TWO HOLES IS ± 0.5MM, AND THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ANY TWO PIPE HOLES IS ± 1MM.  
3. REMOVE BURRS AROUND THE PIPE HOLE AFTER DRILLING.  
4. ROUND CUTTING OF SUPPORT PLATE, WITH BAFFLE PLATES CLAMPED TOGETHER AND DRILLED SIMULTANEOUSLY BEFORE CUTTING.

17	支撑板 δ=12 SUPPORT PLATE	S31603	18.6	HRQ01-00128-03	HRQ01-00128
件号	名 称	材 料	重量(kg)	所在图号	总图号

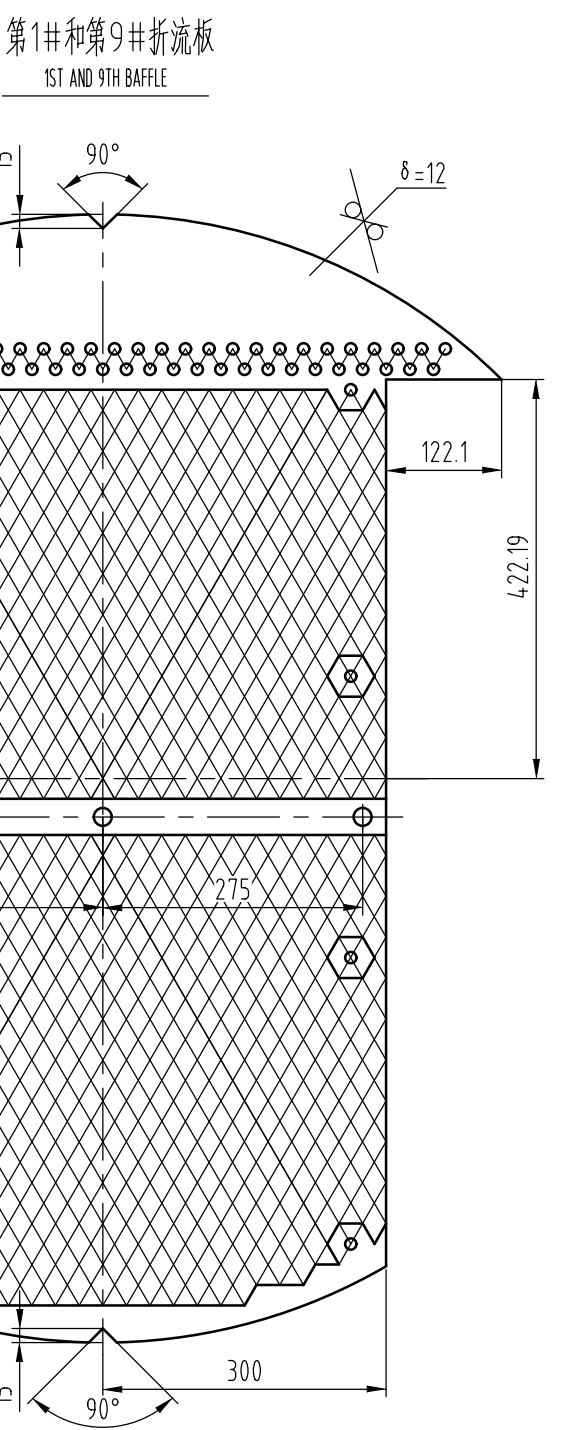


技术要求:  
1、未注尺寸公差按GB/T 1804中的m级。  
2、螺纹的基本尺寸应符合GB/T 196的规定, 公差应符合GB/T 197中的6g级要求。

TECHNICAL REQUIREMENTS:  
1. UNSPECIFIED DIMENSIONAL TOLERANCES SHALL COMPLY WITH GRADE m of GB/T 1804.  
2. THE BASIC DIMENSIONS OF THE THREADS SHALL COMPLY WITH GB/T 196, AND THE TOLERANCES SHALL MEET THE REQUIREMENTS OF GRADE 6g IN GB/T 197.

33	螺栓 M22X70 SCREW	S30408	0.25	HRQ01-00128-03	HRQ01-00128
件号	名 称	材 料	重量(kg)	所在图号	总图号

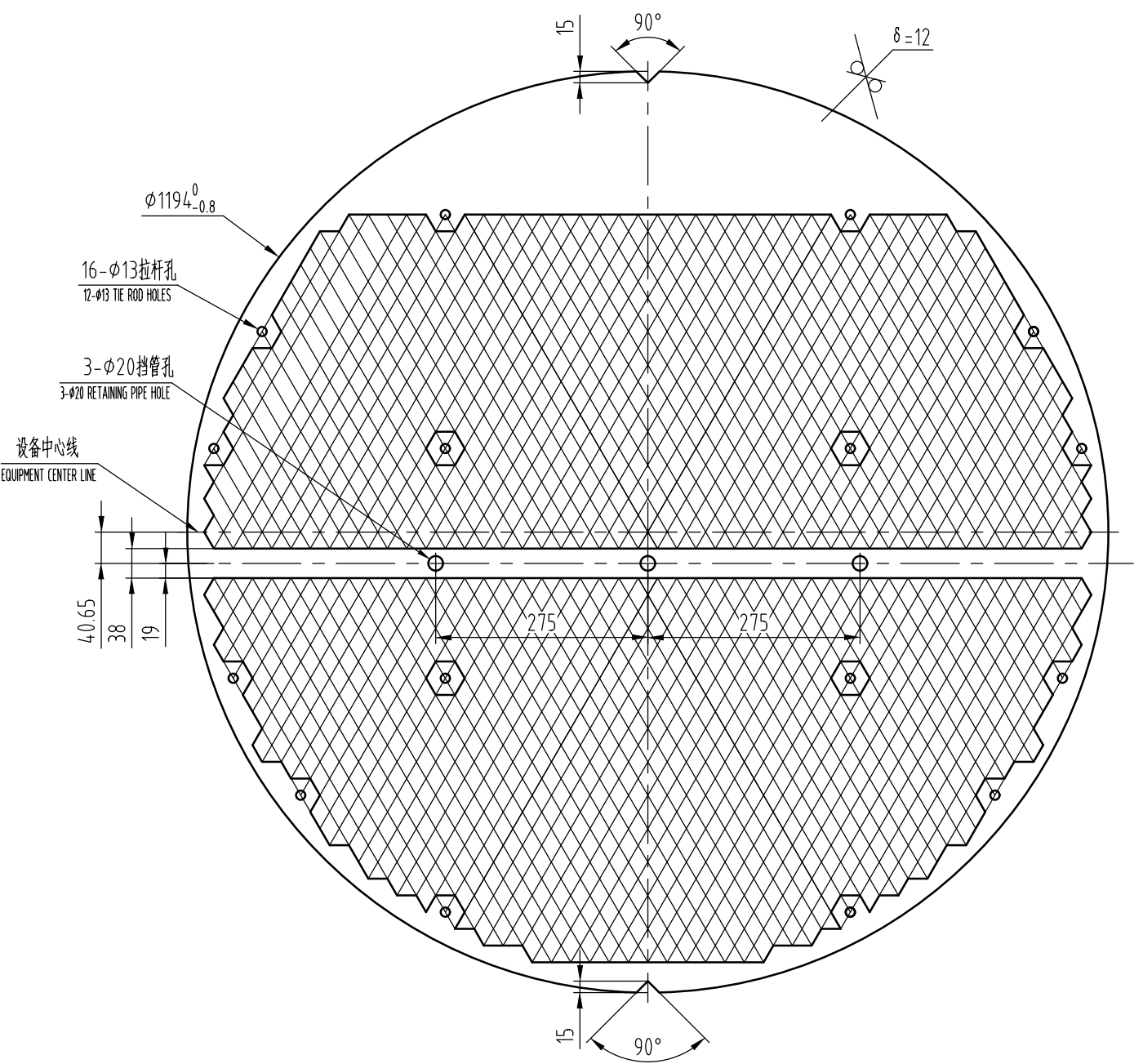
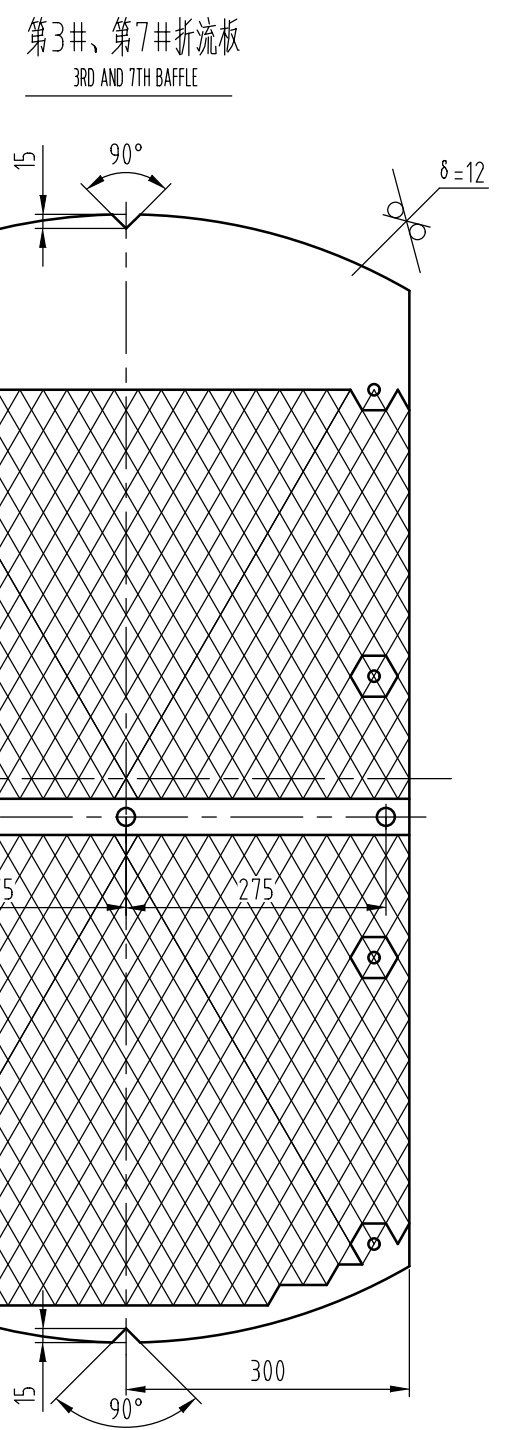
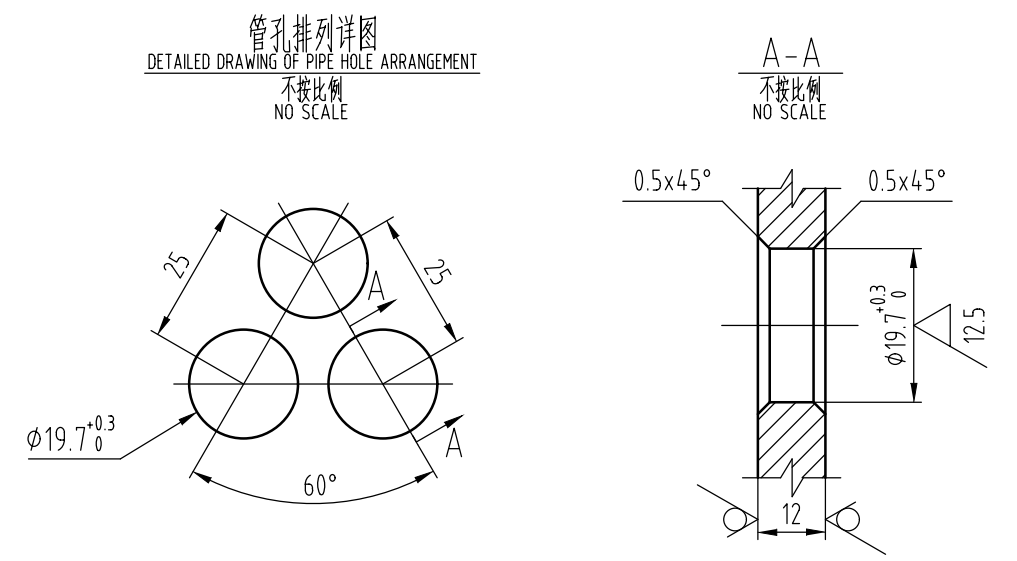
刘岩岩 2025.4.21  
刘瑞 2025.4.21  
李 2025.4.21



技术要求:  
1、折流板应平整, 平面度公差为3mm。  
2、相邻两孔中心距离偏差为±0.3mm, 允许有4%相邻两孔中心距极限偏差为±0.5mm, 任意两管孔中心距极限偏差为±1mm。  
3、钻孔后去除管孔周边毛刺。  
4、折流板整圆下料, 所有折流板夹装在一起同时钻孔后切割。

TECHNICAL REQUIREMENTS:  
1. THE BAFFLE SHOULD BE FLAT WITH A FLATNESS TOLERANCE OF 3MM.  
2. THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ADJACENT TWO HOLES IS ± 0.3MM, WITH A ALLOWABLE DEVIATION OF 4%. THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ADJACENT TWO HOLES IS ± 0.5MM, AND THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ANY TWO PIPE HOLES IS ± 1MM.  
3. REMOVE BURRS AROUND THE PIPE HOLE AFTER DRILLING.  
4. ROUND CUTTING OF BAFFLE PLATES, ALL BAFFLE PLATES CLAMPED TOGETHER AND DRILLED SIMULTANEOUSLY BEFORE CUTTING.

13	1#、3#、7#、9#折流板 δ=12 BAFFLE PLATE	S31603	45.5	HRQ01-00128-03	HRQ01-00128
件号	名 称	材 料	重量(kg)	所在图号	总图号



技术要求:  
1、折流板应平整, 平面度公差为3mm。  
2、相邻两孔中心距离偏差为±0.3mm, 允许有4%相邻两孔中心距极限偏差为±0.5mm, 任意两管孔中心距极限偏差为±1mm。  
3、钻孔后去除管孔周边毛刺。  
4、折流板整圆下料, 所有折流板夹装在一起同时钻孔后切割。

TECHNICAL REQUIREMENTS:  
1. THE BAFFLE SHOULD BE FLAT WITH A FLATNESS TOLERANCE OF 3MM.  
2. THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ADJACENT TWO HOLES IS ± 0.3MM, WITH A ALLOWABLE DEVIATION OF 4%. THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ADJACENT TWO HOLES IS ± 0.5MM, AND THE MAXIMUM DEVIATION OF THE CENTER DISTANCE BETWEEN ANY TWO PIPE HOLES IS ± 1MM.  
3. REMOVE BURRS AROUND THE PIPE HOLE AFTER DRILLING.  
4. ROUND CUTTING OF BAFFLE PLATES, ALL BAFFLE PLATES CLAMPED TOGETHER AND DRILLED SIMULTANEOUSLY BEFORE CUTTING.

29	5#全支撑板 δ=12 FULL SUPPORT PLATE	S31603	60.7	HRQ01-00128-03	HRQ01-00128
件号	名 称	材 料	重量(kg)	所在图号	总图号

标记 MARK	数量 QTY	更改序号 REV. NO.	版本号 VER.	日期 DATE	人员 STAFF	日期 DATE	名称 NAME	材料 MATERIAL	组别 GROUP
人员 STAFF	日期 DATE	人员 STAFF	日期 DATE	名称 NAME	材料 MATERIAL	组别 GROUP	设备名称 EQUIPMENT NAME	设备名称 EQUIPMENT NAME	
设计 DESIGN	刘岩岩	2025.5.6	审核 CHECK	刘瑞	2025.5.6	标准 SCALE	—	—	
审核 REVIEW	李	2025.5.6	批准 APPROVAL	—	—	—	—	—	

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SHEET NO. 1 OF 1

Light Component Tower Condenser  
HRQ01-00128-03

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		180		171		INSPECTION MARK	
	R1.8	60	5	92	5	22	5
	R5.4	47		29		38	
E-2402	轻组分塔冷凝器 LIGHT COMPONENT TOWER CONDENSER						
产品编号 SERIAL NO.	B65328	设计压力 DESIGN PRESS.	6.5 Kg/cm <sup>2</sup> G	管程（夹套或盘管） TUBE SIDE (JACKET OR COIL)	壳程（壳体） SHELL SIDE (SHELL)		
压力容器类别 VESSEL CATEGORY	/	耐压试验压力 PROOF TEST PRESS.	8.2(液压-卧) 8.2(HYDRO.-H) Kg/cm <sup>2</sup> G		8.2(液压-卧) 8.2(HYDRO.-H) Kg/cm <sup>2</sup> G		
制造日期 DATE OF FABR.	年    月    日	最高允许工作压力 MAWP	- - Kg/cm <sup>2</sup> G		- - Kg/cm <sup>2</sup> G		
容器自重 NET WEIGHT	~11900 kg	设计温度（最低/最高） DESIGN TEMP. MIN/MAX	0/60 °C		0/90 °C		
换热面积 HEAT TRANSFER SURFACE	~453.1 m <sup>2</sup>	工作介质 SERVICE FLUID	CWS		MT、IBL、水 MT、IBL、WATER		
折流板间距 SPACING OF BAFFLES	334 mm	主体材料 MAIN BODY MTRL.	Q345R, 16Mn III		S31603		
产品标准 PRODUCT STANDARD	GB/T151—2014	容    积 VOLUME	3.37 m <sup>3</sup>		2.80 m <sup>3</sup>		
制造许可级别 FABR. LICENSING LEVEL	A2、A3、C2	制造许可证编号 FABR. LICENSE NO.	TS2242379-2028				
制造单位 MANUFACTURER	荆门宏图特种飞行器制造有限公司 JINGMEN HONGTU SPECIAL AIRCRAFT MANUFACTURING CO., LTD.						
设备代码 EQUIPMENT CODE							
铭牌的拓印件或者复印件存于压力容器产品质量证明书中 THE RUBBING OR COPY OF THE NAMEPLATE SHALL BE PUT INTO PRODUCT QUALITY CERTIFICATION DOCUMENTS OF PRESSURE VESSELS.							

### TECHNICAL REQUIREMENTS:

3		A	RIVETS	铆钉 3x10	4	ML2	/	/	GB/T 827-1986
2		A	NAMEPLATE BRACKET I	铭牌托架 I -H-90	1	S31603		3.06	21379-STD-EQ00120
1		A	NAMEPLATE	铭牌 δ=1	1	S30408		0.25	
序号 ITEM NO.	图 号 DWG NO.	版本 Issu	英 文 名 称 ENGLISH NAME	中文名称和标准号 CHINESE NAME & STANDARD NO	数量 QTY	材 料 MATERIAL	单 件 EACH	总 计 TOT.	备 注 REMARK
							质 量 WEIGHT (kg)		
29	铭牌及铭牌座 NAMEPLATE AND NAMEPLATE HOLDER	组合件 ASSEMBLY		3.3	HRQ01-00128-04			HRQ01-00128	
件号 ITEM NO.	名 称 DESCRIPTION		材 料 MATERIAL	重量(kg) WEIGHT	所在图号 DWG. NO.			总图号 ASSEMBLY DWG. NO.	

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