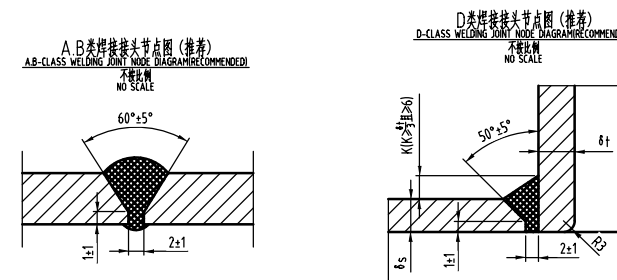



主要材料标准 MAIN MATERIAL STANDARD							
材料品种 MATERIAL TYPE	材料名称 MATERIAL NAME	标准号 STANDARD NO.	供货状态 DELIVERY COND.	材料品种 MATERIAL TYPE	材料名称 MATERIAL NAME	标准号 STANDARD NO.	供货状态 DELIVERY COND.
光面卷材 POLISHED SHEET	Q345R	GB/T 713.2-2013	热轧 HOT-ROLLING	带卷钢板及铁板 COILS SHEET AND IRON SHEET	Q345R	GB/T 713.2-2013	热轧 HOT-ROLLING
光面卷管 POLISHED PIPE FOR SHEET USE	20/16MnIII	GB/T9948-2013/ NB/T 47008-2017	正火 NORMALIZING	带卷钢板及铁板 COILS SHEET AND IRON SHEET	20/16MnIII	GB/T9948-2013/ NB/T 47008-2017	正火 NORMALIZING
带卷法兰 BODY FLANGE	16MnIII	NB/T 47008-2017	正火 NORMALIZING	带卷钢板及铁板 COILS SHEET AND IRON SHEET	16MnIII	NB/T 47008-2017	正火 NORMALIZING
管板 TUBESHEET	16MnIII	NB/T 47008-2017	正火 NORMALIZING	换热管 HEATING TUBES	Q345D	GB/T 6479-2013	冷拔 COLD-DRAWING
管口表 NOZZLE TABLE							
序号 SYMBOL	用途名称 SERVICE	数量 QTY	公称尺寸 NPS	公称压力 RATING	连接标准及形式 STANDARD AND TYPE/FACE	接管规格 NECK SIZE	接管长度 PROJECTION
N01	气体入口 VAPOR INLET	1	8"	Class300	ASME B16.5 WN/RF	φ219.1X12.7 材料牌AL000X10	560
N02	气体出口 VAPOR OUTLET	1	8"	Class300	ASME B16.5 WN/RF	φ219.1X12.7 材料牌AL000X10	560
U01	蒸汽入口 STEAM INLET	1	3"	Class300	ASME B16.5 WN/RF	φ88.9X7.62 材料牌A105X10	540
U02	冷凝水出口 CONDENSATE OUTLET	1	2"	Class300	ASME B16.5 LWN/RF	φ84X16	540
V01	管程进出口 (管壳兰) TUBE SIDE VENT/VALVE	1	1"	Class300	ASME B16.5 LWN/RF	φ54X13.5	540
V02	壳程进出口 (管壳兰) SHELL SIDE VENT/VALVE	1	1"	Class300	ASME B16.5 LWN/RF	φ54X13.5	540
V03	管程进出口 (管壳兰) TUBE SIDE DRAIN/VENT	1	1"	Class300	ASME B16.5 LWN/RF	φ54X13.5	540
D02	壳程进出口 (管壳兰) SHELL SIDE DRAIN/VENT	1	1"	Class300	ASME B16.5 LWN/RF	φ54X13.5	540

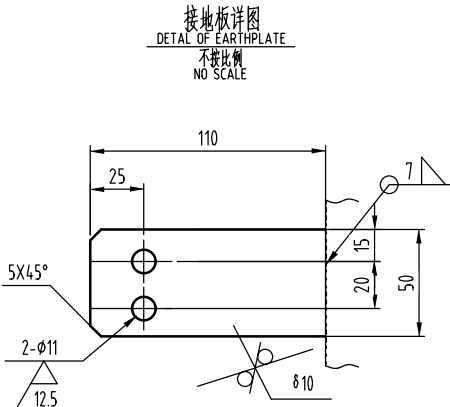
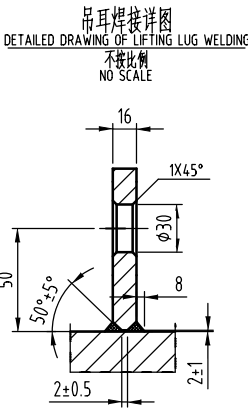
注：1) 1指筒壳及接管内径，筒壳上接管口径是指接管与壳程法兰接管面投影面积。

NOTES: 1) EXCEPT SPECIFIED ON THE DWS, THE PROJECTION IS THE DIMENSION FROM FLANGE SURFACE TO EQUIPMENT CENTER LINE.



								 Hanlita	荆门宏图特种飞行器制造有限公司 JINGMEN HONGTU SPECIAL AIRCRAFT MANUFACTURING CO., LTD.		
设计 DRAWN	材料 MATERIAL	零件编号 PART NO.	版本号 REV	日期 DATE	工艺 STAFF	版本 VER	日期 DATE	备注 REMARK	图号 DRAWING NO.	设备名称 EQUIPMENT NAME	气体预热器 E-2302 GAP PREHEATER E-2302
设计 DESIGN		张金亮		2025.04.27	焊接 WELD			板厚 THICKNESS	B		
校核 CHECK		李国平		2025.04.27	标准 STANDARD			比例 SCALE	1:10		
审核 REVIEW		李国平		2025.04.27	批准 APPROVAL			第 1 页 共 2 页 SHEET NO. PAGE NO.		序号 NO.	HRQ01-00132
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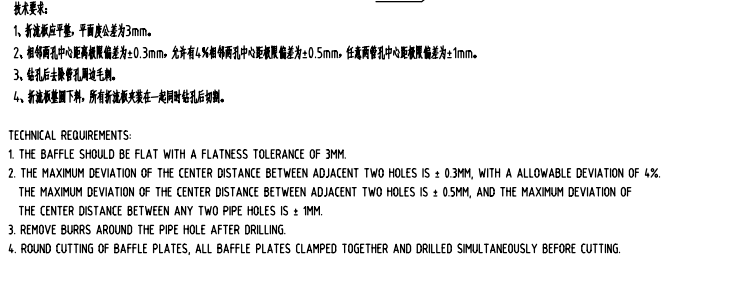
技术要求									
1.材料要求:									
1)设备用Q345R板材应符合GB/T 713.2-2023《承压设备用钢板和钢带 第2部分: 规定温度性能的非合金钢和合金钢》的要求, 热轧状态供货。									
2)换热管Q345D采用GB/T 6479-2013中Ⅰ级(高级)冷轧钢管, 不得拼接, 并应符合NB/T47019.1-2021及NB/T47019.2-2021的规定, 其钢管外径偏差为±0.08mm, 壁厚偏差为+15%S, 0。									
3)设备所用16Mn锻件应符合NB/T 47008-2017《承压设备用碳素钢和合金钢锻件》的规定, 正火状态供货。									
4).螺栓的螺纹宜采用滚制方法加工。所有螺栓螺纹加工后应逐件按NB/T 47013.4-2015 的规定进行表面检测, 不应有任何裂纹显示和任何横向缺陷显示。									
5)设备所用20#管材应符合GB/T9948-2013的规定; 外径不小于76mm且壁厚不小于6.5mm的20#钢管, 应进行纵向冲击试验, 冲击试验温度为0℃, 3个标准试样的冲击吸收能量平均值不小40J, 允为1个标准试样的冲击功数值低于40J, 但不得低于28J; 采用无缝钢管的接管厚度负偏差不得大于10%(S为接管壁厚)。									
2.加工制造:									
1)管板密封面与壳体轴线垂直, 其公差为1mm。									
2)所有的外内附件应与设备连续焊。设备上的所有承压焊接接头应打磨光滑, 并圆滑过渡, 不得有尖角、毛刺, 角焊缝应四圆滑过渡。									
3)换热管与管板连接方式采用强度焊(填丝氩弧焊)+贴胀(减压胀), 施焊前应按NB/T 47014-2023附录E进行焊接工艺评定, 至少分二次完成, 焊完第一层后, 壳程以0.1MPa压缩空气作泄漏试验检查焊接接头, 经肥皂液检测无泄漏后焊第二层, 每层焊后均应进行100%PT检测, 符合NB/T 47013.5-2015中Ⅰ级合格。管子与管板应采用合格的填丝氩弧焊, 管子与管板焊后应保持完整的管端, 管端伸出管板应平整, 其焊接接头不得有未融合、未焊透、焊穿、焊塌等缺陷, 管端应完整。									
4).带分程隔板管箱部件组焊后应进行消除应力热处理, 热处理后对设备法兰密封面和分程隔板密封面一并精加工, 保证处在同一平面。热处理完后不得再动火施焊。									
5)壳程组焊完毕后, 应按照GB/T150.4-2024的6.5.11条检查壳体的圆度。									
3.无损检测: 本设备的无损检测应符合《设计数基表》中的规定外, 还应满足下列要求:									
1)壳程筒体与管板之间的焊接接头应氩弧焊打底全焊透, 焊缝表面应按NB/T 47013.4-2015进行100%磁粉检测, MT-Ⅰ级合格。									
2)耳座垫板与壳程筒体、轴耳垫板与壳程筒体之间的焊接接头按NB/T 47013.5-2015进行100%渗透检测, PT-Ⅰ级合格。									
3)管箱吊耳与筒体之间的焊接接头按NB/T 47013.4-2015进行100%磁粉检测, MT-Ⅰ级合格。									
4).DN<250的接管与法兰的对接接头应按照NB/T 47013.4 (S) -2015进行100%磁粉(渗透)检测, 合格级别不低于Ⅰ级。									
4.耐压试验:									
1)设备制造后进行水压试验, 水中氯离子含量不大于25mg/L。试验合格后, 应立即将水渍去干净保证内部干燥; 介质接触的不锈钢表面应进行酸洗钝化处理, 所形成的钝化膜按GB/T 25150-2010规定的方法检测, 无重点为合格。酸洗钝化后应彻底冲洗(冲洗用水水质同时满足压缩空气要求), 将水排净且用压缩空气吹干。									
2)设备制造完毕后, 设备(碳钢)外表面需设置保温, 保温要求应符合2215-000000-MC05《绝热设计规范》; 设备涂层应符合22150-000000-MC08《油漆与防腐设计规范》; 设备运输应符合NB/T10558-2021《压力容器涂装与运输包装》。									
3) 换热管应逐根进行涡流检测和水压试验。									
5.其他:									
1).接管、地脚螺栓、吊耳、铭牌、接地板等方位见管道专业管口方位图, N01、N02与布管的相对方位按本图; 所有法兰螺栓孔应与壳体主轴线或铅垂线跨中均布, 壳程接管应与设备内表面齐平。									
2)管箱吊耳仅可吊装管箱空重, 且起吊时须两只同时起吊, 不得用于吊装整套设备。									
3)除注明外, 所有尺寸单位为“mm”, 厚度尺寸标注中括号内尺寸为最小成形厚度(材料订货厚度应不小于名义厚度且应考虑加工裕量, 保证最小成形厚度满足要求)。									
4).吊耳仅可吊装管箱空重, 且起吊时须两只同时起吊, 不得用于吊装整套设备。									
注:1)介质组成(vol%): 氢气 0~20%, 氮气, 少量水蒸气。									
2) 管箱吊耳只能用于吊装管箱。									




TECHNICAL REQUIREMENT

1.MATERIAL REQUIREMENTS:									
1)THE Q345R STEEL PLATES USED FOR THE EQUIPMENT SHALL COMPLY WITH THE REQUIREMENTS OF GB/T 713.2-2023 "STEEL PLATES AND STRIPS FOR PRESSURE EQUIPMENT - PART 2: NON-ALLOY STEELS AND ALLOY STEELS WITH SPECIFIED TEMPERATURE PROPERTIES", AND SHALL BE SUPPLIED IN THE HOT-ROLLED STATE.									
2)THE HEAT EXCHANGE TUBES OF Q345D SHALL ADOPT CLASS I (HIGH-GRADE) COLD-DRAWN STEEL TUBES IN GB/T 6479-2013. SPlicing IS NOT ALLOWED, AND THEY SHALL COMPLY WITH THE PROVISIONS OF NB/T47019.1-2021 AND NB/T47019.2-2021. THE OUTER DIAMETER DEVIATION OF THE STEEL TUBES IS ±0.08MM, AND THE WALL THICKNESS DEVIATION IS +15%S, 0.									
3)THE 16MN FORGINGS USED IN THE EQUIPMENT SHALL COMPLY WITH THE PROVISIONS OF NB/T 47008-2017 "CARBON STEEL AND ALLOY STEEL FORGINGS FOR PRESSURE EQUIPMENT", AND SHALL BE SUPPLIED IN THE NORMALIZED STATE.									
4)THE THREADS OF THE STUDS SHOULD PREFERABLY BE PROCESSED BY THE ROLLING METHOD. AFTER THE THREAD PROCESSING OF ALL STUDS, SURFACE INSPECTION SHALL BE CARRIED OUT ON EACH PIECE IN ACCORDANCE WITH THE PROVISIONS OF NB/T 47013.4-2015. THERE SHALL BE NO CRACK INDICATION AND NO TRANSVERSE DEFECT INDICATION.									
5)THE 20# STEEL PIPES USED FOR THE EQUIPMENT SHALL COMPLY WITH THE PROVISIONS OF GB/T 9948-2013. FOR 20# STEEL PIPES WITH AN OUTER DIAMETER NOT LESS THAN 76 MM AND A WALL THICKNESS NOT LESS THAN 6.5 MM, A LONGITUDINAL IMPACT TEST SHALL BE CARRIED OUT. THE IMPACT TEST TEMPERATURE IS 0°C. THE AVERAGE VALUE OF THE IMPACT ABSORBED ENERGY OF 3 STANDARD SPECIMENS SHALL NOT BE LESS THAN 40 J. IT IS ALLOWED THAT THE IMPACT ENERGY VALUE OF 1 STANDARD SPECIMEN IS LOWER THAN 40 J, BUT IT SHALL NOT BE LOWER THAN 28 J. THE NEGATIVE DEVIATION OF THE THICKNESS OF THE CONNECTING PIPES MADE OF SEAMLESS STEEL PIPES SHALL NOT BE GREATER THAN 10% OF S (S IS THE WALL THICKNESS OF THE CONNECTING PIPE).									
2.PROCESSING AND MANUFACTURING:									
1)THE SEALING SURFACE OF THE TUBE SHEET SHALL BE PERPENDICULAR TO THE AXIS OF THE SHELL, WITH A TOLERANCE OF 1MM.									
2)ALL INTERNAL AND EXTERNAL ATTACHMENTS SHALL BE CONTINUOUSLY WELDED TO THE EQUIPMENT. ALL PRESSURE-BEARING WELDED JOINTS ON THE EQUIPMENT SHALL BE GROUND SMOOTH AND HAVE A SMOOTH TRANSITION. THERE SHALL BE NO SHARP CORNERS OR BURRS, AND THE FILLET WELDS SHALL HAVE A CONCAVE AND SMOOTH TRANSITION.									
3)THE CONNECTION MODE BETWEEN THE HEAT EXCHANGE TUBES AND THE TUBE SHEET ADOPTS STRENGTH WELDING (ARGON ARC WELDING WITH WIRE FILLING) + ADHESIVE EXPANSION (HYDRAULIC EXPANSION). BEFORE WELDING, THE WELDING PROCEDURE QUALIFICATION SHALL BE CARRIED OUT IN ACCORDANCE WITH APPENDIX E OF NB/T 47014-2023, AND IT SHALL BE COMPLETED AT LEAST IN TWO TIMES. AFTER WELDING THE FIRST LAYER, THE SHELL SIDE SHALL BE SUBJECTED TO A LEAKAGE TEST WITH 0.1MPA COMPRESSED AIR TO CHECK THE WELDED JOINTS. AFTER DETECTING NO LEAKAGE WITH SOAPY WATER, THE SECOND LAYER SHALL BE WELDED. AFTER EACH LAYER OF WELDING, 100% PT (PENETRANT TESTING) INSPECTION SHALL BE CARRIED OUT, AND IT SHALL MEET THE GRADE I QUALIFICATION REQUIREMENTS IN NB/T 47013.5-2015. QUALIFIED ARGON ARC WELDING WITH WIRE FILLING SHALL BE USED FOR THE CONNECTION BETWEEN THE TUBES AND THE TUBE SHEET. AFTER WELDING THE TUBES AND THE TUBE SHEET, THE TUBE ENDS SHALL REMAIN INTACT. THE TUBE ENDS PROTRUDING FROM THE TUBE SHEET SHALL BE FLAT, AND THE WELDED JOINTS SHALL NOT HAVE DEFECTS SUCH AS LACK OF FUSION, INCOMPLETE PENETRATION, BURN-THROUGH, COLLAPSE OF THE WELD, ETC. THE TUBE ENDS SHALL BE COMPLETE.									
4)AFTER THE ASSEMBLY AND WELDING OF THE TUBE BOX COMPONENTS WITH THE PASS PARTITION PLATE, STRESS-RELIEVING HEAT TREATMENT SHALL BE CARRIED OUT. AFTER THE HEAT TREATMENT, THE SEALING SURFACE OF THE EQUIPMENT FLANGE AND THE SEALING SURFACE OF THE PASS PARTITION PLATE SHALL BE FINISH-MACHINED TOGETHER TO ENSURE THAT THEY ARE ON THE SAME PLANE. NO HOT WORKING OR WELDING SHALL BE CARRIED OUT AFTER THE HEAT TREATMENT IS COMPLETED.									
5)AFTER THE ASSEMBLY AND WELDING OF THE SHELL SIDE IS COMPLETED, THE ROUNDNESS OF THE SHELL SHALL BE INSPECTED IN ACCORDANCE WITH ARTICLE 6.5.11 OF GB/T150.4-2024.									
3.NON-DESTRUCTIVE TESTING:THE NON-DESTRUCTIVE TESTING OF THIS EQUIPMENT SHALL NOT ONLY COMPLY WITH THE PROVISIONS OF THE "DESIGN DATA SHEET" BUT ALSO SHALL MEET THE FOLLOWING REQUIREMENTS:									
THE WELDED JOINT BETWEEN THE SHELL-SIDE CYLINDER AND THE TUBE SHEET SHALL BE FULLY PENETRATED WITH ARGON ARC WELDING AS THE BACKING PASS. THE SURFACE OF THE WELD SEAM SHALL BE SUBJECTED TO 100% MAGNETIC PARTICLE TESTING IN ACCORDANCE WITH NB/T 47013.4(5)-2015, AND THE QUALIFIED LEVEL SHALL NOT BE LOWER THAN LEVEL I.									
2)THE WELDED JOINTS BETWEEN THE EAR SEAT BACKING PLATE AND THE SHELL-SIDE CYLINDER, AS WELL AS BETWEEN THE SHAFT EAR BACKING PLATE AND THE SHELL-SIDE CYLINDER, SHALL BE SUBJECT TO 100% PENETRATION TESTING IN ACCORDANCE WITH NB/T 47013.5-2015, AND THEY ARE QUALIFIED IF THEY MEET THE PT-I LEVEL.									
3)THE WELDED JOINT BETWEEN THE TUBE BOX LIFTING LUG AND THE CYLINDER SHALL BE SUBJECT TO 100% MAGNETIC PARTICLE TESTING IN ACCORDANCE WITH NB/T 47013.4-2015, AND IT IS QUALIFIED IF IT MEETS THE MT-I LEVEL.									
4)THE BUTT JOINT BETWEEN THE NOZZLE WITH DN < 250 AND THE FLANGE SHALL BE SUBJECT TO 100% MAGNETIC PARTICLE (PENETRATION) TESTING IN ACCORDANCE WITH NB/T 47013.4(5)-2015, AND THE QUALIFIED LEVEL SHALL NOT BE LOWER THAN LEVEL I.									
4.VOLTAGE WITHSTAND TEST:									
AFTER THE EQUIPMENT IS MANUFACTURED, A HYDRAULIC PRESSURE TEST SHALL BE CARRIED OUT. THE CHLORIDE ION CONTENT IN THE WATER SHALL NOT BE GREATER THAN 25MG/L. AFTER THE TEST IS QUALIFIED, THE WATER STAINS SHALL BE REMOVED IMMEDIATELY TO ENSURE THE INTERIOR IS DRY. THE STAINLESS STEEL SURFACE IN CONTACT WITH THE MEDIUM SHALL BE PICKLED AND PASSIVATED. THE PASSIVATION FILM FORMED SHALL BE DETECTED BY THE METHOD SPECIFIED IN GB/T 25150-2010, AND IT IS QUALIFIED IF THERE ARE NO BLUE SPOTS. AFTER PICKLING AND PASSIVATION, IT SHALL BE THOROUGHLY RINSED (THE WATER QUALITY OF THE RINSING WATER SHALL BE THE SAME AS THE REQUIREMENTS FOR THE WATER USED IN THE PRESSURE RESISTANCE TEST), THE WATER SHALL BE DRAINED COMPLETELY, AND IT SHALL BE DRIED WITH COMPRESSED AIR.									
AFTER THE EQUIPMENT IS COMPLETELY MANUFACTURED, THERMAL INSULATION SHALL BE INSTALLED ON THE OUTER SURFACE OF THE EQUIPMENT (CARBON STEEL). THE THERMAL INSULATION REQUIREMENTS SHALL COMPLY WITH THE "THERMAL INSULATION DESIGN REGULATIONS" OF 2215-000000-MC05. THE COATING OF THE EQUIPMENT SHALL COMPLY WITH THE "PAINT AND ANTI-CORROSION DESIGN REGULATIONS" OF 22150-000000-MC08. THE TRANSPORTATION OF THE EQUIPMENT SHALL COMPLY WITH NB/T10558-2021 "COATING AND TRANSPORTATION PACKAGING OF PRESSURE VESSELS".									
EDDY CURRENT TESTING AND HYDRAULIC PRESSURE TESTING SHALL BE CARRIED OUT FOR EACH HEAT EXCHANGE TUBE ONE BY ONE.									
5.OTHER:									
1)THE ORIENTATIONS OF NOZZLES, ANCHOR BOLTS, LIFTING LUGS, NAMEPLATES, GROUNDING PLATES, ETC. SHALL BE REFERRED TO THE NOZZLE ORIENTATION DRAWING OF THE PIPING SPECIALTY. THE RELATIVE ORIENTATIONS OF N01 AND N02 WITH RESPECT TO THE PIPE LAYOUT SHALL BE IN ACCORDANCE WITH THIS DRAWING. ALL FLANGE BOLT HOLES SHALL BE DISTRIBUTED SYMMETRICALLY WITH RESPECT TO THE MAIN AXIS OF THE SHELL OR THE PLUMB LINE. THE SHELL-SIDE NOZZLES SHALL BE FLUSH WITH THE INNER SURFACE OF THE EQUIPMENT.									
2)THE TUBE BOX LIFTING LUGS CAN ONLY BE USED TO LIFT THE EMPTY WEIGHT OF THE TUBE BOX. WHEN LIFTING, TWO LIFTING LUGS SHALL BE USED SIMULTANEOUSLY, AND THEY SHALL NOT BE USED TO LIFT THE WHOLE EQUIPMENT.									
3)UNLESS OTHERWISE SPECIFIED, ALL DIMENSION UNITS ARE "MM". THE DIMENSIONS IN BRACKETS IN THE THICKNESS DIMENSION MARKINGS ARE THE MINIMUM FORMING THICKNESSES (THE ORDERING THICKNESS OF THE MATERIAL SHALL NOT BE LESS THAN THE NOMINAL THICKNESS, AND THE PROCESSING ALLOWANCE SHALL BE CONSIDERED TO ENSURE THAT THE MINIMUM FORMING THICKNESS MEETS THE REQUIREMENTS).									
4)THE LIFTING LUGS CAN ONLY BE USED TO LIFT THE EMPTY WEIGHT OF THE TUBE BOX. WHEN LIFTING, TWO LIFTING LUGS SHALL BE USED SIMULTANEOUSLY, AND THEY SHALL NOT BE USED TO LIFT THE WHOLE EQUIPMENT.									
NOTE:									
1)MEDIUM COMPOSITION (VOL%): HYDROGEN 0~20%, NITROGEN, A SMALL AMOUNT OF WATER VAPOR.									
2)THE LIFTING LUGS OF THE TUBE BOX CAN ONLY BE USED FOR LIFTING THE TUBE BOX.									

V01		A	GRAPHITE GASKET	垫片 D25-300	4	2222	--	--	HG/T 20627-2009
V02		A	NUTS	螺母 M16	32	30CrMoA	0.04	1.28	HG/T 20634-2009
D01		A	FULL THREAD BOLTS	全螺纹螺栓 M16x85	16	35CrMoA	0.09	1.44	HG/T 20634-2009
D02		A	BLIND FLANGES	法兰盖 1"-CL.300 BL.RF	4	16MnⅢ	1.8	7.2	ASME B16.5-2020
		A	LONG NECK RF FLANGE	法兰 1"-CL.300 LWN.RF B=27 H=239.5	4	16MnⅢ	0.9	3.6	ASME B16.5-2020
U02		A	LONG NECK RF FLANGE	法兰 2"-CL.300 LWN.RF B=52 H=241.5	1	16MnⅢ		1.8	ASME B16.5-2020
U01		A	STRENGTHENING CIRCLE	补强圈φ180X10	1	Q345R		1.46	NB/T11025-2022
		A	NOZZLE	接管 φ88.9X7.62 L=164	1	20		2.3	GB/T 9948-2013
		A	FLANGE	法兰 3"-CL.300 WN.RF S=7.62	1	16MnⅢ		8.17	ASME B16.5-2020
N01		A	STRENGTHENING CIRCLE	补强圈φ400X10	2	Q345R	6.8	13.6	NB/T11025-2022
		A	NOZZLE	接管 φ219.1X12.7 L=169.5	2	20	20.2	40.8	GB/T 9948-2013
N02		A	FLANGE	法兰 8"-CL.300 WN.RF S=12.7	2	16MnⅢ	31.3	62.6	ASME B16.5-2020
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 质量 WEIGHT (kg)	总计 TOT	备注 REMARK
29		A	GUARD	挡板20X5 L=2600	2	Q235B	2.04	4.08	
28		A	SADDLE	鞍式支座 BI600-S	1	Q345R/Q345R		28	NB/T 47065.1-2018
27		A	EARTH LUG	接地板 50x110x10	2	S30408	0.3	0.6	
26		A	SADDLE	鞍式支座 BI600-F	1	Q345R/Q345R		28	NB/T 47065.1-2018
25	HRQ01-00132-01	A	PASS PARTITION	分程隔板 δ=10	1	Q345R		34	
24		A	SHEEL	前端管箱筒体 DN600X10 L=455	1	Q345R		66.9	GB/T 713.2-2023
23		A	GASKET	管箱垫片 SWG13-600-2.5-2	1	S30408+柔性石墨		--	GB/T 29463-2023
22	HRQ01-00132-01	A	TUBESHEET	右管板 δ=55	1	16MnⅢ		166.1	
21		A	SPACER	定距管 φ19X2 L=258	6	Q345D	0.22	1.32	
20		A	SPACER	定距管 φ19X2 L=548	2	Q345D	0.46	0.92	
19		A	SPACER	定距管 φ19X2 L=284	32	Q345D	0.24	7.68	
18		A	SPACER	定距管 φ19X2 L=574	14	Q345D	0.48	6.72	
17		A	TUBE	换热管 φ19X2 L=3000	416	Q345D	2.5	1040	GB/T 6479-2013
16	HRQ01-00132-02	A	NAMEPLATE AND NAMEPLATE HOLDER	铭牌及铭牌座	1	组合件 ASSEMBLY		2.5	
15	HRQ01-00132-01	A	BAFFLE PLATE	折流板 δ=6	9	Q235B	11	99	
14		A	INSULATION SUPPORTS	保温支架(卧式)Ⅰ型	1	组合件 ASSEMBLY		100	06



異形 OTHER 

[illegible]

其余 OTHER

12.5

与封头内轮廓线相吻合
IT IS CONSISTENT WITH THE INNER
PROFILE OF THE HEAD

Φ6 通孔
WEEP HOLE

80

B B

B B

597

600

750

R=10

B-B
不在此处
NO SCALE

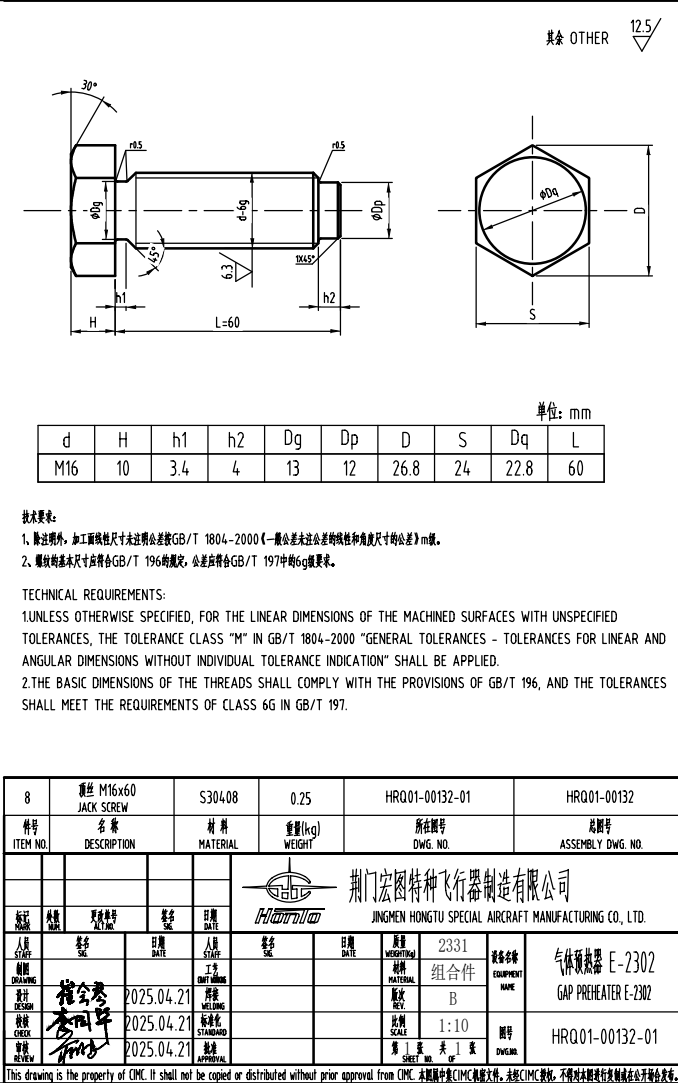
10

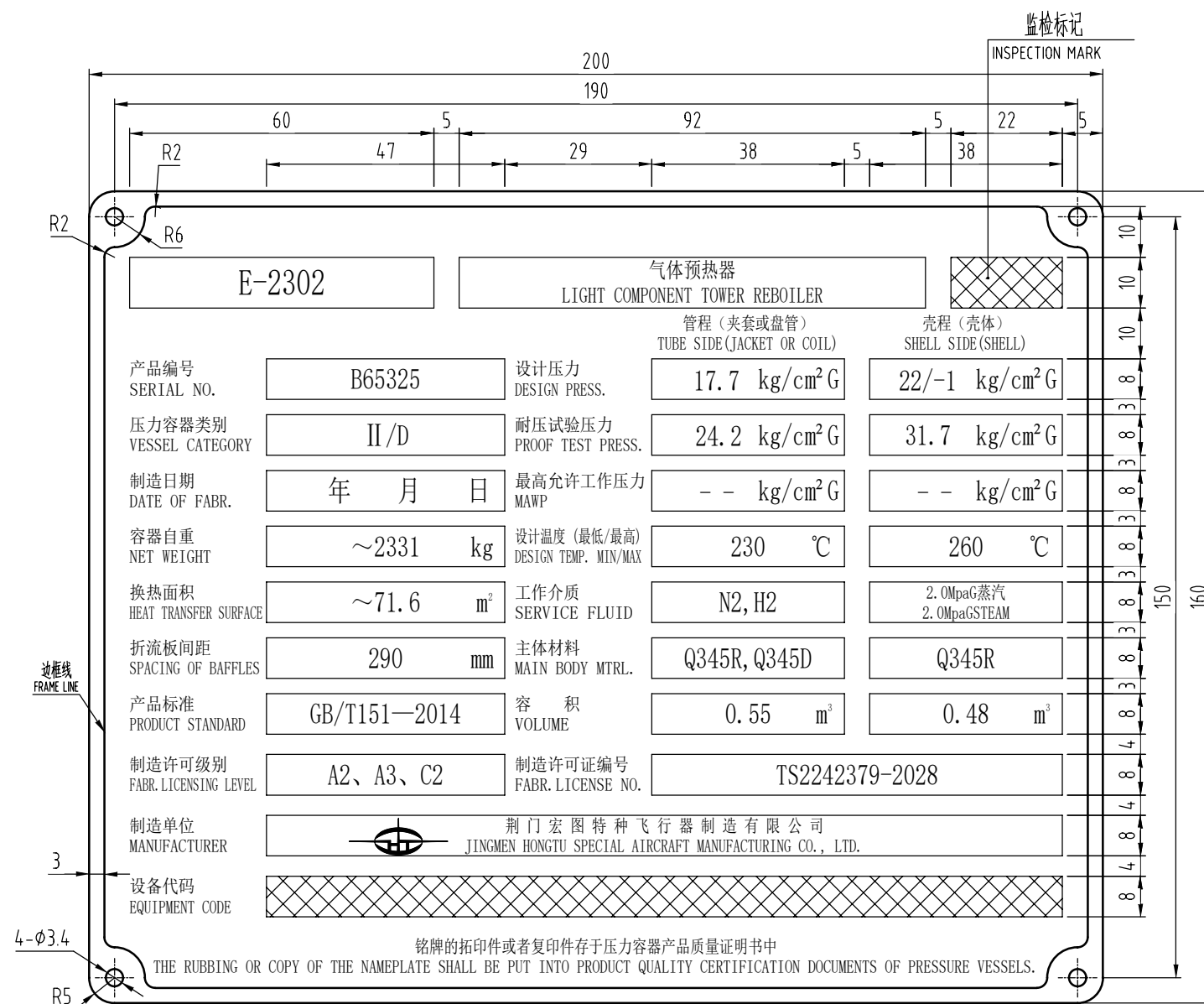
6.3

注：隔板端部密封面应在管道组焊完毕并热处理后再精加工。

Note: THE SEALING SURFACE AT THE END OF THE PASS PARTITION SHALL BE FINISHED AFTER THE CHANNEL IS WELDED AND HEAT TREATED.

25	分程隔板 R=10 PASS PARTITION	Q345R	34	HRQ01-0013Z-01	HRQ01-0013Z
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.






技术要求:

- 1、边框线与□之间除文字外的表面，以及□内的文字，刻深0.2mm，涂黑色。
- 2、□外的文字字体为黑体字，文字高度为2.5mm，□内的文字字体和高度见22150-STD-EQ001.2。
- 3、□内填写的具体内容见22150-STD-EQ001.2中的说明。
- 4、文字应排列整齐、紧凑、匀称。

TECHNICAL REQUIREMENTS:

- 1.ALL THE SURFACE EXCEPT LETTERS BETWEEN FRAME LINE AND [] ,AND THE LETTERS IN [] TO BE ETCHED 0.2mm IN DEPTH AND BLACKED.
2.LETTERS OUT OF [] SHALL BE BOLDFACE WITH HEIGHT 2.5mm;THE LETTERS IN [] ,THE FONT TYPE AND HEIGHT REFER TO 22150-STD-EQ0012.
3.PARTICULAR CONTENT TO BE FILLED IN [] REFER TO THE REQUIREMENT IN 22150-STD-EQ0012.
4.ALL LETTERS SHALL BE REGULAR,COMPACT AND WELL PROPORTIONED.

3		A	RIVETS	铆钉 3x10	4	ML2	/	/	GB/T 827-1986	
2		A	NAMEPLATE BRACKET I	铭牌托架 I-V-200	1	Q235B		4.25	21379-STD-EQ001.20	
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)			
16		铭牌及铭牌座 NAMEPLATE AND NAMEPLATE BRACKET		组合件 ASSEMBLY	4.5	/	HRQ01-00129-03		HRQ01-00129(2/2)	
件号 PARTS NO.		名 称 PARTS NAME		材 料 MATERIAL	质量(kg) WEIGHT	比例 SCALE	所在图号 DWG NO.		装配图号 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	处数 NUM.	更改单号 ALT.NO.	签名 SIG.							日期 DATE
人员 STAFF	签名 SIG.	日期 DATE	人员 STAFF							签名 SIG.
制图 DRAWING			工艺 CRAFT WORKING			材料 MATERIAL	组合件 ASSEMBLY			
设计 DESIGN	崔会琴	2025.04.21	焊接 WELDING			版次 REV.	A	图号 DWG.NO.	HRQ01-00132-02	
校核 CHECK	李国平	2025.04.21	标准化 STANDARD			比例 SCALE	/			
审核 REVIEW	孙志	2025.04.21	批准 APPROVAL			第 1 张 共 1 张 SHEET NO. OF				

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