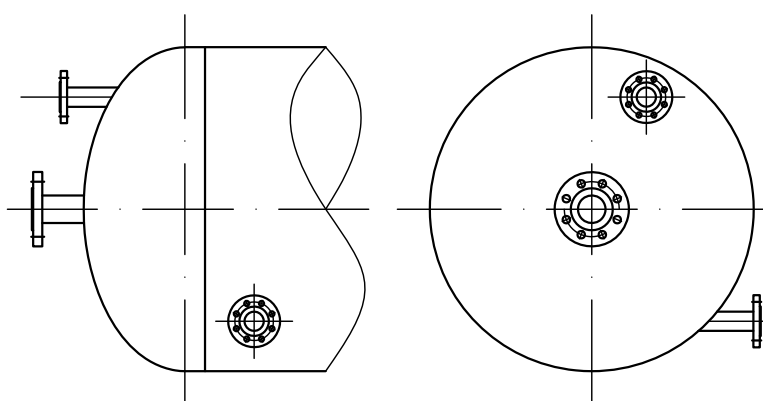
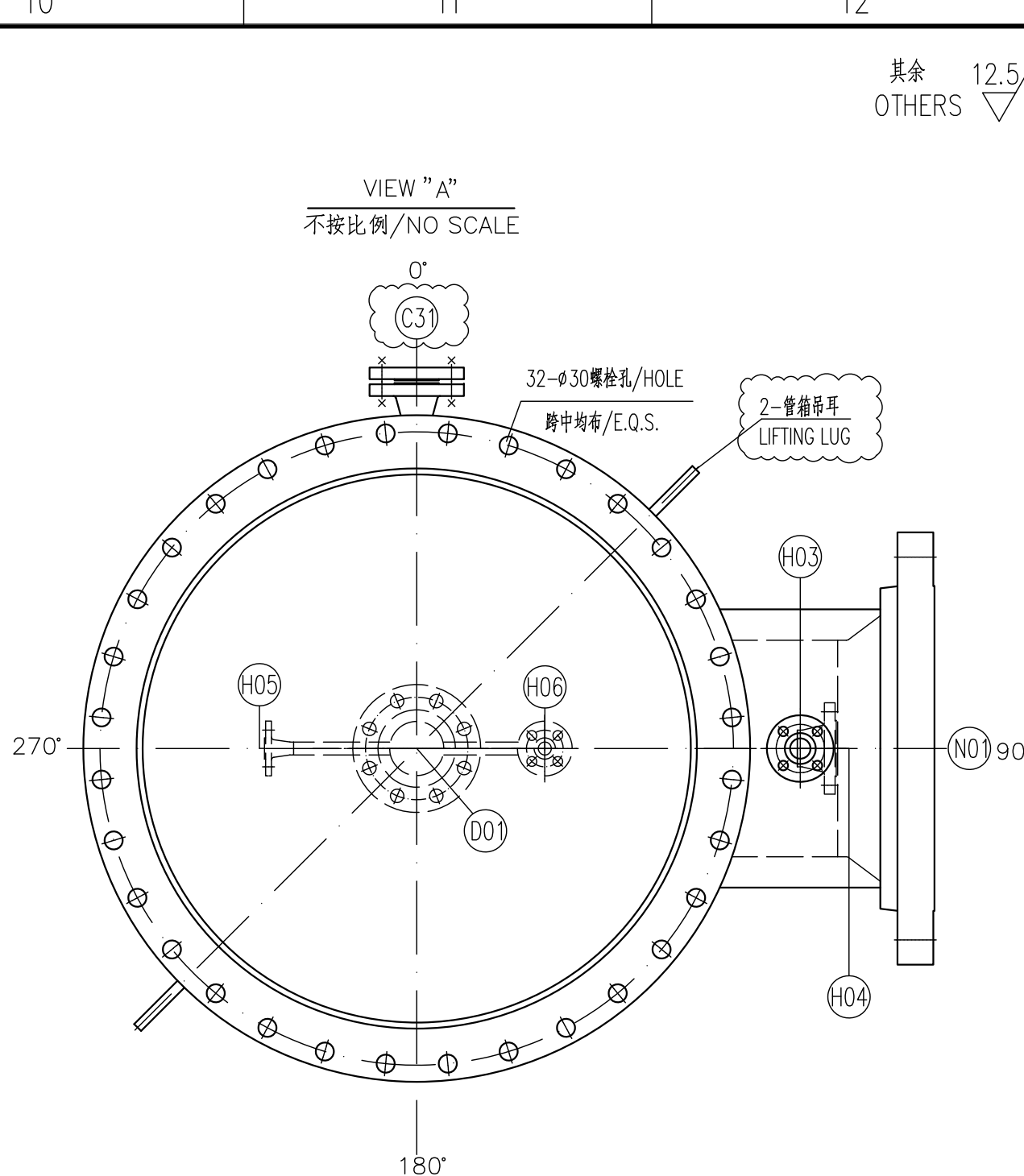
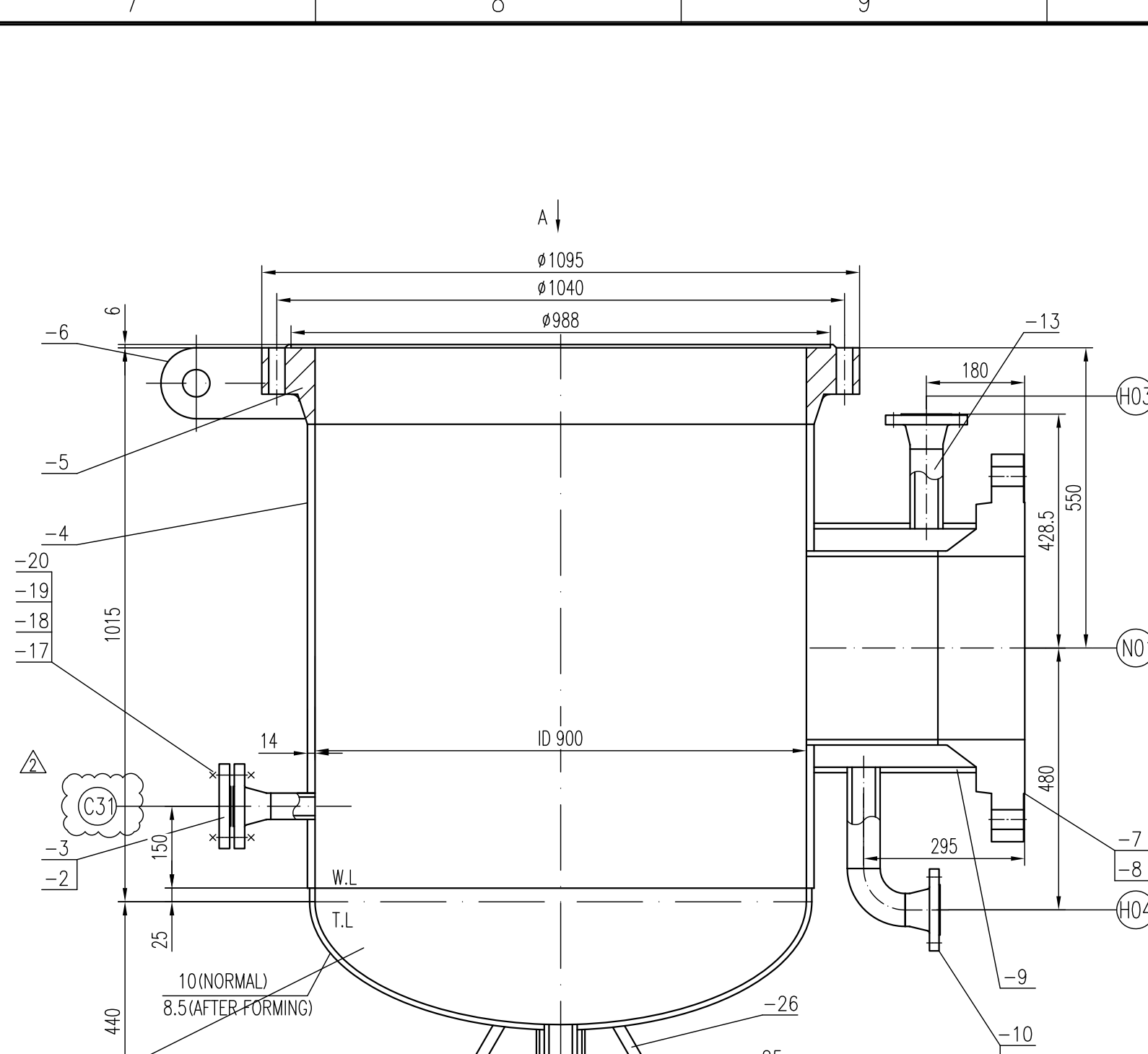
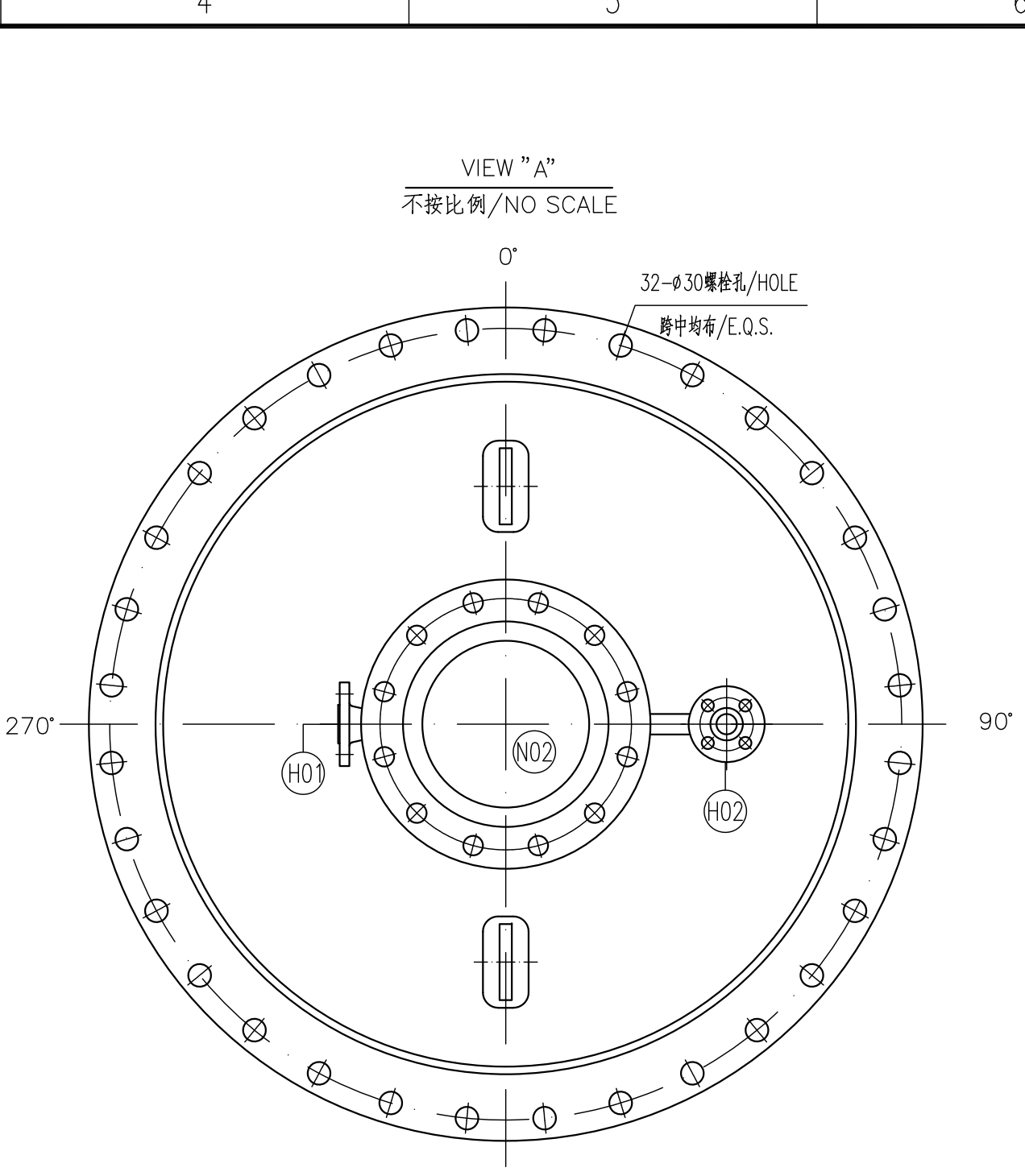
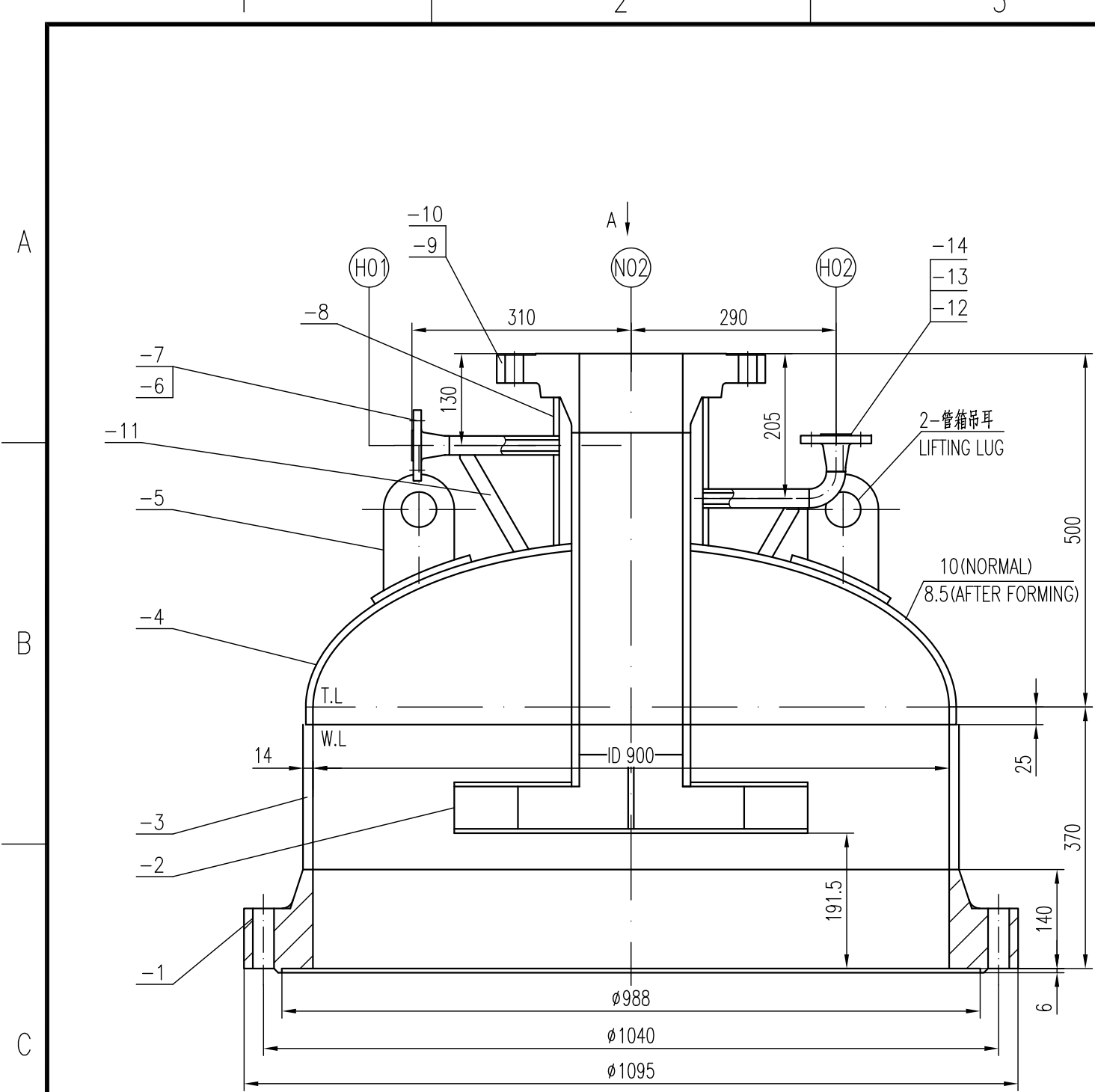
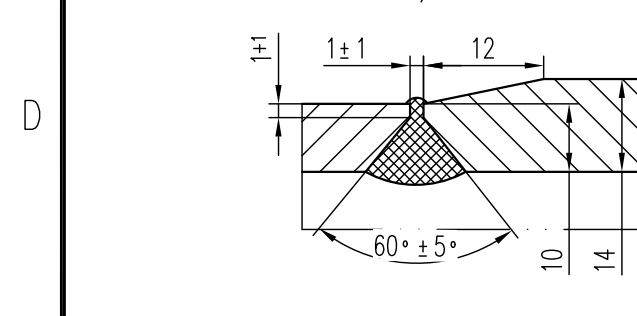


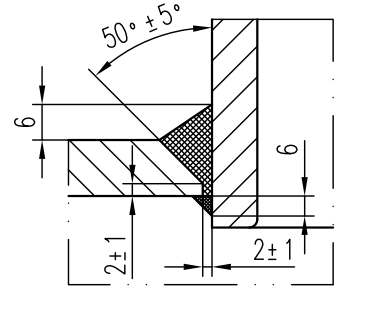
	1	2	3	4	5	6	7	8	9	10	11	12
<div>其它要求和说明/Other requirements & Notes</div> <div>1. 一般要求/General requirements</div> <div>1.1 除非另有说明, 所有尺寸用mm表示。</div> <div>All dimensions are in mm unless otherwise specified.</div> <div>1.2 螺纹尺寸及其公差分别按 GB/T 196–2003和 GB/T 197–2018的规定。</div> <div>Dimensions of screw thread and its tolerance shall be separately as per GB/T 196–2003 and GB/T 197–2018.</div> <div>1.3 除非另有说明, 法兰的螺栓孔布置按容器水平——垂直轴线上布置。(见图一)</div> <div>Unless otherwise indicated, flange bolt shall straddle horizontal and vertical axis of vessel. (See Figure 1)</div> <div>1.4 法兰密封面(管口、设备法兰及管板)粗糙度为 Ra3.2μm ~ Ra6.3μm, 且应为沿筒节同心圆或螺旋面。</div> <div>Gasket surface (nozzles, flanges and tubesheets) finishing shall be 3.2~6.3 μm. All flange sealing faces serrated concentric or spiral finish.</div> <div>1.5 除图中注明外零件机械加工表面线性尺寸的表面偏差按GB/T 1804–2000第m级精度, 非机械加工表面线性尺寸的表面偏差按GB/T 1804–2000第c级精度。</div> <div>Unless noted, linearly dimension tolerance of machined surface & unmachined surface shall be separately as per correspond to grade m & c of GB/T1804–2000.</div> <div>2. 材料/Material.</div> <div>材料/Material.</div> <div>2.1 承压元件材料应符合TSG 21–2016第2条和GB 150.2–2024相关规定。</div> <div>The materials of pressure-bearing part shall be as per the relevant requirements GB 150.2–2024 and Article 2 of TSG 21–2016.</div> <div>2.2 承压元件材料牌号、标准和使用状态如下:</div> <div>The following is designation, standard and application condition material of pressured part :</div> <div>板材/Plate:</div> <div>S31703, GB/T 713.7–2023, 圆钢/Solution. S30408, GB/T 713.7–2023, 圆钢/Solution.</div> <div>Q345R, GB/T 713–2023, 热轧/hot rolling</div> <div>无缝钢管: Q3450, GB/T 6479–2013, 正火/Normalizing;</div> <div>S31703, GB/T 14976–2012, 圆钢/Solution</div> <div>锻件/FORGING:</div> <div>S31703III NB/T 47010–2017, 圆钢/Solution;</div> <div>16MnIII NB/T47008–2017, 正火/Normalizing</div> <div>还应符合NB/T 47010–2017和NB/T47008–2017 III级锻件的相关要求。</div> <div>It should also comply with the relevant requirements for Class III forgings in NB/T 47010–2017&NB/T 47008–2017.</div> <div>S31703锻件应提供供货质量保证检测结果, 且应按NB/T 47013.5–2015进行100%渗透检测, 合格等级 I 级。</div> <div>The S31703 forgings shall provide grain size inspection results and undergo 100% penetrant testing in accordance with NB/T 47013.5–2015, with the acceptance criteria meeting Grade I.</div> <div>换热器/Tube:</div> <div>无缝换热管: S31703, GB/T 13296–2023, 圆钢, 高级冷拔管, 最小壁厚交变, 不允许拼接, 且满足NB/T 47019.1~NB/T 47019.9–2021中 I 级换热管的要求。</div> <div>Seamless tube: S31703, GB/T 13296–2023, solution-annealed, precision cold-drawn tubes with minimum wall thickness, strictly free from splicing, and shall meet the requirements for Grade I heat exchanger tubes specified in NB/T 47019.1~47019.9–2021.</div> <div>2.3 换热器应提供无损检测, 水压试验和漏液检测, 水压试验压力按标准执行, 其余检验项目应符合GB/T 13296及NB/T47019.1~47019.8中的相关规定。换热器试验合格后, 检测盲区应切除, 切口端面应光滑, 无毛刺及裂纹缺陷。</div> <div>Each heat exchange tube shall be subjected to ultrasonic testing, hydrostatic test and eddy current testing respectively. The hydrostatic test pressure shall be in accordance with the standard provisions. Other inspection items shall conform to the relevant regulations in GB/T 13296 and NB/T47019.1–47019.8. After the heat exchange tube passes the test, the detection blind zone shall be removed. The cut end face shall be smooth, without burrs and crack defects.</div> <div>2.4 S31603/S31703 材料及其焊接接头(包括焊接工艺评定、产品焊接试件)按 GB/T 4334–2020 方法 B 进行晶间腐蚀试验, 平均腐蚀速率应不大于 1.6 g/(m²·h), 腐蚀试件取样和检验应按 GB/T21433–2008第8条规定进行。</div> <div>The S31603/S31703 materials and their welded joints (including welding procedure qualification and product welding specimens) shall undergo intergranular corrosion tests according to Method B of GB/T 4334–2020. The average corrosion rate shall not be greater than 1.6 g/(m²·h). The sampling and lot formation of corrosion specimens shall be carried out in accordance with Article 8 of GB/T 21433–2008.</div> <div>2.5 Q345R板材应进行0° C的冲击试验, 3个标准试样的冲击功平均值应不小于24J, 允许其中一个试样的冲击功低于平均值24J, 但不得低于70%的平均值。</div> <div>For materials Q345R, the impact test should be performed at 0° C. The average impact energy value of three standard specimens must be not less than 24J. One of standard specimens less than specified value (not less than 70% of the specified value) is allowable.</div> <div>2.6 16Mn锻件应进行0° C的冲击试验, 3个标准试样的冲击功平均值应不小于24J, 允许其中一个试样的冲击功低于平均值24J, 但不得低于70%的平均值。</div> <div>For materials 16Mn, the impact test should be performed at 0° C. The average impact energy value of three standard specimens must be not less than 24J. One of standard specimens less than specified value (not less than 70% of the specified value) is allowable.</div> <div>3. 制造与检验/Fabrication and inspection</div> <div>3.1 公称直径小于250mm的接管与接管、接管与高颈法兰的对接焊接接头应全部进行100% MT/PT检测, 并符合NB/T 47013.4/5–2015中的 I 级。</div> <div>For pressure vessel nozzles with nominal diameter less than 250 mm, the butt welded joints should be examined by 100% MT/PT, and accepted as per grade I of NB/T 47013.4/5–2015.</div> <div>3.2 导耳与垫板及垫板与壳体的焊缝表面应进行100% MT/PT检测, 符合NB/T 47013.4/5–2015中 I 级。</div> <div>The welds for lifting lug to shell shall be examined by 100% MT/PT in acc. with NB/T 47013.4/5–2015, grade I.</div> <div>3.3 除要求伸出外表面的接管外, 其余接管应打磨至与壳体内部齐平, 其内端部应打磨至不小于R3的圆角。</div> <div>Except nozzles required to protrude beyond the inside surface, the end of nozzles of other nozzles shall be ground flush to the inside curvature of shell and with a radius 3mm(min). rounded corner.</div> <div>3.4 接管与管板分两遍焊接, 两遍焊接的起焊应错开180°, 第一层焊接完成后应对焊接接头进行空气泄漏气密性试验, 试验压力为 0.1MPa(ga), 合格后再进行100%PT检测。检测合格后焊第二层, 第二层PT合格后再进行打磨, 打磨完成后再进行100%PT检测。强度焊应采用100%自动焊接工艺, 第一遍焊接和第二遍焊接应使用焊丝GTAW (TIG) 工艺。垫板应是液压胀, 管子管板胀接后不得有缝隙。</div> <div>Tube-to-tubesheet joints shall be welded in two welding layers, the start arc welding point for layer shall be stagger 180 degree, and after the first layer of welding is completed, layer shall be examined by air leakage test with 172 kPa(ga) & 100%PT. After all inspections are qualified, the second layer shall be welded. After the second layer PT is qualified, tube expansion should be performed, and 100% PT shall be performed again after expansion. Strength welds shall be using 100% automatic welding process. The 1st and 2nd passes both shall be filler added using the GTAW (TIG) process..The expansion joint should be hydraulic expansion. There should be no gaps after the expansion of the tube sheet.</div> <div>3.5 管头端部应直接 NB/T 47014–2023 附录E《换热器与管板焊接工艺评定》进行焊接工艺评定, 焊接层数不少于 2层, 每层焊后均应按 NB/T 47013.5–2015 进行 100%渗透检测, I级合格。</div> <div>Before Tube-to-tubesheet joints welding, the welding procedure qualification shall be carried out in accordance with Annex E "Welding Procedure Qualification for Heat Exchange Tubes and Tube Sheets" of NB/T 47014 – 2023. The number of welding passes shall be no less than 2. After each pass of welding, 100% PT shall be carried out in accordance with NB/T 47013.5 – 2015, and accepted as per grade I.</div> <div>3.6 纵向往内焊接接头应尽可能进行开背开孔, 补强圈和支腿垫板等, 如果焊缝被补强圈或支腿垫板覆盖, 应得到买方的批准, 并应在焊接补强圈或支腿垫板前, 对壳体焊缝打磨平整, 并对所覆盖的焊缝全长进行射线检测。</div> <div>Longitudinal and circumferential welded seams shall not interfere with nozzle openings, reinforcement plates and support pads, as far as possible. If the seams are covered by reinforcement plates or support pads under Purchaser's approval, these should be ground flush with shell surface and radiographic examined in full length prior to welding of plates or pads.</div> <div>3.7 相邻筒体上的纵向焊缝间距应大于板厚板宽的5倍且不小于150mm。</div> <div>Longitudinal joints shall be offset between courses by not less than five times the plate thickness or 150mm, whichever is greater.</div> <div>3.8 纵向往内焊接接头尽可能布置在距离接管至少2.5x(Rxt)^{0.5}mm。</div> <div>Longitudinal and circumferential seams shall be located to clear nozzle welds for at least 2.5x(Rxt)^{0.5}mm.</div> <div>3.9 公称直径小于DN250时, 接管应采用无缝铜管或铜件加工, 公称直径大于等于DN250时, 接管可采用铜板制成铜件加工, 纵向焊缝要求进行100% RT, 并符合 NB/T 47013.2 –2015标准中 II级要求。</div> <div>Nozzle shall be seamless nozzle or integrated forging when the nozzle size is smaller than DN250. For the nozzle size equal or bigger than DN250, it's accepted to adopt the nozzle made in plate or forging, but 100% RT in according with NB/T 47013.2–2015 gradeII is required if welding.</div> <div>3.10 奥氏体不锈钢冷成形后的内外表面硬度<235HB否则应进行固溶处理, 奥氏体不锈钢热加工时应进行固溶处理。</div> <div>The internal and external surface hardness of austenitic cold forming part should be <235HB, otherwise solid solution shall be performed. The hot made parts of austenite stainless steel shall be solid solution.</div> <div>3.12 封头不允许拼接, 封头采用冷成形, 封头成形后应进行固溶处理, 封头硬度<235HB。封头管热处理试验。</div> <div>Splicing of the head is not allowed, and the head is cold formed. After forming, the head should undergo a solution heat treatment, with a hardness of <235HB.</div>												
<div>4. 焊接/Welding.</div> <div>4.1 焊接工艺应符合NB/T47014–2023和NB/T47015–2023的规定。</div> <div>The welding procedure shall be as per the requirements of NB/T 47014–2023 and NB/T 47015–2023.</div> <div>4.2 承压对接焊接接头, 应采用全截面焊缝接头形式。</div> <div>Pressure retaining butt welded joints shall be full penetration weld..</div> <div>4.3 对接焊缝应焊后焊接, 不能焊接时应采用氩弧焊打底。</div> <div>All butt welded joints shall be back chipped & rewelded. Wherever back chipping is not possible root run shall be welded by TIG or GTAW.</div> <div>4.4 未注角焊缝焊脚高度为较薄板厚度。</div> <div>The fillet weld height not dimensioned shall be equal to the thickness of thinner plate.</div> <div>4.5 除特别说明外, 所有焊缝均为连续焊。</div> <div>Unless specified, all welds shall be continuous.</div> <div>4.6 壳体无法进行射线检测的环向焊接接头, 以及接管与壳体的角接接头, 须采用氩弧焊打底, 工艺保证全焊透。</div> <div>Circumferential welded joints that cannot undergo radiographic testing on the shell, as well as corner joints between the connecting pipe and the shell, must be bottomed with argon arc welding to ensure full penetration.</div> <div>4.7 壳体与管板的最后一道焊缝氩弧焊打底, 并进行100%PT。</div> <div>The last weld seam between the shell and the tube plate should be bottomed with argon arc welding and subjected to 100% PT.</div> <div>4.8 与工艺介质接触的 S31603/S31703 材料焊接应采用氩弧焊表面且保持焊透。</div> <div>The welds of S31603/S31703 materials in contact with process media shall be clad with argon arc welding and maintained in the as-welded condition</div>												
<div>5. 水压试验与泄漏试验/Hydro-test and Leakage test.</div> <div>5.1 奥氏体材料接试验用水时, 水中氯离子含量应不超过 25 mg/L。</div> <div>When austenitic stainless steel material is exposed to test water, chloride content of water shall be no greater than 25 mg/L.</div> <div>5.2 液压试验压力值应在检查员在场的情况下至少保持一小时。</div> <div>The hydraulic test pressure value shall be maintained for one hour at least, in the presence of the inspector.</div> <div>5.3 水压试验用垫片应使用正式垫片。</div> <div>Service gaskets shall be used for hydrostatic test.</div> <div>5.4 试验合格后应立即将水渍去除干净, 并采用压缩空气将容器内部吹干。</div> <div>After hydro tesing, the water stain should be cleaned and the container will be blown dry by compressed air.</div> <div>5.5 管程水压试验合格后按NB/T 47013.8–2012附录C《氦质谱仪泄漏检测》示踪剂头技术进行氦质谱试验。</div> <div>The tube side shall undergo helium leakage testing according to Appendix E of NB/T 47013.8–2012 using the sniffing probe detection method after hydrotest.</div> <div>5.6 水压试验前, 所有检测孔应通入0.4~0.5MPa的压缩空气以检查焊接接头的质量。</div> <div>Before the hydraulic test, all leak detection holes should be filled with compressed air of 0.4~0.5MPa to check the quality of the welded joints.</div>												
<div>6. 表面处理/Surface Treatment</div> <div>6.1 设备不锈钢部分: 内外表面应进行酸洗钝化, 并采用蓝点法检查, 无蓝点为合格。</div> <div>For S.S. parts: The inner & external surface should be pickling and passivation, and the passivated surface shall be examined by using blue-point penetration method, no blue-point is accepted.</div> <div>6.2 涂装前, 设备碳钢外表面应进行除锈, 除锈后的钢材表面至少达到 GB/T8923 中的 Sa2.5 级要求, 设备表面处理涂装按照项目的一般规定22150–000000–MC08《涂装与防腐设计规范》执行。</div> <div>Before painting, the external carbon steel surface of the equipment shall be derusted. The derusted steel surface shall meet at least the requirements of Sa2.5 grade in GB/T 8923. The surface treatment and painting of the equipment shall be carried out in accordance with the unified project regulations 22150 – 000000 – MC08 "Painting and Anti-corrosion Design Specifications".</div> <div>6.3 表面处理后续涂施工前, 应通知买方有关人员参加检查, 并签署防腐工程质量检查确认单。</div> <div>After surface treatment and before painting construction, the relevant personnel of the buyer shall be notified to participate in the inspection and sign the concealed engineering quality inspection confirmation form.</div>												
<div>7. 包装/Packing</div> <div>7.1 所有机械加工零件(包括法兰密封面)应采用合适的材料和方法进行保护。</div> <div>All machined parts (including flange sealing surfaces) should be protected using suitable materials and methods.</div> <div>7.2 对设备内部和外筒进行全面检查并确认:</div> <div>Conduct a comprehensive inspection and confirmation of both the inter and exter of the equipment.</div> <div>a) 设备内表面涂层应完整, 光滑, 无污垢及其它杂质。</div> <div>The coating on the inner surface of the equipment shall be intact, smooth, free of dirt and other impurities.</div> <div>b) 接管与管板连接确认合格后, 应立即对设备进行充分的干燥, 并按规定采用由铜板制作的盲板以及垫片、紧固件(螺栓至少4个)对所有开孔进行封堵保护, 避免运输和存放过程中潮湿空气进入设备内部。</div> <div>After the internal inspection of the equipment is confirmed to be qualified, the equipment shall be thoroughly dried immediately. And in accordance with the regulations, use blind plates made of steel plate as well as gaskets and fasteners (at least 4 bolts) to seal and protect all openings to prevent moist air from entering the interior of the equipment during transportation and storage.</div> <div>7.3 项目编号、采购订单编号和运输重量应以100mm高的字体显著标记在换热器上。</div> <div>The item number, purchase order number, and shipping weight shall be prominently marked on the exchanger in 100 mm high lettering.</div> <div>7.4 所有设备和零部件包装箱均应按包装说明标记出项目号和设备位号, 并应标记出重心和设备吊装中心线。</div> <div>All equipment and component packing cases shall be marked with the project number and equipment log number in accordance with the packaging instructions, and the center of gravity and the centerline of the equipment shell shall also be marked.</div> <div>7.5 换热器内筒0.05MPa氮气密封保护并带压力表, 各开口接管均应用铜板盖、螺栓、螺母、垫片密封, 在容器的管口上至少安装压力表两块。(螺栓各一块)</div> <div>Internal protection for shipment by Nitrogen filling with manometer. Each nozzle should be sealed with a steel plate cover, bolts, nuts, and gaskets. Install at least two pressure gauges on the nozzle of the heat exchanger. (Each one for tube and shell side)</div> <div>7.6 所有重要限个安装的外零部件应放入木箱中(应有防水措施), 木箱应能保护所有零件在运输中不受损坏, 且适合在工作现场室外存放 6 个月以上。所有包装箱应有详细的标记和装箱清单。</div> <div>All internal and external accessories installation On-site (if any) shall be fitted ed in wooden boxes (waterproofing facilities shall be added). Wooden box should be able to protect all parts in the transport without damage, and suitable for outdoor stora ge in the work site for more than 6 months. All packing boxes should have detailed mark king and packing list</div> <div>7.7 备件应按单独包装。</div> <div>Spare parts should be separately packaged.</div> <div>7.8 设备的运输包装其它要求应符合 NB/T10558–2021 规范。</div> <div>In addition, the coating and packaging for equipment transport shall conform to the NB/T10558–2021.</div> <div>7.9 立式容器应有0°方位标记, 0°方位标记应采用不影响耐蚀材质的油漆书写。</div> <div>Vertical containers should have a 0° orientation mark, which should be written with paint that does not affect the quality of the steel.</div> <div>7.10 运输中设备应封口处垫片应采用临时垫片, 仅在安装用临时垫片后应单独包装随设备运至现场。</div> <div>During transportation, temporary gaskets shall be used at the instrument ports of the equipment, and the gaskets for instrument installation shall be separately packaged and transported to the site along with the equipment.</div>												
<div>8. 其他/Others</div> <div>8.1 备件备件/Spare parts</div> <div>8.1 试车、安装所需备件:</div> <div>Spare parts for commissioning and start-up:</div> <div>8.1.1 设备法兰和带盲盖的法兰各配2套垫片</div>												
<div>2 set of spare gaskets for the main and blind flanges in vendor's scope</div> <div>8.1.2 紧固件(螺栓 & 螺母): 最少10%(每种规格和材料类型不少于4套)。</div> <div>All bolts & nuts: minimum 10% (4 minimum for each size and material type).</div> <div>8.2 两年操作所需的备件(不供):</div> <div>Spare parts for two years of operation (by other):</div> <div>8.2.1 设备法兰和带盲盖的法兰各配2套垫片</div> <div>2 set of spare gaskets for the main and blind flanges in vendor's scope</div> <div>8.2.2 紧固件(螺栓 & 螺母): 最少10%(每种规格和材料类型不少于4套)。</div> <div>All bolts & nuts: minimum 10% (4 minimum for each size and material type).</div> <div>8.3 设备的安全泄放装置在系统中设置;</div> <div>The device's safety discharge device is set in the system.</div>												
<div>图1/ Fig. 1</div> 												
	39	见图/SEE DWG	顶丝 JACK BOLT	8	S30408	0.4	3.2					
	38		布膜头 FILM SPREADING HEAD	352+4	S31703	/	/				华东理工大学提供	
	37	WXCE8261–04	布液分布器 LIQUID DISTRIBUTOR	1	组合件			96.5				
	36	WXCE8261–03	铭牌及支架 N.P. & BRACKET	1	组合件			4				
	35	WXCE8261–04	膨胀节组件 EXPANSION JOINT	1	S30408			132				
	34		垫板350x200 t=14 WEAR PLATE	1	Q345R			7				
	33	HG/T 21574–2018	尾部吊耳 APA–1–10 TAILING LUG	1	Q235B/Q345R			6.3				
	32	GB/T6170–2015	螺母 M16 NUT	16	4级	/	/					
	31	WXCE8261–03	拉杆 φ16 L=5475 TIE ROD	6	Q235B	8.3	49.8					
	30	WXCE8261–03	拉杆 φ16 L=4980 TIE ROD	2	Q235B	7.5	15					
	29		旁路挡板 t=12 SEAL STRIPS	4	Q235B	28	112					
	28		旁路挡板 t=12 SEAL STRIPS	2	Q235B	36	72					
	27	WXCE8261–04	折流板 B#									



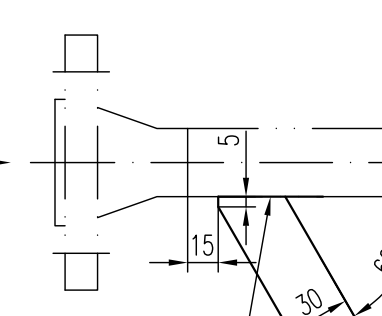
筒体封头焊缝焊接详图
WELD DETAIL OF SHELL TO HEAD
不按比例/NO SCALE



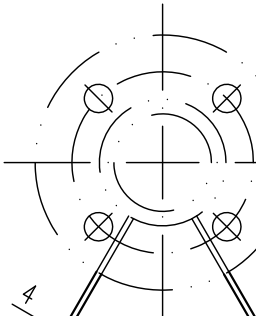
N02接管焊接详图
WELDING DETAIL OF NOZZLE N02
不按比例/NO SCALE



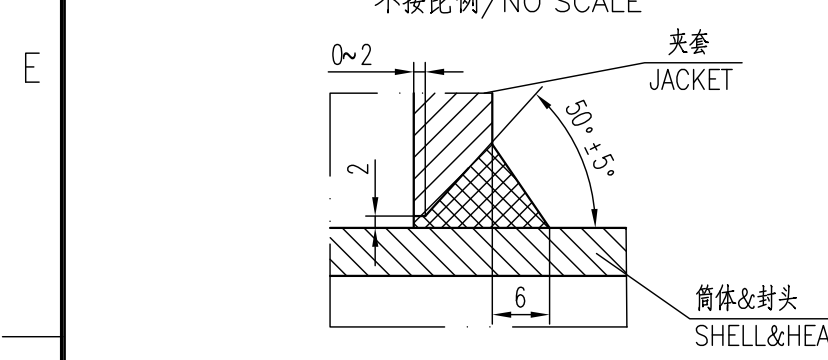
管口H01,H02磨板连接详图
WELDING DETAIL OF RIB PLATE
不按比例/NO SCALE



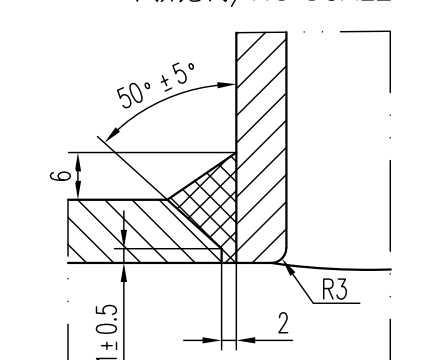
B向/VIEW "B"
不按比例/NO SCALE



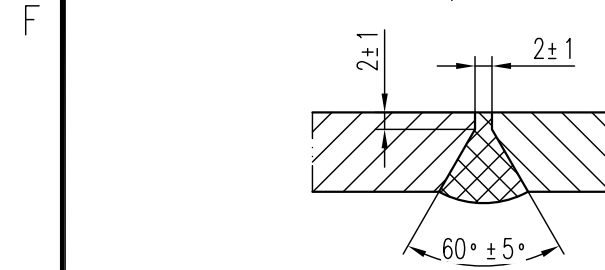
接管夹套与封头及管法兰焊接详图
WELDING DETAIL OF NOZZLE JACKET TO SHELL&FLANGE
不按比例/NO SCALE



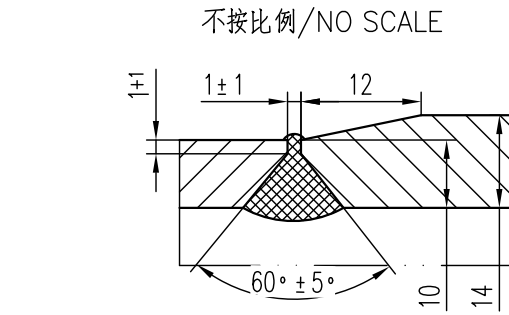
H01&H02接管焊接详图
WELDING DETAIL OF NOZZLE H01&H02
不按比例/NO SCALE



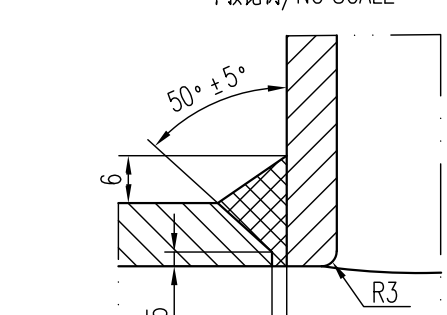
A/B类焊缝焊接详图
DETAIL OF BUTT WELD
不按比例/NO SCALE



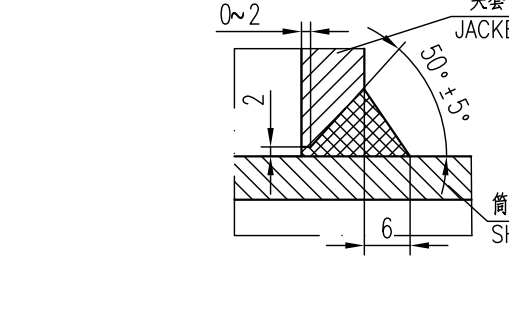
筒体封头焊缝焊接详图
WELD DETAIL OF SHELL TO HEAD
不按比例/NO SCALE



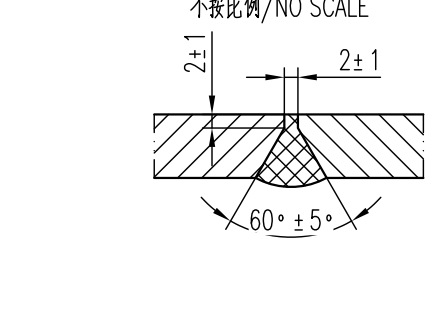
接管与壳体焊接详图
WELDING DETAIL OF NOZZLE N2 TO SHELL
不按比例/NO SCALE



接管夹套与筒体焊接详图
WELDING DETAIL OF NOZZLE JACKET TO SHELL
不按比例/NO SCALE



A/B类焊缝焊接详图
DETAIL OF BUTT WELD
不按比例/NO SCALE



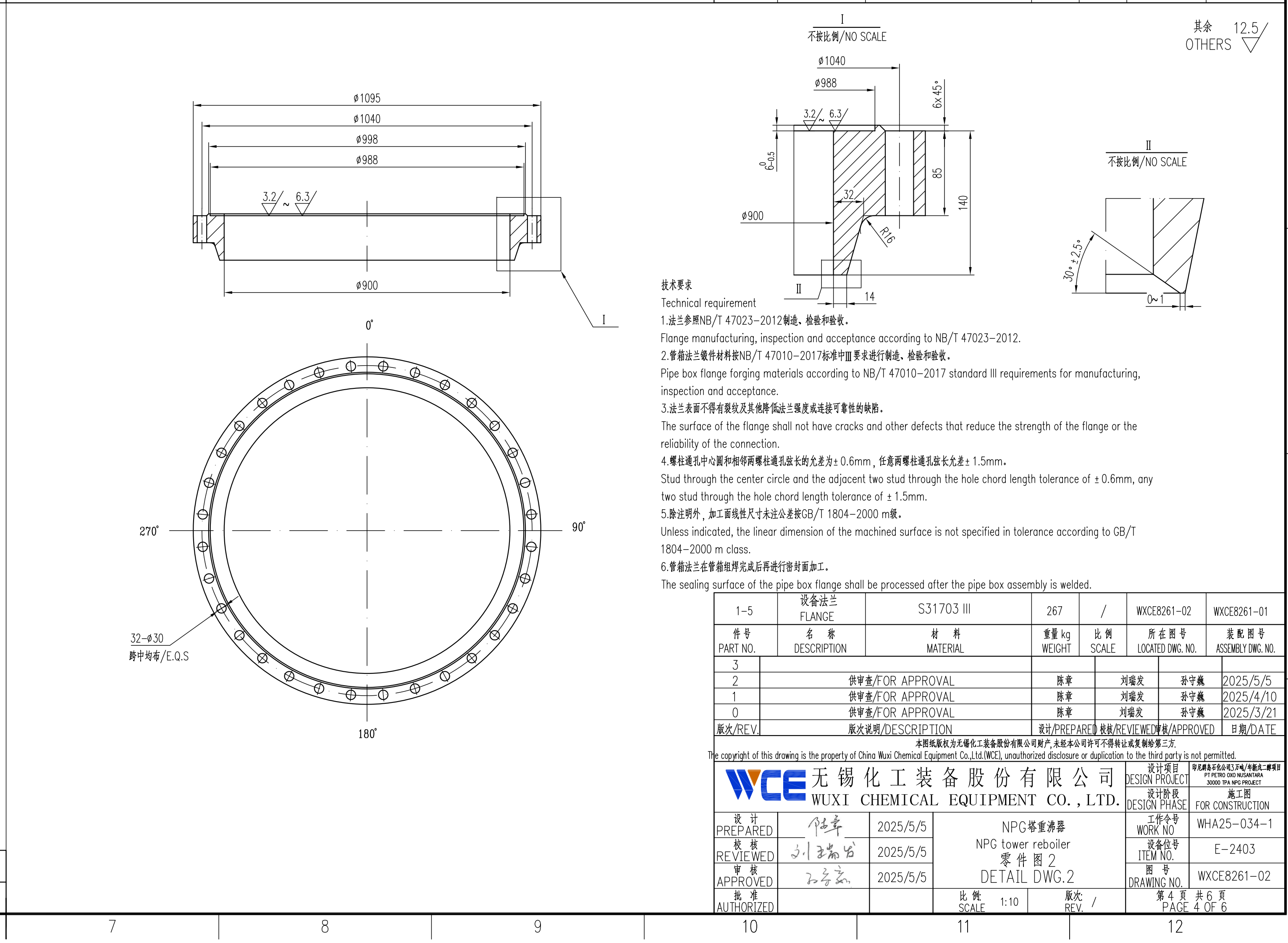
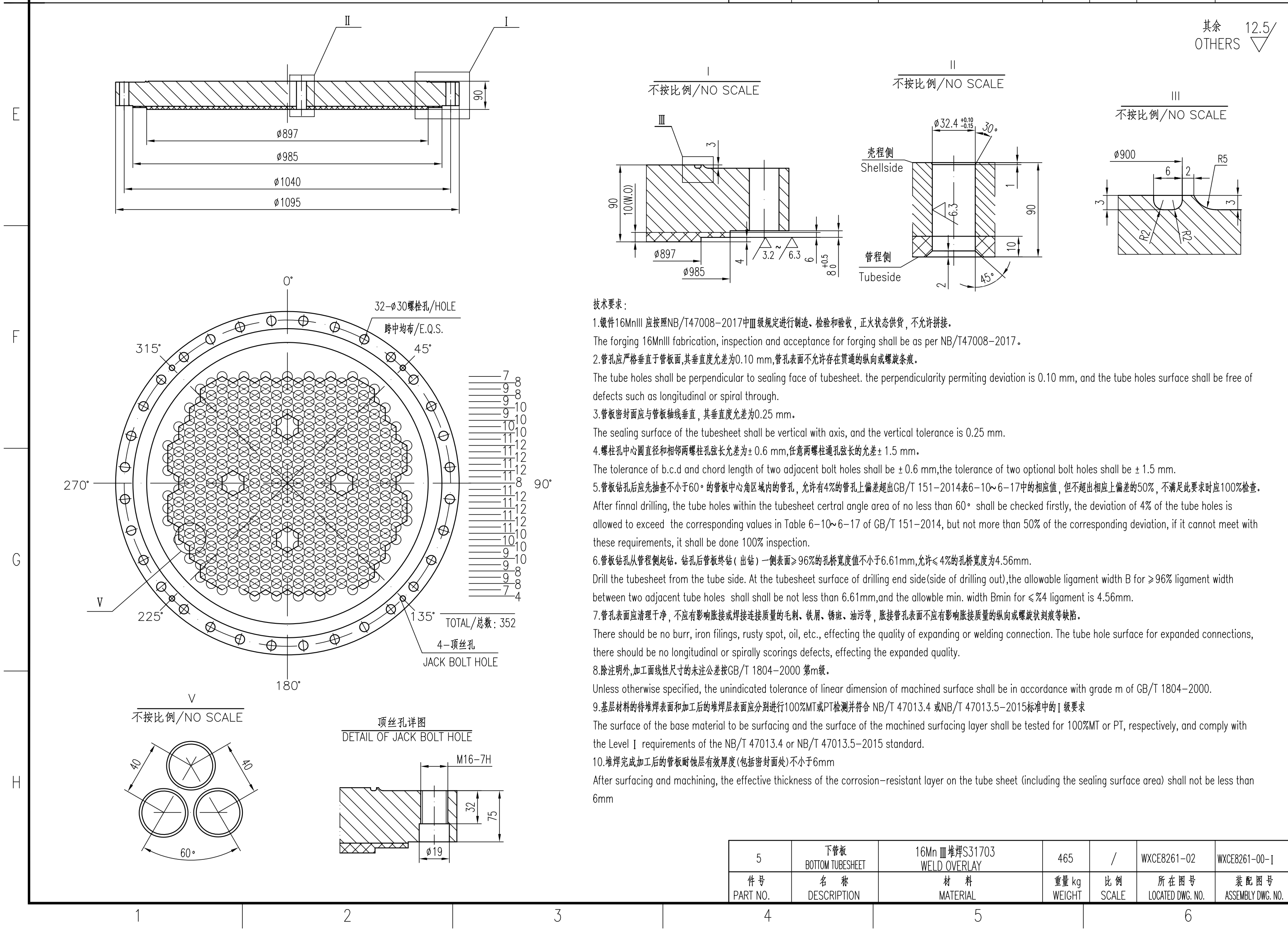
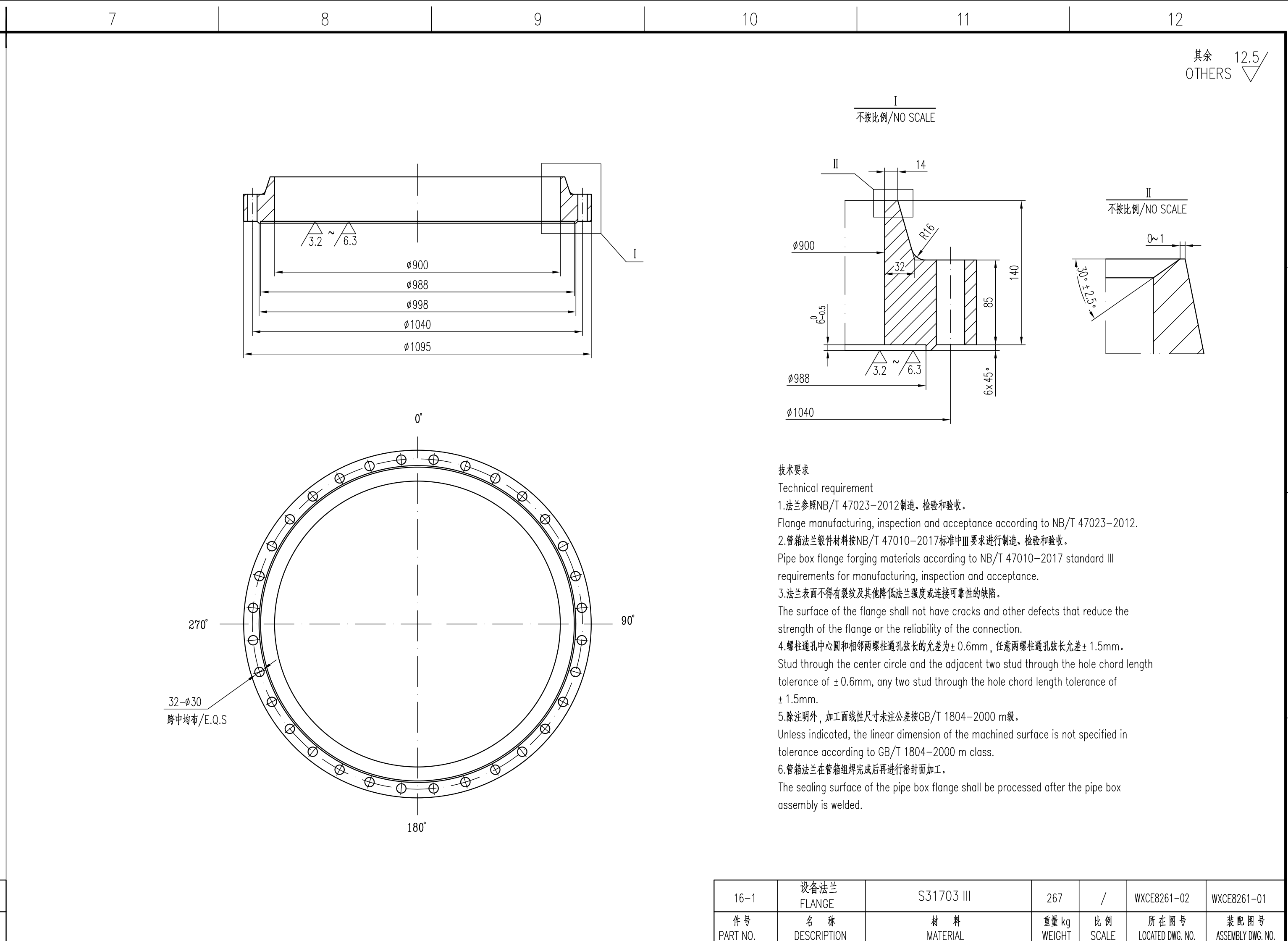
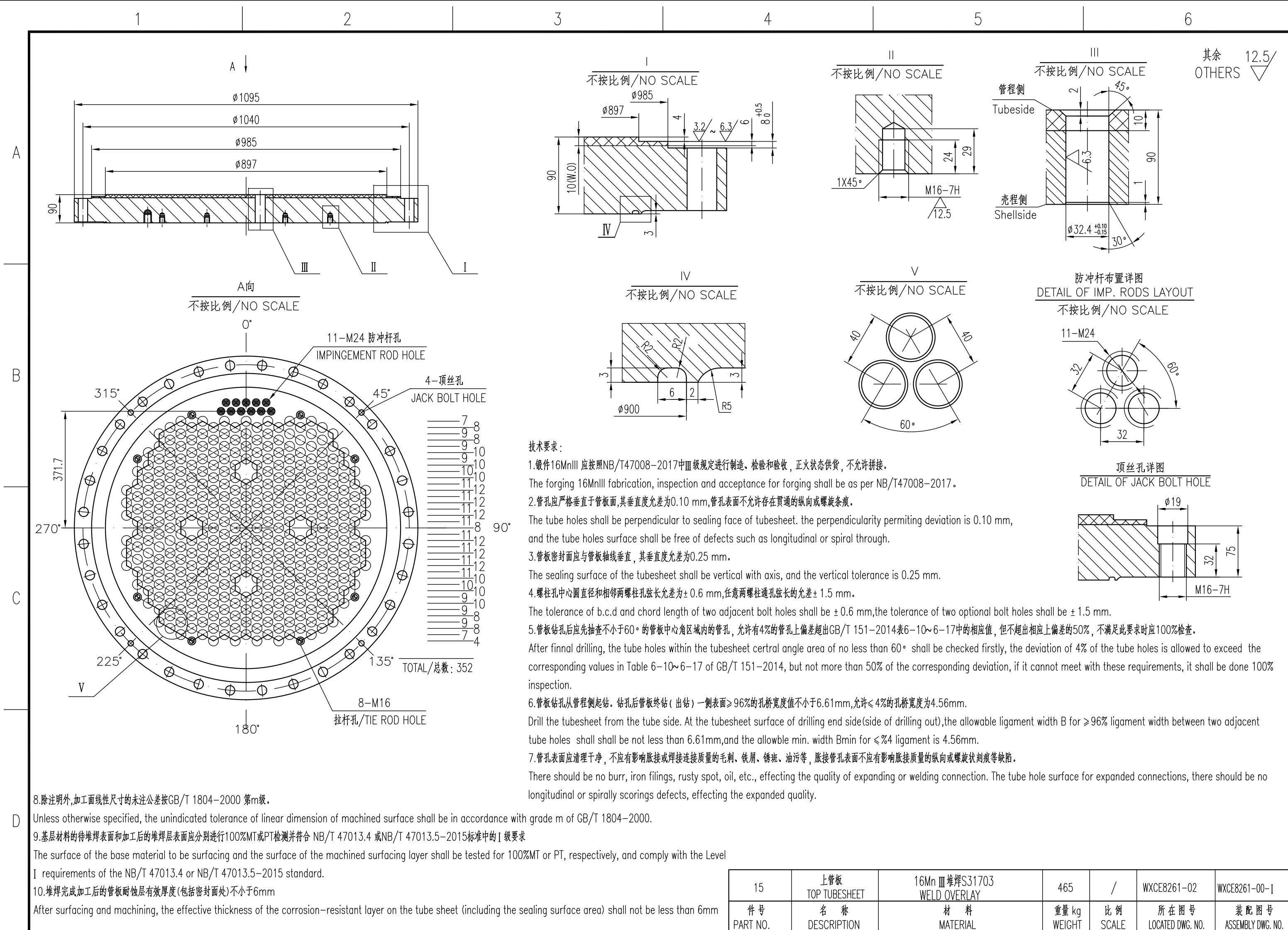
技术要求
Technical Requirements:
1. 法兰螺栓孔应跨中均布。
Bolt hole of flange shall be straddle on the main axis of the vessel.
2. 吊耳方位按装配图1。
The orintation of Nozzles and lifting lugs see ASSEMBLY DWG.1.
3. 管箱吊耳仅供管箱起吊用。
Lifting lug is only for lifting channel.
4. 吊耳与法兰之间的连接焊缝表面应进行100% PT检测, 并符合NB/T 47013.5-2015 标准1级合格。
The fillet between lifting lugs and flange shall be examined by 100% PT as per NB/T 47013.5-2015, Class 1 is acceptable.

-14		磨板 t=8 RIB	2	S31703	0.15	0.3	H02
-13	GB/T 12459-2017	90° 弯头 DN20-Sch160 E(L) ELBOW	1	S31703		0.5	H02
-12		接管 φ26.9x5.6 PIPE	1	S31703		0.5	H02
-11		磨板 t=8 RIB	2	S31703	0.15	0.3	H01
-10		接管 φ168.3x11 PIPE	1	S31703		9	N02
-9	SH/T 3426-2014	夹套管法兰 DN150XDN200-300#-WN RF JACKET FLANGE	1	S31703 III		47	N02
-8		接管 φ219.1x8.18 PIPE	1	S31703		9	N02
-7		接管 φ26.9x5.6 PIPE	1	S31703		0.5	H01
-6	ASME B16.5-2020	法兰 WN 20-150# RF B=15.7 FLANGE	2	S31703 III	2	4	H01,H02
-5	WXCE8261-03	管箱吊耳 CHANNEL LIFTING LUG	2	S31703	2	4	
-4	GB/T25198-2023	椭圆形封头 EH900x10(min8.5) 2:1 ELLIP. HEAD	1	S31703		75	
-3		筒体 L.D900X14 L=205 SHELL	1	S31703		64	
-2	WXCE8261-03	分布器 DISTRIBUTOR	1	S31703		20.3	
-1	WXCE8261-02	设备法兰 FLANGE	1	S31703 III		267	
件号 PART NO.	图号或标准号 DWG. OR STD. NO.	名 称 DESCRIPTION	数量 QTY.	材 料 MATERIAL	单件EACH 重量 WT.(kg)	设计SUM 重量 WT.(kg)	备 注 REMARK
16	上管箱 TOP CHANNEL	组零件/ASS'Y	502	/	WXCE8261-01	WXCE261-00-1	
件号 PART NO.	名 称 DESCRIPTION	材 料 MATERIAL	重量 WEIGHT	比例 SCALE	所在图号 LOCATED DWG. NO.	装配图号 ASSEMBLY DWG. NO.	

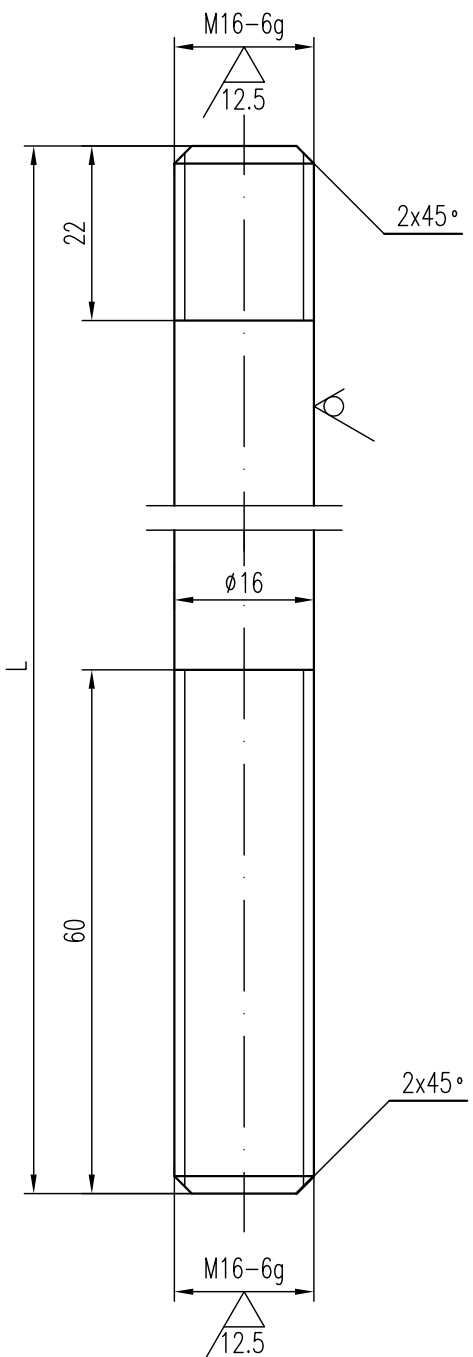
技术要求
Technical Requirements:
1. 法兰螺栓孔应跨中均布。
Bolt hole of flange shall be straddle on the main axis of the vessel.
2. 吊耳方位按装配图1。
The orintation of Nozzles and lifting lugs see ASSEMBLY DWG.1.
3. 管箱吊耳仅供管箱起吊用。
Lifting lug is only for lifting channel.
4. 吊耳与法兰之间的连接焊缝表面应进行100% PT检测, 并符合NB/T 47013.5-2015 标准1级合格。
The fillet between lifting lugs and flange shall be examined by 100% PT as per NB/T 47013.5-2015, Class 1 is acceptable.

-26		磨板 t=8 RIB	2	S31703	0.15	0.3	H06
-25		接管 φ21.3x5 PIPE	1	S31703		0.5	H06
-24	GB/T 12459-2017	90° 弯头 DN15-Sch160 E(L) ELBOW	1	S31703		0.1	H06
-23		磨板 t=8 RIB	2	S31703	0.15	0.3	H05
-22		接管 φ21.3x5 PIPE	1	S31703		0.5	H05
-21	ASME B16.5-2020	法兰 WN 15-150# RF B=11.3 FLANGE	2	S31703 III	1	2	H05,H06
-20	ASME B18.2.2-2015	螺母 3/4"-10UNC-2B HEX NUTS	8+8	SA-194 Gr.8	0.05	1.2	C31
-19	ASME B18.2.1-2012	全螺纹螺栓 3/4"-10UNC-2A L=95 FULL THREADED STUD BOLTS	4+4	SA-193 B8 Cl.2	0.1	1.2	C31
-18	ASME B16.20-2020	缠绕垫 D=40-300# GASKET	1	金属垫片材料: S31703 填充物: 石墨		/	C31
-17	ASME B16.5-2020	法兰盖 BL40-300# RF BLIND FLANGE	1	S31703 III		3.2	C31
-16		接管 φ88.9x5.6 PIPE	1	S31703		1.5	D01
-15		接管 φ60.3x8.8 PIPE	1	S31703		1.5	D01
-14	SH/T 3426-2014	夹套管法兰 DN50XDN80-300#-WN RF JACKET FLANGE	1	S31703 III		10	D01
-13		接管 φ60.3x8.8 PIPE	1	S31703		0.7	H03
-12	GB/T 12459-2017	90° 弯头 DN50-Sch160 E(L) ELBOW	1	S31703		0.7	H04
-11		接管 φ60.3x8.8 PIPE	1	S31703		0.7	H04
-10	ASME B16.5-2020	法兰 WN 50-150# RF B=42.7 FLANGE	2	S31703 III	3	6	H03,H04
-9		接管 φ457x10 PIPE	1	S31703		20	板壳/ PLATE FORMED
-8		接管 φ355.6x10 PIPE	1	S31703		17	板壳/ PLATE FORMED
-7	SH/T 3426-2014	夹套管法兰 DN350XDN450-300#-WN RF JACKET FLANGE	1	S31703 III		140	NO1
-6	WXCE8261-03	管箱吊耳 CHANNEL LIFTING LUG	2	S31703	2	4	
-5	WXCE8261-02	设备法兰 FLANGE	1	S31703 III		267	
-4		筒体 L.D900X14 L=850 SHELL	1	S31703		271	
-3		接管 φ48.3x7.1 PIPE	1	S31703		0.5	C31
-2	ASME B16.5-2020	法兰 WN 40-300# RF B=34.1 FLANGE	1	S31703 III		3.5	C31
-1	GB/T25198-2023	椭圆形封头 EH900x10(min8.5) 2:1 ELLIP. HEAD	1	S31703		75	
件号 PART NO.	图号或标准号 DWG. OR STD. NO.	名 称 DESCRIPTION	数量 QTY.	材 料 MATERIAL	单件EACH 重量 WT.(kg)	设计SUM 重量 WT.(kg)	备 注 REMARK

-1		GB/T25198-2023		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
件号		图号或标准号		名 称		数量		材 料		单件EACH		备注	
PART NO.		DWG. OR STD. NO.		DESCRIPTION		QTY.		MATERIAL		WT.(kg)		REMARK	
1		下管箱 BOTTOM CHANNEL		组零件/ASS'Y		830		/		WXCE8261-01		WXCE8261-00-	
件号		名 称		材 料		重量 kg		比例		所在图号		装配图号	
PART NO.		DESCRIPTION		MATERIAL		WEIGHT		SCALE		LOCATED DWG. NO.		ASSEMBLY DWG. NO.	
5													
4													
3													
2				供审查/FOR APPROVAL		陈章		刘瑞发		孙守威		2025/5/5	
1				供审查/FOR APPROVAL		陈章		刘瑞发		孙守威		2025/4/10	
0				供审查/FOR APPROVAL		陈章		刘瑞发		孙守威		2025/3/21	
版次/REV		图号或标准号		名 称		数量		材 料		单件EACH		备注	
1		GB/T25198-2023		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
2		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
3		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
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79		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
80		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
81		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
82		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
83		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
84		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
85		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
86		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
87		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
88		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
89		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
90		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
91		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
92		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
93		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
94		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
95		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
96		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
97		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
98		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
99		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
100		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
101		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
102		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
103		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
104		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
105		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
106		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
107		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
108		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
109		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
110		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
111		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
112		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
113		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
114		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
115		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
116		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
117		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
118		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
119		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
120		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
121		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
122		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
123		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
124		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703		75			
125		S31703		椭圆封头 EHA900x10(min8.5)		1		S31703					

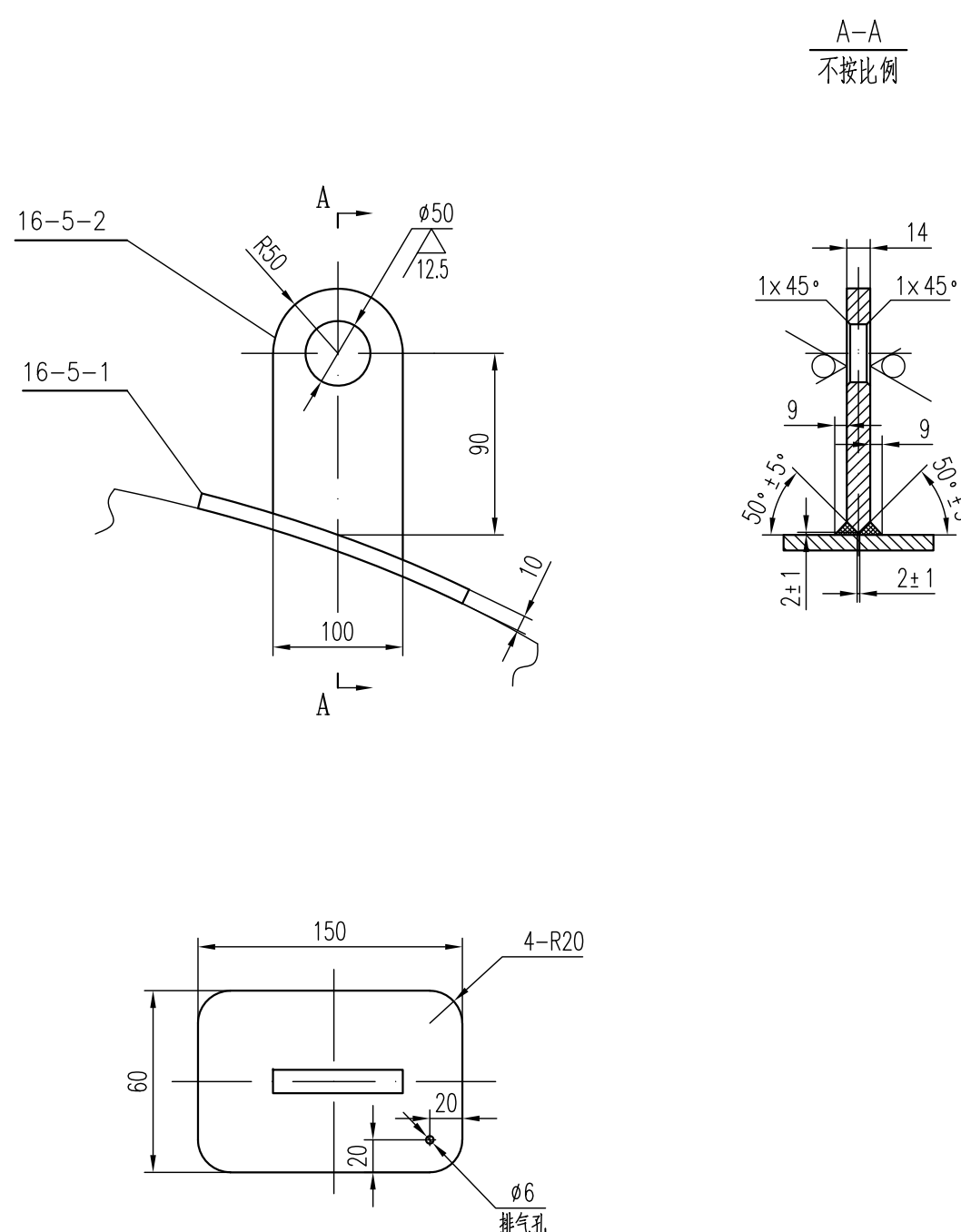


OTHERS 25 /



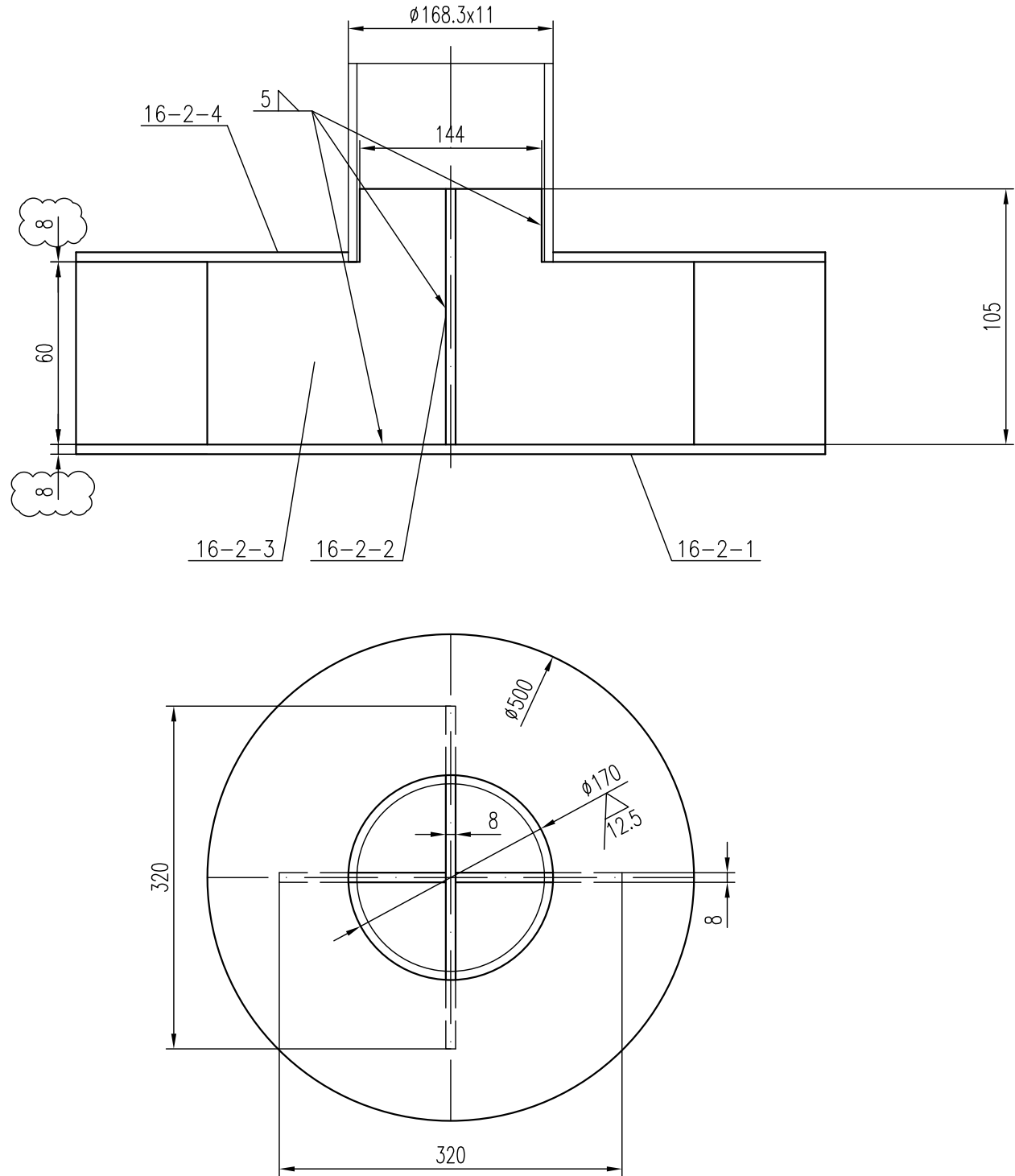
30	拉杆 $\phi 16$ L=4980 TIE ROD	Q235B	7.5	/	WXKC8261-03	WXKC8261-00-1
31	拉杆 $\phi 16$ L=5475 TIE ROD	Q235B	8.3	/	WXKC8261-03	WXKC8261-00-1
件号 PART NO.	名称 DESCRIPTION	材料 MATERIAL	重量 kg WEIGHT	比例 SCALE	所在图号 LOCATED DWG. NO.	装配图号 ASSEMBLY DWG. NO.

OTHERS 25 /



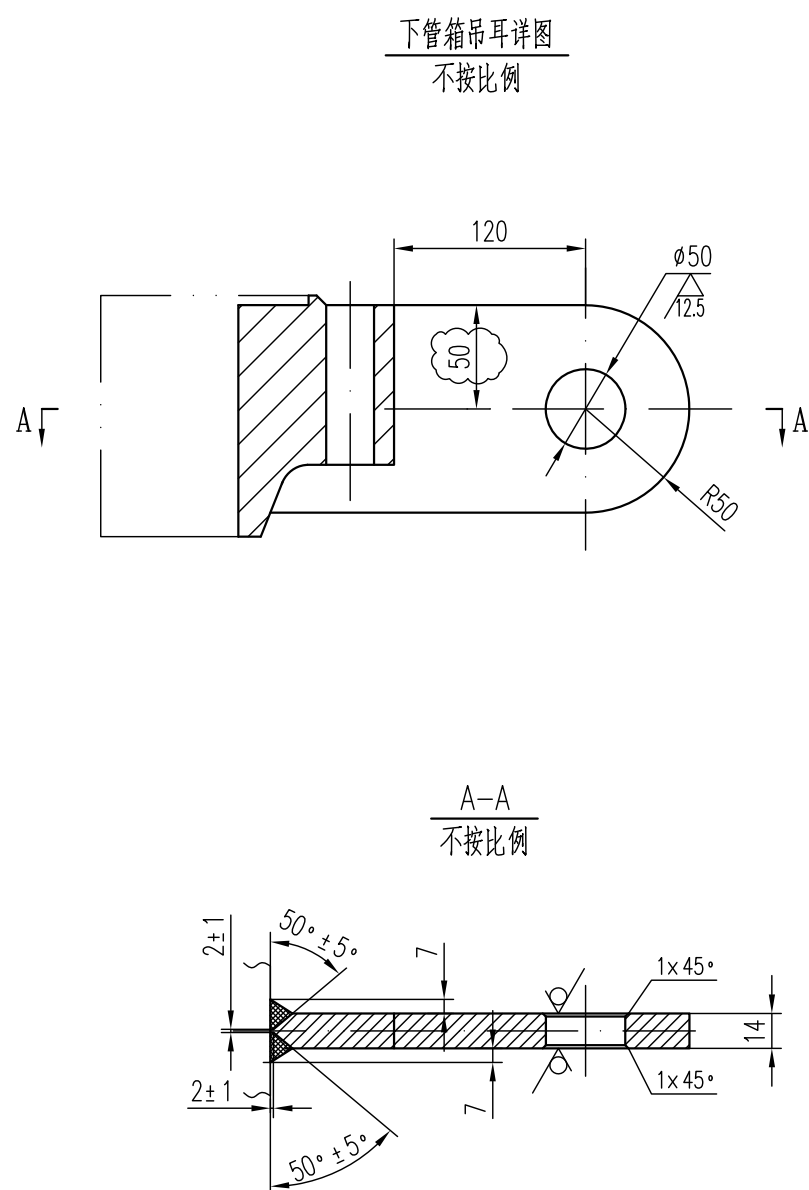
16-5-2		吊耳板 LUG PLATE	1	S31703		1
16-5-1		垫板 BASE PLATE	1	S31703		0.7
件号 PART NO.	图号或标准号 DWG.NO.OR STD.NO.	名 称 DESIGNATION	数量 QTY.	材 料 MATERIAL	单 总 重 重量 (kg) 量 WEIGHT	备 注 REMARKS
16-5	管带吊耳 CHANNEL TAILING LUG	S31703	2	/	WXCE8261-03	WXCE8261-01
件号 PART NO.	名 称 DESCRIPTION	材 料 MATERIAL	重量 kg WEIGHT	比例 SCALE	所在图号 LOCATED DWG. NO.	装配图号 ASSEMBLY DWG. NO.

OTHERS	其余	25
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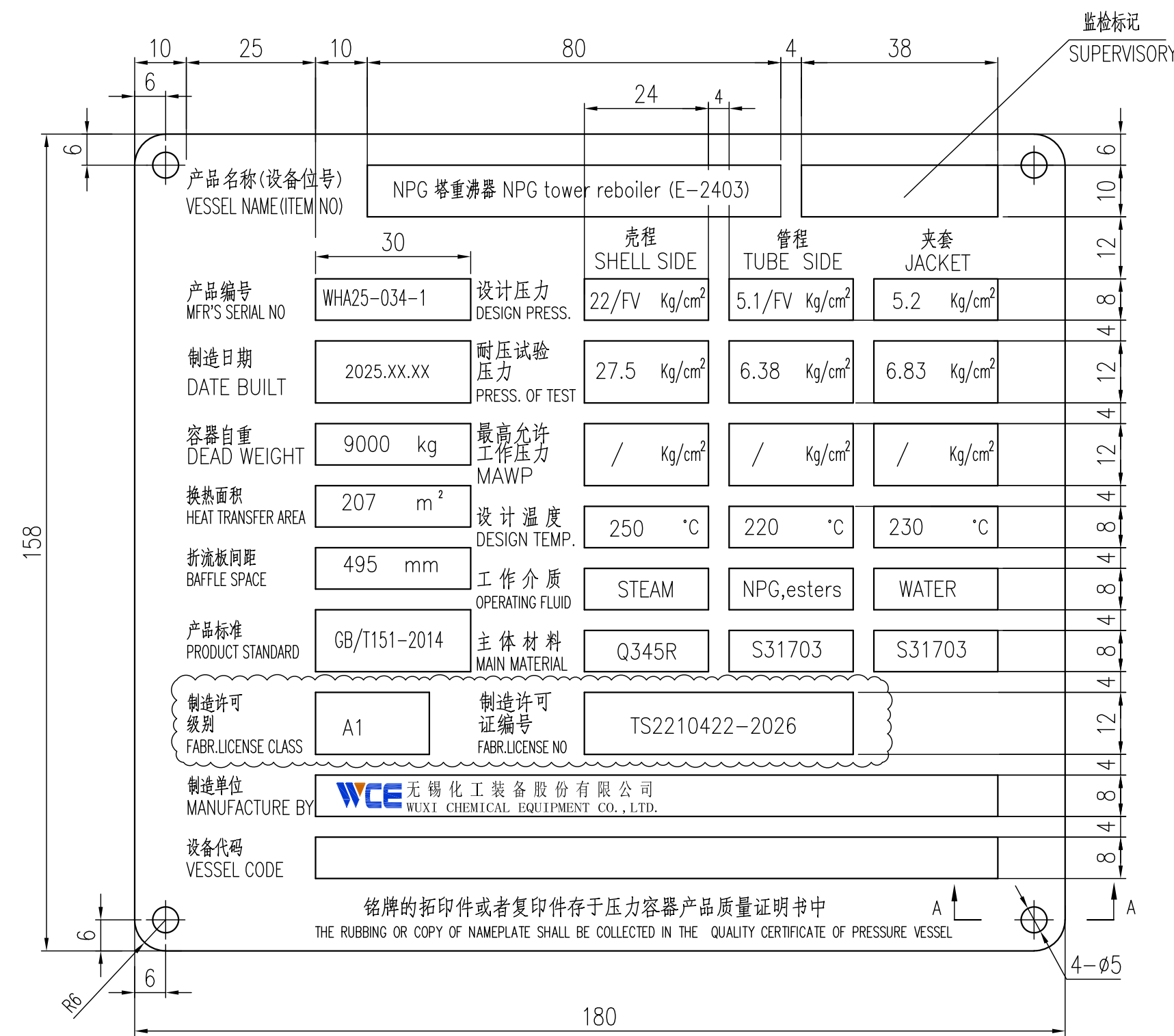
16-2-4		环板Φ500/φ170t=8 PLATE	1	S31703		8.3	
16-2-3		管板Ⅱ t=8 PLATE	2	S31703	0.5	1	
16-2-2		管板Ⅰ t=8 PLATE	1	S31703		1.1	
16-2-1		环板Φ500 t=8 PLATE	1	S31703		10	
件号 PART NO.	图号或标准号 DWG.NO.OR STD.NO.	名 称 DESIGNATION	数量 QTY.	材 料 MATERIAL	单 位 EACH/TOTAL	备 注 REMARKS	
					重量(kg) WEIGHT		
16-2	分器箱 DISTRIBUTOR	组合件/ASS'Y	20.4	/	WXCE8261-03	WXCE8261-01	
件号 PART NO.	名 称 DESCRIPTION	材 料 MATERIAL	重量 kg WEIGHT	比例 SCALE	所在图号 LOCATED DWG.	装配图号 ASSEMBLY DWG. NO.	

OTHERS 25



1-6	管箱吊耳 CHANNEL LIFTING LUG	S31703	2	/	WXCE8261-03	WXCE8261-01
件号 PART NO.	名 称 DESCRIPTION	材 料 MATERIAL	重量 kg WEIGHT	比 例 SCALE	所在图号 LOCATED DWG. NO.	装配图号 ASSEMBLY DWG. NO.

制造厂铭牌
DETAIL OF MANUFACTURER'S NAMEPLATE



技术要求

TECHNICAL REQUIREMENTS:

1.所有单位为毫米。

All dimensions are in mm.

2. 铭牌底面为黑色; 方框内为材料本色; 黑底上面的字为材料本色; 方框内的字为黑色; 所有文字数码符号应凸出底面 0.2 mm。中文字体为宋体, 除产品名称, 制造单位名称字高为 5mm, 其它字高为 3.5mm; 英文字体为新罗马字, 除产品名称, 制造单位名称字高为 3.5mm, 其它字高为 2.5mm。

The background colour of Name Plate shall be black and in the rectangular shall be metal color; the word color on the black background shall be metal colour and on the metal background shall be black. All of the words including letters, numbers, symbols and etc, shall be embossed for 0.2mm. the word type of chinese is song type and the height of word is 3.5mm except "product name and fabricator name" height is 5 mm. English, Number and Symbol is type New Roman. height of word is 2.5mm except "product name, fabricator name" height 3.5 mm.

3. 铭牌表面不允许有明显的凹凸变形, 表面翘曲度在100mm范围内不得超过1 mm.

Any distinct deformation of warpage on the Name Plate is not permitted and shall be less than 1 mm per 100mm.

4. 铭牌表面应平整光洁，色彩均匀，不得有裂纹锈迹反色和明显的擦伤丝纹。

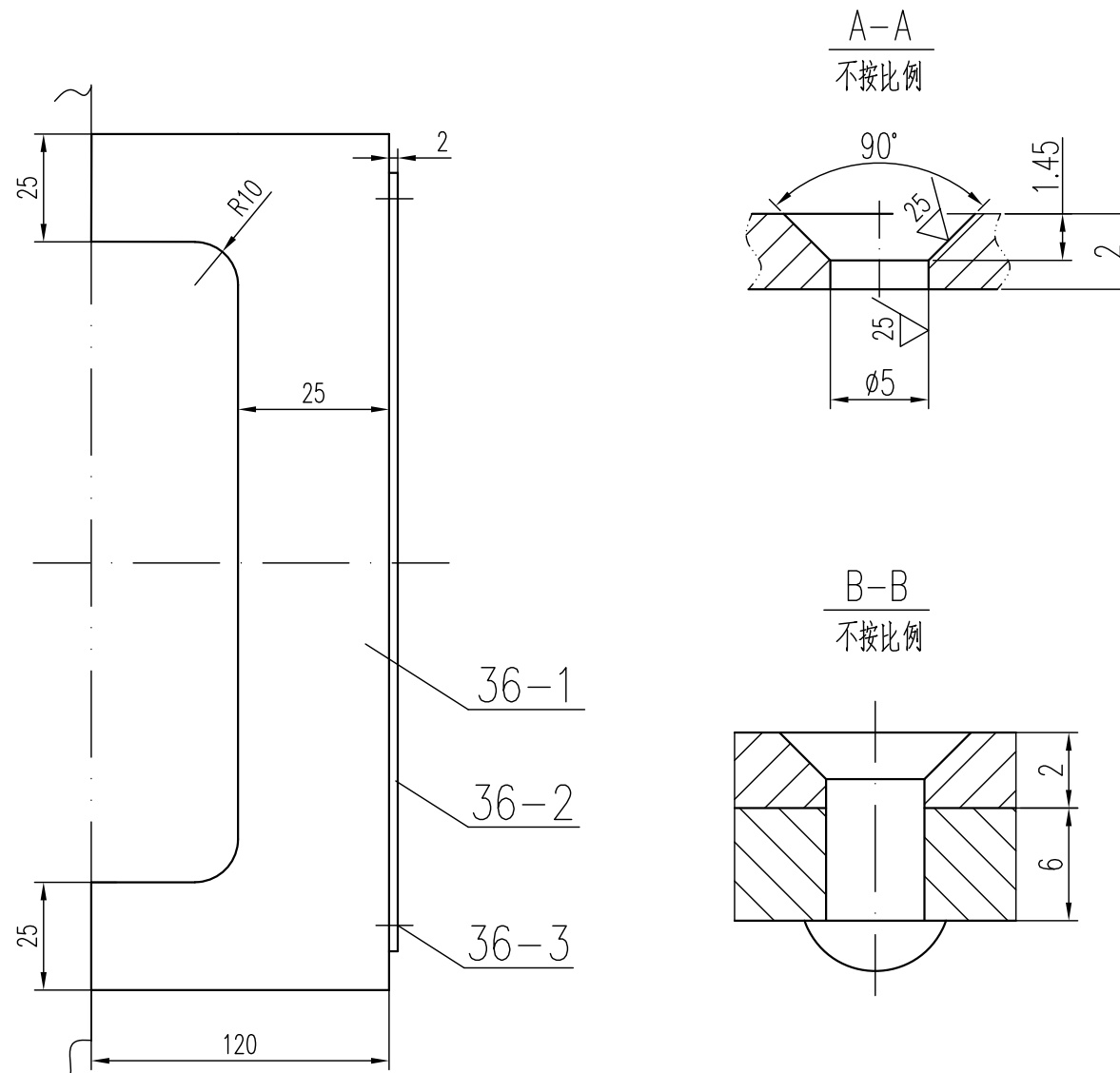
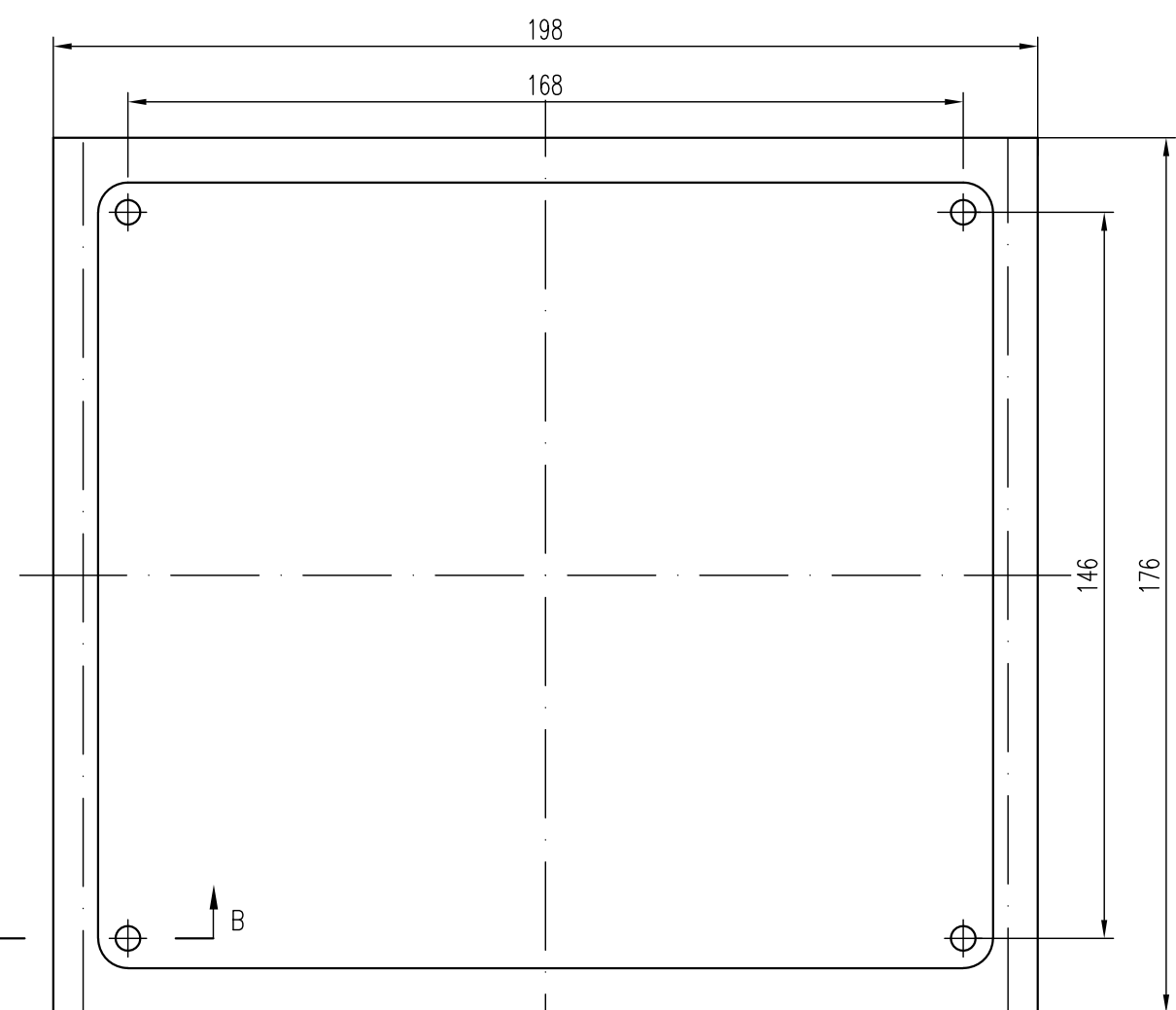
The surface of the Name Plate shall be flat, smooth and uniform color and free of any crack, rust and scratch.

5. 铭牌上的文字、符号、线条应清晰完整,不得断裂和模糊,不允许有影响其清晰度的斑点和暗纹。

Letters symbols and lines in the Name Plate shall be clear and complete and shall not be any stain and shadow.

6.漆膜在铭牌上的附着必须牢固,漆膜上不得有裂纹,脱落和明显的颗粒杂质。

The film of painting on the Name Plate shall be firm and free of any wrinkles, shedding and impurity.



36-3	GB/T 827-1986	铆钉 $\phi 4 \times 12$	4	SS304	/	/	
36-2		铭牌 t=2	1	SS304		0.5	
36-1		支架 t=6	1	Q345R		3.4	
件号 PART NO.	图号或标准号 DWG. OR STD.	名 称 DESIGNATION	数量 QTY.	材 料 MATERIAL	单 重(kg) EACH WEIGHT	总 重(kg) TOTAL WEIGHT	备 注 REMARKS
36	铭牌及支架 N.P. & BRACKET	组 合 件 C O M P O N E N T	4.0	/	WXCE8261-03	WXCE8261-00-1	
件号 PART NO.	名 称 DESCRIPTION	材 料 MATERIAL	重量 kg WEIGHT	比 例 SCALE	所在图号 LOCATED DWG. NO.	装配图号 ASSEMBLY DWG. NO.	
2	供审查/FOR APPROVAL	陈章		刘端发	孙守巍	2025/5/5	
1	供审查/FOR APPROVAL	陈章		刘端发	孙守巍	2025/4/10	
0	供审查/FOR APPROVAL	陈章		刘端发	孙守巍	2025/3/21	
版次/REV	版次说明/DESCRIPTION	设计/DESIGNED	校核/REVIEWED	审核/APPROVED	日期/DATE		

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	五智化工装备股份有限公司	设计项目 DESIGN PROJECT	印尼群岛石化公司3万吨/年新戊二腈项目 PT PIRRO COO MUSANTARA
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无锡化工装备股份有限公司 WUXI CHEMICAL EQUIPMENT CO., LTD.	DESIGN PROJECT	30000 TPA NPG PROJECT
	设计阶段	施工图

WUXI CHEMICAL EQUIPMENT CO., LTD.				DESIGN PHASE	FOR CONSTRUCTION
设计	设计			工作令号	WUXI CHEMICAL EQUIPMENT CO., LTD.

PREPARED	何平	2025/5/5	NPG 塔重沸器	WORK NO	WHA25-034-1
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校核 REVIEWED	2. 王瑞芳	2025/5/5	NPG tower reboiler 零件图 3	设备位号 ITEM NO.	E-2403
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审核 APPROVED	2025/5/5	图号 DRAWING NO.	WXCE8261-03
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批 准		比 例	1:1	版次	1	DRAWING NO.	第 5 页 共 6 页
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AUTHORIZED		SCALE	REV.	PAGE 5 OF 6
10		11		10

10 | 11 | 12

