



ITEM CODE: 03300060

Report No. 05-1002-202006-52

Parts Inspection Report			
Sample delivery		Sample supplier	ATECPOOL
Document coding	Parts Test Scheme -20200520-0001	Sample manufacturer	ATECPOOL
Sample description	Material Name: Titanium Tube Heat Exchanger Material Code :32012-120056 Specification :Φ9.52×7 m Φ110 titanium threaded tube Quantity of samples :2 pcs Source: Procurement Centre Design specificity: Design scope of application (including dry and wet balls, indoor/outdoor):		
Inspection Category	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Individual testing <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> New Material Test Periodic Test		
Information confirmation	<input checked="" type="checkbox"/> <input type="checkbox"/> Specifications <input type="checkbox"/> <input checked="" type="checkbox"/> RoHS of Certification Information		
Inspection items	Appearance, Structure Size, Fluorine Cleanliness, Waterway Leak, Fluorine Leak, Pressure Change, Pressure Test, Salt Spray Test, RoHS		
Inspection cycle	12 June 2020-22 June 2020		
Conclusion	<input checked="" type="checkbox"/> <input type="checkbox"/> Eligibility This test a total of 9 items 9 items qualified 0 items unqualified.		

Serial number	Testing projects	Standard requirements	Test results	Single decision	Remarks
1	Appearance	<p>1) complete product surface should be clean, do not allow oil stains, stains, etc.</p> <p>2) heat exchanger inlet and outlet pipe should be round, mouth no burr and oxidation phenomenon, the surface should be smooth, no dirt.</p> <p>3) the weld of the heat exchanger is even and full, without defects such as porosity, crack and flow hanging.</p> <p>4) Heat Exchanger External Pipe Splicing surface without cracks, slag, delamination and other defects</p>	Sample intact	Qualified	See Figure 1
2	Structural dimensions	Compliance with technical drawings and documentation requirements	Same size	Qualified	
3	Fluorine Cleanliness	<p>1) put the filter paper in a petri dish and dry in °C110 drying oven for 1 h;</p> <p>2) the extraction of quantitative "strong oil remover" into small containers, into the oil meter determination, zero;</p> <p>3) appropriate amount of zero after the extraction liquid poured into the beaker, and then the "strong oil remover" from the heat exchanger refrigerant side of the interface end injection;</p> <p>4) the special fixture is installed, the "strong oil remover" in the heat exchanger is recovered into the beaker with 20 min of clean and dry nitrogen blowing, the recovery amount should be more than 60%, and then the recovery liquid is put into the filter bottle and collected;</p> <p>5) extraction and quantitative filtration of "strong oil remover" into a small container, put into the oil meter for concentration determination;</p> <p>6) record the concentration, calculate the residual oil component of heat exchanger = determine the concentration value × dissolution dose;</p> <p>7) according to 120 mg/m<sup>2</sup> below the eligibility criteria to determine whether the heat exchanger is qualified;</p> <p>After the 8) test, wash the tested utensils with extraction liquid and put them in an automatic drying box.</p>	About 19.12 mg/m <sup>2</sup> cleanliness	Qualified	Figure 2
4	Waterway leak	Add 0.5 MPa water pressure to keep pressure for	Pressure to 0.8	Qualified	Figure 3

	detection	15 minutes, the whole pipeline must not have seepage and deformation phenomenon.	MPa, temperature-sensitive blind tube leak		
5	Fluorine road leak detection	There are two methods: choose either of them, prefer halogen test: 1. halogen test: fluorine system filled with at least 50 g of snow species, then add 3.5 mpa of nitrogen, mixed with halogen detector test. - The annual leak rate of the leak detector < g/ years. 2. fluorine system is filled with 5.0 mpa nitrogen, the product is placed in water, welding joint inspection 2 min.	No leakage	Qualified	
6	Pressure alternating	Water system: the frequency is at least 10 times / min, the pressure is between 0 Mpa—2.5 Mpa alternately to carry on 6000 times to the fluorine road system impact, the vessel wall does not appear the crack, the leakage phenomenon. fluorine system: the frequency is at least 10 times per minute, the pressure is between 1.1 Mpa—5 Mpa alternately to carry on 60000 times to the fluorine road system impact, the vessel wall does not appear the crack, the leakage phenomenon.	No cracking, leakage	Qualified	Figure 4
7	Pressure Test	The 6.6 MPa hydraulic test of the fluorine road system is carried out. There should be no leakage and deformation everywhere in the casing fluorine road system, continue to press to 13.2 Mpa, keep pressure 10 min, then drop to 4.4 and keep pressure 10 to observe the welding joints without leakage and allowable deformation.	No cracking, leakage	Qualified	Figure 5
8	Salt spray test	titanium tubes of the same batch of products were taken and placed in a salt spray box for salt spray test. after 480 hours of test, there should be no metal corrosion, falling, peeling, peeling, bubbling (test liquid solubility is 5%).	No corrosion, rust	Qualified	Figure 6
9	RoHS	All components must comply with RoHS certification requirements.	Vendor reports	Qualified	

Figure 1: Appearance



Figure 2: Fluorine cleanliness



The impurity content of titanium tube is 4 mg, the inner surface area is about 0.2092 m<sup>2</sup>, the cleanliness is about 19.12 mg/m<sup>2</sup>. The impurity content of titanium tube is calculated

Figure 3: Waterway leak detection





Figure 4: Pressure alternating

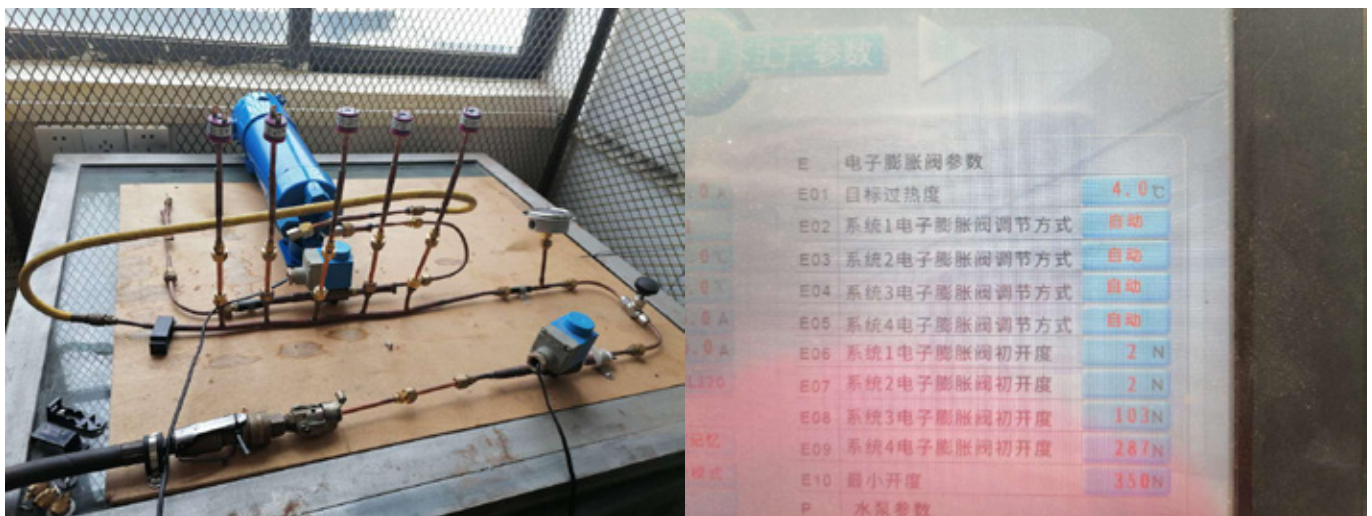
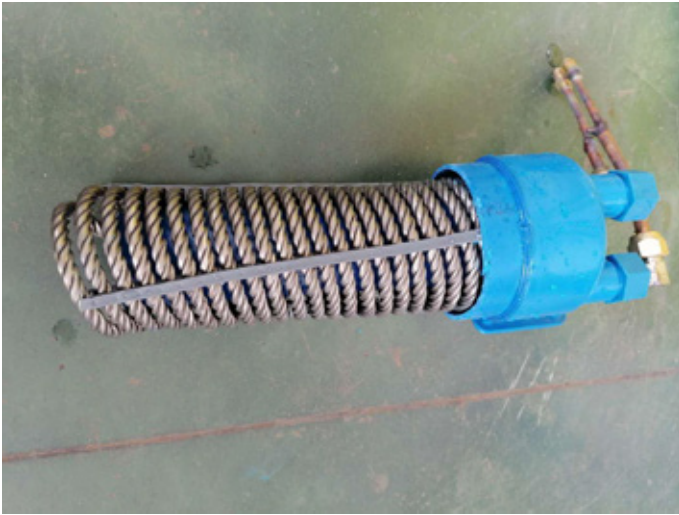


Figure 5: Pressure test



Figure 6: Salt spray test



Material use Views	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Application of deactivated refusals <input type="checkbox"/> Other:						
Preparation Date	20200623	Quality assurance Date	20200623	Development engineer Date	20200623	Development Team Date	20200624
Quality audit Date	2020/06/28						