

考试专用
Only for Exam

超声检测（UT）考试用规范

The Specifications of Exam

规范编号 NANDTB-CN-ST005

规范名称 宇航复合材料结构超声检测验收规范

版本号 Edit 0/0

2011 年 9 月

September 2011

宇航复合材料结构超声检测验收规范

与该技术相关的材料内部的脱粘、分层和夹杂的验收标准包含在表 1 到表 3 中。
The acceptance standard for disbonds, delaminations and inclusions within the components related to this technique is contained within Tables 1 to 3.

表 1. 验收标准—实心层压材料

Table 1. Acceptance Criteria – Solid Laminate

适用工件 Applicable Components	种类 A Category A	种类 B Category B	种类 C Category C	种类 D Category D
状况 Conditions	大小 Size			
最大的单个缺陷面积 Maximum Single Defect Area	36 mm ²	100 mm ²	225mm ²	400mm ²
最大单个缺陷尺寸 (L) Maximum Single Defect Dimension (L)	9 mm	15 mm	22mm	30mm
最小有效尺寸 (S) Minimum Significant Dimension (S) 见注 1 See Note 1	6 mm	6mm	6mm	6mm
最小缺陷间隔 Minimum Spacing of Defects	50 mm	60 mm	80mm	100mm
直径 200mm 的圆区域内允许的最大缺陷总面积 Maximum Total Area allowed in 200mm diameter circle	220mm ²	628mm ²	1099mm ²	1570mm ²
200mm 的长度距离内允许的最大缺陷总长注 2 Maximum Total Area allowed in 200mm running length See Note 2	<2.0%	<4.0%	< 6.0%	<10.0%

注 1: 缺陷主要方向的尺寸小于最小“有效尺寸”不必记录。

Note 1: Defects with a major dimension of less than the “minimum significant” do not need to be recorded.

注 2: 当长度等于或大于 W 时的长窄的区域, W (宽度) 小于 200mm

Note 2: Applicable to long narrow areas when length equal or greater than W, where W (width) is less than 200mm.

表 2. 验收标准-边缘分层

Table 2. Acceptance Criteria – Delamination Breakout at Edges

适用工件 Applicable Components	种类 A Category A	种类 B Category B	种类 C Category C	种类 D Category D
状况 Conditions	大小 Size			
最大的单个缺陷面积 Maximum Single Defect Area	36 mm ²	100 mm ²	100mm ²	100 mm ²
贯穿层间的缺陷的最大尺寸 (P) Maximum Dimension penetrating into laminate (P)	4 mm	5 mm	5mm	5 mm
最大缺陷长度 (L) Maximum Length of Defect (L)	9 mm	20 mm	20mm	20 mm
最小有效尺寸 (S) Minimum Significant Dimension (S) 见注 1 See Note 1	6 mm	6 mm	6 mm	6 mm
缺陷最小间距 Minimum Spacing between Defects	50 mm	100 mm	100mm	100 mm

注 1 – 主要尺寸小于 5 的缺陷无需记录。

Note 1 – Defects with a major dimension less than S do not need to be recorded.

表 3. 验收标准-蜂窝夹层结构区

Table 3. Acceptance Criteria – Honeycomb Sandwich Area

适用工件 Applicable Components	种类 A Category A	种类 B Category B	种类 C Category C	种类 D Category D
状况 Conditions	大小 Size			
最大缺陷面积 Maximum Defect Area	160 mm ²	225 mm ²	400mm ²	800 mm ²
最大单个缺陷尺寸 (S) Maximum Single Defect Dimension (S)	18 mm	21 mm	28mm	40 mm
最小缺陷间距 Minimum Defect spacing	4D _{max}	3.5D _{max}	3.0D _{max}	3.0 D _{max}
直径 200mm 的区域内最小缺陷总数 Minimum number of Defect within 200mm diameter circle	SumD _{max} ≤100	SumD _{max} ≤130	Sum D _{max} ≤180mm	SumD _{max} ≤220
粘接区最大缺陷 Maximum Defect of Total Bonded Area (500 x500mm 区域内总和) (Summation of 500x500mm Area)	≤1.5%	≤2.0%	≤3.0%	≤4.0%
距边界最小距离 Minimum Edge Proximity	3D _{max}	2D _{max}	2D _{max}	2D _{max}
3.2mm 芯格区域最小有效缺陷尺寸, 见注 1 Minimum Significant Defect Size for 3.2mm Core Cell See Note 1	6mm			

注 1 –在一圆内的脱粘区域最小有效缺陷尺寸, 该圆直径取决于蜂窝尺寸

Note 1 – Minimum significant defect size relates to a disbond area within a circle, the diameter of which is dependant on the cell size.