



**EVALUATION AND ACCEPTANCE STANDARD FOR  
LIQUID PENETRANT EXAMINATION OF CASTINGS****1.0 SCOPE:**

1.1 This standard is applicable for Liquid Penetrant examination of castings.

1.2 The procedure adopted for this examination is as per Corporate Standard AA 085 01 31

**2.0 DEFINITION OF INDICATIONS:**

2.1 Circular indications are those, more or less elliptical with major axis not more than three times the minor axis.

2.2 Linear indications are those, having length in excess of three times the average width.

2.3 In-line indications are those, in group of three or more indications aligned side by side in line with intervening gaps of less than 2mm measured edge to edge.

**3.0 EVALUATION OF INDICATIONS:**

3.1 Defects which occur as mechanical discontinuities at the surface will be indicated by the bleeding out of the penetrant, however, localised surface imperfections such as may occur from machining marks or surface conditions may produce similar indications which are not relevant to the detection of defects.

3.2 Any indication which is suspected to be non-relevant is to be considered relevant till it is proved otherwise.

3.3 Relevant indications are those which result from mechanical discontinuities. Linear indications are those indications in which the length is more than three times the width. Rounded indications are those indications which are circular or elliptical with the length less than three times the width.

3.4 Indications measuring less than 1.5mm across shall not be taken into consideration unless they are clustered in group of more than 4 Nos. with intervening gap of less than the largest dimensions of adjacent flaws. Such clusters shall be evaluated as single defect.

Revision

Approved:

INTERPLANT NON-  
DESTRUCTIVE TESTING COMMITTEE

Prepared

Issued

Date

Date

Corp. R&amp;D

COMP : R &amp; D

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**4.0 ACCEPTANCE STANDARDS:**

Castings are classified into four levels, as details below, according to the size and number of flaws permissible.

Level	No. of acceptable indications per 100 sq. cm. surface area of length not exceeding 25cm.	Unacceptable defects.
I	2 Nos. of 3mm circular indication.	Crack and hot tears.
II	3 Nos. of 3mm circular indication. One 5mm circular or linear indication.	-do-
III	3 Nos. of 3mm circular indication. 2 Nos. of 4mm circular indication. One 6mm circular or linear indication. One in-line indication of 10mm maximum length.	-do-
IV	4 Nos. of 3mm circular indication. 3 Nos. of 4mm circular indication. 2 Nos. of 8mm circular or linear indication.  One in-line indication of 15mm maximum length.	-do-

Note: The minimum permissible distance between any two or more acceptable individual flaws shall not be less than the major dimension of the larger flaw.