



KYOCERA STANDARD  
SPECIFICATION  
FOR  
CERAMIC LIDS WITH LOW  
TEMPERATURE SEALANT  
(LTS)

KSD-241-0003-4

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## 1 Scope and Applicable Documents

This document is applicable to the standard Low Temperature Sealant ( LTS ) Lids produced by Kyocera Corporation.

The following order of precedence shall govern in the event of conflict between the specifications in this document and others :

- (1) Purchase Order
- (2) Approved customer drawings
- (3) Approved customer specification
- (4) Kyocera drawings
- (5) Kyocera specification

## 2 Material

### 2.1 Ceramic :

Ceramic shall be in accordance with the applicable drawings.

### 2.2 LTS :

LTS shall be in accordance with the applicable drawings.

## 3 Dimensions

### 3.1 Ceramic :

Dimensions and tolerances shall be in accordance with the applicable drawings.

### 3.2 LTS :

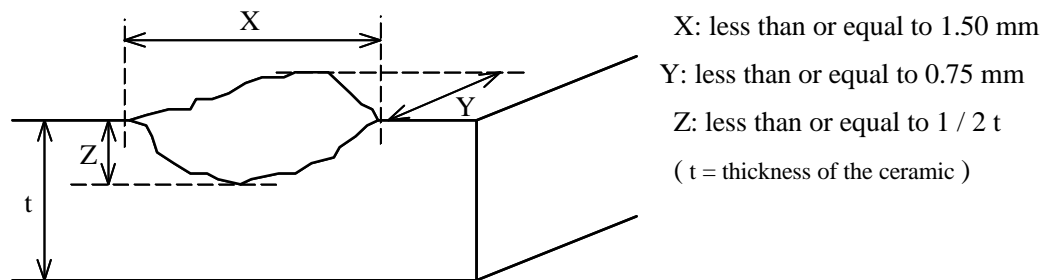
Dimensions and tolerances shall be in accordance with the applicable drawings.

#### 4 Appearance

##### 4.1 Ceramic :

###### (1) Chips

Chips shall be less than or equal to 1.50 mm x 0.75 mm x 1/2 the thickness of the ceramic.



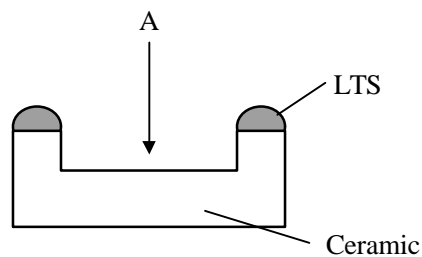
###### (2) Cracks

There shall be no cracks when inspected at 10x microscope.

###### (3) Dust and contamination

Dust and contamination shall be less than or equal to 1.2 mm in diameter on A side LTS printed of the ceramic and less than or equal to 0.5 mm in diameter on the other sides of the ceramic.

Dust and contamination shall be acceptable if removable with air or nitrogen blow at 294 kPa.



###### (4) Pin Hole

Pin Hole shall be less than or equal to 0.12 mm in diameter.

#### 4.2 LTS :

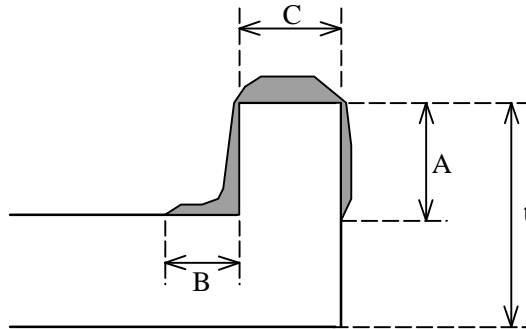
##### (1) Chips

Chips shall be less than or equal to 1/3 of the LTS width.

##### (2) Rundown

A) External rundown of LTS (A) shall be less than or equal to 1/2 of the total thickness of the ceramic.

B) Internal rundown of LTS (B) shall be less than or equal to 1/2 of the LTS width (C).



##### (3) Dust and contamination

Dust and contamination shall be less than or equal to 0.3 mm.

Dust and contamination shall be acceptable if removable with air or nitrogen blow at 294 kPa.

##### (4) Discoloration

There shall be no discoloration except yellow-discoloration caused by sunlight.

##### (5) Bubble

Bubble shall be less than or equal to 1/5 of the LTS width.

### 5 Properties

#### 5.1 LTS :

##### (1) Melting

LTS shall start melting within 30 seconds after LTS Lid is put on a hot plate at 200 degree C.

##### (2) Curing

LTS shall be cured in 60 minutes on a hot plate at 200 degree C.

## 6 Inspection Methods

### 6.1 Dimensions :

#### (1) Outer dimensions of ceramic lids

Micrometer with 1.5 mm in diameter flat tip or Calipers shall be used for outer dimensions of ceramic lids.

#### (2) Inner dimensions

Profile projector shall be used for inner dimensions.

#### (3) Dimensions of LTS thickness

Micrometer with 1.5 mm in diameter flat tip shall be used for the dimensions of LTS thickness. When a LTS lid is placed on a flat table, dimension A (the thickness from a table plane to LTS surface) shall be first determined at a point as shown in Fig.1.

And then LTS shall be stripped from the ceramics and dimension B (the thickness from a table plane to top surface of the ceramics) shall be measured at the same points as shown in Fig.1.

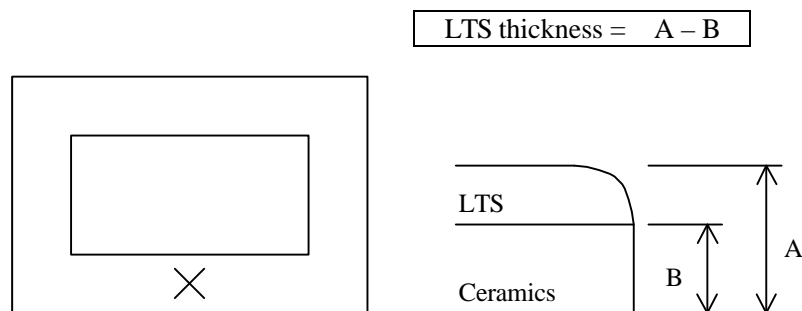


Fig. 1

### 6.2 Appearance :

Appearance shall be inspected by naked eyes or 10x microscope.

### 6.3 Functional Test :

#### (1) Melting

Melting shall be in accordance with 5.1 (1).

#### (2) Curing

Curing shall be in accordance with 5.1 (2).

7 Sampling Plan

Sampling plan shall be in accordance with ANSI/ASQC Z1.4-1993.

Group	Level	AQL	Remarks
Dimension	S-2	1.0	Non-Cumulative
Appearance	Normal -2	2.5	Cumulative
Function	n = 5 pcs / Lot, Acc / Rej : 0 / 1		

8 Storage Conditions

Shelf life of LTS Lid is guaranteed as follows.

(1) NCO-150H, 150HB, 150SH, 150SHB, 120ST, 120STB

Storage Temperature	0-10 deg.C	11-20 deg.C	21-25 deg.C	26-30 deg.C
Humidity	Less than 60%			
Duration	12 months	6 months	4 months	2 months

(2) NCO-150S, 150SZ, 150SW, 150SB, 120R, 120RB, 150UR-45B, 150CB

Storage Temperature	0-5 deg.C	6-20 deg.C	21-27 deg.C	28-35 deg.C
Humidity	Less than 60%			
Duration	18 months	12 months	6 months	3 months

(3) NCO-125RXD, 150, 200, 200S, 120ST3

Storage Temperature	0-5 deg.C	6-20 deg.C	21-27 deg.C	28-35 deg.C
Humidity	Less than 60%			
Duration	24 months	12 months	6 months	3 months

(4) NCO-125RF, 120ST2, 150UF

Storage Temperature	0-5 deg.C	6-20 deg.C	21-27 deg.C	28-35 deg.C
Humidity	Less than 60%			
Duration	24 months	12 months	6 months	4 months

Shelf life shall be counted from shipping date.