



SEMI E21.1-92

CLUSTER TOOL MODULE INTERFACE 300 mm: MECHANICAL INTERFACE AND WAFER TRANSPORT STANDARD

1 Introduction

The standard provides the requirements to extend the limits of SEMI E21 from 200 mm diameter wafers or smaller to 300 mm diameter wafers or smaller.

2 Applicable Documents

SEMI E21 — Cluster Tool Module Interface: Mechanical Interface and Wafer Transport Standard

3 Requirements

The standard is identical to E21 (see Application Note A.1) except for the requirements listed in Table 1.

Table 1. Mechanical Interface Requirements for 300 mm Diameter Wafers

	<i>E21 Requirements</i>	<i>300 mm Wafer Requirements</i>
Transport Maximum Reach ¹	305.0 mm (12.01 in.)	380.0 mm (14.96 in.)
Inside Boundary Width-Interface Seal Zone ²	236.0 mm (9.29 in.)	336.0 mm (13.23 in.)
Outside Boundary Width-Interface Seal Zone ²	266.0 mm (10.47 in.)	366.0 mm (14.41 in.)
Wafer Transfer Zone Minimum Width ²	222.0 mm (8.74 in.)	322.0 mm (12.68 in.)
Alignment Pins Centerline Separation ²	300.0 mm (11.81 in.)	400.0 mm (15.75 in.)
Flange Width ²	340.0 mm (13.39 in.)	440.0 mm (17.32 in.)

1. See Application Note A.2

2. See Application Note A.3

NOTICE: The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, Semiconductor Equipment and Materials International (SEMI) takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. In particular, users of the specification should be aware that Drytek, Inc., A Unit of General Signal, 16 Jonspin Road, Wilmington, MA 01887-1087, Phone: (508) 657-3933, has neither claimed nor disclaimed that compliance with this specification would require use of an invention covered by one or more of its patents. Users of this standard are expressly advised that determination of any such patent rights, and the risk of the infringement of such rights, are entirely their own responsibility.

NOTICE: These standards do not purport to address safety issues, if any, associated with their use. It is the responsibility of the user of these standards to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. SEMI makes no warranties or representations as to the suitability of the standards set forth herein for any particular application. The determination of the suitability of the standard is solely the responsibility of the user. Users are cautioned to refer to manufacturer's instructions, product labels, product data sheets, and other relevant literature respecting any materials mentioned herein. These standards are subject to change without notice.



APPLICATION NOTES

Note — The material contained in these application notes is not an official part of SEMI E21.1, and is not meant to modify or supersede it in any way. Rather, these notes are provided primarily as a source of information to aid in the application of the standard. As such they are to be considered as reference material only. The standard should be referred to in all cases.

A.1 Vertical Requirements

No changes in vertical requirements are necessary since 300 mm diameter wafers are only 50 micrometers thicker than 200 mm diameter wafers [see SEMI M1.14 (Guideline for 300 to 400 mm Polished Monocrystalline Silicon Wafers) and SEMI M1.9 (Standard for 200 mm Polished Monocrystalline Silicon Wafers (Notched))].

A.2 Transport Maximum Reach

The maximum reach beyond the interface plane (see Table 1) is increased by 75 mm (from 305.0 mm to 380.0 mm); a 50 mm increase in wafer radius (from 100 mm to 150 mm) and a 25 mm increase in clearance between the wafer and the chamber walls.

A.3 Width Requirements

The increase in wafer diameter from 200 mm to 300 mm necessitates a 100 mm increase in all width values (see Table 1) specified in SEMI E21.

NOTICE: The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, Semiconductor Equipment and Materials International (SEMI) takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. In particular, users of the specification should be aware that Drytek, Inc., A Unit of General Signal, 16 Jonspin Road, Wilmington, MA 01887-1087, Phone: (508) 657-3933, has neither claimed nor disclaimed that compliance with this specification would require use of an invention covered by one or more of its patents. Users of this standard are expressly advised that determination of any such patent rights, and the risk of the infringement of such rights, are entirely their own responsibility.

NOTICE: These standards do not purport to address safety issues, if any, associated with their use. It is the responsibility of the user of these standards to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. SEMI makes no warranties or representations as to the suitability of the standards set forth herein for any particular application. The determination of the suitability of the standard is solely the responsibility of the user. Users are cautioned to refer to manufacturer's instructions, product labels, product data sheets, and other relevant literature respecting any materials mentioned herein. These standards are subject to change without notice.