WAFER HOLDER — TANDEM
WITH BACKSIDE PROTECTION

PRODUCT INFORMATION SHEET

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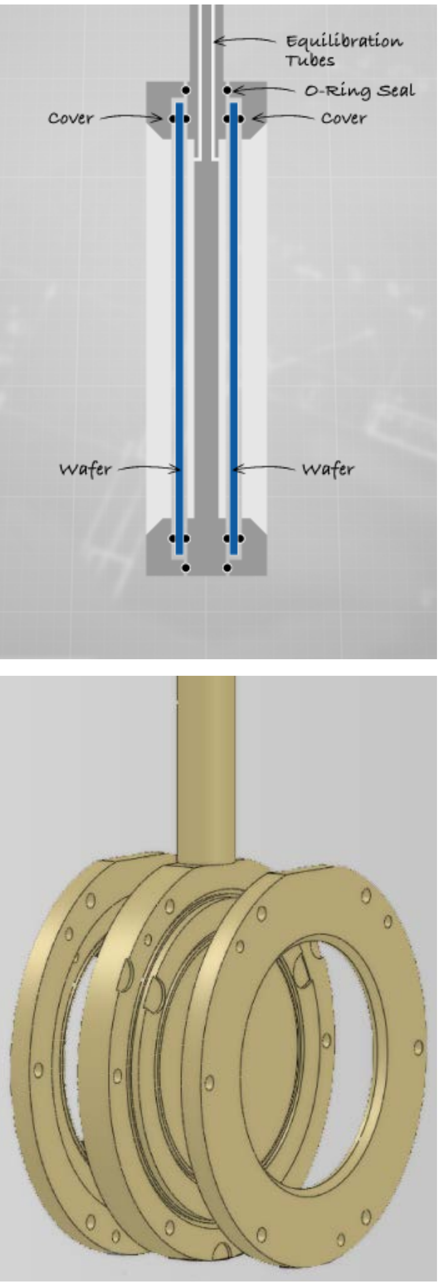

Working principle of the Tandem wafer holder

The Tandem wafer holders have been used for more than 15 years in MEMS industry and research. Tandem wafer holders are available for wafers with 3", 4", 5", 6", and 8" diameters. The Tandem series wafer holder protects the wafer's back side and the edge from the etchant solution. A unique feature of AMMT's Tandem holders is their symmetrical, small-footprint construction that allows one to mount two wafers with the etchant protected sides facing each other. However, it is important to note that both sides are fully independent from each other. Consequently, even a small etchant bath can be used to etch a number of wafers simultaneously. If only one wafer needs to be processed, blind covers are available for purchase.

All holders are made entirely from PEEK, in order to avoid any risk of etchant contamination by metal parts. They are suitable for nearly all etchants (KOH, TMAH, HF, H3PO4, etc.) over an extended temperature range. The wafer is sealed by a double precision O-ring system that reduces mechanical stress on the wafer to a minimum. Two covers on the front and back side hold the wafers in place, fixed by six screws. As the customer-specific wafer thickness is machined as a recess into the cover, all screws can be tightened using a regular wrench without sensitivity to the applied torque. This ensures a minimum mechanical stress on the fragile wafer. Upon ordering the holder, the wafer thickness machined as a recess into the cover-ring needs to be specified. The holder tolerates wafers with a thickness of +/- 80 um around the specified target thickness. If more flexibility is required, additionally cover-rings with different recesses can always be ordered. Furthermore, the volume between the wafer and holder's body is connected by a venting tube (one separate for each side) to the ambient atmosphere in order to avoid pressure caused by temperature changes.

The standard Tandem series is designed for single side etching processes that do not require electrical contact, e. g. time based etching, etch-stop on oxide or nitride layers, SOI wafers, glass/quartz etching in HF, etc.

In order to keep maintenance costs low, all O-rings have dimensions in accordance with the American AS-568 standards.

TECHNICAL SPECIFICATIONS

Product code	**Tandem3**	**Tandem4**	**Tandem4 LAA**	**Tandem5**
Wafer size	3" or 75 mm	4" or 100 mm	4" or 100 mm	5" or 125 mm
Internal dimensions				
Width of the O-ring seal	1.78 mm	1.78 mm	1.78 mm	1.78 mm
Recommended edge exclusion width	7 mm	7 mm	3.75 mm	10 mm
Diameter of usable area	61 mm	86 mm	92.5 mm	105 mm
External dimensions				
Diameter	114 mm	140 mm	140 mm	158 mm
Thickness	34 mm	38 mm	38 mm	38 mm
Materials				
Main Body and corver-ring material	PEEK			
O-ring material	EPDM 70 – upon request FPM (Viton®) or FFPM (Kalrez®)			
Etchant compatibility	KOH, TMAH, HF and various acids			
Temperature range	5 °C – 150 °C			

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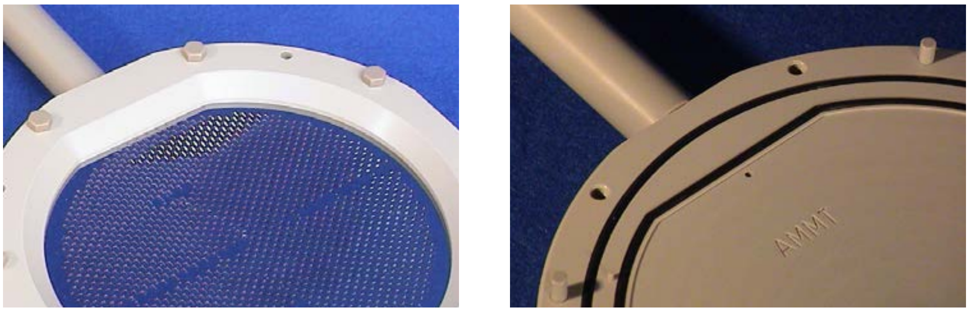
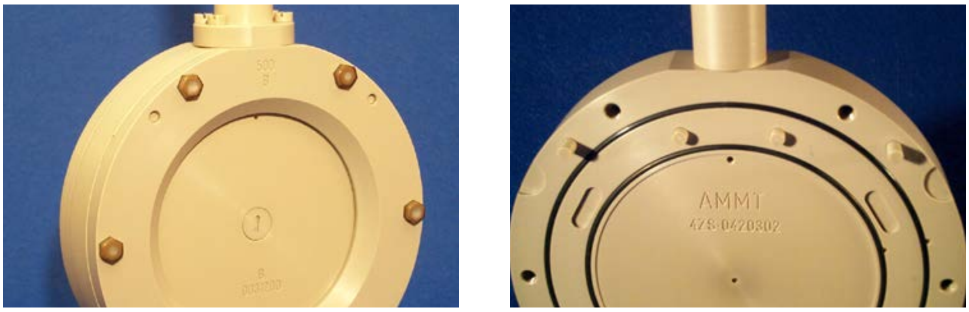
We want to ensure that we have close contact with our customers. If you have any questions or special requirements, please do not hesitate to get in touch with us. This product information sheet is for general information purposes only. The product descriptions and the content of this document are not a substitute for our instructions in the product manual.

Product code	**Tandem6**	**Tandem6 LAA***	**Tandem8**	**Tandem8 exp195**
Wafer size	6˝ or 150 mm	6˝ or 150 mm	8˝ or 200 mm	8˝ or 200 mm
Internal dimensions				
Width of the O-ring seal	1.78 mm	2.62 mm	2.62 mm	1.78 mm
Recommended edge exclusion width	10 mm	5.5 mm	5.5 mm	2.5 mm
Diameter of usable area	130 mm	140.5 mm	189 mm	195 mm
External dimensions				
Diameter	186 mm	186 mm	240 mm	240 mm
Thickness	38 mm	38 mm	41 mm	41 mm
Materials				
Main Body and corver-ring material	PEEK			
O-ring material	EPDM 70 – upon request FPM (Viton®) or FFPM (Kalrez®)			
Etchant compatibility	KOH, TMAH, HF and various acids			
Temperature range	5 °C – 150 °C			



* Wafer holder with enlarge active area option (LAA), the o-ring shape is adapted to wafers flat.



Standard configuration the o-ring shape is fully around.

OPTIONS The handle length is customer specific. Please inquire for customer specific mounting options.

NOTE AMMT manufactures wafer holders for all sizes of wafers. Holders for single chips and rectangular substrates are available as well. Please inquire for specifications and prices.