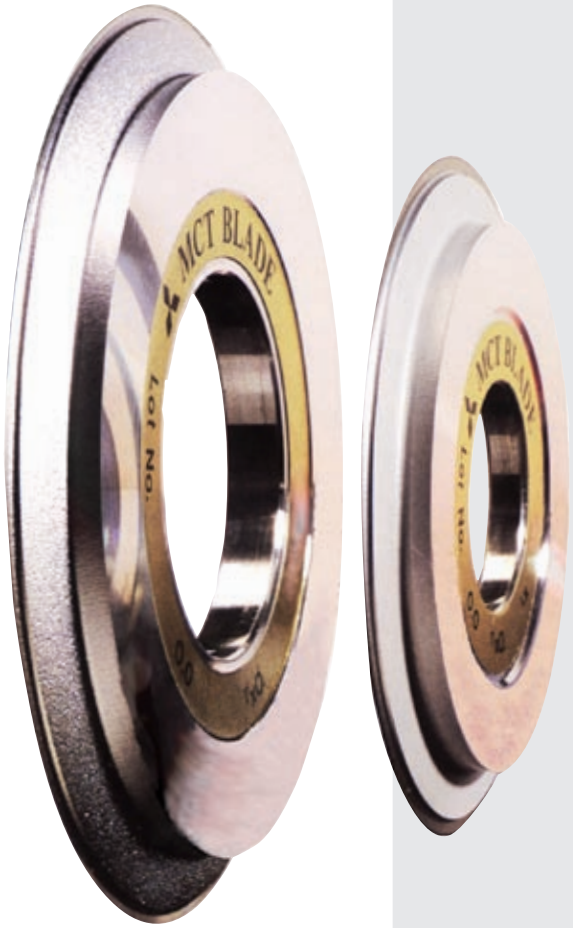
MITSUBISHI

The „Quality“ and „Rigid“ Dicing Wheel



minitron

elektronik gmbh

For singulating Semiconductor Wafers into chips (dies), dicing with dicing-wheels (or -blades) is the most commonly used process.

The electro-formed nickel matrix filled with diamond particles is state-of-the-art for these precision tools. Tightly controlled tolerances and a unique plating process result in chip edges with very little chipping, low kerf losses and high cutting performance.

Ideal blade dimensions require high exposure (protrusion of the blade over the hub) combined with low blade thickness, which traditionally yields into fragility. MITSUBISHI's **R**igid Wheels incorporating a hard but tough nickel matrix, perform superior in these applications.

MITSUBISHI FTB- / CCB-Wheels

Two different types are available, developed by MITSUBISHI for the separation of semiconductor wafers. The FTB-Wheels (Fine Tuning Blades) have replaced the MCT-Wheels while the CCB-Wheels have been refined for minimum chipping (Chipping Controlable Blades). Both types are available in two series.

Q-Series

Q as **Q**uality based on a nickel-bond ensuring constant cut quality during the hole blade lifetime.

- Low Chipping
- easy adjustment to different processes, because of selfcleaning abrasive grain cavities.
- Long tool life
- High productivity.

R-Series

R as **R**igid has the hardest nickelbond of all MITSUBISHI wheels. The **R-Series** has been developed for long lifetime and stable, non vibrating, exposure for deep cuts. With **R-Series** the thinnest blades can be made.

The selfexplaining numbering code used for MITSUBISHI Dicing Wheels displays immediately the important parameters: grit, thickness, exposure. For thickness the maximum blade thickness in microns is being used, for exposure the minimum in 10 microns.

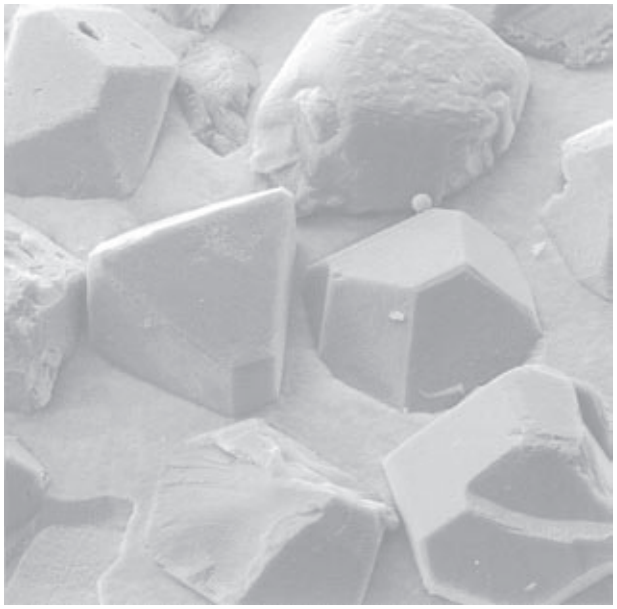


Abb.1 Nickelmatrix with diamond particles

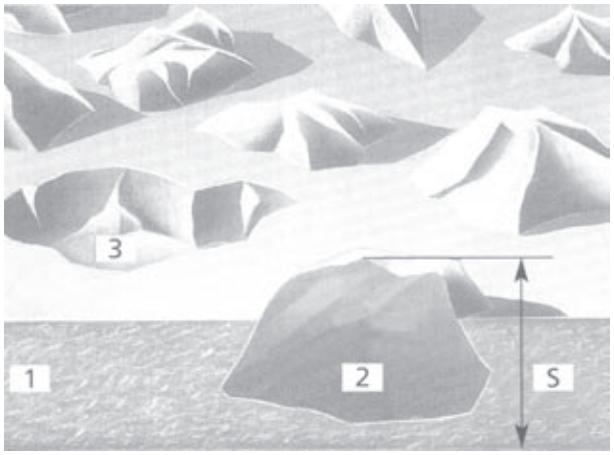
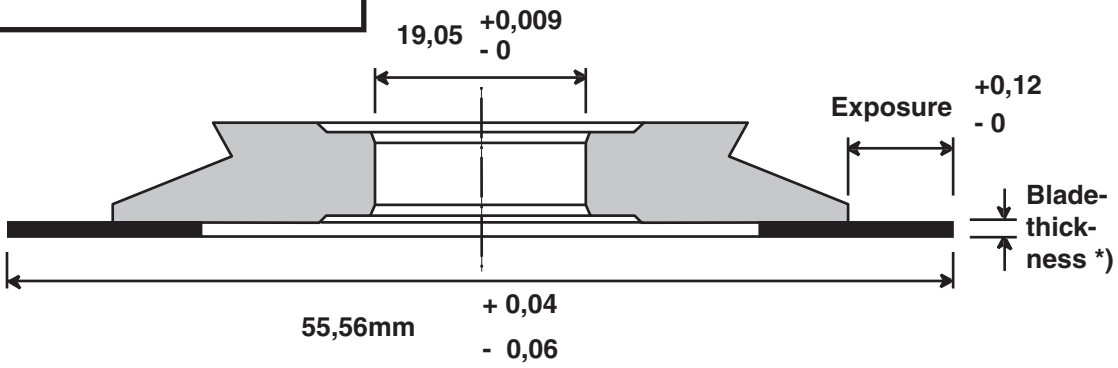


Abb. 2 Layer thickness and tolerances

S: Layer thickness
1: Bond
2: Abrasive grain
3: Abrasive grain cavity

The QUALITY WHEEL



Partnumbering for MITSUBISHI-Wheels:

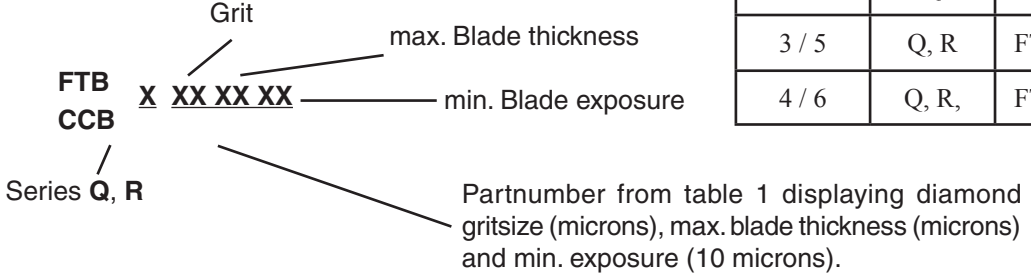
Blade-thickness	Exposure [mm]									
	0,4-0,52	0,5-0,62	0,6-0,72	0,7-0,82	0,8-0,92	0,9-1,02	1,0-1,12	1,1-1,22	1,2-1,32	1,3-1,42
0,015 mm	24 15 40 35 15 40 46 15 40	24 15 50 35 15 50 46 15 50								
0,020 mm	24 20 40 35 20 40 46 20 40	24 20 50 35 20 50 46 20 50	24 20 60 35 20 60 46 20 60							
0,025 mm	24 25 40 35 25 40 46 25 40	24 25 50 35 25 50 46 25 50	24 25 60 35 25 60 46 25 60	24 25 70 35 25 70 46 25 70	46 25 80					
0,030 mm	24 30 40 35 30 40 46 30 40	24 30 50 35 30 50 46 30 50	24 30 60 35 30 60 46 30 60	24 30 70 35 30 70 46 30 70	24 30 80 35 30 80 46 30 80	24 30 90 35 30 90 46 30 90	24 30 100 35 30 100 46 30 100			
0,035 mm	24 35 40 35 35 40 46 35 40	24 35 50 35 35 50 46 35 50	24 35 60 35 35 60 46 35 60	24 35 70 35 35 70 46 35 70	24 35 80 35 35 80 46 35 80	24 35 90 35 35 90 46 35 90	24 35 100 35 35 100 46 35 100	46 35 110		
0,040 mm			24 40 60 35 40 60 46 40 60	24 40 70 35 40 70 46 40 70	24 40 80 35 40 80 46 40 80	24 40 90 35 40 90 46 40 90	24 40 100 35 40 100 46 40 100	24 40 110 35 40 110 46 40 110	46 40 120	
0,045 mm				24 45 70 35 45 70 46 45 70	24 45 80 35 45 80 46 45 80	24 45 90 35 45 90 46 45 90	24 45 90 35 45 90 46 45 90	24 45 100 35 45 100 46 45 100	24 45 120 35 45 120 46 45 120	35 45 130 46 45 130

Tab. 1

***)** Blade thickness tolerance:
Blade ≤ 0,045mm -0/+0,005mm
Blade ≥ 0,050mm -0/+0,01mm

Gritsize mm	Series	Type
1/3	Q	FTB,CCB
2 / 4	Q	FTB,CCB
3 / 5	Q, R	FTB,CCB
4 / 6	Q, R,	FTB,CCB

Part numbers display the following information:



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