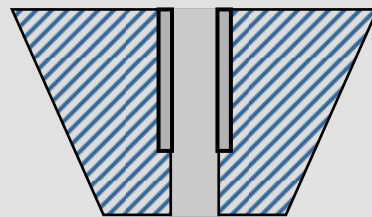
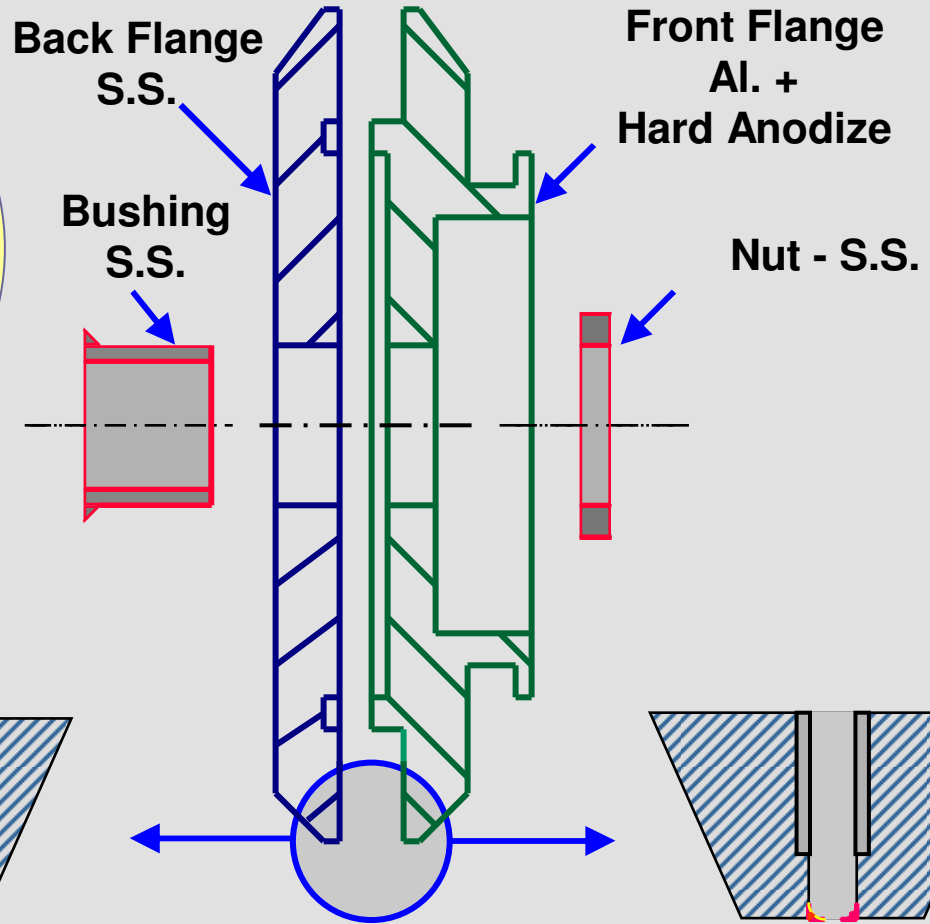
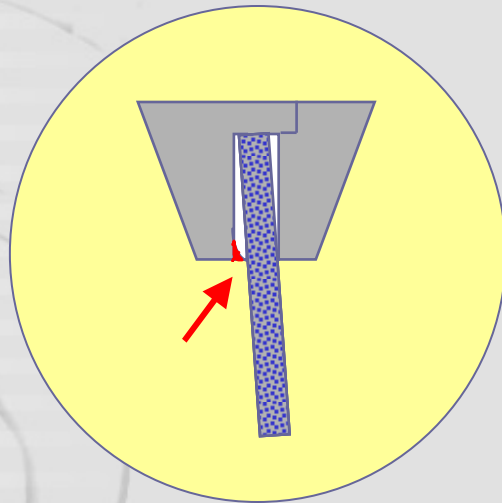
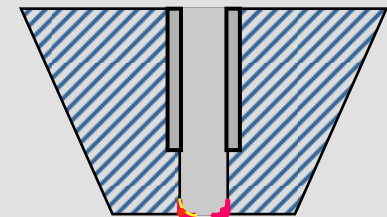


# Flange Design & Maintenance



**Good**



**Damaged**



*Dicing Seminar*

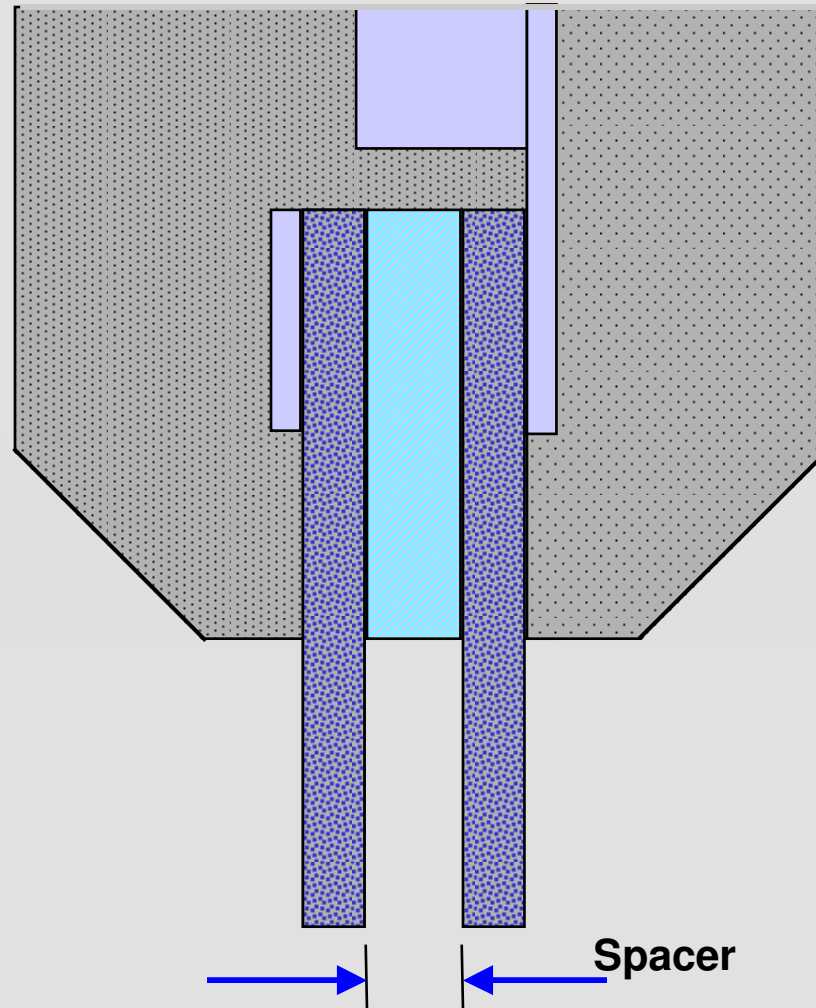
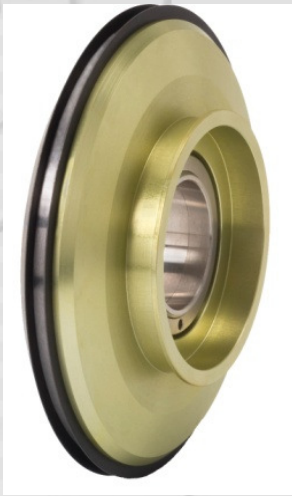
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# Special Applications

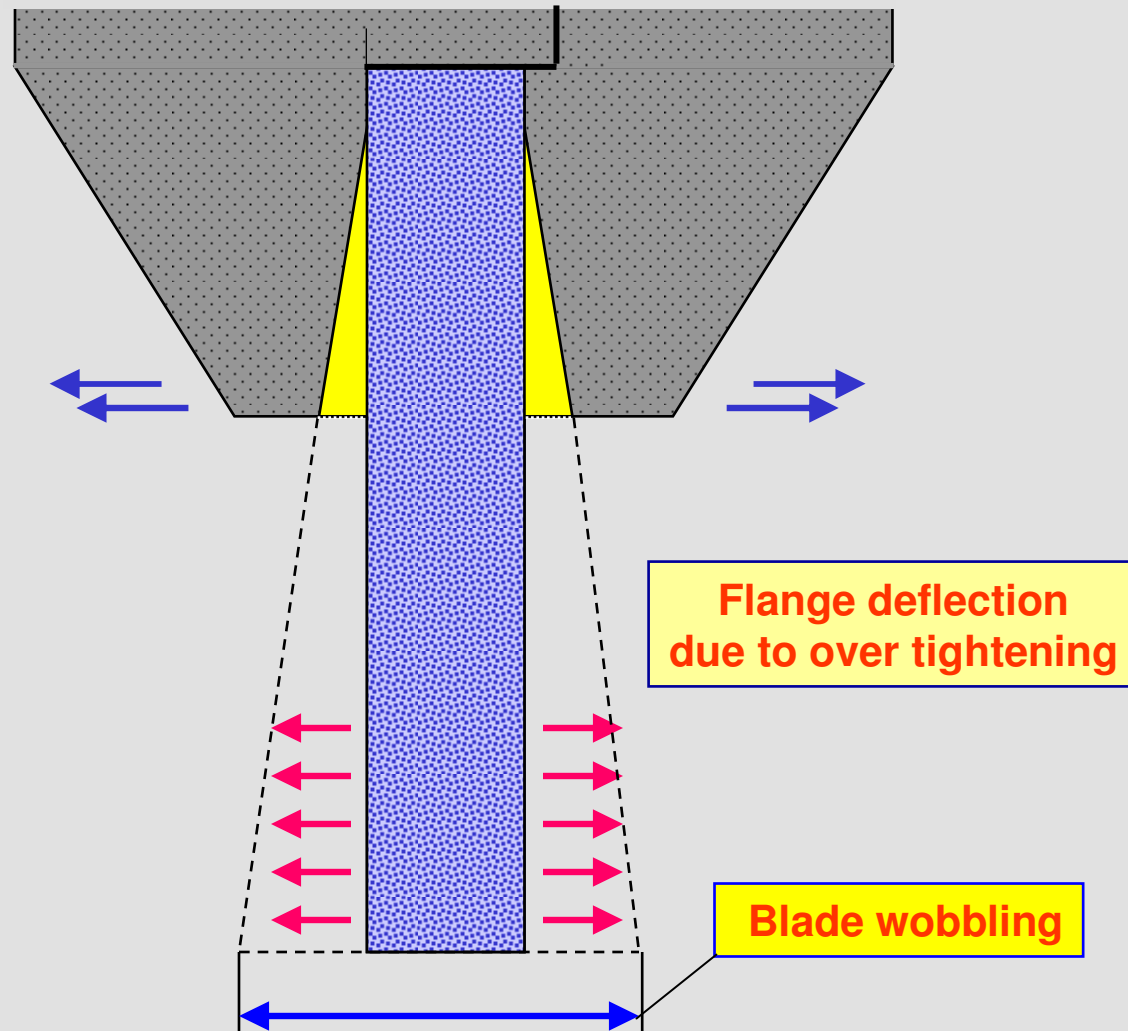


## Blade Gang Assembly's

**Dual blade**



## Blade Wobbling



## Flange & Blade Torquing

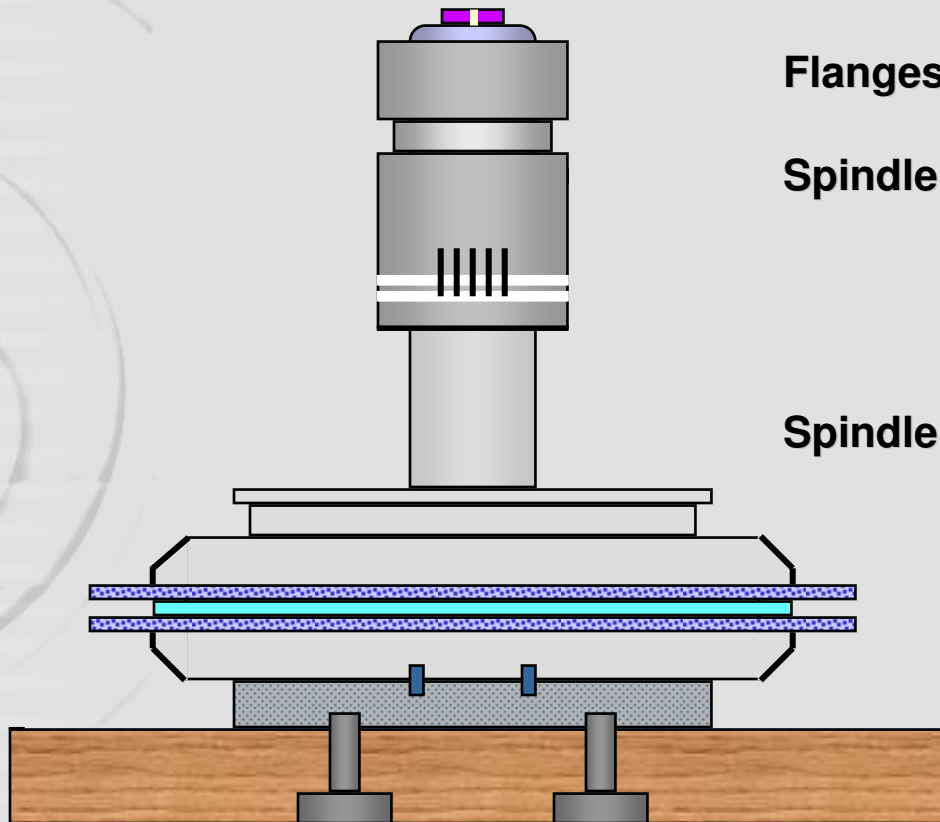
### 4" Saws:

**Flanges:** 31+- 3 Inch● Pound  
(3.5 ± 0.35 N x m)

**Spindle:** 31+- 3 Inch● Pound  
(3.5 ± 0.35 N x m)

### 2" Saws:

**Spindle Nut:** 22+- 2 Inch● Pound  
(2.48 ± 0.248 N x m)





## Torque Meter







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## Torque Meter





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## Torque Meter







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## Torque Meter





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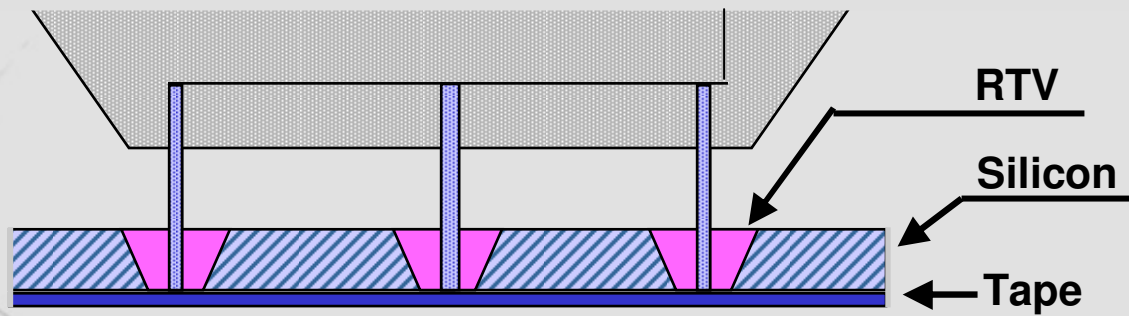
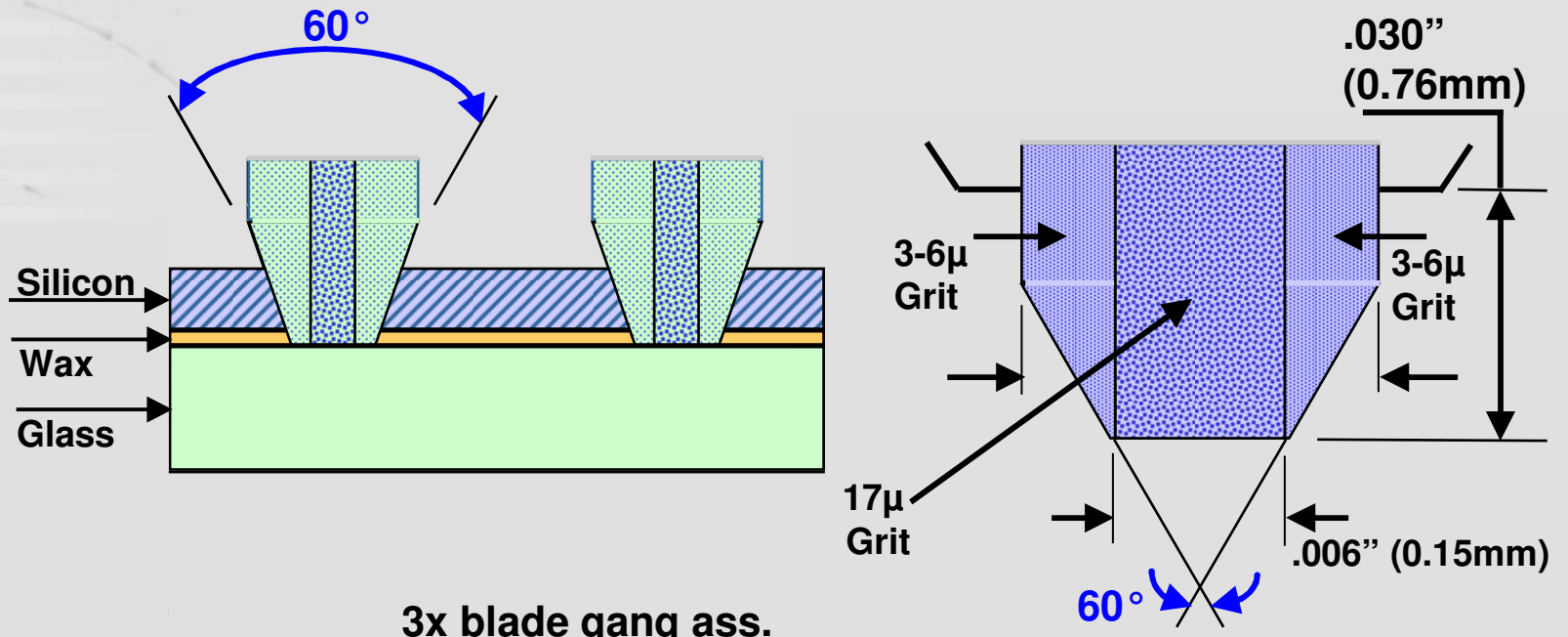
## Torque Meter



## Advantages & disadvantages

Parameters	Single	Multi
<u>Throughput:</u>	Low / Medium	High
<u>Complexity:</u>	Low	High
<u>Cost:</u>	Low	Very high
<u>Break recov.:</u>	Fast	Slow
<u>Flexibility:</u>	High	Low
<u>Setup:</u>	Short	Long
<u>Accuracy -</u> • Index • Cut depth	High High	Lower Poor

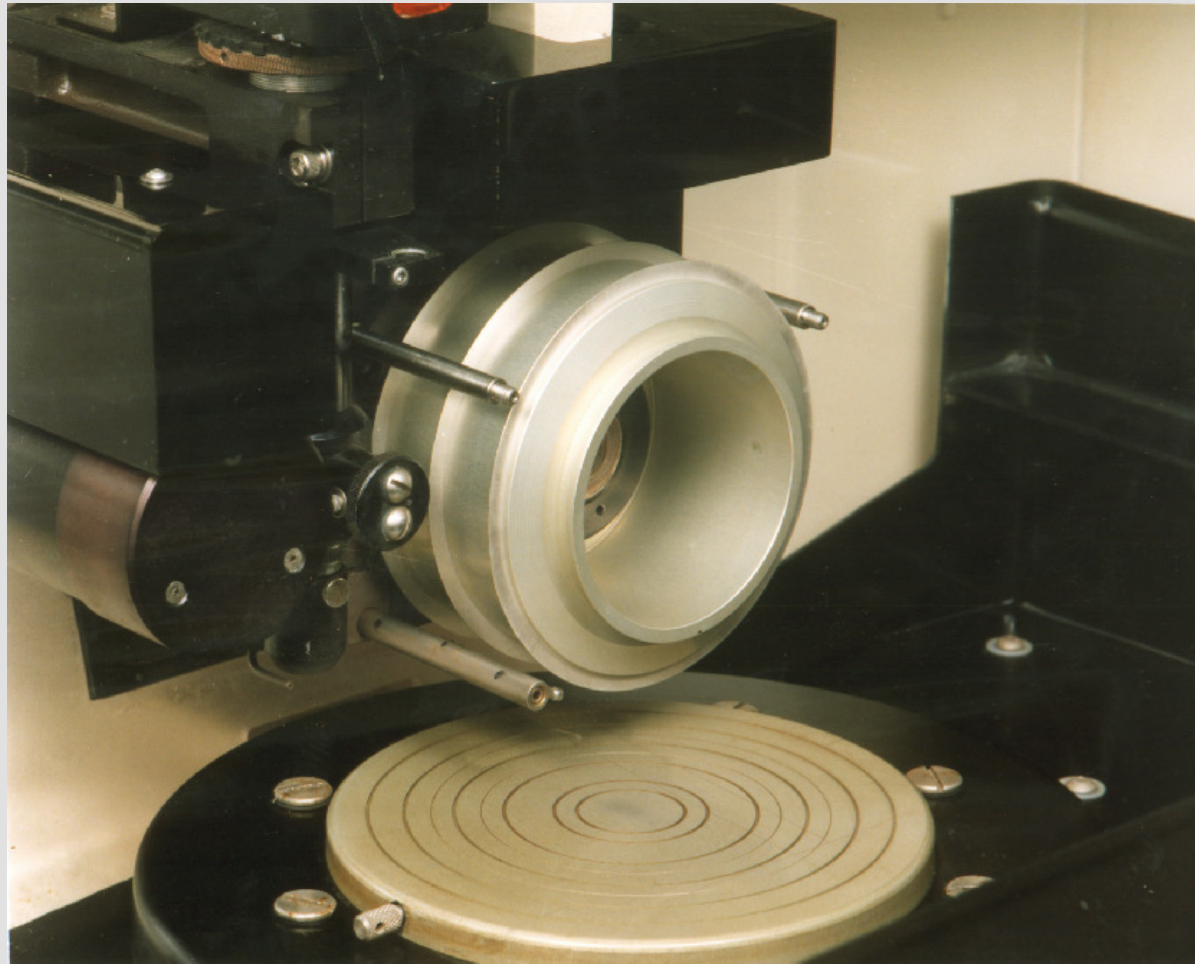
# Special Flange Sets







## Gang Set-Up





## *Special Flange Sets*

### **4" Gang assemblies**





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## *Special Flange Sets*

### **4" Gang assemblies**





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## *Special Applications*

### **Special flange sets**





## *Special Applications*

### **Special flange set - Lapping kit**





## *Special Applications*

### **Special flange set - Lapping kit**





**Special flange set - Lapping kit**





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## 4" Lapping Kit



Lapping Kit, 4" Dia. Stone



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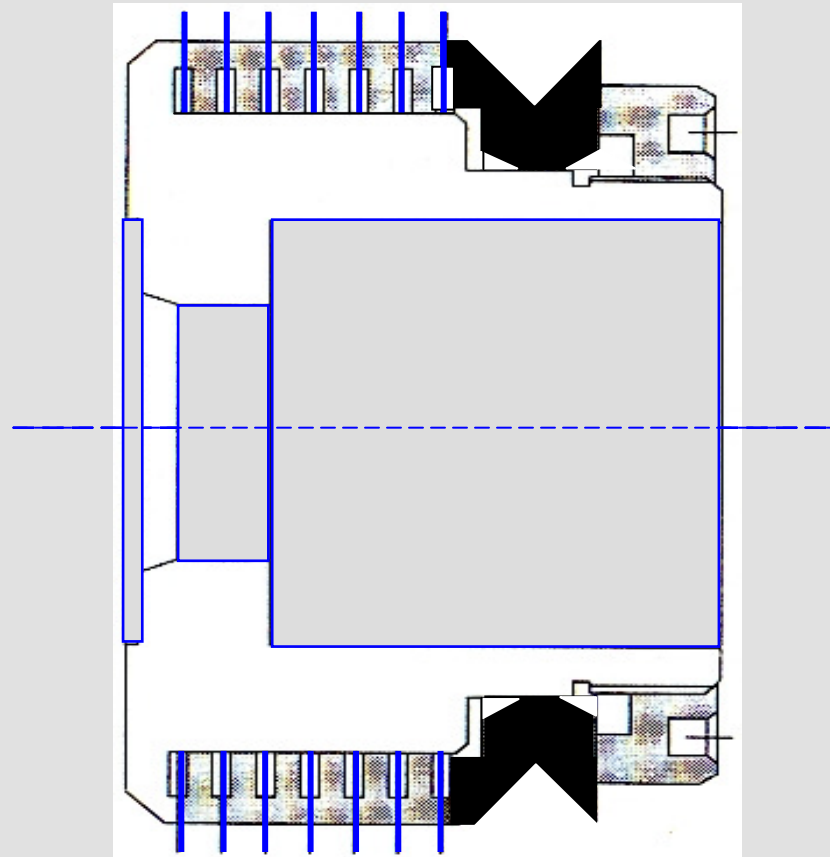
## 4" Lapping Kit





## *Special Applications*

### **Special 2" gang assembly**





## *Special Applications*

### **Special 2" gang assembly**







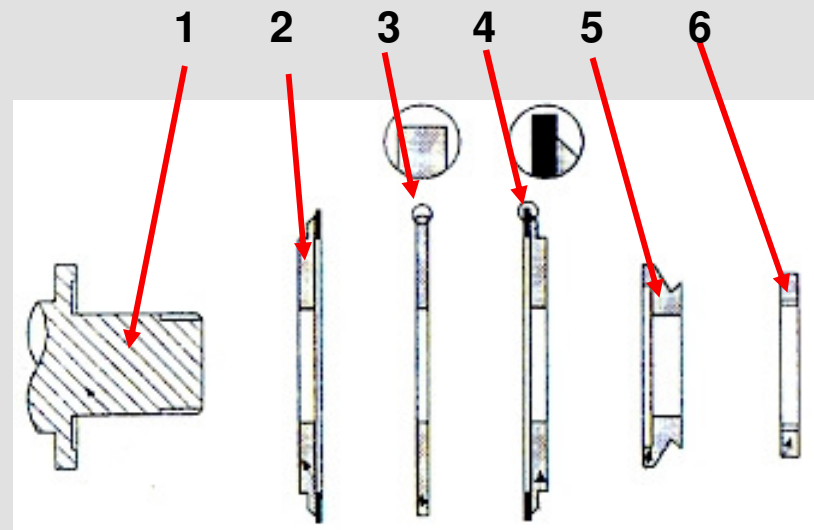
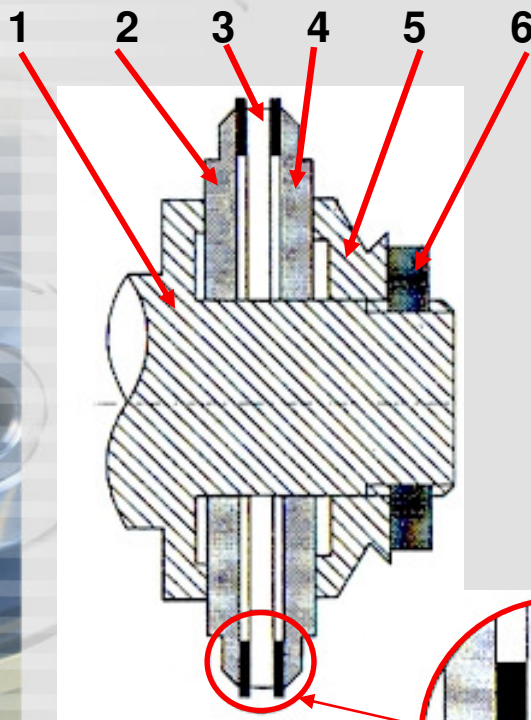
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## *Special Applications*

**Special 2" gang assembly**



## Double hub ass. with spacer



- 1 - Spindle
- 2 - Hub
- 3 - Spacer
- 4 - Hub
- 5 - Spindle spacer
- 6 - Spindle nut



## *Special Applications*

**Special vacuum handling tool**

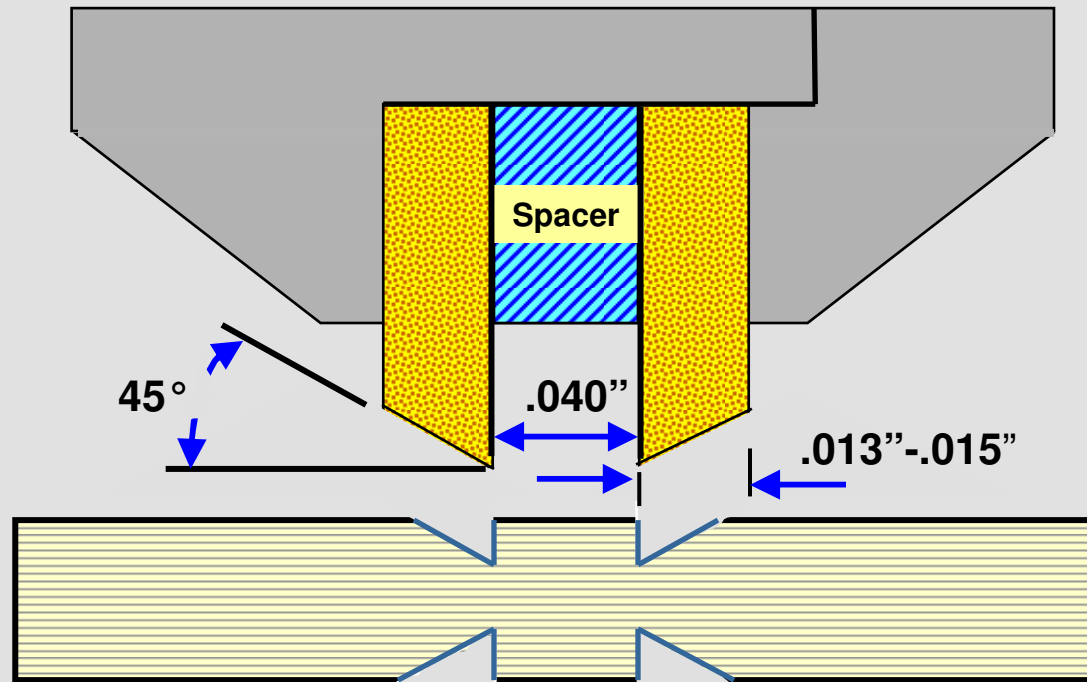




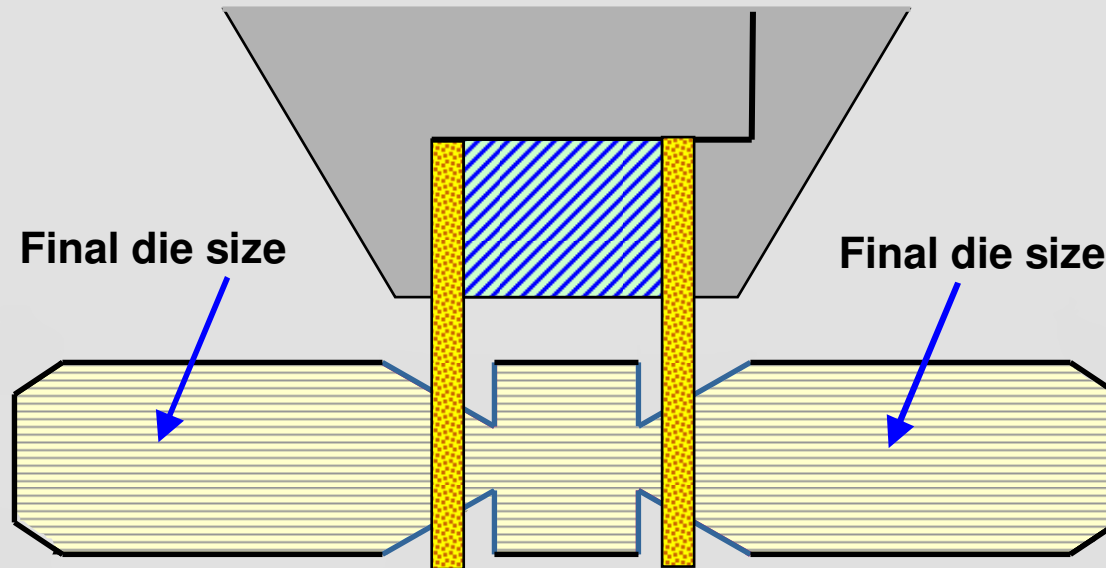
## *Special Applications*

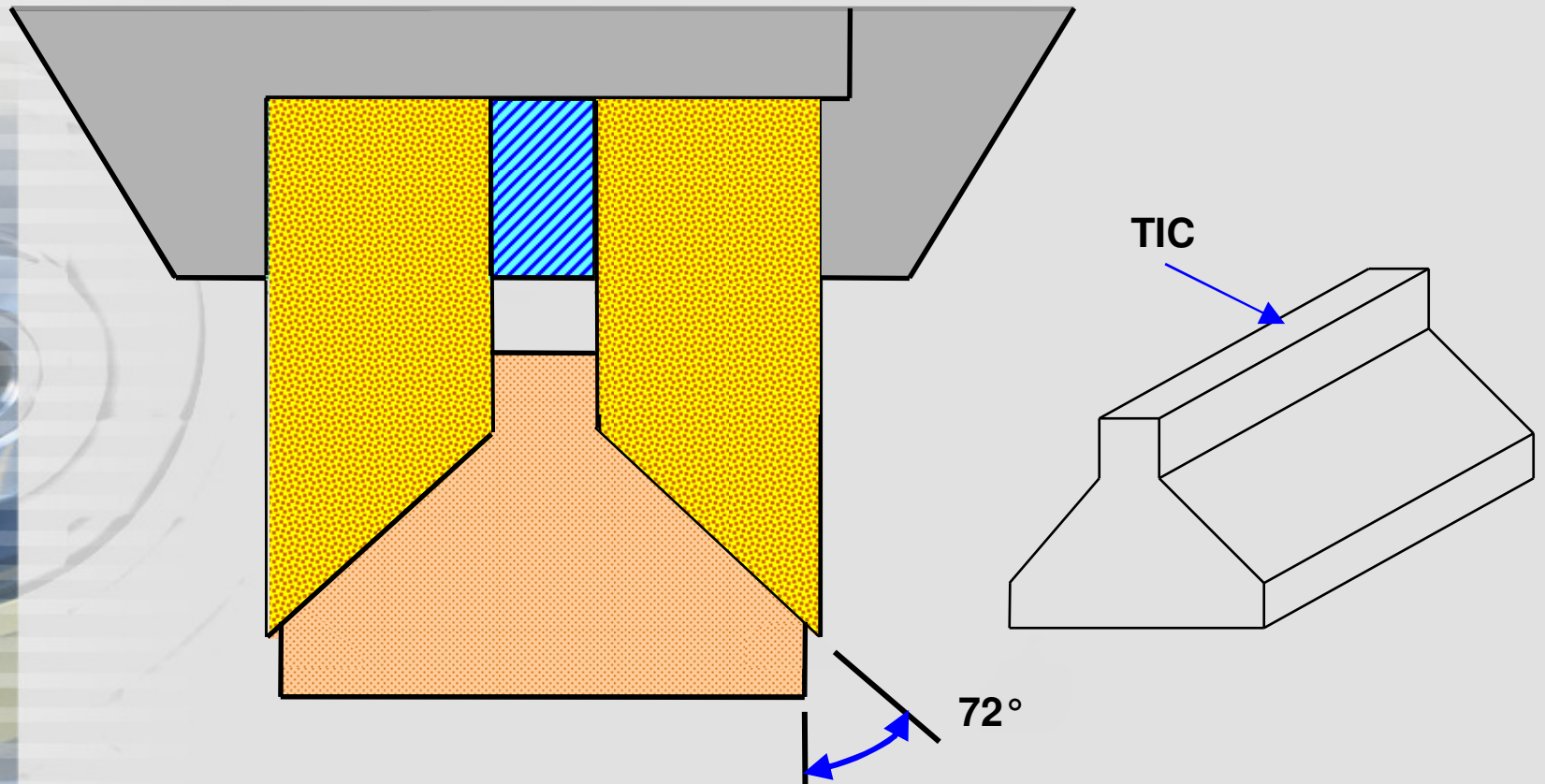
**Special vacuum handling tool**







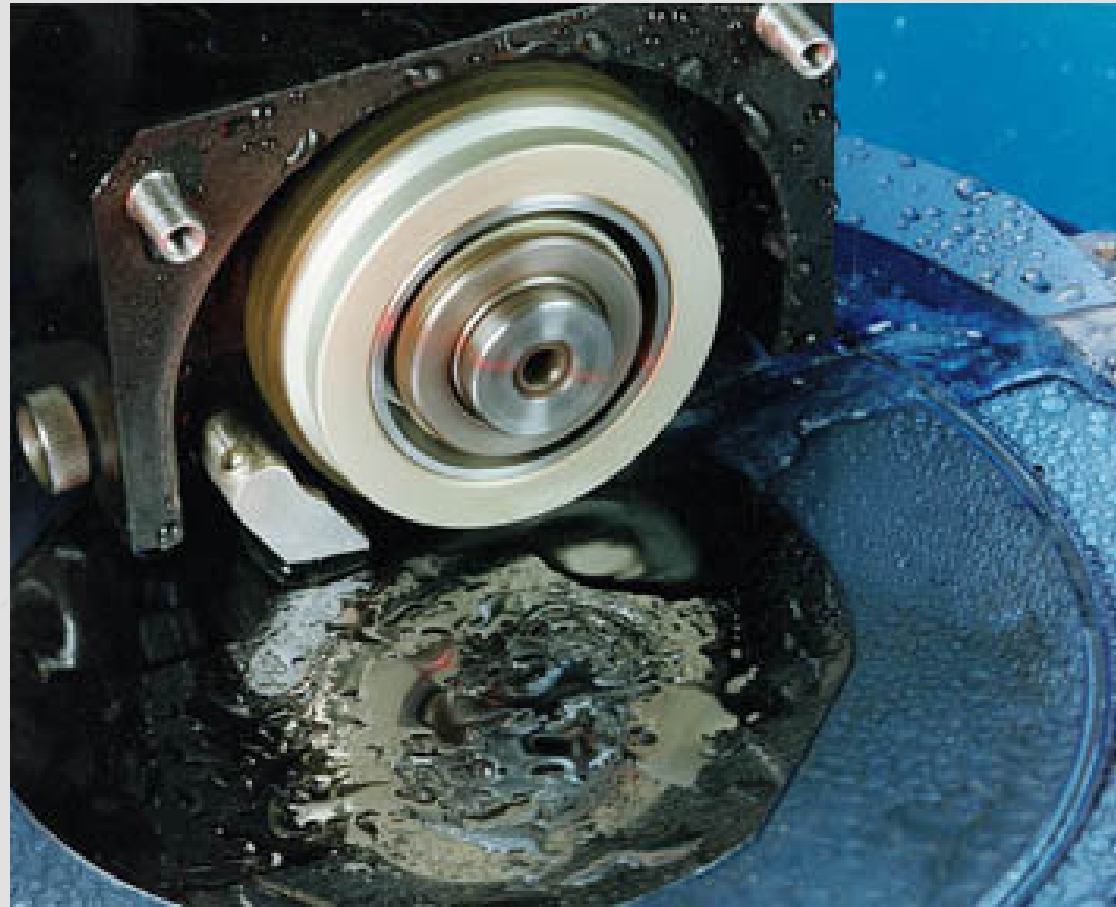






## *Special Applications*

**Special 2" gang assembly**





## *Special Applications*

**Special handling tools**





## *Special Applications*

### **Special vacuum handling tools**

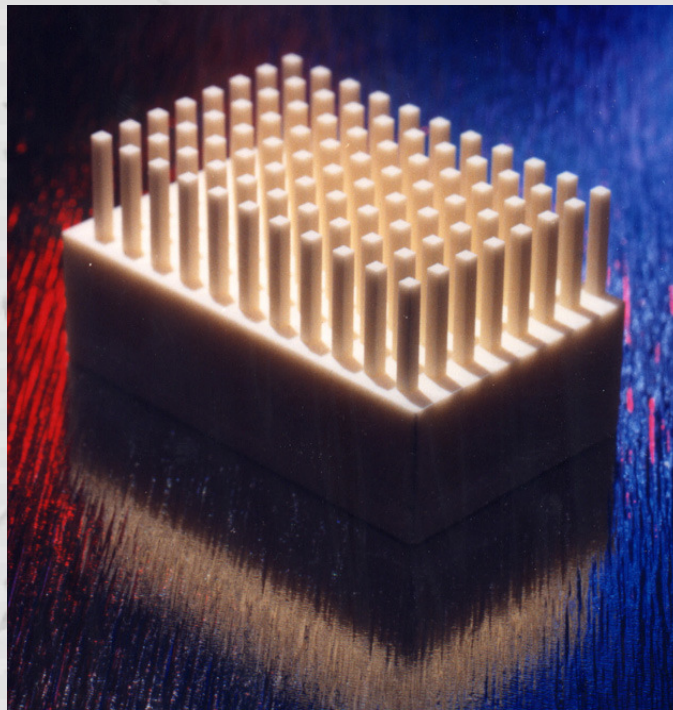




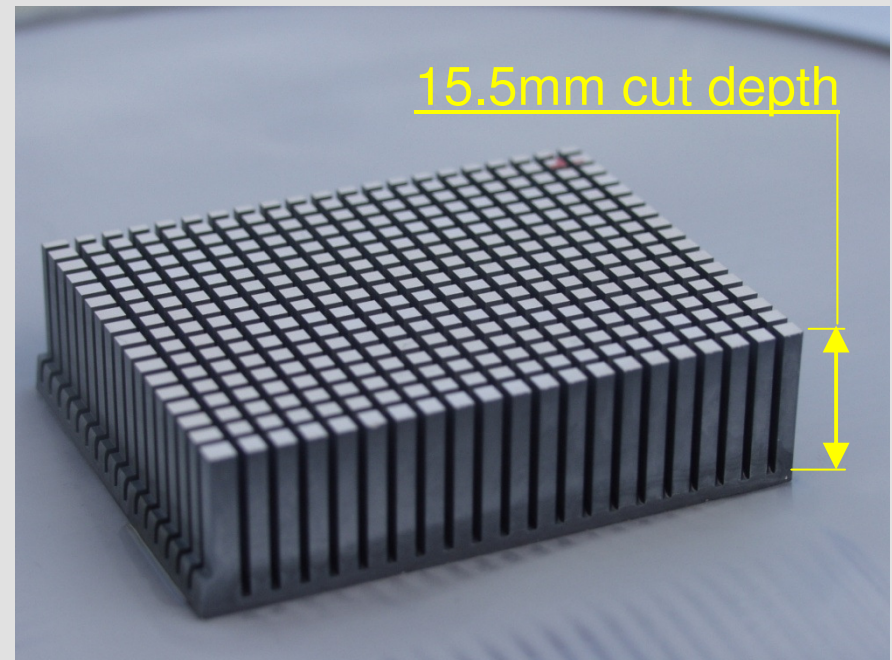


## *Special Applications*

Ceramic



PZT





## *Special Applications*

### **Serrated Thick Metal Sintered Blade**





*Optimizing the Cutting Process*

# Optimizing the Dicing Process

### Blade:

- **Blade matrix:**
  - Binder
  - Diamond grit
  - Diamond type
  - Diamond %
- **Blade diameter**
- **Edge geometry**
- **Blade thickness**
- **Blade exposure**

### General

The Following blade and process parameters should be optimized by the customer in a production mode

### Saw:

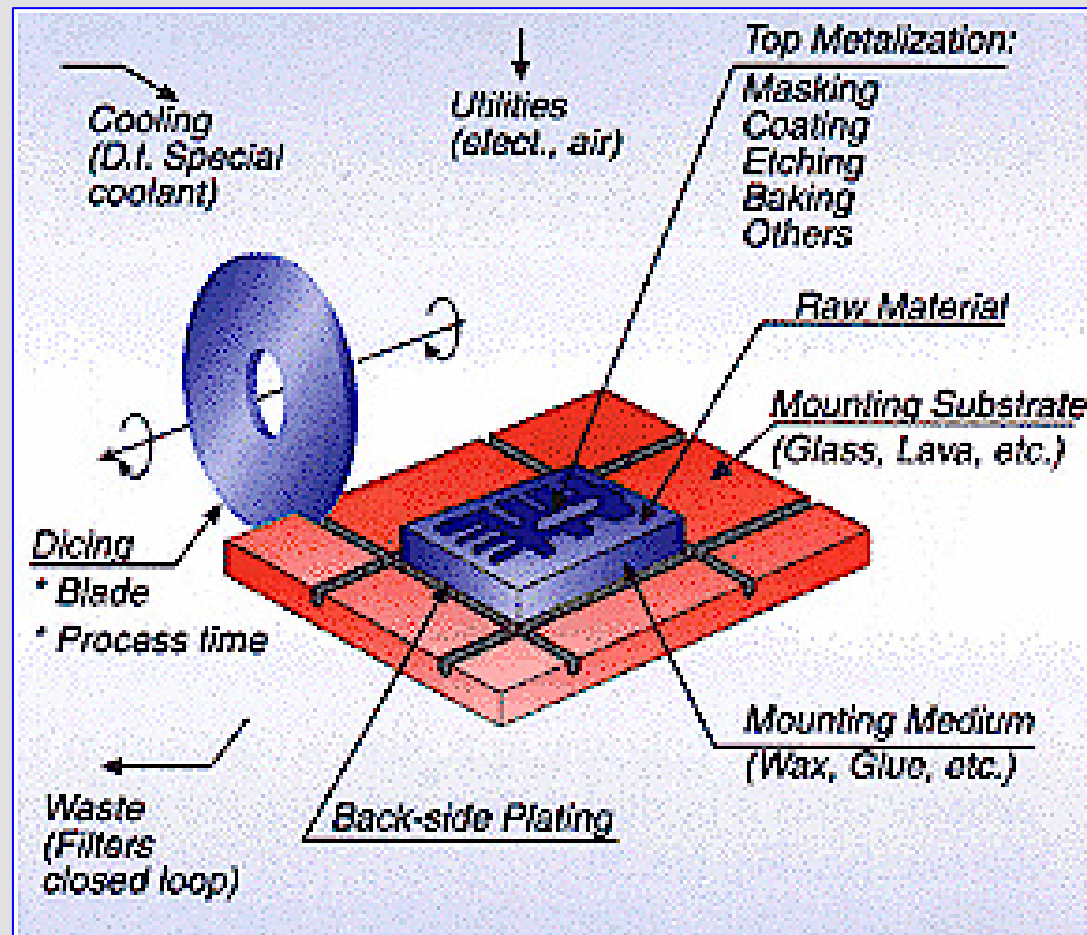
- **Saw type: (2", 4")**
- **Spindle power**
- **Saw travel**
- **Vision**
- **Cutting Parameters:**
  - Spindle speed
  - Feed rate
- **Coolant**

### Mounting:

- **Clamping method:**
  - Vacuum
  - Magnetic
  - Mechanical
- **Medium:**
  - Tape (Type, Thick. Adhesion)
  - Wax
  - Glue
- **Substrate media:**
  - Lava
  - Glass, Others.

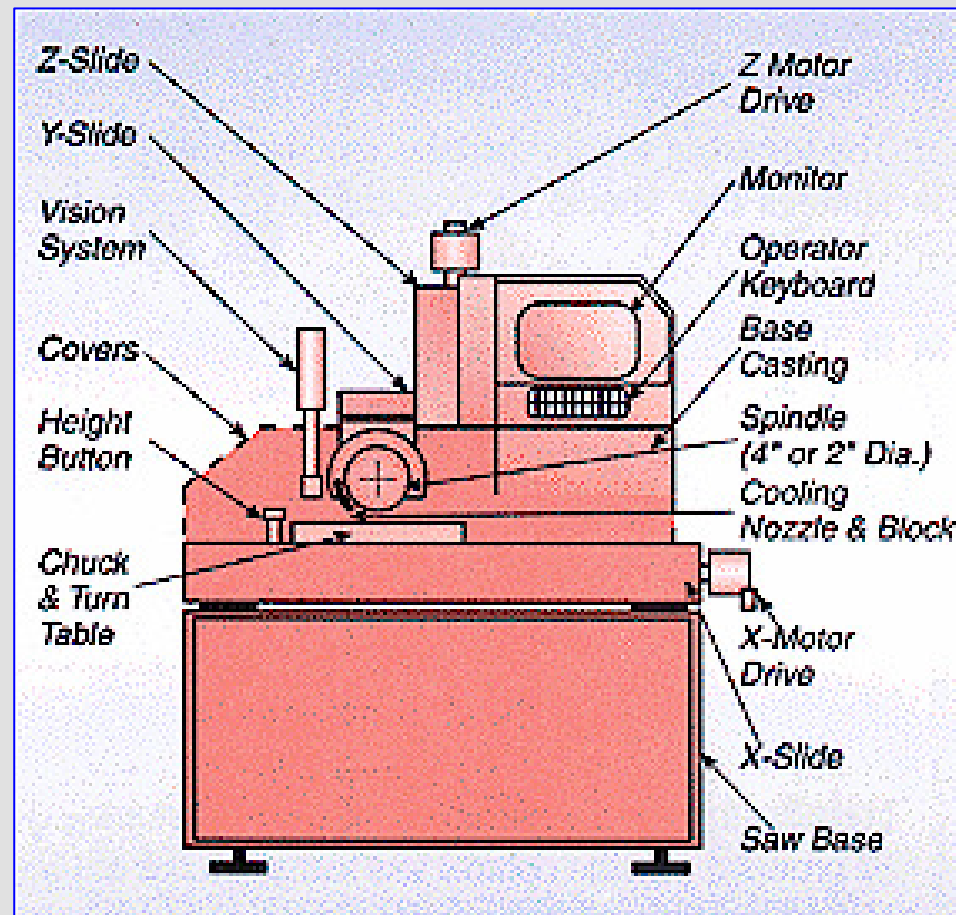


## Die manufacturing cost

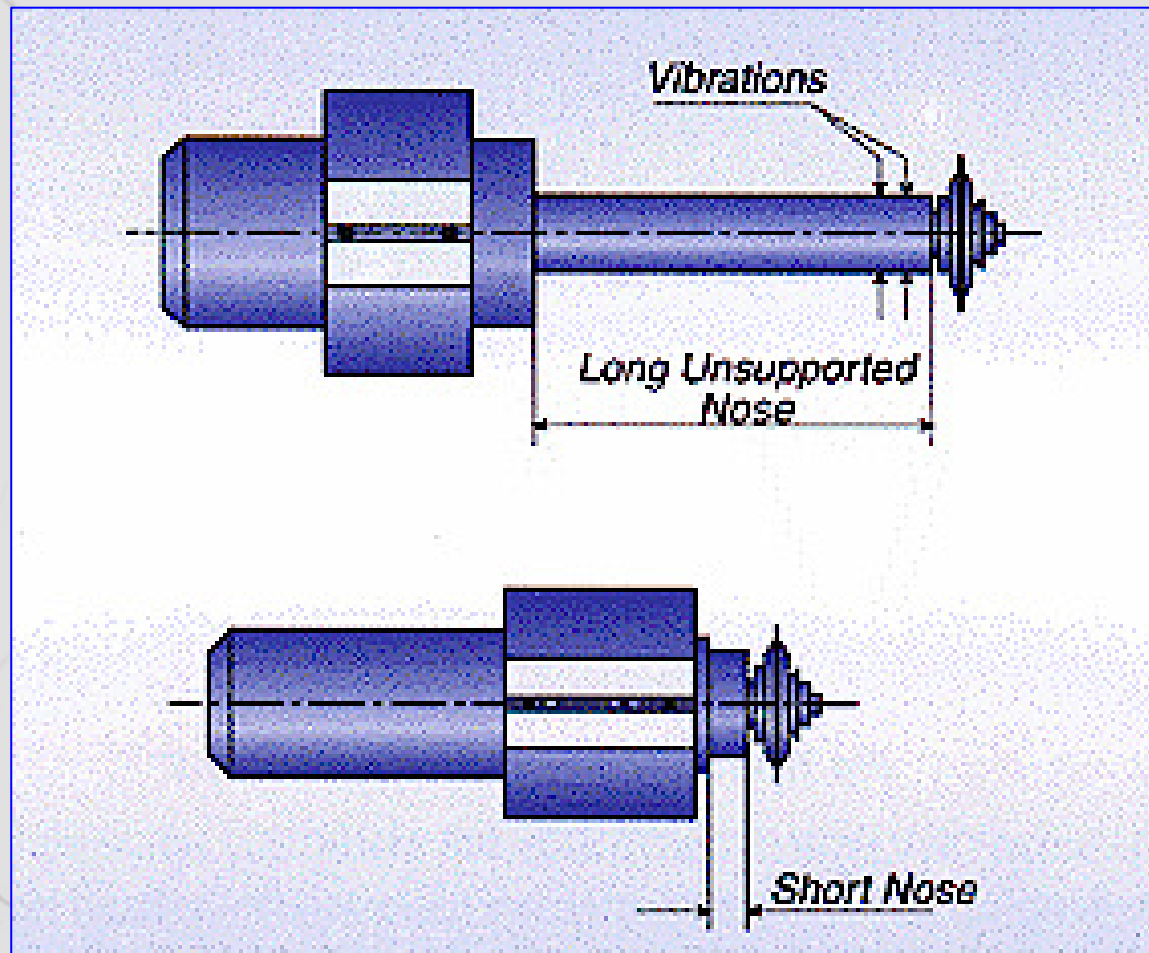




## Main dicing saw features

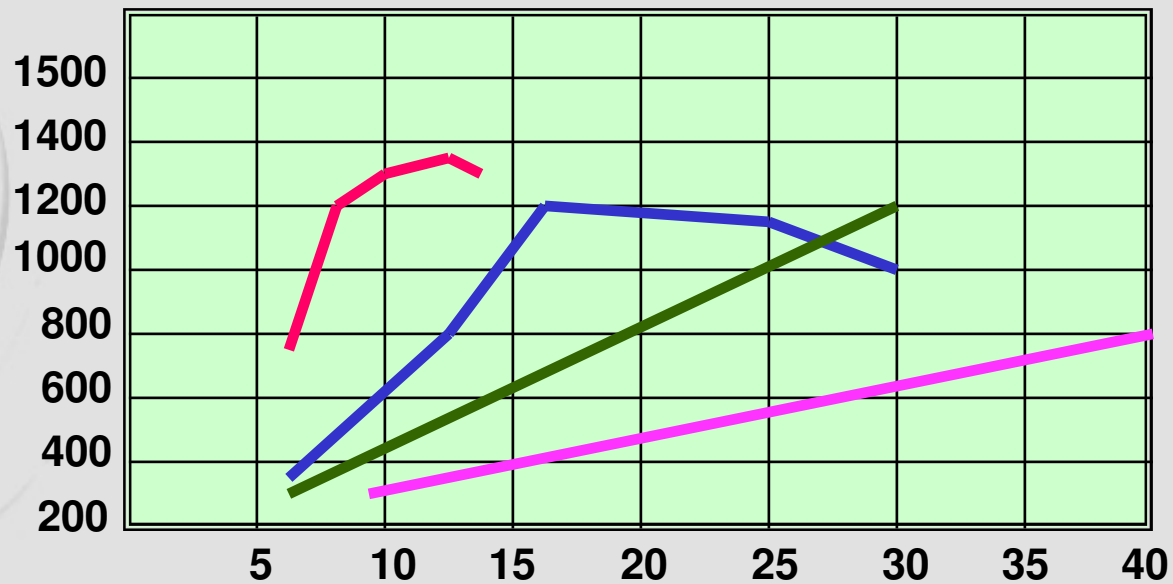


## Spindle geometry & mounting



**Spindle performance specifications**

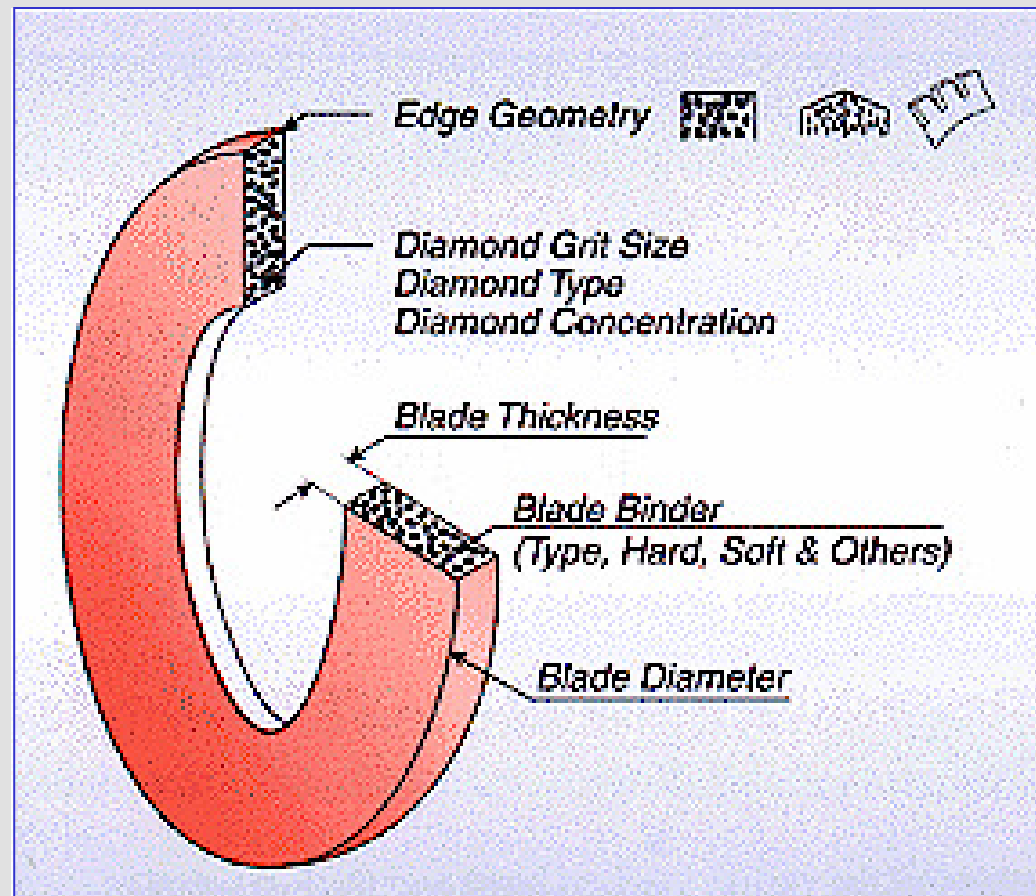
Output power (Watt)



Krpm

## Optimizing the Dicing Process

### Blade parameters to be optimized





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## *Checklist of point regarding Kerf Quality and Blade Life*

**(First list of what to do)**

- **Machine alignment in spec (Shlezinger)**
- **Cooling alignment**
- **Adequate cooling pressure**
- **Proper flange exposure**
- **Flange in good condition**
- **Flange set running in proper RPM and free of vibrations**
- **Blade well dressed in flange**
- **Proper blade matrix, diamond grit size, diamond % and proper blade thickness**
- **Proper feed rate**
- **Proper mounting, if dicing on tape - dice min. .001" into the tape**



## *Checklist of point regarding Kerf Quality and Blade Life*

- **Machine alignment in spec (Shlezinger)**
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## *Application Lab*





## *Application Lab*





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# Dicing blades & process QC



*On line production Q.C., final Q.C. &  
R&D analysis instrumentations*

## **QC = The Eyes of our Customers**

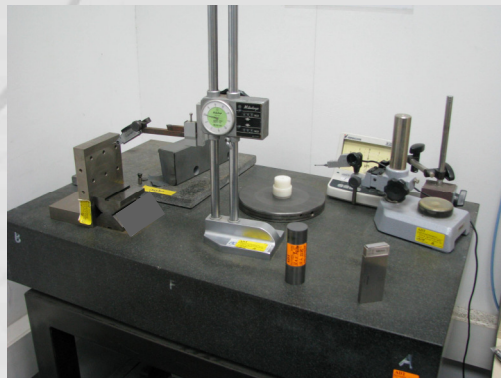
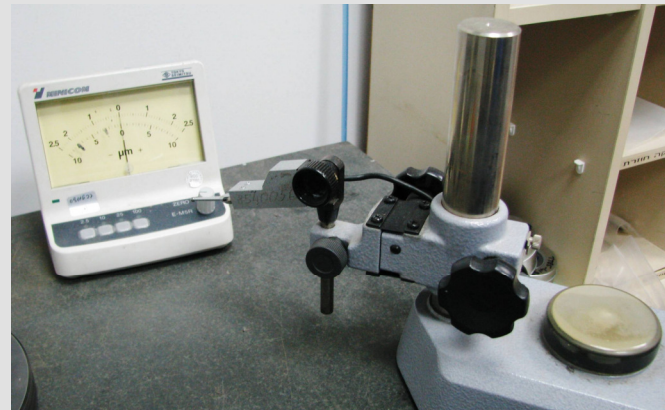
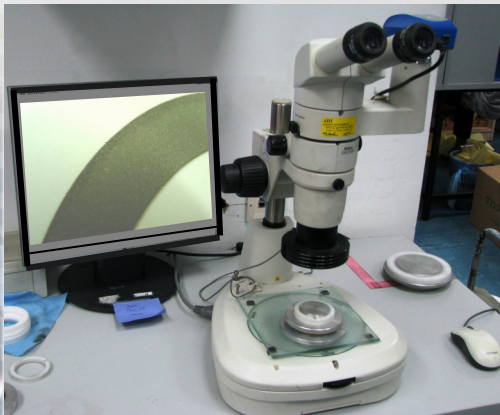
- **ADT production operators are Q.C. oriented**
- **Top of the line Q.C. tools & instruments.**
- All Q.C. instrument & tools are periodically calibrated per ISO 9001 standards
- **In House state of the art specialty designated & designed instrument**





*On line production Q.C., final Q.C. & R&D analysis instrumentations*

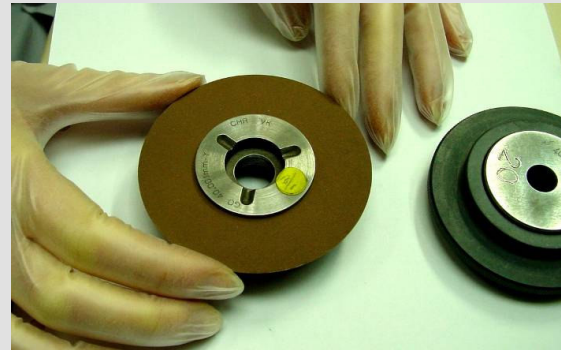
**Top of the line QC tools, jigs & instruments**



**Geometry QC:**



Computer controlled Thickness measurement



I.D. Go / No Go hardened gages



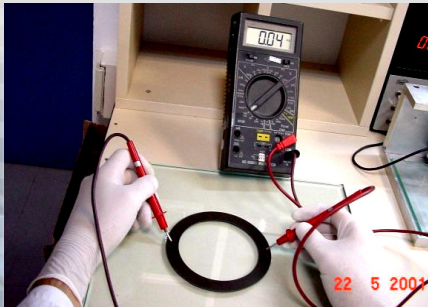
Flatness inspection



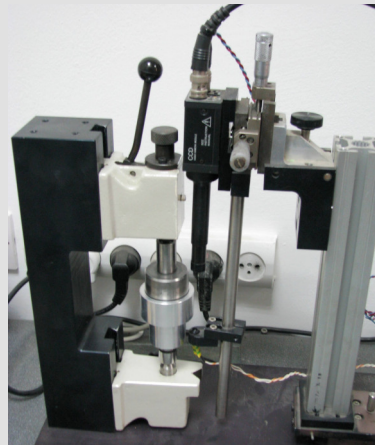
Edge profile video system



**Process control:**



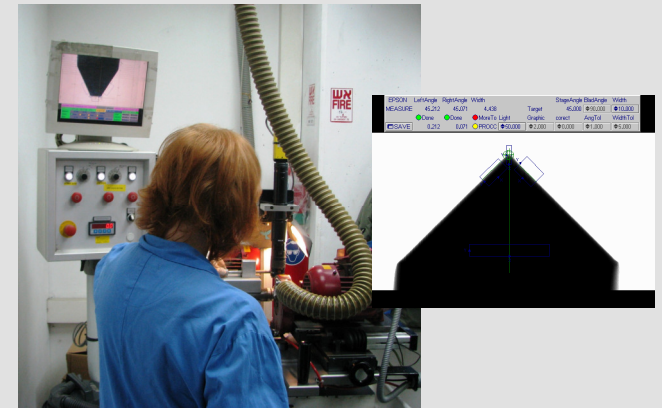
Conductivity testing



Specialty in-house designed measurement Instruments



Analytical material balancing



On line profile inspection



Chemical analytical control



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*On line production Q.C., final Q.C. & R&D analysis instrumentations*

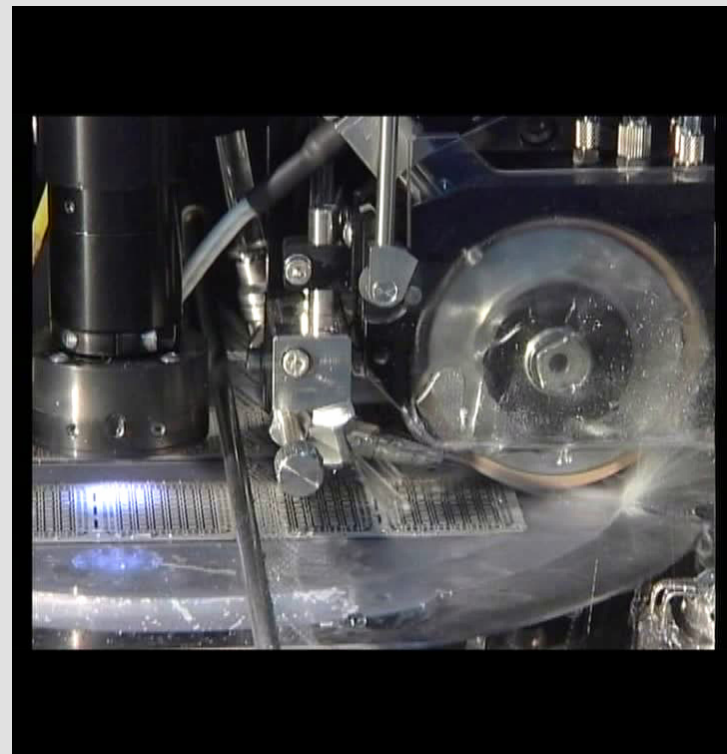
**Functional quality & blade life testing:**



ADT Dicing systems



XY Measuring Microscope



QFN – In house inspection

**R&D in house testing**



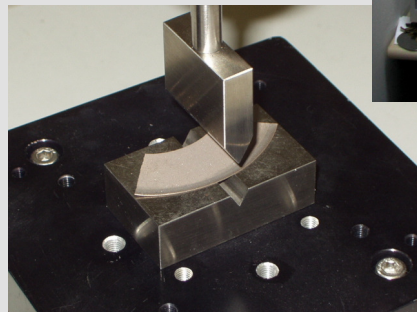
SEM inspection



Mechanical properties inspection



Internal quality analysis on  
XY Measuring Microscope







*Dicing Seminar*

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# Dicing Troubleshooting

