



Science.  
Applied to Life.™

3M Precision Grinding & Finishing

**3M™ Dark Drills**

**Smart program  
for drilling glass**

# Drilling bore holes. Our smart program for the glass industry.

## 3M™ Dark Drills, DD161 und DD158: A new rust free core

With their new core material, the Dark Drills deliver best performances and prevent from usual corrosion effect.



### Benefits

This new generation of drilling tools ...

- is available for NC and manual machines
- brings extended lifetime and high holes quality
- offers rust free core
- allows fast drilling speed, reducing drilling operation cycle time

### Available standards and advised working parameters

#### Available specifications:

- DD161: hard bond for high feed rate, high lifetime
- DD158: soft bond for high cutting ability and improved holes quality

#### Available diameters (D):

- D 3 mm to D 100 mm, decimal diameters available upon request

#### Standard lengths (L):

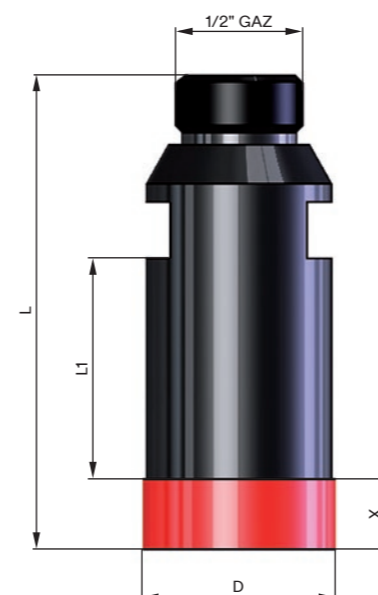
- L75: for Benteler, Schraml, Busetti, Knopp ...
- L95: for Forvet, Bottero ...

#### Standard height of diamond (X):

- X: 5 mm for diameter D 4 mm and below
- X: 10 mm for diameter D 5 mm and above

#### Standard fitting:

- R1/2" GAZ



### Standard working length (L1)

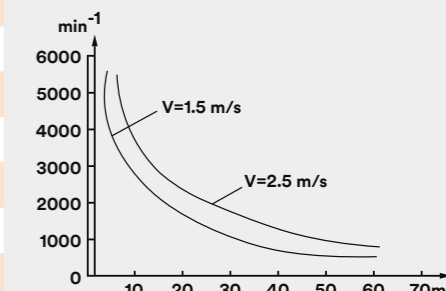
External diameter	Total length L75m	Total length L95m
D 3 mm to D 8 mm	L1 = 15 mm	L1 = 35 mm
D 9 mm to D 100 mm	L1 = 30 mm	L1 = 50 mm

### Advised working parameters

#### Peripheral speed:

Optimum peripheral speed is between 1.5 and 2.5 m/s

D in mm	Speed RPM
3–5	9000
6–10	4500
11–20	2500
21–25	2000
26–35	1250
36–50	1000
51–100	600
101–150	300



#### Feed rate:

Drills performances depend on feed rate. The optimum feed rate is between 30–60 mm/min or 0.5–1.0 mm/s. With a low feed rate, diamond dulls and the layer loses cutting ability. With a higher feed rate, diamonds are exposed out of the bond.

At optimum speed, the specific pressure is reached and allows self-dressing effect which helps to minimize the tools wear.

#### Water pressure

D (mm)	Pressure (bar)
2 – 5	5 – 3
6 – 10	3 – 2
11 – 20	2 – 1
21 – 40	1 – 0.5
41 – 120	0.5 – 0.2



# Our drilling solutions for the glass industry.



## 3M™ Dark Drills Straight drills, our smart program

- Available for automated NC process and manual machines
- Extended lifetime and stable performances
- Rust free core



## 3M™ Spider Reamers TR 120 D When countersinking glass is not an issue anymore

- Your only solution for wide and/or deep chamfers
- Extremely high quality
- Patented – unique 3M technology



## Combis Drilling and chamfering glass

- Extended lifetime and constant performances
- The best in class quality for chamfered holes



**3M Abrasives  
Wendt GmbH**  
Fritz-Wendt-Str. 1  
40670 Meerbusch  
Tel.: +49 2159 671-0  
Fax: +49 2159 80-624  
[www.3m.com/precisiongrinding](http://www.3m.com/precisiongrinding)

**3M Abrasive Systems Division  
Wendt Boart Sprl**  
Rue du Bosquet 8/A  
1400 Nivelles / Belgium  
Tel. +32 67 287500  
Fax. +32 67 287592  
[www.3m.com/precisiongrinding](http://www.3m.com/precisiongrinding)