

**botek**<sup>®</sup>

DEEP HOLE DRILLING SYSTEMS  
SOLID CARBIDE TOOLS

# Innovation

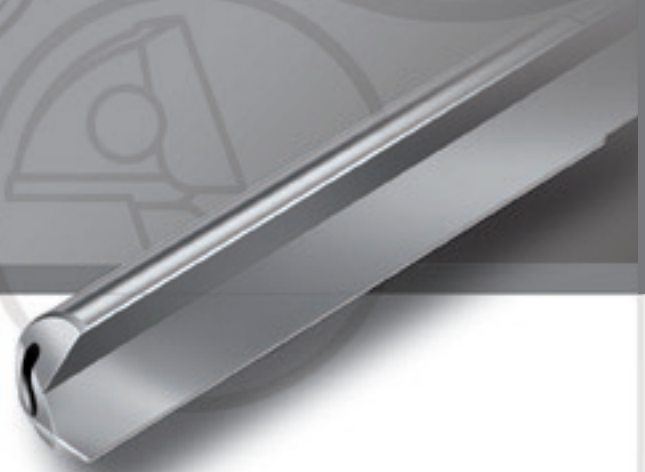
# botek Type 113-HP

High performance tool design type 113-HP newly developed  
**ALTERNATIVE SOLUTION** to carbide twist drills

**Advantages:**

- maximum cutting performance
- Up to 800 % higher feed rates
- Very efficient for drilling long chipping steels
- Fast and cost effective regrinding

**Suitable for drilling with cutting oil, MQL and high quality emulsion.**



**Solid carbide gundrill type 113-HP**  
**Diameter range: 0.7 – 12.0 mm**

**Patent pending**

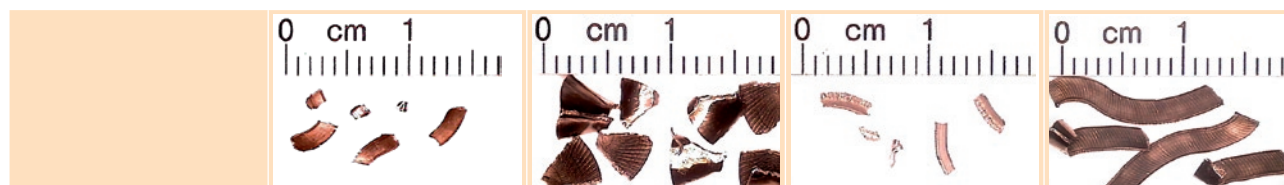


# New Dimensions of deep hole drilling

## Drilling Examples



|                           |                                     |                                    |                                     |                                    |
|---------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| Material                  | AISi7Mg0,3 T73                      | 42CrMo4                            | 38MnSV4                             | 50CrMo4                            |
| Diameter x drilling depth | 7.0 x 210 mm                        | 5.0 x 100 mm                       | 5.0 x 100 mm                        | 3.0 x 95 mm                        |
| Coolant/pressure          | Emulsion/70 bar                     | MQL                                | Deep hole oil/110 bar               | Deep hole oil/140 bar              |
| Cutting speed             | 150 m/min                           | 70 m/min                           | 70 m/min                            | 80 m/min                           |
| Feed f<br>Vf              | f = 0.25 mm/rev<br>Vf = 1700 mm/min | f = 0.18 mm/rev<br>Vf = 800 mm/min | f = 0.22 mm/rev<br>Vf = 1000 mm/min | f = 0.11 mm/rev<br>Vf = 950 mm/min |



|                           |                                     |                                    |                                     |                                    |
|---------------------------|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| Material                  | X46Cr13                             | Forged +<br>tempered steel         | Aluminium<br>wrought alloy          | Forged +<br>tempered steel         |
| Diameter x drilling depth | 5.0 x 120 mm                        | 9.0 x 300 mm                       | 2.5 x 60 mm                         | 6.0 x 350 mm                       |
| Coolant                   | Oil                                 | Oil                                | Oil                                 | Oil                                |
| Cutting speed             | 90 m/min                            | 70 m/min                           | 110 m/min                           | 70 m/min                           |
| Feed f<br>Vf              | f = 0.115 mm/rev<br>Vf = 660 mm/min | f = 0.16 mm/rev<br>Vf = 400 mm/min | f = 0.36 mm/rev<br>Vf = 5000 mm/min | f = 0.11 mm/rev<br>Vf = 400 mm/min |

## Comparison between carbide twist drill type 158 and solid carbide drill type 113-HP

Work piece: crank shaft, forged steel  
 Diameter: 5.0 mm  
 Drilling depth: 90 mm  
 MQL: 8 bar  
 Vc: 76 m/min. (4800 rev/min)  
 Vf: 800 mm/min (0.17 mm/rev)

| Result                       | Type 158 | Type 113-HP |
|------------------------------|----------|-------------|
| Hole tolerance               | IT9/IT10 | IT8         |
| Surface finish Ra            | 1.5-3.0  | 0.8         |
| Centerline deviation (drift) | > 0.15   | < 0.1       |

### Service:

- **Regrinding and coating**  
botek offers prompt and cost effective in house regrinding/ coating service.
- **Process auditing**
- **Customer testing and process development in our research and development department.**

If you have any questions, please do not hesitate to contact us.

# botek®

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botek  
Präzisionsbohrtechnik GmbH

Längenfeldstraße 4  
D-72585 Riederich

P +49-(0)-7123-3808-0  
F +49-(0)-7123-3808-138

E-Mail [Info@botek.de](mailto:Info@botek.de)  
[www.botek.de](http://www.botek.de)