

# GUHRING

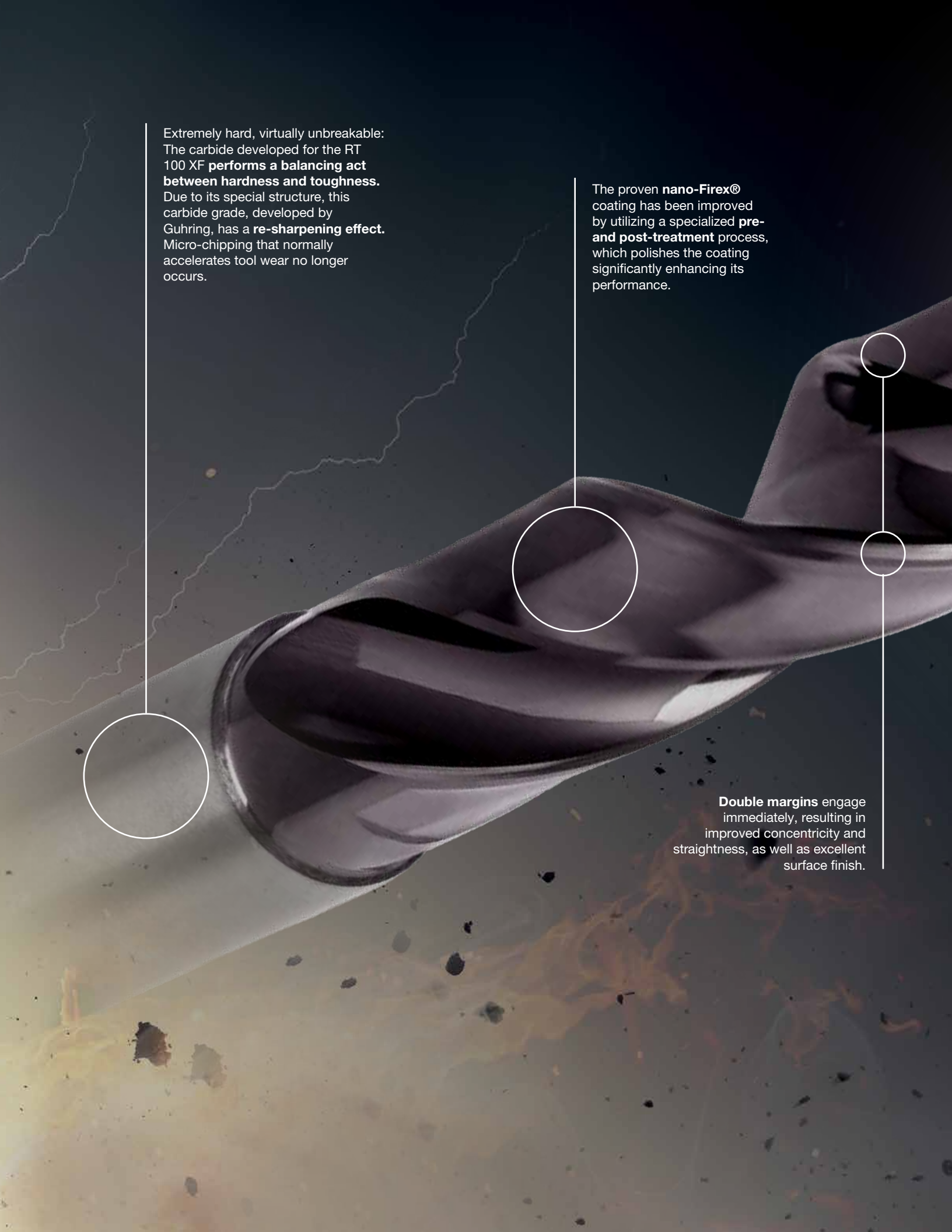
NOW INCLUDES

## 12xD



# RT 100 XF

EXTREMELY POWERFUL



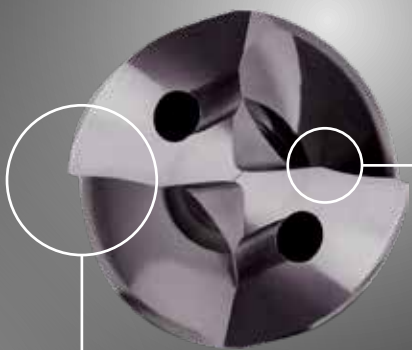
Extremely hard, virtually unbreakable:  
The carbide developed for the RT  
100 XF **performs a balancing act  
between hardness and toughness.**  
Due to its special structure, this  
carbide grade, developed by  
Guhring, has a **re-sharpening effect.**  
Micro-chipping that normally  
accelerates tool wear no longer  
occurs.

The proven **nano-Firex®**  
coating has been improved  
by utilizing a specialized **pre-  
and post-treatment** process,  
which polishes the coating  
significantly enhancing its  
performance.

**Double margins** engage  
immediately, resulting in  
improved concentricity and  
straightness, as well as excellent  
surface finish.



**Polished flutes** improve chip evacuation, significantly reducing machining temperature, which prevents work hardening and protects the cutting edges.



**The corner protection**, achieved with a negative chamfer along the side of the cutting edge, creates an extremely tough and durable cutting edge for exceptional performance.

The **micro-geometry honing process** ensures a uniform hone resulting in a stable and efficient cutting edge. Our manufacturing expertise allows us to consistently produce this specialized cutting edge to the nearest micron, and the precision-ground quality of the original cutting edge can be restored through our reconditioning department.

- Optimized operating parameters deliver **exceptional feed rates** and **metal removal rates**
- Internally developed exclusive finishing processes **maximize performance**
- **Reduced cycle times** for difficult-to-machine materials and special applications in high production

# RT 100 XF

**EXTREMELY POWERFUL**



# *EXTREMELY* **POWERFUL**

- ▶ **POWERFUL** MACHINING
- ▶ **EXCEPTIONAL** METAL REMOVAL RATE

120 years of manufacturing expertise, innovation and synergy: These are the pillars of our success that have allowed Guhring, originally a pioneer of drilling solutions, to develop into an industry-leading full-service provider. This was made possible through our internal R&D department tasked with the development of innovative tool geometries, coatings, and production processes, as well as the production of proprietary carbide materials and grinding and coating machines. All of these elements contribute to the impressive performance of our products, allowing us to continuously set new standards for the industry.

This industry-leading expertise serves as the basis for the new RT 100 XF. Exceptional performance and unbridled power leads to a qualitative advantage with guaranteed outstanding results.

The RT 100 XF. *EXTREMELY* **POWERFUL.**





## Ratio drills with internal coolant

Series

6498



Cutting depth



Type



Standard



Point angle



Tolerance on Ø



Internal coolant

Tool material

Solid Carbide

Coating

nano-FIREX®

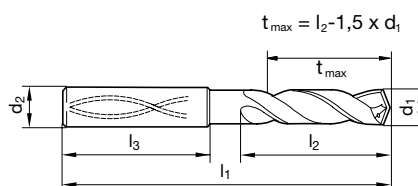
Shank form

HA

| Material |                 | Suitability         |
|----------|-----------------|---------------------|
| <b>P</b> | Steel           | ●                   |
| <b>M</b> | Stainless steel | ○                   |
| <b>K</b> | Cast iron       | ○                   |
| <b>N</b> | Aluminum        |                     |
| <b>S</b> | Ni / Ti alloys  | ○                   |
| <b>H</b> | Hardened steel  | ○                   |
|          |                 | ●=Optimal ○=Limited |

relieved cone • main cutting edge form concave  
• optimized cutting geometry • maximum performance

structural and case hardened steels • free-cutting steels, heat treatable steels • steels (alloyed/unalloyed) up to 1400 N/mm²



| Diameter (d1) |          |      | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm   |          |          |                        |          |          |               |
| 0.1181        | 1/8      | 3.00 | 6.00     | 62.00    | 15.50                  | 20.00    | 36.00    | 9064980030000 |
| 0.1220        |          | 3.10 | 6.00     | 62.00    | 15.35                  | 20.00    | 36.00    | 9064980031000 |
| 0.1248        |          | 3.17 | 6.00     | 62.00    | 15.25                  | 20.00    | 36.00    | 9064980031700 |
| 0.1260        |          | 3.20 | 6.00     | 62.00    | 15.20                  | 20.00    | 36.00    | 9064980032000 |
| 0.1280        |          | 3.25 | 6.00     | 62.00    | 15.13                  | 20.00    | 36.00    | 9064980032500 |
| 0.1299        | 9/64     | 3.30 | 6.00     | 62.00    | 15.05                  | 20.00    | 36.00    | 9064980033000 |
| 0.1339        |          | 3.40 | 6.00     | 62.00    | 14.90                  | 20.00    | 36.00    | 9064980034000 |
| 0.1378        |          | 3.50 | 6.00     | 62.00    | 14.75                  | 20.00    | 36.00    | 9064980035000 |
| 0.1406        |          | 3.57 | 6.00     | 62.00    | 14.65                  | 20.00    | 36.00    | 9064980035700 |
| 0.1417        |          | 3.60 | 6.00     | 62.00    | 14.60                  | 20.00    | 36.00    | 9064980036000 |
| 0.1457        | 5/32     | 3.70 | 6.00     | 62.00    | 14.45                  | 20.00    | 36.00    | 9064980037000 |
| 0.1496        |          | 3.80 | 6.00     | 66.00    | 18.30                  | 24.00    | 36.00    | 9064980038000 |
| 0.1535        |          | 3.90 | 6.00     | 66.00    | 18.15                  | 24.00    | 36.00    | 9064980039000 |
| 0.1563        |          | 3.97 | 6.00     | 66.00    | 18.05                  | 24.00    | 36.00    | 9064980039700 |
| 0.1575        |          | 4.00 | 6.00     | 66.00    | 18.00                  | 24.00    | 36.00    | 9064980040000 |
| 0.1591        | 11/64    | 4.04 | 6.00     | 66.00    | 17.94                  | 24.00    | 36.00    | 9064980040400 |
| 0.1614        |          | 4.10 | 6.00     | 66.00    | 17.85                  | 24.00    | 36.00    | 9064980041000 |
| 0.1654        |          | 4.20 | 6.00     | 66.00    | 17.70                  | 24.00    | 36.00    | 9064980042000 |
| 0.1693        |          | 4.30 | 6.00     | 66.00    | 17.55                  | 24.00    | 36.00    | 9064980043000 |
| 0.1720        |          | 4.37 | 6.00     | 66.00    | 17.45                  | 24.00    | 36.00    | 9064980043700 |
| 0.1732        | 3/16     | 4.40 | 6.00     | 66.00    | 17.40                  | 24.00    | 36.00    | 9064980044000 |
| 0.1772        |          | 4.50 | 6.00     | 66.00    | 17.25                  | 24.00    | 36.00    | 9064980045000 |
| 0.1811        |          | 4.60 | 6.00     | 66.00    | 17.10                  | 24.00    | 36.00    | 9064980046000 |
| 0.1831        |          | 4.65 | 6.00     | 66.00    | 17.03                  | 24.00    | 36.00    | 9064980046500 |
| 0.1850        |          | 4.70 | 6.00     | 66.00    | 16.95                  | 24.00    | 36.00    | 9064980047000 |
| 0.1874        | #12      | 4.76 | 6.00     | 66.00    | 20.86                  | 28.00    | 36.00    | 9064980047600 |
| 0.1890        |          | 4.80 | 6.00     | 66.00    | 20.80                  | 28.00    | 36.00    | 9064980048000 |
| 0.1929        | 13/64    | 4.90 | 6.00     | 66.00    | 20.65                  | 28.00    | 36.00    | 9064980049000 |
| 0.1969        |          | 5.00 | 6.00     | 66.00    | 20.50                  | 28.00    | 36.00    | 9064980050000 |
| 0.2008        |          | 5.10 | 6.00     | 66.00    | 20.35                  | 28.00    | 36.00    | 9064980051000 |
| 0.2012        |          | 5.11 | 6.00     | 66.00    | 20.34                  | 28.00    | 36.00    | 9064980051100 |
| 0.2031        |          | 5.16 | 6.00     | 66.00    | 20.26                  | 28.00    | 36.00    | 9064980051600 |
| 0.2047        |          | 5.20 | 6.00     | 66.00    | 20.20                  | 28.00    | 36.00    | 9064980052000 |
| 0.2087        |          | 5.30 | 6.00     | 66.00    | 20.05                  | 28.00    | 36.00    | 9064980053000 |
| 0.2126        |          | 5.40 | 6.00     | 66.00    | 19.90                  | 28.00    | 36.00    | 9064980054000 |
| 0.2130        |          | 5.41 | 6.00     | 66.00    | 19.89                  | 28.00    | 36.00    | 9064980054100 |



| Diameter (d1) |          |      | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm   |          |          |                        |          |          |               |
| 0.2165        | 7/32     | 5.50 | 6.00     | 66.00    | 19.75                  | 28.00    | 36.00    | 9064980055000 |
| 0.2185        |          | 5.55 | 6.00     | 66.00    | 19.68                  | 28.00    | 36.00    | 9064980055500 |
| 0.2189        |          | 5.56 | 6.00     | 66.00    | 19.66                  | 28.00    | 36.00    | 9064980055600 |
| 0.2205        |          | 5.60 | 6.00     | 66.00    | 19.60                  | 28.00    | 36.00    | 9064980056000 |
| 0.2244        |          | 5.70 | 6.00     | 66.00    | 19.45                  | 28.00    | 36.00    | 9064980057000 |
| 0.2283        | 15/64    | 5.80 | 6.00     | 66.00    | 19.30                  | 28.00    | 36.00    | 9064980058000 |
| 0.2323        |          | 5.90 | 6.00     | 66.00    | 19.15                  | 28.00    | 36.00    | 9064980059000 |
| 0.2343        |          | 5.95 | 6.00     | 66.00    | 19.08                  | 28.00    | 36.00    | 9064980059500 |
| 0.2362        |          | 6.00 | 6.00     | 66.00    | 19.00                  | 28.00    | 36.00    | 9064980060000 |
| 0.2402        |          | 6.10 | 8.00     | 79.00    | 24.85                  | 34.00    | 36.00    | 9064980061000 |
| 0.2441        | 1/4      | 6.20 | 8.00     | 79.00    | 24.70                  | 34.00    | 36.00    | 9064980062000 |
| 0.2480        |          | 6.30 | 8.00     | 79.00    | 24.55                  | 34.00    | 36.00    | 9064980063000 |
| 0.2500        |          | 6.35 | 8.00     | 79.00    | 24.48                  | 34.00    | 36.00    | 9064980063500 |
| 0.2520        |          | 6.40 | 8.00     | 79.00    | 24.40                  | 34.00    | 36.00    | 9064980064000 |
| 0.2559        |          | 6.50 | 8.00     | 79.00    | 24.25                  | 34.00    | 36.00    | 9064980065000 |
| 0.2571        | 17/64    | 6.53 | 8.00     | 79.00    | 24.21                  | 34.00    | 36.00    | 9064980065300 |
| 0.2579        |          | 6.55 | 8.00     | 79.00    | 24.18                  | 34.00    | 36.00    | 9064980065500 |
| 0.2598        |          | 6.60 | 8.00     | 79.00    | 24.10                  | 34.00    | 36.00    | 9064980066000 |
| 0.2638        |          | 6.70 | 8.00     | 79.00    | 23.95                  | 34.00    | 36.00    | 9064980067000 |
| 0.2657        |          | 6.75 | 8.00     | 79.00    | 23.88                  | 34.00    | 36.00    | 9064980067500 |
| 0.2677        | 9/32     | 6.80 | 8.00     | 79.00    | 23.80                  | 34.00    | 36.00    | 9064980068000 |
| 0.2717        |          | 6.90 | 8.00     | 79.00    | 23.65                  | 34.00    | 36.00    | 9064980069000 |
| 0.2756        |          | 7.00 | 8.00     | 79.00    | 23.50                  | 34.00    | 36.00    | 9064980070000 |
| 0.2795        |          | 7.10 | 8.00     | 79.00    | 30.35                  | 41.00    | 36.00    | 9064980071000 |
| 0.2811        |          | 7.14 | 8.00     | 79.00    | 30.29                  | 41.00    | 36.00    | 9064980071400 |
| 0.2835        | 19/64    | 7.20 | 8.00     | 79.00    | 30.20                  | 41.00    | 36.00    | 9064980072000 |
| 0.2874        |          | 7.30 | 8.00     | 79.00    | 30.05                  | 41.00    | 36.00    | 9064980073000 |
| 0.2913        |          | 7.40 | 8.00     | 79.00    | 29.90                  | 41.00    | 36.00    | 9064980074000 |
| 0.2953        |          | 7.50 | 8.00     | 79.00    | 29.75                  | 41.00    | 36.00    | 9064980075000 |
| 0.2969        |          | 7.54 | 8.00     | 79.00    | 29.69                  | 41.00    | 36.00    | 9064980075400 |
| 0.2972        | 5/16     | 7.55 | 8.00     | 79.00    | 29.68                  | 41.00    | 36.00    | 9064980075500 |
| 0.2992        |          | 7.60 | 8.00     | 79.00    | 29.60                  | 41.00    | 36.00    | 9064980076000 |
| 0.3012        |          | 7.65 | 8.00     | 79.00    | 29.53                  | 41.00    | 36.00    | 9064980076500 |
| 0.3031        |          | 7.70 | 8.00     | 79.00    | 29.45                  | 41.00    | 36.00    | 9064980077000 |
| 0.3071        |          | 7.80 | 8.00     | 79.00    | 29.30                  | 41.00    | 36.00    | 9064980078000 |
| 0.3110        | 21/64    | 7.90 | 8.00     | 79.00    | 29.15                  | 41.00    | 36.00    | 9064980079000 |
| 0.3126        |          | 7.94 | 8.00     | 79.00    | 29.09                  | 41.00    | 36.00    | 9064980079400 |
| 0.3150        |          | 8.00 | 8.00     | 79.00    | 29.00                  | 41.00    | 36.00    | 9064980080000 |
| 0.3189        |          | 8.10 | 10.00    | 89.00    | 34.85                  | 47.00    | 40.00    | 9064980081000 |
| 0.3228        |          | 8.20 | 10.00    | 89.00    | 34.70                  | 47.00    | 40.00    | 9064980082000 |
| 0.3268        | 11/32    | 8.30 | 10.00    | 89.00    | 34.55                  | 47.00    | 40.00    | 9064980083000 |
| 0.3280        |          | 8.33 | 10.00    | 89.00    | 34.51                  | 47.00    | 40.00    | 9064980083300 |
| 0.3307        |          | 8.40 | 10.00    | 89.00    | 34.40                  | 47.00    | 40.00    | 9064980084000 |
| 0.3346        |          | 8.50 | 10.00    | 89.00    | 34.25                  | 47.00    | 40.00    | 9064980085000 |
| 0.3386        |          | 8.60 | 10.00    | 89.00    | 34.10                  | 47.00    | 40.00    | 9064980086000 |
| 0.3425        | 23/64    | 8.70 | 10.00    | 89.00    | 33.95                  | 47.00    | 40.00    | 9064980087000 |
| 0.3437        |          | 8.73 | 10.00    | 89.00    | 33.91                  | 47.00    | 40.00    | 9064980087300 |
| 0.3465        |          | 8.80 | 10.00    | 89.00    | 33.80                  | 47.00    | 40.00    | 9064980088000 |
| 0.3504        |          | 8.90 | 10.00    | 89.00    | 33.65                  | 47.00    | 40.00    | 9064980089000 |
| 0.3543        |          | 9.00 | 10.00    | 89.00    | 33.50                  | 47.00    | 40.00    | 9064980090000 |
| 0.3583        | 3/8      | 9.10 | 10.00    | 89.00    | 33.35                  | 47.00    | 40.00    | 9064980091000 |
| 0.3594        |          | 9.13 | 10.00    | 89.00    | 33.31                  | 47.00    | 40.00    | 9064980091300 |
| 0.3622        |          | 9.20 | 10.00    | 89.00    | 33.20                  | 47.00    | 40.00    | 9064980092000 |
| 0.3642        |          | 9.25 | 10.00    | 89.00    | 33.13                  | 47.00    | 40.00    | 9064980092500 |
| 0.3661        |          | 9.30 | 10.00    | 89.00    | 33.05                  | 47.00    | 40.00    | 9064980093000 |
| 0.3677        |          | 9.34 | 10.00    | 89.00    | 32.99                  | 47.00    | 40.00    | 9064980093400 |
| 0.3701        |          | 9.40 | 10.00    | 89.00    | 32.90                  | 47.00    | 40.00    | 9064980094000 |
| 0.3740        |          | 9.50 | 10.00    | 89.00    | 32.75                  | 47.00    | 40.00    | 9064980095000 |
| 0.3748        |          | 9.52 | 10.00    | 89.00    | 32.72                  | 47.00    | 40.00    | 9064980095200 |

| Diameter (d1) |          |       | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|-------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm    |          |          |                        |          |          |               |
| 0.3760        |          | 9.55  | 10.00    | 89.00    | 32.68                  | 47.00    | 40.00    | 9064980095500 |
| 0.3780        |          | 9.60  | 10.00    | 89.00    | 32.60                  | 47.00    | 40.00    | 9064980096000 |
| 0.3819        |          | 9.70  | 10.00    | 89.00    | 32.45                  | 47.00    | 40.00    | 9064980097000 |
| 0.3858        |          | 9.80  | 10.00    | 89.00    | 32.30                  | 47.00    | 40.00    | 9064980098000 |
| 0.3898        |          | 9.90  | 10.00    | 89.00    | 32.15                  | 47.00    | 40.00    | 9064980099000 |
| 0.3906        | 25/64    | 9.92  | 10.00    | 89.00    | 32.12                  | 47.00    | 40.00    | 9064980099200 |
| 0.3937        |          | 10.00 | 10.00    | 89.00    | 32.00                  | 47.00    | 40.00    | 9064980100000 |
| 0.3976        |          | 10.10 | 12.00    | 102.00   | 39.85                  | 55.00    | 45.00    | 9064980101000 |
| 0.4016        |          | 10.20 | 12.00    | 102.00   | 39.70                  | 55.00    | 45.00    | 9064980102000 |
| 0.4055        |          | 10.30 | 12.00    | 102.00   | 39.55                  | 55.00    | 45.00    | 9064980103000 |
| 0.4063        | 13/32    | 10.32 | 12.00    | 102.00   | 39.52                  | 55.00    | 45.00    | 9064980103200 |
| 0.4094        |          | 10.40 | 12.00    | 102.00   | 39.40                  | 55.00    | 45.00    | 9064980104000 |
| 0.4134        |          | 10.50 | 12.00    | 102.00   | 39.25                  | 55.00    | 45.00    | 9064980105000 |
| 0.4173        |          | 10.60 | 12.00    | 102.00   | 39.10                  | 55.00    | 45.00    | 9064980106000 |
| 0.4213        |          | 10.70 | 12.00    | 102.00   | 38.95                  | 55.00    | 45.00    | 9064980107000 |
| 0.4220        | 27/64    | 10.72 | 12.00    | 102.00   | 38.92                  | 55.00    | 45.00    | 9064980107200 |
| 0.4252        |          | 10.80 | 12.00    | 102.00   | 38.80                  | 55.00    | 45.00    | 9064980108000 |
| 0.4291        |          | 10.90 | 12.00    | 102.00   | 38.65                  | 55.00    | 45.00    | 9064980109000 |
| 0.4331        |          | 11.00 | 12.00    | 102.00   | 38.50                  | 55.00    | 45.00    | 9064980110000 |
| 0.4370        |          | 11.10 | 12.00    | 102.00   | 38.35                  | 55.00    | 45.00    | 9064980111000 |
| 0.4374        | 7/16     | 11.11 | 12.00    | 102.00   | 38.34                  | 55.00    | 45.00    | 9064980111100 |
| 0.4409        |          | 11.20 | 12.00    | 102.00   | 38.20                  | 55.00    | 45.00    | 9064980112000 |
| 0.4449        |          | 11.30 | 12.00    | 102.00   | 38.05                  | 55.00    | 45.00    | 9064980113000 |
| 0.4488        |          | 11.40 | 12.00    | 102.00   | 37.90                  | 55.00    | 45.00    | 9064980114000 |
| 0.4528        |          | 11.50 | 12.00    | 102.00   | 37.75                  | 55.00    | 45.00    | 9064980115000 |
| 0.4531        | 29/64    | 11.51 | 12.00    | 102.00   | 37.74                  | 55.00    | 45.00    | 9064980115100 |
| 0.4547        |          | 11.55 | 12.00    | 102.00   | 37.68                  | 55.00    | 45.00    | 9064980115500 |
| 0.4567        |          | 11.60 | 12.00    | 102.00   | 37.60                  | 55.00    | 45.00    | 9064980116000 |
| 0.4606        |          | 11.70 | 12.00    | 102.00   | 37.45                  | 55.00    | 45.00    | 9064980117000 |
| 0.4646        |          | 11.80 | 12.00    | 102.00   | 37.30                  | 55.00    | 45.00    | 9064980118000 |
| 0.4685        |          | 11.90 | 12.00    | 102.00   | 37.15                  | 55.00    | 45.00    | 9064980119000 |
| 0.4689        | 15/32    | 11.91 | 12.00    | 102.00   | 37.14                  | 55.00    | 45.00    | 9064980119100 |
| 0.4724        |          | 12.00 | 12.00    | 102.00   | 37.00                  | 55.00    | 45.00    | 9064980120000 |
| 0.4764        |          | 12.10 | 14.00    | 107.00   | 41.85                  | 60.00    | 45.00    | 9064980121000 |
| 0.4803        |          | 12.20 | 14.00    | 107.00   | 41.70                  | 60.00    | 45.00    | 9064980122000 |
| 0.4843        | 31/64    | 12.30 | 14.00    | 107.00   | 41.55                  | 60.00    | 45.00    | 9064980123000 |
| 0.4882        |          | 12.40 | 14.00    | 107.00   | 41.40                  | 60.00    | 45.00    | 9064980124000 |
| 0.4921        |          | 12.50 | 14.00    | 107.00   | 41.25                  | 60.00    | 45.00    | 9064980125000 |
| 0.4961        |          | 12.60 | 14.00    | 107.00   | 41.10                  | 60.00    | 45.00    | 9064980126000 |
| 0.5000        | 1/2      | 12.70 | 14.00    | 107.00   | 40.95                  | 60.00    | 45.00    | 9064980127000 |
| 0.5039        |          | 12.80 | 14.00    | 107.00   | 40.80                  | 60.00    | 45.00    | 9064980128000 |
| 0.5079        |          | 12.90 | 14.00    | 107.00   | 40.65                  | 60.00    | 45.00    | 9064980129000 |
| 0.5118        |          | 13.00 | 14.00    | 107.00   | 40.50                  | 60.00    | 45.00    | 9064980130000 |
| 0.5157        | 33/64    | 13.10 | 14.00    | 107.00   | 40.35                  | 60.00    | 45.00    | 9064980131000 |
| 0.5197        |          | 13.20 | 14.00    | 107.00   | 40.20                  | 60.00    | 45.00    | 9064980132000 |
| 0.5236        |          | 13.30 | 14.00    | 107.00   | 40.05                  | 60.00    | 45.00    | 9064980133000 |
| 0.5276        |          | 13.40 | 14.00    | 107.00   | 39.90                  | 60.00    | 45.00    | 9064980134000 |
| 0.5311        | 17/32    | 13.49 | 14.00    | 107.00   | 39.77                  | 60.00    | 45.00    | 9064980134900 |
| 0.5315        |          | 13.50 | 14.00    | 107.00   | 39.75                  | 60.00    | 45.00    | 9064980135000 |
| 0.5354        |          | 13.60 | 14.00    | 107.00   | 39.60                  | 60.00    | 45.00    | 9064980136000 |
| 0.5394        |          | 13.70 | 14.00    | 107.00   | 39.45                  | 60.00    | 45.00    | 9064980137000 |
| 0.5433        |          | 13.80 | 14.00    | 107.00   | 39.30                  | 60.00    | 45.00    | 9064980138000 |
| 0.5469        | 35/64    | 13.89 | 14.00    | 107.00   | 39.17                  | 60.00    | 45.00    | 9064980138900 |
| 0.5472        |          | 13.90 | 14.00    | 107.00   | 39.15                  | 60.00    | 45.00    | 9064980139000 |
| 0.5512        |          | 14.00 | 14.00    | 107.00   | 39.00                  | 60.00    | 45.00    | 9064980140000 |
| 0.5551        |          | 14.10 | 16.00    | 115.00   | 43.85                  | 65.00    | 48.00    | 9064980141000 |
| 0.5591        |          | 14.20 | 16.00    | 115.00   | 43.70                  | 65.00    | 48.00    | 9064980142000 |
| 0.5626        | 9/16     | 14.29 | 16.00    | 115.00   | 43.57                  | 65.00    | 48.00    | 9064980142900 |



| Diameter (d1) |          |       | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|-------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm    |          |          |                        |          |          |               |
| 0.5630        |          | 14.30 | 16.00    | 115.00   | 43.55                  | 65.00    | 48.00    | 9064980143000 |
| 0.5669        |          | 14.40 | 16.00    | 115.00   | 43.40                  | 65.00    | 48.00    | 9064980144000 |
| 0.5709        |          | 14.50 | 16.00    | 115.00   | 43.25                  | 65.00    | 48.00    | 9064980145000 |
| 0.5748        | 37/64    | 14.60 | 16.00    | 115.00   | 43.10                  | 65.00    | 48.00    | 9064980146000 |
| 0.5780        |          | 14.68 | 16.00    | 115.00   | 42.98                  | 65.00    | 48.00    | 9064980146800 |
| 0.5787        |          | 14.70 | 16.00    | 115.00   | 42.95                  | 65.00    | 48.00    | 9064980147000 |
| 0.5827        |          | 14.80 | 16.00    | 115.00   | 42.80                  | 65.00    | 48.00    | 9064980148000 |
| 0.5866        |          | 14.90 | 16.00    | 115.00   | 42.65                  | 65.00    | 48.00    | 9064980149000 |
| 0.5906        |          | 15.00 | 16.00    | 115.00   | 42.50                  | 65.00    | 48.00    | 9064980150000 |
| 0.5937        | 19/32    | 15.08 | 16.00    | 115.00   | 42.38                  | 65.00    | 48.00    | 9064980150800 |
| 0.5945        |          | 15.10 | 16.00    | 115.00   | 42.35                  | 65.00    | 48.00    | 9064980151000 |
| 0.5984        |          | 15.20 | 16.00    | 115.00   | 42.20                  | 65.00    | 48.00    | 9064980152000 |
| 0.6024        |          | 15.30 | 16.00    | 115.00   | 42.05                  | 65.00    | 48.00    | 9064980153000 |
| 0.6063        |          | 15.40 | 16.00    | 115.00   | 41.90                  | 65.00    | 48.00    | 9064980154000 |
| 0.6094        | 39/64    | 15.48 | 16.00    | 115.00   | 41.78                  | 65.00    | 48.00    | 9064980154800 |
| 0.6102        |          | 15.50 | 16.00    | 115.00   | 41.75                  | 65.00    | 48.00    | 9064980155000 |
| 0.6122        |          | 15.55 | 16.00    | 115.00   | 41.68                  | 65.00    | 48.00    | 9064980155500 |
| 0.6142        |          | 15.60 | 16.00    | 115.00   | 41.60                  | 65.00    | 48.00    | 9064980156000 |
| 0.6181        |          | 15.70 | 16.00    | 115.00   | 41.45                  | 65.00    | 48.00    | 9064980157000 |
| 0.6220        |          | 15.80 | 16.00    | 115.00   | 41.30                  | 65.00    | 48.00    | 9064980158000 |
| 0.6248        | 5/8      | 15.87 | 16.00    | 115.00   | 41.20                  | 65.00    | 48.00    | 9064980158700 |
| 0.6260        |          | 15.90 | 16.00    | 115.00   | 41.15                  | 65.00    | 48.00    | 9064980159000 |
| 0.6299        |          | 16.00 | 16.00    | 115.00   | 41.00                  | 65.00    | 48.00    | 9064980160000 |
| 0.6406        | 41/64    | 16.27 | 18.00    | 123.00   | 48.60                  | 73.00    | 48.00    | 9064980162700 |
| 0.6417        |          | 16.30 | 18.00    | 123.00   | 48.55                  | 73.00    | 48.00    | 9064980163000 |
| 0.6496        |          | 16.50 | 18.00    | 123.00   | 48.25                  | 73.00    | 48.00    | 9064980165000 |
| 0.6563        | 21/32    | 16.67 | 18.00    | 123.00   | 48.00                  | 73.00    | 48.00    | 9064980166700 |
| 0.6575        |          | 16.70 | 18.00    | 123.00   | 47.95                  | 73.00    | 48.00    | 9064980167000 |
| 0.6654        |          | 16.90 | 18.00    | 123.00   | 47.65                  | 73.00    | 48.00    | 9064980169000 |
| 0.6693        |          | 17.00 | 18.00    | 123.00   | 47.50                  | 73.00    | 48.00    | 9064980170000 |
| 0.6720        | 43/64    | 17.07 | 18.00    | 123.00   | 47.40                  | 73.00    | 48.00    | 9064980170700 |
| 0.6874        |          | 17.46 | 18.00    | 123.00   | 46.81                  | 73.00    | 48.00    | 9064980174600 |
| 0.6890        |          | 17.50 | 18.00    | 123.00   | 46.75                  | 73.00    | 48.00    | 9064980175000 |
| 0.6909        |          | 17.55 | 18.00    | 123.00   | 46.68                  | 73.00    | 48.00    | 9064980175500 |
| 0.6969        |          | 17.70 | 18.00    | 123.00   | 46.45                  | 73.00    | 48.00    | 9064980177000 |
| 0.7031        | 45/64    | 17.86 | 18.00    | 123.00   | 46.21                  | 73.00    | 48.00    | 9064980178600 |
| 0.7087        |          | 18.00 | 18.00    | 123.00   | 46.00                  | 73.00    | 48.00    | 9064980180000 |
| 0.7189        |          | 18.26 | 20.00    | 131.00   | 51.61                  | 79.00    | 50.00    | 9064980182600 |
| 0.7283        |          | 18.50 | 20.00    | 131.00   | 51.25                  | 79.00    | 50.00    | 9064980185000 |
| 0.7362        |          | 18.70 | 20.00    | 131.00   | 50.95                  | 79.00    | 50.00    | 9064980187000 |
| 0.7441        |          | 18.90 | 20.00    | 131.00   | 50.65                  | 79.00    | 50.00    | 9064980189000 |
| 0.7480        |          | 19.00 | 20.00    | 131.00   | 50.50                  | 79.00    | 50.00    | 9064980190000 |
| 0.7500        | 3/4      | 19.05 | 20.00    | 131.00   | 50.43                  | 79.00    | 50.00    | 9064980190500 |
| 0.7579        |          | 19.25 | 20.00    | 131.00   | 50.13                  | 79.00    | 50.00    | 9064980192500 |
| 0.7598        |          | 19.30 | 20.00    | 131.00   | 50.05                  | 79.00    | 50.00    | 9064980193000 |
| 0.7657        |          | 19.45 | 20.00    | 131.00   | 49.83                  | 79.00    | 50.00    | 9064980194500 |
| 0.7677        |          | 19.50 | 20.00    | 131.00   | 49.75                  | 79.00    | 50.00    | 9064980195000 |
| 0.7697        |          | 19.55 | 20.00    | 131.00   | 49.68                  | 79.00    | 50.00    | 9064980195500 |
| 0.7756        |          | 19.70 | 20.00    | 131.00   | 49.45                  | 79.00    | 50.00    | 9064980197000 |
| 0.7795        |          | 19.80 | 20.00    | 131.00   | 49.30                  | 79.00    | 50.00    | 9064980198000 |
| 0.7811        | 25/32    | 19.84 | 20.00    | 131.00   | 49.24                  | 79.00    | 50.00    | 9064980198400 |
| 0.7874        |          | 20.00 | 20.00    | 131.00   | 49.00                  | 79.00    | 50.00    | 9064980200000 |





## Ratio drills with internal coolant

Series

5498



Cutting depth



Type



Standard



Point angle



Tolerance on Ø



Internal coolant

Tool material

Solid Carbide

Coating

nano-FIREX®

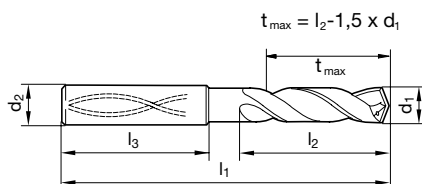
Shank form

HA

| Material |                 | Suitability            |
|----------|-----------------|------------------------|
| <b>P</b> | Steel           | ●                      |
| <b>M</b> | Stainless steel | ○                      |
| <b>K</b> | Cast iron       | ○                      |
| <b>N</b> | Aluminum        |                        |
| <b>S</b> | Ni / Ti alloys  | ○                      |
| <b>H</b> | Hardened steel  | ○                      |
|          |                 | ●=Optimal    ○=Limited |

relieved cone • main cutting edge form concave  
• optimized cutting geometry • maximum performance

structural and case hardened steels • free-cutting steels, heat treatable steels • steels (alloyed/unalloyed) up to 1400 N/mm<sup>2</sup>



| Diameter (d1) |          |      | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm   |          |          |                        |          |          |               |
| 0.1181        | 1/8      | 3.00 | 6.00     | 66.00    | 23.50                  | 28.00    | 36       | 9054980030000 |
| 0.1220        |          | 3.10 | 6.00     | 66.00    | 23.35                  | 28.00    | 36       | 9054980031000 |
| 0.1248        |          | 3.17 | 6.00     | 66.00    | 23.25                  | 28.00    | 36       | 9054980031700 |
| 0.1260        |          | 3.20 | 6.00     | 66.00    | 23.20                  | 28.00    | 36       | 9054980032000 |
| 0.1280        |          | 3.25 | 6.00     | 66.00    | 23.13                  | 28.00    | 36       | 9054980032500 |
| 0.1299        | 9/64     | 3.30 | 6.00     | 66.00    | 23.05                  | 28.00    | 36       | 9054980033000 |
| 0.1339        |          | 3.40 | 6.00     | 66.00    | 22.90                  | 28.00    | 36       | 9054980034000 |
| 0.1378        |          | 3.50 | 6.00     | 66.00    | 22.75                  | 28.00    | 36       | 9054980035000 |
| 0.1406        |          | 3.57 | 6.00     | 66.00    | 22.65                  | 28.00    | 36       | 9054980035700 |
| 0.1417        |          | 3.60 | 6.00     | 66.00    | 22.60                  | 28.00    | 36       | 9054980036000 |
| 0.1457        | 5/32     | 3.70 | 6.00     | 66.00    | 22.45                  | 28.00    | 36       | 9054980037000 |
| 0.1496        |          | 3.80 | 6.00     | 74.00    | 30.30                  | 36.00    | 36       | 9054980038000 |
| 0.1535        |          | 3.90 | 6.00     | 74.00    | 30.15                  | 36.00    | 36       | 9054980039000 |
| 0.1563        |          | 3.97 | 6.00     | 74.00    | 30.05                  | 36.00    | 36       | 9054980039700 |
| 0.1575        |          | 4.00 | 6.00     | 74.00    | 30.00                  | 36.00    | 36       | 9054980040000 |
| 0.1591        | 11/64    | 4.04 | 6.00     | 74.00    | 29.94                  | 36.00    | 36       | 9054980040400 |
| 0.1614        |          | 4.10 | 6.00     | 74.00    | 29.85                  | 36.00    | 36       | 9054980041000 |
| 0.1654        |          | 4.20 | 6.00     | 74.00    | 29.70                  | 36.00    | 36       | 9054980042000 |
| 0.1693        |          | 4.30 | 6.00     | 74.00    | 29.55                  | 36.00    | 36       | 9054980043000 |
| 0.1720        |          | 4.37 | 6.00     | 74.00    | 29.45                  | 36.00    | 36       | 9054980043700 |
| 0.1732        | 3/16     | 4.40 | 6.00     | 74.00    | 29.40                  | 36.00    | 36       | 9054980044000 |
| 0.1772        |          | 4.50 | 6.00     | 74.00    | 29.25                  | 36.00    | 36       | 9054980045000 |
| 0.1811        |          | 4.60 | 6.00     | 74.00    | 29.10                  | 36.00    | 36       | 9054980046000 |
| 0.1831        |          | 4.65 | 6.00     | 74.00    | 29.03                  | 36.00    | 36       | 9054980046500 |
| 0.1850        |          | 4.70 | 6.00     | 74.00    | 28.95                  | 36.00    | 36       | 9054980047000 |
| 0.1874        | #12      | 4.76 | 6.00     | 82.00    | 36.86                  | 44.00    | 36       | 9054980047600 |
| 0.1890        |          | 4.80 | 6.00     | 82.00    | 36.80                  | 44.00    | 36       | 9054980048000 |
| 0.1929        |          | 4.90 | 6.00     | 82.00    | 36.65                  | 44.00    | 36       | 9054980049000 |
| 0.1969        |          | 5.00 | 6.00     | 82.00    | 36.50                  | 44.00    | 36       | 9054980050000 |
| 0.2008        |          | 5.10 | 6.00     | 82.00    | 36.35                  | 44.00    | 36       | 9054980051000 |
| 0.2012        | 13/64    | 5.11 | 6.00     | 82.00    | 36.34                  | 44.00    | 36       | 9054980051100 |
| 0.2031        |          | 5.16 | 6.00     | 82.00    | 36.26                  | 44.00    | 36       | 9054980051600 |
| 0.2047        |          | 5.20 | 6.00     | 82.00    | 36.20                  | 44.00    | 36       | 9054980052000 |
| 0.2087        |          | 5.30 | 6.00     | 82.00    | 36.05                  | 44.00    | 36       | 9054980053000 |
| 0.2126        |          | 5.40 | 6.00     | 82.00    | 35.90                  | 44.00    | 36       | 9054980054000 |
| 0.2130        |          | 5.41 | 6.00     | 82.00    | 35.89                  | 44.00    | 36       | 9054980054100 |



| Diameter (d1) |          |      | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm   |          |          |                        |          |          |               |
| 0.2165        | 7/32     | 5.50 | 6.00     | 82.00    | 35.75                  | 44.00    | 36       | 9054980055000 |
| 0.2185        |          | 5.55 | 6.00     | 82.00    | 35.68                  | 44.00    | 36       | 9054980055500 |
| 0.2189        |          | 5.56 | 6.00     | 82.00    | 35.66                  | 44.00    | 36       | 9054980055600 |
| 0.2205        |          | 5.60 | 6.00     | 82.00    | 35.60                  | 44.00    | 36       | 9054980056000 |
| 0.2224        |          | 5.70 | 6.00     | 82.00    | 35.45                  | 44.00    | 36       | 9054980057000 |
| 0.2283        | 15/64    | 5.80 | 6.00     | 82.00    | 35.30                  | 44.00    | 36       | 9054980058000 |
| 0.2323        |          | 5.90 | 6.00     | 82.00    | 35.15                  | 44.00    | 36       | 9054980059000 |
| 0.2343        |          | 5.95 | 6.00     | 82.00    | 35.08                  | 44.00    | 36       | 9054980059500 |
| 0.2362        |          | 6.00 | 6.00     | 82.00    | 35.00                  | 44.00    | 36       | 9054980060000 |
| 0.2402        | 1/4      | 6.10 | 8.00     | 91.00    | 43.85                  | 53.00    | 36       | 9054980061000 |
| 0.2441        |          | 6.20 | 8.00     | 91.00    | 43.70                  | 53.00    | 36       | 9054980062000 |
| 0.2480        |          | 6.30 | 8.00     | 91.00    | 43.55                  | 53.00    | 36       | 9054980063000 |
| 0.2500        | E        | 6.35 | 8.00     | 91.00    | 43.48                  | 53.00    | 36       | 9054980063500 |
| 0.2520        |          | 6.40 | 8.00     | 91.00    | 43.40                  | 53.00    | 36       | 9054980064000 |
| 0.2559        |          | 6.50 | 8.00     | 91.00    | 43.25                  | 53.00    | 36       | 9054980065000 |
| 0.2571        | 17/64    | 6.53 | 8.00     | 91.00    | 43.21                  | 53.00    | 36       | 9054980065300 |
| 0.2579        |          | 6.55 | 8.00     | 91.00    | 43.18                  | 53.00    | 36       | 9054980065500 |
| 0.2598        |          | 6.60 | 8.00     | 91.00    | 43.10                  | 53.00    | 36       | 9054980066000 |
| 0.2638        | 9/32     | 6.70 | 8.00     | 91.00    | 42.95                  | 53.00    | 36       | 9054980067000 |
| 0.2657        |          | 6.75 | 8.00     | 91.00    | 42.88                  | 53.00    | 36       | 9054980067500 |
| 0.2677        |          | 6.80 | 8.00     | 91.00    | 42.80                  | 53.00    | 36       | 9054980068000 |
| 0.2717        | 19/64    | 6.90 | 8.00     | 91.00    | 42.65                  | 53.00    | 36       | 9054980069000 |
| 0.2756        |          | 7.00 | 8.00     | 91.00    | 42.50                  | 53.00    | 36       | 9054980070000 |
| 0.2795        |          | 7.10 | 8.00     | 91.00    | 42.35                  | 53.00    | 36       | 9054980071000 |
| 0.2811        | 5/16     | 7.14 | 8.00     | 91.00    | 42.29                  | 53.00    | 36       | 9054980071400 |
| 0.2835        |          | 7.20 | 8.00     | 91.00    | 42.20                  | 53.00    | 36       | 9054980072000 |
| 0.2874        |          | 7.30 | 8.00     | 91.00    | 42.05                  | 53.00    | 36       | 9054980073000 |
| 0.2913        | 21/64    | 7.40 | 8.00     | 91.00    | 41.90                  | 53.00    | 36       | 9054980074000 |
| 0.2953        |          | 7.50 | 8.00     | 91.00    | 41.75                  | 53.00    | 36       | 9054980075000 |
| 0.2969        |          | 7.54 | 8.00     | 91.00    | 41.69                  | 53.00    | 36       | 9054980075400 |
| 0.2972        | 11/32    | 7.55 | 8.00     | 91.00    | 41.68                  | 53.00    | 36       | 9054980075500 |
| 0.2992        |          | 7.60 | 8.00     | 91.00    | 41.60                  | 53.00    | 36       | 9054980076000 |
| 0.3012        |          | 7.65 | 8.00     | 91.00    | 41.53                  | 53.00    | 36       | 9054980076500 |
| 0.3031        | 3/8      | 7.70 | 8.00     | 91.00    | 41.45                  | 53.00    | 36       | 9054980077000 |
| 0.3071        |          | 7.80 | 8.00     | 91.00    | 41.30                  | 53.00    | 36       | 9054980078000 |
| 0.3110        |          | 7.90 | 8.00     | 91.00    | 41.15                  | 53.00    | 36       | 9054980079000 |
| 0.3126        | 23/64    | 7.94 | 8.00     | 91.00    | 41.09                  | 53.00    | 36       | 9054980079400 |
| 0.3150        |          | 8.00 | 8.00     | 91.00    | 41.00                  | 53.00    | 36       | 9054980080000 |
| 0.3189        |          | 8.10 | 10.00    | 103.00   | 48.85                  | 61.00    | 40       | 9054980081000 |
| 0.3228        | 11/16    | 8.20 | 10.00    | 103.00   | 48.70                  | 61.00    | 40       | 9054980082000 |
| 0.3268        |          | 8.30 | 10.00    | 103.00   | 48.55                  | 61.00    | 40       | 9054980083000 |
| 0.3280        |          | 8.33 | 10.00    | 103.00   | 48.51                  | 61.00    | 40       | 9054980083300 |
| 0.3307        | 3/4      | 8.40 | 10.00    | 103.00   | 48.40                  | 61.00    | 40       | 9054980084000 |
| 0.3346        |          | 8.50 | 10.00    | 103.00   | 48.25                  | 61.00    | 40       | 9054980085000 |
| 0.3386        |          | 8.60 | 10.00    | 103.00   | 48.10                  | 61.00    | 40       | 9054980086000 |
| 0.3425        | 1 1/8    | 8.70 | 10.00    | 103.00   | 47.95                  | 61.00    | 40       | 9054980087000 |
| 0.3437        |          | 8.73 | 10.00    | 103.00   | 47.91                  | 61.00    | 40       | 9054980087300 |
| 0.3465        |          | 8.80 | 10.00    | 103.00   | 47.80                  | 61.00    | 40       | 9054980088000 |
| 0.3504        | 1 1/4    | 8.90 | 10.00    | 103.00   | 47.65                  | 61.00    | 40       | 9054980089000 |
| 0.3543        |          | 9.00 | 10.00    | 103.00   | 47.50                  | 61.00    | 40       | 9054980090000 |
| 0.3583        |          | 9.10 | 10.00    | 103.00   | 47.35                  | 61.00    | 40       | 9054980091000 |
| 0.3594        | 1 3/8    | 9.13 | 10.00    | 103.00   | 47.31                  | 61.00    | 40       | 9054980091300 |
| 0.3622        |          | 9.20 | 10.00    | 103.00   | 47.20                  | 61.00    | 40       | 9054980092000 |
| 0.3642        |          | 9.25 | 10.00    | 103.00   | 47.13                  | 61.00    | 40       | 9054980092500 |
| 0.3661        | 1 1/2    | 9.30 | 10.00    | 103.00   | 47.05                  | 61.00    | 40       | 9054980093000 |
| 0.3677        |          | 9.34 | 10.00    | 103.00   | 46.99                  | 61.00    | 40       | 9054980093400 |
| 0.3701        |          | 9.40 | 10.00    | 103.00   | 46.90                  | 61.00    | 40       | 9054980094000 |
| 0.3740        | 1 5/8    | 9.50 | 10.00    | 103.00   | 46.75                  | 61.00    | 40       | 9054980095000 |
| 0.3748        |          | 9.52 | 10.00    | 103.00   | 46.72                  | 61.00    | 40       | 9054980095200 |



| Diameter (d1) |          |       | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|-------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm    |          |          |                        |          |          |               |
| 0.3760        |          | 9.55  | 10.00    | 103.00   | 46.68                  | 61.00    | 40       | 9054980095500 |
| 0.3780        |          | 9.60  | 10.00    | 103.00   | 46.60                  | 61.00    | 40       | 9054980096000 |
| 0.3819        |          | 9.70  | 10.00    | 103.00   | 46.45                  | 61.00    | 40       | 9054980097000 |
| 0.3858        |          | 9.80  | 10.00    | 103.00   | 46.30                  | 61.00    | 40       | 9054980098000 |
| 0.3898        |          | 9.90  | 10.00    | 103.00   | 46.15                  | 61.00    | 40       | 9054980099000 |
| 0.3906        | 25/64    | 9.92  | 10.00    | 103.00   | 46.12                  | 61.00    | 40       | 9054980099200 |
| 0.3937        |          | 10.00 | 10.00    | 103.00   | 46.00                  | 61.00    | 40       | 9054980100000 |
| 0.3976        |          | 10.10 | 12.00    | 118.00   | 55.85                  | 71.00    | 45       | 9054980101000 |
| 0.4016        |          | 10.20 | 12.00    | 118.00   | 55.70                  | 71.00    | 45       | 9054980102000 |
| 0.4055        |          | 10.30 | 12.00    | 118.00   | 55.55                  | 71.00    | 45       | 9054980103000 |
| 0.4063        | 13/32    | 10.32 | 12.00    | 118.00   | 55.52                  | 71.00    | 45       | 9054980103200 |
| 0.4094        |          | 10.40 | 12.00    | 118.00   | 55.40                  | 71.00    | 45       | 9054980104000 |
| 0.4134        |          | 10.50 | 12.00    | 118.00   | 55.25                  | 71.00    | 45       | 9054980105000 |
| 0.4173        |          | 10.60 | 12.00    | 118.00   | 55.10                  | 71.00    | 45       | 9054980106000 |
| 0.4213        |          | 10.70 | 12.00    | 118.00   | 54.95                  | 71.00    | 45       | 9054980107000 |
| 0.4220        | 27/64    | 10.72 | 12.00    | 118.00   | 54.92                  | 71.00    | 45       | 9054980107200 |
| 0.4252        |          | 10.80 | 12.00    | 118.00   | 54.80                  | 71.00    | 45       | 9054980108000 |
| 0.4291        |          | 10.90 | 12.00    | 118.00   | 54.65                  | 71.00    | 45       | 9054980109000 |
| 0.4331        |          | 11.00 | 12.00    | 118.00   | 54.50                  | 71.00    | 45       | 9054980110000 |
| 0.4370        |          | 11.10 | 12.00    | 118.00   | 54.35                  | 71.00    | 45       | 9054980111000 |
| 0.4374        | 7/16     | 11.11 | 12.00    | 118.00   | 54.34                  | 71.00    | 45       | 9054980111100 |
| 0.4409        |          | 11.20 | 12.00    | 118.00   | 54.20                  | 71.00    | 45       | 9054980112000 |
| 0.4449        |          | 11.30 | 12.00    | 118.00   | 54.05                  | 71.00    | 45       | 9054980113000 |
| 0.4488        |          | 11.40 | 12.00    | 118.00   | 53.90                  | 71.00    | 45       | 9054980114000 |
| 0.4528        |          | 11.50 | 12.00    | 118.00   | 53.75                  | 71.00    | 45       | 9054980115000 |
| 0.4531        | 29/64    | 11.51 | 12.00    | 118.00   | 53.74                  | 71.00    | 45       | 9054980115100 |
| 0.4547        |          | 11.55 | 12.00    | 118.00   | 53.68                  | 71.00    | 45       | 9054980115500 |
| 0.4567        |          | 11.60 | 12.00    | 118.00   | 53.60                  | 71.00    | 45       | 9054980116000 |
| 0.4606        |          | 11.70 | 12.00    | 118.00   | 53.45                  | 71.00    | 45       | 9054980117000 |
| 0.4646        |          | 11.80 | 12.00    | 118.00   | 53.30                  | 71.00    | 45       | 9054980118000 |
| 0.4685        |          | 11.90 | 12.00    | 118.00   | 53.15                  | 71.00    | 45       | 9054980119000 |
| 0.4689        | 15/32    | 11.91 | 12.00    | 118.00   | 53.14                  | 71.00    | 45       | 9054980119100 |
| 0.4724        |          | 12.00 | 12.00    | 118.00   | 53.00                  | 71.00    | 45       | 9054980120000 |
| 0.4764        |          | 12.10 | 14.00    | 124.00   | 58.85                  | 77.00    | 45       | 9054980121000 |
| 0.4803        |          | 12.20 | 14.00    | 124.00   | 58.70                  | 77.00    | 45       | 9054980122000 |
| 0.4843        | 31/64    | 12.30 | 14.00    | 124.00   | 58.55                  | 77.00    | 45       | 9054980123000 |
| 0.4882        |          | 12.40 | 14.00    | 124.00   | 58.40                  | 77.00    | 45       | 9054980124000 |
| 0.4921        |          | 12.50 | 14.00    | 124.00   | 58.25                  | 77.00    | 45       | 9054980125000 |
| 0.4961        |          | 12.60 | 14.00    | 124.00   | 58.10                  | 77.00    | 45       | 9054980126000 |
| 0.5000        | 1/2      | 12.70 | 14.00    | 124.00   | 57.95                  | 77.00    | 45       | 9054980127000 |
| 0.5039        |          | 12.80 | 14.00    | 124.00   | 57.80                  | 77.00    | 45       | 9054980128000 |
| 0.5079        |          | 12.90 | 14.00    | 124.00   | 57.65                  | 77.00    | 45       | 9054980129000 |
| 0.5118        |          | 13.00 | 14.00    | 124.00   | 57.50                  | 77.00    | 45       | 9054980130000 |
| 0.5157        | 33/64    | 13.10 | 14.00    | 124.00   | 57.35                  | 77.00    | 45       | 9054980131000 |
| 0.5197        |          | 13.20 | 14.00    | 124.00   | 57.20                  | 77.00    | 45       | 9054980132000 |
| 0.5236        |          | 13.30 | 14.00    | 124.00   | 57.05                  | 77.00    | 45       | 9054980133000 |
| 0.5276        |          | 13.40 | 14.00    | 124.00   | 56.90                  | 77.00    | 45       | 9054980134000 |
| 0.5311        | 17/32    | 13.49 | 14.00    | 124.00   | 56.77                  | 77.00    | 45       | 9054980134900 |
| 0.5315        |          | 13.50 | 14.00    | 124.00   | 56.75                  | 77.00    | 45       | 9054980135000 |
| 0.5354        |          | 13.60 | 14.00    | 124.00   | 56.60                  | 77.00    | 45       | 9054980136000 |
| 0.5394        |          | 13.70 | 14.00    | 124.00   | 56.45                  | 77.00    | 45       | 9054980137000 |
| 0.5433        |          | 13.80 | 14.00    | 124.00   | 56.30                  | 77.00    | 45       | 9054980138000 |
| 0.5469        | 35/64    | 13.89 | 14.00    | 124.00   | 56.17                  | 77.00    | 45       | 9054980138900 |
| 0.5472        |          | 13.90 | 14.00    | 124.00   | 56.15                  | 77.00    | 45       | 9054980139000 |
| 0.5512        |          | 14.00 | 14.00    | 124.00   | 56.00                  | 77.00    | 45       | 9054980140000 |
| 0.5551        |          | 14.10 | 16.00    | 133.00   | 61.85                  | 83.00    | 48       | 9054980141000 |
| 0.5591        |          | 14.20 | 16.00    | 133.00   | 61.70                  | 83.00    | 48       | 9054980142000 |
| 0.5626        | 9/16     | 14.29 | 16.00    | 133.00   | 61.57                  | 83.00    | 48       | 9054980142900 |



| Diameter (d1) |          |       | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|-------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm    |          |          |                        |          |          |               |
| 0.5630        |          | 14.30 | 16.00    | 133.00   | 61.55                  | 83.00    | 48       | 9054980143000 |
| 0.5669        |          | 14.40 | 16.00    | 133.00   | 61.40                  | 83.00    | 48       | 9054980144000 |
| 0.5709        |          | 14.50 | 16.00    | 133.00   | 61.25                  | 83.00    | 48       | 9054980145000 |
| 0.5748        | 37/64    | 14.60 | 16.00    | 133.00   | 61.10                  | 83.00    | 48       | 9054980146000 |
| 0.5780        |          | 14.68 | 16.00    | 133.00   | 60.98                  | 83.00    | 48       | 9054980146800 |
| 0.5787        |          | 14.70 | 16.00    | 133.00   | 60.95                  | 83.00    | 48       | 9054980147000 |
| 0.5827        |          | 14.80 | 16.00    | 133.00   | 60.80                  | 83.00    | 48       | 9054980148000 |
| 0.5866        |          | 14.90 | 16.00    | 133.00   | 60.65                  | 83.00    | 48       | 9054980149000 |
| 0.5906        |          | 15.00 | 16.00    | 133.00   | 60.50                  | 83.00    | 48       | 9054980150000 |
| 0.5937        | 19/32    | 15.08 | 16.00    | 133.00   | 60.38                  | 83.00    | 48       | 9054980150800 |
| 0.5945        |          | 15.10 | 16.00    | 133.00   | 60.35                  | 83.00    | 48       | 9054980151000 |
| 0.5984        |          | 15.20 | 16.00    | 133.00   | 60.20                  | 83.00    | 48       | 9054980152000 |
| 0.6024        |          | 15.30 | 16.00    | 133.00   | 60.05                  | 83.00    | 48       | 9054980153000 |
| 0.6063        |          | 15.40 | 16.00    | 133.00   | 59.90                  | 83.00    | 48       | 9054980154000 |
| 0.6094        | 39/64    | 15.48 | 16.00    | 133.00   | 59.78                  | 83.00    | 48       | 9054980154800 |
| 0.6102        |          | 15.50 | 16.00    | 133.00   | 59.75                  | 83.00    | 48       | 9054980155000 |
| 0.6122        |          | 15.55 | 16.00    | 133.00   | 59.68                  | 83.00    | 48       | 9054980155500 |
| 0.6142        |          | 15.60 | 16.00    | 133.00   | 59.60                  | 83.00    | 48       | 9054980156000 |
| 0.6181        |          | 15.70 | 16.00    | 133.00   | 59.45                  | 83.00    | 48       | 9054980157000 |
| 0.6220        |          | 15.80 | 16.00    | 133.00   | 59.30                  | 83.00    | 48       | 9054980158000 |
| 0.6248        | 5/8      | 15.87 | 16.00    | 133.00   | 59.20                  | 83.00    | 48       | 9054980158700 |
| 0.6260        |          | 15.90 | 16.00    | 133.00   | 59.15                  | 83.00    | 48       | 9054980159000 |
| 0.6299        |          | 16.00 | 16.00    | 133.00   | 59.00                  | 83.00    | 48       | 9054980160000 |
| 0.6406        | 41/64    | 16.27 | 18.00    | 143.00   | 68.60                  | 93.00    | 48       | 9054980162700 |
| 0.6417        |          | 16.30 | 18.00    | 143.00   | 68.55                  | 93.00    | 48       | 9054980163000 |
| 0.6496        |          | 16.50 | 18.00    | 143.00   | 68.25                  | 93.00    | 48       | 9054980165000 |
| 0.6563        | 21/32    | 16.67 | 18.00    | 143.00   | 68.00                  | 93.00    | 48       | 9054980166700 |
| 0.6575        |          | 16.70 | 18.00    | 143.00   | 67.95                  | 93.00    | 48       | 9054980167000 |
| 0.6654        |          | 16.90 | 18.00    | 143.00   | 67.65                  | 93.00    | 48       | 9054980169000 |
| 0.6693        |          | 17.00 | 18.00    | 143.00   | 67.50                  | 93.00    | 48       | 9054980170000 |
| 0.6720        | 43/64    | 17.07 | 18.00    | 143.00   | 67.40                  | 93.00    | 48       | 9054980170700 |
| 0.6874        |          | 17.46 | 18.00    | 143.00   | 66.81                  | 93.00    | 48       | 9054980174600 |
| 0.6890        |          | 17.50 | 18.00    | 143.00   | 66.75                  | 93.00    | 48       | 9054980175000 |
| 0.6909        |          | 17.55 | 18.00    | 143.00   | 66.68                  | 93.00    | 48       | 9054980175500 |
| 0.6969        |          | 17.70 | 18.00    | 143.00   | 66.45                  | 93.00    | 48       | 9054980177000 |
| 0.7031        | 45/64    | 17.86 | 18.00    | 143.00   | 66.21                  | 93.00    | 48       | 9054980178600 |
| 0.7087        |          | 18.00 | 18.00    | 143.00   | 66.00                  | 93.00    | 48       | 9054980180000 |
| 0.7189        |          | 18.26 | 20.00    | 153.00   | 73.61                  | 101.00   | 50       | 9054980182600 |
| 0.7283        | 23/32    | 18.50 | 20.00    | 153.00   | 73.25                  | 101.00   | 50       | 9054980185000 |
| 0.7362        |          | 18.70 | 20.00    | 153.00   | 72.95                  | 101.00   | 50       | 9054980187000 |
| 0.7441        |          | 18.90 | 20.00    | 153.00   | 72.65                  | 101.00   | 50       | 9054980189000 |
| 0.7480        |          | 19.00 | 20.00    | 153.00   | 72.50                  | 101.00   | 50       | 9054980190000 |
| 0.7500        | 3/4      | 19.05 | 20.00    | 153.00   | 72.43                  | 101.00   | 50       | 9054980190500 |
| 0.7579        |          | 19.25 | 20.00    | 153.00   | 72.13                  | 101.00   | 50       | 9054980192500 |
| 0.7598        |          | 19.30 | 20.00    | 153.00   | 72.05                  | 101.00   | 50       | 9054980193000 |
| 0.7677        |          | 19.45 | 20.00    | 153.00   | 71.83                  | 101.00   | 50       | 9054980194500 |
| 0.7697        |          | 19.50 | 20.00    | 153.00   | 71.75                  | 101.00   | 50       | 9054980195000 |
| 0.7756        |          | 19.55 | 20.00    | 153.00   | 71.68                  | 101.00   | 50       | 9054980195500 |
| 0.7756        |          | 19.70 | 20.00    | 153.00   | 71.45                  | 101.00   | 50       | 9054980197000 |
| 0.7795        |          | 19.80 | 20.00    | 153.00   | 71.30                  | 101.00   | 50       | 9054980198000 |
| 0.7811        | 25/32    | 19.84 | 20.00    | 153.00   | 71.24                  | 101.00   | 50       | 9054980198400 |
| 0.7874        |          | 20.00 | 20.00    | 153.00   | 71.00                  | 101.00   | 50       | 9054980200000 |





## Ratio drills with internal coolant

Series

5499



Cutting depth



Type



Standard



Point angle



Tolerance on Ø



Internal coolant

Tool material

Solid Carbide

Coating

nano-FIREX®

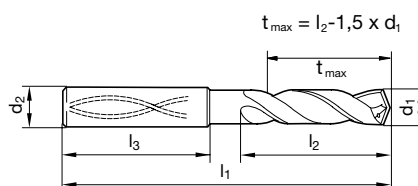
Shank form

HA

| Material            |                 | Suitability |
|---------------------|-----------------|-------------|
| <b>P</b>            | Steel           | ●           |
| <b>M</b>            | Stainless steel | ○           |
| <b>K</b>            | Cast iron       | ○           |
| <b>N</b>            | Aluminum        |             |
| <b>S</b>            | Ni / Ti alloys  | ○           |
| <b>H</b>            | Hardened steel  | ○           |
| ●=Optimal ○=Limited |                 |             |

relieved cone • main cutting edge form concave  
• optimized cutting geometry • maximum performance

structural and case hardened steels • free-cutting steels, heat treatable steels • steels (alloyed/unalloyed) up to 1400 N/mm²



| Diameter (d1) |          |       | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|-------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm    |          |          |                        |          |          |               |
| 0.1181        | 1/8      | 3.000 | 6.00     | 70.00    | 25.50                  | 30.00    | 36.00    | 9054990030000 |
| 0.1220        |          | 3.100 | 6.00     | 70.00    | 25.35                  | 30.00    | 36.00    | 9054990031000 |
| 0.1248        |          | 3.170 | 6.00     | 70.00    | 25.25                  | 30.00    | 36.00    | 9054990031700 |
| 0.1260        |          | 3.200 | 6.00     | 70.00    | 25.20                  | 30.00    | 36.00    | 9054990032000 |
| 0.1280        |          | 3.250 | 6.00     | 70.00    | 25.13                  | 30.00    | 36.00    | 9054990032500 |
| 0.1299        | 9/64     | 3.300 | 6.00     | 70.00    | 25.05                  | 30.00    | 36.00    | 9054990033000 |
| 0.1339        |          | 3.400 | 6.00     | 75.00    | 30.40                  | 35.50    | 36.00    | 9054990034000 |
| 0.1378        |          | 3.500 | 6.00     | 75.00    | 30.25                  | 35.50    | 36.00    | 9054990035000 |
| 0.1406        |          | 3.570 | 6.00     | 75.00    | 30.15                  | 35.50    | 36.00    | 9054990035700 |
| 0.1417        |          | 3.600 | 6.00     | 75.00    | 30.10                  | 35.50    | 36.00    | 9054990036000 |
| 0.1457        | 5/32     | 3.700 | 6.00     | 75.00    | 29.95                  | 35.50    | 36.00    | 9054990037000 |
| 0.1496        |          | 3.800 | 6.00     | 75.00    | 31.80                  | 37.50    | 36.00    | 9054990038000 |
| 0.1535        |          | 3.900 | 6.00     | 75.00    | 31.65                  | 37.50    | 36.00    | 9054990039000 |
| 0.1563        |          | 3.970 | 6.00     | 75.00    | 31.55                  | 37.50    | 36.00    | 9054990039700 |
| 0.1575        |          | 4.000 | 6.00     | 75.00    | 31.50                  | 37.50    | 36.00    | 9054990040000 |
| 0.1591        | 11/64    | 4.040 | 6.00     | 75.00    | 31.44                  | 37.50    | 36.00    | 9054990040400 |
| 0.1614        |          | 4.100 | 6.00     | 75.00    | 31.35                  | 37.50    | 36.00    | 9054990041000 |
| 0.1654        |          | 4.200 | 6.00     | 75.00    | 31.20                  | 37.50    | 36.00    | 9054990042000 |
| 0.1693        |          | 4.300 | 6.00     | 85.00    | 38.55                  | 45.00    | 36.00    | 9054990043000 |
| 0.1720        |          | 4.370 | 6.00     | 85.00    | 38.45                  | 45.00    | 36.00    | 9054990043700 |
| 0.1732        | 3/16     | 4.400 | 6.00     | 85.00    | 38.40                  | 45.00    | 36.00    | 9054990044000 |
| 0.1772        |          | 4.500 | 6.00     | 85.00    | 38.25                  | 45.00    | 36.00    | 9054990045000 |
| 0.1811        |          | 4.600 | 6.00     | 85.00    | 38.10                  | 45.00    | 36.00    | 9054990046000 |
| 0.1831        |          | 4.650 | 6.00     | 85.00    | 38.03                  | 45.00    | 36.00    | 9054990046500 |
| 0.1850        |          | 4.700 | 6.00     | 85.00    | 37.95                  | 45.00    | 36.00    | 9054990047000 |
| 0.1874        | #12      | 4.760 | 6.00     | 90.00    | 42.86                  | 50.00    | 36.00    | 9054990047600 |
| 0.1890        |          | 4.800 | 6.00     | 90.00    | 42.80                  | 50.00    | 36.00    | 9054990048000 |
| 0.1929        |          | 4.900 | 6.00     | 90.00    | 42.65                  | 50.00    | 36.00    | 9054990049000 |
| 0.1969        |          | 5.000 | 6.00     | 90.00    | 42.50                  | 50.00    | 36.00    | 9054990050000 |
| 0.2008        |          | 5.100 | 6.00     | 90.00    | 42.35                  | 50.00    | 36.00    | 9054990051000 |
| 0.2012        | 13/64    | 5.110 | 6.00     | 90.00    | 42.34                  | 50.00    | 36.00    | 9054990051100 |
| 0.2031        |          | 5.160 | 6.00     | 90.00    | 42.26                  | 50.00    | 36.00    | 9054990051600 |
| 0.2047        |          | 5.200 | 6.00     | 90.00    | 42.20                  | 50.00    | 36.00    | 9054990052000 |
| 0.2087        |          | 5.300 | 6.00     | 90.00    | 42.05                  | 50.00    | 36.00    | 9054990053000 |
| 0.2126        |          | 5.400 | 6.00     | 97.00    | 48.90                  | 57.00    | 36.00    | 9054990054000 |
| 0.2130        |          | 5.410 | 6.00     | 97.00    | 48.89                  | 57.00    | 36.00    | 9054990054100 |



| Diameter (d1) |          |       | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|-------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm    |          |          |                        |          |          |               |
| 0.2165        | 7/32     | 5.500 | 6.00     | 97.00    | 48.75                  | 57.00    | 36.00    | 9054990055000 |
| 0.2185        |          | 5.550 | 6.00     | 97.00    | 48.68                  | 57.00    | 36.00    | 9054990055500 |
| 0.2189        |          | 5.560 | 6.00     | 97.00    | 48.66                  | 57.00    | 36.00    | 9054990055600 |
| 0.2205        |          | 5.600 | 6.00     | 97.00    | 48.60                  | 57.00    | 36.00    | 9054990056000 |
| 0.2244        |          | 5.700 | 6.00     | 97.00    | 48.45                  | 57.00    | 36.00    | 9054990057000 |
| 0.2283        | 15/64    | 5.800 | 6.00     | 97.00    | 48.30                  | 57.00    | 36.00    | 9054990058000 |
| 0.2323        |          | 5.900 | 6.00     | 97.00    | 48.15                  | 57.00    | 36.00    | 9054990059000 |
| 0.2343        |          | 5.950 | 6.00     | 97.00    | 48.08                  | 57.00    | 36.00    | 9054990059500 |
| 0.2362        |          | 6.000 | 6.00     | 97.00    | 48.00                  | 57.00    | 36.00    | 9054990060000 |
| 0.2402        |          | 6.100 | 8.00     | 106.00   | 56.85                  | 66.00    | 36.00    | 9054990061000 |
| 0.2441        | 1/4      | 6.200 | 8.00     | 106.00   | 56.70                  | 66.00    | 36.00    | 9054990062000 |
| 0.2480        |          | 6.300 | 8.00     | 106.00   | 56.55                  | 66.00    | 36.00    | 9054990063000 |
| 0.2500        |          | 6.350 | 8.00     | 106.00   | 56.48                  | 66.00    | 36.00    | 9054990063500 |
| 0.2520        |          | 6.400 | 8.00     | 106.00   | 56.40                  | 66.00    | 36.00    | 9054990064000 |
| 0.2559        |          | 6.500 | 8.00     | 106.00   | 56.25                  | 66.00    | 36.00    | 9054990065000 |
| 0.2571        | E        | 6.530 | 8.00     | 106.00   | 56.21                  | 66.00    | 36.00    | 9054990065300 |
| 0.2579        |          | 6.550 | 8.00     | 106.00   | 56.18                  | 66.00    | 36.00    | 9054990065500 |
| 0.2598        |          | 6.600 | 8.00     | 106.00   | 56.10                  | 66.00    | 36.00    | 9054990066000 |
| 0.2638        |          | 6.700 | 8.00     | 106.00   | 55.95                  | 66.00    | 36.00    | 9054990067000 |
| 0.2657        |          | 6.750 | 8.00     | 106.00   | 55.88                  | 66.00    | 36.00    | 9054990067500 |
| 0.2677        | 17/64    | 6.800 | 8.00     | 106.00   | 55.80                  | 66.00    | 36.00    | 9054990068000 |
| 0.2717        | 9/32     | 6.900 | 8.00     | 116.00   | 65.65                  | 76.00    | 36.00    | 9054990069000 |
| 0.2756        |          | 7.000 | 8.00     | 116.00   | 65.50                  | 76.00    | 36.00    | 9054990070000 |
| 0.2795        |          | 7.100 | 8.00     | 116.00   | 65.35                  | 76.00    | 36.00    | 9054990071000 |
| 0.2811        |          | 7.140 | 8.00     | 116.00   | 65.29                  | 76.00    | 36.00    | 9054990071400 |
| 0.2835        |          | 7.200 | 8.00     | 116.00   | 65.20                  | 76.00    | 36.00    | 9054990072000 |
| 0.2874        | 19/64    | 7.300 | 8.00     | 116.00   | 65.05                  | 76.00    | 36.00    | 9054990073000 |
| 0.2913        |          | 7.400 | 8.00     | 116.00   | 64.90                  | 76.00    | 36.00    | 9054990074000 |
| 0.2953        |          | 7.500 | 8.00     | 116.00   | 64.75                  | 76.00    | 36.00    | 9054990075000 |
| 0.2969        |          | 7.540 | 8.00     | 116.00   | 64.69                  | 76.00    | 36.00    | 9054990075400 |
| 0.2992        |          | 7.600 | 8.00     | 116.00   | 64.60                  | 76.00    | 36.00    | 9054990076000 |
| 0.3031        | 5/16     | 7.700 | 8.00     | 116.00   | 64.45                  | 76.00    | 36.00    | 9054990077000 |
| 0.3071        |          | 7.800 | 8.00     | 116.00   | 64.30                  | 76.00    | 36.00    | 9054990078000 |
| 0.3110        |          | 7.900 | 8.00     | 116.00   | 64.15                  | 76.00    | 36.00    | 9054990079000 |
| 0.3126        |          | 7.940 | 8.00     | 116.00   | 64.09                  | 76.00    | 36.00    | 9054990079400 |
| 0.3150        |          | 8.000 | 8.00     | 116.00   | 64.00                  | 76.00    | 36.00    | 9054990080000 |
| 0.3189        | 21/64    | 8.100 | 10.00    | 131.00   | 74.85                  | 87.00    | 40.00    | 9054990081000 |
| 0.3228        |          | 8.200 | 10.00    | 131.00   | 74.70                  | 87.00    | 40.00    | 9054990082000 |
| 0.3268        |          | 8.300 | 10.00    | 131.00   | 74.55                  | 87.00    | 40.00    | 9054990083000 |
| 0.3280        |          | 8.330 | 10.00    | 131.00   | 74.51                  | 87.00    | 40.00    | 9054990083300 |
| 0.3307        |          | 8.400 | 10.00    | 131.00   | 74.40                  | 87.00    | 40.00    | 9054990084000 |
| 0.3346        | 11/32    | 8.500 | 10.00    | 131.00   | 74.25                  | 87.00    | 40.00    | 9054990085000 |
| 0.3386        |          | 8.600 | 10.00    | 131.00   | 74.10                  | 87.00    | 40.00    | 9054990086000 |
| 0.3425        |          | 8.700 | 10.00    | 131.00   | 73.95                  | 87.00    | 40.00    | 9054990087000 |
| 0.3437        |          | 8.730 | 10.00    | 131.00   | 73.91                  | 87.00    | 40.00    | 9054990087300 |
| 0.3465        |          | 8.800 | 10.00    | 131.00   | 73.80                  | 87.00    | 40.00    | 9054990088000 |
| 0.3504        | 23/64    | 8.900 | 10.00    | 131.00   | 73.65                  | 87.00    | 40.00    | 9054990089000 |
| 0.3543        |          | 9.000 | 10.00    | 131.00   | 73.50                  | 87.00    | 40.00    | 9054990090000 |
| 0.3583        |          | 9.100 | 10.00    | 139.00   | 81.35                  | 95.00    | 40.00    | 9054990091000 |
| 0.3594        |          | 9.130 | 10.00    | 139.00   | 81.31                  | 95.00    | 40.00    | 9054990091300 |
| 0.3622        |          | 9.200 | 10.00    | 139.00   | 81.20                  | 95.00    | 40.00    | 9054990092000 |
| 0.3642        | 3/8      | 9.250 | 10.00    | 139.00   | 81.13                  | 95.00    | 40.00    | 9054990092500 |
| 0.3661        |          | 9.300 | 10.00    | 139.00   | 81.05                  | 95.00    | 40.00    | 9054990093000 |
| 0.3677        |          | 9.340 | 10.00    | 139.00   | 80.99                  | 95.00    | 40.00    | 9054990093400 |
| 0.3701        |          | 9.400 | 10.00    | 139.00   | 80.90                  | 95.00    | 40.00    | 9054990094000 |
| 0.3740        |          | 9.500 | 10.00    | 139.00   | 80.75                  | 95.00    | 40.00    | 9054990095000 |
| 0.3748        |          | 9.520 | 10.00    | 139.00   | 80.72                  | 95.00    | 40.00    | 9054990095200 |
| 0.3780        |          | 9.600 | 10.00    | 139.00   | 80.60                  | 95.00    | 40.00    | 9054990096000 |
| 0.3819        |          | 9.700 | 10.00    | 139.00   | 80.45                  | 95.00    | 40.00    | 9054990097000 |



| Diameter (d1) |          |        | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|--------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm     |          |          |                        |          |          |               |
| 0.3858        | W        | 9.800  | 10.00    | 139.00   | 80.30                  | 95.00    | 40.00    | 9054990098000 |
| 0.3898        |          | 9.900  | 10.00    | 139.00   | 80.15                  | 95.00    | 40.00    | 9054990099000 |
| 0.3906        | 25/64    | 9.920  | 10.00    | 139.00   | 80.12                  | 95.00    | 40.00    | 9054990099200 |
| 0.3937        |          | 10.000 | 10.00    | 139.00   | 80.00                  | 95.00    | 40.00    | 9054990100000 |
| 0.3976        |          | 10.100 | 12.00    | 155.00   | 90.85                  | 106.00   | 45.00    | 9054990101000 |
| 0.4016        |          | 10.200 | 12.00    | 155.00   | 90.70                  | 106.00   | 45.00    | 9054990102000 |
| 0.4055        |          | 10.300 | 12.00    | 155.00   | 90.55                  | 106.00   | 45.00    | 9054990103000 |
| 0.4063        | 13/32    | 10.320 | 12.00    | 155.00   | 90.52                  | 106.00   | 45.00    | 9054990103200 |
| 0.4094        |          | 10.400 | 12.00    | 155.00   | 90.40                  | 106.00   | 45.00    | 9054990104000 |
| 0.4134        |          | 10.500 | 12.00    | 155.00   | 90.25                  | 106.00   | 45.00    | 9054990105000 |
| 0.4173        |          | 10.600 | 12.00    | 155.00   | 90.10                  | 106.00   | 45.00    | 9054990106000 |
| 0.4213        |          | 10.700 | 12.00    | 155.00   | 89.95                  | 106.00   | 45.00    | 9054990107000 |
| 0.4220        | 27/64    | 10.720 | 12.00    | 155.00   | 89.92                  | 106.00   | 45.00    | 9054990107200 |
| 0.4252        |          | 10.800 | 12.00    | 155.00   | 89.80                  | 106.00   | 45.00    | 9054990108000 |
| 0.4291        |          | 10.900 | 12.00    | 155.00   | 89.65                  | 106.00   | 45.00    | 9054990109000 |
| 0.4331        |          | 11.000 | 12.00    | 155.00   | 89.50                  | 106.00   | 45.00    | 9054990110000 |
| 0.4370        |          | 11.100 | 12.00    | 163.00   | 97.35                  | 114.00   | 45.00    | 9054990111000 |
| 0.4374        | 7/16     | 11.110 | 12.00    | 163.00   | 97.34                  | 114.00   | 45.00    | 9054990111100 |
| 0.4409        |          | 11.200 | 12.00    | 163.00   | 97.20                  | 114.00   | 45.00    | 9054990112000 |
| 0.4449        |          | 11.300 | 12.00    | 163.00   | 97.05                  | 114.00   | 45.00    | 9054990113000 |
| 0.4488        |          | 11.400 | 12.00    | 163.00   | 96.90                  | 114.00   | 45.00    | 9054990114000 |
| 0.4528        |          | 11.500 | 12.00    | 163.00   | 96.75                  | 114.00   | 45.00    | 9054990115000 |
| 0.4531        | 29/64    | 11.510 | 12.00    | 163.00   | 96.74                  | 114.00   | 45.00    | 9054990115100 |
| 0.4567        |          | 11.600 | 12.00    | 163.00   | 96.60                  | 114.00   | 45.00    | 9054990116000 |
| 0.4606        |          | 11.700 | 12.00    | 163.00   | 96.45                  | 114.00   | 45.00    | 9054990117000 |
| 0.4646        |          | 11.800 | 12.00    | 163.00   | 96.30                  | 114.00   | 45.00    | 9054990118000 |
| 0.4685        |          | 11.900 | 12.00    | 163.00   | 96.15                  | 114.00   | 45.00    | 9054990119000 |
| 0.4689        | 15/32    | 11.910 | 12.00    | 163.00   | 96.14                  | 114.00   | 45.00    | 9054990119100 |
| 0.4724        |          | 12.000 | 12.00    | 163.00   | 96.00                  | 114.00   | 45.00    | 9054990120000 |
| 0.4764        |          | 12.100 | 14.00    | 182.00   | 114.85                 | 133.00   | 45.00    | 9054990121000 |
| 0.4803        |          | 12.200 | 14.00    | 182.00   | 114.70                 | 133.00   | 45.00    | 9054990122000 |
| 0.4843        | 31/64    | 12.300 | 14.00    | 182.00   | 114.55                 | 133.00   | 45.00    | 9054990123000 |
| 0.4882        |          | 12.400 | 14.00    | 182.00   | 114.40                 | 133.00   | 45.00    | 9054990124000 |
| 0.4921        |          | 12.500 | 14.00    | 182.00   | 114.25                 | 133.00   | 45.00    | 9054990125000 |
| 0.4961        |          | 12.600 | 14.00    | 182.00   | 114.10                 | 133.00   | 45.00    | 9054990126000 |
| 0.5000        | 1/2      | 12.700 | 14.00    | 182.00   | 113.95                 | 133.00   | 45.00    | 9054990127000 |
| 0.5039        |          | 12.800 | 14.00    | 182.00   | 113.80                 | 133.00   | 45.00    | 9054990128000 |
| 0.5079        |          | 12.900 | 14.00    | 182.00   | 113.65                 | 133.00   | 45.00    | 9054990129000 |
| 0.5118        |          | 13.000 | 14.00    | 182.00   | 113.50                 | 133.00   | 45.00    | 9054990130000 |
| 0.5157        | 33/64    | 13.100 | 14.00    | 182.00   | 113.35                 | 133.00   | 45.00    | 9054990131000 |
| 0.5311        | 17/32    | 13.490 | 14.00    | 182.00   | 112.77                 | 133.00   | 45.00    | 9054990134900 |
| 0.5315        |          | 13.500 | 14.00    | 182.00   | 112.75                 | 133.00   | 45.00    | 9054990135000 |
| 0.5394        |          | 13.700 | 14.00    | 182.00   | 112.45                 | 133.00   | 45.00    | 9054990137000 |
| 0.5469        | 35/64    | 13.890 | 14.00    | 182.00   | 112.17                 | 133.00   | 45.00    | 9054990138900 |
| 0.5512        |          | 14.000 | 14.00    | 182.00   | 112.00                 | 133.00   | 45.00    | 9054990140000 |
| 0.5551        |          | 14.100 | 16.00    | 204.00   | 130.85                 | 152.00   | 48.00    | 9054990141000 |
| 0.5591        |          | 14.200 | 16.00    | 204.00   | 130.70                 | 152.00   | 48.00    | 9054990142000 |
| 0.5626        | 9/16     | 14.290 | 16.00    | 204.00   | 130.57                 | 152.00   | 48.00    | 9054990142900 |
| 0.5630        |          | 14.300 | 16.00    | 204.00   | 130.55                 | 152.00   | 48.00    | 9054990143000 |
| 0.5709        |          | 14.500 | 16.00    | 204.00   | 130.25                 | 152.00   | 48.00    | 9054990145000 |
| 0.5787        |          | 14.700 | 16.00    | 204.00   | 129.95                 | 152.00   | 48.00    | 9054990147000 |
| 0.5827        |          | 14.800 | 16.00    | 204.00   | 129.80                 | 152.00   | 48.00    | 9054990148000 |
| 0.5906        |          | 15.000 | 16.00    | 204.00   | 129.50                 | 152.00   | 48.00    | 9054990150000 |
| 0.5945        |          | 15.100 | 16.00    | 204.00   | 129.35                 | 152.00   | 48.00    | 9054990151000 |
| 0.6024        |          | 15.300 | 16.00    | 204.00   | 129.05                 | 152.00   | 48.00    | 9054990153000 |
| 0.6094        | 39/64    | 15.480 | 16.00    | 204.00   | 128.78                 | 152.00   | 48.00    | 9054990154800 |
| 0.6102        |          | 15.500 | 16.00    | 204.00   | 128.75                 | 152.00   | 48.00    | 9054990155000 |
| 0.6181        |          | 15.700 | 16.00    | 204.00   | 128.45                 | 152.00   | 48.00    | 9054990157000 |
| 0.6220        |          | 15.800 | 16.00    | 204.00   | 128.30                 | 152.00   | 48.00    | 9054990158000 |



| Diameter (d1) |          |        | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|--------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm     |          |          |                        |          |          |               |
| 0.6248        | 5/8      | 15.870 | 16.00    | 204.00   | 128.20                 | 152.00   | 48.00    | 9054990158700 |
| 0.6299        |          | 16.000 | 16.00    | 204.00   | 128.00                 | 152.00   | 48.00    | 9054990160000 |
| 0.6417        |          | 16.300 | 18.00    | 223.00   | 146.55                 | 171.00   | 48.00    | 9054990163000 |
| 0.6496        |          | 16.500 | 18.00    | 223.00   | 146.25                 | 171.00   | 48.00    | 9054990165000 |
| 0.6575        |          | 16.700 | 18.00    | 223.00   | 145.95                 | 171.00   | 48.00    | 9054990167000 |
| 0.6654        |          | 16.900 | 18.00    | 223.00   | 145.65                 | 171.00   | 48.00    | 9054990169000 |
| 0.6693        |          | 17.000 | 18.00    | 223.00   | 145.50                 | 171.00   | 48.00    | 9054990170000 |
| 0.6890        |          | 17.500 | 18.00    | 223.00   | 144.75                 | 171.00   | 48.00    | 9054990175000 |
| 0.6969        |          | 17.700 | 18.00    | 223.00   | 144.45                 | 171.00   | 48.00    | 9054990177000 |
| 0.7087        |          | 18.000 | 18.00    | 223.00   | 144.00                 | 171.00   | 48.00    | 9054990180000 |
| 0.7283        |          | 18.500 | 20.00    | 244.00   | 162.25                 | 190.00   | 50.00    | 9054990185000 |
| 0.7441        |          | 18.900 | 20.00    | 244.00   | 161.65                 | 190.00   | 50.00    | 9054990189000 |
| 0.7480        |          | 19.000 | 20.00    | 244.00   | 161.50                 | 190.00   | 50.00    | 9054990190000 |
| 0.7500        |          | 19.050 | 20.00    | 244.00   | 161.43                 | 190.00   | 50.00    | 9054990190500 |
| 0.7677        |          | 19.500 | 20.00    | 244.00   | 160.75                 | 190.00   | 50.00    | 9054990195000 |
| 0.7795        | 3/4      | 19.800 | 20.00    | 244.00   | 160.30                 | 190.00   | 50.00    | 9054990198000 |
| 0.7874        |          | 20.000 | 20.00    | 244.00   | 160.00                 | 190.00   | 50.00    | 9054990200000 |



## Ratio drills with internal coolant

Series

6499



Cutting depth



Type



Standard



Point angle



Tolerance on Ø



Internal coolant



Tool material

Solid Carbide

Coating

nano-FIREX®

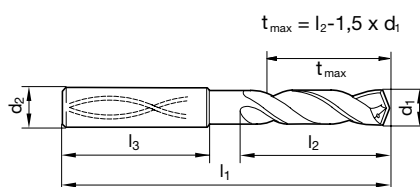
Shank form

HA

| Material               | Suitability     |   |
|------------------------|-----------------|---|
| <b>P</b>               | Steel           | ● |
| <b>M</b>               | Stainless steel | ○ |
| <b>K</b>               | Cast iron       | ○ |
| <b>N</b>               | Aluminum        |   |
| <b>S</b>               | Ni / Ti alloys  | ○ |
| <b>H</b>               | Hardened steel  | ○ |
| ●=Optimal    ○=Limited |                 |   |

relieved cone • main cutting edge form concave  
• optimized cutting geometry • maximum performance

structural and case hardened steels • free-cutting steels, heat treatable steels • steels (alloyed/unalloyed) up to 1400 N/mm<sup>2</sup>



| Diameter (d1) |          |      | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm   |          |          |                        |          |          |               |
| 0.1181        | 1/8      | 3.00 | 6.00     | 95.00    | 50.50                  | 55.00    | 36.00    | 9064990030000 |
| 0.1220        |          | 3.10 | 6.00     | 95.00    | 50.35                  | 55.00    | 36.00    | 9064990031000 |
| 0.1248        |          | 3.17 | 6.00     | 95.00    | 50.25                  | 55.00    | 36.00    | 9064990031700 |
| 0.1260        |          | 3.20 | 6.00     | 95.00    | 50.20                  | 55.00    | 36.00    | 9064990032000 |
| 0.1280        |          | 3.25 | 6.00     | 95.00    | 50.13                  | 55.00    | 36.00    | 9064990032500 |
| 0.1299        | 9/64     | 3.30 | 6.00     | 95.00    | 50.05                  | 55.00    | 36.00    | 9064990033000 |
| 0.1339        |          | 3.40 | 6.00     | 95.00    | 49.90                  | 55.00    | 36.00    | 9064990034000 |
| 0.1378        |          | 3.50 | 6.00     | 102.00   | 56.75                  | 62.00    | 36.00    | 9064990035000 |
| 0.1406        |          | 3.57 | 6.00     | 102.00   | 56.65                  | 62.00    | 36.00    | 9064990035700 |
| 0.1417        |          | 3.60 | 6.00     | 102.00   | 56.60                  | 62.00    | 36.00    | 9064990036000 |
| 0.1457        | 5/32     | 3.70 | 6.00     | 102.00   | 56.45                  | 62.00    | 36.00    | 9064990037000 |
| 0.1496        |          | 3.80 | 6.00     | 102.00   | 56.30                  | 62.00    | 36.00    | 9064990038000 |
| 0.1535        |          | 3.90 | 6.00     | 102.00   | 56.15                  | 62.00    | 36.00    | 9064990039000 |
| 0.1563        |          | 3.97 | 6.00     | 102.00   | 56.05                  | 62.00    | 36.00    | 9064990039700 |
| 0.1575        |          | 4.00 | 6.00     | 102.00   | 56.00                  | 62.00    | 36.00    | 9064990040000 |
| 0.1591        | 11/64    | 4.04 | 6.00     | 109.00   | 62.94                  | 69.00    | 36.00    | 9064990040400 |
| 0.1614        |          | 4.10 | 6.00     | 109.00   | 62.85                  | 69.00    | 36.00    | 9064990041000 |
| 0.1654        |          | 4.20 | 6.00     | 109.00   | 62.70                  | 69.00    | 36.00    | 9064990042000 |
| 0.1693        |          | 4.30 | 6.00     | 109.00   | 62.55                  | 69.00    | 36.00    | 9064990043000 |
| 0.1720        |          | 4.37 | 6.00     | 109.00   | 62.45                  | 69.00    | 36.00    | 9064990043700 |
| 0.1732        | 3/16     | 4.40 | 6.00     | 109.00   | 62.40                  | 69.00    | 36.00    | 9064990044000 |
| 0.1772        |          | 4.50 | 6.00     | 116.00   | 69.25                  | 76.00    | 36.00    | 9064990045000 |
| 0.1811        |          | 4.60 | 6.00     | 116.00   | 69.10                  | 76.00    | 36.00    | 9064990046000 |
| 0.1831        |          | 4.65 | 6.00     | 116.00   | 69.03                  | 76.00    | 36.00    | 9064990046500 |
| 0.1850        |          | 4.70 | 6.00     | 116.00   | 68.95                  | 76.00    | 36.00    | 9064990047000 |
| 0.1874        | #12      | 4.76 | 6.00     | 116.00   | 68.86                  | 76.00    | 36.00    | 9064990047600 |
| 0.1890        |          | 4.80 | 6.00     | 116.00   | 68.80                  | 76.00    | 36.00    | 9064990048000 |
| 0.1929        |          | 4.90 | 6.00     | 116.00   | 68.65                  | 76.00    | 36.00    | 9064990049000 |
| 0.1969        |          | 5.00 | 6.00     | 116.00   | 68.50                  | 76.00    | 36.00    | 9064990050000 |
| 0.2008        |          | 5.10 | 6.00     | 123.00   | 75.35                  | 83.00    | 36.00    | 9064990051000 |
| 0.2012        | 13/64    | 5.11 | 6.00     | 123.00   | 75.34                  | 83.00    | 36.00    | 9064990051100 |
| 0.2031        |          | 5.16 | 6.00     | 123.00   | 75.26                  | 83.00    | 36.00    | 9064990051600 |
| 0.2047        |          | 5.20 | 6.00     | 123.00   | 75.20                  | 83.00    | 36.00    | 9064990052000 |
| 0.2087        |          | 5.30 | 6.00     | 123.00   | 75.05                  | 83.00    | 36.00    | 9064990053000 |
| 0.2126        |          | 5.40 | 6.00     | 123.00   | 74.90                  | 83.00    | 36.00    | 9064990054000 |
| 0.2130        |          | 5.41 | 6.00     | 123.00   | 74.89                  | 83.00    | 36.00    | 9064990054100 |





| Diameter (d1) |          |      | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm   |          |          |                        |          |          |               |
| 0.2165        | 7/32     | 5.50 | 6.00     | 130.00   | 81.75                  | 90.00    | 36.00    | 9064990055000 |
| 0.2185        |          | 5.55 | 6.00     | 130.00   | 81.68                  | 90.00    | 36.00    | 9064990055500 |
| 0.2189        |          | 5.56 | 6.00     | 130.00   | 81.66                  | 90.00    | 36.00    | 9064990055600 |
| 0.2205        |          | 5.60 | 6.00     | 130.00   | 81.60                  | 90.00    | 36.00    | 9064990056000 |
| 0.2244        |          | 5.70 | 6.00     | 130.00   | 81.45                  | 90.00    | 36.00    | 9064990057000 |
| 0.2283        |          | 5.80 | 6.00     | 130.00   | 81.30                  | 90.00    | 36.00    | 9064990058000 |
| 0.2323        | 15/64    | 5.90 | 6.00     | 130.00   | 81.15                  | 90.00    | 36.00    | 9064990059000 |
| 0.2343        |          | 5.95 | 6.00     | 130.00   | 81.08                  | 90.00    | 36.00    | 9064990059500 |
| 0.2362        |          | 6.00 | 6.00     | 130.00   | 81.00                  | 90.00    | 36.00    | 9064990060000 |
| 0.2402        | 1/4      | 6.10 | 8.00     | 158.00   | 108.85                 | 118.00   | 36.00    | 9064990061000 |
| 0.2441        |          | 6.20 | 8.00     | 158.00   | 108.70                 | 118.00   | 36.00    | 9064990062000 |
| 0.2480        |          | 6.30 | 8.00     | 158.00   | 108.55                 | 118.00   | 36.00    | 9064990063000 |
| 0.2500        |          | 6.35 | 8.00     | 158.00   | 108.48                 | 118.00   | 36.00    | 9064990063500 |
| 0.2520        |          | 6.40 | 8.00     | 158.00   | 108.40                 | 118.00   | 36.00    | 9064990064000 |
| 0.2559        |          | 6.50 | 8.00     | 158.00   | 108.25                 | 118.00   | 36.00    | 9064990065000 |
| 0.2571        | 17/64    | 6.53 | 8.00     | 158.00   | 108.21                 | 118.00   | 36.00    | 9064990065300 |
| 0.2579        |          | 6.55 | 8.00     | 158.00   | 108.18                 | 118.00   | 36.00    | 9064990065500 |
| 0.2598        |          | 6.60 | 8.00     | 158.00   | 108.10                 | 118.00   | 36.00    | 9064990066000 |
| 0.2638        |          | 6.70 | 8.00     | 158.00   | 107.95                 | 118.00   | 36.00    | 9064990067000 |
| 0.2657        |          | 6.75 | 8.00     | 158.00   | 107.88                 | 118.00   | 36.00    | 9064990067500 |
| 0.2677        |          | 6.80 | 8.00     | 158.00   | 107.80                 | 118.00   | 36.00    | 9064990068000 |
| 0.2717        | 9/32     | 6.90 | 8.00     | 158.00   | 107.65                 | 118.00   | 36.00    | 9064990069000 |
| 0.2756        |          | 7.00 | 8.00     | 158.00   | 107.50                 | 118.00   | 36.00    | 9064990070000 |
| 0.2795        |          | 7.10 | 8.00     | 158.00   | 107.35                 | 118.00   | 36.00    | 9064990071000 |
| 0.2811        |          | 7.14 | 8.00     | 158.00   | 107.29                 | 118.00   | 36.00    | 9064990071400 |
| 0.2835        |          | 7.20 | 8.00     | 158.00   | 107.20                 | 118.00   | 36.00    | 9064990072000 |
| 0.2874        |          | 7.30 | 8.00     | 158.00   | 107.05                 | 118.00   | 36.00    | 9064990073000 |
| 0.2913        | 19/64    | 7.40 | 8.00     | 158.00   | 106.90                 | 118.00   | 36.00    | 9064990074000 |
| 0.2953        |          | 7.50 | 8.00     | 158.00   | 106.75                 | 118.00   | 36.00    | 9064990075000 |
| 0.2969        |          | 7.54 | 8.00     | 158.00   | 106.69                 | 118.00   | 36.00    | 9064990075400 |
| 0.2972        |          | 7.55 | 8.00     | 158.00   | 106.68                 | 118.00   | 36.00    | 9064990075500 |
| 0.2992        |          | 7.60 | 8.00     | 158.00   | 106.60                 | 118.00   | 36.00    | 9064990076000 |
| 0.3012        |          | 7.65 | 8.00     | 158.00   | 106.53                 | 118.00   | 36.00    | 9064990076500 |
| 0.3031        | 5/16     | 7.70 | 8.00     | 158.00   | 106.45                 | 118.00   | 36.00    | 9064990077000 |
| 0.3071        |          | 7.80 | 8.00     | 158.00   | 106.30                 | 118.00   | 36.00    | 9064990078000 |
| 0.3110        |          | 7.90 | 8.00     | 158.00   | 106.15                 | 118.00   | 36.00    | 9064990079000 |
| 0.3126        |          | 7.94 | 8.00     | 158.00   | 106.09                 | 118.00   | 36.00    | 9064990079400 |
| 0.3150        |          | 8.00 | 8.00     | 158.00   | 106.00                 | 118.00   | 36.00    | 9064990080000 |
| 0.3189        |          | 8.10 | 10.00    | 190.00   | 133.85                 | 146.00   | 40.00    | 9064990081000 |
| 0.3228        | 21/64    | 8.20 | 10.00    | 190.00   | 133.70                 | 146.00   | 40.00    | 9064990082000 |
| 0.3268        |          | 8.30 | 10.00    | 190.00   | 133.55                 | 146.00   | 40.00    | 9064990083000 |
| 0.3280        |          | 8.33 | 10.00    | 190.00   | 133.51                 | 146.00   | 40.00    | 9064990083300 |
| 0.3307        |          | 8.40 | 10.00    | 190.00   | 133.40                 | 146.00   | 40.00    | 9064990084000 |
| 0.3346        |          | 8.50 | 10.00    | 190.00   | 133.25                 | 146.00   | 40.00    | 9064990085000 |
| 0.3386        |          | 8.60 | 10.00    | 190.00   | 133.10                 | 146.00   | 40.00    | 9064990086000 |
| 0.3425        | 11/32    | 8.70 | 10.00    | 190.00   | 132.95                 | 146.00   | 40.00    | 9064990087000 |
| 0.3437        |          | 8.73 | 10.00    | 190.00   | 132.91                 | 146.00   | 40.00    | 9064990087300 |
| 0.3465        |          | 8.80 | 10.00    | 190.00   | 132.80                 | 146.00   | 40.00    | 9064990088000 |
| 0.3504        |          | 8.90 | 10.00    | 190.00   | 132.65                 | 146.00   | 40.00    | 9064990089000 |
| 0.3543        |          | 9.00 | 10.00    | 190.00   | 132.50                 | 146.00   | 40.00    | 9064990090000 |
| 0.3583        |          | 9.10 | 10.00    | 190.00   | 132.35                 | 146.00   | 40.00    | 9064990091000 |
| 0.3594        | 23/64    | 9.13 | 10.00    | 190.00   | 132.31                 | 146.00   | 40.00    | 9064990091300 |
| 0.3622        |          | 9.20 | 10.00    | 190.00   | 132.20                 | 146.00   | 40.00    | 9064990092000 |
| 0.3642        |          | 9.25 | 10.00    | 190.00   | 132.13                 | 146.00   | 40.00    | 9064990092500 |
| 0.3661        |          | 9.30 | 10.00    | 190.00   | 132.05                 | 146.00   | 40.00    | 9064990093000 |
| 0.3677        |          | 9.34 | 10.00    | 190.00   | 131.99                 | 146.00   | 40.00    | 9064990093400 |
| 0.3701        |          | 9.40 | 10.00    | 190.00   | 131.90                 | 146.00   | 40.00    | 9064990094000 |
| 0.3740        | 3/8      | 9.50 | 10.00    | 190.00   | 131.75                 | 146.00   | 40.00    | 9064990095000 |
| 0.3748        |          | 9.52 | 10.00    | 190.00   | 131.72                 | 146.00   | 40.00    | 9064990095200 |



| Diameter (d1) |          |       | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|-------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm    |          |          |                        |          |          |               |
| 0.3760        |          | 9.55  | 10.00    | 190.00   | 131.68                 | 146.00   | 40.00    | 9064990095500 |
| 0.3780        |          | 9.60  | 10.00    | 190.00   | 131.60                 | 146.00   | 40.00    | 9064990096000 |
| 0.3819        |          | 9.70  | 10.00    | 190.00   | 131.45                 | 146.00   | 40.00    | 9064990097000 |
| 0.3858        |          | 9.80  | 10.00    | 190.00   | 131.30                 | 146.00   | 40.00    | 9064990098000 |
| 0.3898        |          | 9.90  | 10.00    | 190.00   | 131.15                 | 146.00   | 40.00    | 9064990099000 |
| 0.3906        | 25/64    | 9.92  | 10.00    | 190.00   | 131.12                 | 146.00   | 40.00    | 9064990099200 |
| 0.3937        |          | 10.00 | 10.00    | 190.00   | 131.00                 | 146.00   | 40.00    | 9064990100000 |
| 0.3976        |          | 10.10 | 12.00    | 223.00   | 158.85                 | 174.00   | 45.00    | 9064990101000 |
| 0.4016        |          | 10.20 | 12.00    | 223.00   | 158.70                 | 174.00   | 45.00    | 9064990102000 |
| 0.4055        |          | 10.30 | 12.00    | 223.00   | 158.55                 | 174.00   | 45.00    | 9064990103000 |
| 0.4063        | 13/32    | 10.32 | 12.00    | 223.00   | 158.52                 | 174.00   | 45.00    | 9064990103200 |
| 0.4094        |          | 10.40 | 12.00    | 223.00   | 158.40                 | 174.00   | 45.00    | 9064990104000 |
| 0.4134        |          | 10.50 | 12.00    | 223.00   | 158.25                 | 174.00   | 45.00    | 9064990105000 |
| 0.4173        |          | 10.60 | 12.00    | 223.00   | 158.10                 | 174.00   | 45.00    | 9064990106000 |
| 0.4213        |          | 10.70 | 12.00    | 223.00   | 157.95                 | 174.00   | 45.00    | 9064990107000 |
| 0.4220        | 27/64    | 10.72 | 12.00    | 223.00   | 157.92                 | 174.00   | 45.00    | 9064990107200 |
| 0.4252        |          | 10.80 | 12.00    | 223.00   | 157.80                 | 174.00   | 45.00    | 9064990108000 |
| 0.4291        |          | 10.90 | 12.00    | 223.00   | 157.65                 | 174.00   | 45.00    | 9064990109000 |
| 0.4331        |          | 11.00 | 12.00    | 223.00   | 157.50                 | 174.00   | 45.00    | 9064990110000 |
| 0.4370        |          | 11.10 | 12.00    | 223.00   | 157.35                 | 174.00   | 45.00    | 9064990111000 |
| 0.4374        | 7/16     | 11.11 | 12.00    | 223.00   | 157.34                 | 174.00   | 45.00    | 9064990111100 |
| 0.4409        |          | 11.20 | 12.00    | 223.00   | 157.20                 | 174.00   | 45.00    | 9064990112000 |
| 0.4449        |          | 11.30 | 12.00    | 223.00   | 157.05                 | 174.00   | 45.00    | 9064990113000 |
| 0.4488        |          | 11.40 | 12.00    | 223.00   | 156.90                 | 174.00   | 45.00    | 9064990114000 |
| 0.4528        |          | 11.50 | 12.00    | 223.00   | 156.75                 | 174.00   | 45.00    | 9064990115000 |
| 0.4531        | 29/64    | 11.51 | 12.00    | 223.00   | 156.74                 | 174.00   | 45.00    | 9064990115100 |
| 0.4547        |          | 11.55 | 12.00    | 223.00   | 156.68                 | 174.00   | 45.00    | 9064990115500 |
| 0.4567        |          | 11.60 | 12.00    | 223.00   | 156.60                 | 174.00   | 45.00    | 9064990116000 |
| 0.4606        |          | 11.70 | 12.00    | 223.00   | 156.45                 | 174.00   | 45.00    | 9064990117000 |
| 0.4646        |          | 11.80 | 12.00    | 223.00   | 156.30                 | 174.00   | 45.00    | 9064990118000 |
| 0.4685        |          | 11.90 | 12.00    | 223.00   | 156.15                 | 174.00   | 45.00    | 9064990119000 |
| 0.4689        | 15/32    | 11.91 | 12.00    | 223.00   | 156.14                 | 174.00   | 45.00    | 9064990119100 |
| 0.4724        |          | 12.00 | 12.00    | 223.00   | 156.00                 | 174.00   | 45.00    | 9064990120000 |
| 0.4764        |          | 12.10 | 14.00    | 251.00   | 183.85                 | 202.00   | 45.00    | 9064990121000 |
| 0.4803        |          | 12.20 | 14.00    | 251.00   | 183.70                 | 202.00   | 45.00    | 9064990122000 |
| 0.4843        | 31/64    | 12.30 | 14.00    | 251.00   | 183.55                 | 202.00   | 45.00    | 9064990123000 |
| 0.4882        |          | 12.40 | 14.00    | 251.00   | 183.40                 | 202.00   | 45.00    | 9064990124000 |
| 0.4921        |          | 12.50 | 14.00    | 251.00   | 183.25                 | 202.00   | 45.00    | 9064990125000 |
| 0.4961        |          | 12.60 | 14.00    | 251.00   | 183.10                 | 202.00   | 45.00    | 9064990126000 |
| 0.5000        | 1/2      | 12.70 | 14.00    | 251.00   | 182.95                 | 202.00   | 45.00    | 9064990127000 |
| 0.5039        |          | 12.80 | 14.00    | 251.00   | 182.80                 | 202.00   | 45.00    | 9064990128000 |
| 0.5079        |          | 12.90 | 14.00    | 251.00   | 182.65                 | 202.00   | 45.00    | 9064990129000 |
| 0.5118        |          | 13.00 | 14.00    | 251.00   | 182.50                 | 202.00   | 45.00    | 9064990130000 |
| 0.5157        | 33/64    | 13.10 | 14.00    | 251.00   | 182.35                 | 202.00   | 45.00    | 9064990131000 |
| 0.5197        |          | 13.20 | 14.00    | 251.00   | 182.20                 | 202.00   | 45.00    | 9064990132000 |
| 0.5236        |          | 13.30 | 14.00    | 251.00   | 182.05                 | 202.00   | 45.00    | 9064990133000 |
| 0.5276        |          | 13.40 | 14.00    | 251.00   | 181.90                 | 202.00   | 45.00    | 9064990134000 |
| 0.5311        | 17/32    | 13.49 | 14.00    | 251.00   | 181.77                 | 202.00   | 45.00    | 9064990134900 |
| 0.5315        |          | 13.50 | 14.00    | 251.00   | 181.75                 | 202.00   | 45.00    | 9064990135000 |
| 0.5354        |          | 13.60 | 14.00    | 251.00   | 181.60                 | 202.00   | 45.00    | 9064990136000 |
| 0.5394        |          | 13.70 | 14.00    | 251.00   | 181.45                 | 202.00   | 45.00    | 9064990137000 |
| 0.5433        |          | 13.80 | 14.00    | 251.00   | 181.30                 | 202.00   | 45.00    | 9064990138000 |
| 0.5469        | 35/64    | 13.89 | 14.00    | 251.00   | 181.17                 | 202.00   | 45.00    | 9064990138900 |
| 0.5472        |          | 13.90 | 14.00    | 251.00   | 181.15                 | 202.00   | 45.00    | 9064990139000 |
| 0.5512        |          | 14.00 | 14.00    | 251.00   | 181.00                 | 202.00   | 45.00    | 9064990140000 |
| 0.5551        |          | 14.10 | 16.00    | 282.00   | 208.85                 | 230.00   | 48.00    | 9064990141000 |
| 0.5591        |          | 14.20 | 16.00    | 282.00   | 208.70                 | 230.00   | 48.00    | 9064990142000 |
| 0.5626        | 9/16     | 14.29 | 16.00    | 282.00   | 208.57                 | 230.00   | 48.00    | 9064990142900 |
| 0.5630        |          | 14.30 | 16.00    | 282.00   | 208.55                 | 230.00   | 48.00    | 9064990143000 |



| Diameter (d1) |          |       | d2<br>mm | l1<br>mm | t <sub>max</sub><br>mm | l2<br>mm | l3<br>mm | EDP #         |
|---------------|----------|-------|----------|----------|------------------------|----------|----------|---------------|
| inch          | wire/ltr | mm    |          |          |                        |          |          |               |
| 0.5669        |          | 14.40 | 16.00    | 282.00   | 208.40                 | 230.00   | 48.00    | 9064990144000 |
| 0.5709        |          | 14.50 | 16.00    | 282.00   | 208.25                 | 230.00   | 48.00    | 9064990145000 |
| 0.5748        |          | 14.60 | 16.00    | 282.00   | 208.10                 | 230.00   | 48.00    | 9064990146000 |
| 0.5780        |          | 14.68 | 16.00    | 282.00   | 207.98                 | 230.00   | 48.00    | 9064990146800 |
| 0.5787        |          | 14.70 | 16.00    | 282.00   | 207.95                 | 230.00   | 48.00    | 9064990147000 |
| 0.5827        |          | 14.80 | 16.00    | 282.00   | 207.80                 | 230.00   | 48.00    | 9064990148000 |
| 0.5866        |          | 14.90 | 16.00    | 282.00   | 207.65                 | 230.00   | 48.00    | 9064990149000 |
| 0.5906        |          | 15.00 | 16.00    | 282.00   | 207.50                 | 230.00   | 48.00    | 9064990150000 |
| 0.5937        |          | 15.08 | 16.00    | 282.00   | 207.38                 | 230.00   | 48.00    | 9064990150800 |
| 0.5945        |          | 15.10 | 16.00    | 282.00   | 207.35                 | 230.00   | 48.00    | 9064990151000 |
| 0.5984        |          | 15.20 | 16.00    | 282.00   | 207.20                 | 230.00   | 48.00    | 9064990152000 |
| 0.6024        |          | 15.30 | 16.00    | 282.00   | 207.05                 | 230.00   | 48.00    | 9064990153000 |
| 0.6063        |          | 15.40 | 16.00    | 282.00   | 206.90                 | 230.00   | 48.00    | 9064990154000 |
| 0.6094        | 39/64    | 15.48 | 16.00    | 282.00   | 206.78                 | 230.00   | 48.00    | 9064990154800 |
| 0.6102        |          | 15.50 | 16.00    | 282.00   | 206.75                 | 230.00   | 48.00    | 9064990155000 |
| 0.6122        |          | 15.55 | 16.00    | 282.00   | 206.68                 | 230.00   | 48.00    | 9064990155500 |
| 0.6142        |          | 15.60 | 16.00    | 282.00   | 206.60                 | 230.00   | 48.00    | 9064990156000 |
| 0.6181        | 5/8      | 15.70 | 16.00    | 282.00   | 206.45                 | 230.00   | 48.00    | 9064990157000 |
| 0.6220        |          | 15.80 | 16.00    | 282.00   | 206.30                 | 230.00   | 48.00    | 9064990158000 |
| 0.6248        |          | 15.87 | 16.00    | 282.00   | 206.20                 | 230.00   | 48.00    | 9064990158700 |
| 0.6260        |          | 15.90 | 16.00    | 282.00   | 206.15                 | 230.00   | 48.00    | 9064990159000 |
| 0.6299        |          | 16.00 | 16.00    | 282.00   | 206.00                 | 230.00   | 48.00    | 9064990160000 |
| 0.6406        |          | 16.27 | 18.00    | 310.00   | 233.60                 | 258.00   | 48.00    | 9064990162700 |
| 0.6417        |          | 16.30 | 18.00    | 310.00   | 233.55                 | 258.00   | 48.00    | 9064990163000 |
| 0.6496        |          | 16.50 | 18.00    | 310.00   | 233.25                 | 258.00   | 48.00    | 9064990165000 |
| 0.6563        |          | 16.67 | 18.00    | 310.00   | 233.00                 | 258.00   | 48.00    | 9064990166700 |
| 0.6575        |          | 16.70 | 18.00    | 310.00   | 232.95                 | 258.00   | 48.00    | 9064990167000 |
| 0.6654        |          | 16.90 | 18.00    | 310.00   | 232.65                 | 258.00   | 48.00    | 9064990169000 |
| 0.6693        |          | 17.00 | 18.00    | 310.00   | 232.50                 | 258.00   | 48.00    | 9064990170000 |
| 0.6720        |          | 17.07 | 18.00    | 310.00   | 232.40                 | 258.00   | 48.00    | 9064990170700 |
| 0.6874        |          | 17.46 | 18.00    | 310.00   | 231.81                 | 258.00   | 48.00    | 9064990174600 |
| 0.6890        |          | 17.50 | 18.00    | 310.00   | 231.75                 | 258.00   | 48.00    | 9064990175000 |
| 0.6909        |          | 17.55 | 18.00    | 310.00   | 231.68                 | 258.00   | 48.00    | 9064990175500 |
| 0.6969        |          | 17.70 | 18.00    | 310.00   | 231.45                 | 258.00   | 48.00    | 9064990177000 |
| 0.7031        |          | 17.86 | 18.00    | 310.00   | 231.21                 | 258.00   | 48.00    | 9064990178600 |
| 0.7087        |          | 18.00 | 18.00    | 310.00   | 231.00                 | 258.00   | 48.00    | 9064990180000 |
| 0.7189        |          | 18.26 | 20.00    | 340.00   | 258.61                 | 286.00   | 50.00    | 9064990182600 |
| 0.7283        |          | 18.50 | 20.00    | 340.00   | 258.25                 | 286.00   | 50.00    | 9064990185000 |
| 0.7362        |          | 18.70 | 20.00    | 340.00   | 257.95                 | 286.00   | 50.00    | 9064990187000 |
| 0.7441        |          | 18.90 | 20.00    | 340.00   | 257.65                 | 286.00   | 50.00    | 9064990189000 |
| 0.7480        |          | 19.00 | 20.00    | 340.00   | 257.50                 | 286.00   | 50.00    | 9064990190000 |
| 0.7500        | 3/4      | 19.05 | 20.00    | 340.00   | 257.43                 | 286.00   | 50.00    | 9064990190500 |
| 0.7579        |          | 19.25 | 20.00    | 340.00   | 257.13                 | 286.00   | 50.00    | 9064990192500 |
| 0.7598        |          | 19.30 | 20.00    | 340.00   | 257.05                 | 286.00   | 50.00    | 9064990193000 |
| 0.7657        |          | 19.45 | 20.00    | 340.00   | 256.83                 | 286.00   | 50.00    | 9064990194500 |
| 0.7677        |          | 19.50 | 20.00    | 340.00   | 256.75                 | 286.00   | 50.00    | 9064990195000 |
| 0.7697        |          | 19.55 | 20.00    | 340.00   | 256.68                 | 286.00   | 50.00    | 9064990195500 |
| 0.7756        |          | 19.70 | 20.00    | 340.00   | 256.45                 | 286.00   | 50.00    | 9064990197000 |
| 0.7795        |          | 19.80 | 20.00    | 340.00   | 256.30                 | 286.00   | 50.00    | 9064990198000 |
| 0.7811        |          | 19.84 | 20.00    | 340.00   | 256.24                 | 286.00   | 50.00    | 9064990198400 |
| 0.7874        |          | 20.00 | 20.00    | 340.00   | 256.00                 | 286.00   | 50.00    | 9064990200000 |

**Series 6498 & 5498**

| Material group                                                                                    | Hardness |       | SFM | Feed Rate - IPR     |                     |                     |                      |                      |                      |
|---------------------------------------------------------------------------------------------------|----------|-------|-----|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
|                                                                                                   | HRC      | BHN   |     | 1/8 in.<br>3.170 mm | 1/4 in.<br>6.350 mm | 3/8 in.<br>9.520 mm | 1/2 in.<br>12.700 mm | 5/8 in.<br>15.870 mm | 3/4 in.<br>19.050 mm |
| Common structural steels                                                                          | -        | ≤ 150 | 655 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 32     | < 301 | 655 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
| Free-cutting steels                                                                               | ≤ 25     | ≤ 255 | 655 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 32     | < 301 | 655 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| Unalloyed heat-treatable steels                                                                   | ≤ 20     | ≤ 220 | 590 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | ≤ 25     | ≤ 255 | 525 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 32     | < 301 | 425 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| Alloyed heat-treatable steels                                                                     | ≤ 32     | ≤ 301 | 395 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 43     | < 402 | 395 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
| Unalloyed case hardened steels                                                                    | < 25     | < 255 | 590 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| Alloyed case hardened steels                                                                      | ≤ 32     | ≤ 301 | 395 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 43     | < 402 | 360 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
| Nitriding steels                                                                                  | ≤ 32     | ≤ 301 | 360 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
|                                                                                                   | < 43     | < 402 | 330 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
| Tool steels                                                                                       | ≤ 25     | ≤ 255 | 295 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
|                                                                                                   | < 43     | < 402 | 215 | 0.0040              | 0.0065              | 0.0100              | 0.0100               | 0.0125               | 0.0155               |
| High speed steels                                                                                 | < 43     | < 402 | 195 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
| Spring steels                                                                                     | < 38     | < 354 | 195 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
| Hardened steels                                                                                   | ≤ 48     | ≤ 460 | 180 | 0.0020              | 0.0030              | 0.0050              | 0.0050               | 0.0065               | 0.0080               |
|                                                                                                   | < 66     | -     | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Stainless steels, sulphured<br>austenitic<br>martensitic                                          | ≤ 28     | ≤ 273 | 260 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
|                                                                                                   | ≤ 36     | ≤ 337 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | < 46     | < 435 | 195 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
| Cast iron                                                                                         | ≤ 23     | ≤ 242 | 590 | 0.0065              | 0.0125              | 0.0155              | 0.0195               | 0.0250               | 0.0250               |
|                                                                                                   | < 38     | < 354 | 590 | 0.0065              | 0.0125              | 0.0155              | 0.0195               | 0.0250               | 0.0250               |
| Spheroidal graphite iron and<br>malleable cast iron                                               | ≤ 23     | ≤ 242 | 525 | 0.0065              | 0.0125              | 0.0155              | 0.0195               | 0.0250               | 0.0250               |
|                                                                                                   | < 38     | < 354 | 460 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| Chilled cast iron                                                                                 | ≤ 38     | ≤ 354 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| New cast materials GGV                                                                            | ≤ 20     | ≤ 220 | 460 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 32     | < 301 | 460 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| New cast materials ADI                                                                            | ≤ 32     | ≤ 301 | 260 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
|                                                                                                   | < 43     | < 402 | 260 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
| Special alloys                                                                                    | < 54     | < 549 | 100 | 0.0025              | 0.0040              | 0.0065              | 0.0065               | 0.0080               | 0.0100               |
| Ti and Ti-alloys                                                                                  | ≤ 25     | ≤ 255 | 130 | 0.0025              | 0.0040              | 0.0065              | 0.0065               | 0.0080               | 0.0100               |
|                                                                                                   | < 43     | < 402 | 115 | 0.0020              | 0.0030              | 0.0050              | 0.0050               | 0.0065               | 0.0080               |
| Aluminium and Al-alloys                                                                           | -        | < 120 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Al wrought alloys                                                                                 | -        | < 200 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Al cast alloys ≤ 10 % Si<br>≤ 24 % Si                                                             | -        | ≤ 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | -        | < 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Magnesium alloys                                                                                  | -        | < 120 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Copper, low-alloyed                                                                               | -        | < 150 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Brass, short-chipping<br>long-chipping                                                            | -        | ≤ 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | -        | < 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Bronze, short-chipping                                                                            | -        | ≤ 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | < 25     | < 255 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Bronze, long-chipping                                                                             | ≤ 25     | ≤ 255 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | < 32     | < 301 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Duroplastics<br>Thermoplastics<br>Reinforced plastics - Kevlar<br>Reinforced plastics - GFK / CFK | -        | -     | -   | -                   | -                   | -                   | -                    | -                    | -                    |



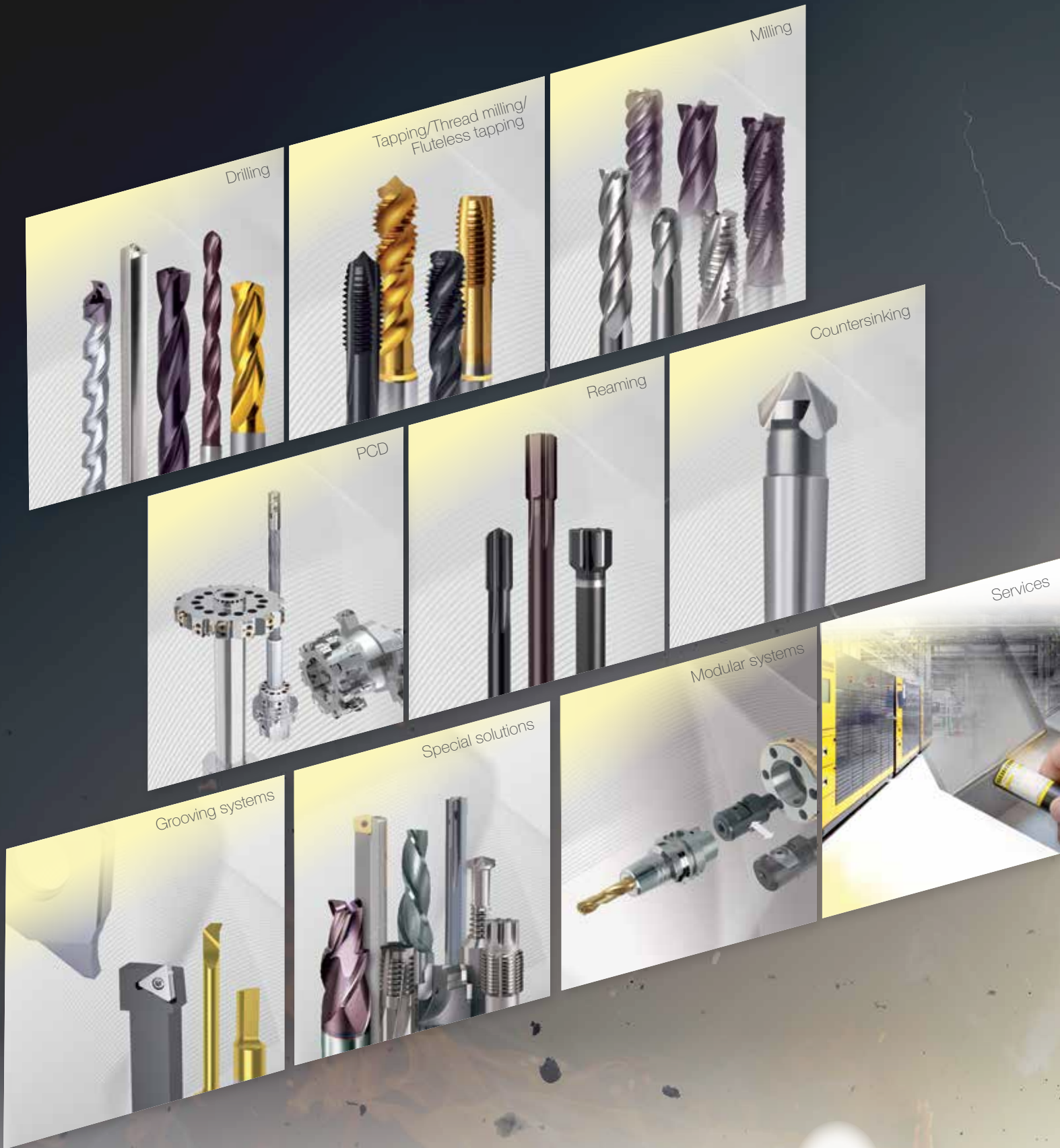
## Series 5499

| Material group                                                                                    | Hardness |       | SFM | Feed Rate - IPR     |                     |                     |                      |                      |                      |
|---------------------------------------------------------------------------------------------------|----------|-------|-----|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
|                                                                                                   | HRC      | BHN   |     | 1/8 in.<br>3.170 mm | 1/4 in.<br>6.350 mm | 3/8 in.<br>9.520 mm | 1/2 in.<br>12.700 mm | 5/8 in.<br>15.870 mm | 3/4 in.<br>19.050 mm |
| Common structural steels                                                                          | -        | ≤ 150 | 590 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 32     | < 301 | 590 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
| Free-cutting steels                                                                               | ≤ 25     | ≤ 255 | 590 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 32     | < 301 | 590 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| Unalloyed heat-treatable steels                                                                   | ≤ 20     | ≤ 220 | 525 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | ≤ 25     | ≤ 255 | 460 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 32     | < 301 | 395 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| Alloyed heat-treatable steels                                                                     | ≤ 32     | ≤ 301 | 360 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 43     | < 402 | 360 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
| Unalloyed case hardened steels                                                                    | < 25     | < 255 | 525 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| Alloyed case hardened steels                                                                      | ≤ 32     | ≤ 301 | 360 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 43     | < 402 | 330 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
| Nitriding steels                                                                                  | ≤ 32     | ≤ 301 | 330 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
|                                                                                                   | < 43     | < 402 | 295 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
| Tool steels                                                                                       | ≤ 25     | ≤ 255 | 260 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
|                                                                                                   | < 43     | < 402 | 195 | 0.0040              | 0.0065              | 0.0100              | 0.0100               | 0.0125               | 0.0155               |
| High speed steels                                                                                 | < 43     | < 402 | 180 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
| Spring steels                                                                                     | < 38     | < 354 | 180 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
| Hardened steels                                                                                   | ≤ 48     | ≤ 460 | 150 | 0.0020              | 0.0030              | 0.0050              | 0.0050               | 0.0065               | 0.0080               |
|                                                                                                   | < 66     | -     | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Stainless steels, sulphured<br>austenitic<br>martensitic                                          | ≤ 28     | ≤ 273 | 230 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
|                                                                                                   | ≤ 36     | ≤ 337 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | < 46     | < 435 | 165 | 0.0030              | 0.0050              | 0.0080              | 0.0080               | 0.0100               | 0.0125               |
| Cast iron                                                                                         | ≤ 23     | ≤ 242 | 540 | 0.0065              | 0.0125              | 0.0155              | 0.0195               | 0.0250               | 0.0250               |
|                                                                                                   | < 38     | < 354 | 475 | 0.0065              | 0.0125              | 0.0155              | 0.0195               | 0.0250               | 0.0250               |
| Spheroidal graphite iron and<br>malleable cast iron                                               | ≤ 23     | ≤ 242 | 425 | 0.0065              | 0.0125              | 0.0155              | 0.0195               | 0.0250               | 0.0250               |
|                                                                                                   | < 38     | < 354 | 425 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| Chilled cast iron                                                                                 | ≤ 38     | ≤ 354 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| New cast materials GGV                                                                            | ≤ 20     | ≤ 220 | 425 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
|                                                                                                   | < 32     | < 301 | 425 | 0.0065              | 0.0100              | 0.0155              | 0.0155               | 0.0195               | 0.0250               |
| New cast materials ADI                                                                            | ≤ 32     | ≤ 301 | 230 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
|                                                                                                   | < 43     | < 402 | 230 | 0.0050              | 0.0080              | 0.0125              | 0.0125               | 0.0155               | 0.0195               |
| Special alloys                                                                                    | < 54     | < 549 | 80  | 0.0025              | 0.0040              | 0.0065              | 0.0065               | 0.0080               | 0.0100               |
| Ti and Ti-alloys                                                                                  | ≤ 25     | ≤ 255 | 115 | 0.0025              | 0.0040              | 0.0065              | 0.0065               | 0.0080               | 0.0100               |
|                                                                                                   | < 43     | < 402 | 100 | 0.0020              | 0.0030              | 0.0050              | 0.0050               | 0.0065               | 0.0080               |
| Aluminium and Al-alloys                                                                           | -        | < 120 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Al wrought alloys                                                                                 | -        | < 200 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Al cast alloys ≤ 10 % Si<br>≤ 24 % Si                                                             | -        | ≤ 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | -        | < 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Magnesium alloys                                                                                  | -        | < 120 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Copper, low-alloyed                                                                               | -        | < 150 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Brass, short-chipping<br>long-chipping                                                            | -        | ≤ 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | -        | < 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Bronze, short-chipping                                                                            | -        | ≤ 180 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | < 25     | < 255 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Bronze, long-chipping                                                                             | ≤ 25     | ≤ 255 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
|                                                                                                   | < 32     | < 301 | -   | -                   | -                   | -                   | -                    | -                    | -                    |
| Duroplastics<br>Thermoplastics<br>Reinforced plastics - Kevlar<br>Reinforced plastics - GFK / CFK | -        | -     | -   | -                   | -                   | -                   | -                    | -                    | -                    |



## Series 6499

| Material group                                                                                    | Hardness             |                         | SFM               | Feed Rate - IPR            |                            |                            |                            |                            |                            |
|---------------------------------------------------------------------------------------------------|----------------------|-------------------------|-------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|                                                                                                   | HRC                  | BHN                     |                   | 1/8 in.<br>3.170 mm        | 1/4 in.<br>6.350 mm        | 3/8 in.<br>9.520 mm        | 1/2 in.<br>12.700 mm       | 5/8 in.<br>15.870 mm       | 3/4 in.<br>19.050 mm       |
| Common structural steels                                                                          | -<br>< 32            | ≤ 150<br>< 301          | 590<br>590        | 0.0065<br>0.0050           | 0.0100<br>0.0080           | 0.0155<br>0.0125           | 0.0155<br>0.0125           | 0.0195<br>0.0155           | 0.0250<br>0.0195           |
| Free-cutting steels                                                                               | ≤ 25<br>< 32         | ≤ 255<br>< 301          | 590<br>590        | 0.0065<br>0.0065           | 0.0100<br>0.0100           | 0.0155<br>0.0155           | 0.0155<br>0.0155           | 0.0195<br>0.0195           | 0.0250<br>0.0250           |
| Unalloyed heat-treatable steels                                                                   | ≤ 20<br>≤ 25<br>< 32 | ≤ 220<br>≤ 255<br>< 301 | 525<br>460<br>395 | 0.0065<br>0.0065<br>0.0065 | 0.0100<br>0.0100<br>0.0100 | 0.0155<br>0.0155<br>0.0155 | 0.0155<br>0.0155<br>0.0155 | 0.0195<br>0.0195<br>0.0195 | 0.0250<br>0.0250<br>0.0250 |
| Alloyed heat-treatable steels                                                                     | ≤ 32<br>< 43         | ≤ 301<br>≤ 402          | 360<br>360        | 0.0065<br>0.0050           | 0.0100<br>0.0080           | 0.0155<br>0.0125           | 0.0155<br>0.0125           | 0.0195<br>0.0155           | 0.0250<br>0.0195           |
| Unalloyed case hardened steels                                                                    | < 25                 | < 255                   | 525               | 0.0065                     | 0.0100                     | 0.0155                     | 0.0155                     | 0.0195                     | 0.0250                     |
| Alloyed case hardened steels                                                                      | ≤ 32<br>< 43         | ≤ 301<br>≤ 402          | 360<br>330        | 0.0065<br>0.0050           | 0.0100<br>0.0080           | 0.0155<br>0.0125           | 0.0155<br>0.0125           | 0.0195<br>0.0155           | 0.0250<br>0.0195           |
| Nitriding steels                                                                                  | ≤ 32<br>< 43         | ≤ 301<br>≤ 402          | 330<br>295        | 0.0050<br>0.0030           | 0.0080<br>0.0050           | 0.0125<br>0.0080           | 0.0125<br>0.0080           | 0.0155<br>0.0100           | 0.0195<br>0.0125           |
| Tool steels                                                                                       | ≤ 25<br>< 43         | ≤ 255<br>≤ 402          | 260<br>195        | 0.0050<br>0.0040           | 0.0080<br>0.0065           | 0.0125<br>0.0100           | 0.0125<br>0.0100           | 0.0155<br>0.0125           | 0.0195<br>0.0155           |
| High speed steels                                                                                 | < 43                 | < 402                   | 180               | 0.0030                     | 0.0050                     | 0.0080                     | 0.0080                     | 0.0100                     | 0.0125                     |
| Spring steels                                                                                     | < 38                 | < 354                   | 180               | 0.0030                     | 0.0050                     | 0.0080                     | 0.0080                     | 0.0100                     | 0.0125                     |
| Hardened steels                                                                                   | ≤ 48<br>< 66         | ≤ 460<br>-              | 150               | 0.0020                     | 0.0030                     | 0.0050                     | 0.0050                     | 0.0065                     | 0.0080                     |
| Stainless steels, sulphured<br>austenitic<br>martensitic                                          | ≤ 28<br>≤ 36<br>< 46 | ≤ 273<br>≤ 337<br>< 435 | 230<br>165        | 0.0030<br>0.0030           | 0.0050<br>0.0050           | 0.0080<br>0.0080           | 0.0080<br>0.0080           | 0.0100<br>0.0100           | 0.0125<br>0.0125           |
| Cast iron                                                                                         | ≤ 23<br>< 38         | ≤ 242<br>< 354          | 540<br>475        | 0.0065<br>0.0065           | 0.0125<br>0.0125           | 0.0155<br>0.0155           | 0.0195<br>0.0195           | 0.0250<br>0.0250           | 0.0250<br>0.0250           |
| Spheroidal graphite iron and<br>malleable cast iron                                               | ≤ 23<br>< 38         | ≤ 242<br>< 354          | 425<br>425        | 0.0065<br>0.0065           | 0.0125<br>0.0100           | 0.0155<br>0.0155           | 0.0195<br>0.0155           | 0.0250<br>0.0195           | 0.0250<br>0.0250           |
| Chilled cast iron                                                                                 | ≤ 38                 | ≤ 354                   |                   |                            |                            |                            |                            |                            |                            |
| New cast materials GGV                                                                            | ≤ 20<br>< 32         | ≤ 220<br>≤ 301          | 425<br>425        | 0.0065<br>0.0065           | 0.0100<br>0.0100           | 0.0155<br>0.0155           | 0.0155<br>0.0155           | 0.0195<br>0.0195           | 0.0250<br>0.0250           |
| New cast materials ADI                                                                            | ≤ 32<br>< 43         | ≤ 301<br>≤ 402          | 230<br>230        | 0.0050<br>0.0050           | 0.0080<br>0.0080           | 0.0125<br>0.0125           | 0.0125<br>0.0125           | 0.0155<br>0.0155           | 0.0195<br>0.0195           |
| Special alloys                                                                                    | < 54                 | < 549                   | 80                | 0.0025                     | 0.0040                     | 0.0065                     | 0.0065                     | 0.0080                     | 0.0100                     |
| Ti and Ti-alloys                                                                                  | ≤ 25<br>< 43         | ≤ 255<br>≤ 402          | 115<br>100        | 0.0025<br>0.0020           | 0.0040<br>0.0030           | 0.0065<br>0.0050           | 0.0065<br>0.0050           | 0.0080<br>0.0065           | 0.0100<br>0.0080           |
| Aluminium and Al-alloys                                                                           | -                    | < 120                   |                   |                            |                            |                            |                            |                            |                            |
| Al wrought alloys                                                                                 | -                    | < 200                   |                   |                            |                            |                            |                            |                            |                            |
| Al cast alloys ≤ 10 % Si<br>≤ 24 % Si                                                             | -<br>-               | ≤ 180<br>≤ 180          |                   |                            |                            |                            |                            |                            |                            |
| Magnesium alloys                                                                                  | -                    | < 120                   |                   |                            |                            |                            |                            |                            |                            |
| Copper, low-alloyed                                                                               | -                    | < 150                   |                   |                            |                            |                            |                            |                            |                            |
| Brass, short-chipping<br>long-chipping                                                            | -<br>-               | ≤ 180<br>≤ 180          |                   |                            |                            |                            |                            |                            |                            |
| Bronze, short-chipping                                                                            | -                    | ≤ 180                   |                   |                            |                            |                            |                            |                            |                            |
| Bronze, long-chipping                                                                             | ≤ 25<br>< 32         | ≤ 255<br>≤ 301          |                   |                            |                            |                            |                            |                            |                            |
| Duroplastics<br>Thermoplastics<br>Reinforced plastics - Kevlar<br>Reinforced plastics - GFK / CFK |                      |                         |                   |                            |                            |                            |                            |                            |                            |



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