

## NC Spot Drills



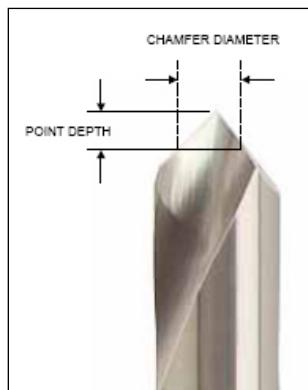
### Why spot drill?

When tight tolerances are important, spot drilling prior to the full drill cycle can ensure accurate hole location by avoiding drill deflection. This is often recommended when deep-hole drilling, although spot drilling can be helpful in other drilling applications as well.

A spot drill typically has a tight tolerance point geometry with a very short flute length. It is important to know that an NC spot drill has no land or body relief, and therefore is not designed to drill past the depth of the point angle, which is just enough to drill an indent in the workpiece. Spot drills are used to improve the accuracy of secondary drill operations but they can be used as a chamfering tool if the spot drill diameter is larger than the final hole size.

### Selecting a spot drill

Ideally, the spot drill diameter should be about 70% of the size of your final drill diameter. The spot drill point angle should be greater than or less than the final drill's point angle, depending on the substrate material of the secondary drill (HSS or carbide).



NC spot drills have no body clearance or body taper, which enhances rigidity, and all have a straight shank. Guhring offers NC spot drills in both high speed steel and carbide substrates. Our HSS spot drills include short and long lengths with 90° point angles, and short length drills with a 120° point angle. High speed steel NC spot drills are an economical solution for most spot drilling applications.

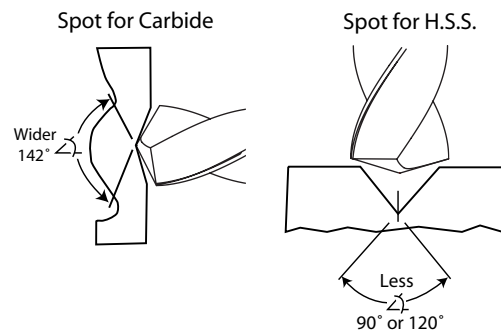
Short length carbide NC spot drills are also offered as stocked standards by Guhring, with a 90° or 120° point angle, or the **NEW** 142° point angle-- designed especially for carbide drills with a 140° point angle. These bright finish drills can be a better choice in abrasive workpiece materials where the machining conditions are rigid.

- Spot drilling is not recommended in hardened steels. Care must be taken when following a spot drill with a carbide drill.
- Contacting the corners of the carbide drill before the center point in the opening of the hole could lead to corner chipping.

### Calculating drill point depth

Drill Point Angle	Factor
60°	0.866 x dia = point depth
82°	0.575 x dia = point depth
90°	0.500 x dia = point depth
118°	0.300 x dia = point depth
120°	0.288 x dia = point depth
135°	0.207 x dia = point depth

For further information on Guhring's offering of NC spot drills, consult your full-line drill catalog or contact your local Guhring distributor. You may also contact Guhring's tech support group at (800) 776-6170 or via Guhring's website [www.guhring.com](http://www.guhring.com) for operating parameters.



**Series 546** (bright finish) **NEW**  
Carbide spot drill, 142° point angle  
Short series

**Series 556** (bright finish)  
High speed steel spot drill, 120° point angle  
Short series

**Series 567** (TiN coated)  
High speed steel spot drill, 120° point angle  
Short series

**Series 557** (bright finish)  
High speed steel spot drill, 90° point angle  
Short series

**Series 568** (TiN coated)  
High speed steel spot drill, 90° point angle  
Short series

**Series 559** (bright finish)  
High speed steel spot drill, 90° point angle  
Long series

**Series 723** (bright finish)  
Carbide spot drill, 90° point angle  
Short series

**Series 724** (bright finish)  
Carbide spot drill, 120° point angle  
Short series

Dec.	Diameter			Shank Dia.	Overall Length	Flute Length
	Fract.	Wire/Ltr.	mm			
0.1575			4.000	4.000	55.00	12.00
0.1969			5.000	5.000	62.00	14.00
0.2362			6.000	6.000	66.00	16.00
0.3150			8.000	8.000	79.00	21.00
0.3937			10.000	10.000	89.00	25.00
0.4724			12.000	12.000	102.00	30.00
0.6299			16.000	16.000	115.00	37.50
0.7874			20.000	20.000	131.00	45.00
0.1181			3.000	3.000	46.00	12.00
0.1575			4.000	4.000	55.00	12.00
0.1969			5.000	5.000	62.00	14.00
0.2362			6.000	6.000	66.00	16.00
0.2500	1/4	E	6.350	6.350	70.00	17.00
0.2559			6.500	6.500	70.00	17.00
0.3150			8.000	8.000	79.00	21.00
0.3748	3/8		9.520	9.520	89.00	25.00
0.3937			10.000	10.000	89.00	25.00
0.4724			12.000	12.000	102.00	30.00
0.5000	1/2		12.700	12.700	102.00	30.00
0.6248	5/8		15.870	15.870	115.00	37.50
0.6299			16.000	16.000	115.00	37.50
0.7500	3/4		19.050	19.050	131.00	45.00
0.7874			20.000	20.000	131.00	45.00
0.9843	63/64		25.000	25.000	151.00	53.00
1.0000	1		25.400	25.400	156.00	53.00
0.1181			3.000	3.000	46.00	12.00
0.1575			4.000	4.000	55.00	12.00
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0.3748	3/8		9.520	9.520	132.00	25.00
0.5000	1/2		12.700	12.700	159.00	30.00
0.6248	5/8		15.870	15.870	186.00	37.50
0.7500	3/4		19.050	19.050	213.00	45.00
1.0000	1		25.400	25.400	216.00	53.00
0.1969			5.000	5.000	62.00	14.00
0.2362			6.000	6.000	66.00	16.00
0.2500	1/4	E	6.350	6.350	70.00	17.00
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