

<p>E2</p> <p>E2 HIGH PRECISION TOOL MATERIAL</p>	<p>$\lambda = 40^\circ$ $\gamma = 18^\circ$</p> <p>CUTTING ANGLES $\gamma 40^\circ \gamma 18^\circ$</p>	<p>$\phi \leq 6$ $\phi > 6$</p> <p>90° 45°</p> <p>CHAMFER $\phi < 6$ $\phi > 6$ 90° 45°</p>	<p>DUAL DIRECTION HELICAL DRILL BIT</p>	<p>h₁</p> <p>2.2xD</p> <p>2.2xD DEPTH FOR TOOLS</p>	<p>STANDARD TOOL WEAR INDICATOR</p>
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MATERIAL COMPATIBILITY

●●● Excellent (3/3) ●●○ Good (2/3) ●○○ Possible (1/3) ○○○ Not recommended

MATERIAL	SPECIFICATION	GRP	21105A-12
Alloyed and non-alloyed steels Non-alloyed steels	Rm < 450 N/mm ²	1a	●●●
	Rm 450–700 N/mm ²	1b	●●●
	Rm 700–900 N/mm ²	1c	●●○
	Rm > 1200 N/mm ²	1d	●○○
Stainless steels Stainless steels	Rm < 650 N/mm ²	2a	●●●
	Rm 650–950 N/mm ²	2b	●●●
	Rm > 950 N/mm ²	2c	●●●
Hardened steels Hardened steels	44–56 HRC	3a	○○○
	57–67 HRC	3b	○○○
Exotic materials Special alloys	< 32 HRC	4a	○○○
	> 32 HRC	4b	○○○
Graphite Industrial graphite		5	●●○
Cast iron Grey / nodular cast iron	< 32 HRC	6a	●●○
	> 32 HRC	6b	●●○
Titanium Titanium alloys	Rm < 600 N/mm ²	7a	●●○
	600 < Rm N/mm ²	7b	●●○
Nickel alloys Inconel, Hastelloy	Rm < 1000 N/mm ²	8a	○○○
	Rm > 1000 N/mm ²	8b	○○○
Copper, brass, bronze Copper-based	Rm < 850 N/mm ²	9a	●○○
	Rm > 850 N/mm ²	9b	●○○
Aluminum Aluminum alloys	Si < 0.5%	10a	●○○
	0.5% < Si < 5%	10b	●○○
	Si > 5%	10c	●○○
Synthetic materials Engineering plastics	Thermoplastic	11a	○○○
	Thermoset	11b	○○○
Composite materials Reinforced composites	Glass fiber / GFK	12a	●○○
	Carbon fiber / KFK	12b	●○○
Precious metals Gold, platinum, silver	Gold	13a	●○○
	Platinum	13b	●○○

TECHNICAL DRAWING



DIMENSIONS

NOMINAL DIMENSIONS

D (0 / -0.01)	12 mm
d (h5)	12 mm
L	83 mm
l ₁	26 mm
l ₃	–
d ₃	–
R	–
e	–
Z	4
Chamfer K	0.1
w° collision	–

