

Garant
**GARANT Master Steel MICRO solid carbide drill, plain shank DIN 6535 HA
20×D, AlCrN, Ø DC h6: 2,3 mm**

Order data

Order number	121228 2,3
GTIN	4062406581138
Item class	10F

Description
Version:

High-performance micro-drill for universal material use, focussing on steel processing. Maximum process reliability due to **exactly matched tools within the overall system** and **expanded guide chamfer**. Drilling of very small diameters down to the maximum depth after creating a pilot hole. **Optimum compromise between core diameter and flute size for optimum chip evacuation** – even with long-chipping materials. The **increased metal removal rates and longer tool life** ensure an economical drilling process, even with very small hole diameters combined with a large L/D ratio.

Note:

For process reliability when using micro-drills from 8×D, a **pilot hole of at least 4×D** is required using the micro-pilot drill 121223. For vertical machining and flat workpiece surfaces, a pilot hole can be dispensed with from $D_c = \varnothing 1 \text{ mm}$ up to a length of 12×D. Please always ensure that the **pilot hole is free from chips** before using the subsequent drilling tool. We recommend setting a 90° counterbore with a suitable NC spotting drill after the pilot hole has been completed. For **through holes**, reduce the feed rate of the tool by 50% before exiting the hole. Long-chipping materials may require **chips to be evacuated** in steps of 3×D each by moving the drill back slightly at pilot hole depth. Please make sure that you use a suitable **tool clamping device** (shrink-fit chuck, hydraulic clamping chuck) with a radial run-out of less than 0.003 mm, a sufficiently high **coolant pressure** (at least 30 bar), as well as sufficiently fine **filtration** of the cooling medium ($D_c < \varnothing 2 \text{ mm}$ with filter $\leq 0.010 \text{ mm}$; $D_c < \varnothing 3 \text{ mm}$ filter $\leq 0.020 \text{ mm}$). The specified L/D ratio gives the **minimum achievable depth of hole** with the respective micro-drill. Flute length $L_c = L_2 + 1.5 \times D_c$.

Standard: Manufacturer's standard

Tolerance nominal Ø: h6

Number of cutting edges Z: 2

Tolerance nominal Ø: h6

recommended maximum drilling depth L_2 : 47.1 mm

Overall length L: 82 mm

Shank Ø D_s: 3 mm

Feed f in steel < 1100 N/mm²: 0.095 mm/rev.

Feed f in stainless steel < 900 N/mm²: 0.06 mm/rev.

Technical description

Number of cutting edges Z	2
Flute length L _c	50.6 mm
Tolerance nominal Ø	h6
Overall length L	82 mm
Standard	Manufacturer's standard
Feed f in steel < 1100 N/mm ²	0.095 mm/rev.
Feed f in stainless steel < 900 N/mm ²	0.06 mm/rev.
Nominal Ø D _c	2.3 mm
Shank Ø D _s	3 mm
recommended maximum drilling depth L ₂	47.1 mm
Series	GARANT Master Steel
Coating	AlCrN
Tool material	Solid carbide
Drill depth up to	20xD
Point angle	128 degrees
Shank	Parallel shank to h6
Through-coolant	yes, with 25 bar
Machining strategy	HPC
Pilot drill required	yes, pilot drill
Semi-Standard	yes
Colour ring	green
Type of product	Jobber drill

