

GUHRING

Edition 2009

Quotation
within 24h!
Tool delivery
within 3 weeks



SuperLinePlus

The fastest service
for special tooling!

Shortest delivery times
for special tools of the highest quality!





SL Plus solid carbide Ratio drills

The fastest way to get a special drill!

Advantages:

- spiral-flute RT 100 U or straight-fluted RT 150 GG
- with or without step
- different step angles
- highest quality
- optimal cost-performance ratio

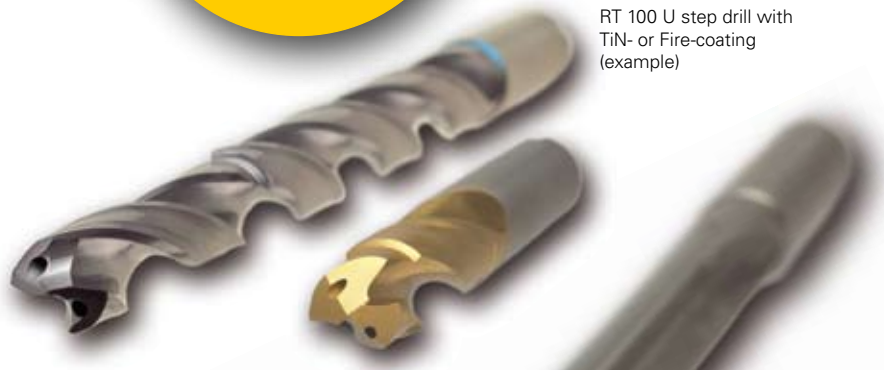
Quotation within 24h!

Tool delivery within 3 weeks

Ratio drills RT 100 U: Universal!

The universal RT 100 U is available with or without internal cooling and suitable for the machining of:

- steels up to 1400 N/mm²
- short- and long-chipping materials
- high-alloyed and acid-resistant steels (internal cooling necessary!)



RT 100 U step drill with TiN- or Fire-coating (example)

Ratio drills RT 150 GG: Straight-fluted for highest quality!

The straight-fluted RT 150 GG with internal cooling satisfies the highest demands in short-chipping cast iron as well as in AlSi-alloys with high Si-content:

- accuracy
- diameter tolerance (up to IT7)
- surface quality

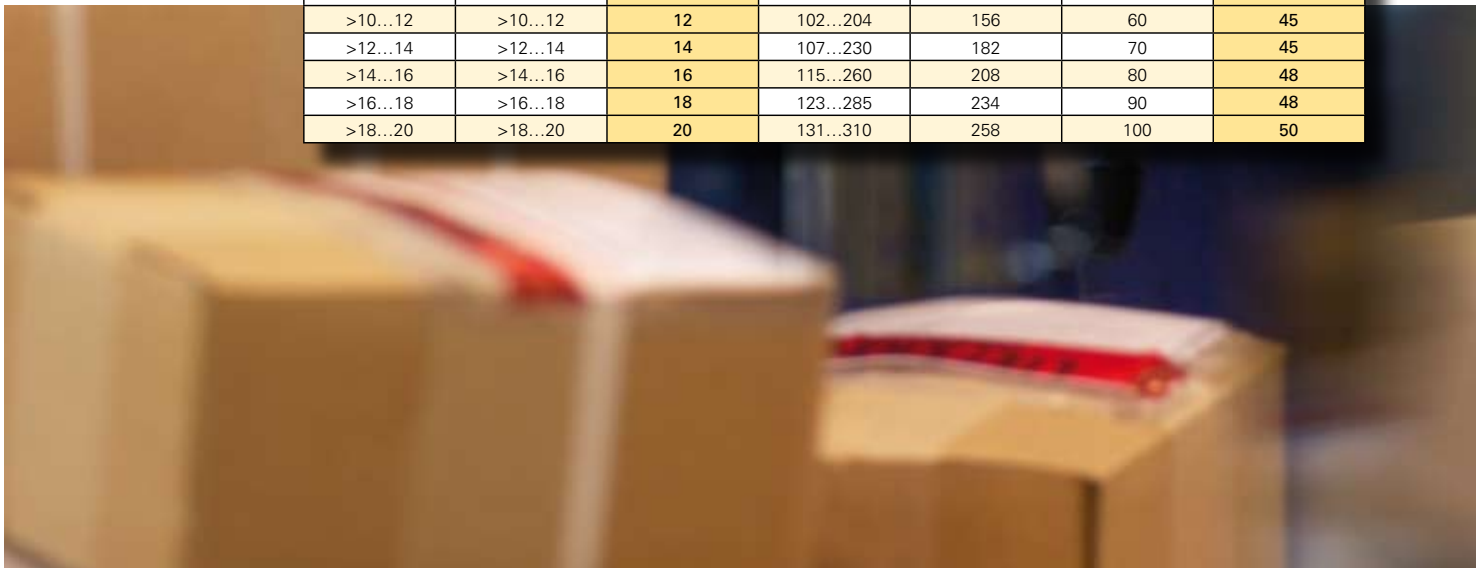


RT 150 GG step drill with bright finish (example)

General requirements

- Back taper and concentricity to Guhring standard
- step ø: step ratio d1 d2 max. 50%
- Flute length max. 7 x d1
- Step length max. 5 x d1
- Countersinking angle: 60° - 180°

Nom.- or step-ø d1 available from ... to mm	Step-ø d2 available from ... to mm	Shank-ø d3, h6, DIN 6535 depending on d1, respect. d2 mm	Total length l1 available from ... to mm	Flute length l2 available from min. 10 mm to max... mm	Step length l3 available from min. 5 mm to max... mm	Shank length l4 DIN 6535 mm
3...6	3...6	6	66...116	78	30	36
>6...8	>6...8	8	79...146	108	40	36
>8...10	>8...10	10	89...162	120	50	40
>10...12	>10...12	12	102...204	156	60	45
>12...14	>12...14	14	107...230	182	70	45
>14...16	>14...16	16	115...260	208	80	48
>16...18	>16...18	18	123...285	234	90	48
>18...20	>18...20	20	131...310	258	100	50





SL Plus solid carbide NC reamers

Perfect holes in a blink of an eye

Advantages:

- Perfect adaptation of tool material, geometry and coating to material and hole
- straight-fluted for blind holes or left-hand spiral for through holes
- nominal diameter up to 20.1 mm
- shank to DIN 6535 HA
- tolerance as required for the perfect finish
- available in long or short version
- highest quality
- optimal cost-performance ratio

Coating – no problem!

We recommend the following finishes for our SL Plus solid carbide NC reamers:



Bright finish:

- delivery within 3 weeks
- manufacturing tolerance 3 μm



TiAlN-coating:

- delivery within max. 4 weeks
- manufacturing tolerance 5 μm

Tolerances that fit perfectly!

It's your choice!

We produce perfect quality in the shortest time:

- we produce your required hole tolerance to DIN 1420.
- reamers with manufacturing tolerance to your requirements!



Quotation
within 24h!
Tool delivery
within 3 weeks



SL Plus solid carbide NC reamers

www.guhring.de

Order **Inquiry**

Name/customer no. if available New customer

Street no.

Telephone

Date

Contact for questions

Order no.

Town/post code

Fax

Signature

Quantity

Minimum order quantity 5 pieces

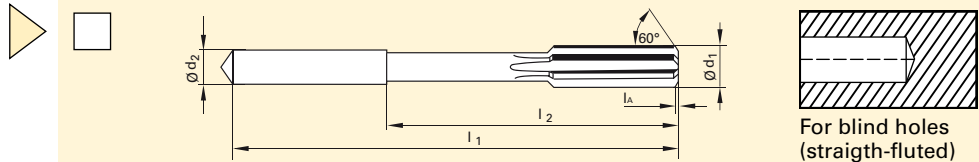
Hole Ø / Tol.

or

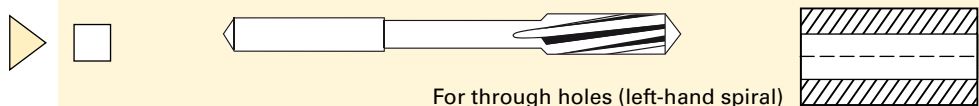
**Reamers
manufact. Ø / Tol.**

Nom.-Ø d ₁	Tolerance	Example	Example
<input type="text"/>	<input type="text"/>	Ø 12 F ₈	Ø 12 $\begin{matrix} +0.03 \\ +0.01 \end{matrix}$
Nom.-Ø d ₁	Tolerance	Example	
<input type="text"/>	<input type="text"/>	Ø 12	$\begin{matrix} +0.008 \\ +0.002 \end{matrix}$

Blind hole



Through hole



Dimensions

long version
 short version

Nom.-Ø [mm] from - to d ₁	long version		short version		Taper length l _A	Shank-Ø h6 DIN 6535 d ₂
	l ₁	Reach l ₂	l ₁	Reach l ₂		
1.950 – 2.36	50	22	-	-	0.3	4
2.361 – 2.65	60	32	-	-	0.3	4
2.651 – 3.03	64	36	-	-	0.3	4
3.031 – 3.35	68	40	-	-	0.4	4
3.351 – 3.75	74	46	-	-	0.4	4
3.751 – 4.09	77	49	-	-	0.4	4
4.091 – 4.79	82	46	-	-	0.4	6
4.791 – 6.03	93	57	-	-	0.4	6
6.031 – 6.70	101	65	76	40	0.4	8
6.701 – 7.60	109	73	76	40	0.5	8
7.601 – 8.10	117	81	76	40	0.5	8
8.101 – 8.60	117	77	76	36	0.5	10
8.601 – 9.69	125	85	76	36	0.5	10
9.691 – 10.10	133	93	76	36	0.5	10
10.101 – 10.60	133	88	80	35	0.5	12
10.601 – 11.80	142	97	80	35	0.7	12
11.801 – 12.10	150	105	80	35	0.7	12
12.101 – 14.10	150	105	90	45	0.7	14
14.101 – 16.10	150	102	90	42	0.7	16
16.101 – 18.10	150	102	100	52	0.7	18
18.101 – 20.10	150	100	100	50	0.7	20

Coating

bright TiAlN (delivery within max. 4 weeks) alternative coating (maybe longer delivery)

Material

Al Steel/GGG/GG/VA



SL Plus solid carbide Ratio drills

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Date

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Order no.


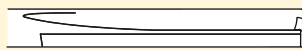
Town/post code

Fax

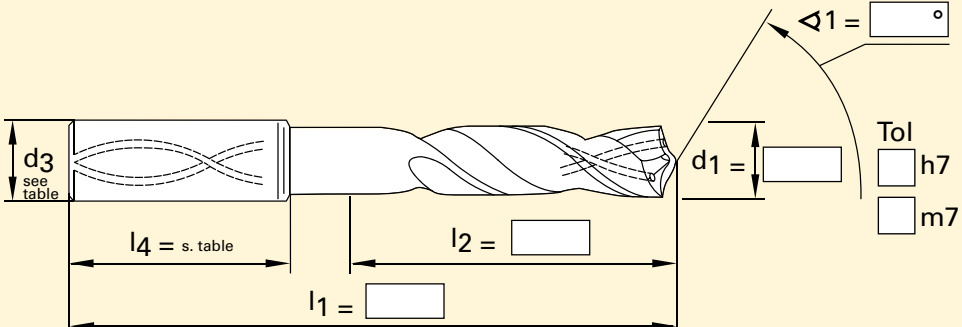
Signature

Quantity

Tool type

 RT 100 U (spiral-flute)  RT 150 GG (straight-fluted, with internal cooling only)

Dimensions
for spiral-flute & straight-fluted versions



d_3 see table

$l_4 = \text{s. table}$

$l_1 = \text{[]}$

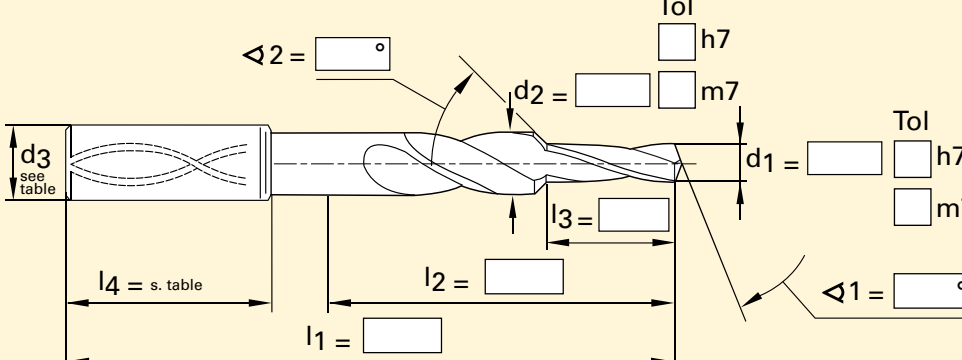
$l_2 = \text{[]}$

$d_1 = \text{[]}$

$\Delta 1 = \text{[]}^\circ$

Tol h7 m7

Step version
for spiral-flute & straight-fluted versions



d_3 see table

$l_4 = \text{s. table}$

$l_1 = \text{[]}$

$l_2 = \text{[]}$

$l_3 = \text{[]}$

$d_2 = \text{[]}$

$d_1 = \text{[]}$

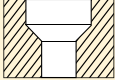

$\Delta 2 = \text{[]}^\circ$

$\Delta 1 = \text{[]}^\circ$


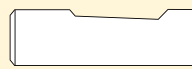
Tol h7 m7

Tol h7 m7



Machining

 Drill and counterbore  Drill and chamfer

Shank form

HA  HE 

Internal cooling

Yes  No 

Coating

nanoFIRE FIRE TiN bright

GUHRING

Guhring oHG

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Our service centers

- | | | | |
|---|----------------------|----------------|---------------------|
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<i>Albstadt
Berlin
Chemnitz
Eisenach
Geislingen
Gosheim
Mindelheim
Saarbrücken</i> | 2 Australia | 12 Korea | 22 Taiwan |
| | 3 Brazil - Diadema | 13 Mexico | 23 Thailand |
| | 4 Brazil - Joinville | 14 Netherlands | 24 Czech Republic |
| | 5 China | 15 Austria | 25 Turkey |
| | 6 France | 16 Poland | 26 Hungary |
| | 7 Great Britain | 17 Rumania | 27 USA - Brookfield |
| | 8 India | 18 Russia | 28 USA - New Hudson |
| | 9 Indonesia | 19 Sweden | 29 Vietnam |
| | 10 Italy | 20 Spain | 30 White Russia |
| | 11 Japan | | |



Re-grinding
with and without
re-coating
in original
Guhring-quality
worldwide!