



STEP DRILLS

Efficiency determines value, focus creates excellence.

Step Drills & Conical Drills:

- ◆ Made by High-performance HSS, High wear resistance and long tool life
- ◆ Manufactured by advanced CNC machine. High consistency and quality assurance
- ◆ 118° Split point DIN1412C, good centring, little pressure required
- ◆ CBN fully ground ensure better and sharper cutting edges
- ◆ Modified cutting angle guarantee smooth running and positive cut
- ◆ Grooves opened wide to allow fast and easy chip removal
- ◆ Each step/cone has constant radially adjusted relief and axially relief
- ◆ A starter hole of the smallest step/cone diameter will speed the drilling process
- ◆ Centered and drilled in one operation
- ◆ Applicable for Tube and Sheets and thin materials such as steel, non-ferrous and light metals, plastic, wood, etc.



Patent: PRO/Step Drills

LONG LIFE



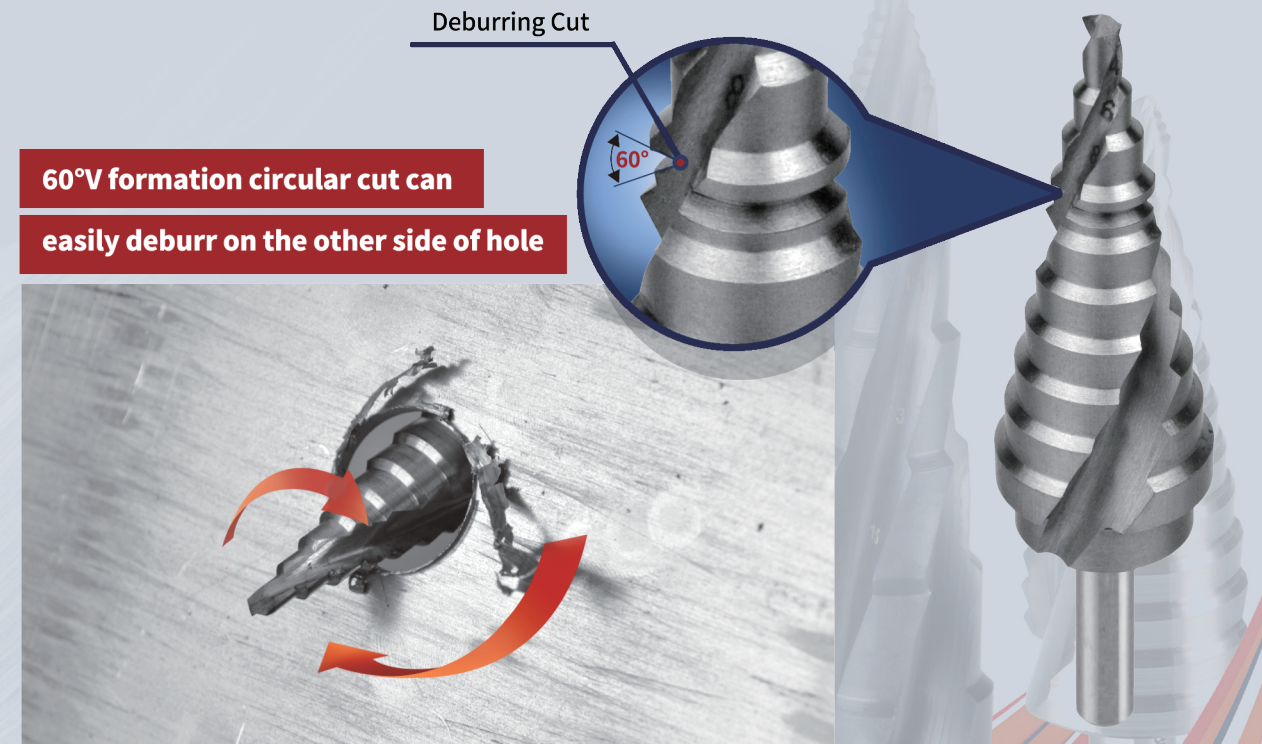
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- ◆ Two relief angles, first one for positive cutting and second one for clearance space cooling, guarantee completely perfect cooling result and extra long tool life
 - ◆ Bigger selecting range of different relief angle to suit different materials drilling
 - ◆ Smooth low-heat running
 - ◆ Special relief angle design can be applied to straight flute type and spiral flute type
 - ◆ Considerably longer tool life comparing normal same flute type

Groove Styles

Straight flute type	Spiral flute type	Arc flute type
<ul style="list-style-type: none"> ◆ General flute type ◆ More economical than spiral flute type 	<ul style="list-style-type: none"> ◆ Spiral flute guarantee completely smooth running and high cutting performance ◆ Large and Spiral chip space allows faster and easier chip removal ◆ Longer tool life compared with straight flute type 	<ul style="list-style-type: none"> ◆ Large and arc chip space allows fast and easy chip removal ◆ Mainly for American market

Two Flute HSS Step Drills With Deburring Cut

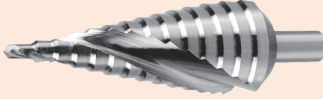
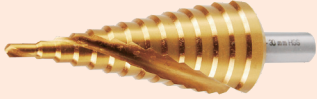

60°V formation circular cut can easily deburr on the other side of hole



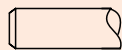
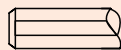

Recommendations for the use of step drills, Conical drills:

Material	High carb. struc. steel	High carb. struc. steel	Alloy steel	Inox steel (Stainless steel)	Cast iron	Cast iron	CuZn alloy brittle	CuZn alloy tough	Al-alloy <11%Si	Thermo-plastics	Duro-plastics	
	<700 N/mm ²	>700 N/mm ²	<1000 N/mm ²	<1400 N/mm ²	<250 N/mm ²	>250 N/mm ²						
Vc=m/min	30	20	20	10	15	10	60	35	30	20	15	
Coolant	Cutting spray	Cutting spray	Cutting spray	Cutting spray	Compr. Air	Compr. Air	Compr. Air	Compr. Air	Cutting spray	Water	Compr. Air	
Ø mm	Ø inch	r.p.m	r.p.m	r.p.m	r.p.m	r.p.m	r.p.m	r.p.m	r.p.m	r.p.m	r.p.m	
3-8	1/8" - 5/16"	3185-1194	2123-796	2123-796	1062-398	1592-597	1062-398	6369-2389	3715-1393	3185-1194	2123-796	1592-597
9-15	11/32" - 19/32"	1062-637	708-425	708-425	354-212	531-318	354-212	2123-1274	1238-743	1062-637	708-425	531-318
16-22	5/8 - 7/8"	597-434	398-290	398-290	199-145	299-217	199-145	1194-869	697-507	597-434	398-290	299-217
23-29	29/32" - 1-5/16"	415-329	277-220	277-220	138-110	208-165	138-110	831-659	485-384	415-329	277-220	208-165
30-36	1-3/16" - 1-7/16"	318-265	212-177	212-177	106-88	159-133	106-88	637-531	372-310	318-265	212-177	159-133
37-42	1-15/32" - 1-21/32"	258-227	172-152	172-152	86-76	129-114	86-76	516-455	301-265	258-227	172-152	129-114

For longer tool life and better chip removal ability, HSS-E and different coatings are available for different material processing.

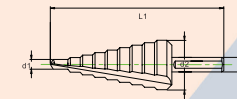
HSS-E	TiN	TiAlN
 <p>HSS-Co(Cobalt Hss) have higher red hardness permitting drilling of materials such as heat-resistant alloys and materials with hardness greater than 38HRC and high-alloyed chromium steel such as stainless and acidresistant steel</p>	 <p>General purpose coating, high cost-effective, makes the cutter long tool life. Provides cutter surface with a higher degree of hardness and high temperature stability meanwhile lower friction coefficient. Suitable for processing steel and cast iron.</p>	 <p>High performance coating with a high degree of hardness, high wear resistance and low heat conductivity. Good chemical stability and oxidation resistance and wear resistance. Suitable for processing heat resisting alloys, high-alloy steel, stainless steel, Titanium alloys and NiCo alloys.</p>

Shank Type:

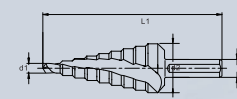
		
<p>Cylindrical shank The general shank type</p>	<p>Shank with 3 driving flats prevents slipping in drill chuck and can be effective holding</p>	<p>Hexagon shank Allow quick change</p>

Two Flute Step Drills, Cylindrical Shank

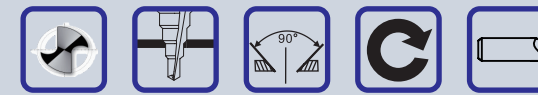
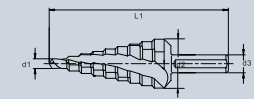
Straight Flute Type



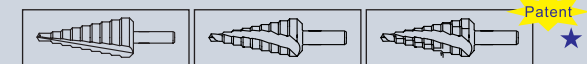
Spiral Flute Type



Pro Step Patent Type



Step Drills For Metric Hole Diameters



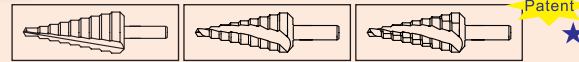
Min-Max d1-d2 Ø mm	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm	Maximum Material Thickness	Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
4-12	5	4-6-8-10-12	65.0	6.0	5.0	Q14CA0020	Q14CB0058	Q14CB0349
4-12	9	4-5-6-7-8-9-10-11-12	65.0	6.0	3.0	Q14CA0021	Q14CB0062	Q14CB0225
4-20	9	4-6-8-10-12-14-16-18-20	75.0	8.0	4.0	Q14CA0001	Q14CB0054	Q14CB0229
4-22	10	4-6-8-10-12-14-16-18-20-22	80.0	10.0	4.0	Q14CA0022	Q14CB0069	Q14CB0233
4-30	14	4-6-8-10-12-14-16-18-20-22-24-26	100.0	10.0	4.0	Q14CA0016	Q14CB0052	Q14CB0237
		-28-30						
4-39	13	4-6-12-15-18-21-24-27-30-33-36-39	107.0	10.0	4.0	Q14CA0023	Q14CB0055	Q14CB0241
5-13	5	5-7-9-11-13	65.0	6.3	6.0	Q14CA0024	Q14CB0079	Q14CB0350
5-25	11	5-7-9-11-13-15-17-19-21-23-25	82.0	9.5	4.0	Q14CA0025	Q14CB0083	Q14CB0245
5-35	13	5-13-15-17-19-21-23-25-27-29-31	82.0	12.7	3.0	Q14CA0026	Q14CB0087	Q14CB0249
		-33-35						
6-20	8	6-8-10-12-14-16-18-20	71.0	9.0	4.0	Q14CA0027	Q14CB0091	Q14CB0253
6-25	7	6-9-12-16-20-22.5-25	65.0	10.0	5.0	Q14CA0028	Q14CB0095	Q14CB0257
6-32	9	6-9-12-16-20-22.5-25-28.5-32	76.0	10.0	5.0	Q14CA0029	Q14CB0099	Q14CB0261
6-36	11	6-9-12-15-18-21-24-27-30-33-36	85.0	10.0	4.0	Q14CA0030	Q14CB0103	Q14CB0265
6-38	12	6-9-13-16-19-21-23-26-29-32-35-38	100.0	10.0	4.5	Q14CA0031	Q14CB0107	Q14CB0269
6-40	16	6-11-17-23-29-30-31-32-33-34-35	105.0	13.0	4.0	Q14CA0032	Q14CB0111	Q14CB0273
		36-37-38-39-40						
9-36	10	9-12-15-18-21-24-27-30-33-36	85.0	12.0	4.0	Q14CA0033	Q14CB0115	Q14CB0277

HSS-E / TiN / TiAlN / [flute icons] are available according to requirements

Two Flute Step Drills, Cylindrical Shank

Step Drills For Blind Rivets

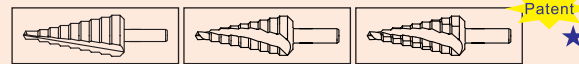
Maximum Material Thickness: 4mm



Min-Max d1-d2 Ø mm	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm	Remark	Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
4.8-10.65	5	4.8(M3)-6.4(M4)-7.2(M5)-9.6(M6)-10.65(M8)	54.0	6.0		Q14CA0034	Q14CB0119	Q14CB0281

Step Drills For Steel Conduit Threads

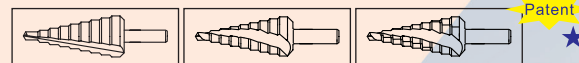
Maximum Material Thickness: 4mm



Min-Max d1-d2 Ø mm	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm	Remark	Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
6-26.75	8	6-9-11.4(PG7)-14(PG9)-17.25(PG11)-19(PG13.5)-21.25(PG16)-26.75(PG21)	75.0	10.0	core holes	Q14CA0035	Q14CB0123	Q14CB0285
6-30.5	9	6-9-12.5(PG7)-15.2(PG9)-18.6(PG11)-20.4(PG13.5)-22.5(PG16)-28.3(PG21)-30.5	80.0	10.0	through holes	Q14CA0036	Q14CB0127	Q14CB0289
6-37	12	6-9-12.5(PG7)-15.2(PG9)-18.6(PG11)-20.4(PG13.5)-22.5(PG16)-26-28.3(PG21)-30.5-34-37(PG29)	100.0	10.0	through holes	Q14CA0074	Q14CB0057	Q14CB0293

Step Drills For Pipe Threads

Maximum Material Thickness: 4mm



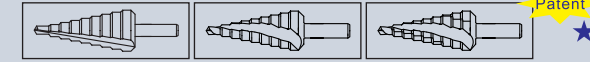
Min-Max d1-d2 Ø mm	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm	Remark	Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
5-28	7	5-8.8(G1/8")-11.8(G1/4")-15.3(G3/8")-19(G1/2")-24.5(G3/4,)-28	69.0	10.0	core holes	Q14CA0038	Q14CB0134	Q14CB0297
6-32	8	6-9-11.2(R1/8")-14.5(R1/4")-18.2(R3/8")-22.3(R1/2")-27.9(R3/4")-32	75.0	10.0	external Ø through holes	Q14CA0039	Q14CB0138	Q14CB0301

HSS -E / TIN / TiAIN / / are available according to requirements

Two Flute Step Drills, Cylindrical Shank

Step Drills For Cable Connections

Maximum Material Thickness: 4mm



Min-Max d1-d2 Ø mm	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm	Remark	Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
5.3-30.5	9	5.3(M6)-7.0(M8)-9.0-10.5(M10)-14.5(M16)-18.5(M20)-23.5(M25)-27.0-30.5(M32)	79	10	core holes after DIN/EN 60423	Q14CA0040	Q14CB0142	Q14CB0305
6.5-32.5	9	6.5(M6)-8.5(M8)-10.5(M10)-12.5(M12)-16.5(M16)-20.5(M20)-25.5(M25)-29.0-32.5(M32)	79	10	through holes after DIN/EN50262	Q14CA0075	Q14CB0351	Q14CB0352
5.3-38.5	11	5.3(M6)-7.0(M8)-9.0-10.5(M10)-14.5(M16)-18.5(M20)-23.5(M25)-27.0-30.5(M32)-34.5-38.5(M40)	96	10	core holes after DIN/EN60423	Q14CA0042	Q14CB0150	Q14CB0313
6.5-40.5	11	6.5(M6)-8.5(M8)-10.5(M10)-12.5(M12)-16.5(M16)-20.5(M20)-25.5(M25)-29.0-32.5(M32)-36.5-40.5(M40)	96	10	through holes after DIN/EN50262	Q14CA0043	Q14CB0056	Q14CB0353
6.5-32.5	12	6.5(M6)-8.5(M8)-10.5(M10)-13(M12/PG7)-15.7(PG9)-16.5(M16)-18.6(PG11)-21(M20/PG13.5)-23(PG16)-25.5(M25)-28.8(PG21)-32.5(M32)	91	10	For cable connections & steel conduit threads, through holes	Q14CA0044	Q14CB0157	Q14CB0321

Step Drills For Produce Switchboards

Maximum Material Thickness: 2mm



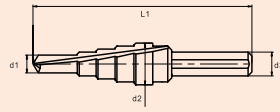
Min-Max d1-d2 Ø mm	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm	Remark	Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
4-12	9	4-5-6-7-8-9-10-11-12	48	6		Q14CA0045	Q14CB0161	N/A
4-20	9	4-6-8-10-12-14-16-18-20	58	8		Q14CA0076	Q14CB0165	N/A
4-30	14	4-6-8-10-12-14-16-18-20-22-24-26-28-30	72	10		Q14CA0047	Q14CB0169	N/A

HSS -E / TIN / TiAIN / / are available according to requirements

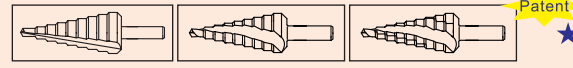
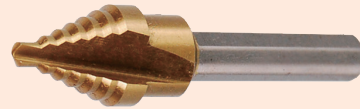
Two Flute Step Drills, Cylindrical Shank

Step Drills For Imperial Hole Diameters

Imperial Type



Single Hole Type

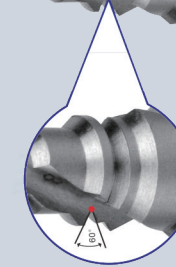
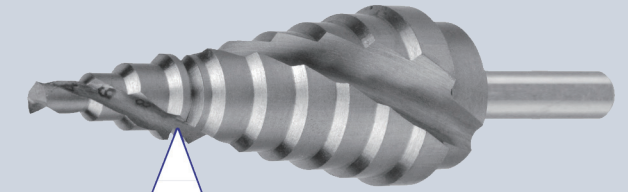


Min-Max d1-d2 Ø inch	Steps	Description inch	Overall Length L1 inch	Shank Ø d3 inch	Maximum Material Thickness	Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
3/16-1/2"	6	3/16-1/4-5/16-3/8-7/16-1/2"	3-1/4"	1/4"	3/8"	Q14CA0048	Q14CB0173	Q14CB0325
1/8-1/2"	13	1/8-5/32-3/16-7/32-1/4-9/32-5/16 -11/32-3/8-13/32-7/16-15/32-1/2"	3-1/8"	1/4"	1/8"	Q14CA0049	Q14CB0177	Q14CB0329
1/4-3/4"	9	1/4-5/16-3/8-7/16-1/2-9/16-5/8 -11/16-3/4"	2-3/4"	3/8"	1/8"	Q14CA0050	Q14CB0181	Q14CB0333
3/16-7/8"	12	3/16-1/4-5/16-3/8-7/16-1/2-9/16 -5/8-11/16-3/4-13/16-7/8"	3-1/4"	3/8"	1/8"	Q14CA0051	Q14CB0185	Q14CB0337
5/16-1"	9	5/16-1/2-9/16-5/8-11/16-3/4-13/16 -7/8-15/16-1"	3-1/4"	3/8"	1/8"	Q14CA0077	Q14CB0189	Q14CB0341
1/4-1-3/8"	10	1/4-3/8-1/2-5/8-3/4-7/8-1-1/8 -1-7/32-1-1/4-1-3/8"	3-1/8"	1/2"	1/8"	Q14CA0053	Q14CB0193	Q14CB0345
3/8-1/2"	2	3/8-1/2"	1-7/8"	1/4"	1/8"	Q14CA0054	Q14CB0197	Q14CB0354
7/8-1-1/8"	2	7/8-1-1/8"	3-1/8"	3/8"	1/8"	Q14CA0078	Q14CB0355	Q14CB0356
3/8"	1	3/8"	1-3/4"	1/4"	N/A	Q14CA0079	N/A	N/A
1/2"	1	1/2"	1-7/8"	1/4"	N/A	Q14CA0080	N/A	N/A
7/8"	1	7/8"	2-5/8"	3/8"	N/A	Q14CA0081	N/A	N/A
1-1/8"	1	1-1/8"	3-1/8"	1/2"	N/A	Q14CA0082	N/A	N/A
1-7/32"	1	1-7/32"	3-1/4"	1/2"	N/A	Q14CA0083	N/A	N/A

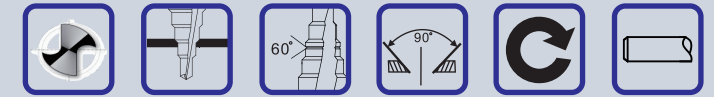
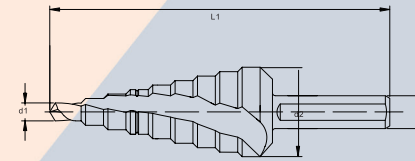
HSS-E / TiN / TiAIN / / are available according to requirements

Two Flute HSS Step Drills With Deburring Cut, Cylindrical Shank Spiral Flute Type

- ◆ 60° V formation circular cut can easily deburr on the other side of hole
- ◆ Spiral flutes guarantee completely smooth running and high cutting performance
- ◆ Large and Spiral chip space allows faster and easier chip removal
- ◆ High positive cut, extra rake angle
- ◆ Longer tool life compared with straight flute type



60° V formation circular cut can easily deburr on the other side of hole



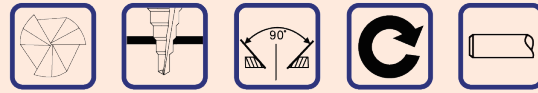
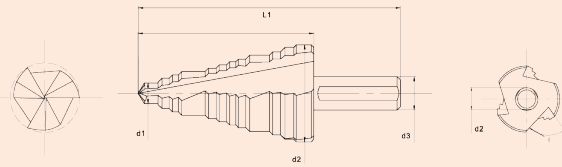
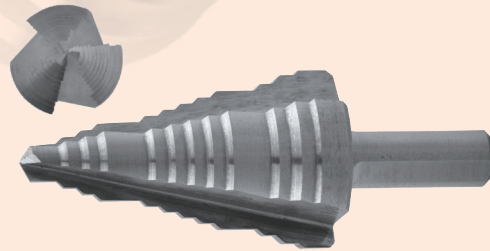
Min-Max d1-d2 Ø mm	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm	Maximum Material Thickness mm	HSS Shiny Part Number
4-12	5	4-6-8-10-12	65.0	6.0	5.0	Q14CB0001
4-12	9	4-5-6-7-8-9-10-11-12	65.0	6.0	3.0	Q14CB0005
4-20	9	4-6-8-10-12-14-16-18-20	75.0	8.0	4.0	Q14CB0009
4-30	14	4-6-8-10-12-14-16-18-20-22-24-26-28-30	100.0	10.0	4.0	Q14CB0013
6-25	7	6-9-12-16-20-22.5-25	65.0	10.0	5.0	Q14CB0017
6-38	12	6-9-13-16-19-21-23-26-29-32-35-38	100.0	10.0	4.5	Q14CB0021
6.5-32.5	12	6.5(M6)-8.5(M8)-10.5(M10)-13(M12)/PG7 15.7(PG9)-16.5(M16)-18.6(PG11)-21 (M20/PG13.5)-23(PG16)-25.5(M25)-28.8 (PG21)-32.5(M32)	91.0	10.0	4.0	Q14CB0025

/ are available.

HSS-E / TiN / TiAIN / / are available according to requirements

Three Flute HSS Step Drills, Cylindrical Shank Straight Flute Type

- ◆ 3 flutes guarantee absolutely chatter-free working
- ◆ Allow a higher feed especially for non-ferrous materials

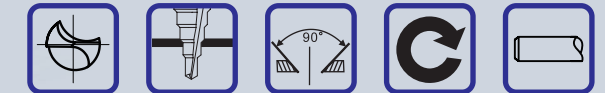
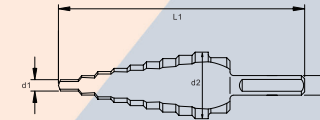


Min-Max d1-d2 Ø mm	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm	Maximum Material Thickness mm	HSS Shiny Part Number
4-12	9	4-5-6-7-8-9-10-11-12	65.0	6.0	3	Q14CJ0003
4-20	9	4-6-8-10-12-14-16-18-20	75.0	8.0	4	Q14CJ0004
4-30	14	4-6-8-10-12-14-16-18-20-22-24-26-28-30	100.0	10.0	4	Q14CJ0005
6-36	11	6-9-12-15-18-21-24-27-30-33-36	85.0	10.0	4	Q14CJ0006
6-40	16	6-11-17-23-29-30-31-32-33-34-35-36-37-38	105.0	13.0	4	Q14CJ0007
		39-40				
9-36	10	9-12-15-18-21-24-27-30-33-36	85.0	12.0	4	Q14CJ0008
40-50	11	8-13-19-25-31-37-40-41-42-43-44-45-46-47	112.0	13.0	4	Q14CJ0009
		48-49-50				
50-60	11	7-14-21-28-35-42-49-50-51-52-53-54-55-56	115.0	13.0	4	Q14CJ0010
		57-58-59-60				

HSS-E / TiN / TiAIN / are available according to requirements

Single Flute HSS Step Drill, Cylindrical Shank Arc Flute Type

- ◆ Large and arc chip space allows fast and easy chip removal
- ◆ Mainly for American market

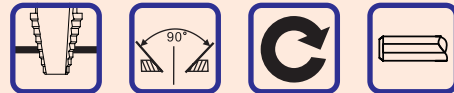
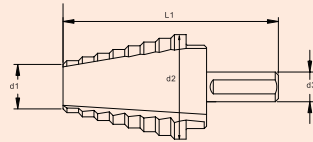


Min-Max d1-d2 Ø inch	Steps	Description inch	Overall Length L1 inch	Shank Ø d3 inch	Maximum Material Thickness inch	HSS Shiny Part Number
3/16-1/2"	6	3/16-1/4-5/16-3/8-7/16-1/2"	3-1/4"	1/4"	3/8"	Q14CH0001
1/8-1/2"	13	1/8-5/32-3/16-7/32-1/4-9/32-5/16-11/32-3/8	3-1/8"	1/4"	1/8"	Q14CH0007
		-13/32-7/16-15/32-1/2"				
1/4-3/4"	9	1/4-5/16-3/8-7/16-1/2-9/16-5/8-11/16-3/4"	2-3/4"	3/8"	1/8"	Q14CH0008
3/16-7/8"	12	3/16-1/4-5/16-3/8-7/16-1/2-9/16-5/8-11/16	3-1/4"	3/8"	1/8"	Q14CH0009
		-3/4-13/16-7/8"				
5/16-1"	9	5/16-1/2-9/16-5/8-11/16-3/4-13/16-7/8-15/16	3-1/4"	3/8"	1/8"	Q14CH0010
		-1"				
1/4-1-3/8"	10	1/4-3/8-1/2-5/8-3/4-7/8-1-1/8-1-7/32"	3-1/8"	1/2"	1/8"	Q14CH0011
		-1-1/4-1-3/8"				
3/8-1/2"	2	3/8-1/2"	1-7/8"	1/4"	1/8"	Q14CH0012
7/8-1-1/8"	2	7/8-1-1/8"	3-1/8"	3/8"	1/8"	Q14CH0013
3/8"	1	3/8"	1-3/4"	1/4"	N/A	Q14CH0014
1/2"	1	1/2"	1-7/8"	1/4"	N/A	Q14CH0015
7/8"	1	7/8"	2-5/8"	3/8"	N/A	Q14CH0016
1-1/8"	1	1-1/8"	3-1/8"	1/2"	N/A	Q14CH0017
1-7/32"	1	1-7/32"	3-1/4"	1/2"	N/A	Q14CH0018

HSS-E / TiN / TiAIN / are available according to requirements

Two Flute HSS Hole Enlarging Step Drills, Three Driving Flats Shank Straight Flute Type

- ◆ 3 driving flat shank prevents slipping in drill chuck
- ◆ Pilot hole required

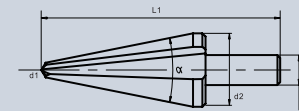
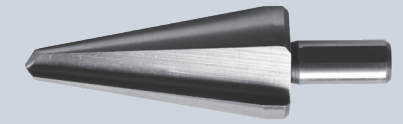


Min-Max d1-d2 Ø	Steps	Description	Overall Length L1	Shank Ø d3	Maximum Material Thickness	HSS HSS Shiny Part Number
10-20mm	9	10-11-12-13-14-15-16-17-18-19-20 mm	66mm	8.0mm	4mm	Q14CC0212
20-30mm	11	20-21-22-23-24-25-26-27-28-29-30 mm	78mm	10.0mm	4mm	Q14CC0213
30-40mm	11	30-31-32-33-34-35-36-37-38-39-40 mm	78mm	10.0mm	4mm	Q14CC0214
14-24mm	6	14-16-18-20-22-24 mm	70mm	12.7mm	5mm	Q14CC0215
20-34mm	8	20-22-24-26-28-30-32-34 mm	70mm	12.7mm	5mm	Q14CC0216
9/16-1"	8	9/16-5/8-11/16-3/4-13/16-7/8-15/16-1"	2-3/4"	1/2"	1/8"	Q14CC0217
13/16-1-3/8"	10	13/16-7/8-15/16-1-1-1/16-1-1/8-1-3/16-1-1/4 -1-5/16-1-3/8"	3-1/4"	1/2"	1/8"	Q14CC0218

are available according to requirements

Two Flute HSS Conical Drills, Cylindrical Shank Straight Flute Type

- ◆ 118° Split point DIN1412C, good centring, little pressure required;
- ◆ CBN fully ground ensure better and sharper cutting edges
- ◆ Grooves opened wide to allow chips away out
- ◆ Positive cut, standard rake angle
- ◆ Constant profile relief
- ◆ Smooth running
- ◆ Centered and drilled in one operation
- ◆ Applicable for Tube and Sheets and thin materials such as steel, non-ferrous and light metals, plastic, wood, etc.

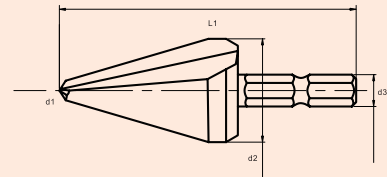
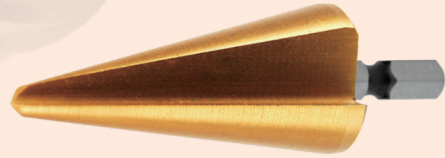


Drilling Range Ø mm	Min d1 Ø mm	Max d2 Ø mm	Overall Length L1 mm	Shank d3 Ømm	HSS HSS Shiny Part Number	HSS -E HSS-CO 5 Shiny Part Number	HSS TiN Coated Part Number	HSS TiAlN Coated Part Number
3-14	3	14.0	58	6	Q14HA0003	Q14HA0038	Q14HA0016	Q14HA0029
5-20	5	20.0	71	8	Q14HA0026	Q14HA0039	Q14HA0040	Q14HA0041
16-30.5	16	30.5	76	9	Q14HA0042	Q14HA0043	Q14HA0044	Q14HA0045
24-40	24	40.0	89	10	Q14HA0046	Q14HA0047	Q14HA0048	Q14HA0049
36-50	36	50.0	97	12	Q14HA0050	Q14HA0051	Q14HA0033	Q14HA0052
40-61	40	61.0	103	13	Q14HA0053	Q14HA0054	Q14HA0055	Q14HA0056
4-30.5	4	30.5	103	9	Q14HA0057	Q14HA0058	Q14HA0059	Q14HA0060
5-22.5	5	22.5	79	8	Q14HA0061	Q14HA0062	Q14HA0063	Q14HA0064
5-25.4	5	25.4	87	10	Q14HA0065	Q14HA0066	Q14HA0067	Q14HA0068

Shank with 3 driving flats available as per requirements which enables effective holding.

Two Flute HSS Conical Drills, 1/4" Hexagon Shank Straight Flute Type

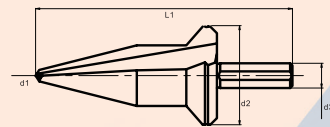
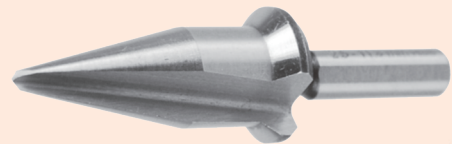
- ◆ 118° Split point DIN1412C, good centring, little pressure required;
- ◆ CBN fully ground ensure better and sharper cutting edges
- ◆ 1/4" hexagon shank to DIN 3126-C6, 3 allow quick change
- ◆ Grooves opened wide to allow chips away out
- ◆ Positive cut, standard rake angle
- ◆ Constant profile relief
- ◆ Smooth running
- ◆ Centered and drilled in one operation
- ◆ Applicable for Tube and Sheets and thin materials such as steel, non-ferrous and light metals, plastic, wood. etc.



Drilling Range Ø mm	Min d1 Ø mm	Max d2 Ø mm	Overall Length L1 mm	Shank Ø d3 mm	HSS HSS Shiny Part Number	HSS -E HSS-CO 5 Shiny Part Number	HSS TiN TiN Coated Part Number	HSS TiAlN TiAlN Coated Part Number
3-14	3	14	62	6.35	Q14HB0003	Q14HB0004	Q14HB0005	Q14HB0006
5-20	5	20	78	6.35	Q14HB0007	Q14HB0008	Q14HB0009	Q14HB0010

Two Flute HSS Conical Drills With Countersink, Cylindrical Shank Straight Flute Type

- ◆ 118° Split point DIN1412C, good centring, little pressure required;
- ◆ CBN fully ground ensure better and sharper cutting edges
- ◆ With Countersink for cavity sealing
- ◆ Grooves opened wide to allow chips away out
- ◆ Positive cut, standard rake angle
- ◆ Constant profile relief
- ◆ Smooth running
- ◆ Centered and drilled in one operation
- ◆ Applicable for Tube and Sheets and thin materials such as steel, non-ferrous and light metals, plastic, wood. etc.

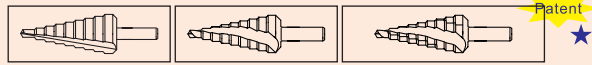
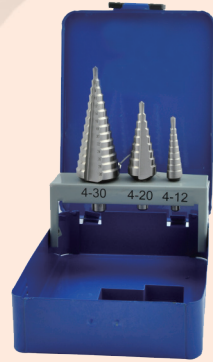


Drilling Range Ø mm	Min d1 Ø mm	Max d2 Ø mm	Overall Length L1 mm	Shank Ø d3 mm	HSS HSS Shiny Part Number	HSS -E HSS-CO 5 Shiny Part Number	HSS TiN TiN Coated Part Number	HSS TiAlN TiAlN Coated Part Number
3-7.8	3	7.8	48	6	Q14HA0069	Q14HA0070	Q14HA0071	Q14HA0072
3-10.2	3	10.2	52	6	Q14HA0073	Q14HA0074	Q14HA0075	Q14HA0076
3-11.8	3	11.8	56	6	Q14HA0077	Q14HA0078	Q14HA0079	Q14HA0080

3pcs Two Flute HSS Step Drills Set, Cylindrical Shank

In Metal Box

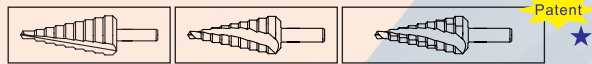
- ◆ Group of 3 pcs common size for general applications
- ◆ Metal Box with stand packing protects cutting edges and convenient for picking and storage



Contents					Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
Drilling Range	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm			
4-12	9	4-5-6-7-8-9-10-11-12	65.0	6.0	Q27AC0017	Q27AC0018	Q27AC0019
4-20	9	4-6-8-10-12-14-16-18-20	75.0	8.0			
4-30	14	4-6-8-10-12-14-16-18-20-22-24	100.0	10.0			
		26-28-30					

In Plastic Box

- ◆ Group of 3 pcs common size for general applications
- ◆ Plastic Box with stand packing protects cutting edges and convenient for picking and storage

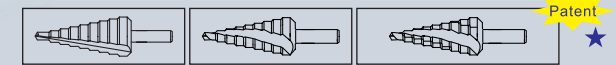


Contents					Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
Drilling Range	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm			
4-12	9	4-5-6-7-8-9-10-11-12	65.0	6.0	Q27AC0020	Q27AC0021	Q27AC0022
4-20	9	4-6-8-10-12-14-16-18-20	75.0	8.0			
4-30	14	4-6-8-10-12-14-16-18-20-22-24	100.0	10.0			
		26-28-30					

3pcs Two Flute HSS Step Drills set, Cylindrical Shank

In Blow Molded Case

- ◆ Group of 3 pcs common size for general applications
- ◆ Blow molded case convenient for picking and storage



Contents					Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number
Drilling Range	Steps	Description mm	Overall Length L1 mm	Shank Ø d3 mm			
4-12	9	4-5-6-7-8-9-10-11-12	65.0	6.0	Q27AC0026	Q27AC0027	Q27AC0028
4-20	9	4-6-8-10-12-14-16-18-20	75.0	8.0			
4-30	14	4-6-8-10-12-14-16-18-20-22-24	100.0	10.0			
		26-28-30					

3pcs Single Flute HSS Step Drill Set, Cylindrical Shank



Arc Flute Type

In Blow Molded Case

- ◆ Group of 3 pcs common size for general applications
- ◆ Blow molded case convenient for picking and storage



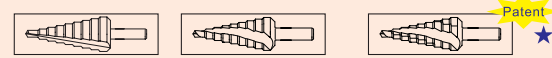
Contents					HSS	HSS -E	HSS TIN	HSS TiAIN
Drilling Range	Steps	Description inch	Overall Length L1 inch	Shank Ø d3 inch	HSS Shiny Part Number	HSS-CO 5 Shiny Part Number	TiN Coated Part Number	TiAIN Coated Part Number
1/8-1/2"	13	1/8-5/32-3/16-7/32-1/4-9/32-5/16	3-1/8"	1/4"	Q27AC0029	Q27AC0030	Q27AC0031	Q27AC0032
		-11/32-3/8-13/32-7/16-15/32-1/2"						
3/16-1/2"	6	3/16-1/4-5/16-3/8-7/16-1/2-1/4	3-1/4"	1/4"				
		-5/16-3/8-7/16-1/2-9/16-5/8"						
1/4-3/4"	9	11/16-3/4"	2-3/4"	3/8"				

 /  are available according to requirements

Special kit contents can be modified.

3pcs Two Flute HSS Step Drills Set, Cylindrical Shank

- ◆ Group of 3pcs common size for general applications
- ◆ Plastic box with EVA foam protects cutting edges and convenient for picking and storage

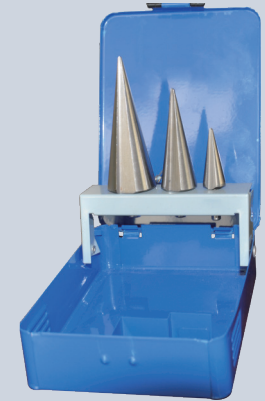


Drilling Range	Steps	Contents		Straight Flute HSS Shiny Part Number	Spiral Flute HSS Shiny Part Number	Pro Step HSS Shiny Part Number	
		Description mm	Overall Length L1 mm				Shank Ø d3 mm
4-12	9	4-5-6-7-8-9-10-11-12	65	6	Q27AC0997	Q27AC0998	Q27AC0999
4-20	9	4-6-8-10-12-14-16-18-20	75	8			
4-30	14	4-6-8-10-12-14-16-18-20-22-24-26-28-30	100	10			

3pcs Two Flute HSS Conical Drills Set, Cylindrical Shank Straight Flute Type

In Metal Box

- ◆ Group of 3 pcs common size for general applications
- ◆ Metal Box with stand packing protects cutting edges and convenient for picking and storage



Drilling Range	D1 Min Ø mm	D2 Max Ø mm	Overall Length L1 mm	D3 Shank Ø mm	Contents			
					HSS HSS Shiny Part Number	HSS-E HSS-CO 5 Shiny Part Number	HSS-TIN TiN Coated Part Number	HSS-TiAIN TiAIN Coated Part Number
3-14	3	14.0	58	6	Q27AX0005	Q27AX0006	Q27AX0007	Q27AX0008
5-20	5	20.0	71	8				
16-30.5	16	30.5	76	9				

3pcs Two Flute HSS Conical Drills Set, Cylindrical Shank Straight Flute Type

In Plastic Box

- ◆ Group of 3 pcs common size for general applications
- ◆ Plastic Box with stand packing protects cutting edges and convenient for picking and storage



Drilling Range	D1 Min Ø mm	D2 Max Ø mm	Overall Length L1 mm	D3 Shank Ø mm	Contents			
					HSS HSS Shiny Part Number	HSS-E HSS-CO 5 Shiny Part Number	HSS-TIN TiN Coated Part Number	HSS-TiAIN TiAIN Coated Part Number
3-14	3	14.0	58	6	Q27AX0009	Q27AX0010	Q27AX0011	Q27AX0012
5-20	5	20.0	71	8				
16-30.5	16	30.5	76	9				

Shank with 3 driving flats available as per requirements which enables effective holding.



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