

ADVICE AND SERVICE FROM SHIWEI



Maximum reliability and high performance, even in extreme conditions, this is hallmark of SHIWEI tools. Regular maintenance and care, combined with attentive customer service, play a vital role in guaranteeing the tools' operational efficiency and reliability well into the future.

SHIWEI dealers are happy to provide you with advice on selecting the right product to meet your needs, and they also give you useful tips on using the tools correctly and offer you professional service. This gives you the assurance that your SHIWEI machine will be a pleasure to use for many years.

Every SHIWEI product is backed by a comprehensive guarantee, the period of which varies according to model. If your tools requires servicing or repair under warranty, contact

your SHIWEI authorized dealer. The SHIWEI service organization has original SHIWEI parts in stock for you. Always use original spare parts with the logo "SHIWEI" to ensure maximum performance, reliability and service life from your SHIWEI tools.

It is very important to study the entire owner's manual prior to initial operation and to take sufficient care when using a SHIWEI product, while always adhering to the safety instructions. If used incorrectly, all products can be a source of potential danger to the user, onlookers, animals, or nearby objects. Non-compliance could result in death or serious injury.

www.shiwei.com

Your SHIWEI stockist



One Choice All Solved

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CATALOG

STEP DRILLS TUBE&SHEET DRILLS



has a policy of continuous improvement

and reserves the right to change models and specifications without prior notification

MORE THAN 38 YEARS OF US



Time flies. More than 38 years of us, **SOLID** hardware tools Co.,Ltd is located in the beautiful ancient city of Yangzhou. Our company was established in the beginning of 1980's, specialized in the manufacture of cutting tools, hardware etc. We have constantly kept fine quality and enjoyed a good reputation among users both at home and abroad.

Through the years we always wanted to do things better."Listen properly to customers' wishes and make sure you live up to expectations"...We stick to enterprise spirit of "pursuing reality, recreating fresh, exploring and progressing",we will sincerely cooperate with customers from all over the world.

At the **SOLID** Company we are constantly upgrading our technology to provide our customers with leading edge products that perform. Not only do we provide our customers with top quality machining and tooling, we know that to keep them coming back to the SHIWEI Company we must provide superior customer care and top quality performance.

SOLID Hardware Tools Co.,Ltd was established to produce high quality products in 2009 in Yangzhou in order to meet the need of customers.SOLID Hardware Tools Co.,Ltd has almost 18000m² space. At now we put 6000m² for production and 1100m² for office.

Through our 35 years of experience, we have recognized that providing superior service does not end with a quality product-it takes products, service, and performance. We pride ourselves on being a value-added operation, offering you service from beginning to end and everywhere in between.

PRODUCTS

SHIWEI produce and supply our customers with products they can count on and quality.

For each single product the emphasis is on safety, diversity and quality. We provide an extensive package of expert products.

SAFETY

All SHIWEI tools are designed for the world market. Obviously all user safety regulations have been met.

SHIWEI has taken all of these requirements into account and therefore puts nothing but the safest products into the market.

QUALITY GUARANTEED

At each production phase all SHIWEI tools are subjected to the strictest quality checks. Quality inspectors study each component with the utmost care to guarantee nothing but the best quality.

Once all tested products have been packaged, they are stored in the factory warehouses. Subsequently machines are randomly taken away from stock, dismantled entirely at the test center, accurately remeasured and checked. When everything is seen to be in perfect order the products may leave the factory.

CUSTOMIZATION SOLUTION

In order to help our customers enjoy high-quality services around the world.

Our company provide the "**One Choice Solved All**" project, including new project"special solution to the problem".

- 1.Comprehensively customized non-standard tool
- 2.Improve product quality
 - Cutting performance improvement.
 - Durability and Heat Resistance improvement.

SERVICE AND SUPPORT

Not only does SHIWEI provide top quality equipment, we bring you uncompromised service as well. Our knowledgeable sales staff is on call 24 hours a day to answer your questions or provide on-site service.

SHIWEI dedicates careful attention to informing the distribution partners. By offering intensive support to our dealers/wholesalers we help them choose the right products.

CONTENTS



STEP DRILLS

06-41

STEP DRILLS, STRAIGHT FLUTES METRIC SIZES	11
STEP DRILLS, STRAIGHT FLUTES IMPERIAL SIZES	16
STEP DRILLS, SPIRAL FLUTES METRIC SIZES	18
STEP DRILLS, SPIRAL FLUTES IMPERIAL SIZES	26
STEP DRILLS WITH JAPANESE QUICK SHANK	28
STEP DRILLS SPIRAL FLUTES WITH JAPANESE QUICK SHANK	28
STEP DRILLS, TRIPLE SPIRAL FLUTES WITH CHANGEABLE PILOT DRILL	32
STEP DRILLS, FOUR STRAIGHT FLUTES WITH CHANGEABLE PILOT DRILL	34
STEP DRILLS WITH FLAT HEAD FOR ENLARGING HOLE	34
PIPE STEP DRILLS	37
STEP DRILL SETS	38
STEP DRILL SETS WITH SPIRAL FLUTES	40



TUBE&SHEET DRILLS

42-49

TUBE AND SHEET DRILLS	46
TUBE AND SHEET DRILL SETS	48



SHIWEI[®]
STEP DRILLS

STEP DRILLS

CBN Fully Ground Step Drill Bits

All Step Drill Bits have Split Points and come in two different materials.

- The Split Point reduces "Walking" which is the tendency of a spinning bit to rotate away from the point at which you want to drill.
- Because CBN(cubical boron nitride)is a much harder abrasive than even silicon carbide or corundum, a better an sharper cutting edge is achieved without burrs.
- Because of this higher dimensional precision, the drill bits will last considerably longer while maintaining precise process tolerances.
- The High Speed Steel(HSS) allows the bit to cut faster than High Carbon Steel. At room temperature,HSS and high carbon steel have an equivalent hardness; at elevated temperatures HSS become advantageous.

FEATURES

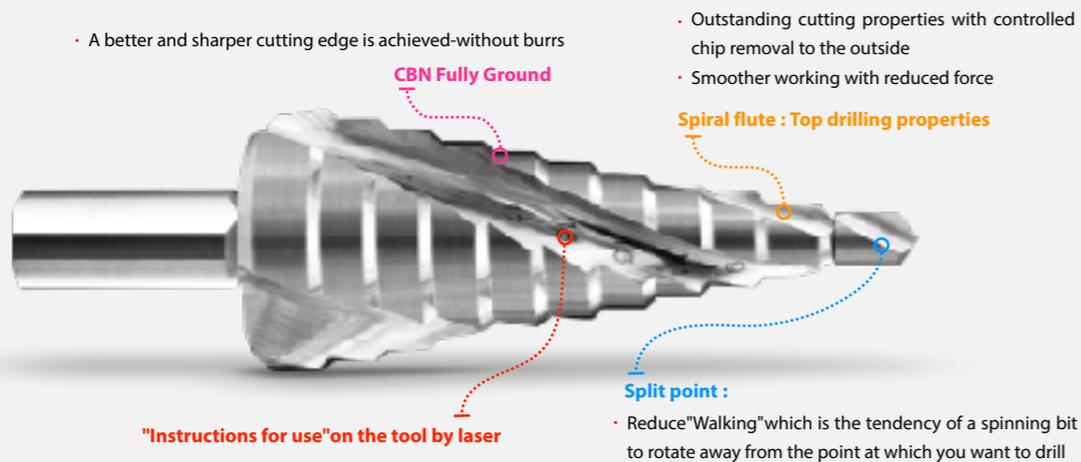
- CBN-ground flutes without burrs mean a superior cutting edge an longer tool life.
- Each step has a radially adjusted relief produced by CBN grinding, relating directly to the diameter of the step, so the cutting edge is always the highest point of the diameter
- Each step is axially CBN relief-ground, meaning the cutting edge is also the highest point of the axial cutting axis
- The cutting edge of each step has relief angle, meaning the cutting edge is also the highest point in advance direction

APPLICATIONS

Use Steel drills for :

- Sheet metal working in electrical, sanitary engineering, heating technologies, automotive, mechanical engineering, switching systems and aviation
- Non-ferrous metal, steel, stainless steel, thermoplastics, duroplastics ,sheet metals up to 0.16"(8 ga.)thick
- Center, spot-drill, bore and debur - all in one operation

Product Information



Additional surface hardening

TIN	<ul style="list-style-type: none"> · For hard materials · Extended service lives · Higher cutting speed · Higher tool life 	<ul style="list-style-type: none"> · Temperature resistance up to 600 ° C · Surface treatment ca. 2.500 HV · Layer Thickness up to 2 μm · Reduces cold weldings
TiAlN	<ul style="list-style-type: none"> · For particularly hard materials · Outstanding service lives · Highest cutting speeds · Optimized tool life 	<ul style="list-style-type: none"> · Surface treatment ca. 3.500 HV · Layer Thickness up to 4 μm · Reduces cold weldings · Temperature resistant up to 800°C, cooling not necessary

Applications

- Sheet metal working in electrical, sanitary engineering, heating technologies, automotive, mechanical engineering, switching systems and aviation
- Non-ferrous metal, steel, stainless steel, thermoplastics ,duroplastics, sheet metals up to 0.16"(8 ga.) thick
- Center,spot-drill, bore and deburr-all in one operation

How to understand our Article No.

Product category: PRODUCT CATEGORY

Material: HSS, HSS-Co 5%, HSS 4341
M₂-A, HSS CO-B, 4341-C

Handle: T, R, H

Drilling Range: mm, INCH

Surface treatment: NATURAL, TiN, TiALN, NITRIDING, BLACKTI
Natural color-G, Ti-T, TiAL-L, Nitriding-N, Black Ti-E

SETS: 10

mm	4-12,4-20,4-30	10
	4-12,4-20,4-32	20
	4-12,6-20,6-30	30
...

P00 Packing Box

PLASTIC P00, STEEL L00, ROSE R00

STEP DRILLS

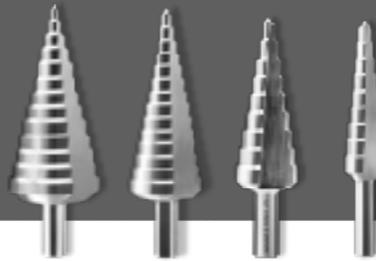


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Material Sheet

China	European	American	Japanese	HRC
HSS6542	HSS	M2	SKH-51	63-65
HSS Co5	HSS-E	M35	SKH-55	64-66

HSS Co5 is a development of **HSS6542** and contains 5% cobalt which gives improved hardness, wear resistance and red hardness. It may be used when cutting higher strength materials.



HSS STEP DRILLS, STRAIGHT FLUTES METRIC SIZES

Variable sizes of larger diameters can be drilled without the need for a pre-drilled hole, with a smooth multi-flute action ensuring that clean round holes are produced.

HSS 

Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.			
							
3-12	66.5	10	6	1003120AGT	1003120ATT	1003120ALT	1003120AOT
4-12	66.5	9	6	1004120AGT	1004120ATT	1004120ALT	1004120AOT
4-20	75	9	8	1004200AGT	1004200ATT	1004200ALT	1004200AOT
4-22	72	10	8	1004220AGT	1004220ATT	1004220ALT	1004220AOT
4-30	100	14	10	1004300AGT	1004300ATT	1004300ALT	1004300AOT
6-30	93	13	10	1006300AGT	1006300ATT	1006300ALT	1006300AOT
6-20	72	8	8	1006200AGT	1006200ATT	1006200ALT	1006200AOT
6-38	100	12	10	1006380AGT	1006380ATT	1006380ALT	1006380AOT
4-32	89	15	10	1004320AGT	1004320ATT	1004320ALT	1004320AOT
5-35	78	13	10	1005350AGT	1005350ATT	1005350ALT	1005350AOT
6-37	100	12	10	1006370AGT	1006370ATT	1006370ALT	1006370AOT
6-38	100	10	10	1006380AGT	1006380ATT	1006380ALT	1006380AOT
6-40	105	16	12	1006400AGT	1006400ATT	1006400ALT	1006400AOT
5-28	69	7	10	1005280AGT	1005280ATT	1005280ALT	1005280AOT
4-39	107	13	10	1004390AGT	1004390ATT	1004390ALT	1004390AOT
5-28.3	72	10	10	1005283AGT	1005283ATT	1005283ALT	1005283AOT
7-40.5	110	7	10	1007405AGT	1007405ATT	1007405ALT	1007405AOT

STEP DRILLS

Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.			
3-12	66.5	10	6	1003120AGR	1003120ATR	1003120ALR	1003120AOR
4-12	66.5	9	6	1004120AGR	1004120ATR	1004120ALR	1004120AOR
4-20	75	9	8	1004200AGR	1004200ATR	1004200ALR	1004200AOR
4-22	72	10	8	1004220AGR	1004220ATR	1004220ALR	1004220AOR
4-30	100	14	10	1004300AGR	1004300ATR	1004300ALR	1004300AOR
6-30	93	13	10	1006300AGR	1006300ATR	1006300ALR	1006300AOR
6-20	72	8	8	1006200AGR	1006200ATR	1006200ALR	1006200AOR
6-38	100	12	10	1006380AGR	1006380ATR	1006380ALR	1006380AOR
4-32	89	15	10	1004320AGR	1004320ATR	1004320ALR	1004320AOR
5-35	78	13	10	1005350AGR	1005350ATR	1005350ALR	1005350AOR
6-37	100	12	10	1006370AGR	1006370ATR	1006370ALR	1006370AOR
6-38	100	10	10	1006380AGR	1006380ATR	1006380ALR	1006380AOR
6-40	105	16	12	1006400AGR	1006400ATR	1006400ALR	1006400AOR
5-28	69	7	10	1005280AGR	1005280ATR	1005280ALR	1005280AOR
4-39	107	13	10	1004390AGR	1004390ATR	1004390ALR	1004390AOR
5-28.3	72	10	10	1005283AGR	1005283ATR	1005283ALR	1005283AOR
7-40.5	110	7	10	1007405AGR	1007405ATR	1007405ALR	1007405AOR

Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.			
3-12	66.5	10	6	1003120AGH	1003120ATH	1003120ALH	1003120AOH
4-12	66.5	9	6	1004120AGH	1004120ATH	1004120ALH	1004120AOH
4-20	75	9	8	1004200AGH	1004200ATH	1004200ALH	1004200AOH
4-22	72	10	8	1004220AGH	1004220ATH	1004220ALH	1004220AOH
4-30	100	14	10	1004300AGH	1004300ATH	1004300ALH	1004300AOH
6-30	93	13	10	1006300AGH	1006300ATH	1006300ALH	1006300AOH
6-20	72	8	8	1006200AGH	1006200ATH	1006200ALH	1006200AOH
6-38	100	12	10	1006380AGH	1006380ATH	1006380ALH	1006380AOH
4-32	89	15	10	1004320AGH	1004320ATH	1004320ALH	1004320AOH
5-35	78	13	10	1005350AGH	1005350ATH	1005350ALH	1005350AOH
6-37	100	12	10	1006370AGH	1006370ATH	1006370ALH	1006370AOH
6-38	100	10	10	1006380AGH	1006380ATH	1006380ALH	1006380AOH
6-40	105	16	12	1006400AGH	1006400ATH	1006400ALH	1006400AOH
5-28	69	7	10	1005280AGH	1005280ATH	1005280ALH	1005280AOH
4-39	107	13	10	1004390AGH	1004390ATH	1004390ALH	1004390AOH
5-28.3	72	10	10	1005283AGH	1005283ATH	1005283ALH	1005283AOH
7-40.5	110	7	10	1007405AGH	1007405ATH	1007405ALH	1007405AOH

Material Sheet

China	European	American	Japanese	HRC
HSS6542	HSS	M2	SKH-51	63-65
HSS Co5	HSS-E	M35	SKH-55	64-66

HSS Co5 is a development of HSS6542 and contains 5% cobalt which gives improved hardness, wear resistance and red hardness. It may be used when cutting higher strength materials.



Features:

- Perfect stable start
- Conical surface inside
- Precise center pilot fitting
- Ground clamp surface
- Faster, because every tooth cuts
- More accurate
- Greater drill depth
- Stronger, therefore less fragile
- Guaranteed slug ejection

Quality Signs

- Split Point
- CBN Fully Ground Flute
- Spiral Flute
- Hole- ϕ is laser edged on the tool

Single round flute design

- For greater control through steps
- Give user a true round hole every time

STEP DRILLS

Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.			
3-12	66.5	10	6	1003120BGT	1003120BTT	1003120BLT	1003120BOT
4-12	66.5	9	6	1004120BGT	1004120BTT	1004120BLT	1004120BOT
4-20	75	9	8	1004200BGT	1004200BTT	1004200BLT	1004200BOT
4-22	72	10	8	1004220BGT	1004220BTT	1004220BLT	1004220BOT
4-30	100	14	10	1004300BGT	1004300BTT	1004300BLT	1004300BOT
6-30	93	13	10	1006300BGT	1006300BTT	1006300BLT	1006300BOT
6-20	72	8	8	1006200BGT	1006200BTT	1006200BLT	1006200BOT
6-38	100	12	10	1006380BGT	1006380BTT	1006380BLT	1006380BOT
4-32	89	15	10	1004320BGT	1004320BTT	1004320BLT	1004320BOT
5-35	78	13	10	1005350BGT	1005350BTT	1005350BLT	1005350BOT
6-37	100	12	10	1006370BGT	1006370BTT	1006370BLT	1006370BOT
6-38	100	10	10	1006380BGT	1006380BTT	1006380BLT	1006380BOT
6-40	105	16	12	1006400BGT	1006400BTT	1006400BLT	1006400BOT
5-28	69	7	10	1005280BGT	1005280BTT	1005280BLT	1005280BOT
4-39	107	13	10	1004390BGT	1004390BTT	1004390BLT	1004390BOT
5-28.3	72	10	10	1005283BGT	1005283BTT	1005283BLT	1005283BOT
7-40.5	110	7	10	1007405BGT	1007405BTT	1007405BLT	1007405BOT
3-12	66.5	10	6	1003120BGR	1003120BTR	1003120BLR	1003120BOR
4-12	66.5	9	6	1004120BGR	1004120BTR	1004120BLR	1004120BOR
4-20	75	9	8	1004200BGR	1004200BTR	1004200BLR	1004200BOR
4-22	72	10	8	1004220BGR	1004220BTR	1004220BLR	1004220BOR
4-30	100	14	10	1004300BGR	1004300BTR	1004300BLR	1004300BOR
6-30	93	13	10	1006300BGR	1006300BTR	1006300BLR	1006300BOR
6-20	72	8	8	1006200BGR	1006200BTR	1006200BLR	1006200BOR
6-38	100	12	10	1006380BGR	1006380BTR	1006380BLR	1006380BOR
4-32	89	15	10	1004320BGR	1004320BTR	1004320BLR	1004320BOR
5-35	78	13	10	1005350BGR	1005350BTR	1005350BLR	1005350BOR
6-37	100	12	10	1006370BGR	1006370BTR	1006370BLR	1006370BOR
6-38	100	10	10	1006380BGR	1006380BTR	1006380BLR	1006380BOR

Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.			
6-40	105	16	12	1006400BGR	1006400BTR	1006400BLR	1006400BOR
5-28	69	7	10	1005280BGR	1005280BTR	1005280BLR	1005280BOR
4-39	107	13	10	1004390BGR	1004390BTR	1004390BLR	1004390BOR
5-28.3	72	10	10	1005283BGR	1005283BTR	1005283BLR	1005283BOR
7-40.5	110	7	10	1007405BGR	1007405BTR	1007405BLR	1007405BOR
3-12	66.5	10	6	1003120BGH	1003120BTH	1003120BLH	1003120BOH
4-12	66.5	9	6	1004120BGH	1004120BTH	1004120BLH	1004120BOH
4-20	75	9	8	1004200BGH	1004200BTH	1004200BLH	1004200BOH
4-22	72	10	8	1004220BGH	1004220BTH	1004220BLH	1004220BOH
4-30	100	14	10	1004300BGH	1004300BTH	1004300BLH	1004300BOH
6-30	93	13	10	1006300BGH	1006300BTH	1006300BLH	1006300BOH
6-20	72	8	8	1006200BGH	1006200BTH	1006200BLH	1006200BOH
6-38	100	12	10	1006380BGH	1006380BTH	1006380BLH	1006380BOH
4-32	89	15	10	1004320BGH	1004320BTH	1004320BLH	1004320BOH
5-35	78	13	10	1005350BGH	1005350BTH	1005350BLH	1005350BOH
6-37	100	12	10	1006370BGH	1006370BTH	1006370BLH	1006370BOH
6-38	100	10	10	1006380BGH	1006380BTH	1006380BLH	1006380BOH
6-40	105	16	12	1006400BGH	1006400BTH	1006400BLH	1006400BOH
5-28	69	7	10	1005280BGH	1005280BTH	1005280BLH	1005280BOH
4-39	107	13	10	1004390BGH	1004390BTH	1004390BLH	1004390BOH
5-28.3	72	10	10	1005283BGH	1005283BTH	1005283BLH	1005283BOH
7-40.5	110	7	10	1007405BGH	1007405BTH	1007405BLH	1007405BOH

STEP DRILLS, STRAIGHT FLUTES METRIC SIZES CUTTING TEST



STEP DRILLS



HSS STEP DRILLS, STRAIGHT FLUTES IMPERIAL SIZES

Variable sizes of larger diameters can be drilled without the need for a pre-drilled hole, with a smooth multi-flute action ensuring that clean round holes are produced.

Quality Signs

Split Point
Spiral Flute

CBN Fully Ground Flute
Hole-φ is laser edged on the tool



Drilling Range(inch)	Total Length(inch)	Steps	Handle φ(inch)	Article No.											
3/16-1/2	3 1/8	6	1/4	1131612AGT	1131612AGR	1131612AGH	1131612ATT	1131612ATR	1131612ATH	1131612ALT	1131612ALR	1131612ALH			
1/8-1/2	3 1/8	13	1/4	1118120AGT	1118120AGR	1118120AGH	1118120ATT	1118120ATR	1118120ATH	1118120ALT	1118120ALR	1118120ALH			
1/4-3/4	2 3/4	9	3/8	1114340AGT	1114340AGR	1114340AGH	1114340ATT	1114340ATR	1114340ATH	1114340ALT	1114340ALR	1114340ALH			
3/16-7/8	3	12	3/8	1131678AGT	1131678AGR	1131678AGH	1131678ATT	1131678ATR	1131678ATH	1131678ALT	1131678ALR	1131678ALH			
1/4-1	2 7/8	8	3/8	1114100AGT	1114100AGR	1114100AGH	1114100ATT	1114100ATR	1114100ATH	1114100ALT	1114100ALR	1114100ALH			
1/4-1 3/8	2 7/8	3	3/8	1114118AGT	1114118AGR	1114118AGH	1114118ATT	1114118ATR	1114118ATH	1114118ALT	1114118ALR	1114118ALH			
1/4-1 3/8	2 3/4	10	3/8	1114138AGT	1114138AGR	1114138AGH	1114138ATT	1114138ATR	1114138ATH	1114138ALT	1114138ALR	1114138ALH			
1/2	2 1/2	1	3/8	1112000AGT	1112000AGR	1112000AGH	1112000ATT	1112000ATR	1112000ATH	1112000ALT	1112000ALR	1112000ALH			
7/8	2 1/2	1	3/8	1178000AGT	1178000AGR	1178000AGH	1178000ATT	1178000ATR	1178000ATH	1178000ALT	1178000ALR	1178000ALH			



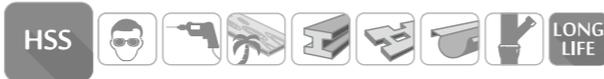
3/16-1/2	3 1/8	6	1/4	1131612BGH	1131612BLH	1131612BTH	1131612BLT	1131612BGT	1131612BTT	1131612BLR	1131612BTR	1131612BGR			
1/8-1/2	3 1/8	13	1/4	1118120BGH	1118120BLH	1118120BTH	1118120BLT	1118120BGT	1118120BTT	1118120BLR	1118120BTR	1118120BGR			
1/4-3/4	2 3/4	9	3/8	1114340BGH	1114340BLH	1114340BTH	1114340BLT	1114340BGT	1114340BTT	1114340BLR	1114340BTR	1114340BGR			
3/16-7/8	3	12	3/8	1131678BGH	1131678BLH	1131678BTH	1131678BLT	1131678BGT	1131678BTT	1131678BLR	1131678BTR	1131678BGR			
1/4-1	2 7/8	8	3/8	1114100BGH	1114100BLH	1114100BTH	1114100BLT	1114100BGT	1114100BTT	1114100BLR	1114100BTR	1114100BGR			
1/4-1 3/8	2 7/8	3	3/8	1114118BGH	1114118BLH	1114118BTH	1114118BLT	1114118BGT	1114118BTT	1114118BLR	1114118BTR	1114118BGR			
1/4-1 3/8	2 3/4	10	3/8	1114138BGH	1114138BLH	1114138BTH	1114138BLT	1114138BGT	1114138BTT	1114138BLR	1114138BTR	1114138BGR			
1/2	2 1/2	1	3/8	1112000BGH	1112000BLH	1112000BTH	1112000BLT	1112000BGT	1112000BTT	1112000BLR	1112000BTR	1112000BGR			
7/8	2 1/2	1	3/8	1178000BGH	1178000BLH	1178000BTH	1178000BLT	1178000BGT	1178000BTT	1178000BLR	1178000BTR	1178000BGR			

STEP DRILLS



HSS / HSS-Co STEP DRILLS, SPIRAL FLUTES METRIC SIZES

Variable sizes of larger diameters can be drilled without the need for a pre-drilled hole, with a smooth multi-flute action ensuring that clean round holes are produced.



Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.
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mm	NATURAL	NITRIDING	TiALN	PLATING	ROUND			
					1203120AGT	1203120ANT	1203120ALT	1203120AOT
3-12	66.5mm	10	6mm	1203120AGT	1203120ANT	1203120ALT	1203120AOT	
4-12	66.5mm	5	6mm	1204120AGT	1204120ANT	1204120ALT	1204120AOT	
4-12	66.5mm	9	6mm	1204120AGT	1204120ANT	1204120ALT	1204120AOT	
4-20	75mm	9	8mm	1204200AGT	1204200ANT	1204200ALT	1204200AOT	
4-22	72mm	10	8mm	1204220AGT	1204220ANT	1204220ALT	1204220AOT	
6-18	70mm	7	8mm	1206180AGT	1206180ANT	1206180ALT	1206180AOT	
4-30	100mm	14	10mm	1204300AGT	1204300ANT	1204300ALT	1204300AOT	
6-30	93mm	13	10mm	1206300AGT	1206300ANT	1206300ALT	1206300AOT	
6-20	72mm	8	8mm	1206200AGT	1206200ANT	1206200ALT	1206200AOT	
6-38	100mm	12	10mm	1206380AGT	1206380ANT	1206380ALT	1206380AOT	
4-32	89mm	15	10mm	1204320AGT	1204320ANT	1204320ALT	1204320AOT	
5-35	78mm	13	10mm	1205350AGT	1205350ANT	1205350ALT	1205350AOT	
6-37	100mm	12	10mm	1206370AGT	1206370ANT	1206370ALT	1206370AOT	
6-38	100mm	12	10mm	1206380AGT	1206380ANT	1206380ALT	1206380AOT	
6-40	105mm	16	12mm	1206400AGT	1206400ANT	1206400ALT	1206400AOT	
5-28	69mm	7	10mm	1205280AGT	1205280ANT	1205280ALT	1205280AOT	
4-39	107mm	13	10mm	1204390AGT	1204390ANT	1204390ALT	1204390AOT	
5-28.3	72mm	10	10mm	1205283AGT	1205283ANT	1205283ALT	1205283AOT	
7-40.5	110mm	7	10mm	1007405AGT	1007405ANT	1007405ALT	1007405AOT	
mm	NATURAL	NITRIDING	TiALN	PLATING	ROUND			
					1203120AGR	1203120ANR	1203120ALR	1203120AOR
3-12	66.5mm	10	6mm	1203120AGR	1203120ANR	1203120ALR	1203120AOR	
4-12	66.5mm	5	6mm	1204120AGR	1204120ANR	1204120ALR	1204120AOR	
4-12	66.5mm	9	6mm	1204120AGR	1204120ANR	1204120ALR	1204120AOR	
4-20	75mm	9	8mm	1204200AGR	1204200ANR	1204200ALR	1204200AOR	
4-22	72mm	10	8mm	1204220AGR	1204220ANR	1204220ALR	1204220AOR	

Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.
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mm	NATURAL	NITRIDING	TiALN	PLATING	ROUND			
					1206180AGR	1206180ANR	1206180ALR	1206180AOR
6-18	70mm	7	8mm	1206180AGR	1206180ANR	1206180ALR	1206180AOR	
4-30	100mm	14	10mm	1204300AGR	1204300ANR	1204300ALR	1204300AOR	
6-30	93mm	13	10mm	1206300AGR	1206300ANR	1206300ALR	1206300AOR	
6-20	72mm	8	8mm	1206200AGR	1206200ANR	1206200ALR	1206200AOR	
6-38	100mm	12	10mm	1206380AGR	1206380ANR	1206380ALR	1206380AOR	
4-32	89mm	15	10mm	1204320AGR	1204320ANR	1204320ALR	1204320AOR	
5-35	78mm	13	10mm	1205350AGR	1205350ANR	1205350ALR	1205350AOR	
6-37	100mm	12	10mm	1206370AGR	1206370ANR	1206370ALR	1206370AOR	
6-38	100mm	12	10mm	1206380AGR	1206380ANR	1206380ALR	1206380AOR	
6-40	105mm	16	12mm	1206400AGR	1206400ANR	1206400ALR	1206400AOR	
5-28	69mm	7	10mm	1205280AGR	1205280ANR	1205280ALR	1205280AOR	
4-39	107mm	13	10mm	1204390AGR	1204390ANR	1204390ALR	1204390AOR	
5-28.3	72mm	10	10mm	1205283AGR	1205283ANR	1205283ALR	1205283AOR	
7-40.5	110mm	7	10mm	1007405AGR	1007405ANR	1007405ALR	1007405AOR	
mm	NATURAL	NITRIDING	TiALN	PLATING	HEXAGONAL			
					1203120AGH	1203120ANH	1203120ALH	1203120AOH
3-12	66.5mm	10	6mm	1203120AGH	1203120ANH	1203120ALH	1203120AOH	
4-12	66.5mm	5	6mm	1204120AGH	1204120ANH	1204120ALH	1204120AOH	
4-12	66.5mm	9	6mm	1204120AGH	1204120ANH	1204120ALH	1204120AOH	
4-20	75mm	9	8mm	1204200AGH	1204200ANH	1204200ALH	1204200AOH	
4-22	72mm	10	8mm	1204220AGH	1204220ANH	1204220ALH	1204220AOH	
6-18	70mm	7	8mm	1206180AGH	1206180ANH	1206180ALH	1206180AOH	
4-30	100mm	14	10mm	1204300AGH	1204300ANH	1204300ALH	1204300AOH	
6-30	93mm	13	10mm	1206300AGH	1206300ANH	1206300ALH	1206300AOH	
6-20	72mm	8	8mm	1206200AGH	1206200ANH	1206200ALH	1206200AOH	
6-38	100mm	12	10mm	1206380AGH	1206380ANH	1206380ALH	1206380AOH	
4-32	89mm	15	10mm	1204320AGH	1204320ANH	1204320ALH	1204320AOH	
5-35	78mm	13	10mm	1205350AGH	1205350ANH	1205350ALH	1205350AOH	
6-37	100mm	12	10mm	1206370AGH	1206370ANH	1206370ALH	1206370AOH	
6-38	100mm	12	10mm	1206380AGH	1206380ANH	1206380ALH	1206380AOH	
6-40	105mm	16	12mm	1206400AGH	1206400ANH	1206400ALH	1206400AOH	
5-28	69mm	7	10mm	1205280AGH	1205280ANH	1205280ALH	1205280AOH	
4-39	107mm	13	10mm	1204390AGH	1204390ANH	1204390ALH	1204390AOH	
5-28.3	72mm	10	10mm	1205283AGH	1205283ANH	1205283ALH	1205283AOH	
7-40.5	110mm	7	10mm	1007405AGH	1007405ANH	1007405ALH	1007405AOH	

STEP DRILLS



Drilling Range(mm)	Length(mm)	Steps	Handle φ(mm)	Article No.			
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mm							
				NATURAL	NITRIDING	TiALN	PLATING
3-12	66.5mm	10	6mm	1203120BGT	1203120BNT	1203120BLT	1203120BOT
4-12	66.5mm	5	6mm	1204120BGT	1204120BNT	1204120BLT	1204120BOT
4-12	66.5mm	9	6mm	1204120BGT	1204120BNT	1204120BLT	1204120BOT
4-20	75mm	9	8mm	1204200BGT	1204200BNT	1204200BLT	1204200BOT
4-22	72mm	10	8mm	1204220BGT	1204220BNT	1204220BLT	1204220BOT
6-18	70mm	7	8mm	1206180BGT	1206180BNT	1206180BLT	1206180BOT
4-30	100mm	14	10mm	1204300BGT	1204300BNT	1204300BLT	1204300BOT
6-30	93mm	13	10mm	1206300BGT	1206300BNT	1206300BLT	1206300BOT
6-20	72mm	8	8mm	1206200BGT	1206200BNT	1206200BLT	1206200BOT
6-38	100mm	12	10mm	1206380BGT	1206380BNT	1206380BLT	1206380BOT
4-32	89mm	15	10mm	1204320BGT	1204320BNT	1204320BLT	1204320BOT
5-35	78mm	13	10mm	1205350BGT	1205350BNT	1205350BLT	1205350BOT
6-37	100mm	12	10mm	1206370BGT	1206370BNT	1206370BLT	1206370BOT
6-38	100mm	12	10mm	1206380BGT	1206380BNT	1206380BLT	1206380BOT
6-40	105mm	16	12mm	1206400BGT	1206400BNT	1206400BLT	1206400BOT
5-28	69mm	7	10mm	1205280BGT	1205280BNT	1205280BLT	1205280BOT
4-39	107mm	13	10mm	1204390BGT	1204390BNT	1204390BLT	1204390BOT
5-28.3	72mm	10	10mm	1205283BGT	1205283BNT	1205283BLT	1205283BOT
7-40.5	110mm	7	10mm	1007405BGT	1007405BNT	1007405BLT	1007405BOT

mm							
				SOUND			
3-12	66.5mm	10	6mm	1203120BGR	1203120BNR	1203120BLR	1203120BOR
4-12	66.5mm	5	6mm	1204120BGR	1204120BNR	1204120BLR	1204120BOR
4-12	66.5mm	9	6mm	1204120BGR	1204120BNR	1204120BLR	1204120BOR
4-20	75mm	9	8mm	1204200BGR	1204200BNR	1204200BLR	1204200BOR
4-22	72mm	10	8mm	1204220BGR	1204220BNR	1204220BLR	1204220BOR
6-18	70mm	7	8mm	1206180BGR	1206180BNR	1206180BLR	1206180BOR
4-30	100mm	14	10mm	1204300BGR	1204300BNR	1204300BLR	1204300BOR
6-30	93mm	13	10mm	1206300BGR	1206300BNR	1206300BLR	1206300BOR
6-20	72mm	8	8mm	1206200BGR	1206200BNR	1206200BLR	1206200BOR
6-38	100mm	12	10mm	1206380BGR	1206380BNR	1206380BLR	1206380BOR



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Drilling Range(mm)	Length(mm)	Steps	Handle φ(mm)	Article No.			
				NATURAL	NITRIDING	TiALN	PLATING
4-32	89mm	15	10mm	1204320BGR	1204320BNR	1204320BLR	1204320BOR
5-35	78mm	13	10mm	1205350BGR	1205350BNR	1205350BLR	1205350BOR
6-37	100mm	12	10mm	1206370BGR	1206370BNR	1206370BLR	1206370BOR
6-38	100mm	12	10mm	1206380BGR	1206380BNR	1206380BLR	1206380BOR
6-40	105mm	16	12mm	1206400BGR	1206400BNR	1206400BLR	1206400BOR
5-28	69mm	7	10mm	1205280BGR	1205280BNR	1205280BLR	1205280BOR
4-39	107mm	13	10mm	1204390BGR	1204390BNR	1204390BLR	1204390BOR
5-28.3	72mm	10	10mm	1205283BGR	1205283BNR	1205283BLR	1205283BOR
7-40.5	110mm	7	10mm	1007405BGR	1007405BNR	1007405BLR	1007405BOR
3-12	66.5mm	10	6mm	1203120BGH	1203120BNH	1203120BLH	1203120BOH
4-12	66.5mm	5	6mm	1204120BGH	1204120BNH	1204120BLH	1204120BOH
4-12	66.5mm	9	6mm	1204120BGH	1204120BNH	1204120BLH	1204120BOH
4-20	75mm	9	8mm	1204200BGH	1204200BNH	1204200BLH	1204200BOH
4-22	72mm	10	8mm	1204220BGH	1204220BNH	1204220BLH	1204220BOH
6-18	70mm	7	8mm	1206180BGH	1206180BNH	1206180BLH	1206180BOH
4-30	100mm	14	10mm	1204300BGH	1204300BNH	1204300BLH	1204300BOH
6-30	93mm	13	10mm	1206300BGH	1206300BNH	1206300BLH	1206300BOH
6-20	72mm	8	8mm	1206200BGH	1206200BNH	1206200BLH	1206200BOH
6-38	100mm	12	10mm	1206380BGH	1206380BNH	1206380BLH	1206380BOH
4-32	89mm	15	10mm	1204320BGH	1204320BNH	1204320BLH	1204320BOH
5-35	78mm	13	10mm	1205350BGH	1205350BNH	1205350BLH	1205350BOH
6-37	100mm	12	10mm	1206370BGH	1206370BNH	1206370BLH	1206370BOH
6-38	100mm	12	10mm	1206380BGH	1206380BNH	1206380BLH	1206380BOH
6-40	105mm	16	12mm	1206400BGH	1206400BNH	1206400BLH	1206400BOH
5-28	69mm	7	10mm	1205280BGH	1205280BNH	1205280BLH	1205280BOH
4-39	107mm	13	10mm	1204390BGH	1204390BNH	1204390BLH	1204390BOH
5-28.3	72mm	10	10mm	1205283BGH	1205283BNH	1205283BLH	1205283BOH
7-40.5	110mm	7	10mm	1007405BGH	1007405BNH	1007405BLH	1007405BOH

STEP DRILLS

Standard execution with 2 chip spaces, spiral grooved.

- More precise hole diameter through cylindrical steps.
- Immediate deburring through the next step
- Drilling of sheet metals as thin as 4 mm possible.
- Use coolant stick!
- The keyway allows the drill to make a chipping cut during drilling for better chip removal.
- Longer cutting edge compared to the usual straight groove and noticeably easier cutting.
- Laser-etched scale in the chip space to indicate the bore diameter achieved.

Standard values for the use of SHIWEI Multi-step drills



- This drill was developed to bore perfectly round and deburred holes in sheet metal from 4 - 6 mm thick. The transition forms a radius which serves to deburr or bevel the hole at the same time. While conical one-lip bits drill a slightly tapered hole, our SHIWEI multi-step drill achieves a cylindrical hole. The tools have axial-radial relief grindings and can be lightly reground on the breast of the cutting tooth.
- We recommend the use of pillar drilling machines, however, the small SHIWEI Multi-step drills can be used on adjustable hand drilling machines. Sufficient cooling using SHIWEI coolant stick or a bore emulsion is imperative.

Application • For drilling and roughening of sheet material, pipes and profiles and deburring of both sides in one step

Application Step Drills

HSS	Structural steel	Structural steel	Free-cutting steel	Tempered steel	Alloyed steel	VA steel	VA steel	Tool steel	Cast iron	Aluminium +alby	Uni	Cutting cil	Emulsion	Minimum Lubrication	Dry machining	Compressed air
	≤500 N/2	≤500 N/2	≤1000 N/2	≤1000 N/2	≤1200 N/2	≤850 N/2	>850 N/2	≤1000 N/2	≤300 HB	≤450 N/2						
	●	●	○			○				●	○	●	●		○	
	●	●	●	○		○				●	○	●	●			
	●	●	●	●	●	●	●	●	○	○	○			○	●	○

● recoended ○ partly suitable

Material Sheet

China	European	American	Japanese	HRC
HSS6542	HSS	M2	SKH-51	63-65
HSS Co5	HSS-E	M35	SKH-55	64-66

HSS Co5 is a development of HSS6542 and contains 5% cobalt which gives improved hardness, wear resistance and red hardness. It may be used when cutting higher strength materials.

Multistep drills with spiral flute and edgebreaker deburring zone and three flats on shank, burr-free drilling cylindrical holes No centring required

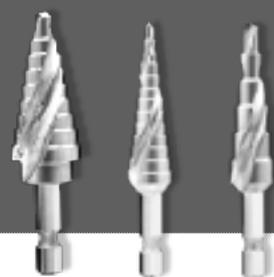
2 spiral flutes allows:

- High running smoothness and superior cutting performance
- Excellence in chip flow
- Spiral flute characteristic, effected longer tool life
- Tapered cutting edges of the next drill step can be used for deburring (simultaneously) or chamfering of the finished bore at the same time
- Designed to drill: sheet metal, pipes and profiles of steel, plastic, plexiglas

STEP DRILLS, SPIRAL FLUTES METRIC SIZES CUTTING TEST



STEP DRILLS



HSS / HSS-Co STEP DRILLS, SPIRAL FLUTES IMPERIAL SIZES

Variable sizes of larger diameters can be drilled without the need for a pre-drilled hole, with a smooth multi-flute action ensuring that clean round holes are produced.



Drilling Range(inch)	Total Length(inch)	Steps	Handle ϕ (inch)	Article No.								
3/16-1/2	3 1/8	6	1/4	1331612AGT	1331612ATT	1331612ALT	1331612AGR	1331612ATR	1331612ALR	1331612AGH	1331612ATH	1331612ALH
1/8-1/2	3 1/8	13	1/4	1318120AGT	1318120ATT	1318120ALT	1318120AGR	1318120ATR	1318120ALR	1318120AGH	1318120ATH	1318120ALH
1/4-3/4	2 3/4	9	3/8	1314340AGT	1314340ATT	1314340ALT	1314340AGR	1314340ATR	1314340ALR	1314340AGH	1314340ATH	1314340ALH
3/16-7/8	3	12	3/8	1331678AGT	1331678ATT	1331678ALT	1331678AGR	1331678ATR	1331678ALR	1331678AGH	1331678ATH	1331678ALH
1/4-1	2 7/8	8	3/8	1314100AGT	1314100ATT	1314100ALT	1314100AGR	1314100ATR	1314100ALR	1314100AGH	1314100ATH	1314100ALH
1/4-1 3/8	2 7/8	3	3/8	1314118AGT	1314118ATT	1314118ALT	1314118AGR	1314118ATR	1314118ALR	1314118AGH	1314118ATH	1314118ALH
1/4-1 3/8	2 3/4	10	3/8	1314138AGT	1314138ATT	1314138ALT	1314138AGR	1314138ATR	1314138ALR	1314138AGH	1314138ATH	1314138ALH
1/2	2 1/2	1	3/8	1312000AGT	1312000ATT	1312000ALT	1312000AGR	1312000ATR	1312000ALR	1312000AGH	1312000ATH	1312000ALH
7/8	2 1/2	1	3/8	1378000AGT	1378000ATT	1378000ALT	1378000AGR	1378000ATR	1378000ALR	1378000AGH	1378000ATH	1378000ALH



3/16-1/2	3 1/8	6	1/4	1331612BGT	1331612BTT	1331612BLT	1331612BGR	1331612BTR	1331612BLR	1331612BGH	1331612BTH	1331612BLH
1/8-1/2	3 1/8	13	1/4	1318120BGT	1318120BTT	1318120BLT	1318120BGR	1318120BTR	1318120BLR	1318120BGH	1318120BTH	1318120BLH
1/4-3/4	2 3/4	9	3/8	1314340BGT	1314340BTT	1314340BLT	1314340BGR	1314340BTR	1314340BLR	1314340BGH	1314340BTH	1314340BLH
3/16-7/8	3	12	3/8	1331678BGT	1331678BTT	1331678BLT	1331678BGR	1331678BTR	1331678BLR	1331678BGH	1331678BTH	1331678BLH
1/4-1	2 7/8	8	3/8	1314100BGT	1314100BTT	1314100BLT	1314100BGR	1314100BTR	1314100BLR	1314100BGH	1314100BTH	1314100BLH
1/4-1 3/8	2 7/8	3	3/8	1314118BGT	1314118BTT	1314118BLT	1314118BGR	1314118BTR	1314118BLR	1314118BGH	1314118BTH	1314118BLH
1/4-1 3/8	2 3/4	10	3/8	1314138BGT	1314138BTT	1314138BLT	1314138BGR	1314138BTR	1314138BLR	1314138BGH	1314138BTH	1314138BLH
1/2	2 1/2	1	3/8	1312000BGT	1312000BTT	1312000BLT	1312000BGR	1312000BTR	1312000BLR	1312000BGH	1312000BTH	1312000BLH
7/8	2 1/2	1	3/8	1378000BGT	1378000BTT	1378000BLT	1378000BGR	1378000BTR	1378000BLR	1378000BGH	1378000BTH	1378000BLH

STEP DRILLS



Drilling Range ϕ (mm)	Total Length(mm)	Shank Hexagon	Article No.								
3-12	71	1/4	1931200AGH	1931200ATH	1931200ALH	1931200BGH	1931200BTH	1931200BLH	1931200CGH	1931200CTH	1931200CLH
4-12	75	1/4	1941200AGH	1941200ATH	1941200ALH	1941200BGH	1941200BTH	1941200BLH	1941200CGH	1941200CTH	1941200CLH
4-26	76	1/4	1942600AGH	1942600ATH	1942600ALH	1942600BGH	1942600BTH	1942600BLH	1942600CGH	1942600CTH	1942600CLH
4-22	96.5	1/4	1942200AGH	1942200ATH	1942200ALH	1942200BGH	1942200BTH	1942200BLH	1942200CGH	1942200CTH	1942200CLH
6-24	82	1/4	1962400AGH	1962400ATH	1962400ALH	1962400BGH	1962400BTH	1962400BLH	1962400CGH	1962400CTH	1962400CLH
4-30	95.5	1/4	1943000AGH	1943000ATH	1943000ALH	1943000BGH	1943000BTH	1943000BLH	1943000CGH	1943000CTH	1943000CLH
6-33	106	1/4	1963300AGH	1963300ATH	1963300ALH	1963300BGH	1963300BTH	1963300BLH	1963300CGH	1963300CTH	1963300CLH
4-18	76	1/4	1941800AGH	1941800ATH	1941800ALH	1941800BGH	1941800BTH	1941800BLH	1941800CGH	1941800CTH	1941800CLH



Drilling Range ϕ (mm)	Total Length(mm)	Shank Hexagon	Article No.								
3-12	71	1/4	2131200AGH	2131200ATH	2131200ALH	2131200BGH	2131200BTH	2131200BLH	2131200CGH	2131200CTH	2131200CLH
4-12	75	1/4	2141200AGH	2141200ATH	2141200ALH	2141200BGH	2141200BTH	2141200BLH	2141200CGH	2141200CTH	2141200CLH
4-26	76	1/4	2142600AGH	2142600ATH	2142600ALH	2142600BGH	2142600BTH	2142600BLH	2142600CGH	2142600CTH	2142600CLH
4-22	96.5	1/4	2142200AGH	2142200ATH	2142200ALH	2142200BGH	2142200BTH	2142200BLH	2142200CGH	2142200CTH	2142200CLH
6-24	82	1/4	2162400AGH	2162400ATH	2162400ALH	2162400BGH	2162400BTH	2162400BLH	2162400CGH	2162400CTH	2162400CLH
4-30	95.5	1/4	2143000AGH	2143000ATH	2143000ALH	2143000BGH	2143000BTH	2143000BLH	2143000CGH	2143000CTH	2143000CLH
6-33	106	1/4	2163300AGH	2163300ATH	2163300ALH	2163300BGH	2163300BTH	2163300BLH	2163300CGH	2163300CTH	2163300CLH
4-18	76	1/4	2141800AGH	2141800ATH	2141800ALH	2141800BGH	2141800BTH	2141800BLH	2141800CGH	2141800CTH	2141800CLH

 **SHIWEI**[®]
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STEP DRILLS, TRIPLE SPIRAL FLUTES WITH CHANGEABLE PILOT DRILL

Variable sizes of larger diameters can be drilled without the need for a pre-drilled hole, with a smooth multi-flute action ensuring that clean round holes are produced.



Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.					
				NATURAL	TIN	TiALN	NATURAL	TIN	TiALN
5-25	84	11	10	1552500AGT	1552500ATT	1552500ALT	1552500AGR	1552500ATR	1552500ALR
6-30	97	13	10	1563000AGT	1563000ATT	1563000ALT	1563000AGR	1563000ATR	1563000ALR
6-38	104	12	10	1563800AGT	1563800ATT	1563800ALT	1563800AGR	1563800ATR	1563800ALR
6-30.5	70	11	10	1563050AGT	1563050ATT	1563050ALT	1563050AGR	1563050ATR	1563050ALR
6-37	102	12	10	1563700AGT	1563700ATT	1563700ALT	1563700AGR	1563700ATR	1563700ALR
9-36	102	12	10	1593600AGT	1593600ATT	1593600ALT	1593600AGR	1593600ATR	1593600ALR
10.5-40.5	107	13	10	15105405AGT	15105405ATT	15105405ALT	15105405AGR	15105405ATR	15105405ALR
7-40.5	115	13	10	1574050AGT	1574050ATT	1574050ALT	1574050AGR	1574050ATR	1574050ALR



Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.					
				NATURAL	TIN	TiALN	NATURAL	TIN	TiALN
5-25	84	11	10	1552500BGT	1552500BTT	1552500BLT	1552500BGR	1552500BTR	1552500BLR
6-30	97	13	10	1563000BGT	1563000BTT	1563000BLT	1563000BGR	1563000BTR	1563000BLR
6-38	104	12	10	1563800BGT	1563800BTT	1563800BLT	1563800BGR	1563800BTR	1563800BLR
6-30.5	70	11	10	1563050BGT	1563050BTT	1563050BLT	1563050BGR	1563050BTR	1563050BLR
6-37	102	12	10	1563700BGT	1563700BTT	1563700BLT	1563700BGR	1563700BTR	1563700BLR
9-36	102	12	10	1593600BGT	1593600BTT	1593600BLT	1593600BGR	1593600BTR	1593600BLR
10.5-40.5	107	13	10	15105405BGT	15105405BTT	15105405BLT	15105405BGR	15105405BTR	15105405BLR
7-40.5	115	13	10	1574050BGT	1574050BTT	1574050BLT	1574050BGR	1574050BTR	1574050BLR

STEP DRILLS



HSS / HSS-Co

STEP DRILLS, FOUR STRAIGHT FLUTES WITH CHANGEABLE PILOT DRILL

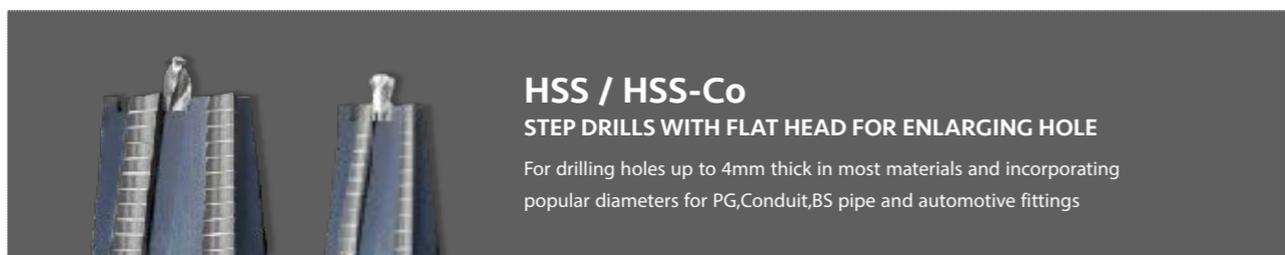
Variable sizes of larger diameters can be drilled without the need for a pre-drilled hole, with a smooth multi-flute action ensuring that clean round holes are produced.

HSS LONG LIFE

Drilling Range(mm)	Length(mm)	Steps	Handle ϕ (mm)	Article No.							
 10.5-40(PG7-PG29) 10.5-40.5 6-30.5(PG7-PG21)	89 102 73	11 13 11	10								
				NATURAL	TiALN	NATURAL	TIN	TiALN			
				16105400AGT	16105400ATT	16105400ALT	16105400AGR	16105400ATR	16105400ALR		
				16105405AGT	16105405ATT	16105405ALT	16105405AGR	16105405ATR	16105405ALR		
				16060305AGT	16060305ATT	16060305ALT	16060305AGR	16060305ATR	16060305ALR		

HSS-Co 5% LONG LIFE

 10.5-40(PG7-PG29) 10.5-40.5 6-30.5(PG7-PG21)	89 102 73	11 13 11	10								
				NATURAL	TiALN	NATURAL	TIN	TiALN			
				16105400BGT	16105400BTT	16105400BLT	16105400BGR	16105400BTR	16105400BLR		
				16105405BGT	16105405BTT	16105405BLT	16105405BGR	16105405BTR	16105405BLR		
				16060305BGT	16060305BTT	16060305BLT	16060305BGR	16060305BTR	16060305BLR		



HSS / HSS-Co

STEP DRILLS WITH FLAT HEAD FOR ENLARGING HOLE

For drilling holes up to 4mm thick in most materials and incorporating popular diameters for PG, Conduit, BS pipe and automotive fittings

HSS-Co 5% LONG LIFE

Drilling Range(mm)	Length(mm)	Handle ϕ	Article No.				
 30-40 40-50 50-60	80 80 80	13					
				BLACKTi			
			2230400AER	2230401AET	2230402BER	2230403BET	
			2240500AER	2240500AET	2240500BER	2240500BET	
			2250600AER	2250600AET	2250600BER	2250600BET	

PIPE STEP DRILLS

CBN Fully Ground Pipe Step Drill Bits

This product is mainly used in the pipe and tube processing of the agriculture, irrigation industry and the metal working industry.

- The Split Point reduces "Walking" which is the tendency of a spinning bit to rotate away from the point at which you want to drill.
- Because CBN(cubical boron nitride)is a much harder abrasive than even silicon carbide or corundum, a better an sharper cutting edge is achieved without burrs.
- Because of this higher dimensional precision, the drill bits will last considerably longer while maintaining precise process tolerances.
- The High Speed Steel(HSS) allows the bit to cut faster than High Carbon Steel. At room temperature,HSS and high carbon steel have an equivalent hardness; at elevated temperatures HSS become advantageous.

FEATURES

- CBN-ground flutes without burrs mean a superior cutting edge an longer tool life.
- Each step has a radially adjusted relief produced by CBN grinding, relating directly to the diameter of the step, so the cutting edge is always the highest point of the diameter
- Each step is axially CBN relief-ground, meaning the cutting edge is also the highest point of the axial cutting axis
- The cutting edge of each step has relief angle, meaning the cutting edge is also the highest point in advance direction

APPLICATIONS

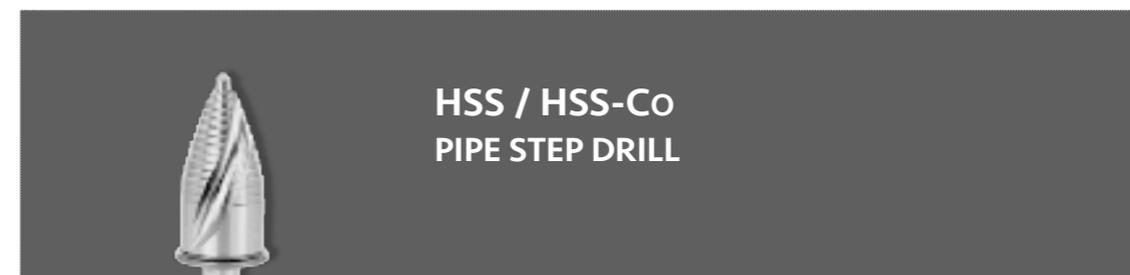
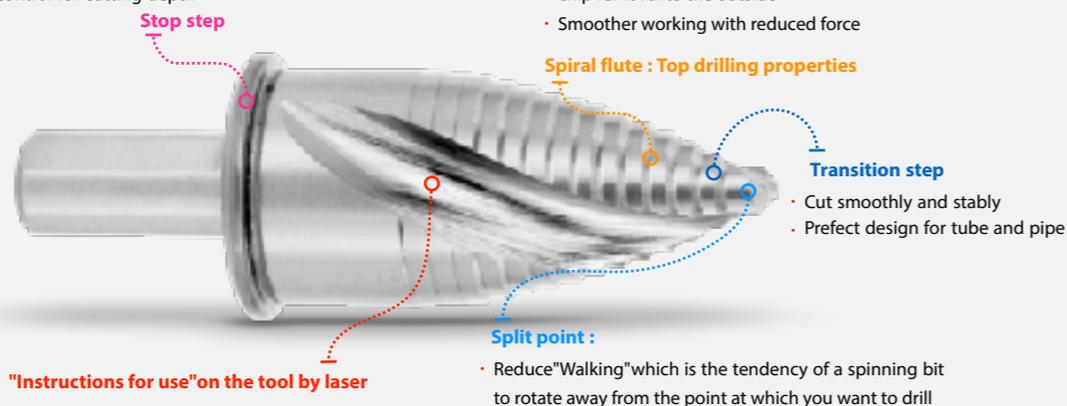
Use Steel drills for :

- Sheet metal working in electrical, sanitary engineering, heating technologies, automotive, mechanical engineering, switching systems and aviation
- Non-ferrous metal, steel, stainless steel, thermoplastics, duroplastics, sheet metals up to 0.16"(8 ga.)thick
- Center, spot-drill, bore and debur - all in one operation

Product Information

- Stop step prevent the damage of pipe while cutting
- Easy control for cutting depth

- Outstanding cutting properties with controlled chip removal to the outside
- Smoother working with reduced force



HSS / HSS-Co
PIPE STEP DRILL

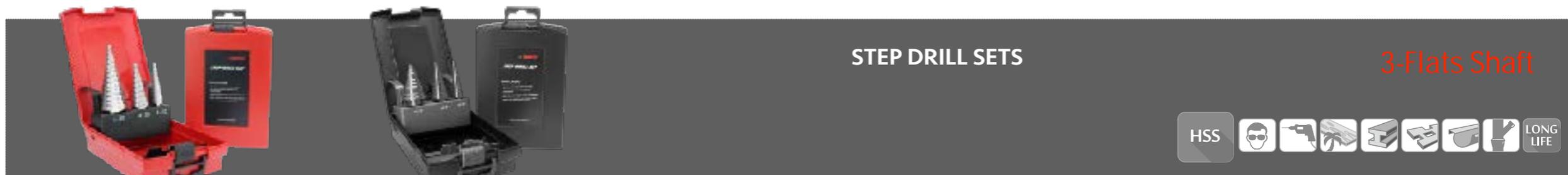


Size ϕ (mm)	Overall Length(mm)	Spiral Length	Article No.			
			ROUND		L>3	
			NATURAL	TIN	NATURAL	TIN
4-14	65.6	43.6	8204140AGR	8204140ATR	8204140AGT	8204140ATT
6-16	52.6	33.6	8206160AGR	8206160ATR	8206160AGT	8206160ATT
6-17	52.6	33.6	8206170AGR	8206170ATR	8206170AGT	8206170ATT
6-19	65.6	46.6	8206190AGR	8206190ATR	8206190AGT	8206190ATT
6-20.64	65.6	46.6	82062064AGR	82062064ATR	82062064AGT	82062064ATT
6-25	66.06	47.06	8206250AGR	8206250ATR	8206250AGT	8206250ATT
6.35-25.4	66.06	47.06	82635254AGR	82635254ATR	82635254AGT	82635254ATT



Size ϕ (mm)	Overall Length(mm)	Spiral Length	Article No.			
			ROUND		L>3	
			NATURAL	TIN	NATURAL	TIN
4-14	65.6	43.6	8204140BGR	8204140BTR	8204140BGT	8204140BTT
6-16	52.6	33.6	8206160BGR	8206160BTR	8206160BGT	8206160BTT
6-17	52.6	33.6	8206170BGR	8206170BTR	8206170BGT	8206170BTT
6-19	65.6	46.6	8206190BGR	8206190BTR	8206190BGT	8206190BTT
6-20.64	65.6	46.6	82062064BGR	82062064BTR	82062064BGT	82062064BTT
6-25	66.06	47.06	8206250BGR	8206250BTR	8206250BGT	8206250BTT
6.35-25.4	66.06	47.06	82635254BGR	82635254BTR	82635254BGT	82635254BTT

STEP DRILL SETS



Drilling Range(mm) **Article No.**

Drilling Range(mm)	PLASTIC						STEEL						ROSE					
	NATURAL	TiN	TiALN															
4-12,4-20,4-30	1710P00AGR	1710P00ATR	1710P00ALR	1710P00AGT	1710P00ATT	1710P00ALT	1710R00AGR	1710R00ATR	1710R00ALR	1710R00AGT	1710R00ATT	1710R00ALT	1710I00AGR	1710I00ATR	1710I00ALR	1710I00AGT	1710I00ATT	1710I00ALT
4-12,4-20,4-32	1720P00AGR	1720P00ATR	1720P00ALR	1720P00AGT	1720P00ATT	1720P00ALT	1720R00AGR	1720R00ATR	1720R00ALR	1720R00AGT	1720R00ATT	1720R00ALT	1720I00AGR	1720I00ATR	1720I00ALR	1720I00AGT	1720I00ATT	1720I00ALT
4-12,6-20,6-30	1730P00AGR	1730P00ATR	1730P00ALR	1730P00AGT	1730P00ATT	1730P00ALT	1730R00AGR	1730R00ATR	1730R00ALR	1730R00AGT	1730R00ATT	1730R00ALT	1730I00AGR	1730I00ATR	1730I00ALR	1730I00AGT	1730I00ATT	1730I00ALT
4-12,6-18,14-24	1740P00AGR	1740P00ATR	1740P00ALR	1740P00AGT	1740P00ATT	1740P00ALT	1740R00AGR	1740R00ATR	1740R00ALR	1740R00AGT	1740R00ATT	1740R00ALT	1740I00AGR	1740I00ATR	1740I00ALR	1740I00AGT	1740I00ATT	1740I00ALT
3-12,4-12,6-20	1750P00AGR	1750P00ATR	1750P00ALR	1750P00AGT	1750P00ATT	1750P00ALT	1750R00AGR	1750R00ATR	1750R00ALR	1750R00AGT	1750R00ATT	1750R00ALT	1750I00AGR	1750I00ATR	1750I00ALR	1750I00AGT	1750I00ATT	1750I00ALT
4-12,5-25,6-30	1760P00AGR	1760P00ATR	1760P00ALR	1760P00AGT	1760P00ATT	1760P00ALT	1760R00AGR	1760R00ATR	1760R00ALR	1760R00AGT	1760R00ATT	1760R00ALT	1760I00AGR	1760I00ATR	1760I00ALR	1760I00AGT	1760I00ATT	1760I00ALT
1/8-1/2,3/16-1/2,1/4-3/4	1770P00AGR	1770P00ATR	1770P00ALR	1770P00AGT	1770P00ATT	1770P00ALT	1770R00AGR	1770R00ATR	1770R00ALR	1770R00AGT	1770R00ATT	1770R00ALT	1770I00AGR	1770I00ATR	1770I00ALR	1770I00AGT	1770I00ATT	1770I00ALT
1/8-1/2,1/4-3/4,3/16-7/8	1780P00AGR	1780P00ATR	1780P00ALR	1780P00AGT	1780P00ATT	1780P00ALT	1780R00AGR	1780R00ATR	1780R00ALR	1780R00AGT	1780R00ATT	1780R00ALT	1780I00AGR	1780I00ATR	1780I00ALR	1780I00AGT	1780I00ATT	1780I00ALT
1/8-1/2,3/16-7/8,1/4-1/8	1790P00AGR	1790P00ATR	1790P00ALR	1790P00AGT	1790P00ATT	1790P00ALT	1790R00AGR	1790R00ATR	1790R00ALR	1790R00AGT	1790R00ATT	1790R00ALT	1790I00AGR	1790I00ATR	1790I00ALR	1790I00AGT	1790I00ATT	1790I00ALT



Drilling Range(mm) **Article No.**

4-12,4-20,4-30	1710P00BGR	1710P00BTR	1710P00BLR	1710P00BGT	1710P00BTT	1710P00BLT	1710R00BGR	1710R00BTR	1710R00BLR	1710R00BGT	1710R00BTT	1710R00BLT	1710I00BGR	1710I00BTR	1710I00BLR	1710I00BGT	1710I00BTT	1710I00BLT
4-12,4-20,4-32	1720P00BGR	1720P00BTR	1720P00BLR	1720P00BGT	1720P00BTT	1720P00BLT	1720R00BGR	1720R00BTR	1720R00BLR	1720R00BGT	1720R00BTT	1720R00BLT	1720I00BGR	1720I00BTR	1720I00BLR	1720I00BGT	1720I00BTT	1720I00BLT
4-12,6-20,6-30	1730P00BGR	1730P00BTR	1730P00BLR	1730P00BGT	1730P00BTT	1730P00BLT	1730R00BGR	1730R00BTR	1730R00BLR	1730R00BGT	1730R00BTT	1730R00BLT	1730I00BGR	1730I00BTR	1730I00BLR	1730I00BGT	1730I00BTT	1730I00BLT
4-12,6-18,14-24	1740P00BGR	1740P00BTR	1740P00BLR	1740P00BGT	1740P00BTT	1740P00BLT	1740R00BGR	1740R00BTR	1740R00BLR	1740R00BGT	1740R00BTT	1740R00BLT	1740I00BGR	1740I00BTR	1740I00BLR	1740I00BGT	1740I00BTT	1740I00BLT
3-12,4-12,6-20	1750P00BGR	1750P00BTR	1750P00BLR	1750P00BGT	1750P00BTT	1750P00BLT	1750R00BGR	1750R00BTR	1750R00BLR	1750R00BGT	1750R00BTT	1750R00BLT	1750I00BGR	1750I00BTR	1750I00BLR	1750I00BGT	1750I00BTT	1750I00BLT
4-12,5-25,6-30	1760P00BGR	1760P00BTR	1760P00BLR	1760P00BGT	1760P00BTT	1760P00BLT	1760R00BGR	1760R00BTR	1760R00BLR	1760R00BGT	1760R00BTT	1760R00BLT	1760I00BGR	1760I00BTR	1760I00BLR	1760I00BGT	1760I00BTT	1760I00BLT
1/8-1/2,3/16-1/2,1/4-3/4	1770P00BGR	1770P00BTR	1770P00BLR	1770P00BGT	1770P00BTT	1770P00BLT	1770R00BGR	1770R00BTR	1770R00BLR	1770R00BGT	1770R00BTT	1770R00BLT	1770I00BGR	1770I00BTR	1770I00BLR	1770I00BGT	1770I00BTT	1770I00BLT
1/8-1/2,1/4-3/4,3/16-7/8	1780P00BGR	1780P00BTR	1780P00BLR	1780P00BGT	1780P00BTT	1780P00BLT	1780R00BGR	1780R00BTR	1780R00BLR	1780R00BGT	1780R00BTT	1780R00BLT	1780I00BGR	1780I00BTR	1780I00BLR	1780I00BGT	1780I00BTT	1780I00BLT
1/8-1/2,3/16-7/8,1/4-1/8	1790P00BGR	1790P00BTR	1790P00BLR	1790P00BGT	1790P00BTT	1790P00BLT	1790R00BGR	1790R00BTR	1790R00BLR	1790R00BGT	1790R00BTT	1790R00BLT	1790I00BGR	1790I00BTR	1790I00BLR	1790I00BGT	1790I00BTT	1790I00BLT

STEP DRILL SETS



Drilling Range(mm) **Article No.**

Drilling Range(mm)	ROUNDED			FLAT			ROUNDED			FLAT			ROUNDED			FLAT		
	NATURAL	TiN	TiALN															
4-12,4-20,4-30	1810P00AGR	1810P00ATR	1810P00ALR	1810P00AGT	1810P00ATT	1810P00ALT	1810R00AGR	1810R00ATR	1810R00ALR	1810R00AGT	1810R00ATT	1810R00ALT	1810I00AGR	1810I00ATR	1810I00ALR	1810I00AGT	1810I00ATT	1810I00ALT
4-12,4-20,4-32	1820P00AGR	1820P00ATR	1820P00ALR	1820P00AGT	1820P00ATT	1820P00ALT	1820R00AGR	1820R00ATR	1820R00ALR	1820R00AGT	1820R00ATT	1820R00ALT	1820I00AGR	1820I00ATR	1820I00ALR	1820I00AGT	1820I00ATT	1820I00ALT
4-12,6-20,6-30	1830P00AGR	1830P00ATR	1830P00ALR	1830P00AGT	1830P00ATT	1830P00ALT	1830R00AGR	1830R00ATR	1830R00ALR	1830R00AGT	1830R00ATT	1830R00ALT	1830I00AGR	1830I00ATR	1830I00ALR	1830I00AGT	1830I00ATT	1830I00ALT
4-12,6-18,14-24	1840P00AGR	1840P00ATR	1840P00ALR	1840P00AGT	1840P00ATT	1840P00ALT	1840R00AGR	1840R00ATR	1840R00ALR	1840R00AGT	1840R00ATT	1840R00ALT	1840I00AGR	1840I00ATR	1840I00ALR	1840I00AGT	1840I00ATT	1840I00ALT
3-12,4-12,6-20	1850P00AGR	1850P00ATR	1850P00ALR	1850P00AGT	1850P00ATT	1850P00ALT	1850R00AGR	1850R00ATR	1850R00ALR	1850R00AGT	1850R00ATT	1850R00ALT	1850I00AGR	1850I00ATR	1850I00ALR	1850I00AGT	1850I00ATT	1850I00ALT
4-12,5-25,6-30	1860P00AGR	1860P00ATR	1860P00ALR	1860P00AGT	1860P00ATT	1860P00ALT	1860R00AGR	1860R00ATR	1860R00ALR	1860R00AGT	1860R00ATT	1860R00ALT	1860I00AGR	1860I00ATR	1860I00ALR	1860I00AGT	1860I00ATT	1860I00ALT
1/8-1/2,3/16-1/2,1/4-3/4	1870P00AGR	1870P00ATR	1870P00ALR	1870P00AGT	1870P00ATT	1870P00ALT	1870R00AGR	1870R00ATR	1870R00ALR	1870R00AGT	1870R00ATT	1870R00ALT	1870I00AGR	1870I00ATR	1870I00ALR	1870I00AGT	1870I00ATT	1870I00ALT
1/8-1/2,1/4-3/4,3/16-7/8	1880P00AGR	1880P00ATR	1880P00ALR	1880P00AGT	1880P00ATT	1880P00ALT	1880R00AGR	1880R00ATR	1880R00ALR	1880R00AGT	1880R00ATT	1880R00ALT	1880I00AGR	1880I00ATR	1880I00ALR	1880I00AGT	1880I00ATT	1880I00ALT
1/8-1/2,3/16-7/8,1/4-1/8	1890P00AGR	1890P00ATR	1890P00ALR	1890P00AGT	1890P00ATT	1890P00ALT	1890R00AGR	1890R00ATR	1890R00ALR	1890R00AGT	1890R00ATT	1890R00ALT	1890I00AGR	1890I00ATR	1890I00ALR	1890I00AGT	1890I00ATT	1890I00ALT



Drilling Range(mm) **Article No.**

4-12,4-20,4-30	1810P00BGR	1810P00BTR	1810P00BLR	1810P00BGT	1810P00BTT	1810P00BLT	1810R00BGR	1810R00BTR	1810R00BLR	1810R00BGT	1810R00BTT	1810R00BLT	1810I00BGR	1810I00BTR	1810I00BLR	1810I00BGT	1810I00BTT	1810I00BLT
4-12,4-20,4-32	1820P00BGR	1820P00BTR	1820P00BLR	1820P00BGT	1820P00BTT	1820P00BLT	1820R00BGR	1820R00BTR	1820R00BLR	1820R00BGT	1820R00BTT	1820R00BLT	1820I00BGR	1820I00BTR	1820I00BLR	1820I00BGT	1820I00BTT	1820I00BLT
4-12,6-20,6-30	1830P00BGR	1830P00BTR	1830P00BLR	1830P00BGT	1830P00BTT	1830P00BLT	1830R00BGR	1830R00BTR	1830R00BLR	1830R00BGT	1830R00BTT	1830R00BLT	1830I00BGR	1830I00BTR	1830I00BLR	1830I00BGT	1830I00BTT	1830I00BLT
4-12,6-18,14-24	1840P00BGR	1840P00BTR	1840P00BLR	1840P00BGT	1840P00BTT	1840P00BLT	1840R00BGR	1840R00BTR	1840R00BLR	1840R00BGT	1840R00BTT	1840R00BLT	1840I00BGR	1840I00BTR	1840I00BLR	1840I00BGT	1840I00BTT	1840I00BLT
3-12,4-12,6-20	1850P00BGR	1850P00BTR	1850P00BLR	1850P00BGT	1850P00BTT	1850P00BLT	1850R00BGR	1850R00BTR	1850R00BLR	1850R00BGT	1850R00BTT	1850R00BLT	1850I00BGR	1850I00BTR	1850I00BLR	1850I00BGT	1850I00BTT	1850I00BLT
4-12,5-25,6-30	1860P00BGR	1860P00BTR	1860P00BLR	1860P00BGT	1860P00BTT	1860P00BLT	1860R00BGR	1860R00BTR	1860R00BLR	1860R00BGT	1860R00BTT	1860R00BLT	1860I00BGR	1860I00BTR	1860I00BLR	1860I00BGT	1860I00BTT	1860I00BLT
1/8-1/2,3/16-1/2,1/4-3/4	1870P00BGR	1870P00BTR	1870P00BLR	1870P00BGT	1870P00BTT	1870P00BLT	1870R00BGR	1870R00BTR	1870R00BLR	1870R00BGT	1870R00BTT	1870R00BLT	1870I00BGR	1870I00BTR	1870I00BLR	1870I00BGT	1870I00BTT	1870I00BLT
1/8-1/2,1/4-3/4,3/16-7/8	1880P00BGR	1880P00BTR	1880P00BLR	1880P00BGT	1880P00BTT	1880P00BLT	1880R00BGR	1880R00BTR	1880R00BLR	1880R00BGT	1880R00BTT	1880R00BLT	1880I00BGR	1880I00BTR	1880I00BLR	1880I00BGT	1880I00BTT	1880I00BLT
1/8-1/2,3/16-7/8,1/4-1/8	1890P00BGR	1890P00BTR	1890P00BLR	1890P00BGT	1890P00BTT	1890P00BLT	1890R00BGR	1890R00BTR	1890R00BLR	1890R00BGT	1890R00BTT	1890R00BLT	1890I00BGR	1890I00BTR	1890I00BLR	1890I00BGT	1890I00BTT	1890I00BLT



TUBE&SHEET DRILLS



TUBE&SHEET DRILLS

The most versatile hole-cutting tool for rapid drilling and enlarging holes in thin materials up to 4mm thick. Designed for industrial applications:

Split point reduces "Walking" which is the tendency of a spinning bit to rotate away from the point at which you want to drill.

CBN-ground flutes without burrs mean a superior cutting edge and longer tool life.

No flexing of drill whilst drilling

Multi-flute design

Drills from 3mm-60mm dia.

Enlarges existing holes

Produces round, virtually burr-free holes in material up to 4mm thick

Drills holes of any diameter within range

Material Sheet

China	European	American	Japanese	HRC
HSS6542	HSS	M2	SKH-51	63-65
HSS Co5	HSS-E	M35	SKH-55	64-66

HSS Co5 is a development of **HSS6542** and contains 5% cobalt which gives improved hardness, wear resistance and red hardness. It may be used when cutting higher strength materials.

Additional surface hardening

- | | |
|--|--|
| <p>HSS TIN</p> <ul style="list-style-type: none"> • Surface treatment ca. 2.500 HV • Layer Thickness up to 2 µm • For hard materials • Higher tool life | <ul style="list-style-type: none"> • Higher cutting speed • Temperature resistance up to 600 °C • Reduces cold weldings |
|--|--|

- | | |
|---|--|
| <p>HSS TiAlN</p> <ul style="list-style-type: none"> • Surface treatment ca. 3. 500 HV • Layer Thickness up to 4 µm • For particularly hard materials • Optimized tool life | <ul style="list-style-type: none"> • Highest cutting speeds • Temperature resistant up to 800 °C, cooling not necessary • Reduces cold weldings |
|---|--|

Applications

- For plates pipes and sections made of steel, chrome-nickel steel, non-ferrous metal, Plexiglas,plastic, wood and stainless steel.

Quality Signs

Split Point

Reduce "Walking" which is the tendency of a spinning bit to rotate away from the point at which you want to drill.

CBN Fully Ground

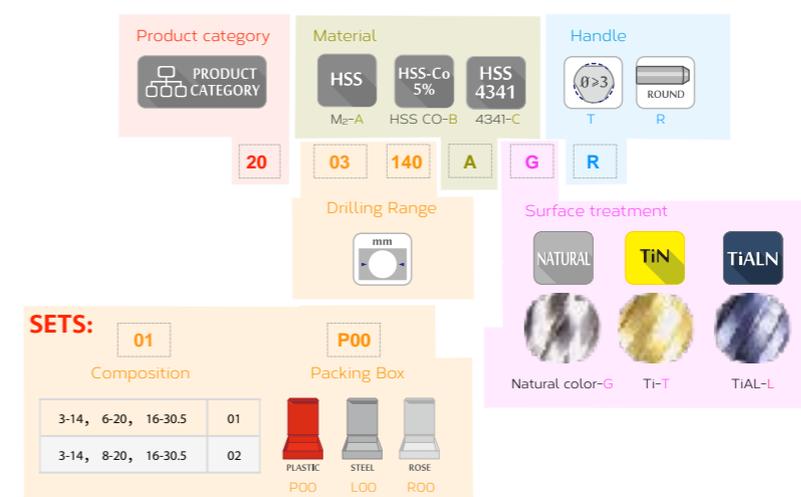
A better and sharper cutting edge is achieved - without burrs.

The Three-flats shaft

Good torque transmission

No slippage in the drill chuck.

How to understand our Article No.



TUBE&SHEET DRILLS Cutting test



TUBE&SHEET DRILLS



HSS / HSS-Co TUBE AND SHEET DRILLS

- . Burr free and vibration free drilling
- . No centring required, the drills do not run off centre
- . Reboring existing holes

- . Designed to drill : sheet metal, pipes and profiles of steel, plexiglas, plastic
- . A variety of hole diameters (up to 60mm) can be drilled using only one tool



Drilling Range(mm)	Length(mm)	Handleφ (mm)	Article No.											
			NATURAL	TIN	TiALN	NATURAL	TIN	TiALN	NATURAL	TIN	TiALN	NATURAL	TIN	TiALN
3-14	58mm	6mm	2003140AGR	2003140ATR	2003140ALR	2003140AGT	2003140ATT	2003140ALT	2003140BGR	2003140BTR	2003140BLR	2003140BGT	2003140BTT	2003140BLT
6-20	63mm	8mm	2006200AGR	2006200ATR	2006200ALR	2006200AGT	2006200ATT	2006200ALT	2006200BGR	2006200BTR	2006200BLR	2006200BGT	2006200BTT	2006200BLT
5-20	75mm	8mm	2005200AGR	2005200ATR	2005200ALR	2005200AGT	2005200ATT	2005200ALT	2005200BGR	2005200BTR	2005200BLR	2005200BGT	2005200BTT	2005200BLT
8-20	68mm	8mm	2008200AGR	2008200ATR	2008200ALR	2008200AGT	2008200ATT	2008200ALT	2008200BGR	2008200BTR	2008200BLR	2008200BGT	2008200BTT	2008200BLT
3-22.5	85mm	8mm	2003225AGR	2003225ATR	2003225ALR	2003225AGT	2003225ATT	2003225ALT	2003225BGR	2003225BTR	2003225BLR	2003225BGT	2003225BTT	2003225BLT
5-24.5	87mm	10mm	2005245AGR	2005245ATR	2005245ALR	2005245AGT	2005245ATT	2005245ALT	2005245BGR	2005245BTR	2005245BLR	2005245BGT	2005245BTT	2005245BLT
16-30.5	79mm	9mm	2016305AGR	2016305ATR	2016305ALR	2016305AGT	2016305ATT	2016305ALT	2016305BGR	2016305BTR	2016305BLR	2016305BGT	2016305BTT	2016305BLT
26-40	86mm	10mm	2002640AGR	2002640ATR	2002640ALR	2002640AGT	2002640ATT	2002640ALT	2002640BGR	2002640BTR	2002640BLR	2002640BGT	2002640BTT	2002640BLT
3-31	102mm	10mm	2003310AGR	2003310ATR	2003310ALR	2003310AGT	2003310ATT	2003310ALT	2003310BGR	2003310BTR	2003310BLR	2003310BGT	2003310BTT	2003310BLT
36-50	89mm	13mm	2003650AGR	2003650ATR	2003650ALR	2003650AGT	2003650ATT	2003650ALT	2003650BGR	2003650BTR	2003650BLR	2003650BGT	2003650BTT	2003650BLT
40-61	98mm	13mm	2004061AGR	2004061ATR	2004061ALR	2004061AGT	2004061ATT	2004061ALT	2004061BGR	2004061BTR	2004061BLR	2004061BGT	202004061BTT	2004061BLT

Application TUBE&SHEET DRILLS

HSS	Structural steel ≤500 N/mm ²	Structural steel ≤500 N/mm ²	Free-cutting steel ≤1000 N/mm ²	Tempered steel ≤1000 N/mm ²	Alloyed steel ≤1200 N/mm ²	VA steel ≤850 N/mm ²	VA steel >850 N/mm ²	Tool steel ≤1000 N/mm ²	Cast iron ≤300 HB	Aluminium +alby ≤450 N/mm ²	Uni	Cutting cil	Emulsion	Minimum Lubrication	Dry machining	Compressed air
	●	●	○							●		●	●			
	●	●	●			○				○	○	●	●			
	●	●	●	●		●	●	●	○	●	○			○	●	

● recommended ○ partly suitable

TUBE&SHEET DRILL SETS



HSS / HSS-Co / HSS₄₃₄₁
TUBE AND SHEET DRILL SETS

3-Flats Shaft



Composition		Article No.					
mm		ROUND			Ø>3		
		NATURAL	TIN	TiALN	NATURAL	TIN	TiALN
HSS LONG LIFE	 PLASTIC STEEL ROSE	2301P00AGR	2301P00ATR	2301P00ALR	2301P00AGT	2301P01ATT	2301P02ALT
		2302P00AGR	2302P00ATR	2302P00ALR	2302P00AGT	2302P02ATT	2302P02ALT
		2301I00AGR	2301I00ATR	2301I00ALR	2301I00AGT	2301I01ATT	2301I02ALT
		2302I00AGR	2302I00ATR	2302I00ALR	2302I00AGT	2302I02ATT	2302I02ALT
		2301R00AGR	2301R00ATR	2301R00ALR	2301R00AGT	2301R01ATT	2301R02ALT
3-14, 6-20, 16-30.5		2302R00AGR	2302R00ATR	2302R00ALR	2302R00AGT	2302R02ATT	2302R02ALT
3-14, 8-20, 16-30.5							
HSS-Co 5% LONG LIFE	 PLASTIC STEEL ROSE	2301P00BGR	2301P00BTR	2301P00BLR	2301P00BGT	2301P01BTT	2301P02BLT
		2302P00BGR	2302P00BTR	2302P00BLR	2302P00BGT	2302P02BTT	2302P02BLT
		2301I00BGR	2301I00BTR	2301I00BLR	2301I00BGT	2301I01BTT	2301I02BLT
		2302I00BGR	2302I00BTR	2302I00BLR	2302I00BGT	2302I02BTT	2302I02BLT
		2301R00BGR	2301R00BTR	2301R00BLR	2301R00BGT	2301R01BTT	2301R02BLT
3-14, 6-20, 16-30.5		2302R00BGR	2302R00BTR	2302R00BLR	2302R00BGT	2302R02BTT	2302R02BLT
3-14, 8-20, 16-30.5							
HSS 4341	 PLASTIC STEEL ROSE	2301P00CGR	2301P00CTR	2301P00CLR	2301P00CGT	2301P01CTT	2301P02CLT
		2302P00CGR	2302P00CTR	2302P00CLR	2302P00CGT	2302P02CTT	2302P02CLT
		2301I00CGR	2301I00CTR	2301I00CLR	2301I00CGT	2301I01CTT	2301I02CLT
		2302I00CGR	2302I00CTR	2302I00CLR	2302I00CGT	2302I02CTT	2302I02CLT
		2301R00CGR	2301R00CTR	2301R00CLR	2301R00CGT	2301R01CTT	2301R02CLT
3-14, 6-20, 16-30.5		2302R00CGR	2302R00CTR	2302R00CLR	2302R00CGT	2302R02CTT	2302R02CLT
3-14, 8-20, 16-30.5							



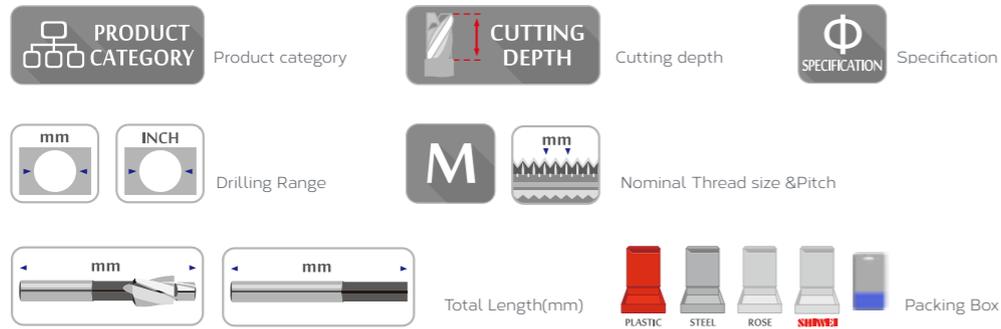
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SYMBOL INDEX

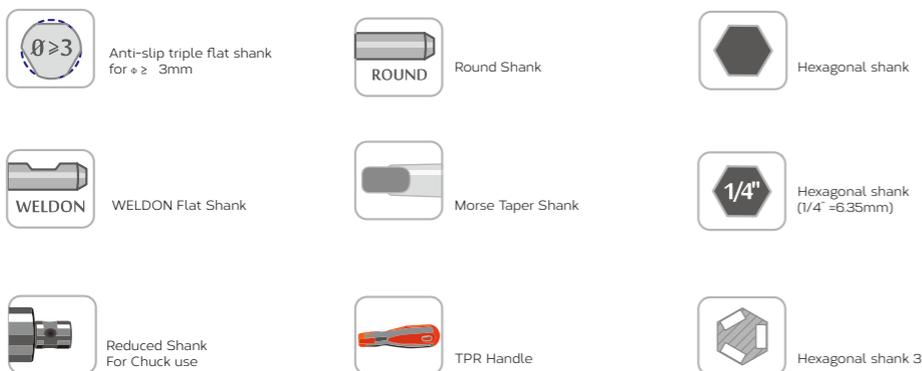
GENGRAL ICONS



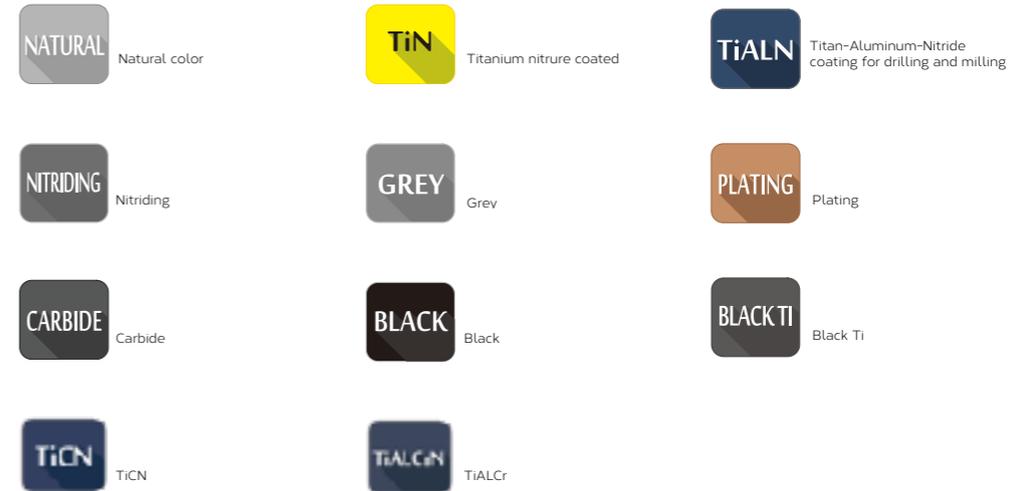
MATERIAL



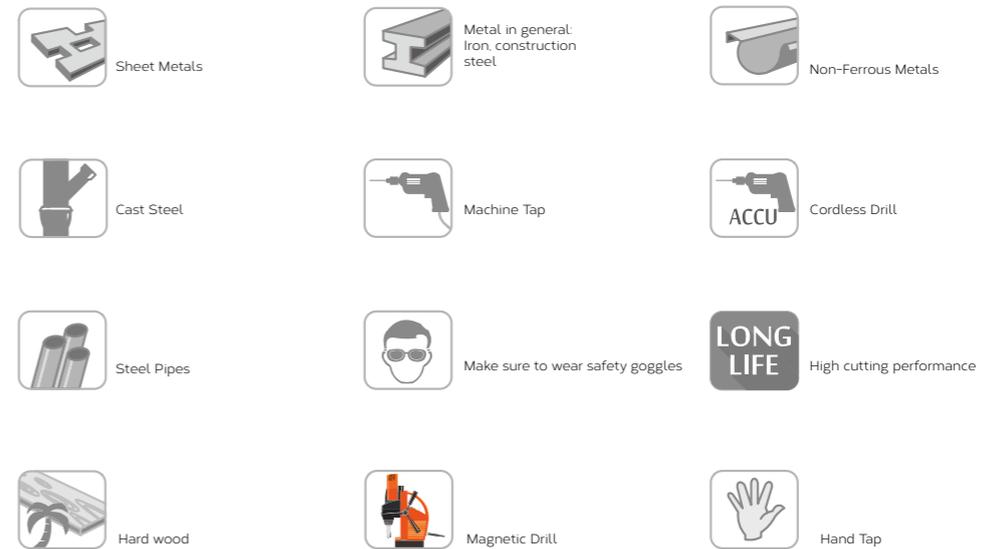
HANDLE



SURFACE TREATMENT



TOOL APPLICATIONS



PATENT OF UTILITY MODEL



