



ZSD

*Indexable
shallow-hole drill*

Indexable shallow-hole drills code key

Tool type

Code	Description
ZTD	Indexable insert drill
ZSD	New generation indexable insert drill

The ratio of length and diameter

02, 03, 04, 05

Tool diameter(inch)

Range 0.500-2.000

Mounting Type

Code	Description
XP	Weldon shank

ZTD 03 - 0.672 - XP 1.00 - S P 06 - 02

Mounting Size(inch)

1.00, 1.25, 1.50

Insert shape

S

Insert clearance angle

C

7°

P

11°

Cutting edge length(inch)

Code	Edge length
	S
05	0.197
06	0.236
07	0.313
09	0.386
11	0.453
14	0.563

Number of tooth

F

High Efficiency Indexable Shallow-hole Drill

ZSD series



- Unique waved-edge geometry structure produces steady cutting and smooth chip evacuation;
- Insert designed for double balanced radial run-out control for achieving high accuracy and precision even in long overhang applications;
- Wiper technology produces excellent surface quality and diameter dimension consistency;
- Strong impact-resistance and highly rigid design structure helps achieve high speed, high efficiency, and high stability machining;
- Economical four-edges insert, design suitable for Deep-hole drilling in 2D~5D.



▲ -LM
Geometry for soft steels to prevent chip-wrapping.

▲ -XM
Universal purpose geometry for stable machining operations.

▲ -EM
Geometry for stainless steel and sticky chip materials.

▲ -XR
Machining of hard materials, strengthen cutting edges.

There are four types of geometry, suitable for high efficiency and stability machining in multiple materials.

Case study

Workpiece material: 45[#]steel (HB170-220)

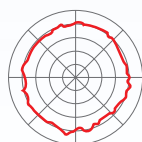
Tool: ZSD05-0.626"-XP0.75"-SP05-02

Insert: SPMX050204-XM/YB9320

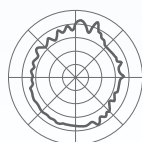
Cutting data: $V_c=400\text{SFPM}$, $f=0.0028\text{in/r}$,
 $a_p=3.15\text{in}$

Cooling: internal coolant supply

• Aperture cylindricity



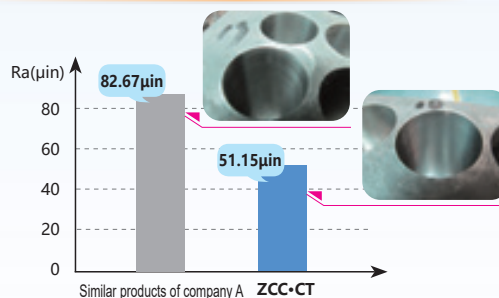
ZCC-CT



Similar products of company A

Cylindricity	0.00118"	0.0059"
--------------	----------	---------

• Hole surface quality

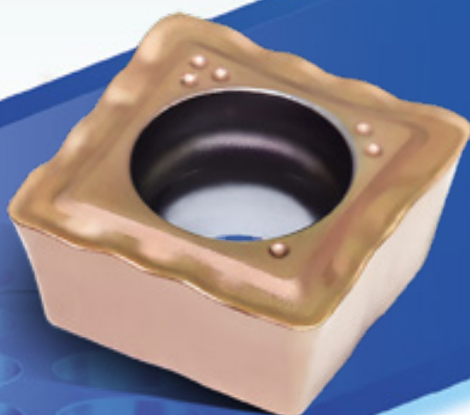


Conclusion: under the same working conditions, the machined hole surface quality by ZSD series indexable insert drill contributes to better hole precision than A company's similar products.

CVD coating grade

YB6338 (peripheral inserts)

- Substrate of a tough gradient cemented carbide, enriched with surface bonding phase, nano-dioxygen gradient transition layer, and crystal core pre-implantation coating technology, improves the inserts' wear and heat resistance.
- Suitable for high-speed, high-feed, and stable working conditions, it is the first choice for drilling of steel.



PVD coating grade

YB9320 (peripheral/central inserts)

Universal purpose for drilling in P, M, K, N materials

- The atomic rearrangement technology realizes the long-range orderly arrangement of different coating materials to achieve a perfect match between hardness and toughness, effectively solving the problem of high temperature instability at the interface of multiple coatings and improving the high temperature performance of the coating.
- High-toughness substrate and TiAlN-based nano multilayer coating, unique ion etching technology, strengthen the cutting edge, and improve the bonding strength between the coating and the substrate.
- Advanced surface treatment technology, optimized stress distribution, better overall performance.

YBS203 (peripheral/central inserts)

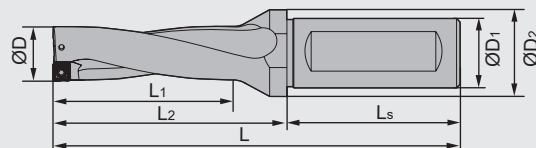
High performance grade for S materials

- Alloy toughness enhancement technology improves the tool's resistance to crack propagation and high temperature oxidation while ensuring high wear resistance.
- Adopting a new hard alloy matrix formula greatly improves the high-temperature performance and extends tool life.

Indexable shallow-hole drills

ZSD02

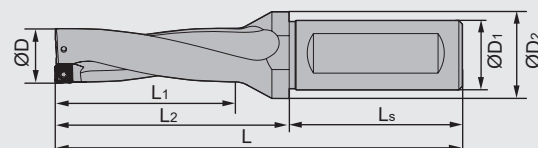
2D



Type	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD1	ØD2	L1	L2	Ls	L			
ZSD02-0.500"-XP0.75"-SP04-02	0.500	12.70	0.75	0.98	1.12	1.79	1.97	3.76	SPMX040203- XM/LM/EM	I60M1.8×4	WT05IP
ZSD02-0.531"-XP0.75"-SP04-02	0.531	13.49	0.75	0.98	1.18	1.85	1.97	3.82	SPMX040203- XM/LM/EM	I60M1.8×4	WT05IP
ZSD02-0.563"-XP0.75"-SP04-02	0.563	14.30	0.75	0.98	1.24	1.91	1.97	3.88	SPMX040203- XM/LM/EM	I60M1.8×4	WT05IP
ZSD02-0.594"-XP0.75"-SP05-02	0.594	15.09	0.75	0.98	1.31	1.98	1.97	3.95	SPMX050204- XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD02-0.626"-XP0.75"-SP05-02	0.626	15.90	0.75	0.98	1.37	2.04	1.97	4.01	SPMX050204- XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD02-0.657"-XP0.75"-SP05-02	0.657	16.69	0.75	0.98	1.43	2.10	1.97	4.07	SPMX050204- XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD02-0.688"-XP0.75"-SP05-02	0.688	17.48	0.75	0.98	1.49	2.16	1.97	4.13	SPMX050204- XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD02-0.719"-XP1.00"-SP06-02	0.719	18.26	1.00	1.26	1.56	2.27	2.20	4.47	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD02-0.750"-XP1.00"-SP06-02	0.750	19.05	1.00	1.26	1.62	2.33	2.20	4.53	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD02-0.781"-XP1.00"-SP06-02	0.781	19.84	1.00	1.26	1.68	2.39	2.20	4.59	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD02-0.813"-XP1.00"-SP06-02	0.813	20.65	1.00	1.26	1.74	2.45	2.20	4.65	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD02-0.843"-XP1.00"-SP06-02	0.843	21.41	1.00	1.26	1.80	2.51	2.20	4.71	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD02-0.875"-XP1.00"-SP06-02	0.875	22.23	1.00	1.26	1.87	2.58	2.20	4.78	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD02-0.906"-XP1.00"-SP07-02	0.906	23.01	1.00	1.26	1.93	2.64	2.20	4.84	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD02-0.938"-XP1.00"-SP07-02	0.938	23.83	1.00	1.26	1.99	2.70	2.20	4.90	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD02-0.969"-XP1.00"-SP07-02	0.969	24.61	1.00	1.26	2.06	2.77	2.20	4.97	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD02-1.000"-XP1.00"-SP07-02	1.000	25.40	1.00	1.26	2.12	2.83	2.20	5.03	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD02-1.031"-XP1.00"-SP07-02	1.031	26.19	1.00	1.26	2.18	2.89	2.20	5.09	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD02-1.063"-XP1.00"-SP07-02	1.063	27.00	1.00	1.26	2.24	2.95	2.20	5.15	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD02-1.094"-XP1.25"-SP09-02	1.094	27.79	1.25	1.46	2.31	3.10	2.36	5.46	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD02-1.125"-XP1.25"-SP09-02	1.125	28.58	1.25	1.46	2.37	3.16	2.36	5.52	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD02-1.156"-XP1.25"-SP09-02	1.156	29.36	1.25	1.46	2.43	3.22	2.36	5.58	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD02-1.187"-XP1.25"-SP09-02	1.187	30.15	1.25	1.46	2.49	3.28	2.36	5.64	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD02-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	2.56	3.35	2.36	5.71	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD02-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	2.62	3.41	2.36	5.77	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD02-1.281"-XP1.25"-SP09-02	1.281	32.54	1.25	1.46	2.68	3.47	2.36	5.83	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD02-1.312"-XP1.25"-SP09-02	1.312	33.32	1.25	1.46	2.74	3.53	2.36	5.89	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD02-1.343"-XP1.50"-SP11-02	1.343	34.11	1.50	1.85	2.80	3.78	2.76	6.54	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD02-1.375"-XP1.50"-SP11-02	1.375	34.93	1.50	1.85	2.87	3.85	2.76	6.61	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP

Indexable shallow-hole drills

ZSD02 2D

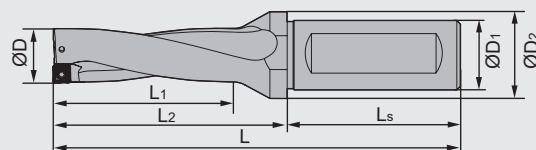


Type	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD02-1.406"-XP1.50"-SP11-02	1.406	35.71	1.50	1.85	2.93	3.91	2.76	6.67	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD02-1.437"-XP1.50"-SP11-02	1.437	36.50	1.50	1.85	2.99	3.97	2.76	6.73	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD02-1.468"-XP1.50"-SP11-02	1.468	37.29	1.50	1.85	3.05	4.03	2.76	6.79	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD02-1.500"-XP1.50"-SP11-02	1.500	38.10	1.50	1.85	3.12	4.10	2.76	6.86	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD02-1.531"-XP1.50"-SP11-02	1.531	38.89	1.50	1.85	3.18	4.16	2.76	6.92	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD02-1.562"-XP1.50"-SP11-02	1.562	39.67	1.50	1.85	3.24	4.22	2.76	6.98	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD02-1.594"-XP1.50"-SP11-02	1.594	40.49	1.50	1.85	3.31	4.29	2.76	7.05	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD02-1.625"-XP1.50"-SP11-02	1.625	41.28	1.50	1.85	3.37	4.35	2.76	7.11	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD02-1.687"-XP1.50"-SP14-02	1.687	42.85	1.50	2.05	3.49	4.75	2.76	7.51	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD02-1.719"-XP1.50"-SP14-02	1.719	43.66	1.50	2.05	3.56	4.82	2.76	7.58	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD02-1.750"-XP1.50"-SP14-02	1.750	44.45	1.50	2.05	3.62	4.88	2.76	7.64	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD02-1.781"-XP1.50"-SP14-02	1.781	45.24	1.50	2.05	3.68	4.94	2.76	7.70	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD02-1.813"-XP1.50"-SP14-02	1.813	46.05	1.50	2.05	3.74	5.00	2.76	7.76	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD02-1.875"-XP1.50"-SP14-02	1.875	47.23	1.50	2.05	3.84	5.10	2.76	7.86	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD02-1.937"-XP1.50"-SP14-02	1.937	49.20	1.50	2.05	3.99	5.25	2.76	8.01	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD02-1.969"-XP1.50"-SP14-02	1.969	50.01	1.50	2.05	4.06	5.32	2.76	8.08	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD02-2.000"-XP1.50"-SP14-02	2.000	50.80	1.50	2.05	4.12	5.38	2.76	8.14	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP

Indexable shallow-hole drills

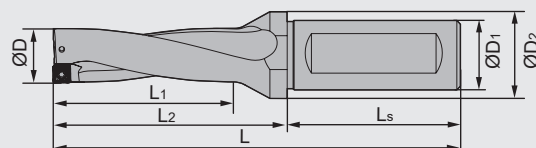
ZSD03

3D



Type	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD03-0.500"-XP0.75"-SP04-02	0.500	12.70	0.75	0.98	1.62	2.29	1.97	4.26	SPMX040203-XM/LM/EM	I60M1.8×4	WT05IP
ZSD03-0.531"-XP0.75"-SP04-02	0.531	13.49	0.75	0.98	1.71	2.38	1.97	4.35	SPMX040203-XM/LM/EM	I60M1.8×4	WT05IP
ZSD03-0.563"-XP0.75"-SP04-02	0.563	14.30	0.75	0.98	1.81	2.48	1.97	4.45	SPMX040203-XM/LM/EM	I60M1.8×4	WT05IP
ZSD03-0.594"-XP0.75"-SP05-02	0.594	15.09	0.75	0.98	1.90	2.57	1.97	4.54	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD03-0.626"-XP0.75"-SP05-02	0.626	15.90	0.75	0.98	2.00	2.67	1.97	4.64	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD03-0.657"-XP0.75"-SP05-02	0.657	16.69	0.75	0.98	2.09	2.76	1.97	4.73	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD03-0.688"-XP0.75"-SP05-02	0.688	17.48	0.75	0.98	2.18	2.85	1.97	4.82	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD03-0.719"-XP1.00"-SP06-02	0.719	18.26	1.00	1.26	2.27	2.98	2.20	5.18	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD03-0.750"-XP1.00"-SP06-02	0.750	19.05	1.00	1.26	2.37	3.08	2.20	5.28	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD03-0.781"-XP1.00"-SP06-02	0.781	19.84	1.00	1.26	2.46	3.17	2.20	5.37	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD03-0.813"-XP1.00"-SP06-02	0.813	20.65	1.00	1.26	2.56	3.27	2.20	5.47	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD03-0.843"-XP1.00"-SP06-02	0.843	21.41	1.00	1.26	2.65	3.36	2.20	5.56	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD03-0.875"-XP1.00"-SP06-02	0.875	22.23	1.00	1.26	2.74	3.45	2.20	5.65	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD03-0.906"-XP1.00"-SP07-02	0.906	23.01	1.00	1.26	2.84	3.55	2.20	5.75	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD03-0.938"-XP1.00"-SP07-02	0.938	23.83	1.00	1.26	2.93	3.64	2.20	5.84	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD03-0.969"-XP1.00"-SP07-02	0.969	24.61	1.00	1.26	3.02	3.73	2.20	5.93	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD03-1.000"-XP1.00"-SP07-02	1.000	25.40	1.00	1.26	3.12	3.83	2.20	6.03	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD03-1.031"-XP1.00"-SP07-02	1.031	26.19	1.00	1.26	3.21	3.92	2.20	6.12	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD03-1.063"-XP1.00"-SP07-02	1.063	27.00	1.00	1.26	3.31	4.02	2.20	6.22	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD03-1.094"-XP1.25"-SP09-02	1.094	27.79	1.25	1.46	3.40	4.19	2.36	6.55	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD03-1.125"-XP1.25"-SP09-02	1.125	28.58	1.25	1.46	3.49	4.28	2.36	6.64	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD03-1.156"-XP1.25"-SP09-02	1.156	29.36	1.25	1.46	3.59	4.38	2.36	6.74	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD03-1.187"-XP1.25"-SP09-02	1.187	30.15	1.25	1.46	3.68	4.47	2.36	6.83	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD03-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	3.77	4.56	2.36	6.92	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD03-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	3.87	4.66	2.36	7.02	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD03-1.281"-XP1.25"-SP09-02	1.281	32.54	1.25	1.46	3.96	4.75	2.36	7.11	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD03-1.312"-XP1.25"-SP09-02	1.312	33.32	1.25	1.46	4.05	4.84	2.36	7.20	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD03-1.343"-XP1.50"-SP11-02	1.343	34.11	1.50	1.85	4.15	5.13	2.76	7.89	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD03-1.375"-XP1.50"-SP11-02	1.375	34.93	1.50	1.85	4.24	5.22	2.76	7.98	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP

Indexable shallow-hole drills

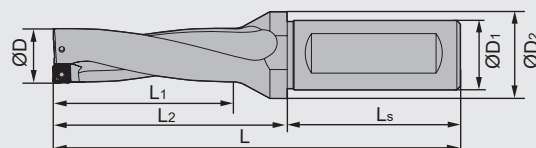
ZSD03 3D

Type	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD03-1.406"-XP1.50"-SP11-02	1.406	35.71	1.50	1.85	4.34	5.32	2.76	8.08	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD03-1.437"-XP1.50"-SP11-02	1.437	36.50	1.50	1.85	4.43	5.41	2.76	8.17	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD03-1.468"-XP1.50"-SP11-02	1.468	37.29	1.50	1.85	4.52	5.50	2.76	8.26	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD03-1.500"-XP1.50"-SP11-02	1.500	38.10	1.50	1.85	4.62	5.60	2.76	8.36	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD03-1.531"-XP1.50"-SP11-02	1.531	38.89	1.50	1.85	4.71	5.69	2.76	8.45	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD03-1.562"-XP1.50"-SP11-02	1.562	39.67	1.50	1.85	4.80	5.78	2.76	8.54	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD03-1.594"-XP1.50"-SP11-02	1.594	40.49	1.50	1.85	4.90	5.88	2.76	8.64	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD03-1.625"-XP1.50"-SP11-02	1.625	41.28	1.50	1.85	4.99	5.97	2.76	8.73	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD03-1.687"-XP1.50"-SP14-02	1.687	42.85	1.50	2.05	5.18	6.44	2.76	9.20	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD03-1.719"-XP1.50"-SP14-02	1.719	43.66	1.50	2.05	5.27	6.53	2.76	9.29	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD03-1.750"-XP1.50"-SP14-02	1.750	44.45	1.50	2.05	5.37	6.63	2.76	9.39	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD03-1.781"-XP1.50"-SP14-02	1.781	45.24	1.50	2.05	5.46	6.72	2.76	9.48	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD03-1.813"-XP1.50"-SP14-02	1.813	46.05	1.50	2.05	5.56	6.82	2.76	9.58	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD03-1.875"-XP1.50"-SP14-02	1.875	47.23	1.50	2.05	5.70	6.96	2.76	9.72	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD03-1.937"-XP1.50"-SP14-02	1.937	49.20	1.50	2.05	5.93	7.19	2.76	9.95	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD03-1.969"-XP1.50"-SP14-02	1.969	50.01	1.50	2.05	6.02	7.28	2.76	10.04	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD03-2.000"-XP1.50"-SP14-02	2.000	50.80	1.50	2.05	6.12	7.38	2.76	10.14	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP

Indexable shallow-hole drills

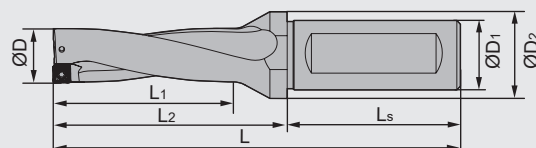
ZSD04

4D



Type	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD1	ØD2	L1	L2	Ls	L			
ZSD04-0.500"-XP0.75"-SP04-02	0.500	12.70	0.75	0.98	2.12	2.79	1.97	4.76	SPMX040203-XM/LM/EM	I60M1.8×4	WT05IP
ZSD04-0.531"-XP0.75"-SP04-02	0.531	13.49	0.75	0.98	2.24	2.91	1.97	4.88	SPMX040203-XM/LM/EM	I60M1.8×4	WT05IP
ZSD04-0.563"-XP0.75"-SP04-02	0.563	14.30	0.75	0.98	2.37	3.04	1.97	5.01	SPMX040203-XM/LM/EM	I60M1.8×4	WT05IP
ZSD04-0.594"-XP0.75"-SP05-02	0.594	15.09	0.75	0.98	2.49	3.16	1.97	5.13	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD04-0.626"-XP0.75"-SP05-02	0.626	15.90	0.75	0.98	2.62	3.29	1.97	5.26	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD04-0.657"-XP0.75"-SP05-02	0.657	16.69	0.75	0.98	2.75	3.42	1.97	5.39	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD04-0.688"-XP0.75"-SP05-02	0.688	17.48	0.75	0.98	2.87	3.54	1.97	5.51	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD04-0.719"-XP1.00"-SP06-02	0.719	18.26	1.00	1.26	2.99	3.70	2.20	5.90	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD04-0.750"-XP1.00"-SP06-02	0.750	19.05	1.00	1.26	3.12	3.83	2.20	6.03	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD04-0.781"-XP1.00"-SP06-02	0.781	19.84	1.00	1.26	3.24	3.95	2.20	6.15	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD04-0.813"-XP1.00"-SP06-02	0.813	20.65	1.00	1.26	3.37	4.08	2.20	6.28	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD04-0.843"-XP1.00"-SP06-02	0.843	21.41	1.00	1.26	3.49	4.20	2.20	6.40	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD04-0.875"-XP1.00"-SP06-02	0.875	22.23	1.00	1.26	3.62	4.33	2.20	6.53	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD04-0.906"-XP1.00"-SP07-02	0.906	23.01	1.00	1.26	3.74	4.45	2.20	6.65	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD04-0.938"-XP1.00"-SP07-02	0.938	23.83	1.00	1.26	3.87	4.58	2.20	6.78	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD04-0.969"-XP1.00"-SP07-02	0.969	24.61	1.00	1.26	3.99	4.70	2.20	6.90	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD04-1.000"-XP1.00"-SP07-02	1.000	25.40	1.00	1.26	4.12	4.83	2.20	7.03	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD04-1.031"-XP1.00"-SP07-02	1.031	26.19	1.00	1.26	4.24	4.95	2.20	7.15	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD04-1.063"-XP1.00"-SP07-02	1.063	27.00	1.00	1.26	4.37	5.08	2.20	7.28	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD04-1.094"-XP1.25"-SP09-02	1.094	27.79	1.25	1.46	4.49	5.28	2.36	7.64	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD04-1.125"-XP1.25"-SP09-02	1.125	28.58	1.25	1.46	4.62	5.41	2.36	7.77	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD04-1.156"-XP1.25"-SP09-02	1.156	29.36	1.25	1.46	4.74	5.53	2.36	7.89	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD04-1.187"-XP1.25"-SP09-02	1.187	30.15	1.25	1.46	4.87	5.66	2.36	8.02	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD04-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	4.99	5.78	2.36	8.14	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD04-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	5.12	5.91	2.36	8.27	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD04-1.281"-XP1.25"-SP09-02	1.281	32.54	1.25	1.46	5.24	6.03	2.36	8.39	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD04-1.312"-XP1.25"-SP09-02	1.312	33.32	1.25	1.46	5.37	6.16	2.36	8.52	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD04-1.343"-XP1.50"-SP11-02	1.343	34.11	1.50	1.85	5.49	6.47	2.76	9.23	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD04-1.375"-XP1.50"-SP11-02	1.375	34.93	1.50	1.85	5.62	6.60	2.76	9.36	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP

Indexable shallow-hole drills

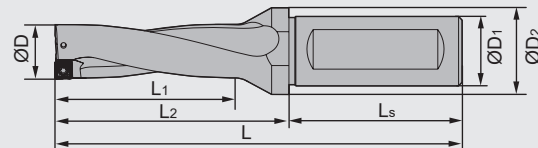
ZSD04**4D**

Type	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD04-1.406"-XP1.50"-SP11-02	1.406	35.71	1.50	1.85	5.74	6.72	2.76	9.48	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD04-1.437"-XP1.50"-SP11-02	1.437	36.50	1.50	1.85	5.87	6.85	2.76	9.61	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD04-1.468"-XP1.50"-SP11-02	1.468	37.29	1.50	1.85	5.99	6.97	2.76	9.73	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD04-1.500"-XP1.50"-SP11-02	1.500	38.10	1.50	1.85	6.12	7.10	2.76	9.86	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD04-1.531"-XP1.50"-SP11-02	1.531	38.89	1.50	1.85	6.24	7.22	2.76	9.98	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD04-1.562"-XP1.50"-SP11-02	1.562	39.67	1.50	1.85	6.37	7.35	2.76	10.11	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD04-1.594"-XP1.50"-SP11-02	1.594	40.49	1.50	1.85	6.49	7.47	2.76	10.23	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD04-1.625"-XP1.50"-SP11-02	1.625	41.28	1.50	1.85	6.62	7.60	2.76	10.36	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD04-1.687"-XP1.50"-SP14-02	1.687	42.85	1.50	2.05	6.87	8.13	2.76	10.89	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD04-1.719"-XP1.50"-SP14-02	1.719	43.66	1.50	2.05	6.99	8.25	2.76	11.01	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD04-1.750"-XP1.50"-SP14-02	1.750	44.45	1.50	2.05	7.12	8.38	2.76	11.14	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD04-1.781"-XP1.50"-SP14-02	1.781	45.24	1.50	2.05	7.24	8.50	2.76	11.26	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD04-1.813"-XP1.50"-SP14-02	1.813	46.05	1.50	2.05	7.37	8.63	2.76	11.39	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD04-1.875"-XP1.50"-SP14-02	1.875	47.23	1.50	2.05	7.56	8.82	2.76	11.58	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD04-1.937"-XP1.50"-SP14-02	1.937	49.20	1.50	2.05	7.87	9.13	2.76	11.89	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD04-1.969"-XP1.50"-SP14-02	1.969	50.01	1.50	2.05	7.99	9.25	2.76	12.01	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD04-2.000"-XP1.50"-SP14-02	2.000	50.80	1.50	2.05	8.12	9.38	2.76	12.14	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP

Indexable shallow-hole drills

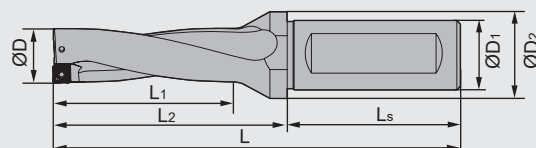
ZSD05

5D



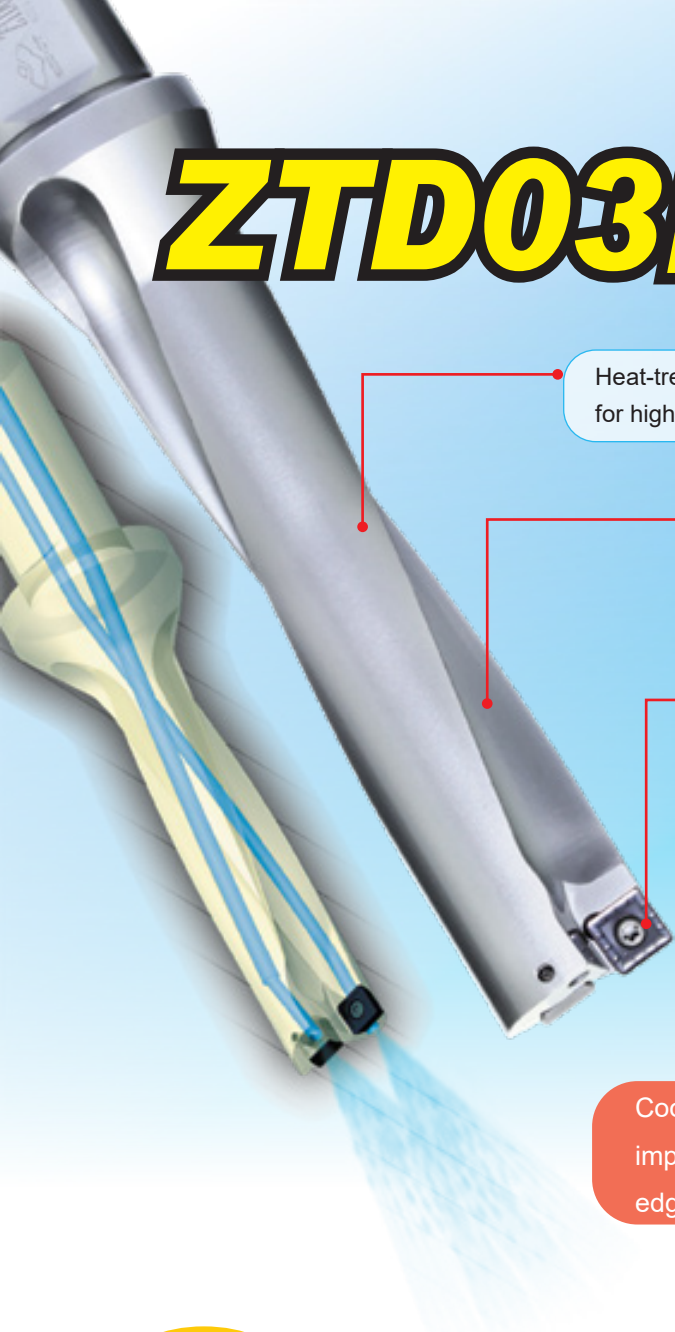
Type	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD1	ØD2	L1	L2	Ls	L			
ZSD05-0.500"-XP0.75"-SP04-02	0.500	12.70	0.75	0.98	2.62	3.29	1.97	5.26	SPMX040203-XM/LM/EM	I60M1.8×4	WT05IP
ZSD05-0.531"-XP0.75"-SP04-02	0.531	13.49	0.75	0.98	2.77	3.44	1.97	5.41	SPMX040203-XM/LM/EM	I60M1.8×4	WT05IP
ZSD05-0.563"-XP0.75"-SP04-02	0.563	14.30	0.75	0.98	2.93	3.60	1.97	5.57	SPMX040203-XM/LM/EM	I60M1.8×4	WT05IP
ZSD05-0.594"-XP0.75"-SP05-02	0.594	15.09	0.75	0.98	3.09	3.76	1.97	5.73	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD05-0.626"-XP0.75"-SP05-02	0.626	15.90	0.75	0.98	3.25	3.92	1.97	5.89	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD05-0.657"-XP0.75"-SP05-02	0.657	16.69	0.75	0.98	3.40	4.07	1.97	6.04	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD05-0.688"-XP0.75"-SP05-02	0.688	17.48	0.75	0.98	3.56	4.23	1.97	6.20	SPMX050204-XM/LM/EM/XR	I60M2×4.3	WT06P
ZSD05-0.719"-XP1.00"-SP06-02	0.719	18.26	1.00	1.26	3.71	4.42	2.20	6.62	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD05-0.750"-XP1.00"-SP06-02	0.750	19.05	1.00	1.26	3.87	4.58	2.20	6.78	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD05-0.781"-XP1.00"-SP06-02	0.781	19.84	1.00	1.26	4.02	4.73	2.20	6.93	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD05-0.813"-XP1.00"-SP06-02	0.813	20.65	1.00	1.26	4.18	4.89	2.20	7.09	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD05-0.843"-XP1.00"-SP06-02	0.843	21.41	1.00	1.26	4.33	5.04	2.20	7.24	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD05-0.875"-XP1.00"-SP06-02	0.875	22.23	1.00	1.26	4.49	5.20	2.20	7.40	SPMX060204- XM/LM/EM/XR	I60M2.2×5.5	WT07IP
ZSD05-0.906"-XP1.00"-SP07-02	0.906	23.01	1.00	1.26	4.65	5.36	2.20	7.56	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD05-0.938"-XP1.00"-SP07-02	0.938	23.83	1.00	1.26	4.81	5.52	2.20	7.72	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD05-0.969"-XP1.00"-SP07-02	0.969	24.61	1.00	1.26	4.96	5.67	2.20	7.87	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD05-1.000"-XP1.00"-SP07-02	1.000	25.40	1.00	1.26	5.12	5.83	2.20	8.03	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD05-1.031"-XP1.00"-SP07-02	1.031	26.19	1.00	1.26	5.27	5.98	2.20	8.18	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD05-1.063"-XP1.00"-SP07-02	1.063	27.00	1.00	1.26	5.43	6.14	2.20	8.34	SPMX07T308- XM/LM/EM/XR	I60M2.5×7.4	WT07IP
ZSD05-1.094"-XP1.25"-SP09-02	1.094	27.79	1.25	1.46	5.59	6.38	2.36	8.74	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD05-1.125"-XP1.25"-SP09-02	1.125	28.58	1.25	1.46	5.74	6.53	2.36	8.89	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD05-1.156"-XP1.25"-SP09-02	1.156	29.36	1.25	1.46	5.90	6.69	2.36	9.05	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD05-1.187"-XP1.25"-SP09-02	1.187	30.15	1.25	1.46	6.05	6.84	2.36	9.20	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD05-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	6.21	7.00	2.36	9.36	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD05-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	6.37	7.16	2.36	9.52	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD05-1.281"-XP1.25"-SP09-02	1.281	32.54	1.25	1.46	6.52	7.31	2.36	9.67	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD05-1.312"-XP1.25"-SP09-02	1.312	33.32	1.25	1.46	6.68	7.47	2.36	9.83	SPMX090408- XM/LM/EM/XR	I60M3.5×8	WT15IP
ZSD05-1.343"-XP1.50"-SP11-02	1.343	34.11	1.50	1.85	6.83	7.81	2.76	10.57	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD05-1.375"-XP1.50"-SP11-02	1.375	34.93	1.50	1.85	6.99	7.97	2.76	10.73	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP

Indexable shallow-hole drills

ZSD05**5D**

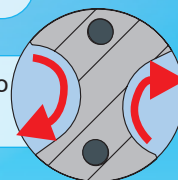
Type	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD05-1.406"-XP1.50"-SP11-02	1.406	35.71	1.50	1.85	7.15	8.13	2.76	10.89	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD05-1.437"-XP1.50"-SP11-02	1.437	36.50	1.50	1.85	7.30	8.28	2.76	11.04	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD05-1.468"-XP1.50"-SP11-02	1.468	37.29	1.50	1.85	7.46	8.44	2.76	11.20	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD05-1.500"-XP1.50"-SP11-02	1.500	38.10	1.50	1.85	7.62	8.60	2.76	11.36	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD05-1.531"-XP1.50"-SP11-02	1.531	38.89	1.50	1.85	7.77	8.75	2.76	11.51	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD05-1.562"-XP1.50"-SP11-02	1.562	39.67	1.50	1.85	7.93	8.91	2.76	11.67	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD05-1.594"-XP1.50"-SP11-02	1.594	40.49	1.50	1.85	8.09	9.07	2.76	11.83	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD05-1.625"-XP1.50"-SP11-02	1.625	41.28	1.50	1.85	8.24	9.22	2.76	11.98	SPMX110408- XM/LM/EM/XR	I60M4×10	WT15IP
ZSD05-1.687"-XP1.50"-SP14-02	1.687	42.85	1.50	2.05	8.55	9.81	2.76	12.57	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD05-1.719"-XP1.50"-SP14-02	1.719	43.66	1.50	2.05	8.71	9.97	2.76	12.73	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD05-1.750"-XP1.50"-SP14-02	1.750	44.45	1.50	2.05	8.87	10.13	2.76	12.89	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD05-1.781"-XP1.50"-SP14-02	1.781	45.24	1.50	2.05	9.02	10.28	2.76	13.04	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD05-1.813"-XP1.50"-SP14-02	1.813	46.05	1.50	2.05	9.18	10.44	2.76	13.20	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD05-1.875"-XP1.50"-SP14-02	1.875	47.23	1.50	2.05	9.42	10.68	2.76	13.44	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD05-1.937"-XP1.50"-SP14-02	1.937	49.20	1.50	2.05	9.80	11.06	2.76	13.82	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD05-1.969"-XP1.50"-SP14-02	1.969	50.01	1.50	2.05	9.96	11.22	2.76	13.98	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP
ZSD05-2.000"-XP1.50"-SP14-02	2.000	50.80	1.50	2.05	10.12	11.38	2.76	14.14	SPMX140512- XM/LM/EM/XR	I60M5×13	WT20IP

ZTD03/04/05 drill series

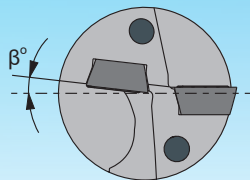


Heat-treated drill body has high torque capability for higher feed rates.

Large flute gullets allow chips to evacuate freely.



Unique insert positioning design reduces vibrations, allows for more precise hole size, and improves surface finish quality.

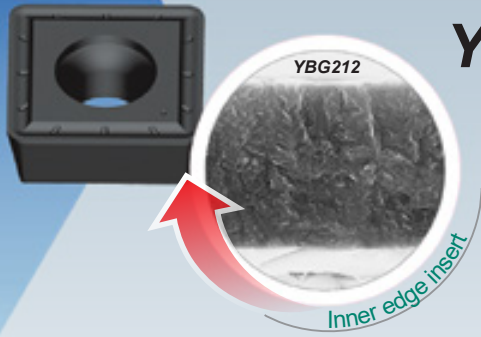


Coolant-fed through helical flutes permit improved cooling and lubricating of the cutting edges, while allowing greater depth of cut.

Case

Tool applied	ZTD04-1.031"-XP1.00"-SP07-02 SPGT07T308-PM /YBG205(Peripheral edge) SPGT07T308-PM /YBG212(Inner edge)	Tool life comparison	ZTD04 Similar product of company A	
Workpiece material	1050 steel (HRC 25)			
Cooling system	Double helical internal cooling			
Cutting parameters	V _c =426 SFPM, f=8.25in/min, a _p =3.5 in			
Machining situation		Chips	ZTD04-1.031"-XP1.00"-SP07-2 Similar product of company a	

- Optimized cutting edge design ensures more stable cutting and better chip breaking.
- Meeting the requirements of central edge and peripheral edge with economy and efficiency.
- Perfect combination of grade and chipbreaker solves all your difficulties in machining.



YBG212

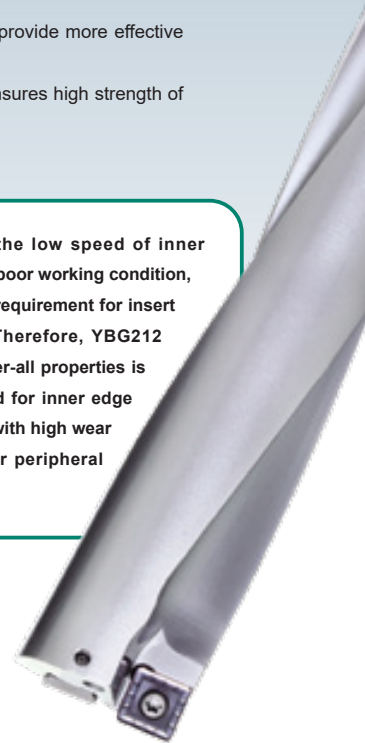
- Special coating technology makes insert surface smooth, reducing friction and ensuring unobstructed chip flow.
- Unique nano coating, stronger combination of substrate and highly wear-resistant TiAlN coating, higher toughness and hardness.
- Good thermal stability and chemical stability of coating provide more effective protection for the cutting edge.
- Ultra-fine solid carbide substrate with high toughness ensures high strength of cutting edge.

YBG205

- Ultra-fine TiAlN base nano coating added with wear-resistant and heat-resistant elements greatly improves over-all properties.
- Special coating technology ensures stronger combination of substrate and coating.
- Thin PVD coating, sharp cutting edge.
- Fine grain WC base solid carbide with high hardness and high toughness.
- Special surface treatment after coating improves surface finish while eliminating harmful stress.



Because of the low speed of inner edge and the poor working condition, there is high requirement for insert toughness. Therefore, YBG212 with good over-all properties is recommended for inner edge and YBG205 with high wear resistance for peripheral edge.



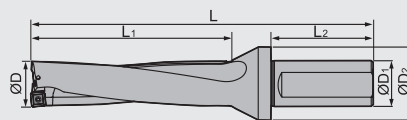
Case

Workpiece		Cooling system	Double helical internal cooling	
		Insert applied	SPGT07T308-PM/YBG205	Similar product of company A
		Comparison of insert wear (after 15 minutes of machining)		
Workpiece material	Alloy Steel(HRC25)			
Cutting parameters	$V_c=495\text{SFPM}$, $f_r=.005\text{in/r}$, $a_p= 3.1\text{ in}$			

Indexable shallow-hole drills

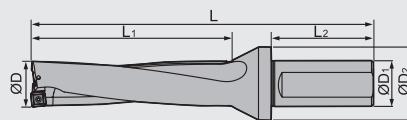
ZTD03

3D



Type	ØD		Basic dimension(inch)					Applicable inserts	Screw	Wrench	Rc Thread
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L				
ZTD03-0.500"-XP0.75"-SP05-02	0.500	12.70	0.75	0.98	1.70	1.97	4.33	SPGT050204-PM/EM	I60M2×4.3	WT06IP	---
ZTD03-0.531"-XP0.75"-SP05-02	0.531	13.49	0.75	0.98	1.79	1.97	4.43	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD03-0.563"-XP0.75"-SP05-02	0.563	14.30	0.75	0.98	1.89	1.97	4.52	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD03-0.594"-XP0.75"-SP05-02	0.594	15.09	0.75	0.98	1.98	1.97	4.62	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD03-0.626"-XP0.75"-SP05-02	0.626	15.90	0.75	0.98	2.07	1.97	4.71	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD03-0.657"-XP1.00"-SP06-02	0.657	16.69	1.00	1.26	2.17	2.20	5.24	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD03-0.688"-XP1.00"-SP06-02	0.688	17.48	1.00	1.26	2.26	2.20	5.33	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD03-0.719"-XP1.00"-SP06-02	0.719	18.26	1.00	1.26	2.35	2.20	5.42	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD03-0.750"-XP1.00"-SP06-02	0.750	19.05	1.00	1.26	2.45	2.20	5.52	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD03-0.781"-XP1.00"-SP06-02	0.781	19.84	1.00	1.26	2.54	2.20	5.61	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD03-0.813"-XP1.00"-SP06-02	0.813	20.65	1.00	1.26	2.64	2.20	5.71	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD03-0.843"-XP1.00"-SP06-02	0.843	21.41	1.00	1.26	2.73	2.20	5.80	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD03-0.875"-XP1.00"-SP07-02	0.875	22.23	1.00	1.26	2.82	2.20	5.89	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD03-0.906"-XP1.00"-SP07-02	0.906	23.01	1.00	1.26	2.91	2.20	5.99	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD03-0.938"-XP1.00"-SP07-02	0.938	23.83	1.00	1.26	3.01	2.20	6.08	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD03-0.969"-XP1.00"-SP07-02	0.969	24.61	1.00	1.26	3.10	2.20	6.17	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	---
ZTD03-1.000"-XP1.00"-SP07-02	1.000	25.40	1.00	1.26	3.20	2.20	6.27	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD03-1.031"-XP1.00"-SP07-02	1.031	26.19	1.00	1.26	3.29	2.20	6.36	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD03-1.063"-XP1.00"-SP07-02	1.063	27.00	1.00	1.46	3.39	2.20	6.46	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD03-1.094"-XP1.25"-SP09-02	1.094	27.79	1.25	1.46	3.48	2.36	6.83	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD03-1.125"-XP1.25"-SP09-02	1.125	28.58	1.25	1.46	3.57	2.36	6.92	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD03-1.156"-XP1.25"-SP09-02	1.156	29.36	1.25	1.46	3.66	2.36	7.01	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD03-1.187"-XP1.25"-SP09-02	1.187	30.15	1.25	1.46	3.76	2.36	7.10	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD03-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	3.85	2.36	7.20	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD03-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	3.95	2.36	7.29	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD03-1.281"-XP1.25"-SP09-02	1.281	32.54	1.25	1.46	4.04	2.36	7.39	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD03-1.312"-XP1.25"-SP09-02	1.312	33.32	1.25	1.46	4.13	2.36	7.48	SPGT090408-PM/EM	I60M3.5×8	WT15IP	

Indexable shallow-hole drills

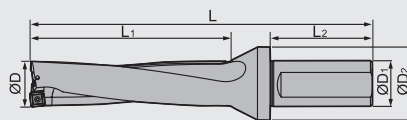
ZTD03**3D**

Type	ØD		Basic dimension(inch)					Applicable inserts	Screw	Wrench	Rc Thread
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L				
ZTD03-1.343"-XP1.50"-SP11-02	1.343	34.11	1.50	1.85	4.23	2.76	8.16	SPGT110408-PM/EM	I60M4×10	WT15IP	Rc1/4
ZTD03-1.375"-XP1.50"-SP11-02	1.375	34.93	1.50	1.85	4.32	2.76	8.26	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD03-1.406"-XP1.50"-SP11-02	1.406	35.71	1.50	1.85	4.41	2.76	8.35	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD03-1.437"-XP1.50"-SP11-02	1.437	36.50	1.50	1.85	4.51	2.76	8.44	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD03-1.468"-XP1.50"-SP11-02	1.468	37.29	1.50	1.85	4.60	2.76	8.54	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD03-1.500"-XP1.50"-SP11-02	1.500	38.10	1.50	1.85	4.70	2.76	8.63	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD03-1.531"-XP1.50"-SP11-02	1.531	38.89	1.50	1.85	4.79	2.76	8.73	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD03-1.562"-XP1.50"-SP11-02	1.562	39.67	1.50	1.85	4.88	2.76	8.82	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD03-1.594"-XP1.50"-SP11-02	1.594	40.49	1.50	1.85	4.98	2.76	8.92	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD03-1.625"-XP1.50"-SP11-02	1.625	41.28	1.50	1.85	5.07	2.76	9.01	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD03-1.687"-XP1.50"-SP14-02	1.687	42.85	1.50	2.24	5.26	2.76	9.59	SPGT140512-PM/EM	I60M5×13	WT20IP	Rc1/4
ZTD03-1.719"-XP1.50"-SP14-02	1.719	43.66	1.50	2.24	5.35	2.76	9.68	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD03-1.750"-XP1.50"-SP14-02	1.750	44.45	1.50	2.24	5.45	2.76	9.78	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD03-1.781"-XP1.50"-SP14-02	1.781	45.24	1.50	2.24	5.54	2.76	9.87	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD03-1.813"-XP1.50"-SP14-02	1.813	46.05	1.50	2.24	5.64	2.76	9.97	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD03-1.875"-XP1.50"-SP14-02	1.875	47.23	1.50	2.24	5.82	2.76	10.15	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD03-1.937"-XP1.50"-SP14-02	1.937	49.20	1.50	2.24	6.01	2.76	10.34	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD03-1.969"-XP1.50"-SP14-02	1.969	50.01	1.50	2.24	6.10	2.76	10.43	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD03-2.000"-XP1.50"-SP14-02	2.000	50.80	1.50	2.24	6.20	2.76	10.53	SPGT140512-PM/EM	I60M5×13	WT20IP	

Indexable shallow-hole drills

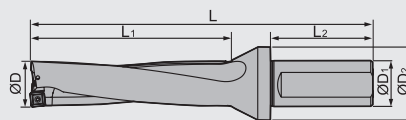
ZTD04

4D



Type	ØD		Basic dimension(inch)					Applicable inserts	Screw	Wrench	Rc Thread
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L				
ZTD04-0.500"-XP0.75"-SP05-02	0.500	12.70	0.75	0.98	2.20	1.97	4.83	SPGT050204-PM/EM	I60M2×4.3	WT06IP	---
ZTD04-0.531"-XP0.75"-SP05-02	0.531	13.49	0.75	0.98	2.32	1.97	4.96	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD04-0.563"-XP0.75"-SP05-02	0.563	14.30	0.75	0.98	2.45	1.97	5.09	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD04-0.594"-XP0.75"-SP05-02	0.594	15.09	0.75	0.98	2.57	1.97	5.21	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD04-0.626"-XP0.75"-SP05-02	0.626	15.90	0.75	0.98	2.70	1.97	5.34	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD04-0.657"-XP1.00"-SP06-02	0.657	16.69	1.00	1.26	2.82	2.20	5.90	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD04-0.688"-XP1.00"-SP06-02	0.688	17.48	1.00	1.26	2.95	2.20	6.02	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD04-0.719"-XP1.00"-SP06-02	0.719	18.26	1.00	1.26	3.07	2.20	6.14	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD04-0.750"-XP1.00"-SP06-02	0.750	19.05	1.00	1.26	3.20	2.20	6.27	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD04-0.781"-XP1.00"-SP06-02	0.781	19.84	1.00	1.26	3.32	2.20	6.39	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD04-0.813"-XP1.00"-SP06-02	0.813	20.65	1.00	1.26	3.45	2.20	6.52	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD04-0.843"-XP1.00"-SP06-02	0.843	21.41	1.00	1.26	3.57	2.20	6.64	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD04-0.875"-XP1.00"-SP07-02	0.875	22.23	1.00	1.26	3.70	2.20	6.77	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD04-0.906"-XP1.00"-SP07-02	0.906	23.01	1.00	1.26	3.82	2.20	6.89	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD04-0.938"-XP1.00"-SP07-02	0.938	23.83	1.00	1.26	3.95	2.20	7.02	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD04-0.969"-XP1.00"-SP07-02	0.969	24.61	1.00	1.26	4.07	2.20	7.14	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD04-1.000"-XP1.00"-SP07-02	1.000	25.40	1.00	1.26	4.20	2.20	7.27	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD04-1.031"-XP1.00"-SP07-02	1.031	26.19	1.00	1.26	4.32	2.20	7.39	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD04-1.063"-XP1.00"-SP07-02	1.063	27.00	1.00	1.46	4.45	2.20	7.52	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD04-1.094"-XP1.25"-SP09-02	1.094	27.79	1.25	1.46	4.57	2.36	7.92	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD04-1.125"-XP1.25"-SP09-02	1.125	28.58	1.25	1.46	4.70	2.36	8.04	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD04-1.156"-XP1.25"-SP09-02	1.156	29.36	1.25	1.46	4.82	2.36	8.17	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD04-1.187"-XP1.25"-SP09-02	1.187	30.15	1.25	1.46	4.94	2.36	8.29	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD04-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	5.07	2.36	8.42	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD04-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	5.20	2.36	8.54	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD04-1.281"-XP1.25"-SP09-02	1.281	32.54	1.25	1.46	5.32	2.36	8.67	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD04-1.312"-XP1.25"-SP09-02	1.312	33.32	1.25	1.46	5.44	2.36	8.79	SPGT090408-PM/EM	I60M3.5×8	WT15IP	

Indexable shallow-hole drills

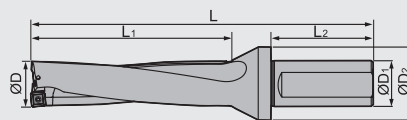
ZTD04**4D**

Type	ØD		Basic dimension(inch)					Applicable inserts	Screw	Wrench	Rc Thread
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L				
ZTD04-1.343"-XP1.50"-SP11-02	1.343	34.11	1.50	1.85	5.57	2.76	9.51	SPGT110408-PM/EM	I60M4×10	WT15IP	Rc1/4
ZTD04-1.375"-XP1.50"-SP11-02	1.375	34.93	1.50	1.85	5.70	2.76	9.63	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD04-1.406"-XP1.50"-SP11-02	1.406	35.71	1.50	1.85	5.82	2.76	9.76	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD04-1.437"-XP1.50"-SP11-02	1.437	36.50	1.50	1.85	5.94	2.76	9.88	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD04-1.468"-XP1.50"-SP11-02	1.468	37.29	1.50	1.85	6.07	2.76	10.01	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD04-1.500"-XP1.50"-SP11-02	1.500	38.10	1.50	1.85	6.20	2.76	10.13	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD04-1.531"-XP1.50"-SP11-02	1.531	38.89	1.50	1.85	6.32	2.76	10.26	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD04-1.562"-XP1.50"-SP11-02	1.562	39.67	1.50	1.85	6.44	2.76	10.38	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD04-1.594"-XP1.50"-SP11-02	1.594	40.49	1.50	1.85	6.57	2.76	10.51	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD04-1.625"-XP1.50"-SP11-02	1.625	41.28	1.50	1.85	6.70	2.76	10.63	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD04-1.687"-XP1.50"-SP14-02	1.687	42.85	1.50	2.24	6.94	2.76	11.28	SPGT140512-PM/EM	I60M5×13	WT20IP	Rc1/4
ZTD04-1.719"-XP1.50"-SP14-02	1.719	43.66	1.50	2.24	7.07	2.76	11.40	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD04-1.750"-XP1.50"-SP14-02	1.750	44.45	1.50	2.24	7.20	2.76	11.53	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD04-1.781"-XP1.50"-SP14-02	1.781	45.24	1.50	2.24	7.32	2.76	11.65	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD04-1.813"-XP1.50"-SP14-02	1.813	46.05	1.50	2.24	7.45	2.76	11.78	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD04-1.875"-XP1.50"-SP14-02	1.875	47.23	1.50	2.24	7.70	2.76	12.03	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD04-1.937"-XP1.50"-SP14-02	1.937	49.20	1.50	2.24	7.94	2.76	12.28	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD04-1.969"-XP1.50"-SP14-02	1.969	50.01	1.50	2.24	8.07	2.76	12.40	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD04-2.000"-XP1.50"-SP14-02	2.000	50.80	1.50	2.24	8.20	2.76	12.53	SPGT140512-PM/EM	I60M5×13	WT20IP	

Indexable shallow-hole drills

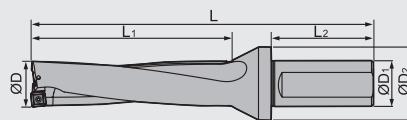
ZTD05

5D



Type	ØD		Basic dimension(inch)					Applicable inserts	Screw	Wrench	Rc Thread
	inch	mm	ØD1	ØD2	L1	L2	L				
ZTD05-0.500"-XP0.75"-SP05-02	0.500	12.70	0.75	0.98	2.70	1.97	5.33	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD05-0.531"-XP0.75"-SP05-02	0.531	13.49	0.75	0.98	2.85	1.97	5.49	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD05-0.563"-XP0.75"-SP05-02	0.563	14.30	0.75	0.98	3.01	1.97	5.65	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD05-0.594"-XP0.75"-SP05-02	0.594	15.09	0.75	0.98	3.17	1.97	5.80	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD05-0.626"-XP0.75"-SP05-02	0.626	15.90	0.75	0.98	3.33	1.97	5.96	SPGT050204-PM/EM	I60M2×4.3	WT06IP	
ZTD05-0.657"-XP1.00"-SP06-02	0.657	16.69	1.00	1.26	3.48	2.20	6.55	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD05-0.688"-XP1.00"-SP06-02	0.688	17.48	1.00	1.26	3.64	2.20	6.71	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD05-0.719"-XP1.00"-SP06-02	0.719	18.26	1.00	1.26	3.79	2.20	6.86	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD05-0.750"-XP1.00"-SP06-02	0.750	19.05	1.00	1.26	3.95	2.20	7.02	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD05-0.781"-XP1.00"-SP06-02	0.781	19.84	1.00	1.26	4.10	2.20	7.17	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD05-0.813"-XP1.00"-SP06-02	0.813	20.65	1.00	1.26	4.26	2.20	7.33	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD05-0.843"-XP1.00"-SP06-02	0.843	21.41	1.00	1.26	4.41	2.20	7.48	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP	
ZTD05-0.875"-XP1.00"-SP07-02	0.875	22.23	1.00	1.26	4.57	2.20	7.64	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD05-0.906"-XP1.00"-SP07-02	0.906	23.01	1.00	1.26	4.73	2.20	7.80	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	---
ZTD05-0.938"-XP1.00"-SP07-02	0.938	23.83	1.00	1.26	4.89	2.20	7.96	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD05-0.969"-XP1.00"-SP07-02	0.969	24.61	1.00	1.26	5.04	2.20	8.11	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD05-1.000"-XP1.00"-SP07-02	1.000	25.40	1.00	1.26	5.20	2.20	8.27	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD05-1.031"-XP1.00"-SP07-02	1.031	26.19	1.00	1.26	5.35	2.20	8.42	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD05-1.063"-XP1.00"-SP07-02	1.063	27.00	1.00	1.26	5.51	2.20	8.58	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	
ZTD05-1.094"-XP1.25"-SP09-02	1.094	27.79	1.25	1.46	5.67	2.36	9.01	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD05-1.125"-XP1.25"-SP09-02	1.125	28.58	1.25	1.46	5.82	2.36	9.17	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD05-1.156"-XP1.25"-SP09-02	1.156	29.36	1.25	1.46	5.98	2.36	9.32	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD05-1.187"-XP1.25"-SP09-02	1.187	30.15	1.25	1.46	6.13	2.36	9.48	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD05-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	6.29	2.36	9.64	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD05-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	6.45	2.36	9.79	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD05-1.281"-XP1.25"-SP09-02	1.281	32.54	1.25	1.46	6.60	2.36	9.95	SPGT090408-PM/EM	I60M3.5×8	WT15IP	
ZTD05-1.312"-XP1.25"-SP09-02	1.312	33.32	1.25	1.46	6.76	2.36	10.10	SPGT090408-PM/EM	I60M3.5×8	WT15IP	

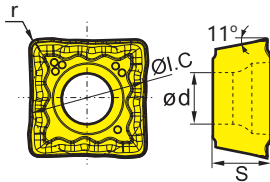
Indexable shallow-hole drills

ZTD05**5D**

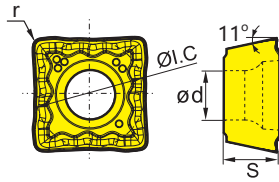
Type	ØD		Basic dimension(inch)					Applicable inserts	Screw	Wrench	Rc Thread
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L				
ZTD05-1.343"-XP1.50"-SP11-02	1.343	34.11	1.50	1.85	6.91	2.76	10.85	SPGT110408-PM/EM	I60M4×10	WT15IP	Rc1/4
ZTD05-1.375"-XP1.50"-SP11-02	1.375	34.93	1.50	1.85	7.07	2.76	11.01	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD05-1.406"-XP1.50"-SP11-02	1.406	35.71	1.50	1.85	7.23	2.76	11.16	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD05-1.437"-XP1.50"-SP11-02	1.437	36.50	1.50	1.85	7.38	2.76	11.32	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD05-1.468"-XP1.50"-SP11-02	1.468	37.29	1.50	1.85	7.54	2.76	11.47	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD05-1.500"-XP1.50"-SP11-02	1.500	38.10	1.50	1.85	7.70	2.76	11.63	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD05-1.531"-XP1.50"-SP11-02	1.531	38.89	1.50	1.85	7.85	2.76	11.79	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD05-1.562"-XP1.50"-SP11-02	1.562	39.67	1.50	1.85	8.01	2.76	11.94	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD05-1.594"-XP1.50"-SP11-02	1.594	40.49	1.50	1.85	8.17	2.76	12.10	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD05-1.625"-XP1.50"-SP11-02	1.625	41.28	1.50	1.85	8.32	2.76	12.26	SPGT110408-PM/EM	I60M4×10	WT15IP	
ZTD05-1.687"-XP1.50"-SP14-02	1.687	42.85	1.50	2.24	8.63	2.76	12.96	SPGT140512-PM/EM	I60M5×13	WT20IP	Rc1/4
ZTD05-1.719"-XP1.50"-SP14-02	1.719	43.66	1.50	2.24	8.79	2.76	13.12	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD05-1.750"-XP1.50"-SP14-02	1.750	44.45	1.50	2.24	8.95	2.76	13.28	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD05-1.781"-XP1.50"-SP14-02	1.781	45.24	1.50	2.24	9.10	2.76	13.43	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD05-1.813"-XP1.50"-SP14-02	1.813	46.05	1.50	2.24	9.26	2.76	13.59	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD05-1.875"-XP1.50"-SP14-02	1.875	47.23	1.50	2.24	9.57	2.76	13.90	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD05-1.937"-XP1.50"-SP14-02	1.937	49.20	1.50	2.24	9.88	2.76	14.21	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD05-1.969"-XP1.50"-SP14-02	1.969	50.01	1.50	2.24	10.04	2.76	14.37	SPGT140512-PM/EM	I60M5×13	WT20IP	
ZTD05-2.000"-XP1.50"-SP14-02	2.000	50.80	1.50	2.24	10.20	2.76	14.53	SPGT140512-PM/EM	I60M5×13	WT20IP	

ZSD02/03/04/05 applicable inserts

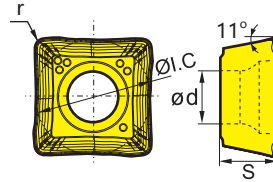
-EM



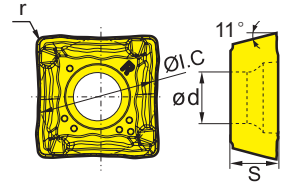
-LM



-XM



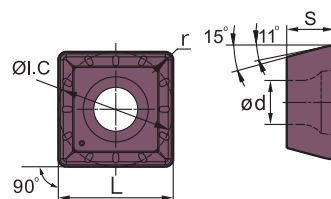
-XR



Type	Basic dimension(inch)				Grade											
	ØI.C	S	ød	r	YB9320				YB6338				YBS203			
					-EM	-LM	-XM	-XR	-EM	-LM	-XM	-XR	-EM	-LM	-XM	-XR
SPMX040203-EM/LM/XM	0.157	0.094	0.087	0.012	●	●	●				●		●			
SPMX050204-EM/LM/XM/XR	0.197	0.094	0.087	0.016	●	●	●	●			●	●	●			●
SPMX060204-EM/LM/XM/XR	0.236	0.094	0.102	0.016	●	●	●	●			●	●	●			●
SPMX07T308-EM/LM/XM/XR	0.313	0.156	0.110	0.031	●	●	●	●			●	●	●			●
SPMX090408-EM/LM/XM/XR	0.386	0.169	0.165	0.031	●	●	●	●			●	●	●			●
SPMX110408-EM/LM/XM/XR	0.453	0.187	0.173	0.031	●	●	●	●			●	●	●			●
SPMX140512-EM/LM/XM/XR	0.563	0.205	0.226	0.047	●	●	●	●			●	●	●			●

● Always stock available ○ Produce according to order

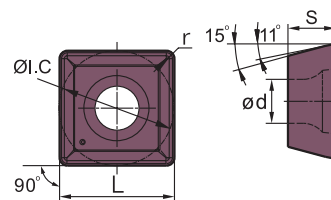
ZTD03/04/05 applicable inserts



Type	Basic dimension(inch)					Grade	
	L	ØI.C	S	ød	r	YBG205 (peripheral edge)	YBG212 (inner edge)
SPGT050204-PM	0.197	0.197	0.094	0.087	0.016	●	●
SPGT060204-PM	0.236	0.236	0.094	0.102	0.016	●	●
SPGT07T308-PM	0.313	0.313	0.156	0.110	0.031	●	●
SPGT090408-PM	0.386	0.386	0.169	0.165	0.031	●	●
SPGT110408-PM	0.453	0.453	0.187	0.173	0.031	●	●
SPGT140512-PM	0.563	0.563	0.205	0.226	0.047	●	●

● Always stock available ○ Produce according to order

ZTD03/04/05 applicable inserts



Type	Basic dimension(inch)					Grade	
	L	ØI.C	S	ød	r	YBG205 (peripheral edge)	YBG212 (inner edge)
SPGT050204-EM	0.197	0.197	0.094	0.087	0.016	●	●
SPGT060204-EM	0.236	0.236	0.094	0.102	0.016	●	●
SPGT07T308-EM	0.313	0.313	0.156	0.110	0.031	●	●
SPGT090408-EM	0.386	0.386	0.169	0.165	0.031	●	●
SPGT110408-EM	0.453	0.453	0.187	0.173	0.031	●	●
SPGT140512-EM	0.563	0.563	0.205	0.226	0.047	●	●

Suitable for machining viscous materials such as stainless steel.

● Always stock available ○ Produce according to order

Recommended cutting parameters for ZSD drills

ISO	Material	Hardness HB	Insert grade	Diameter Dc (inch)	Cutting speed Vc (SFPM)	Feed rate f (inch/r)
P	Carbon steel	80-200	YB9320 YB6338	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	650(550-800)	0.002-0.004 0.002-0.004 0.003-0.005 0.003-0.005
	Low alloy steel	150-260	YB9320 YB6338	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	550(450-700)	0.002-0.004 0.002-0.005 0.002-0.006 0.003-0.006
	High alloy steel	150-320	YB9320 YB6338	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	480(400-600)	0.002-0.004 0.002-0.005 0.002-0.006 0.003-0.007
	Cast steel	180-250	YB9320 YB6338	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	450(400-550)	0.002-0.004 0.002-0.004 0.003-0.005 0.003-0.005
M	Stainless steel Ferrite	150-270	YB9320	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	520(360-750)	0.002-0.004 0.002-0.005 0.002-0.006 0.003-0.007
	Austenitic	150-275	YB9320	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	450(360-700)	0.002-0.004 0.002-0.004 0.002-0.005 0.003-0.006
K	Malleable iron	150-230	YB9320	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	520(400-700)	0.002-0.004 0.002-0.006 0.003-0.006 0.004-0.008
	Grey cast iron	150-220	YB9320	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	650(550-800)	0.002-0.004 0.002-0.006 0.003-0.006 0.004-0.008
	Nodular cast iron	160-250	YB9320	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	520(420-650)	0.002-0.004 0.002-0.005 0.002-0.006 0.003-0.006
S	High-temperature alloy	HB≤400	YBS203	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	200(130-320)	0.002-0.004 0.002-0.004 0.002-0.005 0.002-0.005
N	Aluminum alloy	60-110	YB9320	0.500-0.875 0.906-1.312 1.343-1.625 1.687-2.000	980(820-1100)	0.002-0.004 0.002-0.006 0.003-0.006 0.004-0.008



Recommended cutting parameters for ZTD drills

ISO	Materials	Hardness HB	Diameter Dc(inch)	Feed rate fn(in/r)	Cutting speed Vc (SFPM)
P	Carbon steel	80-200	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.004 0.002-0.004 0.002-0.004 0.003-0.004 0.003-0.005	650(550-800)
	Low alloy steel	150-260	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.004 0.002-0.005 0.002-0.006 0.003-0.006 0.004-0.008	550(450-700)
	High alloy steel	150-320	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.004 0.002-0.005 0.002-0.006 0.003-0.007 0.004-0.009	500(400-600)
	Cast steel	180-250	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.003 0.002-0.003 0.002-0.004 0.003-0.004 0.003-0.005	450(400-550)
M	Stainless steel Ferrite Martensite	150-270	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.004 0.002-0.005 0.002-0.006 0.003-0.007 0.004-0.009	500(360-750)
	Austenite	150-275	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.004 0.002-0.004 0.002-0.005 0.003-0.006 0.004-0.006	450(360-700)
K	Malleable cast iron	150-230	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.004 0.002-0.006 0.003-0.006 0.004-0.008 0.005-0.009	500(400-700)
	Gray cast iron	150-220	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.004 0.002-0.006 0.003-0.006 0.004-0.008 0.005-0.009	650(550-800)
	Nodular cast iron	160-250	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.004 0.002-0.005 0.002-0.006 0.003-0.006 0.004-0.008	500(400-650)
N	Non ferrous metral	60-110	0.500-0.906 0.938-1.187 1.219-1.500 1.531-1.813 1.875-2.000	0.002-0.004 0.002-0.006 0.003-0.006 0.004-0.008 0.005-0.009	1000(800-1150)