



High efficiency High precision

New Generation Indexable Drill

ZSD series



**ZHUZHOU CEMENTED CARBIDE
CUTTING TOOLS CO., LTD.**

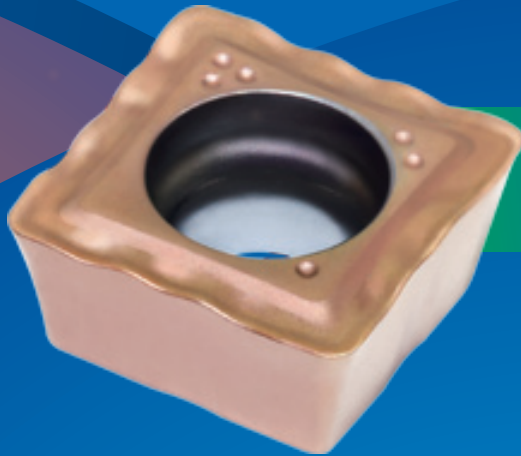


- Unique waved-edge geometry structure produces steady cutting and smooth chip evacuation;
- Insert designed for double balanced radial run-out control for achieving high accuracy and precision even in long overhang applications;
- Wiper technology produces excellent surface quality and diameter dimension 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~6D.



High Efficiency Indexable Drill

ZSD series



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



-XM

General-purpose geometry for stable machining operations.



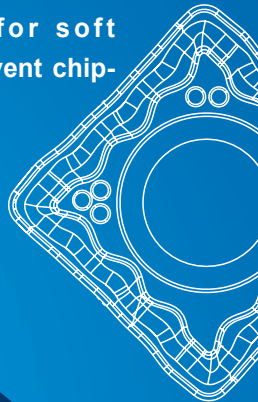
-EM

Geometry for Stainless steel and sticky chip materials.



-LM

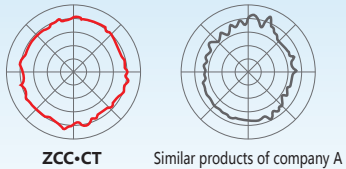
Geometry for soft steels to prevent chip-wrapping.



Case study(1)

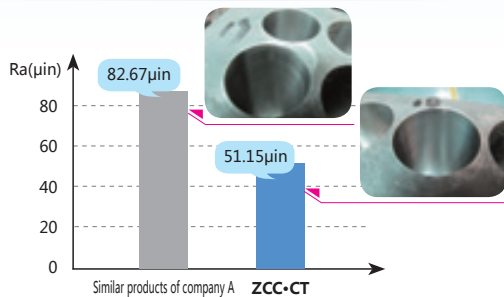
Workpiece material : 45#steel (HB170-220)
 Tool : ZSD05-0.626"-XP0.75"-SP05-02
 Insert : SPMX050204-XM/YB9320
 Cutting data : $V_c=400\text{SFPM}$, $f=0.0028\text{in/r}$, $a_p=3.15\text{in}$
 Cooling : Internal coolant supply

• Aperture cylindricity



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

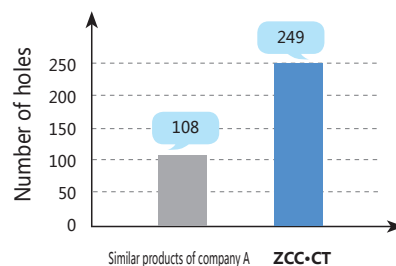
• Hole surface quality



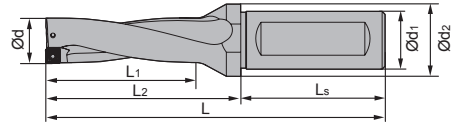
Conclusion: under the same working conditions, the machined hole surface quality by ZSD series indexable insert drill contributes to better hole precision than A company's similar products.



Case study(2)

Workpiece material : 42CrMo (HRC30-35)
 Tool : ZSD05-0.657"-XP0.75"-SP05-02
 Insert : SPMX050204-XM/YB9320
 Cutting data : $V_c=400\text{SFPM}$; $f=0.0016\text{in/r}$;
 $a_p=3.15\text{in}$
 Cooling : Internal coolant supply

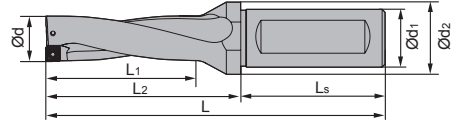




ZSD02 2D



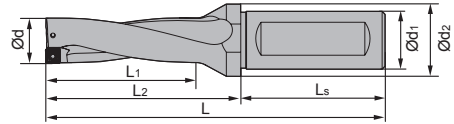
Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD02-0.500"-XP0.75"-SP04-02	0.500	12.70	0.75	0.98	1.12	1.79	1.97	3.76	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
ZSD02-0.531"-XP0.75"-SP04-02	0.531	13.49	0.75	0.98	1.18	1.85	1.97	3.82	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
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	WT051P
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	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	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	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	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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P

ZSD02 2D



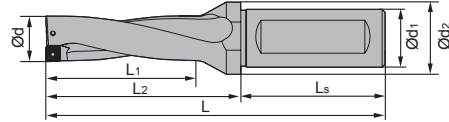
Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD02-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	2.56	3.35	2.36	5.71	SPMX090408- XM/LM/EM	I60M3.5×8	WT15IP
ZSD02-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	2.62	3.41	2.36	5.77	SPMX090408- XM/LM/EM	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	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	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	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	I60M4×10	WT15IP
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	I60M5×13	WT20IP



ZSD03 3D



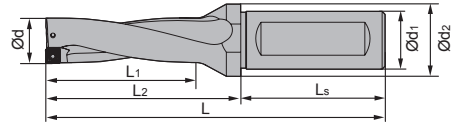
Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD03-0.500"-XP0.75"-SP04-02	0.500	12.70	0.75	0.98	1.62	2.29	1.97	4.26	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
ZSD03-0.531"-XP0.75"-SP04-02	0.531	13.49	0.75	0.98	1.71	2.38	1.97	4.35	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
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	WT051P
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	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	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	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	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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P



ZSD03 3D



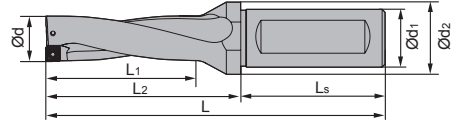
Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD03-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	3.77	4.56	2.36	6.92	SPMX090408- XM/LM/EM	I60M3.5×8	WT15IP
ZSD03-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	3.87	4.66	2.36	7.02	SPMX090408- XM/LM/EM	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	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	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	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	I60M4×10	WT15IP
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	I60M5×13	WT20IP



ZSD04 4D



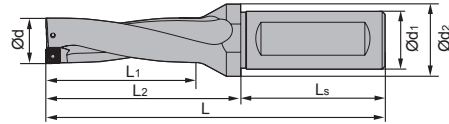
Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD04-0.500"-XP0.75"-SP04-02	0.500	12.70	0.75	0.98	2.12	2.79	1.97	4.76	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
ZSD04-0.531"-XP0.75"-SP04-02	0.531	13.49	0.75	0.98	2.24	2.91	1.97	4.88	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
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	WT051P
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	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	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	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	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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P



ZSD04 4D



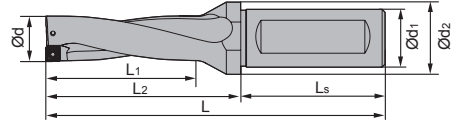
Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD04-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	4.99	5.78	2.36	8.14	SPMX090408- XM/LM/EM	I60M3.5×8	WT151P
ZSD04-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	5.12	5.91	2.36	8.27	SPMX090408- XM/LM/EM	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P



ZSD05 5D



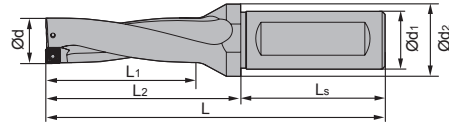
Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD05-0.500"-XP0.75"-SP04-02	0.500	12.70	0.75	0.98	2.62	3.29	1.97	5.26	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
ZSD05-0.531"-XP0.75"-SP04-02	0.531	13.49	0.75	0.98	2.77	3.44	1.97	5.41	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
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	WT051P
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	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	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	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	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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.2×5.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M2.5×6.5	WT071P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P

ZSD05 5D



Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M3.5×8	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M4×10	WT151P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P
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	I60M5×13	WT201P

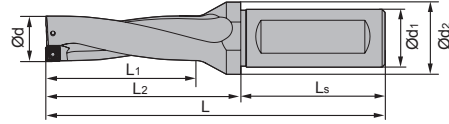
ZSD06 6D





Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD06-0.500"-XP0.75"-SP04-02	0.500	12.70	0.75	0.98	3.12	3.79	1.97	5.76	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
ZSD06-0.531"-XP0.75"-SP04-02	0.531	13.49	0.75	0.98	3.30	3.97	1.97	5.94	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
ZSD06-0.563"-XP0.75"-SP04-02	0.563	14.30	0.75	0.98	3.50	4.17	1.97	6.14	SPMX040203-XM/LM/EM	I60M1.8×4	WT051P
ZSD06-0.594"-XP0.75"-SP05-02	0.594	15.09	0.75	0.98	3.68	4.35	1.97	6.32	SPMX050204-XM/LM/EM	I60M2×4.3	WT06P
ZSD06-0.626"-XP0.75"-SP05-02	0.626	15.90	0.75	0.98	3.87	4.54	1.97	6.51	SPMX050204-XM/LM/EM	I60M2×4.3	WT06P
ZSD06-0.657"-XP0.75"-SP05-02	0.657	16.69	0.75	0.98	4.06	4.73	1.97	6.70	SPMX050204-XM/LM/EM	I60M2×4.3	WT06P
ZSD06-0.688"-XP0.75"-SP05-02	0.688	17.48	0.75	0.98	4.25	4.92	1.97	6.89	SPMX050204-XM/LM/EM	I60M2×4.3	WT06P
ZSD06-0.719"-XP1.00"-SP06-02	0.719	18.26	1.00	1.26	4.43	5.10	2.20	7.30	SPMX060204- XM/LM/EM	I60M2.2×5.5	WT071P
ZSD06-0.750"-XP1.00"-SP06-02	0.750	19.05	1.00	1.26	4.62	5.29	2.20	7.49	SPMX060204- XM/LM/EM	I60M2.2×5.5	WT071P
ZSD06-0.781"-XP1.00"-SP06-02	0.781	19.84	1.00	1.26	4.80	5.47	2.20	7.67	SPMX060204- XM/LM/EM	I60M2.2×5.5	WT071P
ZSD06-0.813"-XP1.00"-SP06-02	0.813	20.65	1.00	1.26	5.00	5.67	2.20	7.87	SPMX060204- XM/LM/EM	I60M2.2×5.5	WT071P
ZSD06-0.843"-XP1.00"-SP06-02	0.843	21.41	1.00	1.26	5.18	5.85	2.20	8.05	SPMX060204- XM/LM/EM	I60M2.2×5.5	WT071P
ZSD06-0.875"-XP1.00"-SP06-02	0.875	22.23	1.00	1.26	5.37	6.04	2.20	8.24	SPMX060204- XM/LM/EM	I60M2.2×5.5	WT071P
ZSD06-0.906"-XP1.00"-SP07-02	0.906	23.01	1.00	1.26	5.55	6.22	2.20	8.42	SPMX07T308- XM/LM/EM	I60M2.5×6.5	WT071P
ZSD06-0.938"-XP1.00"-SP07-02	0.938	23.83	1.00	1.26	5.75	6.42	2.20	8.62	SPMX07T308- XM/LM/EM	I60M2.5×6.5	WT071P
ZSD06-0.969"-XP1.00"-SP07-02	0.969	24.61	1.00	1.26	5.93	6.60	2.20	8.80	SPMX07T308- XM/LM/EM	I60M2.5×6.5	WT071P
ZSD06-1.000"-XP1.00"-SP07-02	1.000	25.40	1.00	1.26	6.12	6.79	2.20	8.99	SPMX07T308- XM/LM/EM	I60M2.5×6.5	WT071P
ZSD06-1.031"-XP1.00"-SP07-02	1.031	26.19	1.00	1.26	6.30	6.97	2.20	9.17	SPMX07T308- XM/LM/EM	I60M2.5×6.5	WT071P
ZSD06-1.063"-XP1.00"-SP07-02	1.063	27.00	1.00	1.26	6.50	7.17	2.20	9.37	SPMX07T308- XM/LM/EM	I60M2.5×6.5	WT071P
ZSD06-1.094"-XP1.25"-SP09-02	1.094	27.79	1.25	1.46	6.68	7.35	2.36	9.71	SPMX090408- XM/LM/EM	I60M3.5×8	WT151P
ZSD06-1.125"-XP1.25"-SP09-02	1.125	28.58	1.25	1.46	6.87	7.54	2.36	9.90	SPMX090408- XM/LM/EM	I60M3.5×8	WT151P
ZSD06-1.156"-XP1.25"-SP09-02	1.156	29.36	1.25	1.46	7.05	7.72	2.36	10.08	SPMX090408- XM/LM/EM	I60M3.5×8	WT151P
ZSD06-1.187"-XP1.25"-SP09-02	1.187	30.15	1.25	1.46	7.24	7.91	2.36	10.27	SPMX090408- XM/LM/EM	I60M3.5×8	WT151P

▪All 6xD sizes are made to order.

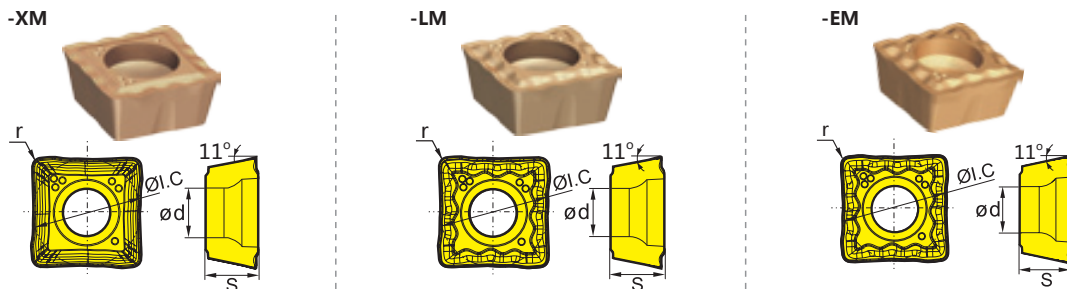
ZSD06 6D



Specification	ØD		Basic dimension(inch)						Compatible inserts	Screw	Wrench
	inch	mm	ØD ₁	ØD ₂	L ₁	L ₂	L _s	L			
ZSD06-1.219"-XP1.25"-SP09-02	1.219	30.96	1.25	1.46	7.43	8.10	2.36	10.46	SPMX090408- XM/LM/EM	I60M3.5×8	WT15IP
ZSD06-1.250"-XP1.25"-SP09-02	1.250	31.75	1.25	1.46	7.62	8.29	2.36	10.65	SPMX090408- XM/LM/EM	I60M3.5×8	WT15IP
ZSD06-1.281"-XP1.25"-SP09-02	1.281	32.54	1.25	1.46	7.80	8.47	2.36	10.83	SPMX090408- XM/LM/EM	I60M3.5×8	WT15IP
ZSD06-1.312"-XP1.25"-SP09-02	1.312	33.32	1.25	1.46	7.99	8.66	2.36	11.02	SPMX090408- XM/LM/EM	I60M3.5×8	WT15IP
ZSD06-1.343"-XP1.50"-SP11-02	1.343	34.11	1.50	1.85	8.18	8.85	2.76	11.61	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.375"-XP1.50"-SP11-02	1.375	34.93	1.50	1.85	8.37	9.04	2.76	11.80	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.406"-XP1.50"-SP11-02	1.406	35.71	1.50	1.85	8.55	9.22	2.76	11.98	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.437"-XP1.50"-SP11-02	1.437	36.50	1.50	1.85	8.74	9.41	2.76	12.17	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.468"-XP1.50"-SP11-02	1.468	37.29	1.50	1.85	8.93	9.60	2.76	12.36	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.500"-XP1.50"-SP11-02	1.500	38.10	1.50	1.85	9.12	9.79	2.76	12.55	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.531"-XP1.50"-SP11-02	1.531	38.89	1.50	1.85	9.30	9.97	2.76	12.73	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.562"-XP1.50"-SP11-02	1.562	39.67	1.50	1.85	9.49	10.16	2.76	12.92	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.594"-XP1.50"-SP11-02	1.594	40.49	1.50	1.85	9.68	10.35	2.76	13.11	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.625"-XP1.50"-SP11-02	1.625	41.28	1.50	1.85	9.87	10.54	2.76	13.30	SPMX110408- XM/LM/EM	I60M4×10	WT15IP
ZSD06-1.687"-XP1.50"-SP14-02	1.687	42.85	1.50	2.05	10.24	10.91	2.76	13.67	SPMX140512- XM/LM/EM	I60M5×13	WT20IP
ZSD06-1.719"-XP1.50"-SP14-02	1.719	43.66	1.50	2.05	10.43	11.10	2.76	13.86	SPMX140512- XM/LM/EM	I60M5×13	WT20IP
ZSD06-1.750"-XP1.50"-SP14-02	1.750	44.45	1.50	2.05	10.62	11.29	2.76	14.05	SPMX140512- XM/LM/EM	I60M5×13	WT20IP
ZSD06-1.781"-XP1.50"-SP14-02	1.781	45.24	1.50	2.05	10.80	11.47	2.76	14.23	SPMX140512- XM/LM/EM	I60M5×13	WT20IP
ZSD06-1.813"-XP1.50"-SP14-02	1.813	46.05	1.50	2.05	11.00	11.67	2.76	14.43	SPMX140512- XM/LM/EM	I60M5×13	WT20IP
ZSD06-1.875"-XP1.50"-SP14-02	1.875	47.23	1.50	2.05	11.27	11.94	2.76	14.70	SPMX140512- XM/LM/EM	I60M5×13	WT20IP
ZSD06-1.937"-XP1.50"-SP14-02	1.937	49.20	1.50	2.05	11.74	12.41	2.76	15.17	SPMX140512- XM/LM/EM	I60M5×13	WT20IP
ZSD06-1.969"-XP1.50"-SP14-02	1.969	50.01	1.50	2.05	11.93	12.60	2.76	15.36	SPMX140512- XM/LM/EM	I60M5×13	WT20IP
ZSD06-2.000"-XP1.50"-SP14-02	2.000	50.80	1.50	2.05	12.12	12.79	2.76	15.55	SPMX140512- XM/LM/EM	I60M5×13	WT20IP

■ All 6xD sizes are made to order.

Inserts



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

PVD coating grade

YB9320 (peripheral/central inserts)

General 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)

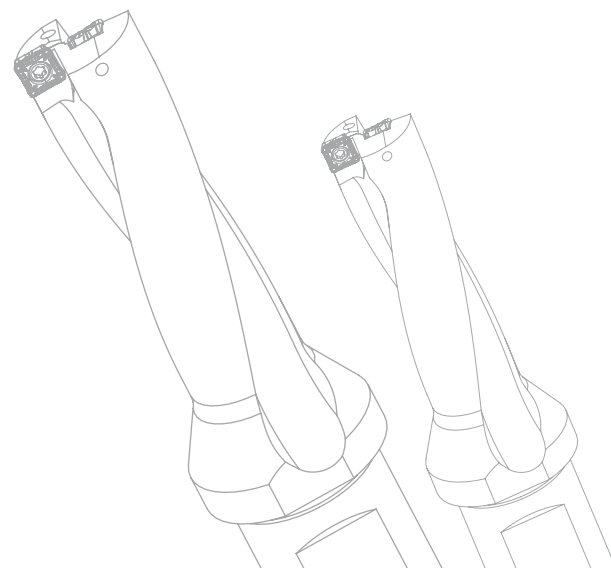
High performance grade for S materials

- > 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.

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.



Recommended cutting parameters for shallow 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



ZCC USA Inc.

36 22 W. Liberty Rd. Ann Arbor, MI 48103

Tel: 734-997-3811 Fax: 734-997-3820

E-Mail: sales@zccusa.com

[Http://www.zccusa.com](http://www.zccusa.com)