

HOW TO READ THE STANDARD OF DRILLING TOOLS

●How this section page is organised

①Organised according to the application for the drill.

PHOTO OF PRODUCT

PRODUCT TITLE

PRODUCT TYPE

PRODUCT SECTION

GEOMETRY

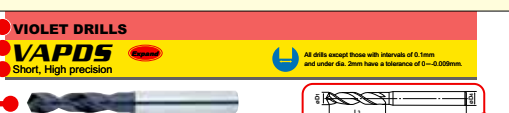
PRODUCT TYPE

PRODUCT SECTION

VIOLET DRILLS

VAPDS

Short, High precision



All drills except those with intervals of 0.1mm and under dia. 20mm have a tolerance of 0 ~ -0.009mm.

Highly efficient drilling and long tool life have been achieved with the newly developed Violet coating. (Standard drill depth : less than 3 times the drill diameter)

Order Number					Order Number				
Order Number	Dia. D1	Flute Length L2	Overall Length L1	Shank Dia. D4	Order Number	Dia. D1	Flute Length L2	Overall Length L1	Shank Dia. D4
VAPDS0050	0.5	3	50	3	VAPDS0088	0.88	6	50	3
D0051	0.51	3	50	3	D0089	0.89	6	50	3
D0052	0.52	3	50	3	D0090	0.9	6	50	3
D0053	0.53	3	50	3	D0091	0.91	6	50	3
D0054	0.54	3	50	3	D0092	0.92	6	50	3
D0055	0.55	3	50	3	D0093	0.93	6	50	3
D0056	0.56	4	50	3	D0094	0.94	6	50	3
D0057	0.57	4	50	3	D0095	0.95	6	50	3
D0058	0.58	4	50	3	D0096	0.96	6	50	3
D0059	0.59	4	50	3	D0097	0.97	6	50	3
D0060	0.6	5	50	3	D0098	0.98	6	50	3
D0061	0.61	5	50	3	D0099	0.99	6	50	3
D0062	0.62	5	50	3	D0100	1.0	6	50	3
D0063	0.63	5	50	3	D0101	1.01	6	50	3
D0064	0.64	5	50	3	D0102	1.02	6	50	3
D0065	0.65	5	50	3	D0103	1.03	6	50	3
D0066	0.66	5	50	3	D0104	1.04	6	50	3
D0067	0.67	5	50	3	D0105	1.05	6	50	3
D0068	0.68	5	50	3	D0106	1.06	6	50	3
D0069	0.69	5	50	3	D0107	1.07	8	55	3
D0070	0.7	5	50	3	D0108	1.08	8	55	3
D0071	0.71	5	50	3	D0109	1.09	8	55	3
D0072	0.72	5	50	3	D0110	1.1	8	55	3
D0073	0.73	5	50	3	D0111	1.11	8	55	3
D0074	0.74	5	50	3	D0112	1.12	8	55	3
D0075	0.75	5	50	3	D0113	1.13	8	55	3
D0076	0.76	5	50	3	D0114	1.14	8	55	3
D0077	0.77	5	50	3	D0115	1.15	8	55	3
D0078	0.78	5	50	3	D0116	1.16	8	55	3
D0079	0.79	5	50	3	D0117	1.17	8	55	3
D0080	0.8	5	50	3	D0118	1.18	8	55	3
D0081	0.81	5	50	3	D0119	1.19	8	55	3
D0082	0.82	5	50	3	D0120	1.2	8	55	3
D0083	0.83	5	50	3	D0121	1.21	8	55	3
D0084	0.84	5	50	3	D0122	1.22	8	55	3
D0085	0.85	5	50	3	D0123	1.23	8	55	3
D0086	0.86	6	50	3	D0124	1.24	8	55	3
D0087	0.87	6	50	3	D0125	1.25	8	55	3

* Expanded range

Inventory maintained. * : Inventory maintained in Japan.

CUTTING CONDITIONS

D093

DRILLING (SOLID CARBIDE)

MPS, MSL

From 3~30 lit hole depth.

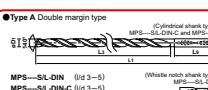
ISO double margin type for accurate and reliable drilling.

ISO drills with through coolant holes are standard.

D1 Tolerance	D1 ISO#58	D1 ISO#59	D1 ISO#60	D1 ISO#61	D1 ISO#62
DIN type	0.010	0.012	-0.005	-0.013	-0.016
General	-0.012	-0.015	-0.018	-0.022	-0.026

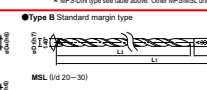
MPS-DR type see table above. Other MPS/MSL drills fit tolerance.

Type A Double margin type



MPS—SL-DIN (lit 3~5)
MPS—SL-DIN-C (lit 3~5)
MPS—L (lit 8~30)

Type B Standard margin type



MSL (lit 20~30)

D1 Dia. (mm)	D1 Dia. (inch)	Stock	Order Number	Dimensions (mm)				Type	D1 Dia. (mm)	D1 Dia. (inch)	Stock	Order Number	Dimensions (mm)				Type
				L1	L2	L3	D4						L1	L2	L3	D4	
3.0	3	3	MPS0300S-DIN	62	20	36	6	A	3.0	3	3	MPS0320-L30C	157	117	36	6	A
3.0	3	5	MPS0300S-DIN-C	62	20	36	6	A	3.0	3	5	MSL0320-L20C	122	82	36	6	B
3.0	3	5	MPS0300L-DIN	66	28	36	6	A	3.0	3	5	MSL0320-L25C	139	99	36	6	B
3.0	3	5	MPS0300L-DIN-C	66	28	36	6	A	3.0	3	5	MPS0330S-DIN	62	20	36	6	A
3.0	3	5	MPS0300-L1C	74	34	36	6	A	3.0	3	5	MPS0330L-DIN	66	28	36	6	A
3.0	3	5	MPS0300-L10C	80	40	36	6	A	3.0	3	5	MPS0330L-DIN-C	66	28	36	6	A
3.0	3	5	MPS0300-L12C	86	46	36	6	A	3.0	3	5	MPS0330-L10C	87	47	36	6	A
3.0	3	5	MPS0300-L15C	95	55	36	6	A	3.0	3	5	MPS0330-L12C	94	54	36	6	A
3.0	3	5	MPS0300-L20C	110	70	36	6	A	3.0	3	5	MPS0330-L15C	104	64	36	6	A
3.0	3	5	MPS0300-L25C	125	85	36	6	B	3.0	3	5	MPS0330-L20C	122	82	36	6	A
3.0	3	5	MSL0300-L25C	125	85	36	6	B	3.0	3	5	MPS0330-L25C	139	99	36	6	A
3.0	3	5	MSL0300-L30C	140	100	36	6	B	3.0	3	5	MPS0330-L30C	157	117	36	6	B
3.0	3	5	MPS0305S-DIN	62	20	36	6	A	3.0	3	5	MSL0330-L20C	122	82	36	6	B
3.0	3	5	MPS0305S-DIN-C	62	20	36	6	A	3.0	3	5	MSL0330-L25C	139	99	36	6	B
3.0	3	5	MPS0310S-DIN	66	28	36	6	A	3.0	3	5	MSL0330-L30C	157	117	36	6	B
3.0	3	5	MPS0310S-DIN-C	66	28	36	6	A	3.0	3	5	MPS0340S-DIN	62	20	36	6	A
3.0	3	5	MPS0310L-DIN	66	28	36	6	A	3.0	3	5	MPS0340S-DIN-C	62	20	36	6	A
3.0	3	5	MPS0310L-DIN-C	66	28	36	6	A	3.0	3	5	MPS0340L-DIN	66	28	36	6	A
3.0	3	5	MPS0310-L1C	80	40	36	6	A	3.0	3	5	MPS0340-L1C	80	40	36	6	A
3.0	3	5	MPS0310-L10C	87	47	36	6	A	3.0	3	5	MPS0340-L10C	87	47	36	6	A
3.0	3	5	MPS0310-L12C	94	54	36	6	A	3.0	3	5	MPS0340-L12C	94	54	36	6	A
3.0	3	5	MPS0310-L15C	104	64	36	6	A	3.0	3	5	MPS0340-L15C	104	64	36	6	A
3.0	3	5	MPS0310-L20C	122	82	36	6	A	3.0	3	5	MPS0340-L20C	122	82	36	6	A
3.0	3	5	MPS0310-L25C	139	99	36	6	A	3.0	3	5	MPS0340-L25C	139	99	36	6	A
3.0	3	5	MSL0310-L25C	139	99	36	6	B	3.0	3	5	MSL0340-L20C	122	82	36	6	B
3.0	3	5	MSL0310-L30C	157	117	36	6	B	3.0	3	5	MSL0340-L25C	139	99	36	6	B
3.0	3	5	MPS0320S-DIN	62	20	36	6	A	3.0	3	5	MSL0340-L30C	157	117	36	6	B
3.0	3	5	MPS0320S-DIN-C	62	20	36	6	A									
3.0	3	5	MPS0320L-DIN	66	28	36	6	A									
3.0	3	5	MPS0320L-DIN-C	66	28	36	6	A									
3.0	3	5	MPS0320-L1C	80	40	36	6	A									
3.0	3	5	MPS0320-L10C	87	47	36	6	A									
3.0	3	5	MPS0320-L12C	94	54	36	6	A									
3.0	3	5	MPS0320-L15C	104	64	36	6	A									
3.0	3	5	MPS0320-L20C	122	82	36	6	A									
3.0	3	5	MPS0320-L25C	139	99	36	6	A									

* Inventory maintained. □ : Non stock, produced to order only.

PRODUCT STANDARDS indicates diameters, order numbers, stock status, number of flutes, dimensions, and spare parts for the title product.

LEGEND FOR STOCK STATUS MARK is shown on the left hand page of each double-page spread.

PRODUCT FEATURES

●To Order: For solid-carbide drills or brazed drills, please specify the order number and grade. For indexable type drills, please specify the order number for the drill. For indexable type drill inserts, please specify the insert number and insert grade.

DRILLING TOOLS

DRILL SELECTION CHART	D002
PRODUCT CODE IDENTIFICATION	D004
SYMBOL DESCRIPTIONS	D005

DRILL STANDARD

SOLID CARBIDE

MPS/MSL DRILLS (STANDARD AND EXTRA LONG).....	D006
MSE DRILLS (SMALL DIAMETER).....	D026
MWE/MWS DRILLS.....	D030
MWS DRILLS (LONG).....	D043
MKE DRILLS	D052
MAE/MAS DRILLS	D054

BRAZED TYPE

BRS DRILLS.....	D060
BRM DRILLS	D062
BRK DRILLS.....	D064
BRA DRILLS.....	D066

INDEXABLE TYPE

TAW DRILLS.....	D070
TAF DRILLS.....	D082














HSS DRILLS










VIOLET DRILLS	D093
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RECOMMENDED CUTTING CONDITIONS FOR VIOLET DRILLS	D118
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DRILL SELECTION CHART

DRILLING DRILL SELECTION CHART

Cutting Mode	Type	Drill Type	Product Code	Coolant	Shape	Coating	Range of Size	Work Material					Page			
								P	H	M	K	N	Dimensions	Cutting Conditions		
								Mild Steel	General Steel	Hardened Steel	Stainless Steel	Cast Iron			Light Alloy	
General Drilling	Solid Carbide	MPS/MSL STANDARD AND EXTRA LONG	MPS/MSL	Internal		VP	φ3.0 - φ20.0	⊙	⊙		⊙	⊙	○	D006	D025	
		MSE DRILLS (SMALL DIAMETER)	MSE	External		VP	φ0.10 - φ3.00	⊙	⊙		○	○	○	D026	D029	
		MWE/MWS DRILLS	MWE	External		VP	φ3.0 - φ20.0	⊙	⊙	○	○	○	○	D030	D041	
			MWS	External		VP	φ1.0 - φ25.0	⊙	⊙		○	○	○	D030	D041	
		Brazed	BRS/BRM/BRK DRILLS	BR5	Internal		UP	φ14.0 - φ30.0	⊙	⊙		⊙	○		D060	D061
				BRM			UP	φ14.0 - φ30.0	⊙	⊙		⊙	○		D062	D063
	BRK					UP	φ14.0 - φ30.0		⊙			○		D064	D065	
	BRA DRILLS	BRA	Internal		UP	φ8.0 - φ40.0	○	⊙		○	○		D066	D068		
	Indexable	TAW DRILLS	TAW	Internal			φ14.0 - φ30.4	⊙	⊙		○	○		D070	D080	
			TAF5				φ12.0 - φ56.0	⊙	⊙		⊙	⊙		D082	D090	
			TAFM				φ12.0 - φ56.0	⊙	⊙		⊙	⊙		D082	D090	
			T AFL				φ12.0 - φ56.0	⊙	⊙		⊙	⊙		D082	D090	
	High-Speed Steel		VIOLET DRILLS	VSD	External		V	φ0.5 - φ13.0	⊙	⊙		○	○	○	D116	D121

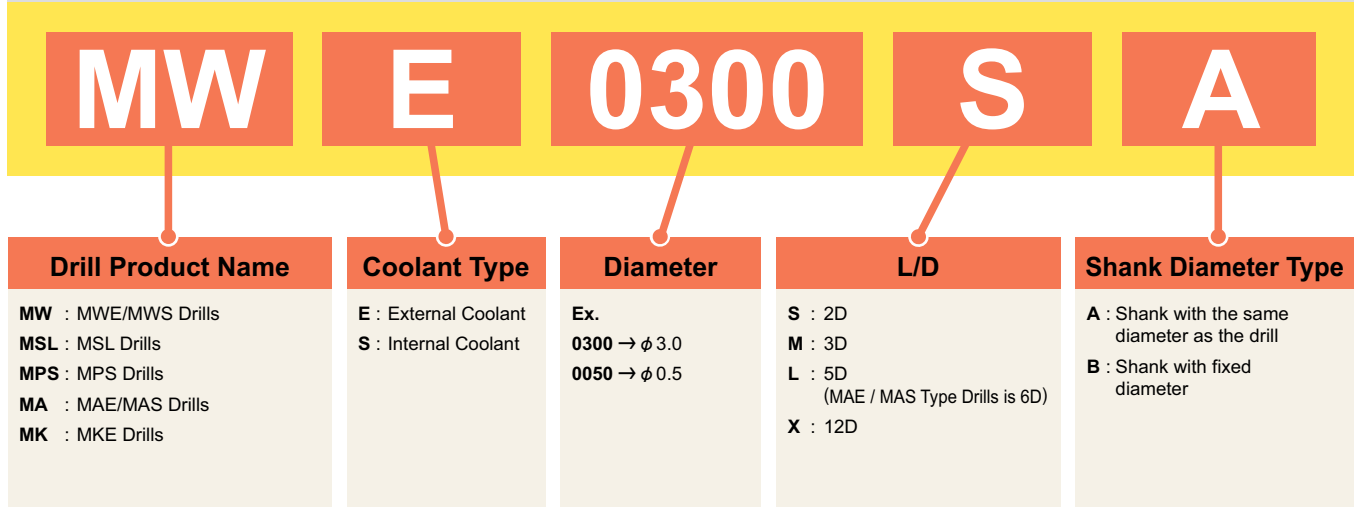
Cutting Mode	Type	Drill Type	Product Code	Coolant	Shape	Coating	Range of Size	Work Material					Page			
								P	H	M	K	N	Dimensions	Cutting Conditions		
								Mild Steel	General Steel	Hardened Steel	Stainless Steel	Cast Iron			Light Alloy	
General, High-Precision	High Grade, High Speed Steel	VIOLET DRILLS	VAPDS	External		V	φ0.5 – φ13.0	⊙	⊙			○	○	D093	D118	
			VAPDM			V	φ0.5 – φ32.0	⊙	⊙				○	○	D098	D118
High Hardness Material	Solid Carbide	MKE DRILLS	MKE	External		VP	φ2.5 – φ16.0			⊙				D052	D053	
Stainless Steel	High-Precision, Stainless Steel	VIOLET DRILLS	VAPDSSUS			V	φ0.5 – φ20.0	⊙	⊙		⊙	○	○	D102	D119	
High Hardness Material			Cobalt High-Speed Steel		VAPDMSUS		V	φ0.5 – φ13.0	⊙	⊙		⊙	○	○	D108	D119
Stainless Steel	Cobalt High-Speed Steel	VIOLET DRILLS	VEUSM			V	φ1.0 – φ13.0	⊙	⊙		⊙	○	○	D114	D120	
Aluminium, Cast Iron Drilling			Solid Carbide		MAE/MAS DRILLS	MAE		-	φ3.0 – φ16.0					○	⊙	D054
Deep Hole	Aluminium, Cast Iron Drilling	Solid Carbide		MAE/MAS DRILLS		MAS		-	φ3.0 – φ16.0				○	⊙	D054	D059
						MWS DRILLS (LONG)	MWS (LONG)		VP	φ3.0 – φ14.0	⊙	⊙		⊙	○	○

DRILL SELECTION CHART

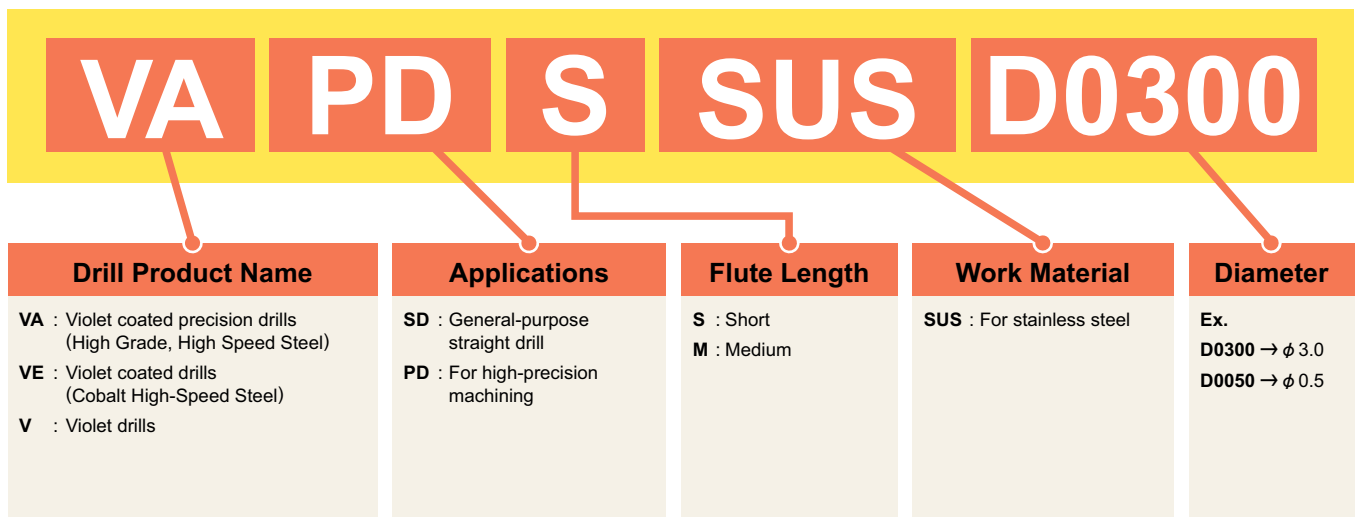


PRODUCT CODE IDENTIFICATION

PRODUCT CODE OF DRILLS



*Exceptions partly included.



*Exceptions partly included.

DRILLING PRODUCT CODE IDENTIFICATION

SYMBOL DESCRIPTIONS

Tool material



Ultra micro grain carbide
Ultra micro grain carbide is used as the substrate material.



High grade high alloy HSS
High grade high alloy HSS is used as the substrate material.



Cobalt high speed steel
Cobalt high speed steel is used as the substrate material.



High speed steel
High speed steel is used as the substrate material.

Web thinning



X web thinning
X web thinning is used at the drill point.



XR web thinning
XR web thinning is used at the drill point.

Coating



MIRACLE Coating
The original MIRACLE (Al,Ti)N coating.
Also suitable for dry cutting.



UP Coating



VIOLET Coating

Tolerances



Diameter tolerance
Indicates the diameter tolerance of the drill.

Angle and sharp corner edge



Point angle
Indicates the drill point angle at the tip.

DRILLING (SOLID CARBIDE)

MPS, MSL

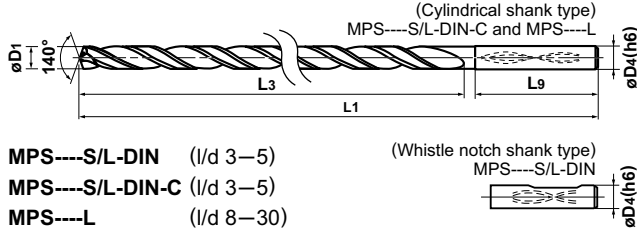
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type

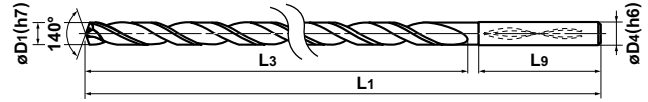


MPS---S/L-DIN (l/d 3—5)

MPS---S/L-DIN-C (l/d 3—5)

MPS---L (l/d 8—30)

● Type B Standard margin type



MSL (l/d 20—30)

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
3.0	3	●	MPS0300S-DIN	62	20	36	6	A
	3	●	MPS0300S-DIN-C	62	20	36	6	A
	5	●	MPS0300L-DIN	66	28	36	6	A
	5	●	MPS0300L-DIN-C	66	28	36	6	A
	8	●	MPS0300-L8C	74	34	36	6	A
	10	□	MPS0300-L10C	80	40	36	6	A
	12	●	MPS0300-L12C	86	46	36	6	A
	15	●	MPS0300-L15C	95	55	36	6	A
	20	□	MPS0300-L20C	110	70	36	6	A
	25	□	MPS0300-L25C	125	85	36	6	A
	30	□	MPS0300-L30C	140	100	36	6	A
	20	●	MSL0300-L20C	110	70	36	6	B
25	●	MSL0300-L25C	125	85	36	6	B	
30	●	MSL0300-L30C	140	100	36	6	B	
3.05	3	●	MPS0305S-DIN	62	20	36	6	A
	3	●	MPS0305S-DIN-C	62	20	36	6	A
	5	●	MPS0305L-DIN	66	28	36	6	A
	5	●	MPS0305L-DIN-C	66	28	36	6	A
3.1	3	●	MPS0310S-DIN	62	20	36	6	A
	3	●	MPS0310S-DIN-C	62	20	36	6	A
	5	●	MPS0310L-DIN	66	28	36	6	A
	5	●	MPS0310L-DIN-C	66	28	36	6	A
	8	●	MPS0310-L8C	80	40	36	6	A
	10	□	MPS0310-L10C	87	47	36	6	A
	12	●	MPS0310-L12C	94	54	36	6	A
	15	●	MPS0310-L15C	104	64	36	6	A
	20	□	MPS0310-L20C	122	82	36	6	A
	25	□	MPS0310-L25C	139	99	36	6	A
	30	□	MPS0310-L30C	157	117	36	6	A
	20	●	MSL0310-L20C	122	82	36	6	B
25	●	MSL0310-L25C	139	99	36	6	B	
30	●	MSL0310-L30C	157	117	36	6	B	
3.2	3	●	MPS0320S-DIN	62	20	36	6	A
	3	●	MPS0320S-DIN-C	62	20	36	6	A
	5	●	MPS0320L-DIN	66	28	36	6	A
	5	●	MPS0320L-DIN-C	66	28	36	6	A
	8	●	MPS0320-L8C	80	40	36	6	A
	10	□	MPS0320-L10C	87	47	36	6	A
	12	●	MPS0320-L12C	94	54	36	6	A
	15	●	MPS0320-L15C	104	64	36	6	A
20	□	MPS0320-L20C	122	82	36	6	A	
25	□	MPS0320-L25C	139	99	36	6	A	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
3.2	30	□	MPS0320-L30C	157	117	36	6	A
	20	●	MSL0320-L20C	122	82	36	6	B
	25	●	MSL0320-L25C	139	99	36	6	B
	30	●	MSL0320-L30C	157	117	36	6	B
3.3	3	●	MPS0330S-DIN	62	20	36	6	A
	3	●	MPS0330S-DIN-C	62	20	36	6	A
	5	●	MPS0330L-DIN	66	28	36	6	A
	5	●	MPS0330L-DIN-C	66	28	36	6	A
	8	●	MPS0330-L8C	80	40	36	6	A
	10	□	MPS0330-L10C	87	47	36	6	A
	12	●	MPS0330-L12C	94	54	36	6	A
	15	●	MPS0330-L15C	104	64	36	6	A
	20	□	MPS0330-L20C	122	82	36	6	A
	25	□	MPS0330-L25C	139	99	36	6	A
	30	□	MPS0330-L30C	157	117	36	6	A
	20	●	MSL0330-L20C	122	82	36	6	B
25	●	MSL0330-L25C	139	99	36	6	B	
30	●	MSL0330-L30C	157	117	36	6	B	
3.4	3	●	MPS0340S-DIN	62	20	36	6	A
	3	●	MPS0340S-DIN-C	62	20	36	6	A
	5	●	MPS0340L-DIN	66	28	36	6	A
	5	●	MPS0340L-DIN-C	66	28	36	6	A
	8	●	MPS0340-L8C	80	40	36	6	A
	10	□	MPS0340-L10C	87	47	36	6	A
	12	●	MPS0340-L12C	94	54	36	6	A
	15	●	MPS0340-L15C	104	64	36	6	A
	20	□	MPS0340-L20C	122	82	36	6	A
	25	□	MPS0340-L25C	139	99	36	6	A
	30	□	MPS0340-L30C	157	117	36	6	A
	20	●	MSL0340-L20C	122	82	36	6	B
25	●	MSL0340-L25C	139	99	36	6	B	
30	●	MSL0340-L30C	157	117	36	6	B	

DRILLING MPS, MSL DRILLS



Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
3.5	3	●		MPS0350S-DIN	62	20	36	6	A
	3	●		MPS0350S-DIN-C	62	20	36	6	A
	5	●		MPS0350L-DIN	66	28	36	6	A
	5	●		MPS0350L-DIN-C	66	28	36	6	A
	8	●		MPS0350-L8C	80	40	36	6	A
	10	□		MPS0350-L10C	87	47	36	6	A
	12	●		MPS0350-L12C	94	54	36	6	A
	15	●		MPS0350-L15C	104	64	36	6	A
	20	□		MPS0350-L20C	122	82	36	6	A
	25	□		MPS0350-L25C	139	99	36	6	A
	30	□		MPS0350-L30C	157	117	36	6	A
	20	●		MSL0350-L20C	122	82	36	6	B
	25	●		MSL0350-L25C	139	99	36	6	B
	30	●		MSL0350-L30C	157	117	36	6	B
3.6	3	●		MPS0360S-DIN	62	20	36	6	A
	3	●		MPS0360S-DIN-C	62	20	36	6	A
	5	●		MPS0360L-DIN	66	28	36	6	A
	5	●		MPS0360L-DIN-C	66	28	36	6	A
	8	●		MPS0360-L8C	85	45	36	6	A
	10	□		MPS0360-L10C	93	53	36	6	A
	12	●		MPS0360-L12C	101	61	36	6	A
	15	●		MPS0360-L15C	113	73	36	6	A
	20	□		MPS0360-L20C	133	93	36	6	A
	25	□		MPS0360-L25C	153	113	36	6	A
	30	□		MPS0360-L30C	173	133	36	6	A
	20	●		MSL0360-L20C	133	93	36	6	B
	25	●		MSL0360-L25C	153	113	36	6	B
	30	●		MSL0360-L30C	173	133	36	6	B
3.7	3	●		MPS0370S-DIN	62	20	36	6	A
	3	●		MPS0370S-DIN-C	62	20	36	6	A
	5	●		MPS0370L-DIN	66	28	36	6	A
	5	●		MPS0370L-DIN-C	66	28	36	6	A
	8	●		MPS0370-L8C	85	45	36	6	A
	10	□		MPS0370-L10C	93	53	36	6	A
	12	●		MPS0370-L12C	101	61	36	6	A
	15	●		MPS0370-L15C	113	73	36	6	A
	20	□		MPS0370-L20C	133	93	36	6	A
	25	□		MPS0370-L25C	153	113	36	6	A
	30	□		MPS0370-L30C	173	133	36	6	A
	20	●		MSL0370-L20C	133	93	36	6	B
	25	●		MSL0370-L25C	153	113	36	6	B
	30	●		MSL0370-L30C	173	133	36	6	B
3.8	3	●		MPS0380S-DIN	66	24	36	6	A
	3	●		MPS0380S-DIN-C	66	24	36	6	A
	5	●		MPS0380L-DIN	74	36	36	6	A
	5	●		MPS0380L-DIN-C	74	36	36	6	A
	8	●		MPS0380-L8C	85	45	36	6	A
	10	□		MPS0380-L10C	93	53	36	6	A
	12	●		MPS0380-L12C	101	61	36	6	A
	15	●		MPS0380-L15C	113	73	36	6	A
	20	□		MPS0380-L20C	133	93	36	6	A
	25	□		MPS0380-L25C	153	113	36	6	A
	30	□		MPS0380-L30C	173	133	36	6	A
	20	●		MSL0380-L20C	133	93	36	6	B
	25	●		MSL0380-L25C	153	113	36	6	B
	30	●		MSL0380-L30C	173	133	36	6	B

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
3.9	3	●		MPS0390S-DIN	66	24	36	6	A
	3	●		MPS0390S-DIN-C	66	24	36	6	A
	5	●		MPS0390L-DIN	74	36	36	6	A
	5	●		MPS0390L-DIN-C	74	36	36	6	A
	8	●		MPS0390-L8C	85	45	36	6	A
	10	□		MPS0390-L10C	93	53	36	6	A
	12	●		MPS0390-L12C	101	61	36	6	A
	15	●		MPS0390-L15C	113	73	36	6	A
	20	□		MPS0390-L20C	133	93	36	6	A
	25	□		MPS0390-L25C	153	113	36	6	A
	30	□		MPS0390-L30C	173	133	36	6	A
	20	●		MSL0390-L20C	133	93	36	6	B
	25	●		MSL0390-L25C	153	113	36	6	B
	30	●		MSL0390-L30C	173	133	36	6	B
4.0	3	●		MPS0400S-DIN	66	24	36	6	A
	3	●		MPS0400S-DIN-C	66	24	36	6	A
	5	●		MPS0400L-DIN	74	36	36	6	A
	5	●		MPS0400L-DIN-C	74	36	36	6	A
	8	●		MPS0400-L8C	85	45	36	6	A
	10	□		MPS0400-L10C	93	53	36	6	A
	12	●		MPS0400-L12C	101	61	36	6	A
	15	●		MPS0400-L15C	113	73	36	6	A
	20	□		MPS0400-L20C	133	93	36	6	A
	25	□		MPS0400-L25C	153	113	36	6	A
	30	□		MPS0400-L30C	173	133	36	6	A
	20	●		MSL0400-L20C	133	93	36	6	B
	25	●		MSL0400-L25C	153	113	36	6	B
	30	●		MSL0400-L30C	173	133	36	6	B
4.05	3	●		MPS0405S-DIN	66	24	36	6	A
	3	●		MPS0405S-DIN-C	66	24	36	6	A
	5	●		MPS0405L-DIN	74	36	36	6	A
	5	●		MPS0405L-DIN-C	74	36	36	6	A
4.1	3	●		MPS0410S-DIN	66	24	36	6	A
	3	●		MPS0410S-DIN-C	66	24	36	6	A
	5	●		MPS0410L-DIN	74	36	36	6	A
	5	●		MPS0410L-DIN-C	74	36	36	6	A
	8	●		MPS0410-L8C	91	51	36	6	A
	10	□		MPS0410-L10C	100	60	36	6	A
	12	●		MPS0410-L12C	109	69	36	6	A
	15	●		MPS0410-L15C	122	82	36	6	A
	20	□		MPS0410-L20C	145	105	36	6	A
	25	□		MPS0410-L25C	167	127	36	6	A
	30	□		MPS0410-L30C	190	150	36	6	A
	20	●		MSL0410-L20C	145	105	36	6	B
	25	●		MSL0410-L25C	167	127	36	6	B
	30	●		MSL0410-L30C	190	150	36	6	B

DRILLING
CARBIDE

D007

DRILLING (SOLID CARBIDE)

MPS, MSL

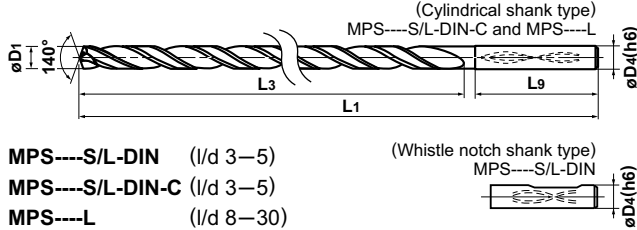
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



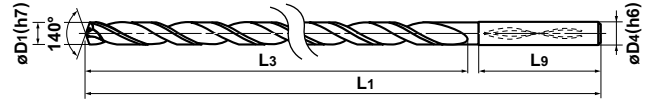
D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type



● Type B Standard margin type



Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
4.2	3	●	MPS0420S-DIN	66	24	36	6	A
	3	●	MPS0420S-DIN-C	66	24	36	6	A
	5	●	MPS0420L-DIN	74	36	36	6	A
	5	●	MPS0420L-DIN-C	74	36	36	6	A
	8	●	MPS0420-L8C	91	51	36	6	A
	10	□	MPS0420-L10C	100	60	36	6	A
	12	●	MPS0420-L12C	109	69	36	6	A
	15	●	MPS0420-L15C	122	82	36	6	A
	20	□	MPS0420-L20C	145	105	36	6	A
	25	□	MPS0420-L25C	167	127	36	6	A
	30	□	MPS0420-L30C	190	150	36	6	A
	20	●	MSL0420-L20C	145	105	36	6	B
25	●	MSL0420-L25C	167	127	36	6	B	
30	●	MSL0420-L30C	190	150	36	6	B	
4.3	3	●	MPS0430S-DIN	66	24	36	6	A
	3	●	MPS0430S-DIN-C	66	24	36	6	A
	5	●	MPS0430L-DIN	74	36	36	6	A
	5	●	MPS0430L-DIN-C	74	36	36	6	A
	8	●	MPS0430-L8C	91	51	36	6	A
	10	□	MPS0430-L10C	100	60	36	6	A
	12	●	MPS0430-L12C	109	69	36	6	A
	15	●	MPS0430-L15C	122	82	36	6	A
	20	□	MPS0430-L20C	145	105	36	6	A
	25	□	MPS0430-L25C	167	127	36	6	A
	30	□	MPS0430-L30C	190	150	36	6	A
	20	●	MSL0430-L20C	145	105	36	6	B
25	●	MSL0430-L25C	167	127	36	6	B	
30	●	MSL0430-L30C	190	150	36	6	B	
4.4	3	●	MPS0440S-DIN	66	24	36	6	A
	3	●	MPS0440S-DIN-C	66	24	36	6	A
	5	●	MPS0440L-DIN	74	36	36	6	A
	5	●	MPS0440L-DIN-C	74	36	36	6	A
	8	●	MPS0440-L8C	91	51	36	6	A
	10	□	MPS0440-L10C	100	60	36	6	A
	12	●	MPS0440-L12C	109	69	36	6	A
	15	●	MPS0440-L15C	122	82	36	6	A
	20	□	MPS0440-L20C	145	105	36	6	A
	25	□	MPS0440-L25C	167	127	36	6	A
	30	□	MPS0440-L30C	190	150	36	6	A
	20	●	MSL0440-L20C	145	105	36	6	B
25	●	MSL0440-L25C	167	127	36	6	B	
30	●	MSL0440-L30C	190	150	36	6	B	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
4.5	3	●	MPS0450S-DIN	66	24	36	6	A
	3	●	MPS0450S-DIN-C	66	24	36	6	A
	5	●	MPS0450L-DIN	74	36	36	6	A
	5	●	MPS0450L-DIN-C	74	36	36	6	A
	8	●	MPS0450-L8C	91	51	36	6	A
	10	□	MPS0450-L10C	100	60	36	6	A
	12	●	MPS0450-L12C	109	69	36	6	A
	15	●	MPS0450-L15C	122	82	36	6	A
	20	□	MPS0450-L20C	145	105	36	6	A
	25	□	MPS0450-L25C	167	127	36	6	A
	30	□	MPS0450-L30C	190	150	36	6	A
	20	●	MSL0450-L20C	145	105	36	6	B
25	●	MSL0450-L25C	167	127	36	6	B	
30	●	MSL0450-L30C	190	150	36	6	B	
4.6	3	●	MPS0460S-DIN	66	24	36	6	A
	3	●	MPS0460S-DIN-C	66	24	36	6	A
	5	●	MPS0460L-DIN	74	36	36	6	A
	5	●	MPS0460L-DIN-C	74	36	36	6	A
	8	●	MPS0460-L8C	96	55	36	6	A
	10	□	MPS0460-L10C	106	66	36	6	A
	12	●	MPS0460-L12C	116	76	36	6	A
	15	●	MPS0460-L15C	131	91	36	6	A
	20	□	MPS0460-L20C	156	116	36	6	A
	25	□	MPS0460-L25C	181	141	36	6	A
	30	□	MPS0460-L30C	206	166	36	6	A
	20	●	MSL0460-L20C	156	116	36	6	B
25	●	MSL0460-L25C	181	141	36	6	B	
30	●	MSL0460-L30C	206	166	36	6	B	
4.65	3	●	MPS0465S-DIN	66	24	36	6	A
	3	●	MPS0465S-DIN-C	66	24	36	6	A
	5	●	MPS0465L-DIN	74	36	36	6	A
	5	●	MPS0465L-DIN-C	74	36	36	6	A

DRILLING MPS, MSL DRILLS



● : Inventory maintained. □ : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
4.7	3	●		MPS0470S-DIN	66	24	36	6	A
	3	●		MPS0470S-DIN-C	66	24	36	6	A
	5	●		MPS0470L-DIN	74	36	36	6	A
	5	●		MPS0470L-DIN-C	74	36	36	6	A
	8	●		MPS0470-L8C	96	55	36	6	A
	10	□		MPS0470-L10C	106	66	36	6	A
	12	●		MPS0470-L12C	116	76	36	6	A
	15	●		MPS0470-L15C	131	91	36	6	A
	20	□		MPS0470-L20C	156	116	36	6	A
	25	□		MPS0470-L25C	181	141	36	6	A
	30	□		MPS0470-L30C	206	166	36	6	A
	20	●		MSL0470-L20C	156	116	36	6	B
	25	●		MSL0470-L25C	181	141	36	6	B
	30	●		MSL0470-L30C	206	166	36	6	B
4.8	3	●		MPS0480S-DIN	66	28	36	6	A
	3	●		MPS0480S-DIN-C	66	28	36	6	A
	5	●		MPS0480L-DIN	82	44	36	6	A
	5	●		MPS0480L-DIN-C	82	44	36	6	A
	8	●		MPS0480-L8C	96	55	36	6	A
	10	□		MPS0480-L10C	106	66	36	6	A
	12	●		MPS0480-L12C	116	76	36	6	A
	15	●		MPS0480-L15C	131	91	36	6	A
	20	□		MPS0480-L20C	156	116	36	6	A
	25	□		MPS0480-L25C	181	141	36	6	A
	30	□		MPS0480-L30C	206	166	36	6	A
	20	●		MSL0480-L20C	156	116	36	6	B
	25	●		MSL0480-L25C	181	141	36	6	B
	30	●		MSL0480-L30C	206	166	36	6	B
4.9	3	●		MPS0490S-DIN	66	28	36	6	A
	3	●		MPS0490S-DIN-C	66	28	36	6	A
	5	●		MPS0490L-DIN	82	44	36	6	A
	5	●		MPS0490L-DIN-C	82	44	36	6	A
	8	●		MPS0490-L8C	96	55	36	6	A
	10	□		MPS0490-L10C	106	66	36	6	A
	12	●		MPS0490-L12C	116	76	36	6	A
	15	●		MPS0490-L15C	131	91	36	6	A
	20	□		MPS0490-L20C	156	116	36	6	A
	25	□		MPS0490-L25C	181	141	36	6	A
	30	□		MPS0490-L30C	206	166	36	6	A
	20	●		MSL0490-L20C	156	116	36	6	B
	25	●		MSL0490-L25C	181	141	36	6	B
	30	●		MSL0490-L30C	206	166	36	6	B
5.0	3	●		MPS0500S-DIN	66	28	36	6	A
	3	●		MPS0500S-DIN-C	66	28	36	6	A
	5	●		MPS0500L-DIN	82	44	36	6	A
	5	●		MPS0500L-DIN-C	82	44	36	6	A
	8	●		MPS0500-L8C	96	55	36	6	A
	10	□		MPS0500-L10C	106	66	36	6	A
	12	●		MPS0500-L12C	116	76	36	6	A
	15	●		MPS0500-L15C	131	91	36	6	A
	20	□		MPS0500-L20C	156	116	36	6	A
	25	□		MPS0500-L25C	181	141	36	6	A
	30	□		MPS0500-L30C	206	166	36	6	A
	20	●		MSL0500-L20C	156	116	36	6	B
	25	●		MSL0500-L25C	181	141	36	6	B
	30	●		MSL0500-L30C	206	166	36	6	B

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
5.05	3	●		MPS0505S-DIN	66	28	36	6	A
	3	●		MPS0505S-DIN-C	66	28	36	6	A
	5	●		MPS0505L-DIN	82	44	36	6	A
	5	●		MPS0505L-DIN-C	82	44	36	6	A
	5	●		MPS0505L-DIN-C	82	44	36	6	A
5.1	3	●		MPS0510S-DIN	66	28	36	6	A
	3	●		MPS0510S-DIN-C	66	28	36	6	A
	5	●		MPS0510L-DIN	82	44	36	6	A
	5	●		MPS0510L-DIN-C	82	44	36	6	A
	8	●		MPS0510-L8C	102	62	36	6	A
	10	□		MPS0510-L10C	113	73	36	6	A
	12	●		MPS0510-L12C	124	84	36	6	A
	15	●		MPS0510-L15C	140	100	36	6	A
	20	□		MPS0510-L20C	168	128	36	6	A
	25	□		MPS0510-L25C	195	155	36	6	A
	30	□		MPS0510-L30C	223	183	36	6	A
20	●		MSL0510-L20C	168	128	36	6	B	
25	●		MSL0510-L25C	195	155	36	6	B	
30	●		MSL0510-L30C	223	183	36	6	B	
5.2	3	●		MPS0520S-DIN	66	28	36	6	A
	3	●		MPS0520S-DIN-C	66	28	36	6	A
	5	●		MPS0520L-DIN	82	44	36	6	A
	5	●		MPS0520L-DIN-C	82	44	36	6	A
	8	●		MPS0520-L8C	102	62	36	6	A
	10	□		MPS0520-L10C	113	73	36	6	A
	12	●		MPS0520-L12C	124	84	36	6	A
	15	●		MPS0520-L15C	140	100	36	6	A
	20	□		MPS0520-L20C	168	128	36	6	A
	25	□		MPS0520-L25C	195	155	36	6	A
	30	□		MPS0520-L30C	223	183	36	6	A
20	●		MSL0520-L20C	168	128	36	6	B	
25	●		MSL0520-L25C	195	155	36	6	B	
30	●		MSL0520-L30C	223	183	36	6	B	
5.3	3	●		MPS0530S-DIN	66	28	36	6	A
	3	●		MPS0530S-DIN-C	66	28	36	6	A
	5	●		MPS0530L-DIN	82	44	36	6	A
	5	●		MPS0530L-DIN-C	82	44	36	6	A
	8	●		MPS0530-L8C	102	62	36	6	A
	10	□		MPS0530-L10C	113	73	36	6	A
	12	●		MPS0530-L12C	124	84	36	6	A
	15	●		MPS0530-L15C	140	100	36	6	A
	20	□		MPS0530-L20C	168	128	36	6	A
	25	□		MPS0530-L25C	195	155	36	6	A
	30	□		MPS0530-L30C	223	183	36	6	A
	20	●		MSL0530-L20C	168	128	36	6	B
	25	●		MSL0530-L25C	195	155	36	6	B
	30	●		MSL0530-L30C	223	183	36	6	B

DRILLING
MPS, MSL DRILLS



DRILLING (SOLID CARBIDE)

MPS, MSL

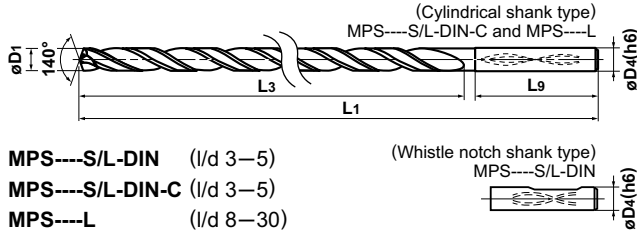
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type



MPS---S/L-DIN (l/d 3—5)

MPS---S/L-DIN-C (l/d 3—5)

MPS---L (l/d 8—30)

● Type B Standard margin type



MSL (l/d 20—30)

DRILLING MPS, MSL DRILLS



Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
5.4	3	●	MPS0540S-DIN	66	28	36	6	A
	3	●	MPS0540S-DIN-C	66	28	36	6	A
	5	●	MPS0540L-DIN	82	44	36	6	A
	5	●	MPS0540L-DIN-C	82	44	36	6	A
	8	●	MPS0540-L8C	102	62	36	6	A
	10	□	MPS0540-L10C	113	73	36	6	A
	12	●	MPS0540-L12C	124	84	36	6	A
	15	●	MPS0540-L15C	140	100	36	6	A
	20	□	MPS0540-L20C	168	128	36	6	A
	25	□	MPS0540-L25C	195	155	36	6	A
	30	□	MPS0540-L30C	223	183	36	6	A
	20	●	MSL0540-L20C	168	128	36	6	B
25	●	MSL0540-L25C	195	155	36	6	B	
30	●	MSL0540-L30C	223	183	36	6	B	
5.5	3	●	MPS0550S-DIN	66	28	36	6	A
	3	●	MPS0550S-DIN-C	66	28	36	6	A
	5	●	MPS0550L-DIN	82	44	36	6	A
	5	●	MPS0550L-DIN-C	82	44	36	6	A
	8	●	MPS0550-L8C	102	62	36	6	A
	10	□	MPS0550-L10C	113	73	36	6	A
	12	●	MPS0550-L12C	124	84	36	6	A
	15	●	MPS0550-L15C	140	100	36	6	A
	20	□	MPS0550-L20C	168	128	36	6	A
	25	□	MPS0550-L25C	195	155	36	6	A
	30	□	MPS0550-L30C	223	183	36	6	A
	20	●	MSL0550-L20C	168	128	36	6	B
25	●	MSL0550-L25C	195	155	36	6	B	
30	●	MSL0550-L30C	223	183	36	6	B	
5.55	3	●	MPS0555S-DIN	66	28	36	6	A
	3	●	MPS0555S-DIN-C	66	28	36	6	A
	5	●	MPS0555L-DIN	82	44	36	6	A
	5	●	MPS0555L-DIN-C	82	44	36	6	A
	5	●	MPS0555L-DIN-C	82	44	36	6	A
5.6	3	●	MPS0560S-DIN	66	28	36	6	A
	3	●	MPS0560S-DIN-C	66	28	36	6	A
	5	●	MPS0560L-DIN	82	44	36	6	A
	5	●	MPS0560L-DIN-C	82	44	36	6	A
	8	●	MPS0560-L8C	107	67	36	6	A
	10	□	MPS0560-L10C	119	79	36	6	A
	12	●	MPS0560-L12C	131	91	36	6	A
	15	●	MPS0560-L15C	149	109	36	6	A
	20	□	MPS0560-L20C	179	139	36	6	A
	25	□	MPS0560-L25C	209	169	36	6	A

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
5.6	30	□	MPS0560-L30C	239	199	36	6	A
	20	●	MSL0560-L20C	179	139	36	6	B
	25	●	MSL0560-L25C	209	169	36	6	B
	30	●	MSL0560-L30C	239	199	36	6	B
5.7	3	●	MPS0570S-DIN	66	28	36	6	A
	3	●	MPS0570S-DIN-C	66	28	36	6	A
	5	●	MPS0570L-DIN	82	44	36	6	A
	5	●	MPS0570L-DIN-C	82	44	36	6	A
	8	●	MPS0570-L8C	107	67	36	6	A
	10	□	MPS0570-L10C	119	79	36	6	A
	12	●	MPS0570-L12C	131	91	36	6	A
	15	●	MPS0570-L15C	149	109	36	6	A
	20	□	MPS0570-L20C	179	139	36	6	A
	25	□	MPS0570-L25C	209	169	36	6	A
	30	□	MPS0570-L30C	239	199	36	6	A
	20	●	MSL0570-L20C	179	139	36	6	B
25	●	MSL0570-L25C	209	169	36	6	B	
30	●	MSL0570-L30C	239	199	36	6	B	
5.8	3	●	MPS0580S-DIN	66	28	36	6	A
	3	●	MPS0580S-DIN-C	66	28	36	6	A
	5	●	MPS0580L-DIN	82	44	36	6	A
	5	●	MPS0580L-DIN-C	82	44	36	6	A
	8	●	MPS0580-L8C	107	67	36	6	A
	10	□	MPS0580-L10C	119	79	36	6	A
	12	●	MPS0580-L12C	131	91	36	6	A
	15	●	MPS0580-L15C	149	109	36	6	A
	20	□	MPS0580-L20C	179	139	36	6	A
	25	□	MPS0580-L25C	209	169	36	6	A
	30	□	MPS0580-L30C	239	199	36	6	A
	20	●	MSL0580-L20C	179	139	36	6	A
25	●	MSL0580-L25C	209	169	36	6	B	
30	●	MSL0580-L30C	239	199	36	6	B	
5.9	3	●	MPS0590S-DIN	66	28	36	6	A
	3	●	MPS0590S-DIN-C	66	28	36	6	A
	5	●	MPS0590L-DIN	82	44	36	6	A
	5	●	MPS0590L-DIN-C	82	44	36	6	A
	8	●	MPS0590-L8C	107	67	36	6	A
	10	□	MPS0590-L10C	119	79	36	6	A
	12	●	MPS0590-L12C	131	91	36	6	A
	15	●	MPS0590-L15C	149	109	36	6	A
	20	□	MPS0590-L20C	179	139	36	6	A
	25	□	MPS0590-L25C	209	169	36	6	A

● : Inventory maintained. □ : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
5.9	30	□		MPS0590-L30C	239	199	36	6	A
	20	●		MSL0590-L20C	179	139	36	6	B
	25	●		MSL0590-L25C	209	169	36	6	B
	30	●		MSL0590-L30C	239	199	36	6	B
6.0	3	●		MPS0600S-DIN	66	28	36	6	A
	3	●		MPS0600S-DIN-C	66	28	36	6	A
	5	●		MPS0600L-DIN	82	44	36	6	A
	5	●		MPS0600L-DIN-C	82	44	36	6	A
	8	●		MPS0600-L8C	107	67	36	6	A
	10	□		MPS0600-L10C	119	79	36	6	A
	12	●		MPS0600-L12C	131	91	36	6	A
	15	●		MPS0600-L15C	149	109	36	6	A
	20	□		MPS0600-L20C	179	139	36	6	A
	25	□		MPS0600-L25C	209	169	36	6	A
	30	□		MPS0600-L30C	239	199	36	6	A
	20	●		MSL0600-L20C	179	139	36	6	B
25	●		MSL0600-L25C	209	169	36	6	B	
30	●		MSL0600-L30C	239	199	36	6	B	
6.05	3	●		MPS0605S-DIN	79	34	36	8	A
	3	●		MPS0605S-DIN-C	79	34	36	8	A
	5	●		MPS0605L-DIN	91	53	36	8	A
	5	●		MPS0605L-DIN-C	91	53	36	8	A
6.1	3	●		MPS0610S-DIN	79	34	36	8	A
	3	●		MPS0610S-DIN-C	79	34	36	8	A
	5	●		MPS0610L-DIN	91	53	36	8	A
	5	●		MPS0610L-DIN-C	91	53	36	8	A
	8	●		MPS0610-L8C	113	73	36	8	A
	10	□		MPS0610-L10C	126	86	36	8	A
	12	●		MPS0610-L12C	139	99	36	8	A
	15	●		MPS0610-L15C	158	118	36	8	A
	20	□		MPS0610-L20C	191	151	36	8	A
	25	□		MPS0610-L25C	223	183	36	8	A
	30	□		MPS0610-L30C	256	216	36	8	A
	20	●		MSL0610-L20C	191	151	36	8	B
25	●		MSL0610-L25C	223	183	36	8	B	
30	●		MSL0610-L30C	256	216	36	8	B	
6.2	3	●		MPS0620S-DIN	79	34	36	8	A
	3	●		MPS0620S-DIN-C	79	34	36	8	A
	5	●		MPS0620L-DIN	91	53	36	8	A
	5	●		MPS0620L-DIN-C	91	53	36	8	A
	8	●		MPS0620-L8C	113	76	36	8	A
	10	□		MPS0620-L10C	126	86	36	8	A
	12	●		MPS0620-L12C	139	99	36	8	A
	15	●		MPS0620-L15C	158	118	36	8	A
	20	□		MPS0620-L20C	191	151	36	8	A
	25	□		MPS0620-L25C	223	183	36	8	A
	30	□		MPS0620-L30C	256	216	36	8	A
	20	●		MSL0620-L20C	191	151	36	8	B
25	●		MSL0620-L25C	223	183	36	8	B	
30	●		MSL0620-L30C	256	216	36	8	B	
6.3	3	●		MPS0630S-DIN	79	34	36	8	A
	3	●		MPS0630S-DIN-C	79	34	36	8	A
	5	●		MPS0630L-DIN	91	53	36	8	A
	5	●		MPS0630L-DIN-C	91	53	36	8	A
	8	●		MPS0630-L8C	113	73	36	8	A
	10	□		MPS0630-L10C	126	86	36	8	A

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
6.3	12	●		MPS0630-L12C	139	99	36	8	A
	15	●		MPS0630-L15C	158	118	36	8	A
	20	□		MPS0630-L20C	191	151	36	8	A
	25	□		MPS0630-L25C	223	183	36	8	A
	30	□		MPS0630-L30C	256	216	36	8	A
	20	●		MSL0630-L20C	191	151	36	8	B
	25	●		MSL0630-L25C	223	183	36	8	B
	30	●		MSL0630-L30C	256	216	36	8	B
6.4	3	●		MPS0640S-DIN	79	34	36	8	A
	3	●		MPS0640S-DIN-C	79	34	36	8	A
	5	●		MPS0640L-DIN	91	53	36	8	A
	5	●		MPS0640L-DIN-C	91	53	36	8	A
	8	●		MPS0640-L8C	113	73	36	8	A
	10	□		MPS0640-L10C	126	86	36	8	A
	12	●		MPS0640-L12C	139	99	36	8	A
	15	●		MPS0640-L15C	158	118	36	8	A
	20	□		MPS0640-L20C	191	151	36	8	A
	25	□		MPS0640-L25C	223	183	36	8	A
	30	□		MPS0640-L30C	256	216	36	8	A
	20	●		MSL0640-L20C	191	151	36	8	B
25	●		MSL0640-L25C	223	183	36	8	B	
30	●		MSL0640-L30C	256	216	36	8	B	
6.5	3	●		MPS0650S-DIN	79	34	36	8	A
	3	●		MPS0650S-DIN-C	79	34	36	8	A
	5	●		MPS0650L-DIN	91	53	36	8	A
	5	●		MPS0650L-DIN-C	91	53	36	8	A
	8	●		MPS0650-L8C	113	73	36	8	A
	10	□		MPS0650-L10C	126	86	36	8	A
	12	●		MPS0650-L12C	139	99	36	8	A
	15	●		MPS0650-L15C	158	118	36	8	A
	20	□		MPS0650-L20C	191	151	36	8	A
	25	□		MPS0650-L25C	223	183	36	8	A
	30	□		MPS0650-L30C	256	216	36	8	A
	20	●		MSL0650-L20C	191	151	36	8	B
25	●		MSL0650-L25C	223	183	36	8	B	
30	●		MSL0650-L30C	256	216	36	8	B	
6.6	3	●		MPS0660S-DIN	79	34	36	8	A
	3	●		MPS0660S-DIN-C	79	34	36	8	A
	5	●		MPS0660L-DIN	91	53	36	8	A
	5	●		MPS0660L-DIN-C	91	53	36	8	A
	8	●		MPS0660-L8C	118	78	36	8	A
	10	□		MPS0660-L10C	132	92	36	8	A
	12	●		MPS0660-L12C	146	106	36	8	A
	15	●		MPS0660-L15C	167	127	36	8	A
	20	□		MPS0660-L20C	202	162	36	8	A
	25	□		MPS0660-L25C	237	197	36	8	A
	30	□		MPS0660-L30C	272	232	36	8	A
	20	●		MSL0660-L20C	202	162	36	8	B
25	●		MSL0660-L25C	237	197	36	8	B	
30	●		MSL0660-L30C	272	232	36	8	B	

DRILLING MPS, MSL DRILLS

CARBIDE

DRILLING (SOLID CARBIDE)

MPS, MSL

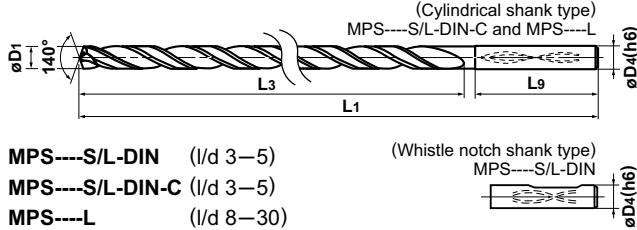
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type



● Type B Standard margin type



DRILLING MPS, MSL DRILLS



Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
6.7	3	●	MPS0670S-DIN	79	34	36	8	A
	3	●	MPS0670S-DIN-C	79	34	36	8	A
	5	●	MPS0670L-DIN	91	53	36	8	A
	5	●	MPS0670L-DIN-C	91	53	36	8	A
	8	●	MPS0670-L8C	118	78	36	8	A
	10	□	MPS0670-L10C	132	92	36	8	A
	12	●	MPS0670-L12C	146	106	36	8	A
	15	●	MPS0670-L15C	167	127	36	8	A
	20	□	MPS0670-L20C	202	162	36	8	A
	25	□	MPS0670-L25C	237	197	36	8	A
	30	□	MPS0670-L30C	272	232	36	8	A
	20	●	MSL0670-L20C	202	162	36	8	B
25	●	MSL0670-L25C	237	197	36	8	B	
30	●	MSL0670-L30C	272	232	36	8	B	
6.8	3	●	MPS0680S-DIN	79	34	36	8	A
	3	●	MPS0680S-DIN-C	79	34	36	8	A
	5	●	MPS0680L-DIN	91	53	36	8	A
	5	●	MPS0680L-DIN-C	91	53	36	8	A
	8	●	MPS0680-L8C	118	78	36	8	A
	10	□	MPS0680-L10C	132	92	36	8	A
	12	●	MPS0680-L12C	146	106	36	8	A
	15	●	MPS0680-L15C	167	127	36	8	A
	20	□	MPS0680-L20C	202	162	36	8	A
	25	□	MPS0680-L25C	237	197	36	8	A
	30	□	MPS0680-L30C	272	232	36	8	A
	20	●	MSL0680-L20C	202	162	36	8	B
25	●	MSL0680-L25C	237	197	36	8	B	
30	●	MSL0680-L30C	272	232	36	8	B	
6.9	3	●	MPS0690S-DIN	79	34	36	8	A
	3	●	MPS0690S-DIN-C	79	34	36	8	A
	5	●	MPS0690L-DIN	91	53	36	8	A
	5	●	MPS0690L-DIN-C	91	53	36	8	A
	8	●	MPS0690-L8C	118	78	36	8	A
	10	□	MPS0690-L10C	132	92	36	8	A
	12	●	MPS0690-L12C	146	106	36	8	A
	15	●	MPS0690-L15C	167	127	36	8	A
	20	□	MPS0690-L20C	202	162	36	8	A
	25	□	MPS0690-L25C	237	197	36	8	A
	30	□	MPS0690-L30C	272	232	36	8	A
	20	●	MSL0690-L20C	202	162	36	8	B
25	●	MSL0690-L25C	237	197	36	8	B	
30	●	MSL0690-L30C	272	232	36	8	B	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
7.0	3	●	MPS0700S-DIN	79	34	36	8	A
	3	●	MPS0700S-DIN-C	79	34	36	8	A
	5	●	MPS0700L-DIN	91	53	36	8	A
	5	●	MPS0700L-DIN-C	91	53	36	8	A
	8	●	MPS0700-L8C	118	78	36	8	A
	10	□	MPS0700-L10C	132	92	36	8	A
	12	●	MPS0700-L12C	146	106	36	8	A
	15	●	MPS0700-L15C	167	127	36	8	A
	20	□	MPS0700-L20C	202	162	36	8	A
	25	□	MPS0700-L25C	237	197	36	8	A
	30	□	MPS0700-L30C	272	232	36	8	A
	20	●	MSL0700-L20C	202	162	36	8	B
25	●	MSL0700-L25C	237	197	36	8	B	
30	●	MSL0700-L30C	272	232	36	8	B	
7.1	3	●	MPS0710S-DIN	79	41	36	8	A
	3	●	MPS0710S-DIN-C	79	41	36	8	A
	5	●	MPS0710L-DIN	91	53	36	8	A
	5	●	MPS0710L-DIN-C	91	53	36	8	A
	8	●	MPS0710-L8C	124	84	36	8	A
	10	□	MPS0710-L10C	139	99	36	8	A
	12	●	MPS0710-L12C	154	114	36	8	A
	15	●	MPS0710-L15C	176	136	36	8	A
	20	□	MPS0710-L20C	214	174	36	8	A
	25	□	MPS0710-L25C	251	211	36	8	A
	30	□	MPS0710-L30C	289	249	36	8	A
	20	●	MSL0710-L20C	214	174	36	8	B
25	●	MSL0710-L25C	251	211	36	8	B	
30	●	MSL0710-L30C	289	249	36	8	B	
7.2	3	●	MPS0720S-DIN	79	41	36	8	A
	3	●	MPS0720S-DIN-C	79	41	36	8	A
	5	●	MPS0720L-DIN	91	53	36	8	A
	5	●	MPS0720L-DIN-C	91	53	36	8	A
	8	●	MPS0720-L8C	124	84	36	8	A
	10	□	MPS0720-L10C	139	99	36	8	A
	12	●	MPS0720-L12C	154	114	36	8	A
	15	●	MPS0720-L15C	176	136	36	8	A
	20	□	MPS0720-L20C	214	174	36	8	A
	25	□	MPS0720-L25C	251	211	36	8	A
	30	□	MPS0720-L30C	289	249	36	8	A
	20	●	MSL0720-L20C	214	174	36	8	B
25	●	MSL0720-L25C	251	211	36	8	B	
30	●	MSL0720-L30C	289	249	36	8	B	

● : Inventory maintained. □ : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
7.3	3	●		MPS0730S-DIN	79	41	36	8	A
	3	●		MPS0730S-DIN-C	79	41	36	8	A
	5	●		MPS0730L-DIN	91	53	36	8	A
	5	●		MPS0730L-DIN-C	91	53	36	8	A
	8	●		MPS0730-L8C	124	84	36	8	A
	10	□		MPS0730-L10C	139	99	36	8	A
	12	●		MPS0730-L12C	154	114	36	8	A
	15	●		MPS0730-L15C	176	136	36	8	A
	20	□		MPS0730-L20C	214	174	36	8	A
	25	□		MPS0730-L25C	251	211	36	8	A
	30	□		MPS0730-L30C	289	249	36	8	A
	20	●		MSL0730-L20C	214	174	36	8	B
	25	●		MSL0730-L25C	251	211	36	8	B
	30	●		MSL0730-L30C	289	249	36	8	B
7.4	3	●		MPS0740S-DIN	79	41	36	8	A
	3	●		MPS0740S-DIN-C	79	41	36	8	A
	5	●		MPS0740L-DIN	91	53	36	8	A
	5	●		MPS0740L-DIN-C	91	53	36	8	A
	8	●		MPS0740-L8C	124	84	36	8	A
	10	□		MPS0740-L10C	139	99	36	8	A
	12	●		MPS0740-L12C	154	114	36	8	A
	15	●		MPS0740-L15C	176	136	36	8	A
	20	□		MPS0740-L20C	214	174	36	8	A
	25	□		MPS0740-L25C	251	211	36	8	A
	30	□		MPS0740-L30C	289	249	36	8	A
	20	●		MSL0740-L20C	214	174	36	8	B
	25	●		MSL0740-L25C	251	211	36	8	B
	30	●		MSL0740-L30C	289	249	36	8	B
7.5	3	●		MPS0750S-DIN	79	41	36	8	A
	3	●		MPS0750S-DIN-C	79	41	36	8	A
	5	●		MPS0750L-DIN	91	53	36	8	A
	5	●		MPS0750L-DIN-C	91	53	36	8	A
	8	●		MPS0750-L8C	124	84	36	8	A
	10	□		MPS0750-L10C	139	99	36	8	A
	12	●		MPS0750-L12C	154	114	36	8	A
	15	●		MPS0750-L15C	176	136	36	8	A
	20	□		MPS0750-L20C	214	174	36	8	A
	25	□		MPS0750-L25C	251	211	36	8	A
	30	□		MPS0750-L30C	289	249	36	8	A
	20	●		MSL0750-L20C	214	174	36	8	B
	25	●		MSL0750-L25C	251	211	36	8	B
	30	●		MSL0750-L30C	289	249	36	8	B
7.6	3	●		MPS0760S-DIN	79	41	36	8	A
	3	●		MPS0760S-DIN-C	79	41	36	8	A
	5	●		MPS0760L-DIN	91	53	36	8	A
	5	●		MPS0760L-DIN-C	91	53	36	8	A
	8	●		MPS0760-L8C	129	89	36	8	A
	10	□		MPS0760-L10C	145	105	36	8	A
	12	●		MPS0760-L12C	161	121	36	8	A
	15	●		MPS0760-L15C	185	145	36	8	A
	20	□		MPS0760-L20C	225	185	36	8	A
	25	□		MPS0760-L25C	265	225	36	8	A
	30	□		MPS0760-L30C	305	265	36	8	A
	20	●		MSL0760-L20C	225	185	36	8	B

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
7.6	25	●		MSL0760-L25C	265	225	36	8	B
	30	●		MSL0760-L30C	305	265	36	8	B
7.7	3	●		MPS0770S-DIN	79	41	36	8	A
	3	●		MPS0770S-DIN-C	79	41	36	8	A
	5	●		MPS0770L-DIN	91	53	36	8	A
	5	●		MPS0770L-DIN-C	91	53	36	8	A
	8	●		MPS0770-L8C	129	89	36	8	A
	10	□		MPS0770-L10C	145	105	36	8	A
	12	●		MPS0770-L12C	161	121	36	8	A
	15	●		MPS0770-L15C	185	145	36	8	A
	20	□		MPS0770-L20C	225	185	36	8	A
	25	□		MPS0770-L25C	265	225	36	8	A
	30	□		MPS0770-L30C	305	265	36	8	A
	20	●		MSL0770-L20C	225	185	36	8	B
	25	●		MSL0770-L25C	265	225	36	8	B
	30	●		MSL0770-L30C	305	265	36	8	B
7.8	3	●		MPS0780S-DIN	79	41	36	8	A
	3	●		MPS0780S-DIN-C	79	41	36	8	A
	5	●		MPS0780L-DIN	91	53	36	8	A
	5	●		MPS0780L-DIN-C	91	53	36	8	A
	8	●		MPS0780-L8C	129	89	36	8	A
	10	□		MPS0780-L10C	145	105	36	8	A
	12	●		MPS0780-L12C	161	121	36	8	A
	15	●		MPS0780-L15C	185	145	36	8	A
	20	□		MPS0780-L20C	225	185	36	8	A
	25	□		MPS0780-L25C	265	225	36	8	A
	30	□		MPS0780-L30C	305	265	36	8	A
	20	●		MSL0780-L20C	225	185	36	8	B
	25	●		MSL0780-L25C	265	225	36	8	B
	30	●		MSL0780-L30C	305	265	36	8	B
7.9	3	●		MPS0790S-DIN	79	41	36	8	A
	3	●		MPS0790S-DIN-C	79	41	36	8	A
	5	●		MPS0790L-DIN	91	53	36	8	A
	5	●		MPS0790L-DIN-C	91	53	36	8	A
	8	●		MPS0790-L8C	129	89	36	8	A
	10	□		MPS0790-L10C	145	105	36	8	A
	12	●		MPS0790-L12C	161	121	36	8	A
	15	●		MPS0790-L15C	185	145	36	8	A
	20	□		MPS0790-L20C	225	185	36	8	A
	25	□		MPS0790-L25C	265	225	36	8	A
	30	□		MPS0790-L30C	305	265	36	8	A
	20	●		MSL0790-L20C	225	185	36	8	B
	25	●		MSL0790-L25C	265	225	36	8	B
	30	●		MSL0790-L30C	305	265	36	8	B

DRILLING
MPS, MSL DRILLS



CARBIDE

DRILLING (SOLID CARBIDE)

MPS, MSL

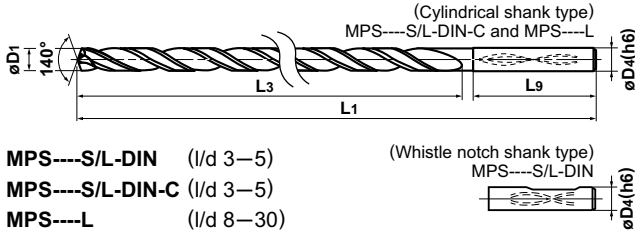
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type



● Type B Standard margin type



DRILLING MPS, MSL DRILLS

CARBIDE

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
8.0	3	●	MPS0800S-DIN	79	41	36	8	A
	3	●	MPS0800S-DIN-C	79	41	36	8	A
	5	●	MPS0800L-DIN	91	53	36	8	A
	5	●	MPS0800L-DIN-C	91	53	36	8	A
	8	●	MPS0800-L8C	129	89	36	8	A
	10	□	MPS0800-L10C	145	105	36	8	A
	12	●	MPS0800-L12C	161	121	36	8	A
	15	●	MPS0800-L15C	185	145	36	8	A
	20	□	MPS0800-L20C	225	185	36	8	A
	25	□	MPS0800-L25C	265	225	36	8	A
	30	□	MPS0800-L30C	305	265	36	8	A
	20	●	MSL0800-L20C	225	185	36	8	B
25	●	MSL0800-L25C	265	225	36	8	B	
30	●	MSL0800-L30C	305	265	36	8	B	
8.05	3	●	MPS0805S-DIN	88	46	40	10	A
	3	●	MPS0805S-DIN-C	88	46	40	10	A
	5	●	MPS0805L-DIN	102	60	40	10	A
	5	●	MPS0805L-DIN-C	102	60	40	10	A
8.1	3	●	MPS0810S-DIN	88	46	40	10	A
	3	●	MPS0810S-DIN-C	88	46	40	10	A
	5	●	MPS0810L-DIN	102	60	40	10	A
	5	●	MPS0810L-DIN-C	102	60	40	10	A
	8	●	MPS0810-L8C	139	95	40	10	A
	10	□	MPS0810-L10C	156	112	40	10	A
	12	●	MPS0810-L12C	173	129	40	10	A
	15	●	MPS0810-L15C	198	154	40	10	A
	20	□	MPS0810-L20C	241	197	40	10	A
	25	□	MPS0810-L25C	283	239	40	10	A
	30	□	MPS0810-L30C	326	282	40	10	A
	20	●	MSL0810-L20C	241	197	40	10	B
25	●	MSL0810-L25C	283	239	40	10	B	
30	□	MSL0810-L30C	326	282	40	10	B	
8.2	3	●	MPS0820S-DIN	88	46	40	10	A
	3	●	MPS0820S-DIN-C	88	46	40	10	A
	5	●	MPS0820L-DIN	102	60	40	10	A
	5	●	MPS0820L-DIN-C	102	60	40	10	A
	8	●	MPS0820-L8C	139	95	40	10	A
	10	□	MPS0820-L10C	156	112	40	10	A
	12	●	MPS0820-L12C	173	129	40	10	A
	15	●	MPS0820-L15C	198	154	40	10	A
20	□	MPS0820-L20C	241	197	40	10	A	
25	□	MPS0820-L25C	283	239	40	10	A	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
8.2	30	□	MPS0820-L30C	326	282	40	10	A
	20	●	MSL0820-L20C	241	197	40	10	B
	25	●	MSL0820-L25C	283	239	40	10	B
	30	□	MSL0820-L30C	326	282	40	10	B
8.3	3	●	MPS0830S-DIN	88	46	40	10	A
	3	●	MPS0830S-DIN-C	88	46	40	10	A
	5	●	MPS0830L-DIN	102	60	40	10	A
	5	●	MPS0830L-DIN-C	102	60	40	10	A
	8	●	MPS0830-L8C	139	95	40	10	A
	10	□	MPS0830-L10C	156	112	40	10	A
	12	●	MPS0830-L12C	173	129	40	10	A
	15	●	MPS0830-L15C	198	154	40	10	A
	20	□	MPS0830-L20C	241	197	40	10	A
	25	□	MPS0830-L25C	283	239	40	10	A
	30	□	MPS0830-L30C	326	282	40	10	A
	20	●	MSL0830-L20C	241	197	40	10	B
25	●	MSL0830-L25C	283	239	40	10	B	
30	□	MSL0830-L30C	326	282	40	10	B	
8.4	3	●	MPS0840S-DIN	88	46	40	10	A
	3	●	MPS0840S-DIN-C	88	46	40	10	A
	5	●	MPS0840L-DIN	102	60	40	10	A
	5	●	MPS0840L-DIN-C	102	60	40	10	A
	8	●	MPS0840-L8C	139	95	40	10	A
	10	□	MPS0840-L10C	156	112	40	10	A
	12	●	MPS0840-L12C	173	129	40	10	A
	15	●	MPS0840-L15C	198	154	40	10	A
	20	□	MPS0840-L20C	241	197	40	10	A
	25	□	MPS0840-L25C	283	239	40	10	A
	30	□	MPS0840-L30C	326	282	40	10	A
	20	●	MSL0840-L20C	241	197	40	10	B
25	●	MSL0840-L25C	283	239	40	10	B	
30	□	MSL0840-L30C	326	282	40	10	B	
8.5	3	●	MPS0850S-DIN	88	46	40	10	A
	3	●	MPS0850S-DIN-C	88	46	40	10	A
	5	●	MPS0850L-DIN	102	60	40	10	A
	5	●	MPS0850L-DIN-C	102	60	40	10	A
	8	●	MPS0850-L8C	139	95	40	10	A
	10	□	MPS0850-L10C	156	112	40	10	A
	12	●	MPS0850-L12C	173	129	40	10	A
	15	●	MPS0850-L15C	198	154	40	10	A
20	□	MPS0850-L20C	241	197	40	10	A	
25	□	MPS0850-L25C	283	239	40	10	A	

● : Inventory maintained. □ : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
8.5	30	□		MPS0850-L30C	326	282	40	10	A
	20	●		MSL0850-L20C	241	197	40	10	B
	25	●		MSL0850-L25C	283	239	40	10	B
	30	●		MSL0850-L30C	326	282	40	10	B
8.6	3	●		MPS0860S-DIN	88	46	40	10	A
	3	●		MPS0860S-DIN-C	88	46	40	10	A
	5	●		MPS0860L-DIN	102	60	40	10	A
	5	●		MPS0860L-DIN-C	102	60	40	10	A
	8	●		MPS0860-L8C	144	100	40	10	A
	10	□		MPS0860-L10C	162	118	40	10	A
	12	●		MPS0860-L12C	180	136	40	10	A
	15	●		MPS0860-L15C	207	163	40	10	A
	20	□		MPS0860-L20C	252	208	40	10	A
	25	□		MPS0860-L25C	297	253	40	10	A
	30	□		MPS0860-L30C	342	298	40	10	A
	20	●		MSL0860-L20C	252	208	40	10	B
25	●		MSL0860-L25C	297	253	40	10	B	
30	□		MSL0860-L30C	342	298	40	10	B	
8.7	3	●		MPS0870S-DIN	88	46	40	10	A
	3	●		MPS0870S-DIN-C	88	46	40	10	A
	5	●		MPS0870L-DIN	102	60	40	10	A
	5	●		MPS0870L-DIN-C	102	60	40	10	A
	8	●		MPS0870-L8C	144	100	40	10	A
	10	□		MPS0870-L10C	162	118	40	10	A
	12	●		MPS0870-L12C	180	136	40	10	A
	15	●		MPS0870-L15C	207	163	40	10	A
	20	□		MPS0870-L20C	252	208	40	10	A
	25	□		MPS0870-L25C	297	253	40	10	A
	30	□		MPS0870-L30C	342	298	40	10	A
	20	●		MSL0870-L20C	252	208	40	10	B
25	●		MSL0870-L25C	297	253	40	10	B	
30	□		MSL0870-L30C	342	298	40	10	B	
8.8	3	●		MPS0880S-DIN	88	46	40	10	A
	3	●		MPS0880S-DIN-C	88	46	40	10	A
	5	●		MPS0880L-DIN	102	60	40	10	A
	5	●		MPS0880L-DIN-C	102	60	40	10	A
	8	●		MPS0880-L8C	144	100	40	10	A
	10	□		MPS0880-L10C	162	118	40	10	A
	12	●		MPS0880-L12C	180	136	40	10	A
	15	●		MPS0880-L15C	207	163	40	10	A
	20	□		MPS0880-L20C	252	208	40	10	A
	25	□		MPS0880-L25C	297	253	40	10	A
	30	□		MPS0880-L30C	342	298	40	10	A
	20	●		MSL0880-L20C	252	208	40	10	B
25	●		MSL0880-L25C	297	253	40	10	B	
30	●		MSL0880-L30C	342	298	40	10	B	
8.9	3	●		MPS0890S-DIN	88	46	40	10	A
	3	●		MPS0890S-DIN-C	88	46	40	10	A
	5	●		MPS0890L-DIN	102	60	40	10	A
	5	●		MPS0890L-DIN-C	102	60	40	10	A
	8	●		MPS0890-L8C	144	100	40	10	A
	10	□		MPS0890-L10C	162	118	40	10	A
	12	●		MPS0890-L12C	180	136	40	10	A
	15	●		MPS0890-L15C	207	163	40	10	A
20	□		MPS0890-L20C	252	208	40	10	A	
25	□		MPS0890-L25C	297	253	40	10	A	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
8.9	30	□		MPS0890-L30C	342	298	40	10	A
	20	●		MSL0890-L20C	252	208	40	10	B
	25	●		MSL0890-L25C	297	253	40	10	B
	30	□		MSL0890-L30C	342	298	40	10	B
9.0	3	●		MPS0900S-DIN	88	46	40	10	A
	3	●		MPS0900S-DIN-C	88	46	40	10	A
	5	●		MPS0900L-DIN	102	60	40	10	A
	5	●		MPS0900L-DIN-C	102	60	40	10	A
	8	●		MPS0900-L8C	144	100	40	10	A
	10	□		MPS0900-L10C	162	118	40	10	A
	12	●		MPS0900-L12C	180	136	40	10	A
	15	●		MPS0900-L15C	207	163	40	10	A
	20	□		MPS0900-L20C	252	208	40	10	A
	25	□		MPS0900-L25C	297	253	40	10	A
	30	□		MPS0900-L30C	342	298	40	10	A
	20	●		MSL0900-L20C	252	208	40	10	B
25	●		MSL0900-L25C	297	253	40	10	B	
30	●		MSL0900-L30C	342	298	40	10	B	
9.1	3	●		MPS0910S-DIN	89	47	40	10	A
	3	●		MPS0910S-DIN-C	89	47	40	10	A
	5	●		MPS0910L-DIN	103	62	40	10	A
	5	●		MPS0910L-DIN-C	103	62	40	10	A
	8	●		MPS0910-L8C	151	107	40	10	A
	10	□		MPS0910-L10C	170	126	40	10	A
	12	●		MPS0910-L12C	189	145	40	10	A
	15	●		MPS0910-L15C	217	173	40	10	A
	20	□		MPS0910-L20C	265	221	40	10	A
	25	□		MPS0910-L25C	312	268	40	10	A
	30	□		MPS0910-L30C	360	316	40	10	A
	20	●		MSL0910-L20C	265	221	40	10	B
25	□		MSL0910-L25C	312	268	40	10	B	
30	□		MSL0910-L30C	360	316	40	10	B	
9.2	3	●		MPS0920S-DIN	89	47	40	10	A
	3	●		MPS0920S-DIN-C	89	47	40	10	A
	5	●		MPS0920L-DIN	103	62	40	10	A
	5	●		MPS0920L-DIN-C	103	62	40	10	A
	8	●		MPS0920-L8C	151	107	40	10	A
	10	□		MPS0920-L10C	170	126	40	10	A
	12	●		MPS0920-L12C	189	145	40	10	A
	15	●		MPS0920-L15C	217	173	40	10	A
	20	□		MPS0920-L20C	265	221	40	10	A
	25	□		MPS0920-L25C	312	268	40	10	A
	30	□		MPS0920-L30C	360	316	40	10	A
	20	●		MSL0920-L20C	265	221	40	10	B
25	□		MSL0920-L25C	312	268	40	10	B	
30	□		MSL0920-L30C	360	316	40	10	B	

DRILLING
MPS, MSL DRILLS
CARBIDE

DRILLING (SOLID CARBIDE)

MPS, MSL

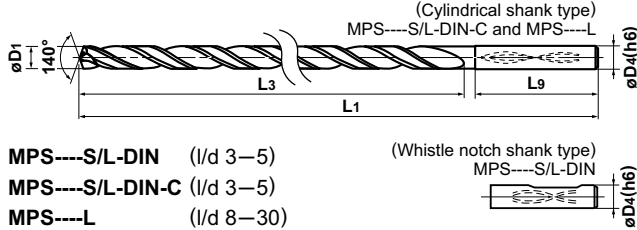
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type



● Type B Standard margin type



MSL (l/d 20—30)

DRILLING MPS, MSL DRILLS

CARBIDE

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
9.3	3	●	MPS0930S-DIN	89	47	40	10	A
	3	●	MPS0930S-DIN-C	89	47	40	10	A
	5	●	MPS0930L-DIN	103	62	40	10	A
	5	●	MPS0930L-DIN-C	103	62	40	10	A
	8	●	MPS0930-L8C	151	107	40	10	A
	10	□	MPS0930-L10C	170	126	40	10	A
	12	●	MPS0930-L12C	189	145	40	10	A
	15	●	MPS0930-L15C	217	173	40	10	A
	20	□	MPS0930-L20C	265	221	40	10	A
	25	□	MPS0930-L25C	312	268	40	10	A
	30	□	MPS0930-L30C	360	316	40	10	A
	20	●	MSL0930-L20C	265	221	40	10	B
	25	□	MSL0930-L25C	312	268	40	10	B
30	□	MSL0930-L30C	360	316	40	10	B	
9.4	3	●	MPS0940S-DIN	89	47	40	10	A
	3	●	MPS0940S-DIN-C	89	47	40	10	A
	5	●	MPS0940L-DIN	103	62	40	10	A
	5	●	MPS0940L-DIN-C	103	62	40	10	A
	8	●	MPS0940-L8C	151	107	40	10	A
	10	□	MPS0940-L10C	170	126	40	10	A
	12	●	MPS0940-L12C	189	145	40	10	A
	15	●	MPS0940-L15C	217	173	40	10	A
	20	□	MPS0940-L20C	265	221	40	10	A
	25	□	MPS0940-L25C	312	268	40	10	A
	30	□	MPS0940-L30C	360	316	40	10	A
	20	●	MSL0940-L20C	265	221	40	10	B
	25	□	MSL0940-L25C	312	268	40	10	B
30	□	MSL0940-L30C	360	316	40	10	B	
9.5	3	●	MPS0950S-DIN	89	47	40	10	A
	3	●	MPS0950S-DIN-C	89	47	40	10	A
	5	●	MPS0950L-DIN	103	62	40	10	A
	5	●	MPS0950L-DIN-C	103	62	40	10	A
	8	●	MPS0950-L8C	151	107	40	10	A
	10	□	MPS0950-L10C	170	126	40	10	A
	12	●	MPS0950-L12C	189	145	40	10	A
	15	●	MPS0950-L15C	217	173	40	10	A
	20	□	MPS0950-L20C	265	221	40	10	A
	25	□	MPS0950-L25C	312	268	40	10	A
	30	□	MPS0950-L30C	360	316	40	10	A
	20	●	MSL0950-L20C	265	221	40	10	B
	25	●	MSL0950-L25C	312	268	40	10	B
30	●	MSL0950-L30C	360	316	40	10	B	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
9.6	3	●	MPS0960S-DIN	89	47	40	10	A
	3	●	MPS0960S-DIN-C	89	47	40	10	A
	5	●	MPS0960L-DIN	103	62	40	10	A
	5	●	MPS0960L-DIN-C	103	62	40	10	A
	8	●	MPS0960-L8C	156	112	40	10	A
	10	□	MPS0960-L10C	176	132	40	10	A
	12	●	MPS0960-L12C	196	152	40	10	A
	15	●	MPS0960-L15C	226	182	40	10	A
	20	□	MPS0960-L20C	276	232	40	10	A
	25	□	MPS0960-L25C	326	282	40	10	A
	30	□	MPS0960-L30C	376	332	40	10	A
	20	●	MSL0960-L20C	276	232	40	10	B
	25	□	MSL0960-L25C	326	282	40	10	B
30	□	MSL0960-L30C	376	332	40	10	B	
9.7	3	●	MPS0970S-DIN	89	47	40	10	A
	3	●	MPS0970S-DIN-C	89	47	40	10	A
	5	●	MPS0970L-DIN	103	62	40	10	A
	5	●	MPS0970L-DIN-C	103	62	40	10	A
	8	●	MPS0970-L8C	156	112	40	10	A
	10	□	MPS0970-L10C	176	132	40	10	A
	12	●	MPS0970-L12C	196	152	40	10	A
	15	●	MPS0970-L15C	226	182	40	10	A
	20	□	MPS0970-L20C	276	232	40	10	A
	25	□	MPS0970-L25C	326	282	40	10	A
	30	□	MPS0970-L30C	376	332	40	10	A
	20	●	MSL0970-L20C	276	232	40	10	B
	25	□	MSL0970-L25C	326	282	40	10	B
30	□	MSL0970-L30C	376	332	40	10	B	
9.8	3	●	MPS0980S-DIN	89	47	40	10	A
	3	●	MPS0980S-DIN-C	89	47	40	10	A
	5	●	MPS0980L-DIN	103	62	40	10	A
	5	●	MPS0980L-DIN-C	103	62	40	10	A
	8	●	MPS0980-L8C	156	112	40	10	A
	10	□	MPS0980-L10C	176	132	40	10	A
	12	●	MPS0980-L12C	196	152	40	10	A
	15	●	MPS0980-L15C	226	182	40	10	A
	20	□	MPS0980-L20C	276	232	40	10	A
	25	□	MPS0980-L25C	326	282	40	10	A
	30	□	MPS0980-L30C	376	332	40	10	A
	20	●	MSL0980-L20C	276	232	40	10	B
	25	□	MSL0980-L25C	326	282	40	10	B
30	□	MSL0980-L30C	376	332	40	10	B	

● : Inventory maintained. □ : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
9.9	3	●		MPS0990S-DIN	89	47	40	10	A
	3	●		MPS0990S-DIN-C	89	47	40	10	A
	5	●		MPS0990L-DIN	103	62	40	10	A
	5	●		MPS0990L-DIN-C	103	62	40	10	A
	8	●		MPS0990-L8C	156	112	40	10	A
	10	□		MPS0990-L10C	176	132	40	10	A
	12	●		MPS0990-L12C	196	152	40	10	A
	15	●		MPS0990-L15C	226	182	40	10	A
	20	□		MPS0990-L20C	276	232	40	10	A
	25	□		MPS0990-L25C	326	282	40	10	A
	30	□		MPS0990-L30C	376	332	40	10	A
	20	●		MSL0990-L20C	276	232	40	10	B
	25	□		MSL0990-L25C	326	282	40	10	B
	30	□		MSL0990-L30C	376	332	40	10	B
10.0	3	●		MPS1000S-DIN	89	47	40	10	A
	3	●		MPS1000S-DIN-C	89	47	40	10	A
	5	●		MPS1000L-DIN	103	62	40	10	A
	5	●		MPS1000L-DIN-C	103	62	40	10	A
	8	●		MPS1000-L8C	156	112	40	10	A
	10	□		MPS1000-L10C	176	132	40	10	A
	12	●		MPS1000-L12C	196	152	40	10	A
	15	●		MPS1000-L15C	226	182	40	10	A
	20	□		MPS1000-L20C	276	232	40	10	A
	25	□		MPS1000-L25C	326	282	40	10	A
	30	□		MPS1000-L30C	376	332	40	10	A
	20	●		MSL1000-L20C	276	232	40	10	B
	25	●		MSL1000-L25C	326	282	40	10	B
	30	●		MSL1000-L30C	376	332	40	10	B
10.05	3	●		MPS1005S-DIN	102	55	45	12	A
	3	●		MPS1005S-DIN-C	102	55	45	12	A
	5	●		MPS1005L-DIN	118	71	45	12	A
	5	●		MPS1005L-DIN-C	118	71	45	12	A
10.1	3	●		MPS1010S-DIN	102	55	45	12	A
	3	●		MPS1010S-DIN-C	102	55	45	12	A
	5	●		MPS1010L-DIN	118	71	45	12	A
	5	●		MPS1010L-DIN-C	118	71	45	12	A
	8	●		MPS1010-L8C	167	118	45	12	A
	10	□		MPS1010-L10C	188	139	45	12	A
	12	●		MPS1010-L12C	209	160	45	12	A
	15	●		MPS1010-L15C	240	191	45	12	A
	20	□		MPS1010-L20C	293	244	45	12	A
	25	□		MPS1010-L25C	345	296	45	12	A
	20	●		MSL1010-L20C	293	244	45	12	B
25	□		MSL1010-L25C	345	296	45	12	B	
10.2	3	●		MPS1020S-DIN	102	55	45	12	A
	3	●		MPS1020S-DIN-C	102	55	45	12	A
	5	●		MPS1020L-DIN	118	71	45	12	A
	5	●		MPS1020L-DIN-C	118	71	45	12	A
	8	●		MPS1020-L8C	167	118	45	12	A
	10	□		MPS1020-L10C	188	139	45	12	A
	12	●		MPS1020-L12C	209	160	45	12	A
	15	●		MPS1020-L15C	240	191	45	12	A
	20	□		MPS1020-L20C	293	244	45	12	A
	25	□		MPS1020-L25C	345	296	45	12	A
	20	●		MSL1020-L20C	293	244	45	12	B
25	□		MSL1020-L25C	345	296	45	12	B	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type	
		VP15TF			L1	L3	L9	D4		
10.3	3	●		MPS1030S-DIN	102	55	45	12	A	
	3	●		MPS1030S-DIN-C	102	55	45	12	A	
	5	●		MPS1030L-DIN	118	71	45	12	A	
	5	●		MPS1030L-DIN-C	118	71	45	12	A	
	8	●		MPS1030-L8C	167	118	45	12	A	
	10	□		MPS1030-L10C	188	139	45	12	A	
	12	●		MPS1030-L12C	209	160	45	12	A	
	15	●		MPS1030-L15C	240	191	45	12	A	
	20	□		MPS1030-L20C	293	244	45	12	A	
	25	□		MPS1030-L25C	345	296	45	12	A	
	20	●		MSL1030-L20C	293	244	45	12	B	
	25	□		MSL1030-L25C	345	296	45	12	B	
	10.4	3	●		MPS1040S-DIN	102	55	45	12	A
		3	●		MPS1040S-DIN-C	102	55	45	12	A
5		●		MPS1040L-DIN	118	71	45	12	A	
5		●		MPS1040L-DIN-C	118	71	45	12	A	
8		●		MPS1040-L8C	167	118	45	12	A	
10		□		MPS1040-L10C	188	139	45	12	A	
12		●		MPS1040-L12C	209	160	45	12	A	
15		●		MPS1040-L15C	240	191	45	12	A	
20		□		MPS1040-L20C	293	244	45	12	A	
25		□		MPS1040-L25C	345	296	45	12	A	
20		●		MSL1040-L20C	293	244	45	12	B	
25	□		MSL1040-L25C	345	296	45	12	B		
10.5	3	●		MPS1050S-DIN	102	55	45	12	A	
	3	●		MPS1050S-DIN-C	102	55	45	12	A	
	5	●		MPS1050L-DIN	118	71	45	12	A	
	5	●		MPS1050L-DIN-C	118	71	45	12	A	
	8	●		MPS1050-L8C	167	118	45	12	A	
	10	□		MPS1050-L10C	188	139	45	12	A	
	12	●		MPS1050-L12C	209	160	45	12	A	
	15	●		MPS1050-L15C	240	191	45	12	A	
	20	□		MPS1050-L20C	293	244	45	12	A	
	25	□		MPS1050-L25C	345	296	45	12	A	
	20	●		MSL1050-L20C	293	244	45	12	B	
25	●		MSL1050-L25C	345	296	45	12	B		
10.6	3	●		MPS1060S-DIN	102	55	45	12	A	
	3	●		MPS1060S-DIN-C	102	55	45	12	A	
	5	●		MPS1060L-DIN	118	71	45	12	A	
	5	●		MPS1060L-DIN-C	118	71	45	12	A	
	8	●		MPS1060-L8C	172	123	45	12	A	
	10	□		MPS1060-L10C	194	145	45	12	A	
	12	●		MPS1060-L12C	216	167	45	12	A	
	15	●		MPS1060-L15C	249	200	45	12	A	
	20	□		MPS1060-L20C	304	255	45	12	A	
	25	□		MPS1060-L25C	359	310	45	12	A	
	20	●		MSL1060-L20C	304	255	45	12	B	
25	□		MSL1060-L25C	359	310	45	12	B		

DRILLING MPS, MSL DRILLS



CARBIDE

DRILLING (SOLID CARBIDE)

MPS, MSL

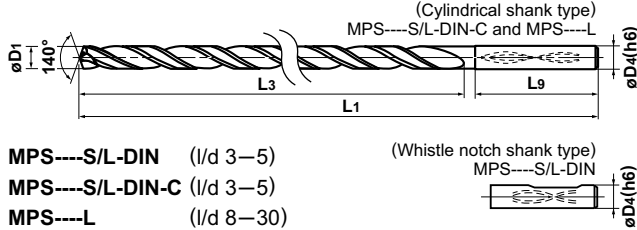
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



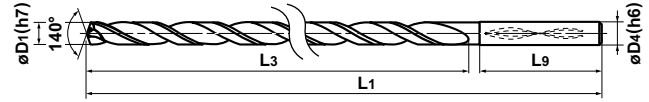
D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type



● Type B Standard margin type



Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
10.7	3	●	MPS1070S-DIN	102	55	45	12	A
	3	●	MPS1070S-DIN-C	102	55	45	12	A
	5	●	MPS1070L-DIN	118	71	45	12	A
	5	●	MPS1070L-DIN-C	118	71	45	12	A
	8	●	MPS1070-L8C	172	123	45	12	A
	10	□	MPS1070-L10C	194	145	45	12	A
	12	●	MPS1070-L12C	216	167	45	12	A
	15	●	MPS1070-L15C	249	200	45	12	A
	20	□	MPS1070-L20C	304	255	45	12	A
	25	□	MPS1070-L25C	359	310	45	12	A
10.8	20	●	MSL1070-L20C	304	255	45	12	B
	25	□	MSL1070-L25C	359	310	45	12	B
	3	●	MPS1080S-DIN	102	55	45	12	A
	3	●	MPS1080S-DIN-C	102	55	45	12	A
	5	●	MPS1080L-DIN	118	71	45	12	A
	5	●	MPS1080L-DIN-C	118	71	45	12	A
	8	●	MPS1080-L8C	172	123	45	12	A
	10	□	MPS1080-L10C	194	145	45	12	A
	12	●	MPS1080-L12C	216	167	45	12	A
	15	●	MPS1080-L15C	249	200	45	12	A
10.9	20	□	MPS1080-L20C	304	255	45	12	A
	25	□	MPS1080-L25C	359	310	45	12	A
	20	●	MSL1080-L20C	304	255	45	12	B
	25	□	MSL1080-L25C	359	310	45	12	B
	3	●	MPS1090S-DIN	102	55	45	12	A
	3	●	MPS1090S-DIN-C	102	55	45	12	A
	5	●	MPS1090L-DIN	118	71	45	12	A
	5	●	MPS1090L-DIN-C	118	71	45	12	A
	8	●	MPS1090-L8C	172	123	45	12	A
	10	□	MPS1090-L10C	194	145	45	12	A
11.0	12	●	MPS1090-L12C	216	167	45	12	A
	15	●	MPS1090-L15C	249	200	45	12	A
	20	□	MPS1090-L20C	304	255	45	12	A
	25	□	MPS1090-L25C	359	310	45	12	A
	20	●	MSL1090-L20C	304	255	45	12	B
	25	□	MSL1090-L25C	359	310	45	12	B
	3	●	MPS1100S-DIN	102	55	45	12	A
	3	●	MPS1100S-DIN-C	102	55	45	12	A
	5	●	MPS1100L-DIN	118	71	45	12	A
	5	●	MPS1100L-DIN-C	118	71	45	12	A
8	●	MPS1100-L8C	172	123	45	12	A	
10	□	MPS1100-L10C	194	145	45	12	A	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
11.0	12	●	MPS1100-L12C	216	167	45	12	A
	15	●	MPS1100-L15C	249	200	45	12	A
	20	□	MPS1100-L20C	304	255	45	12	A
	25	□	MPS1100-L25C	359	310	45	12	A
	20	●	MSL1100-L20C	304	255	45	12	B
	25	●	MSL1100-L25C	359	310	45	12	B
11.1	3	●	MPS1110S-DIN	102	55	45	12	A
	3	●	MPS1110S-DIN-C	102	55	45	12	A
	5	●	MPS1110L-DIN	118	71	45	12	A
	5	●	MPS1110L-DIN-C	118	71	45	12	A
	8	●	MPS1110-L8C	178	129	45	12	A
	10	□	MPS1110-L10C	201	152	45	12	A
	12	●	MPS1110-L12C	224	175	45	12	A
	15	●	MPS1110-L15C	258	209	45	12	A
	20	□	MPS1110-L20C	316	267	45	12	A
	25	□	MPS1110-L25C	373	324	45	12	A
11.2	20	□	MSL1110-L20C	316	267	45	12	B
	25	□	MSL1110-L25C	373	324	45	12	B
	3	●	MPS1120S-DIN	102	55	45	12	A
	3	●	MPS1120S-DIN-C	102	55	45	12	A
	5	●	MPS1120L-DIN	118	71	45	12	A
	5	●	MPS1120L-DIN-C	118	71	45	12	A
	8	●	MPS1120-L8C	178	129	45	12	A
	10	□	MPS1120-L10C	201	152	45	12	A
	12	●	MPS1120-L12C	224	175	45	12	A
	15	●	MPS1120-L15C	258	209	45	12	A
11.3	20	□	MPS1120-L20C	316	267	45	12	A
	25	□	MPS1120-L25C	373	324	45	12	A
	20	□	MSL1120-L20C	316	267	45	12	B
	25	□	MSL1120-L25C	373	324	45	12	B
	3	●	MPS1130S-DIN	102	55	45	12	A
	3	●	MPS1130S-DIN-C	102	55	45	12	A
	5	●	MPS1130L-DIN	118	71	45	12	A
	5	●	MPS1130L-DIN-C	118	71	45	12	A
	8	●	MPS1130-L8C	178	129	45	12	A
	10	□	MPS1130-L10C	201	152	45	12	A
12	●	MPS1130-L12C	224	175	45	12	A	
15	●	MPS1130-L15C	258	209	45	12	A	
20	□	MPS1130-L20C	316	267	45	12	A	
25	□	MPS1130-L25C	373	324	45	12	A	
20	□	MSL1130-L20C	316	267	45	12	B	
25	□	MSL1130-L25C	373	324	45	12	B	

● : Inventory maintained. □ : Non stock, produced to order only.



Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
11.4	3	●		MPS1140S-DIN	102	55	45	12	A
	3	●		MPS1140S-DIN-C	102	55	45	12	A
	5	●		MPS1140L-DIN	118	71	45	12	A
	5	●		MPS1140L-DIN-C	118	71	45	12	A
	8	●		MPS1140-L8C	178	129	45	12	A
	10	□		MPS1140-L10C	201	152	45	12	A
	12	●		MPS1140-L12C	224	175	45	12	A
	15	●		MPS1140-L15C	258	209	45	12	A
	20	□		MPS1140-L20C	316	267	45	12	A
	25	□		MPS1140-L25C	373	324	45	12	A
	20	□		MSL1140-L20C	316	267	45	12	B
	25	□		MSL1140-L25C	373	324	45	12	B
11.5	3	●		MPS1150S-DIN	102	55	45	12	A
	3	●		MPS1150S-DIN-C	102	55	45	12	A
	5	●		MPS1150L-DIN	118	71	45	12	A
	5	●		MPS1150L-DIN-C	118	71	45	12	A
	8	●		MPS1150-L8C	178	129	45	12	A
	10	□		MPS1150-L10C	201	152	45	12	A
	12	●		MPS1150-L12C	224	175	45	12	A
	15	●		MPS1150-L15C	258	209	45	12	A
	20	□		MPS1150-L20C	316	267	45	12	A
	25	□		MPS1150-L25C	373	324	45	12	A
	20	●		MSL1150-L20C	316	267	45	12	B
	25	●		MSL1150-L25C	373	324	45	12	B
11.6	3	●		MPS1160S-DIN	102	55	45	12	A
	3	●		MPS1160S-DIN-C	102	55	45	12	A
	5	●		MPS1160L-DIN	118	71	45	12	A
	5	●		MPS1160L-DIN-C	118	71	45	12	A
	8	●		MPS1160-L8C	183	134	45	12	A
	10	□		MPS1160-L10C	207	158	45	12	A
	12	●		MPS1160-L12C	231	182	45	12	A
	15	●		MPS1160-L15C	267	218	45	12	A
	20	□		MPS1160-L20C	327	278	45	12	A
	25	□		MPS1160-L25C	387	338	45	12	A
	20	□		MSL1160-L20C	327	278	45	12	B
	25	□		MSL1160-L25C	387	338	45	12	B
11.7	3	●		MPS1170S-DIN	102	55	45	12	A
	3	●		MPS1170S-DIN-C	102	55	45	12	A
	5	●		MPS1170L-DIN	118	71	45	12	A
	5	●		MPS1170L-DIN-C	118	71	45	12	A
	8	●		MPS1170-L8C	183	134	45	12	A
	10	□		MPS1170-L10C	207	158	45	12	A
	12	●		MPS1170-L12C	231	182	45	12	A
	15	●		MPS1170-L15C	267	218	45	12	A
	20	□		MPS1170-L20C	327	278	45	12	A
	25	□		MPS1170-L25C	387	338	45	12	A
	20	□		MSL1170-L20C	327	278	45	12	B
	25	□		MSL1170-L25C	387	338	45	12	B
11.8	3	●		MPS1180S-DIN	102	55	45	12	A
	3	●		MPS1180S-DIN-C	102	55	45	12	A
	5	●		MPS1180L-DIN	118	71	45	12	A
	5	●		MPS1180L-DIN-C	118	71	45	12	A
	8	●		MPS1180-L8C	183	134	45	12	A
	10	□		MPS1180-L10C	207	158	45	12	A
	12	●		MPS1180-L12C	231	182	45	12	A
15	●		MPS1180-L15C	267	218	45	12	A	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type	
		VP15TF			L1	L3	L9	D4		
11.8	20	□		MPS1180-L20C	327	278	45	12	A	
	25	□		MPS1180-L25C	387	338	45	12	A	
	20	□		MSL1180-L20C	327	278	45	12	B	
	25	□		MSL1180-L25C	387	338	45	12	B	
	11.9	3	●		MPS1190S-DIN	102	55	45	12	A
3		●		MPS1190S-DIN-C	102	55	45	12	A	
5		●		MPS1190L-DIN	118	71	45	12	A	
5		●		MPS1190L-DIN-C	118	71	45	12	A	
8		●		MPS1190-L8C	183	134	45	12	A	
10		□		MPS1190-L10C	207	158	45	12	A	
12		●		MPS1190-L12C	231	182	45	12	A	
15		●		MPS1190-L15C	267	218	45	12	A	
20		□		MPS1190-L20C	327	278	45	12	A	
25		□		MPS1190-L25C	387	338	45	12	A	
20		□		MSL1190-L20C	327	278	45	12	B	
25		□		MSL1190-L25C	387	338	45	12	B	
12.0	3	●		MPS1200S-DIN	102	55	45	12	A	
	3	●		MPS1200S-DIN-C	102	55	45	12	A	
	5	●		MPS1200L-DIN	118	71	45	12	A	
	5	●		MPS1200L-DIN-C	118	71	45	12	A	
	8	●		MPS1200-L8C	183	134	45	12	A	
	10	□		MPS1200-L10C	207	158	45	12	A	
	12	●		MPS1200-L12C	231	182	45	12	A	
	15	●		MPS1200-L15C	267	218	45	12	A	
	20	□		MPS1200-L20C	327	278	45	12	A	
	25	□		MPS1200-L25C	387	338	45	12	A	
	20	●		MSL1200-L20C	327	278	45	12	B	
	25	●		MSL1200-L25C	387	338	45	12	B	
12.05	3	●		MPS1205S-DIN	107	60	45	14	A	
	3	●		MPS1205S-DIN-C	107	60	45	14	A	
	5	●		MPS1205L-DIN	124	77	45	14	A	
	5	●		MPS1205L-DIN-C	124	77	45	14	A	
	12.1	3	●		MPS1210S-DIN	107	60	45	14	A
3		●		MPS1210S-DIN-C	107	60	45	14	A	
5		●		MPS1210L-DIN	124	77	45	14	A	
5		●		MPS1210L-DIN-C	124	77	45	14	A	
8		●		MPS1210-L8C	189	140	45	14	A	
10		□		MPS1210-L10C	214	165	45	14	A	
12		●		MPS1210-L12C	239	190	45	14	A	
15		●		MPS1210-L15C	276	227	45	14	A	
20		□		MPS1210-L20C	339	290	45	14	A	
20		□		MSL1210-L20C	339	290	45	14	B	
12.2		3	●		MPS1220S-DIN	107	60	45	14	A
		3	●		MPS1220S-DIN-C	107	60	45	14	A
	5	●		MPS1220L-DIN	124	77	45	14	A	
	5	●		MPS1220L-DIN-C	124	77	45	14	A	
	8	●		MPS1220-L8C	189	140	45	14	A	
	10	□		MPS1220-L10C	214	165	45	14	A	
	12	●		MPS1220-L12C	239	190	45	14	A	
	15	●		MPS1220-L15C	276	227	45	14	A	
	20	□		MPS1220-L20C	339	290	45	14	A	
20	□		MSL1220-L20C	339	290	45	14	B		

DRILLING MPS, MSL DRILLS



DRILLING (SOLID CARBIDE)

MPS, MSL

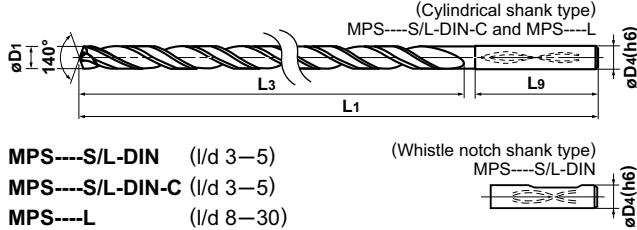
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



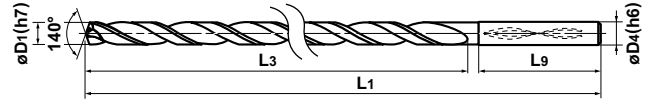
D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type



● Type B Standard margin type



MSL (l/d 20—30)

DRILLING MPS, MSL DRILLS

CARBIDE

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
12.3	3	●	MPS1230S-DIN	107	60	45	14	A
	3	●	MPS1230S-DIN-C	107	60	45	14	A
	5	●	MPS1230L-DIN	124	77	45	14	A
	5	●	MPS1230L-DIN-C	124	77	45	14	A
	8	●	MPS1230-L8C	189	140	45	14	A
	10	□	MPS1230-L10C	214	165	45	14	A
	12	●	MPS1230-L12C	239	190	45	14	A
	15	●	MPS1230-L15C	276	227	45	14	A
	20	□	MPS1230-L20C	339	290	45	14	A
20	□	MSL1230-L20C	339	290	45	14	B	
12.4	3	●	MPS1240S-DIN	107	60	45	14	A
	3	●	MPS1240S-DIN-C	107	60	45	14	A
	5	●	MPS1240L-DIN	124	77	45	14	A
	5	●	MPS1240L-DIN-C	124	77	45	14	A
	8	●	MPS1240-L8C	189	140	45	14	A
	10	□	MPS1240-L10C	214	165	45	14	A
	12	●	MPS1240-L12C	239	190	45	14	A
	15	●	MPS1240-L15C	276	227	45	14	A
	20	□	MPS1240-L20C	339	290	45	14	A
20	□	MSL1240-L20C	339	290	45	14	B	
12.5	3	●	MPS1250S-DIN	107	60	45	14	A
	3	●	MPS1250S-DIN-C	107	60	45	14	A
	5	●	MPS1250L-DIN	124	77	45	14	A
	5	●	MPS1250L-DIN-C	124	77	45	14	A
	8	●	MPS1250-L8C	189	140	45	14	A
	10	□	MPS1250-L10C	214	165	45	14	A
	12	●	MPS1250-L12C	239	190	45	14	A
	15	●	MPS1250-L15C	276	227	45	14	A
	20	●	MPS1250-L20C	339	290	45	14	A
20	●	MSL1250-L20C	339	290	45	14	B	
12.6	3	●	MPS1260S-DIN	107	60	45	14	A
	3	●	MPS1260S-DIN-C	107	60	45	14	A
	5	●	MPS1260L-DIN	124	77	45	14	A
	5	●	MPS1260L-DIN-C	124	77	45	14	A
	8	●	MPS1260-L8C	194	145	45	14	A
	10	□	MPS1260-L10C	220	171	45	14	A
	12	●	MPS1260-L12C	246	197	45	14	A
	15	●	MPS1260-L15C	285	236	45	14	A
	20	□	MPS1260-L20C	350	301	45	14	A
20	□	MSL1260-L20C	350	301	45	14	B	

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
12.7	3	●	MPS1270S-DIN	107	60	45	14	A
	3	●	MPS1270S-DIN-C	107	60	45	14	A
	5	●	MPS1270L-DIN	124	77	45	14	A
	5	●	MPS1270L-DIN-C	124	77	45	14	A
	8	●	MPS1270-L8C	194	145	45	14	A
	10	□	MPS1270-L10C	220	171	45	14	A
	12	●	MPS1270-L12C	246	197	45	14	A
	15	●	MPS1270-L15C	285	236	45	14	A
	20	□	MPS1270-L20C	350	301	45	14	A
20	□	MSL1270-L20C	350	301	45	14	B	
12.8	3	●	MPS1280S-DIN	107	60	45	14	A
	3	●	MPS1280S-DIN-C	107	60	45	14	A
	5	●	MPS1280L-DIN	124	77	45	14	A
	5	●	MPS1280L-DIN-C	124	77	45	14	A
	8	●	MPS1280-L8C	194	145	45	14	A
	10	□	MPS1280-L10C	220	171	45	14	A
	12	●	MPS1280-L12C	246	197	45	14	A
	15	●	MPS1280-L15C	285	236	45	14	A
	20	□	MPS1280-L20C	350	301	45	14	A
20	□	MSL1280-L20C	350	301	45	14	B	
12.9	3	●	MPS1290S-DIN	107	60	45	14	A
	3	●	MPS1290S-DIN-C	107	60	45	14	A
	5	●	MPS1290L-DIN	124	77	45	14	A
	5	●	MPS1290L-DIN-C	124	77	45	14	A
	8	●	MPS1290-L8C	194	145	45	14	A
	10	□	MPS1290-L10C	220	171	45	14	A
	12	●	MPS1290-L12C	246	197	45	14	A
	15	●	MPS1290-L15C	285	236	45	14	A
	20	□	MPS1290-L20C	350	301	45	14	A
20	□	MSL1290-L20C	350	301	45	14	B	
13.0	3	●	MPS1300S-DIN	107	60	45	14	A
	3	●	MPS1300S-DIN-C	107	60	45	14	A
	5	●	MPS1300L-DIN	124	77	45	14	A
	5	●	MPS1300L-DIN-C	124	77	45	14	A
	8	●	MPS1300-L8C	194	145	45	14	A
	10	□	MPS1300-L10C	220	171	45	14	A
	12	●	MPS1300-L12C	246	197	45	14	A
	15	●	MPS1300-L15C	285	236	45	14	A
	20	●	MPS1300-L20C	350	301	45	14	A
20	●	MSL1300-L20C	350	301	45	14	B	

● : Inventory maintained. □ : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
13.1	3	●		MPS1310S-DIN	107	60	45	14	A
	3	●		MPS1310S-DIN-C	107	60	45	14	A
	5	●		MPS1310L-DIN	124	77	45	14	A
	5	●		MPS1310L-DIN-C	124	77	45	14	A
	8	●		MPS1310-L8C	200	151	45	14	A
	10	□		MPS1310-L10C	227	178	45	14	A
	12	●		MPS1310-L12C	254	205	45	14	A
	15	●		MPS1310-L15C	294	245	45	14	A
	20	□		MPS1310-L20C	362	313	45	14	A
	20	□		MSL1310-L20C	362	313	45	14	B
13.2	3	●		MPS1320S-DIN	107	60	45	14	A
	3	●		MPS1320S-DIN-C	107	60	45	14	A
	5	●		MPS1320L-DIN	124	77	45	14	A
	5	●		MPS1320L-DIN-C	124	77	45	14	A
	8	●		MPS1320-L8C	200	151	45	14	A
	10	□		MPS1320-L10C	227	178	45	14	A
	12	●		MPS1320-L12C	254	205	45	14	A
	15	●		MPS1320-L15C	294	245	45	14	A
	20	□		MPS1320-L20C	362	313	45	14	A
	20	□		MSL1320-L20C	362	313	45	14	B
13.3	3	●		MPS1330S-DIN	107	60	45	14	A
	3	●		MPS1330S-DIN-C	107	60	45	14	A
	5	●		MPS1330L-DIN	124	77	45	14	A
	5	●		MPS1330L-DIN-C	124	77	45	14	A
	8	●		MPS1330-L8C	200	151	45	14	A
	10	□		MPS1330-L10C	227	178	45	14	A
	12	●		MPS1330-L12C	254	205	45	14	A
	15	●		MPS1330-L15C	294	245	45	14	A
	20	□		MPS1330-L20C	362	313	45	14	A
	20	□		MSL1330-L20C	362	313	45	14	B
13.4	3	●		MPS1340S-DIN	107	60	45	14	A
	3	●		MPS1340S-DIN-C	107	60	45	14	A
	5	●		MPS1340L-DIN	124	77	45	14	A
	5	●		MPS1340L-DIN-C	124	77	45	14	A
	8	●		MPS1340-L8C	200	151	45	14	A
	10	□		MPS1340-L10C	227	178	45	14	A
	12	●		MPS1340-L12C	254	205	45	14	A
	15	●		MPS1340-L15C	294	245	45	14	A
	20	□		MPS1340-L20C	362	313	45	14	A
	20	□		MSL1340-L20C	362	313	45	14	B
13.5	3	●		MPS1350S-DIN	107	60	45	14	A
	3	●		MPS1350S-DIN-C	107	60	45	14	A
	5	●		MPS1350L-DIN	124	77	45	14	A
	5	●		MPS1350L-DIN-C	124	77	45	14	A
	8	●		MPS1350-L8C	200	151	45	14	A
	10	□		MPS1350-L10C	227	178	45	14	A
	12	●		MPS1350-L12C	254	205	45	14	A
	15	●		MPS1350-L15C	294	245	45	14	A
	20	●		MPS1350-L20C	362	313	45	14	A
	20	●		MSL1350-L20C	362	313	45	14	B
13.6	3	●		MPS1360S-DIN	107	60	45	14	A
	3	●		MPS1360S-DIN-C	107	60	45	14	A
	5	●		MPS1360L-DIN	124	77	45	14	A
	5	●		MPS1360L-DIN-C	124	77	45	14	A
	10	□		MPS1360-L10C	233	184	45	14	A

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
13.6	12	●		MPS1360-L12C	261	212	45	14	A
	15	●		MPS1360-L15C	303	254	45	14	A
	20	□		MPS1360-L20C	373	324	45	14	A
	20	□		MSL1360-L20C	373	324	45	14	B
	13.7	3	●		MPS1370S-DIN	107	60	45	14
3		●		MPS1370S-DIN-C	107	60	45	14	A
5		●		MPS1370L-DIN	124	77	45	14	A
5		●		MPS1370L-DIN-C	124	77	45	14	A
8		●		MPS1370-L8C	205	156	45	14	A
10		□		MPS1370-L10C	233	184	45	14	A
12		●		MPS1370-L12C	261	212	45	14	A
15		●		MPS1370-L15C	303	254	45	14	A
20		□		MPS1370-L20C	373	324	45	14	A
20		□		MSL1370-L20C	373	324	45	14	B
13.8	3	●		MPS1380S-DIN	107	60	45	14	A
	3	●		MPS1380S-DIN-C	107	60	45	14	A
	5	●		MPS1380L-DIN	124	77	45	14	A
	5	●		MPS1380L-DIN-C	124	77	45	14	A
	8	●		MPS1380-L8C	205	156	45	14	A
	10	□		MPS1380-L10C	233	184	45	14	A
	12	●		MPS1380-L12C	261	212	45	14	A
	15	●		MPS1380-L15C	303	254	45	14	A
	20	□		MPS1380-L20C	373	324	45	14	A
	20	□		MSL1380-L20C	373	324	45	14	B
13.9	3	●		MPS1390S-DIN	107	60	45	14	A
	3	●		MPS1390S-DIN-C	107	60	45	14	A
	5	●		MPS1390L-DIN	124	77	45	14	A
	5	●		MPS1390L-DIN-C	124	77	45	14	A
	8	●		MPS1390-L8C	205	156	45	14	A
	10	□		MPS1390-L10C	233	184	45	14	A
	12	●		MPS1390-L12C	261	212	45	14	A
	15	●		MPS1390-L15C	303	254	45	14	A
	20	□		MPS1390-L20C	373	324	45	14	A
	20	□		MSL1390-L20C	373	324	45	14	B
14.0	3	●		MPS1400S-DIN	107	60	45	14	A
	3	●		MPS1400S-DIN-C	107	60	45	14	A
	5	●		MPS1400L-DIN	124	77	45	14	A
	5	●		MPS1400L-DIN-C	124	77	45	14	A
	8	●		MPS1400-L8C	205	156	45	14	A
	10	□		MPS1400-L10C	233	184	45	14	A
	12	●		MPS1400-L12C	261	212	45	14	A
	15	●		MPS1400-L15C	303	254	45	14	A
	20	●		MPS1400-L20C	373	324	45	14	A
	20	●		MSL1400-L20C	373	324	45	14	B
14.1	3	□		MPS1410S-DIN	114	64	48	16	A
	3	□		MPS1410S-DIN-C	114	64	48	16	A
	5	□		MPS1410L-DIN	132	82	48	16	A
	5	□		MPS1410L-DIN-C	132	82	48	16	A
	14.2	3	●		MPS1420S-DIN	114	64	48	16
3		●		MPS1420S-DIN-C	114	64	48	16	A
5		●		MPS1420L-DIN	132	82	48	16	A
14.3	3	□		MPS1430S-DIN	114	64	48	16	A
	3	□		MPS1430S-DIN-C	114	64	48	16	A
	5	□		MPS1430L-DIN	132	82	48	16	A
14.3	5	□		MPS1430L-DIN	132	82	48	16	A
	5	□		MPS1430L-DIN-C	132	82	48	16	A
	5	□		MPS1430L-DIN-C	132	82	48	16	A

DRILLING MPS, MSL DRILLS



DRILLING (SOLID CARBIDE)

MPS, MSL

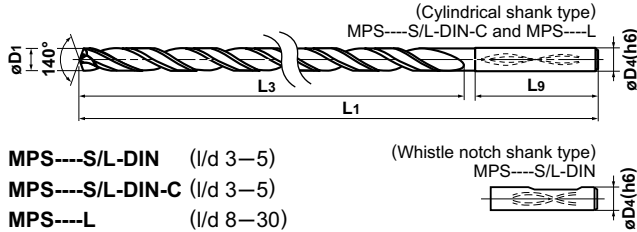
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type



DRILLING MPS, MSL DRILLS



Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
14.4	3	□	MPS1440S-DIN	114	64	48	16	A
	3	□	MPS1440S-DIN-C	114	64	48	16	A
	5	□	MPS1440L-DIN	132	82	48	16	A
	5	□	MPS1440L-DIN-C	132	82	48	16	A
14.5	3	●	MPS1450S-DIN	114	64	48	16	A
	3	●	MPS1450S-DIN-C	114	64	48	16	A
	5	●	MPS1450L-DIN	132	82	48	16	A
	5	●	MPS1450L-DIN-C	132	82	48	16	A
14.6	3	□	MPS1460S-DIN	114	64	48	16	A
	3	□	MPS1460S-DIN-C	114	64	48	16	A
	5	□	MPS1460L-DIN	132	82	48	16	A
	5	□	MPS1460L-DIN-C	132	82	48	16	A
14.7	3	□	MPS1470S-DIN	114	64	48	16	A
	3	□	MPS1470S-DIN-C	114	64	48	16	A
	5	□	MPS1470L-DIN	132	82	48	16	A
	5	□	MPS1470L-DIN-C	132	82	48	16	A
14.8	3	□	MPS1480S-DIN	114	64	48	16	A
	3	□	MPS1480S-DIN-C	114	64	48	16	A
	5	□	MPS1480L-DIN	132	82	48	16	A
	5	□	MPS1480L-DIN-C	132	82	48	16	A
14.9	3	□	MPS1490S-DIN	114	64	48	16	A
	3	□	MPS1490S-DIN-C	114	64	48	16	A
	5	□	MPS1490L-DIN	132	82	48	16	A
	5	□	MPS1490L-DIN-C	132	82	48	16	A
15.0	3	●	MPS1500S-DIN	114	64	48	16	A
	3	●	MPS1500S-DIN-C	114	64	48	16	A
	5	●	MPS1500L-DIN	132	82	48	16	A
	5	●	MPS1500L-DIN-C	132	82	48	16	A
15.1	3	□	MPS1510S-DIN	115	65	48	16	A
	3	□	MPS1510S-DIN-C	115	65	48	16	A
	5	□	MPS1510L-DIN	133	83	48	16	A
	5	□	MPS1510L-DIN-C	133	83	48	16	A
15.2	3	□	MPS1520S-DIN	115	65	48	16	A
	3	□	MPS1520S-DIN-C	115	65	48	16	A
	5	□	MPS1520L-DIN	133	83	48	16	A
	5	□	MPS1520L-DIN-C	133	83	48	16	A
15.3	3	□	MPS1530S-DIN	115	65	48	16	A
	3	□	MPS1530S-DIN-C	115	65	48	16	A
	5	□	MPS1530L-DIN	133	83	48	16	A
	5	□	MPS1530L-DIN-C	133	83	48	16	A

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
15.4	3	□	MPS1540S-DIN	115	65	48	16	A
	3	□	MPS1540S-DIN-C	115	65	48	16	A
	5	□	MPS1540L-DIN	133	83	48	16	A
	5	□	MPS1540L-DIN-C	133	83	48	16	A
15.5	3	●	MPS1550S-DIN	115	65	48	16	A
	3	●	MPS1550S-DIN-C	115	65	48	16	A
	5	●	MPS1550L-DIN	133	83	48	16	A
	5	●	MPS1550L-DIN-C	133	83	48	16	A
15.6	3	□	MPS1560S-DIN	115	65	48	16	A
	3	□	MPS1560S-DIN-C	115	65	48	16	A
	5	□	MPS1560L-DIN	133	83	48	16	A
	5	□	MPS1560L-DIN-C	133	83	48	16	A
15.7	3	□	MPS1570S-DIN	115	65	48	16	A
	3	□	MPS1570S-DIN-C	115	65	48	16	A
	5	□	MPS1570L-DIN	133	83	48	16	A
	5	□	MPS1570L-DIN-C	133	83	48	16	A
15.8	3	□	MPS1580S-DIN	115	65	48	16	A
	3	□	MPS1580S-DIN-C	115	65	48	16	A
	5	□	MPS1580L-DIN	133	83	48	16	A
	5	□	MPS1580L-DIN-C	133	83	48	16	A
15.9	3	□	MPS1590S-DIN	115	65	48	16	A
	3	□	MPS1590S-DIN-C	115	65	48	16	A
	5	□	MPS1590L-DIN	133	83	48	16	A
	5	□	MPS1590L-DIN-C	133	83	48	16	A
16.0	3	●	MPS1600S-DIN	115	65	48	16	A
	3	●	MPS1600S-DIN-C	115	65	48	16	A
	5	●	MPS1600L-DIN	133	83	48	16	A
	5	●	MPS1600L-DIN-C	133	83	48	16	A
16.1	3	□	MPS1610S-DIN	123	73	48	18	A
	3	□	MPS1610S-DIN-C	123	73	48	18	A
	5	□	MPS1610L-DIN	143	93	48	18	A
	5	□	MPS1610L-DIN-C	143	93	48	18	A
16.2	3	□	MPS1620S-DIN	123	73	48	18	A
	3	□	MPS1620S-DIN-C	123	73	48	18	A
	5	□	MPS1620L-DIN	143	93	48	18	A
	5	□	MPS1620L-DIN-C	143	93	48	18	A
16.3	3	□	MPS1630S-DIN	123	73	48	18	A
	3	□	MPS1630S-DIN-C	123	73	48	18	A
	5	□	MPS1630L-DIN	143	93	48	18	A
	5	□	MPS1630L-DIN-C	143	93	48	18	A

● : Inventory maintained. □ : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
16.4	3	□		MPS1640S-DIN	123	73	48	18	A
	3	□		MPS1640S-DIN-C	123	73	48	18	A
	5	□		MPS1640L-DIN	143	93	48	18	A
	5	□		MPS1640L-DIN-C	143	93	48	18	A
16.5	3	●		MPS1650S-DIN	123	73	48	18	A
	3	●		MPS1650S-DIN-C	123	73	48	18	A
	5	●		MPS1650L-DIN	143	93	48	18	A
	5	●		MPS1650L-DIN-C	143	93	48	18	A
16.6	3	□		MPS1660S-DIN	123	73	48	18	A
	3	□		MPS1660S-DIN-C	123	73	48	18	A
	5	□		MPS1660L-DIN	143	93	48	18	A
	5	□		MPS1660L-DIN-C	143	93	48	18	A
16.7	3	□		MPS1670S-DIN	123	73	48	18	A
	3	□		MPS1670S-DIN-C	123	73	48	18	A
	5	□		MPS1670L-DIN	143	93	48	18	A
	5	□		MPS1670L-DIN-C	143	93	48	18	A
16.8	3	□		MPS1680S-DIN	123	73	48	18	A
	3	□		MPS1680S-DIN-C	123	73	48	18	A
	5	□		MPS1680L-DIN	143	93	48	18	A
	5	□		MPS1680L-DIN-C	143	93	48	18	A
16.9	3	□		MPS1690S-DIN	123	73	48	18	A
	3	□		MPS1690S-DIN-C	123	73	48	18	A
	5	□		MPS1690L-DIN	143	93	48	18	A
	5	□		MPS1690L-DIN-C	143	93	48	18	A
17.0	3	●		MPS1700S-DIN	123	73	48	18	A
	3	●		MPS1700S-DIN-C	123	73	48	18	A
	5	●		MPS1700L-DIN	143	93	48	18	A
	5	●		MPS1700L-DIN-C	143	93	48	18	A
17.1	3	□		MPS1710S-DIN	123	73	48	18	A
	3	□		MPS1710S-DIN-C	123	73	48	18	A
	5	□		MPS1710L-DIN	143	93	48	18	A
	5	□		MPS1710L-DIN-C	143	93	48	18	A
17.2	3	□		MPS1720S-DIN	123	73	48	18	A
	3	□		MPS1720S-DIN-C	123	73	48	18	A
	5	□		MPS1720L-DIN	143	93	48	18	A
	5	□		MPS1720L-DIN-C	143	93	48	18	A
17.3	3	□		MPS1730S-DIN	123	73	48	18	A
	3	□		MPS1730S-DIN-C	123	73	48	18	A
	5	□		MPS1730L-DIN	143	93	48	18	A
	5	□		MPS1730L-DIN-C	143	93	48	18	A
17.4	3	□		MPS1740S-DIN	123	73	48	18	A
	3	□		MPS1740S-DIN-C	123	73	48	18	A
	5	□		MPS1740L-DIN	143	93	48	18	A
	5	□		MPS1740L-DIN-C	143	93	48	18	A
17.5	3	●		MPS1750S-DIN	123	73	48	18	A
	3	●		MPS1750S-DIN-C	123	73	48	18	A
	5	●		MPS1750L-DIN	143	93	48	18	A
	5	●		MPS1750L-DIN-C	143	93	48	18	A
17.6	3	□		MPS1760S-DIN	123	73	48	18	A
	3	□		MPS1760S-DIN-C	123	73	48	18	A
	5	□		MPS1760L-DIN	143	93	48	18	A
	5	□		MPS1760L-DIN-C	143	93	48	18	A
17.7	3	□		MPS1770S-DIN	123	73	48	18	A
	3	□		MPS1770S-DIN-C	123	73	48	18	A
	5	□		MPS1770L-DIN	143	93	48	18	A
	5	□		MPS1770L-DIN-C	143	93	48	18	A

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock		Order Number	Dimensions (mm)				Type
		VP15TF			L1	L3	L9	D4	
17.8	3	□		MPS1780S-DIN	123	73	48	18	A
	3	□		MPS1780S-DIN-C	123	73	48	18	A
	5	□		MPS1780L-DIN	143	93	48	18	A
	5	□		MPS1780L-DIN-C	143	93	48	18	A
17.9	3	□		MPS1790S-DIN	123	73	48	18	A
	3	□		MPS1790S-DIN-C	123	73	48	18	A
	5	□		MPS1790L-DIN	143	93	48	18	A
	5	□		MPS1790L-DIN-C	143	93	48	18	A
18.0	3	●		MPS1800S-DIN	123	73	48	18	A
	3	●		MPS1800S-DIN-C	123	73	48	18	A
	5	●		MPS1800L-DIN	143	93	48	18	A
	5	●		MPS1800L-DIN-C	143	93	48	18	A
18.1	3	□		MPS1810S-DIN	131	79	50	20	A
	3	□		MPS1810S-DIN-C	131	79	50	20	A
	5	□		MPS1810L-DIN	153	101	50	20	A
	5	□		MPS1810L-DIN-C	153	101	50	20	A
18.2	3	□		MPS1820S-DIN	131	79	50	20	A
	3	□		MPS1820S-DIN-C	131	79	50	20	A
	5	□		MPS1820L-DIN	153	101	50	20	A
	5	□		MPS1820L-DIN-C	153	101	50	20	A
18.3	3	□		MPS1830S-DIN	131	79	50	20	A
	3	□		MPS1830S-DIN-C	131	79	50	20	A
	5	□		MPS1830L-DIN	153	101	50	20	A
	5	□		MPS1830L-DIN-C	153	101	50	20	A
18.4	3	□		MPS1840S-DIN	131	79	50	20	A
	3	□		MPS1840S-DIN-C	131	79	50	20	A
	5	□		MPS1840L-DIN	153	101	50	20	A
	5	□		MPS1840L-DIN-C	153	101	50	20	A
18.5	3	●		MPS1850S-DIN	131	79	50	20	A
	3	●		MPS1850S-DIN-C	131	79	50	20	A
	5	●		MPS1850L-DIN	153	101	50	20	A
	5	●		MPS1850L-DIN-C	153	101	50	20	A
18.6	3	□		MPS1860S-DIN	131	79	50	20	A
	3	□		MPS1860S-DIN-C	131	79	50	20	A
	5	□		MPS1860L-DIN	153	101	50	20	A
	5	□		MPS1860L-DIN-C	153	101	50	20	A
18.7	3	□		MPS1870S-DIN	131	79	50	20	A
	3	□		MPS1870S-DIN-C	131	79	50	20	A
	5	□		MPS1870L-DIN	153	101	50	20	A
	5	□		MPS1870L-DIN-C	153	101	50	20	A
18.8	3	□		MPS1880S-DIN	131	79	50	20	A
	3	□		MPS1880S-DIN-C	131	79	50	20	A
	5	□		MPS1880L-DIN	153	101	50	20	A
	5	□		MPS1880L-DIN-C	153	101	50	20	A
18.9	3	□		MPS1890S-DIN	131	79	50	20	A
	3	□		MPS1890S-DIN-C	131	79	50	20	A
	5	□		MPS1890L-DIN	153	101	50	20	A
	5	□		MPS1890L-DIN-C	153	101	50	20	A
19.0	3	●		MPS1900S-DIN	131	79	50	20	A
	3	●		MPS1900S-DIN-C	131	79	50	20	A
	5	●		MPS1900L-DIN	153	101	50	20	A
	5	●		MPS1900L-DIN-C	153	101	50	20	A
19.1	3	□		MPS1910S-DIN	131	79	50	20	A
	3	□		MPS1910S-DIN-C	131	79	50	20	A
	5	□		MPS1910L-DIN	153	101	50	20	A
	5	□		MPS1910L-DIN-C	153	101	50	20	A

DRILLING MPS, MSL DRILLS



DRILLING (SOLID CARBIDE)

MPS, MSL

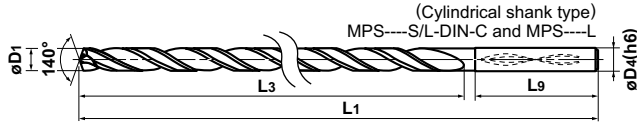
- From 3—30 l/d hole depth.
- MPS double margin type for accurate and reliable drilling.
- All drills with through coolant holes as standard.



D1 Tolerance	3.0 ≤ D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 20.0
DIN type	0.010 -0.002	0.010 -0.005	0.005 -0.013	0.005 -0.016
Others	0 -0.012	0 -0.015	0 -0.018	0 -0.021

* MPS-DIN type see table above. Other MPS/MSL drills h7 tolerance.

● Type A Double margin type

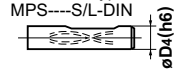


MPS---S/L-DIN (l/d 3—5)

MPS---S/L-DIN-C (l/d 3—5)

MPS---L (l/d 8—30)

(Whistle notch shank type)



Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
19.2	3	<input type="checkbox"/>	MPS1920S-DIN	131	79	50	20	A
	3	<input type="checkbox"/>	MPS1920S-DIN-C	131	79	50	20	A
	5	<input type="checkbox"/>	MPS1920L-DIN	153	101	50	20	A
	5	<input type="checkbox"/>	MPS1920L-DIN-C	153	101	50	20	A
19.3	3	<input type="checkbox"/>	MPS1930S-DIN	131	79	50	20	A
	3	<input type="checkbox"/>	MPS1930S-DIN-C	131	79	50	20	A
	5	<input type="checkbox"/>	MPS1930L-DIN	153	101	50	20	A
	5	<input type="checkbox"/>	MPS1930L-DIN-C	153	101	50	20	A
19.4	3	<input type="checkbox"/>	MPS1940S-DIN	131	79	50	20	A
	3	<input type="checkbox"/>	MPS1940S-DIN-C	131	79	50	20	A
	5	<input type="checkbox"/>	MPS1940L-DIN	153	101	50	20	A
	5	<input type="checkbox"/>	MPS1940L-DIN-C	153	101	50	20	A
19.5	3	<input checked="" type="checkbox"/>	MPS1950S-DIN	131	79	50	20	A
	3	<input checked="" type="checkbox"/>	MPS1950S-DIN-C	131	79	50	20	A
	5	<input checked="" type="checkbox"/>	MPS1950L-DIN	153	101	50	20	A
	5	<input checked="" type="checkbox"/>	MPS1950L-DIN-C	153	101	50	20	A
19.6	3	<input type="checkbox"/>	MPS1960S-DIN	131	79	50	20	A
	3	<input type="checkbox"/>	MPS1960S-DIN-C	131	79	50	20	A
	5	<input type="checkbox"/>	MPS1960L-DIN	153	101	50	20	A
	5	<input type="checkbox"/>	MPS1960L-DIN-C	153	101	50	20	A

Drill Dia. D1 (mm)	Hole Depth (l/d)	Stock VP15TF	Order Number	Dimensions (mm)				Type
				L1	L3	L9	D4	
19.7	3	<input type="checkbox"/>	MPS1970S-DIN	131	79	50	20	A
	3	<input type="checkbox"/>	MPS1970S-DIN-C	131	79	50	20	A
	5	<input type="checkbox"/>	MPS1970L-DIN	153	101	50	20	A
	5	<input type="checkbox"/>	MPS1970L-DIN-C	153	101	50	20	A
19.8	3	<input type="checkbox"/>	MPS1980S-DIN	131	79	50	20	A
	3	<input type="checkbox"/>	MPS1980S-DIN-C	131	79	50	20	A
	5	<input type="checkbox"/>	MPS1980L-DIN	153	101	50	20	A
	5	<input type="checkbox"/>	MPS1980L-DIN-C	153	101	50	20	A
19.9	3	<input type="checkbox"/>	MPS1990S-DIN	131	79	50	20	A
	3	<input type="checkbox"/>	MPS1990S-DIN-C	131	79	50	20	A
	5	<input type="checkbox"/>	MPS1990L-DIN	153	101	50	20	A
	5	<input type="checkbox"/>	MPS1990L-DIN-C	153	101	50	20	A
20.0	3	<input checked="" type="checkbox"/>	MPS2000S-DIN	131	79	50	20	A
	3	<input checked="" type="checkbox"/>	MPS2000S-DIN-C	131	79	50	20	A
	5	<input checked="" type="checkbox"/>	MPS2000L-DIN	153	101	50	20	A
	5	<input checked="" type="checkbox"/>	MPS2000L-DIN-C	153	101	50	20	A

DRILLING MPS, MSL DRILLS



CARBIDE

RECOMMENDED CUTTING CONDITIONS

● MPS/MSL DRILL (l/d=3–12)

Work Material	Drill Diameter Conditions Hardness	φ3.0–φ6.0		φ6.0–φ10.0		φ10.0–φ14.0		φ14.0–φ20.0	
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Mild Steel	≤ 180HB	110 (50–120)	0.20 (0.15–0.25)	130 (80–140)	0.25 (0.20–0.35)	150 (90–170)	0.30 (0.20–0.40)	160 (100–180)	0.35 (0.20–0.40)
	180–280HB Carbon Steel Alloy Steel	90 (50–100)	0.20 (0.15–0.25)	110 (70–120)	0.25 (0.20–0.35)	130 (80–140)	0.25 (0.20–0.40)	140 (100–150)	0.30 (0.20–0.40)
		80 (40–90)	0.20 (0.15–0.30)	90 (60–110)	0.25 (0.15–0.30)	110 (70–130)	0.25 (0.15–0.40)	120 (90–140)	0.30 (0.20–0.40)
M Stainless Steel	≤ 200HB	50 (20–100)	0.10 (0.05–0.15)	60 (40–120)	0.20 (0.10–0.25)	70 (50–120)	0.25 (0.15–0.30)	80 (60–120)	0.25 (0.15–0.30)
K Cast Iron	Tensile Strength ≤ 350N/mm ²	100 (70–120)	0.25 (0.15–0.30)	130 (100–140)	0.30 (0.20–0.35)	150 (110–160)	0.35 (0.25–0.40)	160 (120–170)	0.35 (0.25–0.40)
	Ductile Cast Iron Tensile Strength ≤ 450N/mm ²	60 (30–80)	0.20 (0.15–0.25)	70 (40–90)	0.20 (0.15–0.30)	90 (50–110)	0.25 (0.20–0.40)	100 (60–110)	0.3 (0.20–0.40)
S Heat Resistant Alloy	–	20 (10–25)	0.10 (0.05–0.15)	25 (15–30)	0.12 (0.05–0.15)	25 (15–30)	0.15 (0.10–0.20)	30 (25–35)	0.15 (0.10–0.20)

● MPS/MSL DRILL (l/d=15–30)

Work Material	Drill Diameter Conditions Hardness	φ3.0–φ6.0		φ6.0–φ10.0		φ10.0–φ14.0	
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Mild Steel	≤ 180HB	85 (35–100)	0.20 (0.15–0.25)	85 (45–120)	0.25 (0.15–0.35)	90 (55–120)	0.30 (0.20–0.35)
	180–280HB Carbon Steel Alloy Steel	80 (40–95)	0.20 (0.15–0.25)	90 (50–120)	0.25 (0.20–0.35)	90 (60–130)	0.30 (0.15–0.35)
		75 (35–80)	0.15 (0.15–0.20)	80 (45–115)	0.20 (0.15–0.25)	85 (55–115)	0.25 (0.15–0.30)
M Stainless Steel	≤ 200HB	50 (20–80)	0.10 (0.05–0.15)	60 (20–90)	0.12 (0.05–0.15)	70 (20–90)	0.15 (0.10–0.20)
K Cast Iron	Tensile Strength ≤ 350N/mm ²	70 (40–85)	0.25 (0.15–0.30)	75 (50–90)	0.30 (0.20–0.35)	80 (50–95)	0.35 (0.20–0.40)
	Ductile Cast Iron Tensile Strength ≤ 450N/mm ²	65 (35–80)	0.20 (0.15–0.25)	70 (45–85)	0.25 (0.15–0.30)	75 (45–90)	0.30 (0.20–0.35)
S Heat Resistant Alloy	–	20 (10–25)	0.10 (0.05–0.15)	25 (15–30)	0.12 (0.05–0.15)	25 (15–30)	0.15 (0.10–0.20)

Machining conditions can vary greatly, please use the above tables as a reference starting point only and adjust the values according to the conditions. For drill lengths greater than l/d=10 it is recommended to drill a pilot hole.

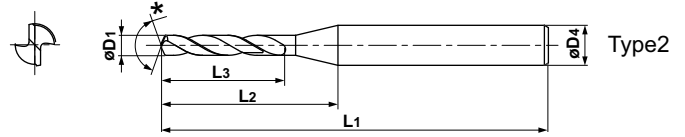
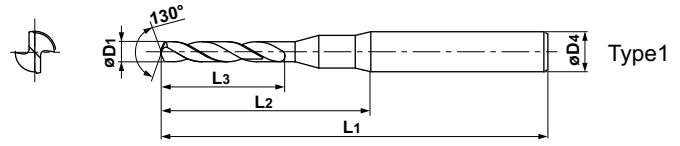
DRILLING (SOLID CARBIDE)

MSE

- Wide flute for preventing chip jamming.
- Stable, small diameter machining.



D1	0.10 ≤ D1 ≤ 3.00
Tolerance	0 -0.009



*Drill Dia. ϕ 0.30 - 1.59 : 130°
 ϕ 1.60 - 2.50 : 140°

DRILLING MSE DRILLS

CARBIDE

Drill Dia. D1 (mm)	Coolant (Int./Ext.)	Stock		Order Number	Dimensions (mm)				Type
		VP20MF	VP15TF		L3	L2	L1	D4	
0.10	Ext.	★		MSE0010SB	1.2	9.7	38	3	1
0.11	Ext.	★		0011SB	1.2	9.7	38	3	1
0.12	Ext.	★		0012SB	1.4	9.7	38	3	1
0.13	Ext.	★		0013SB	1.4	9.7	38	3	1
0.14	Ext.	★		0014SB	2	9.7	38	3	1
0.15	Ext.	★		0015SB	2	9.7	38	3	1
0.16	Ext.	★		0016SB	2	9.7	38	3	1
0.17	Ext.	★		0017SB	2	9.7	38	3	1
0.18	Ext.	★		0018SB	2	9.7	38	3	1
0.19	Ext.	★		0019SB	2	9.7	38	3	1
0.20	Ext.	★		0020SB	2.5	9.7	38	3	1
0.21	Ext.	★		0021SB	2.5	9.7	38	3	1
0.22	Ext.	★		0022SB	2.5	9.7	38	3	1
0.23	Ext.	★		0023SB	2.5	9.7	38	3	1
0.24	Ext.	★		0024SB	3	9.7	38	3	1
0.25	Ext.	★		0025SB	3	9.7	38	3	1
0.26	Ext.	★		0026SB	3	9.7	38	3	1
0.27	Ext.	★		0027SB	3	9.7	38	3	1
0.28	Ext.	★		0028SB	3	9.7	38	3	1
0.29	Ext.	★		0029SB	3	9.7	38	3	1
0.30	Ext.		★	0030SB	5	10.2	38	3	2
0.31	Ext.		★	0031SB	5	10.2	38	3	2
0.32	Ext.		★	0032SB	5	10.2	38	3	2
0.33	Ext.		★	0033SB	5	10.2	38	3	2
0.34	Ext.		★	0034SB	6	11.2	38	3	2
0.35	Ext.		★	0035SB	6	11.1	38	3	2
0.36	Ext.		★	0036SB	6	11.1	38	3	2
0.37	Ext.		★	0037SB	6	11.1	38	3	2
0.38	Ext.		★	0038SB	6	11.1	38	3	2
0.39	Ext.		★	0039SB	6	11.1	38	3	2
0.40	Ext.		★	0040SB	7	12.1	38	3	2
0.41	Ext.		★	0041SB	7	12.0	38	3	2
0.42	Ext.		★	0042SB	7	12.0	38	3	2
0.43	Ext.		★	0043SB	7	12.0	38	3	2

Drill Dia. D1 (mm)	Coolant (Int./Ext.)	Stock		Order Number	Dimensions (mm)				Type
		VP20MF	VP15TF		L3	L2	L1	D4	
0.44	Ext.		★	MSE0044SB	7	12.0	38	3	2
0.45	Ext.		★	0045SB	7	12.0	38	3	2
0.46	Ext.		★	0046SB	7	11.9	38	3	2
0.47	Ext.		★	0047SB	7	11.9	38	3	2
0.48	Ext.		★	0048SB	7	11.9	38	3	2
0.49	Ext.		★	0049SB	7	11.9	38	3	2
0.50	Ext.		★	0050SB	7	11.9	38	3	2
0.51	Ext.		★	0051SB	7	11.8	38	3	2
0.52	Ext.		★	0052SB	7	11.8	38	3	2
0.53	Ext.		★	0053SB	7	11.8	38	3	2
0.54	Ext.		★	0054SB	7	11.8	38	3	2
0.55	Ext.		★	0055SB	7	11.8	38	3	2
0.56	Ext.		★	0056SB	7	11.8	38	3	2
0.57	Ext.		★	0057SB	7	11.7	38	3	2
0.58	Ext.		★	0058SB	7	11.7	38	3	2
0.59	Ext.		★	0059SB	7	11.7	38	3	2
0.60	Ext.		★	0060SB	7	11.7	38	3	2
0.61	Ext.		★	0061SB	7	11.7	38	3	2
0.62	Ext.		★	0062SB	7	11.6	38	3	2
0.63	Ext.		★	0063SB	7	11.6	38	3	2
0.64	Ext.		★	0064SB	7	11.6	38	3	2
0.65	Ext.		★	0065SB	7	11.6	38	3	2
0.66	Ext.		★	0066SB	7	11.6	38	3	2
0.67	Ext.		★	0067SB	7	11.5	38	3	2
0.68	Ext.		★	0068SB	7	11.5	38	3	2
0.69	Ext.		★	0069SB	7	11.5	38	3	2
0.70	Ext.		★	0070SB	8	12.5	38	3	2
0.71	Ext.		★	0071SB	8	12.5	38	3	2
0.72	Ext.		★	0072SB	8	12.5	38	3	2
0.73	Ext.		★	0073SB	8	12.4	38	3	2
0.74	Ext.		★	0074SB	8	12.4	38	3	2
0.75	Ext.		★	0075SB	8	12.4	38	3	2
0.76	Ext.		★	0076SB	8	12.4	38	3	2
0.77	Ext.		★	0077SB	8	12.4	38	3	2

(Note) Please contact us for any geometry that is not in this catalogue (e.g. different diameters and lengths can be made to order).

★ : Inventory maintained in Japan.

Drill Dia. D1 (mm)	Coolant (Int./Ext.)	Stock		Order Number	Dimensions (mm)				Type
		VP20MF	VP15TF		L3	L2	L1	D4	
0.78	Ext.		★	MSE0078SB	8	12.3	38	3	2
0.79	Ext.		★	0079SB	8	12.3	38	3	2
0.80	Ext.		★	0080SB	10	14.3	38	3	2
0.81	Ext.		★	0081SB	10	14.3	38	3	2
0.82	Ext.		★	0082SB	10	14.3	38	3	2
0.83	Ext.		★	0083SB	10	14.3	38	3	2
0.84	Ext.		★	0084SB	10	14.2	38	3	2
0.85	Ext.		★	0085SB	10	14.2	38	3	2
0.86	Ext.		★	0086SB	10	14.2	38	3	2
0.87	Ext.		★	0087SB	10	14.2	38	3	2
0.88	Ext.		★	0088SB	10	14.2	38	3	2
0.89	Ext.		★	0089SB	10	14.1	38	3	2
0.90	Ext.		★	0090SB	10	14.1	38	3	2
0.91	Ext.		★	0091SB	10	14.1	38	3	2
0.92	Ext.		★	0092SB	10	14.1	38	3	2
0.93	Ext.		★	0093SB	10	14.1	38	3	2
0.94	Ext.		★	0094SB	10	14.0	38	3	2
0.95	Ext.		★	0095SB	10	14.0	38	3	2
0.96	Ext.		★	0096SB	10	14.0	38	3	2
0.97	Ext.		★	0097SB	10	14.0	38	3	2
0.98	Ext.		★	0098SB	10	14.0	38	3	2
0.99	Ext.		★	0099SB	10	14.0	38	3	2
1.00	Ext.		★	0100SB	10	13.9	38	3	2
1.01	Ext.		★	0101SB	10	13.9	38	3	2
1.02	Ext.		★	0102SB	10	13.9	38	3	2
1.03	Ext.		★	0103SB	10	13.9	38	3	2
1.04	Ext.		★	0104SB	10	13.9	38	3	2
1.05	Ext.		★	0105SB	10	13.8	38	3	2
1.06	Ext.		★	0106SB	10	13.8	38	3	2
1.07	Ext.		★	0107SB	10	13.8	38	3	2
1.08	Ext.		★	0108SB	10	13.8	38	3	2
1.09	Ext.		★	0109SB	10	13.8	38	3	2
1.10	Ext.		★	0110SB	10	13.7	38	3	2
1.11	Ext.		★	0111SB	10	13.7	38	3	2
1.12	Ext.		★	0112SB	10	13.7	38	3	2
1.13	Ext.		★	0113SB	10	13.7	38	3	2
1.14	Ext.		★	0114SB	10	13.7	38	3	2
1.15	Ext.		★	0115SB	10	13.7	38	3	2
1.16	Ext.		★	0116SB	10	13.6	38	3	2
1.17	Ext.		★	0117SB	10	13.6	38	3	2
1.18	Ext.		★	0118SB	10	13.6	38	3	2
1.19	Ext.		★	0119SB	10	13.6	38	3	2
1.20	Ext.		★	0120SB	10	13.6	38	3	2
1.21	Ext.		★	0121SB	10	13.5	38	3	2
1.22	Ext.		★	0122SB	10	13.5	38	3	2
1.23	Ext.		★	0123SB	10	13.5	38	3	2
1.24	Ext.		★	0124SB	10	13.5	38	3	2
1.25	Ext.		★	0125SB	10	13.5	38	3	2
1.26	Ext.		★	0126SB	10	13.4	38	3	2
1.27	Ext.		★	0127SB	10	13.4	38	3	2

Drill Dia. D1 (mm)	Coolant (Int./Ext.)	Stock		Order Number	Dimensions (mm)				Type
		VP20MF	VP15TF		L3	L2	L1	D4	
1.28	Ext.		★	MSE0128SB	10	13.4	38	3	2
1.29	Ext.		★	0129SB	10	13.4	38	3	2
1.30	Ext.		★	0130SB	10	13.4	38	3	2
1.31	Ext.		★	0131SB	10	13.4	38	3	2
1.32	Ext.		★	0132SB	10	13.3	38	3	2
1.33	Ext.		★	0133SB	10	13.3	38	3	2
1.34	Ext.		★	0134SB	10	13.3	38	3	2
1.35	Ext.		★	0135SB	10	13.3	38	3	2
1.36	Ext.		★	0136SB	10	13.3	38	3	2
1.37	Ext.		★	0137SB	10	13.2	38	3	2
1.38	Ext.		★	0138SB	10	13.2	38	3	2
1.39	Ext.		★	0139SB	10	13.2	38	3	2
1.40	Ext.		★	0140SB	10	13.2	38	3	2
1.41	Ext.		★	0141SB	10	13.2	38	3	2
1.42	Ext.		★	0142SB	10	13.1	38	3	2
1.43	Ext.		★	0143SB	10	13.1	38	3	2
1.44	Ext.		★	0144SB	10	13.1	38	3	2
1.45	Ext.		★	0145SB	10	13.1	38	3	2
1.46	Ext.		★	0146SB	10	13.1	38	3	2
1.47	Ext.		★	0147SB	10	13.1	38	3	2
1.48	Ext.		★	0148SB	10	13.0	38	3	2
1.49	Ext.		★	0149SB	10	13.0	38	3	2
1.50	Ext.		★	0150SB	10	13.0	38	3	2
1.51	Ext.		★	0151SB	10	13.0	38	3	2
1.52	Ext.		★	0152SB	10	13.0	38	3	2
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1.54	Ext.		★	0154SB	10	12.9	38	3	2
1.55	Ext.		★	0155SB	10	12.9	38	3	2
1.56	Ext.		★	0156SB	10	12.9	38	3	2
1.57	Ext.		★	0157SB	10	12.9	38	3	2
1.58	Ext.		★	0158SB	10	12.8	38	3	2
1.59	Ext.		★	0159SB	10	12.8	38	3	2
1.60	Ext.		★	0160SB	12	14.6	45	3	2
1.61	Ext.		★	0161SB	12	14.6	45	3	2
1.62	Ext.		★	0162SB	12	14.6	45	3	2
1.63	Ext.		★	0163SB	12	14.6	45	3	2
1.64	Ext.		★	0164SB	12	14.5	45	3	2
1.65	Ext.		★	0165SB	12	14.5	45	3	2
1.66	Ext.		★	0166SB	12	14.5	45	3	2
1.67	Ext.		★	0167SB	12	14.5	45	3	2
1.68	Ext.		★	0168SB	12	14.5	45	3	2
1.69	Ext.		★	0169SB	12	14.4	45	3	2
1.70	Ext.		★	0170SB	12	14.4	45	3	2
1.71	Ext.		★	0171SB	12	14.4	45	3	2
1.72	Ext.		★	0172SB	12	14.4	45	3	2
1.73	Ext.		★	0173SB	12	14.4	45	3	2
1.74	Ext.		★	0174SB	12	14.4	45	3	2
1.75	Ext.		★	0175SB	12	14.3	45	3	2
1.76	Ext.		★	0176SB	12	14.3	45	3	2
1.77	Ext.		★	0177SB	12	14.3	45	3	2

MSE DRILLS



CUTTING CONDITIONS

D029

D027

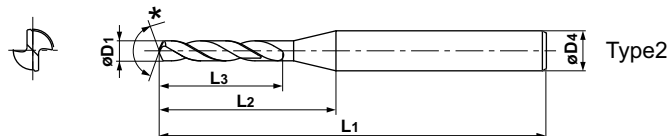
DRILLING (SOLID CARBIDE)

MSE

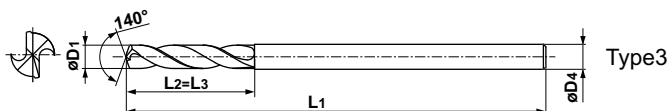
- Wide flute for preventing chip jamming.
- Stable, small diameter machining.



D1	0.10 ≤ D1 ≤ 3.00
Tolerance	0 -0.009



*Drill Dia. φ 0.30—1.59 : 130°
φ 1.60—2.50 : 140°



DRILLING MSE, MSP DRILLS

CARBIDE

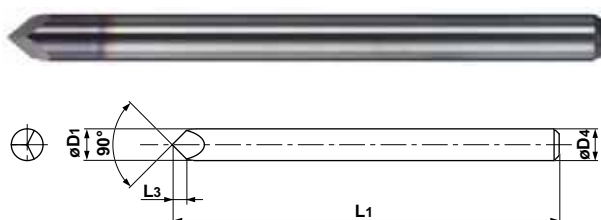
Drill Dia. D1 (mm)	Coolant (Int./Ext.)	Stock		Order Number	Dimensions (mm)				Type
		VP20MF	VP15TF		L3	L2	L1	D4	
1.78	Ext.		★	MSE0178SB	12	14.3	45	3	2
1.79	Ext.		★	0179SB	12	14.3	45	3	2
1.80	Ext.		★	0180SB	12	14.2	45	3	2
1.81	Ext.		★	0181SB	12	14.2	45	3	2
1.82	Ext.		★	0182SB	12	14.2	45	3	2
1.83	Ext.		★	0183SB	12	14.2	45	3	2
1.84	Ext.		★	0184SB	12	14.2	45	3	2
1.85	Ext.		★	0185SB	12	14.1	45	3	2
1.86	Ext.		★	0186SB	12	14.1	45	3	2
1.87	Ext.		★	0187SB	12	14.1	45	3	2
1.88	Ext.		★	0188SB	12	14.1	45	3	2
1.89	Ext.		★	0189SB	12	14.1	45	3	2
1.90	Ext.		★	0190SB	12	14.1	45	3	2
1.91	Ext.		★	0191SB	12	14.0	45	3	2
1.92	Ext.		★	0192SB	12	14.0	45	3	2
1.93	Ext.		★	0193SB	12	14.0	45	3	2
1.94	Ext.		★	0194SB	12	14.0	45	3	2
1.95	Ext.		★	0195SB	12	14.0	45	3	2
1.96	Ext.		★	0196SB	12	13.9	45	3	2
1.97	Ext.		★	0197SB	12	13.9	45	3	2
1.98	Ext.		★	0198SB	12	13.9	45	3	2
1.99	Ext.		★	0199SB	12	13.9	45	3	2

Drill Dia. D1 (mm)	Coolant (Int./Ext.)	Stock		Order Number	Dimensions (mm)				Type
		VP20MF	VP15TF		L3	L2	L1	D4	
2.00	Ext.		★	MSE0200SB	15	16.9	50	3	2
2.05	Ext.		★	0205SB	15	16.8	50	3	2
2.10	Ext.		★	0210SB	15	16.7	50	3	2
2.15	Ext.		★	0215SB	15	16.6	50	3	2
2.20	Ext.		★	0220SB	15	16.5	50	3	2
2.25	Ext.		★	0225SB	15	16.4	50	3	2
2.30	Ext.		★	0230SB	15	16.3	50	3	2
2.35	Ext.		★	0235SB	15	16.2	50	3	2
2.40	Ext.		★	0240SB	15	16.1	50	3	2
2.45	Ext.		★	0245SB	15	16.0	50	3	2
2.50	Ext.		★	0250SB	15	15.9	50	3	2
2.55	Ext.		★	0255SB	15	15	50	3	3
2.60	Ext.		★	0260SB	15	15	50	3	3
2.65	Ext.		★	0265SB	15	15	50	3	3
2.70	Ext.		★	0270SB	15	15	50	3	3
2.75	Ext.		★	0275SB	15	15	50	3	3
2.80	Ext.		★	0280SB	15	15	50	3	3
2.85	Ext.		★	0285SB	15	15	50	3	3
2.90	Ext.		★	0290SB	15	15	50	3	3
2.95	Ext.		★	0295SB	15	15	50	3	3
3.00	Ext.		★	0300SB	15	15	50	3	3

(Note) Please contact us for any geometry that is not in this catalogue (e.g. different diameters and lengths can be made to order).

MSP

SPOT DRILL



Order Number	Grade	Stock	Dimension (mm)				Diameter Range (mm)
			D1	L3	L1	D4	
MSP0300SB	VP15TF	●	3	1.5	38	3	0.1—3.0

● : Inventory maintained. ★ : Inventory maintained in Japan.

RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Drill Dia. $\phi 0.10 - \phi 0.19$			Drill Dia. $\phi 0.20 - \phi 0.29$			Drill Dia. $\phi 0.30 - \phi 0.49$		
		Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)	Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)	Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)
P General Steel Carbon Steel	≤ 180HB	20,000	0.002	0.02	20,000	0.003	0.04	20,000	0.004	0.05
Alloy Steel Pre-Hardened Steel	≤ 40HRC	20,000	0.002	0.02	20,000	0.003	0.04	20,000	0.004	0.05
M Stainless Steel	≤ 200HB	20,000	0.002	0.02	18,000	0.003	0.04	15,000	0.004	0.05
K Cast Iron	Tensile Strength ≤ 350N/mm ²	20,000	0.002	0.02	20,000	0.003	0.04	20,000	0.004	0.05
N Aluminium Alloy	—	20,000	0.004	0.05	20,000	0.006	0.1	20,000	0.02	0.3
S Heat Resistant Alloy	—	7,000	0.001	0.02	5,000	0.002	0.04	4,000	0.003	0.05

Work Material	Hardness	Drill Dia. $\phi 0.50 - \phi 0.79$			Drill Dia. $\phi 0.80 - \phi 0.99$			Drill Dia. $\phi 1.00 - \phi 1.19$		
		Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)	Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)	Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)
P General Steel Carbon Steel	≤ 180HB	20,000	0.01	0.1	20,000	0.04	0.3	16,000	0.06	0.5
Alloy Steel Pre-Hardened Steel	≤ 40HRC	20,000	0.01	0.1	20,000	0.02	0.3	16,000	0.03	0.5
M Stainless Steel	≤ 200HB	10,000	0.01	0.1	6,000	0.02	0.2	5,000	0.03	0.3
K Cast Iron	Tensile Strength ≤ 350N/mm ²	20,000	0.01	0.1	20,000	0.04	0.3	16,000	0.06	0.5
N Aluminium Alloy	—	20,000	0.05	0.5	20,000	0.06	0.8	20,000	0.08	1.0
S Heat Resistant Alloy	—	3,000	0.005	0.1	1,800	0.01	0.2	1,000	0.015	0.3

Work Material	Hardness	Drill Dia. $\phi 1.20 - \phi 1.49$			Drill Dia. $\phi 1.50 - \phi 1.99$			Drill Dia. $\phi 2.00 - \phi 2.45$		
		Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)	Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)	Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)
P General Steel Carbon Steel	≤ 180HB	13,000	0.07	0.6	12,000	0.08	0.7	9,500	0.10	0.8
Alloy Steel Pre-Hardened Steel	≤ 40HRC	13,000	0.05	0.6	10,000	0.06	0.7	7,000	0.07	0.8
M Stainless Steel	≤ 200HB	4,000	0.03	0.4	3,000	0.04	0.5	3,000	0.05	0.6
K Cast Iron	Tensile Strength ≤ 350N/mm ²	13,000	0.07	0.6	12,000	0.08	0.7	9,500	0.10	0.8
N Aluminium Alloy	—	18,000	0.10	1.2	15,000	0.10	1.5	12,000	0.12	2.0
S Heat Resistant Alloy	—	—	—	—	—	—	—	—	—	—

Work Material	Hardness	Drill Dia. $\phi 2.50 - \phi 2.95$			Drill Dia. $\phi 3.00$		
		Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)	Revolution (min ⁻¹)	Feed (mm/rev)	Step (mm)
P General Steel Carbon Steel	≤ 180HB	7,600	0.12	0.9	6,300	0.12	1.0
Alloy Steel Pre-Hardened Steel	≤ 40HRC	5,500	0.08	0.9	4,500	0.10	1.0
M Stainless Steel	≤ 200HB	2,500	0.08	0.7	2,000	0.10	0.8
K Cast Iron	Tensile Strength ≤ 350N/mm ²	7,600	0.12	0.9	6,300	0.12	1.0
N Aluminium Alloy	—	9,000	0.12	2.5	7,500	0.15	3.0
S Heat Resistant Alloy	—	—	—	—	—	—	—

(Notes)

- When drilling holes up to $\phi 0.3$ mm, the use of a spot drill is recommended.
(Order number : MSP0300SB, Cutting conditions : See below.)
- Change the cutting conditions depending on your machine and workpiece rigidity.
- When machining holes over 5D, reduce the peck distance stated above.
- The use of water-soluble fluid (diluted 20 times) is recommended for drilling using the cutting conditions above.
Lower the revolutions if oil fluid or mist is used.
- Work materials marked by "—" in the tables above are difficult to drill with external coolant.
The use of internal coolant type MZS or VAPDSSUS is recommended.

Order Number	Revolution (min ⁻¹)	Table Feed (mm/min)
MSP0300SB	10,000	5.0

DRILLING (SOLID CARBIDE)

MWE, MWS

- Suitable for high efficiency and high accuracy drilling over a wide variety of materials from general steel to difficult-to-cut materials.
- Suitable for low to high speed cutting. Possible to use in the range of HSS cutting.

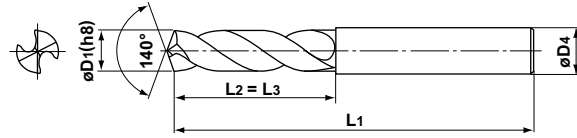


MWE (External coolant)



VP15TF

D1(h8)	D1 ≤ 3.0	3.0 < D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 30.0
Tolerance	0 -0.014	0 -0.018	0 -0.022	0 -0.027	0 -0.033

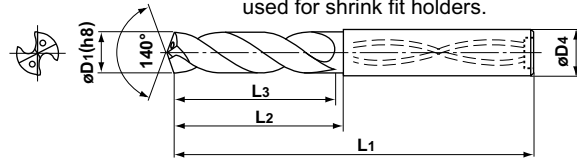


MWS (Internal coolant)



VP15TF

- The MWS-MB/LB/XB/X8DB type can be used for shrink fit holders.



(Note) MWS type bigger than ϕ 5.0 have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
1.0	5	Int.	●	MWS0100LB	11	15	55	3.0
	12	Int.	●	MWS0100XB	23	27	55	3.0
1.1	5	Int.	●	MWS0110LB	17	21	55	3.0
	12	Int.	●	MWS0110XB	23	27	55	3.0
1.2	5	Int.	●	MWS0120LB	17	20	55	3.0
	12	Int.	●	MWS0120XB	23	26	55	3.0
1.3	5	Int.	●	MWS0130LB	17	20	55	3.0
	12	Int.	●	MWS0130XB	23	26	55	3.0
1.4	5	Int.	●	MWS0140LB	17	20	55	3.0
	12	Int.	●	MWS0140XB	23	26	55	3.0
1.5	5	Int.	●	MWS0150LB	17	20	55	3.0
	12	Int.	●	MWS0150XB	23	26	55	3.0
1.6	5	Int.	●	MWS0160LB	22	25	68	3.0
	12	Int.	●	MWS0160XB	30	33	68	3.0
1.7	5	Int.	●	MWS0170LB	22	24	68	3.0
	12	Int.	●	MWS0170XB	30	32	68	3.0
1.8	5	Int.	●	MWS0180LB	22	24	68	3.0
	12	Int.	●	MWS0180XB	30	32	68	3.0
1.9	5	Int.	●	MWS0190LB	22	24	68	3.0
	12	Int.	●	MWS0190XB	30	32	68	3.0
2.0	5	Int.	●	MWS0200LB	22	24	68	3.0
	12	Int.	●	MWS0200XB	30	32	68	3.0
2.1	5	Int.	●	MWS0210LB	28	30	74	3.0
	12	Int.	●	MWS0210XB	38	40	74	3.0
2.2	5	Int.	●	MWS0220LB	28	29	74	3.0
	12	Int.	●	MWS0220XB	38	39	74	3.0
2.3	5	Int.	●	MWS0230LB	28	29	74	3.0
	12	Int.	●	MWS0230XB	38	39	74	3.0
2.4	5	Int.	●	MWS0240LB	28	29	74	3.0
	12	Int.	●	MWS0240XB	38	39	74	3.0
2.5	5	Int.	●	MWS0250LB	28	29	74	3.0
	12	Int.	●	MWS0250XB	38	39	74	3.0
2.6	5	Int.	●	MWS0260LB	33	33	81	3.0
	12	Int.	●	MWS0260XB	45	45	81	3.0
2.7	5	Int.	●	MWS0270LB	33	33	81	3.0
	12	Int.	●	MWS0270XB	45	45	81	3.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
2.8	5	Int.	●	MWS0280LB	33	33	81	3.0
	12	Int.	●	MWS0280XB	45	45	81	3.0
2.9	5	Int.	●	MWS0290LB	33	33	81	3.0
	12	Int.	●	MWS0290XB	45	45	81	3.0
3.0	2	Ext.	●	MWE0300SA	16	16	55	3.0
	3	Ext.	●	MWE0300MA	21	21	60	3.0
	3	Int.	●	MWS0300MB	24	24	72	3.0
	5	Int.	●	MWS0300LB	33	33	81	3.0
	8	Int.	★	MWS0300X8DB	35	35	81	3.0
3.1	2	Ext.	●	MWE0310SA	18	18	55	3.1
	3	Ext.	●	MWE0310MA	24	24	60	3.1
	3	Int.	●	MWS0310MB	28	28	76	4.0
	5	Int.	●	MWS0310LB	39	39	87	4.0
	8	Int.	★	MWS0310X8DB	41	41	87	4.0
3.2	2	Ext.	●	MWE0320SA	18	18	55	3.2
	3	Ext.	●	MWE0320MA	24	24	60	3.2
	3	Int.	●	MWS0320MB	28	28	76	4.0
	5	Int.	●	MWS0320LB	39	39	87	4.0
	8	Int.	★	MWS0320X8DB	41	41	87	4.0
3.3	2	Ext.	●	MWE0330SA	18	18	55	3.3
	3	Ext.	●	MWE0330MA	24	24	60	3.3
	3	Int.	●	MWS0330MB	28	28	76	4.0
	5	Int.	●	MWS0330LB	39	39	87	4.0
	8	Int.	★	MWS0330X8DB	41	41	87	4.0
3.4	2	Ext.	●	MWE0340SA	20	20	55	3.4
	3	Ext.	●	MWE0340MA	24	24	60	3.4
	3	Int.	●	MWS0340MB	28	28	76	4.0
	5	Int.	●	MWS0340LB	39	39	87	4.0
	8	Int.	★	MWS0340X8DB	41	41	87	4.0
3.5	2	Ext.	●	MWE0350SA	20	20	55	3.5
	3	Ext.	●	MWE0350MA	24	24	60	3.5
	3	Int.	●	MWS0350MB	28	28	76	4.0
	5	Int.	●	MWS0350LB	39	39	87	4.0
	8	Int.	★	MWS0350X8DB	41	41	87	4.0

(Note) Please contact us for any geometry that is not in this catalogue (e.g. different diameters and lengths can be made to order).

DRILLING MWE, MWS DRILLS



● : Inventory maintained. ★ : Inventory maintained in Japan.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
3.6	2	Ext.	●	MWE0360SA	20	20	55	3.6
	3	Ext.	●	MWE0360MA	27	27	60	3.6
	3	Int.	●	MWS0360MB	32	32	80	4.0
	5	Int.	●	MWS0360LB	44	44	92	4.0
	8	Int.	★	MWS0360X8DB	46	46	92	4.0
3.7	2	Ext.	●	MWE0370SA	20	20	55	3.7
	3	Ext.	●	MWE0370MA	27	27	60	3.7
	3	Int.	●	MWS0370MB	32	32	80	4.0
	5	Int.	●	MWS0370LB	44	44	92	4.0
	8	Int.	★	MWS0370X8DB	46	46	92	4.0
3.8	2	Ext.	●	MWE0380SA	22	22	55	3.8
	3	Ext.	●	MWE0380MA	27	27	60	3.8
	3	Int.	●	MWS0380MB	32	32	80	4.0
	5	Int.	●	MWS0380LB	44	44	92	4.0
	8	Int.	★	MWS0380X8DB	46	46	92	4.0
3.9	2	Ext.	●	MWE0390SA	22	22	55	3.9
	3	Ext.	●	MWE0390MA	27	27	60	3.9
	3	Int.	●	MWS0390MB	32	32	80	4.0
	5	Int.	●	MWS0390LB	44	44	92	4.0
	8	Int.	★	MWS0390X8DB	46	46	92	4.0
4.0	2	Ext.	●	MWE0400SA	22	22	55	4.0
	3	Ext.	●	MWE0400MA	27	27	60	4.0
	3	Int.	●	MWS0400MB	32	32	80	4.0
	5	Int.	●	MWS0400LB	44	44	92	4.0
	8	Int.	★	MWS0400X8DB	46	46	92	4.0
4.1	2	Ext.	●	MWE0410SA	22	22	55	4.1
	3	Ext.	●	MWE0410MA	29	29	63	4.1
	3	Int.	●	MWS0410MB	36	36	86	5.0
	5	Int.	●	MWS0410LB	50	50	100	5.0
	8	Int.	★	MWS0410X8DB	52	52	100	5.0
4.2	2	Ext.	●	MWE0420SA	22	22	55	4.2
	3	Ext.	●	MWE0420MA	29	29	63	4.2
	3	Int.	●	MWS0420MB	36	36	86	5.0
	5	Int.	●	MWS0420LB	50	50	100	5.0
	8	Int.	★	MWS0420X8DB	52	52	100	5.0
4.3	2	Ext.	●	MWE0430SA	24	24	58	4.3
	3	Ext.	●	MWE0430MA	29	29	63	4.3
	3	Int.	●	MWS0430MB	36	36	86	5.0
	5	Int.	●	MWS0430LB	50	50	100	5.0
	8	Int.	★	MWS0430X8DB	52	52	100	5.0
4.4	2	Ext.	●	MWE0440SA	24	24	58	4.4
	3	Ext.	●	MWE0440MA	29	29	63	4.4
	3	Int.	●	MWS0440MB	36	36	86	5.0
	5	Int.	●	MWS0440LB	50	50	100	5.0
	8	Int.	★	MWS0440X8DB	52	52	100	5.0
4.5	2	Ext.	●	MWE0450SA	24	24	58	4.5
	3	Ext.	●	MWE0450MA	29	29	63	4.5
	3	Int.	●	MWS0450MB	36	36	86	5.0
	5	Int.	●	MWS0450LB	50	50	100	5.0
	8	Int.	★	MWS0450X8DB	52	52	100	5.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
4.6	2	Ext.	●	MWE0460SA	24	24	58	4.6
	3	Ext.	●	MWE0460MA	32	32	68	4.6
	3	Int.	●	MWS0460MB	40	40	90	5.0
	5	Int.	●	MWS0460LB	55	55	105	5.0
	8	Int.	★	MWS0460X8DB	57	57	105	5.0
4.7	2	Ext.	●	MWE0470SA	24	24	58	4.7
	3	Ext.	●	MWE0470MA	32	32	68	4.7
	3	Int.	●	MWS0470MB	40	40	90	5.0
	5	Int.	●	MWS0470LB	55	55	105	5.0
	8	Int.	★	MWS0470X8DB	57	57	105	5.0
4.8	2	Ext.	●	MWE0480SA	26	26	62	4.8
	3	Ext.	●	MWE0480MA	32	32	68	4.8
	3	Int.	●	MWS0480MB	40	40	90	5.0
	5	Int.	●	MWS0480LB	55	55	105	5.0
	8	Int.	★	MWS0480X8DB	57	57	105	5.0
4.9	2	Ext.	●	MWE0490SA	26	26	62	4.9
	3	Ext.	●	MWE0490MA	32	32	68	4.9
	3	Int.	●	MWS0490MB	40	40	90	5.0
	5	Int.	●	MWS0490LB	55	55	105	5.0
	8	Int.	★	MWS0490X8DB	57	57	105	5.0
5.0	2	Ext.	●	MWE0500SA	26	26	62	5.0
	3	Ext.	●	MWE0500MA	32	32	68	5.0
	3	Int.	●	MWS0500MB	27.5	30	82	6.0
	5	Int.	●	MWS0500LB	44	48	100	6.0
	8	Int.	★	MWS0500X8DB	57	57	105	5.0
5.1	2	Ext.	●	MWE0510SA	26	26	62	5.1
	3	Ext.	●	MWE0510MA	34	34	72	5.1
	3	Int.	●	MWS0510MB	27.5	30	82	6.0
	5	Int.	●	MWS0510LB	44	48	100	6.0
	8	Int.	★	MWS0510X8DB	61	66	118	6.0
5.2	2	Ext.	●	MWE0520SA	26	26	62	5.2
	3	Ext.	●	MWE0520MA	34	34	72	5.2
	3	Int.	●	MWS0520MB	27.5	30	82	6.0
	5	Int.	●	MWS0520LB	44	48	100	6.0
	8	Int.	★	MWS0520X8DB	61	66	118	6.0
5.3	2	Ext.	●	MWE0530SA	26	26	62	5.3
	3	Ext.	●	MWE0530MA	34	34	72	5.3
	3	Int.	●	MWS0530MB	27.5	30	82	6.0
	5	Int.	●	MWS0530LB	44	48	100	6.0
	8	Int.	★	MWS0530X8DB	61	66	118	6.0
5.4	2	Ext.	●	MWE0540SA	28	28	66	5.4
	3	Ext.	●	MWE0540MA	34	34	72	5.4
	3	Int.	●	MWS0540MB	27.5	30	82	6.0
	5	Int.	●	MWS0540LB	44	48	100	6.0
	8	Int.	★	MWS0540X8DB	61	66	118	6.0
5.5	2	Ext.	●	MWE0550SA	28	28	66	5.5
	3	Ext.	●	MWE0550MA	34	34	72	5.5
	3	Int.	●	MWS0550MB	27.5	30	82	6.0
	5	Int.	●	MWS0550LB	44	48	100	6.0
	8	Int.	★	MWS0550X8DB	61	66	118	6.0

MWE, MWS DRILLS



CUTTING CONDITIONS

D041

OPERATION GUIDANCE

D042

TECHNICAL DATA

G001

D031

DRILLING (SOLID CARBIDE)

MWE, MWS

- Suitable for high efficiency and high accuracy drilling over a wide variety of materials from general steel to difficult-to-cut materials.
- Suitable for low to high speed cutting. Possible to use in the range of HSS cutting.

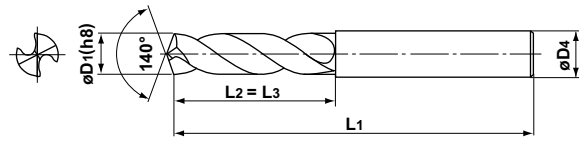


MWE (External coolant)



VP15TF

D1(h8)	D1≤3.0	3.0<D1≤6.0	6.0<D1≤10.0	10.0<D1≤18.0	18.0<D1≤30.0
Tolerance	0 -0.014	0 -0.018	0 -0.022	0 -0.027	0 -0.033

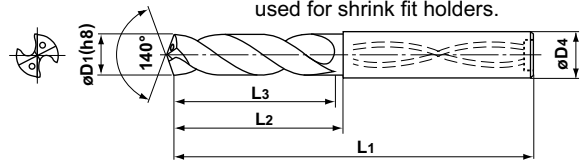


MWS (Internal coolant)



VP15TF

- The MWS-MB/LB/X8DB type can be used for shrink fit holders.



(Note) MWS type bigger than $\phi 5.0$ have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
5.6	2	Ext.	●	MWE0560SA	28	28	66	5.6
	3	Ext.	●	MWE0560MA	36	36	74	5.6
	3	Int.	●	MWS0560MB	30	30	82	6.0
	5	Int.	●	MWS0560LB	48	48	100	6.0
	8	Int.	★	MWS0560X8DB	66	66	118	6.0
5.7	2	Ext.	●	MWE0570SA	28	28	66	5.7
	3	Ext.	●	MWE0570MA	36	36	74	5.7
	3	Int.	●	MWS0570MB	30	30	82	6.0
	5	Int.	●	MWS0570LB	48	48	100	6.0
	8	Int.	★	MWS0570X8DB	66	66	118	6.0
5.8	2	Ext.	●	MWE0580SA	28	28	66	5.8
	3	Ext.	●	MWE0580MA	36	36	74	5.8
	3	Int.	●	MWS0580MB	30	30	82	6.0
	5	Int.	●	MWS0580LB	48	48	100	6.0
	8	Int.	★	MWS0580X8DB	66	66	118	6.0
5.9	2	Ext.	●	MWE0590SA	28	28	66	5.9
	3	Ext.	●	MWE0590MA	36	36	74	5.9
	3	Int.	●	MWS0590MB	30	30	82	6.0
	5	Int.	●	MWS0590LB	48	48	100	6.0
	8	Int.	★	MWS0590X8DB	66	66	118	6.0
6.0	2	Ext.	●	MWE0600SA	28	28	66	6.0
	3	Ext.	●	MWE0600MA	41	41	81	6.0
	3	Int.	●	MWS0600MB	30	30	82	6.0
	5	Int.	●	MWS0600LB	48	48	100	6.0
	8	Int.	★	MWS0600X8DB	66	66	118	6.0
6.1	2	Ext.	●	MWE0610SA	31	31	70	6.1
	3	Ext.	●	MWE0610MA	41	41	81	6.1
	3	Int.	●	MWS0610MB	32.5	35	88	7.0
	5	Int.	●	MWS0610LB	52	56	109	7.0
	8	Int.	★	MWS0610X8DB	72	77	130	7.0
6.2	2	Ext.	●	MWE0620SA	31	31	70	6.2
	3	Ext.	●	MWE0620MA	41	41	81	6.2
	3	Int.	●	MWS0620MB	32.5	35	88	7.0
	5	Int.	●	MWS0620LB	52	56	109	7.0
	8	Int.	★	MWS0620X8DB	72	77	130	7.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
6.3	2	Ext.	●	MWE0630SA	31	31	70	6.3
	3	Ext.	●	MWE0630MA	41	41	81	6.3
	3	Int.	●	MWS0630MB	32.5	35	88	7.0
	5	Int.	●	MWS0630LB	52	56	109	7.0
	8	Int.	★	MWS0630X8DB	72	77	130	7.0
6.4	2	Ext.	●	MWE0640SA	31	31	70	6.4
	3	Ext.	●	MWE0640MA	41	41	81	6.4
	3	Int.	●	MWS0640MB	32.5	35	88	7.0
	5	Int.	●	MWS0640LB	52	56	109	7.0
	8	Int.	★	MWS0640X8DB	72	77	130	7.0
6.5	2	Ext.	●	MWE0650SA	31	31	70	6.5
	3	Ext.	●	MWE0650MA	41	41	81	6.5
	3	Int.	●	MWS0650MB	32.5	35	88	7.0
	5	Int.	●	MWS0650LB	52	56	109	7.0
	8	Int.	★	MWS0650X8DB	72	77	130	7.0
6.6	2	Ext.	●	MWE0660SA	31	31	70	6.6
	3	Ext.	●	MWE0660MA	43	43	83	6.6
	3	Int.	●	MWS0660MB	35	35	88	7.0
	5	Int.	●	MWS0660LB	56	56	109	7.0
	8	Int.	★	MWS0660X8DB	77	77	130	7.0
6.7	2	Ext.	●	MWE0670SA	31	31	70	6.7
	3	Ext.	●	MWE0670MA	43	43	83	6.7
	3	Int.	●	MWS0670MB	35	35	88	7.0
	5	Int.	●	MWS0670LB	56	56	109	7.0
	8	Int.	★	MWS0670X8DB	77	77	130	7.0
6.8	2	Ext.	●	MWE0680SA	34	34	74	6.8
	3	Ext.	●	MWE0680MA	43	43	83	6.8
	3	Int.	●	MWS0680MB	35	35	88	7.0
	5	Int.	●	MWS0680LB	56	56	109	7.0
	8	Int.	★	MWS0680X8DB	77	77	130	7.0
6.9	2	Ext.	●	MWE0690SA	34	34	74	6.9
	3	Ext.	●	MWE0690MA	43	43	83	6.9
	3	Int.	●	MWS0690MB	35	35	88	7.0
	5	Int.	●	MWS0690LB	56	56	109	7.0
	8	Int.	★	MWS0690X8DB	77	77	130	7.0

(Note) Please contact us for any geometry that is not in this catalogue (e.g. different diameters and lengths can be made to order).

DRILLING | MWE, MWS DRILLS



● : Inventory maintained. ★ : Inventory maintained in Japan.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
7.0	2	Ext.	●	MWE0700SA	34	34	74	7.0
	3	Ext.	●	MWE0700MA	43	43	83	7.0
	3	Int.	●	MWS0700MB	35	35	88	7.0
	5	Int.	●	MWS0700LB	56	56	109	7.0
	8	Int.	★	MWS0700X8DB	77	77	130	7.0
7.1	2	Ext.	●	MWE0710SA	34	34	74	7.1
	3	Ext.	●	MWE0710MA	45	45	87	7.1
	3	Int.	●	MWS0710MB	37.5	40	94	8.0
	5	Int.	●	MWS0710LB	60	64	118	8.0
	8	Int.	★	MWS0710X8DB	83	88	142	8.0
7.2	2	Ext.	●	MWE0720SA	34	34	74	7.2
	3	Ext.	●	MWE0720MA	45	45	87	7.2
	3	Int.	●	MWS0720MB	37.5	40	94	8.0
	5	Int.	●	MWS0720LB	60	64	118	8.0
	8	Int.	★	MWS0720X8DB	83	88	142	8.0
7.3	2	Ext.	●	MWE0730SA	34	34	74	7.3
	3	Ext.	●	MWE0730MA	45	45	87	7.3
	3	Int.	●	MWS0730MB	37.5	40	94	8.0
	5	Int.	●	MWS0730LB	60	64	118	8.0
	8	Int.	★	MWS0730X8DB	83	88	142	8.0
7.4	2	Ext.	●	MWE0740SA	34	34	74	7.4
	3	Ext.	●	MWE0740MA	45	45	87	7.4
	3	Int.	●	MWS0740MB	37.5	40	94	8.0
	5	Int.	●	MWS0740LB	60	64	118	8.0
	8	Int.	★	MWS0740X8DB	83	88	142	8.0
7.5	2	Ext.	●	MWE0750SA	34	34	74	7.5
	3	Ext.	●	MWE0750MA	45	45	87	7.5
	3	Int.	●	MWS0750MB	37.5	40	94	8.0
	5	Int.	●	MWS0750LB	60	64	118	8.0
	8	Int.	★	MWS0750X8DB	83	88	142	8.0
7.6	2	Ext.	●	MWE0760SA	37	37	79	7.6
	3	Ext.	●	MWE0760MA	48	48	90	7.6
	3	Int.	●	MWS0760MB	40	40	94	8.0
	5	Int.	●	MWS0760LB	64	64	118	8.0
	8	Int.	★	MWS0760X8DB	88	88	142	8.0
7.7	2	Ext.	●	MWE0770SA	37	37	79	7.7
	3	Ext.	●	MWE0770MA	48	48	90	7.7
	3	Int.	●	MWS0770MB	40	40	94	8.0
	5	Int.	●	MWS0770LB	64	64	118	8.0
	8	Int.	★	MWS0770X8DB	88	88	142	8.0
7.8	2	Ext.	●	MWE0780SA	37	37	79	7.8
	3	Ext.	●	MWE0780MA	48	48	90	7.8
	3	Int.	●	MWS0780MB	40	40	94	8.0
	5	Int.	●	MWS0780LB	64	64	118	8.0
	8	Int.	★	MWS0780X8DB	88	88	142	8.0
7.9	2	Ext.	●	MWE0790SA	37	37	79	7.9
	3	Ext.	●	MWE0790MA	48	48	90	7.9
	3	Int.	●	MWS0790MB	40	40	94	8.0
	5	Int.	●	MWS0790LB	64	64	118	8.0
	8	Int.	★	MWS0790X8DB	88	88	142	8.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
8.0	2	Ext.	●	MWE0800SA	37	37	79	8.0
	3	Ext.	●	MWE0800MA	48	48	90	8.0
	3	Int.	●	MWS0800MB	40	40	94	8.0
	5	Int.	●	MWS0800LB	64	64	118	8.0
	8	Int.	★	MWS0800X8DB	88	88	142	8.0
8.1	2	Ext.	●	MWE0810SA	37	37	79	8.1
	3	Ext.	●	MWE0810MA	53	53	96	8.1
	3	Int.	●	MWS0810MB	42.5	45	100	9.0
	5	Int.	●	MWS0810LB	68	72	127	9.0
	8	Int.	★	MWS0810X8DB	94	99	154	9.0
8.2	2	Ext.	●	MWE0820SA	37	37	79	8.2
	3	Ext.	●	MWE0820MA	53	53	96	8.2
	3	Int.	●	MWS0820MB	42.5	45	100	9.0
	5	Int.	●	MWS0820LB	68	72	127	9.0
	8	Int.	★	MWS0820X8DB	94	99	154	9.0
8.3	2	Ext.	●	MWE0830SA	37	37	79	8.3
	3	Ext.	●	MWE0830MA	53	53	96	8.3
	3	Int.	●	MWS0830MB	42.5	45	100	9.0
	5	Int.	●	MWS0830LB	68	72	127	9.0
	8	Int.	★	MWS0830X8DB	94	99	154	9.0
8.4	2	Ext.	●	MWE0840SA	37	37	79	8.4
	3	Ext.	●	MWE0840MA	53	53	96	8.4
	3	Int.	●	MWS0840MB	42.5	45	100	9.0
	5	Int.	●	MWS0840LB	68	72	127	9.0
	8	Int.	★	MWS0840X8DB	94	99	154	9.0
8.5	2	Ext.	●	MWE0850SA	37	37	79	8.5
	3	Ext.	●	MWE0850MA	53	53	96	8.5
	3	Int.	●	MWS0850MB	42.5	45	100	9.0
	5	Int.	●	MWS0850LB	68	72	127	9.0
	8	Int.	★	MWS0850X8DB	94	99	154	9.0
8.6	2	Ext.	●	MWE0860SA	40	40	84	8.6
	3	Ext.	●	MWE0860MA	55	55	98	8.6
	3	Int.	●	MWS0860MB	45	45	100	9.0
	5	Int.	●	MWS0860LB	72	72	127	9.0
	8	Int.	★	MWS0860X8DB	99	99	154	9.0
8.7	2	Ext.	●	MWE0870SA	40	40	84	8.7
	3	Ext.	●	MWE0870MA	55	55	98	8.7
	3	Int.	●	MWS0870MB	45	45	100	9.0
	5	Int.	●	MWS0870LB	72	72	127	9.0
	8	Int.	★	MWS0870X8DB	99	99	154	9.0
8.8	2	Ext.	●	MWE0880SA	40	40	84	8.8
	3	Ext.	●	MWE0880MA	55	55	98	8.8
	3	Int.	●	MWS0880MB	45	45	100	9.0
	5	Int.	●	MWS0880LB	72	72	127	9.0
	8	Int.	★	MWS0880X8DB	99	99	154	9.0
8.9	2	Ext.	●	MWE0890SA	40	40	84	8.9
	3	Ext.	●	MWE0890MA	55	55	98	8.9
	3	Int.	●	MWS0890MB	45	45	100	9.0
	5	Int.	●	MWS0890LB	72	72	127	9.0
	8	Int.	★	MWS0890X8DB	99	99	154	9.0

MWE, MWS DRILLS



CUTTING CONDITIONS

D041

OPERATION GUIDANCE

D042

TECHNICAL DATA

G001

D033

DRILLING (SOLID CARBIDE)

MWE, MWS

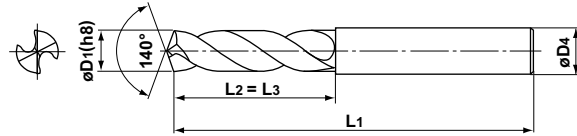
- Suitable for high efficiency and high accuracy drilling over a wide variety of materials from general steel to difficult-to-cut materials.
- Suitable for low to high speed cutting. Possible to use in the range of HSS cutting.



MWE (External coolant)



VP15TF

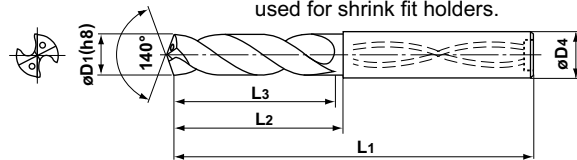


MWS (Internal coolant)



VP15TF

- The MWS-MB/LB/X8DB type can be used for shrink fit holders.



(Note) MWS type bigger than $\phi 5.0$ have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
9.0	2	Ext.	●	MWE0900SA	40	40	84	9.0
	3	Ext.	●	MWE0900MA	55	55	98	9.0
	3	Int.	●	MWS0900MB	45	45	100	9.0
	5	Int.	●	MWS0900LB	72	72	127	9.0
	8	Int.	★	MWS0900X8DB	99	99	154	9.0
9.1	2	Ext.	●	MWE0910SA	40	40	84	9.1
	3	Ext.	●	MWE0910MA	58	58	102	9.1
	3	Int.	●	MWS0910MB	47.5	50	106	10.0
	5	Int.	●	MWS0910LB	76	80	136	10.0
	8	Int.	★	MWS0910X8DB	105	110	166	10.0
9.2	2	Ext.	●	MWE0920SA	40	40	84	9.2
	3	Ext.	●	MWE0920MA	58	58	102	9.2
	3	Int.	●	MWS0920MB	47.5	50	106	10.0
	5	Int.	●	MWS0920LB	76	80	136	10.0
	8	Int.	★	MWS0920X8DB	105	110	166	10.0
9.3	2	Ext.	●	MWE0930SA	40	40	84	9.3
	3	Ext.	●	MWE0930MA	58	58	102	9.3
	3	Int.	●	MWS0930MB	47.5	50	106	10.0
	5	Int.	●	MWS0930LB	76	80	136	10.0
	8	Int.	★	MWS0930X8DB	105	110	166	10.0
9.4	2	Ext.	●	MWE0940SA	40	40	84	9.4
	3	Ext.	●	MWE0940MA	58	58	102	9.4
	3	Int.	●	MWS0940MB	47.5	50	106	10.0
	5	Int.	●	MWS0940LB	76	80	136	10.0
	8	Int.	★	MWS0940X8DB	105	110	166	10.0
9.5	2	Ext.	●	MWE0950SA	40	40	84	9.5
	3	Ext.	●	MWE0950MA	58	58	102	9.5
	3	Int.	●	MWS0950MB	47.5	50	106	10.0
	5	Int.	●	MWS0950LB	76	80	136	10.0
	8	Int.	★	MWS0950X8DB	105	110	166	10.0
9.6	2	Ext.	●	MWE0960SA	43	43	89	9.6
	3	Ext.	●	MWE0960MA	60	60	105	9.6
	3	Int.	●	MWS0960MB	50	50	106	10.0
	5	Int.	●	MWS0960LB	80	80	136	10.0
	8	Int.	★	MWS0960X8DB	110	110	166	10.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
9.7	2	Ext.	●	MWE0970SA	43	43	89	9.7
	3	Ext.	●	MWE0970MA	60	60	105	9.7
	3	Int.	●	MWS0970MB	50	50	106	10.0
	5	Int.	●	MWS0970LB	80	80	136	10.0
	8	Int.	★	MWS0970X8DB	110	110	166	10.0
9.8	2	Ext.	●	MWE0980SA	43	43	89	9.8
	3	Ext.	●	MWE0980MA	60	60	105	9.8
	3	Int.	●	MWS0980MB	50	50	106	10.0
	5	Int.	●	MWS0980LB	80	80	136	10.0
	8	Int.	★	MWS0980X8DB	110	110	166	10.0
9.9	2	Ext.	●	MWE0990SA	43	43	89	9.9
	3	Ext.	●	MWE0990MA	60	60	105	9.9
	3	Int.	●	MWS0990MB	50	50	106	10.0
	5	Int.	●	MWS0990LB	80	80	136	10.0
	8	Int.	★	MWS0990X8DB	110	110	166	10.0
10.0	2	Ext.	●	MWE1000SA	43	43	89	10.0
	3	Ext.	●	MWE1000MA	60	60	105	10.0
	3	Int.	●	MWS1000MB	50	50	106	10.0
	5	Int.	●	MWS1000LB	80	80	136	10.0
	8	Int.	★	MWS1000X8DB	110	110	166	10.0
10.1	2	Ext.	●	MWE1010SA	43	43	89	10.1
	3	Ext.	●	MWE1010MA	66	66	112	10.1
	3	Int.	●	MWS1010MB	52.5	55	116	11.0
	5	Int.	●	MWS1010LB	84	88	149	11.0
	8	Int.	★	MWS1010X8DB	116	121	182	11.0
10.2	2	Ext.	●	MWE1020SA	43	43	89	10.2
	3	Ext.	●	MWE1020MA	66	66	112	10.2
	3	Int.	●	MWS1020MB	52.5	55	116	11.0
	5	Int.	●	MWS1020LB	84	88	149	11.0
	8	Int.	★	MWS1020X8DB	116	121	182	11.0
10.3	2	Ext.	●	MWE1030SA	43	43	89	10.3
	3	Ext.	●	MWE1030MA	66	66	112	10.3
	3	Int.	●	MWS1030MB	52.5	55	116	11.0
	5	Int.	●	MWS1030LB	84	88	149	11.0
	8	Int.	★	MWS1030X8DB	116	121	182	11.0

(Note) Please contact us for any geometry that is not in this catalogue (e.g. different diameters and lengths can be made to order).

DRILLING | MWE, MWS DRILLS



- : Inventory maintained. ★ : Inventory maintained in Japan.
- : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
10.4	2	Ext.	●	MWE1040SA	43	43	89	10.4
	3	Ext.	●	MWE1040MA	66	66	112	10.4
	3	Int.	●	MWS1040MB	52.5	55	116	11.0
	5	Int.	●	MWS1040LB	84	88	149	11.0
	8	Int.	★	MWS1040X8DB	116	121	182	11.0
10.5	2	Ext.	●	MWE1050SA	43	43	89	10.5
	3	Ext.	●	MWE1050MA	66	66	112	10.5
	3	Int.	●	MWS1050MB	52.5	55	116	11.0
	5	Int.	●	MWS1050LB	84	88	149	11.0
	8	Int.	★	MWS1050X8DB	116	121	182	11.0
10.6	2	Ext.	●	MWE1060SA	43	43	89	10.6
	3	Ext.	●	MWE1060MA	68	68	114	10.6
	3	Int.	●	MWS1060MB	55	55	116	11.0
	5	Int.	●	MWS1060LB	88	88	149	11.0
	8	Int.	★	MWS1060X8DB	121	121	182	11.0
10.7	2	Ext.	●	MWE1070SA	47	47	95	10.7
	3	Ext.	●	MWE1070MA	68	68	114	10.7
	3	Int.	●	MWS1070MB	55	55	116	11.0
	5	Int.	●	MWS1070LB	88	88	149	11.0
	8	Int.	★	MWS1070X8DB	121	121	182	11.0
10.8	2	Ext.	●	MWE1080SA	47	47	95	10.8
	3	Ext.	●	MWE1080MA	68	68	114	10.8
	3	Int.	●	MWS1080MB	55	55	116	11.0
	5	Int.	●	MWS1080LB	88	88	149	11.0
	8	Int.	★	MWS1080X8DB	121	121	182	11.0
10.9	2	Ext.	●	MWE1090SA	47	47	95	10.9
	3	Ext.	●	MWE1090MA	68	68	114	10.9
	3	Int.	●	MWS1090MB	55	55	116	11.0
	5	Int.	●	MWS1090LB	88	88	149	11.0
	8	Int.	★	MWS1090X8DB	121	121	182	11.0
11.0	2	Ext.	●	MWE1100SA	47	47	95	11.0
	3	Ext.	●	MWE1100MA	68	68	114	11.0
	3	Int.	●	MWS1100MB	55	55	116	11.0
	5	Int.	●	MWS1100LB	88	88	149	11.0
	8	Int.	★	MWS1100X8DB	121	121	182	11.0
11.1	2	Ext.	●	MWE1110SA	47	47	95	11.1
	3	Ext.	●	MWE1110MA	71	71	118	11.1
	3	Int.	●	MWS1110MB	57.5	60	122	12.0
	5	Int.	●	MWS1110LB	92	96	158	12.0
	8	Int.	★	MWS1110X8DB	127	132	194	12.0
11.2	2	Ext.	●	MWE1120SA	47	47	95	11.2
	3	Ext.	●	MWE1120MA	71	71	118	11.2
	3	Int.	●	MWS1120MB	57.5	60	122	12.0
	5	Int.	●	MWS1120LB	92	96	158	12.0
	8	Int.	★	MWS1120X8DB	127	132	194	12.0
11.3	2	Ext.	●	MWE1130SA	47	47	95	11.3
	3	Ext.	●	MWE1130MA	71	71	118	11.3
	3	Int.	●	MWS1130MB	57.5	60	122	12.0
	5	Int.	●	MWS1130LB	92	96	158	12.0
	8	Int.	★	MWS1130X8DB	127	132	194	12.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
11.4	2	Ext.	●	MWE1140SA	47	47	95	11.4
	3	Ext.	●	MWE1140MA	71	71	118	11.4
	3	Int.	●	MWS1140MB	57.5	60	122	12.0
	5	Int.	●	MWS1140LB	92	96	158	12.0
	8	Int.	★	MWS1140X8DB	127	132	194	12.0
11.5	2	Ext.	●	MWE1150SA	47	47	95	11.5
	3	Ext.	●	MWE1150MA	71	71	118	11.5
	3	Int.	●	MWS1150MB	57.5	60	122	12.0
	5	Int.	●	MWS1150LB	92	96	158	12.0
	8	Int.	★	MWS1150X8DB	127	132	194	12.0
11.6	2	Ext.	●	MWE1160SA	47	47	95	11.6
	3	Ext.	●	MWE1160MA	73	73	121	11.6
	3	Int.	●	MWS1160MB	60	60	122	12.0
	5	Int.	●	MWS1160LB	96	96	158	12.0
	8	Int.	★	MWS1160X8DB	132	132	194	12.0
11.7	2	Ext.	●	MWE1170SA	47	47	95	11.7
	3	Ext.	●	MWE1170MA	73	73	121	11.7
	3	Int.	●	MWS1170MB	60	60	122	12.0
	5	Int.	●	MWS1170LB	96	96	158	12.0
	8	Int.	★	MWS1170X8DB	132	132	194	12.0
11.8	2	Ext.	●	MWE1180SA	47	47	95	11.8
	3	Ext.	●	MWE1180MA	73	73	121	11.8
	3	Int.	●	MWS1180MB	60	60	122	12.0
	5	Int.	●	MWS1180LB	96	96	158	12.0
	8	Int.	★	MWS1180X8DB	132	132	194	12.0
11.9	2	Ext.	●	MWE1190SA	51	51	102	11.9
	3	Ext.	●	MWE1190MA	73	73	121	11.9
	3	Int.	●	MWS1190MB	60	60	122	12.0
	5	Int.	●	MWS1190LB	96	96	158	12.0
	8	Int.	★	MWS1190X8DB	132	132	194	12.0
12.0	2	Ext.	●	MWE1200SA	51	51	102	12.0
	3	Ext.	●	MWE1200MA	73	73	121	12.0
	3	Int.	●	MWS1200MB	60	60	122	12.0
	5	Int.	●	MWS1200LB	96	96	158	12.0
	8	Int.	★	MWS1200X8DB	132	132	194	12.0
12.1	2	Ext.	●	MWE1210SA	51	51	102	12.1
	3	Ext.	●	MWE1210MA	76	76	135	12.1
	3	Int.	●	MWS1210MB	62.5	65	128	13.0
	5	Int.	●	MWS1210LB	100	104	167	13.0
	8	Int.	□	MWS1210X8DB	138	143	206	13.0
12.2	2	Ext.	●	MWE1220SA	51	51	102	12.2
	3	Ext.	●	MWE1220MA	76	76	135	12.2
	3	Int.	●	MWS1220MB	62.5	65	128	13.0
	5	Int.	●	MWS1220LB	100	104	167	13.0
	8	Int.	□	MWS1220X8DB	138	143	206	13.0
12.3	2	Ext.	●	MWE1230SA	51	51	102	12.3
	3	Ext.	●	MWE1230MA	76	76	135	12.3
	3	Int.	●	MWS1230MB	62.5	65	128	13.0
	5	Int.	●	MWS1230LB	100	104	167	13.0
	8	Int.	□	MWS1230X8DB	138	143	206	13.0

MWE, MWS DRILLS



CUTTING CONDITIONS

D041

OPERATION GUIDANCE

D042

TECHNICAL DATA

G001

D035

DRILLING (SOLID CARBIDE)

MWE, MWS

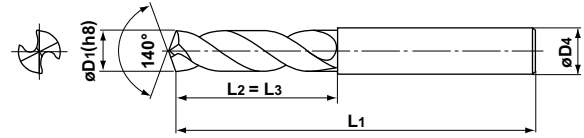
- Suitable for high efficiency and high accuracy drilling over a wide variety of materials from general steel to difficult-to-cut materials.
- Suitable for low to high speed cutting. Possible to use in the range of HSS cutting.



MWE (External coolant)



VP15TF

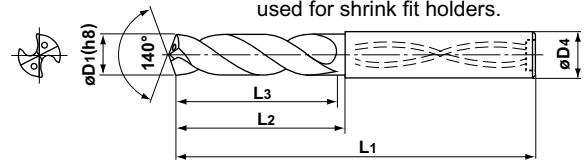


MWS (Internal coolant)



VP15TF

- The MWS-MB/LB/X8DB type can be used for shrink fit holders.



(Note) MWS type bigger than $\phi 5.0$ have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
12.4	2	Ext.	●	MWE1240SA	51	51	102	12.4
	3	Ext.	●	MWE1240MA	76	76	135	12.4
	3	Int.	●	MWS1240MB	62.5	65	128	13.0
	5	Int.	●	MWS1240LB	100	104	167	13.0
	8	Int.	□	MWS1240X8DB	138	143	206	13.0
12.5	2	Ext.	●	MWE1250SA	51	51	102	12.5
	3	Ext.	●	MWE1250MA	76	76	135	12.5
	3	Int.	●	MWS1250MB	62.5	65	128	13.0
	5	Int.	●	MWS1250LB	100	104	167	13.0
	8	Int.	★	MWS1250X8DB	138	143	206	13.0
12.6	2	Ext.	●	MWE1260SA	51	51	102	12.6
	3	Ext.	●	MWE1260MA	78	78	137	12.6
	3	Int.	●	MWS1260MB	65	65	128	13.0
	5	Int.	●	MWS1260LB	104	104	167	13.0
	8	Int.	□	MWS1260X8DB	143	143	206	13.0
12.7	2	Ext.	●	MWE1270SA	51	51	102	12.7
	3	Ext.	●	MWE1270MA	78	78	137	12.7
	3	Int.	●	MWS1270MB	65	65	128	13.0
	5	Int.	●	MWS1270LB	104	104	167	13.0
	8	Int.	□	MWS1270X8DB	143	143	206	13.0
12.8	2	Ext.	●	MWE1280SA	51	51	102	12.8
	3	Ext.	●	MWE1280MA	78	78	137	12.8
	3	Int.	●	MWS1280MB	65	65	128	13.0
	5	Int.	●	MWS1280LB	104	104	167	13.0
	8	Int.	□	MWS1280X8DB	143	143	206	13.0
12.9	2	Ext.	●	MWE1290SA	51	51	102	12.9
	3	Ext.	●	MWE1290MA	78	78	137	12.9
	3	Int.	●	MWS1290MB	65	65	128	13.0
	5	Int.	●	MWS1290LB	104	104	167	13.0
	8	Int.	□	MWS1290X8DB	143	143	206	13.0
13.0	2	Ext.	●	MWE1300SA	51	51	102	13.0
	3	Ext.	●	MWE1300MA	78	78	137	13.0
	3	Int.	●	MWS1300MB	65	65	128	13.0
	5	Int.	●	MWS1300LB	104	104	167	13.0
	8	Int.	★	MWS1300X8DB	143	143	206	13.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
13.1	2	Ext.	●	MWE1310SA	51	51	102	13.1
	3	Ext.	●	MWE1310MA	84	84	144	13.1
	3	Int.	●	MWS1310MB	67.5	70	134	14.0
	5	Int.	●	MWS1310LB	108	112	176	14.0
	8	Int.	□	MWS1310X8DB	149	154	218	14.0
13.2	2	Ext.	●	MWE1320SA	51	51	102	13.2
	3	Ext.	●	MWE1320MA	84	84	144	13.2
	3	Int.	●	MWS1320MB	67.5	70	134	14.0
	5	Int.	●	MWS1320LB	108	112	176	14.0
	8	Int.	□	MWS1320X8DB	149	154	218	14.0
13.3	2	Ext.	●	MWE1330SA	54	54	107	13.3
	3	Ext.	●	MWE1330MA	84	84	144	13.3
	3	Int.	●	MWS1330MB	67.5	70	134	14.0
	5	Int.	●	MWS1330LB	108	112	176	14.0
	8	Int.	□	MWS1330X8DB	149	154	218	14.0
13.4	2	Ext.	●	MWE1340SA	54	54	107	13.4
	3	Ext.	●	MWE1340MA	84	84	144	13.4
	3	Int.	●	MWS1340MB	67.5	70	134	14.0
	5	Int.	●	MWS1340LB	108	112	176	14.0
	8	Int.	□	MWS1340X8DB	149	154	218	14.0
13.5	2	Ext.	●	MWE1350SA	54	54	107	13.5
	3	Ext.	●	MWE1350MA	84	84	144	13.5
	3	Int.	●	MWS1350MB	67.5	70	134	14.0
	5	Int.	●	MWS1350LB	108	112	176	14.0
	8	Int.	★	MWS1350X8DB	149	154	218	14.0
13.6	2	Ext.	●	MWE1360SA	54	54	107	13.6
	3	Ext.	●	MWE1360MA	86	86	147	13.6
	3	Int.	●	MWS1360MB	70	70	134	14.0
	5	Int.	●	MWS1360LB	112	112	176	14.0
	8	Int.	□	MWS1360X8DB	154	154	218	14.0
13.7	2	Ext.	●	MWE1370SA	54	54	107	13.7
	3	Ext.	●	MWE1370MA	86	86	147	13.7
	3	Int.	●	MWS1370MB	70	70	134	14.0
	5	Int.	●	MWS1370LB	112	112	176	14.0
	8	Int.	□	MWS1370X8DB	154	154	218	14.0

(Note) Please contact us for any geometry that is not in this catalogue (e.g. different diameters and lengths can be made to order).

DRILLING | MWE, MWS DRILLS



- : Inventory maintained. ★ : Inventory maintained in Japan.
- : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
13.8	2	Ext.	●	MWE1380SA	54	54	107	13.8
	3	Ext.	●	MWE1380MA	86	86	147	13.8
	3	Int.	●	MWS1380MB	70	70	134	14.0
	5	Int.	●	MWS1380LB	112	112	176	14.0
	8	Int.	□	MWS1380X8DB	154	154	218	14.0
13.9	2	Ext.	●	MWE1390SA	54	54	107	13.9
	3	Ext.	●	MWE1390MA	86	86	147	13.9
	3	Int.	●	MWS1390MB	70	70	134	14.0
	5	Int.	●	MWS1390LB	112	112	176	14.0
	8	Int.	□	MWS1390X8DB	154	154	218	14.0
14.0	2	Ext.	●	MWE1400SA	54	54	107	14.0
	3	Ext.	●	MWE1400MA	86	86	147	14.0
	3	Int.	●	MWS1400MB	70	70	134	14.0
	5	Int.	●	MWS1400LB	112	112	176	14.0
	8	Int.	★	MWS1400X8DB	154	154	218	14.0
14.1	2	Ext.	●	MWE1410SA	56	56	111	14.1
	3	Ext.	●	MWE1410MA	89	89	151	14.1
	3	Int.	●	MWS1410MB	72.5	75	140	15.0
	5	Int.	●	MWS1410LB	116	120	185	15.0
	8	Int.	□	MWS1410X8DB	160	165	225	15.0
14.2	2	Ext.	●	MWE1420SA	56	56	111	14.2
	3	Ext.	●	MWE1420MA	89	89	151	14.2
	3	Int.	●	MWS1420MB	72.5	75	140	15.0
	5	Int.	●	MWS1420LB	116	120	185	15.0
	8	Int.	★	MWS1420X8DB	160	165	225	15.0
14.3	2	Ext.	□	MWE1430SA	56	56	111	14.3
	3	Ext.	●	MWE1430MA	89	89	151	14.3
	3	Int.	●	MWS1430MB	72.5	75	140	15.0
	5	Int.	●	MWS1430LB	116	120	185	15.0
	8	Int.	□	MWS1430X8DB	160	165	225	15.0
14.4	2	Ext.	□	MWE1440SA	56	56	111	14.4
	3	Ext.	●	MWE1440MA	89	89	151	14.4
	3	Int.	●	MWS1440MB	72.5	75	140	15.0
	5	Int.	●	MWS1440LB	116	120	185	15.0
	8	Int.	□	MWS1440X8DB	160	165	225	15.0
14.5	2	Ext.	●	MWE1450SA	56	56	111	14.5
	3	Ext.	●	MWE1450MA	89	89	151	14.5
	3	Int.	●	MWS1450MB	72.5	75	140	15.0
	5	Int.	●	MWS1450LB	116	120	185	15.0
	8	Int.	★	MWS1450X8DB	160	165	225	15.0
14.6	2	Ext.	□	MWE1460SA	56	56	111	14.6
	3	Ext.	●	MWE1460MA	91	91	153	14.6
	3	Int.	●	MWS1460MB	75	75	140	15.0
	5	Int.	●	MWS1460LB	120	120	185	15.0
	8	Int.	□	MWS1460X8DB	165	165	225	15.0
14.7	2	Ext.	□	MWE1470SA	56	56	111	14.7
	3	Ext.	●	MWE1470MA	91	91	153	14.7
	3	Int.	●	MWS1470MB	75	75	140	15.0
	5	Int.	●	MWS1470LB	120	120	185	15.0
	8	Int.	□	MWS1470X8DB	165	165	225	15.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
14.8	2	Ext.	□	MWE1480SA	56	56	111	14.8
	3	Ext.	●	MWE1480MA	91	91	153	14.8
	3	Int.	●	MWS1480MB	75	75	140	15.0
	5	Int.	●	MWS1480LB	120	120	185	15.0
	8	Int.	□	MWS1480X8DB	165	165	225	15.0
14.9	2	Ext.	□	MWE1490SA	56	56	111	14.9
	3	Ext.	●	MWE1490MA	91	91	153	14.9
	3	Int.	●	MWS1490MB	75	75	140	15.0
	5	Int.	●	MWS1490LB	120	120	185	15.0
	8	Int.	□	MWS1490X8DB	165	165	225	15.0
15.0	2	Ext.	●	MWE1500SA	56	56	111	15.0
	3	Ext.	●	MWE1500MA	91	91	153	15.0
	3	Int.	●	MWS1500MB	75	75	140	15.0
	5	Int.	●	MWS1500LB	120	120	185	15.0
	8	Int.	★	MWS1500X8DB	165	165	225	15.0
15.1	2	Ext.	□	MWE1510SA	58	58	115	15.1
	3	Ext.	●	MWE1510MA	94	94	157	15.1
	3	Int.	●	MWS1510MB	77.5	80	145	16.0
	5	Int.	●	MWS1510LB	124	128	193	16.0
	8	Int.	□	MWS1510X8DB	171	181	241	16.0
15.2	2	Ext.	●	MWE1520SA	58	58	115	15.2
	3	Ext.	●	MWE1520MA	94	94	157	15.2
	3	Int.	●	MWS1520MB	77.5	80	145	16.0
	5	Int.	●	MWS1520LB	124	128	193	16.0
	8	Int.	□	MWS1520X8DB	171	181	241	16.0
15.3	2	Ext.	□	MWE1530SA	58	58	115	15.3
	3	Ext.	●	MWE1530MA	94	94	157	15.3
	3	Int.	●	MWS1530MB	77.5	80	145	16.0
	5	Int.	●	MWS1530LB	124	128	193	16.0
	8	Int.	□	MWS1530X8DB	171	181	241	16.0
15.4	2	Ext.	□	MWE1540SA	58	58	115	15.4
	3	Ext.	●	MWE1540MA	94	94	157	15.4
	3	Int.	●	MWS1540MB	77.5	80	145	16.0
	5	Int.	●	MWS1540LB	124	128	193	16.0
	8	Int.	□	MWS1540X8DB	171	181	241	16.0
15.5	2	Ext.	●	MWE1550SA	58	58	115	15.5
	3	Ext.	●	MWE1550MA	94	94	157	15.5
	3	Int.	●	MWS1550MB	77.5	80	145	16.0
	5	Int.	●	MWS1550LB	124	128	193	16.0
	8	Int.	★	MWS1550X8DB	171	181	241	16.0
15.6	2	Ext.	□	MWE1560SA	58	58	115	15.6
	3	Ext.	●	MWE1560MA	96	96	160	15.6
	3	Int.	●	MWS1560MB	80	80	145	16.0
	5	Int.	●	MWS1560LB	128	128	193	16.0
	8	Int.	□	MWS1560X8DB	176	181	241	16.0
15.7	2	Ext.	□	MWE1570SA	58	58	115	15.7
	3	Ext.	●	MWE1570MA	96	96	160	15.7
	3	Int.	●	MWS1570MB	80	80	145	16.0
	5	Int.	●	MWS1570LB	128	128	193	16.0
	8	Int.	□	MWS1570X8DB	176	181	241	16.0

MWE, MWS DRILLS



CUTTING CONDITIONS

D041

OPERATION GUIDANCE

D042

TECHNICAL DATA

G001

D037

DRILLING (SOLID CARBIDE)

MWE, MWS

- Suitable for high efficiency and high accuracy drilling over a wide variety of materials from general steel to difficult-to-cut materials.
- Suitable for low to high speed cutting. Possible to use in the range of HSS cutting.

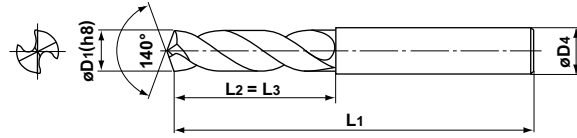


MWE (External coolant)



VP15TF

D1(h8)	D1 ≤ 3.0	3.0 < D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 30.0
Tolerance	0 -0.014	0 -0.018	0 -0.022	0 -0.027	0 -0.033

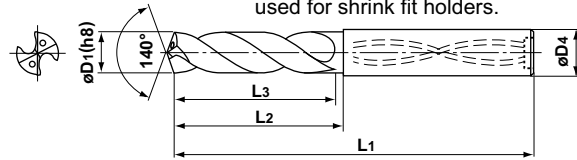


MWS (Internal coolant)



VP15TF

- The MWS-MB/LB/X8DB type can be used for shrink fit holders.



(Note) MWS type bigger than $\phi 5.0$ have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
15.8	2	Ext.	□	MWE1580SA	58	58	115	15.8
	3	Ext.	●	MWE1580MA	96	96	160	15.8
	3	Int.	●	MWS1580MB	80	80	145	16.0
	5	Int.	●	MWS1580LB	128	128	193	16.0
	8	Int.	□	MWS1580X8DB	176	181	241	16.0
15.9	2	Ext.	□	MWE1590SA	58	58	115	15.9
	3	Ext.	●	MWE1590MA	96	96	160	15.9
	3	Int.	●	MWS1590MB	80	80	145	16.0
	5	Int.	●	MWS1590LB	128	128	193	16.0
	8	Int.	□	MWS1590X8DB	176	181	241	16.0
16.0	2	Ext.	●	MWE1600SA	58	58	115	16.0
	3	Ext.	●	MWE1600MA	96	96	160	16.0
	3	Int.	●	MWS1600MB	80	80	145	16.0
	5	Int.	●	MWS1600LB	128	128	193	16.0
	8	Int.	★	MWS1600X8DB	176	181	241	16.0
16.1	2	Ext.	□	MWE1610SA	60	60	119	16.1
	3	Ext.	□	MWE1610MA	102	102	167	16.1
	3	Int.	□	MWS1610MB	82.5	85	150	17.0
16.2	2	Ext.	★	MWE1620SA	60	60	119	16.2
	3	Ext.	□	MWE1620MA	102	102	167	16.2
	3	Int.	□	MWS1620MB	82.5	85	150	17.0
16.3	2	Ext.	★	MWE1630SA	60	60	119	16.3
	3	Ext.	□	MWE1630MA	102	102	167	16.3
	3	Int.	□	MWS1630MB	82.5	85	150	17.0
16.4	2	Ext.	□	MWE1640SA	60	60	119	16.4
	3	Ext.	□	MWE1640MA	102	102	167	16.4
	3	Int.	□	MWS1640MB	82.5	85	150	17.0
16.5	2	Ext.	●	MWE1650SA	60	60	119	16.5
	3	Ext.	●	MWE1650MA	102	102	167	16.5
	3	Int.	●	MWS1650MB	82.5	85	150	17.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
16.6	2	Ext.	□	MWE1660SA	60	60	119	16.6
	3	Ext.	□	MWE1660MA	102	102	167	16.6
	3	Int.	□	MWS1660MB	85	85	150	17.0
	5	Int.	□	MWS1660LB	136	136	201	17.0
16.7	2	Ext.	□	MWE1670SA	60	60	119	16.7
	3	Ext.	□	MWE1670MA	102	102	167	16.7
	3	Int.	□	MWS1670MB	85	85	150	17.0
	5	Int.	□	MWS1670LB	136	136	201	17.0
16.8	2	Ext.	□	MWE1680SA	60	60	119	16.8
	3	Ext.	□	MWE1680MA	102	102	167	16.8
	3	Int.	□	MWS1680MB	85	85	150	17.0
16.9	2	Ext.	□	MWE1690SA	60	60	119	16.9
	3	Ext.	□	MWE1690MA	102	102	167	16.9
	3	Int.	□	MWS1690MB	85	85	150	17.0
17.0	2	Ext.	●	MWE1700SA	60	60	119	17.0
	3	Ext.	●	MWE1700MA	102	102	167	17.0
	3	Int.	●	MWS1700MB	85	85	150	17.0
17.1	2	Ext.	□	MWE1710SA	62	62	123	17.1
	3	Ext.	□	MWE1710MA	102	102	167	17.1
	3	Int.	□	MWS1710MB	87.5	90	155	18.0
17.2	2	Ext.	□	MWE1720SA	62	62	123	17.2
	3	Ext.	□	MWE1720MA	102	102	167	17.2
	3	Int.	□	MWS1720MB	87.5	90	155	18.0
17.3	2	Ext.	□	MWE1730SA	62	62	123	17.3
	3	Ext.	□	MWE1730MA	102	102	167	17.3
	3	Int.	□	MWS1730MB	87.5	90	155	18.0
17.4	2	Ext.	□	MWE1740SA	62	62	123	17.4
	3	Ext.	□	MWE1740MA	102	102	167	17.4
	3	Int.	□	MWS1740MB	87.5	90	155	18.0

(Note) Please contact us for any geometry that is not in this catalogue (e.g. different diameters and lengths can be made to order).

DRILLING | MWE, MWS DRILLS

CARBIDE

- : Inventory maintained. ★ : Inventory maintained in Japan.
- : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
17.5	2	Ext.	●	MWE1750SA	62	62	123	17.5
	3	Ext.	●	MWE1750MA	102	102	167	17.5
	3	Int.	●	MWS1750MB	87.5	90	155	18.0
	5	Int.	●	MWS1750LB	140	144	209	18.0
17.6	2	Ext.	□	MWE1760SA	62	62	123	17.6
	3	Ext.	□	MWE1760MA	102	102	167	17.6
	3	Int.	□	MWS1760MB	90	90	155	18.0
	5	Int.	□	MWS1760LB	144	144	209	18.0
17.7	2	Ext.	□	MWE1770SA	62	62	123	17.7
	3	Ext.	□	MWE1770MA	102	102	167	17.7
	3	Int.	□	MWS1770MB	90	90	155	18.0
	5	Int.	□	MWS1770LB	144	144	209	18.0
17.8	2	Ext.	★	MWE1780SA	62	62	123	17.8
	3	Ext.	□	MWE1780MA	102	102	167	17.8
	3	Int.	□	MWS1780MB	90	90	155	18.0
	5	Int.	□	MWS1780LB	144	144	209	18.0
17.9	2	Ext.	□	MWE1790SA	62	62	123	17.9
	3	Ext.	□	MWE1790MA	102	102	167	17.9
	3	Int.	□	MWS1790MB	90	90	155	18.0
	5	Int.	□	MWS1790LB	144	144	209	18.0
18.0	2	Ext.	●	MWE1800SA	62	62	123	18.0
	3	Ext.	●	MWE1800MA	102	102	167	18.0
	3	Int.	●	MWS1800MB	90	90	155	18.0
	5	Int.	●	MWS1800LB	144	144	209	18.0
18.1	2	Ext.	□	MWE1810SA	64	64	127	18.1
	3	Ext.	□	MWE1810MA	114	114	179	18.1
	3	Int.	□	MWS1810MB	92.5	95	160	19.0
	5	Int.	□	MWS1810LB	148	152	217	19.0
18.2	2	Ext.	□	MWE1820SA	64	64	127	18.2
	3	Ext.	□	MWE1820MA	114	114	179	18.2
	3	Int.	□	MWS1820MB	92.5	95	160	19.0
	5	Int.	□	MWS1820LB	148	152	217	19.0
18.3	2	Ext.	□	MWE1830SA	64	64	127	18.3
	3	Ext.	□	MWE1830MA	114	114	179	18.3
	3	Int.	□	MWS1830MB	92.5	95	160	19.0
	5	Int.	□	MWS1830LB	148	152	217	19.0
18.4	2	Ext.	□	MWE1840SA	64	64	127	18.4
	3	Ext.	□	MWE1840MA	114	114	179	18.4
	3	Int.	□	MWS1840MB	92.5	95	160	19.0
	5	Int.	□	MWS1840LB	148	152	217	19.0
18.5	2	Ext.	●	MWE1850SA	64	64	127	18.5
	3	Ext.	●	MWE1850MA	114	114	179	18.5
	3	Int.	●	MWS1850MB	92.5	95	160	19.0
	5	Int.	●	MWS1850LB	148	152	217	19.0
18.6	2	Ext.	□	MWE1860SA	64	64	127	18.6
	3	Ext.	□	MWE1860MA	114	114	179	18.6
	3	Int.	□	MWS1860MB	95	95	160	19.0
	5	Int.	□	MWS1860LB	152	152	217	19.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
18.7	2	Ext.	□	MWE1870SA	64	64	127	18.7
	3	Ext.	□	MWE1870MA	114	114	179	18.7
	3	Int.	□	MWS1870MB	95	95	160	19.0
	5	Int.	□	MWS1870LB	152	152	217	19.0
18.8	2	Ext.	□	MWE1880SA	64	64	127	18.8
	3	Ext.	□	MWE1880MA	114	114	179	18.8
	3	Int.	□	MWS1880MB	95	95	160	19.0
	5	Int.	□	MWS1880LB	152	152	217	19.0
18.9	2	Ext.	□	MWE1890SA	64	64	127	18.9
	3	Ext.	□	MWE1890MA	114	114	179	18.9
	3	Int.	□	MWS1890MB	95	95	160	19.0
	5	Int.	□	MWS1890LB	152	152	217	19.0
19.0	2	Ext.	●	MWE1900SA	64	64	127	19.0
	3	Ext.	●	MWE1900MA	114	114	179	19.0
	3	Int.	●	MWS1900MB	95	95	160	19.0
	5	Int.	●	MWS1900LB	152	152	217	19.0
19.1	2	Ext.	□	MWE1910SA	66	66	131	19.1
	3	Ext.	□	MWE1910MA	114	114	179	19.1
	3	Int.	□	MWS1910MB	97.5	100	165	20.0
	5	Int.	□	MWS1910LB	156	160	225	20.0
19.2	2	Ext.	□	MWE1920SA	66	66	131	19.2
	3	Ext.	□	MWE1920MA	114	114	179	19.2
	3	Int.	□	MWS1920MB	97.5	100	165	20.0
	5	Int.	□	MWS1920LB	156	160	225	20.0
19.3	2	Ext.	□	MWE1930SA	66	66	131	19.3
	3	Ext.	□	MWE1930MA	114	114	179	19.3
	3	Int.	□	MWS1930MB	97.5	100	165	20.0
	5	Int.	□	MWS1930LB	156	160	225	20.0
19.4	2	Ext.	□	MWE1940SA	66	66	131	19.4
	3	Ext.	□	MWE1940MA	114	114	179	19.4
	3	Int.	□	MWS1940MB	97.5	100	165	20.0
	5	Int.	□	MWS1940LB	156	160	225	20.0
19.5	2	Ext.	●	MWE1950SA	66	66	131	19.5
	3	Ext.	●	MWE1950MA	114	114	179	19.5
	3	Int.	●	MWS1950MB	97.5	100	165	20.0
	5	Int.	●	MWS1950LB	156	160	225	20.0
19.6	2	Ext.	□	MWE1960SA	66	66	131	19.6
	3	Ext.	□	MWE1960MA	114	114	179	19.6
	3	Int.	□	MWS1960MB	100	100	165	20.0
	5	Int.	□	MWS1960LB	160	160	225	20.0
19.7	2	Ext.	□	MWE1970SA	66	66	131	19.7
	3	Ext.	□	MWE1970MA	114	114	179	19.7
	3	Int.	□	MWS1970MB	100	100	165	20.0
	5	Int.	□	MWS1970LB	160	160	225	20.0
19.8	2	Ext.	□	MWE1980SA	66	66	131	19.8
	3	Ext.	□	MWE1980MA	114	114	179	19.8
	3	Int.	□	MWS1980MB	100	100	165	20.0
	5	Int.	□	MWS1980LB	160	160	225	20.0

MWE, MWS DRILLS



CUTTING CONDITIONS

D041

OPERATION GUIDANCE

D042

TECHNICAL DATA

G001

D039

DRILLING (SOLID CARBIDE)

MWE, MWS

- Suitable for high efficiency and high accuracy drilling over a wide variety of materials from general steel to difficult-to-cut materials.
- Suitable for low to high speed cutting. Possible to use in the range of HSS cutting.

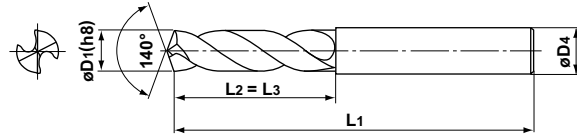


MWE (External coolant)



VP15TF

D1(h8)	D1 ≤ 3.0	3.0 < D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 30.0
Tolerance	0 -0.014	0 -0.018	0 -0.022	0 -0.027	0 -0.033

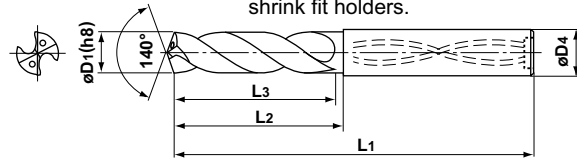


MWS (Internal coolant)



VP15TF

- The MWS-MB/LB type can be used for shrink fit holders.



(Note) MWS type bigger than $\phi 5.0$ have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
19.9	2	Ext.	□	MWE1990SA	66	66	131	19.9
	3	Ext.	□	MWE1990MA	114	114	179	19.9
	3	Int.	□	MWS1990MB	100	100	165	20.0
	5	Int.	□	MWS1990LB	160	160	225	20.0
20.0	2	Ext.	●	MWE2000SA	66	66	131	20.0
	3	Ext.	●	MWE2000MA	114	114	179	20.0
	3	Int.	●	MWS2000MB	100	100	165	20.0
	5	Int.	●	MWS2000LB	160	160	225	20.0
20.5	3	Int.	★	MWS2050MB	103	105	176	21.0
	5	Int.	★	MWS2050LB	166	168	239	21.0
21.0	3	Int.	★	MWS2100MB	105	105	176	21.0
	5	Int.	★	MWS2100LB	168	168	239	21.0
21.5	3	Int.	★	MWS2150MB	108	110	182	22.0
	5	Int.	★	MWS2150LB	174	176	248	22.0

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
22.0	3	Int.	★	MWS2200MB	110	110	182	22.0
	5	Int.	★	MWS2200LB	176	176	248	22.0
22.5	3	Int.	★	MWS2250MB	113	115	188	23.0
	5	Int.	★	MWS2250LB	182	184	257	23.0
23.0	3	Int.	★	MWS2300MB	115	115	188	23.0
	5	Int.	★	MWS2300LB	184	184	257	23.0
23.5	3	Int.	★	MWS2350MB	118	120	194	24.0
	5	Int.	★	MWS2350LB	190	192	266	24.0
24.0	3	Int.	★	MWS2400MB	120	120	194	24.0
	5	Int.	★	MWS2400LB	192	192	266	24.0
24.5	3	Int.	★	MWS2450MB	123	125	200	25.0
	5	Int.	★	MWS2450LB	198	200	270	25.0
25.0	3	Int.	★	MWS2500MB	125	125	200	25.0
	5	Int.	★	MWS2500LB	200	200	270	25.0

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MWE, MWS DRILLS



CARBIDE

D040

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RECOMMENDED CUTTING CONDITIONS

● MWE (External Coolant)

Work Material	Drill Diameter Conditions Hardness	φ3.0–φ6.0		φ6.0–φ10.0		φ10.0–φ14.0		φ14.0–φ20.0	
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Mild Steel	≤180HB	85 (35–100)	0.20 (0.15–0.30)	85 (45–120)	0.25 (0.15–0.35)	90 (55–120)	0.30 (0.20–0.35)	100 (60–130)	0.35 (0.20–0.40)
	180–280HB	80 (40–95)	0.20 (0.15–0.30)	90 (50–120)	0.25 (0.15–0.35)	90 (60–130)	0.30 (0.15–0.35)	90 (60–130)	0.35 (0.20–0.40)
Carbon Steel Alloy Steel	280–350HB	75 (35–80)	0.15 (0.15–0.20)	80 (45–115)	0.20 (0.15–0.25)	85 (55–115)	0.25 (0.15–0.30)	85 (55–115)	0.30 (0.20–0.35)
	≤200HB	20 (15–30)	0.10 (0.05–0.15)	25 (15–30)	0.12 (0.05–0.15)	25 (15–30)	0.15 (0.10–0.20)	25 (15–30)	0.20 (0.10–0.25)
M Stainless Steel	≤200HB	20 (15–30)	0.10 (0.05–0.15)	25 (15–30)	0.12 (0.05–0.15)	25 (15–30)	0.15 (0.10–0.20)	25 (15–30)	0.20 (0.10–0.25)
K Cast Iron	Tensile Strength ≤350N/mm ²	70 (40–85)	0.25 (0.15–0.30)	75 (50–90)	0.30 (0.20–0.35)	80 (50–95)	0.35 (0.20–0.40)	85 (55–95)	0.40 (0.30–0.45)
	Ductile Cast Iron Tensile Strength ≤450N/mm ²	65 (35–80)	0.20 (0.15–0.25)	70 (45–85)	0.25 (0.15–0.30)	75 (45–90)	0.30 (0.20–0.35)	80 (50–90)	0.35 (0.20–0.40)
N Aluminium Alloy	–	80 (70–90)	0.20 (0.10–0.25)	90 (80–100)	0.25 (0.15–0.30)	100 (90–110)	0.30 (0.20–0.35)	110 (100–120)	0.35 (0.20–0.40)
S Heat Resistant Alloy	–	20 (10–25)	0.10 (0.05–0.15)	25 (15–30)	0.12 (0.05–0.15)	25 (15–30)	0.15 (0.10–0.20)	30 (25–35)	0.20 (0.10–0.25)
H Hardened Steel	40–60HRC	20 (15–25)	0.10 (0.05–0.15)	25 (15–30)	0.12 (0.05–0.15)	25 (15–30)	0.15 (0.10–0.20)	30 (15–35)	0.20 (0.10–0.25)

● MWS (Internal Coolant)

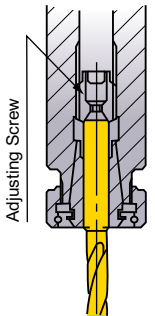
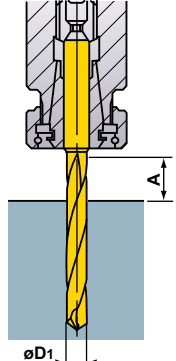
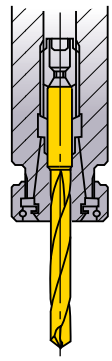
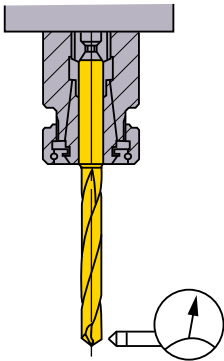
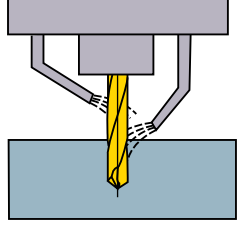
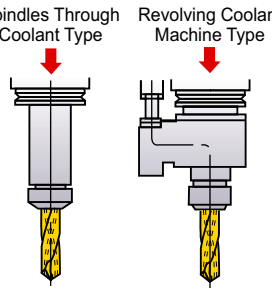
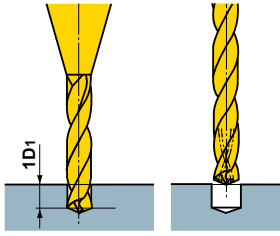
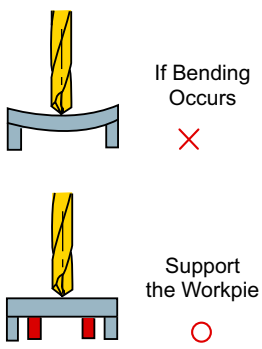
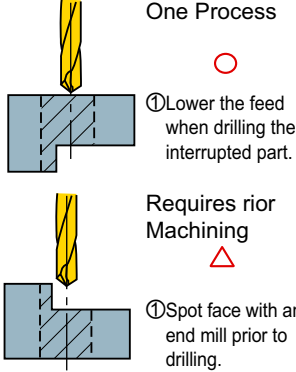
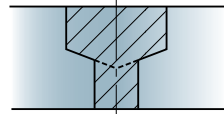
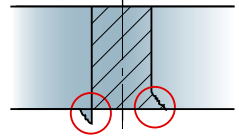
Work Material	Drill Diameter Conditions Hardness	φ1.0–φ3.0		φ3.0–φ6.0		φ6.0–φ10.0		φ10.0–φ14.0		φ14.0–φ25.0	
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Mild Steel	≤180HB	50 (40–60)	0.08 (0.04–0.12)	110 (50–120)	0.20 (0.15–0.25)	130 (80–140)	0.25 (0.20–0.35)	150 (90–170)	0.30 (0.20–0.40)	160 (100–180)	0.35 (0.20–0.40)
	180–280HB	50 (40–60)	0.08 (0.04–0.12)	90 (50–100)	0.20 (0.15–0.25)	110 (70–120)	0.25 (0.20–0.35)	130 (80–140)	0.25 (0.20–0.40)	140 (100–150)	0.30 (0.20–0.40)
Carbon Steel Alloy Steel	280–350HB	50 (40–60)	0.08 (0.04–0.12)	80 (40–90)	0.20 (0.15–0.30)	90 (60–110)	0.25 (0.15–0.30)	110 (70–130)	0.25 (0.15–0.40)	120 (90–140)	0.30 (0.20–0.40)
	≤200HB	30 (20–40)	0.05 (0.02–0.10)	60 (20–100)	0.10 (0.05–0.15)	80 (40–120)	0.20 (0.10–0.25)	90 (50–120)	0.25 (0.15–0.30)	100 (60–120)	0.25 (0.15–0.30)
M Stainless Steel	≤200HB	30 (20–40)	0.05 (0.02–0.10)	60 (20–100)	0.10 (0.05–0.15)	80 (40–120)	0.20 (0.10–0.25)	90 (50–120)	0.25 (0.15–0.30)	100 (60–120)	0.25 (0.15–0.30)
K Cast Iron	Tensile Strength ≤350N/mm ²	50 (40–60)	0.08 (0.04–0.12)	100 (70–120)	0.25 (0.15–0.30)	130 (100–140)	0.30 (0.20–0.35)	150 (110–160)	0.35 (0.25–0.40)	160 (120–170)	0.35 (0.25–0.40)
	Ductile Cast Iron Tensile Strength ≤450N/mm ²	30 (20–40)	0.06 (0.02–0.10)	60 (30–80)	0.20 (0.15–0.25)	70 (40–90)	0.20 (0.15–0.30)	90 (50–110)	0.25 (0.20–0.40)	100 (60–110)	0.30 (0.20–0.40)
N Aluminium Alloy	–	60 (50–80)	0.10 (0.05–0.15)	120 (80–150)	0.25 (0.20–0.35)	150 (100–170)	0.30 (0.20–0.50)	160 (100–170)	0.40 (0.20–0.80)	170 (100–180)	0.50 (0.20–1.00)
S Heat Resistant Alloy	–	10 (5–15)	0.03 (0.01–0.05)	20 (10–25)	0.10 (0.05–0.15)	25 (15–30)	0.12 (0.05–0.15)	25 (15–30)	0.15 (0.10–0.20)	30 (25–35)	0.20 (0.10–0.25)

(Note 1) For drill diameter up to φ2, peck feed drilling is recommended according to cutting modes and conditions.

(Note 2) Peck guide: 1 x D (drill diameter)

(Note 3) Please refer to next page for further information about the effective use of MWE, MWS drills.

OPERATIONAL GUIDANCE

<p>Drill Holding</p>  <p>Thrust bearing type collet chuck holds the drill securely.</p>	<p>Drill Length</p>  <p>$A \geq D_1 \times 1.5$</p>	<p>Drill Installation</p>  <p>Do not clamp on the flutes.</p>	<p>Installation Tolerance</p>  <p>Run-out $\leq 0.03\text{mm}$</p>
<p>Coolant Method (MWE)</p>  <p>Two coolant positions, at the end and at the center are ideal.</p>	<p>Through Coolant Type (MWS)</p>  <p>Coolant pressure is approx. 0.5–1MPa ($<\phi: 2\text{--}3\text{MPa}$). Coolant volume is 1.5–4.0/min.</p>	<p>Drill Installation</p>  <p>①When machining a prepared hole with the stub type drill please set the depth to 1D (D=drill diameter). ②Use the prepared hole as a guide when using a drill with an oil hole. Depending on the cutting conditions, peck feed is recommended.</p>	<p>Coolant Handling</p> <p><MWS Type></p> <ol style="list-style-type: none"> Small particles of swarf will jam in the oil hole of small diameter drills. Always use a fine mesh filter as a preventative measure. Dirt and dust particles adhere to the oil in old coolant and prevent an efficient flow. Regular coolant exchange is recommended.
<p>Thin Workpiece</p>  <p>If Bending Occurs \times</p> <p>Support the Workpie \circ</p>	<p>Interrupted Cutting</p>  <p>One Process \circ</p> <p>①Lower the feed when drilling the interrupted part.</p> <p>Requires rior Machining \triangle</p> <p>①Spot face with an end mill prior to drilling.</p>	<p>Stepped Holes</p>  <p>①Divide the two processes. ②Drill the larger hole first. *A tool for machining both chamfer and spot face can be produced to order.</p>	<p>Burring and Workpiece Chipping</p>  <p>①Lower the feed rate by 50% at the end of through cutting. ②Add a 45° chamfer. ③Change the point angle.</p>

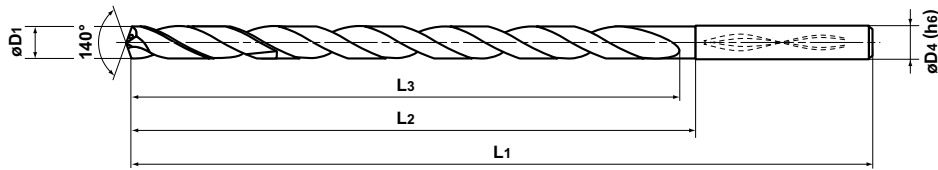
CAUTION WHEN USING MWS TYPE (Drill Diameter $\leq \phi 3$)

- Please use a fine mesh filter (mesh $\leq 3\mu\text{m}$) for coolant to prevent jamming in the oil hole.
- For deep drilling ($l/d > 3$), machining a guide hole is recommended.
- Peck drilling is also effective.

- For 10-30×D hole depth drilling.
- Can be used with minimum lubricant for steel and cast iron.



D1	D1 ≤ 3.0	3.0 < D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 14.0
Tolerance	-0.017 -0.031	-0.025 -0.043	-0.033 -0.055	-0.041 -0.068



(Note 1) The MWS type long drill can be used for shrink fit holders.
 (Note 2) MWS type long drill bigger than $\phi 5.0$ have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
3.0	10	Int.	★	MWS0300X10DB	39	42	90	3
	15	Int.	★	0300X15DB	54	57	105	3
	20	Int.	★	0300X20DB	69	72	120	3
	25	Int.	★	0300X25DB	84	87	135	3
	30	Int.	★	0300X30DB	99	102	150	3
3.1	10	Int.	★	0310X10DB	46	49	97	4
	15	Int.	★	0310X15DB	63	66	114	4
	20	Int.	★	0310X20DB	81	84	132	4
	25	Int.	★	0310X25DB	98	101	149	4
	30	Int.	★	0310X30DB	116	119	167	4
3.2	10	Int.	★	0320X10DB	46	49	97	4
	15	Int.	★	0320X15DB	63	66	114	4
	20	Int.	★	0320X20DB	81	84	132	4
	25	Int.	★	0320X25DB	98	101	149	4
	30	Int.	★	0320X30DB	116	119	167	4
3.3	10	Int.	★	0330X10DB	46	49	97	4
	15	Int.	★	0330X15DB	63	66	114	4
	20	Int.	★	0330X20DB	81	84	132	4
	25	Int.	★	0330X25DB	98	101	149	4
	30	Int.	★	0330X30DB	116	119	167	4
3.4	10	Int.	★	0340X10DB	46	49	97	4
	15	Int.	★	0340X15DB	63	66	114	4
	20	Int.	★	0340X20DB	81	84	132	4
	25	Int.	★	0340X25DB	98	101	149	4
	30	Int.	★	0340X30DB	116	119	167	4
3.5	10	Int.	★	0350X10DB	46	49	97	4
	15	Int.	★	0350X15DB	63	66	114	4
	20	Int.	★	0350X20DB	81	84	132	4
	25	Int.	★	0350X25DB	98	101	149	4
	30	Int.	★	0350X30DB	116	119	167	4
3.6	10	Int.	★	0360X10DB	52	55	103	4
	15	Int.	★	0360X15DB	72	75	123	4
	20	Int.	★	0360X20DB	92	95	143	4
	25	Int.	★	0360X25DB	112	115	163	4
	30	Int.	★	0360X30DB	132	135	183	4

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
3.7	10	Int.	★	MWS0370X10DB	52	55	103	4
	15	Int.	★	0370X15DB	72	75	123	4
	20	Int.	★	0370X20DB	92	95	143	4
	25	Int.	★	0370X25DB	112	115	163	4
	30	Int.	★	0370X30DB	132	135	183	4
3.8	10	Int.	★	0380X10DB	52	55	103	4
	15	Int.	★	0380X15DB	72	75	123	4
	20	Int.	★	0380X20DB	92	95	143	4
	25	Int.	★	0380X25DB	112	115	163	4
	30	Int.	★	0380X30DB	132	135	183	4
3.9	10	Int.	★	0390X10DB	52	55	103	4
	15	Int.	★	0390X15DB	72	75	123	4
	20	Int.	★	0390X20DB	92	95	143	4
	25	Int.	★	0390X25DB	112	115	163	4
	30	Int.	★	0390X30DB	132	135	183	4
4.0	10	Int.	★	0400X10DB	52	55	103	4
	15	Int.	★	0400X15DB	72	75	123	4
	20	Int.	★	0400X20DB	92	95	143	4
	25	Int.	★	0400X25DB	112	115	163	4
	30	Int.	★	0400X30DB	132	135	183	4
4.1	10	Int.	★	0410X10DB	59	62	112	5
	15	Int.	★	0410X15DB	81	84	134	5
	20	Int.	★	0410X20DB	104	107	157	5
	25	Int.	★	0410X25DB	126	129	179	5
	30	Int.	★	0410X30DB	149	152	202	5
4.2	10	Int.	★	0420X10DB	59	62	112	5
	15	Int.	★	0420X15DB	81	84	134	5
	20	Int.	★	0420X20DB	104	107	157	5
	25	Int.	★	0420X25DB	126	129	179	5
	30	Int.	★	0420X30DB	149	152	202	5
4.3	10	Int.	★	0430X10DB	59	62	112	5
	15	Int.	★	0430X15DB	81	84	134	5
	20	Int.	★	0430X20DB	104	107	157	5
	25	Int.	★	0430X25DB	126	129	179	5
	30	Int.	★	0430X30DB	149	152	202	5

MWS (LONG) DRILLS



★ : Inventory maintained in Japan.

CUTTING CONDITIONS

D049

OPERATION GUIDANCE

D050

TECHNICAL DATA

G001

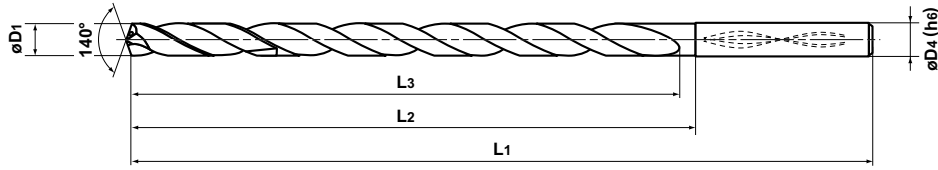
DRILLING (SOLID CARBIDE)

MWS NEW
MWS TYPE LONG DRILL

- For 10-30×D hole depth drilling.
- Can be used with minimum lubricant for steel and cast iron.



D1	D1 ≤ 3.0	3.0 < D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 14.0
Tolerance	-0.017 -0.031	-0.025 -0.043	-0.033 -0.055	-0.041 -0.068



(Note 1) The MWS type long drill can be used for shrink fit holders.
(Note 2) MWS type long drill bigger than $\phi 5.0$ have a recess in the end face.

DRILLING MWS (LONG) DRILLS



CARBIDE

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
4.4	10	Int.	★	MWS0440X10DB	59	62	112	5
	15	Int.	★	0440X15DB	81	84	134	5
	20	Int.	★	0440X20DB	104	107	157	5
	25	Int.	★	0440X25DB	126	129	179	5
	30	Int.	★	0440X30DB	149	152	202	5
4.5	10	Int.	★	0450X10DB	59	62	112	5
	15	Int.	★	0450X15DB	81	84	134	5
	20	Int.	★	0450X20DB	104	107	157	5
	25	Int.	★	0450X25DB	126	129	179	5
	30	Int.	★	0450X30DB	149	152	202	5
4.6	10	Int.	★	0460X10DB	65	68	118	5
	15	Int.	★	0460X15DB	90	93	143	5
	20	Int.	★	0460X20DB	115	118	168	5
	25	Int.	★	0460X25DB	140	143	193	5
	30	Int.	★	0460X30DB	165	168	218	5
4.7	10	Int.	★	0470X10DB	65	68	118	5
	15	Int.	★	0470X15DB	90	93	143	5
	20	Int.	★	0470X20DB	115	118	168	5
	25	Int.	★	0470X25DB	140	143	193	5
	30	Int.	★	0470X30DB	165	168	218	5
4.8	10	Int.	★	0480X10DB	65	68	118	5
	15	Int.	★	0480X15DB	90	93	143	5
	20	Int.	★	0480X20DB	115	118	168	5
	25	Int.	★	0480X25DB	140	143	193	5
	30	Int.	★	0480X30DB	165	168	218	5
4.9	10	Int.	★	0490X10DB	65	68	118	5
	15	Int.	★	0490X15DB	90	93	143	5
	20	Int.	★	0490X20DB	115	118	168	5
	25	Int.	★	0490X25DB	140	143	193	5
	30	Int.	★	0490X30DB	165	168	218	5
5.0	10	Int.	★	0500X10DB	65	68	118	5
	15	Int.	★	0500X15DB	90	93	143	5
	20	Int.	★	0500X20DB	115	118	168	5
	25	Int.	★	0500X25DB	140	143	193	5
	30	Int.	★	0500X30DB	165	168	218	5

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
5.1	10	Int.	★	MWS0510X10DB	72	75	127	6
	15	Int.	★	0510X15DB	99	102	154	6
	20	Int.	★	0510X20DB	127	130	182	6
	25	Int.	★	0510X25DB	154	157	209	6
	30	Int.	★	0510X30DB	182	185	237	6
5.2	10	Int.	★	0520X10DB	72	75	127	6
	15	Int.	★	0520X15DB	99	102	154	6
	20	Int.	★	0520X20DB	127	130	182	6
	25	Int.	★	0520X25DB	154	157	209	6
	30	Int.	★	0520X30DB	182	185	237	6
5.3	10	Int.	★	0530X10DB	72	75	127	6
	15	Int.	★	0530X15DB	99	102	154	6
	20	Int.	★	0530X20DB	127	130	182	6
	25	Int.	★	0530X25DB	154	157	209	6
	30	Int.	★	0530X30DB	182	185	237	6
5.4	10	Int.	★	0540X10DB	72	75	127	6
	15	Int.	★	0540X15DB	99	102	154	6
	20	Int.	★	0540X20DB	127	130	182	6
	25	Int.	★	0540X25DB	154	157	209	6
	30	Int.	★	0540X30DB	182	185	237	6
5.5	10	Int.	★	0550X10DB	72	75	127	6
	15	Int.	★	0550X15DB	99	102	154	6
	20	Int.	★	0550X20DB	127	130	182	6
	25	Int.	★	0550X25DB	154	157	209	6
	30	Int.	★	0550X30DB	182	185	237	6
5.6	10	Int.	★	0560X10DB	78	81	133	6
	15	Int.	★	0560X15DB	108	111	163	6
	20	Int.	★	0560X20DB	138	141	193	6
	25	Int.	★	0560X25DB	168	171	223	6
	30	Int.	★	0560X30DB	198	201	253	6
5.7	10	Int.	★	0570X10DB	78	81	133	6
	15	Int.	★	0570X15DB	108	111	163	6
	20	Int.	★	0570X20DB	138	141	193	6
	25	Int.	★	0570X25DB	168	171	223	6
	30	Int.	★	0570X30DB	198	201	253	6

★ : Inventory maintained in Japan.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
5.8	10	Int.	★	MWS0580X10DB	78	81	133	6
	15	Int.	★	0580X15DB	108	111	163	6
	20	Int.	★	0580X20DB	138	141	193	6
	25	Int.	★	0580X25DB	168	171	223	6
	30	Int.	★	0580X30DB	198	201	253	6
5.9	10	Int.	★	0590X10DB	78	81	133	6
	15	Int.	★	0590X15DB	108	111	163	6
	20	Int.	★	0590X20DB	138	141	193	6
	25	Int.	★	0590X25DB	168	171	223	6
	30	Int.	★	0590X30DB	198	201	253	6
6.0	10	Int.	★	0600X10DB	78	81	133	6
	15	Int.	★	0600X15DB	108	111	163	6
	20	Int.	★	0600X20DB	138	141	193	6
	25	Int.	★	0600X25DB	168	171	223	6
	30	Int.	★	0600X30DB	198	201	253	6
6.1	10	Int.	★	0610X10DB	85	88	141	7
	15	Int.	★	0610X15DB	117	120	173	7
	20	Int.	★	0610X20DB	150	153	206	7
	25	Int.	★	0610X25DB	182	185	238	7
	30	Int.	★	0610X30DB	215	218	271	7
6.2	10	Int.	★	0620X10DB	85	88	141	7
	15	Int.	★	0620X15DB	117	120	173	7
	20	Int.	★	0620X20DB	150	153	206	7
	25	Int.	★	0620X25DB	182	185	238	7
	30	Int.	★	0620X30DB	215	218	271	7
6.3	10	Int.	★	0630X10DB	85	88	141	7
	15	Int.	★	0630X15DB	117	120	173	7
	20	Int.	★	0630X20DB	150	153	206	7
	25	Int.	★	0630X25DB	182	185	238	7
	30	Int.	★	0630X30DB	215	218	271	7
6.4	10	Int.	★	0640X10DB	85	88	141	7
	15	Int.	★	0640X15DB	117	120	173	7
	20	Int.	★	0640X20DB	150	153	206	7
	25	Int.	★	0640X25DB	182	185	238	7
	30	Int.	★	0640X30DB	215	218	271	7
6.5	10	Int.	★	0650X10DB	85	88	141	7
	15	Int.	★	0650X15DB	117	120	173	7
	20	Int.	★	0650X20DB	150	153	206	7
	25	Int.	★	0650X25DB	182	185	238	7
	30	Int.	★	0650X30DB	215	218	271	7
6.6	10	Int.	★	0660X10DB	91	94	147	7
	15	Int.	★	0660X15DB	126	129	182	7
	20	Int.	★	0660X20DB	161	164	217	7
	25	Int.	★	0660X25DB	196	199	252	7
	30	Int.	★	0660X30DB	231	234	287	7
6.7	10	Int.	★	0670X10DB	91	94	147	7
	15	Int.	★	0670X15DB	126	129	182	7
	20	Int.	★	0670X20DB	161	164	217	7
	25	Int.	★	0670X25DB	196	199	252	7
	30	Int.	★	0670X30DB	231	234	287	7

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
6.8	10	Int.	★	MWS0680X10DB	91	94	147	7
	15	Int.	★	0680X15DB	126	129	182	7
	20	Int.	★	0680X20DB	161	164	217	7
	25	Int.	★	0680X25DB	196	199	252	7
	30	Int.	★	0680X30DB	231	234	287	7
6.9	10	Int.	★	0690X10DB	91	94	147	7
	15	Int.	★	0690X15DB	126	129	182	7
	20	Int.	★	0690X20DB	161	164	217	7
	25	Int.	★	0690X25DB	196	199	252	7
	30	Int.	★	0690X30DB	231	234	287	7
7.0	10	Int.	★	0700X10DB	91	94	147	7
	15	Int.	★	0700X15DB	126	129	182	7
	20	Int.	★	0700X20DB	161	164	217	7
	25	Int.	★	0700X25DB	196	199	252	7
	30	Int.	★	0700X30DB	231	234	287	7
7.1	10	Int.	★	0710X10DB	98	101	155	8
	15	Int.	★	0710X15DB	135	138	192	8
	20	Int.	★	0710X20DB	173	176	230	8
	25	Int.	★	0710X25DB	210	213	267	8
	30	Int.	★	0710X30DB	248	251	305	8
7.2	10	Int.	★	0720X10DB	98	101	155	8
	15	Int.	★	0720X15DB	135	138	192	8
	20	Int.	★	0720X20DB	173	176	230	8
	25	Int.	★	0720X25DB	210	213	267	8
	30	Int.	★	0720X30DB	248	251	305	8
7.3	10	Int.	★	0730X10DB	98	101	155	8
	15	Int.	★	0730X15DB	135	138	192	8
	20	Int.	★	0730X20DB	173	176	230	8
	25	Int.	★	0730X25DB	210	213	267	8
	30	Int.	★	0730X30DB	248	251	305	8
7.4	10	Int.	★	0740X10DB	98	101	155	8
	15	Int.	★	0740X15DB	135	138	192	8
	20	Int.	★	0740X20DB	173	176	230	8
	25	Int.	★	0740X25DB	210	213	267	8
	30	Int.	★	0740X30DB	248	251	305	8
7.5	10	Int.	★	0750X10DB	98	101	155	8
	15	Int.	★	0750X15DB	135	138	192	8
	20	Int.	★	0750X20DB	173	176	230	8
	25	Int.	★	0750X25DB	210	213	267	8
	30	Int.	★	0750X30DB	248	251	305	8
7.6	10	Int.	★	0760X10DB	104	107	161	8
	15	Int.	★	0760X15DB	144	147	201	8
	20	Int.	★	0760X20DB	184	187	241	8
	25	Int.	★	0760X25DB	224	227	281	8
	30	Int.	★	0760X30DB	264	267	321	8
7.7	10	Int.	★	0770X10DB	104	107	161	8
	15	Int.	★	0770X15DB	144	147	201	8
	20	Int.	★	0770X20DB	184	187	241	8
	25	Int.	★	0770X25DB	224	227	281	8
	30	Int.	★	0770X30DB	264	267	321	8

MWS (LONG) DRILLS



CUTTING CONDITIONS

D049

OPERATION GUIDANCE

D050

TECHNICAL DATA

G001

D045

DRILLING (SOLID CARBIDE)

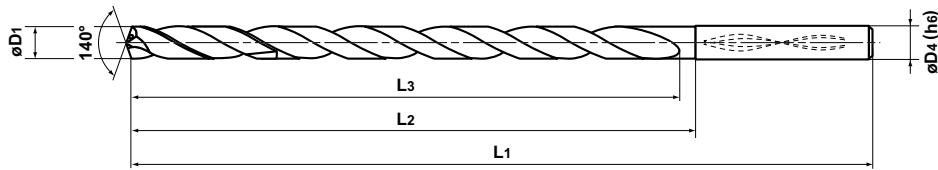
MWS NEW

MWS TYPE LONG DRILL

- For 10-30×D hole depth drilling.
- Can be used with minimum lubricant for steel and cast iron.



D1	D1 ≤ 3.0	3.0 < D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 14.0
Tolerance	-0.017 -0.031	-0.025 -0.043	-0.033 -0.055	-0.041 -0.068



(Note 1) The MWS type long drill can be used for shrink fit holders.
 (Note 2) MWS type long drill bigger than $\phi 5.0$ have a recess in the end face.

DRILLING MWS (LONG) DRILLS



CARBIDE

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
7.8	10	Int.	★	MWS0780X10DB	104	107	161	8
	15	Int.	★	0780X15DB	144	147	201	8
	20	Int.	★	0780X20DB	184	187	241	8
	25	Int.	★	0780X25DB	224	227	281	8
	30	Int.	★	0780X30DB	264	267	321	8
7.9	10	Int.	★	0790X10DB	104	107	161	8
	15	Int.	★	0790X15DB	144	147	201	8
	20	Int.	★	0790X20DB	184	187	241	8
	25	Int.	★	0790X25DB	224	227	281	8
	30	Int.	★	0790X30DB	264	267	321	8
8.0	10	Int.	★	0800X10DB	104	107	161	8
	15	Int.	★	0800X15DB	144	147	201	8
	20	Int.	★	0800X20DB	184	187	241	8
	25	Int.	★	0800X25DB	224	227	281	8
	30	Int.	★	0800X30DB	264	267	321	8
8.1	10	Int.	★	0810X10DB	111	114	169	9
	15	Int.	★	0810X15DB	153	156	211	9
	20	Int.	★	0810X20DB	196	199	254	9
	25	Int.	★	0810X25DB	238	241	296	9
	30	Int.	★	0810X30DB	281	284	339	9
8.2	10	Int.	★	0820X10DB	111	114	169	9
	15	Int.	★	0820X15DB	153	156	211	9
	20	Int.	★	0820X20DB	196	199	254	9
	25	Int.	★	0820X25DB	238	241	296	9
	30	Int.	★	0820X30DB	281	284	339	9
8.3	10	Int.	★	0830X10DB	111	114	169	9
	15	Int.	★	0830X15DB	153	156	211	9
	20	Int.	★	0830X20DB	196	199	254	9
	25	Int.	★	0830X25DB	238	241	296	9
	30	Int.	★	0830X30DB	281	284	339	9
8.4	10	Int.	★	0840X10DB	111	114	169	9
	15	Int.	★	0840X15DB	153	156	211	9
	20	Int.	★	0840X20DB	196	199	254	9
	25	Int.	★	0840X25DB	238	241	296	9
	30	Int.	★	0840X30DB	281	284	339	9

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
8.5	10	Int.	★	MWS0850X10DB	111	114	169	9
	15	Int.	★	0850X15DB	153	156	211	9
	20	Int.	★	0850X20DB	196	199	254	9
	25	Int.	★	0850X25DB	238	241	296	9
	30	Int.	★	0850X30DB	281	284	339	9
8.6	10	Int.	★	0860X10DB	117	120	175	9
	15	Int.	★	0860X15DB	162	165	220	9
	20	Int.	★	0860X20DB	207	210	265	9
	25	Int.	★	0860X25DB	252	255	310	9
	30	Int.	★	0860X30DB	297	300	355	9
8.7	10	Int.	★	0870X10DB	117	120	175	9
	15	Int.	★	0870X15DB	162	165	220	9
	20	Int.	★	0870X20DB	207	210	265	9
	25	Int.	★	0870X25DB	252	255	310	9
	30	Int.	★	0870X30DB	297	300	355	9
8.8	10	Int.	★	0880X10DB	117	120	175	9
	15	Int.	★	0880X15DB	162	165	220	9
	20	Int.	★	0880X20DB	207	210	265	9
	25	Int.	★	0880X25DB	252	255	310	9
	30	Int.	★	0880X30DB	297	300	355	9
8.9	10	Int.	★	0890X10DB	117	120	175	9
	15	Int.	★	0890X15DB	162	165	220	9
	20	Int.	★	0890X20DB	207	210	265	9
	25	Int.	★	0890X25DB	252	255	310	9
	30	Int.	★	0890X30DB	297	300	355	9
9.0	10	Int.	★	0900X10DB	117	120	175	9
	15	Int.	★	0900X15DB	162	165	220	9
	20	Int.	★	0900X20DB	207	210	265	9
	25	Int.	★	0900X25DB	252	255	310	9
	30	Int.	★	0900X30DB	297	300	355	9
9.1	10	Int.	★	0910X10DB	124	127	182	10
	15	Int.	★	0910X15DB	171	174	229	10
	20	Int.	★	0910X20DB	219	222	277	10
	25	Int.	★	0910X25DB	266	269	324	10
	30	Int.	★	0910X30DB	314	317	372	10

★ : Inventory maintained in Japan.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
9.2	10	Int.	★	MWS0920X10DB	124	127	182	10
	15	Int.	★	0920X15DB	171	174	229	10
	20	Int.	★	0920X20DB	219	222	277	10
	25	Int.	★	0920X25DB	266	269	324	10
	30	Int.	★	0920X30DB	314	317	372	10
9.3	10	Int.	★	0930X10DB	124	127	182	10
	15	Int.	★	0930X15DB	171	174	229	10
	20	Int.	★	0930X20DB	219	222	277	10
	25	Int.	★	0930X25DB	266	269	324	10
	30	Int.	★	0930X30DB	314	317	372	10
9.4	10	Int.	★	0940X10DB	124	127	182	10
	15	Int.	★	0940X15DB	171	174	229	10
	20	Int.	★	0940X20DB	219	222	277	10
	25	Int.	★	0940X25DB	266	269	324	10
	30	Int.	★	0940X30DB	314	317	372	10
9.5	10	Int.	★	0950X10DB	124	127	182	10
	15	Int.	★	0950X15DB	171	174	229	10
	20	Int.	★	0950X20DB	219	222	277	10
	25	Int.	★	0950X25DB	266	269	324	10
	30	Int.	★	0950X30DB	314	317	372	10
9.6	10	Int.	★	0960X10DB	130	133	188	10
	15	Int.	★	0960X15DB	180	183	238	10
	20	Int.	★	0960X20DB	230	233	288	10
	25	Int.	★	0960X25DB	280	283	338	10
	30	Int.	★	0960X30DB	330	333	388	10
9.7	10	Int.	★	0970X10DB	130	133	188	10
	15	Int.	★	0970X15DB	180	183	238	10
	20	Int.	★	0970X20DB	230	233	288	10
	25	Int.	★	0970X25DB	280	283	338	10
	30	Int.	★	0970X30DB	330	333	388	10
9.8	10	Int.	★	0980X10DB	130	133	188	10
	15	Int.	★	0980X15DB	180	183	238	10
	20	Int.	★	0980X20DB	230	233	288	10
	25	Int.	★	0980X25DB	280	283	338	10
	30	Int.	★	0980X30DB	330	333	388	10
9.9	10	Int.	★	0990X10DB	130	133	188	10
	15	Int.	★	0990X15DB	180	183	238	10
	20	Int.	★	0990X20DB	230	233	288	10
	25	Int.	★	0990X25DB	280	283	338	10
	30	Int.	★	0990X30DB	330	333	388	10
10.0	10	Int.	★	1000X10DB	130	133	188	10
	15	Int.	★	1000X15DB	180	183	238	10
	20	Int.	★	1000X20DB	230	233	288	10
	25	Int.	★	1000X25DB	280	283	338	10
	30	Int.	★	1000X30DB	330	333	388	10
10.1	10	Int.	★	1010X10DB	137	140	201	11
	15	Int.	★	1010X15DB	189	192	253	11
	20	Int.	★	1010X20DB	242	245	306	11
	25	Int.	★	1010X25DB	294	297	358	11

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
10.2	10	Int.	★	MWS1020X10DB	137	140	201	11
	15	Int.	★	1020X15DB	189	192	253	11
	20	Int.	★	1020X20DB	242	245	306	11
	25	Int.	★	1020X25DB	294	297	358	11
10.3	10	Int.	★	1030X10DB	137	140	201	11
	15	Int.	★	1030X15DB	189	192	253	11
	20	Int.	★	1030X20DB	242	245	306	11
	25	Int.	★	1030X25DB	294	297	358	11
10.4	10	Int.	★	1040X10DB	137	140	201	11
	15	Int.	★	1040X15DB	189	192	253	11
	20	Int.	★	1040X20DB	242	245	306	11
10.5	15	Int.	★	1050X15DB	189	192	253	11
	20	Int.	★	1050X20DB	242	245	306	11
	25	Int.	★	1050X25DB	294	297	358	11
10.6	10	Int.	★	1060X10DB	143	146	207	11
	15	Int.	★	1060X15DB	198	201	262	11
	20	Int.	★	1060X20DB	253	256	317	11
	25	Int.	★	1060X25DB	308	311	372	11
10.7	10	Int.	★	1070X10DB	143	146	207	11
	15	Int.	★	1070X15DB	198	201	262	11
	20	Int.	★	1070X20DB	253	256	317	11
	25	Int.	★	1070X25DB	308	311	372	11
10.8	10	Int.	★	1080X10DB	143	146	207	11
	15	Int.	★	1080X15DB	198	201	262	11
	20	Int.	★	1080X20DB	253	256	317	11
	25	Int.	★	1080X25DB	308	311	372	11
10.9	10	Int.	★	1090X10DB	143	146	207	11
	15	Int.	★	1090X15DB	198	201	262	11
	20	Int.	★	1090X20DB	253	256	317	11
11.0	15	Int.	★	1100X15DB	198	201	262	11
	20	Int.	★	1100X20DB	253	256	317	11
	25	Int.	★	1100X25DB	308	311	372	11
11.1	10	Int.	★	1110X10DB	150	153	215	12
	15	Int.	★	1110X15DB	207	210	272	12
	20	Int.	★	1110X20DB	265	268	330	12
	25	Int.	★	1110X25DB	322	325	387	12
11.2	10	Int.	★	1120X10DB	150	153	215	12
	15	Int.	★	1120X15DB	207	210	272	12
	20	Int.	★	1120X20DB	265	268	330	12
	25	Int.	★	1120X25DB	322	325	387	12
11.3	10	Int.	★	1130X10DB	150	153	215	12
	15	Int.	★	1130X15DB	207	210	272	12
	20	Int.	★	1130X20DB	265	268	330	12
	25	Int.	★	1130X25DB	322	325	387	12

MWS (LONG) DRILLS



CUTTING CONDITIONS

D049

OPERATION GUIDANCE

D050

TECHNICAL DATA

G001

D047

DRILLING (SOLID CARBIDE)

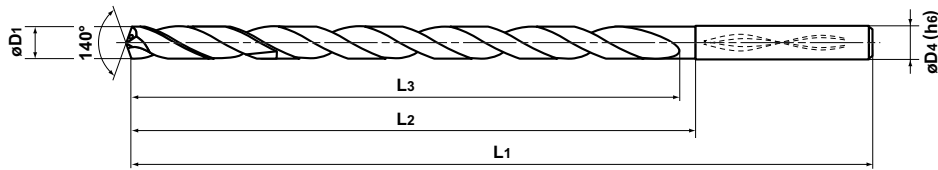
MWS NEW

MWS TYPE LONG DRILL

- For 10-30×D hole depth drilling.
- Can be used with minimum lubricant for steel and cast iron.



D1	D1 ≤ 3.0	3.0 < D1 ≤ 6.0	6.0 < D1 ≤ 10.0	10.0 < D1 ≤ 14.0
Tolerance	-0.017 -0.031	-0.025 -0.043	-0.033 -0.055	-0.041 -0.068



(Note 1) The MWS type long drill can be used for shrink fit holders.
 (Note 2) MWS type long drill bigger than ø5.0 have a recess in the end face.

DRILLING MWS (LONG) DRILLS



CARBIDE

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
11.4	10	Int.	★	MWS1140X10DB	150	153	215	12
	15	Int.	★	1140X15DB	207	210	272	12
	20	Int.	★	1140X20DB	265	268	330	12
	25	Int.	★	1140X25DB	322	325	387	12
11.5	10	Int.	★	1150X10DB	150	153	215	12
	15	Int.	★	1150X15DB	207	210	272	12
	20	Int.	★	1150X20DB	265	268	330	12
	25	Int.	★	1150X25DB	322	325	387	12
11.6	10	Int.	★	1160X10DB	156	159	221	12
	15	Int.	★	1160X15DB	216	219	281	12
	20	Int.	★	1160X20DB	276	279	341	12
	25	Int.	★	1160X25DB	336	339	401	12
11.7	10	Int.	★	1170X10DB	156	159	221	12
	15	Int.	★	1170X15DB	216	219	281	12
	20	Int.	★	1170X20DB	276	279	341	12
	25	Int.	★	1170X25DB	336	339	401	12
11.8	10	Int.	★	1180X10DB	156	159	221	12
	15	Int.	★	1180X15DB	216	219	281	12
	20	Int.	★	1180X20DB	276	279	341	12
	25	Int.	★	1180X25DB	336	339	401	12
11.9	10	Int.	★	1190X10DB	156	159	221	12
	15	Int.	★	1190X15DB	216	219	281	12
	20	Int.	★	1190X20DB	276	279	341	12
	25	Int.	★	1190X25DB	336	339	401	12
12.0	10	Int.	★	1200X10DB	156	159	221	12
	15	Int.	★	1200X15DB	216	219	281	12
	20	Int.	★	1200X20DB	276	279	341	12
	25	Int.	★	1200X25DB	336	339	401	12
12.1	10	Int.	★	1210X10DB	163	166	229	13
	15	Int.	★	1210X15DB	225	228	291	13
	20	Int.	★	1210X20DB	288	291	354	13
12.2	10	Int.	★	1220X10DB	163	166	229	13
	15	Int.	★	1220X15DB	225	228	291	13
	20	Int.	★	1220X20DB	288	291	354	13

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
12.3	10	Int.	★	MWS1230X10DB	163	166	229	13
	15	Int.	★	1230X15DB	225	228	291	13
	20	Int.	★	1230X20DB	288	291	354	13
12.4	10	Int.	★	1240X10DB	163	166	229	13
	15	Int.	★	1240X15DB	225	228	291	13
	20	Int.	★	1240X20DB	288	291	354	13
12.5	10	Int.	★	1250X10DB	163	166	229	13
	15	Int.	★	1250X15DB	225	228	291	13
	20	Int.	★	1250X20DB	288	291	354	13
12.6	10	Int.	★	1260X10DB	169	172	235	13
	15	Int.	★	1260X15DB	234	237	300	13
	20	Int.	★	1260X20DB	299	302	365	13
12.7	10	Int.	★	1270X10DB	169	172	235	13
	15	Int.	★	1270X15DB	234	237	300	13
	20	Int.	★	1270X20DB	299	302	365	13
12.8	10	Int.	★	1280X10DB	169	172	235	13
	15	Int.	★	1280X15DB	234	237	300	13
	20	Int.	★	1280X20DB	299	302	365	13
12.9	10	Int.	★	1290X10DB	169	172	235	13
	15	Int.	★	1290X15DB	234	237	300	13
	20	Int.	★	1290X20DB	299	302	365	13
13.0	10	Int.	★	1300X10DB	169	172	235	13
	15	Int.	★	1300X15DB	234	237	300	13
	20	Int.	★	1300X20DB	299	302	365	13
13.1	10	Int.	★	1310X10DB	176	179	243	14
	15	Int.	★	1310X15DB	243	246	310	14
	20	Int.	★	1310X20DB	311	314	378	14
13.2	10	Int.	★	1320X10DB	176	179	243	14
	15	Int.	★	1320X15DB	243	246	310	14
	20	Int.	★	1320X20DB	311	314	378	14
13.3	10	Int.	★	1330X10DB	176	179	243	14
	15	Int.	★	1330X15DB	243	246	310	14
	20	Int.	★	1330X20DB	311	314	378	14
13.4	10	Int.	★	1340X10DB	176	179	243	14
	15	Int.	★	1340X15DB	243	246	310	14
	20	Int.	★	1340X20DB	311	314	378	14

★ : Inventory maintained in Japan.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
13.5	10	Int.	★	MWS1350X10DB	176	179	243	14
	15	Int.	★	1350X15DB	243	246	310	14
	20	Int.	★	1350X20DB	311	314	378	14
13.6	10	Int.	★	1360X10DB	182	185	249	14
	15	Int.	★	1360X15DB	252	255	319	14
	20	Int.	★	1360X20DB	322	325	389	14
13.7	10	Int.	★	1370X10DB	182	185	249	14
	15	Int.	★	1370X15DB	252	255	319	14
	20	Int.	★	1370X20DB	322	325	389	14

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)			
					L3	L2	L1	D4
13.8	10	Int.	★	MWS1380X10DB	182	185	249	14
	15	Int.	★	1380X15DB	252	255	319	14
	20	Int.	★	1380X20DB	322	325	389	14
13.9	10	Int.	★	1390X10DB	182	185	249	14
	15	Int.	★	1390X15DB	252	255	319	14
	20	Int.	★	1390X20DB	322	325	389	14
14.0	10	Int.	★	1400X10DB	182	185	249	14
	15	Int.	★	1400X15DB	252	255	319	14
	20	Int.	★	1400X20DB	322	325	389	14

RECOMMENDED CUTTING CONDITIONS

Work Material	Drill Dia.	Conditions Hardness	φ3.0—φ6.0		φ6.0—φ10.0		φ10.0—φ14.0	
			Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Mild Steel	≤180HB	—	90 (50—120)	0.20 (0.15—0.30)	110 (80—140)	0.25 (0.20—0.35)	130 (90—170)	0.30 (0.20—0.40)
			80 (50—100)	0.20 (0.15—0.30)	90 (70—120)	0.25 (0.20—0.35)	110 (80—140)	0.25 (0.20—0.40)
			70 (40—90)	0.20 (0.15—0.25)	80 (60—110)	0.25 (0.15—0.30)	90 (70—130)	0.25 (0.15—0.35)
M Stainless Steel	≤200HB	—	50 (20—100)	0.10 (0.05—0.15)	70 (40—120)	0.20 (0.10—0.25)	80 (50—120)	0.25 (0.15—0.30)
			90 (70—120)	0.25 (0.15—0.30)	110 (100—140)	0.30 (0.15—0.35)	130 (110—160)	0.35 (0.25—0.40)
K Cast Iron	Tensile Strength ≤350N/mm ²	—	50 (30—80)	0.20 (0.15—0.25)	60 (40—90)	0.20 (0.15—0.30)	80 (50—110)	0.25 (0.20—0.40)
			100 (80—150)	0.25 (0.20—0.35)	130 (100—170)	0.30 (0.20—0.50)	140 (100—170)	0.40 (0.20—0.80)
N Aluminium Alloy	—	—	20 (10—25)	0.10 (0.05—0.15)	20 (15—30)	0.12 (0.05—0.15)	20 (15—30)	0.15 (0.10—0.20)
S Heat Resistant Alloy	—	—	—	—	—	—	—	—

(Note 1) When drilling deeper than l/d=10, lower the cutting speed shown in the table above.

(Note 2) Be sure to drill a guide hole.

(Note 3) Raise to the above regular cutting revolution after inserting the long drill into the guide hole.

(Note 4) For pilot hole drilling, Mitsubishi's MWE / MWS drill is recommended.

MWS (LONG) DRILLS

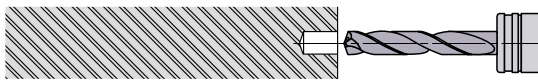


CARBIDE

HOW TO USE

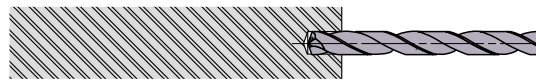
● Drilling a blind hole

1. Drilling a pilot hole



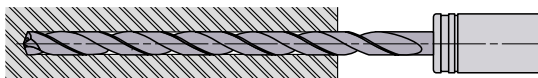
- ① Use a drill with a larger (flatter) point angle than the super long type. Mitsubishi type MWE or MWS is recommended.
- ② Use a drill with the same diameter as the deep hole drill.
- ③ Drill depth : Approx 2–3D or deeper.
- ④ Ensure a high precision hole is drilled for the guide.

2. Initial cutting with the long type drill



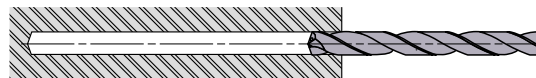
- ① Penetrate the guide hole at low revolution. (Cutting speed 20–30m/min, feed rate 0.2–0.3mm/rev)
- ② Stop the long type drill 1–3mm short of the guide hole bottom.

3. Drill the deep hole



- ① Start cutting at the recommended speed and feed with a non-peck (continuous feed) cycle.

4. Drill retraction



- ① After drilling, lower the cutting revolution about 1–2mm short of the hole end. (Cutting speed of around 20–30m/min)
- ② Retract the drill to the pilot hole depth starting point at a feed rate of 3000mm/min.
- ③ Finally, clear the hole at a cutting speed of 20–30m/min and feed rate of 0.2–0.3mm/rev.

HOW TO USE

● Drilling and breaking through on irregular faces or angles

1. Spot facing



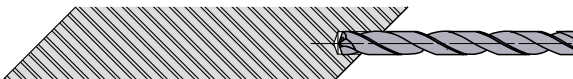
- ① Machine a flat or the irregular face by using an end mill or slot drill capable of spot facing. Make the spot face diameter the same size as the required deep hole diameter.

2. Drilling a pilot hole



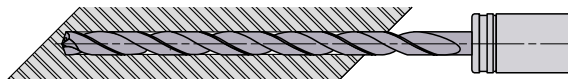
- ① Use a drill with a larger (flatter) point angle than the super long type. Mitsubishi type MWE or MWS is recommended.
- ② Use a drill with the same diameter as the deep hole drill.
- ③ Drill depth : Approx 2–3D or deeper.
- ④ Ensure a high precision hole is drilled for the guide.

3. Initial cutting with the long type drill



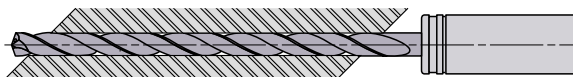
- ① Penetrate the guide hole at a low revolution. (Cutting speed 20–30m/min, feed rate 0.2–0.3mm/rev)
- ② Stop the long type drill 1–3mm short of the guide hole bottom.

4. Drill the deep hole



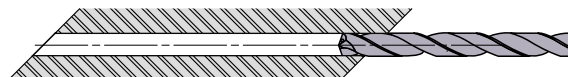
- ① Start cutting at the recommended speed and feed with a non-peck (continuous feed) cycle.

5. Breaking through



- ① When breaking through, the cutting edge can be damaged.
- ② A feed rate of 0.05–0.1mm/rev is recommended.

6. Drill retraction



- ① Retract the drill to the pilot hole depth starting point at a feed rate of 3000mm/min.
- ② Finally clear the hole at a cutting speed of 20–30m/min and feed rate of 0.2–0.3mm/rev.

Memo

Lined area for writing the memo content, consisting of multiple horizontal dashed lines.



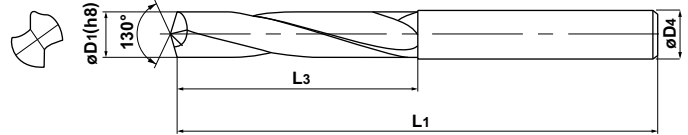
DRILLING (SOLID CARBIDE)

MKE

- For hardened steel.
- High rigidity, high accuracy and long tool life.



D1(h8)	D1≤3.0	3.0<D1≤6.0	6.0<D1≤10.0	10.0<D1≤18.0
Tolerance	0 -0.014	0 -0.018	0 -0.022	0 -0.027



DRILLING MKE DRILLS

CARBIDE

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)		
					D4	L1	L3
2.5	3	Ext.	★	MKE0250MA	2.5	55	20
2.6	3	Ext.	★	0260MA	2.6	55	20
2.7	3	Ext.	★	0270MA	2.7	55	20
2.8	3	Ext.	★	0280MA	2.8	60	21
2.9	3	Ext.	★	0290MA	2.9	60	21
3.0	3	Ext.	★	0300MA	3.0	60	21
3.1	3	Ext.	★	0310MA	3.1	60	24
3.2	3	Ext.	★	0320MA	3.2	60	24
3.3	3	Ext.	★	0330MA	3.3	60	24
3.4	3	Ext.	★	0340MA	3.4	60	24
3.5	3	Ext.	★	0350MA	3.5	60	24
3.6	3	Ext.	★	0360MA	3.6	60	27
3.7	3	Ext.	★	0370MA	3.7	60	27
3.8	3	Ext.	★	0380MA	3.8	60	27
3.9	3	Ext.	★	0390MA	3.9	60	27
4.0	3	Ext.	★	0400MA	4.0	60	27
4.1	3	Ext.	★	0410MA	4.1	63	29
4.2	3	Ext.	★	0420MA	4.2	63	29
4.3	3	Ext.	★	0430MA	4.3	63	29
4.4	3	Ext.	★	0440MA	4.4	63	29
4.5	3	Ext.	★	0450MA	4.5	63	29
4.6	3	Ext.	★	0460MA	4.6	68	32
4.7	3	Ext.	★	0470MA	4.7	68	32
4.8	3	Ext.	★	0480MA	4.8	68	32
4.9	3	Ext.	★	0490MA	4.9	68	32
5.0	3	Ext.	★	0500MA	5.0	68	32
5.1	3	Ext.	★	0510MA	5.1	72	34
5.2	3	Ext.	★	0520MA	5.2	72	34
5.3	3	Ext.	★	0530MA	5.3	72	34
5.4	3	Ext.	★	0540MA	5.4	72	34
5.5	3	Ext.	★	0550MA	5.5	72	34
5.6	3	Ext.	★	0560MA	5.6	74	36
5.7	3	Ext.	★	0570MA	5.7	74	36
5.8	3	Ext.	★	0580MA	5.8	74	36
5.9	3	Ext.	★	0590MA	5.9	74	36
6.0	3	Ext.	★	0600MA	6.0	81	41

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)		
					D4	L1	L3
6.1	3	Ext.	□	MKE0610MA	6.1	81	41
6.2	3	Ext.	□	0620MA	6.2	81	41
6.3	3	Ext.	□	0630MA	6.3	81	41
6.4	3	Ext.	□	0640MA	6.4	81	41
6.5	3	Ext.	★	0650MA	6.5	81	41
6.6	3	Ext.	□	0660MA	6.6	83	43
6.7	3	Ext.	□	0670MA	6.7	83	43
6.8	3	Ext.	★	0680MA	6.8	83	43
6.9	3	Ext.	★	0690MA	6.9	83	43
7.0	3	Ext.	★	0700MA	7.0	83	43
7.1	3	Ext.	□	0710MA	7.1	87	45
7.2	3	Ext.	□	0720MA	7.2	87	45
7.3	3	Ext.	□	0730MA	7.3	87	45
7.4	3	Ext.	□	0740MA	7.4	87	45
7.5	3	Ext.	★	0750MA	7.5	87	45
7.6	3	Ext.	□	0760MA	7.6	90	48
7.7	3	Ext.	□	0770MA	7.7	90	48
7.8	3	Ext.	□	0780MA	7.8	90	48
7.9	3	Ext.	□	0790MA	7.9	90	48
8.0	3	Ext.	★	0800MA	8.0	90	48
8.1	3	Ext.	□	0810MA	8.1	96	53
8.2	3	Ext.	□	0820MA	8.2	96	53
8.3	3	Ext.	□	0830MA	8.3	96	53
8.4	3	Ext.	□	0840MA	8.4	96	53
8.5	3	Ext.	★	0850MA	8.5	96	53
8.6	3	Ext.	★	0860MA	8.6	98	55
8.7	3	Ext.	□	0870MA	8.7	98	55
8.8	3	Ext.	□	0880MA	8.8	98	55
8.9	3	Ext.	□	0890MA	8.9	98	55
9.0	3	Ext.	★	0900MA	9.0	98	55
9.1	3	Ext.	□	0910MA	9.1	102	58
9.2	3	Ext.	□	0920MA	9.2	102	58
9.3	3	Ext.	□	0930MA	9.3	102	58
9.4	3	Ext.	□	0940MA	9.4	102	58
9.5	3	Ext.	★	0950MA	9.5	102	58
9.6	3	Ext.	□	0960MA	9.6	105	60

★ : Inventory maintained in Japan. □ : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)		
					D4	L1	L3
9.7	3	Ext.	□	MKE0970MA	9.7	105	60
9.8	3	Ext.	□	0980MA	9.8	105	60
9.9	3	Ext.	□	0990MA	9.9	105	60
10.0	3	Ext.	★	1000MA	10.0	105	60
10.1	3	Ext.	□	1010MA	10.1	112	66
10.2	3	Ext.	□	1020MA	10.2	112	66
10.3	3	Ext.	★	1030MA	10.3	112	66
10.4	3	Ext.	★	1040MA	10.4	112	66
10.5	3	Ext.	★	1050MA	10.5	112	66
10.6	3	Ext.	□	1060MA	10.6	114	68
10.7	3	Ext.	□	1070MA	10.7	114	68
10.8	3	Ext.	□	1080MA	10.8	114	68
10.9	3	Ext.	□	1090MA	10.9	114	68
11.0	3	Ext.	★	1100MA	11.0	114	68
11.1	3	Ext.	□	1110MA	11.1	118	71
11.2	3	Ext.	□	1120MA	11.2	118	71

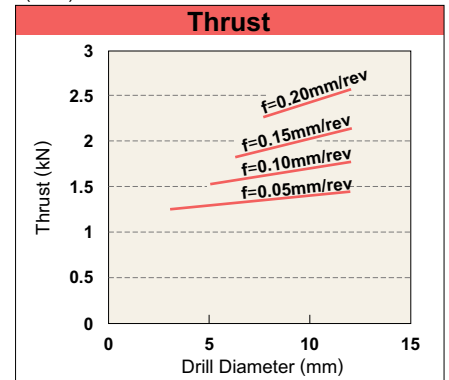
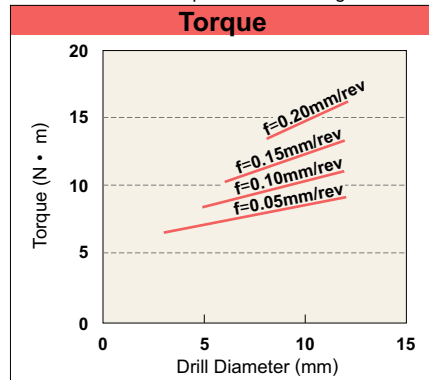
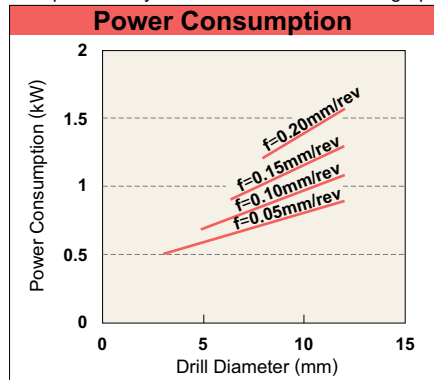
Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock VP15TF	Order Number	Dimensions (mm)		
					D4	L1	L3
11.3	3	Ext.	□	MKE1130MA	11.3	118	71
11.4	3	Ext.	□	1140MA	11.4	118	71
11.5	3	Ext.	★	1150MA	11.5	118	71
11.6	3	Ext.	□	1160MA	11.6	121	73
11.7	3	Ext.	□	1170MA	11.7	121	73
11.8	3	Ext.	□	1180MA	11.8	121	73
11.9	3	Ext.	□	1190MA	11.9	121	73
12.0	3	Ext.	★	1200MA	12.0	121	73
12.5	3	Ext.	★	1250MA	12.5	135	76
13.0	3	Ext.	★	1300MA	13.0	137	78
13.5	3	Ext.	★	1350MA	13.5	144	84
14.0	3	Ext.	★	1400MA	14.0	147	86
14.5	3	Ext.	★	1450MA	14.5	151	89
15.0	3	Ext.	★	1500MA	15.0	153	91
15.5	3	Ext.	★	1550MA	15.5	157	94
16.0	3	Ext.	★	1600MA	16.0	160	96

RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness (HRC)	Drill Dia. $\phi 2.5-\phi 5.0$		Drill Dia. $\phi 5.1-\phi 10.0$		Drill Dia. $\phi 10.1-\phi 16.0$	
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Alloy Tool Steel High Speed Tool Steel	50-55	15 (10-20)	0.08 (0.05-0.10)	20 (15-25)	0.12 (0.08-0.15)	25 (20-30)	0.15 (0.10-0.18)
	55-60	10 (5-15)	0.04 (0.02-0.06)	15 (10-20)	0.06 (0.04-0.08)	20 (10-25)	0.08 (0.05-0.12)

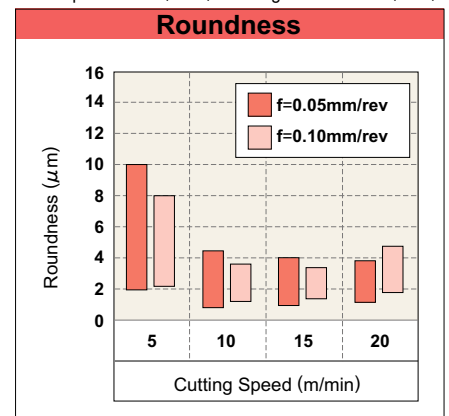
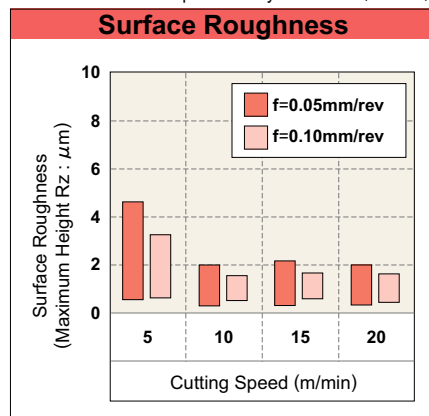
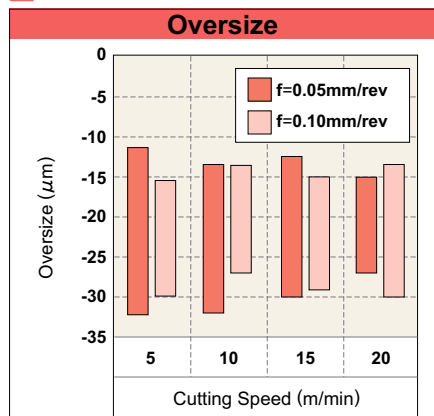
CUTTING RESISTANCE

Workpiece : Alloy Tool Steel (60HRC) Cutting Speed : 10m/min Drilled Depth : l/d=3 (Through Hole) WSO (10%)



MACHINED HOLE ACCURACY

Tool : MKE1000MA Workpiece : Alloy Tool Steel (60HRC) Drilled Depth : 30mm (l/d=3) Through Hole WSO (10%)



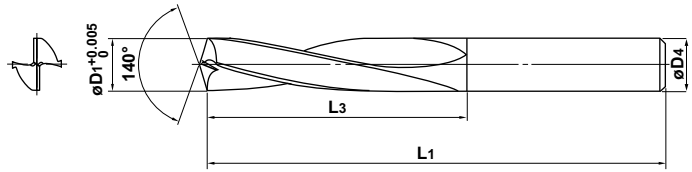
DRILLING (SOLID CARBIDE)

MAE, MAS

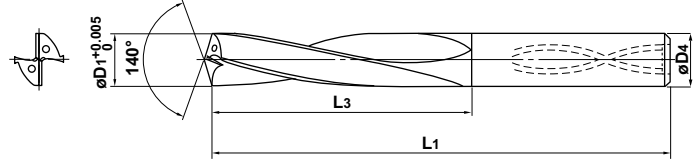
- Specialized for aluminium and cast iron drilling.
- High hole accuracy.
- Pre-hole drilling for roll taps.
- Helical through coolant hole enables high speed machining (MAS type).



MAE (External Coolant)



MAS (Internal Coolant)



(Note) MAS type bigger than $\phi 5.0$ have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HTT10	Order Number	Dimensions (mm)		
					D4	L1	L3
3.0	3	Ext.	★	MAE0300MB	3	61	21
	3	Int.	□	MAS0300MB	3	61	21
	6	Int.	★	MAS0300LB	3	70	30
3.1	3	Ext.	★	MAE0310MB	4	64	24
	3	Int.	□	MAS0310MB	4	64	24
	6	Int.	★	MAS0310LB	4	74	34
3.2	3	Ext.	★	MAE0320MB	4	64	24
	3	Int.	□	MAS0320MB	4	64	24
	6	Int.	★	MAS0320LB	4	74	34
3.3	3	Ext.	★	MAE0330MB	4	64	24
	3	Int.	□	MAS0330MB	4	64	24
	6	Int.	★	MAS0330LB	4	74	34
3.4	3	Ext.	★	MAE0340MB	4	64	24
	3	Int.	□	MAS0340MB	4	64	24
	6	Int.	★	MAS0340LB	4	74	34
3.5	3	Ext.	★	MAE0350MB	4	64	24
	3	Int.	□	MAS0350MB	4	64	24
	6	Int.	★	MAS0350LB	4	74	34
3.6	3	Ext.	★	MAE0360MB	4	68	28
	3	Int.	□	MAS0360MB	4	68	28
	6	Int.	★	MAS0360LB	4	80	40
3.65	3	Ext.	★	* MAE0365MB	4	68	28
	3	Int.	□	* MAS0365MB	4	68	28
	6	Int.	★	* MAS0365LB	4	80	40
3.7	3	Ext.	★	MAE0370MB	4	68	28
	3	Int.	□	MAS0370MB	4	68	28
	6	Int.	★	MAS0370LB	4	80	40
3.8	3	Ext.	★	MAE0380MB	4	68	28
	3	Int.	□	MAS0380MB	4	68	28
	6	Int.	★	MAS0380LB	4	80	40
3.9	3	Ext.	★	MAE0390MB	4	68	28
	3	Int.	□	MAS0390MB	4	68	28
	6	Int.	★	MAS0390LB	4	80	40
4.0	3	Ext.	★	MAE0400MB	4	68	28
	3	Int.	□	MAS0400MB	4	68	28
	6	Int.	★	MAS0400LB	4	80	40
4.1	3	Ext.	★	MAE0410MB	5	71	31
	3	Int.	□	MAS0410MB	5	71	31
	6	Int.	★	MAS0410LB	5	84	44

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HTT10	Order Number	Dimensions (mm)		
					D4	L1	L3
4.2	3	Ext.	★	MAE0420MB	5	71	31
	3	Int.	□	MAS0420MB	5	71	31
	6	Int.	★	MAS0420LB	5	84	44
4.3	3	Ext.	★	MAE0430MB	5	71	31
	3	Int.	□	MAS0430MB	5	71	31
	6	Int.	★	MAS0430LB	5	84	44
4.4	3	Ext.	★	MAE0440MB	5	71	31
	3	Int.	□	MAS0440MB	5	71	31
	6	Int.	★	MAS0440LB	5	84	44
4.5	3	Ext.	★	MAE0450MB	5	71	31
	3	Int.	□	MAS0450MB	5	71	31
	6	Int.	★	MAS0450LB	5	84	44
4.6	3	Ext.	★	* MAE0460MB	5	73	33
	3	Int.	□	* MAS0460MB	5	73	33
	6	Int.	★	* MAS0460LB	5	88	48
4.7	3	Ext.	★	MAE0470MB	5	73	33
	3	Int.	□	MAS0470MB	5	73	33
	6	Int.	★	MAS0470LB	5	88	48
4.8	3	Ext.	★	MAE0480MB	5	73	33
	3	Int.	□	MAS0480MB	5	73	33
	6	Int.	★	MAS0480LB	5	88	48
4.9	3	Ext.	★	MAE0490MB	5	73	33
	3	Int.	□	MAS0490MB	5	73	33
	6	Int.	★	MAS0490LB	5	88	48
5.0	3	Ext.	★	MAE0500MB	5	73	33
	3	Int.	★	MAS0500MB	5	73	33
	6	Int.	★	MAS0500LB	5	88	48
5.1	3	Ext.	★	MAE0510MB	6	76	36
	3	Int.	□	MAS0510MB	6	76	36
	6	Int.	★	MAS0510LB	6	92	52
5.2	3	Ext.	★	MAE0520MB	6	76	36
	3	Int.	□	MAS0520MB	6	76	36
	6	Int.	★	MAS0520LB	6	92	52
5.3	3	Ext.	★	MAE0530MB	6	76	36
	3	Int.	□	MAS0530MB	6	76	36
	6	Int.	★	MAS0530LB	6	92	52
5.4	3	Ext.	★	MAE0540MB	6	76	36
	3	Int.	□	MAS0540MB	6	76	36
	6	Int.	★	MAS0540LB	6	92	52

* : Standard hole size for rolled thread tap.

DRILLING | MAE, MAS DRILLS



CARBIDE

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HT10	Order Number	Dimensions (mm)		
					D4	L1	L3
5.5	3	Ext.	★	* MAE0550MB	6	76	36
	3	Int.	★	* MAS0550MB	6	76	36
	6	Int.	★	* MAS0550LB	6	92	52
5.6	3	Ext.	★	MAE0560MB	6	79	39
	3	Int.	□	MAS0560MB	6	79	39
	6	Int.	★	MAS0560LB	6	97	57
5.7	3	Ext.	★	MAE0570MB	6	79	39
	3	Int.	□	MAS0570MB	6	79	39
	6	Int.	★	MAS0570LB	6	97	57
5.8	3	Ext.	★	MAE0580MB	6	79	39
	3	Int.	□	MAS0580MB	6	79	39
	6	Int.	★	MAS0580LB	6	97	57
5.9	3	Ext.	★	MAE0590MB	6	79	39
	3	Int.	□	MAS0590MB	6	79	39
	6	Int.	★	MAS0590LB	6	97	57
6.0	3	Ext.	★	MAE0600MB	6	79	39
	3	Int.	★	MAS0600MB	6	79	39
	6	Int.	★	MAS0600LB	6	97	57
6.1	3	Ext.	★	MAE0610MB	7	84	42
	3	Int.	□	MAS0610MB	7	84	42
	6	Int.	★	MAS0610LB	7	104	62
6.2	3	Ext.	★	MAE0620MB	7	84	42
	3	Int.	□	MAS0620MB	7	84	42
	6	Int.	★	MAS0620LB	7	104	62
6.3	3	Ext.	★	MAE0630MB	7	84	42
	3	Int.	□	MAS0630MB	7	84	42
	6	Int.	★	MAS0630LB	7	104	62
6.4	3	Ext.	★	MAE0640MB	7	84	42
	3	Int.	□	MAS0640MB	7	84	42
	6	Int.	★	MAS0640LB	7	104	62
6.5	3	Ext.	★	MAE0650MB	7	84	42
	3	Int.	★	MAS0650MB	7	84	42
	6	Int.	★	MAS0650LB	7	104	62
6.6	3	Ext.	★	MAE0660MB	7	84	42
	3	Int.	□	MAS0660MB	7	84	42
	6	Int.	★	MAS0660LB	7	107	65
6.7	3	Ext.	★	MAE0670MB	7	84	42
	3	Int.	□	MAS0670MB	7	84	42
	6	Int.	★	MAS0670LB	7	107	65
6.8	3	Ext.	★	MAE0680MB	7	84	42
	3	Int.	★	MAS0680MB	7	84	42
	6	Int.	★	MAS0680LB	7	107	65
6.9	3	Ext.	★	MAE0690MB	7	84	42
	3	Int.	□	MAS0690MB	7	84	42
	6	Int.	★	MAS0690LB	7	107	65
7.0	3	Ext.	★	MAE0700MB	7	84	42
	3	Int.	★	MAS0700MB	7	84	42
	6	Int.	★	MAS0700LB	7	107	65

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HT10	Order Number	Dimensions (mm)		
					D4	L1	L3
7.1	3	Ext.	★	MAE0710MB	8	90	48
	3	Int.	□	MAS0710MB	8	90	48
	6	Int.	★	MAS0710LB	8	110	68
7.2	3	Ext.	★	MAE0720MB	8	90	48
	3	Int.	□	MAS0720MB	8	90	48
	6	Int.	★	MAS0720LB	8	110	68
7.3	3	Ext.	★	MAE0730MB	8	90	48
	3	Int.	□	MAS0730MB	8	90	48
	6	Int.	★	MAS0730LB	8	110	68
7.35	3	Ext.	★	* MAE0735MB	8	90	48
	3	Int.	★	* MAS0735MB	8	90	48
	6	Int.	★	* MAS0735LB	8	110	68
7.4	3	Ext.	★	MAE0740MB	8	90	48
	3	Int.	□	MAS0740MB	8	90	48
	6	Int.	★	MAS0740LB	8	110	68
7.5	3	Ext.	★	MAE0750MB	8	90	48
	3	Int.	□	MAS0750MB	8	90	48
	6	Int.	★	MAS0750LB	8	110	68
7.6	3	Ext.	★	MAE0760MB	8	90	48
	3	Int.	□	MAS0760MB	8	90	48
	6	Int.	★	MAS0760LB	8	114	72
7.7	3	Ext.	★	MAE0770MB	8	90	48
	3	Int.	□	MAS0770MB	8	90	48
	6	Int.	★	MAS0770LB	8	114	72
7.8	3	Ext.	★	MAE0780MB	8	90	48
	3	Int.	□	MAS0780MB	8	90	48
	6	Int.	★	MAS0780LB	8	114	72
7.9	3	Ext.	★	MAE0790MB	8	90	48
	3	Int.	□	MAS0790MB	8	90	48
	6	Int.	★	MAS0790LB	8	114	72
8.0	3	Ext.	★	MAE0800MB	8	90	48
	3	Int.	★	MAS0800MB	8	90	48
	6	Int.	★	MAS0800LB	8	114	72
8.1	3	Ext.	★	MAE0810MB	9	94	50
	3	Int.	□	MAS0810MB	9	94	50
	6	Int.	★	MAS0810LB	9	119	75
8.2	3	Ext.	★	MAE0820MB	9	94	50
	3	Int.	□	MAS0820MB	9	94	50
	6	Int.	★	MAS0820LB	9	119	75
8.3	3	Ext.	★	MAE0830MB	9	94	50
	3	Int.	□	MAS0830MB	9	94	50
	6	Int.	★	MAS0830LB	9	119	75
8.4	3	Ext.	★	MAE0840MB	9	94	50
	3	Int.	□	MAS0840MB	9	94	50
	6	Int.	★	MAS0840LB	9	119	75
8.5	3	Ext.	★	MAE0850MB	9	94	50
	3	Int.	★	MAS0850MB	9	94	50
	6	Int.	★	MAS0850LB	9	119	75

* : Standard hole size for rolled thread tap.

MAE, MAS DRILLS



DRILLING (SOLID CARBIDE)

MAE, MAS

- Specialized for aluminium and cast iron drilling.

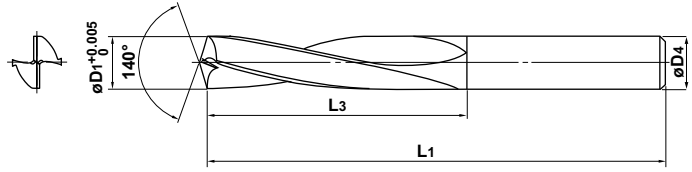
- High hole accuracy.

- Pre-hole drilling for roll taps.

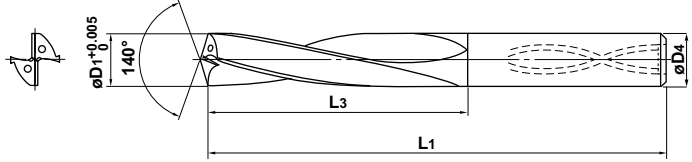
- Helical through coolant hole enables high speed machining (MAS type).



MAE (External Coolant)



MAS (Internal Coolant)



(Note) MAS type bigger than $\phi 5.0$ have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HTT10	Order Number	Dimensions (mm)		
					D4	L1	L3
8.6	3	Ext.	★	MAE0860MB	9	94	50
	3	Int.	□	MAS0860MB	9	94	50
	6	Int.	★	MAS0860LB	9	121	77
8.7	3	Ext.	★	MAE0870MB	9	94	50
	3	Int.	□	MAS0870MB	9	94	50
	6	Int.	★	MAS0870LB	9	121	77
8.8	3	Ext.	★	MAE0880MB	9	94	50
	3	Int.	□	MAS0880MB	9	94	50
	6	Int.	★	MAS0880LB	9	121	77
8.9	3	Ext.	★	MAE0890MB	9	94	50
	3	Int.	□	MAS0890MB	9	94	50
	6	Int.	★	MAS0890LB	9	121	77
9.0	3	Ext.	★	MAE0900MB	9	94	50
	3	Int.	★	MAS0900MB	9	94	50
	6	Int.	★	MAS0900LB	9	121	77
9.1	3	Ext.	★	MAE0910MB	10	97	53
	3	Int.	□	MAS0910MB	10	97	53
	6	Int.	★	MAS0910LB	10	125	81
9.2	3	Ext.	★	MAE0920MB	10	97	53
	3	Int.	□	MAS0920MB	10	97	53
	6	Int.	★	MAS0920LB	10	125	81
9.21	3	Ext.	★	* MAE0921MB	10	97	53
	3	Int.	★	* MAS0921MB	10	97	53
	6	Int.	★	* MAS0921LB	10	125	81
9.3	3	Ext.	★	MAE0930MB	10	97	53
	3	Int.	□	MAS0930MB	10	97	53
	6	Int.	★	MAS0930LB	10	125	81
9.4	3	Ext.	★	MAE0940MB	10	97	53
	3	Int.	□	MAS0940MB	10	97	53
	6	Int.	★	MAS0940LB	10	125	81
9.5	3	Ext.	★	MAE0950MB	10	97	53
	3	Int.	★	MAS0950MB	10	97	53
	6	Int.	★	MAS0950LB	10	125	81
9.6	3	Ext.	★	MAE0960MB	10	97	53
	3	Int.	□	MAS0960MB	10	97	53
	6	Int.	★	MAS0960LB	10	125	81
9.7	3	Ext.	★	MAE0970MB	10	97	53
	3	Int.	□	MAS0970MB	10	97	53
	6	Int.	★	MAS0970LB	10	125	81

* : Standard hole size for rolled thread tap.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HTT10	Order Number	Dimensions (mm)		
					D4	L1	L3
9.8	3	Ext.	★	MAE0980MB	10	97	53
	3	Int.	□	MAS0980MB	10	97	53
	6	Int.	★	MAS0980LB	10	125	81
9.9	3	Ext.	★	MAE0990MB	10	97	53
	3	Int.	□	MAS0990MB	10	97	53
	6	Int.	★	MAS0990LB	10	125	81
10.0	3	Ext.	★	MAE1000MB	10	97	53
	3	Int.	★	MAS1000MB	10	97	53
	6	Int.	★	MAS1000LB	10	125	81
10.1	3	Ext.	□	MAE1010MB	11	101	55
	3	Int.	□	MAS1010MB	11	101	55
	6	Int.	□	MAS1010LB	11	135	89
10.2	3	Ext.	□	MAE1020MB	11	101	55
	3	Int.	□	MAS1020MB	11	101	55
	6	Int.	□	MAS1020LB	11	135	89
10.3	3	Ext.	★	MAE1030MB	11	101	55
	3	Int.	★	MAS1030MB	11	101	55
	6	Int.	★	MAS1030LB	11	135	89
10.4	3	Ext.	□	MAE1040MB	11	101	55
	3	Int.	□	MAS1040MB	11	101	55
	6	Int.	□	MAS1040LB	11	135	89
10.5	3	Ext.	★	MAE1050MB	11	101	55
	3	Int.	★	MAS1050MB	11	101	55
	6	Int.	★	MAS1050LB	11	135	89
10.6	3	Ext.	□	MAE1060MB	11	101	55
	3	Int.	□	MAS1060MB	11	101	55
	6	Int.	□	MAS1060LB	11	135	89
10.7	3	Ext.	□	MAE1070MB	11	101	55
	3	Int.	□	MAS1070MB	11	101	55
	6	Int.	□	MAS1070LB	11	135	89
10.8	3	Ext.	□	MAE1080MB	11	101	55
	3	Int.	□	MAS1080MB	11	101	55
	6	Int.	□	MAS1080LB	11	135	89
10.9	3	Ext.	□	MAE1090MB	11	101	55
	3	Int.	□	MAS1090MB	11	101	55
	6	Int.	□	MAS1090LB	11	135	89
11.0	3	Ext.	★	MAE1100MB	11	101	55
	3	Int.	★	MAS1100MB	11	101	55
	6	Int.	★	MAS1100LB	11	135	89

★ : Inventory maintained in Japan. □ : Non stock, produced to order only.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HT10	Order Number	Dimensions (mm)		
					D4	L1	L3
11.08	3	Ext.	★	* MAE1108MB	12	106	60
	3	Int.	★	* MAS1108MB	12	106	60
	6	Int.	★	* MAS1108LB	12	140	94
11.1	3	Ext.	□	MAE1110MB	12	106	60
	3	Int.	□	MAS1110MB	12	106	60
	6	Int.	□	MAS1110LB	12	140	94
11.2	3	Ext.	□	MAE1120MB	12	106	60
	3	Int.	□	MAS1120MB	12	106	60
	6	Int.	□	MAS1120LB	12	140	94
11.3	3	Ext.	□	MAE1130MB	12	106	60
	3	Int.	□	MAS1130MB	12	106	60
	6	Int.	□	MAS1130LB	12	140	94
11.4	3	Ext.	□	MAE1140MB	12	106	60
	3	Int.	□	MAS1140MB	12	106	60
	6	Int.	□	MAS1140LB	12	140	94
11.5	3	Ext.	□	MAE1150MB	12	106	60
	3	Int.	□	MAS1150MB	12	106	60
	6	Int.	□	MAS1150LB	12	140	94
11.6	3	Ext.	□	MAE1160MB	12	106	60
	3	Int.	□	MAS1160MB	12	106	60
	6	Int.	□	MAS1160LB	12	140	94
11.7	3	Ext.	□	MAE1170MB	12	106	60
	3	Int.	□	MAS1170MB	12	106	60
	6	Int.	□	MAS1170LB	12	140	94
11.8	3	Ext.	□	MAE1180MB	12	106	60
	3	Int.	□	MAS1180MB	12	106	60
	6	Int.	□	MAS1180LB	12	140	94
11.9	3	Ext.	□	MAE1190MB	12	106	60
	3	Int.	□	MAS1190MB	12	106	60
	6	Int.	□	MAS1190LB	12	140	94
12.0	3	Ext.	★	MAE1200MB	12	106	60
	3	Int.	★	MAS1200MB	12	106	60
	6	Int.	★	MAS1200LB	12	140	94
12.1	3	Ext.	□	MAE1210MB	13	115	65
	3	Int.	□	MAS1210MB	13	115	65
	6	Int.	□	MAS1210LB	13	150	100
12.2	3	Ext.	□	MAE1220MB	13	115	65
	3	Int.	□	MAS1220MB	13	115	65
	6	Int.	□	MAS1220LB	13	150	100
12.3	3	Ext.	□	MAE1230MB	13	115	65
	3	Int.	□	MAS1230MB	13	115	65
	6	Int.	□	MAS1230LB	13	150	100
12.4	3	Ext.	□	MAE1240MB	13	115	65
	3	Int.	□	MAS1240MB	13	115	65
	6	Int.	□	MAS1240LB	13	150	100
12.5	3	Ext.	★	MAE1250MB	13	115	65
	3	Int.	★	MAS1250MB	13	115	65
	6	Int.	★	MAS1250LB	13	150	100

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HT10	Order Number	Dimensions (mm)		
					D4	L1	L3
12.6	3	Ext.	□	MAE1260MB	13	115	65
	3	Int.	□	MAS1260MB	13	115	65
	6	Int.	□	MAS1260LB	13	150	100
12.7	3	Ext.	□	MAE1270MB	13	115	65
	3	Int.	□	MAS1270MB	13	115	65
	6	Int.	□	MAS1270LB	13	150	100
12.8	3	Ext.	□	MAE1280MB	13	115	65
	3	Int.	□	MAS1280MB	13	115	65
	6	Int.	□	MAS1280LB	13	150	100
12.9	3	Ext.	□	MAE1290MB	13	115	65
	3	Int.	□	MAS1290MB	13	115	65
	6	Int.	□	MAS1290LB	13	150	100
12.96	3	Ext.	★	* MAE1296MB	13	115	65
	3	Int.	★	* MAS1296MB	13	115	65
	6	Int.	★	* MAS1296LB	13	150	100
13.0	3	Ext.	★	MAE1300MB	13	115	65
	3	Int.	★	MAS1300MB	13	115	65
	6	Int.	★	MAS1300LB	13	150	100
13.1	3	Ext.	□	MAE1310MB	14	120	70
	3	Int.	□	MAS1310MB	14	120	70
	6	Int.	□	MAS1310LB	14	160	110
13.2	3	Ext.	□	MAE1320MB	14	120	70
	3	Int.	□	MAS1320MB	14	120	70
	6	Int.	□	MAS1320LB	14	160	110
13.3	3	Ext.	□	MAE1330MB	14	120	70
	3	Int.	□	MAS1330MB	14	120	70
	6	Int.	□	MAS1330LB	14	160	110
13.4	3	Ext.	□	MAE1340MB	14	120	70
	3	Int.	□	MAS1340MB	14	120	70
	6	Int.	□	MAS1340LB	14	160	110
13.5	3	Ext.	★	MAE1350MB	14	120	70
	3	Int.	★	MAS1350MB	14	120	70
	6	Int.	★	MAS1350LB	14	160	110
13.6	3	Ext.	□	MAE1360MB	14	120	70
	3	Int.	□	MAS1360MB	14	120	70
	6	Int.	□	MAS1360LB	14	160	110
13.7	3	Ext.	□	MAE1370MB	14	120	70
	3	Int.	□	MAS1370MB	14	120	70
	6	Int.	□	MAS1370LB	14	160	110
13.8	3	Ext.	□	MAE1380MB	14	120	70
	3	Int.	□	MAS1380MB	14	120	70
	6	Int.	□	MAS1380LB	14	160	110
13.9	3	Ext.	□	MAE1390MB	14	120	70
	3	Int.	□	MAS1390MB	14	120	70
	6	Int.	□	MAS1390LB	14	160	110
14.0	3	Ext.	★	MAE1400MB	14	120	70
	3	Int.	★	MAS1400MB	14	120	70
	6	Int.	★	MAS1400LB	14	160	110

* : Standard hole size for rolled thread tap.

MAE, MAS DRILLS



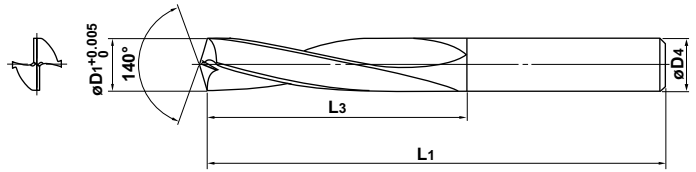
DRILLING (SOLID CARBIDE)

MAE, MAS

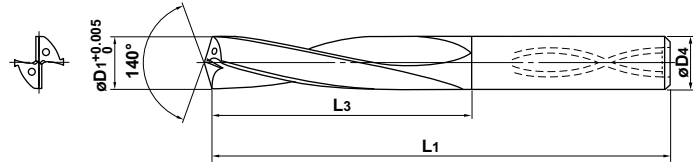
- Specialized for aluminium and cast iron drilling.
- High hole accuracy.
- Pre-hole drilling for roll taps.
- Helical through coolant hole enables high speed machining (MAS type).



MAE (External Coolant)



MAS (Internal Coolant)



(Note) MAS type bigger than $\phi 5.0$ have a recess in the end face.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HTT10	Order Number	Dimensions (mm)		
					D4	L1	L3
14.1	3	Ext.	<input type="checkbox"/>	MAE1410MB	15	130	72
	3	Int.	<input type="checkbox"/>	MAS1410MB	15	130	72
	6	Int.	<input type="checkbox"/>	MAS1410LB	15	173	115
14.2	3	Ext.	<input type="checkbox"/>	MAE1420MB	15	130	72
	3	Int.	<input type="checkbox"/>	MAS1420MB	15	130	72
	6	Int.	<input type="checkbox"/>	MAS1420LB	15	173	115
14.3	3	Ext.	<input type="checkbox"/>	MAE1430MB	15	130	72
	3	Int.	<input type="checkbox"/>	MAS1430MB	15	130	72
	6	Int.	<input type="checkbox"/>	MAS1430LB	15	173	115
14.4	3	Ext.	<input type="checkbox"/>	MAE1440MB	15	130	72
	3	Int.	<input type="checkbox"/>	MAS1440MB	15	130	72
	6	Int.	<input type="checkbox"/>	MAS1440LB	15	173	115
14.5	3	Ext.	<input type="checkbox"/>	MAE1450MB	15	130	72
	3	Int.	<input type="checkbox"/>	MAS1450MB	15	130	72
	6	Int.	<input type="checkbox"/>	MAS1450LB	15	173	115
14.6	3	Ext.	<input type="checkbox"/>	MAE1460MB	15	130	72
	3	Int.	<input type="checkbox"/>	MAS1460MB	15	130	72
	6	Int.	<input type="checkbox"/>	MAS1460LB	15	173	115
14.7	3	Ext.	<input type="checkbox"/>	MAE1470MB	15	130	72
	3	Int.	<input type="checkbox"/>	MAS1470MB	15	130	72
	6	Int.	<input type="checkbox"/>	MAS1470LB	15	173	115
14.8	3	Ext.	<input type="checkbox"/>	MAE1480MB	15	130	72
	3	Int.	<input type="checkbox"/>	MAS1480MB	15	130	72
	6	Int.	<input type="checkbox"/>	MAS1480LB	15	173	115
14.9	3	Ext.	<input type="checkbox"/>	MAE1490MB	15	130	72
	3	Int.	<input type="checkbox"/>	MAS1490MB	15	130	72
	6	Int.	<input type="checkbox"/>	MAS1490LB	15	173	115
14.96	3	Ext.	★	* MAE1496MB	15	130	72
	3	Int.	★	* MAS1496MB	15	130	72
	6	Int.	★	* MAS1496LB	15	173	115
15.0	3	Ext.	★	MAE1500MB	15	130	72
	3	Int.	★	MAS1500MB	15	130	72
	6	Int.	★	MAS1500LB	15	173	115
15.1	3	Ext.	<input type="checkbox"/>	MAE1510MB	16	134	76
	3	Int.	<input type="checkbox"/>	MAS1510MB	16	134	76
	6	Int.	<input type="checkbox"/>	MAS1510LB	16	178	120

* : Standard hole size for rolled thread tap.

Drill Dia. D1 (mm)	Hole Depth (l/d)	Coolant (Int./Ext.)	Stock HTT10	Order Number	Dimensions (mm)		
					D4	L1	L3
15.2	3	Ext.	<input type="checkbox"/>	MAE1520MB	16	134	76
	3	Int.	<input type="checkbox"/>	MAS1520MB	16	134	76
	6	Int.	<input type="checkbox"/>	MAS1520LB	16	178	120
15.3	3	Ext.	<input type="checkbox"/>	MAE1530MB	16	134	76
	3	Int.	<input type="checkbox"/>	MAS1530MB	16	134	76
	6	Int.	<input type="checkbox"/>	MAS1530LB	16	178	120
15.4	3	Ext.	<input type="checkbox"/>	MAE1540MB	16	134	76
	3	Int.	<input type="checkbox"/>	MAS1540MB	16	134	76
	6	Int.	<input type="checkbox"/>	MAS1540LB	16	178	120
15.5	3	Ext.	<input type="checkbox"/>	MAE1550MB	16	134	76
	3	Int.	<input type="checkbox"/>	MAS1550MB	16	134	76
	6	Int.	<input type="checkbox"/>	MAS1550LB	16	178	120
15.6	3	Ext.	<input type="checkbox"/>	MAE1560MB	16	134	76
	3	Int.	<input type="checkbox"/>	MAS1560MB	16	134	76
	6	Int.	<input type="checkbox"/>	MAS1560LB	16	178	120
15.7	3	Ext.	<input type="checkbox"/>	MAE1570MB	16	134	76
	3	Int.	<input type="checkbox"/>	MAS1570MB	16	134	76
	6	Int.	<input type="checkbox"/>	MAS1570LB	16	178	120
15.8	3	Ext.	<input type="checkbox"/>	MAE1580MB	16	134	76
	3	Int.	<input type="checkbox"/>	MAS1580MB	16	134	76
	6	Int.	<input type="checkbox"/>	MAS1580LB	16	178	120
15.9	3	Ext.	<input type="checkbox"/>	MAE1590MB	16	134	76
	3	Int.	<input type="checkbox"/>	MAS1590MB	16	134	76
	6	Int.	<input type="checkbox"/>	MAS1590LB	16	178	120
16.0	3	Ext.	★	MAE1600MB	16	134	76
	3	Int.	★	MAS1600MB	16	134	76
	6	Int.	★	MAS1600LB	16	178	120

DRILLING | MAE, MAS DRILLS



CARBIDE

RECOMMENDED CUTTING CONDITIONS

MAE (External Coolant)

Work Material	Condition	Tensile Strength N/mm ²	Hardn. HB	Drill Dia. $\phi 3.0-\phi 5.9$		Drill Dia. $\phi 6.0-\phi 9.9$		Drill Dia. $\phi 10.0-\phi 16.0$		
				Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	
K Laminated Graphite Cast Iron	ferritic	100-400	<180	40	0.15	60	0.20	80	0.30	
	pearlitic		220	40	0.15	60	0.20	80	0.30	
	Spheroidal Cast Iron Ductile Cast Iron	ferritic	400-800	<180	30	0.10	40	0.12	60	0.20
		pearlitic		250	30	0.10	40	0.12	60	0.20
Tempered and Black Cast Iron	ferritic	350-700	<180	30	0.10	40	0.12	60	0.20	
	pearlitic		220	30	0.10	40	0.12	60	0.20	
N Al,Mg.Alloy Aluminium Alloy	<12%	<400	80	90	0.15	100	0.15	120	0.25	
	>12%	<400	130	60	0.15	70	0.20	80	0.25	
Copper Alloy	Ms, Rg		90	100	0.15	120	0.20	150	0.30	
	Ms, Rg		110	90	0.15	110	0.20	140	0.25	
	Bz, Cu		100	120	0.10	130	0.10	150	0.10	
Plastics	Thermpol.			300	0.08	300	0.12	300	0.15	
	Duropl.	20-40		300	0.05	300	0.05	300	0.05	
	Visc. Plastics			150	0.15	150	0.25	150	0.35	

MAS (Internal Coolant)

Work Material	Condition	Tensile Strength N/mm ²	Hardn. HB	Drill Dia. $\phi 3.0-\phi 5.9$		Drill Dia. $\phi 6.0-\phi 9.9$		Drill Dia. $\phi 10.0-\phi 16.0$		
				Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	
K Laminated Graphite Cast Iron	ferritic	100-400	<180	60	0.20	80	0.25	100	0.30	
	pearlitic		220	60	0.20	80	0.25	100	0.30	
	Spheroidal Cast Iron Ductile Cast Iron	ferritic	400-800	<180	50	0.15	60	0.25	80	0.25
		pearlitic		250	50	0.15	60	0.25	80	0.25
Tempered and Black Cast Iron	ferritic	350-700	<180	50	0.15	60	0.25	80	0.25	
	pearlitic		220	50	0.15	60	0.25	80	0.25	
N Al,Mg.Alloy Aluminium Alloy	<12%	<400	80	120	0.20	150	0.30	160	0.40	
	>12%	<400	130	120	0.20	150	0.30	160	0.40	
Copper Alloy	Ms, Rg		90	100	0.15	120	0.20	150	0.30	
	Ms, Rg		110	90	0.15	110	0.20	140	0.25	
	Bz, Cu		100	120	0.10	130	0.10	150	0.10	
Plastics	Thermpol.			300	0.08	300	0.12	300	0.15	
	Duropl.	20-40		300	0.05	300	0.05	300	0.05	
	Visc. Plastics			150	0.15	150	0.25	150	0.35	

MAE, MAS DRILLS



HOLE AND DRILL DIAMETERS FOR THREAD TAPPING

Thread Size	Thread Tapping			Rolled Thread Tapping		
	Drill Diameter (ϕD_1)	Hole Diameter Tolerance		Drill Diameter (ϕD_1)	Hole Diameter Tolerance	
		max	min		max	min
M4x0.7	3.3	3.242	3.422	3.65	3.65	3.70
M5x0.8	4.2	4.134	4.334	4.60	4.59	4.66
M6x1.0	5.0	4.917	5.153	5.50	5.48	5.57
M8x1.25	6.8	6.647	6.912	7.35	7.34	7.41
M10x1.5	8.5	8.376	8.676	9.21	9.18	9.28
M12x1.75	10.3	10.106	10.441	11.08	11.05	11.15
M14x2	12.0	11.835	12.210	12.96	12.92	13.04
M16x2	14.0	13.835	14.210	14.96	14.92	15.04

DRILLING (BRAZED TYPE)

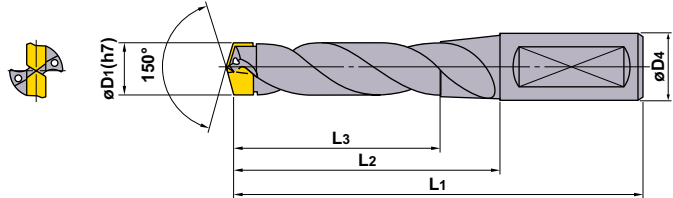
BRS

- Excellent cutting sharpness and chip discharge due to high rake type insert.
- High efficiency, high accuracy machining.
- Suitable for stainless steel, mild steel and general steel drilling. (l/d=3)



(l/d=3)

D1(h7)	10.0 < D1 ≤ 8.0	18.0 < D1 ≤ 30.0
Tolerance	0 -0.018	0 -0.021



DRILLING BRS DRILLS

CARBIDE

Drill Dia. D1 (mm)	Standard Diameter		Intermediate Diameters		Dimensions (mm)				
	Order Number	Stock UP20M	Range of Drill Diameters (D1)	Order Number	D4	L1	L2	L3	
14.0	BRS1400S16	●	14.0 < D1 ≤ 14.5	BRS□□□□S16	16	114	66	52	
14.5	1450S16	●			16	114	66	52	
15.0	1500S20	●	14.5 < D1 ≤ 15.5	BRS□□□□S20	20	126	76	61	
15.5	1550S20	●			20	126	76	61	
16.0	1600S20	●	15.5 < D1 ≤ 16.5		20	131	81	65	
16.5	1650S20	●			20	131	81	65	
17.0	1700S20	●	16.5 < D1 ≤ 17.5		20	136	86	69	
17.5	1750S20	●			20	136	86	69	
18.0	1800S20	●	17.5 < D1 ≤ 18.5		20	141	91	73	
18.5	1850S20	●			20	141	91	73	
19.0	1900S25	●	18.5 < D1 ≤ 19.5		BRS□□□□S25	25	157	101	77
19.5	1950S25	●				25	157	101	77
20.0	2000S25	●	19.5 < D1 ≤ 20.5	25		157	101	81	
20.5	2050S25	●		25		157	101	81	
21.0	2100S25	●	20.5 < D1 ≤ 21.5	25		157	101	80	
21.5	2150S25	●		25		157	101	80	
22.0	2200S25	●	21.5 < D1 ≤ 22.5	25		162	106	84	
22.5	2250S25	●		25		162	106	84	
23.0	2300S25	●	22.5 < D1 ≤ 23.5	25		162	106	83	
23.5	2350S25	●		25		162	106	83	
24.0	2400S32	●	23.5 < D1 ≤ 24.5	BRS□□□□S32	32	171	111	87	
24.5	2450S32	●			32	171	111	87	
25.0	2500S32	●	24.5 < D1 ≤ 25.5		32	171	111	86	
25.5	2550S32	●			32	171	111	86	
26.0	2600S32	●	25.5 < D1 ≤ 26.5		32	176	116	90	
26.5	2650S32	●			32	176	116	90	
27.0	2700S32	●	26.5 < D1 ≤ 27.5		32	176	116	89	
27.5	2750S32	●			32	176	116	89	
28.0	2800S32	●	27.5 < D1 ≤ 28.5		32	181	121	93	
28.5	2850S32	●			32	181	121	93	
29.0	2900S32	●	28.5 < D1 ≤ 29.5	32	186	126	97		
29.5	2950S32	●		32	186	126	97		
30.0	3000S32	●	29.5 < D1 ≤ 30.5	32	186	126	96		

For ordering an intermediate diameter, please enter the diameter (D1) into the 4-digit space □□□□ in the nominal designation.
(Ex. UP20M BRS2□5□3□0S32 for a diameter of φ25.30mm)

● : Inventory maintained.

D060

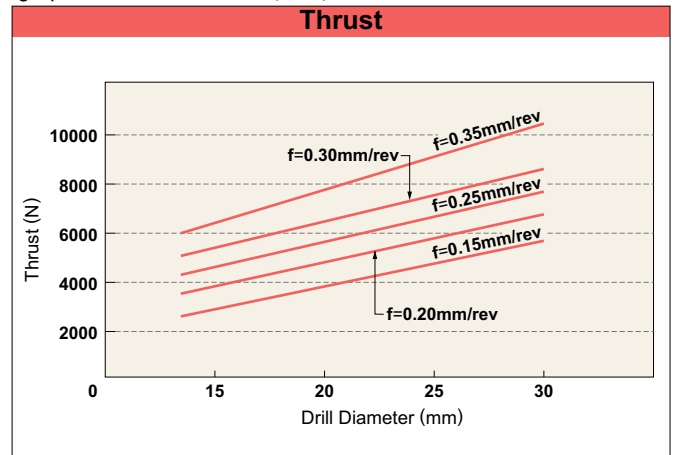
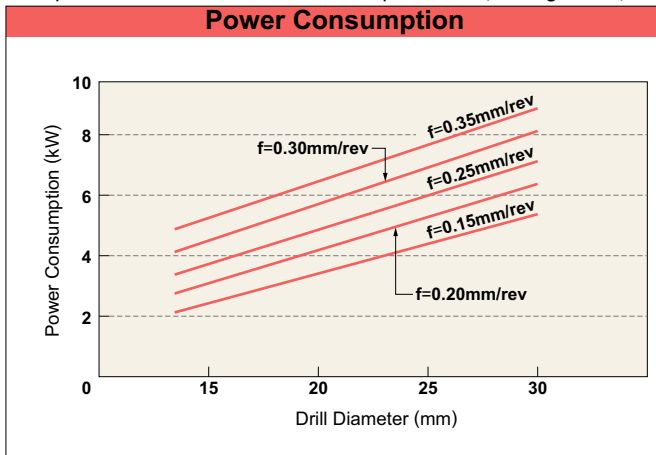
RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Drill Dia. $\phi 14.0 - \phi 20.0$		Drill Dia. $\phi 20.0 - \phi 30.0$	
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Mild Steel	$\leq 180\text{HB}$	65 (50–75)	0.3 (0.20–0.40)	70 (55–85)	0.35 (0.20–0.45)
	Tensile Strength 400–500N/mm ²	80 (70–90)	0.30 (0.25–0.35)	80 (70–90)	0.35 (0.30–0.45)
		Tensile Strength 490–610N/mm ²	70 (60–80)	0.25 (0.20–0.30)	70 (60–80)
	Tensile Strength 570–720N/mm ²	60 (50–70)	0.25 (0.20–0.30)	60 (50–70)	0.30 (0.20–0.35)
Carbon Steel Alloy Steel	180–280HB	60 (45–70)	0.25 (0.1–0.35)	65 (45–80)	0.30 (0.15–0.35)
	280–350HB	55 (40–65)	0.20 (0.15–0.35)	60 (45–70)	0.25 (0.15–0.35)
M Stainless Steel (Austenitic)	$\leq 200\text{HB}$	70 (50–90)	0.30 (0.20–0.40)	80 (60–100)	0.3 (0.20–0.40)
K Cast Iron	Tensile Strength $\leq 350\text{N/mm}^2$	75 (60–110)	0.30 (0.20–0.40)	80 (60–100)	0.35 (0.25–0.50)
	Tensile Strength $\leq 450\text{N/mm}^2$	75 (60–100)	0.30 (0.20–0.40)	80 (60–100)	0.35 (0.20–0.45)
Ductile Cast Iron	Tensile Strength 500–800N/mm ²	70 (55–90)	0.25 (0.15–0.35)	75 (55–90)	0.30 (0.15–0.40)

(Note) The above conditions are for general cutting. The cutting conditions need to be modified depending on power, rigidity of the machine and workpiece shape.

CUTTING RESISTANCE

Workpiece : DIN X5CrNi189 Drilled Depth : l/d=3 (Through Hole) Cutting Speed : 70m/min WSO (10%)



DRILLING (BRAZED TYPE)

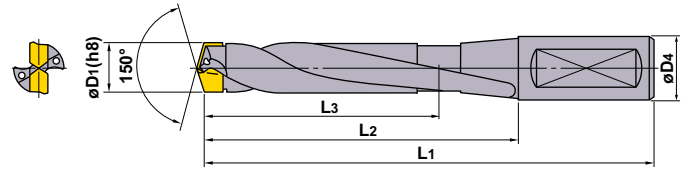
BRM

- Excellent cutting sharpness and chip discharge due to high rake type insert.
- High efficiency, high accuracy machining.
- Suitable for stainless steel, mild steel and general steel drilling. (l/d=5)



(l/d=5)

D1(h8)	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 30.0
Tolerance	0 -0.027	0 -0.033



DRILLING BRM DRILLS



Drill Dia. D1 (mm)	Standard Diameter		Intermediate Diameters		Dimensions (mm)			
	Order Number	Stock UP20M	Range of Drill Diameters (D1)	Order Number	D4	L1	L2	L3
14.0	BRM1400S16	●	14.0 ≤ D1 ≤ 14.5	BRM□□□□S16	16	140	92	78
14.5	1450S16	●			16	140	92	78
15.0	1500S20	●	14.5 < D1 ≤ 15.5	BRM□□□□S20	20	150	100	85
15.5	1550S20	●			20	150	100	85
16.0	1600S20	●	15.5 < D1 ≤ 16.5		20	155	105	89
16.5	1650S20	●			20	155	105	89
17.0	1700S20	●	16.5 < D1 ≤ 17.5		20	165	115	98
17.5	1750S20	●			20	165	115	98
18.0	1800S20	●	17.5 < D1 ≤ 18.5		20	170	120	102
18.5	1850S20	●			20	170	120	102
19.0	1900S25	●	18.5 < D1 ≤ 19.5	BRM□□□□S25	25	180	124	105
19.5	1950S25	●			25	180	124	105
20.0	2000S25	●	19.5 < D1 ≤ 20.5		25	190	134	114
20.5	2050S25	●			25	190	134	114
21.0	2100S25	●	20.5 < D1 ≤ 21.5		25	195	139	118
21.5	2150S25	●			25	195	139	118
22.0	2200S25	●	21.5 < D1 ≤ 22.5		25	200	144	122
22.5	2250S25	●			25	200	144	122
23.0	2300S25	●	22.5 < D1 ≤ 23.5		25	205	149	126
23.5	2350S25	●			25	205	149	126
24.0	2400S32	●	23.5 < D1 ≤ 24.5	BRM□□□□S32	32	220	160	136
24.5	2450S32	●			32	220	160	136
25.0	2500S32	●	24.5 < D1 ≤ 25.5		32	225	165	140
25.5	2550S32	●			32	225	165	140
26.0	2600S32	●	25.5 < D1 ≤ 26.5		32	230	170	144
26.5	2650S32	●			32	230	170	144
27.0	2700S32	●	26.5 < D1 ≤ 27.5		32	235	175	148
27.5	2750S32	●			32	235	175	148
28.0	2800S32	●	27.5 < D1 ≤ 28.5		32	245	185	157
28.5	2850S32	●			32	245	185	157
29.0	2900S32	●	28.5 < D1 ≤ 29.5		32	250	190	161
29.5	2950S32	●			32	250	190	161
30.0	3000S32	●	29.5 < D1 ≤ 30.0		32	255	195	165

For ordering an intermediate diameter, please enter the diameter (D1) into the 4-digit space □□□□ in the nominal designation.
(Ex. UP20M BRM□2530□S32 for a diameter of φ25.30mm)

● : Inventory maintained.

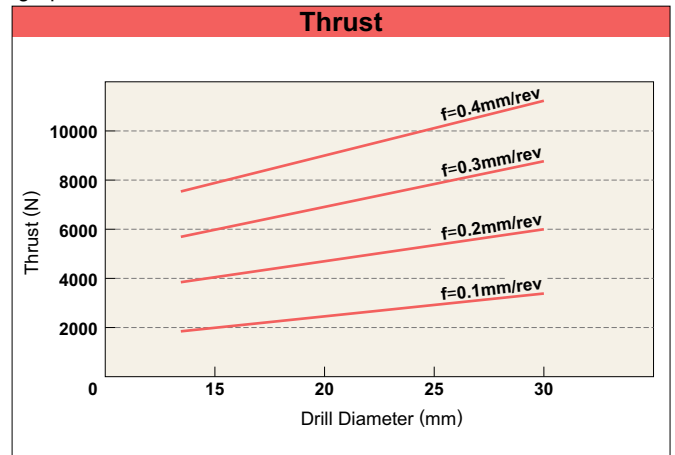
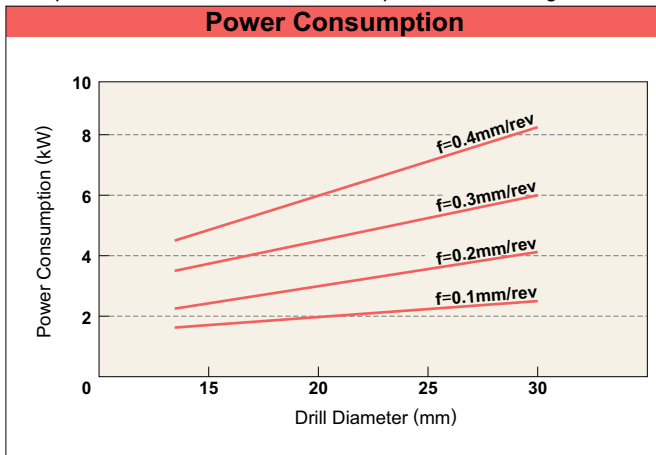
RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Drill Dia. $\phi 14.0-\phi 20.0$		Drill Dia. $\phi 20.0-\phi 30.0$	
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Mild Steel	$\leq 180\text{HB}$	65 (50-75)	0.30 (0.20-0.40)	70 (55-85)	0.35 (0.20-0.45)
Structural Steel	Tensile Strength $400-500\text{N/mm}^2$	70 (60-80)	0.30 (0.25-0.35)	70 (60-80)	0.35 (0.30-0.45)
	Tensile Strength $490-610\text{N/mm}^2$	60 (50-70)	0.25 (0.20-0.30)	60 (50-70)	0.30 (0.20-0.40)
	Tensile Strength $570-720\text{N/mm}^2$	50 (40-60)	0.25 (0.20-0.30)	50 (40-60)	0.30 (0.20-0.35)
Carbon Steel Alloy Steel	180-280HB	60 (45-70)	0.25 (0.15-0.35)	65 (45-80)	0.30 (0.15-0.40)
	280-350HB	55 (40-65)	0.20 (0.15-0.35)	60 (45-70)	0.25 (0.15-0.35)
M Stainless Steel (Austenitic)	$\leq 200\text{HB}$	60 (50-80)	0.25 (0.15-0.35)	65 (50-80)	0.30 (0.20-0.40)
K Cast Iron	Tensile Strength $\leq 350\text{N/mm}^2$	65 (50-100)	0.30 (0.20-0.40)	70 (50-100)	0.35 (0.25-0.50)
	Tensile Strength $\leq 450\text{N/mm}^2$	65 (50-90)	0.30 (0.20-0.40)	70 (50-90)	0.35 (0.20-0.45)
Ductile Cast Iron	Tensile Strength $500-800\text{N/mm}^2$	60 (45-80)	0.25 (0.15-0.35)	65 (45-80)	0.30 (0.15-0.40)

(Note) The above conditions are for general cutting. The cutting conditions need to be modified depending on power, rigidity of the machine and workpiece shape.

CUTTING RESISTANCE

Workpiece : DIN X5CrNi189 Drilled Depth : $l/d=5$ (Through Hole) Cutting Speed : 60m/min WSO (10%)



DRILLING (BRAZED TYPE)

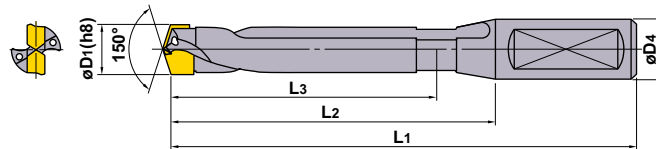
BRK

- Excellent cutting sharpness and chip discharge due to high rake type insert.
- High efficiency, high accuracy machining.
- Suitable for stainless steel, mild steel and general steel drilling. (l/d=7)



(l/d=7)

D1(h8)	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 30.0
Tolerance	0 -0.027	0 -0.033



DRILLING BRK DRILLS



CARBIDE

Drill Dia. D1 (mm)	Standard Diameter		Intermediate Diameters		Dimensions (mm)			
	Order Number	Stock UP20M	Range of Drill Diameters (D1)	Order Number	D4	L1	L2	L3
14.0	BRK1400S16	●	14.0 ≤ D1 ≤ 14.5	BRK□□□□S16	16	174	126	112
15.0	1500S20	●	14.5 < D1 ≤ 15.5	BRK□□□□S20	20	185	135	120
16.0	1600S20	●	15.5 < D1 ≤ 16.5		20	194	144	128
17.0	1700S20	●	16.5 < D1 ≤ 17.5		20	203	153	136
18.0	1800S20	●	17.5 < D1 ≤ 18.5		20	212	162	144
19.0	1900S25	●	18.5 < D1 ≤ 19.5		BRK□□□□S25	25	227	171
20.0	2000S25	●	19.5 < D1 ≤ 20.5	25		236	180	160
21.0	2100S25	●	20.5 < D1 ≤ 21.5	25		245	189	168
22.0	2200S25	●	21.5 < D1 ≤ 22.5	25		254	198	176
23.0	2300S25	●	22.5 < D1 ≤ 23.5	25		263	207	184
24.0	2400S32	●	23.5 < D1 ≤ 24.5	BRK□□□□S32		32	276	216
25.0	2500S32	●	24.5 < D1 ≤ 25.5		32	285	225	200
26.0	2600S32	●	25.5 < D1 ≤ 26.5		32	294	234	208
27.0	2700S32	●	26.5 < D1 ≤ 27.5		32	303	243	216
28.0	2800S32	●	27.5 < D1 ≤ 28.5		32	312	252	224
29.0	2900S32	●	28.5 < D1 ≤ 29.5		32	321	261	232
30.0	3000S32	●	29.5 < D1 ≤ 30.5		32	330	270	240

For ordering an intermediate diameter, please enter the diameter (D1) into the 4-digit space □□□□ in the nominal designation.
 (Ex. UP20M BRK2530S32 for a diameter of φ25.30mm)

RECOMMENDED CUTTING CONDITIONS

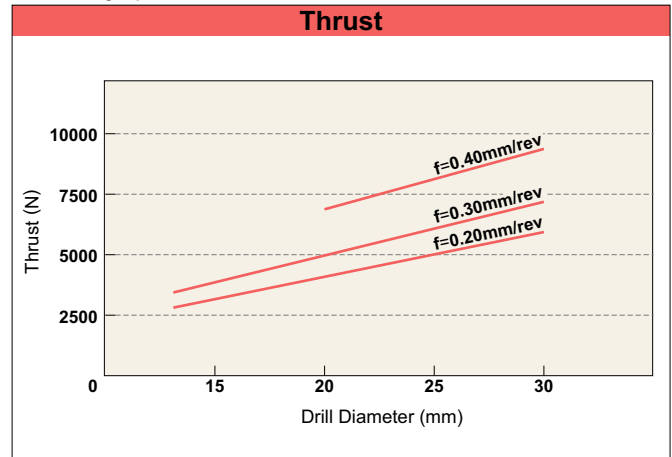
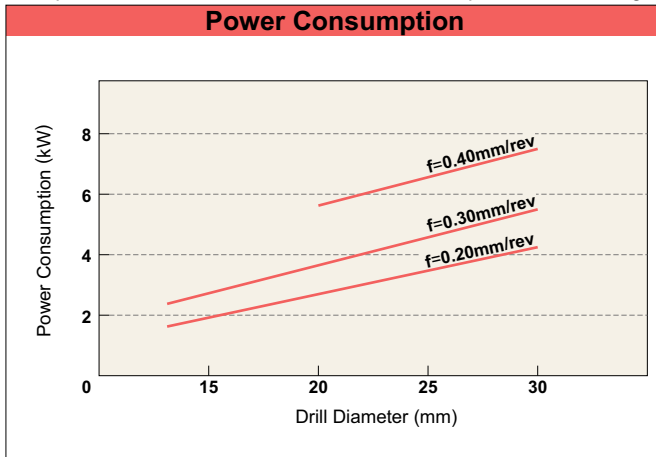
Work Material	Hardness	Drill Dia. $\phi 14.0 - \phi 16.0$		Drill Dia. $\phi 16.0 - \phi 20.0$		Drill Dia. $\phi 20.0 - \phi 30.0$	
		Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Mild Steel	$\leq 180\text{HB}$	60 (40–75)	0.25 (0.15–0.30)	65 (40–80)	0.30 (0.20–0.35)	70 (50–85)	0.30 (0.20–0.35)
	180–280HB	55 (40–65)	0.25 (0.15–0.30)	60 (45–70)	0.30 (0.20–0.35)	65 (50–75)	0.30 (0.20–0.35)
	280–350HB	45 (30–55)	0.20 (0.10–0.25)	50 (35–60)	0.25 (0.15–0.30)	55 (40–65)	0.25 (0.15–0.30)
High Alloy Steel	200–280HB	40 (30–50)	0.20 (0.10–0.25)	45 (35–55)	0.25 (0.15–0.30)	50 (40–60)	0.25 (0.15–0.30)
K Cast Iron	Tensile Strength $\leq 350\text{N/mm}^2$	60 (50–70)	0.30 (0.20–0.35)	60 (50–80)	0.35 (0.25–0.40)	70 (60–90)	0.35 (0.25–0.40)
	Tensile Strength $\leq 450\text{N/mm}^2$	45 (30–60)	0.25 (0.15–0.30)	50 (35–60)	0.30 (0.20–0.35)	55 (40–65)	0.35 (0.20–0.35)

(Note 1) The above conditions are for general cutting. The cutting conditions need to be modified depending on power, rigidity of the machine and workpiece shape.

(Note 2) Decrease the feed rate by 60% of the value below, until the full drill diameter is 3 to 5mm into the workpiece.

CUTTING RESISTANCE

Workpiece : DIN X5CrNi189 (220HB) Drilled Depth : $l/d=7$ (Through Hole) Cutting Speed : 60m/min WSO (10%)



DRILLING (BRAZED TYPE)

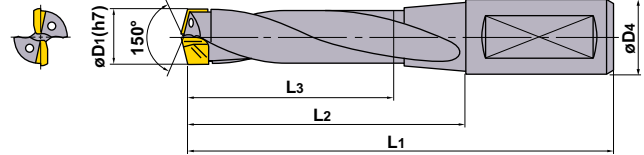
BRA

- Low thrust due to the absence of a chisel edge.
- Easy regrinding.



● **General Use** (Carbon Steel, Alloy Steel, Stainless Steel)
(l/d=3)

D1(h7)	6.0<D1≤10.0	10.0<D1≤18.0	18.0<D1≤30.0
Tolerance	0 -0.015	0 -0.018	0 -0.021



DRILLING | BRA DRILLS

CARBIDE

Drill Dia. D1 (mm)	Standard Diameter		Intermediate Diameters		Dimensions (mm)				
	Order Number	Stock UP20M	Range of Drill Diameters (D1)	Order Number	D4	L1	L2	L3	
8.0	BRA0800S16	●	8.0<D1≤8.5	BRA□□□□S16	16	83	35	23	
8.5	0850S16	●			16	83	35	23	
9.0	0900S16	●	8.5<D1≤9.5		16	88	40	28	
9.5	0950S16	●			16	88	40	28	
10.0	1000S16	●	9.5<D1≤10.5		16	93	45	35	
10.5	1050S16	●			16	93	45	35	
11.0	1100S16	●	10.5<D1≤11.5		16	99	51	40	
11.5	1150S16	●			16	99	51	40	
12.0	1200S16	●	11.5<D1≤12.5		16	104	56	44	
12.5	1250S16	●			16	104	56	44	
13.0	1300S16	●	12.5<D1≤13.5	16	109	61	48		
13.5	1350S16	●		16	109	61	48		
14.0	1400S16	●	13.5<D1≤14.5	16	114	66	52		
14.5	1450S16	●		16	114	66	52		
15.0	1500S20	●	14.5<D1≤15.5	BRA□□□□S20	20	126	76	61	
15.5	1550S20	●			20	126	76	61	
16.0	1600S20	●	15.5<D1≤16.5		20	131	81	65	
16.5	1650S20	●			20	131	81	65	
17.0	1700S20	●	16.5<D1≤17.5		20	136	86	69	
17.5	1750S20	●			20	136	86	69	
18.0	1800S20	●	17.5<D1≤18.5		20	141	91	73	
18.5	1850S20	●			20	141	91	73	
19.0	1900S25	●	18.5<D1≤19.5		BRA□□□□S25	25	157	101	77
19.5	1950S25	●				25	157	101	77
20.0	2000S25	●	19.5<D1≤20.5	25		157	101	81	
20.5	2050S25	●		25		157	101	81	
21.0	2100S25	●	20.5<D1≤21.5	25		157	101	80	
21.5	2150S25	●		25		157	101	80	
22.0	2200S25	●	21.5<D1≤22.5	25		162	106	84	
22.5	2250S25	●		25		162	106	84	

● : Inventory maintained. □ : Non stock, produced to order only.

Drill Dia. D ₁ (mm)	Standard Diameter		Intermediate Diameters		Dimensions (mm)				
	Order Number	Stock UP20M	Range of Drill Diameters (D ₁)	Order Number	D ₄	L ₁	L ₂	L ₃	
23.0	BRA2300S25	●	22.5<D ₁ ≤23.5	BRA□□□S25	25	162	106	83	
23.5	2350S25	●			25	162	106	83	
24.0	2400S32	●	23.5<D ₁ ≤24.5	BRA□□□S32	32	171	111	87	
24.5	2450S32	●			32	171	111	87	
25.0	2500S32	●	24.5<D ₁ ≤25.5		32	171	111	86	
25.5	2550S32	●			32	171	111	86	
26.0	2600S32	●	25.5<D ₁ ≤26.5		32	176	116	90	
26.5	2650S32	●			32	176	116	90	
27.0	2700S32	●	26.5<D ₁ ≤27.5		32	176	116	89	
27.5	2750S32	●			32	176	116	89	
28.0	2800S32	●	27.5<D ₁ ≤28.5		32	181	121	93	
28.5	2850S32	●			32	181	121	93	
29.0	2900S32	●	28.5<D ₁ ≤29.5		32	186	126	97	
29.5	2950S32	●			32	186	126	97	
30.0	3000S32	●	29.5<D ₁ ≤30.5		32	186	126	96	
30.5	3050S32	●			32	186	126	96	
31.0	3100S40	□	30.5<D ₁ ≤31.5		BRA□□□S40	40	197	127	96
31.5	3150S40	□				40	197	127	96
32.0	3200S40	□	31.5<D ₁ ≤32.5	40		202	132	100	
32.5	3250S40	□		40		202	132	100	
33.0	3300S40	□	32.5<D ₁ ≤33.5	40		207	137	104	
33.5	3350S40	□		40		207	137	104	
34.0	3400S40	□	33.5<D ₁ ≤34.5	40		207	137	103	
34.5	3450S40	□		40		207	137	103	
35.0	3500S40	□	34.5<D ₁ ≤35.5	40		212	142	107	
35.5	3550S40	□		40		212	142	107	
36.0	3600S40	□	35.5<D ₁ ≤36.5	40		217	147	111	
36.5	3650S40	□		40		217	147	111	
37.0	3700S40	□	36.5<D ₁ ≤37.5	40		222	152	115	
37.5	3750S40	□		40		222	152	115	
38.0	3800S40	□	37.5<D ₁ ≤38.5	40		227	157	119	
38.5	3850S40	□		40		227	157	119	
39.0	3900S40	□	38.5<D ₁ ≤39.5	40		227	157	118	
39.5	3950S40	□		40		227	157	118	
40.0	4000S40	□	39.5<D ₁ ≤40.0	40		232	162	122	

(Note 1) Standard drills are for clockwise rotation only.

(Note 2) Drills in the drill diameter range column are produced to order only.

(Note 3) For ordering an intermediate diameter, please enter the diameter (D₁) into the 4-digit space □□□□ in the nominal designation.
(Ex. UP20M BRA2[5]3[0]S32 for a diameter of φ25.30mm)

(Note 4) Please contact us regarding special designs that are not standard products.

DRILLING (BRAZED TYPE)

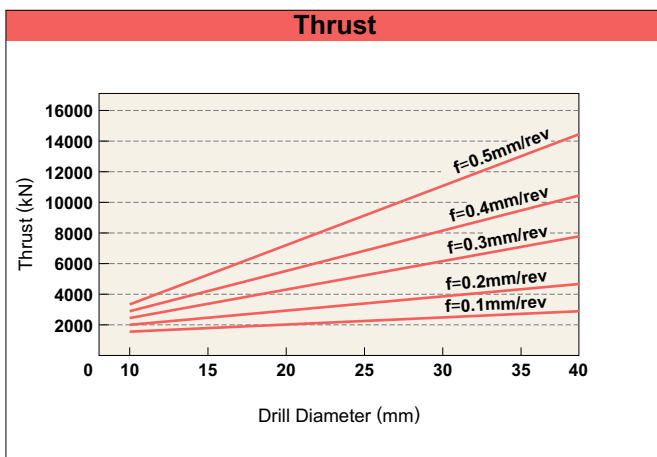
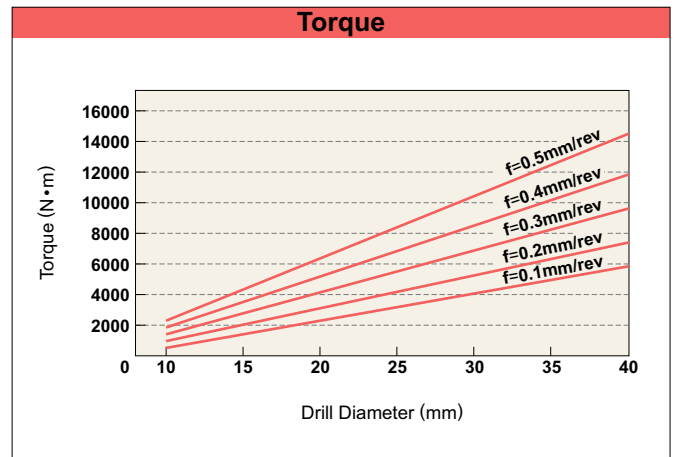
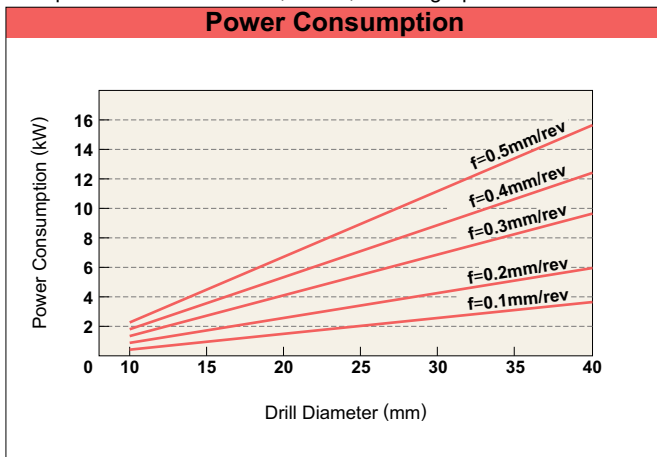
RECOMMENDED CUTTING CONDITIONS

Tool	Work Material	Hardness	Drill Dia. $\phi 8.0 - \phi 13.0$		Drill Dia. $\phi 13.0 - \phi 18.0$		Drill Dia. $\geq \phi 18.0$	
			Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P	Mild Steel	$\leq 180\text{HB}$	55 (40-65)	0.25 (0.20-0.30)	65 (50-75)	0.30 (0.25-0.35)	75 (60-85)	0.30 (0.25-0.35)
	Carbon Steel Alloy Steel	180-280HB	50 (35-60)	0.25 (0.20-0.30)	60 (45-70)	0.30 (0.25-0.35)	70 (55-80)	0.30 (0.25-0.35)
		280-350HB	40 (30-50)	0.25 (0.20-0.30)	50 (40-60)	0.25 (0.20-0.30)	55 (45-65)	0.27 (0.20-0.30)
M	Stainless Steel	$\leq 200\text{HB}$	30 (20-40)	0.25 (0.20-0.27)	35 (25-45)	0.27 (0.20-0.30)	40 (30-50)	0.30 (0.25-0.35)
	K	Cast Iron	Tensile Strength $\leq 350\text{N/mm}^2$	60 (40-70)	0.30 (0.25-0.35)	70 (50-80)	0.35 (0.30-0.40)	80 (60-90)
Ductile Cast Iron		Tensile Strength $\leq 450\text{N/mm}^2$	55 (40-65)	0.27 (0.20-0.30)	60 (45-70)	0.30 (0.25-0.35)	70 (55-80)	0.30 (0.25-0.35)
S	Heat Resistant Alloy	-	15 (10-20)	0.10 (0.05-0.12)	20 (15-25)	0.15 (0.10-0.20)	25 (20-30)	0.15 (0.10-0.20)
	Titanium Alloy	-	20 (10-25)	0.15 (0.10-0.17)	30 (20-35)	0.20 (0.15-0.25)	35 (30-40)	0.25 (0.20-0.30)

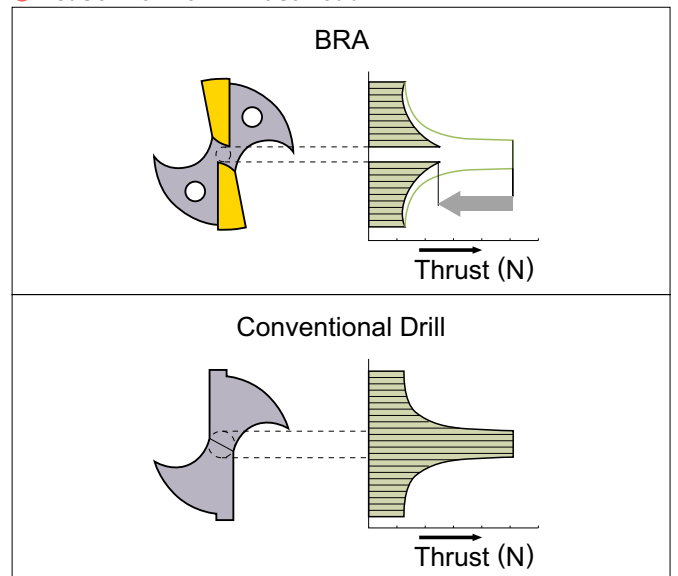
(Note) The above conditions are for general cutting. The cutting conditions need to be modified depending on power, rigidity of the machine and workpiece shape.

CUTTING RESISTANCE

Workpiece : DIN X5CrNi189 (220HB) Cutting Speed : 60m/min



Reason for Low Thrust Load

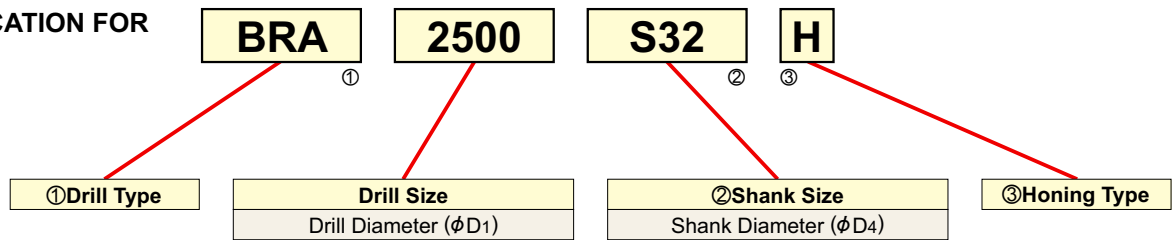


BRA DRILLS

DRILLING

CARBIDE

IDENTIFICATION FOR BRA



① Drill Type

Type	Description						Applications	Products Name
	Point Angle	Hole Depth	Helix Angle	Relief Angle	Back Taper	Body Dia.		
BRA	150°	l/d=3-4	20°	10°	0.3mm/100mm	øD1-0.2mm	For General Use (Carbon / Alloy / Stainless Steel)	BRA○○○○○○S○○

② Shank Size

Type	Shank Diameter	Drill Diameter
S16	ø16 (h6)	ø8.0 ≤ D1 ≤ ø14.5
S20	ø20 (h6)	ø14.5 < D1 ≤ ø18.5
S25	ø25 (h6)	ø18.5 < D1 ≤ ø23.5
S32	ø32 (h6)	ø23.5 < D1 ≤ ø30.5
S40	ø40 (h6)	ø30.5 < D1 ≤ ø40.0

③ Honing Type

Type	Honing Width (mm)	Work Material
		BRA
-(Standard)	0.15-0.2	Carbon Steel, Alloy Steel, Mild Steel
S	0.2-0.25	—
M	0.25-0.3	—
L	0.3-0.4	—
H	0.05-0.1	Stainless Steel, Heat Resistant Alloy, Titanium Alloy
G	0.025-0.08	Cast Iron, Aluminium Alloy, Non-Ferrous Metals

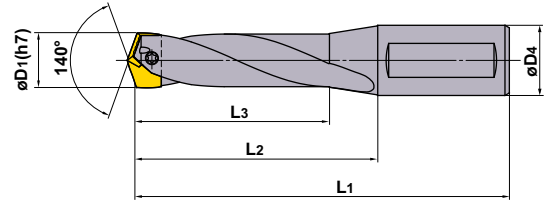
DRILLING (INDEXABLE TYPE)

TAW

- Wavy cutting edge design for good chip control.
- Serration geometry for accurate insert location.
- Easy insert exchange.

(General Use)

D1(h7)	10.0 < D1 ≤ 18.0	18.0 < D1 ≤ 30.0
Tolerance	0 -0.018	0 -0.021



HOLDERS

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Insert		Dimensions (mm)				Clamp Screw	Wrench	Plate	Anti-seize Lubricant	
		Order Number	Stock	Drill Dia. D1 (mm)	Order Number	Stock	L3	L2	L1					D4
14.0 14.4	3	TAWSNH1400S16	●	14.0	TAWNH1400T	●	51	67	115	16	WS254012T	TKY08D	WPT4405	MK1KS
				14.1	TAWNH1410T	●								
	5	TAWMNH1400S16	●	14.2	TAWNH1420T	●	80	97	145	16	WS254012T	TKY08D	WPT4405	MK1KS
				14.3	TAWNH1430T	●								
14.5 15.4	3	TAWSNH1500S20	●	14.4	TAWNH1440T	●	54	75	125	20	WS254013T	TKY08D	WPT4405	MK1KS
				14.5	TAWNH1450T	●								
				14.6	TAWNH1460T	●								
				14.7	TAWNH1470T	●								
	5	TAWMNH1500S20	●	14.8	TAWNH1480T	●	85	105	155	20	WS254013T	TKY08D	WPT4405	MK1KS
				14.9	TAWNH1490T	●								
				15.0	TAWNH1490T	●								
				15.1	TAWNH1510T	●								
15.5 16.4	3	TAWSN1600S20	●	15.2	TAWNH1520T	●	58 (58)	80 (80)	130 (130)	20	WS254014T	TKY08D	WPT4405	MK1KS
				15.3	TAWNH1530T	●								
				15.4	TAWNH1540T	●								
				15.5	TAWN1550T	★								
				15.6	TAWNH1550T	●								
				15.7	TAWN1560T	★								
	5	TAWMN1600S20	●	15.8	TAWNH1560T	●	91 (91)	115 (115)	165 (165)	20	WS254014T	TKY08D	WPT4405	MK1KS
				15.9	TAWN1570T	★								
				16.0	TAWNH1570T	●								
				16.1	TAWN1580T	★								
				16.2	TAWNH1580T	●								
				16.3	TAWN1590T	★								
16.4	TAWNH1590T	●												
16.0	TAWN1600T	★												
16.1	TAWNH1600T	●												
16.2	TAWN1610T	★												
16.3	TAWNH1610T	●												
16.2	TAWN1620T	★												
16.3	TAWNH1620T	●												
16.3	TAWN1630T	★												
16.4	TAWNH1630T	●												
16.4	TAWN1640T	★												
16.4	TAWNH1640T	●												

(Note 1) The dimensions in brackets represent the sizes when TAWN-U type inserts are used.

(Note 2) The TAWN-U type inserts cannot be used for the TAWS/M NH1400S16 and TAWS/M NH1500S20 holders.

(Note 3) Please contact us for any geometry that is not in this catalogue (e.g. different diameter and length).





TAW DRILLS



CARBIDE

D070

- : Inventory maintained. ★ : Inventory maintained in Japan.
- : Non stock, produced to order only.

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Insert				Dimensions (mm)																		
		Order Number	Stock	Drill Dia. D1 (mm)	Order Number	Stock		L3	L2	L1	D4															
						VP15TF	VP10H					Clamp Screw	Wrench	Plate	Anti-seize Lubricant											
16.5 17.4	3	TAWSN1700S20	●	16.5	TAWN1650T	★	<input type="checkbox"/>	61 (61)	85 (85)	135 (135)	20	WS254015T	①TKY08D	WPT4405	MK1KS											
					TAWNH1650T	●	<input type="checkbox"/>																			
				16.6	TAWN1660T	★	<input type="checkbox"/>																			
					TAWNH1660T	●	<input type="checkbox"/>																			
				16.7	TAWN1670T	★	<input type="checkbox"/>																			
					TAWNH1670T	●	<input type="checkbox"/>																			
	16.8	TAWN1680T	★	<input type="checkbox"/>																						
		TAWNH1680T	●	<input type="checkbox"/>																						
	16.9	TAWN1690T	★	<input type="checkbox"/>																						
		TAWNH1690T	●	<input type="checkbox"/>																						
	17.0	TAWN1700T	★	<input type="checkbox"/>																						
		TAWNH1700T	●	<input type="checkbox"/>																						
	17.1	TAWN1710T	★	<input type="checkbox"/>																						
		TAWNH1710T	●	<input type="checkbox"/>																						
17.2	TAWN1720T	★	<input type="checkbox"/>																							
	TAWNH1720T	●	<input type="checkbox"/>																							
17.3	TAWN1730T	★	<input type="checkbox"/>																							
	TAWN1730TH	●	<input type="checkbox"/>																							
17.4	TAWN1740T	★	<input type="checkbox"/>																							
	TAWNH1740T	●	<input type="checkbox"/>																							
17.5 18.4	3	TAWSN1800S20	●	17.5												TAWN1750T	★	<input type="checkbox"/>	65 (65)	90 (90)	140 (140)	20	WS254016T	①TKY08D	WPT4405	MK1KS
																TAWNH1750T	●	<input type="checkbox"/>								
				17.6	TAWN1760T	★	<input type="checkbox"/>																			
					TAWNH1760T	●	<input type="checkbox"/>																			
				17.7	TAWN1770T	★	<input type="checkbox"/>																			
					TAWNH1770T	●	<input type="checkbox"/>																			
	17.8	TAWN1780T	★	<input type="checkbox"/>																						
		TAWNH1780T	●	<input type="checkbox"/>																						
	17.9	TAWN1790T	★	<input type="checkbox"/>																						
		TAWNH1790T	●	<input type="checkbox"/>																						
	18.0	TAWN1800T	★	<input type="checkbox"/>																						
		TAWNH1800T	●	<input type="checkbox"/>																						
	18.1	TAWN1810T	★	<input type="checkbox"/>																						
		TAWNH1810T	●	<input type="checkbox"/>																						
18.2	TAWN1820T	★	<input type="checkbox"/>																							
	TAWNH1820T	●	<input type="checkbox"/>																							
18.3	TAWN1830T	★	<input type="checkbox"/>																							
	TAWNH1830T	●	<input type="checkbox"/>																							
18.4	TAWN1840T	★	<input type="checkbox"/>																							
	TAWNH1840T	●	<input type="checkbox"/>																							
18.5 19.4	3	TAWSN1900S25	●	18.5	TAWN1850T	★	<input type="checkbox"/>	68 (68)	99 (99)	155 (155)	25	WS304517T	②TKY10T	WPT4405	MK1KS											
					TAWNH1850T	●	<input type="checkbox"/>																			
				18.6	TAWN1860T	★	<input type="checkbox"/>																			
					TAWNH1860T	●	<input type="checkbox"/>																			
				18.7	TAWN1870T	★	<input type="checkbox"/>																			
					TAWNH1870T	●	<input type="checkbox"/>																			
	18.8	TAWN1880T	★	<input type="checkbox"/>																						
		TAWNH1880T	●	<input type="checkbox"/>																						
	18.9	TAWN1890T	★	<input type="checkbox"/>																						
		TAWNH1890T	●	<input type="checkbox"/>																						
	19.0	TAWN1900T	★	<input type="checkbox"/>																						
		TAWNH1900T	●	<input type="checkbox"/>																						
	19.1	TAWN1910T	★	<input type="checkbox"/>																						
		TAWNH1910T	●	<input type="checkbox"/>																						
19.2	TAWN1920T	★	<input type="checkbox"/>																							
	TAWNH1920T	●	<input type="checkbox"/>																							
19.3	TAWN1930T	★	<input type="checkbox"/>																							
	TAWNH1930T	●	<input type="checkbox"/>																							
19.4	TAWN1940T	★	<input type="checkbox"/>																							
	TAWNH1940T	●	<input type="checkbox"/>																							

DRILLING TAW DRILLS



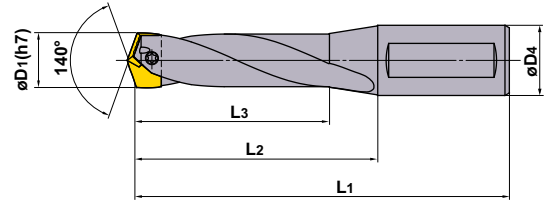
DRILLING (INDEXABLE TYPE)

TAW

- Wavy cutting edge design for good chip control.
- Serration geometry for accurate insert location.
- Easy insert exchange.

(General Use)

D1(h7)	10.0<D1≤18.0	18.0<D1≤30.0
Tolerance	0 -0.018	0 -0.021







HOLDERS

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Insert			Dimensions (mm)				Clamp Screw	Wrench	Plate	Anti-seize Lubricant
		Order Number	Stock	Drill Dia. D1 (mm)	Order Number	Stock	L3	L2	L1	D4				
19.5 20.4	3	TAWSN2000S25	●	19.5	TAWN1950T	★ □	72 (72)	99 (99)	155 (155)	25	WS304518T	TKY10T	WPT4405	MK1KS
					TAWNH1950T	● □								
				19.6	TAWN1960T	★ □								
					TAWNH1960T	● □								
				19.7	TAWN1970T	★ □								
					TAWNH1970T	● □								
				19.8	TAWN1980T	★ □								
		TAWNH1980T	● □											
	19.9	TAWN1990T	★ □											
		TAWNH1990T	● □											
	20.0	TAWN2000T	★ □	113 (113)	139 (139)	195 (195)	25	WS304518T	TKY10T	WPT4405	MK1KS			
		TAWNH2000T	● □											
	20.1	TAWN2010T	□ □											
		TAWNH2010T	□ □											
20.2	TAWN2020T	□ □												
	TAWNH2020T	□ □												
20.3	TAWN2030T	□ □												
	TAWNH2030T	□ □												
20.4	TAWN2040T	□ □												
	TAWNH2040T	□ □												
20.5 21.4	3	TAWSN2100S25	●	20.5	TAWN2050T	★ □	75 (75)	99 (99)	155 (155)	25	WS304518T	TKY10T	WPT4405	MK1KS
					TAWNH2050T	● □								
				20.6	TAWN2060T	□ □								
					TAWNH2060T	□ □								
				20.7	TAWN2070T	□ □								
					TAWNH2070T	□ □								
				20.8	TAWN2080T	□ □								
		TAWNH2080T	□ □											
	20.9	TAWN2090T	□ □											
		TAWNH2090T	□ □											
	21.0	TAWN2100T	★ □	118 (118)	139 (139)	195 (195)	25	WS304518T	TKY10T	WPT4405	MK1KS			
		TAWNH2100T	● □											
	21.1	TAWN2110T	□ □											
		TAWNH2110T	□ □											
21.2	TAWN2120T	□ □												
	TAWNH2120T	□ □												
21.3	TAWN2130T	□ □												
	TAWNH2130T	□ □												
21.4	TAWN2140T	□ □												
	TAWNH2140T	□ □												
21.5 22.4	3	TAWSN2200S25 TAWMN2200S25	●	21.5	TAWN2150T	★ □	79.3 (79)	104.3 (104)	160.3 (160)	25	WS355520T	TKY15T	WPT4405	MK1KS
					TAWNH2150T	● □								
				21.6	TAWN2160T	□ □								
					TAWNH2160T	□ □								
				21.7	TAWN2170T	□ □								
					TAWNH2170T	□ □								
				21.8	TAWN2180T	□ □								
	TAWNH2180T	□ □												
21.9	TAWN2190T	□ □												
	TAWNH2190T	□ □												

(Note 1) The dimensions in brackets represent the sizes when TAWN-U type inserts are used.

(Note 2) Please contact us for any geometry that is not in this catalogue (e.g. different diameter and length).

- : Inventory maintained. ★ : Inventory maintained in Japan.
- : Non stock, produced to order only.

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Insert				Dimensions (mm)								
		Order Number	Stock	Drill Dia. D1 (mm)	Order Number	Stock		L3	L2	L1	D4					
						VP15TF	VP10H									
21.5 22.4	5	TAWSN2200S25 TAWMN2200S25	●	22.0	TAWN2200T	★	<input type="checkbox"/>	124.3 (124)	144.3 (144)	200.3 (200)	25	WS355520T	TKY15T	WPT4405	MK1KS	
					TAWNH2200T	●	<input type="checkbox"/>									
				22.1	TAWN2210T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2210T	<input type="checkbox"/>	<input type="checkbox"/>									
				22.2	TAWN2220T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2220T	<input type="checkbox"/>	<input type="checkbox"/>									
				22.3	TAWN2230T	<input type="checkbox"/>	<input type="checkbox"/>									
	TAWNH2230T	<input type="checkbox"/>	<input type="checkbox"/>													
				22.4	TAWN2240T	<input type="checkbox"/>	<input type="checkbox"/>									
22.5 23.4	3	TAWSN2300S25	●	22.5	TAWN2250T	★	<input type="checkbox"/>	82.3 (82)	104.3 (104)	160.3 (160)	25	WS355521T	TKY15T	WPT4405	MK1KS	
					TAWNH2250T	●	<input type="checkbox"/>									
				22.6	TAWN2260T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2260T	<input type="checkbox"/>	<input type="checkbox"/>									
				22.7	TAWN2270T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2270T	<input type="checkbox"/>	<input type="checkbox"/>									
	22.8	TAWN2280T	<input type="checkbox"/>	<input type="checkbox"/>												
					22.9	TAWN2290T	<input type="checkbox"/>	<input type="checkbox"/>								
						TAWNH2290T	<input type="checkbox"/>	<input type="checkbox"/>								
					23.0	TAWN2300T	★	<input type="checkbox"/>								
						TAWNH2300T	●	<input type="checkbox"/>								
					23.1	TAWN2310T	<input type="checkbox"/>	<input type="checkbox"/>								
						TAWNH2310T	<input type="checkbox"/>	<input type="checkbox"/>								
					23.2	TAWN2320T	<input type="checkbox"/>	<input type="checkbox"/>	129.3 (129)	154.3 (154)	210.3 (210)	25	WS355521T	TKY15T	WPT4405	MK1KS
					TAWNH2320T	<input type="checkbox"/>	<input type="checkbox"/>									
				23.3	TAWN2330T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2330T	<input type="checkbox"/>	<input type="checkbox"/>									
				23.4	TAWN2340T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2340T	<input type="checkbox"/>	<input type="checkbox"/>									
23.5 24.4	3	TAWSN2400S32	●	23.5	TAWN2350T	★	<input type="checkbox"/>	86.3 (86)	110.3 (110)	170.3 (170)	32	WS355521T	TKY15T	WPT4405	MK1KS	
					TAWNH2350T	●	<input type="checkbox"/>									
				23.6	TAWN2360T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2360T	<input type="checkbox"/>	<input type="checkbox"/>									
				23.7	TAWN2370T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2370T	<input type="checkbox"/>	<input type="checkbox"/>									
	23.8	TAWN2380T	<input type="checkbox"/>	<input type="checkbox"/>												
					23.9	TAWN2390T	<input type="checkbox"/>	<input type="checkbox"/>								
						TAWNH2390T	<input type="checkbox"/>	<input type="checkbox"/>								
					24.0	TAWN2400T	★	<input type="checkbox"/>								
						TAWNH2400T	●	<input type="checkbox"/>								
					24.1	TAWN2410T	<input type="checkbox"/>	<input type="checkbox"/>	135.3 (135)	160.3 (160)	220.3 (220)	32	WS355521T	TKY15T	WPT4405	MK1KS
						TAWNH2410T	<input type="checkbox"/>	<input type="checkbox"/>								
					24.2	TAWN2420T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2420T	<input type="checkbox"/>	<input type="checkbox"/>									
				24.3	TAWN2430T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2430T	<input type="checkbox"/>	<input type="checkbox"/>									
				24.4	TAWN2440T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2440T	<input type="checkbox"/>	<input type="checkbox"/>									
24.5 25.4	3	TAWSN2500S32 TAWMN2500S32	●	24.5	TAWN2450T	★	<input type="checkbox"/>	88.6 (88)	110.6 (110)	170.3 (170)	32	WS406023T	TKY25T	WPT4405	MK1KS	
					TAWNH2450T	●	<input type="checkbox"/>									
				24.6	TAWN2460T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2460T	<input type="checkbox"/>	<input type="checkbox"/>									
				24.7	TAWN2470T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2470T	<input type="checkbox"/>	<input type="checkbox"/>									
				24.8	TAWN2480T	<input type="checkbox"/>	<input type="checkbox"/>									
				24.9	TAWN2490T	<input type="checkbox"/>	<input type="checkbox"/>									
					TAWNH2490T	<input type="checkbox"/>	<input type="checkbox"/>									

TAW DRILLS



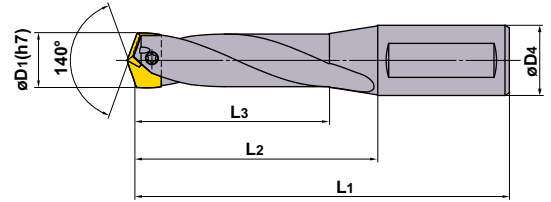
DRILLING (INDEXABLE TYPE)

TAW

- Wavy cutting edge design for good chip control.
- Serration geometry for accurate insert location.
- Easy insert exchange.

(General Use)

D1(h7)	10.0<D1≤18.0	18.0<D1≤30.0
Tolerance	0 -0.018	0 -0.021



HOLDERS

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Insert		Dimensions (mm)				Clamp Screw	Wrench	Plate	Anti-seize Lubricant		
		Order Number	Stock	Drill Dia. D1 (mm)	Order Number	Stock	L3	L2	L1					D4	
24.5 25.4	5	TAWSN2500S32 TAWMN2500S32	●	25.0	TAWN2500T	★	<input type="checkbox"/>	140.6 (140)	165.6 (165)	225.6 (225)	32	WS406023T	TKY25T	WPT4405	MK1KS
					TAWNH2500T	●	<input type="checkbox"/>								
				25.1	TAWN2510T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2510T	<input type="checkbox"/>	<input type="checkbox"/>								
				25.2	TAWN2520T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2520T	<input type="checkbox"/>	<input type="checkbox"/>								
				25.3	TAWN2530T	<input type="checkbox"/>	<input type="checkbox"/>								
	TAWNH2530T	<input type="checkbox"/>	<input type="checkbox"/>												
	25.4	TAWN2540T	<input type="checkbox"/>	<input type="checkbox"/>											
		TAWNH2540T	<input type="checkbox"/>	<input type="checkbox"/>											
25.5 26.4	3	TAWSN2600S32	●	25.5	TAWN2550T	★	<input type="checkbox"/>	92.6 (92)	115.6 (115)	175.6 (175)	32	WS406024T	TKY25T	WPT4405	MK1KS
					TAWNH2550T	●	<input type="checkbox"/>								
				25.6	TAWN2560T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2560T	<input type="checkbox"/>	<input type="checkbox"/>								
				25.7	TAWN2570T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2570T	<input type="checkbox"/>	<input type="checkbox"/>								
				25.8	TAWN2580T	<input type="checkbox"/>	<input type="checkbox"/>								
		TAWNH2580T	<input type="checkbox"/>	<input type="checkbox"/>											
		25.9	TAWN2590T	<input type="checkbox"/>	<input type="checkbox"/>										
			TAWNH2590T	<input type="checkbox"/>	<input type="checkbox"/>										
	5	TAWMN2600S32	●	26.0	TAWN2600T	★	<input type="checkbox"/>	146.6 (146)	170.6 (170)	230.6 (230)	32	WS406024T	TKY25T	WPT4405	MK1KS
					TAWNH2600T	●	<input type="checkbox"/>								
				26.1	TAWN2610T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2610T	<input type="checkbox"/>	<input type="checkbox"/>								
26.2				TAWN2620T	<input type="checkbox"/>	<input type="checkbox"/>									
				TAWNH2620T	<input type="checkbox"/>	<input type="checkbox"/>									
26.3				TAWN2630T	<input type="checkbox"/>	<input type="checkbox"/>									
	TAWNH2630T	<input type="checkbox"/>	<input type="checkbox"/>												
	26.4	TAWN2640T	<input type="checkbox"/>	<input type="checkbox"/>											
		TAWNH2640T	<input type="checkbox"/>	<input type="checkbox"/>											
26.5 27.4	3	TAWSN2700S32	●	26.5	TAWN2650T	★	<input type="checkbox"/>	94.6 (94)	115.6 (115)	175.6 (175)	32	WS406024T	TKY25T	WPT4405	MK1KS
					TAWNH2650T	●	<input type="checkbox"/>								
				26.6	TAWN2660T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2660T	<input type="checkbox"/>	<input type="checkbox"/>								
				26.7	TAWN2670T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2670T	<input type="checkbox"/>	<input type="checkbox"/>								
				26.8	TAWN2680T	<input type="checkbox"/>	<input type="checkbox"/>								
		TAWNH2680T	<input type="checkbox"/>	<input type="checkbox"/>											
		26.9	TAWN2690T	<input type="checkbox"/>	<input type="checkbox"/>										
			TAWNH2690T	<input type="checkbox"/>	<input type="checkbox"/>										
	5	TAWMN2700S32	●	27.0	TAWN2700T	★	<input type="checkbox"/>	151.6 (151)	175.6 (175)	235.6 (235)	32	WS406024T	TKY25T	WPT4405	MK1KS
					TAWNH2700T	●	<input type="checkbox"/>								
				27.1	TAWN2710T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2710T	<input type="checkbox"/>	<input type="checkbox"/>								
27.2				TAWN2720T	<input type="checkbox"/>	<input type="checkbox"/>									
				TAWNH2720T	<input type="checkbox"/>	<input type="checkbox"/>									
27.3				TAWN2730T	<input type="checkbox"/>	<input type="checkbox"/>									
	TAWNH2730T	<input type="checkbox"/>	<input type="checkbox"/>												
	27.4	TAWN2740T	<input type="checkbox"/>	<input type="checkbox"/>											
		TAWNH2740T	<input type="checkbox"/>	<input type="checkbox"/>											

(Note 1) The dimensions in brackets represent the sizes when TAWN-U type inserts are used.

(Note 2) Please contact us for any geometry that is not in this catalogue (e.g. different diameter and length).

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□ : Non stock, produced to order only.

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Insert				Dimensions (mm)							
		Order Number	Stock	Drill Dia. D1 (mm)	Order Number	Stock		L3	L2	L1	D4				
						VP15TF	VP10H								
27.5 28.4	3	TAWSN2800S32	●	27.5	TAWN2750T	★	<input type="checkbox"/>	97.2 (97)	120.2 (120)	180.2 (180)	32	WS508026T	TKY27T	WPT4405	MK1KS
					TAWNH2750T	●	<input type="checkbox"/>								
				27.6	TAWN2760T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2760T	<input type="checkbox"/>	<input type="checkbox"/>								
				27.7	TAWN2770T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2770T	<input type="checkbox"/>	<input type="checkbox"/>								
	5	TAWMN2800S32	●	27.8	TAWN2780T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2780T	<input type="checkbox"/>	<input type="checkbox"/>								
				27.9	TAWN2790T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2790T	<input type="checkbox"/>	<input type="checkbox"/>								
				28.0	TAWN2800T	★	<input type="checkbox"/>								
					TAWNH2800T	●	<input type="checkbox"/>								
				28.1	TAWN2810T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2810T	<input type="checkbox"/>	<input type="checkbox"/>								
3	TAWSN2900S32	●	28.5	TAWN2850T	★	<input type="checkbox"/>	100.2 (100)	125.2 (125)	185.2 (185)	32	WS508027T	TKY27T	WPT4405	MK1KS	
				TAWNH2850T	●	<input type="checkbox"/>									
			28.6	TAWN2860T	<input type="checkbox"/>	<input type="checkbox"/>									
				TAWNH2860T	<input type="checkbox"/>	<input type="checkbox"/>									
			28.7	TAWN2870T	<input type="checkbox"/>	<input type="checkbox"/>									
				TAWNH2870T	<input type="checkbox"/>	<input type="checkbox"/>									
5	TAWMN2900S32	●	28.8	TAWN2880T	<input type="checkbox"/>	<input type="checkbox"/>									
				TAWNH2880T	<input type="checkbox"/>	<input type="checkbox"/>									
			28.9	TAWN2890T	<input type="checkbox"/>	<input type="checkbox"/>									
				TAWNH2890T	<input type="checkbox"/>	<input type="checkbox"/>									
			29.0	TAWN2900T	★	<input type="checkbox"/>									
				TAWNH2900T	●	<input type="checkbox"/>									
			29.1	TAWN2910T	<input type="checkbox"/>	<input type="checkbox"/>									
				TAWNH2910T	<input type="checkbox"/>	<input type="checkbox"/>									
3	TAWSN3000S32	●	29.2	TAWN2920T	<input type="checkbox"/>	<input type="checkbox"/>	162.2 (162)	185.2 (185)	245.2 (245)	32	WS508027T	TKY27T	WPT4405	MK1KS	
				TAWNH2920T	<input type="checkbox"/>	<input type="checkbox"/>									
			29.3	TAWN2930T	<input type="checkbox"/>	<input type="checkbox"/>									
				TAWNH2930T	<input type="checkbox"/>	<input type="checkbox"/>									
			29.4	TAWN2940T	<input type="checkbox"/>	<input type="checkbox"/>									
				TAWNH2940T	<input type="checkbox"/>	<input type="checkbox"/>									
29.5 30.4	3	TAWSN3000S32	●	29.5	TAWN2950T	★	<input type="checkbox"/>	104.2 (104)	125.2 (125)	185.2 (185)	32	WS508027T	TKY27T	WPT4405	MK1KS
					TAWNH2950T	●	<input type="checkbox"/>								
				29.6	TAWN2960T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2960T	<input type="checkbox"/>	<input type="checkbox"/>								
				29.7	TAWN2970T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2970T	<input type="checkbox"/>	<input type="checkbox"/>								
	5	TAWMN3000S32	●	29.8	TAWN2980T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2980T	<input type="checkbox"/>	<input type="checkbox"/>								
				29.9	TAWN2990T	<input type="checkbox"/>	<input type="checkbox"/>								
					TAWNH2990T	<input type="checkbox"/>	<input type="checkbox"/>								
				30.0	TAWN3000T	★	<input type="checkbox"/>								
					TAWNH3000T	●	<input type="checkbox"/>								
30.1	TAWN3010T	<input type="checkbox"/>	<input type="checkbox"/>												
	TAWNH3010T	<input type="checkbox"/>	<input type="checkbox"/>												
30.2	TAWN3020T	<input type="checkbox"/>	<input type="checkbox"/>												
	TAWNH3020T	<input type="checkbox"/>	<input type="checkbox"/>												
30.3	TAWN3030T	<input type="checkbox"/>	<input type="checkbox"/>												
	TAWNH3030T	<input type="checkbox"/>	<input type="checkbox"/>												
30.4	TAWN3040T	<input type="checkbox"/>	<input type="checkbox"/>												
	TAWNH3040T	<input type="checkbox"/>	<input type="checkbox"/>												

TAW DRILLS

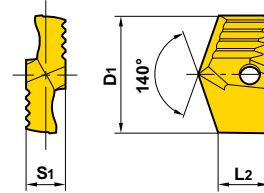


DRILLING (INDEXABLE TYPE)

INSERTS

H Type

NEW



TAW DRILLS



CARBIDE

Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
TAWNH1400T	●	□	14.0	7.6	5.0	TAWSNH 1400S16
1410T	●	□	14.1	7.6	5.0	
1420T	●	□	14.2	7.6	5.0	
1430T	●	□	14.3	7.6	5.0	
1440T	●	□	14.4	7.6	5.0	
1450T	●	□	14.5	7.5	5.0	TAWMNH 1400S16
1460T	●	□	14.6	7.5	5.0	
1470T	●	□	14.7	7.5	5.0	
1480T	●	□	14.8	7.5	5.0	
1490T	●	□	14.9	7.5	5.0	
1500T	●	□	15.0	7.4	5.0	TAWSNH 1500S20
1510T	●	□	15.1	7.4	5.0	
1520T	●	□	15.2	7.4	5.0	
1530T	●	□	15.3	7.4	5.0	
1540T	●	□	15.4	7.4	5.0	
1550T	●	□	15.5	7.9	6.0	TAWMNH 1500S20
1560T	●	□	15.6	7.9	6.0	
1570T	●	□	15.7	7.9	6.0	
1580T	●	□	15.8	7.9	6.0	
1590T	●	□	15.9	7.9	6.0	
1600T	●	□	16.0	7.8	6.0	TAWSN 1600S20
1610T	●	□	16.1	7.8	6.0	
1620T	●	□	16.2	7.8	6.0	
1630T	●	□	16.3	7.8	6.0	
1640T	●	□	16.4	7.8	6.0	
1650T	●	□	16.5	7.7	6.0	TAWMN 1600S20
1660T	●	□	16.6	7.7	6.0	
1670T	●	□	16.7	7.7	6.0	
1680T	●	□	16.8	7.7	6.0	
1690T	●	□	16.9	7.7	6.0	
1700T	●	□	17.0	7.6	6.0	TAWSN 1700S20
1710T	●	□	17.1	7.6	6.0	
1720T	●	□	17.2	7.6	6.0	
1730T	●	□	17.3	7.6	6.0	
1740T	●	□	17.4	7.6	6.0	
1750T	●	□	17.5	7.5	6.0	TAWMN 1700S20
1760T	●	□	17.6	7.5	6.0	
1770T	●	□	17.7	7.5	6.0	
1780T	●	□	17.8	7.5	6.0	
1790T	●	□	17.9	7.5	6.0	
1800T	●	□	18.0	7.4	6.0	TAWSN 1800S20
1810T	●	□	18.1	7.4	6.0	
1820T	●	□	18.2	7.4	6.0	
1830T	●	□	18.3	7.4	6.0	
1840T	●	□	18.4	7.4	6.0	

Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
TAWNH1850T	●	□	18.5	9.3	7.0	TAWSN 1900S25
1860T	●	□	18.6	9.3	7.0	
1870T	●	□	18.7	9.3	7.0	
1880T	●	□	18.8	9.3	7.0	
1890T	●	□	18.9	9.3	7.0	
1900T	●	□	19.0	9.2	7.0	TAWMN 1900S25
1910T	●	□	19.1	9.2	7.0	
1920T	●	□	19.2	9.2	7.0	
1930T	●	□	19.3	9.2	7.0	
1940T	●	□	19.4	9.2	7.0	
1950T	●	□	19.5	9.1	7.0	TAWSN 2000S25
1960T	●	□	19.6	9.1	7.0	
1970T	●	□	19.7	9.1	7.0	
1980T	●	□	19.8	9.1	7.0	
1990T	●	□	19.9	9.1	7.0	
2000T	●	□	20.0	9.0	7.0	TAWMN 2000S25
2010T	□	□	20.1	9.0	7.0	
2020T	□	□	20.2	9.0	7.0	
2030T	□	□	20.3	9.0	7.0	
2040T	□	□	20.4	9.0	7.0	
2050T	●	□	20.5	8.9	7.0	TAWSN 2100S25
2060T	□	□	20.6	8.9	7.0	
2070T	□	□	20.7	8.9	7.0	
2080T	□	□	20.8	8.9	7.0	
2090T	□	□	20.9	8.9	7.0	
2100T	●	□	21.0	8.8	7.0	TAWMN 2100S25
2110T	□	□	21.1	8.8	7.0	
2120T	□	□	21.2	8.8	7.0	
2130T	□	□	21.3	8.8	7.0	
2140T	□	□	21.4	8.8	7.0	
2150T	●	□	21.5	10.6	8.0	TAWSN 2200S25
2160T	□	□	21.6	10.6	8.0	
2170T	□	□	21.7	10.6	8.0	
2180T	□	□	21.8	10.6	8.0	
2190T	□	□	21.9	10.6	8.0	
2200T	●	□	22.0	10.5	8.0	TAWMN 2200S25
2210T	□	□	22.1	10.5	8.0	
2220T	□	□	22.2	10.5	8.0	
2230T	□	□	22.3	10.5	8.0	
2240T	□	□	22.4	10.5	8.0	
2250T	●	□	22.5	10.4	8.0	TAWSN 2300S25
2260T	□	□	22.6	10.4	8.0	
2270T	□	□	22.7	10.4	8.0	
2280T	□	□	22.8	10.4	8.0	
2290T	□	□	22.9	10.4	8.0	

● : Inventory maintained. (Note: 2 inserts in one case) □ : Non stock, produced to order only.

Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
TAWNH2300T	●	□	23.0	10.3	8.0	TAWSN 2300S25
2310T	□	□	23.1	10.3	8.0	
2320T	□	□	23.2	10.3	8.0	
2330T	□	□	23.3	10.3	8.0	
2340T	□	□	23.4	10.3	8.0	
2350T	●	□	23.5	10.2	8.0	TAWSN 2400S32
2360T	□	□	23.6	10.2	8.0	
2370T	□	□	23.7	10.2	8.0	
2380T	□	□	23.8	10.2	8.0	
2390T	□	□	23.9	10.2	8.0	
2400T	●	□	24.0	10.1	8.0	
2410T	□	□	24.1	10.1	8.0	
2420T	□	□	24.2	10.1	8.0	
2430T	□	□	24.3	10.1	8.0	
2440T	□	□	24.4	10.1	8.0	
2450T	●	□	24.5	11.7	9.0	TAWSN 2500S32
2460T	□	□	24.6	11.7	9.0	
2470T	□	□	24.7	11.7	9.0	
2480T	□	□	24.8	11.7	9.0	
2490T	□	□	24.9	11.7	9.0	
2500T	●	□	25.0	11.6	9.0	
2510T	□	□	25.1	11.6	9.0	
2520T	□	□	25.2	11.6	9.0	
2530T	□	□	25.3	11.6	9.0	
2540T	□	□	25.4	11.6	9.0	
2550T	●	□	25.5	11.5	9.0	TAWSN 2600S32
2560T	□	□	25.6	11.5	9.0	
2570T	□	□	25.7	11.5	9.0	
2580T	□	□	25.8	11.5	9.0	
2590T	□	□	25.9	11.5	9.0	
2600T	●	□	26.0	11.4	9.0	
2610T	□	□	26.1	11.4	9.0	
2620T	□	□	26.2	11.4	9.0	
2630T	□	□	26.3	11.4	9.0	
2640T	□	□	26.4	11.4	9.0	
2650T	●	□	26.5	11.3	9.0	TAWSN 2700S32
2660T	□	□	26.6	11.3	9.0	
2670T	□	□	26.7	11.3	9.0	
2680T	□	□	26.8	11.3	9.0	
2690T	□	□	26.9	11.3	9.0	
2700T	●	□	27.0	11.2	9.0	
2710T	□	□	27.1	11.2	9.0	
2720T	□	□	27.2	11.2	9.0	
2730T	□	□	27.3	11.2	9.0	
2740T	□	□	27.4	11.2	9.0	

Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
TAWNH2750T	●	□	27.5	12.3	10.0	TAWSN 2800S32
2760T	□	□	27.6	12.3	10.0	
2770T	□	□	27.7	12.3	10.0	
2780T	□	□	27.8	12.3	10.0	
2790T	□	□	27.9	12.3	10.0	
2800T	●	□	28.0	12.2	10.0	
2810T	□	□	28.1	12.2	10.0	
2820T	□	□	28.2	12.2	10.0	
2830T	□	□	28.3	12.2	10.0	
2840T	□	□	28.4	12.2	10.0	
2850T	●	□	28.5	12.1	10.0	TAWSN 2900S32
2860T	□	□	28.6	12.1	10.0	
2870T	□	□	28.7	12.1	10.0	
2880T	□	□	28.8	12.1	10.0	
2890T	□	□	28.9	12.1	10.0	
2900T	●	□	29.0	12.0	10.0	
2910T	□	□	29.1	12.0	10.0	
2920T	□	□	29.2	12.0	10.0	
2930T	□	□	29.3	12.0	10.0	
2940T	□	□	29.4	12.0	10.0	
2950T	●	□	29.5	11.9	10.0	TAWSN 3000S32
2960T	□	□	29.6	11.9	10.0	
2970T	□	□	29.7	11.9	10.0	
2980T	□	□	29.8	11.9	10.0	
2990T	□	□	29.9	11.9	10.0	
3000T	●	□	30.0	11.8	10.0	
3010T	□	□	30.1	11.8	10.0	
3020T	□	□	30.2	11.8	10.0	
3030T	□	□	30.3	11.8	10.0	
3040T	□	□	30.4	11.8	10.0	

TAW DRILLS

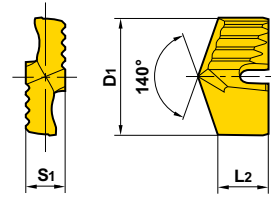


CARBIDE

DRILLING (INDEXABLE TYPE)

INSERTS

U Type



Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
TAWN1550T	★	□	15.5	7.9	6.0	TAWSN 1600S20
1560T	★	□	15.6	7.9	6.0	
1570T	★	□	15.7	7.9	6.0	
1580T	★	□	15.8	7.9	6.0	
1590T	★	□	15.9	7.9	6.0	
1600T	★	□	16.0	7.8	6.0	
1610T	★	□	16.1	7.8	6.0	
1620T	★	□	16.2	7.8	6.0	
1630T	★	□	16.3	7.8	6.0	
1640T	★	□	16.4	7.8	6.0	
1650T	★	□	16.5	7.7	6.0	TAWSN 1700S20
1660T	★	□	16.6	7.7	6.0	
1670T	★	□	16.7	7.7	6.0	
1680T	★	□	16.8	7.7	6.0	
1690T	★	□	16.9	7.7	6.0	
1700T	★	□	17.0	7.6	6.0	
1710T	★	□	17.1	7.6	6.0	
1720T	★	□	17.2	7.6	6.0	
1730T	★	□	17.3	7.6	6.0	
1740T	★	□	17.4	7.6	6.0	
1750T	★	□	17.5	7.5	6.0	TAWSN 1800S20
1760T	★	□	17.6	7.5	6.0	
1770T	★	□	17.7	7.5	6.0	
1780T	★	□	17.8	7.5	6.0	
1790T	★	□	17.9	7.5	6.0	
1800T	★	□	18.0	7.4	6.0	
1810T	★	□	18.1	7.4	6.0	
1820T	★	□	18.2	7.4	6.0	
1830T	★	□	18.3	7.4	6.0	
1840T	★	□	18.4	7.4	6.0	
1850T	★	□	18.5	9.3	7.0	TAWSN 1900S25
1860T	★	□	18.6	9.3	7.0	
1870T	★	□	18.7	9.3	7.0	
1880T	★	□	18.8	9.3	7.0	
1890T	★	□	18.9	9.3	7.0	
1900T	★	□	19.0	9.2	7.0	
1910T	★	□	19.1	9.2	7.0	
1920T	★	□	19.2	9.2	7.0	
1930T	★	□	19.3	9.2	7.0	
1940T	★	□	19.4	9.2	7.0	

Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
TAWN1950T	★	□	19.5	9.1	7.0	TAWSN 2000S25
1960T	★	□	19.6	9.1	7.0	
1970T	★	□	19.7	9.1	7.0	
1980T	★	□	19.8	9.1	7.0	
1990T	★	□	19.9	9.1	7.0	
2000T	★	□	20.0	9.0	7.0	
2010T	□	□	20.1	9.0	7.0	
2020T	□	□	20.2	9.0	7.0	
2030T	□	□	20.3	9.0	7.0	
2040T	□	□	20.4	9.0	7.0	
2050T	★	□	20.5	8.9	7.0	TAWSN 2100S25
2060T	□	□	20.6	8.9	7.0	
2070T	□	□	20.7	8.9	7.0	
2080T	□	□	20.8	8.9	7.0	
2090T	□	□	20.9	8.9	7.0	
2100T	★	□	21.0	8.8	7.0	
2110T	□	□	21.1	8.8	7.0	
2120T	□	□	21.2	8.8	7.0	
2130T	□	□	21.3	8.8	7.0	
2140T	□	□	21.4	8.8	7.0	
2150T	★	□	21.5	10.3	8.0	TAWSN 2200S25
2160T	□	□	21.6	10.3	8.0	
2170T	□	□	21.7	10.3	8.0	
2180T	□	□	21.8	10.3	8.0	
2190T	□	□	21.9	10.3	8.0	
2200T	★	□	22.0	10.2	8.0	
2210T	□	□	22.1	10.2	8.0	
2220T	□	□	22.2	10.2	8.0	
2230T	□	□	22.3	10.2	8.0	
2240T	□	□	22.4	10.2	8.0	
2250T	★	□	22.5	10.1	8.0	TAWSN 2300S25
2260T	□	□	22.6	10.1	8.0	
2270T	□	□	22.7	10.1	8.0	
2280T	□	□	22.8	10.1	8.0	
2290T	□	□	22.9	10.1	8.0	
2300T	★	□	23.0	10.0	8.0	
2310T	□	□	23.1	10.0	8.0	
2320T	□	□	23.2	10.0	8.0	
2330T	□	□	23.3	10.0	8.0	
2340T	□	□	23.4	10.0	8.0	

DRILLING TAW DRILLS



CARBIDE

D078

★ : Inventory maintained in Japan. (Note: 2 inserts in one case) □ : Non stock, produced to order only.

Order Number	Stock		Dimensions (mm)			Applicable Holder	
	VP15TF	VP10H	D1	L2	S1		
TAWN2350T	★	<input type="checkbox"/>	23.5	9.9	8.0	TAWSN 2400S32	
2360T	<input type="checkbox"/>	<input type="checkbox"/>	23.6	9.9	8.0		
2370T	<input type="checkbox"/>	<input type="checkbox"/>	23.7	9.9	8.0		
2380T	<input type="checkbox"/>	<input type="checkbox"/>	23.8	9.9	8.0		
2390T	<input type="checkbox"/>	<input type="checkbox"/>	23.9	9.9	8.0		
2400T	★	<input type="checkbox"/>	24.0	9.8	8.0		TAWMN 2400S32
2410T	<input type="checkbox"/>	<input type="checkbox"/>	24.1	9.8	8.0		
2420T	<input type="checkbox"/>	<input type="checkbox"/>	24.2	9.8	8.0		
2430T	<input type="checkbox"/>	<input type="checkbox"/>	24.3	9.8	8.0		
2440T	<input type="checkbox"/>	<input type="checkbox"/>	24.4	9.8	8.0		
2450T	★	<input type="checkbox"/>	24.5	11.1	9.0	TAWSN 2500S32	
2460T	<input type="checkbox"/>	<input type="checkbox"/>	24.6	11.1	9.0		
2470T	<input type="checkbox"/>	<input type="checkbox"/>	24.7	11.1	9.0		
2480T	<input type="checkbox"/>	<input type="checkbox"/>	24.8	11.1	9.0		
2490T	<input type="checkbox"/>	<input type="checkbox"/>	24.9	11.1	9.0		
2500T	★	<input type="checkbox"/>	25.0	11.0	9.0		TAWMN 2500S32
2510T	<input type="checkbox"/>	<input type="checkbox"/>	25.1	11.0	9.0		
2520T	<input type="checkbox"/>	<input type="checkbox"/>	25.2	11.0	9.0		
2530T	<input type="checkbox"/>	<input type="checkbox"/>	25.3	11.0	9.0		
2540T	<input type="checkbox"/>	<input type="checkbox"/>	25.4	11.0	9.0		
2550T	★	<input type="checkbox"/>	25.5	10.9	9.0	TAWSN 2600S32	
2560T	<input type="checkbox"/>	<input type="checkbox"/>	25.6	10.9	9.0		
2570T	<input type="checkbox"/>	<input type="checkbox"/>	25.7	10.9	9.0		
2580T	<input type="checkbox"/>	<input type="checkbox"/>	25.8	10.9	9.0		
2590T	<input type="checkbox"/>	<input type="checkbox"/>	25.9	10.9	9.0		
2600T	★	<input type="checkbox"/>	26.0	10.8	9.0		TAWMN 2600S32
2610T	<input type="checkbox"/>	<input type="checkbox"/>	26.1	10.8	9.0		
2620T	<input type="checkbox"/>	<input type="checkbox"/>	26.2	10.8	9.0		
2630T	<input type="checkbox"/>	<input type="checkbox"/>	26.3	10.8	9.0		
2640T	<input type="checkbox"/>	<input type="checkbox"/>	26.4	10.8	9.0		
2650T	★	<input type="checkbox"/>	26.5	10.7	9.0	TAWSN 2700S32	
2660T	<input type="checkbox"/>	<input type="checkbox"/>	26.6	10.7	9.0		
2670T	<input type="checkbox"/>	<input type="checkbox"/>	26.7	10.7	9.0		
2680T	<input type="checkbox"/>	<input type="checkbox"/>	26.8	10.7	9.0		
2690T	<input type="checkbox"/>	<input type="checkbox"/>	26.9	10.7	9.0		
2700T	★	<input type="checkbox"/>	27.0	10.6	9.0		TAWMN 2700S32
2710T	<input type="checkbox"/>	<input type="checkbox"/>	27.1	10.6	9.0		
2720T	<input type="checkbox"/>	<input type="checkbox"/>	27.2	10.6	9.0		
2730T	<input type="checkbox"/>	<input type="checkbox"/>	27.3	10.6	9.0		
2740T	<input type="checkbox"/>	<input type="checkbox"/>	27.4	10.6	9.0		
2750T	★	<input type="checkbox"/>	27.5	12.1	10.0	TAWSN 2800S32	
2760T	<input type="checkbox"/>	<input type="checkbox"/>	27.6	12.1	10.0		
2770T	<input type="checkbox"/>	<input type="checkbox"/>	27.7	12.1	10.0		
2780T	<input type="checkbox"/>	<input type="checkbox"/>	27.8	12.1	10.0		
2790T	<input type="checkbox"/>	<input type="checkbox"/>	27.9	12.1	10.0		
2800T	★	<input type="checkbox"/>	28.0	12.0	10.0		TAWMN 2800S32
2810T	<input type="checkbox"/>	<input type="checkbox"/>	28.1	12.0	10.0		
2820T	<input type="checkbox"/>	<input type="checkbox"/>	28.2	12.0	10.0		
2830T	<input type="checkbox"/>	<input type="checkbox"/>	28.3	12.0	10.0		
2840T	<input type="checkbox"/>	<input type="checkbox"/>	28.4	12.0	10.0		

Order Number	Stock		Dimensions (mm)			Applicable Holder	
	VP15TF	VP10H	D1	L2	S1		
TAWN2850T	★	<input type="checkbox"/>	28.5	11.9	10.0	TAWSN 2900S32	
2860T	<input type="checkbox"/>	<input type="checkbox"/>	28.6	11.9	10.0		
2870T	<input type="checkbox"/>	<input type="checkbox"/>	28.7	11.9	10.0		
2880T	<input type="checkbox"/>	<input type="checkbox"/>	28.8	11.9	10.0		
2890T	<input type="checkbox"/>	<input type="checkbox"/>	28.9	11.9	10.0		
2900T	★	<input type="checkbox"/>	29.0	11.8	10.0		TAWMN 2900S32
2910T	<input type="checkbox"/>	<input type="checkbox"/>	29.1	11.8	10.0		
2920T	<input type="checkbox"/>	<input type="checkbox"/>	29.2	11.8	10.0		
2930T	<input type="checkbox"/>	<input type="checkbox"/>	29.3	11.8	10.0		
2940T	<input type="checkbox"/>	<input type="checkbox"/>	29.4	11.8	10.0		
2950T	★	<input type="checkbox"/>	29.5	11.7	10.0	TAWSN 3000S32	
2960T	<input type="checkbox"/>	<input type="checkbox"/>	29.6	11.7	10.0		
2970T	<input type="checkbox"/>	<input type="checkbox"/>	29.7	11.7	10.0		
2980T	<input type="checkbox"/>	<input type="checkbox"/>	29.8	11.7	10.0		
2990T	<input type="checkbox"/>	<input type="checkbox"/>	29.9	11.7	10.0		
3000T	★	<input type="checkbox"/>	30.0	11.6	10.0		TAWMN 3000S32
3010T	<input type="checkbox"/>	<input type="checkbox"/>	30.1	11.6	10.0		
3020T	<input type="checkbox"/>	<input type="checkbox"/>	30.2	11.6	10.0		
3030T	<input type="checkbox"/>	<input type="checkbox"/>	30.3	11.6	10.0		
3040T	<input type="checkbox"/>	<input type="checkbox"/>	30.4	11.6	10.0		

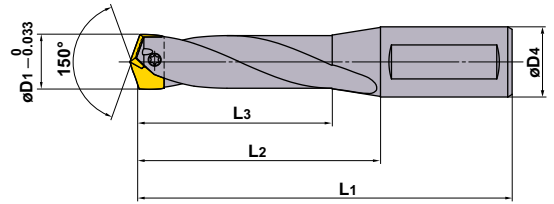
TAW DRILLS



CARBIDE

- Wavy cutting edge design for good chip control.
- Serration geometry for accurate insert location.
- Easy insert exchange.

(For Bridge Construction)



HOLDERS

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Insert			Dimensions (mm)				Clamp Screw	Wrench	Plate	Anti-seize Lubricant
		Order Number	Stock	Drill Dia. D1 (mm)	Order Number	Stock	L3	L2	L1	D4				
24.5 24.6 24.7	3	TAWSB2500S32	●	24.5	TAWB2450T	★	88.6	110.6	170.6	32	WS406023T	TKY25T	WPT4405	MK1KS
				NEW	TAWBH2450T	●								
	5	TAWMB2500S32	□	24.6	TAWB2460T	□	140.6	165.6	225.6	32	WS406023T	TKY25T	WPT4405	MK1KS
				NEW	TAWBH2460T	□								
26.5 26.7	3	TAWSB2700S32	●	26.5	TAWB2650T	□	94.6	115.6	175.6	32	WS406024T	TKY25T	WPT4405	MK1KS
				NEW	TAWBH2650T	□								
	5	TAWMB2700S32	□	26.7	TAWB2670T	★	151.6	175.6	235.6	32	WS406024T	TKY25T	WPT4405	MK1KS
				NEW	TAWBH2670T	●								

(Note 1) The dimensions in brackets represent the sizes when TAWN-U type inserts are used.

(Note 2) Please contact us for any geometry that is not in this catalogue (e.g. different diameter and length).

● : Inventory maintained. ★ : Inventory maintained in Japan.

□ : Non stock, produced to order only.

INSERTS

Shape	Order Number	Stock	Dimensions (mm)			Applicable Holder	Honing Width (mm)	Geometry
			D1	L2	S1			
 U type	TAWB2450T	★	24.5	11.1	9.0	TAWSB2500S32 TAWMB2500S32	0.20-0.25	
	2460T	□	24.6	11.1	9.0			
	2470T	★	24.7	11.1	9.0			
	2650T	□	26.5	10.7	9.0	TAWSB2700S32 TAWMB2700S32		
	2670T	★	26.7	10.7	9.0			
 H type	TAWBH2450T	●	24.5	11.7	9.0	TAWSB2500S32 TAWMB2500S32	0.20-0.25	
	2460T	□	24.6	11.7	9.0			
	2470T	●	24.7	11.7	9.0			
	2650T	□	26.5	11.3	9.0	TAWSB2700S32 TAWMB2700S32		
	2670T	●	26.7	11.3	9.0			

● : Inventory maintained. (Note: 2 inserts in one case) ★ : Inventory maintained in Japan. (Note: 2 inserts in one case)

□ : Non stock, produced to order only.

RECOMMENDED CUTTING CONDITIONS

Work Material	Drill Diameter	φ24.5, φ24.6, φ24.7		φ26.5, φ26.7		
		Conditions	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P Structural Steel	Tensile Strength ≤ 400-500 N/mm ²	Hardness	70 (60-80)	0.30 (0.25-0.35)	70 (60-80)	0.30 (0.25-0.35)
	Tensile Strength ≤ 490-610 N/mm ²		65 (55-75)	0.30 (0.25-0.35)	65 (55-75)	0.30 (0.25-0.35)
	Tensile Strength ≤ 570-720 N/mm ²		60 (50-70)	0.30 (0.25-0.35)	60 (50-70)	0.30 (0.25-0.35)

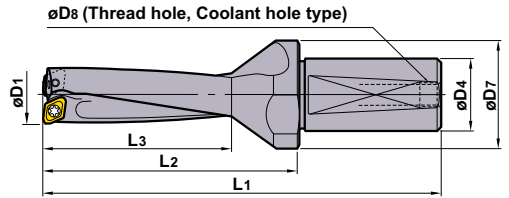
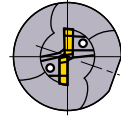
(Note) Recommended for use only with a rigid machine and set up. Use the internal coolant system when machining stainless steel. (MQL and mist machining should not be used.)



DRILLING (INDEXABLE TYPE)

TAFS, TAFM, TAFL

- High rigidity holder.
- 4 corner use insert.
- Various grades and chip breakers.





* The screw hole on the flange section is not a coolant hole.

DRILLING TAF DRILLS



Drill Diameter D1 (mm)	Hole Depth (l/d)	Order Number	Stock	Number of Teeth	Dimensions (mm)						Insert Number	Clamp Screw	Wrench
					D4	D7	D8	L1	L2	L3			
12.0	2	TAFS1200F20	●	2	20	25	PT1/8	82	39	29	GCMT040204-U	TS2	TKY06F
	3	TAFM1200F20	●	2	20	25	PT1/8	94	51	41	GCMT040204-U	TS2	TKY06F
	4	TAFL1200F20	●	2	20	25	PT1/8	106	63	53	GCMT040204-U	TS2	TKY06F
12.5	2	TAFS1250F20	●	2	20	25	PT1/8	82	39	29	GCMT040204-U	TS2	TKY06F
	3	TAFM1250F20	●	2	20	25	PT1/8	94	51	41	GCMT040204-U	TS2	TKY06F
	4	TAFL1250F20	●	2	20	25	PT1/8	106	63	53	GCMT040204-U	TS2	TKY06F
13.0	2	TAFS1300F20	●	2	20	25	PT1/8	84	41	31	GCMT040204-U	TS2	TKY06F
	3	TAFM1300F20	●	2	20	25	PT1/8	97	54	44	GCMT040204-U	TS2	TKY06F
	4	TAFL1300F20	●	2	20	25	PT1/8	110	67	57	GCMT040204-U	TS2	TKY06F
13.5	2	TAFS1350F20	●	2	20	25	PT1/8	84	41	31	GCMT040204-U	TS2	TKY06F
	3	TAFM1350F20	●	2	20	25	PT1/8	97	54	44	GCMT040204-U	TS2	TKY06F
	4	TAFL1350F20	●	2	20	25	PT1/8	110	67	57	GCMT040204-U	TS2	TKY06F
14.0	2	TAFS1400F20	●	2	20	25	PT1/8	86	43	33	GCMT040204-U	TS2	TKY06F
	3	TAFM1400F20	●	2	20	25	PT1/8	100	57	47	GCMT040204-U	TS2	TKY06F
	4	TAFL1400F20	●	2	20	25	PT1/8	114	71	61	GCMT040204-U	TS2	TKY06F
14.5	2	TAFS1450F20	●	2	20	25	PT1/8	86	43	33	GCMT040204-U	TS2	TKY06F
	3	TAFM1450F20	●	2	20	25	PT1/8	100	57	47	GCMT040204-U	TS2	TKY06F
	4	TAFL1450F20	●	2	20	25	PT1/8	114	71	61	GCMT040204-U	TS2	TKY06F
15.0	2	TAFS1500F20	●	2	20	25	PT1/8	88	45	35	GPMT060204-U	TS2	TKY06F
	3	TAFM1500F20	●	2	20	25	PT1/8	103	60	50	GPMT060204-U	TS2	TKY06F
	4	TAFL1500F20	●	2	20	25	PT1/8	118	75	65	GPMT060204-U	TS2	TKY06F
15.5	2	TAFS1550F20	●	2	20	25	PT1/8	88	45	35	GPMT060204-U	TS2	TKY06F
	3	TAFM1550F20	●	2	20	25	PT1/8	103	60	50	GPMT060204-U	TS2	TKY06F
	4	TAFL1550F20	●	2	20	25	PT1/8	118	75	65	GPMT060204-U	TS2	TKY06F
16.0	2	TAFS1600F25	●	2	25	35	PT1/8	107	57	38	GPMT060204-U	TS2	TKY06F
	3	TAFM1600F25	●	2	25	35	PT1/8	123	73	54	GPMT060204-U	TS2	TKY06F
	4	TAFL1600F25	●	2	25	35	PT1/8	139	89	70	GPMT060204-U	TS2	TKY06F
16.5	2	TAFS1650F25	●	2	25	35	PT1/8	107	57	38	GPMT060204-U	TS2	TKY06F
	3	TAFM1650F25	●	2	25	35	PT1/8	123	73	54	GPMT060204-U	TS2	TKY06F
17.0	2	TAFS1700F25	●	2	25	35	PT1/8	109	59	41	GPMT060204-U	TS2	TKY06F
	3	TAFM1700F25	●	2	25	35	PT1/8	126	76	58	GPMT060204-U	TS2	TKY06F
	4	TAFL1700F25	●	2	25	35	PT1/8	143	93	75	GPMT060204-U	TS2	TKY06F
17.5	2	TAFS1750F25	●	2	25	35	PT1/8	109	59	41	GPMT060204-U	TS2	TKY06F
	3	TAFM1750F25	●	2	25	35	PT1/8	126	76	58	GPMT060204-U	TS2	TKY06F
	4	TAFL1750F25	●	2	25	35	PT1/8	143	93	75	GPMT060204-U	TS2	TKY06F

● : Inventory maintained.

Drill Diameter D1 (mm)	Hole Depth (l/d)	Order Number	Stock	Number of Teeth	Dimensions (mm)						Insert Number		
					D4	D7	D8	L1	L2	L3			
18.0	2	TAFS1800F25	●	2	25	35	PT1/8	111	61	43	GPMT070204-U	TS25	TKY08F
	3	TAFM1800F25	●	2	25	35	PT1/8	129	79	61	GPMT070204-U	TS25	TKY08F
	4	TAFL1800F25	●	2	25	35	PT1/8	147	97	79	GPMT070204-U	TS25	TKY08F
18.5	2	TAFS1850F25	●	2	25	35	PT1/8	111	61	43	GPMT070204-U	TS25	TKY08F
	3	TAFM1850F25	●	2	25	35	PT1/8	129	79	61	GPMT070204-U	TS25	TKY08F
19.0	2	TAFS1900F25	●	2	25	35	PT1/8	113	63	46	GPMT070204-U	TS25	TKY08F
	3	TAFM1900F25	●	2	25	35	PT1/8	132	82	65	GPMT070204-U	TS25	TKY08F
	4	TAFL1900F25	●	2	25	35	PT1/8	151	101	84	GPMT070204-U	TS25	TKY08F
19.5	2	TAFS1950F25	●	2	25	35	PT1/8	113	63	46	GPMT070204-U	TS25	TKY08F
	3	TAFM1950F25	●	2	25	35	PT1/8	132	82	65	GPMT070204-U	TS25	TKY08F
20.0	2	TAFS2000F25	●	2	25	35	PT1/8	115	65	48	GPMT070204-U	TS25	TKY08F
	3	TAFM2000F25	●	2	25	35	PT1/8	135	85	68	GPMT070204-U	TS25	TKY08F
	4	TAFL2000F25	●	2	25	35	PT1/8	155	105	88	GPMT070204-U	TS25	TKY08F
20.5	2	TAFS2050F25	●	2	25	35	PT1/8	115	65	48	GPMT070204-U	TS25	TKY08F
	3	TAFM2050F25	●	2	25	35	PT1/8	135	85	68	GPMT070204-U	TS25	TKY08F
21.0	2	TAFS2100F25	●	2	25	35	PT1/8	117	67	50	GPMT070204-U	TS25	TKY08F
	3	TAFM2100F25	●	2	25	35	PT1/8	138	88	71	GPMT070204-U	TS25	TKY08F
	4	TAFL2100F25	●	2	25	35	PT1/8	159	109	92	GPMT070204-U	TS25	TKY08F
21.5	2	TAFS2150F25	●	2	25	35	PT1/8	117	67	50	GPMT070204-U	TS25	TKY08F
	3	TAFM2150F25	●	2	25	35	PT1/8	138	88	71	GPMT070204-U	TS25	TKY08F
22.0	2	TAFS2200F25	●	2	25	35	PT1/8	119	69	53	GPMT070204-U	TS25	TKY08F
	3	TAFM2200F25	●	2	25	35	PT1/8	141	91	75	GPMT070204-U	TS25	TKY08F
	4	TAFL2200F25	●	2	25	35	PT1/8	163	113	97	GPMT070204-U	TS25	TKY08F
22.5	2	TAFS2250F25	●	2	25	35	PT1/8	119	69	53	GPMT070204-U	TS25	TKY08F
	3	TAFM2250F25	●	2	25	35	PT1/8	141	91	75	GPMT070204-U	TS25	TKY08F
23.0	2	TAFS2300F25	●	2	25	35	PT1/8	121	71	55	GPMT090304-U	TS3	TKY08F
	3	TAFM2300F25	●	2	25	35	PT1/8	144	94	78	GPMT090304-U	TS3	TKY08F
	4	TAFL2300F25	●	2	25	35	PT1/8	167	117	101	GPMT090304-U	TS3	TKY08F
23.5	2	TAFS2350F25	●	2	25	35	PT1/8	121	71	55	GPMT090304-U	TS3	TKY08F
	3	TAFM2350F25	●	2	25	35	PT1/8	144	94	78	GPMT090304-U	TS3	TKY08F
	4	TAFL2350F25	●	2	25	35	PT1/8	167	117	101	GPMT090304-U	TS3	TKY08F
24.0	2	TAFS2400F25	●	2	25	35	PT1/8	123	73	58	GPMT090304-U	TS3	TKY08F
	3	TAFM2400F25	●	2	25	35	PT1/8	147	97	82	GPMT090304-U	TS3	TKY08F
	4	TAFL2400F25	●	2	25	35	PT1/8	171	121	106	GPMT090304-U	TS3	TKY08F
24.5	2	TAFS2450F25	●	2	25	35	PT1/8	123	73	58	GPMT090304-U	TS3	TKY08F
	3	TAFM2450F25	●	2	25	35	PT1/8	147	97	82	GPMT090304-U	TS3	TKY08F
25.0	2	TAFS2500F32	●	2	32	42	PT1/8	130	75	60	GPMT090304-U	TS3	TKY08F
	3	TAFM2500F32	●	2	32	42	PT1/8	155	100	85	GPMT090304-U	TS3	TKY08F
	4	TAFL2500F25	●	2	25	35	PT1/8	180	125	110	GPMT090304-U	TS3	TKY08F
	4	TAFL2500F32	●	2	32	42	PT1/8	180	125	110	GPMT090304-U	TS3	TKY08F
25.5	2	TAFS2550F32	●	2	32	42	PT1/8	130	75	60	GPMT090304-U	TS3	TKY08F
	3	TAFM2550F32	●	2	32	42	PT1/8	155	100	85	GPMT090304-U	TS3	TKY08F
26.0	2	TAFS2600F32	●	2	32	42	PT1/8	132	77	62	GPMT090304-U	TS3	TKY08F
	3	TAFM2600F32	●	2	32	42	PT1/8	158	103	88	GPMT090304-U	TS3	TKY08F
	4	TAFL2600F32	●	2	32	42	PT1/8	184	129	114	GPMT090304-U	TS3	TKY08F
26.5	2	TAFS2650F32	●	2	32	42	PT1/8	132	77	62	GPMT090304-U	TS3	TKY08F
	3	TAFM2650F32	●	2	32	42	PT1/8	158	103	88	GPMT090304-U	TS3	TKY08F
	4	TAFL2650F32	●	2	32	42	PT1/8	184	129	114	GPMT090304-U	TS3	TKY08F

TAF DRILLS



INSERT DESCRIPTION **D089**

CUTTING CONDITIONS **D090**

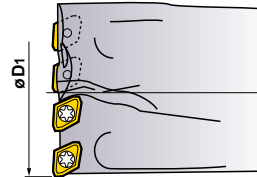
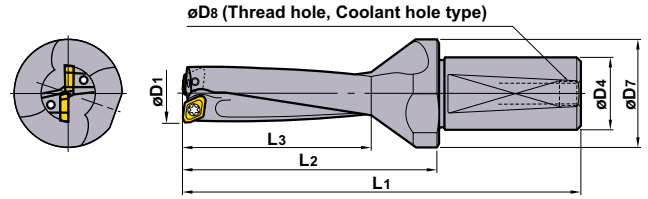
USAGE NOTE **D092**

TECHNICAL DATA **G001**

DRILLING (INDEXABLE TYPE)

TAFS, TAFM, TAFL

- High rigidity holder.
- 4 corner use insert.
- Various grades and chip breakers.





Number of Teeth = 4 (D1 ≥ 49)



* The screw hole on the flange section is not a coolant hole.

DRILLING TAF DRILLS



Drill Diameter D1 (mm)	Hole Depth (l/d)	Order Number	Stock	Number of Teeth	Dimensions (mm)						Insert Number	 Clamp Screw	 Wrench
					D4	D7	D8	L1	L2	L3			
27.0	2	TAFS2700F32	●	2	32	42	PT1/8	134	79	65	GPMT090304-U	TS3	①TKY08F
	3	TAFM2700F32	●	2	32	42	PT1/8	161	106	92	GPMT090304-U	TS3	①TKY08F
	4	TAFL2700F32	●	2	32	42	PT1/8	188	133	119	GPMT090304-U	TS3	①TKY08F
27.5	2	TAFS2750F32	●	2	32	42	PT1/8	134	79	65	GPMT090304-U	TS3	①TKY08F
	3	TAFM2750F32	●	2	32	42	PT1/8	161	106	92	GPMT090304-U	TS3	①TKY08F
28.0	2	TAFS2800F32	●	2	32	42	PT1/8	136	81	67	GPMT11T308-U	TS4	②TKY15D
	3	TAFM2800F32	●	2	32	42	PT1/8	164	109	95	GPMT11T308-U	TS4	②TKY15D
	4	TAFL2800F32	●	2	32	42	PT1/8	192	137	123	GPMT11T308-U	TS4	②TKY15D
28.5	2	TAFS2850F32	●	2	32	42	PT1/8	136	81	67	GPMT11T308-U	TS4	②TKY15D
	3	TAFM2850F32	●	2	32	42	PT1/8	164	109	95	GPMT11T308-U	TS4	②TKY15D
	4	TAFL2850F40	●	2	40	50	PT1/8	202	137	123	GPMT11T308-U	TS4	②TKY15D
29.0	2	TAFS2900F32	●	2	32	42	PT1/8	138	83	70	GPMT11T308-U	TS4	②TKY15D
	3	TAFM2900F32	●	2	32	42	PT1/8	167	112	99	GPMT11T308-U	TS4	②TKY15D
	4	TAFL2900F32	●	2	32	42	PT1/8	196	141	128	GPMT11T308-U	TS4	②TKY15D
29.5	2	TAFS2950F32	●	2	32	42	PT1/8	138	83	70	GPMT11T308-U	TS4	②TKY15D
	3	TAFM2950F32	●	2	32	42	PT1/8	167	112	99	GPMT11T308-U	TS4	②TKY15D
30.0	2	TAFS3000F32	●	2	32	50	PT1/8	145	90	72	GPMT11T308-U	TS4	②TKY15D
	2	TAFS3000F40	●	2	40	50	PT1/4	155	90	72	GPMT11T308-U	TS4	②TKY15D
	3	TAFM3000F32	●	2	32	50	PT1/8	175	120	102	GPMT11T308-U	TS4	②TKY15D
	3	TAFM3000F40	●	2	40	50	PT1/4	185	120	102	GPMT11T308-U	TS4	②TKY15D
	4	TAFL3000F32	●	2	32	42	PT1/8	205	150	132	GPMT11T308-U	TS4	②TKY15D
	4	TAFL3000F40	●	2	40	50	PT1/4	215	150	132	GPMT11T308-U	TS4	②TKY15D
30.5	2	TAFS3050F40	●	2	40	50	PT1/4	155	90	72	GPMT11T308-U	TS4	②TKY15D
	3	TAFM3050F40	●	2	40	50	PT1/4	185	120	102	GPMT11T308-U	TS4	②TKY15D
31.0	2	TAFS3100F32	●	2	32	50	PT1/8	147	92	74	GPMT11T308-U	TS4	②TKY15D
	2	TAFS3100F40	●	2	40	50	PT1/4	157	92	74	GPMT11T308-U	TS4	②TKY15D
	3	TAFM3100F32	●	2	32	50	PT1/8	178	123	105	GPMT11T308-U	TS4	②TKY15D
	3	TAFM3100F40	●	2	40	50	PT1/4	188	123	105	GPMT11T308-U	TS4	②TKY15D
	4	TAFL3100F32	●	2	32	42	PT1/8	209	154	136	GPMT11T308-U	TS4	②TKY15D
	4	TAFL3100F40	●	2	40	50	PT1/4	219	154	136	GPMT11T308-U	TS4	②TKY15D

● : Inventory maintained.

Drill Diameter D1 (mm)	Hole Depth (l/d)	Order Number	Stock	Number of Teeth	Dimensions (mm)						Insert Number		
					D4	D7	D8	L1	L2	L3			
32.0	2	TAFS3200F32	●	2	32	50	PT1/8	149	94	77	GPMT11T308-U	TS4	TKY15D
	2	TAFS3200F40	●	2	40	50	PT1/4	159	94	77	GPMT11T308-U	TS4	TKY15D
	3	TAFM3200F32	●	2	32	50	PT1/8	181	126	109	GPMT11T308-U	TS4	TKY15D
	3	TAFM3200F40	●	2	40	50	PT1/4	191	126	109	GPMT11T308-U	TS4	TKY15D
	4	TAFL3200F32	●	2	32	42	PT1/8	213	158	141	GPMT11T308-U	TS4	TKY15D
	4	TAFL3200F40	●	2	40	50	PT1/4	223	158	141	GPMT11T308-U	TS4	TKY15D
33.0	2	TAFS3300F32	●	2	32	50	PT1/8	151	96	79	GPMT11T308-U	TS4	TKY15D
	2	TAFS3300F40	●	2	40	50	PT1/4	161	96	79	GPMT11T308-U	TS4	TKY15D
	3	TAFM3300F32	●	2	32	50	PT1/8	184	129	112	GPMT11T308-U	TS4	TKY15D
	3	TAFM3300F40	●	2	40	50	PT1/4	194	129	112	GPMT11T308-U	TS4	TKY15D
	4	TAFL3300F32	●	2	32	42	PT1/8	217	162	145	GPMT11T308-U	TS4	TKY15D
	4	TAFL3300F40	●	2	40	50	PT1/4	227	162	145	GPMT11T308-U	TS4	TKY15D
34.0	2	TAFS3400F32	●	2	32	50	PT1/8	153	98	82	GPMT11T308-U	TS4	TKY15D
	2	TAFS3400F40	●	2	40	50	PT1/4	163	98	82	GPMT11T308-U	TS4	TKY15D
	3	TAFM3400F32	●	2	32	50	PT1/8	187	132	116	GPMT11T308-U	TS4	TKY15D
	3	TAFM3400F40	●	2	40	50	PT1/4	197	132	116	GPMT11T308-U	TS4	TKY15D
	4	TAFL3400F32	●	2	32	42	PT1/8	231	166	150	GPMT11T308-U	TS4	TKY15D
	4	TAFL3400F40	●	2	40	50	PT1/4	231	166	150	GPMT11T308-U	TS4	TKY15D
35.0	2	TAFS3500F32	●	2	32	50	PT1/8	155	100	84	GPMT140408-U	TS55	TKY25D
	2	TAFS3500F40	●	2	40	50	PT1/4	165	100	84	GPMT140408-U	TS55	TKY25D
	3	TAFM3500F32	●	2	32	50	PT1/8	190	135	119	GPMT140408-U	TS55	TKY25D
	3	TAFM3500F40	●	2	40	50	PT1/4	200	135	119	GPMT140408-U	TS55	TKY25D
	4	TAFL3500F32	●	2	32	42	PT1/8	235	170	154	GPMT140408-U	TS5	TKY25D
	4	TAFL3500F40	●	2	40	50	PT1/4	235	170	154	GPMT140408-U	TS5	TKY25D
36.0	2	TAFS3600F32	●	2	32	50	PT1/8	157	102	86	GPMT140408-U	TS55	TKY25D
	2	TAFS3600F40	●	2	40	50	PT1/4	167	102	86	GPMT140408-U	TS55	TKY25D
	3	TAFM3600F32	●	2	32	50	PT1/8	193	138	122	GPMT140408-U	TS55	TKY25D
	3	TAFM3600F40	●	2	40	50	PT1/4	203	138	122	GPMT140408-U	TS55	TKY25D
	4	TAFL3600F32	●	2	32	42	PT1/8	229	174	158	GPMT140408-U	TS5	TKY25D
	4	TAFL3600F40	●	2	40	50	PT1/4	239	174	158	GPMT140408-U	TS5	TKY25D
37.0	2	TAFS3700F32	●	2	32	50	PT1/8	159	104	89	GPMT140408-U	TS55	TKY25D
	2	TAFS3700F40	●	2	40	50	PT1/4	169	104	89	GPMT140408-U	TS55	TKY25D
	3	TAFM3700F32	●	2	32	50	PT1/8	196	141	126	GPMT140408-U	TS55	TKY25D
	3	TAFM3700F40	●	2	40	50	PT1/4	206	141	126	GPMT140408-U	TS55	TKY25D
	4	TAFL3700F32	●	2	32	42	PT1/8	233	178	163	GPMT140408-U	TS5	TKY25D
	4	TAFL3700F40	●	2	40	50	PT1/4	243	178	163	GPMT140408-U	TS5	TKY25D
37.5	2	TAFS3750F32	●	2	32	50	PT1/8	159	104	89	GPMT140408-U	TS55	TKY25D
	2	TAFS3750F40	●	2	40	50	PT1/4	169	104	89	GPMT140408-U	TS55	TKY25D
	3	TAFM3750F32	●	2	32	50	PT1/8	196	141	126	GPMT140408-U	TS55	TKY25D
	3	TAFM3750F40	●	2	40	50	PT1/4	206	141	126	GPMT140408-U	TS55	TKY25D
	4	TAFL3750F32	●	2	32	42	PT1/8	233	178	163	GPMT140408-U	TS5	TKY25D
	4	TAFL3750F40	●	2	40	50	PT1/4	243	178	163	GPMT140408-U	TS5	TKY25D
38.0	2	TAFS3800F32	●	2	32	50	PT1/8	161	106	91	GPMT140408-U	TS55	TKY25D
	2	TAFS3800F40	●	2	40	50	PT1/4	171	106	91	GPMT140408-U	TS55	TKY25D
	3	TAFM3800F32	●	2	32	50	PT1/8	199	144	129	GPMT140408-U	TS55	TKY25D
	3	TAFM3800F40	●	2	40	50	PT1/4	209	144	129	GPMT140408-U	TS55	TKY25D
	4	TAFL3800F32	●	2	32	42	PT1/8	247	182	167	GPMT140408-U	TS5	TKY25D
	4	TAFL3800F40	●	2	40	50	PT1/4	247	182	167	GPMT140408-U	TS5	TKY25D

DRILLING TAF DRILLS

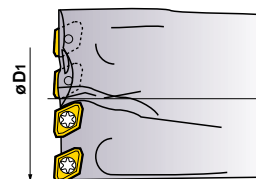
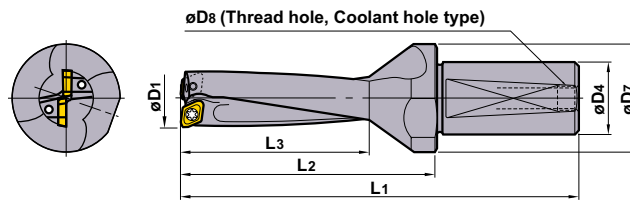


CARBIDE

DRILLING (INDEXABLE TYPE)

TAFS, TAFM, TAFL

- High rigidity holder.
- 4 corner use insert.
- Various grades and chip breakers.



Number of Teeth = 4 (øD1 ≥ 49)


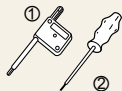
* The screw hole on the flange section is not a coolant hole.

DRILLING TAF DRILLS



Drill Diameter D1 (mm)	Hole Depth (l/d)	Order Number	Stock	Number of Teeth	Dimensions (mm)						Insert Number	Clamp Screw	Wrench
					D4	D7	D8	L1	L2	L3			
39.0	2	TAFS3900F32	●	2	32	50	PT1/8	163	108	94	GPMT140408-U	TS55	TKY25D
	2	TAFS3900F40	●	2	40	50	PT1/4	173	108	94	GPMT140408-U	TS55	TKY25D
	3	TAFM3900F32	●	2	32	50	PT1/8	202	147	133	GPMT140408-U	TS55	TKY25D
	3	TAFM3900F40	●	2	40	50	PT1/4	212	147	133	GPMT140408-U	TS55	TKY25D
	4	TAFL3900F32	●	2	32	42	PT1/8	251	186	172	GPMT140408-U	TS5	TKY25D
	4	TAFL3900F40	●	2	40	50	PT1/4	251	186	172	GPMT140408-U	TS5	TKY25D
40.0	2	TAFS4000F32	●	2	32	50	PT1/8	165	110	96	GPMT140408-U	TS55	TKY25D
	2	TAFS4000F40	●	2	40	50	PT1/4	175	110	96	GPMT140408-U	TS55	TKY25D
	3	TAFM4000F32	●	2	32	50	PT1/8	205	150	136	GPMT140408-U	TS55	TKY25D
	3	TAFM4000F40	●	2	40	50	PT1/4	215	150	136	GPMT140408-U	TS55	TKY25D
	4	TAFL4000F32	●	2	32	42	PT1/8	245	190	176	GPMT140408-U	TS5	TKY25D
	4	TAFL4000F40	●	2	40	50	PT1/4	255	190	176	GPMT140408-U	TS5	TKY25D
41.0	2	TAFS4100F40	●	2	40	50	PT1/4	177	112	98	GPMT140408-U	TS55	TKY25D
	3	TAFM4100F40	●	2	40	50	PT1/4	218	153	139	GPMT140408-U	TS55	TKY25D
	4	TAFL4100F40	●	2	40	50	PT1/4	259	194	180	GPMT140408-U	TS5	TKY25D
42.0	2	TAFS4200F40	●	2	40	50	PT1/4	179	114	101	GPMT140408-U	TS55	TKY25D
	3	TAFM4200F40	●	2	40	50	PT1/4	221	156	143	GPMT140408-U	TS55	TKY25D
	4	TAFL4200F40	●	2	40	50	PT1/4	263	198	185	GPMT140408-U	TS5	TKY25D
43.0	2	TAFS4300F40	●	2	40	50	PT1/4	181	116	103	GPMT140408-U	TS55	TKY25D
	3	TAFM4300F40	●	2	40	50	PT1/4	224	159	146	GPMT140408-U	TS55	TKY25D
	4	TAFL4300F40	●	2	40	50	PT1/4	267	202	189	GPMT140408-U	TS5	TKY25D
44.0	2	TAFS4400F40	●	2	40	50	PT1/4	183	118	106	GPMT140408-U	TS55	TKY25D
	3	TAFM4400F40	●	2	40	50	PT1/4	227	162	150	GPMT140408-U	TS55	TKY25D
	4	TAFL4400F40	●	2	40	50	PT1/4	271	206	194	GPMT140408-U	TS5	TKY25D
45.0	2	TAFS4500F40	●	2	40	54	PT1/4	185	120	108	GPMT140408-U	TS55	TKY25D
	3	TAFM4500F40	●	2	40	54	PT1/4	230	165	153	GPMT140408-U	TS55	TKY25D
	4	TAFL4500F40	●	2	40	54	PT1/4	275	210	198	GPMT140408-U	TS5	TKY25D
46.0	2	TAFS4600F40	●	2	40	54	PT1/4	187	122	110	GPMT140408-U	TS55	TKY25D
	3	TAFM4600F40	●	2	40	54	PT1/4	233	168	156	GPMT140408-U	TS55	TKY25D
	4	TAFL4600F40	●	2	40	54	PT1/4	279	214	202	GPMT140408-U	TS5	TKY25D

- : Inventory maintained.
- ▲ : Inventory maintained. To be replaced by new products.

Drill Diameter D1 (mm)	Hole Depth (l/d)	Order Number	Stock	Number of Teeth	Dimensions (mm)						Insert Number		
					D4	D7	D8	L1	L2	L3			
47.0	2	TAFS4700F40	●	2	40	54	PT1/4	189	124	113	GPMT140408-U	TS55	②TKY25D
	3	TAFM4700F40	●	2	40	54	PT1/4	236	171	160	GPMT140408-U	TS55	②TKY25D
	4	T AFL4700F40	●	2	40	54	PT1/4	283	218	207	GPMT140408-U	TS5	②TKY25D
48.0	2	TAFS4800F40	●	2	40	54	PT1/4	191	126	115	GPMT140408-U	TS55	②TKY25D
	3	TAFM4800F40	●	2	40	54	PT1/4	239	174	163	GPMT140408-U	TS55	②TKY25D
	4	T AFL4800F40	●	2	40	54	PT1/4	287	222	211	GPMT140408-U	TS5	②TKY25D
49.0	2	TAFS4900F40	●	4	40	58	PT1/4	198	133	118	GPMT090304-U	TS3	①TKY08F
	3	TAFM4900F40	●	4	40	58	PT1/4	247	182	167	GPMT090304-U	TS3	①TKY08F
	4	T AFL4900F40	●	4	40	58	PT1/4	296	231	216	GPMT090304-U	TS3	①TKY08F
50.0	2	TAFS5000F40	▲*	4	40	58	PT1/4	200	135	120	GPMT090304-U	TS3	①TKY08F
	3	TAFM5000F40	▲*	4	40	58	PT1/4	250	185	170	GPMT090304-U	TS3	①TKY08F
	4	T AFL5000F40	▲*	4	40	58	PT1/4	300	235	220	GPMT090304-U	TS3	①TKY08F
51.0	2	TAFS5100F40	▲*	4	40	58	PT1/4	202	137	122	GPMT090304-U	TS3	①TKY08F
	3	TAFM5100F40	▲*	4	40	58	PT1/4	253	188	173	GPMT090304-U	TS3	①TKY08F
	4	T AFL5100F40	▲*	4	40	58	PT1/4	304	239	224	GPMT090304-U	TS3	①TKY08F
52.0	2	TAFS5200F40	▲*	4	40	58	PT1/4	204	139	125	GPMT090304-U	TS3	①TKY08F
	3	TAFM5200F40	▲*	4	40	58	PT1/4	256	191	177	GPMT090304-U	TS3	①TKY08F
	4	T AFL5200F40	▲*	4	40	58	PT1/4	308	243	229	GPMT090304-U	TS3	①TKY08F
53.0	2	TAFS5300F40	▲*	4	40	63	PT1/4	206	141	127	GPMT090304-U	TS3	①TKY08F
	3	TAFM5300F40	▲*	4	40	63	PT1/4	259	194	180	GPMT090304-U	TS3	①TKY08F
	4	T AFL5300F40	▲*	4	40	63	PT1/4	312	247	233	GPMT090304-U	TS3	①TKY08F
54.0	2	TAFS5400F40	▲*	4	40	63	PT1/4	208	143	128	GPMT090304-U	TS3	①TKY08F
	3	TAFM5400F40	▲*	4	40	63	PT1/4	262	197	182	GPMT090304-U	TS3	①TKY08F
	4	T AFL5400F40	▲*	4	40	63	PT1/4	316	251	236	GPMT090304-U	TS3	①TKY08F
55.0	2	TAFS5500F40	▲*	4	40	63	PT1/4	210	145	130	GPMT090304-U	TS3	①TKY08F
	3	TAFM5500F40	▲*	4	40	63	PT1/4	265	200	185	GPMT090304-U	TS3	①TKY08F
	4	T AFL5500F40	▲*	4	40	63	PT1/4	320	255	240	GPMT090304-U	TS3	①TKY08F
56.0	2	TAFS5600F40	▲*	4	40	63	PT1/4	212	147	132	GPMT090304-U	TS3	①TKY08F
	3	TAFM5600F40	▲*	4	40	63	PT1/4	268	203	188	GPMT090304-U	TS3	①TKY08F
	4	T AFL5600F40	▲*	4	40	63	PT1/4	324	259	244	GPMT090304-U	TS3	①TKY08F

(Note) * Items with an asterisk (*) will be replaced by the products on page D088.

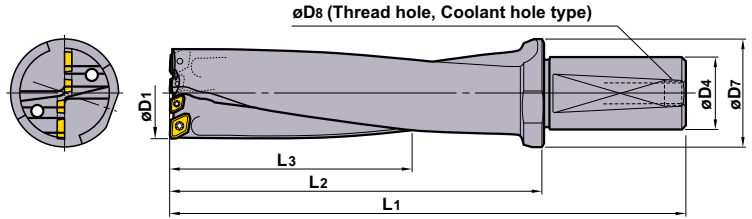
DRILLING (INDEXABLE TYPE)

TAFS, TAFM, TAFL

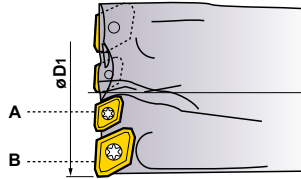
- High rigidity holder.
- 4 corner use insert.
- Various grades and chip breakers.



● Increased Rigidity Type

NEW



* The screw hole on the flange section is not a coolant hole.



Drill Diameter D1 (mm)	Hole Depth (l/d)	Order Number	Stock	Number of Teeth	Dimensions (mm)						Inner / Outer type	Insert Number	 Clamp Screw	 Wrench
					D4	D7	D8	L1	L2	L3				
50.0	2	TAFS5000F40-E	●	4	40	58	PT1/4	200	135	120	A	GPMT090304-U	TS3	①TKY08F
		TAFM5000F40-E	●	4	40	58	PT1/4	250	185	170	B	GPMT11T308-U	TS4	②TKY15D
	3	TAFS5000F40-E	●	4	40	58	PT1/4	200	135	120	A	GPMT090304-U	TS3	①TKY08F
		TAFM5000F40-E	●	4	40	58	PT1/4	250	185	170	B	GPMT11T308-U	TS4	②TKY15D
51.0	2	TAFS5100F40-E	●	4	40	58	PT1/4	202	137	122	A	GPMT090304-U	TS3	①TKY08F
		TAFM5100F40-E	●	4	40	58	PT1/4	253	188	173	B	GPMT11T308-U	TS4	②TKY15D
	3	TAFS5100F40-E	●	4	40	58	PT1/4	202	137	122	A	GPMT090304-U	TS3	①TKY08F
		TAFM5100F40-E	●	4	40	58	PT1/4	253	188	173	B	GPMT11T308-U	TS4	②TKY15D
52.0	2	TAFS5200F40-E	●	4	40	58	PT1/4	204	139	125	A	GPMT090304-U	TS3	①TKY08F
		TAFM5200F40-E	●	4	40	58	PT1/4	256	191	177	B	GPMT11T308-U	TS4	②TKY15D
	3	TAFS5200F40-E	●	4	40	58	PT1/4	204	139	125	A	GPMT090304-U	TS3	①TKY08F
		TAFM5200F40-E	●	4	40	58	PT1/4	256	191	177	B	GPMT11T308-U	TS4	②TKY15D
53.0	2	TAFS5300F40-E	●	4	40	63	PT1/4	206	141	127	A	GPMT11T308-U	TS4	②TKY15D
		TAFM5300F40-E	●	4	40	63	PT1/4	259	194	180	A	GPMT11T308-U	TS4	②TKY15D
	3	TAFS5300F40-E	●	4	40	63	PT1/4	206	141	127	A	GPMT11T308-U	TS4	②TKY15D
		TAFM5300F40-E	●	4	40	63	PT1/4	259	194	180	A	GPMT11T308-U	TS4	②TKY15D
54.0	2	TAFS5400F40-E	●	4	40	63	PT1/4	208	134	128	A	GPMT11T308-U	TS4	②TKY15D
		TAFM5400F40-E	●	4	40	63	PT1/4	262	197	182	A	GPMT11T308-U	TS4	②TKY15D
	3	TAFS5400F40-E	●	4	40	63	PT1/4	208	134	128	A	GPMT11T308-U	TS4	②TKY15D
		TAFM5400F40-E	●	4	40	63	PT1/4	262	197	182	A	GPMT11T308-U	TS4	②TKY15D
55.0	2	TAFS5500F40-E	●	4	40	63	PT1/4	210	145	130	A	GPMT11T308-U	TS4	②TKY15D
		TAFM5500F40-E	●	4	40	63	PT1/4	265	200	185	A	GPMT11T308-U	TS4	②TKY15D
	3	TAFS5500F40-E	●	4	40	63	PT1/4	210	145	130	A	GPMT11T308-U	TS4	②TKY15D
		TAFM5500F40-E	●	4	40	63	PT1/4	265	200	185	A	GPMT11T308-U	TS4	②TKY15D
56.0	2	TAFS5600F40-E	●	4	40	63	PT1/4	212	147	132	A	GPMT11T308-U	TS4	②TKY15D
		TAFM5600F40-E	●	4	40	63	PT1/4	268	203	188	A	GPMT11T308-U	TS4	②TKY15D
	3	TAFS5600F40-E	●	4	40	63	PT1/4	212	147	132	A	GPMT11T308-U	TS4	②TKY15D
		TAFM5600F40-E	●	4	40	63	PT1/4	268	203	188	A	GPMT11T308-U	TS4	②TKY15D
4	TAFS5600F40-E	●	4	40	63	PT1/4	212	147	132	A	GPMT11T308-U	TS4	②TKY15D	
	TAFM5600F40-E	●	4	40	63	PT1/4	268	203	188	A	GPMT11T308-U	TS4	②TKY15D	

DRILLING TAF DRILLS

CARBIDE

D088

● : Inventory maintained.

INSERT DESCRIPTION [D089](#)

CUTTING CONDITIONS [D090](#)

USAGE NOTE [D092](#)

TECHNICAL DATA [G001](#)

INSERTS

Geometry	Drill Dia.	Insert Number	Dimensions (mm)			Stock					
			D1	S1	Re	NEW VP15TF	UP20M	GP20M	UE6020	US735	F5010
U1 Breaker 	ø12-ø14.5	GCMT040204-U1	5.0	2.38	0.4		●				
	ø15-ø17.5	GPMT060204-U1	5.56	2.38	0.4		●		●	●	●
	ø18-ø22.5	GPMT070204-U1	6.35	2.38	0.4		●		●	●	●
	ø23-ø27.5 ø49-ø56	GPMT090304-U1	7.94	3.18	0.4		●		●	●	●
	ø28-ø34	GPMT11T308-U1	9.525	3.97	0.8		●		●	●	●
	ø35-ø48	GPMT140408-U1	12.70	4.76	0.8		●		●	●	●
U2 Breaker 	ø12-ø14.5	GCMT040204-U2	5.0	2.38	0.4	●		●			
	ø15-ø17.5	GPMT060204-U2	5.56	2.38	0.4	●	●		●	●	●
	ø18-ø22.5	GPMT070204-U2	6.35	2.38	0.4	●	●		●	●	●
	ø23-ø27.5 ø49-ø56	GPMT090304-U2	7.94	3.18	0.4	●	●		●	●	●
	ø28-ø34	GPMT11T308-U2	9.525	3.97	0.8	●	●		●	●	●
	ø35-ø48	GPMT140408-U2	12.70	4.76	0.8	●	●		●	●	●
U3 Breaker 	ø15-ø17.5	GPMT060204-U3	5.56	2.38	0.4		●		●	●	●
	ø18-ø22.5	GPMT070204-U3	6.35	2.38	0.4		●		●	●	●
	ø23-ø27.5 ø49-ø56	GPMT090304-U3	7.94	3.18	0.4		●		●	●	●
	ø28-ø34	GPMT11T308-U3	9.525	3.97	0.8		●		●	●	●
	ø35-ø48	GPMT140408-U3	12.70	4.76	0.8		●		●	●	●

INSERT RECOMMENDATION

CHIP BREAKER RECOMMENDATION

◎ : 1st Recommendation ○ : 2nd Recommendation

Work Material	P						M		K			
	Mild Steel		Carbon Steel		Alloy Steel		Stainless Steel		Cast Iron		Ductile Cast Iron	
	GCMT	GPMT	GCMT	GPMT	GCMT	GPMT	GCMT	GPMT	GCMT	GPMT	GCMT	GPMT
Breaker U1	◎	◎	○	○	○	○	○	○	○	○	○	○
U2	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○
U3		○		◎		◎		○		◎		◎

INSERT GRADE RECOMMENDATION

◎ : 1st Recommendation ○ : 2nd Recommendation

Work Material	P						M		K			
	Mild Steel		Carbon Steel		Alloy Steel		Stainless Steel		Cast Iron		Ductile Cast Iron	
	GCMT	GPMT	GCMT	GPMT	GCMT	GPMT	GCMT	GPMT	GCMT	GPMT	GCMT	GPMT
VP15TF	○	○	◎	○	◎	○	◎	◎	◎	○	◎	○
UP20M	◎	◎	○	○	○	○	○	○	○	○	○	◎
GP20M	○		◎		◎		◎		◎		◎	
UE6020		○		◎		◎		○		○		○
US735		○		○		○		◎		○		○
F5010										◎		◎

DRILLING (INDEXABLE TYPE)

TAFS, TAFM, TAFL

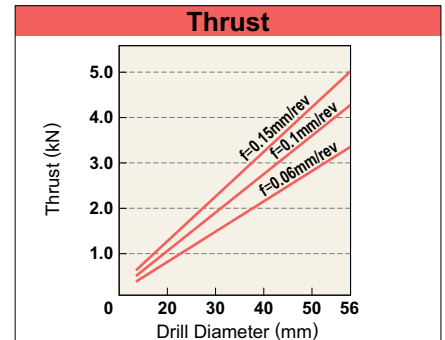
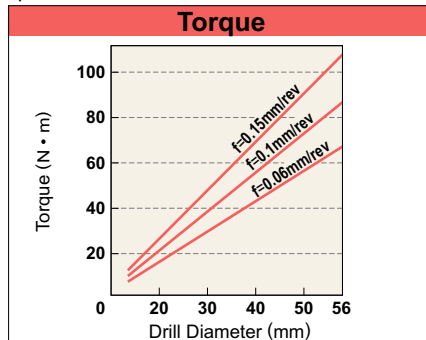
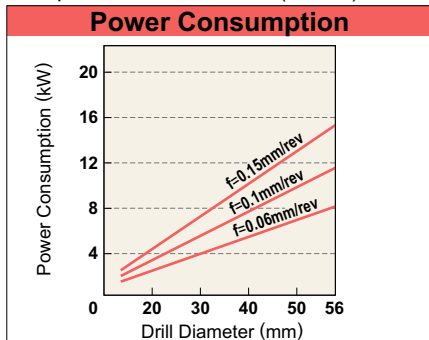
RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Cutting Speed (m/min)			Breaker	Feed (mm/rev)					
		For l/d=2, 3		For l/d=4 (ø16-)		Drill Diameter (mm)					
		(ø12-ø14.5)	(ø15-)			ø12-ø14.5	ø15-ø22.5	ø23-ø34	ø35-ø48	ø49-ø56	
P	Mild Steel	≤180HB	150 (100-200)	200 (150-300)	140 (100-200)	U1	0.06 (0.04-0.10)	0.07 (0.04-0.10)	0.08 (0.04-0.10)	0.10 (0.04-0.12)	0.08 (0.04-0.10)
						U2	0.06 (0.04-0.10)	0.08 (0.04-0.12)	0.10 (0.04-0.12)	0.12 (0.04-0.14)	0.10 (0.04-0.12)
						U3	-	0.08 (0.04-0.12)	0.10 (0.04-0.12)	0.12 (0.04-0.14)	0.10 (0.04-0.12)
	Carbon Steel	180-280HB	120 (80-160)	150 (120-180)	100 (80-120)	U1	0.06 (0.04-0.10)	0.09 (0.06-0.12)	0.12 (0.08-0.14)	0.15 (0.08-0.18)	0.12 (0.08-0.14)
						U2	0.06 (0.04-0.10)	0.12 (0.06-0.14)	0.14 (0.08-0.18)	0.17 (0.08-0.20)	0.14 (0.08-0.18)
						U3	-	0.12 (0.06-0.14)	0.14 (0.08-0.18)	0.17 (0.08-0.20)	0.14 (0.08-0.18)
	Alloy Steel	180-280HB	120 (80-160)	150 (120-180)	100 (80-120)	U1	0.06 (0.04-0.10)	0.08 (0.06-0.10)	0.09 (0.06-0.12)	0.11 (0.06-0.14)	0.09 (0.06-0.12)
						U2	0.06 (0.04-0.10)	0.10 (0.06-0.12)	0.12 (0.08-0.16)	0.14 (0.08-0.18)	0.12 (0.08-0.16)
						U3	-	0.10 (0.06-0.12)	0.12 (0.08-0.16)	0.14 (0.08-0.18)	0.12 (0.08-0.16)
M	Stainless Steel	≤200HB	100 (80-120)	150 (120-200)	110 (80-140)	U1	0.07 (0.04-0.10)	0.07 (0.04-0.10)	0.08 (0.04-0.10)	0.10 (0.04-0.12)	0.08 (0.04-0.10)
						U2	0.07 (0.04-0.10)	0.08 (0.04-0.12)	0.10 (0.04-0.14)	0.12 (0.04-0.16)	0.10 (0.04-0.14)
						U3	-	0.08 (0.04-0.12)	0.10 (0.04-0.14)	0.12 (0.04-0.16)	0.10 (0.04-0.14)
K	Cast Iron	Tensile Strength ≤350N/mm ²	120 (80-160)	150 (120-180)	140 (110-160)	U1	0.07 (0.06-0.10)	0.07 (0.06-0.10)	0.10 (0.04-0.14)	0.10 (0.06-0.14)	0.10 (0.06-0.14)
						U2	0.07 (0.06-0.10)	0.15 (0.10-0.18)	0.20 (0.10-0.25)	0.20 (0.10-0.25)	0.20 (0.10-0.25)
						U3	-	0.15 (0.10-0.18)	0.20 (0.10-0.25)	0.20 (0.10-0.25)	0.20 (0.10-0.25)
Ductile Cast Iron	Tensile Strength ≤450N/mm ²	120 (80-150)	150 (120-180)	100 (80-120)	U1	0.06 (0.04-0.10)	0.07 (0.06-0.10)	0.10 (0.06-0.14)	0.10 (0.06-0.14)	0.10 (0.06-0.14)	
					U2	0.06 (0.04-0.10)	0.12 (0.08-0.14)	0.15 (0.08-0.20)	0.18 (0.08-0.20)	0.15 (0.08-0.20)	
					U3	-	0.12 (0.08-0.14)	0.15 (0.08-0.20)	0.18 (0.08-0.20)	0.15 (0.08-0.20)	

(Note) When using drills for l/d = 4, the feed should be reduced to 80% of the above recommendations.

CUTTING RESISTANCE

Workpiece : DIN X5CrNi189 (220HB) Cutting Speed : 150m/min Insert : U2 Breaker



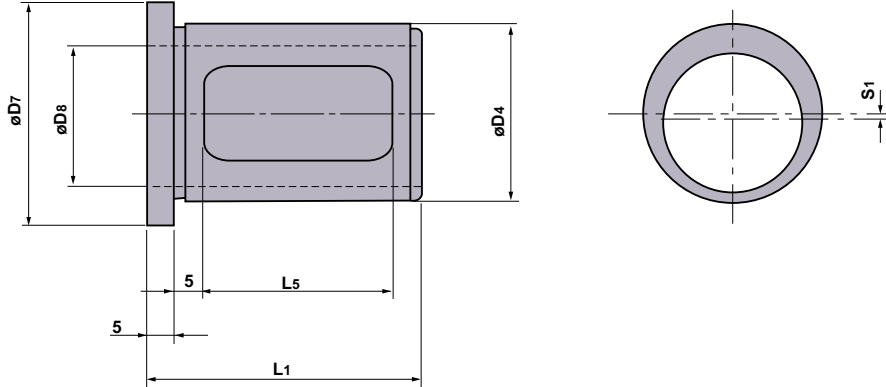
TAF DRILLS



CARBIDE

JUST FIT SLEEVE [JFS]

- A sleeve designed to improve the versatility of the TAF drills, allowing the cutting diameter to be increased in increments of 0.1mm



* Increase : Size of the increase in the cutting diameter.

Set Order Number	Individual Order Number	Stock	Dimensions (mm)					*Increase (S1×2)	Suitable TAF Type Drill
			D7	D4	D8	L1	L5		
JFS-1	JFS2520-10	●	33	25	20	43	30	0.10	TAFS/M/L1200F20 TAFS/M/L1550F20
	2520-20	●	33	25	20	43	30	0.20	
	2520-30	●	33	25	20	43	30	0.30	
	2520-40	●	33	25	20	43	30	0.40	
	2520-50	●	33	25	20	43	30	0.50	
JFS-2	JFS3225-10	●	40	32	25	50	34	0.10	TAFS/M/L1600F25 TAFS/M/L2450F25
	3225-20	●	40	32	25	50	34	0.20	
	3225-30	●	40	32	25	50	34	0.30	
	3225-40	●	40	32	25	50	34	0.40	
	3225-50	●	40	32	25	50	34	0.50	
JFS-3	JFS4032-10	●	48	40	32	55	40	0.10	TAFS/M/L2500F32 TAFS/M/L2950F32
	4032-20	●	48	40	32	55	40	0.20	
	4032-30	●	48	40	32	55	40	0.30	
	4032-40	●	48	40	32	55	40	0.40	
	4032-50	●	48	40	32	55	40	0.50	

JUST FIT SLEEVE



GUIDELINE FOR SELECTING A JUST FIT SLEEVE

Desired = (Drill ϕ + Increase of JFS) + 0.1mm

(Eg.) Desired diameter is 20.3mm (oversize is taken as 0.1mm).

$$\phi 20.3 = (\text{TAFS/M/L2000F25} + \text{JFS3225-20}) + 0.1$$

20mm Drill Using JFS an Increase of 0.2mm. Oversize

<Tool Selected>
TAF Drill : TAFM2000F25
Just Fit Sleeve [JFS]
: JFS3225-20

(Note) Oversize can vary due to the cutting conditions used, please use the above as a guideline.

ORDERING THE JUST FIT SLEEVE

● Purchasing Method 1

Oversize can vary due to the cutting conditions used. Therefore it is recommended to purchase as a set. When placing an order, please use the Set order number. (5 sleeves/set)

● Purchasing Method 2

It is possible to order individually. When placing an order, please use the individual order number.

● : Inventory maintained.

D091

DRILLING (INDEXABLE TYPE)

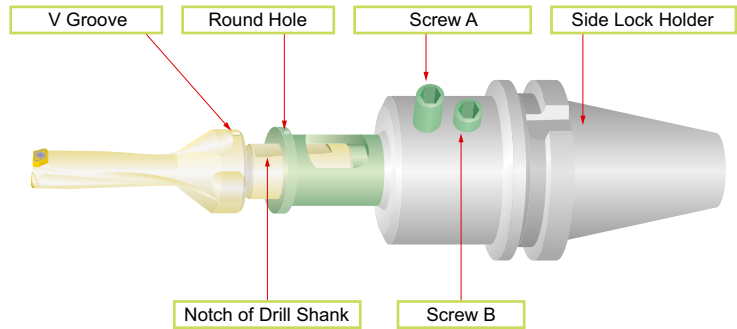
APPLICATION OF THE JUST FIT SLEEVE

1 When inserting the drill into the side lock holder, align the V groove on the outer peripheral edge of the drill flange, the round holes of the outer peripheral edge of the sleeve flange and the screws of the side lock holder for fixing the drill. (If the drill does not have a V groove, align the notch of the drill shank with the round holes of the sleeve.)

2 Insert screws A of the side lock holder directly through the open window of the sleeve to clamp the drill. Tighten screw B only to a degree that does not damage the sleeve.

(Note)

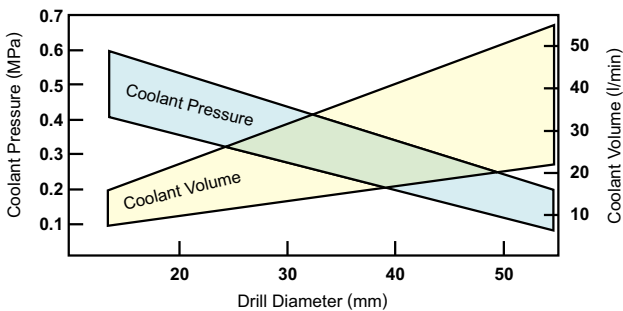
- Fine adjustments cannot be made for the diameter of the sleeve.
- Cannot be used with collect chuck type holders.



APPLICATION OF TAF DRILLS

● Please ensure the highest rigidity possible exists in both machine set up and workholding.

● Refer to the following graph for coolant pressure and volume. Coolant is an important factor in the efficient use of these drills.

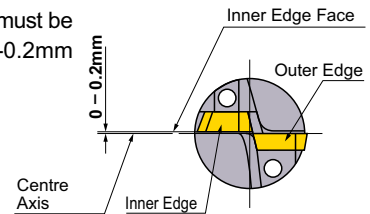


● Cannot be used for stack drilling.

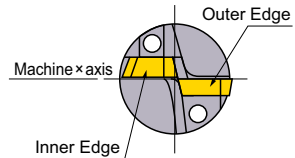
In common with many indexable insert drills, these drills produce a round disc on exit which unless evacuated may cause the drill to fracture.

● Use on a Lathe

(1) The inner cutting edge must be positioned between 0-0.2mm over centre.



(2) To adjust the hole diameter by off-setting the drill, the outer cutting edge and machine axis must be set parallel.

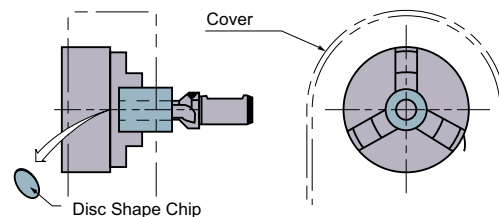


(3) When producing an oversize hole.

The drill offset should be no more than 2% of the diameter. It is not possible to produce an undersized hole.

(4) When through hole drilling on a lathe the disc produced by the drill exiting the workpiece may be expelled at high velocity.

To reduce the danger of injury or damage a cover guard is highly recommended.



VIOLET DRILLS

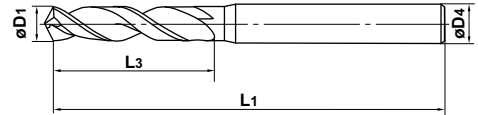
VAPDS

Short, High precision

Expand



All drills except those with intervals of 0.1mm and under dia. 2mm have a tolerance of 0-0.009mm.



D1<2

2≤D1

- Highly efficient drilling and long tool life have been achieved with the newly developed Violet coating.
(Standard drill depth : less than 3 times the drill diameter)

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSD0050	0.5	3	50	3	●
* D0051	0.51	3	50	3	★
* D0052	0.52	3	50	3	★
* D0053	0.53	3	50	3	★
* D0054	0.54	3	50	3	★
* D0055	0.55	3	50	3	●
* D0056	0.56	4	50	3	★
* D0057	0.57	4	50	3	★
* D0058	0.58	4	50	3	★
* D0059	0.59	4	50	3	★
D0060	0.6	5	50	3	●
* D0061	0.61	5	50	3	★
* D0062	0.62	5	50	3	★
* D0063	0.63	5	50	3	★
* D0064	0.64	5	50	3	★
* D0065	0.65	5	50	3	●
* D0066	0.66	5	50	3	★
* D0067	0.67	5	50	3	★
* D0068	0.68	5	50	3	★
* D0069	0.69	5	50	3	★
D0070	0.7	5	50	3	●
* D0071	0.71	5	50	3	★
* D0072	0.72	5	50	3	★
* D0073	0.73	5	50	3	★
* D0074	0.74	5	50	3	★
* D0075	0.75	5	50	3	●
* D0076	0.76	5	50	3	★
* D0077	0.77	5	50	3	★
* D0078	0.78	5	50	3	★
* D0079	0.79	5	50	3	★
D0080	0.8	5	50	3	●
* D0081	0.81	5	50	3	★
* D0082	0.82	5	50	3	★
* D0083	0.83	5	50	3	★
* D0084	0.84	5	50	3	★
* D0085	0.85	5	50	3	●
* D0086	0.86	6	50	3	★
* D0087	0.87	6	50	3	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
* VAPDSD0088	0.88	6	50	3	★
* D0089	0.89	6	50	3	★
D0090	0.9	6	50	3	●
* D0091	0.91	6	50	3	★
* D0092	0.92	6	50	3	★
* D0093	0.93	6	50	3	★
* D0094	0.94	6	50	3	★
* D0095	0.95	6	50	3	●
* D0096	0.96	6	50	3	★
* D0097	0.97	6	50	3	★
* D0098	0.98	6	50	3	★
* D0099	0.99	6	50	3	★
D0100	1.0	6	50	3	●
* D0101	1.01	6	50	3	★
* D0102	1.02	6	50	3	★
* D0103	1.03	6	50	3	★
* D0104	1.04	6	50	3	★
* D0105	1.05	6	50	3	●
* D0106	1.06	6	50	3	★
* D0107	1.07	8	55	3	★
* D0108	1.08	8	55	3	★
* D0109	1.09	8	55	3	★
D0110	1.1	8	55	3	●
* D0111	1.11	8	55	3	★
* D0112	1.12	8	55	3	★
* D0113	1.13	8	55	3	★
* D0114	1.14	8	55	3	★
* D0115	1.15	8	55	3	●
* D0116	1.16	8	55	3	★
* D0117	1.17	8	55	3	★
* D0118	1.18	8	55	3	★
* D0119	1.19	8	55	3	★
D0120	1.2	8	55	3	●
* D0121	1.21	8	55	3	★
* D0122	1.22	8	55	3	★
* D0123	1.23	8	55	3	★
* D0124	1.24	8	55	3	★
* D0125	1.25	8	55	3	●

* Expanded range

● : Inventory maintained. ★ : Inventory maintained in Japan.

CUTTING CONDITIONS

D118

VIOLET DRILLS



D093

VIOLET DRILLS

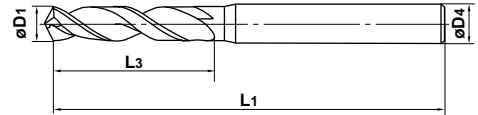
VAPDS

Short, High precision

Expand



All drills except those with intervals of 0.1mm and under dia. 2mm have a tolerance of 0—0.009mm.



$D_1 < 2$

$2 \leq D_1$

- Highly efficient drilling and long tool life have been achieved with the newly developed Violet coating.
(Standard drill depth : less than 3 times the drill diameter)

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
* VAPDSD0126	1.26	8	55	3	★
* D0127	1.27	8	55	3	★
* D0128	1.28	8	55	3	★
* D0129	1.29	8	55	3	★
* D0130	1.3	9	55	3	●
* D0131	1.31	9	55	3	★
* D0132	1.32	9	55	3	★
* D0133	1.33	9	55	3	★
* D0134	1.34	9	55	3	★
* D0135	1.35	9	55	3	●
* D0136	1.36	9	55	3	★
* D0137	1.37	9	55	3	★
* D0138	1.38	9	55	3	★
* D0139	1.39	9	55	3	★
* D0140	1.4	9	55	3	●
* D0141	1.41	9	55	3	★
* D0142	1.42	9	55	3	★
* D0143	1.43	9	55	3	★
* D0144	1.44	9	55	3	★
* D0145	1.45	9	55	3	●
* D0146	1.46	9	55	3	★
* D0147	1.47	9	55	3	★
* D0148	1.48	9	55	3	★
* D0149	1.49	9	55	3	★
* D0150	1.5	9	55	3	●
* D0151	1.51	11	55	3	★
* D0152	1.52	11	55	3	★
* D0153	1.53	11	55	3	★
* D0154	1.54	11	55	3	★
* D0155	1.55	11	55	3	●
* D0156	1.56	11	55	3	★
* D0157	1.57	11	55	3	★
* D0158	1.58	11	55	3	★
* D0159	1.59	11	55	3	★
* D0160	1.6	11	55	3	●
* D0161	1.61	11	55	3	★
* D0162	1.62	11	55	3	★
* D0163	1.63	11	55	3	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
* VAPDSD0164	1.64	11	55	3	★
* D0165	1.65	11	55	3	●
* D0166	1.66	11	55	3	★
* D0167	1.67	11	55	3	★
* D0168	1.68	11	55	3	★
* D0169	1.69	11	55	3	★
* D0170	1.7	11	55	3	●
* D0171	1.71	11	55	3	★
* D0172	1.72	11	55	3	★
* D0173	1.73	11	55	3	★
* D0174	1.74	11	55	3	★
* D0175	1.75	11	55	3	●
* D0176	1.76	11	55	3	★
* D0177	1.77	11	55	3	★
* D0178	1.78	11	55	3	★
* D0179	1.79	11	55	3	★
* D0180	1.8	11	55	3	●
* D0181	1.81	11	55	3	★
* D0182	1.82	11	55	3	★
* D0183	1.83	11	55	3	★
* D0184	1.84	11	55	3	★
* D0185	1.85	11	55	3	●
* D0186	1.86	11	55	3	★
* D0187	1.87	11	55	3	★
* D0188	1.88	11	55	3	★
* D0189	1.89	11	55	3	★
* D0190	1.9	12	55	3	●
* D0191	1.91	12	60	3	★
* D0192	1.92	12	60	3	★
* D0193	1.93	12	60	3	★
* D0194	1.94	12	60	3	★
* D0195	1.95	12	60	3	●
* D0196	1.96	12	60	3	★
* D0197	1.97	12	60	3	★
* D0198	1.98	12	60	3	★
* D0199	1.99	12	60	3	★
* D0200	2.0	12	60	3	●
* D0205	2.05	12	60	3	●

* Expanded range

VIOLET DRILLS

DRILLING

HSS

D094

● : Inventory maintained. ★ : Inventory maintained in Japan.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSD0210	2.1	12	60	3	●
* D0215	2.15	12	60	3	●
D0220	2.2	12	60	3	●
* D0225	2.25	12	60	3	●
D0230	2.3	13	60	3	●
* D0235	2.35	13	60	3	●
D0240	2.4	13	60	3	●
* D0245	2.45	13	60	3	●
D0250	2.5	13	60	3	●
* D0255	2.55	13	60	3	●
D0260	2.6	15	60	3	●
* D0265	2.65	15	60	3	●
D0270	2.7	15	60	3	●
* D0275	2.75	15	60	3	●
D0280	2.8	15	60	3	●
* D0285	2.85	15	60	3	●
D0290	2.9	15	60	3	●
* D0295	2.95	15	60	3	●
D0300	3.0	15	60	3	●
* D0305	3.05	17	70	4	●
D0310	3.1	17	70	4	●
* D0315	3.15	17	70	4	●
D0320	3.2	17	70	4	●
* D0325	3.25	17	70	4	●
D0330	3.3	19	70	4	●
* D0335	3.35	19	70	4	●
D0340	3.4	19	70	4	●
* D0345	3.45	19	70	4	●
D0350	3.5	19	70	4	●
* D0355	3.55	19	70	4	●
D0360	3.6	21	70	4	●
* D0365	3.65	21	70	4	●
D0370	3.7	21	70	4	●
* D0375	3.75	21	70	4	●
D0380	3.8	21	70	4	●
* D0385	3.85	21	70	4	●
D0390	3.9	21	70	4	●
* D0395	3.95	21	70	4	●
D0400	4.0	21	70	4	●
* D0405	4.05	21	80	6	●
D0410	4.1	21	80	6	●
* D0415	4.15	21	80	6	●
D0420	4.2	21	80	6	●
* D0425	4.25	21	80	6	●
D0430	4.3	23	80	6	●
* D0435	4.35	23	80	6	●
D0440	4.4	23	80	6	●
* D0445	4.45	23	80	6	●

* Expanded range

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSD0450	4.5	23	80	6	●
* D0455	4.55	23	80	6	●
D0460	4.6	25	80	6	●
* D0465	4.65	25	80	6	●
D0470	4.7	25	80	6	●
* D0475	4.75	25	80	6	●
D0480	4.8	25	80	6	●
* D0485	4.85	25	80	6	●
D0490	4.9	25	80	6	●
* D0495	4.95	25	80	6	●
D0500	5.0	25	80	6	●
* D0505	5.05	25	80	6	●
D0510	5.1	25	80	6	●
* D0515	5.15	25	80	6	●
D0520	5.2	25	80	6	●
* D0525	5.25	25	80	6	●
D0530	5.3	25	80	6	●
* D0535	5.35	27	80	6	●
D0540	5.4	27	80	6	●
* D0545	5.45	27	80	6	●
D0550	5.5	27	80	6	●
* D0555	5.55	27	80	6	●
D0560	5.6	27	80	6	●
* D0565	5.65	27	80	6	●
D0570	5.7	27	80	6	●
* D0575	5.75	27	80	6	●
D0580	5.8	27	80	6	●
* D0585	5.85	27	80	6	●
D0590	5.9	27	80	6	●
* D0595	5.95	27	80	6	●
D0600	6.0	27	80	6	●
* D0605	6.05	30	80	8	●
D0610	6.1	30	80	8	●
* D0615	6.15	30	80	8	●
D0620	6.2	30	80	8	●
* D0625	6.25	30	80	8	●
D0630	6.3	30	80	8	●
* D0635	6.35	30	80	8	●
D0640	6.4	30	80	8	●
* D0645	6.45	30	80	8	●
D0650	6.5	30	80	8	●
* D0655	6.55	30	80	8	●
D0660	6.6	30	80	8	●
* D0665	6.65	30	80	8	●
D0670	6.7	30	80	8	●
* D0675	6.75	32	80	8	●
D0680	6.8	32	80	8	●
* D0685	6.85	32	80	8	●

VIOLET DRILLS



HSS

CUTTING CONDITIONS

D118

D095

VIOLET DRILLS

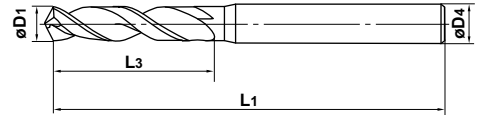
VAPDS

Short, High precision

Expand



All drills except those with intervals of 0.1mm and under dia. 2mm have a tolerance of 0—0.009mm.



$D_1 < 2$

$2 \leq D_1$

- Highly efficient drilling and long tool life have been achieved with the newly developed Violet coating.
(Standard drill depth : less than 3 times the drill diameter)

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSD0690	6.9	32	80	8	●
* D0695	6.95	32	80	8	●
D0700	7.0	32	80	8	●
* D0705	7.05	32	80	8	●
D0710	7.1	32	80	8	●
* D0715	7.15	32	80	8	●
D0720	7.2	32	80	8	●
* D0725	7.25	32	80	8	●
D0730	7.3	32	80	8	●
* D0735	7.35	32	80	8	●
D0740	7.4	32	80	8	●
* D0745	7.45	32	80	8	●
D0750	7.5	32	80	8	●
* D0755	7.55	35	85	8	●
D0760	7.6	35	85	8	●
* D0765	7.65	35	85	8	●
D0770	7.7	35	85	8	●
* D0775	7.75	35	85	8	●
D0780	7.8	35	85	8	●
* D0785	7.85	35	85	8	●
D0790	7.9	35	85	8	●
* D0795	7.95	35	85	8	●
D0800	8.0	35	85	8	●
* D0805	8.05	35	90	10	●
D0810	8.1	35	90	10	●
* D0815	8.15	35	90	10	●
D0820	8.2	35	90	10	●
* D0825	8.25	35	90	10	●
D0830	8.3	35	90	10	●
* D0835	8.35	35	90	10	●
D0840	8.4	35	90	10	●
* D0845	8.45	35	90	10	●
D0850	8.5	35	90	10	●
* D0855	8.55	38	93	10	●
D0860	8.6	38	93	10	●
* D0865	8.65	38	93	10	●
D0870	8.7	38	93	10	●
* D0875	8.75	38	93	10	●

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSD0880	8.8	38	93	10	●
* D0885	8.85	38	93	10	●
D0890	8.9	38	93	10	●
* D0895	8.95	38	93	10	●
D0900	9.0	38	93	10	●
* D0905	9.05	38	93	10	●
D0910	9.1	38	93	10	●
* D0915	9.15	38	93	10	●
D0920	9.2	38	93	10	●
* D0925	9.25	38	93	10	●
D0930	9.3	38	93	10	●
* D0935	9.35	38	93	10	●
D0940	9.4	38	93	10	●
* D0945	9.45	38	93	10	●
D0950	9.5	38	93	10	●
* D0955	9.55	41	96	10	●
D0960	9.6	41	96	10	●
* D0965	9.65	41	96	10	●
D0970	9.7	41	96	10	●
* D0975	9.75	41	96	10	●
D0980	9.8	41	96	10	●
* D0985	9.85	41	96	10	●
D0990	9.9	41	96	10	●
* D0995	9.95	41	96	10	●
D1000	10.0	41	96	10	●
* D1005	10.05	41	101	12	●
D1010	10.1	41	101	12	●
* D1015	10.15	41	101	12	●
D1020	10.2	41	101	12	●
* D1025	10.25	41	101	12	●
D1030	10.3	41	101	12	●
* D1035	10.35	41	101	12	●
D1040	10.4	41	101	12	●
* D1045	10.45	41	101	12	●
D1050	10.5	41	101	12	●
* D1055	10.55	41	101	12	●
D1060	10.6	41	101	12	●
* D1065	10.65	45	105	12	●

* Expanded range

DRILLING VIOLET DRILLS



HSS

D096

● : Inventory maintained.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSD1070	10.7	45	105	12	●
* D1075	10.75	45	105	12	●
D1080	10.8	45	105	12	●
* D1085	10.85	45	105	12	●
D1090	10.9	45	105	12	●
* D1095	10.95	45	105	12	●
D1100	11.0	45	105	12	●
* D1105	11.05	45	105	12	●
D1110	11.1	45	105	12	●
* D1115	11.15	45	105	12	●
D1120	11.2	45	105	12	●
* D1125	11.25	45	105	12	●
D1130	11.3	45	105	12	●
* D1135	11.35	45	105	12	●
D1140	11.4	45	105	12	●
* D1145	11.45	45	105	12	●
D1150	11.5	45	105	12	●
* D1155	11.55	45	105	12	●
D1160	11.6	45	105	12	●
* D1165	11.65	45	105	12	●
D1170	11.7	45	105	12	●
* D1175	11.75	45	105	12	●
D1180	11.8	45	105	12	●
* D1185	11.85	49	109	12	●
D1190	11.9	49	109	12	●
* D1195	11.95	49	109	12	●
D1200	12.0	49	109	12	●
D1210	12.1	49	109	12	●
D1220	12.2	49	109	12	●
D1230	12.3	49	109	12	●
D1240	12.4	49	109	12	●
D1250	12.5	49	109	12	●
D1260	12.6	49	109	12	●
D1270	12.7	49	109	12	●
D1280	12.8	49	109	12	●
D1290	12.9	49	109	12	●
D1300	13.0	49	109	12	●

* Expanded range

VIOLET DRILLS



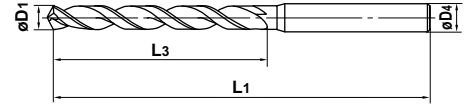
HSS

VIOLET DRILLS

VAPDM

Expand

Medium, High precision



D1 < 2

2 ≤ D1

X Thinning

- Highly efficient drilling and long tool life have been achieved with the newly developed Violet coating.
(Standard drill depth : less than 5 times the drill diameter)

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
* VAPDMD0050	0.5	6	50	3	●
* D0055	0.55	6	50	3	●
* D0060	0.6	8	50	3	●
* D0065	0.65	8	50	3	●
* D0070	0.7	10	50	3	●
* D0075	0.75	10	50	3	●
* D0080	0.8	10	50	3	●
* D0085	0.85	10	50	3	●
* D0090	0.9	12	50	3	●
* D0095	0.95	12	50	3	●
* D0100	1.0	12	60	3	●
* D0105	1.05	12	60	3	●
* D0110	1.1	16	60	3	●
* D0115	1.15	16	60	3	●
* D0120	1.2	16	60	3	●
* D0125	1.25	16	60	3	●
* D0130	1.3	16	60	3	●
* D0135	1.35	18	60	3	●
* D0140	1.4	18	60	3	●
* D0145	1.45	18	60	3	●
* D0150	1.5	18	60	3	●
* D0155	1.55	20	60	3	●
* D0160	1.6	20	60	3	●
* D0165	1.65	20	60	3	●
* D0170	1.7	20	60	3	●
* D0175	1.75	20	60	3	●
* D0180	1.8	22	60	3	●
* D0185	1.85	22	60	3	●
* D0190	1.9	22	60	3	●
* D0195	1.95	23	60	3	●
* D0200	2.0	23	70	3	●
* D0205	2.05	23	70	3	●
* D0210	2.1	23	70	3	●
* D0215	2.15	23	70	3	●
* D0220	2.2	26	70	3	●
* D0225	2.25	26	70	3	●
* D0230	2.3	26	70	3	●
* D0235	2.35	26	70	3	●

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMD0240	2.4	29	70	3	●
* D0245	2.45	29	70	3	●
* D0250	2.5	29	70	3	●
* D0255	2.55	29	70	3	●
* D0260	2.6	29	70	3	●
* D0265	2.65	29	70	3	●
* D0270	2.7	32	70	3	●
* D0275	2.75	32	70	3	●
* D0280	2.8	32	70	3	●
* D0285	2.85	32	70	3	●
* D0290	2.9	32	70	3	●
* D0295	2.95	32	70	3	●
* D0300	3.0	32	70	3	●
* D0305	3.05	35	85	4	●
* D0310	3.1	35	85	4	●
* D0315	3.15	35	85	4	●
* D0320	3.2	35	85	4	●
* D0325	3.25	35	85	4	●
* D0330	3.3	35	85	4	●
* D0335	3.35	35	85	4	●
* D0340	3.4	38	85	4	●
* D0345	3.45	38	85	4	●
* D0350	3.5	38	85	4	●
* D0355	3.55	38	85	4	●
* D0360	3.6	38	85	4	●
* D0365	3.65	38	85	4	●
* D0370	3.7	38	85	4	●
* D0375	3.75	42	85	4	●
* D0380	3.8	42	85	4	●
* D0385	3.85	42	85	4	●
* D0390	3.9	42	85	4	●
* D0395	3.95	42	85	4	●
* D0400	4.0	42	85	4	●
* D0405	4.05	42	100	6	●
* D0410	4.1	42	100	6	●
* D0415	4.15	42	100	6	●
* D0420	4.2	42	100	6	●
* D0425	4.25	46	100	6	●

* Expanded range

VIOLET DRILLS

DRILLING

HSS

D098

● : Inventory maintained.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMD0430	4.3	46	100	6	●
* D0435	4.35	46	100	6	●
D0440	4.4	46	100	6	●
* D0445	4.45	46	100	6	●
D0450	4.5	46	100	6	●
* D0455	4.55	46	100	6	●
D0460	4.6	46	100	6	●
* D0465	4.65	46	100	6	●
D0470	4.7	46	100	6	●
* D0475	4.75	46	100	6	●
D0480	4.8	51	100	6	●
* D0485	4.85	51	100	6	●
D0490	4.9	51	100	6	●
* D0495	4.95	51	100	6	●
D0500	5.0	51	100	6	●
* D0505	5.05	51	100	6	●
D0510	5.1	51	100	6	●
* D0515	5.15	51	100	6	●
D0520	5.2	51	100	6	●
* D0525	5.25	51	100	6	●
D0530	5.3	51	100	6	●
* D0535	5.35	56	106	6	●
D0540	5.4	56	106	6	●
* D0545	5.45	56	106	6	●
D0550	5.5	56	106	6	●
* D0555	5.55	56	106	6	●
D0560	5.6	56	106	6	●
* D0565	5.65	56	106	6	●
D0570	5.7	56	106	6	●
* D0575	5.75	56	106	6	●
D0580	5.8	56	106	6	●
* D0585	5.85	56	106	6	●
D0590	5.9	56	106	6	●
* D0595	5.95	56	106	6	●
D0600	6.0	56	106	6	●
* D0605	6.05	62	112	8	●
D0610	6.1	62	112	8	●
* D0615	6.15	62	112	8	●
D0620	6.2	62	112	8	●
* D0625	6.25	62	112	8	●
D0630	6.3	62	112	8	●
* D0635	6.35	62	112	8	●
D0640	6.4	62	112	8	●
* D0645	6.45	62	112	8	●
D0650	6.5	62	112	8	●
* D0655	6.55	62	112	8	●
D0660	6.6	62	112	8	●
* D0665	6.65	62	112	8	●

* Expanded range

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMD0670	6.7	62	112	8	●
* D0675	6.75	67	117	8	●
D0680	6.8	67	117	8	●
* D0685	6.85	67	117	8	●
D0690	6.9	67	117	8	●
* D0695	6.95	67	117	8	●
D0700	7.0	67	117	8	●
* D0705	7.05	67	117	8	●
D0710	7.1	67	117	8	●
* D0715	7.15	67	117	8	●
D0720	7.2	67	117	8	●
* D0725	7.25	67	117	8	●
D0730	7.3	67	117	8	●
* D0735	7.35	67	117	8	●
D0740	7.4	67	117	8	●
* D0745	7.45	67	117	8	●
D0750	7.5	67	117	8	●
* D0755	7.55	73	123	8	●
D0760	7.6	73	123	8	●
* D0765	7.65	73	123	8	●
D0770	7.7	73	123	8	●
* D0775	7.75	73	123	8	●
D0780	7.8	73	123	8	●
* D0785	7.85	73	123	8	●
D0790	7.9	73	123	8	●
* D0795	7.95	73	123	8	●
D0800	8.0	73	123	8	●
* D0805	8.05	73	128	10	●
D0810	8.1	73	128	10	●
* D0815	8.15	73	128	10	●
D0820	8.2	73	128	10	●
* D0825	8.25	73	128	10	●
D0830	8.3	73	128	10	●
* D0835	8.35	73	128	10	●
D0840	8.4	73	128	10	●
* D0845	8.45	73	128	10	●
D0850	8.5	73	128	10	●
* D0855	8.55	79	134	10	●
D0860	8.6	79	134	10	●
* D0865	8.65	79	134	10	●
D0870	8.7	79	134	10	●
* D0875	8.75	79	134	10	●
D0880	8.8	79	134	10	●
* D0885	8.85	79	134	10	●
D0890	8.9	79	134	10	●
* D0895	8.95	79	134	10	●
D0900	9.0	79	134	10	●
* D0910	9.1	79	134	10	●

VIOLET DRILLS



HSS

CUTTING CONDITIONS

D118

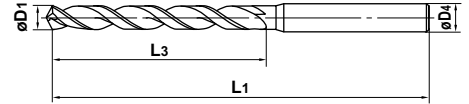
D099

VIOLET DRILLS

VAPDM

Expand

Medium, High precision



$D_1 < 2$



$2 \leq D_1$



- Highly efficient drilling and long tool life have been achieved with the newly developed Violet coating.
(Standard drill depth : less than 5 times the drill diameter)

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMD0920	9.2	79	134	10	●
D0930	9.3	79	134	10	●
D0940	9.4	79	134	10	●
D0950	9.5	79	134	10	●
D0960	9.6	85	140	10	●
D0970	9.7	85	140	10	●
D0980	9.8	85	140	10	●
D0990	9.9	85	140	10	●
D1000	10.0	85	140	10	●
D1010	10.1	85	145	12	●
D1020	10.2	85	145	12	●
D1030	10.3	85	145	12	●
D1040	10.4	85	145	12	●
D1050	10.5	85	145	12	●
D1060	10.6	85	145	12	●
D1070	10.7	92	152	12	●
D1080	10.8	92	152	12	●
D1090	10.9	92	152	12	●
D1100	11.0	92	152	12	●
D1110	11.1	92	152	12	●
D1120	11.2	92	152	12	●
D1130	11.3	92	152	12	●
D1140	11.4	92	152	12	●
D1150	11.5	92	152	12	●
D1160	11.6	92	152	12	●
D1170	11.7	92	152	12	●
D1180	11.8	92	152	12	●
D1190	11.9	99	159	12	●
D1200	12.0	99	159	12	●
D1210	12.1	99	159	12	●
D1220	12.2	99	159	12	●
D1230	12.3	99	159	12	●
D1240	12.4	99	159	12	●
D1250	12.5	99	159	12	●
D1260	12.6	99	159	12	●
D1270	12.7	99	159	12	●
D1280	12.8	99	159	12	●
D1290	12.9	99	159	12	●

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMD1300	13.0	99	159	12	●
D1350	13.5	100	160	16	●
D1400	14.0	100	160	16	●
D1410	14.1	105	165	16	●
D1420	14.2	105	165	16	●
D1450	14.5	105	165	16	●
D1500	15.0	105	165	16	●
D1550	15.5	110	170	16	●
D1560	15.6	110	170	16	●
D1570	15.7	110	170	16	●
D1600	16.0	110	170	16	●
D1650	16.5	110	175	20	●
D1700	17.0	110	175	20	●
D1750	17.5	115	180	20	●
D1760	17.6	115	180	20	●
D1770	17.7	115	180	20	●
D1800	18.0	115	180	20	●
D1850	18.5	120	185	20	●
D1900	19.0	120	185	20	●
D1950	19.5	120	185	20	●
D1960	19.6	120	185	20	●
D1970	19.7	120	185	20	●
D2000	20.0	120	185	20	●
D2050	20.5	125	200	25	●
D2100	21.0	125	200	25	●
D2110	21.1	125	200	25	●
D2120	21.2	125	200	25	●
D2150	21.5	125	200	25	●
D2200	22.0	125	200	25	●
D2250	22.5	130	205	25	●
D2300	23.0	130	205	25	●
D2350	23.5	130	205	25	●
D2400	24.0	135	210	25	●
D2450	24.5	135	210	25	●
D2500	25.0	135	210	25	●
D2550	25.5	140	220	32	●
D2600	26.0	140	220	32	●
D2650	26.5	140	220	32	●

VIOLET DRILLS

DRILLING

HSS

D100

● : Inventory maintained.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMD2700	27.0	140	220	32	●
D2800	28.0	140	220	32	●
D2900	29.0	145	225	32	●
D3000	30.0	145	225	32	●
D3100	31.0	150	230	32	●
D3200	32.0	155	235	32	●

VIOLET DRILLS



HSS

CUTTING CONDITIONS 
D118

D101

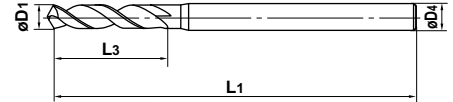
VIOLET DRILLS

VAPDSSUS Expand

Short flute length, High precision, For stainless steel



All drills except those with intervals of 0.1mm and under dia. 4mm have tolerance of 0—-0.009mm.



1 ≤ D1

- New design and the Violet coating combination enables high efficiency and long tool life for drilling of stainless steels.

Unit : mm

VIOLET DRILLS



HSS

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0050	0.5	3	50	3	●
D0051	0.51	3	50	3	★
D0052	0.52	3	50	3	★
D0053	0.53	3	50	3	★
D0054	0.54	3	50	3	★
D0055	0.55	3	50	3	●
D0056	0.56	4	50	3	★
D0057	0.57	4	50	3	★
D0058	0.58	4	50	3	★
D0059	0.59	4	50	3	★
D0060	0.6	5	50	3	●
D0061	0.61	5	50	3	★
D0062	0.62	5	50	3	★
D0063	0.63	5	50	3	★
D0064	0.64	5	50	3	★
D0065	0.65	5	50	3	●
D0066	0.66	5	50	3	★
D0067	0.67	5	50	3	★
D0068	0.68	5	50	3	★
D0069	0.69	5	50	3	★
D0070	0.7	5	50	3	●
D0071	0.71	5	50	3	★
D0072	0.72	5	50	3	★
D0073	0.73	5	50	3	★
D0074	0.74	5	50	3	★
D0075	0.75	5	50	3	●
D0076	0.76	5	50	3	★
D0077	0.77	5	50	3	★
D0078	0.78	5	50	3	★
D0079	0.79	5	50	3	★
D0080	0.8	5	50	3	●
D0081	0.81	5	50	3	★
D0082	0.82	5	50	3	★
D0083	0.83	5	50	3	★
D0084	0.84	5	50	3	★
D0085	0.85	5	50	3	●
D0086	0.86	6	50	3	★
D0087	0.87	6	50	3	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0088	0.88	6	50	3	★
D0089	0.89	6	50	3	★
D0090	0.9	6	50	3	●
D0091	0.91	6	50	3	★
D0092	0.92	6	50	3	★
D0093	0.93	6	50	3	★
D0094	0.94	6	50	3	★
D0095	0.95	6	50	3	●
D0096	0.96	6	50	3	★
D0097	0.97	6	50	3	★
D0098	0.98	6	50	3	★
D0099	0.99	6	50	3	★
D0100	1.0	6	50	3	●
D0101	1.01	6	50	3	★
D0102	1.02	6	50	3	★
D0103	1.03	6	50	3	★
D0104	1.04	6	50	3	★
D0105	1.05	6	50	3	●
D0106	1.06	6	50	3	★
D0107	1.07	8	55	3	★
D0108	1.08	8	55	3	★
D0109	1.09	8	55	3	★
D0110	1.1	8	55	3	●
D0111	1.11	8	55	3	★
D0112	1.12	8	55	3	★
D0113	1.13	8	55	3	★
D0114	1.14	8	55	3	★
D0115	1.15	8	55	3	●
D0116	1.16	8	55	3	★
D0117	1.17	8	55	3	★
D0118	1.18	8	55	3	★
D0119	1.19	8	55	3	★
D0120	1.2	8	55	3	●
D0121	1.21	8	55	3	★
D0122	1.22	8	55	3	★
D0123	1.23	8	55	3	★
D0124	1.24	8	55	3	★
D0125	1.25	8	55	3	●

● : Inventory maintained. ★ : Inventory maintained in Japan.

D102

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0126	1.26	8	55	3	★
D0127	1.27	8	55	3	★
D0128	1.28	8	55	3	★
D0129	1.29	8	55	3	★
D0130	1.3	9	55	3	●
D0131	1.31	9	55	3	★
D0132	1.32	9	55	3	★
D0133	1.33	9	55	3	★
D0134	1.34	9	55	3	★
D0135	1.35	9	55	3	●
D0136	1.36	9	55	3	★
D0137	1.37	9	55	3	★
D0138	1.38	9	55	3	★
D0139	1.39	9	55	3	★
D0140	1.4	9	55	3	●
D0141	1.41	9	55	3	★
D0142	1.42	9	55	3	★
D0143	1.43	9	55	3	★
D0144	1.44	9	55	3	★
D0145	1.45	9	55	3	●
D0146	1.46	9	55	3	★
D0147	1.47	9	55	3	★
D0148	1.48	9	55	3	★
D0149	1.49	9	55	3	★
D0150	1.5	9	55	3	●
D0151	1.51	11	55	3	★
D0152	1.52	11	55	3	★
D0153	1.53	11	55	3	★
D0154	1.54	11	55	3	★
D0155	1.55	11	55	3	●
D0156	1.56	11	55	3	★
D0157	1.57	11	55	3	★
D0158	1.58	11	55	3	★
D0159	1.59	11	55	3	★
D0160	1.6	11	55	3	●
D0161	1.61	11	55	3	★
D0162	1.62	11	55	3	★
D0163	1.63	11	55	3	★
D0164	1.64	11	55	3	★
D0165	1.65	11	55	3	●
D0166	1.66	11	55	3	★
D0167	1.67	11	55	3	★
D0168	1.68	11	55	3	★
D0169	1.69	11	55	3	★
D0170	1.7	11	55	3	●
D0171	1.71	11	55	3	★
D0172	1.72	11	55	3	★
D0173	1.73	11	55	3	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0174	1.74	11	55	3	★
D0175	1.75	11	55	3	●
D0176	1.76	11	55	3	★
D0177	1.77	11	55	3	★
D0178	1.78	11	55	3	★
D0179	1.79	11	55	3	★
D0180	1.8	11	55	3	●
D0181	1.81	11	55	3	★
D0182	1.82	11	55	3	★
D0183	1.83	11	55	3	★
D0184	1.84	11	55	3	★
D0185	1.85	11	55	3	●
D0186	1.86	11	55	3	★
D0187	1.87	11	55	3	★
D0188	1.88	11	55	3	★
D0189	1.89	11	55	3	★
D0190	1.9	12	55	3	●
D0191	1.91	12	60	3	★
D0192	1.92	12	60	3	★
D0193	1.93	12	60	3	★
D0194	1.94	12	60	3	★
D0195	1.95	12	60	3	●
D0196	1.96	12	60	3	★
D0197	1.97	12	60	3	★
D0198	1.98	12	60	3	★
D0199	1.99	12	60	3	★
D0200	2.0	12	60	3	●
D0201	2.01	12	60	3	★
D0202	2.02	12	60	3	★
D0203	2.03	12	60	3	★
D0204	2.04	12	60	3	★
D0205	2.05	12	60	3	●
D0206	2.06	12	60	3	★
D0207	2.07	12	60	3	★
D0208	2.08	12	60	3	★
D0209	2.09	12	60	3	★
D0210	2.1	12	60	3	●
D0211	2.11	12	60	3	★
D0212	2.12	12	60	3	★
D0213	2.13	12	60	3	★
D0214	2.14	12	60	3	★
D0215	2.15	12	60	3	●
D0216	2.16	12	60	3	★
D0217	2.17	12	60	3	★
D0218	2.18	12	60	3	★
D0219	2.19	12	60	3	★
D0220	2.2	12	60	3	●
D0221	2.21	12	60	3	★

VIOLET DRILLS



HSS

CUTTING CONDITIONS

D119

D103

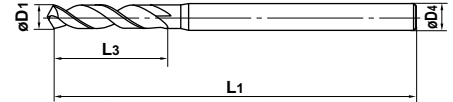
VIOLET DRILLS

VAPDSSUS Expand

Short flute length, High precision, For stainless steel



All drills except those with intervals of 0.1mm and under dia. 4mm have tolerance of 0-0.009mm.



1 ≤ D1

- New design and the Violet coating combination enables high efficiency and long tool life for drilling of stainless steels.

Unit : mm

DRILLING VIOLET DRILLS



HSS

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0222	2.22	12	60	3	★
D0223	2.23	12	60	3	★
D0224	2.24	12	60	3	★
D0225	2.25	12	60	3	●
D0226	2.26	12	60	3	★
D0227	2.27	12	60	3	★
D0228	2.28	12	60	3	★
D0229	2.29	12	60	3	★
D0230	2.3	13	60	3	●
D0231	2.31	13	60	3	★
D0232	2.32	13	60	3	★
D0233	2.33	13	60	3	★
D0234	2.34	13	60	3	★
D0235	2.35	13	60	3	●
D0236	2.36	13	60	3	★
D0237	2.37	13	60	3	★
D0238	2.38	13	60	3	★
D0239	2.39	13	60	3	★
D0240	2.4	13	60	3	●
D0241	2.41	13	60	3	★
D0242	2.42	13	60	3	★
D0243	2.43	13	60	3	★
D0244	2.44	13	60	3	★
D0245	2.45	13	60	3	●
D0246	2.46	13	60	3	★
D0247	2.47	13	60	3	★
D0248	2.48	13	60	3	★
D0249	2.49	13	60	3	★
D0250	2.5	13	60	3	●
D0251	2.51	13	60	3	★
D0252	2.52	13	60	3	★
D0253	2.53	13	60	3	★
D0254	2.54	13	60	3	★
D0255	2.55	13	60	3	●
D0256	2.56	13	60	3	★
D0257	2.57	13	60	3	★
D0258	2.58	13	60	3	★
D0259	2.59	13	60	3	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0260	2.6	15	60	3	●
D0261	2.61	15	60	3	★
D0262	2.62	15	60	3	★
D0263	2.63	15	60	3	★
D0264	2.64	15	60	3	★
D0265	2.65	15	60	3	●
D0266	2.66	15	60	3	★
D0267	2.67	15	60	3	★
D0268	2.68	15	60	3	★
D0269	2.69	15	60	3	★
D0270	2.7	15	60	3	●
D0271	2.71	15	60	3	★
D0272	2.72	15	60	3	★
D0273	2.73	15	60	3	★
D0274	2.74	15	60	3	★
D0275	2.75	15	60	3	●
D0276	2.76	15	60	3	★
D0277	2.77	15	60	3	★
D0278	2.78	15	60	3	★
D0279	2.79	15	60	3	★
D0280	2.8	15	60	3	●
D0281	2.81	15	60	3	★
D0282	2.82	15	60	3	★
D0283	2.83	15	60	3	★
D0284	2.84	15	60	3	★
D0285	2.85	15	60	3	●
D0286	2.86	15	60	3	★
D0287	2.87	15	60	3	★
D0288	2.88	15	60	3	★
D0289	2.89	15	60	3	★
D0290	2.9	15	60	3	●
D0291	2.91	15	60	3	★
D0292	2.92	15	60	3	★
D0293	2.93	15	60	3	★
D0294	2.94	15	60	3	★
D0295	2.95	15	60	3	●
D0296	2.96	15	60	3	★
D0297	2.97	15	60	3	★

● : Inventory maintained. ★ : Inventory maintained in Japan.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0298	2.98	15	60	3	★
D0299	2.99	15	60	3	★
D0300	3.0	15	60	3	●
D0301	3.01	17	70	4	★
D0302	3.02	17	70	4	★
D0303	3.03	17	70	4	★
D0304	3.04	17	70	4	★
D0305	3.05	17	70	4	●
D0306	3.06	17	70	4	★
D0307	3.07	17	70	4	★
D0308	3.08	17	70	4	★
D0309	3.09	17	70	4	★
D0310	3.1	17	70	4	●
D0311	3.11	17	70	4	★
D0312	3.12	17	70	4	★
D0313	3.13	17	70	4	★
D0314	3.14	17	70	4	★
D0315	3.15	17	70	4	●
D0316	3.16	17	70	4	★
D0317	3.17	17	70	4	★
D0318	3.18	17	70	4	★
D0319	3.19	17	70	4	★
D0320	3.2	17	70	4	●
D0321	3.21	17	70	4	★
D0322	3.22	17	70	4	★
D0323	3.23	17	70	4	★
D0324	3.24	17	70	4	★
D0325	3.25	17	70	4	●
D0326	3.26	17	70	4	★
D0327	3.27	17	70	4	★
D0328	3.28	17	70	4	★
D0329	3.29	17	70	4	★
D0330	3.3	19	70	4	●
D0331	3.31	19	70	4	★
D0332	3.32	19	70	4	★
D0333	3.33	19	70	4	★
D0334	3.34	19	70	4	★
D0335	3.35	19	70	4	●
D0336	3.36	19	70	4	★
D0337	3.37	19	70	4	★
D0338	3.38	19	70	4	★
D0339	3.39	19	70	4	★
D0340	3.4	19	70	4	●
D0341	3.41	19	70	4	★
D0342	3.42	19	70	4	★
D0343	3.43	19	70	4	★
D0344	3.44	19	70	4	★
D0345	3.45	19	70	4	●

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0346	3.46	19	70	4	★
D0347	3.47	19	70	4	★
D0348	3.48	19	70	4	★
D0349	3.49	19	70	4	★
D0350	3.5	19	70	4	●
D0351	3.51	19	70	4	★
D0352	3.52	19	70	4	★
D0353	3.53	19	70	4	★
D0354	3.54	19	70	4	★
D0355	3.55	19	70	4	●
D0356	3.56	19	70	4	★
D0357	3.57	19	70	4	★
D0358	3.58	19	70	4	★
D0359	3.59	19	70	4	★
D0360	3.6	21	70	4	●
D0361	3.61	21	70	4	★
D0362	3.62	21	70	4	★
D0363	3.63	21	70	4	★
D0364	3.64	21	70	4	★
D0365	3.65	21	70	4	●
D0366	3.66	21	70	4	★
D0367	3.67	21	70	4	★
D0368	3.68	21	70	4	★
D0369	3.69	21	70	4	★
D0370	3.7	21	70	4	●
D0371	3.71	21	70	4	★
D0372	3.72	21	70	4	★
D0373	3.73	21	70	4	★
D0374	3.74	21	70	4	★
D0375	3.75	21	70	4	●
D0376	3.76	21	70	4	★
D0377	3.77	21	70	4	★
D0378	3.78	21	70	4	★
D0379	3.79	21	70	4	★
D0380	3.8	21	70	4	●
D0381	3.81	21	70	4	★
D0382	3.82	21	70	4	★
D0383	3.83	21	70	4	★
D0384	3.84	21	70	4	★
D0385	3.85	21	70	4	●
D0386	3.86	21	70	4	★
D0387	3.87	21	70	4	★
D0388	3.88	21	70	4	★
D0389	3.89	21	70	4	★
D0390	3.9	21	70	4	●
D0391	3.91	21	70	4	★
D0392	3.92	21	70	4	★
D0393	3.93	21	70	4	★

VIOLET DRILLS



HSS

CUTTING CONDITIONS

D119

D105

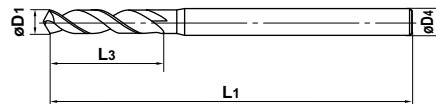
VIOLET DRILLS

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1 ≤ D1

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Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0394	3.94	21	70	4	★
D0395	3.95	21	70	4	●
D0396	3.96	21	70	4	★
D0397	3.97	21	70	4	★
D0398	3.98	21	70	4	★
D0399	3.99	21	70	4	★
D0400	4.0	21	70	4	●
D0405	4.05	21	80	6	●
D0410	4.1	21	80	6	●
D0415	4.15	21	80	6	●
D0420	4.2	21	80	6	●
D0425	4.25	21	80	6	●
D0430	4.3	23	80	6	●
D0435	4.35	23	80	6	●
D0440	4.4	23	80	6	●
D0445	4.45	23	80	6	●
D0450	4.5	23	80	6	●
D0455	4.55	23	80	6	●
D0460	4.6	25	80	6	●
D0465	4.65	25	80	6	●
D0470	4.7	25	80	6	●
D0475	4.75	25	80	6	●
D0480	4.8	25	80	6	●
D0485	4.85	25	80	6	●
D0490	4.9	25	80	6	●
D0495	4.95	25	80	6	●
D0500	5.0	25	80	6	●
D0505	5.05	25	80	6	●
D0510	5.1	25	80	6	●
D0515	5.15	25	80	6	●
D0520	5.2	25	80	6	●
D0525	5.25	25	80	6	●
D0530	5.3	25	80	6	●
D0535	5.35	27	80	6	●
D0540	5.4	27	80	6	●
D0545	5.45	27	80	6	●
D0550	5.5	27	80	6	●
D0555	5.55	27	80	6	●

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0560	5.6	27	80	6	●
D0565	5.65	27	80	6	●
D0570	5.7	27	80	6	●
D0575	5.75	27	80	6	●
D0580	5.8	27	80	6	●
D0585	5.85	27	80	6	●
D0590	5.9	27	80	6	●
D0595	5.95	27	80	6	●
D0600	6.0	27	80	6	●
D0605	6.05	30	80	8	●
D0610	6.1	30	80	8	●
D0615	6.15	30	80	8	●
D0620	6.2	30	80	8	●
D0625	6.25	30	80	8	●
D0630	6.3	30	80	8	●
D0635	6.35	30	80	8	●
D0640	6.4	30	80	8	●
D0645	6.45	30	80	8	●
D0650	6.5	30	80	8	●
D0655	6.55	30	80	8	●
D0660	6.6	30	80	8	●
D0665	6.65	30	80	8	●
D0670	6.7	30	80	8	●
D0675	6.75	32	80	8	●
D0680	6.8	32	80	8	●
D0685	6.85	32	80	8	●
D0690	6.9	32	80	8	●
D0695	6.95	32	80	8	●
D0700	7.0	32	80	8	●
D0705	7.05	32	80	8	●
D0710	7.1	32	80	8	●
D0715	7.15	32	80	8	●
D0720	7.2	32	80	8	●
D0725	7.25	32	80	8	●
D0730	7.3	32	80	8	●
D0735	7.35	32	80	8	●
D0740	7.4	32	80	8	●
D0745	7.45	32	80	8	●

VIOLET DRILLS

DRILLING

HSS

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD0750	7.5	32	80	8	●
D0755	7.55	35	85	8	●
D0760	7.6	35	85	8	●
D0765	7.65	35	85	8	●
D0770	7.7	35	85	8	●
D0775	7.75	35	85	8	●
D0780	7.8	35	85	8	●
D0785	7.85	35	85	8	●
D0790	7.9	35	85	8	●
D0795	7.95	35	85	8	●
D0800	8.0	35	85	8	●
D0805	8.05	35	90	10	●
D0810	8.1	35	90	10	●
D0815	8.15	35	90	10	●
D0820	8.2	35	90	10	●
D0825	8.25	35	90	10	●
D0830	8.3	35	90	10	●
D0835	8.35	35	90	10	●
D0840	8.4	35	90	10	●
D0845	8.45	35	90	10	●
D0850	8.5	35	90	10	●
D0855	8.55	38	93	10	●
D0860	8.6	38	93	10	●
D0865	8.65	38	93	10	●
D0870	8.7	38	93	10	●
D0875	8.75	38	93	10	●
D0880	8.8	38	93	10	●
D0885	8.85	38	93	10	●
D0890	8.9	38	93	10	●
D0895	8.95	38	93	10	●
D0900	9.0	38	93	10	●
D0910	9.1	38	93	10	●
D0920	9.2	38	93	10	●
D0930	9.3	38	93	10	●
D0940	9.4	38	93	10	●
D0950	9.5	38	93	10	●
D0960	9.6	41	96	10	●
D0970	9.7	41	96	10	●
D0980	9.8	41	96	10	●
D0990	9.9	41	96	10	●
D1000	10.0	41	96	10	●
D1010	10.1	41	101	12	●
D1020	10.2	41	101	12	●
D1030	10.3	41	101	12	●
D1040	10.4	41	101	12	●
D1050	10.5	41	101	12	●
D1060	10.6	41	101	12	●
D1070	10.7	45	105	12	●

* Expanded range

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDSSUSD1080	10.8	45	105	12	●
D1090	10.9	45	105	12	●
D1100	11.0	45	105	12	●
D1110	11.1	45	105	12	●
D1120	11.2	45	105	12	●
D1130	11.3	45	105	12	●
D1140	11.4	45	105	12	●
D1150	11.5	45	105	12	●
D1160	11.6	45	105	12	●
D1170	11.7	45	105	12	●
D1180	11.8	45	105	12	●
D1190	11.9	49	109	12	●
D1200	12.0	49	109	12	●
D1210	12.1	49	109	12	●
D1220	12.2	49	109	12	●
D1230	12.3	49	109	12	●
D1240	12.4	49	109	12	●
D1250	12.5	49	109	12	●
D1260	12.6	49	109	12	●
D1270	12.7	49	109	12	●
D1280	12.8	49	109	12	●
D1290	12.9	49	109	12	●
D1300	13.0	49	109	12	●
* D1350	13.5	51	111	16	●
* D1400	14.0	51	111	16	●
* D1410	14.1	53	113	16	●
* D1420	14.2	53	113	16	●
* D1450	14.5	53	113	16	●
* D1500	15.0	53	113	16	●
* D1550	15.5	55	115	16	●
* D1560	15.6	55	115	16	●
* D1570	15.7	55	115	16	●
* D1600	16.0	55	115	16	●
* D1650	16.5	57	122	20	●
* D1700	17.0	57	122	20	●
* D1750	17.5	58	123	20	●
* D1760	17.6	58	123	20	●
* D1770	17.7	58	123	20	●
* D1800	18.0	58	123	20	●
* D1850	18.5	60	125	20	●
* D1900	19.0	60	125	20	●
* D1950	19.5	62	127	20	●
* D1960	19.6	62	127	20	●
* D1970	19.7	62	127	20	●
* D2000	20.0	62	127	20	●

VIOLET DRILLS



HSS

CUTTING CONDITIONS

D119

D107

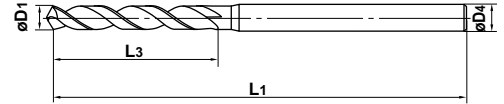
VIOLET DRILLS

VAPDMSUS

Medium flute length, High precision, For stainless steel



All drills except those with intervals of 0.1mm and under dia. 4mm have tolerance of 0—-0.009mm.



- New design and the Violet coating combination enables high efficiency and long tool life for drilling of stainless steels.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0050	0.5	6	50	3	●
D0051	0.51	6	50	3	★
D0052	0.52	6	50	3	★
D0053	0.53	6	50	3	★
D0054	0.54	6	50	3	★
D0055	0.55	6	50	3	★
D0056	0.56	8	50	3	★
D0057	0.57	8	50	3	★
D0058	0.58	8	50	3	★
D0059	0.59	8	50	3	★
D0060	0.6	8	50	3	●
D0061	0.61	8	50	3	★
D0062	0.62	8	50	3	★
D0063	0.63	8	50	3	★
D0064	0.64	8	50	3	★
D0065	0.65	8	50	3	★
D0066	0.66	8	50	3	★
D0067	0.67	8	50	3	★
D0068	0.68	8	50	3	★
D0069	0.69	8	50	3	★
D0070	0.7	10	50	3	●
D0071	0.71	10	50	3	★
D0072	0.72	10	50	3	★
D0073	0.73	10	50	3	★
D0074	0.74	10	50	3	★
D0075	0.75	10	50	3	★
D0076	0.76	10	50	3	★
D0077	0.77	10	50	3	★
D0078	0.78	10	50	3	★
D0079	0.79	10	50	3	★
D0080	0.8	10	50	3	●
D0081	0.81	10	50	3	★
D0082	0.82	10	50	3	★
D0083	0.83	10	50	3	★
D0084	0.84	10	50	3	★
D0085	0.85	10	50	3	★
D0086	0.86	12	50	3	★
D0087	0.87	12	50	3	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0088	0.88	12	50	3	★
D0089	0.89	12	50	3	★
D0090	0.9	12	50	3	●
D0091	0.91	12	50	3	★
D0092	0.92	12	50	3	★
D0093	0.93	12	50	3	★
D0094	0.94	12	50	3	★
D0095	0.95	12	50	3	★
D0096	0.96	12	50	3	★
D0097	0.97	12	50	3	★
D0098	0.98	12	50	3	★
D0099	0.99	12	50	3	★
D0100	1.0	12	60	3	●
D0101	1.01	12	60	3	★
D0102	1.02	12	60	3	★
D0103	1.03	12	60	3	★
D0104	1.04	12	60	3	★
D0105	1.05	12	60	3	★
D0106	1.06	12	60	3	★
D0107	1.07	16	60	3	★
D0108	1.08	16	60	3	★
D0109	1.09	16	60	3	★
D0110	1.1	16	60	3	●
D0111	1.11	16	60	3	★
D0112	1.12	16	60	3	★
D0113	1.13	16	60	3	★
D0114	1.14	16	60	3	★
D0115	1.15	16	60	3	★
D0116	1.16	16	60	3	★
D0117	1.17	16	60	3	★
D0118	1.18	16	60	3	★
D0119	1.19	16	60	3	★
D0120	1.2	16	60	3	●
D0121	1.21	16	60	3	★
D0122	1.22	16	60	3	★
D0123	1.23	16	60	3	★
D0124	1.24	16	60	3	★
D0125	1.25	16	60	3	★

VIOLET DRILLS

DRILLING

HSS

D108

● : Inventory maintained. ★ : Inventory maintained in Japan.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0126	1.26	16	60	3	★
D0127	1.27	16	60	3	★
D0128	1.28	16	60	3	★
D0129	1.29	16	60	3	★
D0130	1.3	16	60	3	●
D0131	1.31	18	60	3	★
D0132	1.32	18	60	3	★
D0133	1.33	18	60	3	★
D0134	1.34	18	60	3	★
D0135	1.35	18	60	3	★
D0136	1.36	18	60	3	★
D0137	1.37	18	60	3	★
D0138	1.38	18	60	3	★
D0139	1.39	18	60	3	★
D0140	1.4	18	60	3	●
D0141	1.41	18	60	3	★
D0142	1.42	18	60	3	★
D0143	1.43	18	60	3	★
D0144	1.44	18	60	3	★
D0145	1.45	18	60	3	★
D0146	1.46	18	60	3	★
D0147	1.47	18	60	3	★
D0148	1.48	18	60	3	★
D0149	1.49	18	60	3	★
D0150	1.5	18	60	3	●
D0151	1.51	20	60	3	★
D0152	1.52	20	60	3	★
D0153	1.53	20	60	3	★
D0154	1.54	20	60	3	★
D0155	1.55	20	60	3	★
D0156	1.56	20	60	3	★
D0157	1.57	20	60	3	★
D0158	1.58	20	60	3	★
D0159	1.59	20	60	3	★
D0160	1.6	20	60	3	●
D0161	1.61	20	60	3	★
D0162	1.62	20	60	3	★
D0163	1.63	20	60	3	★
D0164	1.64	20	60	3	★
D0165	1.65	20	60	3	★
D0166	1.66	20	60	3	★
D0167	1.67	20	60	3	★
D0168	1.68	20	60	3	★
D0169	1.69	20	60	3	★
D0170	1.7	20	60	3	●
D0171	1.71	20	60	3	★
D0172	1.72	20	60	3	★
D0173	1.73	20	60	3	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0174	1.74	20	60	3	★
D0175	1.75	20	60	3	★
D0176	1.76	20	60	3	★
D0177	1.77	20	60	3	★
D0178	1.78	20	60	3	★
D0179	1.79	20	60	3	★
D0180	1.8	22	60	3	●
D0181	1.81	22	60	3	★
D0182	1.82	22	60	3	★
D0183	1.83	22	60	3	★
D0184	1.84	22	60	3	★
D0185	1.85	22	60	3	★
D0186	1.86	22	60	3	★
D0187	1.87	22	60	3	★
D0188	1.88	22	60	3	★
D0189	1.89	22	60	3	★
D0190	1.9	22	60	3	●
D0191	1.91	23	60	3	★
D0192	1.92	23	60	3	★
D0193	1.93	23	60	3	★
D0194	1.94	23	60	3	★
D0195	1.95	23	60	3	★
D0196	1.96	23	60	3	★
D0197	1.97	23	60	3	★
D0198	1.98	23	60	3	★
D0199	1.99	23	60	3	★
D0200	2.0	23	70	3	●
D0201	2.01	23	70	3	★
D0202	2.02	23	70	3	★
D0203	2.03	23	70	3	★
D0204	2.04	23	70	3	★
D0205	2.05	23	70	3	★
D0206	2.06	23	70	3	★
D0207	2.07	23	70	3	★
D0208	2.08	23	70	3	★
D0209	2.09	23	70	3	★
D0210	2.1	23	70	3	●
D0211	2.11	23	70	3	★
D0212	2.12	23	70	3	★
D0213	2.13	23	70	3	★
D0214	2.14	23	70	3	★
D0215	2.15	23	70	3	★
D0216	2.16	23	70	3	★
D0217	2.17	23	70	3	★
D0218	2.18	23	70	3	★
D0219	2.19	23	70	3	★
D0220	2.2	26	70	3	●
D0221	2.21	26	70	3	★

VIOLET DRILLS



HSS

CUTTING CONDITIONS

D119

D109

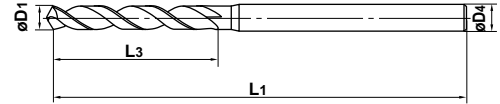
VIOLET DRILLS

VAPDMSUS

Medium flute length, High precision, For stainless steel



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- New design and the Violet coating combination enables high efficiency and long tool life for drilling of stainless steels.

Unit : mm

VIOLET DRILLS



HSS

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0222	2.22	26	70	3	★
D0223	2.23	26	70	3	★
D0224	2.24	26	70	3	★
D0225	2.25	26	70	3	★
D0226	2.26	26	70	3	★
D0227	2.27	26	70	3	★
D0228	2.28	26	70	3	★
D0229	2.29	26	70	3	★
D0230	2.3	26	70	3	●
D0231	2.31	26	70	3	★
D0232	2.32	26	70	3	★
D0233	2.33	26	70	3	★
D0234	2.34	26	70	3	★
D0235	2.35	26	70	3	★
D0236	2.36	26	70	3	★
D0237	2.37	26	70	3	★
D0238	2.38	26	70	3	★
D0239	2.39	26	70	3	★
D0240	2.4	29	70	3	●
D0241	2.41	29	70	3	★
D0242	2.42	29	70	3	★
D0243	2.43	29	70	3	★
D0244	2.44	29	70	3	★
D0245	2.45	29	70	3	★
D0246	2.46	29	70	3	★
D0247	2.47	29	70	3	★
D0248	2.48	29	70	3	★
D0249	2.49	29	70	3	★
D0250	2.5	29	70	3	●
D0251	2.51	29	70	3	★
D0252	2.52	29	70	3	★
D0253	2.53	29	70	3	★
D0254	2.54	29	70	3	★
D0255	2.55	29	70	3	★
D0256	2.56	29	70	3	★
D0257	2.57	29	70	3	★
D0258	2.58	29	70	3	★
D0259	2.59	29	70	3	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0260	2.6	29	70	3	●
D0261	2.61	29	70	3	★
D0262	2.62	29	70	3	★
D0263	2.63	29	70	3	★
D0264	2.64	29	70	3	★
D0265	2.65	29	70	3	★
D0266	2.66	29	70	3	★
D0267	2.67	29	70	3	★
D0268	2.68	29	70	3	★
D0269	2.69	29	70	3	★
D0270	2.7	32	70	3	●
D0271	2.71	32	70	3	★
D0272	2.72	32	70	3	★
D0273	2.73	32	70	3	★
D0274	2.74	32	70	3	★
D0275	2.75	32	70	3	★
D0276	2.76	32	70	3	★
D0277	2.77	32	70	3	★
D0278	2.78	32	70	3	★
D0279	2.79	32	70	3	★
D0280	2.8	32	70	3	●
D0281	2.81	32	70	3	★
D0282	2.82	32	70	3	★
D0283	2.83	32	70	3	★
D0284	2.84	32	70	3	★
D0285	2.85	32	70	3	★
D0286	2.86	32	70	3	★
D0287	2.87	32	70	3	★
D0288	2.88	32	70	3	★
D0289	2.89	32	70	3	★
D0290	2.9	32	70	3	●
D0291	2.91	32	70	3	★
D0292	2.92	32	70	3	★
D0293	2.93	32	70	3	★
D0294	2.94	32	70	3	★
D0295	2.95	32	70	3	★
D0296	2.96	32	70	3	★
D0297	2.97	32	70	3	★

D110

● : Inventory maintained. ★ : Inventory maintained in Japan.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0298	2.98	32	70	3	★
D0299	2.99	32	70	3	★
D0300	3.0	32	70	3	●
D0301	3.01	35	85	4	★
D0302	3.02	35	85	4	★
D0303	3.03	35	85	4	★
D0304	3.04	35	85	4	★
D0305	3.05	35	85	4	★
D0306	3.06	35	85	4	★
D0307	3.07	35	85	4	★
D0308	3.08	35	85	4	★
D0309	3.09	35	85	4	★
D0310	3.1	35	85	4	●
D0311	3.11	35	85	4	★
D0312	3.12	35	85	4	★
D0313	3.13	35	85	4	★
D0314	3.14	35	85	4	★
D0315	3.15	35	85	4	★
D0316	3.16	35	85	4	★
D0317	3.17	35	85	4	★
D0318	3.18	35	85	4	★
D0319	3.19	35	85	4	★
D0320	3.2	35	85	4	●
D0321	3.21	35	85	4	★
D0322	3.22	35	85	4	★
D0323	3.23	35	85	4	★
D0324	3.24	35	85	4	★
D0325	3.25	35	85	4	★
D0326	3.26	35	85	4	★
D0327	3.27	35	85	4	★
D0328	3.28	35	85	4	★
D0329	3.29	35	85	4	★
D0330	3.3	35	85	4	●
D0331	3.31	38	85	4	★
D0332	3.32	38	85	4	★
D0333	3.33	38	85	4	★
D0334	3.34	38	85	4	★
D0335	3.35	38	85	4	★
D0336	3.36	38	85	4	★
D0337	3.37	38	85	4	★
D0338	3.38	38	85	4	★
D0339	3.39	38	85	4	★
D0340	3.4	38	85	4	●
D0341	3.41	38	85	4	★
D0342	3.42	38	85	4	★
D0343	3.43	38	85	4	★
D0344	3.44	38	85	4	★
D0345	3.45	38	85	4	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0346	3.46	38	85	4	★
D0347	3.47	38	85	4	★
D0348	3.48	38	85	4	★
D0349	3.49	38	85	4	★
D0350	3.5	38	85	4	●
D0351	3.51	38	85	4	★
D0352	3.52	38	85	4	★
D0353	3.53	38	85	4	★
D0354	3.54	38	85	4	★
D0355	3.55	38	85	4	★
D0356	3.56	38	85	4	★
D0357	3.57	38	85	4	★
D0358	3.58	38	85	4	★
D0359	3.59	38	85	4	★
D0360	3.6	38	85	4	●
D0361	3.61	38	85	4	★
D0362	3.62	38	85	4	★
D0363	3.63	38	85	4	★
D0364	3.64	38	85	4	★
D0365	3.65	38	85	4	★
D0366	3.66	38	85	4	★
D0367	3.67	38	85	4	★
D0368	3.68	38	85	4	★
D0369	3.69	38	85	4	★
D0370	3.7	38	85	4	●
D0371	3.71	42	85	4	★
D0372	3.72	42	85	4	★
D0373	3.73	42	85	4	★
D0374	3.74	42	85	4	★
D0375	3.75	42	85	4	★
D0376	3.76	42	85	4	★
D0377	3.77	42	85	4	★
D0378	3.78	42	85	4	★
D0379	3.79	42	85	4	★
D0380	3.8	42	85	4	●
D0381	3.81	42	85	4	★
D0382	3.82	42	85	4	★
D0383	3.83	42	85	4	★
D0384	3.84	42	85	4	★
D0385	3.85	42	85	4	★
D0386	3.86	42	85	4	★
D0387	3.87	42	85	4	★
D0388	3.88	42	85	4	★
D0389	3.89	42	85	4	★
D0390	3.9	42	85	4	●
D0391	3.91	42	85	4	★
D0392	3.92	42	85	4	★
D0393	3.93	42	85	4	★

VIOLET DRILLS



HSS

CUTTING CONDITIONS

D119

D111

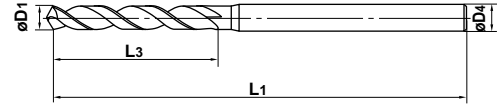
VIOLET DRILLS

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Unit : mm

VIOLET DRILLS



HSS

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0394	3.94	42	85	4	★
D0395	3.95	42	85	4	★
D0396	3.96	42	85	4	★
D0397	3.97	42	85	4	★
D0398	3.98	42	85	4	★
D0399	3.99	42	85	4	★
D0400	4.0	42	85	4	●
D0405	4.05	42	100	6	★
D0410	4.1	42	100	6	●
D0415	4.15	42	100	6	★
D0420	4.2	42	100	6	●
D0425	4.25	46	100	6	★
D0430	4.3	46	100	6	●
D0435	4.35	46	100	6	★
D0440	4.4	46	100	6	●
D0445	4.45	46	100	6	★
D0450	4.5	46	100	6	●
D0455	4.55	46	100	6	★
D0460	4.6	46	100	6	●
D0465	4.65	46	100	6	★
D0470	4.7	46	100	6	●
D0475	4.75	46	100	6	★
D0480	4.8	51	100	6	●
D0485	4.85	51	100	6	★
D0490	4.9	51	100	6	●
D0495	4.95	51	100	6	★
D0500	5.0	51	100	6	●
D0505	5.05	51	100	6	★
D0510	5.1	51	100	6	●
D0515	5.15	51	100	6	★
D0520	5.2	51	100	6	●
D0525	5.25	51	100	6	★
D0530	5.3	51	100	6	●
D0535	5.35	56	106	6	★
D0540	5.4	56	106	6	●
D0545	5.45	56	106	6	★
D0550	5.5	56	106	6	●
D0555	5.55	56	106	6	★

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0560	5.6	56	106	6	●
D0565	5.65	56	106	6	★
D0570	5.7	56	106	6	●
D0575	5.75	56	106	6	★
D0580	5.8	56	106	6	●
D0585	5.85	56	106	6	★
D0590	5.9	56	106	6	●
D0595	5.95	56	106	6	★
D0600	6.0	56	106	6	●
D0605	6.05	62	112	8	★
D0610	6.1	62	112	8	●
D0615	6.15	62	112	8	★
D0620	6.2	62	112	8	●
D0625	6.25	62	112	8	★
D0630	6.3	62	112	8	●
D0635	6.35	62	112	8	★
D0640	6.4	62	112	8	●
D0645	6.45	62	112	8	★
D0650	6.5	62	112	8	●
D0655	6.55	62	112	8	★
D0660	6.6	62	112	8	●
D0665	6.65	62	112	8	★
D0670	6.7	62	112	8	●
D0675	6.75	67	117	8	★
D0680	6.8	67	117	8	●
D0685	6.85	67	117	8	★
D0690	6.9	67	117	8	●
D0695	6.95	67	117	8	★
D0700	7.0	67	117	8	●
D0705	7.05	67	117	8	★
D0710	7.1	67	117	8	●
D0715	7.15	67	117	8	★
D0720	7.2	67	117	8	●
D0725	7.25	67	117	8	★
D0730	7.3	67	117	8	●
D0735	7.35	67	117	8	★
D0740	7.4	67	117	8	●
D0745	7.45	67	117	8	★

● : Inventory maintained. ★ : Inventory maintained in Japan.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD0750	7.5	67	117	8	●
D0755	7.55	73	123	8	★
D0760	7.6	73	123	8	●
D0765	7.65	73	123	8	★
D0770	7.7	73	123	8	●
D0775	7.75	73	123	8	★
D0780	7.8	73	123	8	●
D0785	7.85	73	123	8	★
D0790	7.9	73	123	8	●
D0795	7.95	73	123	8	★
D0800	8.0	73	123	8	●
D0805	8.05	73	128	10	★
D0810	8.1	73	128	10	●
D0815	8.15	73	128	10	★
D0820	8.2	73	128	10	●
D0825	8.25	73	128	10	★
D0830	8.3	73	128	10	●
D0835	8.35	73	128	10	★
D0840	8.4	73	128	10	●
D0845	8.45	73	128	10	★
D0850	8.5	73	128	10	●
D0855	8.55	79	134	10	★
D0860	8.6	79	134	10	●
D0865	8.65	79	134	10	★
D0870	8.7	79	134	10	●
D0875	8.75	79	134	10	★
D0880	8.8	79	134	10	●
D0885	8.85	79	134	10	★
D0890	8.9	79	134	10	●
D0895	8.95	79	134	10	★
D0900	9.0	79	134	10	●
D0910	9.1	79	134	10	●
D0920	9.2	79	134	10	●
D0930	9.3	79	134	10	●
D0940	9.4	79	134	10	●
D0950	9.5	79	134	10	●
D0960	9.6	85	140	10	●
D0970	9.7	85	140	10	●
D0980	9.8	85	140	10	●
D0990	9.9	85	140	10	●
D1000	10.0	85	140	10	●
D1010	10.1	85	145	12	●
D1020	10.2	85	145	12	●
D1030	10.3	85	145	12	●
D1040	10.4	85	145	12	●
D1050	10.5	85	145	12	●
D1060	10.6	85	145	12	●
D1070	10.7	92	152	12	●

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Shank Dia. D4	Stock
VAPDMSUSD1080	10.8	92	152	12	●
D1090	10.9	92	152	12	●
D1100	11.0	92	152	12	●
D1110	11.1	92	152	12	●
D1120	11.2	92	152	12	●
D1130	11.3	92	152	12	●
D1140	11.4	92	152	12	●
D1150	11.5	92	152	12	●
D1160	11.6	92	152	12	●
D1170	11.7	92	152	12	●
D1180	11.8	92	152	12	●
D1190	11.9	99	159	12	●
D1200	12.0	99	159	12	●
D1210	12.1	99	159	12	●
D1220	12.2	99	159	12	●
D1230	12.3	99	159	12	●
D1240	12.4	99	159	12	●
D1250	12.5	99	159	12	●
D1260	12.6	99	159	12	●
D1270	12.7	99	159	12	●
D1280	12.8	99	159	12	●
D1290	12.9	99	159	12	●
D1300	13.0	99	159	12	●

VIOLET DRILLS

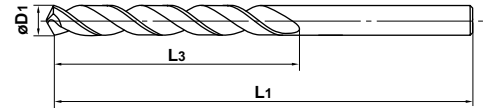


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VIOLET DRILLS

VEUSM

Medium flute length, For stainless steel



D1 < 2

2 ≤ D1

2 ≤ D1

● Excellent tool life for stainless steel or deep hole drilling.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Stock
VEUSMD0100	1.0	12	40	●
D0110	1.1	16	42	●
D0120	1.2	16	42	●
D0130	1.3	16	45	●
D0140	1.4	18	48	●
D0150	1.5	18	48	●
D0160	1.6	19	50	●
D0170	1.7	19	50	●
D0180	1.8	21	52	●
D0190	1.9	21	52	●
D0200	2.0	23	55	●
D0210	2.1	23	55	●
D0220	2.2	26	58	●
D0230	2.3	26	58	●
D0240	2.4	29	61	●
D0250	2.5	29	61	●
D0260	2.6	29	64	●
D0270	2.7	32	64	●
D0280	2.8	32	67	●
D0290	2.9	32	71	●
D0300	3.0	32	71	●
D0310	3.1	35	71	●
D0320	3.2	35	71	●
D0330	3.3	35	73	●
D0340	3.4	38	73	●
D0350	3.5	38	73	●
D0360	3.6	38	76	●
D0370	3.7	38	76	●
D0380	3.8	42	76	●
D0390	3.9	42	79	●
D0400	4.0	42	83	●
D0410	4.1	42	83	●
D0420	4.2	42	83	●
D0430	4.3	46	83	●
D0440	4.4	46	86	●
D0450	4.5	46	86	●
D0460	4.6	46	86	●
D0470	4.7	46	89	●

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Stock
VEUSMD0480	4.8	50	89	●
D0490	4.9	50	92	●
D0500	5.0	50	92	●
D0510	5.1	50	92	●
D0520	5.2	50	95	●
D0530	5.3	50	95	●
D0540	5.4	55	95	●
D0550	5.5	55	95	●
D0560	5.6	55	98	●
D0570	5.7	55	98	●
D0580	5.8	55	98	●
D0590	5.9	55	98	●
D0600	6.0	55	102	●
D0610	6.1	61	102	●
D0620	6.2	61	102	●
D0630	6.3	61	102	●
D0640	6.4	61	105	●
D0650	6.5	61	105	●
D0660	6.6	61	105	●
D0670	6.7	61	105	●
D0680	6.8	67	105	●
D0690	6.9	67	105	●
D0700	7.0	67	105	●
D0710	7.1	67	108	●
D0720	7.2	67	108	●
D0730	7.3	67	108	●
D0740	7.4	67	111	●
D0750	7.5	67	111	●
D0760	7.6	72	111	●
D0770	7.7	72	114	●
D0780	7.8	72	114	●
D0790	7.9	72	114	●
D0800	8.0	72	114	●
D0810	8.1	72	117	●
D0820	8.2	72	117	●
D0830	8.3	72	117	●
D0840	8.4	72	121	●
D0850	8.5	72	121	●

VIOLET DRILLS

DRILLING

HSS

D114

● : Inventory maintained.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Stock
VEUSMD0860	8.6	78	121	●
D0870	8.7	78	121	●
D0880	8.8	78	124	●
D0890	8.9	78	124	●
D0900	9.0	78	124	●
D0910	9.1	78	124	●
D0920	9.2	78	127	●
D0930	9.3	78	127	●
D0940	9.4	78	127	●
D0950	9.5	78	127	●
D0960	9.6	84	130	●
D0970	9.7	84	130	●
D0980	9.8	84	130	●
D0990	9.9	84	130	●
D1000	10.0	84	130	●
D1010	10.1	84	133	●
D1020	10.2	84	133	●
D1030	10.3	84	133	●
D1040	10.4	84	133	●
D1050	10.5	84	137	●
D1060	10.6	84	137	●
D1070	10.7	90	137	●
D1080	10.8	90	140	●
D1090	10.9	90	140	●
D1100	11.0	90	140	●
D1110	11.1	90	140	●
D1120	11.2	90	143	●
D1130	11.3	90	143	●
D1140	11.4	90	143	●
D1150	11.5	90	143	●
D1160	11.6	90	146	●
D1170	11.7	90	146	●
D1180	11.8	90	146	●
D1190	11.9	97	146	●
D1200	12.0	97	149	●
D1210	12.1	97	149	●
D1220	12.2	97	149	●
D1230	12.3	97	149	●
D1240	12.4	97	152	●
D1250	12.5	97	152	●
D1260	12.6	97	152	●
D1270	12.7	97	152	●
D1280	12.8	97	152	●
D1290	12.9	97	152	●
D1300	13.0	97	152	●

VIOLET DRILLS

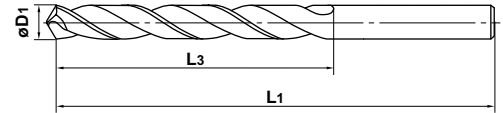


HSS

VIOLET DRILLS

VSD

Straight shank



D1<0.7

0.7≤D1

D1<2

2≤D1

● With Violet coating for long tool life.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Stock
VSD0050	0.5	6	27	●
D0060	0.6	7	30	●
D0070	0.7	9	32	●
D0080	0.8	10	34	●
D0090	0.9	11	36	●
D0100	1.0	12	40	●
D0110	1.1	14	42	●
D0120	1.2	16	42	●
D0130	1.3	16	45	●
D0140	1.4	18	48	●
D0150	1.5	18	48	●
D0160	1.6	20	50	●
D0170	1.7	20	50	●
D0180	1.8	22	52	●
D0190	1.9	22	52	●
D0200	2.0	23	55	●
D0210	2.1	23	55	●
D0220	2.2	26	58	●
D0230	2.3	26	58	●
D0240	2.4	29	61	●
D0250	2.5	29	61	●
D0260	2.6	29	64	●
D0270	2.7	32	64	●
D0280	2.8	32	67	●
D0290	2.9	32	71	●
D0300	3.0	32	71	●
D0310	3.1	35	71	●
D0320	3.2	35	71	●
D0330	3.3	35	73	●
D0340	3.4	38	73	●
D0350	3.5	38	73	●
D0360	3.6	38	76	●
D0370	3.7	38	76	●
D0380	3.8	42	76	●
D0390	3.9	42	79	●
D0400	4.0	42	83	●
D0410	4.1	42	83	●
D0420	4.2	42	83	●

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Stock
VSD0430	4.3	46	83	●
D0440	4.4	46	86	●
D0450	4.5	46	86	●
D0460	4.6	46	86	●
D0470	4.7	46	89	●
D0480	4.8	51	89	●
D0490	4.9	51	92	●
D0500	5.0	51	92	●
D0510	5.1	51	92	●
D0520	5.2	51	95	●
D0530	5.3	51	95	●
D0540	5.4	56	95	●
D0550	5.5	56	95	●
D0560	5.6	56	98	●
D0570	5.7	56	98	●
D0580	5.8	56	98	●
D0590	5.9	56	98	●
D0600	6.0	56	102	●
D0610	6.1	62	102	●
D0620	6.2	62	102	●
D0630	6.3	62	102	●
D0640	6.4	62	105	●
D0650	6.5	62	105	●
D0660	6.6	62	105	●
D0670	6.7	62	105	●
D0680	6.8	67	105	●
D0690	6.9	67	105	●
D0700	7.0	67	105	●
D0710	7.1	67	108	●
D0720	7.2	67	108	●
D0730	7.3	67	108	●
D0740	7.4	67	111	●
D0750	7.5	67	111	●
D0760	7.6	73	111	●
D0770	7.7	73	114	●
D0780	7.8	73	114	●
D0790	7.9	73	114	●
D0800	8.0	73	114	●

VIOLET DRILLS

DRILLING

HSS

D116

● : Inventory maintained.

Unit : mm

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Stock
VSDD0810	8.1	73	117	●
D0820	8.2	73	117	●
D0830	8.3	73	117	●
D0840	8.4	73	121	●
D0850	8.5	73	121	●
D0860	8.6	79	121	●
D0870	8.7	79	121	●
D0880	8.8	79	124	●
D0890	8.9	79	124	●
D0900	9.0	79	124	●
D0910	9.1	79	124	●
D0920	9.2	79	127	●
D0930	9.3	79	127	●
D0940	9.4	79	127	●
D0950	9.5	79	127	●
D0960	9.6	85	130	●
D0970	9.7	85	130	●
D0980	9.8	85	130	●
D0990	9.9	85	130	●
D1000	10.0	85	130	●
D1010	10.1	85	133	●
D1020	10.2	85	133	●
D1030	10.3	85	133	●
D1040	10.4	85	133	●
D1050	10.5	85	137	●
D1060	10.6	85	137	●
D1070	10.7	92	137	●
D1080	10.8	92	140	●
D1090	10.9	92	140	●
D1100	11.0	92	140	●
D1110	11.1	92	140	●
D1120	11.2	92	143	●
D1130	11.3	92	143	●
D1140	11.4	92	143	●
D1150	11.5	92	143	●
D1160	11.6	92	146	●
D1170	11.7	92	146	●
D1180	11.8	92	146	●
D1190	11.9	99	146	●
D1200	12.0	99	149	●
D1210	12.1	99	149	●
D1220	12.2	99	149	●
D1230	12.3	99	149	●
D1240	12.4	99	152	●
D1250	12.5	99	152	●
D1260	12.6	99	152	●
D1270	12.7	99	152	●
D1280	12.8	99	152	●

Order Number	Dia. D1	Flute Length L3	Overall Length L1	Stock
VSDD1290	12.9	99	152	●
D1300	13.0	99	152	●

VIOLET DRILLS



HSS

CUTTING CONDITIONS

D121

D117

RECOMMENDED CUTTING CONDITIONS FOR VIOLET DRILLS

VAPDS VAPDM

VIOLET DRILLS, High precision

RECOMMENDED CUTTING CONDITIONS FOR VIOLET DRILLS

VAPDS (Standard drilling depth : 3 times or below the drill diameter)

Work material	Structural steel		Carbon steel Ck55 Alloy steel 070M55 Cast iron		Alloy tool steel X210Cr12 (Low-hardness materials) Ferritic stainless steel X10CrA118, X10CrA113 Martensitic stainless steel X20Cr13, X10CrA113		Alloy tool steel W. Nr. 1.2344 (H13) (- 40HRC) Precipitation hardening stainless steel X7CrNiAl177	
	Dia. (mm)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)
0.5	18,000	0.02	16,000	0.02	9,000	0.02	8,200	0.02
1.0	12,000	0.05	10,000	0.05	6,300	0.05	5,500	0.04
2.0	6,400	0.09	5,500	0.09	3,200	0.09	2,900	0.05
3.0	4,300	0.13	3,700	0.13	2,100	0.13	1,900	0.06
4.0	3,200	0.15	2,800	0.15	1,600	0.15	1,400	0.08
5.0	2,600	0.18	2,200	0.18	1,300	0.18	1,100	0.10
6.0	2,100	0.19	1,800	0.19	1,100	0.20	950	0.11
8.0	1,600	0.24	1,400	0.24	800	0.22	720	0.13
10.0	1,300	0.28	1,100	0.28	640	0.25	570	0.15
12.0	1,100	0.34	930	0.34	530	0.30	480	0.17
13.0	980	0.36	860	0.36	490	0.32	440	0.19

VAPDM (Standard drilling depth : 5 times or below the drill diameter)

Work material	Structural steel		Carbon steel Ck55 Alloy steel 070M55 Cast iron		Alloy tool steel X210Cr12 (Low-hardness materials) Ferritic stainless steel X10CrA118, X10CrA113 Martensitic stainless steel X20Cr13, X10CrA113		Alloy tool steel W. Nr. 1.2344 (H13) (- 40HRC) Precipitation hardening stainless steel X7CrNiAl177	
	Dia. (mm)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)
0.5	17,000	0.01	12,800	0.01	8,000	0.01	6,600	0.01
1.0	11,000	0.05	8,300	0.05	5,000	0.05	4,100	0.04
2.0	6,400	0.09	4,800	0.09	2,900	0.06	2,400	0.05
3.0	4,300	0.13	3,200	0.13	1,900	0.10	1,600	0.06
4.0	3,200	0.15	2,400	0.15	1,400	0.10	1,200	0.08
5.0	2,600	0.18	1,900	0.18	1,100	0.13	950	0.10
6.0	2,100	0.19	1,600	0.20	950	0.15	800	0.11
8.0	1,600	0.24	1,200	0.22	720	0.18	600	0.13
10.0	1,300	0.28	950	0.25	570	0.21	480	0.15
12.0	1,100	0.34	800	0.30	480	0.25	400	0.17
14.0	910	0.39	680	0.35	410	0.30	340	0.21
15.0	850	0.40	640	0.36	380	0.31	320	0.22
16.0	800	0.42	600	0.38	360	0.32	300	0.23
18.0	710	0.44	530	0.40	320	0.34	270	0.24
20.0	570	0.44	450	0.40	250	0.34	220	0.24
22.0	520	0.46	410	0.42	230	0.36	200	0.25
24.0	480	0.48	370	0.44	210	0.37	190	0.26
26.0	440	0.51	340	0.46	200	0.39	170	0.28
28.0	410	0.53	320	0.48	180	0.41	160	0.29
30.0	380	0.55	300	0.50	170	0.43	150	0.30
32.0	360	0.55	280	0.50	160	0.43	140	0.30

- 1) Please reduce the revolution and feed rate when the workpiece clamping lacks rigidity or the machine has limitations.
- 2) Please use a collet type drill chuck or a milling chuck.
- 3) Use sufficient cutting fluid.
- 4) VAPDSSUS and VAPDMSUS are recommended for austenitic stainless steels (X5CrNi1810).
- 5) When drilling holes greater than 4 x drill diameter hole depths, please use a peck feed.

The above-mentioned cutting conditions are standard when using water-soluble cutting fluid.
Please reduce the revolutions when using non-water-soluble cutting fluid.



VAPDSSUS VAPDMSUS

VIOLET DRILLS, High precision, For stainless steel, Short/Medium flute length

VAPDSSUS, VAPDMSUS

Work material	Stainless steel				Carbon steel Cf53 Alloy steel 070M55 Cast iron Copper, Copper alloy	Structural steel Aluminium alloy		
	Austenitic X5CrNi1810 X5CrNiMo17122		Martensitic Ferritic X10CrA118			Revolution (min ⁻¹)	Feed rate (mm/rev)	
Dia. (mm)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)
0.5	7,600	0.01	8,800	0.01	11,250	0.01	15,000	0.02
1.0	4,800	0.02	6,300	0.05	10,000	0.05	12,000	0.05
2.0	2,400	0.04	3,200	0.06	5,500	0.09	6,400	0.09
3.0	1,600	0.07	2,100	0.10	3,700	0.13	4,300	0.13
4.0	1,200	0.09	1,600	0.10	2,800	0.15	3,200	0.15
5.0	950	0.12	1,300	0.13	2,200	0.18	2,600	0.18
6.0	800	0.14	1,100	0.15	1,800	0.20	2,100	0.19
8.0	600	0.18	800	0.18	1,400	0.22	1,600	0.24
10.0	480	0.22	640	0.21	1,100	0.25	1,300	0.28
12.0	400	0.24	530	0.25	930	0.30	1,100	0.34
13.0	370	0.26	490	0.28	860	0.32	1,000	0.36
14.0	340	0.30	450	0.27	730	0.31	930	0.36
15.0	320	0.31	425	0.28	680	0.32	870	0.38
16.0	300	0.32	400	0.30	640	0.34	820	0.42
18.0	270	0.34	350	0.32	570	0.36	725	0.43
20.0	240	0.36	320	0.35	510	0.38	660	0.45

- 1) Please reduce the revolution and feed rate when the workpiece clamping lacks rigidity or the machine has limitations.
- 2) Please use a collet type drill chuck.
- 3) Use sufficient cutting fluid.
- 4) Do not peck drill and reduce the cutting conditions when drilling depths exceed 3×D (D : drill diameter).

The above-mentioned cutting conditions are standard when using water-soluble cutting fluid.
Please reduce the revolutions when using non-water-soluble cutting fluid.



RECOMMENDED CUTTING CONDITIONS FOR VIOLET DRILLS

VEUSM

VIOLET DRILLS, For stainless steel

VEUSM

Work material	Stainless steel				Carbon steel Cf53 Alloy steel 070M55 Cast iron Copper, Copper alloy	Structural steel Aluminium alloy		
	Austenitic X5CrNi1810 X5CrNiMo17122		Martensitic Ferritic X10CrA118			Revolution (min ⁻¹)	Feed rate (mm/rev)	
Dia. (mm)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)
1.0	3,800	0.02	6,300	0.02	7,600	0.03	10,000	0.03
2.0	2,400	0.04	3,200	0.05	4,800	0.05	6,400	0.06
3.0	1,600	0.06	2,100	0.07	3,200	0.08	4,300	0.09
4.0	1,200	0.08	1,600	0.09	2,400	0.10	3,200	0.12
5.0	960	0.10	1,300	0.12	1,900	0.13	2,600	0.15
6.0	800	0.12	1,100	0.14	1,600	0.16	2,100	0.18
8.0	600	0.14	800	0.17	1,200	0.19	1,600	0.22
10.0	480	0.17	640	0.20	960	0.22	1,300	0.26
12.0	400	0.19	530	0.22	800	0.25	1,100	0.29
13.0	370	0.22	490	0.25	740	0.28	1,000	0.32

- 1) Please reduce the revolution and feed rate when the workpiece clamping lacks rigidity or the machine has limitations.
- 2) When drilling deep holes, lower the cutting conditions.
- 3) The above-mentioned cutting conditions are standard when using water-soluble cutting fluid.

RECOMMENDED CUTTING CONDITIONS FOR VIOLET DRILLS



HSS

D120

VSD

Work material	Structural steel		Carbon steel Ck55		Stainless steel X20Cr13		Stainless steel X5CrNi1810 Tool steel X210Cr12 (Low-hardness materials) Heat-treated steel W.Nr. 1.2344(H13) (-40HRC)	
Cutting speed	40m/min		30m/min		20m/min		10–14m/min	
Dia. (mm)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)	Revolution (min ⁻¹)	Feed rate (mm/rev)
0.5	15,000	0.01	11,250	0.01	7,500	0.01	5,620	0.01
1.0	10,000	0.02	7,500	0.02	5,000	0.02	3,750	0.02
1.5	8,200	0.03	6,150	0.03	4,100	0.03	2,800	0.03
2.0	6,370	0.05	4,780	0.05	3,180	0.05	2,200	0.04
3.0	4,250	0.10	3,180	0.10	2,120	0.07	1,400	0.06
4.0	3,180	0.13	2,390	0.13	1,590	0.09	1,100	0.08
5.0	2,550	0.15	1,910	0.15	1,270	0.11	860	0.10
6.0	2,120	0.18	1,590	0.18	1,060	0.13	720	0.11
7.0	1,820	0.20	1,360	0.20	910	0.14	610	0.12
8.0	1,590	0.22	1,190	0.21	800	0.15	540	0.13
9.0	1,420	0.24	1,060	0.22	710	0.17	480	0.14
10.0	1,270	0.26	960	0.23	640	0.18	430	0.15
11.0	1,160	0.28	870	0.24	580	0.19	390	0.16
12.0	1,060	0.30	800	0.25	530	0.20	360	0.17
13.0	980	0.30	730	0.26	490	0.20	330	0.17

- 1) Please reduce the revolutions when the workpiece clamping lacks rigidity.
- 2) Do not peck drill and reduce the cutting conditions when drilling depths exceed 3×D (D : drill diameter).
- 3) The above-mentioned cutting conditions are standard when using water-soluble cutting fluid.
Please reduce the revolutions when using non-water-soluble cutting fluid.