

Stable drilling with indexable drill

## **TAW Drill**

# Indexable insert drill, yet always stable drilling



Grade for high rigidity and longer tool life

**MIRACLE<sup>®</sup> Coated VP15TF**

MIRACLE coating displays high welding resistance therefore it can be used for machining a wide range of workpiece materials such as Plain steels, Mild steels, Carbon steels, Stainless steels and Cast iron.

# Indexable Insert Drill

# TAW Drill

## Features

Unique design ensures extreme sharpness and accuracy

Exclusive design cutting edge enables superior chip control

### Undulating Cutting Edge

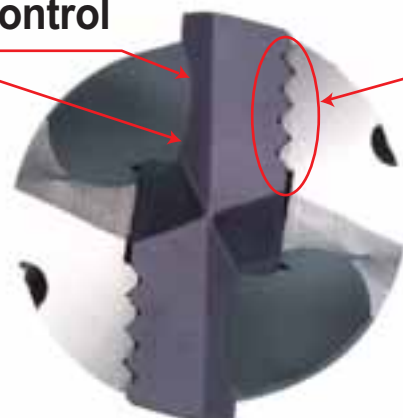
Concave part of insert engineered into cutting edge achieves sharp cutting performance. Convex part of insert allows for strong cutting edge.



Original serrated geometry maintains accuracy

### Mitsubishi's Unique Serration Geometry

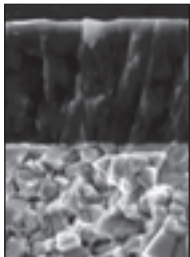
Mitsubishi's unique serration structure allows excellent clamping accuracy to be maintained.



Cutting edge shape

## Insert with extraordinary tool life

- Use of **MIRACLE**® coated **VP15TF** delivers exceptional tool life.



VP15TF

### Features of VP15TF

Welding-resistant **MIRACLE**® coated **VP15TF** can be used in a wide range of materials from general steel to carbon steel, alloy steel, stainless steel, cast iron etc.

## High durability body

- Special surface treatment applied to high heat resistant special alloy steel body increases resistance to corrosion and abrasion.



## Economy

### No Regrinding

- Eliminates burdensome regrinding and recoating of brazed drills.
- Eliminates quality trouble that may occur in regrinding of brazed drills. (Decreased tool life resulting from dimensional changes after regrinding)

### Reduced Stock

- Reduces stock of holders for each diameter inserts as inserts with different diameters can be installed on the same body which is more economical.

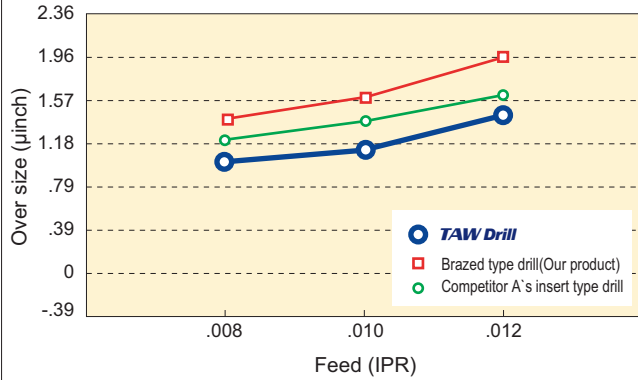
## Easy handling

- Can replace an insert easily just by loosening a clamp screw.



# Cutting Performance

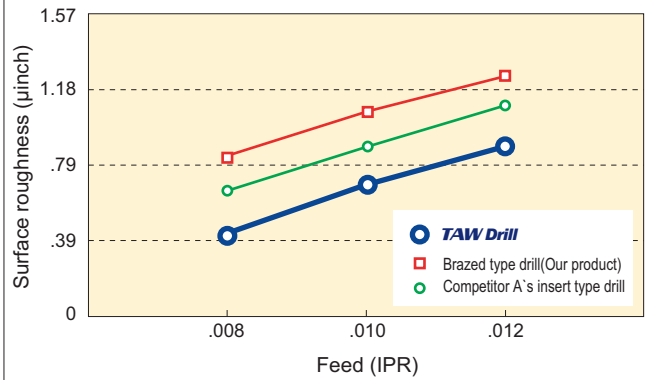
## OVER SIZE



<Cutting conditions>

Workpiece : ANSI 1045(150 - 180HB)  
 Drill Diameter : ø20mm(L/D=5)  
 Cutting Speed : 260SFM  
 Coolant : Emulsion 10%  
 Pressure : 0.5MPa(Internal Coolant)

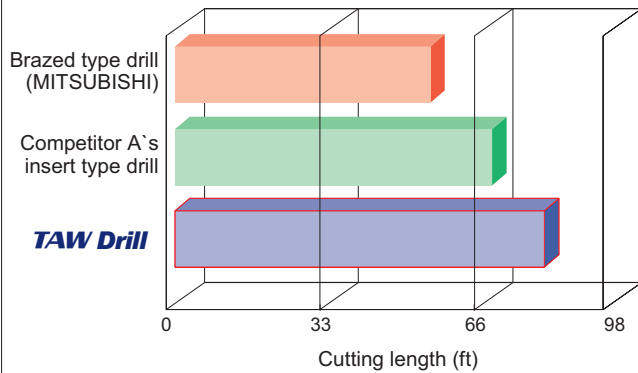
## SURFACE ROUGHNESS



<Cutting conditions>

Workpiece : ANSI 1045(150 - 180HB)  
 Drill Diameter : ø20mm(L/D=5)  
 Cutting Speed : 260SFM  
 Coolant : Emulsion 10%  
 Pressure : 0.5MPa(Internal Coolant)

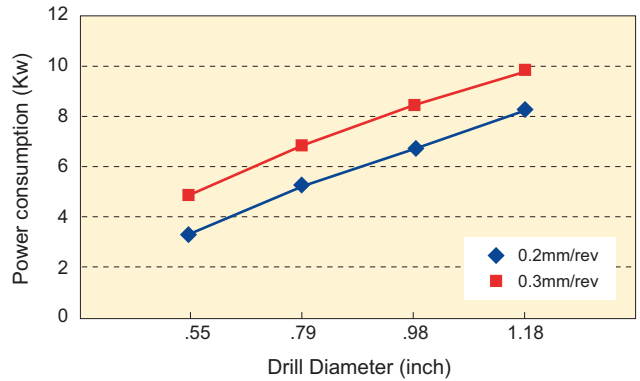
## LIFE OF INSERT



<Cutting conditions>

Workpiece : ANSI 1045(150 - 180HB) Coolant : Emulsion 10%  
 Drill Diameter : ø20mm(L/D=5) Pressure : 0.5MPa(Internal Coolant)  
 Cutting speed : 330SFM  
 Feed : .010IPR

## POWER CONSUMPTION



<Cutting conditions>

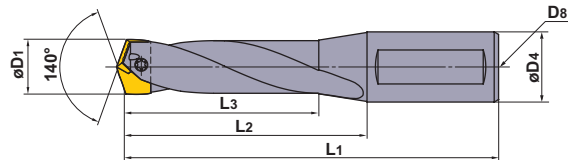
Workpiece : ANSI 1045(150 - 180HB)  
 Cutting speed : 260SFM  
 Coolant : Emulsion 10%  
 Pressure : 0.5MPa(Internal Coolant)

# TAWDrill

## INCH STANDARD

L/D=3

Internal Coolant

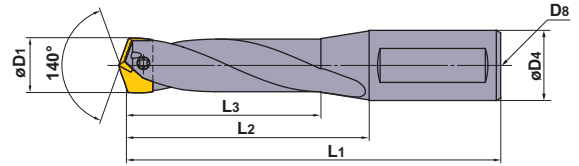






Holder		Insert		Drill Dia. D1 (inch)	Dimensions (inch)								
Order Number	Stock	Order Number	Stock		L3	L2	L1	D4	D8				
<b>TAWSN0036</b>	●	<b>TAWN0036T</b>	●	.5625	2.01	2.64	4.52	.63	1/8-27	WS254012T	①TKY08D	WPT4405	MK1KS
<b>0037</b>	●	<b>0037T</b>	●	.5781	2.13	2.95	4.83	.63	1/8-27	WS254013T	①TKY08D	WPT4405	MK1KS
<b>0039</b>	●	<b>0038T</b>	●	.5938	2.13	2.95	4.95	.75	1/8-27	WS254013T	①TKY08D	WPT4405	MK1KS
		<b>0039T</b>	●	.6094									
<b>0041</b>	●	<b>0040T</b>	●	.6250	2.28	3.15	5.15	.75	1/8-27	WS254014T	①TKY08D	WPT4405	MK1KS
		<b>0041T</b>	●	.6406									
<b>0044</b>	●	<b>0042T</b>	●	.6563	2.40	3.35	5.35	.75	1/8-27	WS254015T	①TKY08D	WPT4405	MK1KS
		<b>0043T</b>	●	.6719									
		<b>0044T</b>	●	.6875									
<b>0045</b>	●	<b>0045T</b>	●	.7031	2.56	3.54	5.54	.75	1/8-27	WS254016T	①TKY08D	WPT4405	MK1KS
<b>0046</b>	●	<b>0046T</b>	●	.7188	2.56	3.54	5.79	1.00	1/8-27	WS254016T	①TKY08D	WPT4405	MK1KS
<b>0049</b>	●	<b>0047T</b>	●	.7344	2.68	3.90	6.15	1.00	1/8-27	WS304517T	②TKY10T	WPT4405	MK1KS
		<b>0048T</b>	●	.7500									
		<b>0049T</b>	●	.7656									
<b>0051</b>	●	<b>0050T</b>	●	.7813	2.83	3.90	6.15	1.00	1/8-27	WS304518T	②TKY10T	WPT4405	MK1KS
		<b>0051T</b>	●	.7969									
<b>0054</b>	●	<b>0052T</b>	●	.8125	2.95	3.90	6.15	1.00	1/8-27	WS304518T	②TKY10T	WPT4405	MK1KS
		<b>0053T</b>	●	.8281									
		<b>0054T</b>	●	.8438									
<b>0056</b>	●	<b>0055T</b>	●	.8594	3.11	4.09	6.34	1.00	1/8-27	WS355520T	②TKY15T	WPT4405	MK1KS
		<b>0056T</b>	●	.8750									
<b>0059</b>	●	<b>0057T</b>	●	.8906	3.23	4.09	6.34	1.00	1/8-27	WS355521T	②TKY15T	WPT4405	MK1KS
		<b>0058T</b>	●	.9063									
		<b>0059T</b>	●	.9219									
<b>0061</b>	●	<b>0060T</b>	●	.9375	3.39	4.33	6.71	1.25	1/4-18	WS355521T	②TKY15T	WPT4405	MK1KS
		<b>0061T</b>	●	.9531									
<b>0100</b>	●	<b>0062T</b>	●	.9688	3.46	4.33	6.71	1.25	1/4-18	WS406023T	②TKY25T	WPT4405	MK1KS
		<b>0063T</b>	●	.9844									
		<b>0100T</b>	●	1.0000									
<b>0102</b>	●	<b>0101T</b>	●	1.0156	3.62	4.53	6.91	1.25	1/4-18	WS406024T	②TKY25T	WPT4405	MK1KS
		<b>0102T</b>	●	1.0313									
<b>0105</b>	●	<b>0103T</b>	●	1.0469	3.70	4.53	6.91	1.25	1/4-18	WS406024T	②TKY25T	WPT4405	MK1KS
		<b>0104T</b>	●	1.0625									
		<b>0105T</b>	●	1.0781									
<b>0107</b>	●	<b>0106T</b>	●	1.0938	3.82	4.72	7.10	1.25	1/4-18	WS508026T	②TKY27T	WPT4405	MK1KS
		<b>0107T</b>	●	1.1094									
<b>0110</b>	●	<b>0108T</b>	●	1.1250	3.94	4.92	7.30	1.25	1/4-18	WS508027T	②TKY27T	WPT4405	MK1KS
		<b>0109T</b>	●	1.1406									
		<b>0110T</b>	●	1.1563									
<b>0112</b>	●	<b>0111T</b>	●	1.1719	4.09	4.92	7.30	1.25	1/4-18	WS508027T	②TKY27T	WPT4405	MK1KS
		<b>0112T</b>	●	1.1875									

INCH STANDARD

L/D=5


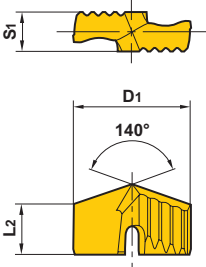
Internal Coolant



Holder		Insert		Drill Dia. D1 (inch)	Dimensions (inch)					 Clamp Screw	 Wrench	 Plate	 Anti-seize Lubricant
Order Number	Stock	Order Number	Stock		L3	L2	L1	D4	D8				
<b>TAWMN0036</b>	●	<b>TAWN0036T</b>	●	.5625	3.150	3.819	5.694	.625	1/8-27	WS254012T	①TKY08D	WPT4405	MK1KS
<b>0037</b>	●	<b>0037T</b>	●	.5781	3.346	4.134	6.009	.625	1/8-27	WS254013T	①TKY08D	WPT4405	MK1KS
<b>0039</b>	●	<b>0038T</b>	●	.5938	3.346	4.134	6.134	.750	1/8-27	WS254013T	①TKY08D	WPT4405	MK1KS
		<b>0039T</b>	●	.6094									
<b>0041</b>	●	<b>0040T</b>	●	.6250	3.583	4.528	6.528	.750	1/8-27	WS254014T	①TKY08D	WPT4405	MK1KS
		<b>0041T</b>	●	.6406									
<b>0044</b>	●	<b>0042T</b>	●	.6563	3.780	4.724	6.724	.750	1/8-27	WS254015T	①TKY08D	WPT4405	MK1KS
		<b>0043T</b>	●	.6719									
		<b>0044T</b>	●	.6875									
<b>0045</b>	●	<b>0045T</b>	●	.7031	4.016	4.921	6.921	.750	1/8-27	WS254016T	①TKY08D	WPT4405	MK1KS
<b>0046</b>	●	<b>0046T</b>	●	.7188	4.016	4.921	7.171	1.000	1/8-27	WS254016T	①TKY08D	WPT4405	MK1KS
<b>0049</b>	●	<b>0047T</b>	●	.7344	4.213	5.276	7.526	1.000	1/8-27	WS304517T	②TKY10T	WPT4405	MK1KS
		<b>0048T</b>	●	.7500									
		<b>0049T</b>	●	.7656									
<b>0051</b>	●	<b>0050T</b>	●	.7813	4.449	5.472	7.722	1.000	1/8-27	WS304518T	②TKY10T	WPT4405	MK1KS
		<b>0051T</b>	●	.7969									
<b>0054</b>	●	<b>0052T</b>	●	.8125	4.646	5.472	7.722	1.000	1/8-27	WS304518T	②TKY10T	WPT4405	MK1KS
		<b>0053T</b>	●	.8281									
		<b>0054T</b>	●	.8438									
<b>0056</b>	●	<b>0055T</b>	●	.8594	4.882	5.669	7.919	1.000	1/8-27	WS355520T	②TKY15T	WPT4405	MK1KS
		<b>0056T</b>	●	.8750									
<b>0059</b>	●	<b>0057T</b>	●	.8906	5.079	6.063	8.313	1.000	1/8-27	WS355521T	②TKY15T	WPT4405	MK1KS
		<b>0058T</b>	●	.9063									
		<b>0059T</b>	●	.9219									
<b>0061</b>	●	<b>0060T</b>	●	.9375	5.315	6.299	8.674	1.250	1/4-18	WS355521T	②TKY15T	WPT4405	MK1KS
		<b>0061T</b>	●	.9531									
<b>0100</b>	●	<b>0062T</b>	●	.9688	5.512	6.496	8.871	1.250	1/4-18	WS406023T	②TKY25T	WPT4405	MK1KS
		<b>0063T</b>	●	.9844									
		<b>0100T</b>	●	1.0000									
<b>0102</b>	●	<b>0101T</b>	●	1.0156	5.748	6.693	9.068	1.250	1/4-18	WS406024T	②TKY25T	WPT4405	MK1KS
		<b>0102T</b>	●	1.0313									
<b>0105</b>	●	<b>0103T</b>	●	1.0469	5.945	6.890	9.265	1.250	1/4-18	WS406024T	②TKY25T	WPT4405	MK1KS
		<b>0104T</b>	●	1.0625									
		<b>0105T</b>	●	1.0781									
<b>0107</b>	●	<b>0106T</b>	●	1.0938	6.181	7.087	9.462	1.250	1/4-18	WS508026T	②TKY27T	WPT4405	MK1KS
		<b>0107T</b>	●	1.1094									
<b>0110</b>	●	<b>0108T</b>	●	1.1250	6.378	7.283	9.658	1.250	1/4-18	WS508027T	②TKY27T	WPT4405	MK1KS
		<b>0109T</b>	●	1.1406									
		<b>0110T</b>	●	1.1563									
<b>0112</b>	●	<b>0111T</b>	●	1.1719	6.575	7.677	10.052	1.250	1/4-18	WS508027T	②TKY27T	WPT4405	MK1KS
		<b>0112T</b>	●	1.1875									

## INSERTS

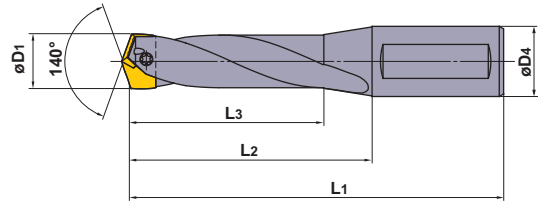
### INCH STANDARD





Geometry	Order Number	Stock	Dimensions (inch)			Applicable Holder	
		VP15TF	D1	L2	S1	Inch	Metric
 	<b>TAWN0036T</b>	●	.5625	.276	.197	TAWS/MN0036	TAWS/MN1400S16
	<b>0037T</b>	●	.5781	.272	.197	TAWS/MN0037	TAWS/MN1500S20
	<b>0038T</b>	●	.5938	.268	.197	TAWS/MN0039	
	<b>0039T</b>	●	.6094	.268	.197	TAWS/MN0041	TAWS/MN1600S20
	<b>0040T</b>	●	.6250	.311	.236	TAWS/MN0044	TAWS/MN1700S20
	<b>0041T</b>	●	.6406	.307	.236	TAWS/MN0045	TAWS/MN1800S20
	<b>0042T</b>	●	.6563	.303	.236	TAWS/MN0046	
	<b>0043T</b>	●	.6719	.299	.236	TAWS/MN0049	TAWS/MN1900S25
	<b>0044T</b>	●	.6875	.299	.236	TAWS/MN0051	TAWS/MN2000S25
	<b>0045T</b>	●	.7031	.295	.236	TAWS/MN0054	TAWS/MN2100S25
	<b>0046T</b>	●	.7188	.291	.236	TAWS/MN0056	TAWS/MN2200S25
	<b>0047T</b>	●	.7344	.366	.276	TAWS/MN0059	TAWS/MN2300S25
	<b>0048T</b>	●	.7500	.362	.276	TAWS/MN0061	TAWS/MN2400S32
	<b>0049T</b>	●	.7656	.362	.276	TAWS/MN0100	TAWS/MN2500S32
	<b>0050T</b>	●	.7813	.358	.276	TAWS/MN0102	TAWS/MN2600S32
	<b>0051T</b>	●	.7969	.354	.276	TAWS/MN0105	TAWS/MN2700S32
	<b>0052T</b>	●	.8125	.350	.276	TAWS/MN0107	TAWS/MN2800S32
	<b>0053T</b>	●	.8281	.346	.276	TAWS/MN0110	TAWS/MN2900S32
	<b>0054T</b>	●	.8438	.346	.276	TAWS/MN0112	TAWS/MN3000S32
	<b>0055T</b>	●	.8594	.406	.315		
	<b>0056T</b>	●	.8750	.402	.315		
	<b>0057T</b>	●	.8906	.398	.315		
	<b>0058T</b>	●	.9063	.394	.315		
	<b>0059T</b>	●	.9219	.394	.315		
	<b>0060T</b>	●	.9375	.390	.315		
	<b>0061T</b>	●	.9531	.386	.315		
	<b>0062T</b>	●	.9688	.437	.354		
	<b>0063T</b>	●	.9844	.433	.354		
	<b>0100T</b>	●	1.0000	.433	.354		
	<b>0101T</b>	●	1.0156	.429	.354		
<b>0102T</b>	●	1.0313	.425	.354			
<b>0103T</b>	●	1.0469	.421	.354			
<b>0104T</b>	●	1.0625	.421	.354			
<b>0105T</b>	●	1.0781	.417	.354			
<b>0106T</b>	●	1.0938	.476	.394			
<b>0107T</b>	●	1.1094	.472	.394			
<b>0108T</b>	●	1.1250	.469	.394			
<b>0109T</b>	●	1.1406	.469	.394			
<b>0110T</b>	●	1.1563	.465	.394			
<b>0111T</b>	●	1.1719	.461	.394			
<b>0112T</b>	●	1.1875	.457	.394			

# TAW Drill

## METRIC STANDARD

Internal Coolant

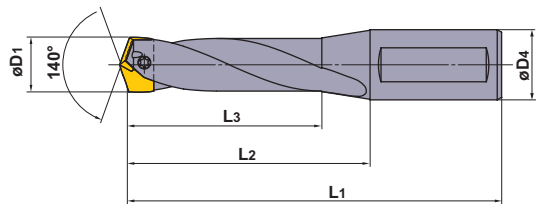


Hole Depth (l/d)	Holder		Insert		Drill Dia. D1 (mm)	Dimensions (mm)				 Clamp Screw	 Wrench	 Plate	 Anti-seize Lubricant
	Order Number	Stock	Order Number	Stock VP15TF		L3	L2	L1	D4				
3	TAWSN1400S16	★	TAWN1400T	●	14.0	51	67	115	16	WS254012T	TKY08D	WPT4405	MK1KS
			1410T	●	14.1								
			1420T	●	14.2								
5	MN1400S16	★	1430T	●	14.3	80	97	145	16	WS254012T	TKY08D	WPT4405	MK1KS
			1440T	●	14.4								
			1450T	●	14.5								
3	TAWSN1500S20	★	1460T	●	14.6	54	75	125	20	WS254013T	TKY08D	WPT4405	MK1KS
			1470T	●	14.7								
			1480T	●	14.8								
			1490T	●	14.9								
			1500T	●	15.0								
5	MN1500S20	★	1510T	●	15.1	85	105	155	20	WS254013T	TKY08D	WPT4405	MK1KS
			1520T	●	15.2								
			1530T	●	15.3								
			1540T	●	15.4								
			1550T	●	15.5								
3	TAWSN1600S20	★	1560T	●	15.6	58	80	130	20	WS254014T	TKY08D	WPT4405	MK1KS
			1570T	●	15.7								
			1580T	●	15.8								
			1590T	●	15.9								
			1600T	●	16.0								
5	MN1600S20	★	1610T	●	16.1	91	115	165	20	WS254014T	TKY08D	WPT4405	MK1KS
			1620T	●	16.2								
			1630T	●	16.3								
			1640T	●	16.4								
			1650T	●	16.5								
3	TAWSN1700S20	★	1660T	●	16.6	61	85	135	20	WS254015T	TKY08D	WPT4405	MK1KS
			1670T	●	16.7								
			1680T	●	16.8								
			1690T	●	16.9								
			1700T	●	17.0								
5	MN1700S20	★	1710T	●	17.1	96	120	170	20	WS254015T	TKY08D	WPT4405	MK1KS
			1720T	●	17.2								
			1730T	●	17.3								
			1740T	●	17.4								
			1750T	●	17.5								
3	TAWSN1800S20	★	1760T	●	17.6	65	90	140	20	WS254016T	TKY08D	WPT4405	MK1KS
			1770T	●	17.7								
			1780T	●	17.8								
			1790T	●	17.9								
			1800T	●	18.0								
5	MN1800S20	★	1810T	●	18.1	102	125	175	20	WS254016T	TKY08D	WPT4405	MK1KS
			1820T	●	18.2								
			1830T	●	18.3								
			1840T	●	18.4								

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

# INDEXABLE INSERT DRILL

# TAW Drill



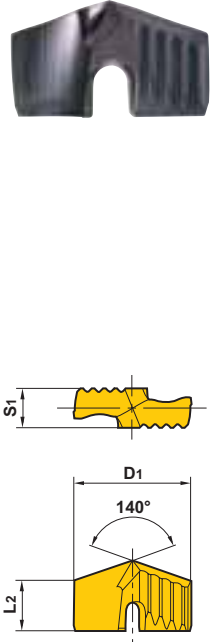
Hole Depth (l/d)	Holder		Insert		Drill Dia. D1 (mm)	Dimensions (mm)				 Clamp Screw	 Wrench	 Plate	 Anti-seize Lubricant
	Order Number	Stock	Order Number	Stock VPI5TF		L3	L2	L1	D4				
3	TAWSN1900S25	★	TAWN1850T	●	18.5	68	99	155	25	WS304517T	TKY10T	WPT4405	MK1KS
			1860T	●	18.6								
			1870T	●	18.7								
			1880T	●	18.8								
			1890T	●	18.9								
5	MN1900S25	★	1900T	●	19.0	107	134	190	25	WS304517T	TKY10T	WPT4405	MK1KS
			1910T	●	19.1								
			1920T	●	19.2								
			1930T	●	19.3								
			1940T	●	19.4								
3	TAWSN2000S25	★	1950T	●	19.5	72	99	155	25	WS304518T	TKY10T	WPT4405	MK1KS
			1960T	●	19.6								
			1970T	●	19.7								
			1980T	●	19.8								
			1990T	●	19.9								
5	MN2000S25	★	2000T	●	20.0	113	139	195	25	WS304518T	TKY10T	WPT4405	MK1KS
			2050T	●	20.5								
3	TAWSN2100S25	★	2100T	●	21.0	75	99	155	25	WS304518T	TKY10T	WPT4405	MK1KS
5	MN2100S25	★	2100T	●	21.0	118	139	195	25	WS304518T	TKY10T	WPT4405	MK1KS
3	TAWSN2200S25	★	2150T	●	21.5	79	104	160	25	WS355520T	TKY15T	WPT4405	MK1KS
5	MN2200S25	★	2200T	●	22.0	124	144	200	25	WS355520T	TKY15T	WPT4405	MK1KS
3	TAWSN2300S25	★	2250T	●	22.5	82	104	160	25	WS355521T	TKY15T	WPT4405	MK1KS
5	MN2300S25	★	2300T	●	23.0	129	154	210	25	WS355521T	TKY15T	WPT4405	MK1KS
3	TAWSN2400S32	★	2350T	●	23.5	86	110	170	32	WS355521T	TKY15T	WPT4405	MK1KS
5	MN2400S32	★	2400T	●	24.0	135	160	220	32	WS355521T	TKY15T	WPT4405	MK1KS
3	TAWSN2500S32	★	2450T	●	24.5	88	110	170	32	WS406023T	TKY25T	WPT4405	MK1KS
5	MN2500S32	★	2500T	●	25.0	140	165	225	32	WS406023T	TKY25T	WPT4405	MK1KS
3	TAWSN2600S32	★	2550T	●	25.5	92	115	175	32	WS406024T	TKY25T	WPT4405	MK1KS
5	MN2600S32	★	2600T	●	26.0	146	170	230	32	WS406024T	TKY25T	WPT4405	MK1KS
3	TAWSN2700S32	★	2650T	●	26.5	94	115	175	32	WS406024T	TKY25T	WPT4405	MK1KS
5	MN2700S32	★	2700T	●	27.0	151	175	235	32	WS406024T	TKY25T	WPT4405	MK1KS
3	TAWSN2800S32	★	2750T	●	27.5	97	120	180	32	WS508026T	TKY27T	WPT4405	MK1KS
5	MN2800S32	★	2800T	●	28.0	157	180	240	32	WS508026T	TKY27T	WPT4405	MK1KS
3	TAWSN2900S32	★	2850T	●	28.5	100	125	185	32	WS508027T	TKY27T	WPT4405	MK1KS
5	MN2900S32	★	2900T	●	29.0	162	185	245	32	WS508027T	TKY27T	WPT4405	MK1KS
3	TAWSN3000S32	★	2950T	●	29.5	104	125	185	32	WS508027T	TKY27T	WPT4405	MK1KS
5	MN3000S32	★	3000T	●	30.0	167	195	255	32	WS508027T	TKY27T	WPT4405	MK1KS



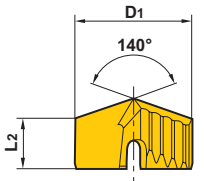
● : Inventory maintained. ★ : Inventory maintained in Japan.



**INSERTS**

**METRIC STANDARD**

Geometry	Order Number	Stock	Dimensions (mm)			Applicable Holder	
		VP15TF	D1	L2	S1	Inch	Metric
	<b>TAWN1400T</b>	●	14.0	7.0	5.0	TAWSN0036 TAWMN0036	TAWSN1400S16 TAWMN1400S16
	<b>1410T</b>	●	14.1	7.0	5.0		
	<b>1420T</b>	●	14.2	7.0	5.0		
	<b>1430T</b>	●	14.3	7.0	5.0		
	<b>1440T</b>	●	14.4	7.0	5.0		
	<b>1450T</b>	●	14.5	6.9	5.0		
	<b>1460T</b>	●	14.6	6.9	5.0	TAWSN0037 TAWMN0037 TAWSN0039 TAWMN0039	TAWSN1500S20 TAWMN1500S20
	<b>1470T</b>	●	14.7	6.9	5.0		
	<b>1480T</b>	●	14.8	6.9	5.0		
	<b>1490T</b>	●	14.9	6.9	5.0		
	<b>1500T</b>	●	15.0	6.8	5.0		
	<b>1510T</b>	●	15.1	6.8	5.0		
	<b>1520T</b>	●	15.2	6.8	5.0	TAWSN0041 TAWMN0041	TAWSN1600S20 TAWMN1600S20
	<b>1530T</b>	●	15.3	6.8	5.0		
	<b>1540T</b>	●	15.4	6.8	5.0		
	<b>1550T</b>	●	15.5	7.9	6.0		
	<b>1560T</b>	●	15.6	7.9	6.0		
	<b>1570T</b>	●	15.7	7.9	6.0		
	<b>1580T</b>	●	15.8	7.9	6.0	TAWSN0044 TAWMN0044	TAWSN1700S20 TAWMN1700S20
	<b>1590T</b>	●	15.9	7.9	6.0		
	<b>1600T</b>	●	16.0	7.8	6.0		
	<b>1610T</b>	●	16.1	7.8	6.0		
	<b>1620T</b>	●	16.2	7.8	6.0		
	<b>1630T</b>	●	16.3	7.8	6.0		
	<b>1640T</b>	●	16.4	7.8	6.0	TAWSN0045 TAWMN0045 TAWSN0046 TAWMN0046	TAWSN1800S20 TAWMN1800S20
	<b>1650T</b>	●	16.5	7.7	6.0		
	<b>1660T</b>	●	16.6	7.7	6.0		
	<b>1670T</b>	●	16.7	7.7	6.0		
	<b>1680T</b>	●	16.8	7.7	6.0		
	<b>1690T</b>	●	16.9	7.7	6.0		
<b>1700T</b>	●	17.0	7.6	6.0	TAWSN0045 TAWMN0045 TAWSN0046 TAWMN0046	TAWSN1800S20 TAWMN1800S20	
<b>1710T</b>	●	17.1	7.6	6.0			
<b>1720T</b>	●	17.2	7.6	6.0			
<b>1730T</b>	●	17.3	7.6	6.0			
<b>1740T</b>	●	17.4	7.6	6.0			
<b>1750T</b>	●	17.5	7.5	6.0			
<b>1760T</b>	●	17.6	7.5	6.0	TAWSN0045 TAWMN0045 TAWSN0046 TAWMN0046	TAWSN1800S20 TAWMN1800S20	
<b>1770T</b>	●	17.7	7.5	6.0			
<b>1780T</b>	●	17.8	7.5	6.0			
<b>1790T</b>	●	17.9	7.5	6.0			
<b>1800T</b>	●	18.0	7.4	6.0			
<b>1810T</b>	●	18.1	7.4	6.0			
<b>1820T</b>	●	18.2	7.4	6.0	TAWSN0045 TAWMN0045 TAWSN0046 TAWMN0046	TAWSN1800S20 TAWMN1800S20	
<b>1830T</b>	●	18.3	7.4	6.0			
<b>1840T</b>	●	18.4	7.4	6.0			

Geometry	Order Number	Stock	Dimensions (mm)			Applicable Holder			
		VP15TF	D1	L2	S1	Inch	Metric		
  	<b>TAWN1850T</b>	●	18.5	9.3	7.0	TAWSN0049 TAWMN0049	TAWSN1900S25 TAWMN1900S25		
	<b>1860T</b>	●	18.6	9.3	7.0				
	<b>1870T</b>	●	18.7	9.3	7.0				
	<b>1880T</b>	●	18.8	9.3	7.0				
	<b>1890T</b>	●	18.9	9.3	7.0				
	<b>1900T</b>	●	19.0	9.2	7.0				
	<b>1910T</b>	●	19.1	9.2	7.0				
	<b>1920T</b>	●	19.2	9.2	7.0				
	<b>1930T</b>	●	19.3	9.2	7.0				
	<b>1940T</b>	●	19.4	9.2	7.0				
	<b>1950T</b>	●	19.5	9.1	7.0	TAWSN0051 TAWMN0051	TAWSN2000S25 TAWMN2000S25		
	<b>1960T</b>	●	19.6	9.1	7.0				
	<b>1970T</b>	●	19.7	9.1	7.0				
	<b>1980T</b>	●	19.8	9.1	7.0				
	<b>1990T</b>	●	19.9	9.1	7.0				
	<b>2000T</b>	●	20.0	9.0	7.0				
	<b>2050T</b>	●	20.5	8.9	7.0			TAWSN0054 TAWMN0054	TAWSN2100S25 TAWMN2100S25
	<b>2100T</b>	●	21.0	8.8	7.0				
	<b>2150T</b>	●	21.5	10.3	8.0			TAWSN0056 TAWMN0056	TAWSN2200S25 TAWMN2200S25
	<b>2200T</b>	●	22.0	10.2	8.0				
	<b>2250T</b>	●	22.5	10.1	8.0	TAWSN0059 TAWMN0059	TAWSN2300S25 TAWMN2300S25		
	<b>2300T</b>	●	23.0	10.0	8.0				
	<b>2350T</b>	●	23.5	9.9	8.0	TAWSN0061 TAWMN0061	TAWSN2400S32 TAWMN2400S32		
	<b>2400T</b>	●	24.0	9.8	9.0				
	<b>2450T</b>	●	24.5	11.1	9.0	TAWSN0100 TAWMN0100	TAWSN2500S32 TAWMN2500S32		
	<b>2500T</b>	●	25.0	11.0	9.0				
	<b>2550T</b>	●	25.5	10.9	9.0	TAWSN0102 TAWMN0102	TAWSN2600S32 TAWMN2600S32		
	<b>2600T</b>	●	26.0	10.8	9.0				
	<b>2650T</b>	●	26.5	10.7	9.0	TAWSN0105 TAWMN0105	TAWSN2700S32 TAWMN2700S32		
	<b>2700T</b>	●	27.0	10.6	9.0				
<b>2750T</b>	●	27.5	12.1	10.0	TAWSN0107 TAWMN0107	TAWSN2800S32 TAWMN2800S32			
<b>2800T</b>	●	28.0	12.0	10.0					
<b>2850T</b>	●	28.5	11.9	10.0	TAWSN0110 TAWMN0110	TAWSN2900S32 TAWMN2900S32			
<b>2900T</b>	●	29.0	11.8	10.0					
<b>2950T</b>	●	29.5	11.7	10.0	TAWSN0112 TAWMN0112	TAWSN3000S32 TAWMN3000S32			
<b>3000T</b>	●	30.0	11.6	10.0					

**RECOMMENDED CUTTING CONDITIONS**

Workpiece	Drill Diameter	Conditions Hardness	ø.5625 – ø.6094		ø.6250 – ø.7188		ø.7344 – ø.8438	
			Cutting Speed (SFM)	Feed (inch/rev)	Cutting Speed (SFM)	Feed (inch/rev)	Cutting Speed (SFM)	Feed (inch/rev)
<b>P</b> Mild Steel	≤ 180HB		230 (195 – 295)	.008 (.006 – .010)	260 (195 – 330)	.010 (.008 – .012)	295 (230 – 360)	.010 (.008 – .012)
	180 – 280HB	Carbon Steel Alloy Steel	230 (195 – 295)	.008 (.006 – .010)	260 (195 – 330)	.010 (.008 – .012)	260 (195 – 330)	.010 (.008 – .012)
			280 – 350HB	195 (165 – 260)	.006 (.005 – .007)	230 (165 – 295)	.008 (.006 – .010)	230 (165 – 295)
<b>M</b> Stainless Steel	≤ 200HB		165 (130 – 195)	.006 (.005 – .007)	165 (130 – 195)	.006 (.005 – .007)	195 (165 – 230)	.008 (.006 – .009)
<b>K</b> Cast Iron	Tensile Strength ≤ 350MPa		230 (165 – 295)	.008 (.006 – .010)	260 (195 – 295)	.010 (.008 – .012)	295 (230 – 360)	.010 (.008 – .012)
	Tensile Strength ≤ 450MPa		230 (165 – 295)	.008 (.006 – .010)	260 (195 – 295)	.010 (.008 – .012)	260 (195 – 295)	.010 (.008 – .012)

Workpiece	Drill Diameter	Conditions Hardness	ø.8594 – ø.9531		ø.9688 – ø1.0781		ø1.0938 – ø1.1875	
			Cutting Speed (SFM)	Feed (inch/rev)	Cutting Speed (SFM)	Feed (inch/rev)	Cutting Speed (SFM)	Feed (inch/rev)
<b>P</b> Mild Steel	≤ 180HB		330 (260 – 390)	.012 (.010 – .014)	360 (260 – 390)	.012 (.010 – .014)	360 (260 – 390)	.012 (.010 – .014)
	180 – 280HB	Carbon Steel Alloy Steel	295 (230 – 360)	.012 (.010 – .014)	330 (260 – 390)	.012 (.010 – .014)	330 (260 – 390)	.012 (.010 – .014)
			280 – 350HB	260 (195 – 330)	.010 (.008 – .012)	295 (230 – 360)	.010 (.008 – .012)	295 (230 – 360)
<b>M</b> Stainless Steel	≤ 200HB		195 (165 – 230)	.008 (.006 – .009)	230 (195 – 260)	.010 (.008 – .011)	230 (195 – 260)	.010 (.008 – .011)
<b>K</b> Cast Iron	Tensile Strength ≤ 350MPa		330 (260 – 360)	.014 (.010 – .016)	360 (295 – 390)	.014 (.010 – .016)	360 (295 – 390)	.016 (.012 – .018)
	Tensile Strength ≤ 450MPa		295 (195 – 330)	.012 (.010 – .014)	330 (260 – 360)	.012 (.010 – .014)	330 (260 – 360)	.012 (.010 – .014)

**Notes on Use**

**INSERT INSTALLATION**

- Loosen clamp screw of holder to install insert.
- Mesh the insert serration to holder grooves.
- Fasten the clamp screw using the provided torque wrench while holding rake face of the insert lightly with your thumb. (Figure 1)
- Check that there is no clearance between the insert bottom and holder flute end. (Figure 2)

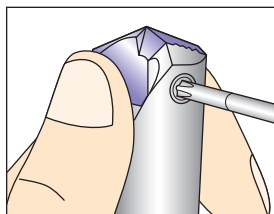


Figure 1

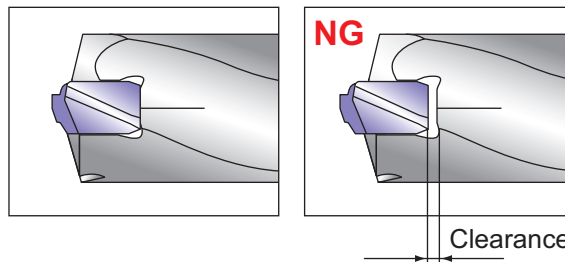


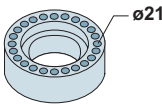
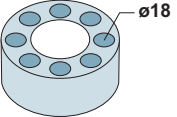
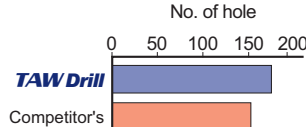
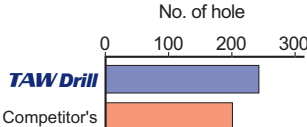
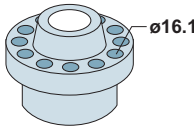
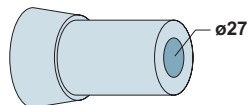
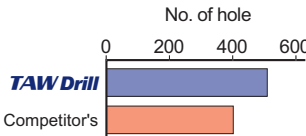
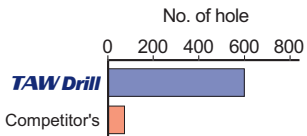
Figure 2

**NOTE ON INSERT REPLACEMENT**

- Clean insert guide grooves of a used holder by blowing air before installing a new insert.
- Remove heavy dirt in the holder serration and holder slits using the provided plate.

# TAW Drill

## APPLICATION EXAMPLES

Holder		TAWMN2100S25	TAWMN1800S20
Insert (Grade)		TAWN2100T (VP15TF)	TAWN1800T (VP15TF)
Workpiece		ANSI 4140 (34HS) 	ANSI 1045 (200HB) 
Component		Ring	Ring gear
Cutting Conditions	Cutting Speed (SFM)	180	230
	Feed (IPR)	.008	.012
	Revolution (min <sup>-1</sup> )	833	1238
	Feed Rate (inch/min)	6.57	14.61
Coolant		W.S.O (Internal coolant)	W.S.O (Internal coolant)
Machine Shank Type		Machining center	Machining center
Result			
Holder		TAWSN1600S20	TAWSN2700S32
Insert (Grade)		TAWN1610T (VP15TF)	TAWN2700T (VP15TF)
Workpiece		Alloy Steel 	ANSI 4130 
Component		Machine parts	Bit
Cutting Conditions	Cutting Speed (SFM)	260	260
	Feed (IPR)	.012	.012
	Revolution (min <sup>-1</sup> )	1582	943
	Feed Rate (inch/min)	18.70	11.14
Coolant		W.S.O (Internal coolant)	W.S.O (Internal coolant)
Machine Shank Type		Machining center	NC lathe
Result			

**For your safety**

●Do not touch cutting or chips without wearing gloves. ●Use tools under recommended cutting conditions, and exchange tools before excessive wear occurs. ●Chips become extremely hot, scattered over and may be stretched. Ensure safety guards and goggles are used. ●In case of using non-water soluble oil, make sure to have a fire prevention countermeasure. ●Use the provided wrench spanner, and ensure the inserts and spare parts are damped securely.

## MITSUBISHI MATERIALS CORPORATION

### MITSUBISHI MATERIALS U.S.A. CORPORATION

17401 Eastman Street, Irvine, California 92614, U.S.A  
TEL. 949-862-5100 FAX. 949-862-5180

Customer Service: (800)523-800 Technical Support: (800)486-2341

Chicago Branch Office: 2401 Hassell Road, Northwest Tech Centre, Suite 1540, Hoffman Estates, Illinois 60195, U.S.A  
TEL. 847-285-6900 FAX. 847-285-3405

Detroit Branch Office: 39303 Country Club Drive, Suite A-1, Farmington Hills, Michigan 48331, U.S.A  
TEL. 248-489-1000 FAX. 248-489-3008

Toront Branch Office: 6535 Millcreek Drive, Unit 63 & 64, Mississauga, Ontario, Canada L5N 2M2  
TEL. 905-814-0240 FAX. 905-814-0245

### MMC METAL DE MEXICO S.A. DE C.V.

Av. La Cañada No.16, Parque Industrial Bernardo Quintana, El Marques, Queretaro, CP 76246 Mexico  
TEL. 011-52-442-221-6136/011-52-442-221-6137/011-52-442-221-6150 FAX. 011-52-442-221-6134

