

Head Exchangeable Type Carbide Drill

**WSTAR** Insert Drill Series

**TAW**



## Stable performance from a versatile, changeable insert type drill



# Head Exchangeable Type Carbide Drill

## **WSTAR** Insert Type Drill

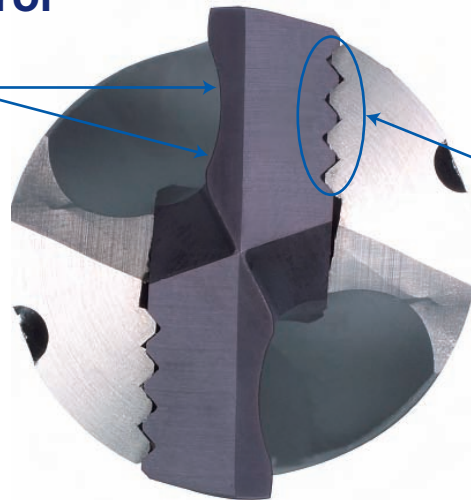
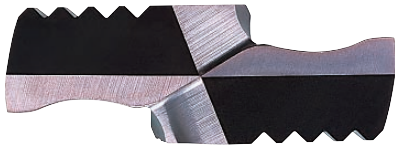
# TAW

Designed for extreme sharpness and accuracy

### Wave type cutting edge for superior chip control

#### Wave cutting edge

The wave edge design achieves sharp peripheral edge cutting performance with a strong initial cutting point near the centre.



### Serrated insert clamping geometry

#### Unique serration geometry

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

Cutting edge shape

### Insert grade

#### **VP15TF** General purpose insert grade

Suitable for machining a wide range of workpiece materials from mild and alloy steels through to stainless steels and cast iron.



#### **DP5010** Cast iron insert grade

A new PVD coated grade. Cemented carbide substrate coated using a proprietary method of crystal control technology.



### High durability body

The cutter bodies are made resistant to corrosion and abrasion by using a superior, high heat resistant alloy and a special surface treatment.



### Chamfer Ring

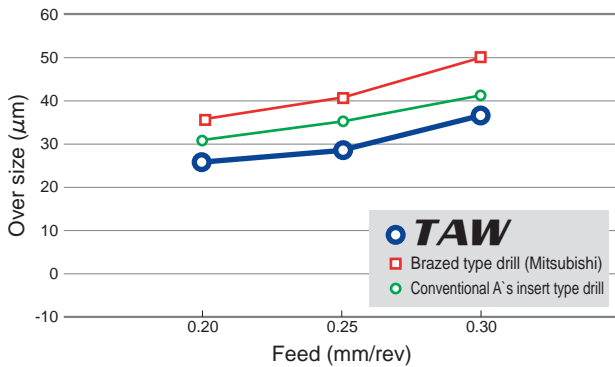
Drilling and chamfering can be done simultaneously. Chamfering position can be changed according to the machining depth. Maximum chamfer width: 4mm



# Cutting Performance

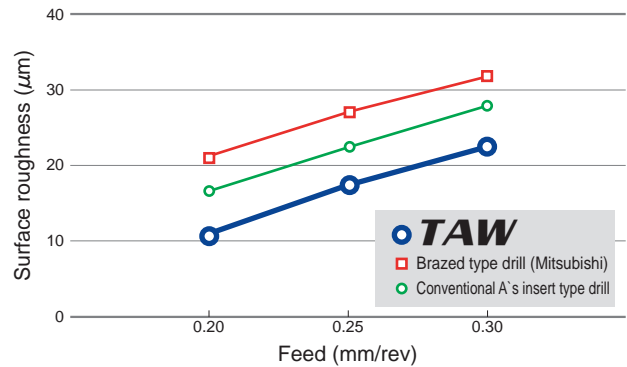
## Steel Drilling

### Over Size



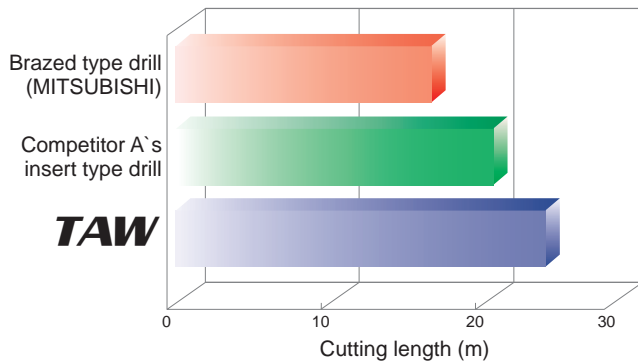
<Cutting conditions>  
 Workpiece : JIS S50C(150—180HB)  
 Drill diameter :  $\phi 20$ (L/D=5)  
 Cutting speed : 80m/min  
 Coolant : Emulsion 10%  
 Pressure : 0.5MPa(Internal coolant)

### Surface Roughness



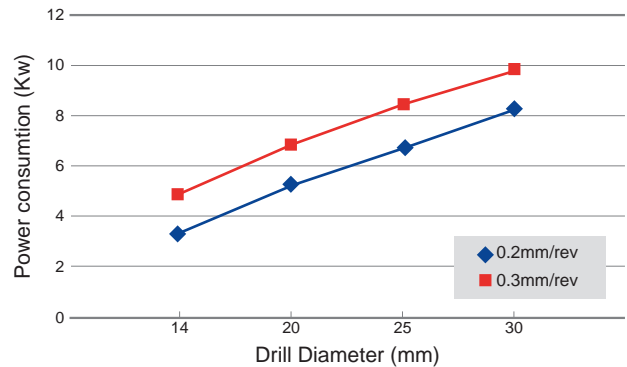
<Cutting conditions>  
 Workpiece : JIS S50C(150—180HB)  
 Drill diameter :  $\phi 20$ (L/D=5)  
 Cutting speed : 80m/min  
 Coolant : Emulsion 10%  
 Pressure : 0.5MPa(Internal coolant)

### Insert Life



<Cutting conditions>  
 Workpiece : JIS S50C(150—180HB) Coolant : Emulsion 10%  
 Drill diameter :  $\phi 20$ (L/D=5) Pressure : 0.5MPa(Internal coolant)  
 Cutting speed : 100m/min  
 Feed : 0.25mm/rev

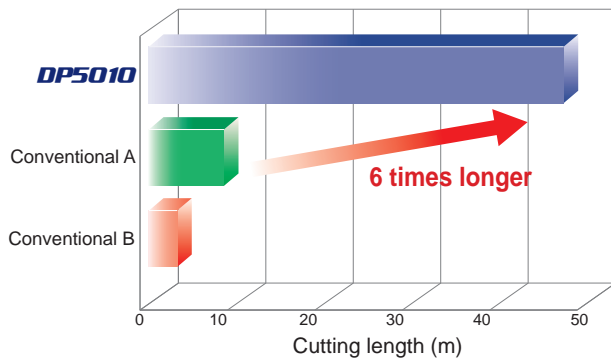
### Power Consumption



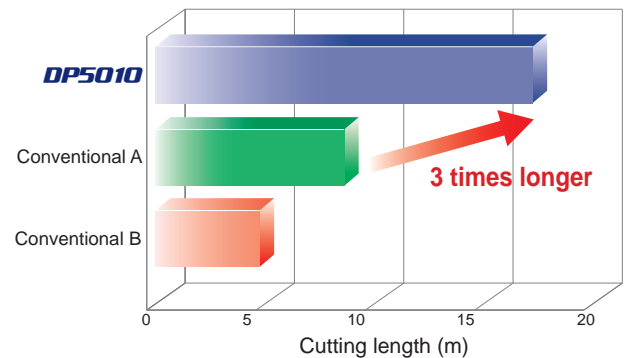
<Cutting conditions>  
 Workpiece : JIS S50C(150—180HB)  
 Cutting speed : 80m/min  
 Coolant : Emulsion 10%  
 Pressure : 0.5MPa(Internal coolant)

## Castiron/Ductile cast iron Drilling

### Insert Life



<Cutting conditions>  
 Workpiece : JIS FC250 Coolant : Emulsion 10%  
 Drill diameter :  $\phi 18$ (L/D=3) Pressure : 0.5MPa(Internal coolant)  
 Cutting speed : 140m/min  
 Feed : 0.4mm/rev

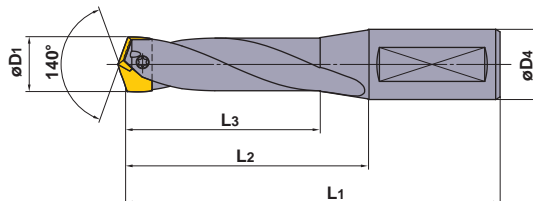


<Cutting conditions>  
 Workpiece : JIS FCD450 Coolant : Emulsion 10%  
 Drill diameter :  $\phi 18$ (L/D=3) Pressure : 0.5MPa(Internal coolant)  
 Cutting speed : 100m/min  
 Feed : 0.3mm/rev

# TAW

Carbon Steel Alloy Steel	Hardened Steel	Stainless Steel	Cast iron	Light Alloy	Heat Resistant Alloy
◎		○	◎		

**(General Use)**







**HOLDERS**

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Dimensions (mm)				Clamp Screw	Wrench	Plate	Anti-seize Lubricant	Drill Dia. D1 (mm)	Insert				
		Order Number	Stock	Effective flute length L3	Neck Length L2	Overall Length L1	Shank Dia. D4						Order Number	Stock			
													VP15TF	DP5010	VP10H		
14.0   14.4	3	TAWSNH1400S16	●	51	67	115	16	WS254012T	TKY08D	WPT4405	MK1KS	14.0	TAWNH1400T	●		□	
													TAWKH1400TG		●		
													14.1	TAWNH1410T	●		□
														TAWKH1410TG		●	
		5	TAWMNH1400S16	●	80	97	145	16	WS254012T	TKY08D	WPT4405	MK1KS	14.2	TAWNH1420T	●		□
														TAWKH1420TG		●	
													14.3	TAWNH1430T	●		□
													TAWKH1430TG		●		
	8	TAWLNH1400S16	●	122	137	185	16	WS254012T	TKY08D	WPT4405	MK1KS	14.4	TAWNH1440T	●		□	
													TAWKH1440TG		●		
14.5   15.4	3	TAWSNH1500S20	●	54	75	125	20	WS254013T	TKY08D	WPT4405	MK1KS	14.5	TAWNH1450T	●		□	
													TAWKH1450TG		●		
													14.6	TAWNH1460T	●		□
													TAWKH1460TG		●		
													14.7	TAWNH1470T	●		□
													TAWKH1470TG		●		
													14.8	TAWNH1480T	●		□
													TAWKH1480TG		●		
		5	TAWMNH1500S20	●	85	105	155	20	WS254013T	TKY08D	WPT4405	MK1KS	14.9	TAWNH1490T	●		□
													TAWKH1490TG		●		
													15.0	TAWNH1500T	●		□
													TAWKH1500TG		●		
													15.1	TAWNH1510T	●		□
													TAWKH1510TG		●		
													15.2	TAWNH1520T	●		□
												TAWKH1520TG		●			
	8	TAWLNH1500S20	●	130	148	198	20	WS254013T	TKY08D	WPT4405	MK1KS	15.3	TAWNH1530T	●		□	
												TAWKH1530TG		●			
												15.4	TAWNH1540T	●		□	
												TAWKH1540TG		●			





(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. □ : Non stock, produced to order only.

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Dimensions (mm)								Insert								
		Order Number	Stock	Effective flute length	Neck Length	Overall Length	Shank Dia.					Clamp Screw	Wrench	Plate	Anti-seize Lubricant	Drill Dia. D1 (mm)	Order Number	Stock		
																		VP15TF	DP5010	VP10H
				L3	L2	L1	D4													
15.5   16.4	3	TAWSN1600S20	●	58 (58)	80 (80)	130 (130)	20	WS254014T	TKY08D	WPT4405	MK1KS	15.5	TAWN1550T	●		<input type="checkbox"/>				
												TAWNH1550T	●		<input type="checkbox"/>					
												TAWKH1550TG	●		<input type="checkbox"/>					
												15.6	TAWN1560T	●		<input type="checkbox"/>				
												TAWNH1560T	●		<input type="checkbox"/>					
												TAWKH1560TG	●		<input type="checkbox"/>					
												15.7	TAWN1570T	●		<input type="checkbox"/>				
												TAWNH1570T	●		<input type="checkbox"/>					
												TAWKH1570TG	●		<input type="checkbox"/>					
												15.8	TAWN1580T	●		<input type="checkbox"/>				
												TAWNH1580T	●		<input type="checkbox"/>					
												TAWKH1580TG	●		<input type="checkbox"/>					
	15.9	TAWN1590T	●		<input type="checkbox"/>															
	TAWNH1590T	●		<input type="checkbox"/>																
	TAWKH1590TG	●		<input type="checkbox"/>																
	16.0	TAWN1600T	●		<input type="checkbox"/>															
	TAWNH1600T	●		<input type="checkbox"/>																
	TAWKH1600TG	●		<input type="checkbox"/>																
	16.1	TAWN1610T	●		<input type="checkbox"/>															
	TAWNH1610T	●		<input type="checkbox"/>																
	TAWKH1610TG	●		<input type="checkbox"/>																
	16.2	TAWN1620T	●		<input type="checkbox"/>															
	TAWNH1620T	●		<input type="checkbox"/>																
	TAWKH1620TG	●		<input type="checkbox"/>																
16.3	TAWN1630T	●		<input type="checkbox"/>																
TAWNH1630T	●		<input type="checkbox"/>																	
TAWKH1630TG	●		<input type="checkbox"/>																	
16.4	TAWN1640T	●		<input type="checkbox"/>																
TAWNH1640T	●		<input type="checkbox"/>																	
TAWKH1640TG	●		<input type="checkbox"/>																	
16.5   17.4	3	TAWSN1700S20	●	61 (61)	85 (85)	135 (135)	20	WS254015T	TKY08D	WPT4405	MK1KS	16.5	TAWN1650T	●		<input type="checkbox"/>				
												TAWNH1650T	●		<input type="checkbox"/>					
												TAWKH1650TG	●		<input type="checkbox"/>					
												16.6	TAWN1660T	●		<input type="checkbox"/>				
												TAWNH1660T	●		<input type="checkbox"/>					
												TAWKH1660TG	●		<input type="checkbox"/>					
												16.7	TAWN1670T	●		<input type="checkbox"/>				
												TAWNH1670T	●		<input type="checkbox"/>					
												TAWKH1670TG	●		<input type="checkbox"/>					
												16.8	TAWN1680T	●		<input type="checkbox"/>				
												TAWNH1680T	●		<input type="checkbox"/>					
												TAWKH1680TG	●		<input type="checkbox"/>					
	16.9	TAWN1690T	●		<input type="checkbox"/>															
	TAWNH1690T	●		<input type="checkbox"/>																
	TAWKH1690TG	●		<input type="checkbox"/>																
	17.0	TAWN1700T	●		<input type="checkbox"/>															
	TAWNH1700T	●		<input type="checkbox"/>																
	TAWKH1700TG	●		<input type="checkbox"/>																
	17.1	TAWN1710T	●		<input type="checkbox"/>															
	TAWNH1710T	●		<input type="checkbox"/>																
	TAWKH1710TG	●		<input type="checkbox"/>																
	17.2	TAWN1720T	●		<input type="checkbox"/>															
	TAWNH1720T	●		<input type="checkbox"/>																
	TAWKH1720TG	●		<input type="checkbox"/>																
17.3	TAWN1730T	●		<input type="checkbox"/>																
TAWNH1730T	●		<input type="checkbox"/>																	
TAWKH1730TG	●		<input type="checkbox"/>																	
17.4	TAWN1740T	●		<input type="checkbox"/>																
TAWNH1740T	●		<input type="checkbox"/>																	
TAWKH1740TG	●		<input type="checkbox"/>																	







Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Dimensions (mm)								Insert								
		Order Number	Stock	Effective flute length	Neck Length	Overall Length	Shank Dia.					Clamp Screw	Wrench	Plate	Anti-seize Lubricant	Drill Dia. D1 (mm)	Order Number	Stock		
																		VP15TF	DP5010	VP10H
L3	L2	L1	D4																	
17.5   18.4	3	TAWSN1800S20	●	65 (65)	90 (90)	140 (140)	20	WS254016T	①TKY08D	WPT4405	MK1KS	17.5	TAWN1750T	●		□				
												TAWNH1750T	●		□					
												TAWKH1750TG	●		□					
												17.6	TAWN1760T	●		□				
												TAWNH1760T	●		□					
												TAWKH1760TG	●		□					
	5	TAWMN1800S20	●	102 (102)	125 (125)	175 (175)	20	WS254016T	①TKY08D	WPT4405	MK1KS	17.7	TAWN1770T	●		□				
												TAWNH1770T	●		□					
												TAWKH1770TG	●		□					
												17.8	TAWN1780T	●		□				
												TAWNH1780T	●		□					
												TAWKH1780TG	●		□					
	8	TAWLN1800S20	●	154 (154)	174 (174)	224 (224)	20	WS254016T	①TKY08D	WPT4405	MK1KS	17.9	TAWN1790T	●		□				
												TAWNH1790T	●		□					
												TAWKH1790TG	●		□					
												18.0	TAWN1800T	●		□				
												TAWNH1800T	●		□					
												TAWKH1800TG	●		□					
18.5   19.4	3	TAWSN1900S25	●	68 (68)	99 (99)	155 (155)	25	WS304517T	②TKY10T	WPT4405	MK1KS	18.1	TAWN1810T	●		□				
												TAWNH1810T	●		□					
												TAWKH1810TG	●		□					
												18.2	TAWN1820T	●		□				
												TAWNH1820T	●		□					
												TAWKH1820TG	●		□					
	5	TAWMN1900S25	●	107 (107)	134 (134)	190 (190)	25	WS304517T	②TKY10T	WPT4405	MK1KS	18.3	TAWN1830T	●		□				
												TAWNH1830T	●		□					
												TAWKH1830TG	●		□					
												18.4	TAWN1840T	●		□				
												TAWNH1840T	●		□					
												TAWKH1840TG	●		□					
	8	TAWLN1900S25	●	162 (162)	185 (185)	241 (241)	25	WS304517T	②TKY10T	WPT4405	MK1KS	18.5	TAWN1850T	●		□				
												TAWNH1850T	●		□					
												TAWKH1850TG	●		□					
												18.6	TAWN1860T	●		□				
												TAWNH1860T	●		□					
												TAWKH1860TG	●		□					
19.1	TAWLN1900S25	●	162 (162)	185 (185)	241 (241)	25	WS304517T	②TKY10T	WPT4405	MK1KS	18.7	TAWN1870T	●		□					
											TAWNH1870T	●		□						
											TAWKH1870TG	●		□						
											18.8	TAWN1880T	●		□					
											TAWNH1880T	●		□						
											TAWKH1880TG	●		□						
19.3	TAWLN1900S25	●	162 (162)	185 (185)	241 (241)	25	WS304517T	②TKY10T	WPT4405	MK1KS	18.9	TAWN1890T	●		□					
											TAWNH1890T	●		□						
											TAWKH1890TG	●		□						
											19.0	TAWN1900T	●		□					
											TAWNH1900T	●		□						
											TAWKH1900TG	●		□						
19.4	TAWLN1900S25	●	162 (162)	185 (185)	241 (241)	25	WS304517T	②TKY10T	WPT4405	MK1KS	19.1	TAWN1910T	●		□					
											TAWNH1910T	●		□						
											TAWKH1910TG	●		□						
											19.2	TAWN1920T	●		□					
											TAWNH1920T	●		□						
											TAWKH1920TG	●		□						
19.4	TAWLN1900S25	●	162 (162)	185 (185)	241 (241)	25	WS304517T	②TKY10T	WPT4405	MK1KS	19.3	TAWN1930T	●		□					
											TAWNH1930T	●		□						
											TAWKH1930TG	●		□						
											19.4	TAWN1940T	●		□					
											TAWNH1940T	●		□						
											TAWKH1940TG	●		□						





(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. □ : Non stock, produced to order only.

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Dimensions (mm)								Insert				
		Order Number	Stock	Effective flute length	Neck Length	Overall Length	Shank Dia.					Drill Dia. D1 (mm)	Order Number	Stock		
														L3	L2	L1
19.5   20.4	3	TAWSN2000S25	●	72 (72)	99 (99)	155 (155)	25	WS304518T	TKY10T	WPT4405	MK1KS	19.5	TAWN1950T	●	<input type="checkbox"/>	
													TAWNH1950T	●	<input type="checkbox"/>	
													TAWKH1950TG	●	<input type="checkbox"/>	
												19.6	TAWN1960T	●	<input type="checkbox"/>	
													TAWNH1960T	●	<input type="checkbox"/>	
													TAWKH1960TG	●	<input type="checkbox"/>	
	19.7	TAWN1970T	●	<input type="checkbox"/>												
		TAWNH1970T	●	<input type="checkbox"/>												
		TAWKH1970TG	●	<input type="checkbox"/>												
	19.8	TAWN1980T	●	<input type="checkbox"/>												
		TAWNH1980T	●	<input type="checkbox"/>												
		TAWKH1980TG	●	<input type="checkbox"/>												
	5	TAWMN2000S25	●	113 (113)	139 (139)	195 (195)	25	WS304518T	TKY10T	WPT4405	MK1KS	19.9	TAWN1990T	●	<input type="checkbox"/>	
													TAWNH1990T	●	<input type="checkbox"/>	
													TAWKH1990TG	●	<input type="checkbox"/>	
												20.0	TAWN2000T	●	<input type="checkbox"/>	
													TAWNH2000T	●	<input type="checkbox"/>	
													TAWKH2000TG	●	<input type="checkbox"/>	
	20.1	TAWN2010T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWNH2010T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWKH2010TG	<input type="checkbox"/>	<input type="checkbox"/>												
	8	TAWLN2000S25	●	170 (170)	193 (193)	249 (249)	25	WS304518T	TKY10T	WPT4405	MK1KS	20.2	TAWN2020T	<input type="checkbox"/>	<input type="checkbox"/>	
													TAWNH2020T	<input type="checkbox"/>	<input type="checkbox"/>	
													TAWKH2020TG	<input type="checkbox"/>	<input type="checkbox"/>	
20.3												TAWN2030T	<input type="checkbox"/>	<input type="checkbox"/>		
												TAWNH2030T	<input type="checkbox"/>	<input type="checkbox"/>		
												TAWKH2030TG	<input type="checkbox"/>	<input type="checkbox"/>		
20.4	TAWN2040T	<input type="checkbox"/>	<input type="checkbox"/>													
	TAWNH2040T	<input type="checkbox"/>	<input type="checkbox"/>													
	TAWKH2040TG	<input type="checkbox"/>	<input type="checkbox"/>													
20.5   21.4	3	TAWSN2100S25	●	75 (75)	99 (99)	155 (155)	25	WS304518T	TKY10T	WPT4405	MK1KS	20.5	TAWN2050T	●	<input type="checkbox"/>	
													TAWNH2050T	●	<input type="checkbox"/>	
													TAWKH2050TG	●	<input type="checkbox"/>	
												20.6	TAWN2060T	<input type="checkbox"/>	<input type="checkbox"/>	
													TAWNH2060T	<input type="checkbox"/>	<input type="checkbox"/>	
													TAWKH2060TG	<input type="checkbox"/>	<input type="checkbox"/>	
	20.7	TAWN2070T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWNH2070T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWKH2070TG	<input type="checkbox"/>	<input type="checkbox"/>												
	20.8	TAWN2080T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWNH2080T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWKH2080TG	<input type="checkbox"/>	<input type="checkbox"/>												
	20.9	TAWN2090T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWNH2090T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWKH2090TG	<input type="checkbox"/>	<input type="checkbox"/>												
	21.0	TAWN2100T	●	<input type="checkbox"/>												
		TAWNH2100T	●	<input type="checkbox"/>												
		TAWKH2100TG	●	<input type="checkbox"/>												
	21.1	TAWN2110T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWNH2110T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWKH2110TG	<input type="checkbox"/>	<input type="checkbox"/>												
	21.2	TAWN2120T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWNH2120T	<input type="checkbox"/>	<input type="checkbox"/>												
		TAWKH2120TG	<input type="checkbox"/>	<input type="checkbox"/>												
21.3	TAWN2130T	<input type="checkbox"/>	<input type="checkbox"/>													
	TAWNH2130T	<input type="checkbox"/>	<input type="checkbox"/>													
	TAWKH2130TG	<input type="checkbox"/>	<input type="checkbox"/>													
21.4	TAWN2140T	<input type="checkbox"/>	<input type="checkbox"/>													
	TAWNH2140T	<input type="checkbox"/>	<input type="checkbox"/>													
	TAWKH2140TG	<input type="checkbox"/>	<input type="checkbox"/>													







Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Dimensions (mm)								Insert								
		Order Number	Stock	Effective flute length L3	Neck Length L2	Overall Length L1	Shank Dia. D4					Clamp Screw	Wrench	Plate	Anti-seize Lubricant	Drill Dia. D1 (mm)	Order Number	Stock		
																		VP15TF	DP5010	VP10H
21.5   22.4	3	TAWSN2200S25	●	79.3 (79)	104.3 (104)	160.3 (160)	25	WS355520T	TKY15T	WPT4405	MK1KS	21.5	TAWN2150T	●		□				
												TAWN2150T	●		□					
												TAWKH2150TG		●						
												21.6	TAWN2160T	□		□				
												TAWN2160T	□		□					
												TAWKH2160TG		□						
												21.7	TAWN2170T	□		□				
												TAWN2170T	□		□					
												TAWKH2170TG		□						
												21.8	TAWN2180T	□		□				
												TAWN2180T	□		□					
												TAWKH2180TG		□						
	21.9	TAWN2190T	□		□															
	TAWN2190T	□		□																
	TAWKH2190TG		□																	
	22.0	TAWN2200T	●		□															
	TAWN2200T	●		□																
	TAWKH2200TG		●																	
	22.1	TAWN2210T	□		□															
	TAWN2210T	□		□																
	TAWKH2210TG		□																	
	22.2	TAWN2220T	□		□															
	TAWN2220T	□		□																
	TAWKH2220TG		□																	
22.3	TAWN2230T	□		□																
TAWN2230T	□		□																	
TAWKH2230TG		□																		
22.4	TAWN2240T	□		□																
TAWN2240T	□		□																	
TAWKH2240TG		□																		
22.5   23.4	3	TAWSN2300S25	●	82.3 (82)	104.3 (104)	160.3 (160)	25	WS355521T	TKY15T	WPT4405	MK1KS	22.5	TAWN2250T	●		□				
												TAWN2250T	●		□					
												TAWKH2250TG		●						
												22.6	TAWN2260T	□		□				
												TAWN2260T	□		□					
												TAWKH2260TG		□						
												22.7	TAWN2270T	□		□				
												TAWN2270T	□		□					
												TAWKH2270TG		□						
												22.8	TAWN2280T	□		□				
												TAWN2280T	□		□					
												TAWKH2280TG		□						
	22.9	TAWN2290T	□		□															
	TAWN2290T	□		□																
	TAWKH2290TG		□																	
	23.0	TAWN2300T	●		□															
	TAWN2300T	●		□																
	TAWKH2300TG		●																	
	23.1	TAWN2310T	□		□															
	TAWN2310T	□		□																
	TAWKH2310TG		□																	
	23.2	TAWN2320T	□		□															
	TAWN2320T	□		□																
	TAWKH2320TG		□																	
23.3	TAWN2330T	□		□																
TAWN2330T	□		□																	
TAWKH2330TG		□																		
23.4	TAWN2340T	□		□																
TAWN2340T	□		□																	
TAWKH2340TG		□																		





(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. □ : Non stock, produced to order only.

Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Dimensions (mm)								Insert								
		Order Number	Stock	Effective flute length	Neck Length	Overall Length	Shank Dia.					Clamp Screw	Wrench	Plate	Anti-seize Lubricant	Drill Dia. D1 (mm)	Order Number	Stock		
																		L3	L2	L1
23.5   24.4	3	TAWSN2400S32	●	86.3 (86)	110.3 (110)	170.3 (170)	32	WS355521T	TKY15T	WPT4405	MK1KS	23.5	TAWN2350T	●		<input type="checkbox"/>				
													TAWNH2350T	●		<input type="checkbox"/>				
													TAWKH2350TG		●	<input type="checkbox"/>				
												23.6		TAWN2360T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWNH2360T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWKH2360TG		<input type="checkbox"/>	<input type="checkbox"/>			
												23.7		TAWN2370T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWNH2370T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWKH2370TG		<input type="checkbox"/>	<input type="checkbox"/>			
												23.8		TAWN2380T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWNH2380T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWKH2380TG		<input type="checkbox"/>	<input type="checkbox"/>			
	23.9		TAWN2390T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWNH2390T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWKH2390TG		<input type="checkbox"/>	<input type="checkbox"/>														
	24.0		TAWN2400T	●		<input type="checkbox"/>														
			TAWNH2400T	●		<input type="checkbox"/>														
			TAWKH2400TG		●	<input type="checkbox"/>														
	24.1		TAWN2410T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWNH2410T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWKH2410TG		<input type="checkbox"/>	<input type="checkbox"/>														
	24.2		TAWN2420T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWNH2420T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWKH2420TG		<input type="checkbox"/>	<input type="checkbox"/>														
8	TAWLN2400S32	●	202 (201.7)	232 (231.7)	292 (291.7)	32	WS355521T	TKY15T	WPT4405	MK1KS	24.3	TAWN2430T	<input type="checkbox"/>		<input type="checkbox"/>					
												TAWNH2430T	<input type="checkbox"/>		<input type="checkbox"/>					
												TAWKH2430TG		<input type="checkbox"/>	<input type="checkbox"/>					
											24.4		TAWN2440T	<input type="checkbox"/>		<input type="checkbox"/>				
													TAWNH2440T	<input type="checkbox"/>		<input type="checkbox"/>				
													TAWKH2440TG		<input type="checkbox"/>	<input type="checkbox"/>				
24.5   25.4	3	TAWSN2500S32	●	88.6 (88)	110.6 (110)	170.6 (170)	32	WS406023T	TKY25T	WPT4405	MK1KS	24.5	TAWN2450T	●		<input type="checkbox"/>				
													TAWNH2450T	●		<input type="checkbox"/>				
													TAWKH2450TG		●	<input type="checkbox"/>				
												24.6		TAWN2460T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWNH2460T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWKH2460TG		<input type="checkbox"/>	<input type="checkbox"/>			
												24.7		TAWN2470T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWNH2470T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWKH2470TG		<input type="checkbox"/>	<input type="checkbox"/>			
												24.8		TAWN2480T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWNH2480T	<input type="checkbox"/>		<input type="checkbox"/>			
														TAWKH2480TG		<input type="checkbox"/>	<input type="checkbox"/>			
	24.9		TAWN2490T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWNH2490T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWKH2490TG		<input type="checkbox"/>	<input type="checkbox"/>														
	25.0		TAWN2500T	●		<input type="checkbox"/>														
			TAWNH2500T	●		<input type="checkbox"/>														
			TAWKH2500TG		●	<input type="checkbox"/>														
	25.1		TAWN2510T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWNH2510T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWKH2510TG		<input type="checkbox"/>	<input type="checkbox"/>														
	25.2		TAWN2520T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWNH2520T	<input type="checkbox"/>		<input type="checkbox"/>														
			TAWKH2520TG		<input type="checkbox"/>	<input type="checkbox"/>														
25.3		TAWN2530T	<input type="checkbox"/>		<input type="checkbox"/>															
		TAWNH2530T	<input type="checkbox"/>		<input type="checkbox"/>															
		TAWKH2530TG		<input type="checkbox"/>	<input type="checkbox"/>															
25.4		TAWN2540T	<input type="checkbox"/>		<input type="checkbox"/>															
		TAWNH2540T	<input type="checkbox"/>		<input type="checkbox"/>															
		TAWKH2540TG		<input type="checkbox"/>	<input type="checkbox"/>															







Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Dimensions (mm)								Insert								
		Order Number	Stock	Effective flute length	Neck Length	Overall Length	Shank Dia.					Clamp Screw	Wrench	Plate	Anti-seize Lubricant	Drill Dia. D1 (mm)	Order Number	Stock		
																		L3	L2	L1
25.5   26.4	3	TAWSN2600S32	●	92.6 (92)	115.6 (115)	175.6 (175)	32	WS406024T	TKY25T	WPT4405	MK1KS	25.5	TAWN2550T	●		<input type="checkbox"/>				
												TAWNH2550T	●		<input type="checkbox"/>					
												TAWKH2550TG		●	<input type="checkbox"/>					
												25.6	TAWN2560T	<input type="checkbox"/>		<input type="checkbox"/>				
												TAWNH2560T	<input type="checkbox"/>		<input type="checkbox"/>					
												TAWKH2560TG		<input type="checkbox"/>	<input type="checkbox"/>					
												25.7	TAWN2570T	<input type="checkbox"/>		<input type="checkbox"/>				
												TAWNH2570T	<input type="checkbox"/>		<input type="checkbox"/>					
												TAWKH2570TG		<input type="checkbox"/>	<input type="checkbox"/>					
												25.8	TAWN2580T	<input type="checkbox"/>		<input type="checkbox"/>				
												TAWNH2580T	<input type="checkbox"/>		<input type="checkbox"/>					
												TAWKH2580TG		<input type="checkbox"/>	<input type="checkbox"/>					
	25.9	TAWN2590T	<input type="checkbox"/>		<input type="checkbox"/>															
	TAWNH2590T	<input type="checkbox"/>		<input type="checkbox"/>																
	TAWKH2590TG		<input type="checkbox"/>	<input type="checkbox"/>																
	26.0	TAWN2600T	●		<input type="checkbox"/>															
	TAWNH2600T	●		<input type="checkbox"/>																
	TAWKH2600TG		●	<input type="checkbox"/>																
	26.1	TAWN2610T	<input type="checkbox"/>		<input type="checkbox"/>															
	TAWNH2610T	<input type="checkbox"/>		<input type="checkbox"/>																
	TAWKH2610TG		<input type="checkbox"/>	<input type="checkbox"/>																
	26.2	TAWN2620T	<input type="checkbox"/>		<input type="checkbox"/>															
	TAWNH2620T	<input type="checkbox"/>		<input type="checkbox"/>																
	TAWKH2620TG		<input type="checkbox"/>	<input type="checkbox"/>																
26.3	TAWN2630T	<input type="checkbox"/>		<input type="checkbox"/>																
TAWNH2630T	<input type="checkbox"/>		<input type="checkbox"/>																	
TAWKH2630TG		<input type="checkbox"/>	<input type="checkbox"/>																	
26.4	TAWN2640T	<input type="checkbox"/>		<input type="checkbox"/>																
TAWNH2640T	<input type="checkbox"/>		<input type="checkbox"/>																	
TAWKH2640TG		<input type="checkbox"/>	<input type="checkbox"/>																	
26.5   27.4	3	TAWSN2700S32	●	94.6 (94)	115.6 (115)	175.6 (175)	32	WS406024T	TKY25T	WPT4405	MK1KS	26.5	TAWN2650T	●		<input type="checkbox"/>				
												TAWNH2650T	●		<input type="checkbox"/>					
												TAWKH2650TG		●	<input type="checkbox"/>					
												26.6	TAWN2660T	<input type="checkbox"/>		<input type="checkbox"/>				
												TAWNH2660T	<input type="checkbox"/>		<input type="checkbox"/>					
												TAWKH2660TG		<input type="checkbox"/>	<input type="checkbox"/>					
												26.7	TAWN2670T	<input type="checkbox"/>		<input type="checkbox"/>				
												TAWNH2670T	<input type="checkbox"/>		<input type="checkbox"/>					
												TAWKH2670TG		<input type="checkbox"/>	<input type="checkbox"/>					
												26.8	TAWN2680T	<input type="checkbox"/>		<input type="checkbox"/>				
												TAWNH2680T	<input type="checkbox"/>		<input type="checkbox"/>					
												TAWKH2680TG		<input type="checkbox"/>	<input type="checkbox"/>					
	26.9	TAWN2690T	<input type="checkbox"/>		<input type="checkbox"/>															
	TAWNH2690T	<input type="checkbox"/>		<input type="checkbox"/>																
	TAWKH2690TG		<input type="checkbox"/>	<input type="checkbox"/>																
	27.0	TAWN2700T	●		<input type="checkbox"/>															
	TAWNH2700T	●		<input type="checkbox"/>																
	TAWKH2700TG		●	<input type="checkbox"/>																
	27.1	TAWN2710T	<input type="checkbox"/>		<input type="checkbox"/>															
	TAWNH2710T	<input type="checkbox"/>		<input type="checkbox"/>																
	TAWKH2710TG		<input type="checkbox"/>	<input type="checkbox"/>																
	27.2	TAWN2720T	<input type="checkbox"/>		<input type="checkbox"/>															
	TAWNH2720T	<input type="checkbox"/>		<input type="checkbox"/>																
	TAWKH2720TG		<input type="checkbox"/>	<input type="checkbox"/>																
27.3	TAWN2730T	<input type="checkbox"/>		<input type="checkbox"/>																
TAWNH2730T	<input type="checkbox"/>		<input type="checkbox"/>																	
TAWKH2730TG		<input type="checkbox"/>	<input type="checkbox"/>																	
27.4	TAWN2740T	<input type="checkbox"/>		<input type="checkbox"/>																
TAWNH2740T	<input type="checkbox"/>		<input type="checkbox"/>																	
TAWKH2740TG		<input type="checkbox"/>	<input type="checkbox"/>																	
8	TAWLN2700S32	●	226 (225.4)	256 (255.4)	316 (315.4)	32	WS406024T	TKY25T	WPT4405	MK1KS	27.3	TAWN2730T	<input type="checkbox"/>		<input type="checkbox"/>					
											TAWNH2730T	<input type="checkbox"/>		<input type="checkbox"/>						
											TAWKH2730TG		<input type="checkbox"/>	<input type="checkbox"/>						
											27.4	TAWN2740T	<input type="checkbox"/>		<input type="checkbox"/>					
											TAWNH2740T	<input type="checkbox"/>		<input type="checkbox"/>						
											TAWKH2740TG		<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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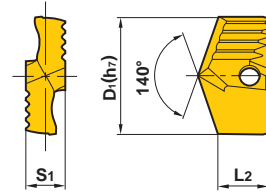
Drill Dia. Range D1 (mm)	Hole Depth (l/d)	Holder		Dimensions (mm)								Insert				
		Order Number	Stock	Effective flute length L3	Neck Length L2	Overall Length L1	Shank Dia. D4					Drill Dia. D1 (mm)	Order Number	Stock		
														VP15TF	DP5010	VP10H
29.5   30.4	3	TAWSN3000S32	●	104.2 (104)	125.2 (125)	185.2 (185)	32	WS508027T	TKY27T	WPT4405	MK1KS	29.5	TAWN2950T	●		□
													TAWNH2950T	●		□
													TAWKH2950TG		●	
												29.6	TAWN2960T	□		□
													TAWNH2960T	□		□
													TAWKH2960TG		□	
	29.7	TAWN2970T	□		□											
		TAWNH2970T	□		□											
		TAWKH2970TG		□												
	29.8	TAWN2980T	□		□											
		TAWNH2980T	□		□											
		TAWKH2980TG		□												
	29.9	TAWN2990T	□		□											
		TAWNH2990T	□		□											
		TAWKH2990TG		□												
	30.0	TAWN3000T	●		□											
		TAWNH3000T	●		□											
		TAWKH3000TG		●												
	30.1	TAWN3010T	□		□											
		TAWNH3010T	□		□											
TAWKH3010TG			□													
30.2	TAWN3020T	□		□												
	TAWNH3020T	□		□												
	TAWKH3020TG		□													
30.3	TAWN3030T	□		□												
	TAWNH3030T	□		□												
	TAWKH3030TG		□													
30.4	TAWN3040T	□		□												
	TAWNH3040T	□		□												
	TAWKH3040TG		□													
8	TAWLN3000S32	●	250 (249.8)	285 (284.8)	345 (344.8)	32	WS508027T	TKY27T	WPT4405	MK1KS	30.3	TAWN3030T	□		□	
												TAWNH3030T	□		□	
												TAWKH3030TG		□		
											30.4	TAWN3040T	□		□	
												TAWNH3040T	□		□	
												TAWKH3040TG		□		

(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).

# INSERTS

## H Type

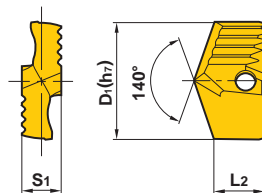


Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
<b>TAWNH1400T</b>	●	□	14.0	7.6	5.0	TAWSNH 1400S16
<b>1410T</b>	●	□	14.1	7.6	5.0	TAWMNH 1400S16
<b>1420T</b>	●	□	14.2	7.6	5.0	TAWLNH 1400S16
<b>1430T</b>	●	□	14.3	7.6	5.0	
<b>1440T</b>	●	□	14.4	7.6	5.0	
<b>1450T</b>	●	□	14.5	7.5	5.0	
<b>1460T</b>	●	□	14.6	7.5	5.0	
<b>1470T</b>	●	□	14.7	7.5	5.0	TAWSNH 1500S20
<b>1480T</b>	●	□	14.8	7.5	5.0	
<b>1490T</b>	●	□	14.9	7.5	5.0	TAWMNH 1500S20
<b>1500T</b>	●	□	15.0	7.4	5.0	
<b>1510T</b>	●	□	15.1	7.4	5.0	TAWLNH 1500S20
<b>1520T</b>	●	□	15.2	7.4	5.0	
<b>1530T</b>	●	□	15.3	7.4	5.0	
<b>1540T</b>	●	□	15.4	7.4	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	TAWSN 1600S20
<b>1580T</b>	●	□	15.8	7.9	6.0	
<b>1590T</b>	●	□	15.9	7.9	6.0	TAWMN 1600S20
<b>1600T</b>	●	□	16.0	7.8	6.0	
<b>1610T</b>	●	□	16.1	7.8	6.0	TAWLN 1600S20
<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	
<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	TAWSN 1700S20
<b>1680T</b>	●	□	16.8	7.7	6.0	
<b>1690T</b>	●	□	16.9	7.7	6.0	TAWMN 1700S20
<b>1700T</b>	●	□	17.0	7.6	6.0	
<b>1710T</b>	●	□	17.1	7.6	6.0	TAWLN 1700S20
<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	
<b>1770T</b>	●	□	17.7	7.5	6.0	TAWSN 1800S20
<b>1780T</b>	●	□	17.8	7.5	6.0	
<b>1790T</b>	●	□	17.9	7.5	6.0	TAWMN 1800S20
<b>1800T</b>	●	□	18.0	7.4	6.0	
<b>1810T</b>	●	□	18.1	7.4	6.0	TAWLN 1800S20
<b>1820T</b>	●	□	18.2	7.4	6.0	
<b>1830T</b>	●	□	18.3	7.4	6.0	
<b>1840T</b>	●	□	18.4	7.4	6.0	

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

## INSERTS

### H Type



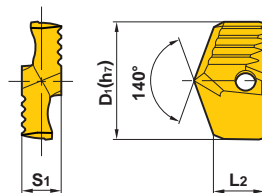
Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
<b>TAWNH2300T</b>	●	□	23.0	10.3	8.0	TAWSN 2300S25
<b>2310T</b>	□	□	23.1	10.3	8.0	TAWMN 2300S25
<b>2320T</b>	□	□	23.2	10.3	8.0	TAWLN 2300S25
<b>2330T</b>	□	□	23.3	10.3	8.0	
<b>2340T</b>	□	□	23.4	10.3	8.0	
<b>2350T</b>	●	□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

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

● : Inventory maintained. □ : Non stock, produced to order only.  
 (1 insert in one case)

## INSERTS

H Type  
(For Cast Iron)



Order Number	Stock	Dimensions (mm)			Applicable Holder
	DP5010	D1	L2	S1	
<b>TAWKH1400TG</b>	●	14.0	7.6	5.0	TAWSNH 1400S16
<b>1410TG</b>	●	14.1	7.6	5.0	TAWMNH 1400S16
<b>1420TG</b>	●	14.2	7.6	5.0	TAWLNH 1400S16
<b>1430TG</b>	●	14.3	7.6	5.0	
<b>1440TG</b>	●	14.4	7.6	5.0	
<b>1450TG</b>	●	14.5	7.5	5.0	
<b>1460TG</b>	●	14.6	7.5	5.0	
<b>1470TG</b>	●	14.7	7.5	5.0	TAWSNH 1500S20
<b>1480TG</b>	●	14.8	7.5	5.0	
<b>1490TG</b>	●	14.9	7.5	5.0	TAWMNH 1500S20
<b>1500TG</b>	●	15.0	7.4	5.0	
<b>1510TG</b>	●	15.1	7.4	5.0	TAWLNH 1500S20
<b>1520TG</b>	●	15.2	7.4	5.0	
<b>1530TG</b>	●	15.3	7.4	5.0	
<b>1540TG</b>	●	15.4	7.4	5.0	
<b>1550TG</b>	●	15.5	7.9	6.0	
<b>1560TG</b>	●	15.6	7.9	6.0	
<b>1570TG</b>	●	15.7	7.9	6.0	TAWSN 1600S20
<b>1580TG</b>	●	15.8	7.9	6.0	
<b>1590TG</b>	●	15.9	7.9	6.0	TAWMN 1600S20
<b>1600TG</b>	●	16.0	7.8	6.0	
<b>1610TG</b>	●	16.1	7.8	6.0	TAWLN 1600S20
<b>1620TG</b>	●	16.2	7.8	6.0	
<b>1630TG</b>	●	16.3	7.8	6.0	
<b>1640TG</b>	●	16.4	7.8	6.0	
<b>1650TG</b>	●	16.5	7.7	6.0	
<b>1660TG</b>	●	16.6	7.7	6.0	
<b>1670TG</b>	●	16.7	7.7	6.0	TAWSN 1700S20
<b>1680TG</b>	●	16.8	7.7	6.0	
<b>1690TG</b>	●	16.9	7.7	6.0	TAWMN 1700S20
<b>1700TG</b>	●	17.0	7.6	6.0	
<b>1710TG</b>	●	17.1	7.6	6.0	TAWLN 1700S20
<b>1720TG</b>	●	17.2	7.6	6.0	
<b>1730TG</b>	●	17.3	7.6	6.0	
<b>1740TG</b>	●	17.4	7.6	6.0	
<b>1750TG</b>	●	17.5	7.5	6.0	
<b>1760TG</b>	●	17.6	7.5	6.0	
<b>1770TG</b>	●	17.7	7.5	6.0	TAWSN 1800S20
<b>1780TG</b>	●	17.8	7.5	6.0	
<b>1790TG</b>	●	17.9	7.5	6.0	TAWMN 1800S20
<b>1800TG</b>	●	18.0	7.4	6.0	
<b>1810TG</b>	●	18.1	7.4	6.0	TAWLN 1800S20
<b>1820TG</b>	●	18.2	7.4	6.0	
<b>1830TG</b>	●	18.3	7.4	6.0	
<b>1840TG</b>	●	18.4	7.4	6.0	

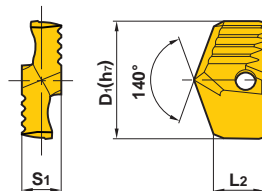
Order Number	Stock	Dimensions (mm)			Applicable Holder
	DP5010	D1	L2	S1	
<b>TAWKH1850TG</b>	●	18.5	9.3	7.0	
<b>1860TG</b>	●	18.6	9.3	7.0	
<b>1870TG</b>	●	18.7	9.3	7.0	TAWSN 1900S25
<b>1880TG</b>	●	18.8	9.3	7.0	
<b>1890TG</b>	●	18.9	9.3	7.0	TAWMN 1900S25
<b>1900TG</b>	●	19.0	9.2	7.0	
<b>1910TG</b>	●	19.1	9.2	7.0	TAWLN 1900S25
<b>1920TG</b>	●	19.2	9.2	7.0	
<b>1930TG</b>	●	19.3	9.2	7.0	
<b>1940TG</b>	●	19.4	9.2	7.0	
<b>1950TG</b>	●	19.5	9.1	7.0	
<b>1960TG</b>	●	19.6	9.1	7.0	
<b>1970TG</b>	●	19.7	9.1	7.0	TAWSN 2000S25
<b>1980TG</b>	●	19.8	9.1	7.0	
<b>1990TG</b>	●	19.9	9.1	7.0	TAWMN 2000S25
<b>2000TG</b>	●	20.0	9.0	7.0	
<b>2010TG</b>	□	20.1	9.0	7.0	TAWLN 2000S25
<b>2020TG</b>	□	20.2	9.0	7.0	
<b>2030TG</b>	□	20.3	9.0	7.0	
<b>2040TG</b>	□	20.4	9.0	7.0	
<b>2050TG</b>	●	20.5	8.9	7.0	
<b>2060TG</b>	□	20.6	8.9	7.0	
<b>2070TG</b>	□	20.7	8.9	7.0	TAWSN 2100S25
<b>2080TG</b>	□	20.8	8.9	7.0	
<b>2090TG</b>	□	20.9	8.9	7.0	TAWMN 2100S25
<b>2100TG</b>	●	21.0	8.8	7.0	
<b>2110TG</b>	□	21.1	8.8	7.0	TAWLN 2100S25
<b>2120TG</b>	□	21.2	8.8	7.0	
<b>2130TG</b>	□	21.3	8.8	7.0	
<b>2140TG</b>	□	21.4	8.8	7.0	
<b>2150TG</b>	●	21.5	10.6	8.0	
<b>2160TG</b>	□	21.6	10.6	8.0	
<b>2170TG</b>	□	21.7	10.6	8.0	TAWSN 2200S25
<b>2180TG</b>	□	21.8	10.6	8.0	
<b>2190TG</b>	□	21.9	10.6	8.0	TAWMN 2200S25
<b>2200TG</b>	●	22.0	10.5	8.0	
<b>2210TG</b>	□	22.1	10.5	8.0	TAWLN 2200S25
<b>2220TG</b>	□	22.2	10.5	8.0	
<b>2230TG</b>	□	22.3	10.5	8.0	
<b>2240TG</b>	□	22.4	10.5	8.0	
<b>2250TG</b>	●	22.5	10.4	8.0	TAWSN 2300S25
<b>2260TG</b>	□	22.6	10.4	8.0	TAWMN 2300S25
<b>2270TG</b>	□	22.7	10.4	8.0	
<b>2280TG</b>	□	22.8	10.4	8.0	TAWLN 2300S25
<b>2290TG</b>	□	22.9	10.4	8.0	

## INSERTS

H Type  
 (For Cast Iron)



**NEW**



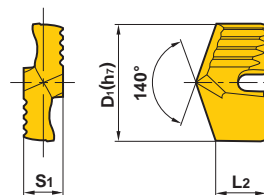
Order Number	Stock DP5010	Dimensions (mm)			Applicable Holder
		D1	L2	S1	
<b>TAWKH2300TG</b>	●	23.0	10.3	8.0	TAWSN 2300S25
<b>2310TG</b>	□	23.1	10.3	8.0	TAWMN 2300S25
<b>2320TG</b>	□	23.2	10.3	8.0	TAWLN 2300S25
<b>2330TG</b>	□	23.3	10.3	8.0	TAWSN 2300S25
<b>2340TG</b>	□	23.4	10.3	8.0	TAWMN 2300S25
<b>2350TG</b>	●	23.5	10.2	8.0	TAWLN 2300S25
<b>2360TG</b>	□	23.6	10.2	8.0	TAWSN 2400S32
<b>2370TG</b>	□	23.7	10.2	8.0	TAWMN 2400S32
<b>2380TG</b>	□	23.8	10.2	8.0	TAWLN 2400S32
<b>2390TG</b>	□	23.9	10.2	8.0	TAWSN 2400S32
<b>2400TG</b>	●	24.0	10.1	8.0	TAWMN 2400S32
<b>2410TG</b>	□	24.1	10.1	8.0	TAWLN 2400S32
<b>2420TG</b>	□	24.2	10.1	8.0	TAWSN 2400S32
<b>2430TG</b>	□	24.3	10.1	8.0	TAWMN 2400S32
<b>2440TG</b>	□	24.4	10.1	8.0	TAWLN 2400S32
<b>2450TG</b>	●	24.5	11.7	9.0	TAWSN 2500S32
<b>2460TG</b>	□	24.6	11.7	9.0	TAWMN 2500S32
<b>2470TG</b>	□	24.7	11.7	9.0	TAWLN 2500S32
<b>2480TG</b>	□	24.8	11.7	9.0	TAWSN 2500S32
<b>2490TG</b>	□	24.9	11.7	9.0	TAWMN 2500S32
<b>2500TG</b>	●	25.0	11.6	9.0	TAWLN 2500S32
<b>2510TG</b>	□	25.1	11.6	9.0	TAWSN 2500S32
<b>2520TG</b>	□	25.2	11.6	9.0	TAWMN 2500S32
<b>2530TG</b>	□	25.3	11.6	9.0	TAWLN 2500S32
<b>2540TG</b>	□	25.4	11.6	9.0	TAWSN 2600S32
<b>2550TG</b>	●	25.5	11.5	9.0	TAWMN 2600S32
<b>2560TG</b>	□	25.6	11.5	9.0	TAWLN 2600S32
<b>2570TG</b>	□	25.7	11.5	9.0	TAWSN 2600S32
<b>2580TG</b>	□	25.8	11.5	9.0	TAWMN 2600S32
<b>2590TG</b>	□	25.9	11.5	9.0	TAWLN 2600S32
<b>2600TG</b>	●	26.0	11.4	9.0	TAWSN 2600S32
<b>2610TG</b>	□	26.1	11.4	9.0	TAWMN 2600S32
<b>2620TG</b>	□	26.2	11.4	9.0	TAWLN 2600S32
<b>2630TG</b>	□	26.3	11.4	9.0	TAWSN 2700S32
<b>2640TG</b>	□	26.4	11.4	9.0	TAWMN 2700S32
<b>2650TG</b>	●	26.5	11.3	9.0	TAWLN 2700S32
<b>2660TG</b>	□	26.6	11.3	9.0	TAWSN 2700S32
<b>2670TG</b>	□	26.7	11.3	9.0	TAWMN 2700S32
<b>2680TG</b>	□	26.8	11.3	9.0	TAWLN 2700S32
<b>2690TG</b>	□	26.9	11.3	9.0	TAWSN 2700S32
<b>2700TG</b>	●	27.0	11.2	9.0	TAWMN 2700S32
<b>2710TG</b>	□	27.1	11.2	9.0	TAWLN 2700S32
<b>2720TG</b>	□	27.2	11.2	9.0	TAWSN 2700S32
<b>2730TG</b>	□	27.3	11.2	9.0	TAWMN 2700S32
<b>2740TG</b>	□	27.4	11.2	9.0	TAWLN 2700S32

Order Number	Stock DP5010	Dimensions (mm)			Applicable Holder
		D1	L2	S1	
<b>TAWKH2750TG</b>	●	27.5	12.3	10.0	TAWSN 2800S32
<b>2760TG</b>	□	27.6	12.3	10.0	TAWMN 2800S32
<b>2770TG</b>	□	27.7	12.3	10.0	TAWLN 2800S32
<b>2780TG</b>	□	27.8	12.3	10.0	TAWSN 2800S32
<b>2790TG</b>	□	27.9	12.3	10.0	TAWMN 2800S32
<b>2800TG</b>	●	28.0	12.2	10.0	TAWLN 2800S32
<b>2810TG</b>	□	28.1	12.2	10.0	TAWSN 2800S32
<b>2820TG</b>	□	28.2	12.2	10.0	TAWMN 2800S32
<b>2830TG</b>	□	28.3	12.2	10.0	TAWLN 2800S32
<b>2840TG</b>	□	28.4	12.2	10.0	TAWSN 2900S32
<b>2850TG</b>	●	28.5	12.1	10.0	TAWMN 2900S32
<b>2860TG</b>	□	28.6	12.1	10.0	TAWLN 2900S32
<b>2870TG</b>	□	28.7	12.1	10.0	TAWSN 2900S32
<b>2880TG</b>	□	28.8	12.1	10.0	TAWMN 2900S32
<b>2890TG</b>	□	28.9	12.1	10.0	TAWLN 2900S32
<b>2900TG</b>	●	29.0	12.0	10.0	TAWSN 2900S32
<b>2910TG</b>	□	29.1	12.0	10.0	TAWMN 2900S32
<b>2920TG</b>	□	29.2	12.0	10.0	TAWLN 2900S32
<b>2930TG</b>	□	29.3	12.0	10.0	TAWSN 3000S32
<b>2940TG</b>	□	29.4	12.0	10.0	TAWMN 3000S32
<b>2950TG</b>	●	29.5	11.9	10.0	TAWLN 3000S32
<b>2960TG</b>	□	29.6	11.9	10.0	TAWSN 3000S32
<b>2970TG</b>	□	29.7	11.9	10.0	TAWMN 3000S32
<b>2980TG</b>	□	29.8	11.9	10.0	TAWLN 3000S32
<b>2990TG</b>	□	29.9	11.9	10.0	TAWSN 3000S32
<b>3000TG</b>	●	30.0	11.8	10.0	TAWMN 3000S32
<b>3010TG</b>	□	30.1	11.8	10.0	TAWLN 3000S32
<b>3020TG</b>	□	30.2	11.8	10.0	TAWSN 3000S32
<b>3030TG</b>	□	30.3	11.8	10.0	TAWMN 3000S32
<b>3040TG</b>	□	30.4	11.8	10.0	TAWLN 3000S32

● : Inventory maintained. □ : Non stock, produced to order only.  
 (1 insert in one case)

# INSERTS

## U Type

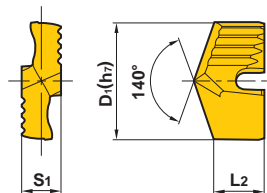


Order Number	Stock		Dimensions (mm)			Applicable Holder	
	VP15TF	VP10H	D1	L2	S1		
<b>TAWN1550T</b>	●	□	15.5	7.9	6.0	TAWSN 1600S20 TAWMN 1600S20 TAWLN 1600S20	
<b>1560T</b>	●	□	15.6	7.9	6.0		
<b>1570T</b>	●	□	15.7	7.9	6.0		
<b>1580T</b>	●	□	15.8	7.9	6.0		
<b>1590T</b>	●	□	15.9	7.9	6.0		
<b>1600T</b>	●	□	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		
<b>1650T</b>	●	□	16.5	7.7	6.0		TAWSN 1700S20 TAWMN 1700S20 TAWLN 1700S20
<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		
<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	TAWSN 1800S20 TAWMN 1800S20 TAWLN 1800S20	
<b>1760T</b>	●	□	17.6	7.5	6.0		
<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		
<b>1830T</b>	●	□	18.3	7.4	6.0		
<b>1840T</b>	●	□	18.4	7.4	6.0		
<b>1850T</b>	●	□	18.5	9.3	7.0	TAWSN 1900S25 TAWMN 1900S25 TAWLN 1900S25	
<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		

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

## INSERTS

### U Type



Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
<b>TAWN2350T</b>	●	□	23.5	9.9	8.0	TAWSN 2400S32
<b>2360T</b>	□	□	23.6	9.9	8.0	
<b>2370T</b>	□	□	23.7	9.9	8.0	
<b>2380T</b>	□	□	23.8	9.9	8.0	
<b>2390T</b>	□	□	23.9	9.9	8.0	
<b>2400T</b>	●	□	24.0	9.8	8.0	
<b>2410T</b>	□	□	24.1	9.8	8.0	
<b>2420T</b>	□	□	24.2	9.8	8.0	
<b>2430T</b>	□	□	24.3	9.8	8.0	
<b>2440T</b>	□	□	24.4	9.8	8.0	
<b>2450T</b>	●	□	24.5	11.1	9.0	TAWSN 2500S32
<b>2460T</b>	□	□	24.6	11.1	9.0	
<b>2470T</b>	□	□	24.7	11.1	9.0	
<b>2480T</b>	□	□	24.8	11.1	9.0	
<b>2490T</b>	□	□	24.9	11.1	9.0	
<b>2500T</b>	●	□	25.0	11.0	9.0	
<b>2510T</b>	□	□	25.1	11.0	9.0	
<b>2520T</b>	□	□	25.2	11.0	9.0	
<b>2530T</b>	□	□	25.3	11.0	9.0	
<b>2540T</b>	□	□	25.4	11.0	9.0	
<b>2550T</b>	●	□	25.5	10.9	9.0	TAWSN 2600S32
<b>2560T</b>	□	□	25.6	10.9	9.0	
<b>2570T</b>	□	□	25.7	10.9	9.0	
<b>2580T</b>	□	□	25.8	10.9	9.0	
<b>2590T</b>	□	□	25.9	10.9	9.0	
<b>2600T</b>	●	□	26.0	10.8	9.0	
<b>2610T</b>	□	□	26.1	10.8	9.0	
<b>2620T</b>	□	□	26.2	10.8	9.0	
<b>2630T</b>	□	□	26.3	10.8	9.0	
<b>2640T</b>	□	□	26.4	10.8	9.0	
<b>2650T</b>	●	□	26.5	10.7	9.0	TAWSN 2700S32
<b>2660T</b>	□	□	26.6	10.7	9.0	
<b>2670T</b>	□	□	26.7	10.7	9.0	
<b>2680T</b>	□	□	26.8	10.7	9.0	
<b>2690T</b>	□	□	26.9	10.7	9.0	
<b>2700T</b>	●	□	27.0	10.6	9.0	
<b>2710T</b>	□	□	27.1	10.6	9.0	
<b>2720T</b>	□	□	27.2	10.6	9.0	
<b>2730T</b>	□	□	27.3	10.6	9.0	
<b>2740T</b>	□	□	27.4	10.6	9.0	

Order Number	Stock		Dimensions (mm)			Applicable Holder
	VP15TF	VP10H	D1	L2	S1	
<b>TAWN2750T</b>	●	□	27.5	12.1	10.0	TAWSN 2800S32
<b>2760T</b>	□	□	27.6	12.1	10.0	
<b>2770T</b>	□	□	27.7	12.1	10.0	
<b>2780T</b>	□	□	27.8	12.1	10.0	
<b>2790T</b>	□	□	27.9	12.1	10.0	
<b>2800T</b>	●	□	28.0	12.0	10.0	
<b>2810T</b>	□	□	28.1	12.0	10.0	
<b>2820T</b>	□	□	28.2	12.0	10.0	
<b>2830T</b>	□	□	28.3	12.0	10.0	
<b>2840T</b>	□	□	28.4	12.0	10.0	
<b>2850T</b>	●	□	28.5	11.9	10.0	TAWSN 2900S32
<b>2860T</b>	□	□	28.6	11.9	10.0	
<b>2870T</b>	□	□	28.7	11.9	10.0	
<b>2880T</b>	□	□	28.8	11.9	10.0	
<b>2890T</b>	□	□	28.9	11.9	10.0	
<b>2900T</b>	●	□	29.0	11.8	10.0	
<b>2910T</b>	□	□	29.1	11.8	10.0	
<b>2920T</b>	□	□	29.2	11.8	10.0	
<b>2930T</b>	□	□	29.3	11.8	10.0	
<b>2940T</b>	□	□	29.4	11.8	10.0	
<b>2950T</b>	●	□	29.5	11.7	10.0	TAWSN 3000S32
<b>2960T</b>	□	□	29.6	11.7	10.0	
<b>2970T</b>	□	□	29.7	11.7	10.0	
<b>2980T</b>	□	□	29.8	11.7	10.0	
<b>2990T</b>	□	□	29.9	11.7	10.0	
<b>3000T</b>	●	□	30.0	11.6	10.0	
<b>3010T</b>	□	□	30.1	11.6	10.0	
<b>3020T</b>	□	□	30.2	11.6	10.0	
<b>3030T</b>	□	□	30.3	11.6	10.0	
<b>3040T</b>	□	□	30.4	11.6	10.0	

## RECOMMENDED CUTTING CONDITIONS

Work Material	Drill Diameter	Conditions Hardness	φ14.0—φ15.4		φ15.5—φ18.4		φ18.5—φ21.4		
			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		70 (60—90)	0.20 (0.15—0.25)	80 (60—100)	0.25 (0.20—0.30)	90 (70—110)	0.25 (0.20—0.30)	
			Carbon Steel	70 (60—90)	0.20 (0.15—0.25)	80 (60—100)	0.25 (0.20—0.30)	80 (60—100)	0.25 (0.20—0.30)
			Alloy Steel	280—350HB	60 (50—80)	0.15 (0.12—0.18)	70 (50—90)	0.20 (0.15—0.25)	70 (50—90)
M Stainless Steel	≤200HB		50 (40—60)	0.15 (0.12—0.18)	50 (40—60)	0.15 (0.12—0.18)	60 (50—70)	0.20 (0.15—0.22)	
K Gray Cast Iron	Tensile Strength ≤350MPa		70 (50—90)	0.20 (0.15—0.25)	100 (60—120)	0.25 (0.20—0.30)	120 (60—140)	0.25 (0.20—0.30)	
			Ductile Cast	Tensile Strength ≤450MPa	70 (50—90)	0.20 (0.15—0.25)	80 (60—90)	0.25 (0.20—0.30)	80 (60—90)

Work Material	Drill Diameter	Conditions Hardness	φ21.5—φ24.4		φ24.5—φ27.4		φ27.5—φ30.4		
			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		100 (80—120)	0.30 (0.25—0.35)	110 (80—120)	0.30 (0.25—0.35)	110 (80—120)	0.30 (0.25—0.35)	
			Carbon Steel	90 (70—110)	0.30 (0.25—0.35)	100 (80—120)	0.30 (0.25—0.35)	100 (80—120)	0.30 (0.25—0.35)
			Alloy Steel	280—350HB	80 (60—100)	0.25 (0.20—0.30)	90 (70—110)	0.25 (0.20—0.30)	90 (70—110)
M Stainless Steel	≤200HB		60 (50—70)	0.20 (0.15—0.22)	70 (60—80)	0.25 (0.20—0.28)	70 (60—80)	0.25 (0.20—0.28)	
K Gray Cast Iron	Tensile Strength ≤350MPa		130 (80—150)	0.35 (0.25—0.40)	140 (90—160)	0.35 (0.25—0.40)	140 (90—160)	0.40 (0.30—0.45)	
			Ductile Cast	Tensile Strength ≤450MPa	90 (60—100)	0.30 (0.25—0.35)	100 (80—110)	0.30 (0.25—0.35)	100 (80—110)

(Note 1) When using the 8D type holder, reduce the cutting speed by approx. 20%.

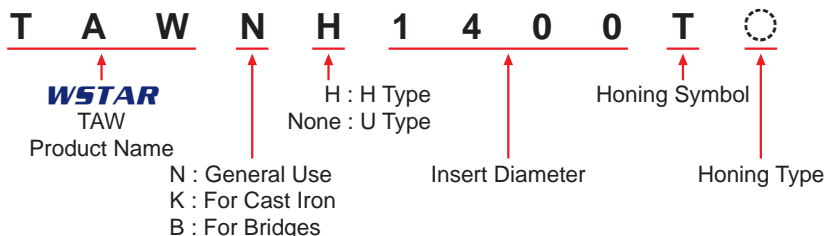
(Note 2) When using the 8D type holder, it is recommended to drill a pilot guide hole.

(Note 3) H type honing is recommended when machining mild steel and stainless steel.

### HONE WIDTH

If an insert with honing other than standard is needed, please order using the symbols below.

(Insert Order Number)



(Honing Standard)

Honing Type	Hone Width (mm)
F	0
G	0.02—0.05
H	0.05—0.10
-(Standard)	0.10—0.15
K	0.15—0.20
S	0.20—0.25
M	0.25—0.30

## NOTES ON USE

### INSERT INSTALLATION

- Loosen the clamp screw to install the insert.
- Correctly mesh the insert and the holder serrations, then slide the insert to the bottom of the slot.
- Fasten the clamp screw using the torque wrench provided while holding the insert lightly as shown. (Figure 1)
- Check there is no gap between the bottom of the insert and holder. (Figure 2)

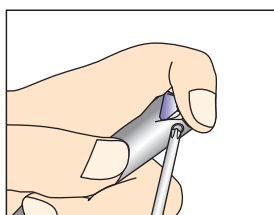


Fig. 1

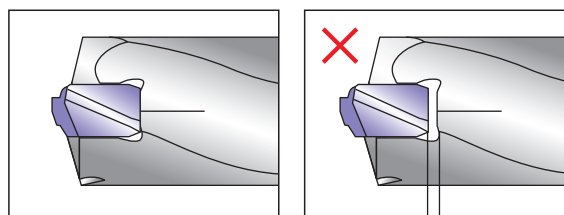


Fig. 2

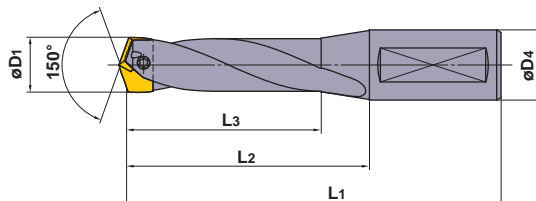
### INSERT REPLACEMENT

- Thoroughly clean the serrations of the holder before installing a new insert.
- Remove heavy dirt in the holder serrations by using the cleaning plate provided.

# TAW

Carbon Steel Alloy Steel	Hardened Steel	Stainless Steel	Cast iron	Light Alloy	Heat Resistant Alloy
◎					

(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	Effective flute length	Neck Length	Overall Length	Shank Dia.				
24.5 24.6 24.7	3	TAWSB2500S32	●	24.5	TAWB2450T	●	88.6 (88)	110.6 (110)	170.6 (170)	32	WS406023T	TKY25T	WPT4405	MK1KS
					TAWBH2450T	●								
	5	TAWMB2500S32	□	24.6	TAWB2460T	□	140.6 (140)	165.6 (165)	225.6 (225)	32	WS406023T	TKY25T	WPT4405	MK1KS
					TAWBH2460T	□								
26.5 26.7	3	TAWSB2700S32	●	26.5	TAWB2650T	□	94.6 (94)	115.6 (115)	175.6 (175)	32	WS406024T	TKY25T	WPT4405	MK1KS
					TAWBH2650T	□								
	5	TAWMB2700S32	□	26.7	TAWB2670T	●	151.6 (151)	175.6 (175)	235.6 (235)	32	WS406024T	TKY25T	WPT4405	MK1KS
					TAWBH2670T	●								

(Note 1) The dimensions in brackets represent the sizes when TAWB-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. □ : Non stock, produced to order only.

## INSERTS

Shape	Order Number	Stock	Dimensions (mm)			Applicable Holder	Hone Width (mm)	Geometry
			D1	L2	S1			
	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			
	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			

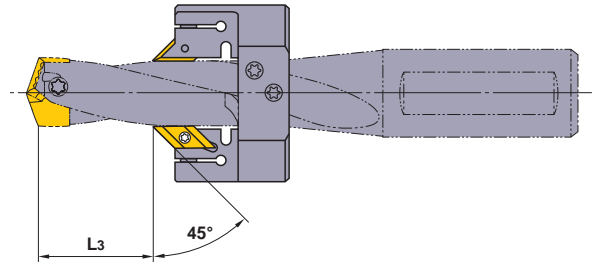
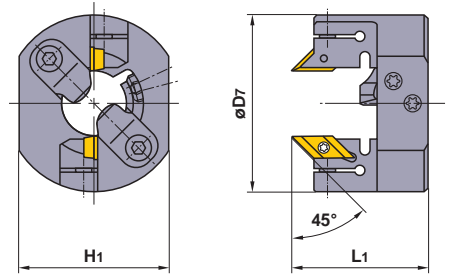
● : Inventory maintained. □ : Non stock, produced to order only.

(1 insert in one case)

## RECOMMENDED CUTTING CONDITIONS

Work Material		Drill Diameter	φ24.5, φ24.6, φ24.7		φ26.5, φ26.7	
			Condition	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)
P Structural Steel	SS400	Tensile Strength ≤400–500MPa	70 (60–80)	0.30 (0.25–0.35)	70 (60–80)	0.30 (0.25–0.35)
	SM490	Tensile Strength ≤490–610MPa	65 (55–75)	0.30 (0.25–0.35)	65 (55–75)	0.30 (0.25–0.35)
	SM570	Tensile Strength ≤570–720MPa	60 (50–70)	0.30 (0.25–0.35)	60 (50–70)	0.30 (0.25–0.35)








# CHAMFER RING



Tool Holder Number	Stock	Dimensions (mm)			Maximum chamfer width	Drilled Depth L3 (min.—max.)			Suitable TAW Type Drill
		L1	D7	H1		TAWS	TAWM	TAWL	
<b>TAW200R-90</b>	●	40	53	44	4	12—29	29—70	70—127	TAWS/M/L2000S25
<b>210R-90</b>	●	40	54	46	4	12—32	32—75	75—135	TAWS/M/L2100S25
<b>220R-90</b>	●	40	55	46	4	14—36	36—81	81—143	TAWS/M/L2200S25
<b>230R-90</b>	●	40	56	48	4	14—39	39—86	86—151	TAWS/M/L2300S25
<b>240R-90</b>	●	40	57	48	4	14—43	43—92	92—159	TAWS/M/L2400S32
<b>250R-90</b>	●	42	58	50	4	15—43	43—95	95—165	TAWS/M/L2500S32
<b>260R-90</b>	●	42	59	50	4	15—47	47—101	101—173	TAWS/M/L2600S32
<b>270R-90</b>	●	42	60	52	4	15—49	49—106	106—181	TAWS/M/L2700S32
<b>280R-90</b>	●	42	61	52	4	15—52	52—112	112—189	TAWS/M/L2800S32
<b>290R-90</b>	●	45	62	54	4	15—52	52—114	114—194	TAWS/M/L2900S32
<b>300R-90</b>	●	45	63	54	4	15—56	56—119	119—202	TAWS/M/L3000S32

(Note) For cutting conditions, refer to the recommended cutting conditions for the TAW drill on Page 18.  
If tears or vibrations occur, reduce the feed or cutting speed.

## SPARE PARTS


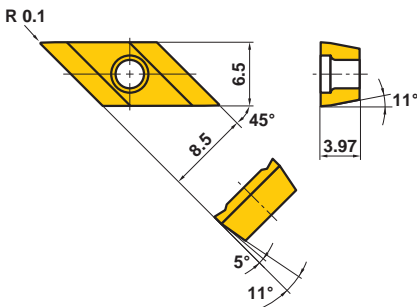
Tool Holder Number							Insert
	Clamp Screw (Insert)	Guide Plate	Screw (Guide Plate)	Set screw (Chamfer Ring)	Run-out adjust Screw	Wrench	
<b>TAW200R-90</b>	TS254	TAWP20-21	HSC04008	TSR06011S	TSR05008S	 ①TKY20R ①TKY10R ②TKY08F	TAWC12T301-45GM
<b>210R-90</b>	TS254	TAWP20-21	HSC04008	TSR06011S	TSR05008S		
<b>220R-90</b>	TS254	TAWP22-24	HSC04008	TSR06011S	TSR05008S		
<b>230R-90</b>	TS254	TAWP22-24	HSC04008	TSR06011S	TSR05008S		
<b>240R-90</b>	TS254	TAWP22-24	HSC04008	TSR06011S	TSR05008S		
<b>250R-90</b>	TS254	TAWP25-26	HSC04008	TSR06011S	TSR05008S		
<b>260R-90</b>	TS254	TAWP25-26	HSC04008	TSR06011S	TSR05008S		
<b>270R-90</b>	TS254	TAWP27-28	HSC04008	TSR06011S	TSR05008S		
<b>280R-90</b>	TS254	TAWP27-28	HSC04008	TSR06011S	TSR05008S		
<b>290R-90</b>	TS254	TAWP29-30	HSC04008	TSR06011S	TSR05008S		
<b>300R-90</b>	TS254	TAWP29-30	HSC04008	TSR06011S	TSR05008S		

(Note) The above parts are provided with the chamfer ring except insert.

● : Inventory maintained.

# CHAMFER RING

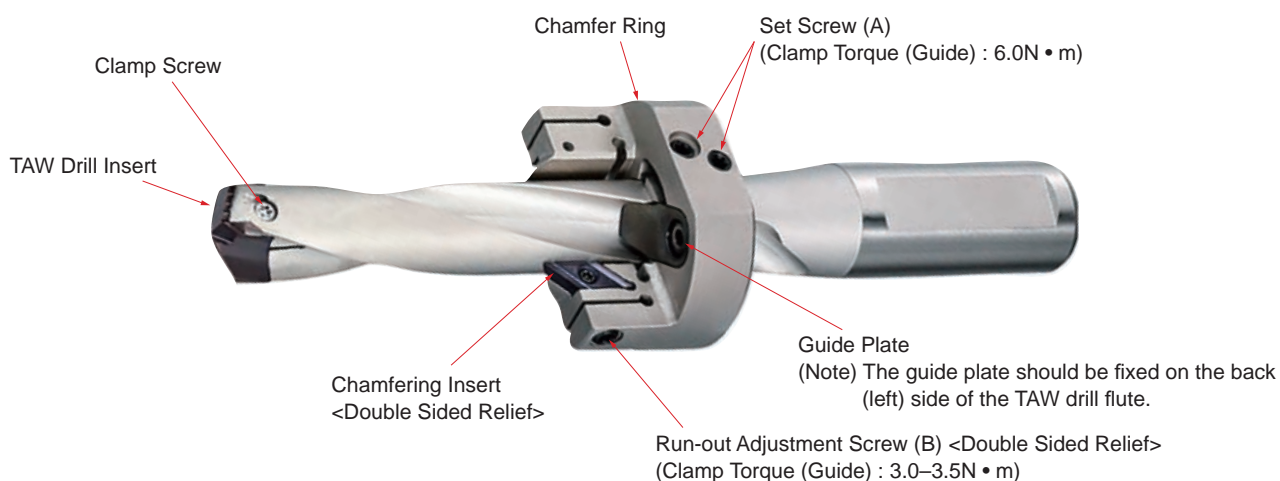
## INSERTS

Shape	Order Number	Stock	Geometry
		VP15TF	
	<b>TAWC12T301-45GM</b>	●	

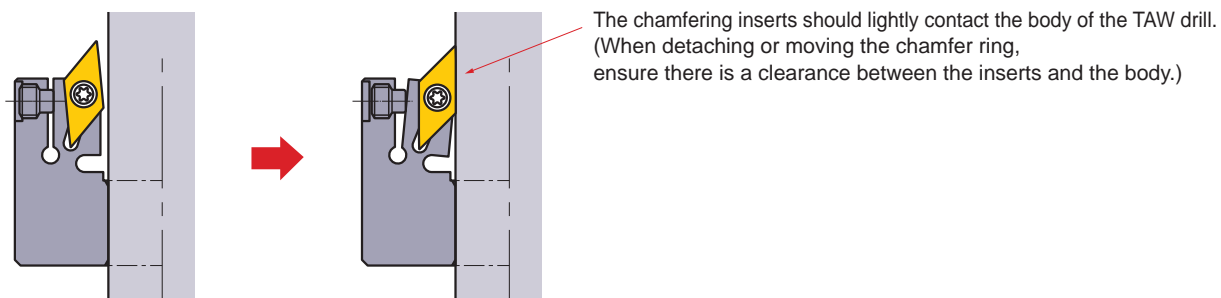
## CHAMFER RING INSTALLATION

- Loosen the set screws (A) and clearance adjustment screw (B) on the chamfer ring.
- Install the chamfering insert on the chamfer ring.
- Put the chamfer ring on from the front of the drill. Remove the TAW drill insert or clamp screw beforehand.
- Ensure that the TAW drill insert is securely located using the clamp screw.
- Fasten the 2 set screws (A) on the chamfer ring to attach it to the drill as shown in fig. 1.  
 Note : The guide plate of the chamfer ring should be fixed on the back (left) side of the TAW drill flute.
- Tighten the adjusting screw (B) until the chamfering insert comes into contact with the TAW drill as shown in fig. 2.  
 Note : Stop when the chamfering insert contacts the TAW drill.  
 If the screw is overtightened, the chamfering insert may be damaged.  
 (Clamp Torque (Guide) : 3.0–3.5N • m)

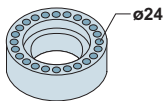
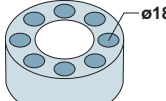
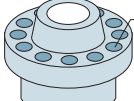
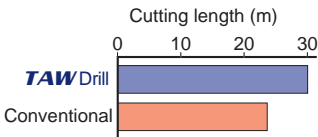
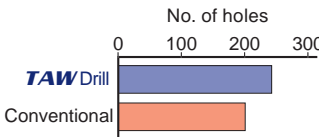
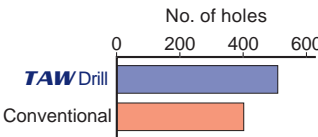
**Fig. 1**

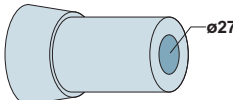
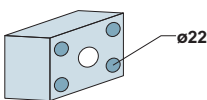
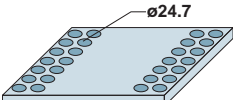
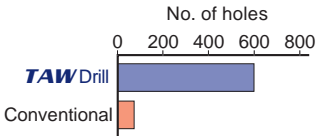
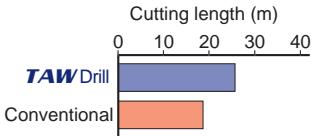
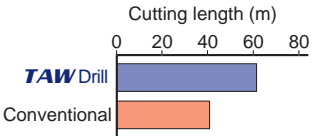


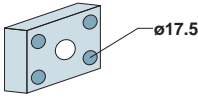
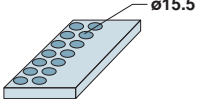
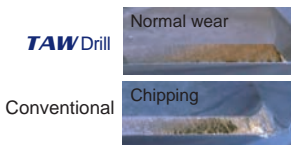
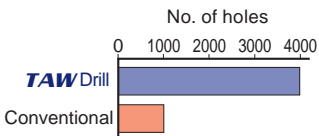
**Fig. 2**

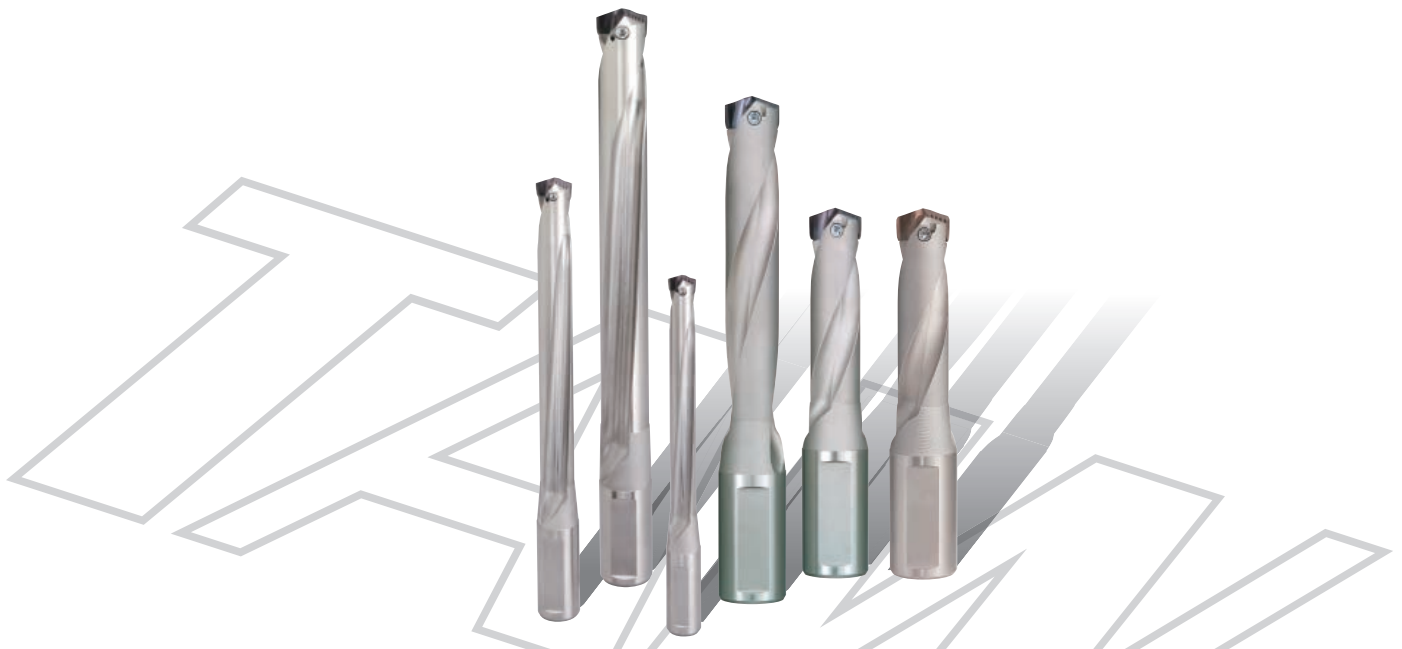


## APPLICATION EXAMPLES

Holder	TAWSN2400S32	TAWMN1800S20	TAWSN1600S20
Insert (Grade)	TAWNH2400T (VP15TF)	TAWN1800T (VP15TF)	TAWN1610T (VP15TF)
Workpiece	JIS S50C 	JIS S48C(200HB) 	JIS SF390A 
Component	Ring	Ring gear	Machine parts
Cutting Conditions	Cutting Speed (m/min)	90	80
	Feed (mm/rev)	0.3	0.3
	Revolution (mm <sup>-1</sup> )	1194	1582
	Feed Rate (mm/min)	358	475
Coolant	Mist coolant	Water Soluble Oil (Internal coolant)	Water Soluble Oil (Internal coolant)
Machine Type	Machining centre	Machining centre	Machining centre
Result			

Holder	TAWSN2700S32	TAWLN2200S25	TAWSB2500S32
Insert (Grade)	TAWN2700T (VP15TF)	TAWN2200T (VP15TF)	TAWB2470T (VP15TF)
Workpiece	JIS SCM 	JIS FCD400 	JIS SM490 
Component	Tube	Steel for bridges	Steel for bridges
Cutting Conditions	Cutting Speed (m/min)	80	60
	Feed (mm/rev)	0.3	0.3
	Revolution (mm <sup>-1</sup> )	943	773
	Feed Rate (mm/min)	283	232
Coolant	Water Soluble Oil (Internal coolant)	Water Soluble Oil (Internal coolant)	Mist coolant
Machine Type	NC lathe	Machining centre	Gundrill machine
Result			

Holder	TAWKH1750TG (DP5010)		TAWKH1550TG (DP5010)	
Insert (Grade)	TAWKH1750TG (DP5010)		TAWKH1550TG (DP5010)	
Workpiece	JIS FC250 	JIS FC250 		
Component	Machine parts		Machine parts	
Cutting Conditions	Cutting Speed (m/min)	120	73	
	Feed (mm/rev)	0.25	0.2	
	Revolution (mm <sup>-1</sup> )	2183	1500	
	Feed Rate (mm/min)	546	300	
Coolant	Water Soluble Oil (Internal coolant)		Water Soluble Oil (Internal coolant)	
Machine Type	Machining centre		Machining centre	
Result				



Head Exchangeable Type Carbide Drill  
**WSTAR** Insert Type Drill

**TAW**

For Your Safety

●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When attaching inserts or spare parts, please use only the correct wrench or spanner. ●When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

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(Tools specifications subject to change without notice.)

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