

# CARBIDE FLANGE STOPPER PUNCHES

—NORMAL · TiCN COATING—



# CARBIDE STRAIGHT PUNCHES

—NORMAL · LAPPING · TiCN COATING—



Type	Shank diameter D tolerance	Shape	Catalog No.	Shape
<b>RoHS</b>	$D^{+0.005}_0$		<b>WXPAL</b> TiCN coating <b>H-WXPAL</b>	
	$D^{-0.001}_{-0.006}$		—Minus D tolerance— <b>B-WXPAL</b> TiCN coating <b>BH-WXPAL</b>	
<b>—Air hole type—</b>	$D^{+0.005}_0$		<b>WXJHAL</b> TiCN coating <b>H-WXJHAL</b>	
	$D^{-0.001}_{-0.006}$		—Minus D tolerance— <b>B-WXJHAL</b> TiCN coating <b>BH-WXJHAL</b>	

Super fine grain (HIP) 90 ~ 92HRA

The tip end of a TiCN coating punch is ground before the coating is applied.  
Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.

Type	Shape	Catalog No.	Shape
<b>RoHS</b>		<b>WPC</b> Lapping <b>L-WPC</b> TiCN coating <b>H-WPC</b> (No.1.6 ~ 10)	
		(No.1.6 ~ 6) <b>WXPC</b> Lapping <b>L-WXPC</b> TiCN coating <b>H-WXPC</b>	

V30 (HIP) 88 ~ 89HRA

Super fine grain (HIP) 90 ~ 92HRA

The tip end of a TiCN coating punch is ground before the coating is applied.  
Although the marks of processing may remain in the center of a flange end face, it is satisfactory on a function.

Catalog No.	Type	D	L	0.001mm increments (A)		T	1mm increments B	V	d1	R	Base unit price 1 ~ 4 pieces					
				min.	P max.						WXPAL B	H-WXPAL BH	WXJHAL B	H-WXJHAL BH		
WXPAL	4	40	50	0.500	1.000 ~ 2.000	13 16 20	2 ~ 6	2		2 ~ 3						
B-WXPAL	5	40	50 60	1.000	~ 3.000	13 16 20 25	2 ~ 8	3								
H-WXPAL	6	40	50 60 70	1.500	~ 4.000	13 16 20 25	2 ~ 10	4		10						
BH-WXPAL	8	40	50 60 70	2.000	~ 6.000	13 16 20 25	2 ~ 10	6								
WXJHAL	5	40	50 60	1.000	~ 3.000	13 16 20 25	2 ~ 8	3	0.4							
B-WXJHAL	6	40	50 60 70	1.500	~ 4.000	13 16 20 25	2 ~ 10	4	0.5	10						
H-WXJHAL	8	40	50 60 70	2.000	~ 6.000	13 16 20 25	2 ~ 13	6	0.8							

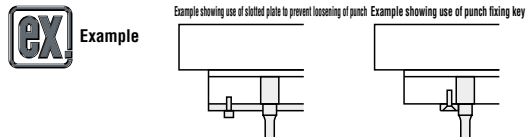
P(1.00) → For TiCN coating, Pmin. is 1.00. P dimension increments → For TiCN coating, increments are 0.01mm.

Catalog No.	Type	No.	L	0.001mm increments (A)		H	T	Base unit price 1 ~ 4 pieces					
				min.	P max.			WPC	L-WPC	H-WPC	WXPC	L-WXPC	H-WXPC
WPC	—Lapping— <b>L-WPC</b> <b>L-WXPC</b> (No.1.6 ~ 6) —TiCN coating— <b>H-WPC</b> (No.1.6 ~ 10) <b>H-WXPC</b> (No.1.6 ~ 6)	1.0	20 25 30	0.500	~ 1.000	2.0							
1.6		20 25 30 35	1.000	~ 1.600	2.6								
2.0		20 25 30 35 40 50	1.600	~ 2.000	3.0	3							
2.5		20 25 30 35 40 50 60	2.000	~ 2.500	3.5								
3		40 50 60	2.000	~ 3.000	5								
4		40 50 60 70	3.000	~ 4.000	7								
5		40 50 60 70	4.000	~ 5.000	8								
6		40 50 60 70	5.000	~ 6.000	9	5							
8		40 50 60 70 80	6.000	~ 8.000	11								
10		40 50 60 70 80	8.000	~ 10.000	13								

P dimension increments → For TiCN coating, increments are 0.01mm. (If used with PKC alteration, 0.001mm increments can be selected.)

Order **WXPAL4** - 40 - P0.560 - T16 - B3  
**B-WXPAL5** - 60 - P3.000 - T20 - B5

Price **Quotation**



Alterations **WXPAL5** - 60 - P3.000 - T15.0 - B5

Alteration	Code	Spec.	1Code
	<b>PRC</b>	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1mm increments PCC ≤ (P-0.2)/2 ⊗ Cannot be combined with PCC-GC. With air hole, PRC ≤ (P-d1-0.5)/2	
	<b>PCC</b>	Chamfering to tip side edge 0.3 ≤ PCC ≤ 1 0.1mm increments PCC ≤ (P-0.2)/2 ⊗ Cannot be combined with PRC-GC. With air hole, PCC ≤ (P-d1-0.5)/2	
	<b>GC</b>	20° ≤ GC < 90° 1° increments Tip length B ≥ f+2 f = P/2 × tan(90° - GC°) With lapping, tip edges are rounded. Cannot be used for P ≤ 1.000. Cannot be combined with LKC-LKZ-PRC-PCC. Cannot be combined with punches with air holes.	<b>Quotation</b>
	<b>SC</b>	Tip roughness change 0.2 → 0.08 With TiCN coating, the base material is finished before the coating is applied.	

Alteration	Code	Spec.	1Code
	<b>PKC</b>	Tip tolerance change Normal P +0.005 → +0.003 Coating P +0.01 → +0.005	
	<b>PKV</b>	Tip tolerance change (P dimension increment remains the same.) Normal P +0.005 → ±0.002 Coating P +0.01 → ±0.005	
	<b>LC</b>	Full length change 40 < LC < L 0.1mm increments (If combined with LKC-LKZ, 0.01mm increments can be selected.) If LC < 50, T and TC are 20 or less. If LC < 50 with D6-8, the allowable range of change for B is 2 ~ 10.	<b>Quotation</b>
	<b>LKC</b>	Full length tolerance change L +0.3 → +0.05	
<b>LKZ</b>	Full length tolerance change L +0.3 → +0.01 ⊗ Cannot be used with TiCN coating.		
	<b>TC</b>	Dimension T change 13 < TC < 25 0.1mm increments When L < 50, the allowable range of change is 13 < TC < 20. The full length L remains the same.	

Order **WPC 2.5** - 40 - P2.050 Days to Ship **Quotation** Price **Quotation**

Alterations **WPC 2.5** - 40 - P2.050 - PKC

Alteration	Code	Spec.	1Code
	<b>PRC</b>	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1mm increments PCC ≤ (P-0.2)/2 ⊗ Cannot be combined with PCC-GC.	
	<b>PCC</b>	Chamfering to tip side edge 0.3 ≤ PCC ≤ 1 0.1mm increments PCC ≤ (P-0.2)/2 ⊗ Cannot be combined with PRC-GC.	
	<b>GC</b>	20° ≤ GC < 90° 1° increments f = P/2 × tan(90° - GC°) With lapping, tip edges are rounded. Cannot be used for P ≤ 1.000. Cannot be combined with LKC-LKZ-LCT-LMT-PRC-PCC.	
	<b>SC</b>	Tip roughness change 0.2 → 0.08 The base material is finished before the coating is applied. Can be used for coating types only.	
	<b>PKC</b>	Tip tolerance change Normal-lapping P +0.005 → +0.003 Coating P +0.01 → +0.005	
	<b>PKV</b>	Tip tolerance change (P dimension increment remains the same.) Normal-lapping P +0.005 → ±0.002 Coating P +0.01 → ±0.005	<b>Quotation</b>
	<b>LC</b>	Full length change 20 ≤ LC < L 0.1mm increments (If combined with LKC-LKZ, 0.01mm increments can be selected.) Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increment, ordering process, and notes are the same as for LC.	
	<b>LCT</b>	Full length tolerance change T +0.3 → +0.02 + Full length change L +0.3 → +0.1	
	<b>LMT</b>	Full length tolerance change T +0.3 → 0 + Full length change L +0.3 → +0.1	

Alteration	Code	Spec.	1Code
	<b>LKC</b>	Full length tolerance change L +0.3 → +0.05 ⊗ Cannot be used for No.1.0.	
	<b>LKZ</b>	Full length tolerance change L +0.3 → +0.01 ⊗ Cannot be used with TiCN coating. ⊗ Cannot be used for No.1.0.	
	<b>KC</b>	Addition of single key flat to head ⊗ Cannot be used for No.1.0 ~ 2.5. ⊗ Cannot be combined with KFC.	
	<b>WKC</b>	Addition of double key flats in parallel ⊗ Cannot be used for No.1.0 ~ 2.5. ⊗ Cannot be combined with KFC.	
	<b>KFC</b>	Double key flats at 0° and a selected angle 1° increments ⊗ Cannot be combined with KC-WKC.	
	<b>HC</b>	Head diameter change P ≤ HC < H 0.01mm increments ⊗ Cannot be used for No.1.0. For coating, 2.6 ≤ HC < H	
	<b>TC</b>	Head thickness change 2 ≤ TC < T 0.1mm increments (If combined with TKC-TKM-LCT-LMT, 0.01mm increments can be selected.) Full length L is shortened by (T-TC). If combined with LC-LCT-LMT, full length is equal to LC. For coating, 4 ≤ TC < T ⊗ Cannot be used for No.1.0.	<b>Quotation</b>
	<b>TKC</b>	Head thickness tolerance change L +0.3 → +0.02 ⊗ Cannot be used for No.1.0.	
	<b>TKM</b>	Head thickness tolerance change T +0.3 → 0 -0.02 ⊗ Cannot be used for No.1.0.	
	<b>TCC</b>	Chamfering of head. This improves the strength of the punch head. P.1611 0.1mm increments 0.5 ≤ TCC ≤ (H-P)/2 If H ≤ 5, then TCC is 0.5. ⊗ Cannot be used for No.1.0.	