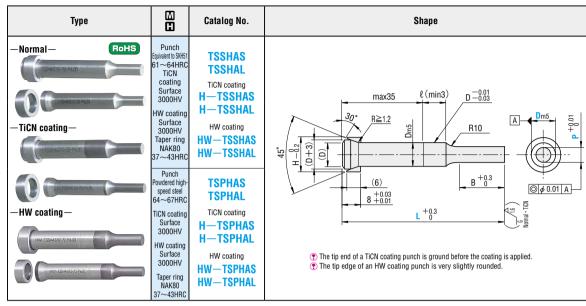
## **TAPERED HEAD PUNCHES**

-NORMAL·TICN COATING·HW COATING-





Catalog No.			. L				0.01mm increments	В	н
Туре	D	_				min. P max.		"	
TSSHAS	8	60	70	80	90	100	3.00~ 7.99	13	13
ISPHAS	10	60	70	80	90	100	3.00∼ 9.99		15
—TICN coating— H—TSSHAS H—TSPHAS —HW coating— HW—TSSHAS	13	60	70	80	90	100	6.00∼ 12.99		18
	16	60	70	80	90	100	10.00~ 15.99		21
	20	60	70	80	90	100	13.00~ 19.99	19	25
HW-TSPHAS	25	60	70	80	90	100	18.00~ 24.99		30
TSSHAL	8	60	70	80	90	100	3.00~ 7.99		13
TSPHAL	10	60	70	80	90	100	3.00∼ 9.99	19	15
—TiCN coating— <b>H—TSSHAL</b>	13	60	70	80	90	100	6.00∼ 12.99		18
H—TSPHAL	16	60	70	80	90	100	10.00~ 15.99		21
—HW coating— HW—TSSHAL	20	60	70	80	90	100	13.00~ 19.99	25	25
HW-TSPHAL	25	60	70	80	90	100	18.00~ 24.99		30

**?** P>D−0.03···· $\ell$ =0 If P>D−0.03, D<sup>-0.01</sup><sub>-0.03</sub>(press-in lead) is not included.



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Days to Ship Quotation



Quotation



	Catalog No. TSSHAS 20	] —	L(LC)	—	P(PC)	_	$(\mathbf{BC} \boldsymbol{\cdot} \mathbf{SC}, \mathbf{etc.})$
	TSSHAS 20	_	LC82	_	PC12.00	_	BC13

Alteration		Code	Spec.						
	( <u>)</u>	PC	Tip dimension change $PC \ge \frac{pmin.}{2}$ 0.01 mm increments (If combined with PKC, 0.001 mm increments can be selected.) $P = \frac{Bmax.}{1.500 \sim 1.999} = 20$ $2.000 \sim 3.999 = 3.5$						
Alterations to tip	BC	ВС	2.000~3.999 4.000~8.999 45 6.000~ 60  Tip length change 2≦BC≦Bmax. 0.1 mm increments  Full length L must be at least 35mm longer than tip length 8C.	notation)					
Alteratio	0.16 GL	SC	Lapping of tip  P I dimension tolerance and increment are the same. The base material bfinished before coating is applied Cannot be used with HW coating.						
	PRC±0.05	PRC	Rounding of tip side edge $0.3 \le PRC \le 10.1$ mm increments $\bigcirc PRC \le (P-0.2)/2 \bigcirc C$ cannot be combined with PCC. $\bigcirc For HW$ coating, the tolerance is $PRC \pm 0.1$ .						
	PCC±0.05	PCC	Chamfering to tip side edge $0.3 \le PCC \le 1$ 0.1 mm increments $\P$ PCC $\P$ PC2/2 $\P$ Cannot be combined with PRC. $\P$ For HW coating, the tolerance is PCC $\#$ 0.1.						

	Alteration	Code	Spec.	1Code	
Alterations to tip		PKC	Tip dimension p+0.01 \inp +0.005 0  (P dimension can be selected in 0.001 mm increments.)  TiCN of HW coating cannot be used for D>13.		
Alterations to full length	LC	LC	Full length change 35+B (BC) ≦LC <l (full="" (if="" 0.01mm="" 0.1="" 35mm="" adjusted="" and="" be="" between="" can="" combined="" difference="" full="" if="" increments="" is="" length="" length—35mm).<="" less,="" lkc,="" mm="" or="" selected.)="" th="" tip="" to="" with="" ③=""><th colspan="2">tion</th></l>	tion	
<b>Alterations</b> t		LKC	Full length tolerance change $L_0^{+0.3} \rightleftharpoons_0^{+0.05}$	Quotati	
Shank	€ D=8.813	NDC	No press-in $\ell \geq 3 \Leftrightarrow \ell = 0$ lead		

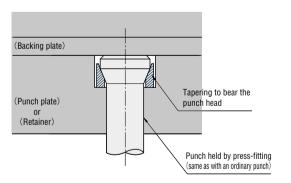


## ■ Features

- Tapered head punches relieve stress concentration, providing greater head strength than conventional heavyload punches.
- These products were developed for heavy-load applications, such as punching of high-tensile steel sheets with tensile strength of 980 MPa (100 kgf/mm<sup>2</sup>) or higher, spring steel, and hardened steel.
- When used with the accessory taper rings, the tapered head punches eliminate the need for machining of tapered holes in the punch plates and for machining to align the thickness of the plate and punch head.
- Because the head of a tapered head punch is interchangeable with that of a heavy-load punch, the retainer for a heavy-load punch can be used.
- Guide to tapered head punches P.1611

## ■Note

- The head thickness tolerance of a tapered head punch,  $8^{+0.03}_{+0.01}$ , is achieved by machining a match between the actual individual punch and its taper ring. Be sure to use a taper ring that has the same ID number as the punch.
- If the punch is combined with a tapered ring that has a different ID number, the head thickness may deviate from the tolerance listed in the catalog.
- When a punch is replaced, replace both punch and taper ring (The punch and taper ring are not sold individually.)



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