CARBIDE BLOCK PUNCHES

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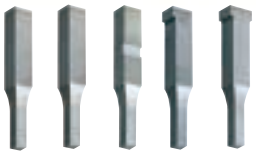
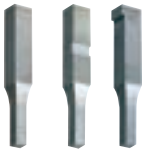


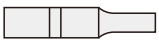
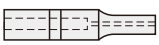
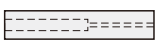
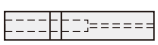
Product name Catalog No.	CARBIDE BLOCK PUNCHES ZP□BL ZP□ML ZP□KL ZP□FL ZP□WL	CARBIDE BLOCK PUNCHES WITH AIR HOLES ZJ□BL ZJ□KL ZJ□FL ZJ□WL	CARBIDE BLOCK PUNCHES —Configurable size type— FZP□BL FZP□ML FZP□KL FZP□FL FZP□WL
Page	497	499	501



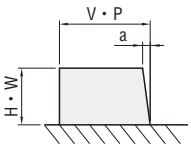
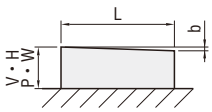
CARBIDE STRAIGHT PUNCHES ZPC□ ZMC□ ZKC□ ZFC□ ZWC□	CARBIDE STRAIGHT PUNCHES WITH AIR HOLES ZJC□ ZJKC□ ZJFC□ ZJWC□	CARBIDE BLOCK PUNCH TIP BLANKS ZPDB ZPDM ZPDK ZPDF ZPDW	CARBIDE BLOCK PUNCH BLANKS ZPB B—ZPB ZPM ZPK B—ZPK ZPF ZPW
503	505	507	509

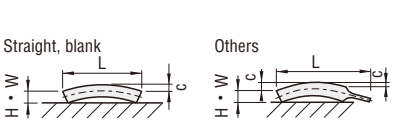
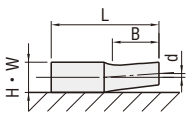
CARBIDE BLOCK PUNCH BLANKS WITH AIR HOLES ZJB ZJK ZJF ZJW	CARBIDE BLOCKS Z
511	513

CARBIDE BLOCK PUNCHES LIST

Shank type		M	Standard		Configurable size type	
Carbide normal punches		V30 (HIP)	ZP□BL	P.497	FZP□BL	P.501
Carbide punches with air holes		V30 (HIP)	ZJ□BL	P.499		
Carbide tapped punches		V30 (HIP)	ZP□ML	P.497	FZP□ML	P.501
Carbide punches with key grooves		V30 (HIP)	ZP□KL	P.497	FZP□KL	P.501
Carbide punches with key grooves and air holes		V30 (HIP)	ZJ□KL	P.499		
Carbide punches with single flanges		V30 (HIP)	ZP□FL	P.497	FZP□FL	P.501
Carbide punches with single flanges and air holes		V30 (HIP)	ZJ□FL	P.499		
Carbide punches with double flanges		V30 (HIP)	ZP□WL	P.497	FZP□WL	P.501
Carbide punches with double flanges and air holes		V30 (HIP)	ZJ□WL	P.499		
Carbide straight punches		V30 (HIP)	ZPC□	P.503		
Carbide straight punches with air holes		V30 (HIP)	ZJC□	P.505		
Carbide tapped straight punches		V30 (HIP)	ZMC□	P.503		
Carbide straight punches with key grooves		V30 (HIP)	ZKC□	P.503		
Carbide straight punches with key groove and air holes		V30 (HIP)	ZJKC□	P.505		
Carbide straight punches with single flanges		V30 (HIP)	ZFC□	P.503		
Carbide straight punches with single flanges and air holes		V30 (HIP)	ZJFC□	P.505		
Carbide straight punches with double flanges		V30 (HIP)	ZWC□	P.503		
Carbide straight punches with double flanges and air holes		V30 (HIP)	ZJWC□	P.505		

■Carbide block punch accuracy standards

Accuracy standards		
Perpendicularity		a≦0.005
Parallelism		b≦0.005

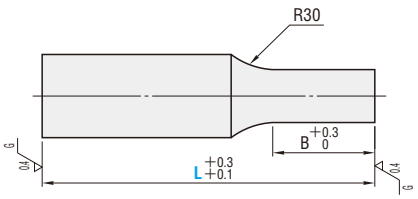
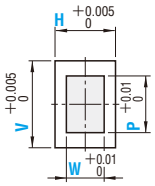
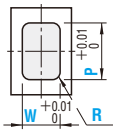
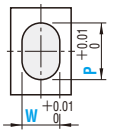
Accuracy standards		
Warpage		c≦0.005
Bending of tip		d≦0.005

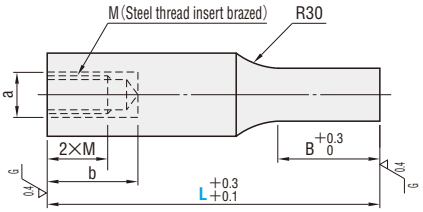
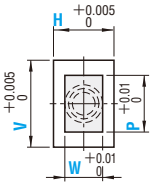
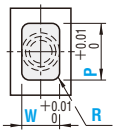
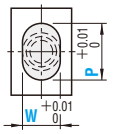
CARBIDE BLOCK PUNCHES

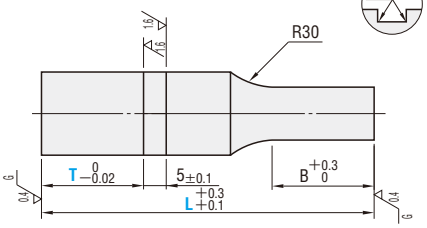
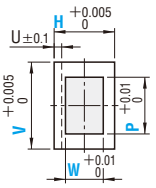
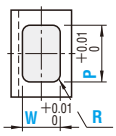
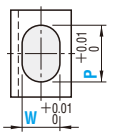
●Tip machining limit

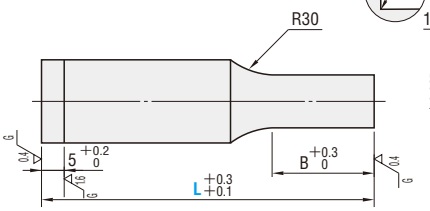
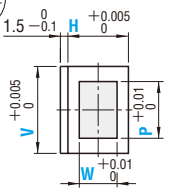
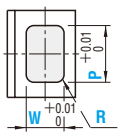
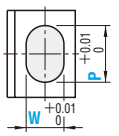
RoHS

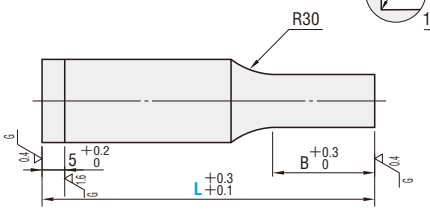
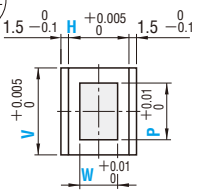
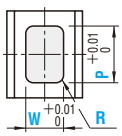
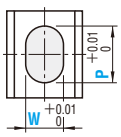
Tip shape D	Tip shape R	Tip shape E
P≧W	P≧W 0.15≦R＜W/2	P＞W

M H	Shank dimensions V·H	—Normal—	D ZPDBL	R ZPRBL	E ZPEBL
V30 (HIP) 88～89HRA	V·H 3～20				

M H	Shank dimensions V·H	—Tapped—	D ZPDML	R ZPRML	E ZPEML
V30 (HIP) 88～89HRA	V·H 8～20				

M H	Shank dimensions V·H	—With key groove— Details of key groove	D ZPDKL	R ZPRKL	E ZPEKL
V30 (HIP) 88～89HRA	V·H 3～20				

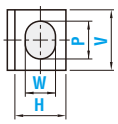
M H	Shank dimensions V·H	—Single flange— Details of flange	D ZPDFL	R ZPRFL	E ZPEFL
V30 (HIP) 88～89HRA	V·H 3～16 Cannot be used for products marked with ● in the specification table.				

M H	Shank dimensions V·H	—Double flanges— Details of flange	D ZPDWL	R ZPRWL	E ZPEWL
V30 (HIP) 88～89HRA	V·H 3～16 Cannot be used for products marked with ● in the specification table.				

Catalog No. Type	Tip shape	Type	H	V / Pmin. / Wmin.	Shank / tip dimensions (mm) V	3	4	5	6	8	10	13	16	20	L	0.1mm T	B L 40	B L 50	B L 60·70	M	a	b	U
				Pmin.		1.5	2.0	2.5	3.0	3.0	4.0	5.0	7.0	8.0									
ZP	D	BL	3	1.0		○	○	○	○	○	○	○	○	●	40	T≧2.0	13	13	13	—	—	—	1.0
		KL	4	1.0			○	○	○	○	○	○	○	●	50								
		FL	5	2.0				○	○	○	○	○	○	●	60								
		WL	6	2.0					○	○	○	○	○	●	70								
	R	BL	8	2.0						○	○	○	○	●				19	19	4	6	12	1.5
		ML	10	2.5							○	○	○	●						6	8	16	
		KL	13	3.0								○	○	●						8	10	20	
		FL	16	4.0									○	●					25				
	E	WL	20	5.0										●									

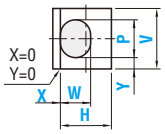
Order

(1) If tip is at center of shank



Catalog No.	V	H	L	P	W	R (R only)	0.1mm increments T≧2	K·F·WF
ZPEML	20	10	70	P16.00	W 9.00		T25.5	K0
ZPEKL	10	06	60	P 8.00	W 5.00			K0
ZPEFL	16	13	60	P15.00	W12.00			F90
ZPEWL	13	10	40	P 8.00	W 5.00			WF90
ZPRBL	10	10	60	P 5.00	W 4.00	R0.15		

(2) If tip is not at center of shank



Catalog No.	V	H	L	P	W	R (R only)	0.1mm increments T	K·F·WF	0.01mm increments X—Y
ZPEFL	16	13	50	P15.00	W12.00			F0	X0.00—Y0.55

(💡 X and Y must be set either to 0 or to 0.02 or more. Tolerance±0.01)

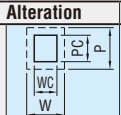
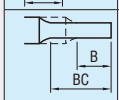
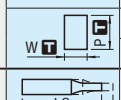
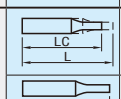
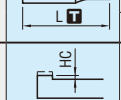
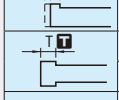
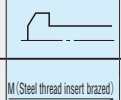
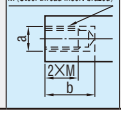
■Key groove position and flange position change (KEY POSITION Rs0)

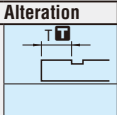
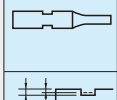
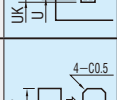
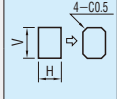
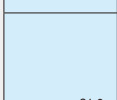
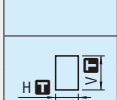
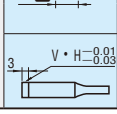
With key groove	K0	K90	K180	K270	Single flange	F0	F90	F180	F270	Double flanges	WF0	WF90
												

Days to Ship Quotation **Price** Quotation

Alterations

Catalog No.	V	H	L (LC)	P (PC)·W (WC)·R	T	K·F·WF	(BC·HC·TC, etc.)
ZPEBL	20	08	60	P18.00—WC1.50			VKC

Alteration		Code	Spec.	1Code
Alterations to tip		PC WC	Tip dimension change PC≧V×0.3≧1.00 WC≧H×0.15≧0.50 0.01mm increments	
		BC	Tip length change 2≦BC≦Bmax. 0.1mm increments 💡 L≧BC+30 Full length (L) must be at least 30mm longer than tip length (BC).	
		PKC	Tip tolerance change P·W $^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$	
		PKV	Tip tolerance change P·W $^{+0.01}_{0}$ ⇨ ±0.005	
Full length		LC	Full length change 30+B (BC)≦LC<L 0.1mm increments (If combined with LKC·LKZ, 0.01mm increments can be selected.) 💡 If difference between full length (LC) and tip length (B) is 30mm or less, tip length is adjusted to (Full length—30).	Quotation
		LKC	Full length tolerance change L $^{+0.3}_{+0.1}$ ⇨ $^{+0.05}_{0}$	
		LKZ	Full length tolerance change L $^{+0.3}_{+0.1}$ ⇨ $^{+0.01}_{0}$	
Alterations to flange		HC	Flange width change 0≦HC<1.5 0.1mm increments	
		TC	Flange thickness change 2≦TC<5 0.1mm increments (If combined with TKC·TKM, 0.01mm increments can be selected.) 💡 Full length L is shortened by (5—TC). If combined with LC, full length is equal to LC.	
		TKC	Flange thickness tolerance change T $^{+0.2}_{0}$ ⇨ $^{+0.02}_{0}$	
		TKM	Flange thickness tolerance change T $^{+0.2}_{0}$ ⇨ $^{0}_{-0.02}$	
		FK	Relief chamfering to flange top edge Flange edge is chamfered to prevent flange breakage. ⊗ Cannot be used for normal, tapped, and key groove types.	
Tap		MC	Tap diameter change (H \ V: 8 / 10 / 13 / 16 / 20) 8: M4→M3; 10: — M6→M5; 13: — — M8→M6; 16: — — — M8→M6; 20: — — — — M8→M6 💡 Dimensions a and b remain the same.	

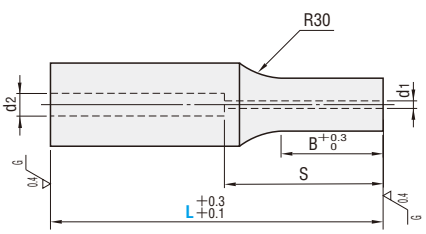
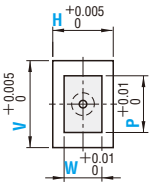
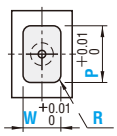
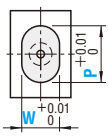
Alteration		Code	Spec.	1Code
Key groove		RTC	Key groove position tolerance change T $^{0}_{-0.02}$ ⇨ $^{+0.05}_{0}$ 💡 Can be used for key groove types.	
		WK	Addition of key groove at symmetrically opposite position K0·180 K90·270 H— |2×U (UK)| ≧2.0 (K0,K180) V— |2×U (UK)| ≧2.0 (K90,K270) An additional key groove is added at a position symmetrically opposite to the specified key groove. 💡 Can be combined with UK. 💡 Can be used for key groove types.	
		UK	Key groove depth change 0.1mm increments 0.5≦UK≦U+0.2 H (V) —UK≧2.0 💡 Can be combined with WK. 💡 Can be used for key groove types.	
Others		CC	Chamfering to four corners of shank The four corners of shank are chamfered to C0.5. The distance between shank corners and the tip must be 0.5mm or more. 0.5mm or more	Quotation
		CCP	Chamfering to one corner of shank (for error prevention) One corner of shank is chamfered to C1.0. Can be used if distances a and b from tip corners to shank meet the following conditions. a+b≧1.3 Tip corner Tip corner ■Selection of chamfering position CCP0 CCP90 CCP180 CCP270 💡 Can be used for normal and tapped types only.	
		VKC	Shank tolerance change V·H $^{+0.005}_{0}$ ⇨ $^{+0.003}_{0}$	
		VKM	Shank tolerance change V·H $^{+0.005}_{0}$ ⇨ $^{0}_{-0.003}$	
		VHM	Shank tolerance change V·H $^{+0.005}_{0}$ ⇨ $^{0}_{-0.005}$	
		DC	Addition of press-in lead 3mm (V·H $^{-0.01}_{-0.03}$) ⊗ Cannot be used for flanged types.	

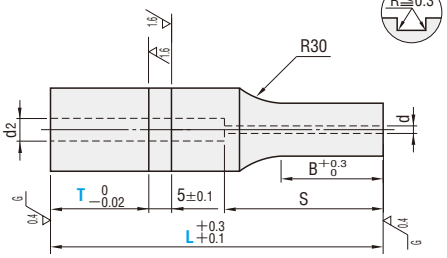
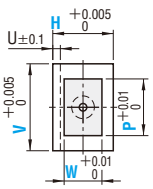
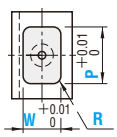
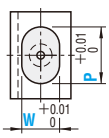
CARBIDE BLOCK PUNCHES WITH AIR HOLES

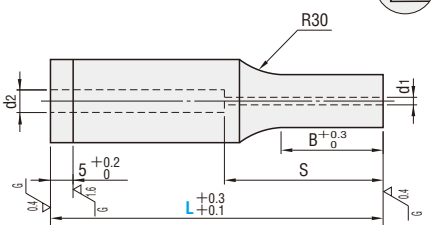
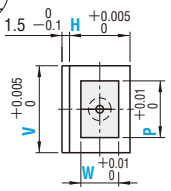
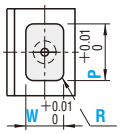
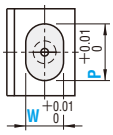
RoHS

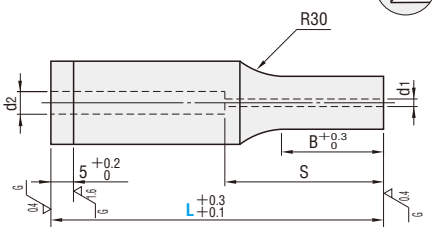
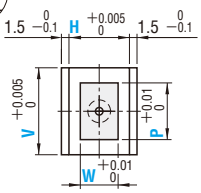
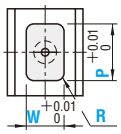
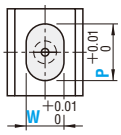
●Tip machining limit

Tip shape D	Tip shape R	Tip shape E
P≧W	P≧W 0.15≦R＜W/2	P＞W

M H	Shank dimensions V·H	—Normal—	D ZJDBL	R ZJRBL	E ZJEBL
V30(HIP) 88～89HRA	V·H 5～20				

M H	Shank dimensions V·H	—With key groove— Details of key groove	D ZJDKL	R ZJRKL	E ZJEKL
V30(HIP) 88～89HRA	V·H 5～20				

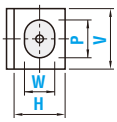
M H	Shank dimensions V·H	—Single flange— Details of flange	D ZJDFL	R ZJRFL	E ZJEFL
V30(HIP) 88～89HRA	V·H 5～16 Cannot be used for products marked with ● in the specification table.				

M H	Shank dimensions V·H	—Double flanges— Details of flange	D ZJDWL	R ZJRWL	E ZJEWL
V30(HIP) 88～89HRA	V·H 5～16 Cannot be used for products marked with ● in the specification table.				

Catalog No.			Shank / tip dimensions (mm)								L	0.1mm	B			d1×S			d2	U
Type	Tip shape	Type	V / H	P min. / Wmin.	5	6	8	10	13	16	20		T	L 40	L 50	L 60·70	L 40	L 50	L 60·70		
					2.5	3.0	3.0	4.0	5.0	7.0	8.0										
ZJ	D R E	BL KL FL WL	5	2.5	○	○	○	○	○	○	●	40 50 60 70	T≧2.0	13	13	13	0.8×17	0.8×20		2.1	1.0
			6	2.5		○	○	○	○	○	●									2.6	
			8	2.5			○	○	○	○	●				19		1.2×17	1.2×27		3.4	
			10	3.0				○	○	○	●					19	1.6×17	1.6×28		4.4	1.5
			13	3.5					○	○	●						1.9×17	1.9×28			
			16	4.5						○	●					25	2.9×17	2.9×24	2.9×36		
			20	5.0							●										

Order

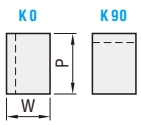
(1) If tip is at center of shank



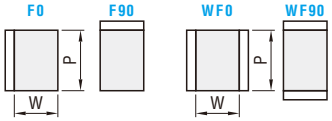
Catalog No.	V	H	—	L	—	0.01mm increments P	—	W	—	R (Ⓡ only)	—	0.1mm increments T≧2	—	K·F·WF
ZJEBL	20	08	—	60	—	P18.00	—	W 4.00						
ZJEKL	10	06	—	60	—	P 8.00	—	W 5.00			—	T25.5	—	K0
ZJEFL	16	13	—	60	—	P15.00	—	W12.00					—	F90
ZJEWL	13	10	—	40	—	P 8.00	—	W 5.00					—	WF90
ZJRBL	08	08	—	50	—	P 5.00	—	W 3.00	—	R0.15				

(2) If tip is not at center of shank: Cannot be changed. (Cannot be manufactured.)

■Key groove position specified



■Flange position specified



Tip shape E can be selected for F0, WF0 only.

For F90·WF90, H dimension is as shown below.

Tip shape D : 2≦W H=W

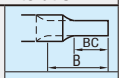
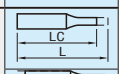
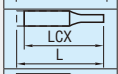
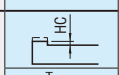
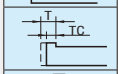
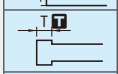
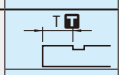
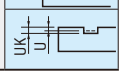
Tip shape R : 2≦W—2R—1 H=W—2R—1

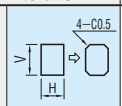
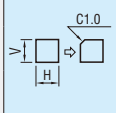
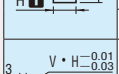
Days to Ship Quotation

Price Quotation

Alterations

Catalog No.	V	H	—	L(LC)	—	P·W·R	—	T	—	K·F·WF	—	(BC·HC·TC, etc.)
ZJEBL	20	08	—	60	—	P18.00—W3.00					—	VKC

Alteration		Code	Spec.	1Code
Alterations to tip		BC	Tip length change (shorter than standard) 2≦BC<B 0.1mm increments	
		PKC	Tip tolerance change P·W$^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$	
		PKV	Tip tolerance change P·W$^{+0.01}_{0}$ ⇨ ±0.005	
Alterations to full length		LC	Full length change LC<L 0.1mm increments (If combined with LKC·LKZ, 0.01mm increments can be selected.) Tip length B is shortened by (L—LC).	Quotation
		LCX	Full length change with no change to tip length B 30+B(BC)≦LCX<L 0.1mm increments If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length—30mm). If combined with LKC or LKZ, 0.01mm increments can be selected. Cannot be used for flanged types.	
		LKC	Full length tolerance change L$^{+0.3}_{+0.1}$ ⇨ $^{+0.05}_{0}$	
		LKZ	Full length tolerance change L$^{+0.3}_{+0.1}$ ⇨ $^{+0.01}_{0}$	
Alterations to flange		HC	Flange width change 0≦HC<1.5 0.1mm increments	
		TC	Flange thickness change 2≦TC<5 0.1mm increments (If combined with TKC·TKM, 0.01mm increments can be selected.) Full length L is shortened by (5—TC). If combined with LC, full length is equal to LC.	
		TKC	Flange thickness tolerance change T$^{+0.2}_{0}$ ⇨ $^{+0.02}_{0}$	
		TKM	Flange thickness tolerance change T$^{+0.2}_{0}$ ⇨ $^{0}_{-0.02}$	
		FK	Relief chamfering to flange top edge Flange edge is chamfered to prevent flange breakage.	
Key groove		RTC	Key groove position tolerance change T$^{0}_{-0.02}$ ⇨ $^{+0.05}_{0}$	
		UK	Key groove depth change 0.1mm increments 0.5≦UK≦U+0.2 H(V)—UK≧2.0 Can be used for key groove types.	

Alteration		Code	Spec.	1Code
Others		CC	Chamfering to four corners of shank The four corners of shank are chamfered to C0.5. The distance between shank corners and the tip must be 0.5mm or more.	
		CCP	Chamfering to one corner of shank (for error prevention) One corner of shank is chamfered to C1.0. Can be used if distances a and b from tip corners to shank meet the following conditions. a+b≧1.3 Tip corner Tip corner ■Selection of chamfering position CCP0 CCP90 CCP180 CCP270 Can be used for normal types only.	Quotation
		VKC	Shank tolerance change V·H$^{+0.005}_{0}$ ⇨ $^{+0.003}_{0}$	
		VKM	Shank tolerance change V·H$^{+0.005}_{0}$ ⇨ $^{0}_{-0.003}$	
		VHM	Shank tolerance change V·H$^{+0.005}_{0}$ ⇨ $^{0}_{-0.005}$	
		DC	Addition of press-in lead 3mm (V·H$^{-0.01}_{-0.03}$) Cannot be used for flanged types.	

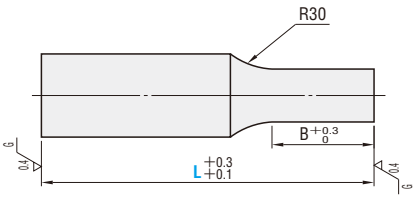
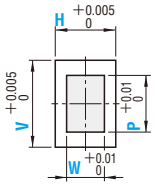
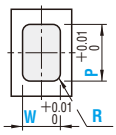
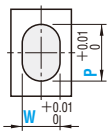
CARBIDE BLOCK PUNCHES

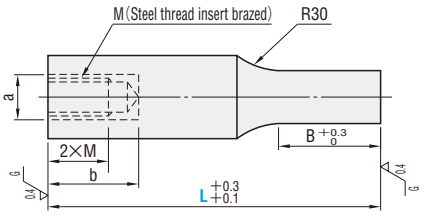
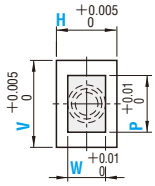
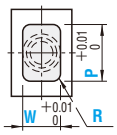
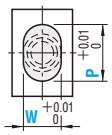
—CONFIGURABLE SIZE TYPE—

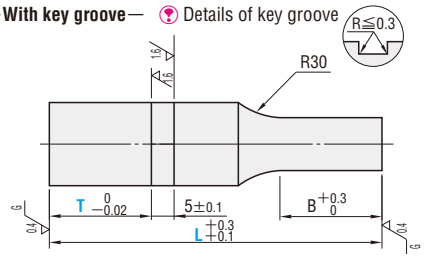
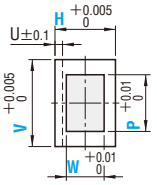
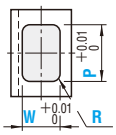
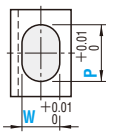
●Tip machining limit

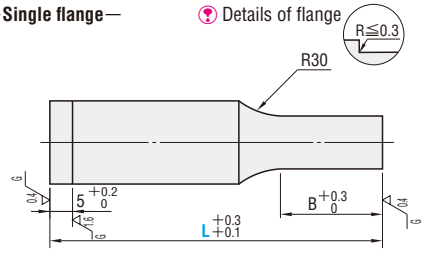
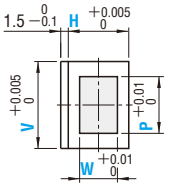
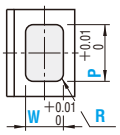
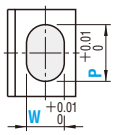
RoHS

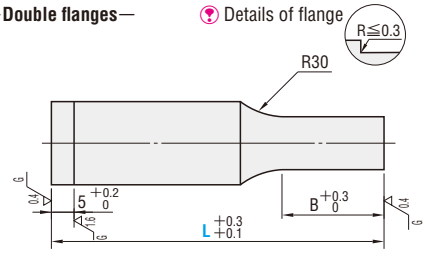
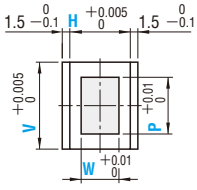
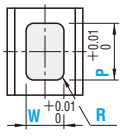
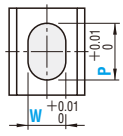
Tip shape	Tip shape	Tip shape
D	R	E
P≧W	P≧W 0.15≦R＜W/2	P＞W

M H	Shank dimensions V·H	—Normal—	D FZPDBL	R FZPRBL	E FZPEBL
V30(HIP) 88～89HRA	V·H 2.0～20.0				

M H	Shank dimensions V·H	—Tapped—	D FZPDML	R FZPRML	E FZPEML
V30(HIP) 88～89HRA	V·H 8.1～20.0				

M H	Shank dimensions V·H	—With key groove— Details of key groove	D FZPDKL	R FZPRKL	E FZPEKL
V30(HIP) 88～89HRA	V·H 3.1～20.0				

M H	Shank dimensions V·H	—Single flange— Details of flange	D FZPDFL	R FZPRFL	E FZPEFL
V30(HIP) 88～89HRA	V·H 2.0～16.0 Cannot be used for products marked with ● in the specification table.				

M H	Shank dimensions V·H	—Double flanges— Details of flange	D FZPDWL	R FZPRWL	E FZPEWL
V30(HIP) 88～89HRA	V·H 2.0～16.0 Cannot be used for products marked with ● in the specification table.				

Catalog No. Type	Tip shape	Type	H \ V (Pmin. / Wmin.)	2.0〜3.0	3.1〜4.0	4.1〜5.0	5.1〜6.0	6.1〜8.0	8.1〜10.0	10.1〜13.0	13.1〜16.0	16.1〜20.0	L	0.1mm T	B L 40	B L 50	B L 60·70	M	a	b	U
FZP	D	BL	2.0〜3.0 / 1.0	○	○	○	○	○	○	○	○	●		—							—
		ML	3.1〜4.0 / 1.0		○	○	○	○	○	○	○	●				13	13	—	—	—	1.0
			4.1〜5.0 / 2.0			○	○	○	○	○	○	●	40								
			5.1〜6.0 / 2.0				○	○	○	○	○	●	50								
	R	KL	6.1〜8.0 / 2.0					○	○	○	○	●	60	T≧2.0	13			—	—	—	
		FL	8.1〜10.0 / 2.5						○	○	○	●	70			19	19	4	6	12	1.5
			10.1〜13.0 / 3.0							○	○	●						6	8	16	
	E	WL	13.1〜16.0 / 4.0								○	●					25	8	10	20	
			16.1〜20.0 / 5.0									●									

Order

(1) If tip is at center of shank

Catalog No.	0.1mm increments V — H	L	0.01mm increments P — W — R (R only)	0.1mm increments T≧2	K·F·WF
FZPEML—	V19.5 — H 9.0	— 70	— P16.00 — W 9.00		
FZPEKL—	V 9.0 — H 6.0	— 60	— P 8.00 — W 5.00	— T25.5	— K0
FZPEFL—	V15.5 — H 3.0	— 60	— P15.00 — W 2.50		— F90
FZPEWL—	V12.0 — H 7.0	— 40	— P 8.00 — W 5.00		— WF90
FZPRBL—	V15.5 — H 9.5	— 60	— P10.00 — W 8.00 — R0.15		

(2) If tip is not at center of shank

Catalog No.	0.1mm increments V — H	L	0.01mm increments P — W — R (R only)	0.1mm increments T	K·F·WF	0.01mm increments X—Y
FZPEFL—	V15.0 — H12.0	— 50	— P14.00 — W3.00		— F90	— X0.00—Y0.55

(💡 X and Y must be set either to 0 or to 0.02 or more. Tolerance±0.01)

■Key groove position and flange position change (KEY POSITION Rs0)

With key groove	K0	K90	K180	K270	Single flange	F0	F90	F180	F270	Double flanges	WF0	WF90

Days to Ship: Quotation

Price: Quotation

Alterations

Catalog No.	V	H	L (LC)	P (PC)·W (WC)·R	T	K·F·WF	(BC·HC·TC, etc.)
FZPEBL	V19.0	H16.0	60	P18.00—WC1.50			VKC

Alteration		Code	Spec.	1Code
Alterations to tip		PC WC	Tip dimension change PC≧V×0.3≧1.00 WC≧H×0.15≧0.50 0.01mm increments P(PC)·W(WC) / Bmax.: 0.50〜0.99 / 8; 1.00〜1.99 / 13; 2.00〜2.99 / 20; 3.00〜4.99 / 30; 5.00〜 / 35	
		BC	Tip length change 2≦BC≦Bmax. 0.1mm increments 💡 L≧BC+30 Full length (L) must be at least 30mm longer than tip length (BC).	
		PKC	Tip tolerance change P·W +0.01 0 ⇨ +0.005 0	
		PKV	Tip tolerance change P·W +0.01 0 ⇨ +0.005 0	
Full length		LC	Full length change 30+B (BC)≦LC<L 0.1mm increments (If combined with LKC·LKZ, 0.01mm increments can be selected.) 💡 If difference between full length (LC) and tip length (B) is 30mm or less, tip length is adjusted to (Full length—30).	Quotation
		LKC	Full length tolerance change L +0.3 +0.1 ⇨ +0.05 0	
		LKZ	Full length tolerance change L +0.3 +0.1 ⇨ +0.01 0	
Alterations to flange		HC	Flange width change 0≦HC<1.5 0.1mm increments	
		TC	Flange thickness change 2≦TC<5 0.1mm increments (If combined with TKC·TKM, 0.01mm increments can be selected.) 💡 Full length L is shortened by (5—TC). If combined with LC, full length is equal to LC.	
		TKC	Flange thickness tolerance change T +0.2 0 ⇨ +0.02 0	
		TKM	Flange thickness tolerance change T +0.2 0 ⇨ 0 —0.02	
		FK	Relief chamfering to flange top edge Flange edge is chamfered to prevent flange breakage. ⊗ Cannot be used for normal, tapped, and key groove types.	
Tap	M (Steel thread insert brazed)	MC	Tap diameter change H \ V: 8.1〜10.0 / 10.1〜13.0 / 13.1〜16.0 / 16.1〜20.0 8.1〜10.0: M4→M3 10.1〜13.0: — / M6→M5 13.1〜16.0: — / — / M8→M6 16.1〜20.0: — / — / — / M8→M6 💡 Dimensions a and b remain the same.	

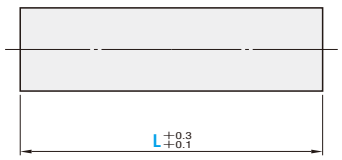
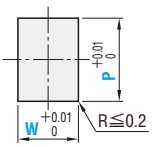
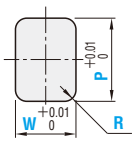
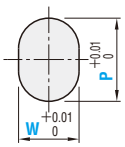
Alteration		Code	Spec.	1Code
Key groove		RTC	Key groove position tolerance change T 0 —0.02 ⇨ +0.05 0	
		WK	Addition of key groove at symmetrically opposite position K0·180 K90·270 H— {2×U (UK)} ≧2.0 (K0,K180) V— {2×U (UK)} ≧2.0 (K90,K270) An additional key groove is added at a position symmetrically opposite to the specified key groove. 💡 Can be combined with UK. 💡 Can be used for key groove types.	
		UK	Key groove depth change 0.5≦UK≦U+0.2 0.1mm increments H (V) —UK≧2.0 💡 Can be combined with WK. 💡 Can be used for key groove types.	
Others		CC	Chamfering to four corners of shank The four corners of shank are chamfered to C0.5. The distance between shank corners and the tip must be 0.5mm or more. 4—C0.5 0.5mm or more	Quotation
		CCP	Chamfering to one corner of shank (for error prevention) One corner of shank is chamfered to C1.0. Can be used if distances a and b from tip corners to shank meet the following conditions. C1.0 a+b≧1.3 Tip corner ■Selection of chamfering position CCP0 CCP90 CCP180 CCP270 💡 Can be used for normal and tapped types only.	
		VKC	Shank tolerance change V·H +0.005 0 ⇨ +0.003 0	
		VKM	Shank tolerance change V·H +0.005 0 ⇨ 0 —0.003	
		VHM	Shank tolerance change V·H +0.005 0 ⇨ 0 —0.005	
		DC	Addition of press-in lead 3mm (V·H —0.01 —0.03) ⊗ Cannot be used for flanged types.	

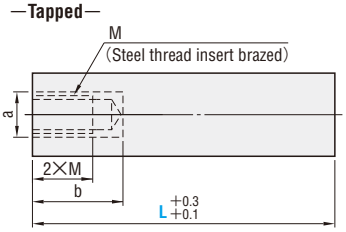
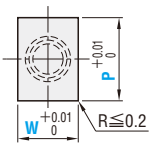
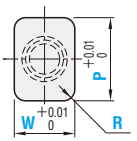
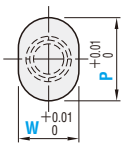
CARBIDE STRAIGHT PUNCHES

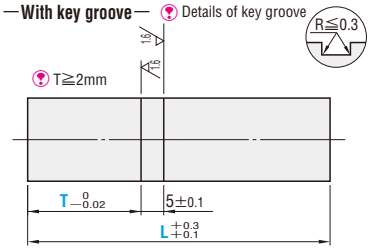
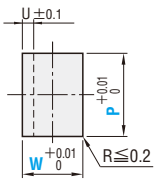
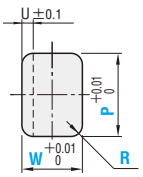
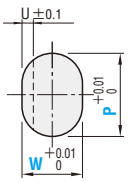
●Tip machining limit

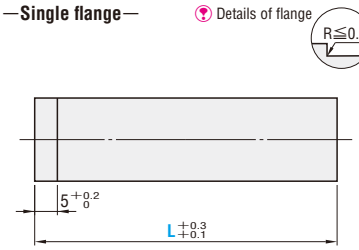
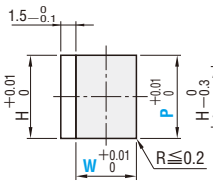
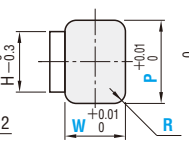
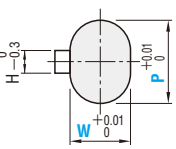
RoHS

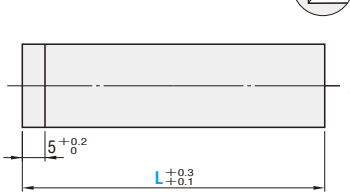
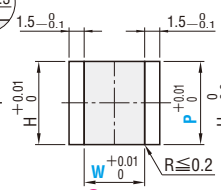
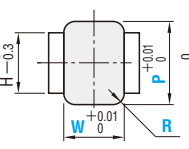
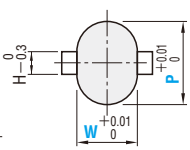
Tip shape	Tip shape	Tip shape
D	R	E
P≧W	P≧W 0.15≦R< W/2	P>W

M H	Tip dimension P·W	—Normal—	D ZPCD	R ZPCR	E ZPCE
V30(HIP) 88～89HRA	P·W 2.00～20.00				

M H	Tip dimension P·W	—Tapped—	D ZMCD	R ZMCR	E ZMCE
V30(HIP) 88～89HRA	P·W 12.00～20.00				

M H	Tip dimension P·W	—With key groove— Details of key groove	D ZKCD	R ZKCR	E ZKCE
V30(HIP) 88～89HRA	P·W 2.00～20.00				

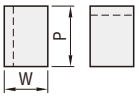
M H	Tip dimension P·W	—Single flange— Details of flange	D ZFCD	R ZFCR	E ZFCE
V30(HIP) 88～89HRA	P·W 2.0～16.0 Cannot be used for products marked with ● in the specification table.		 H=P	 2≦P−2R−1 H=P−2R−1	 2≦P−W−1 H=P−W−1

M H	Tip dimension P·W	—Double flanges— Details of flange	D ZWCD	R ZWCR	E ZWCE
V30(HIP) 88～89HRA	P·W 2.0～16.0 Cannot be used for products marked with ● in the specification table.		 H=P	 2≦P−2R−1 H=P−2R−1	 2≦P−W−1 H=P−W−1

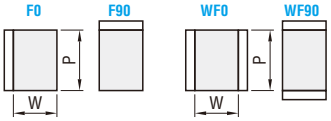
Catalog No. Type	Tip shape	L	W \ P	2.00 ~ 5.00	5.01 ~ 10.00	10.01 ~ 16.00	16.01 ~ 20.00	0.1mm T	U
ZPC ZKC ZFC ZWC	D R E	40 50 60 70	2.00~ 3.00	○	○	○		T≧2	1.0
			3.01~ 4.00	○	○	○	●		
			4.01~ 5.00	○	○	○	●		
			5.01~ 6.00		○	○	●		1.5
			6.01~ 8.00		○	○	●		
			8.01~10.00		○	○	●		
			10.01~16.00			○	●		
			16.01~20.00				●		

Catalog No. Type	Tip shape	L	W \ P	12.00 ~ 16.00	16.01 ~ 20.00	M	a	b
ZMC	D R E	40 50 60 70	12.00~13.00	○	○	8	10	20
			13.01~16.00	○	○			
			16.01~20.00		○			

■Key groove position specified



■Flange position specified



Tip shape E Can be selected for F0・WF0 only.

For F90・WF90, dimension H is as shown below.

Tip shape D : 2≦W H=W

Tip shape R : 2≦W−2R−1 H=W−2R−1

Order

Catalog No. — L — 0.01mm increments — P — W — R (R only) — 0.1mm increments T≧2 — K・F・WF

ZPCD — 60 — P14.28 — W 9.28

ZMCR — 60 — P15.00 — W12.00 — R0.15

ZKCR — 60 — P14.28 — W 9.28 — R0.5 — T25.5 — K0

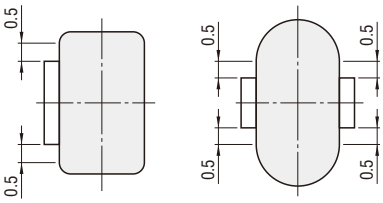
ZFCE — 60 — P10.00 — W 5.50 — F0

ZWCE — 60 — P12.01 — W 8.05 — WF0

Days to Ship Quotation

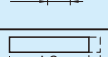
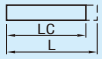
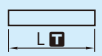
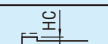
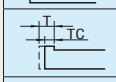
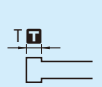
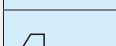
Price Quotation

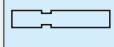
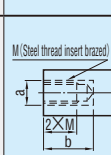
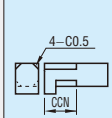
Flanged types (both single flange and double flanges) with shapes R・E include 0.5m m straight parts on each of the flange sides.



Alterations

Catalog No.	L (LC)	P	W	R	T	K・F・WF	(PKC, etc.)
ZPCD	LC65.5	P5.80	W5.20				PKC

Alteration		Code	Spec.	1Code
Tip		PKC	Tip tolerance change P・W $^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$	
		PKM	Tip tolerance change P・W $^{+0.01}_{0}$ ⇨ $^{0}_{-0.005}$	
		PKV	Tip tolerance change P・W $^{+0.01}_{0}$ ⇨ ±0.005	
Alterations to tail length		LC	Full length change 20≦LC<L 0.1mm increments (If combined with LKC・LKZ, 0.01mm increments can be selected.)	
		LKC	Full length tolerance change L $^{+0.3}_{+0.1}$ ⇨ $^{+0.05}_{0}$	
		LKZ	Full length tolerance change L $^{+0.3}_{+0.1}$ ⇨ $^{+0.01}_{0}$	Quotation
Alterations to flange		HC	Flange width change 0≦HC<1.5 0.1mm increments	
		TC	Flange thickness change 2≦TC<5 0.1mm increments (If combined with TKC・TKM, 0.01mm increments can be selected.) Full length L is shortened by (5−TC). If combined with LC, full length is equal to LC.	
		TKC	Flange thickness tolerance change T $^{+0.2}_{0}$ ⇨ $^{+0.02}_{0}$	
		TKM	Flange thickness tolerance change T $^{+0.2}_{0}$ ⇨ $^{0}_{-0.02}$	
		FK	Relief chamfering to flange top edge Flange edge is chamfered to prevent flange breakage. ⊗ Cannot be used for normal, tapped, and key groove types.	

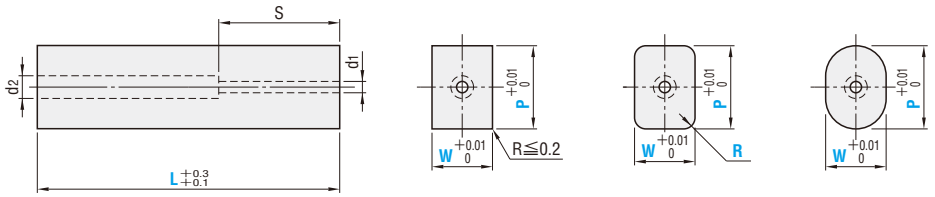
Alteration		Code	Spec.	1Code
Alterations to key groove		RTC	Key groove position tolerance change T $^{0}_{-0.02}$ ⇨ $^{+0.05}_{0}$	
		WK	Addition of key groove at symmetrically opposite position W− {2×U (UK)} ≧2.0 (K0) P− {2×U (UK)} ≧2.0 (K90) An additional key groove is added at a position symmetrically opposite to the specified key groove. Can be combined with UK. Can be used for key groove types.	
		UK	Key groove depth change 0.1mm increments 0.5≦UK≦U+0.2 P (W) −UK≧2.0 Can be combined with WK. Can be used for key groove types.	Quotation
Alterations to tap		MC	Tap diameter change For change from M8 to M6 Dimensions a and b remain the same.	
Alterations to shape		CCN	Chamfering to shank (4 locations) 5≦CCN≦L 1mm increments Can be used for tip shape D only. Flange side of flanged punch becomes CCN−T (TC).	

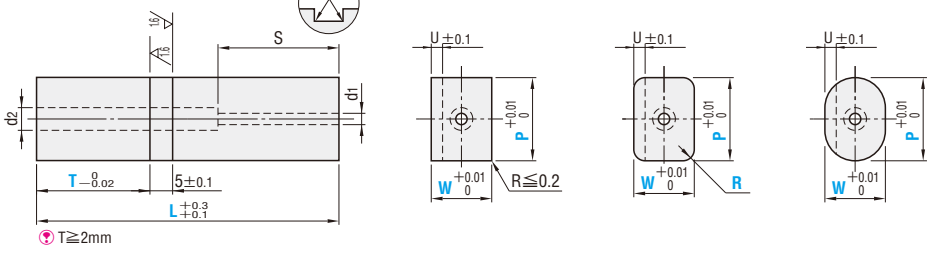
CARBIDE STRAIGHT PUNCHES WITH AIR HOLES

RoHS

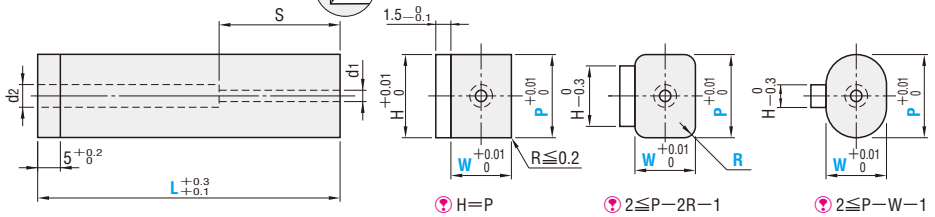
●Tip machining limit

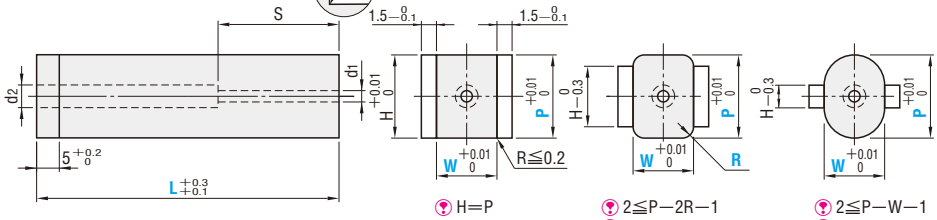
Tip shape D	Tip shape R	Tip shape E
P≧W	P≧W 0.15≦R<$\frac{W}{2}$	P>W

M H	Tip dimension P·W	—Normal— D ZJCD	R ZJCR	E ZJCE
V30(HIP) 88～89HRA	P·W 5.00～20.00			

M H	Tip dimension P·W	—With key groove— Details of key groove D ZJKCD	R ZJKCR	E ZJKCE
V30(HIP) 88～89HRA	P·W 5.00～20.00			

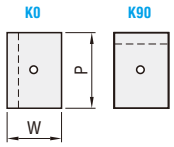
T≧2mm

M H	Tip dimension P·W	—Single flange— Details of flange D ZJFCD	R ZJFCR	E ZJFCE
V30(HIP) 88～89HRA	P·W 5.00～16.00 Cannot be used for products marked with ● in the specification table.			
		H=P	2≦P−2R−1 H=P−2R−1	2≦P−W−1 H=P−W−1

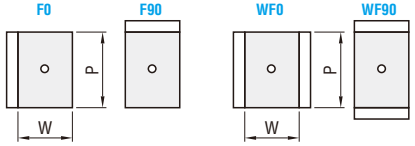
M H	Tip dimension P·W	—Double flanges— Details of flange D ZJWCD	R ZJWCR	E ZJWCE
V30(HIP) 88～89HRA	P·W 5.00～16.00 Cannot be used for products marked with ● in the specification table.			
		H=P	2≦P−2R−1 H=P−2R−1	2≦P−W−1 H=P−W−1

Catalog No. Type	Tip shape	L	W \ P	5.00〜6.00	6.01〜8.00	8.01〜10.00	10.01〜16.00	16.01〜20.00	0.1mm T	d1×S L=40	d1×S L=50	d1×S L=60·70	d2	U
ZJC ZJKC ZJFC ZJWC	D R E	40 50 60 70	5.00〜 6.00	○	○	○	○	●	T≧2.0	0.8×17	0.8×20		2.6	1.0
			6.01〜 8.00		○	○	○	●		1.2×17	1.2×27		3.4	
			8.01〜 10.00			○	○	●		1.6×17	1.6×28		4.4	1.5
			10.01〜 13.00				○	●		1.9×17	1.9×28			
			13.01〜 16.00				○	●		2.9×17	2.9×24	2.9×36		
			16.01〜 20.00					●						

■Key groove position specified



■Flange position specified



Tip shape E can be selected for F0・WF0 only.

For F90・WF90, H dimension is shown below.

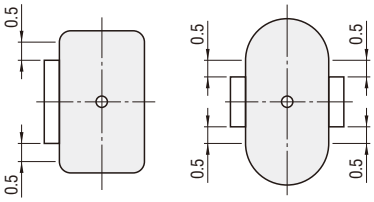
Tip shape D : 2≦W H=W

Tip shape R : 2≦W−2R−1 H=W−2R−1

Order

Catalog No.	L	P	W	R (R only)	0.01mm increments T≧2	0.1mm increments	K·F·WF
ZJCD	60	P14.28	W9.28				
ZJKCR	60	P14.28	W9.28	R0.15	T25.5		K0
ZJFCE	60	P13.18	W6.50				F0
ZJWCD	60	P14.28	W14.28				WF90

Flanged types (both single flange and double flanges) with shapes R・E include 0.5mm straight parts on each of the flange sides.



Days to Ship: Quotation

Price: Quotation

Alterations

Catalog No.	L(LC)	P	W	R	T	K·F·WF	(PKC, etc.)
ZJCD	LC65.5	P5.80	W5.20				PKC

	Alteration	Code	Spec.	1Code
Tip		PKC	Tip tolerance change P・W +0.01 0 ⇨ +0.005 0	
		PKM	Tip tolerance change P・W +0.01 0 ⇨ 0 −0.005	
		PKV	Tip tolerance change P・W +0.01 0 ⇨ ±0.005	
Alterations to full length		LC	Full length change 30≦LC<L 0.1mm increments (If combined with LKC・LKZ, 0.01mm increments can be selected.) Dimension S is shortened by (L・LC)	Quotation
		LCX	Full length change with the same tip length S 30≦LC<L 0.1mm increments If combined with LKC or LKZ, 0.01mm increments can be selected. Cannot be used for flanged types.	
		LKC	Full length tolerance change L +0.3 +0.1 ⇨ +0.05 0	
		LKZ	Full length tolerance change L +0.3 +0.1 ⇨ +0.01 0	
Alterations to key groove		RTC	Key groove position tolerance change T 0 −0.02 ⇨ +0.05 0	
		UK	Key groove depth change 0.5≦UK≦U+0.2 0.1mm increments W(P) − {UK+d2(d1)} ≧2.0 Can be used for key groove types.	

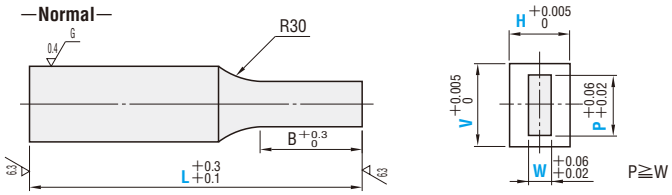
	Alteration	Code	Spec.	1Code
Alterations to flange		HC	Flange width change 0≦HC<1.5 0.1mm increments	
		TC	Flange thickness change 2≦TC<5 0.1mm increments (If combined with TKC・TKM, 0.01mm increments can be selected.) Full length L is shortened by (5−TC). If combined with LC, full length is equal to LC.	
		TKC	Flange thickness tolerance change T +0.2 0 ⇨ +0.02 0	Quotation
		TKM	Flange thickness tolerance change T +0.2 0 ⇨ 0 −0.02	
		FK	Relief chamfering to flange top edge Flange edge is chamfered to prevent flange breakage. Cannot be used for normal and key groove types.	
Alterations to shape		CCN	Chamfering to shank (4 locations) 5≦CCN≦L 1mm increments Can be used for tip shape D only. Flange side of flanged punch becomes CCN−T(TC).	

CARBIDE BLOCK PUNCH TIP BLANKS

M H	Shank dimensions V·H
V30 (HIP) 88～89HRA	V·H 3～20

ZPDB —Normal—

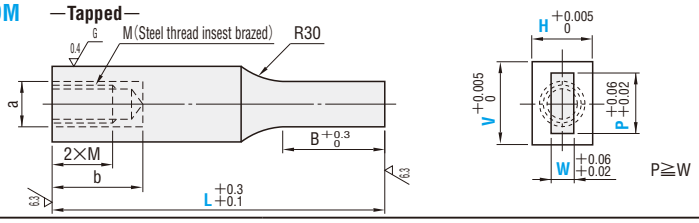
RoHS



M H	Shank dimensions V·H
V30 (HIP) 88～89HRA	V·H 8～20

ZPDM —Tapped—

RoHS

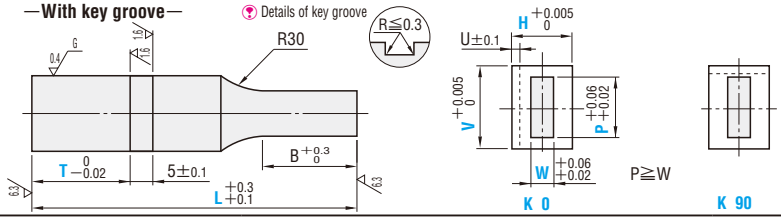


M H	Shank dimensions V·H
V30 (HIP) 88～89HRA	V·H 3～20

ZPDK —With key groove—

Details of key groove

RoHS

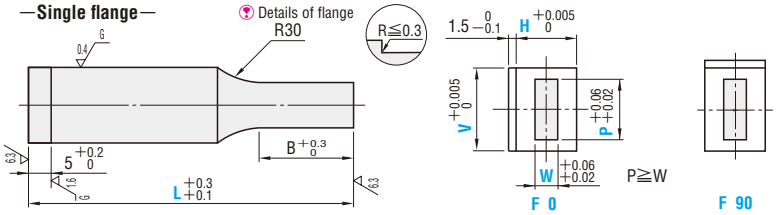


M H	Shank dimensions V·H
V30 (HIP) 88～89HRA	V·H 3～16 Cannot be used for products marked with ● in the specification table.

ZPDF —Single flange—

Details of flange

RoHS

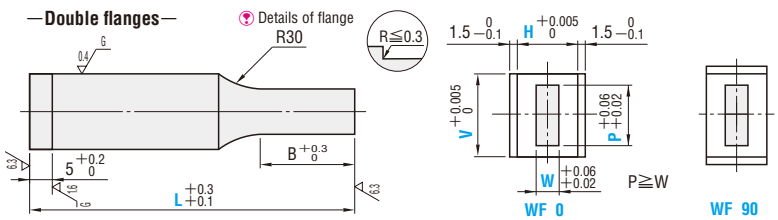


M H	Shank dimensions V·H
V30 (HIP) 88～89HRA	V·H 3～16 Cannot be used for products marked with ● in the specification table.

ZPDW —Double flanges—

Details of flange

RoHS



P Price **Quotation**

Additional machining cost will be required for the following types.

- ■Tapped (ZPDM)
- ■With key groove (ZPDK)
- ■Single flange (ZPDF)
- ■Double flanges (ZPDW)

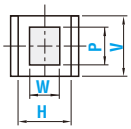
Quotation

Catalog No.	Shank / tip dimensions (mm)											L	0.1mm	B			M	a	b	U
Type	H	Wmin. / Pmin.	V 1.5	2.0	2.5	3.0	3.0	4.0	5.0	7.0	8.0		T	L 40	L 50	L 60·70				
ZPDB	3	1.0	○	○	○	○	○	○	○	○	●									
ZPDK	4	1.0		○	○	○	○	○	○	○	●	40			13	13	—	—	—	1.0
ZPDF	5	2.0			○	○	○	○	○	○	●									
ZPDW	6	2.0				○	○	○	○	○	●	50								
ZPDB	8	2.0					○	○	○	○	●		T≧2	13			4	6	12	
ZPDM	10	2.5						○	○	○	●	60			19	19	6	8	16	
ZPDK	13	3.0							○	○	●									1.5
ZPDF	16	4.0								○	●	70				25	8	10	20	
ZPDW	20	5.0									●									

P≧V−0.05 ···▸P=V If P≧V−0.05, P dimension is equal to V dimension.
W≧H−0.05 ···▸W=H If W≧H−0.05, W dimension is equal to H dimension.

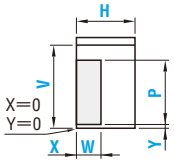
Order

(1) If tip is at center of shank



Catalog No.	V	H	L	0.01mm increments P	W	0.1mm increments T	K·F·WF
ZPDB	20	08	60	P18.00	W 4.00		
ZPDM	20	10	70	P16.00	W 9.00		
ZPDK	20	06	60	P 8.00	W 5.00	T25.0	K0
ZPDF	16	13	60	P15.00	W12.00		F90
ZPDW	16	10	40	P 8.00	W 5.00		WF0

(2) If tip is not at center of shank



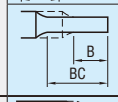
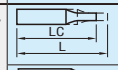
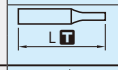
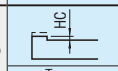
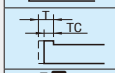
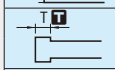
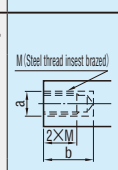
Catalog No.	V	H	L	0.01mm increments P	W	0.1mm increments T	K·F·WF	0.01mm increments X—Y
ZPDF	16	13	50	P15.00	W12.00		F90	X0.00—Y0.15

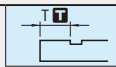
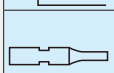
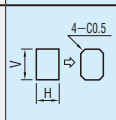
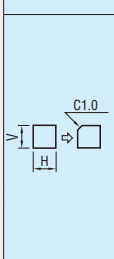
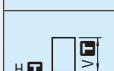
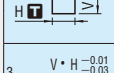
(X and Y must be set either to 0 or to 0.02 or more. Tolerance±0.01)

Days to Ship Quotation

Alterations

Catalog No.	V	H	L(LC)	P(PC)—W(WC)—R—X—Y	T	K·F·WF	(BC·VKC···etc.)
ZPDK	20	08	60	P18.00—WC1.50	T25		LKZ

Alteration		Code	Spec.	1Code
Alterations to tip		PC WC	Tip dimension change PC≧V×0.3≧1.00 WC≧H×0.15≧0.50 0.01mm increments P(PC)·W(WC) / B max.: 0.50~0.99 / 8; 1.00~1.99 / 13; 2.00~2.99 / 20; 3.00~4.99 / 30; 5.00~ / 35	
		BC	Tip length change 2≦BC≦Bmax. 0.1mm increments L≧BC+30 Full length (L) must be at least 30mm longer than tip length (BC).	
Alterations to full length		LC	Full length change 30+B(BC)≦LC<L 0.1mm increments (If combined with LKC·LKZ, 0.01mm increments can be selected.) If difference between full length (LC) and tip length (B) is 30mm or less, tip length is adjusted to (Full length−30).	
		LKC	Full length tolerance change $L^{+0.3}_{+0.1} \Rightarrow {}^{+0.05}_{0}$	
		LKZ	Full length tolerance change $L^{+0.3}_{+0.1} \Rightarrow {}^{+0.01}_{0}$	
Alterations to flange		HC	Flange width change 0≦HC<1.5 0.1mm increments	Quotation
		TC	Flange thickness change 2≦TC<5 0.1mm increments (If combined with TKC·TKM, 0.01mm increments can be selected.) Full length L is shortened by (5−TC). If combined with LC, full length is equal to LC.	
		TKC	Flange thickness tolerance change $T^{+0.2}_{0} \Rightarrow {}^{+0.02}_{0}$	
		TKM	Flange thickness tolerance change $T^{+0.2}_{0} \Rightarrow {}^{0}_{-0.02}$	
		FK	Relief chamfering to flange top edge Flange edge is chamfered to prevent flange breakage. Cannot be used for normal, tapped, and key groove types.	
Alterations to tap		MC	Tap diameter change H / V: 8 (8: M4→M3); 10 (10: —, M6→M5); 13 (13: —, —, M8→M6); 16 (16: —, —, —, M8→M6); 20 (20: —, —, —, —, M8→M6) Dimensions a and b remain the same.	

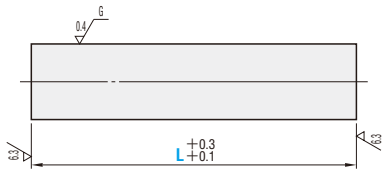
Alteration		Code	Spec.	1Code
Key groove		RTC	Key groove position tolerance change $T^{0}_{-0.02} \Rightarrow {}^{+0.05}_{0}$	
		WK	Addition of key groove at symmetrically opposite position H−{2×U(UK)}≧2.0(K0) V−{2×U(UK)}≧2.0(K90) An additional key groove is added at a position symmetrically opposite to the specified key groove. Can be combined with UK. Can be used for key groove types.	
		UK	Key groove depth change 0.5≦UK≦U+0.2 0.1mm increments H(V)−UK≧2.0 Can be combined with WK. Can be used for key groove types.	
Alterations to shape		CC	Chamfering to four corners of shank The four corners of shank are chamfered to C0.5. The distance between shank corners and the tip must be 0.5mm or more.	Quotation
		CCP	Chamfering to one corner of shank (for error prevention) One corner of shank is chamfered to C1.0. Can be used if distances a and b from tip corners to shank meet the following conditions. a+b≧1.3 Tip corner Selection of chamfering position CCP0 CCP90 CCP180 CCP270 Can be used for normal and tapped types only.	
		VKC	Shank tolerance change $V·H^{+0.005}_{0} \Rightarrow {}^{+0.003}_{0}$	
		VKM	Shank tolerance change $V·H^{+0.005}_{0} \Rightarrow {}^{0}_{-0.003}$	
		VHM	Shank tolerance change $V·H^{+0.005}_{0} \Rightarrow {}^{0}_{-0.005}$	
		DC	Addition of press-in lead 3mm ($V·H^{-0.01}_{-0.03}$) Cannot be used for flanged types.	

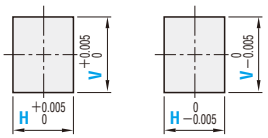
CARBIDE BLOCK PUNCH BLANKS
—NORMAL・MINUS SHANK TOLERANCE—


RoHS

M H	Shank dimensions V・H
V30(HIP) 88～89HRA	V・H 2～20

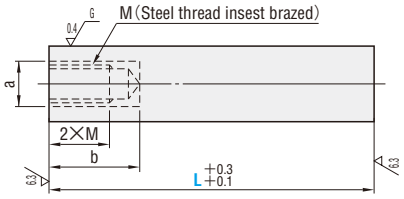
—Normal—
ZPB
B—ZPB

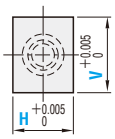




M H	Shank dimensions V・H
V30(HIP) 88～89HRA	V・H 8～20

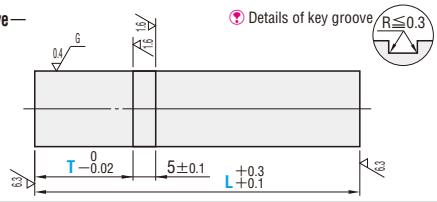
—Tapped—
ZPM

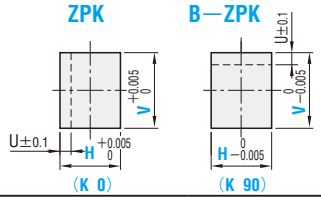




M H	Shank dimensions V・H
V30(HIP) 88～89HRA	V・H 2～20

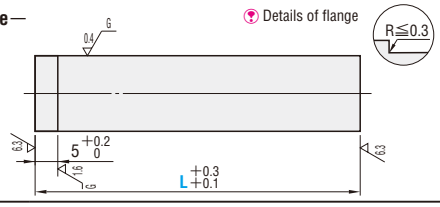
—With key groove—
ZPK
B—ZPK

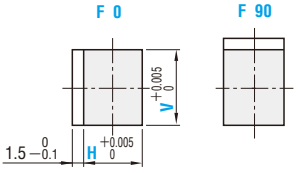




M H	Shank dimensions V・H
V30(HIP) 88～89HRA	V・H 2～16 Cannot be used for products marked with ● in the specification table.

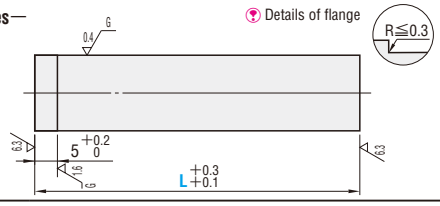
—Single flange—
ZPF

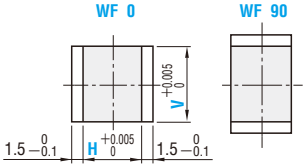




M H	Shank dimensions V・H
V30(HIP) 88～89HRA	V・H 2～16 Cannot be used for products marked with ● in the specification table.

—Double flanges—
ZPW





Catalog No.	H \ V	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	8	10	13	16	20	L	0.1mm T	M	a	b	U
※Pay special attention to the ordering procedure ZPB ZPK B—ZPB ZPF B—ZPB ZPW	2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	(20) (25) (30) 40 50	T≧2.0	—	—	—	1.0
	2.5		○	○	○	○	○	○	○	○	○	○	○	○	○	●						
	3			○	○	○	○	○	○	○	○	○	○	○	○	●						
	3.5				○	○	○	○	○	○	○	○	○	○	○	●						
	4					○	○	○	○	○	○	○	○	○	○	●						
	4.5						○	○	○	○	○	○	○	○	○	●						
	5							○	○	○	○	○	○	○	○	●						
	5.5								○	○	○	○	○	○	○	●						
	6									○	○	○	○	○	○	●						
	6.5										○	○	○	○	○	●						
ZPB ZPM B—ZPB ZPK B—ZPB ZPF ZPW	8											○	○	○	○	●	60 70		4	6	12	1.5
	10												○	○	○	●			6	8	16	
	13													○	○	●			8	10	20	
	16														○	●						
	20															●						

⊗ L(20)・(25)・(30) cannot be used for ZPM・ZPK・B—ZPK.

Order (In case of V3, H2.5)

Catalog No.	V	H	—	L	—	0.1mm increments T≧2.0	—	K・F・WF
ZPB	03	025	—	50				
ZPM	20	10	—	70				
ZPK	10	045	—	60	—	T25.0	—	K0
ZPF	16	13	—	50			—	F90
ZPW	13	10	—	40			—	WF0

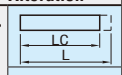
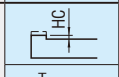
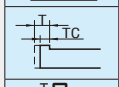
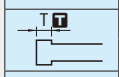
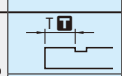
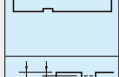
If H and V dimensions are selected in 0.5mm increments, pay special attention to the ordering process.

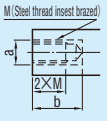
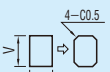
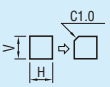
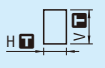
Days to Ship **Quotation**

Alterations

Catalog No. V H — L(LC) — T — K·F·WF — (HC·TC·WK, etc.)

ZPB	20	08	—	50		— VKC
B—ZPK	16	03	—	50	— K90	— WK

Alteration		Code	Spec.	1Code
Alterations to full length		LC	Full length change 20<LC<L For ZPM·ZPK·B—ZPK, 30≦LC<L 0.1mm increments (If combined with LKC·LKZ, 0.01mm increments can be selected.)	
		LKC	Full length tolerance change $L^{+0.3}_{+0.1} \Rightarrow {}^{+0.05}_{0}$	
		LKZ	Full length tolerance change $L^{+0.3}_{+0.1} \Rightarrow {}^{+0.01}_{0}$	
Alterations to flange		HC	Flange width change 0≦HC<1.5 0.1mm increments	
		TC	Flange thickness change 2≦TC<5 0.1mm increments (If combined with TKC·TKM, 0.01mm increments can be selected.) Full length L is shortened by (5—TC). If combined with LC, full length is equal to LC.	Quotation
		TKC	Flange thickness tolerance change $T^{+0.2}_{0} \Rightarrow {}^{+0.02}_{0}$	
		TKM	Flange thickness tolerance change $T^{+0.2}_{0} \Rightarrow {}^{0}_{-0.02}$	
		FK	Relief chamfering to flange top edge Flange edge is chamfered to prevent flange breakage. Cannot be used for normal, tapped, and key groove types.	
Alterations to key groove		RTC	Key groove position tolerance change $T^{0}_{-0.02} \Rightarrow {}^{+0.05}_{0}$	
		WK	Addition of key groove at symmetrically opposite position H— {2×U (UK)} ≧2.0 (K0) V— {2×U (UK)} ≧2.0 (K90) An additional key groove is added at a position symmetrically opposite to the specified key groove. Can be combined with UK. Can be used for key groove types.	
		UK	Key groove depth change 0.1mm increments 0.5≦UK≦U+0.2 H(V)—UK≧2.0 Can be combined with WK. Can be used for key groove types.	

Alteration		Code	Spec.	1Code
Alterations to tap		MC	Tap diameter change H \ V: 8 / 10 / 13 / 16 / 20 8: M4→M3 10: — / M6→M5 13: — / — / M8→M6 16: — / — / — / M8→M6 20: — / — / — / — / M8→M6 Dimensions a and b remain the same.	
Alterations to shape		CC	Chamfering to four corners of shank The four corners of shank are chamfered to C0.5. The distance between shank corners and the tip must be 0.5mm or more.	Quotation
		CCP	Chamfering to one corner of shank (for error prevention) One corner of shank is chamfered to C1.0. Can be used if distances a and b from tip corners to shank meet the following conditions. a+b≧1.3 Selection of chamfering position CCP0 CCP90 CCP180 CCP270 Can be used for normal and tapped types only.	
		VKC	Shank tolerance change $V \cdot H^{+0.005}_{0} \Rightarrow {}^{+0.003}_{0}$ For B—ZPB·B—ZPK, $V \cdot H^{0}_{-0.005} \Rightarrow {}^{0}_{-0.003}$	
		VKM	Shank tolerance change $V \cdot H^{+0.005}_{0} \Rightarrow {}^{0}_{-0.003}$ Cannot be used for B—ZPB·B—ZPK.	
		VHM	Shank tolerance change $V \cdot H^{+0.005}_{0} \Rightarrow {}^{0}_{-0.005}$ Cannot be used for ZPB·ZPK·B—ZPB·B—ZPK.	

Price

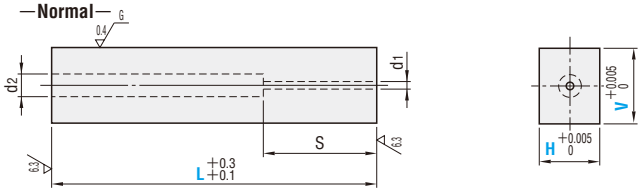
Quotation

CARBIDE BLOCK PUNCH BLANKS WITH AIR HOLES

RoHS

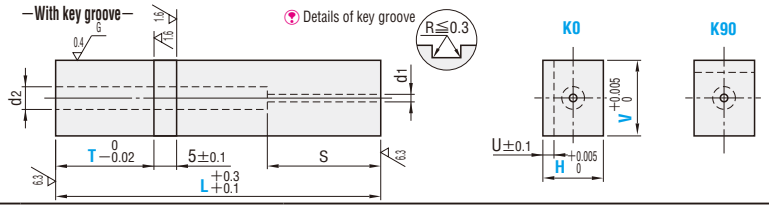
M H	Shank dimensions V·H
V30(HIP) 88～89HRA	V·H 5～20

ZJB —Normal—



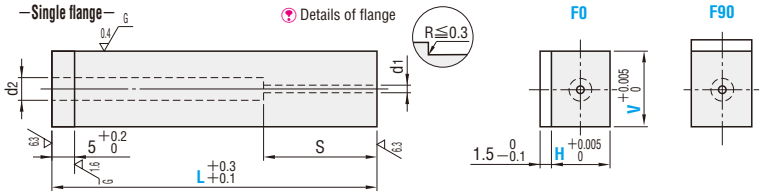
M H	Shank dimensions V·H
V30(HIP) 88～89HRA	V·H 5～20

ZJK —With key groove—



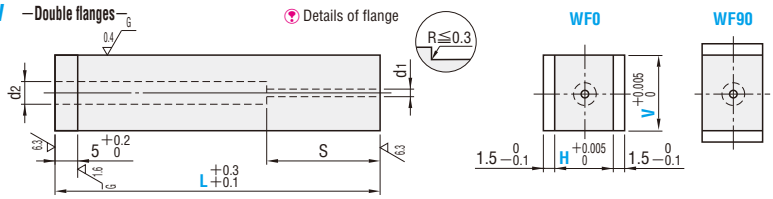
M H	Shank dimensions V·H
V30(HIP) 88～89HRA	V·H 5～16 Cannot be used for products marked with ● in the specification table.

ZJF —Single flange—



M H	Shank dimensions V·H
V30(HIP) 88～89HRA	V·H 5～16 Cannot be used for products marked with ● in the specification table.

ZJW —Double flanges—



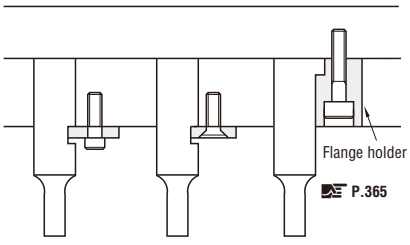
Catalog No.	H \ V	5	6	8	10	13	16	20	L	0.1mm T	d_1×S L=40	d_1×S L=50	d_1×S L=60·70	d_2	U
ZJB	5	○	○	○	○	○	○	●	40 50 60 70	T≧2.0	0.8×17	0.8×20		2.1	1.0
	6		○	○	○	○	○	●						2.6	
ZJK	8			○	○	○	○	●			1.2×17	1.2×27		3.4	1.5
	10				○	○	○	●			1.6×17	1.6×28		4.4	
ZJF	13					○	○	●			1.9×17	1.9×28			
	16						○	●			2.9×17	2.9×24	2.9×36		
ZJW	20							●							

Specifications marked with ● cannot be used for ZJF·ZJW.

Order

Catalog No.	V	H	—	L	—	0.1mm increments T≧2	—	K·F·WF
ZJB	08	06	—	40				
ZJK	10	05	—	50	—	T25.0	—	K90
ZJF	13	10	—	70			—	F0
ZJW	16	16	—	60			—	WF90

Example

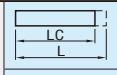
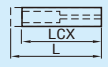
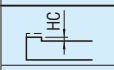
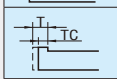
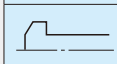
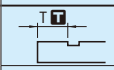


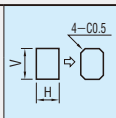
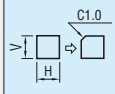
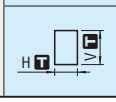
P.365

Days to Ship Quotation

Alterations

Catalog No.	V	H	—	L(LC)	—	T	—	K・F・WF	—	(TC・VKC…etc.)
ZJF	10	05	—	50	—			F0	—	TKC

	Alteration	Code	Spec.	1Code
Alterations to full length		LC	Full length change 30≦LC＜L 0.1mm increments (If combined with LKC・LKZ, 0.01mm increments can be selected.)	
		LCX	Full length change with no change to tip length S 30≦LCX＜L 0.1mm increments If combined with LKC or LKZ, 0.01mm increments can be selected. Cannot be used for flanged types.	
		LKC	Full length tolerance change $L^{+0.3}_{+0.1} \Rightarrow {}^{+0.05}_{0}$	
		LKZ	Full length tolerance change $L^{+0.3}_{+0.1} \Rightarrow {}^{+0.01}_{0}$	
Alterations to flange		HC	Flange width change 0≦HC＜1.5 0.1mm increments	Quotation
		TC	Flange thickness change 2≦TC＜5 0.1mm increments (If combined with TKC・TKM, 0.01mm increments can be selected.) Full length L is shortened by (5−TC). If combined with LC, full length is equal to LC.	
		TKC	Flange thickness tolerance change $T^{+0.2}_{0} \Rightarrow {}^{+0.02}_{0}$	
		TKM	Flange thickness tolerance change $T^{+0.2}_{0} \Rightarrow {}^{0}_{-0.02}$	
		FK	Relief chamfering to flange top edge Flange edge is chamfered to prevent flange breakage.	
Alterations to key groove		RTC	Key groove position tolerance change $T^{0}_{-0.02} \Rightarrow {}^{+0.05}_{0}$	
		UK	Key groove depth change 0.5≦UK≦U+0.2 0.1mm increments H(V) − {UK+d_2(d_1)} ≧2.0 Can be used for key groove types.	

	Alteration	Code	Spec.	1Code
Alterations to shape		CC	Chamfering to four corners of shank The four corners of shank are chamfered to C0.5. The distance between shank corners and the tip must be 0.5mm or more. 0.5mm or more V P W H	
		CCP	Chamfering to one corner of shank (for error prevention) One corner of shank is chamfered to C1.0. Can be used if distances a and b from tip corners to shank meet the following conditions. a+b≧1.3 Tip corner Tip corner ■Selection of chamfering position CCP0 CCP90 CCP180 CCP270 Can be used for normal types only.	Quotation
		VKC	Shank tolerance change $V・H^{+0.005}_{0} \Rightarrow {}^{+0.003}_{0}$	
		VKM	Shank tolerance change $V・H^{+0.005}_{0} \Rightarrow {}^{0}_{-0.003}$	
		VHM	Shank tolerance change $V・H^{+0.005}_{0} \Rightarrow {}^{0}_{-0.005}$	

Price **Quotation**

Additional machining cost will be required for the following types:
■With key groove (ZJK)
■Single flange (ZJF)
■Double flanges (ZJW)
Quotation

■Fixing keys for punches with key grooves
P.366

PSKB PSKBH

PSKS PSKJ

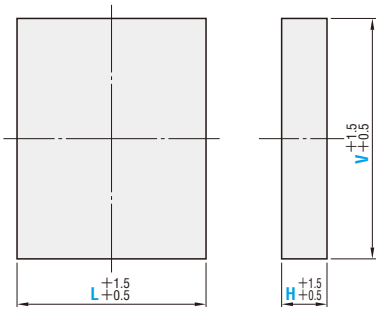
PSK PSKP PSKH

PSKW

CARBIDE BLOCKS

RoHS

Z



M V30 (HIP)
H 88～89HRA

Catalog No.	H \ V	3	4	5	6	8	10	13	16	20	100	L
Z	3	○	○	○	○	○	○	○	○	○	○	40 50 60 70
	4		○	○	○	○	○	○	○	○	○	
	5			○	○	○	○	○	○	○	○	
	6				○	○	○	○	○	○	○	
	8					○	○	○	○	○	○	
	10						○	○	○	○	○	
	13							○	○	○	○	
	16								○	○	○	
	20									○	○	
	22										○	
	25										○	

Order

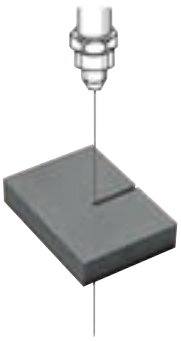
Catalog No.	V	H	—	L
Z	20	08	—	70

Days to Ship: Quotation

■CARBIDE BLOCKS

MISUMI has standardized the sintered materials used for carbide blocks in order to shorten the lead time and reduce the costs for carbide punches and dies.

- Blocks with V dimension of up to 20mm can be used for punches and dies without changing the standardized V and H dimensions.



- Blocks with V dimension of 100mm are suitable for WEDM.

Price: Quotation