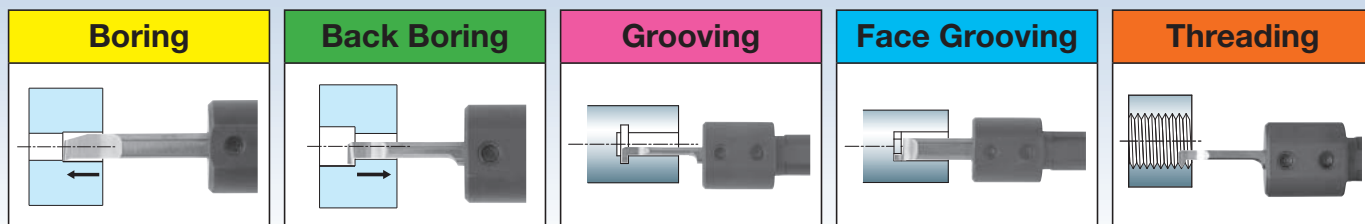


THE NEW VALUE FRONTIER



2 edges Tip-Bar for micro boring **HP** type

New proposal for cost reduction
High cost performance with 2-edge insert



From 1-edge to **2-edge insert**

ADVANCING PRODUCTIVITY

2 edges Tip-Bar for micro boring **HP** type

■ Advantages

- High cost performance with 2-edge insert
- Minimum bore diameter 2.0mm
- Overhang length adjustable
- Whole size sleeve diameter
- Special sleeve customized to various machine tool

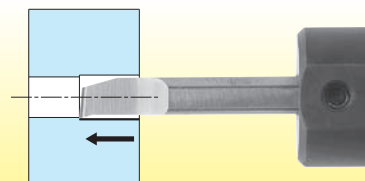


■ Available for wide applications

Boring

HPB Type

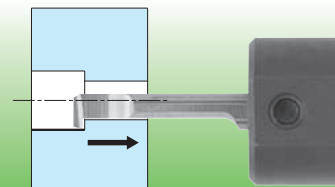
Min.Bore Dia.: $\phi 2 \sim \phi 7$
Corner-R (r_e):0.05



Back Boring

HPBT Type

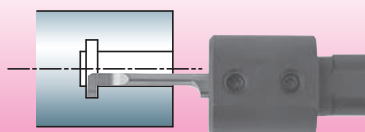
Min.Bore Dia.: $\phi 4 \sim \phi 5$
Corner-R (r_e):0.05



Grooving

HPG Type

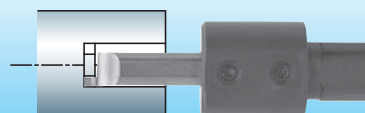
Min.Bore Dia.: $\phi 4 \sim \phi 7$
Edge width:1.0~2.0mm
Groove depth:1.0~2.0mm



Face Grooving

HPFG Type

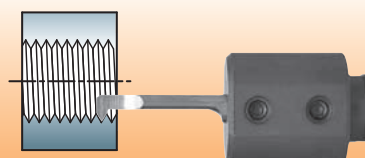
Minimum groove dia.: $\phi 8$
Edge width:1.0~3.0mm
Groove depth: 2.0~3.0mm



Threading

HPT Type

Minimum pilot hole dia.: $\phi 4.5 \sim \phi 8$
M:0.75~1.5mm
UN:28~16 TPI
W:24~18 TPI
RC:28~19 TPI

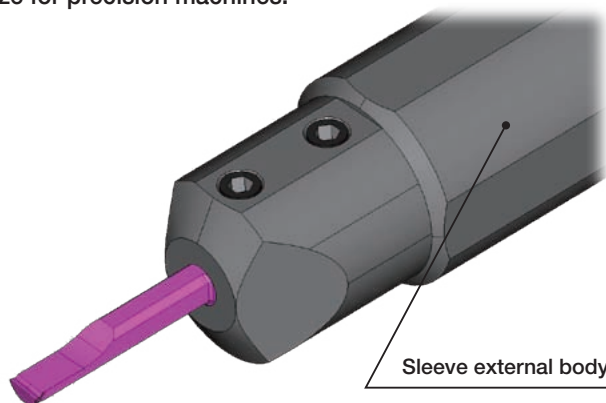


■Special sleeve customized to various machine tool

Available sleeve dia. between 12mm-25.4mm, including special size for precision machines.

Machine Tool	Sleeve external dia.
Amada Wasino	ø16, ø20, ø25
Eguro	ø16, ø20, ø25
Citizen Machinery	ø19.05, ø20, ø25.4
Star Micronics	ø16, ø22
Precision Tsugami	ø16, ø20, ø25
Nomura	ø22, ø23
Miyano	ø20, ø25

● In random order



● Easy handling due to two-step sleeve design

■High precision clamp screw

·New clamp screw realizes

1. better index height precision after replacing insert

→ High machining quality, tool replacement time reduction

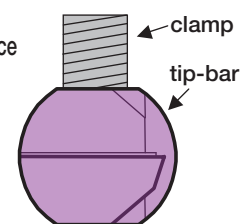
2. stronger clamping force

→ Stable machining, long tool life

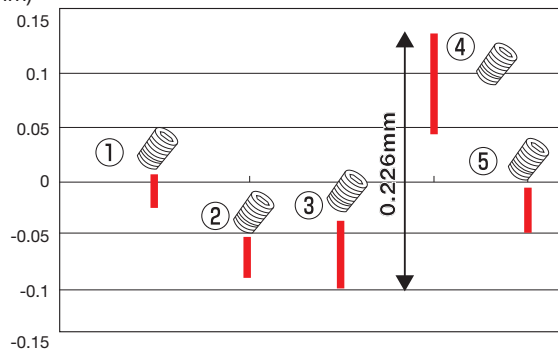
High Precision

New clamp screw

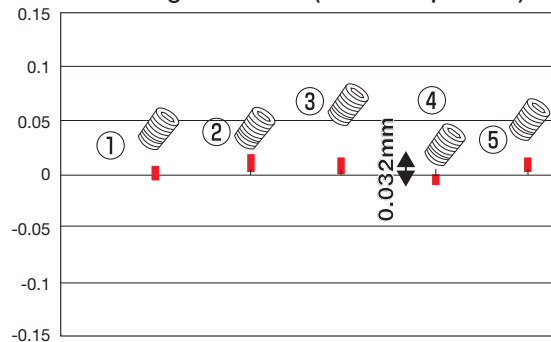
Screw bottom face



(mm) Index height variation (conventional screw)



(mm) Index height variation (New clamp screw)



<Measuring method>

Measure index height of 5 screws after replacing insert (10 times each).

New clamp screw showed better index precision the conventional screw.

■Easy handling at precision machine tool

·2 edges tip-bar series are available for various types of sleeves due to whole size shank diameter.

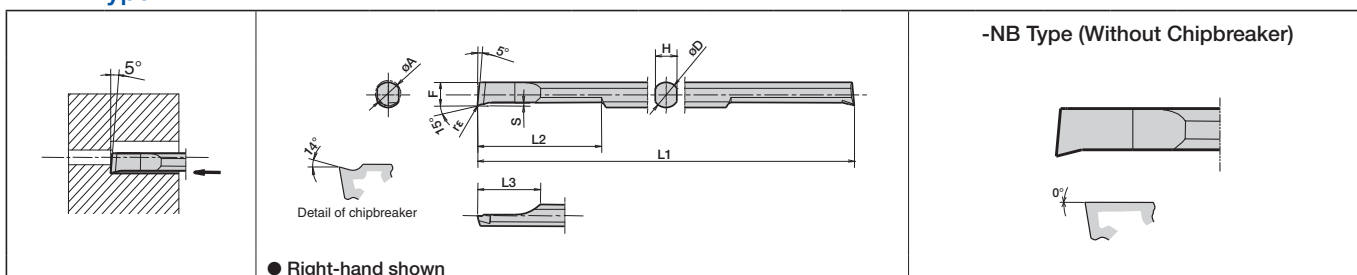
(e.g.) PSBR0202-05S(1-edge, shank dia. 1.8mm) → HPBR0202-005 (2-edges, shank dia. 2.0mm)

*HP type (2 edges) has whole size dia. shank. It is not applicable to the conventional sleeve for PS type tip-bar (1 edge). (HP type sleeve and PS type sleeve are incompatible.)

PS type (1 edge tip-bar) will shift to HP type (2 edge tip-bar)

Boring

HPB Type



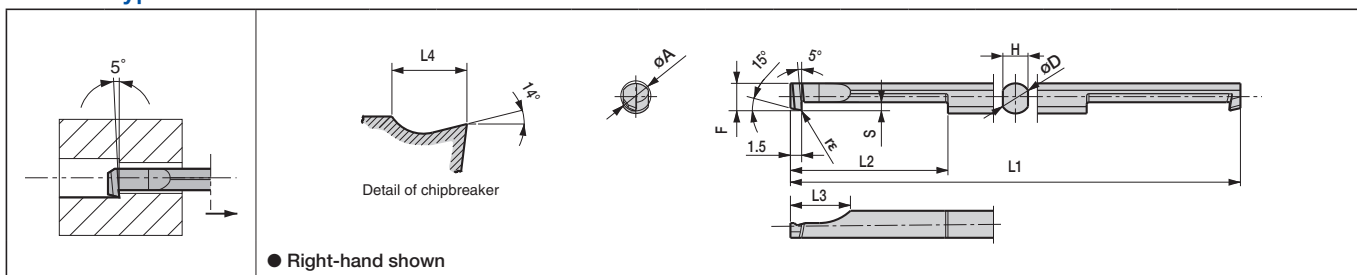
Tip-Bar Dimension

Description		Min.Bore Dia.	Dimension(mm)								Insert Grade				Applicable Sleeve ⇒P6	
											PVD Coated		Carbide			
			øA	øD	H	L1	L2	L3	F	S	rε	PR930		KW10		
												R	L	R		L
HPB [®] /L	0202-005	2	2	1.7	50	10	5	1.75	0.25	0.05 ^{+0 -0.02}	●	●	●		PSH02○○	
	0303-005	3	3	2.5		15	7	2.7	0.3		●	●	●		PSH03○○	
	0404-005	4	4	3.35	60	20	10	3.65	0.5		●	●	●		PSH04○○	
	0505-005	5	5	4.3	70	25	12	4.55			●	●	●		PSH05○○	
	0606-005	6	6	5.2				5.5			●	●	●		PSH06○○	
	0707-005	7	7	6.2				80			6.45	●	●	●		PSH07○○
HPB [®] /L	0202-005NB	2	2	1.7	50	10	5	1.75	0.25	0.05 ^{+0 -0.02}	●		●		PSH02○○	
	0303-005NB	3	3	2.5		15	7	2.7	0.3		●		●		PSH03○○	
	0404-005NB	4	4	3.35	60	20	10	3.65	0.5		●		●		PSH04○○	
	0505-005NB	5	5	4.3	70	25	12	4.55			●		●		PSH05○○	
	0606-005NB	6	6	5.2				5.5			●		●		PSH06○○	
	0707-005NB	7	7	6.2				80			6.45	●		●		PSH07○○

●: Std.Stock

Back Boring

HPBT Type



Tip-Bar Dimension

Description	Min.Bore Dia.	Dimension(mm)								Insert Grade				Applicable Sleeve ⇒P6	
										PVD Coated		Carbide			
		øA	øD	H	L1	L2	L3	F	S	rε	PR930		KW10		
											R	L	R		L
HPBT [®] /L 0404-005	4	4	3.35	60	21	8	3.65	1.0	⁺⁰ _{-0.02}	●	●	●	●	PSH04○○	
0505-005	5	5	4.3	70	26		4.55	1.3	0.05	●	●	●	●	PSH05○○	

●: Std.Stock

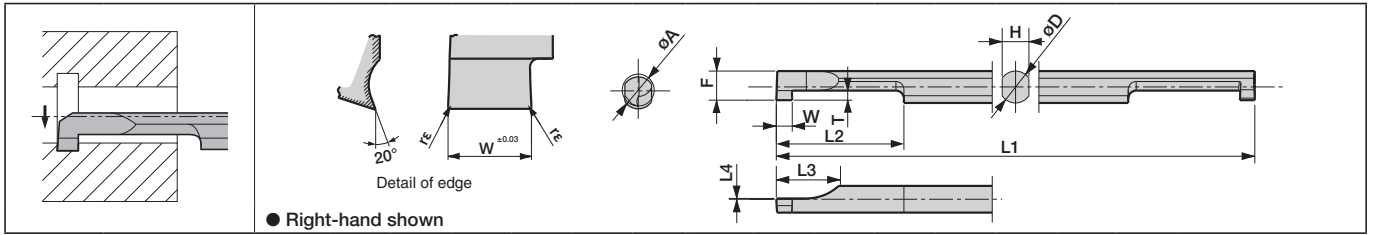
Recommended Cutting Conditions

[ap (mm), f(mm/rev)]

Workpiece Material	Insert Grade (Vc:m/min)		HPB02 type		HPB type		HPB04 type HPBT04 type		HPB05/06/07 type HPBT05 type		Remarks
	PVD Coated	Carbide	ap (mm), f(mm/rev)								
	PR930	KW10	ap	f	ap	f	ap	f	ap	f	
Carbon steel / Alloy steel (S45C・SCM)	30~100	-	~0.3	~0.03	~0.4	~0.04	~0.45	~0.07	~0.5	~0.1	Coolant
Stainless Steel (SUS304)	30~80	-	~0.3	~0.02	~0.4	~0.03	~0.45	~0.05	~0.5	~0.07	
Non-ferrous Material	-	30~100	~0.3	~0.05	~0.4	~0.06	~0.45	~0.1	~0.5	~0.15	

Grooving

■HPG Type



●Tip-Bar Dimension

Description		Min. Bore Dia.	Dimension(mm)										Insert Grade				Applicable Sleeve ➡P6	
													PVD Coated		Carbide			
			øA	W±0.03	rε	øD	H	L1	L2	L3	L4	F	T	PR930		KW10		
														R	L	R		L
HPG ^{R/L}	0404-10	4	1	0.05 ^{+0 -0.02}	4	3.35	60	15	8	0	3.65	1	●	●	●		PSH04○○	
	0404-20		2										●	●	●			
	0505-10	5	1		5	4.3	70	20			10	4.55	1.5	●	●	●		PSH05○○
	0505-20		2											●	●	●		
	0606-10	6	1		6	5.2	10	5.5	2			●	●	●		PSH06○○		
	0606-20		2									●	●	●				
	0707-10	7	1		7	6.2		80			25	6.45	●	●	●		PSH07○○	
	0707-20		2										●	●	●			

·Dimension T shows available grooving depth.

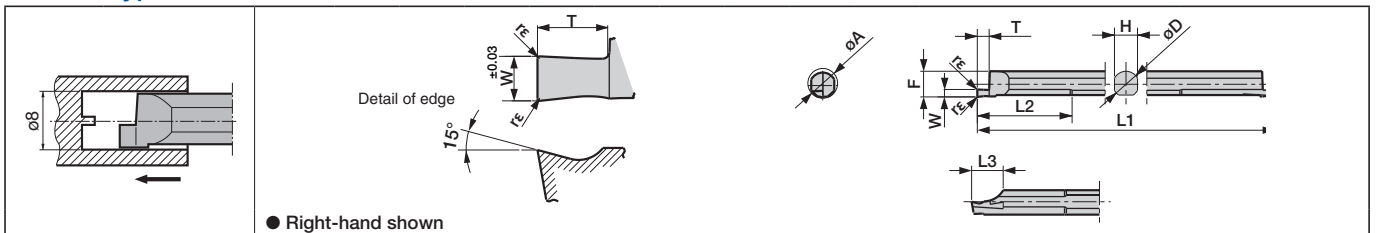
●: Std.Stock

◆Recommended Cutting Conditions

Workpiece Material	Insert Grade(Vc:m/min)		HPG $\frac{1}{2}$ 04 HPG $\frac{1}{2}$ 05	HPG $\frac{1}{2}$ 06 HPG $\frac{1}{2}$ 07	Remarks
	PVD Coated	Carbide			
	PR930	KW10			
Carbon steel / Alloy steel (S45C · SCM)	30~100	-	~0.03	~0.05	Coolant
Stainless Steel (SUS304)	30~80	-	~0.02	~0.03	
Non-ferrous Material	-	~300	~0.05	~0.08	

Face Grooving

■HPFG Type



●Tip-Bar Dimension

Description	Min. Bore Dia.	Dimension(mm)									Insert Grade				Applicable Sleeve ⇒P6	
											PVD Coated		Carbide			
		øA	W ^{+0.03}	rε	øD	H	L1	L2	L3	F	T	PR930		KW10		
												R	L	R		L
HPFG ¹ / ₂ 0807-10	8	1	⁺⁰ _{-0.02} 0.05	7	6.2	80	25	8.5	6.9	2	●	●	●		PSH07○○	
0807-20		2								●	●	●				
0807-30		3								●	●	●				

·Dimension T shows available grooving depth.

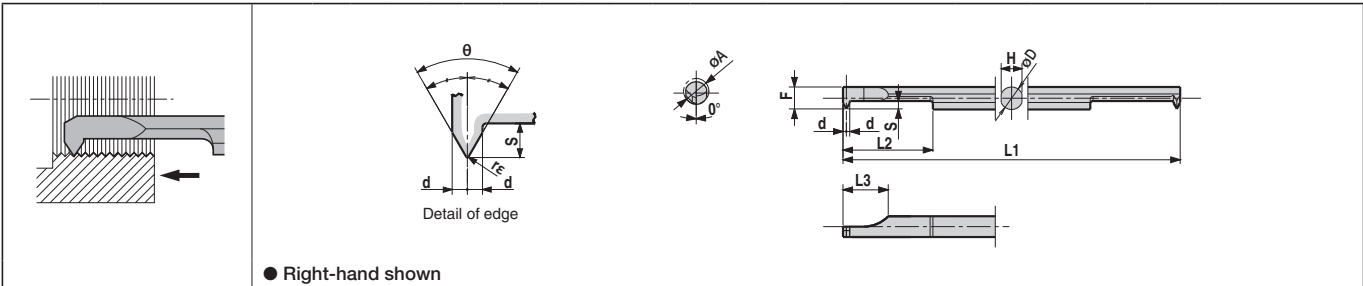
●: Std.Stock

◆Recommended Cutting Conditions

Workpiece Material	Insert Grade(Vc:m/min)		HPFG $\frac{1}{2}$ 0807-10	HPFG $\frac{1}{2}$ 0807-20	HPFG $\frac{1}{2}$ 0807-30	Remarks
	PVD Coated	Carbide				
	PR930	KW10				
Carbon steel / Alloy steel (S45C · SCM)	30~100	-	~0.02	~0.04	~0.05	Coolant
Stainless Steel (SUS304)	30~80	-	~0.01	~0.02	~0.03	
Non-ferrous Material	-	~300	~0.04	~0.06	~0.08	

Threading

HPT Type



Tip-Bar Dimension

Description		Min. Bore Dia.	Dimension(mm)										Insert Grade		Applicable Thread				Applicable Sleeve ⇒P6
													PVD Coated	Carbide	Metric		Unified		
			øA	øD	H	L1	L2	L3	F	S	d	rε			θ	PR930	KW10	Nominal Thread	
HPTR	04504-60-005	4.5	4	3.7	60	16	8	3.9	1.3	0.6	0.05	60°	●	●	M6以上	P0.75 ~P1.25	1/4-20UNC 1/4-28UNF以上	28~20	PSH04○○
	06005-60-005	6	5	4.6	70	21		4.9	1.6	0.8			●	●	M8以上	P0.75 ~P1.50	5/16-18UNC 5/16-24UNF以上	24~18	PSH05○○
	07507-60-005	7.5	7	6.4	80	26		10	6.9	2			1	●	●	M10以上	P0.75 ~P1.50	3/8-16UNC 3/8-24UNF以上	24~16
Description		Min. Bore Dia.	Dimension(mm)										Insert Grade		Applicable Thread				Applicable Sleeve ⇒P6
													PVD Coated	Carbide	Whitworth		Parallel Pipe Tapered Pipe		
			øA	øD	H	L1	L2	L3	F	S	d	rε			θ	PR930	KW10	Nominal Thread	
HPTR	06005-55-010	6	5	4.6	70	21	8	4.9	1.6	0.8	0.1	55°	●	●	W10山20 W10山24以上	24~20	G1/16以上 R1/16以上	28	PSH05○○
	08007-55-010	8	7	6.4	80	26	10	6.9	2.0	1.0			●	●	W11山18 W11山20以上	20~18	G1/8以上 R1/8以上	28~19	PSH07○○

●: Std.Stock

Recommended Cutting Conditions

Workpiece Material	Insert Grade(Vc:m/min)	
	PVD Coated	Carbide
	PR930	KW10
Carbon steel / Alloy steel (S45C・SCM)	30~100	-
Stainless Steel (SUS304)	30~80	-
Non-ferrous Material	-	~300

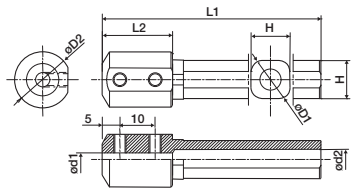
Depth of Cut & Number of Passes

Pitch (mm)	Total ap (mm)	No. of Passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass
0.75	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
1.00	0.60	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03					
1.25	0.76	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03			
1.50	0.92	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03

Depth of Cut & Number of Passes

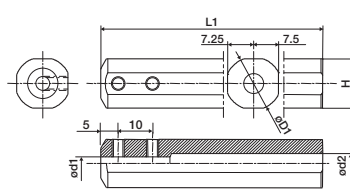
TPI	Total ap (mm)	No. of Passes	1Pass	2Pass	3Pass	4Pass	5Pass	6Pass	7Pass	8Pass	9Pass	10Pass	11Pass	12Pass	13Pass	14Pass	15Pass	16Pass	17Pass
24TPI	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03				
20TPI	0.81	15	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03		
18TPI	0.91	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03

●Applicable Sleeve



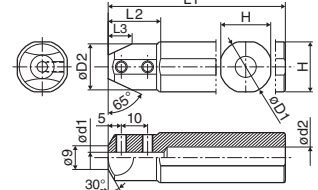
Tip-Bar installation side

Fig.1



Tip-Bar installation side

Fig.2



Tip-Bar installation side

Fig.3

Description		Stock	Dimension(mm)								Shape	Spare Parts		Applicable Machine Manufacturer	Ref. Page for Applicable Tooiholder
												Screw	Wrench		
			*ød1	øD1	øD2	ød2	H	L1	L2	L3					
PSH	0212-80	●	2	12	16	6	11	80	20	-	Fig.1	HS3×4P	LW-1.5	general use	
	0312-80	●	3												
	0412-80	●	4												
	0512-80	●	5			8									
	0612-80	●	6												
0712-80	●	7													
PSH	0216-100	●	2	16	-	6	15	100	-	-	Fig.2	HS3×4P	LW-1.5		
	0316-100	●	3									HS4×4P	LW-2		
	0416-100	●	4												
	0516-100	●	5												
	0616-100	●	6			8									
0716-100	●	7													
PSH	0220-120	●	2	20	17.5	6	19	120	20	11	Fig.3	HS3×4P	LW-1.5	Amada Wasino Eguro Citizen Machinery Precision Tsugami Miyano general use	
	0320-120	●	3							HS4×4P		LW-2			
	0420-120	●	4										9		
	0520-120	●	5			7.5									
	0620-120	●	6												
0720-120	●	7													
PSH	0225.0-135	●	2	25	18	6	24	135	23	11.5	Fig.3	HS3×4P	LW-1.5	Amada Wasino Eguro Precision Tsugami Miyano general use	
	0325.0-135	●	3							HS4×4P		LW-2			
	0425.0-135	●	4										9.5		
	0525.0-135	●	5			8									
	0625.0-135	●	6												
0725.0-135	●	7													
PSH	0219-120	●	2	19.05	17.5	6	18	120	20	11	Fig.3	HS3×4P	LW-1.5	Citizen Machinery	
	0319-120	●	3							HS4×4P		LW-2			
	0419-120	●	4										9		
	0519-120	●	5			7.5									
	0619-120	●	6												
0719-120	●	7													
PSH	0225-120	●	2	25.4	18	6	24.4	120	23	11.5	Fig.3	HS3×4P	LW-1.5	Threading (HPT)→P5	
	0325-120	●	3							HS4×4P		LW-2			
	0425-120	●	4										9.5		
	0525-120	●	5			8									
	0625-120	●	6												
0725-120	●	7													
PSH	0222-135	●	2	22	18	6	21	135	22	11.5	Fig.3	HS3×4P	LW-1.5	Star Micronics Nomura	
	0322-135	●	3							HS4×4P		LW-2			
	0422-135	●	4										9.5		
	0522-135	●	5			8									
	0622-135	●	6												
0722-135	●	7													
PSH	0223-120	●	2	23	18	6	22	120	22	11.5	Fig.3	HS3×4P	LW-1.5	Nomura	
	0323-120	●	3							HS4×4P		LW-2			
	0423-120	●	4										9.5		
	0523-120	●	5			8									
	0623-120	●	6												
0723-120	●	7													

*:Length of ød1 portion...20mm(PH02,PH03,PH04)
...25mm(PH05,PH06,PH07)

●: Std.Stock

·Choose sleeves (ød1) to meet with øD dimension of tip-bar.
·Machine manufacturers in random order.

