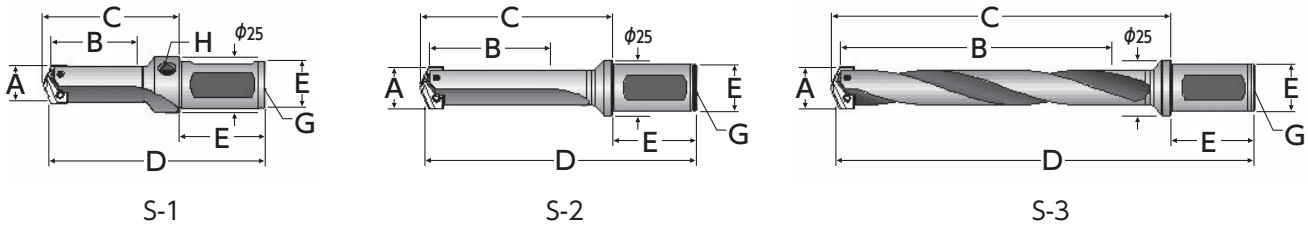


# Indexable Drill Inserts

## HOLDERS for Y Series: $\phi 9.50 - \phi 11.07$

★ Select same size series between inserts and holders.

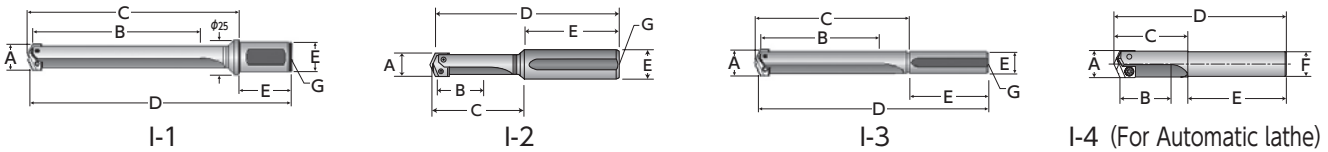
### Metric system straight shank holders



(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	(H)	Clamping screw	Screwdriver (Optional)
9.50 ~ 11.07	19.1	210Y0S-16FMS		●	S-1	50.0	95.6	$\phi 20.0 \times 50.0$	1/16"	1/8"	724-IP7-10	8IP-7
	31.8	220Y0S-20FMS		●	S-2	63.5	111.1					
	60.3	240Y0H-20FMS		●	S-3	92.1	139.7					
	111.1	250Y0H-20FMS		●	S-3	142.9	190.5					
	170.0	260Y0S-20FMS	L	●	S-2	202.1	252.1					
	222.3	270Y0S-20FMS	XL	●	S-2	254.1	301.7					
290.5	290Y0S-20FMS	3XL	●	S-2	322.3	369.9						

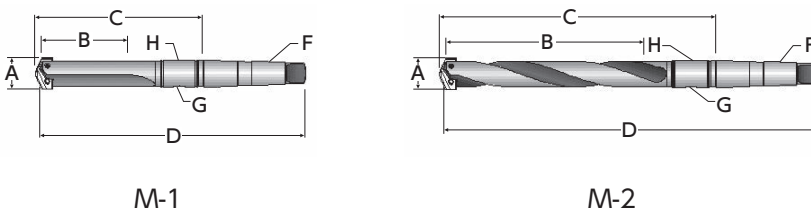
Use a 3/16" size wrench for the screw for pipe (H).

### Straight shank holders



(A) Insert cutting edge dia	(B) Max. machining length	P/N	Stock	Shape	Dimensions				Parts	
					(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	Clamping screw	Screwdriver (Optional)
9.50 ~ 11.07	16.0	210Y0S-07M	●	I-4	25.0	55.0	$\phi 7.0 \times 30.0$	1/8"	724-IP7-10	8IP-7
	20.0	210Y0S-10M	●		30.0	70.0	$\phi 10.0 \times 40.0$			
	31.8	220Y0S-075F	●	I-1	63.5	112.7	$\phi 19.05 \times 51.6$			
	31.8	220Y0S-075L	●	I-2	54.0	111.9	$\phi 19.05 \times 60.3$			
	40.3	220Y0S-22M	●	I-3	62.3	152.3	$\phi 22.0 \times 90.0$			
	40.0	010703-102	●		70.0	146.2	$\phi 25.4 \times 76.2$			
65.0	230Y0S-22M	●	I-3	95.0	145.0	$\phi 22.0 \times 50.0$				

### Morse tapered shank holders



※For coolant adaptors for Morse tapered shank holders, please see page O53.

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(F) MT	(G) Screw for pipe	(H) Coolant adaptor	Clamping screw	Screwdriver (Optional)
9.50 ~ 11.07	31.8	220Y0S-002M		●	M-1	88.0	160.3	#2	1/16"	2T-2SRM	724-IP7-10	8IP-7
	60.3	240Y0H-002M		●	M-2	116.7	188.9					
	111.1	250Y0H-002M	L	●		167.4	239.7					

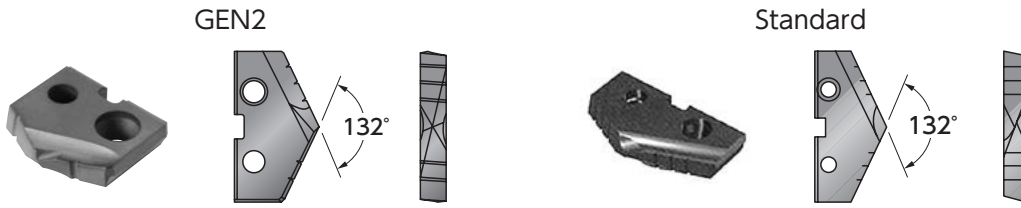
For recommended cutting conditions, please refer to pages O70 -.

Notes)•Each holder comes with only 4 clamping screws and a screw releasing agent (E-Z BREAK). A screwdriver is available only as an optional item.  
•Replace the holders periodically, using "every 100th insert replacement" as a guideline.

## Inserts for Y Series: $\phi 9.50 - \phi 11.07$

★ Select same size series between inserts and holders.

### <Shapes>



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	GEN2				Standard								GEN2	
Material	Powder high-speed steel (T15)				Powder high-speed steel (T15)								Carbide (K20)	
Coating	AlCrN				TiAlN			TiCN			TiN		AlCrN	
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker
		Standard	HE		Standard	HI		Standard	HI		Standard	HI		Standard
9.50	45YH-9.5	●	◎	15YA-9.5	●		15YN-9.5	●		15YT-9.5	◎		4C2YH-9.5	●
9.53	45YH-0012	◎	◎	15YA-0012	◎		15YN-0012	◎		15YT-0012	◎		4C2YH-0012	◎
9.60	45YH-9.6	●												
9.70	45YH-9.7	●												
9.80	45YH-.386	●	◎	15YA-.386	●		15YN-.386	●		15YT-.386	◎		4C2YH-.386	◎
9.90	45YH-9.9	●												
9.92	45YH-.390	◎		15YA-.390	◎		15YN-.390	◎		15YT-.390	◎		4C2YH-.390	◎
10.00	45YH-10	●	◎	15YA-10	●		15YN-10	●	●	15YT-10	◎	◎	4C2YH-10	●
10.10	45YH-10.1	●												
10.20	45YH-10.2	●	◎	15YA-10.2	●		15YN-10.2	●	●	15YT-10.2	◎		4C2YH-10.2	●
10.30	45YH-10.3	●												
10.32	45YH-0013	◎		15YA-0013	◎		15YN-0013	◎		15YT-0013	◎		4C2YH-0013	◎
10.40	45YH-10.4	●												
10.50	45YH-10.5	●	◎	15YA-10.5	●		15YN-10.5	●	●	15YT-10.5	◎	◎	4C2YH-10.5	●
10.60	45YH-10.6	●												
10.70	45YH-10.7	●												
10.72	45YH-.421	◎	◎	15YA-.421	◎		15YN-.421	◎		15YT-.421	◎		4C2YH-.421	◎
10.80	45YH-10.8	●	◎	15YA-10.8	●		15YN-10.8	●		15YT-10.8	◎		4C2YH-10.8	◎
10.90	45YH-10.9	●												
11.00	45YH-11	●	◎	15YA-11	●		15YN-11	●	●	15YT-11	◎	◎	4C2YH-11	●

For recommended cutting conditions, please refer to pages 070 -. ※The part numbers of HI chipbreakers are followed by "-HI". (Ex.) 15YN-11-HI

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

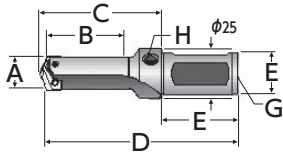
No symbol: Products manufactured production-to-order basis

# Indexable Drill Inserts

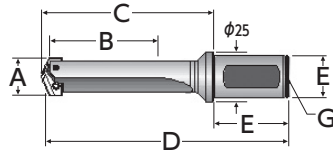
## HOLDERS for Z Series: $\phi 11.10 - \phi 12.95$

★ Select same size series between inserts and holders.

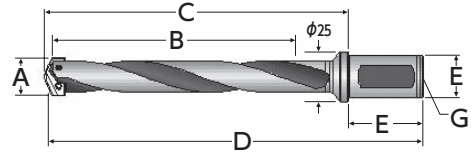
### Metric system straight shank holders



S-1



S-2

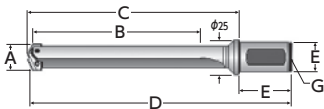


S-3

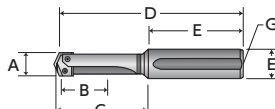
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	(H) Screw for pipe	Clamping screw	Screwdriver (Optional)
11.10 ~ 12.95	19.1	210Z0S-16FMS		●	S-1	48.0	104.6	$\phi 20.0 \times 50.0$	1/16"	1/8"	7247-IP7-10	8IP-7
	31.8	220Z0S-20FMS		●	S-2	63.5	111.1					
	60.3	240Z0H-20FMS		●	S-3	92.1	139.7					
	111.1	250Z0H-20FMS		●	S-3	142.9	190.5					
	170.0	260Z0S-20FMS	L	●	S-2	201.8	251.8					
	222.3	270Z0S-20FMS	XL	●	S-2	254.1	301.7					
290.5	290Z0S-20FMS	3XL	●	S-2	322.3	369.9						

Use a 3/16" size wrench for the screw for pipe (H).

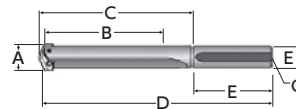
### Straight shank holders



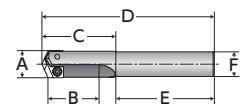
I-1



I-2



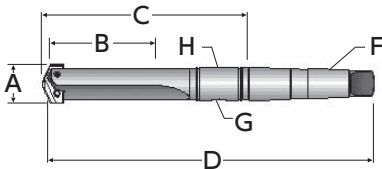
I-3



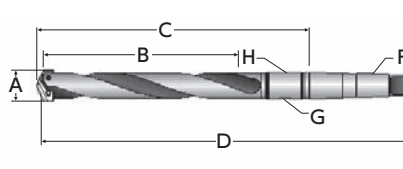
I-4 (For Automatic lathe)

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Stock	Shape	Dimensions				Parts	
					(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	Clamping screw	Screwdriver (Optional)
11.10 ~ 12.95	16.0	210Z0S-07M	●	I-4	25.0	55.0	$\phi 7.0 \times 30.0$	1/8"	7247-IP7-10	8IP-7
	20.0	210Z0S-10M	●		30.0	70.0	$\phi 10.0 \times 40.0$			
	31.8	220Z0S-075F	●	I-1	63.5	112.7	$\phi 19.05 \times 51.6$			
	31.8	220Z0S-075L	●	I-2	54.0	111.9	$\phi 19.05 \times 60.3$			
	35.0	220Z0S-22M	●	I-3	62.3	152.3	$\phi 22.0 \times 90.0$			
	40.0	010703-103	●		70.0	146.2	$\phi 25.4 \times 76.2$			
65.0	230Z0S-22M	●	95.0		145.0	$\phi 22.0 \times 50.0$				

### Morse tapered shank holders



M-1



M-2

※For coolant adaptors for Morse tapered shank holders, please see page 053.

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(F) MT	(G) Screw for pipe	(H) Coolant adaptor	Clamping screw	Screwdriver (Optional)
11.10 ~ 12.95	31.8	220Z0S-002M		●	M-1	88.0	160.3	#2	1/16"	2T-2SRM	7247-IP7-10	8IP-7
	60.3	240Z0H-002M		●	M-2	116.7	188.9					
	111.1	250Z0H-002M	L	●		167.4	239.7					

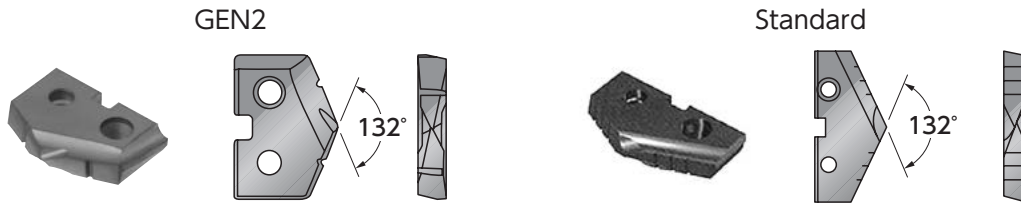
For recommended cutting conditions, please refer to pages 070 -.

Notes)•Each holder comes with only 4 clamping screws and a screw releasing agent (E-Z BREAK). A screwdriver is available only as an optional item.  
•Replace the holders periodically, using "every 100th insert replacement" as a guideline.

## Inserts for Z Series: $\phi 11.10 - \phi 12.95$

★ Select same size series between inserts and holders.

### <Shapes>



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	GEN2				Standard								GEN2	
Material	Powder high-speed steel (T15)				Powder high-speed steel (T15)								Carbide (K20)	
Coating	AlCrN				TiAlN		TiCN			TiN			AlCrN	
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker
		Standard	HE		Standard	HI		Standard	HI		Standard	HI		Standard
11.10	45ZH-11.1	●												
11.11	45ZH-0014	●	●	15ZA-0014	●		15ZN-0014	●		15ZT-0014	●		4C2ZH-0014	●
11.20	45ZH-11.2	●												
11.30	45ZH-11.3	●												
11.40	45ZH-11.4	●												
11.50	45ZH-11.5	●	●	15ZA-11.5	●		15ZN-11.5	●	●	15ZT-11.5	●		4C2ZH-11.5	●
11.51	45ZH-.453	●		15ZA-.453	●		15ZN-.453	●		15ZT-.453	●		4C2ZH-.453	●
11.60	45ZH-11.6	●												
11.70	45ZH-11.7	●												
11.80	45ZH-11.8	●												
11.90	45ZH-11.9	●												
11.91	45ZH-0015	●		15ZA-0015	●		15ZN-0015	●		15ZT-0015	●		4C2ZH-0015	●
12.00	45ZH-12	●	●	15ZA-12	●		15ZN-12	●	●	15ZT-12	●	●	4C2ZH-12	●
12.10	45ZH-12.1	●												
12.20	45ZH-12.2	●												
12.30	45ZH-.484	●	●	15ZA-.484	●		15ZN-.484	●		15ZT-.484	●		4C2ZH-.484	●
12.40	45ZH-12.4	●												
12.50	45ZH-12.5	●	●	15ZA-12.5	●		15ZN-12.5	●	●	15ZT-12.5	●	●	4C2ZH-12.5	●
12.60	45ZH-12.6	●												
12.70	45ZH-0016	●	●	15ZA-0016	●		15ZN-0016	●		15ZT-0016	●		4C2ZH-0016	●
12.80	45ZH-12.8	●	●											
12.90	45ZH-12.9	●												

For recommended cutting conditions, please refer to pages 070 -. ※The part numbers of HI chipbreakers are followed by "-HI". (Ex.) 15ZN-12-HI

● : Standard stock

● : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

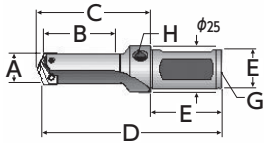
No symbol: Products manufactured production-to-order basis

# Indexable Drill Inserts

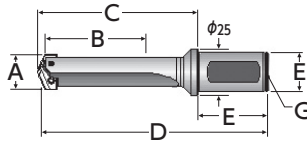
## Holders for 0,0.5 Series: $\phi 12.98 - \phi 17.65$

★ Select same size series between inserts and holders.

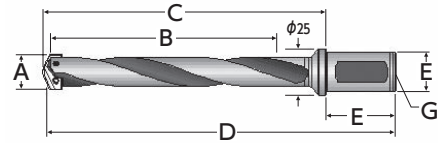
### Metric system straight shank holders



S-1



S-2

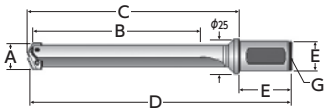


S-3

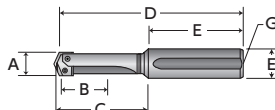
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	(H) Screw for pipe	Clamping screw	Screwdriver (Optional)
12.98 ~ 17.65	22.2	21000S-20FMS		●	S-1	50.4	97.6	$\phi 20.0 \times 50.0$	1/8"	72556-IP8-10	8IP-8	
15.50 ~ 17.65		21005S-20FMS		●								
12.98 ~ 17.65	34.9	22000S-20FMS		●	S-2	66.3	113.5					72556-IP8-10
15.50 ~ 17.65		22005S-20FMS		●								72567-IP8-10
12.98 ~ 17.65	63.5	24000H-20FMS		●	S-3	94.9	142.1					72556-IP8-10
15.50 ~ 17.65		24005H-20FMS		●								72567-IP8-10
12.98 ~ 17.65	114.3	25000H-20FMS	L	●	S-3	145.7	192.9					72556-IP8-10
15.50 ~ 17.65		25005H-20FMS	L	●								72567-IP8-10
12.98 ~ 17.65	177.8	26000H-20FMS	L	●	S-3	209.1	256.4					72556-IP8-10
15.50 ~ 17.65		26005H-20FMS	L	●								72567-IP8-10
12.98 ~ 17.65	240.0	26500S-20FMS	XL	●	S-2	271.7	321.7	72556-IP8-10				
	295.3	27000S-20FMS	XL	●								
	387.4	29000S-20FMS	3XL	●					418.8	466.0		

Use a 3/16" size wrench for the screw for pipe (H).

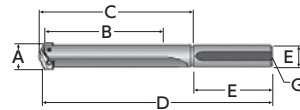
### Straight shank holders



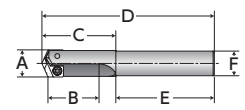
I-1



I-2



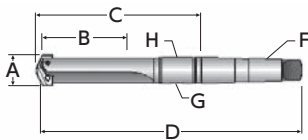
I-3



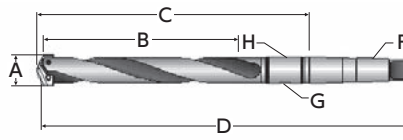
I-4 (For Automatic lathe)

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Stock	Shape	Dimensions				Parts	
					(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	Clamping screw	Screwdriver (Optional)
12.98 ~ 17.65	20.0	21000S-10M	●	I-4	30.0	70.0	$\phi 10.0 \times 40.0$	1/8"	72556-IP8-10	8IP-8
		22000S-075F	●	I-1	66.3	115.1	$\phi 19.05 \times 51.6$		72567-IP8-10	
15.50 ~ 17.65	34.9	22000S-075L	●	I-2	58.3	115.9	$\phi 19.05 \times 60.3$		72556-IP8-10	
		22005S-075L	●	I-2	58.3	115.9	$\phi 19.05 \times 60.3$		72567-IP8-10	
12.98 ~ 17.65	35.0	22000S-22M	●	I-3	62.7	152.7	$\phi 22 \times 90.0$		72556-IP8-10	
	40.0	010703-104	●		70.0	146.2	$\phi 25.4 \times 76.2$			
	65.0	23000S-22M	●		95.0	145.0	$\phi 22 \times 50.0$			

### Morse tapered shank holders



M-1



M-2

※For coolant adaptors for Morse tapered shank holders, please see page 053.

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(F) MT	(G) Screw for pipe	(H) Coolant adaptor	Clamping screw	Screwdriver (Optional)
12.98 ~ 17.65	35.0	22000S-002M		●	M-1	92.4	164.3	#2	1/16"	2T-2SRM	72556-IP8-10	8IP-8
15.50 ~ 17.65		22005S-002M		●							72567-IP8-10	
12.98 ~ 17.65	63.5	24000H-002M		●	M-2	121.0	192.9				72556-IP8-10	
15.50 ~ 17.65		24005H-002M		●							72567-IP8-10	
12.98 ~ 17.65	114.3	25000H-002M	L	●	M-2	171.8	243.7				72556-IP8-10	
15.50 ~ 17.65		25005H-002M	L	●							72567-IP8-10	

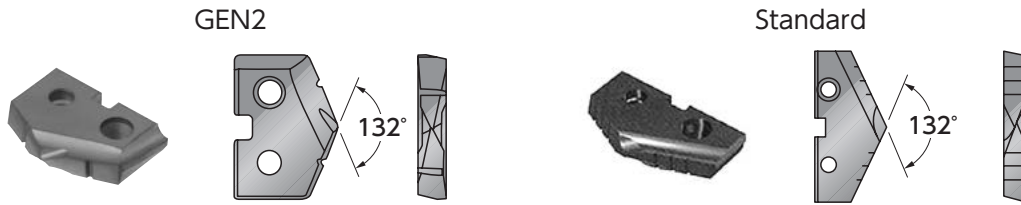
For recommended cutting conditions, please refer to pages 070 -.

Notes)•Each holder comes with only 4 clamping screws and a screw releasing agent (E-Z BREAK). A screwdriver is available only as an optional item.  
•Replace the holders periodically, using "every 100th insert replacement" as a guideline.

## Inserts for 0, 0.5 Series: $\phi 12.98 - \phi 17.65$

★ Select same size series between inserts and holders.

### <Shapes>



Please order units of 2 as 1 package contains 2 inserts.

Edge shape	GEN2				Standard								GEN2	
Material	Powder high-speed steel (T15)				Powder high-speed steel (T15)								Carbide (K20)	
Coating	AlCrN				TiAlN		TiCN			TiN			AlCrN	
Edge dia.	P/N	Chipbreaker Standard	HE	P/N	Chipbreaker Standard	HI	P/N	Chipbreaker Standard	HI	P/N	Chipbreaker Standard	HI	P/N	Chipbreaker Standard
13.00	450H-13	●	●	150A-13	●		150N-13	●	●	150T-13	●	●	4C20H-13	●
13.10	450H-515	●		150A-515	●		150N-515	●		150T-515	●		4C20H-515	●
13.20	450H-13.2	●												
13.30	450H-13.3	●												
13.40	450H-13.4	●												
13.49	450H-0017	●		150A-0017	●		150N-0017	●		150T-0017	●		4C20H-0017	●
13.50	450H-13.5	●		150A-13.5	●		150N-13.5	●	●	150T-13.5	●	●	4C20H-13.5	●
13.60	450H-13.6	●												
13.70	450H-13.7	●												
13.80	450H-13.8	●												
13.89	450H-546	●	●	150A-546	●		150N-546	●		150T-546	●		4C20H-546	●
13.90	450H-13.9	●												
14.00	450H-14	●	●	150A-14	●	●	150N-14	●	●	150T-14	●	●	4C20H-14	●
14.10	450H-14.1	●												
14.20	450H-14.2	●												
14.29	450H-0018	●	●	150A-0018	●		150N-0018	●		150T-0018	●		4C20H-0018	●
14.30	450H-14.3	●												
14.40	450H-14.4	●												
14.50	450H-14.5	●		150A-14.5	●		150N-14.5	●	●	150T-14.5	●	●	4C20H-14.5	●
14.60	450H-14.6	●												
14.68	450H-578	●		150A-578	●		150N-578	●		150T-578	●		4C20H-578	●
14.70	450H-14.7	●												
14.80	450H-14.8	●	●											
14.90	450H-14.9	●												
15.00	450H-15	●	●	150A-15	●	●	150N-15	●	●	150T-15	●	●	4C20H-15	●
15.08	450H-0019	●	●	150A-0019	●		150N-0019	●		150T-0019	●		4C20H-0019	●
15.10	450H-15.1	●												
15.20	450H-15.2	●												
15.30	450H-15.3	●												
15.40	450H-15.4	●												
15.48	450H-609	●		150A-609	●		150N-609	●		150T-609	●		4C20H-609	●
15.50	450H-15.5	●	●	150A-15.5	●		150N-15.5	●	●	150T-15.5	●	●	4C20H-15.5	●
15.60	450H-15.6	●												
15.70	450H-15.7	●												
15.80	450H-15.8	●												
15.88	450H-0020	●	●	150A-0020	●		150N-0020	●		150T-0020	●		4C20H-0020	●
15.90	450H-15.9	●												
16.00	450H-16	●		150A-16	●		150N-16	●	●	150T-16	●	●	4C20H-16	●
16.10	450H-16.1	●												
16.20	450H-16.2	●												
16.27	450H-640	●		150A-640	●		150N-640	●		150T-640	●		4C20H-640	●
16.30	450H-16.3	●												
16.40	450H-16.4	●												
16.50	450H-16.5	●	●	150A-16.5	●	●	150N-16.5	●	●	150T-16.5	●	●	4C20H-16.5	●
16.60	450H-16.6	●												
16.67	450H-0021	●	●	150A-0021	●		150N-0021	●		150T-0021	●		4C20H-0021	●
16.70	450H-16.7	●												
16.80	450H-16.8	●	●											
16.90	450H-16.9	●												
17.00	450H-17	●	●	150A-17	●		150N-17	●	●	150T-17	●	●	4C20H-17	●
17.07	450H-671	●		150A-671	●		150N-671	●		150T-671	●		4C20H-671	●
17.10	450H-17.1	●												
17.20	450H-17.2	●												
17.30	450H-17.3	●												
17.40	450H-17.4	●												
17.46	450H-0022	●	●	150A-0022	●		150N-0022	●		150T-0022	●		4C20H-0022	●
17.50	450H-17.5	●	●	150A-17.5	●	●	150N-17.5	●	●	150T-17.5	●	●	4C20H-17.5	●
17.60	450H-17.6	●												

For recommended cutting conditions, please refer to pages 070 -. ※The part numbers of HI chipbreakers are followed by "-HI". (Ex.) 150N-13-HI

● : Standard stock ○ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis No symbol: Products manufactured production-to-order basis

New Products  
 Tool Materials / Selection Guide  
 PCD, CBN and ceramic  
 Cermet  
 PVD-coated Cermet  
 Micro-grain Carbide, Carbide  
 Insert Stock List  
 Machining Toolholders  
 Outside Machining  
 SS  
 Grooving Tools  
 Threading Tools  
 Shaper  
 Internal machining tool range  
 Original Tools for Various Applications  
 Indexable End Milling Tools  
 Indexable Drill Inserts  
 Milling Cutters  
 Technical Data  
 Index

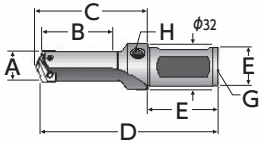


# Indexable Drill Inserts

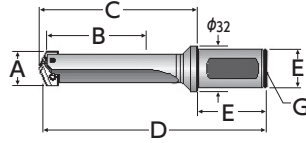
## Holders for 1, 1.5 Series: $\phi 17.53 - \phi 24.38$

★ Select same size series between inserts and holders.

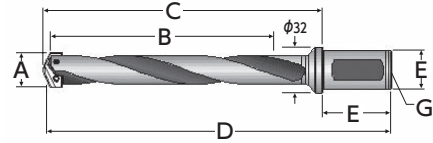
### Metric system straight shank holders



S-1



S-2

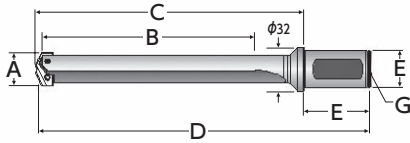


S-3

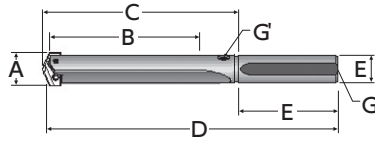
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts	
						(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	(H) Screw for pipe	Clamping screw
17.53 ~ 24.38	47.6	21010S-25FMS		●	S-1	79.4	131.8	$\phi 25.0 \times 56.0$	1/8"	7375-IP9-10	8IP-9
21.83 ~ 24.38	57.2	21015S-25FMS		●	S-1	92.1	144.5				
17.53 ~ 24.38	66.7	22010S-25FMS		●	S-2	110.7	163.2				
21.83 ~ 24.38		22015S-25FMS		●							
17.53 ~ 24.38	117.5	23010H-25FMS		●	S-3	158.4	210.8				
21.83 ~ 24.38		23015H-25FMS		●							
17.53 ~ 24.38	168.3	24010H-25FMS		●	S-3	209.2	261.6				
21.83 ~ 24.38		24015H-25FMS		●							
17.53 ~ 24.38	269.9	25010H-25FMS	L	●	S-3	310.8	363.2				
21.83 ~ 24.38		25015H-25FMS	L	●							
17.53 ~ 24.38	365.0	26010S-25FMS	L	●	S-2	406.1	462.1				
	457.2	27010S-25FMS	XL	●		498.1	550.5				
	565.2	29010S-25FMS	3XL	●		606.1	658.5				

Use a 3/16" size wrench for the screw for pipe (H).

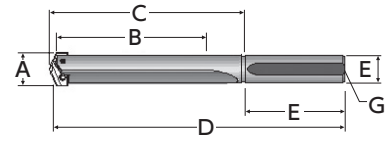
### Inch system straight shank holders



I-1



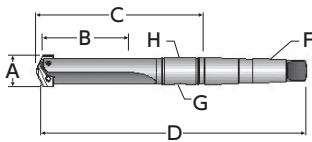
I-2



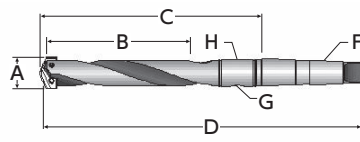
I-3

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Stock	Shape	Dimensions				Parts	
					(C) Body length	(D) Overall length	(E) Shank dia. x length	(G), (G') Screw for pipe	Clamping screw	Screwdriver (Optional)
17.53 ~ 24.38	66.7	22010S-100F	●	I-1	110.7	165.1	$\phi 25.4 \times 57.9$	1/8"	7375-IP9-10	8IP-9
21.83 ~ 24.38		22015S-100F	●							
17.53 ~ 24.38		22010S-075L	●							
21.83 ~ 24.38		22015S-075L	●	I-2	102.0	174.6	$\phi 19.05 \times 76.2$			
17.53 ~ 24.38		22010S-100L	●							
21.83 ~ 24.38		22015S-100L	●							
17.53 ~ 24.38	35.0	010703-105	●	I-3	70.0	146.2	$\phi 25.4 \times 76.2$	7375-IP9-10		

### Morse tapered shank holders



M-1



M-2

※For coolant adaptors for Morse tapered shank holders, please see page O53.

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(F) MT	(G) Screw for pipe	(H) Coolant adaptor	Clamping screw	Screwdriver (Optional)
17.53 ~ 24.38	69.8	22010S-003M		●	M-1	142.5	232.5	#3	1/8"	2T-3SRM	7375-IP9-10	8IP-9
21.83 ~ 24.38		22015S-003M	●									
17.53 ~ 24.38		23010H-003M	●									
21.83 ~ 24.38		23015H-003M	●	M-2	244.1	334.2						
17.53 ~ 24.38		24010H-003M	●									
21.83 ~ 24.38		24015H-003M	●									
17.53 ~ 24.38	273.1	25010H-003M	L	●	M-2	345.7	435.8					
21.83 ~ 24.38		25015H-003M	L	●								

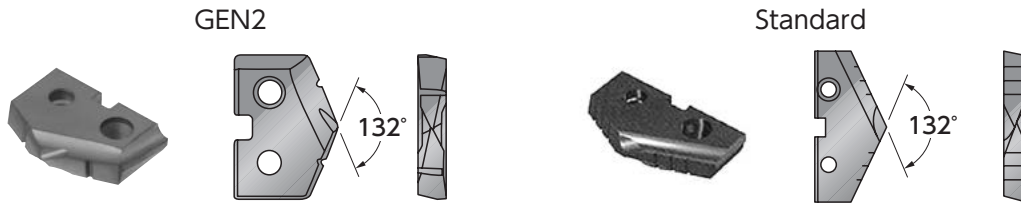
For recommended cutting conditions, please refer to pages O70 -.

Notes)•Each holder comes with only 4 clamping screws and a screw releasing agent (E-Z BREAK). A screwdriver is available only as an optional item.  
•Replace the holders periodically, using "every 100th insert replacement" as a guideline.

## Inserts for 1, 1.5 Series: $\phi 17.53 - \phi 24.38$

★ Select same size series between inserts and holders.

### <Shapes>



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	GEN2				Standard								GEN2	
Material	Powder high-speed steel (T15)				Powder high-speed steel (T15)								Carbide (K20)	
Coating	AlCrN				TiAlN		TiCN			TiN			AlCrN	
Edge dia.	P/N	Chipbreaker Standard	HE	P/N	Chipbreaker Standard	HI	P/N	Chipbreaker Standard	HI	P/N	Chipbreaker Standard	HI	P/N	Chipbreaker Standard
17.70	451H-17.7	●												
17.80	451H-17.8	●												
17.86	451H-703	●		151A-703	●		151N-703	●	●	151T-703	●		4C21H-703	●
17.90	451H-17.9	●												
18.00	451H-18	●	●	151A-18	●	●	151N-18	●	●	151T-18	●	●	4C21H-18	●
18.10	451H-18.1	●												
18.20	451H-18.2	●												
18.26	451H-0023	●		151A-0023	●		151N-0023	●		151T-0023	●		4C21H-0023	●
18.30	451H-18.3	●												
18.40	451H-18.4	●												
18.50	451H-18.5	●	●	151A-18.5	●	●	151N-18.5	●	●	151T-18.5	●	●	4C21H-18.5	●
18.60	451H-18.6	●												
18.65	451H-734	●		151A-734	●		151N-734	●		151T-734	●		4C21H-734	●
18.70	451H-18.7	●												
18.80	451H-18.8	●												
18.90	451H-18.9	●												
19.00	451H-19	●	●	151A-19	●		151N-19	●	●	151T-19	●	●	4C21H-19	●
19.05	451H-0024	●	●	151A-0024	●		151N-0024	●		151T-0024	●		4C21H-0024	●
19.10	451H-19.1	●												
19.20	451H-19.2	●												
19.25	451H-758	●	●											
19.30	451H-19.3	●												
19.40	451H-19.4	●												
19.45	451H-765	●		151A-765	●		151N-765	●		151T-765	●		4C21H-765	●
19.50	451H-19.5	●	●	151A-19.5	●		151N-19.5	●	●	151T-19.5	●		4C21H-19.5	●
19.60	451H-19.6	●												
19.70	451H-19.7	●												
19.80	451H-19.8	●												
19.84	451H-0025	●	●	151A-0025	●		151N-0025	●		151T-0025	●		4C21H-0025	●
19.90	451H-19.9	●												
20.00	451H-20	●	●	151A-20	●		151N-20	●	●	151T-20	●	●	4C21H-20	●
20.20	451H-20.2	●					151N-20.2	●						
20.24	451H-796	●		151A-796	●		151N-796	●		151T-796	●		4C21H-796	●
20.50	451H-20.5	●	●	151A-20.5	●	●	151N-20.5	●	●	151T-20.5	●	●	4C21H-20.5	●
20.64	451H-0026	●	●	151A-0026	●		151N-0026	●		151T-0026	●		4C21H-0026	●
21.00	451H-21	●	●	151A-21	●	●	151N-21	●	●	151T-21	●	●	4C21H-21	●
21.43	451H-0027	●		151A-0027	●		151N-0027	●		151T-0027	●		4C21H-0027	●
21.50	451H-21.5	●	●	151A-21.5	●		151N-21.5	●	●	151T-21.5	●		4C21H-21.5	●
21.83	451H-859	●		151A-859	●		151N-859	●		151T-859	●		4C21H-859	●
22.00	451H-22	●	●	151A-22	●	●	151N-22	●	●	151T-22	●	●	4C21H-22	●
22.23	451H-0028	●	●	151A-0028	●		151N-0028	●	●	151T-0028	●		4C21H-0028	●
22.50	451H-22.5	●	●											
22.62	451H-890	●		151A-890	●		151N-890	●		151T-890	●		4C21H-890	
23.00	451H-23	●		151A-23	●		151N-23	●	●	151T-23	●	●	4C21H-23	●
23.02	451H-0029	●	●	151A-0029	●		151N-0029	●		151T-0029	●		4C21H-0029	●
23.42	451H-921	●	●	151A-921	●		151N-921	●		151T-921	●		4C21H-921	●
23.50	451H-23.5	●	●				151N-23.5		●					
23.70	451H-23.7		●											
23.81	451H-0030	●	●	151A-0030	●		151N-0030	●		151T-0030	●		4C21H-0030	●
24.00	451H-24	●	●	151A-24	●	●	151N-24	●	●	151T-24	●	●	4C21H-24	●

For recommended cutting conditions, please refer to pages 070 -. \*The part numbers of HI chipbreakers are followed by "-HI". (Ex.) 151N-24-HI

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

No symbol: Products manufactured production-to-order basis

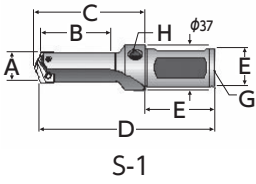


# Indexable Drill Inserts

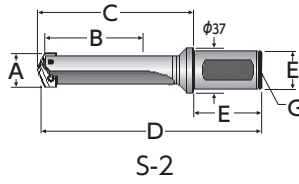
## Holders for 2, 2.5 Series: $\phi 24.41 - \phi 35.05$

★ Select same size series between inserts and holders.

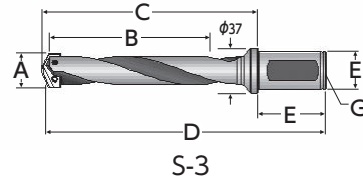
### Metric system straight shank holders



S-1



S-2

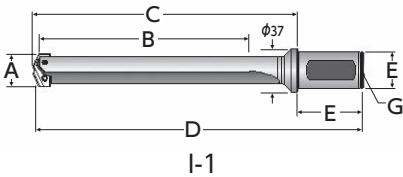


S-3

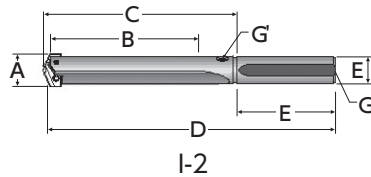
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	(H) Screw for pipe	Clamping screw	Screwdriver (Optional)
24.41 ~ 35.05	57.2	21020S-32FMS		●	S-1	92.1	148.5	$\phi 32.0 \times 60.0$	1/4"	1/8"	7495-IP15-10	8IP-15
30.00 ~ 35.05	92.1	21025S-32FMS		●	S-1	127.0	183.4					
24.41 ~ 35.05	85.7	22020S-32FMS		●	S-2	132.2	188.6					
30.00 ~ 35.05		22025S-32FMS		●								
24.41 ~ 35.05	136.5	23020H-32FMS		●	S-3	183.0	239.4					
30.00 ~ 35.05		23025H-32FMS		●								
24.41 ~ 35.05	187.3	24020H-32FMS		●								
30.00 ~ 35.05		24025H-32FMS		●								
24.41 ~ 35.05	288.9	25020H-32FMS	L	●		335.4	391.8		1/4"			
30.00 ~ 35.05		25025H-32FMS	L	●								
24.41 ~ 35.05	400.0	26020S-32FMS	L	●		446.7	506.7					
24.41 ~ 35.05	511.2	27020S-32FMS	XL	●	S-2	557.7	614.1					
	692.2	29020S-32FMS	3XL	●		738.7	795.1					

Use a 3/16" size wrench for the screw for pipe (H).

### Inch system straight shank holders



I-1

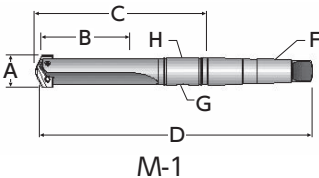


I-2

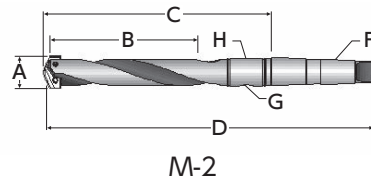
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Stock	Shape	Dimensions				Parts	
					(C) Body length	(D) Overall length	(E) Shank dia. x length	(G), (G') Screw for pipe	Clamping screw	Screwdriver (Optional)
24.41 ~ 35.05	85.7	22020S-125F	●	I-1	132.2	186.5	$\phi 31.75 \times 57.9$	1/4"	7495-IP15-10	8IP-15
30.00 ~ 35.05		22025S-125F	●							
24.41 ~ 35.05		22020S-100L	●							
30.00 ~ 35.05		22025S-100L	●	I-2	117.9	203.2	$\phi 25.4 \times 88.9$			
24.41 ~ 35.05		22020S-125L	●							
30.00 ~ 35.05		22025S-125L	●				$\phi 31.75 \times 88.9$			

Use a 3/16" size wrench for the screw for pipe (G').

### Morse tapered shank holders



M-1



M-2

※For coolant adaptors for Morse tapered shank holders, please see page 053.

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts			
						(C) Body length	(D) Overall length	(F) MT	(G) Screw for pipe	(H) Coolant adaptor	Clamping screw	Screwdriver (Optional)	
24.41 ~ 35.05	85.7	22020S-004M		●	M-1	160.4	273.8	#4	1/8"	2T-3SRM	7495-IP15-10	8IP-15	
30.00 ~ 35.05		22025S-004M	●	167.6		281.0	1/4"		2T-4SRM				
24.41 ~ 35.05		23020H-004M	●	211.2		324.6	1/8"		2T-3SRM				
30.00 ~ 35.05		23025H-004M	●	218.4		331.8	1/4"		2T-4SRM				
24.41 ~ 35.05		24020H-004M	●	262.0		375.4	1/8"		2T-3SRM				
30.00 ~ 35.05		24025H-004M	●	269.2		382.6	1/4"		2T-4SRM				
24.41 ~ 35.05		289.0	25020H-004M	L	●	M-2	363.6		477.0	1/8"			2T-3SRM
30.00 ~ 35.05		25025H-004M	L	●	370.8		484.2		1/4"	2T-4SRM			

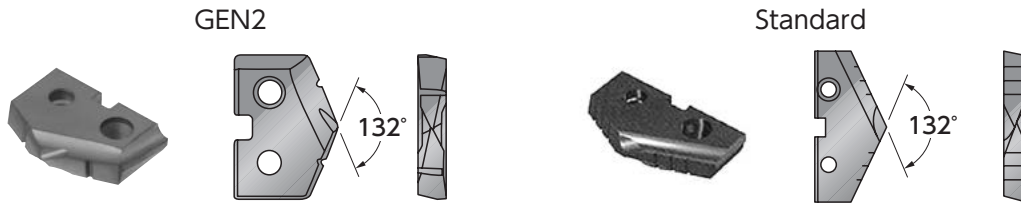
For recommended cutting conditions, please refer to pages 070 -. Before using holders of L, XL or 3XL type, please read the instructions on page 018 • 067.

Notes)•Each holder comes with only 4 clamping screws and a screw releasing agent (E-Z BREAK). A screwdriver is available only as an optional item.  
•Replace the holders periodically, using "every 100th insert replacement" as a guideline.

## Inserts for 2, 2.5 Series: $\phi 24.41 - \phi 35.05$

★ Select same size series between inserts and holders.

### <Shapes>



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	GEN2				Standard								GEN2	
Material	Powder high-speed steel (T15)				Powder high-speed steel (T15)								Carbide (K20)	
Coating	AlCrN				TiAlN		TiCN			TiN			AlCrN	
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker
		Standard	HE		Standard	HI		Standard	HI		Standard	HI		Standard
24.50	452H-24.5	●	●											
24.61	452H-0031	●	●	152A-0031	●		152N-0031	●		152T-0031	●		4C22H-0031	●
25.00	452H-25	●	●	152A-25	●	●	152N-25	●	●	152T-25	●	●	4C22H-25	●
25.40	452H-0100	●	●	152A-0100	●		152N-0100	●	●	152T-0100	●	●	4C22H-0100	●
25.50	452H-25.5	●	●											
25.80	452H-1.015	●		152A-1.015	●		152N-1.015	●		152T-1.015	●		4C22H-1.015	●
26.00	452H-26	●		152A-26	●		152N-26	●	●	152T-26	●	●	4C22H-26	●
26.19	452H-0101	●	●	152A-0101	●		152N-0101	●		152T-0101	●	●	4C22H-0101	●
26.50	452H-26.5	●	●										4C22H-26.5	●
26.59	452H-1.046	●	●	152A-1.046	●		152N-1.046	●		152T-1.046	●		4C22H-1.046	●
26.99	452H-0102	●	●	152A-0102	●		152N-0102	●		152T-0102	●		4C22H-0102	●
27.00	452H-27	●	●	152A-27	●		152N-27	●	●	152T-27	●		4C22H-27	●
27.50	452H-27.5	●	●											
27.78	452H-0103	●		152A-0103	●		152N-0103	●		152T-0103	●		4C22H-0103	●
28.00	452H-28	●	●	152A-28	●		152N-28	●	●	152T-28	●	●	4C22H-28	●
28.18	452H-1.109	●		152A-1.109	●		152N-1.109	●		152T-1.109	●		4C22H-1.109	●
28.50	452H-28.5	●	●											
28.58	452H-0104	●	●	152A-0104	●		152N-0104	●		152T-0104	●		4C22H-0104	●
29.00	452H-29	●	●	152A-29	●	●	152N-29	●	●	152T-29	●	●	4C22H-29	●
29.37	452H-0105	●	●	152A-0105	●		152N-0105	●		152T-0105	●		4C22H-0105	●
29.50	452H-29.5	●	●											
30.00	452H-30	●	●	152A-30	●	●	152N-30	●	●	152T-30	●	●	4C22H-30	●
30.16	452H-0106	●	●	152A-0106	●		152N-0106	●		152T-0106	●		4C22H-0106	●
30.50	452H-30.5	●	●											
30.96	452H-0107	●	●	152A-0107	●		152N-0107	●		152T-0107	●		4C22H-0107	●
31.00	452H-31	●		152A-31	●		152N-31	●		152T-31	●		4C22H-31	●
31.50	452H-31.5	●	●											
31.75	452H-0108	●	●	152A-0108	●		152N-0108	●		152T-0108	●		4C22H-0108	●
32.00	452H-32	●	●	152A-32	●	●	152N-32	●	●	152T-32	●	●	4C22H-32	●
32.50	452H-32.5	●											4C22H-32.5	●
32.54	452H-0109	●		152A-0109	●		152N-0109	●		152T-0109	●		4C22H-0109	●
33.00	452H-33	●		152A-33	●	●	152N-33	●	●	152T-33	●		4C22H-33	●
33.34	452H-0110	●	●	152A-0110	●		152N-0110	●		152T-0110	●		4C22H-0110	●
33.50	452H-33.5	●	●											
34.00	452H-34	●	●	152A-34	●		152N-34	●		152T-34	●		4C22H-34	●
34.13	452H-0111	●	●	152A-0111	●		152N-0111	●		152T-0111	●		4C22H-0111	●
34.50	452H-34.5	●	●											
34.93	452H-0112	●		152A-0112	●		152N-0112	●		152T-0112	●		4C22H-0112	●
35.00	452H-35	●	●	152A-35	●		152N-35	●		152T-35	●		4C22H-35	●

For recommended cutting conditions, please refer to pages **070** -. ※The part numbers of HI chipbreakers are followed by "-HI". (Ex.) 152A-32-HI

● : Standard stock

● : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

No symbol: Products manufactured production-to-order basis

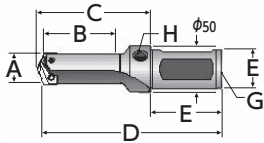
New Products  
Tool Materials / Selection Guide  
PCD, CBN and ceramic  
Cement  
PVD-coated Cement  
Micro-grain Carbide, Carbide  
Insert Stock List  
Outside Machining Toolholders  
SS  
Grooving Tools  
Threading Tools  
Shaper  
Internal machining tool range  
Original Tools for Various Applications  
Indexable End Milling Tools  
Indexable Drill Inserts  
Milling Cutters  
Technical Data  
Index

# Indexable Drill Inserts

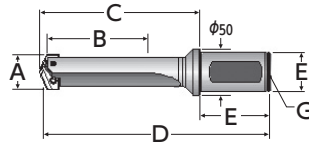
## Holders for 3 Series: $\phi 34.36 - \phi 47.80$

★ Select same size series between inserts and holders.

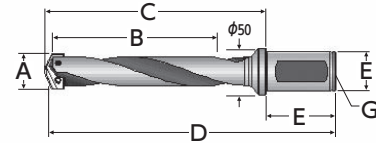
### Metric system straight shank holders



S-1



S-2

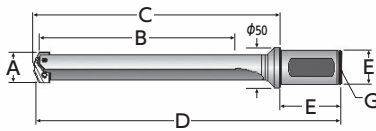


S-3

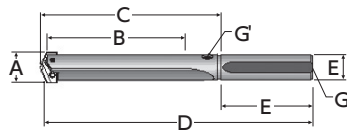
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts	
						(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	(H)	Clamping screw
34.36 ~ 47.80	76.2	21030S-40FMS		●	S-1	129.8	195.0	$\phi 40.0 \times 70.0$	1/4"	7514-IP20-10	8IP-20
	120.7	22030S-40FMS		●	S-2	177.8	243.0				
	165.1	23030H-40FMS		●	S-3	222.3	287.5				
	209.6	24030H-40FMS		●		266.7	331.9				
	280.0	24530S-40FMS	L	●	S-2	337.1	407.1				
	349.3	25030S-40FMS	L	●		406.4	471.6				
	558.8	27030S-40FMS	XL	●		615.9	681.1				
	787.4	29030S-40FMS	3XL	●		844.5	909.7				

Use a 3/16" size wrench for the screw for pipe (H).

### Inch system straight shank holders



I-1

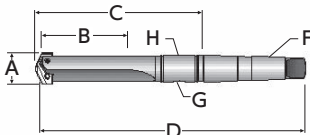


I-2

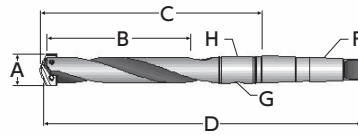
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Stock	Shape	Dimensions				Parts	
					(C) Body length	(D) Overall length	(E) Shank dia. x length	(G), (G') Screw for pipe	Clamping screw	Screwdriver (Optional)
34.36 ~ 47.80	120.7	22030S-150F	●	I-1	177.8	243.1	$\phi 38.1 \times 68.3$	1/4"	7514-IP20-10	8IP-20
		22030S-125L	●	I-2	157.2	254.0	$\phi 31.75 \times 101.6$			
		22030S-150L	●				$\phi 38.1 \times 101.6$			

Use a 3/16" size wrench for the screw for pipe (G').

### Morse tapered shank holders



M-1



M-2

※For coolant adaptors for Morse tapered shank holders, please see page 053.

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(F) MT	(G) Screw for pipe	(H) Coolant adaptor	Clamping screw	Screwdriver (Optional)
34.36 ~ 47.80	120.6	22030S-004M		●	M-1	206.4	319.1	#4	1/4"	2T-4SRM	7514-IP20-10	8IP-20
	165.1	23030H-004M		●	M-2	250.9	363.6					
	209.5	24030H-004M		●		295.3	408.0					
	349.3	25030S-004M	L	●	M-1	435.0	547.7					
	558.8	27030S-004M	XL	●		644.6	757.3					
	787.4	29030S-004M	3XL	●		873.2	985.9					

For recommended cutting conditions, please refer to pages 070 -. Before using holders of L, XL or 3XL type, please read the instructions on page 018 • 067.

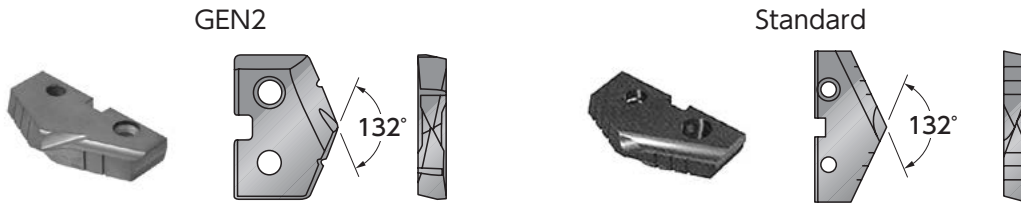
Notes)•Each holder comes with only 4 clamping screws and a screw releasing agent (E-Z BREAK). A screwdriver is available only as an optional item.

•Replace the holders periodically, using "every 100th insert replacement" as a guideline.

## Inserts for 3 Series: $\phi 34.36 - \phi 47.80$

★ Select same size series between inserts and holders.

### <Shapes>



Order unit: 1pc (Standard)  
2pcs(Special)

Edge shape	GEN2						Standard								
Material	Powder high-speed steel (T15)						Powder high-speed steel (T15)								
Coating	AlCrN			TiN			TiAlN			TiCN			TiN		
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker	
		Standard	HI		Standard	HI		Standard	HI		Standard	HI		Standard	HI
35.50	453H-35.5	●													
35.72	453H-0113	◎		453T-0113	◎								153T-0113	◎	
36.00	453H-36	●	●	453T-36	●		153A-36	●		153N-36	●	●	153T-36	◎	
36.50	453H-36.5	●													
36.51	453H-0114	◎		453T-0114	◎								153T-0114	◎	
37.00	453H-37	◎		453T-37	◎		153A-37	●		153N-37	●		153T-37	◎	
37.31	453H-0115	◎		453T-0115	◎								153T-0115	◎	
37.50	453H-37.5	●													
38.00	453H-38	●	●	453T-38	●		153A-38	●	●	153N-38	●	●	153T-38	◎	
38.10	453H-0116	◎		453T-0116	◎								153T-0116	◎	
38.50	453H-38.5	●													
38.89	453H-0117	◎		453T-0117	◎								153T-0117	◎	
39.00	453H-39	●	●	453T-39	●		153A-39	●	●	153N-39	●	●	153T-39	◎	
39.50	453H-39.5	●													
39.69	453H-0118	◎		453T-0118	◎								153T-0118	◎	
40.00	453H-40	●		453T-40	●		153A-40	●		153N-40	●	●	153T-40	◎	
40.48	453H-0119	◎		453T-0119	◎								153T-0119	◎	
40.50	453H-40.5	●													
41.00	453H-41	●		453T-41	●		153A-41	●		153N-41	●		153T-41	◎	
41.28	453H-0120	◎		453T-0120	◎								153T-0120	◎	
41.50	453H-41.5	●													
42.00	453H-42	●		453T-42	●		153A-42	●		153N-42	●	●	153T-42	◎	
42.07	453H-0121	◎		453T-0121	◎								153T-0121	◎	
42.50	453H-42.5	●													
42.86	453H-0122	◎		453T-0122	◎								153T-0122	◎	
43.00	453H-43	●		453T-43	●		153A-43	●		153N-43	●		153T-43	◎	
43.50	453H-43.5	●													
43.66	453H-0123	◎		453T-0123	◎								153T-0123	◎	
44.00	453H-44	●		453T-44	●		153A-44	●		153N-44	●	●	153T-44	◎	
44.45	453H-0124	◎		453T-0124	◎								153T-0124	◎	
44.50	453H-44.5	●													
45.00	453H-45	●		453T-45	●		153A-45	●	●	153N-45	●		153T-45	◎	
45.24	453H-0125	◎		453T-0125	◎								153T-0125	◎	
45.50	453H-45.5	●		453T-45.5	◎										
46.00	453H-46	●		453T-46	●		153A-46	●		153N-46	●		153T-46	◎	
46.04	453H-0126	◎		453T-0126	◎								153T-0126	◎	
46.50	453H-46.5	●													
46.83	453H-0127	◎		453T-0127	◎								153T-0127	◎	
47.00	453H-47	●		453T-47	●		153A-47	●		153N-47	●	●	153T-47	◎	
47.50	453H-47.5	●													
47.63	453H-0128	◎		453T-0128	◎								153T-0128	◎	

For recommended cutting conditions, please refer to pages 070 -. ※The part numbers of HI chipbreakers are followed by "HI". (Ex.) 453H-36-HI

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

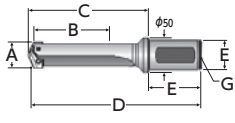
No symbol: Products manufactured production-to-order basis

# Indexable Drill Inserts

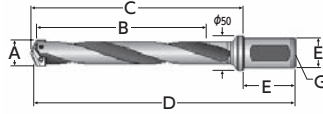
## Holders for 4 Series: $\phi 46.99 - \phi 65.28$

★ Select same size series between inserts and holders.

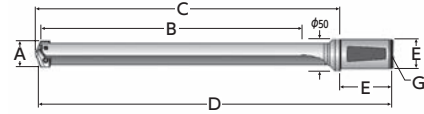
### Metric system straight shank holders



S-1



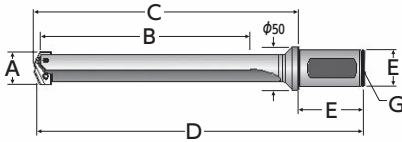
S-2



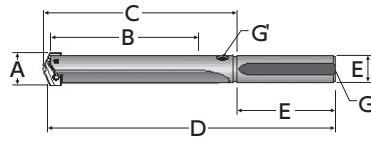
S-3

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts	
						(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	Clamping screw	Screwdriver (Optional)
46.99 ~ 65.28	130.2	22040S-40FMS		●	S-1	184.2	249.4	$\phi 40.0 \times 70.0$	1/4"	7514-IP20-10	8IP-20
	231.8	24040H-40FMS		●	S-2	285.8	351.0				
	350.0	24540S-40FMSW-70	L	●	S-3	419.75	487.75	$\phi 40.0 \times 68.0$			
	422.3	25040S-40FMS	L	●		476.3	541.5	$\phi 40.0 \times 70.0$			
	525.0	26040S-40FMS	L	●		579.5	649.5				
	625.5	27040S-40FMS	XL	●		679.5	744.7				
	879.5	29040S-40FMS	3XL	●		933.5	998.7				

### Inch system straight shank holders



I-1

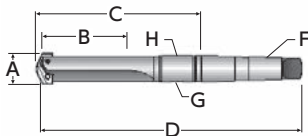


I-2

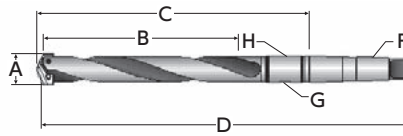
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Stock	Shape	Dimensions				Parts	
					(C) Body length	(D) Overall length	(E) Shank dia. x length	(G), (G') Screw for pipe	Clamping screw	Screwdriver (Optional)
46.99 ~ 65.28	130.2	22040S-150F	●	I-1	184.2	247.7	$\phi 38.1 \times 68.3$	1/4"	7514-IP20-10	8IP-20
		22040S-150L	●	I-2	169.9	266.7	$\phi 38.1 \times 101.6$			
		22040S-175L	●				$\phi 44.45 \times 101.6$			

Use a 3/16" size wrench for the screw for pipe (G').

### Morse tapered shank holders



M-1



M-2

※For coolant adaptors for Morse tapered shank holders, please see page 053.

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions					Parts	
						(C) Body length	(D) Overall length	(F) MT	(G) Screw for pipe	(H) Coolant adaptor	Clamping screw	Screwdriver (Optional)
46.99 ~ 65.28	130.1	22040S-005M		●	M-1	219.1	363.5	#5	1/4"	2T-5SRM	7514-IP20-10	8IP-20
	231.8	24040H-005M		●	M-2	320.7	465.1					
	422.3	25040S-005M	L	●	M-1	511.2	655.6					
	625.5	27040S-005M	XL	●		714.4	858.8					
	879.5	29040S-005M	3XL	●		968.4	1112.8					

For recommended cutting conditions, please refer to pages 070 -. Before using holders of L, XL or 3XL type, please read the instructions on page 018 • 067.

Notes)•Each holder comes with only 4 clamping screws and a screw releasing agent (E-Z BREAK). A screwdriver is available only as an optional item.

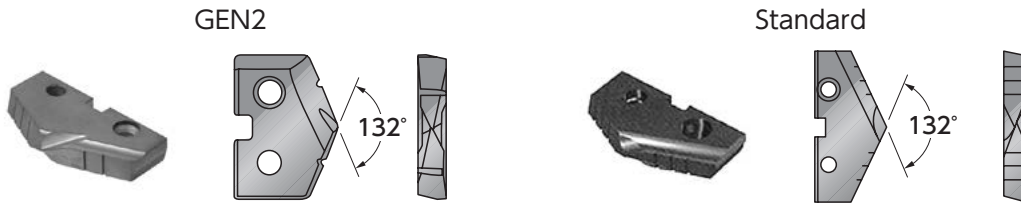
•Replace the holders periodically, using "every 100th insert replacement" as a guideline.



## Inserts for 4 Series: $\phi 46.99 - \phi 65.28$

★ Select same size series between inserts and holders.

### <Shapes>



Order unit: 1pc (Standard)  
2pcs(Special)

Edge shape	GEN2						Standard					
	Powder high-speed steel (T15)			Powder high-speed steel (M4)			Powder high-speed steel (T15)					
Material	AlCrN			TiN			TiCN			TiN		
Coating												
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker	
		Standard	HI		Standard	HI		Standard	HI		Standard	HI
47.00	454H-47	●										
47.50	454H-47.5	●										
48.00	454H-48	●		434T-48	●					154T-48	●	
48.42	454H-0129	●		434T-0129	●					154T-0129	●	
48.50	454H-48.5	●										
49.00	454H-49	●		434T-49	●					154T-49	●	
49.21	454H-0130	●		434T-0130	●					154T-0130	●	
49.50	454H-49.5	●										
50.00	454H-50	●		434T-50	●		154N-50	●		154T-50	●	
50.01	454H-0131	●		434T-0131	●					154T-0131	●	
50.80	454H-0200	●		434T-0200	●					154T-0200	●	
51.00	454H-51	●		434T-51	●		154N-51	●		154T-51	●	
51.59	454H-0201	●		434T-0201	●					154T-0201	●	
52.00	454H-52	●		434T-52	●					154T-52	●	
52.39	454H-0202	●		434T-0202	●					154T-0202	●	
53.00	454H-53	●		434T-53	●		154N-53	●		154T-53	●	
53.18	454H-0203	●		434T-0203	●					154T-0203	●	
53.98	454H-0204	●		434T-0204	●					154T-0204	●	
54.00	454H-54	●		434T-54	●		154N-54	●		154T-54	●	
54.79	454H-0205	●		434T-0205	●					154T-0205	●	
55.00	454H-55	●		434T-55	●		154N-55	●		154T-55	●	
55.56	454H-0206	●		434T-0206	●					154T-0206	●	
56.00	454H-56	●		434T-56	●					154T-56	●	
56.36	454H-0207	●		434T-0207	●					154T-0207	●	
57.00	454H-57	●		434T-57	●					154T-57	●	
57.15	454H-0208	●		434T-0208	●					154T-0208	●	
57.94	454H-0209	●		434T-0209	●					154T-0209	●	
58.00	454H-58	●		434T-58	●		154N-58	●		154T-58	●	
58.74	454H-0210	●		434T-0210	●					154T-0210	●	
59.00	454H-59	●		434T-59	●		154N-59	●		154T-59	●	
59.53	454H-0211	●		434T-0211	●					154T-0211	●	
60.00	454H-60	●		434T-60	●		154N-60	●		154T-60	●	
60.33	454H-0212	●		434T-0212	●					154T-0212	●	
61.00	454H-61	●		434T-61	●					154T-61	●	
61.12	454H-0213	●		434T-0213	●					154T-0213	●	
61.91	454H-0214	●		434T-0214	●					154T-0214	●	
62.00	454H-62	●		434T-62	●		154N-62	●		154T-62	●	
62.71	454H-0215	●		434T-0215	●					154T-0215	●	
63.00	454H-63	●		434T-63	●					154T-63	●	
63.50	454H-0216	●		434T-0216	●					154T-0216	●	
64.00	454H-64	●		434T-64	●					154T-64	●	
64.29	454H-0217	●		434T-0217	●					154T-0217	●	
65.00	454H-65	●		434T-65	●		154N-65	●		154T-65	●	
65.09	454H-0218	●		434T-0218	●					154T-0218	●	

For recommended cutting conditions, please refer to pages 070 -. ※The part numbers of HI chipbreakers are followed by "-HI". (Ex.) 154N-59-HI

● : Standard stock

● : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

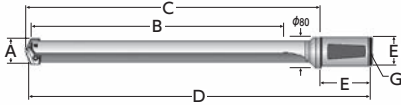
No symbol: Products manufactured production-to-order basis

# Indexable Drill Inserts

## Holders for 5, 6 Series: $\phi 62.38 - \phi 89.08$

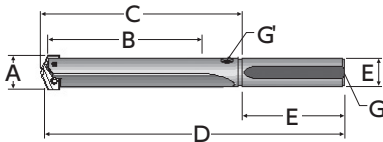
★ Select same size series between inserts and holders.

### Metric system straight shank holders



(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Dimensions				Parts	
					(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	Clamping screw	Screwdriver (Optional)
62.38 ~ 89.08	171.5	22050S-50FMSW		●	240.0	328.0	$\phi 50 \times 88.0$	1/2"	7619-IP25-10	8IP-25
	350.0	24550S-50FMSW	L	●	431.35	519.35				
	660.0	27550S-50FMSW	XL	●	741.35	829.35				

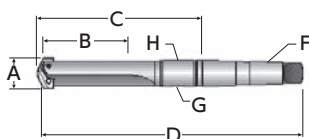
### Inch system straight shank holders



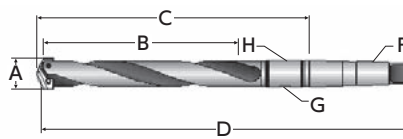
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Stock	Dimensions				Parts	
				(C) Body length	(D) Overall length	(E) Shank dia. x length	(G), (G') Screw for pipe	Clamping screw	Screwdriver (Optional)
62.38 ~ 89.08	171.5	22050S-200L	●	222.3	317.5	$\phi 50.8 \times 101.6$	1/2"	7619-IP25-10	8IP-25

Use a 3/16" size wrench for the screw for pipe (G').

### Morse tapered shank holders



M-1



M-2

※For coolant adaptors for Morse tapered shank holders, please see page 053.

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions				Parts		
						(C) Body length	(D) Overall length	(F) MT	(G) Screw for pipe	(H) Coolant adaptor	Clamping screw	Screwdriver (Optional)
62.38 ~ 89.08	171.5	22050S-005M		●	M-1	287.3	430.2	#5	1/2"	2T-6SRM	7619-IP25-10	8IP-25
	273.1	24050H-005M		●	M-2	388.9	531.8					
	463.6	25050S-005M	L	●	M-1	579.4	722.3					
	660.4	27050S-005M	XL	●		776.2	919.1					
	889.0	29050S-005M	3XL	●		1004.8	1148					

For recommended cutting conditions, please refer to pages 070 -. Before using holders of L, XL or 3XL type, please read the instructions on page 018 • 067.

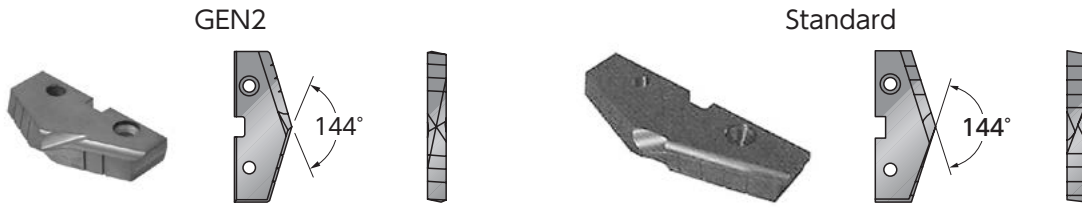
Notes)•Each holder comes with only 4 clamping screws and a screw releasing agent (E-Z BREAK). A screwdriver is available only as an optional item.

•Replace the holders periodically, using "every 100th insert replacement" as a guideline.

## Inserts for 5, 6 Series: $\phi 62.38 - \phi 89.08$

★ Select same size series between inserts and holders.

### <Shapes>



Order unit: 1pc (Standard)  
2pcs(Special)

Size Series	Edge shape	GEN2				Standard	
	Material	Powder high-speed steel (T15)		Powder high-speed steel (M4)		Powder high-speed steel (M4)	
	Coating	AlCrN		TiN		TiN	
	Edge dia.	P/N	Chipbreaker Standard	P/N	Chipbreaker Standard	P/N	Chipbreaker Standard
5 62.38 mm ~ 76.20 mm	63.50	455H-0216	●	435T-0216	●	135T-0216	●
	64.00	455H-64	●	435T-64	●	135T-64	●
	64.29	455H-0217	●	435T-0217	●	135T-0217	●
	65.09	455H-0218	●	435T-0218	●	135T-0218	●
	65.88	455H-0219	●	435T-0219	●	135T-0219	●
	66.00	455H-66	●	435T-66	●	135T-66	●
	66.68	455H-0220	●	435T-0220	●	135T-0220	●
	67.47	455H-0221	●	435T-0221	●	135T-0221	●
	68.00	455H-68	●	435T-68	●	135T-68	●
	68.26	455H-0222	●	435T-0222	●	135T-0222	●
	69.05	455H-0223	●	435T-0223	●	135T-0223	●
	69.85	455H-0224	●	435T-0224	●	135T-0224	●
	70.00	455H-70	●	435T-70	●	135T-70	●
	70.64	455H-0225	●	435T-0225	●	135T-0225	●
	71.44	455H-0226	●	435T-0226	●	135T-0226	●
	72.00	455H-72	●	435T-72	●	135T-72	●
	72.23	455H-0227	●	435T-0227	●	135T-0227	●
	73.03	455H-0228	●	435T-0228	●	135T-0228	●
	73.82	455H-0229	●	435T-0229	●	135T-0229	●
	74.00	455H-74	●	435T-74	●	135T-74	●
74.41	455H-0230	●	435T-0230	●	135T-0230	●	
75.00	455H-75	●					
75.61	455H-0231	●	435T-0231	●	135T-0231	●	
76.00	455H-76	●	435T-76	●	135T-76	●	
76.20	455H-0300	●	435T-0300	●	135T-0300	●	
6 76.23 mm ~ 89.08 mm	76.99	456H-0301	●	436T-0301	●	136T-0301	●
	77.79	456H-0302	●	436T-0302	●	136T-0302	●
	78.00	456H-78	●	436T-78	●	136T-78	●
	78.58	456H-0303	●	436T-0303	●	136T-0303	●
	79.38	456H-0304	●	436T-0304	●	136T-0304	●
	80.00	456H-80	●	436T-80	●	136T-80	●
	80.17	456H-0305	●	436T-0305	●	136T-0305	●
	80.96	456H-0306	●	436T-0306	●	136T-0306	●
	81.76	456H-0307	●	436T-0307	●	136T-0307	●
	82.00	456H-82	●	436T-82	●	136T-82	●
	82.55	456H-0308	●	436T-0308	●	136T-0308	●
	83.34	456H-0309	●	436T-0309	●	136T-0309	●
	84.00	456H-84	●	436T-84	●	136T-84	●
	84.14	456H-0310	●	436T-0310	●	136T-0310	●
	84.93	456H-0311	●	436T-0311	●	136T-0311	●
	85.00	456H-85	●				
	85.73	456H-0312	●	436T-0312	●	136T-0312	●
	86.00	456H-86	●	436T-86	●	136T-86	●
	86.52	456H-0313	●	436T-0313	●	136T-0313	●
	87.31	456H-0314	●	436T-0314	●	136T-0314	●
88.00	456H-88	●	436T-88	●	136T-88	●	
88.11	456H-0315	●	436T-0315	●	136T-0315	●	
88.90	456H-0316	●	436T-0316	●	136T-0316	●	

For recommended cutting conditions, please refer to pages **O70** -.

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

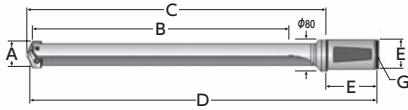
No symbol: Products manufactured production-to-order basis

# Indexable Drill Inserts

## Holders for 7, 8 Series: $\phi 87.76 - \phi 114.48$

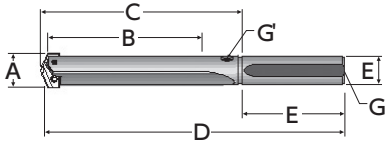
★ Select same size series between inserts and holders.

### Metric system straight shank holders



(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Dimensions			Parts		
					(C) Body length	(D) Overall length	(E) Shank dia. x length	(G) Screw for pipe	Clamping screw	Screwdriver (Optional)
87.76 ~ 114.48	200.0	22570S-50FMSW		●	279.99	368.0	$\phi 50.0 \times 88.0$	1/2"	7619-IP25-10	8IP-25
	400.0	24570S-50FMSW	L	●	491.35	579.35				
	800.0	27570S-50FMSW	L	●	881.35	969.35				

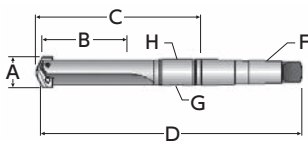
### Inch system straight shank holders



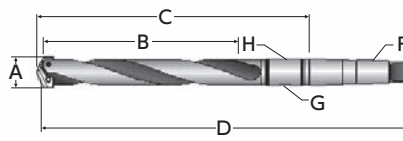
(A) Insert cutting edge dia	(B) Max. machining length	P/N	Stock	Dimensions			Parts		
				(C) Body length	(D) Overall length	(E) Shank dia. x length	(G), (G') Screw for pipe	Clamping screw	Screwdriver (Optional)
87.76 ~ 114.48	171.5	22070S-300L	●	231.8	352.4	$\phi 76.2 \times 127.0$	1/2"	7619-IP25-10	8IP-25

Use a 3/16" size wrench for the screw for pipe (G').

### Morse tapered shank holders



M-1



M-2

※For coolant adaptors for Morse tapered shank holders, please see page 053.

(A) Insert cutting edge dia	(B) Max. machining length	P/N	Long holder	Stock	Shape	Dimensions			Parts			
						(C) Body length	(D) Overall length	(F) MT	(G) Screw for pipe	(H) Coolant adaptor	Clamping screw	Screwdriver (Optional)
87.76 ~ 114.48	171.5	22070S-005M		●	M-1	296.8	439.7	#5	1/2"	2T-6SRM	7619-IP25-10	8IP-25
	273.1	24070H-005M		●	M-2	398.5	541.3					
	555.6	25070S-005M	L	●	M-1	681.1	823.9					
	685.8	27070S-005M	XL	●		811.2	954.0					
	939.8	29070S-005M	3XL	●		1065.2	1208.0					

For recommended cutting conditions, please refer to pages 070 -. Before using holders of L, XL or 3XL type, please read the instructions on page 018 • 067.

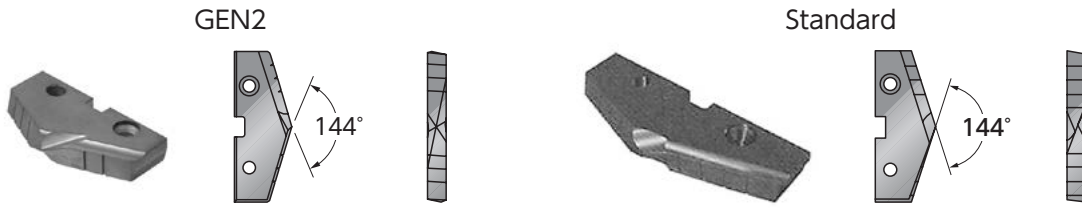
Notes)•Each holder comes with only 4 clamping screws and a screw releasing agent (E-Z BREAK). A screwdriver is available only as an optional item.

•Replace the holders periodically, using "every 100th insert replacement" as a guideline.

## Inserts for 7, 8 Series: $\phi 87.76 - \phi 114.48$

★ Select same size series between inserts and holders.

### <Shapes>



Order unit: 1 pc (Standard)  
2pcs(Special)

Size Series	Edge shape	GEN2				Standard	
	Material	Powder high-speed steel (T15)		Powder high-speed steel (M4)		Powder high-speed steel (M4)	
	Coating	AlCrN		TiN		TiN	
	Edge dia.	P/N	Chipbreaker Standard	P/N	Chipbreaker Standard	P/N	Chipbreaker Standard
7 87.76 mm ~ 101.60 mm	89.96	457H-0317	●	437T-0317	●	137T-0317	●
	90.00	457H-90	●	437T-90	●	137T-90	●
	90.49	457H-0318	●	437T-0318	●	137T-0318	●
	91.28	457H-0319	●	437T-0319	●	137T-0319	●
	92.00	457H-92	●	437T-92	●	137T-92	●
	92.08	457H-0320	●	437T-0320	●	137T-0320	●
	92.87	457H-0321	●	437T-0321	●	137T-0321	●
	93.66	457H-0322	●	437T-0322	●	137T-0322	●
	94.00	457H-94	●	437T-94	●	137T-94	●
	94.46	457H-0323	●	437T-0323	●	137T-0323	●
	95.25	457H-0324	●	437T-0324	●	137T-0324	●
	96.00	457H-96	●	437T-96	●	137T-96	●
	96.04	457H-0325	●	437T-0325	●	137T-0325	●
	96.84	457H-0326	●	437T-0326	●	137T-0326	●
	97.63	457H-0327	●	437T-0327	●	137T-0327	●
	98.00	457H-98	●	437T-98	●	137T-98	●
	98.43	457H-0328	●	437T-0328	●	137T-0328	●
	99.22	457H-0329	●	437T-0329	●	137T-0329	●
100.00	457H-100	●	437T-100	●	137T-100	●	
100.01	457H-0330	●	437T-0330	●	137T-0330	●	
100.81	457H-0331	●	437T-0331	●	137T-0331	●	
101.60	457H-0400	●	437T-0400	●	137T-0400	●	
8 101.63 mm ~ 114.48 mm	102.00	458H-102	●	438T-102	●	138T-102	●
	103.19	458H-0402	●	438T-0402	●	138T-0402	●
	104.00	458H-104	●	438T-104	●	138T-104	●
	104.75	458H-0404	●	438T-0404	●	138T-0404	●
	106.00	458H-106	●	438T-106	●	138T-106	●
	106.36	458H-0406	●	438T-0406	●	138T-0406	●
	107.95	458H-0408	●	438T-0408	●	138T-0408	●
	108.00	458H-108	●	438T-108	●	138T-108	●
	109.54	458H-0410	●	438T-0410	●	138T-0410	●
	110.00	458H-110	●	438T-110	●	138T-110	●
	111.13	458H-0412	●	438T-0412	●	138T-0412	●
	112.00	458H-112	●	438T-112	●	138T-112	●
	112.71	458H-0414	●	438T-0414	●	138T-0414	●
	114.00	458H-114	●	438T-114	●	138T-114	●
	114.30	458H-0416	●	438T-0416	●	138T-0416	●

For recommended cutting conditions, please refer to pages **O70** -.

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

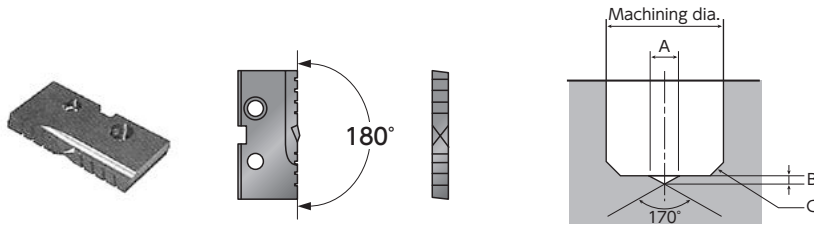
No symbol: Products manufactured production-to-order basis



## Flat-bottom inserts for popular Y, Z, 0, 1, 2 Series: $\phi 9.50 - \phi 35.00$

★ Select same size series between inserts and holders.

### <Shapes>



Please order in units of 2 as 1 package contains 2 inserts.

Size Series	Material	Powder high-speed steel (T15)	Stock	A	B	C
	Coating	TiN				
	Cutting edge dia.	P/N				
<b>Y</b>	9.50	<b>15YT-9.5-FB</b>	●	2.9	0.13	0.4
	9.53	<b>15YT-0012-FB</b>	●			
	9.80	<b>15YT-.386-FB</b>	●			
	9.92	<b>15YT-.390-FB</b>	●			
	10.00	<b>15YT-10-FB</b>	●			
	10.20	<b>15YT-10.2-FB</b>	●			
	10.32	<b>15YT-0013-FB</b>	●			
	10.50	<b>15YT-10.5-FB</b>	●			
	10.72	<b>15YT-.421-FB</b>	●			
	10.80	<b>15YT-10.8-FB</b>	●			
<b>Z</b>	11.00	<b>15YT-11-FB</b>	●	2.9	0.13	0.4
	11.11	<b>15ZT-0014-FB</b>	●			
	11.50	<b>15ZT-11.5-FB</b>	●			
	11.51	<b>15ZT-.453-FB</b>	●			
	11.91	<b>15ZT-0015-FB</b>	●			
	12.00	<b>15ZT-12-FB</b>	●			
	12.30	<b>15ZT-.484-FB</b>	●			
<b>0</b>	12.50	<b>15ZT-12.5-FB</b>	●	4.1	0.18	0.4
	12.70	<b>15ZT-0016-FB</b>	●			
	13.00	<b>150T-13-FB</b>	●			
	13.10	<b>150T-.515-FB</b>	●			
	13.49	<b>150T-0017-FB</b>	●			
	13.50	<b>150T-13.5-FB</b>	●			
	14.00	<b>150T-14-FB</b>	●			
	14.29	<b>150T-0018-FB</b>	●			
	14.50	<b>150T-14.5-FB</b>	●			
	14.68	<b>150T-.578-FB</b>	●			
	15.00	<b>150T-15-FB</b>	●			
	15.08	<b>150T-0019-FB</b>	●			
	15.50	<b>150T-15.5-FB</b>	●			
	15.88	<b>150T-0020-FB</b>	●			
	16.00	<b>150T-16-FB</b>	●			
16.50	<b>150T-16.5-FB</b>	●				
16.67	<b>150T-0021-FB</b>	●				
17.00	<b>150T-17-FB</b>	●				
17.46	<b>150T-0022-FB</b>	●				
17.50	<b>150T-17.5-FB</b>	●				

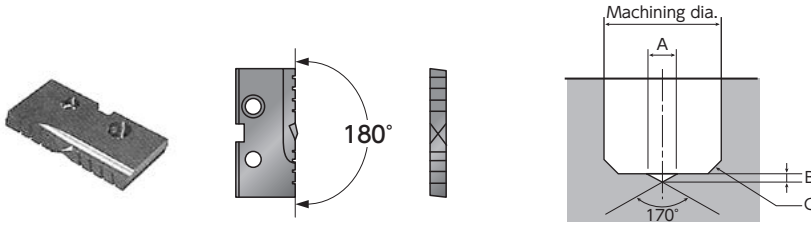
Size Series	Material	Powder high-speed steel (T15)	Stock	A	B	C
	Coating	TiN				
	Cutting edge dia.	P/N				
<b>1</b>	17.86	<b>151T-.703-FB</b>	●	4.8	0.21	0.4
	18.00	<b>151T-18-FB</b>	●			
	18.26	<b>151T-0023-FB</b>	●			
	18.50	<b>151T-18.5-FB</b>	●			
	18.65	<b>151T-.734-FB</b>	●			
	19.00	<b>151T-19-FB</b>	●			
	19.05	<b>151T-0024-FB</b>	●			
	19.45	<b>151T-.765-FB</b>	●			
	19.50	<b>151T-19.5-FB</b>	●			
	19.84	<b>151T-0025-FB</b>	●			
	20.00	<b>151T-20-FB</b>	●			
	20.50	<b>151T-20.5-FB</b>	●			
	20.64	<b>151T-0026-FB</b>	●			
	21.00	<b>151T-21-FB</b>	●			
	21.43	<b>151T-0027-FB</b>	●			
	22.00	<b>151T-22-FB</b>	●			
	22.23	<b>151T-0028-FB</b>	●			
	23.00	<b>151T-23-FB</b>	●			
	23.02	<b>151T-0029-FB</b>	●			
	23.42	<b>151T-.921-FB</b>	●			
23.81	<b>151T-0030-FB</b>	●				
24.00	<b>151T-24-FB</b>	●				
<b>2</b>	24.61	<b>152T-0031-FB</b>	●	6.0	0.26	0.4
	25.00	<b>152T-25-FB</b>	●			
	25.40	<b>152T-0100-FB</b>	●			
	25.80	<b>152T-1.015-FB</b>	●			
	26.00	<b>152T-26-FB</b>	●			
	26.19	<b>152T-0101-FB</b>	●			
	26.99	<b>152T-0102-FB</b>	●			
	27.00	<b>152T-27-FB</b>	●			
	27.78	<b>152T-0103-FB</b>	●			
	28.00	<b>152T-28-FB</b>	●			
	28.58	<b>152T-0104-FB</b>	●			
	29.00	<b>152T-29-FB</b>	●			
	29.37	<b>152T-0105-FB</b>	●			
	30.00	<b>152T-30-FB</b>	●			
	30.16	<b>152T-0106-FB</b>	●			
	30.96	<b>152T-0107-FB</b>	●			
	31.00	<b>152T-31-FB</b>	●			
	31.75	<b>152T-0108-FB</b>	●			
	32.00	<b>152T-32-FB</b>	●			
	32.54	<b>152T-0109-FB</b>	●			
33.00	<b>152T-33-FB</b>	●				
33.34	<b>152T-0110-FB</b>	●				
34.00	<b>152T-34-FB</b>	●				
34.13	<b>152T-0111-FB</b>	●				
34.93	<b>152T-0112-FB</b>	●				
35.00	<b>152T-35-FB</b>	●				

For recommended cutting conditions, please refer to page **072**.

## Flat-bottom inserts for newly added 3, 4 Series: $\phi 36.00 - \phi 65.00$

★ Select same size series between inserts and holders.

### <Shapes>



Please order in units of 2 as 1 package contains 2 inserts.

Size Series	Material	Powder high-speed steel (T15)	Stock	A	B	C
	Coating	TiN				
<b>3</b>	35.72	<b>153T-0113-FB</b>	●	8.2	0.36	0.9
	36.00	<b>153T-36-FB</b>	●			
	36.51	<b>153T-0114-FB</b>	●			
	37.00	<b>153T-37-FB</b>	●			
	37.31	<b>153T-0115-FB</b>	●			
	38.00	<b>153T-38-FB</b>	●			
	38.10	<b>153T-0116-FB</b>	●			
	38.89	<b>153T-0117-FB</b>	●			
	39.00	<b>153T-39-FB</b>	●			
	39.69	<b>153T-0118-FB</b>	●			
	40.00	<b>153T-40-FB</b>	●			
	40.48	<b>153T-0119-FB</b>	●			
	41.00	<b>153T-41-FB</b>	●			
	41.28	<b>153T-0120-FB</b>	●			
	42.00	<b>153T-42-FB</b>	●			
	42.07	<b>153T-0121-FB</b>	●			
	42.86	<b>153T-0122-FB</b>	●			
	43.00	<b>153T-43-FB</b>	●			
	43.66	<b>153T-0123-FB</b>	●			
	44.00	<b>153T-44-FB</b>	●			
44.45	<b>153T-0124-FB</b>	●				
45.00	<b>153T-45-FB</b>	●				
45.24	<b>153T-0125-FB</b>	●				
46.00	<b>153T-46-FB</b>	●				
46.04	<b>153T-0126-FB</b>	●				
46.83	<b>153T-0127-FB</b>	●				
47.00	<b>153T-47-FB</b>	●				
47.63	<b>153T-0128-FB</b>	●				

Size Series	Material	Powder high-speed steel (T15)	Stock	A	B	C
	Coating	TiN				
<b>4</b>	48.00	<b>154T-48-FB</b>	●	10.5	0.46	0.9
	48.42	<b>154T-0129-FB</b>	●			
	49.00	<b>154T-49-FB</b>	●			
	49.21	<b>154T-0130-FB</b>	●			
	50.00	<b>154T-50-FB</b>	●			
	50.01	<b>154T-0131-FB</b>	●			
	50.80	<b>154T-0200-FB</b>	●			
	51.00	<b>154T-51-FB</b>	●			
	51.59	<b>154T-0201-FB</b>	●			
	52.00	<b>154T-52-FB</b>	●			
	52.39	<b>154T-0202-FB</b>	●			
	53.00	<b>154T-53-FB</b>	●			
	53.18	<b>154T-0203-FB</b>	●			
	53.98	<b>154T-0204-FB</b>	●			
	54.00	<b>154T-54-FB</b>	●			
	54.77	<b>154T-0205-FB</b>	●			
	55.00	<b>154T-55-FB</b>	●			
	55.56	<b>154T-0206-FB</b>	●			
	56.00	<b>154T-56-FB</b>	●			
	56.36	<b>154T-0207-FB</b>	●			
	57.00	<b>154T-57-FB</b>	●			
	57.15	<b>154T-0208-FB</b>	●			
	57.94	<b>154T-0209-FB</b>	●			
	58.00	<b>154T-58-FB</b>	●			
	58.74	<b>154T-0210-FB</b>	●			
	59.00	<b>154T-59-FB</b>	●			
	59.53	<b>154T-0211-FB</b>	●			
	60.00	<b>154T-60-FB</b>	●			
	60.33	<b>154T-0212-FB</b>	●			
	61.00	<b>154T-61-FB</b>	●			
	61.12	<b>154T-0213-FB</b>	●			
	61.91	<b>154T-0214-FB</b>	●			
62.00	<b>154T-62-FB</b>	●				
62.71	<b>154T-0215-FB</b>	●				
63.00	<b>154T-63-FB</b>	●				
63.50	<b>154T-0216-FB</b>	●				
64.00	<b>154T-64-FB</b>	●				
64.29	<b>154T-0217-FB</b>	●				
65.00	<b>154T-65-FB</b>	●				
65.09	<b>154T-0218-FB</b>	●				

● : Standard stock

● : Semi-standard stock (Time required for delivery: approx. 2 weeks) production-to-order basis

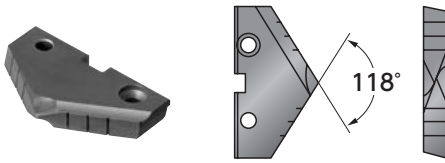
No symbol: Products manufactured production-to-order basis

For recommended cutting conditions, please refer to page **072**.

# Indexable Drill Inserts

Inserts with 118° apex angle: "Fine" type newly added to "Coarse" type!

★ Select same size series between inserts and holders.



(Announcement)

Standard type will be changed to GEN2, after the stock cleared.

e.g.) 150N-14-118 → 450H-14-118  
 153N-36-118 → 453H-36-118  
 134N-49-118 → 454H-49-118

Size series **0 to 2**: Please order in units of 2 as 1 package contains 2 inserts.

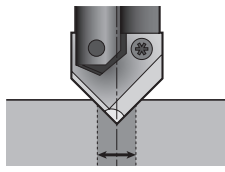
Size series **3 to 8**: Please order in units of 1 as 1 package contains 1 insert.

Size Series	Edge shape	GEN2		Standard				Reference for pilot hole dia. for screws Coarse (M24) Fine (M36 x P3)
	Material	Powder high-speed steel (T15)		Powder high-speed steel (T15)	Powder high-speed steel (M4)			
	Coating	AlCrN		TiCN				
	Cutting edge dia.	P/N	Stock	P/N	Stock	P/N	Stock	
0	14.00	450H-14-118	●	150N-14-118				M16
	16.00	450H-16-118	●	150N-16-118				18×P2
	17.50	450H-17.5-118		150N-17.5-118	■			20
1	18.00	451H-18-118		151N-18-118				20×P2
	21.00	451H-21-118	●	151N-21-118				24
2	25.00	452H-25-118		152N-25-118				27×P2
	26.50	452H-26.5-118	●	152N-26.5-118				30
	27.00	452H-27-118	★	152N-27-118				30×P3
	28.00	452H-28-118	★	152N-28-118				30×P2
	29.50	452H-29.5-118	●	152N-29.5-118	■			33
	32.00	452H-32-118	●	152N-32-118				36
	33.00	452H-33-118	★	152N-33-118				36×P3
3	35.00	452H-35-118	●	152N-35-118				39×P4
	36.00	453H-36-118	★	153N-36-118				39×P3
	37.50	453H-37.5-118	●	153N-37.5-118				42
	39.00	453H-39-118	★	153N-39-118				42×P3
	40.50	453H-40.5-118	●	153N-40.5-118				42×P2
	43.00	453H-43-118	★	153N-43-118	■			48
	44.00	453H-44-118		153N-44-118	■			48×P4
4	45.00	453H-45-118	★	153N-45-118	■			48×P3
	47.00	453H-47-118	●	153N-47-118				52
	49.00	454H-49-118				134N-49-118	■	52×P3
	50.50	454H-50.5-118	●			134N-50.5-118		56
	50.80	454H-50.8-118				134N-50.8-118	■	55×P4
	52.00	454H-52-118	★			134N-52-118		56×P4
	53.00	454H-53-118	★			134N-53-118		56×P3
	54.50	454H-54.5-118	●			134N-54.5-118	■	60
	56.00	454H-56-118				134N-56-118		60×P4
	58.00	454H-58-118	●			134N-58-118		64
5	60.00	454H-60-118	●			134N-60-118		62×P2
	61.00	454H-61-118	★			134N-61-118		64×P3
	62.00	454H-62-118	●			134N-62-118		68
	64.00	454H-64-118				134N-64-118	■	68×P4
	66.00	455H-66-118	●			135N-66-118		72
	68.00	455H-68-118				135N-68-118	■	72×P4
	69.00	455H-69-118				135N-69-118	■	72×P3
	70.00	455H-70-118	●			135N-70-118	■	76
6	72.00	455H-72-118	●			135N-72-118	■	75×P3
	74.00	455H-74-118	●			135N-74-118		80
	76.00	455H-76-118				135N-76-118		78×P2
	77.00	456H-77-118	★			136N-77-118		80×P3
	79.00	456H-79-118	●			136N-79-118	■	85
	81.00	456H-81-118				136N-81-118	■	85×P4
	84.00	456H-84-118	●			136N-84-118	■	90
	86.00	456H-86-118				136N-86-118		90×P4
7	87.00	456H-87-118				136N-87-118		90×P3
	88.90	456H-88.9-118	●			136N-88.9-118		95
	89.00	456H-89-118	★			136N-89-118		95
	94.00	457H-94-118	●			137N-94-118	■	100
8	97.00	457H-97-118				137N-97-118		100×P3
	104.00	458H-104-118				138N-104-118		110
	106.00	458H-106-118				138N-106-118	■	110×P4
	107.00	458H-107-118				138N-107-118		110×P3

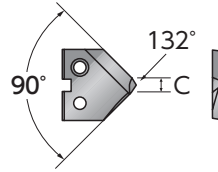
■ indicates "coarse" type.

## Inserts with 90° apex angle

★ Select same size series between inserts and holders.



Min. pilot-hole diameter



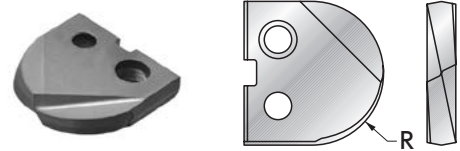
Size series **Y to 2** : Please order in units of 2 as 1 package contains 2 inserts.

Size series **3** : Please order in units of 1 as 1 package contains 1 insert.

Size Series	Material	Powder high-speed steel (T15)		Stock	C Dia (mm)	Min. pilot-hole diameter (mm)
	Coating	TiN				
	Cutting edge dia.	P/N				
Y	9.53	<b>15YT-0012-SP</b>	●	φ2.4	φ3.00	
	11.00	<b>15YT-11-SP</b>	●			
Z	12.70	<b>15ZT-0016-SP</b>	●	φ2.4	φ3.00	
0	15.88	<b>15OT-0020-SP</b>	●	φ4.2	φ5.00	
	17.50	<b>15OT-17.5-SP</b>	●			
1	19.05	<b>151T-0024-SP</b>	●	φ4.9	φ6.00	
	22.23	<b>151T-0028-SP</b>	●			
	24.00	<b>151T-24-SP</b>	●			
2	31.75	<b>152T-0108-SP</b>	●	φ6.4	φ7.00	
	35.00	<b>152T-35-SP</b>	●			
3	38.10	<b>153T-0116-SP</b>	●	φ8.8	φ10.00	
	47.63	<b>153T-0128-SP</b>	●			

For recommended cutting conditions, please refer to page **073**.

## SR inserts with full radius

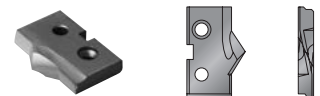


Please order in units of 2 as 1 package contains 2 inserts.

Size Series	Material		Powder high-speed steel (T15)			Stock
	Coating		TiCN		AM200	
	Cutting edge dia.	Radius	Previous Part No.	New Part No.	P/N	
Y	10.00	R5.0	<b>SR5.0</b>	<b>15YN-10-SR</b>		●
Z	11.50	R5.75	<b>SR5.75</b>	<b>15ZN-11.5-SR</b>		●
	12.00	R6.0	<b>SR6.0</b>	<b>15ZN-12-SR</b>		●
0	13.00	R6.5	<b>SR6.5</b>	<b>15ON-13-SR</b>		●
	14.00	R7.0	<b>SR7.0</b>	<b>15ON-14-SR</b>		●
	15.00	R7.5	<b>SR7.5</b>	<b>15ON-15-SR</b>		●
	16.00	R8.0	<b>SR8.0</b>	<b>15ON-16-SR</b>		●
	17.00	R8.5	<b>SR8.5</b>	<b>15ON-17-SR</b>		●
1	18.00	R9.0	<b>SR9.0</b>	<b>151N-18-SR</b>		●
	19.00	R9.5	<b>SR9.5</b>	<b>151N-19-SR</b>		●
2	30.00	R15.0			<b>152H-30-SR</b>	★
3	40.00	R20.0			<b>153H-40-SR</b>	★

For recommended cutting conditions, please refer to page **074**.

## Candle-shaped inserts



Please order in units of 2 as 1 package contains 2 inserts.

Size Series	Material	Powder high-speed steel (T15)	
	Coating	TiAlN	
	Cutting edge dia.	P/N	Stock
1	18.00	<b>151A-18-TW</b>	●
	22.00	<b>151A-22-TW</b>	●
	24.00	<b>151A-24-TW</b>	●

Holder: Please refer to page **036**.

- : Standard stock      ★ : Locally Stocked
- ◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks) production-to-order basis
- : Products shifting to production-to-order basis
- No symbol: Products manufactured production-to-order basis

## About clamping screws and screwdrivers

### Table of clamping screws and the corresponding screwdrivers

Work material	Insert cutting edge diameter (mm)	Allowable tightening torque for clamping screw (N·cm)	Clamping screw	Stock	Screw driver	Stock
<b>Y</b>	9.50 ~ 11.07	62	<b>724-IP7-10</b>	●	<b>8IP-7</b>	●
<b>Z</b>	11.11 ~ 12.95	62	<b>7247-IP7-10</b>	●		
<b>0</b>	12.98 ~ 17.65	128	<b>72556-IP8-10</b>	●	<b>8IP-8</b>	●
<b>0.5</b>	15.48 ~ 17.65	128	<b>72567-IP8-10</b>	●		
<b>1</b>	17.53 ~ 24.38	225	<b>7375-IP9-10</b>	●	<b>8IP-9</b>	●
<b>1.5</b>	21.83 ~ 24.38	225	<b>739-IP9-10</b>	●		
<b>2</b>	24.41 ~ 35.05	515	<b>7495-IP15-10</b>	●	<b>8IP-15</b>	●
<b>2.5</b>	30.00 ~ 35.05	515				
<b>3</b>	34.36 ~ 47.80	1020	<b>7514-IP20-10</b>	●	<b>8IP-20</b>	●
<b>4</b>	46.99 ~ 65.28	1020				
<b>5</b>	62.38 ~ 76.20	1750				
<b>6</b>	76.23 ~ 89.08	1750	<b>7619-IP25-10</b>	●	<b>8IP-25</b>	●
<b>7</b>	87.76 ~ 111.60	1750				
<b>8</b>	101.63 ~ 114.48	1750				

Note) The tightening torque is calculated by using 0.14 as the coefficient of friction ( $\mu = 0.14$ ) and 90% of the yield point.

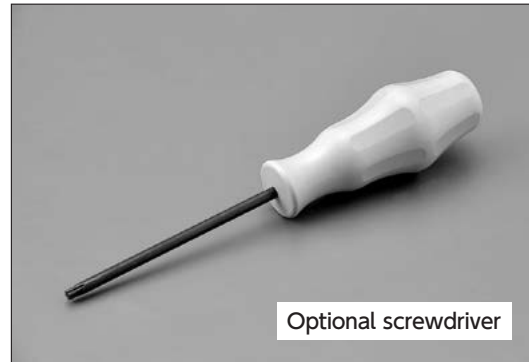
### Contents of the supplied clamping screw set



10 screws and releasing agent agent

Ten clamping screws are supplied in a case. Please order by the case.

### Optional screwdriver

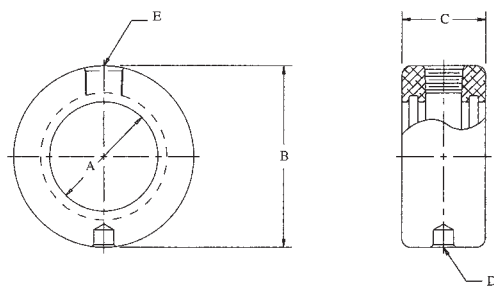


Optional screwdriver

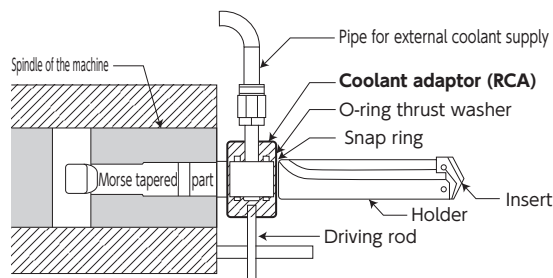


## Coolant adaptors for Morse tapered shank holders

Drawing of coolant adaptor (RCA) for dimensions



How to use the coolant adaptor (RCA)



For safety, install a driving rod to prevent RCA from rotating. (The driving rod is not supplied.)

### ■ Coolant adaptor (RCA)

Part No.	(A) Inner diameter (mm)	(B) Outer diameter (mm)	(C) Overall length (mm)	(D) Screws for driving rod	(E) Screws for pipe	Stock
<b>2T-2SRM</b>	19.05	44.45	22.23	M8×1.25	1/8"	●
<b>2T-3SRM</b>	25.40	53.97	28.57	M8×1.25	1/8"	●
<b>2T-4SRM</b>	31.75	63.50	34.92	M10×1.5	1/4"	●
<b>2T-5SRM</b>	44.45	76.20	34.92	M10×1.5	1/4"	●
<b>2T-6SRM</b>	57.15	95.27	44.45	M12×1.75	1/2"	●

RCA components: 1 guide ring, 2 O-rings, 2 snap rings and 2 thrust washers



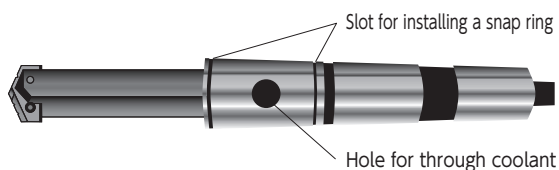
### ■ RCA repair kit

2 O-rings  
2 snap rings  
2 thrust washers

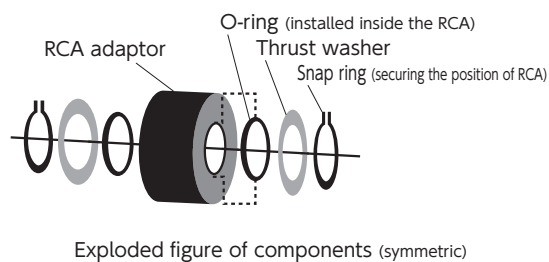
Size Series	Insert cutting edge diameter (mm)	RCA repair kit	Stock
<b>Y</b>	9.50 ~ 11.07	2T1-2SR	●
<b>Z</b>	11.11 ~ 12.95		
<b>0</b>	12.98 ~ 17.65		
<b>0.5</b>	15.48 ~ 17.65	2T1-3SR	●
<b>1</b>	17.53 ~ 24.38		
<b>1.5</b>	21.83 ~ 24.38		
<b>2</b>	24.41 ~ 35.05		
<b>2.5</b>	30.00 ~ 35.05		
<b>3</b>	35.72 ~ 47.80	2T1-4SR	●
<b>4</b>	46.99 ~ 65.28		
<b>5</b>	62.38 ~ 89.08	2T1-5SR	●
<b>7</b>	87.76 ~ 114.48		

### ■ Installing the RCA coolant adaptor

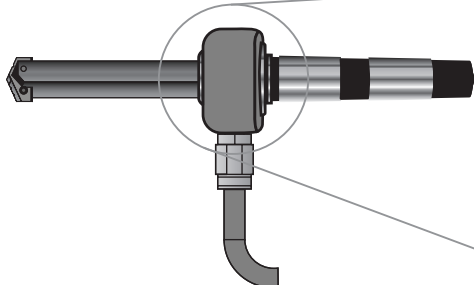
#### ● Part of shank for installing RCA coolant adaptor



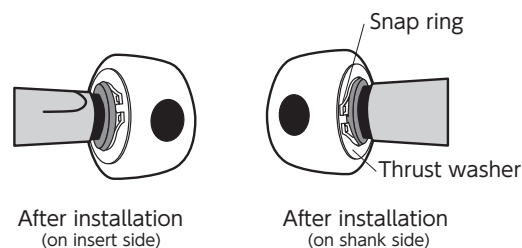
#### ● Components



#### ● Holder with the coolant adaptor installed



#### ● Enlarged view



# Appendix

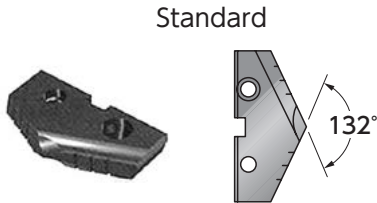
## List of Semi-standard Inserts

<b><math>\phi</math> 9.50 ~ 11.07</b>	Inserts for <b>Y</b> Series	<b>O56</b>
<b><math>\phi</math> 11.11 ~ 12.95</b>	Inserts for <b>Z</b> Series	<b>O57</b>
<b><math>\phi</math> 12.98 ~ 17.65</b>	Inserts for <b>0, 0.5</b> Series	<b>O58</b>
<b><math>\phi</math> 17.53 ~ 24.38</b>	Inserts for <b>1, 1.5</b> Series	<b>O60</b>
<b><math>\phi</math> 24.41 ~ 35.05</b>	Inserts for <b>2, 2.5</b> Series	<b>O62</b>
<b><math>\phi</math> 34.36 ~ 47.80</b>	Inserts for <b>3</b> Series	<b>O64</b>
<b><math>\phi</math> 46.99 ~ 65.28</b>	Inserts for <b>4</b> Series	<b>O65</b>

## Appendix: List of Semi-standard Inserts Inserts for Y Series: $\phi 9.50 - \phi 11.07$

★ Select same size series between inserts and holders.

### <Shapes>



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	Standard								
Material	Powder high-speed steel (M48)								
Coating	TiAlN			TiCN			TiN		
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker	
		Standard	HI		Standard	HI		Standard	HI
9.50	18YA-9.5	●		18YN-9.5	●		18YT-9.5	●	
9.53	18YA-0012	●		18YN-0012	●		18YT-0012	●	
9.80	18YA-.386	●		18YN-.386	●		18YT-.386	●	
9.92	18YA-.390	●		18YN-.390	●		18YT-.390	●	
10.00	18YA-10	●		18YN-10	●		18YT-10	●	
10.20	18YA-10.2	●		18YN-10.2	●		18YT-10.2	●	
10.32	18YA-0013	●		18YN-0013	●		18YT-0013	●	
10.50	18YA-10.5	●		18YN-10.5	●		18YT-10.5	●	
10.72	18YA-.421	●		18YN-.421	●		18YT-.421	●	
10.80	18YA-10.8	●		18YN-10.8	●		18YT-10.8	●	
11.00	18YA-11	●		18YN-11	●		18YT-11	●	

For recommended cutting conditions, please refer to pages **O70 - O71**.

Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	Standard													
Material	Carbide (K20)						Carbide (P40)						Carbide (K10)	
Coating	TiAlN			TiN			TiAlN			TiN			TiAlN	
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker
		Standard	HI		Standard	HI		Standard	HI		Standard	HI		CI
9.50	1C2YA-9.5	●		1C2YT-9.5	●		1C5YA-9.5	●		1C5YT-9.5	●		1C3YA-9.5	●
9.53	1C2YA-0012	●		1C2YT-0012	●		1C5YA-0012	●		1C5YT-0012	●		1C3YA-0012	●
9.80	1C2YA-.386	●		1C2YT-.386	●		1C5YA-.386	●		1C5YT-.386	●		1C3YA-.386	●
9.92	1C2YA-.390	●		1C2YT-.390	●		1C5YA-.390	●		1C5YT-.390	●		1C3YA-.390	●
10.00	1C2YA-10	●		1C2YT-10	●		1C5YA-10	●		1C5YT-10	●		1C3YA-10	●
10.20	1C2YA-10.2	●		1C2YT-10.2	●		1C5YA-10.2	●		1C5YT-10.2	●		1C3YA-10.2	●
10.32	1C2YA-0013	●		1C2YT-0013	●		1C5YA-0013	●		1C5YT-0013	●		1C3YA-0013	●
10.50	1C2YA-10.5	●		1C2YT-10.5	●		1C5YA-10.5	●		1C5YT-10.5	●		1C3YA-10.5	●
10.72	1C2YA-.421	●		1C2YT-.421	●		1C5YA-.421	●		1C5YT-.421	●		1C3YA-.421	●
10.80	1C2YA-10.8	●		1C2YT-10.8	●		1C5YA-10.8	●		1C5YT-10.8	●		1C3YA-10.8	●
11.00	1C2YA-11	●		1C2YT-11	●		1C5YA-11	●		1C5YT-11	●		1C3YA-11	●

For recommended cutting conditions, please refer to pages **O70 - O71**.

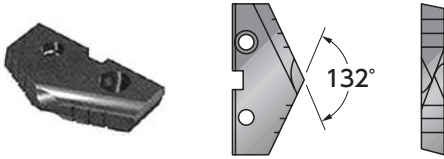
※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

## Appendix: List of Semi-standard Inserts Inserts for Z Series: $\phi 11.11 - \phi 12.95$

★ Select same size series between inserts and holders.

### <Shapes>

Standard



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	Standard								
Material	Powder high-speed steel (M48)								
Coating	TiAlN			TiCN			TiN		
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker	
		Standard	HI		Standard	HI		Standard	HI
11.11	<b>18ZA-0014</b>	●		<b>18ZN-0014</b>	●		<b>18ZT-0014</b>	●	
11.50	<b>18ZA-11.5</b>	●		<b>18ZN-11.5</b>	●		<b>18ZT-11.5</b>	●	
11.51	<b>18ZA-.453</b>	●		<b>18ZN-.453</b>	●		<b>18ZT-.453</b>	●	
11.91	<b>18ZA-0015</b>	●		<b>18ZN-0015</b>	●		<b>18ZT-0015</b>	●	
12.00	<b>18ZA-12</b>	●		<b>18ZN-12</b>	●		<b>18ZT-12</b>	●	
12.30	<b>18ZA-.484</b>	●		<b>18ZN-.484</b>	●		<b>18ZT-.484</b>	●	
12.50	<b>18ZA-12.5</b>	●		<b>18ZN-12.5</b>	●		<b>18ZT-12.5</b>	●	
12.70	<b>18ZA-0016</b>	●		<b>18ZN-0016</b>	●		<b>18ZT-0016</b>	●	

For recommended cutting conditions, please refer to pages **O70 - O71**.

Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	Standard													
Material	Carbide (K20)						Carbide (P40)						Carbide (K10)	
Coating	TiAlN			TiN			TiAlN			TiN			TiAlN	
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker
		Standard	HI		Standard	HI		Standard	HI		Standard	HI		CI
11.11	<b>1C2ZA-0014</b>	●		<b>1C2ZT-0014</b>	●		<b>1C5ZA-0014</b>	●		<b>1C5ZT-0014</b>	●		<b>1C3ZA-0014</b>	●
11.50	<b>1C2ZA-11.5</b>	●		<b>1C2ZT-11.5</b>	●		<b>1C5ZA-11.5</b>	●		<b>1C5ZT-11.5</b>	●		<b>1C3ZA-11.5</b>	●
11.51	<b>1C2ZA-.453</b>	●		<b>1C2ZT-.453</b>	●		<b>1C5ZA-.453</b>	●		<b>1C5ZT-.453</b>	●		<b>1C3ZA-.453</b>	●
11.91	<b>1C2ZA-0015</b>	●		<b>1C2ZT-0015</b>	●		<b>1C5ZA-0015</b>	●		<b>1C5ZT-0015</b>	●		<b>1C3ZA-0015</b>	●
12.00	<b>1C2ZA-12</b>	●		<b>1C2ZT-12</b>	●		<b>1C5ZA-12</b>	●		<b>1C5ZT-12</b>	●		<b>1C3ZA-12</b>	●
12.30	<b>1C2ZA-.484</b>	●		<b>1C2ZT-.484</b>	●		<b>1C5ZA-.484</b>	●		<b>1C5ZT-.484</b>	●		<b>1C3ZA-.484</b>	●
12.50	<b>1C2ZA-12.5</b>	●		<b>1C2ZT-12.5</b>	●		<b>1C5ZA-12.5</b>	●		<b>1C5ZT-12.5</b>	●		<b>1C3ZA-12.5</b>	●
12.70	<b>1C2ZA-0016</b>	●		<b>1C2ZT-0016</b>	●		<b>1C5ZA-0016</b>	●		<b>1C5ZT-0016</b>	●		<b>1C3ZA-0016</b>	●

For recommended cutting conditions, please refer to pages **O70 - O71**.

※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

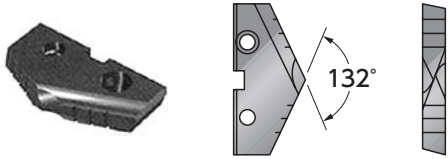
No symbol: Products manufactured production-to-order basis

## Appendix: List of Semi-standard Inserts Inserts for 0, 0.5 Series: $\phi 12.98 - \phi 17.65$

★ Select same size series between inserts and holders.

### <Shapes>

Standard



Please order in units of 2 as 1 package contains 2 inserts.

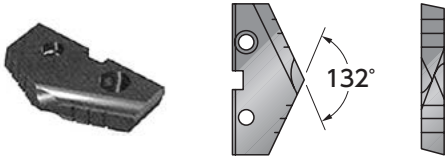
Edge shape	Standard								
	Material								
	Powder high-speed steel (M48)								
Coating	TiAlN			TiCN			TiN		
	Edge dia.	P/N	Chipbreaker Standard HI	P/N	Chipbreaker Standard HI	P/N	Chipbreaker Standard HI		
13.00	180A-13	●		180N-13	●		180T-13	●	
13.10	180A-.515	●		180N-.515	●		180T-.515	●	
13.49	180A-0017	●		180N-0017	●		180T-0017	●	
13.50	180A-13.5	●		180N-13.5	●		180T-13.5	●	
13.89	180A-.546	●		180N-.546	●		180T-.546	●	
14.00	180A-14	●		180N-14	●		180T-14	●	
14.29	180A-0018	●		180N-0018	●		180T-0018	●	
14.50	180A-14.5	●		180N-14.5	●		180T-14.5	●	
14.68	180A-.578	●		180N-.578	●		180T-.578	●	
15.00	180A-15	●		180N-15	●		180T-15	●	
15.08	180A-0019	●		180N-0019	●		180T-0019	●	
15.48	180A-.609	●		180N-.609	●		180T-.609	●	
15.50	180A-15.5	●		180N-15.5	●		180T-15.5	●	
15.88	180A-0020	●		180N-0020	●		180T-0020	●	
16.00	180A-16	●		180N-16	●		180T-16	●	
16.27	180A-.640	●		180N-.640	●		180T-.640	●	
16.50	180A-16.5	●		180N-16.5	●		180T-16.5	●	
16.67	180A-0021	●		180N-0021	●		180T-0021	●	
17.00	180A-17	●		180N-17	●		180T-17	●	
17.07	180A-.671	●		180N-.671	●		180T-.671	●	
17.46	180A-0022	●		180N-0022	●		180T-0022	●	
17.50	180A-17.5	●		180N-17.5	●		180T-17.5	●	

For recommended cutting conditions, please refer to pages **O70 - O71**.

※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

## <Shapes>

Standard



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	Standard													
Material	Carbide (K20)						Carbide (P40)						Carbide (K10)	
Coating	TiAlN			TiN			TiAlN			TiN			TiAlN	
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker
		Standard	HI		Standard	HI		Standard	HI		Standard	HI		CI
13.00	1C20A-13	●		1C20T-13	●		1C50A-13	●		1C50T-13	●		1C30A-13	●
13.10	1C20A-.515	●		1C20T-.515	●		1C50A-.515	●		1C50T-.515	●		1C30A-.515	●
13.49	1C20A-0017	●		1C20T-0017	●		1C50A-0017	●		1C50T-0017	●		1C30A-0017	●
13.50	1C20A-13.5	●		1C20T-13.5	●		1C50A-13.5	●		1C50T-13.5	●		1C30A-13.5	●
13.89	1C20A-.546	●		1C20T-.546	●		1C50A-.546	●		1C50T-.546	●		1C30A-.546	●
14.00	1C20A-14	●		1C20T-14	●		1C50A-14	●		1C50T-14	●		1C30A-14	●
14.29	1C20A-0018	●		1C20T-0018	●		1C50A-0018	●		1C50T-0018	●		1C30A-0018	●
14.50	1C20A-14.5	●		1C20T-14.5	●		1C50A-14.5	●		1C50T-14.5	●		1C30A-14.5	●
14.68	1C20A-.578	●		1C20T-.578	●		1C50A-.578	●		1C50T-.578	●		1C30A-.578	●
15.00	1C20A-15	●		1C20T-15	●		1C50A-15	●		1C50T-15	●		1C30A-15	●
15.08	1C20A-0019	●		1C20T-0019	●		1C50A-0019	●		1C50T-0019	●		1C30A-0019	●
15.48	1C20A-.609	●		1C20T-.609	●		1C50A-.609	●		1C50T-.609	●		1C30A-.609	●
15.50	1C20A-15.5	●		1C20T-15.5	●		1C50A-15.5	●		1C50T-15.5	●		1C30A-15.5	●
15.88	1C20A-0020	●		1C20T-0020	●		1C50A-0020	●		1C50T-0020	●		1C30A-0020	●
16.00	1C20A-16	●		1C20T-16	●		1C50A-16	●		1C50T-16	●		1C30A-16	●
16.27	1C20A-.640	●		1C20T-.640	●		1C50A-.640	●		1C50T-.640	●		1C30A-.640	●
16.50	1C20A-16.5	●		1C20T-16.5	●		1C50A-16.5	●		1C50T-16.5	●		1C30A-16.5	●
16.67	1C20A-0021	●		1C20T-0021	●		1C50A-0021	●		1C50T-0021	●		1C30A-0021	●
17.00	1C20A-17	●		1C20T-17	●		1C50A-17	●		1C50T-17	●		1C30A-17	●
17.07	1C20A-.671	●		1C20T-.671	●		1C50A-.671	●		1C50T-.671	●		1C30A-.671	●
17.46	1C20A-0022	●		1C20T-0022	●		1C50A-0022	●		1C50T-0022	●		1C30A-0022	●
17.50	1C20A-17.5	●		1C20T-17.5	●		1C50A-17.5	●		1C50T-17.5	●		1C30A-17.5	●

For recommended cutting conditions, please refer to pages **O70 - O71**.

※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

No symbol: Products manufactured production-to-order basis



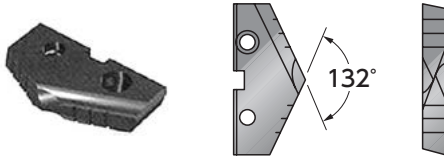
# Indexable Drill Inserts

## Appendix: List of Semi-standard Inserts Inserts for 1, 1.5 Series: $\phi 17.53 - \phi 24.38$

★ Select same size series between inserts and holders.

### <Shapes>

Standard



Please order in units of 2 as 1 package contains 2 inserts.

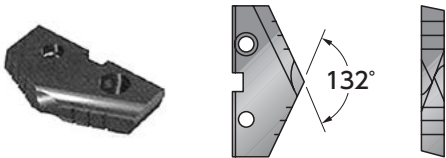
Edge shape	Standard													
Material	Powder high-speed steel (M4)							Powder high-speed steel (M48)						
Coating	TiAlN		TiCN		TiN		TiAlN		TiCN		TiN			
Edge dia.	P/N	Chipbreaker Standard HI	P/N	Chipbreaker Standard HI	P/N	Chipbreaker Standard HI	P/N	Chipbreaker Standard HI	P/N	Chipbreaker Standard HI	P/N	Chipbreaker Standard HI		
17.86	131A-.703	●	131N-.703	●	131T-.703	●	181A-.703	●	181N-.703	●	181T-.703	●		
18.00	131A-18	●	131N-18	●	131T-18	●	181A-18	●	181N-18	●	181T-18	●		
18.26	131A-0023	●	131N-0023	●	131T-0023	●	181A-0023	●	181N-0023	●	181T-0023	●		
18.50	131A-18.5	●	131N-18.5	●	131T-18.5	●	181A-18.5	●	181N-18.5	●	181T-18.5	●		
18.65	131A-.734	●	131N-.734	●	131T-.734	●	181A-.734	●	181N-.734	●	181T-.734	●		
19.00	131A-19	●	131N-19	●	131T-19	●	181A-19	●	181N-19	●	181T-19	●		
19.05	131A-0024	●	131N-0024	●	131T-0024	●	181A-0024	●	181N-0024	●	181T-0024	●		
19.45	131A-.765	●	131N-.765	●	131T-.765	●	181A-.765	●	181N-.765	●	181T-.765	●		
19.50	131A-19.5	●	131N-19.5	●	131T-19.5	●	181A-19.5	●	181N-19.5	●	181T-19.5	●		
19.84	131A-0025	●	131N-0025	●	131T-0025	●	181A-0025	●	181N-0025	●	181T-0025	●		
20.00	131A-20	●	131N-20	●	131T-20	●	181A-20	●	181N-20	●	181T-20	●		
20.24	131A-.796	●	131N-.796	●	131T-.796	●	181A-.796	●	181N-.796	●	181T-.796	●		
20.50	131A-20.5	●	131N-20.5	●	131T-20.5	●	181A-20.5	●	181N-20.5	●	181T-20.5	●		
20.64	131A-0026	●	131N-0026	●	131T-0026	●	181A-0026	●	181N-0026	●	181T-0026	●		
21.00	131A-21	●	131N-21	●	131T-21	●	181A-21	●	181N-21	●	181T-21	●		
21.43	131A-0027	●	131N-0027	●	131T-0027	●	181A-0027	●	181N-0027	●	181T-0027	●		
21.83	131A-.859	●	131N-.859	●	131T-.859	●	181A-.859	●	181N-.859	●	181T-.859	●		
22.00	131A-22	●	131N-22	●	131T-22	●	181A-22	●	181N-22	●	181T-22	●		
22.23	131A-0028	●	131N-0028	●	131T-0028	●	181A-0028	●	181N-0028	●	181T-0028	●		
22.62	131A-.890	●	131N-.890	●	131T-.890	●	181A-.890	●	181N-.890	●	181T-.890	●		
23.00	131A-23	●	131N-23	●	131T-23	●	181A-23	●	181N-23	●	181T-23	●		
23.02	131A-0029	●	131N-0029	●	131T-0029	●	181A-0029	●	181N-0029	●	181T-0029	●		
23.42	131A-.921	●	131N-.921	●	131T-.921	●	181A-.921	●	181N-.921	●	181T-.921	●		
23.81	131A-0030	●	131N-0030	●	131T-0030	●	181A-0030	●	181N-0030	●	181T-0030	●		
24.00	131A-24	●	131N-24	●	131T-24	●	181A-24	●	181N-24	●	181T-24	●		

For recommended cutting conditions, please refer to pages **O70 - O71**.

※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

## <Shapes>

Standard



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	Standard													
Material	Carbide (K20)						Carbide (P40)						Carbide (K10)	
Coating	TiAlN		TiN				TiAlN		TiN				TiAlN	
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker
		Standard	HI		Standard	HI		Standard	HI		Standard	HI		
17.86	1C21A-.703	●		1C21T-.703	●		1C51A-.703	●		1C51T-.703	●		1C31A-.703	●
18.00	1C21A-18	●		1C21T-18	●		1C51A-18	●		1C51T-18	●		1C31A-18	●
18.26	1C21A-0023	●		1C21T-0023	●		1C51A-0023	●		1C51T-0023	●		1C31A-0023	●
18.50	1C21A-18.5	●		1C21T-18.5	●		1C51A-18.5	●		1C51T-18.5	●		1C31A-18.5	●
18.65	1C21A-.734	●		1C21T-.734	●		1C51A-.734	●		1C51T-.734	●		1C31A-.734	●
19.00	1C21A-19	●		1C21T-19	●		1C51A-19	●		1C51T-19	●		1C31A-19	●
19.05	1C21A-0024	●		1C21T-0024	●		1C51A-0024	●		1C51T-0024	●		1C31A-0024	●
19.45	1C21A-.765	●		1C21T-.765	●		1C51A-.765	●		1C51T-.765	●		1C31A-.765	●
19.50	1C21A-19.5	●		1C21T-19.5	●		1C51A-19.5	●		1C51T-19.5	●		1C31A-19.5	●
19.84	1C21A-0025	●		1C21T-0025	●		1C51A-0025	●		1C51T-0025	●		1C31A-0025	●
20.00	1C21A-20	●		1C21T-20	●		1C51A-20	●		1C51T-20	●		1C31A-20	●
20.50	1C21A-20.5	●		1C21T-20.5	●		1C51A-20.5	●		1C51T-20.5	●		1C31A-20.5	●
20.64	1C21A-0026	●		1C21T-0026	●		1C51A-0026	●		1C51T-0026	●		1C31A-0026	●
21.00	1C21A-21	●		1C21T-21	●		1C51A-21	●		1C51T-21	●		1C31A-21	●
21.43	1C21A-0027	●		1C21T-0027	●		1C51A-0027	●		1C51T-0027	●		1C31A-0027	●
22.00	1C21A-22	●		1C21T-22	●		1C51A-22	●		1C51T-22	●		1C31A-22	●
22.23	1C21A-0028	●		1C21T-0028	●		1C51A-0028	●		1C51T-0028	●		1C31A-0028	●
23.00	1C21A-23	●		1C21T-23	●		1C51A-23	●		1C51T-23	●		1C31A-23	●
23.02	1C21A-0029	●		1C21T-0029	●		1C51A-0029	●		1C51T-0029	●		1C31A-0029	●
23.42	1C21A-.921	●		1C21T-.921	●		1C51A-.921	●		1C51T-.921	●		1C31A-.921	●
23.81	1C21A-0030	●		1C21T-0030	●		1C51A-0030	●		1C51T-0030	●		1C31A-0030	●
24.00	1C21A-24	●		1C21T-24	●		1C51A-24	●		1C51T-24	●		1C31A-24	●

For recommended cutting conditions, please refer to pages **O70 - O71**.

※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

No symbol: Products manufactured production-to-order basis

New Products  
Tool Materials / Selection Guide  
PCD, CBN and ceramic  
Cement  
PVD-coated Carbide  
Micro-grain Carbide, Carbide  
Insert Stock List  
Outside Machining Toolholders  
SS  
Grooving Tools  
Threading Tools  
Shaper  
Internal machining tool range  
Original Tools for Various Applications  
Indexable End Milling Tools  
Indexable Drill Inserts  
Milling Cutters  
Technical Data  
Index

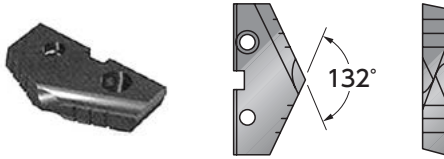
# Indexable Drill Inserts

## Appendix: List of Semi-standard Inserts Inserts for 2, 2.5 Series: $\phi 24.41 - \phi 35.05$

★ Select same size series between inserts and holders.

### <Shapes>

Standard



Please order in units of 2 as 1 package contains 2 inserts.

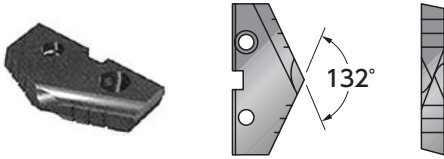
Edge shape	Standard																	
	Powder high-speed steel (M4)						Powder high-speed steel (M48)											
Material	TiAlN			TiCN			TiN			TiAlN			TiCN			TiN		
Coating	P/N		Chipbreaker	P/N		Chipbreaker	P/N		Chipbreaker	P/N		Chipbreaker	P/N		Chipbreaker	P/N		Chipbreaker
Edge dia.			Standard			Standard			Standard			Standard			Standard			Standard
24.61	132A-0031		●	132N-0031		●	132T-0031		●	182A-0031		●	182N-0031		●	182T-0031		●
25.00	132A-25		●	132N-25		●	132T-25		●	182A-25		●	182N-25		●	182T-25		●
25.40	132A-0100		●	132N-0100		●	132T-0100		●	182A-0100		●	182N-0100		●	182T-0100		●
25.80	132A-1.015		●	132N-1.015		●	132T-1.015		●	182A-1.015		●	182N-1.015		●	182T-1.015		●
26.00	132A-26		●	132N-26		●	132T-26		●	182A-26		●	182N-26		●	182T-26		●
26.19	132A-0101		●	132N-0101		●	132T-0101		●	182A-0101		●	182N-0101		●	182T-0101		●
26.59	132A-1.046		●	132N-1.046		●	132T-1.046		●	182A-1.046		●	182N-1.046		●	182T-1.046		●
26.99	132A-0102		●	132N-0102		●	132T-0102		●	182A-0102		●	182N-0102		●	182T-0102		●
27.00	132A-27		●	132N-27		●	132T-27		●	182A-27		●	182N-27		●	182T-27		●
27.78	132A-0103		●	132N-0103		●	132T-0103		●	182A-0103		●	182N-0103		●	182T-0103		●
28.00	132A-28		●	132N-28		●	132T-28		●	182A-28		●	182N-28		●	182T-28		●
28.18	132A-1.109		●	132N-1.109		●	132T-1.109		●	182A-1.109		●	182N-1.109		●	182T-1.109		●
28.58	132A-0104		●	132N-0104		●	132T-0104		●	182A-0104		●	182N-0104		●	182T-0104		●
29.00	132A-29		●	132N-29		●	132T-29		●	182A-29		●	182N-29		●	182T-29		●
29.37	132A-0105		●	132N-0105		●	132T-0105		●	182A-0105		●	182N-0105		●	182T-0105		●
30.00	132A-30		●	132N-30		●	132T-30		●	182A-30		●	182N-30		●	182T-30		●
30.16	132A-0106		●	132N-0106		●	132T-0106		●	182A-0106		●	182N-0106		●	182T-0106		●
30.96	132A-0107		●	132N-0107		●	132T-0107		●	182A-0107		●	182N-0107		●	182T-0107		●
31.00	132A-31		●	132N-31		●	132T-31		●	182A-31		●	182N-31		●	182T-31		●
31.75	132A-0108		●	132N-0108		●	132T-0108		●	182A-0108		●	182N-0108		●	182T-0108		●
32.00	132A-32		●	132N-32		●	132T-32		●	182A-32		●	182N-32		●	182T-32		●
32.54	132A-0109		●	132N-0109		●	132T-0109		●	182A-0109		●	182N-0109		●	182T-0109		●
33.00	132A-33		●	132N-33		●	132T-33		●	182A-33		●	182N-33		●	182T-33		●
33.34	132A-0110		●	132N-0110		●	132T-0110		●	182A-0110		●	182N-0110		●	182T-0110		●
34.00	132A-34		●	132N-34		●	132T-34		●	182A-34		●	182N-34		●	182T-34		●
34.13	132A-0111		●	132N-0111		●	132T-0111		●	182A-0111		●	182N-0111		●	182T-0111		●
34.93	132A-0112		●	132N-0112		●	132T-0112		●	182A-0112		●	182N-0112		●	182T-0112		●
35.00	132A-35		●	132N-35		●	132T-35		●	182A-35		●	182N-35		●	182T-35		●

For recommended cutting conditions, please refer to pages **070 - 071**.

※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

## <Shapes>

Standard



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	Standard													
	Carbide (K20)						Carbide (P40)							
Material	TiAlN			TiN			TiAlN			TiN			Carbide (K10)	
Coating	TiAlN		TiN		TiAlN		TiN		TiAlN		TiN		TiAlN	
Edge dia.	P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker		P/N	Chipbreaker
		Standard	HI		Standard	HI		Standard	HI		Standard	HI		CI
24.61	1C22A-0031	●		1C22T-0031	●		1C52A-0031	●		1C52T-0031	●		1C32A-0031	●
25.00	1C22A-25	●		1C22T-25	●		1C52A-25	●		1C52T-25	●		1C32A-25	●
25.40	1C22A-0100	●		1C22T-0100	●		1C52A-0100	●		1C52T-0100	●		1C32A-0100	●
26.00	1C22A-26	●		1C22T-26	●		1C52A-26	●		1C52T-26	●		1C32A-26	●
26.19	1C22A-0101	●		1C22T-0101	●		1C52A-0101	●		1C52T-0101	●		1C32A-0101	●
26.59	1C22A-1.046	●		1C22T-1.046	●		1C52A-1.046	●		1C52T-1.046	●		1C32A-1.046	●
26.99	1C22A-0102	●		1C22T-0102	●		1C52A-0102	●		1C52T-0102	●		1C32A-0102	●
27.00	1C22A-27	●		1C22T-27	●		1C52A-27	●		1C52T-27	●		1C32A-27	●
27.78	1C22A-0103	●		1C22T-0103	●		1C52A-0103	●		1C52T-0103	●		1C32A-0103	●
28.00	1C22A-28	●		1C22T-28	●		1C52A-28	●		1C52T-28	●		1C32A-28	●
28.18	1C22A-1.109	●		1C22T-1.109	●		1C52A-1.109	●		1C52T-1.109	●		1C32A-1.109	●
28.58	1C22A-0104	●		1C22T-0104	●		1C52A-0104	●		1C52T-0104	●		1C32A-0104	●
29.00	1C22A-29	●		1C22T-29	●		1C52A-29	●		1C52T-29	●		1C32A-29	●
29.37	1C22A-0105	●		1C22T-0105	●		1C52A-0105	●		1C52T-0105	●		1C32A-0105	●
30.00	1C22A-30	●		1C22T-30	●		1C52A-30	●		1C52T-30	●		1C32A-30	●
30.16	1C22A-0106	●		1C22T-0106	●		1C52A-0106	●		1C52T-0106	●		1C32A-0106	●
30.96	1C22A-0107	●		1C22T-0107	●		1C52A-0107	●		1C52T-0107	●		1C32A-0107	●
31.00	1C22A-31	●		1C22T-31	●		1C52A-31	●		1C52T-31	●		1C32A-31	●
31.75	1C22A-0108	●		1C22T-0108	●		1C52A-0108	●		1C52T-0108	●		1C32A-0108	●
32.00	1C22A-32	●		1C22T-32	●		1C52A-32	●		1C52T-32	●		1C32A-32	●
32.54	1C22A-0109	●		1C22T-0109	●		1C52A-0109	●		1C52T-0109	●		1C32A-0109	●
33.00	1C22A-33	●		1C22T-33	●		1C52A-33	●		1C52T-33	●		1C32A-33	●
33.34	1C22A-0110	●		1C22T-0110	●		1C52A-0110	●		1C52T-0110	●		1C32A-0110	●
34.00	1C22A-34	●		1C22T-34	●		1C52A-34	●		1C52T-34	●		1C32A-34	●
34.13	1C22A-0111	●		1C22T-0111	●		1C52A-0111	●		1C52T-0111	●		1C32A-0111	●
34.93	1C22A-0112	●		1C22T-0112	●		1C52A-0112	●		1C52T-0112	●		1C32A-0112	●
35.00	1C22A-35	●		1C22T-35	●		1C52A-35	●		1C52T-35	●		1C32A-35	●

For recommended cutting conditions, please refer to pages **O70 - O71**.

※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

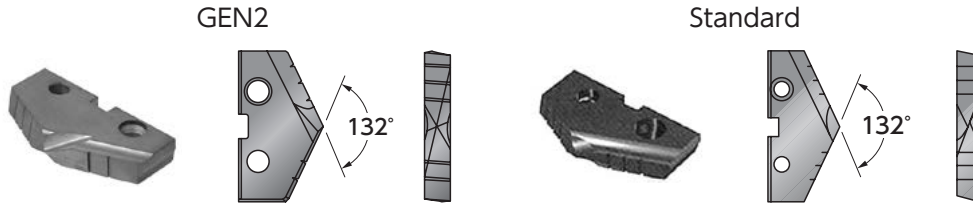
No symbol: Products manufactured production-to-order basis

New Products  
Tool Materials / Selection Guide  
PCD, CBN and ceramic  
Cement  
PVD-coated Cement  
Micro-grain Carbide, Carbide  
Insert Stock List  
Outside Machining Toolholders  
SS  
Grooving Tools  
Threading Tools  
Shaper  
Internal machining tool range  
Original Tools for Various Applications  
Indexable End Milling Tools  
Indexable Drill Inserts  
Milling Cutters  
Technical Data  
Index

## Appendix: List of Semi-standard Inserts Inserts for 3 Series: $\phi 34.36 - \phi 47.80$

★ Select same size series between inserts and holders.

### <Shapes>



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	GEN2						Standard																	
Material	Powder high-speed steel (M4)						Carbide (K20)																	
Coating	TiN						TiAlN						TiN						Carbide (P40)					
Edge dia.	P/N		Chipbreaker		P/N		Chipbreaker		P/N		Chipbreaker		P/N		Chipbreaker		P/N		Chipbreaker					
			Standard	HI			Standard	HI			Standard	HI			Standard	HI			Standard	HI				
35.72	433T-0113		●		1C23A-0113		●		1C23T-0113		●		1C53A-0113		●		1C53T-0113		●					
36.00	433T-36		●		1C23A-36		●		1C23T-36		●		1C53A-36		●		1C53T-36		●					
36.51	433T-0114		●		1C23A-0114		●		1C23T-0114		●		1C53A-0114		●		1C53T-0114		●					
37.00	433T-37		●		1C23A-37		●		1C23T-37		●		1C53A-37		●		1C53T-37		●					
37.31	433T-0115		●		1C23A-0115		●		1C23T-0115		●		1C53A-0115		●		1C53T-0115		●					
38.00	433T-38		●		1C23A-38		●		1C23T-38		●		1C53A-38		●		1C53T-38		●					
38.10	433T-0116		●		1C23A-0116		●		1C23T-0116		●		1C53A-0116		●		1C53T-0116		●					
38.89	433T-0117		●		1C23A-0117		●		1C23T-0117		●		1C53A-0117		●		1C53T-0117		●					
39.00	433T-39		●		1C23A-39		●		1C23T-39		●		1C53A-39		●		1C53T-39		●					
39.69	433T-0118		●		1C23A-0118		●		1C23T-0118		●		1C53A-0118		●		1C53T-0118		●					
40.00	433T-40		●		1C23A-40		●		1C23T-40		●		1C53A-40		●		1C53T-40		●					
40.48	433T-0119		●		1C23A-0119		●		1C23T-0119		●		1C53A-0119		●		1C53T-0119		●					
41.00	433T-41		●		1C23A-41		●		1C23T-41		●		1C53A-41		●		1C53T-41		●					
41.28	433T-0120		●		1C23A-0120		●		1C23T-0120		●		1C53A-0120		●		1C53T-0120		●					
42.00	433T-42		●		1C23A-42		●		1C23T-42		●		1C53A-42		●		1C53T-42		●					
42.07	433T-0121		●		1C23A-0121		●		1C23T-0121		●		1C53A-0121		●		1C53T-0121		●					
42.86	433T-0122		●		1C23A-0122		●		1C23T-0122		●		1C53A-0122		●		1C53T-0122		●					
43.00	433T-43		●		1C23A-43		●		1C23T-43		●		1C53A-43		●		1C53T-43		●					
43.66	433T-0123		●		1C23A-0123		●		1C23T-0123		●		1C53A-0123		●		1C53T-0123		●					
44.00	433T-44		●		1C23A-44		●		1C23T-44		●		1C53A-44		●		1C53T-44		●					
44.45	433T-0124		●		1C23A-0124		●		1C23T-0124		●		1C53A-0124		●		1C53T-0124		●					
45.00	433T-45		●		1C23A-45		●		1C23T-45		●		1C53A-45		●		1C53T-45		●					
45.24	433T-0125		●		1C23A-0125		●		1C23T-0125		●		1C53A-0125		●		1C53T-0125		●					
46.00	433T-46		●		1C23A-46		●		1C23T-46		●		1C53A-46		●		1C53T-46		●					
46.04	433T-0126		●		1C23A-0126		●		1C23T-0126		●		1C53A-0126		●		1C53T-0126		●					
46.83	433T-0127		●		1C23A-0127		●		1C23T-0127		●		1C53A-0127		●		1C53T-0127		●					
47.00	433T-47		●		1C23A-47		●		1C23T-47		●		1C53A-47		●		1C53T-47		●					
47.63	433T-0128		●		1C23A-0128		●		1C23T-0128		●		1C53A-0128		●		1C53T-0128		●					

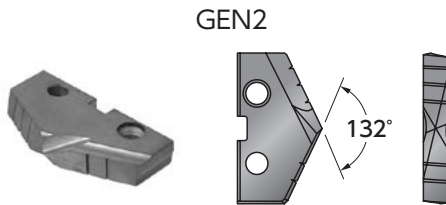
For recommended cutting conditions, please refer to pages **O70 - O71**.

※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

## Appendix: List of Semi-standard Inserts Inserts for 4 Series: $\phi 46.99 - \phi 65.28$

★ Select same size series between inserts and holders.

### <Shapes>



Please order in units of 2 as 1 package contains 2 inserts.

Edge shape	GEN2		
Material	Powder high-speed steel (T15)		
Coating	TiN		
Edge dia.	P/N	Chipbreaker	
		Standard	HI
48.00	<b>454T-48</b>	●	
48.42	<b>454T-0129</b>	●	
49.00	<b>454T-49</b>	●	
49.21	<b>454T-0130</b>	●	
50.00	<b>454T-50</b>	●	
50.01	<b>454T-0131</b>	●	
50.80	<b>454T-0200</b>	●	
51.00	<b>454T-51</b>	●	
51.59	<b>454T-0201</b>	●	
52.00	<b>454T-52</b>	●	
52.39	<b>454T-0202</b>	●	
53.00	<b>454T-53</b>	●	
53.18	<b>454T-0203</b>	●	
53.98	<b>454T-0204</b>	●	
54.00	<b>454T-54</b>	●	
54.79	<b>454T-0205</b>	●	
55.00	<b>454T-55</b>	●	
55.56	<b>454T-0206</b>	●	
56.00	<b>454T-56</b>	●	
56.36	<b>454T-0207</b>	●	
57.00	<b>454T-57</b>	●	
57.15	<b>454T-0208</b>	●	
57.94	<b>454T-0209</b>	●	
58.00	<b>454T-58</b>	●	
58.74	<b>454T-0210</b>	●	
59.00	<b>454T-59</b>	●	
59.53	<b>454T-0211</b>	●	
60.00	<b>454T-60</b>	●	
60.33	<b>454T-0212</b>	●	
61.00	<b>454T-61</b>	●	
61.12	<b>454T-0213</b>	●	
61.91	<b>454T-0214</b>	●	
62.00	<b>454T-62</b>	●	
62.71	<b>454T-0215</b>	●	
63.00	<b>454T-63</b>	●	
63.50	<b>454T-0216</b>	●	
64.00	<b>454T-64</b>	●	
64.29	<b>454T-0217</b>	●	
65.00	<b>454T-65</b>	●	
65.09	<b>454T-0218</b>	●	

For recommended cutting conditions, please refer to pages **O70 - O71**.

※Name of chipbreaker is put in the end of item number except for standard chipbreaker.

● : Standard stock

◎ : Semi-standard stock (Time required for delivery: approx. 2 weeks)production-to-order basis

No symbol: Products manufactured production-to-order basis

- New Products
- Tool Materials / Selection Guide
- PCD, CBN and ceramic
- Cermet PVD-coated Cermet
- Micro-grain Carbide, Carbide
- Insert Stock List
- Outside Machining Toolholders
- SS
- Grooving Tools
- Threading Tools
- Shaper
- Internal Machining tool range
- Original Tools for Various Applications
- Indexable End Milling Tools
- Indexable Drill Inserts
- Milling Cutters
- Technical Data
- Index



## Products manufactured on the production-to-order basis

We will provide you with the following special products, catering to your needs:

Please contact our sales office for more information and let us know of the specifications of your machining operations.

### ● Cutting edge diameter of inserts

The cutting edge diameter of standard products ranges from  $\phi 9.5$  to  $\phi 114$ , however, inserts with a diameter exceeding 114 may be manufactured for a common holder(s). (Please note that the minimum diameter is  $\phi 9.5$ .)

### ● Ultra long holders

Ultra long holders

Size Series	Drill holder length	
	Straight fluted	Helical fluted
Y	375.92	375.92
Z	375.92	375.92
0	508.00	508.00
1	690.88	690.88
2	966.22	966.22
3	1625.60	990.60
4	1625.60	990.60
5 • 6	1625.60	990.60
7 • 8	1625.60	990.60

※Details of your machining conditions will be requested.  
 ※For drill holder lengths other than those listed above, please consult us.

### ● Staged drill holder

Application: Simultaneous Drilling + Chamfering



\*Possible to mount ISO type inserts  
 \*Possible to provide more than 2 inserts for chamfering (There is a limit in quantity.)

### ● Guided holders

Applications: For improved deep hole drilling, and preventing rattling when exiting slanted drill holes.

Chrome-bush guide



Carbide clamped with screws



Brazed carbide type



Thermal sprayed carbide type



※Please refer to pages O19 - 21.

### ● "ACCUPORT" for machining port holes

Application: For drilling and shaping of a port hole by a single-pass



\* This tool contributes to reduction of the cycle time and of the number of tools used.

### ● Chamfering adaptor

detachable adaptor for chamfering can be used for the straight fluted type holders in the size series of 1, 1.5 and 2.



### ● Special inserts available by production-to-order system

