YG-1 CO., LTD.

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Http://www.yg1.kr
E-mail: yg1@yg1.kr

Note The new address above has currently been updated since Korean new postal standard was valid from 2014.
Be noticed that the physical Headquarter location is NOT changed.

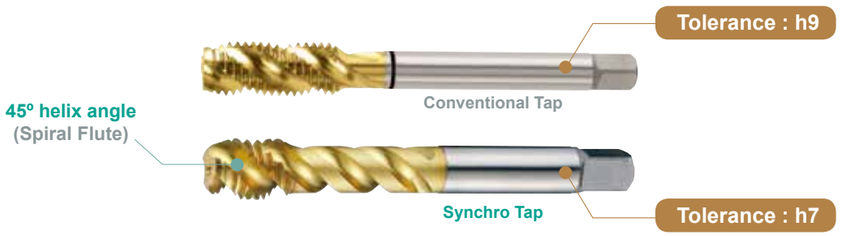
YouTube

Search 'YG-1' on social media outlets

YG1YASY180620001

FEATURES OF GEOMETRY

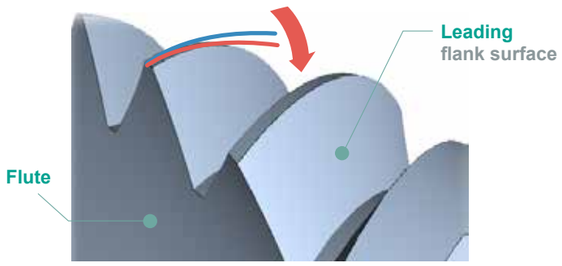
▶ **Shorter thread length** will reduce chip problems at higher speed tapping conditions



▶ **Shank Tolerance 'h7'** for precision clamping and rigid tapping

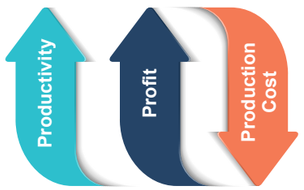
▶ **More thread relief**
allows high speed cutting

▶ **HSS-PM (Powder Metallurgy)**
for more reliable performance and wear resistance

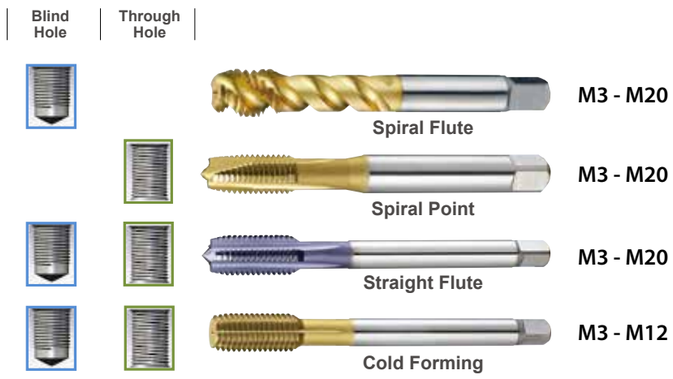


ADVANTAGES

▶ **PRODUCTIVITY**
Up to 3 times Faster in tapping compared to conventional taps (General Steel)

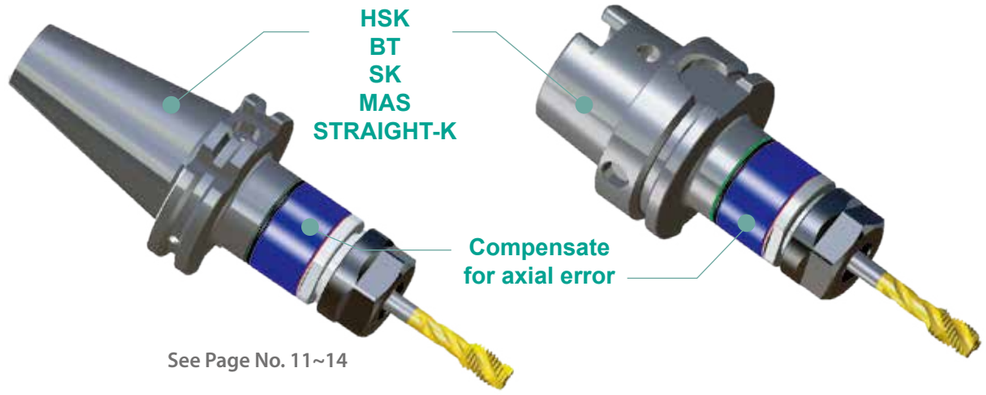


▶ **4 kinds** of taps are available



SYNCHRO TAPPING CHUCK (ER TYPE)

▶ When using Synchro taps, YG-1 strongly recommends SYNCHRO Tapping Chuck for the best thread quality and superior tool life



See Page No. 11~14

GUIDE LINE TO ICONS

Work Piece Material

GS
Steels with good machinability
Rm < 850N/mm²

GV
Any material with at least
8~10% elongation

Tool Raw Material

HSS-PM

Helix Angle

R45

Standard of Tools

JIS

Class of Thread

YH GH

Thread Angle

60°

Chamfer Lead

2P~3P 4P~5P

Surface Treatment

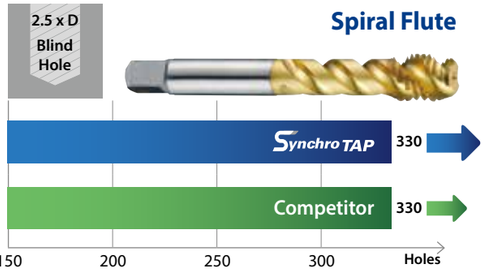
TiCN
Titanium Carbon Nitride Coating

TiN
Titanium Nitride Coating

CASE STUDY

▶SPIRAL FLUTE TAP M10 x 1.5

Tool	Synchro TAP Spiral Flute Tap	Competitor
Size	M10 x 1.5	
Work Material	C45 / 1045 / S45C Hardness : HRc20	
Cutting Speed	30 m/min.	
RPM	955 rev./min.	
Taping Depth	25.0 mm (2.5xD / Blind Hole)	
Tapping Holes	330	
Cooling Method	External Cooling Water Soluble (9% Emulsion)	
Machine	Vertical Machining Center	

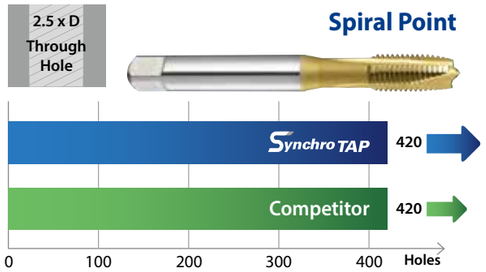


Synchro TAP

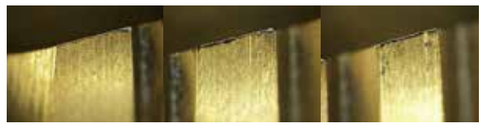
Competitor

▶SPIRAL POINT TAP M6 x 1.0

Tool	Synchro TAP Spiral Point Tap	Competitor
Size	M6 x 1.0	
Work Material	4140 / 42CrMo4 / SCM440 Hardness : HRc20	
Cutting Speed	30 m/min.	
RPM	1592 rev./min.	
Taping Depth	15.0 mm (2.5xD / Through Hole)	
Tapping Holes	420	
Cooling Method	External Cooling Water Soluble (9% Emulsion)	
Machine	Vertical Machining Center	



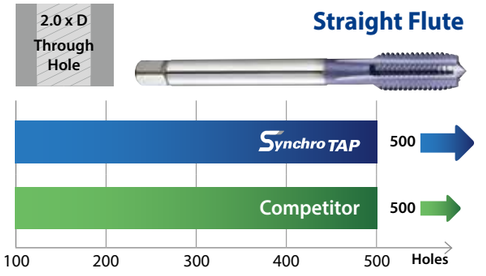
Synchro TAP



Competitor

▶STRAIGHT FLUTE TAP M10 x 1.5

Tool	Synchro TAP Straight Flute Tap	Competitor
Size	M10 x 1.5	
Work Material	4140 / 42CrMo4 / SCM440 Hardness : HRc20	
Cutting Speed	25 m/min.	
RPM	1326 rev./min.	
Taping Depth	20.0 mm (2.0xD / Through Hole)	
Tapping Holes	500	
Cooling Method	External Cooling Water Soluble (9% Emulsion)	
Machine	Vertical Machining Center	

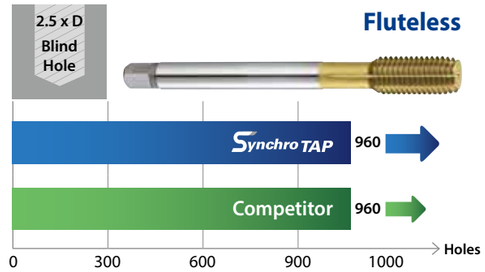


Synchro TAP

Competitor

▶FLUTELESS TAP M6 x 1.0

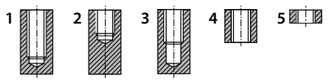
Tool	Synchro TAP Fluteless Tap	Competitor
Size	M6 x 1.0	
Work Material	1045 / C45 / S45C Hardness : HRc20	
Cutting Speed	35 m/min.	
RPM	1857 rev./min.	
Taping Depth	15.0 mm (2.5xD / Blind Hole)	
Tapping Holes	960	
Cooling Method	External Cooling Water Soluble (9% Emulsion)	
Machine	Vertical Machining Center	



Synchro TAP

Competitor

MACHINE TAPS RECOMMENDATION TABLE



MATERIAL GROUPS	GS	GS	GS	GV
SERIES	TT437	TTS01	TKS02	TTS03
FLUTE TYPE	Spiral Flute	Spiral Point	Straight Flute	Fluteless
PAGE	7	8	9	10
Thread Type	M	M	M	M
TAP MATERIALS	HSS-PM	HSS-PM	HSS-PM	HSS-PM
DESCRIPTION	JIS	JIS	JIS	JIS
SURFACE TREATMENT / COATING	TiN	TiN	TiCN	TiN
SPIRAL FLUTE ANGLE	R45	-	-	-
CHAMFER LENGTH	2P~3P	4P~5P	2P~3P	2P~3P
THREAD DEPTH	2.5D	3.0D	2.0D	3.0D
HOLE TYPE	1 - 2 - 3	4 - 5	2 - 3 - 4 - 5	1 - 2 - 3 - 4 - 5

Synchro TAP
TiN/TiCN-COATED HSS-PM TAPS

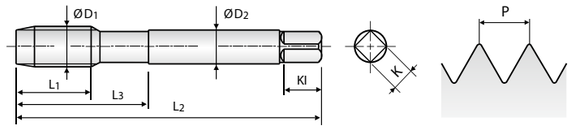
USE ◎= EXCELLENT ○= GOOD

ISO	LIST OF MATERIALS		Cutting Speed (m/min.)				
P	Low Carbon Steels	C ~ 0.25%	24 ~ 45	◎	◎	○	◎
	Medium Carbon Steels	C 0.25% ~ 0.45%	21 ~ 45	◎	◎	○	◎
	High Carbon Steels	C 0.45% ~	20 ~ 39	○	○	○	○
	Alloy Steels	SCM	20 ~ 39	○	○	○	
	Hardened Steels	HRc25 ~ 45	-				
	Tool Steels	SKD	-				
	Cast Steels	SC	25 ~ 33	○	○	○	
M	Stainless Steels	SUS	12 ~ 30				◎
K	Cast Iron	FC	30 ~ 45	○	○	◎	
	High Tension Cast Iron	FCD	25 ~ 45	○	○	◎	
N	Copper	Cu	25 ~ 36	○	◎	○	◎
	Brass	Bs	30 ~ 45		◎	○	◎
	Brass Casting	PB	-				
	Aluminum Rolled	AL	30 ~ 45	○	○		○
	Aluminum Alloy Casting	AC, ADC	45 ~ 60	○	◎	◎	◎
	Magnesium Casting	MC	30 ~ 45	○	○		
	Zinc Alloy Casting	ZDC	30 ~ 45		○	○	○
	Thermosetting Plastic		-				
	Thermoplastic		30 ~ 45	○	○	○	

SERIES	MODEL		DESCRIPTION	PAGE
SYTER			SYNCHRO TAPPING CHUCK (ER TYPE)	11~14

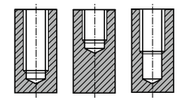
M TiN-COATED HSS-PM TAPS
SPIRAL FLUTE for General Purpose

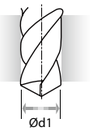
TT437 SERIES



- ▶High Speed Machining
  2-3 times faster when machining the GS material group
- ▶Precision Threads
- ▶Unsurpassed chip handling

Hole type 2.5XD





Material groups **GS** | HSS-PM | JIS | YH | 60° | 2P~3P | TiN | R45

Unit : mm

Size Ø D1	Pitch P	EDP No. TiN	Limit	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter Ø D2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ø d1
M3	x 0.5	**TT437203**	YH3	4.5	46.0	18.0	4.0	3.2	6.0	3	2.5
M4	x 0.7	**TT437243**	YH3	6.5	52.0	20.0	6.0	4.5	7.0	3	3.3
M5	x 0.8	**TT437283**	YH3	7.0	60.0	25.0	6.0	4.5	7.0	3	4.2
M6	x 1.0	**TT437313**	YH3	9.0	62.0	28.0	6.0	4.5	7.0	3	5.0
M8	x 1.25	**TT437364**	YH4	11.0	70.0	35.0	8.0	6.0	9.0	3	6.8
M10	x 1.5	**TT437424**	YH4	13.5	75.0	39.0	8.0	6.0	9.0	3	8.5
M12	x 1.75	**TT437504**	YH4	15.5	82.0	42.0	10.0	8.0	11.0	3	10.3
M14	x 2.0	**TT437545**	YH5	18.0	88.0	46.0	12.0	9.0	12.0	3	12.0
M16	x 2.0	**TT437605**	YH5	18.0	95.0	50.0	16.0	12.0	15.0	3	14.0
M18	x 2.5	**TT437655**	YH5	22.5	100.0	55.0	16.0	12.0	15.0	4	15.5
M20	x 2.5	**TT437705**	YH5	22.5	105.0	56.0	16.0	12.0	15.0	4	17.5

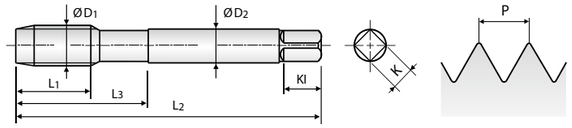
◎: Excellent ○: Good

P							M	K	
Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels	Tool Steels	Cast Steels	Stainless Steels	Cast Iron	High Tension Cast Iron
C ~ 0.25%	C ~ 0.25 ~ 0.45%	C 0.45% ~	SCM	HRc25 ~ 45	SKD	SC	SUS	FC	FCD
◎	◎	○	○			○		○	○

N									S	
Copper	Brass	Brass Casting	Aluminum Rolled	Aluminum Alloy Casting	Magnesium Casting	Zinc Alloy Casting	Thermosetting Plastic	Thermoplastic	Ti Alloy	Ni Alloy
Cu	Bs	PB	AL	AC, ADC	MC	ZDC				
○			○	○	○			○		

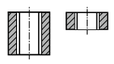
M TiN-COATED HSS-PM TAPS
SPIRAL POINT for General Purpose

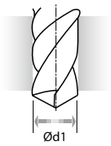
TTS01 SERIES



▶High Speed Machining
2-3 times faster when machining the GS material group
▶Precision Threads
▶Unsurpassed chip handling

Hole type 3.0XD





Material groups **GS** | HSS-PM | JIS | YH | 60° | 4P~5P | TiN

Unit : mm

Size		Pitch	EDP No.	Limit	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
Ø D1		P	TiN		L1	L2	L3	Ø D2	K	Kl	Z	Ø d1
M3	x	0.5	**TTS01203**	YH3	5.0	46.0	18.0	4.0	3.2	6.0	3	2.5
M4	x	0.7	**TTS01243**	YH3	7.0	52.0	20.0	6.0	4.5	7.0	3	3.3
M5	x	0.8	**TTS01283**	YH3	8.0	60.0	25.0	6.0	4.5	7.0	3	4.2
M6	x	1.0	**TTS01313**	YH3	10.0	62.0	28.0	6.0	4.5	7.0	3	5.0
M8	x	1.25	**TTS01364**	YH4	13.0	70.0	35.0	8.0	6.0	9.0	3	6.8
M10	x	1.5	**TTS01424**	YH4	15.0	75.0	39.0	8.0	6.0	9.0	3	8.5
M12	x	1.75	**TTS01504**	YH4	18.0	82.0	42.0	10.0	8.0	11.0	4	10.3
M14	x	2.0	**TTS01545**	YH5	20.0	88.0	46.0	12.0	9.0	12.0	4	12.0
M16	x	2.0	**TTS01605**	YH5	20.0	95.0	50.0	16.0	12.0	15.0	4	14.0
M18	x	2.5	**TTS01655**	YH5	25.0	100.0	55.0	16.0	12.0	15.0	4	15.5
M20	x	2.5	**TTS01705**	YH5	25.0	105.0	56.0	16.0	12.0	15.0	4	17.5

◎: Excellent ○: Good

P							M	K	
Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels	Tool Steels	Cast Steels	Stainless Steels	Cast Iron	High Tension Cast Iron
C ~ 0.25%	C ~ 0.25 ~ 0.45%	C 0.45% ~	SCM	HRc25 ~ 45	SKD	SC	SUS	FC	FCD
◎	◎	○	○			○		○	○

N									S	
Copper	Brass	Brass Casting	Aluminum Rolled	Aluminum Alloy Casting	Magnesium Casting	Zinc Alloy Casting	Thermosetting Plastic	Thermoplastic	Ti Alloy	Ni Alloy
Cu	Bs	PB	AL	AC, ADC	MC	ZDC				
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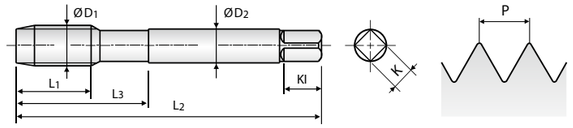
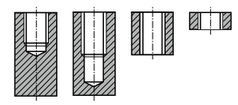
M TiCN-COATED HSS-PM TAPS
STRAIGHT FLUTE for General Purpose

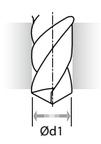
TKS02 SERIES



▶High Speed Machining
2-3 times faster when machining the GS material group
▶Precision Threads
▶Unsurpassed chip handling

Hole type 2.0XD





Material groups **GS** | HSS-PM | JIS | YH | 60° | 2P~3P | TiCN

Unit : mm

Size		Pitch	EDP No.	Limit	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
Ø D1		P	TiCN		L1	L2	L3	Ø D2	K	Kl	Z	Ø d1
M3	x	0.5	**TKS02203**	YH3	5.0	46.0	18.0	4.0	3.2	6.0	3	2.5
M4	x	0.7	**TKS02243**	YH3	7.0	52.0	20.0	6.0	4.5	7.0	3	3.3
M5	x	0.8	**TKS02283**	YH3	8.0	60.0	25.0	6.0	4.5	7.0	3	4.2
M6	x	1.0	**TKS02313**	YH3	10.0	62.0	28.0	6.0	4.5	7.0	3	5.0
M8	x	1.25	**TKS02364**	YH4	13.0	70.0	35.0	8.0	6.0	9.0	3	6.8
M10	x	1.5	**TKS02424**	YH4	15.0	75.0	39.0	8.0	6.0	9.0	4	8.5
M12	x	1.75	**TKS02504**	YH4	18.0	82.0	42.0	10.0	8.0	11.0	4	10.3
M14	x	2.0	**TKS02545**	YH5	20.0	88.0	46.0	12.0	9.0	12.0	4	12.0
M16	x	2.0	**TKS02605**	YH5	20.0	95.0	50.0	16.0	12.0	15.0	4	14.0
M18	x	2.5	**TKS02655**	YH5	25.0	100.0	55.0	16.0	12.0	15.0	4	15.5
M20	x	2.5	**TKS02705**	YH5	25.0	105.0	56.0	16.0	12.0	15.0	4	17.5

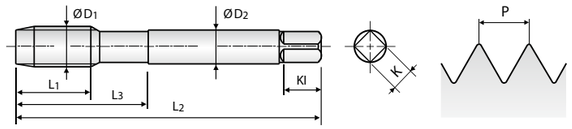
◎: Excellent ○: Good

P							M	K	
Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels	Tool Steels	Cast Steels	Stainless Steels	Cast Iron	High Tension Cast Iron
C ~ 0.25%	C ~ 0.25 ~ 0.45%	C 0.45% ~	SCM	HRc25 ~ 45	SKD	SC	SUS	FC	FCD
○	○	○	○			○		◎	◎

N									S	
Copper	Brass	Brass Casting	Aluminum Rolled	Aluminum Alloy Casting	Magnesium Casting	Zinc Alloy Casting	Thermosetting Plastic	Thermoplastic	Ti Alloy	Ni Alloy
Cu	Bs	PB	AL	AC, ADC	MC	ZDC				
○	○			◎		○		○		

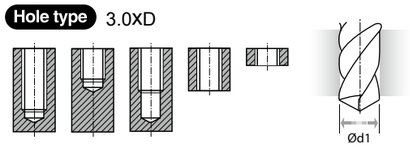
M TiN-COATED HSS-PM TAPS
FLUTELESS for General Purpose

TTS03 SERIES



▶High Speed Machining
2-3 times faster when machining the GS material group
▶Precision Threads
▶Unsurpassed chip handling

Hole type 3.0xD



Material groups **GV** | HSS-PM | JIS | GH | 60° | 2P~3P | TiN

Unit : mm

Size	Pitch	EDP No.	Limit	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Lobe	Tapping Drill Diameter
Ø D1	P	TiN		L1	L2	L3	Ø D2	K	Kl	Z	Ø d1
M3	x 0.5	**TTS03205**	GH5	5.0	46.0	18.0	4.0	3.2	6.0	5	2.78
M4	x 0.7	**TTS03246**	GH6	7.0	52.0	20.0	6.0	4.5	7.0	5	3.67
M5	x 0.8	**TTS03286**	GH6	8.0	60.0	25.0	6.0	4.5	7.0	5	4.63
M6	x 1.0	**TTS03317**	GH7	10.0	62.0	28.0	6.0	4.5	7.0	5	5.53
M8	x 1.25	**TTS03367**	GH7	13.0	70.0	35.0	8.0	6.0	9.0	5	7.39
M10	x 1.5	**TTS03427**	GH7	15.0	75.0	39.0	8.0	6.0	9.0	6	9.24
M12	x 1.75	**TTS03508**	GH8	18.0	82.0	42.0	10.0	8.0	11.0	6	11.12

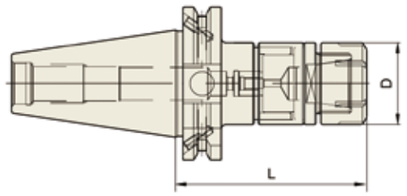
◎ : Excellent ○ : Good

P							M	K	
Low Carbon Steels	Medium Carbon Steels	High Carbon Steels	Alloy Steels	Hardened Steels	Tool Steels	Cast Steels	Stainless Steels	Cast Iron	High Tension Cast Iron
C ~ 0.25%	C ~ 0.25 ~ 0.45%	C 0.45% ~	SCM	HRc25 ~ 45	SKD	SC	SUS	FC	FCD
◎	◎	○					◎		

N								S	
Copper	Brass	Brass Casting	Aluminum Rolled	Aluminum Alloy Casting	Magnesium Casting	Zinc Alloy Casting	Thermosetting Plastic	Thermoplastic	Ti Alloy	Ni Alloy
Cu	Bs	PB	AL	AC, ADC	MC	ZDC				
◎	◎		○	◎		○				

SYNCHRO TAPPING CHUCK (ER TYPE)

SYTER SERIES



DIN 69871 - SK	Taper Accuracy	G Value	RPM	Coolant System
	AT3	–	–	AD/B

Unit : mm

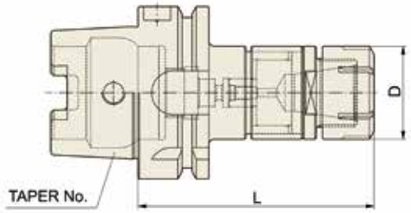
TAPER No.	MODEL No.	Tap Size	Clamping Range	Nut	D	L
40	**SK40AD/B-SYTER12-79**	M2~M8	3.0~6.2	ER16	28	79
	SK40AD/B-SYTER16-85	M3~M10	4.0~7.0	ER20	34	85
	SK40AD/B-SYTER20-90	M3~M14	4.0~10.5	ER25	42	90
	SK40AD/B-SYTER27-100	M4~M18	5.0~14.0	ER32	50	100
	SK40AD/B-SYTER33-120	M8~M24	6.2~19.0	ER40	63	120
50	**SK50AD/B-SYTER12-79**	M2~M8	3.0~6.2	ER16	28	79
	SK50AD/B-SYTER16-85	M3~M10	4.0~7.0	ER20	34	85
	SK50AD/B-SYTER20-90	M3~M14	4.0~10.5	ER25	42	90
	SK50AD/B-SYTER27-100	M4~M18	5.0~14.0	ER32	50	100
	SK50AD/B-SYTER33-105	M8~M24	6.2~19.0	ER40	63	105

▶Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

▶CAT(ANSI B5.50) taper and Inch type products are available.

SYNCHRO TAPPING CHUCK (ER TYPE)

SYTER SERIES



DIN 69893 - HSK	Taper Accuracy	G Value	RPM	Coolant System
	–	–	–	AD

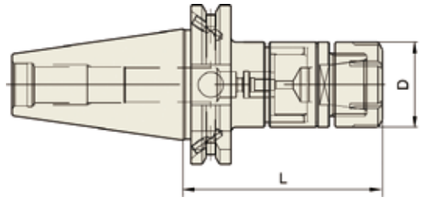
Unit : mm

TAPER No.	MODEL No.	Tap Size	Clamping Range	Nut	D	L
63A	**HSK63A-SYTER16-90**	M3~M10	4.0~7.0	ER20	34	90
	HSK63A-SYTER20-94	M3~M14	4.0~10.5	ER25	42	94
	HSK63A-SYTER27-105	M4~M18	5.0~14.0	ER32	50	105

▶Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

SYNCHRO TAPPING CHUCK (ER TYPE)

SYTER SERIES



JIS B6339 - BT	Taper Accuracy	G Value	RPM	Coolant System
	AT3	–	–	AD/B

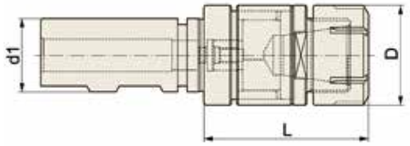
Unit : mm

TAPER No.	MODEL No.	Tap Size	Clamping Range	Nut	D	L
40	**BT40AD/B-SYTER12-79**	M2~M8	3.0~6.2	ER16	28	79
	BT40AD/B-SYTER16-85	M3~M10	4.0~7.0	ER20	34	85
	BT40AD/B-SYTER20-90	M3~M14	4.0~10.5	ER25	42	90
	BT40AD/B-SYTER27-100	M4~M18	5.0~14.0	ER32	50	100
	BT40AD/B-SYTER33-125	M8~M24	6.2~19.0	ER40	63	120
50	**BT50AD/B-SYTER12-100**	M2~M8	3.0~6.2	ER16	28	100
	BT50AD/B-SYTER16-100	M3~M10	4.0~7.0	ER20	34	100
	BT50AD/B-SYTER20-100	M3~M14	4.0~10.5	ER25	42	100
	BT50AD/B-SYTER27-110	M4~M18	5.0~14.0	ER32	50	110
	BT50AD/B-SYTER33-125	M8~M24	6.2~19.0	ER40	63	125

▶Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

SYNCHRO TAPPING CHUCK (ER TYPE)

SYTER SERIES



STRAIGHT-K

Unit : mm

MODEL No.	Tap Size	Clamping Range	Nut / Collect	D	L	d1
K20-SYTER16	M3~M10	4.0~7.0	ER20	34	58	20
K25-SYTER16	M3~M10	4.0~7.0	ER20	34	61	25
K25-SYTER27	M4~M18	5.0~14.0	ER32	50	69	25

▶Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

TROUBLE SHOOTING GUIDE

Specific Problem	Cause	Solution
Dimensional Accuracy		
Oversize Pitch Diameter	Incorrect Tap	1. Use proper limits of taps 2. Use longer chamfered taps
	Chip Packing	1. Use spiral point or spiral fluted taps 2. Reduce number of flutes to provide extra chip room 3. Use larger hole size 4. If tapping a hole, allow deeper hole where applicable or shorten the thread length of the parts 5. Use proper lubricant
	Galling	1. Apply coated tap: HardSlick or Chrome 2. Use proper coolant/conccentration 3. Reduce tapping speed 4. Use proper cutting angle in accordance with material being tapped 5. Use large hole size
	Operating Conditions	1. Check tapping speed 2. Be sure of correct to tool alignment 3. Free cutting either tap or workpiece 4. Use proper tapping speed to avoid torn or rough threads 5. Use lead screw tapper 6. Use proper tapping machine with suitable power 7. Avoid misalignment of the tap and drill hole from loose spindle or worn holder
	Tool Condition	1. Obtain proper indexing angle for the flutes at the cutting edge 2. Grind proper cutting angle and chamfer angle 3. Avoid too narrow a land width 4. Remove burrs from regrinding
Oversize Internal Diameter	Hole Size	1. Use minimum hole size 2. Avoid tapered hole 3. Use proper chamfered taps
	Galling	1. Galling solutions 1 through 4 above can be applied to this specific problem
Undersize Pitch Diameter	Incorrect Tap	1. Use oversize taps 2. Apply proper chamfer angle 3. Increase cutting angle
	Damaged Thread	1. Use proper reversing speed to avoid damaging tapped thread on the way out of the hole
	Left-over Chips	1. Increase cutting performance to avoid any left over chips in the hole 2. Remove left over chips from the hole for gage checking
Undersize Internal Diameter	Hole Size	1. Use maximum drill size
Breakage	Incorrect Tap Selection	1. Avoid chip packing in the flutes or on the bottom of the hole Use spiral pointed or spiral fluted taps or fluteless taps 2. Apply correct surface treatment such as Hardslick or bright
	Excessive Tapping Torque	1. Use larger drill size 2. Try to shorten thread length 3. Increase cutting angle 4. Apply a tap with more thread relief and reduced land width 5. Apply correct surface treatment such as Hardslick

TROUBLE SHOOTING GUIDE

Specific Problem	Cause	Solution
Dimensional Accuracy		
Breakage	Operating Conditions	1. Reduce tapping speed 2. Avoid misalignment between tap and the hole and tapered hole 3. Use floating type of tapping holder 4. Use tapping holder with torque adjustment 5. Avoid hitting bottom of the hole with tap
	Tool Condition	1. Do not grind the bottom of the flute 2. Avoid too narrow a land width 3. Remove all worn sections when regrinding the flutes 4. Regrind tool more frequently
Chipping	Incorrect Tap Selection	1. Reduce cutting angle 2. Use a different kind of high-speed steel tap 3. Reduce hardness of the tap 4. Increase chamfer length 5. Avoid chip packing in the flutes or in the bottom of the hole by using spiral fluted or spiral pointed taps
	Operating Conditions	1. Reduce tapping speed 2. Avoid misalignment between tap and hole 3. Avoid sudden return of reverse in blind hole tapping 4. Avoid galling 5. Use larger hole size
Wear	Incorrect Tap Selection	1. Apply specially designed tap for tapping heat treated material 2. Change to a type of high-speed steel tap that contains vanadium 3. Apply special surface treatment such as TiCN, TiAlN or Hardslick 4. Increase chamfer length
	Operating Conditions	1. Reduce tapping speed 2. Apply proper cutting lubricants 3. Avoid work hardened hole 4. Use larger hole size
	Tool Condition	1. Grind proper cutting angle 2. Avoid hardness reduction from grinding process
Torn or Rough Thread	Chamfer Too Short	1. Increase chamfer length
	Wrong Cutting Angle	1. Apply proper cutting angle
	Galling	1. Use thread relieved taps 2. Reduce land width 3. Apply surface treatment such as Hardslick or chrome 4. Use proper cutting lubricant 5. Reduce tapping speed 6. Use larger hole size 7. Obtain proper alignment between tap and work
	Chip Packing	1. Use spiral pointed or spiral fluted taps 2. Use larger drill size
Chattering on Tapped Thread	Tool Free Cutting	1. Reduce cutting angle 2. Reduce amount of thread relief
	Tool Condition	1. Avoid too narrow land width 2. Do not grind the bottom of the flute

M RECOMMENDED TAP DRILL SIZES-FOR METRIC THREADS

Unit : mm

Thread Size	Drill Size (mm)	D1(mm)	
		Max.	Min.
M2 × 0.4	1.60	1.679	1.567
M2 × 0.25	1.75	(1.785)	(1.729)
M2.2 × 0.45	1.75	1.838	1.713
M2.2 × 0.25	1.95	(1.985)	(1.929)
M2.2 × 0.4	1.90	1.979	1.867
M2.3 × 0.25	2.05	2.061	2.001
M2.5 × 0.45	2.10	2.138	5.013
M2.5 × 0.35	2.20	2.221	2.121
M2.6 × 0.45	2.20	2.238	2.113
M2.6 × 0.35	2.20	2.246	2.186
M3 × 0.5	2.50	2.599	2.459
M3 × 0.35	2.70	2.721	2.621
M3.5 × 0.6	2.90	3.010	2.850
M3.5 × 0.35	3.20	3.221	3.121
M4 × 0.7	3.30	3.422	3.242
M4 × 0.5	3.50	3.599	3.459
M4.5 × 0.75	3.80	3.878	3.688
M4.5 × 0.5	4.00	4.099	3.959
M5 × 0.8	4.20	4.334	4.134
M5 × 0.5	4.50	4.599	4.459
M6 × 1	5.00	5.153	4.917
M6 × 0.75	5.30	5.378	5.188
M6 × 0.5	5.50	5.550	5.400
M7 × 1	6.00	6.153	5.917
M7 × 0.75	6.30	6.378	6.188
M7 × 0.5	6.50	6.550	6.400
M8 × 1.25	6.80	6.912	6.647
M8 × 1	7.00	7.153	6.917
M8 × 0.75	7.30	7.378	7.188
M8 × 0.5	7.50	7.520	7.400
M9 × 1.25	7.80	7.912	7.647
M9 × 1	8.00	8.153	7.917
M9 × 0.75	8.30	8.378	8.188
M10 × 1.5	8.50	8.676	8.376
M10 × 1.25	8.80	8.912	8.647
M10 × 1	9.00	9.153	8.917
M10 × 0.75	9.30	9.378	9.188
M10 × 0.5	9.50	9.520	9.400
M11 × 1.5	9.50	9.676	9.376
M11 × 1	10.00	10.153	9.917
M11 × 0.75	10.30	10.378	10.188
M12 × 1.75	10.30	10.441	10.106
M12 × 1.5	10.50	10.676	10.376
M12 × 1.25	10.80	10.912	10.647
M12 × 1	11.00	11.153	10.917

Thread Size	Drill Size (mm)	D1(mm)	
		Max.	Min.
M12 × 0.5	11.50	11.520	11.400
M14 × 2	12.00	12.210	11.835
M14 × 1.5	12.50	12.676	12.376
M14 × 1	13.00	13.153	12.917
M15 × 1.5	13.50	13.673	13.376
M15 × 1	14.00	14.153	13.917
M16 × 2	14.00	14.210	13.835
M16 × 1.5	14.50	14.676	14.376
M16 × 1	15.00	15.153	14.917
M17 × 1.5	15.50	15.676	15.376
M17 × 1	16.00	16.153	15.917
M18 × 2.5	15.50	15.744	15.294
M18 × 2	16.00	16.210	15.835
M18 × 1.5	16.50	16.676	16.376
M18 × 1	17.00	17.153	16.917
M20 × 2.5	17.50	17.744	17.294
M20 × 2	18.00	18.210	17.835
M20 × 1.5	18.50	18.676	18.376
M20 × 1	19.00	19.153	18.917
M22 × 2.5	19.50	19.744	19.294
M22 × 2	20.00	20.210	19.835
M22 × 1.5	20.50	20.673	20.376
M22 × 1	21.00	21.153	20.917
M24 × 3	21.00	21.252	20.752
M24 × 2	22.00	22.210	21.835
M24 × 1.5	22.50	22.676	22.376
M24 × 1	23.00	23.153	22.917
M25 × 2	23.00	23.210	22.835
M25 × 1.5	23.50	23.676	23.376
M25 × 1	24.00	24.153	23.917
M26 × 1.5	24.50	24.676	24.376
M27 × 3	24.00	24.252	23.752
M27 × 2	25.00	25.210	24.835
M27 × 1.5	25.50	25.676	25.376
M27 × 1	26.00	26.153	25.917
M28 × 2	26.00	26.210	25.835
M28 × 1.5	26.50	26.676	26.376
M28 × 1	27.00	27.153	26.917
M30 × 3.5	26.50	26.771	26.211
M30 × 3	27.00	27.252	26.752
M30 × 2	28.00	28.210	27.835
M30 × 1.5	28.50	28.676	28.376
M30 × 1	29.00	29.153	28.917
M32 × 2	30.00	30.210	29.835
M32 × 1.5	30.50	30.676	30.376

M RECOMMENDED TAP DRILL SIZE-FOR FLUTELESS TAPS

Unit : mm

Thread Size	Drill Size(mm) Tap Limits							
	GH4	GH5	GH6	GH7	GH8	GH9	GH10	GH11
M2 × 0.4	1.83	1.84	-	-	-	-	-	-
M2.2 x 0.45	2.00	2.01	-	-	-	-	-	-
M2.3 x 0.4	2.13	2.14	-	-	-	-	-	-
M2.5 x 0.45	2.30	2.31	-	-	-	-	-	-
M2.6 x 0.45	2.40	2.41	-	-	-	-	-	-
M3 x 0.5	2.77	2.78	2.79	2.81	-	-	-	-
M3 x 0.35	2.85	2.87	2.88	2.89	-	-	-	-
M3.5 x 0.6	-	3.23	3.24	3.25	-	-	-	-
M4 x 0.7	-	3.67	3.68	3.70	-	-	-	-
M4 x 0.5	-	3.78	3.79	3.81	-	-	-	-
M5 x 0.8	-	4.61	4.63	4.64	-	-	-	-
M5 x 0.5	-	4.78	4.79	4.81	-	-	-	-
M6 x 1	-	5.50	5.51	5.53	-	-	-	-
M6 x 0.75	-	5.64	5.65	5.67	-	-	-	-
M6 x 0.5	-	5.78	5.79	5.81	-	-	-	-
M7 x 1	-	6.50	6.51	6.53	-	-	-	-
M8 x 1.25	-	-	7.37	7.39	7.40	-	-	-
M8 x 1	-	-	7.51	7.53	7.54	-	-	-
M10 x 1.5	-	-	9.23	9.24	9.26	9.27	-	-
M10 x 1.25	-	-	9.37	9.39	9.40	9.41	-	-
M10 x 1	-	-	9.51	9.53	9.54	9.55	-	-
M12 x 1.75	-	-	-	11.10	11.12	11.13	11.14	-
M12 x 1.5	-	-	-	11.24	11.26	11.27	11.28	-
M12 x 1.25	-	-	-	11.39	11.40	11.41	11.42	-
M12 x 1	-	-	-	11.53	11.54	11.55	11.56	-
M14 x 2	-	-	-	-	12.98	12.99	13.00	13.01
M14 x 1.5	-	-	-	-	13.26	13.27	13.28	13.30
M14 x 1	-	-	-	-	13.54	13.55	13.56	13.58
M16 x 2	-	-	-	-	14.98	14.99	15.00	15.01
M16 x 1.5	-	-	-	-	14.26	15.27	15.28	15.30
M16 x 1	-	-	-	-	15.54	15.55	15.56	15.58
M18 x 2.5	-	-	-	-	-	16.71	16.72	16.73
M18 x 1.5	-	-	-	-	-	17.27	17.28	17.30
M20 x 2.5	-	-	-	-	-	-	18.72	18.73
M20 x 1.5	-	-	-	-	-	-	19.28	19.30

YH LIMIT SYSTEM

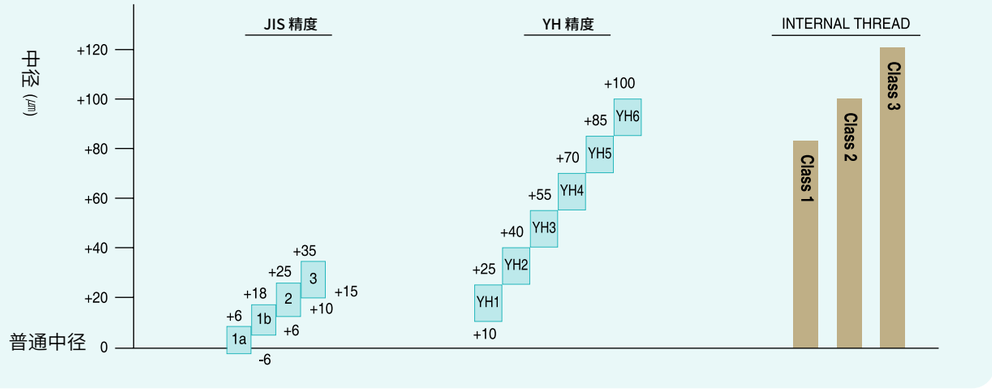
▶ YG-1 applies a unique system of tap pitch diameter limits. We call it the YH limits system.
Using the step method, you can select the best tap pitch diameter limits to match your work condition.

▶ YH limit Most of YG-1's taps use this limit system. The limits calculated as follows;

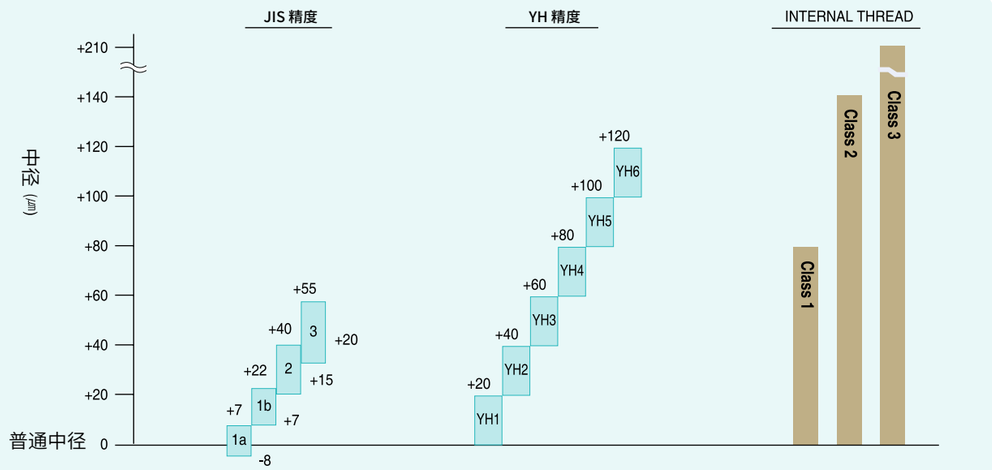
1. Up to 0.6P (40TPI)
上限 : 10㎛+15㎛ × n
下限 : (上限) - 15㎛
n=YH No.

2. 0.7P 以上 (36TPI)
上限 : 20㎛ × n
下限 : (上限) - 20㎛
n=YH No.

Example M3×0.5



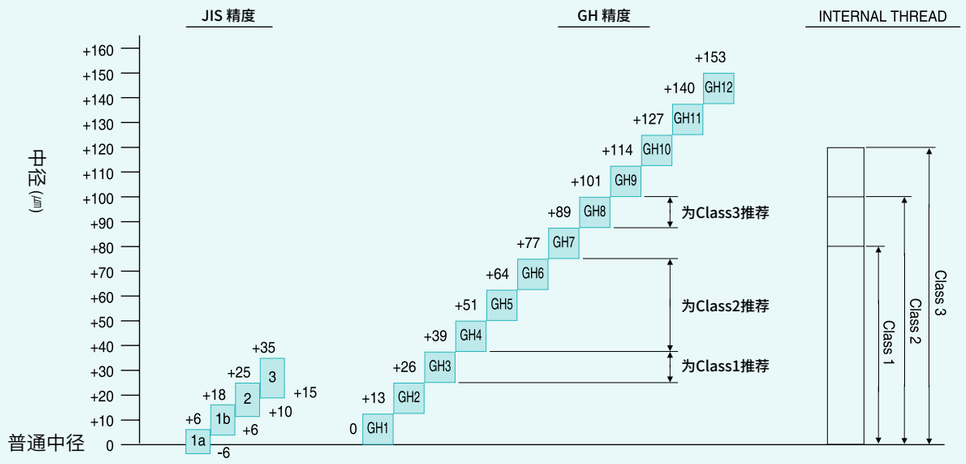
Example M10×1.5



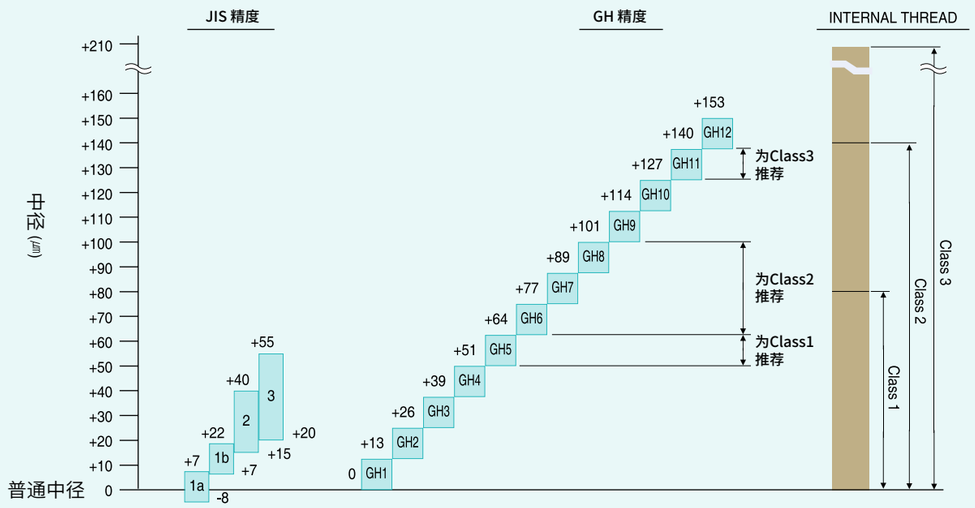
GH LIMIT SYSTEM

▶ **YG-1's fluteless taps are described by the GH limit system.**
The limits are established by increments of 12.7㎛.

Example M3×0.5



Example M10×1.5



SOLID DRILLS

PERFECT HOLES FOR PRECISE THREADING
YG DRILLING TOOLS

YG-1 Drilling tools are well known for its tight tolerance and high technology, continuously impressing various manufacturers around the world.
Its advance designed geometry brings out extraordinary performances, creating a longer tool life with outstanding productivity.
Also a variety of size and shapes are available for multiple applications.

P M K — SOLID CARBIDE

DREAM DRILLS GRENERAL

2-Flute Drills with/without Internal Coolant
Wide range of sizes and flute lengths
Perfect choice for general purpose

P K — SOLID CARBIDE

DREAM DRILLS HIGH FEED

3-Flute Drills with Internal Coolant
Up to 1.6 times faster drilling
compared to conventional 2-flute drills

P M N S — SOLID CARBIDE

DREAM DRILLS INOX

For drilling Stainless Steels
Special geometry and flute shape
for excellent chip evacuation and self-centering

N — SOLID CARBIDE

DREAM DRILLS ALU

For drilling Aluminum & Aluminum Alloys
Good chip evacuation due to
flute geometry & enough chip space

P M K N — SOLID CARBIDE

DREAM DRILLS FLAT BOTTON

180° Point Angle with/without Internal Coolant
Perfect choice for a various angled surface

P M K N S — PREMIUM HSS-PM

MULTI-1 DRILLS Multi Purpose

For Drilling various work materials;
Carbon Steel, Alloy Steels, Cast iron,
Stainless Steels, Aluminum, Titanium, etc

MEMO

HIGH QUALITY PRODUCTS and ON TIME DELIVERY for WORLD-WIDE CUSTOMERS

Since 1982, YG-1 has been committed to quality, innovation and the unique customer experience.
Our performance and experience have granted YG-1 the global impression of one of the leading manufacturers of high quality cutting tool solutions. This global footprint expands over 75 countries, with international logistic centers, pledging to our customers to give the best service available today - and tomorrow.

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SWEDEN
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HUNGARY
POLAND
SERBIA
SWITZERLAND

ASIA PACIFIC

AUSTRALIA
INDONESIA
KINGDOM OF SAUDI ARABIA
SINGAPORE
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CHINA
IRAN
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