

YAMAWA proposes third option in addition to standard products and special product.



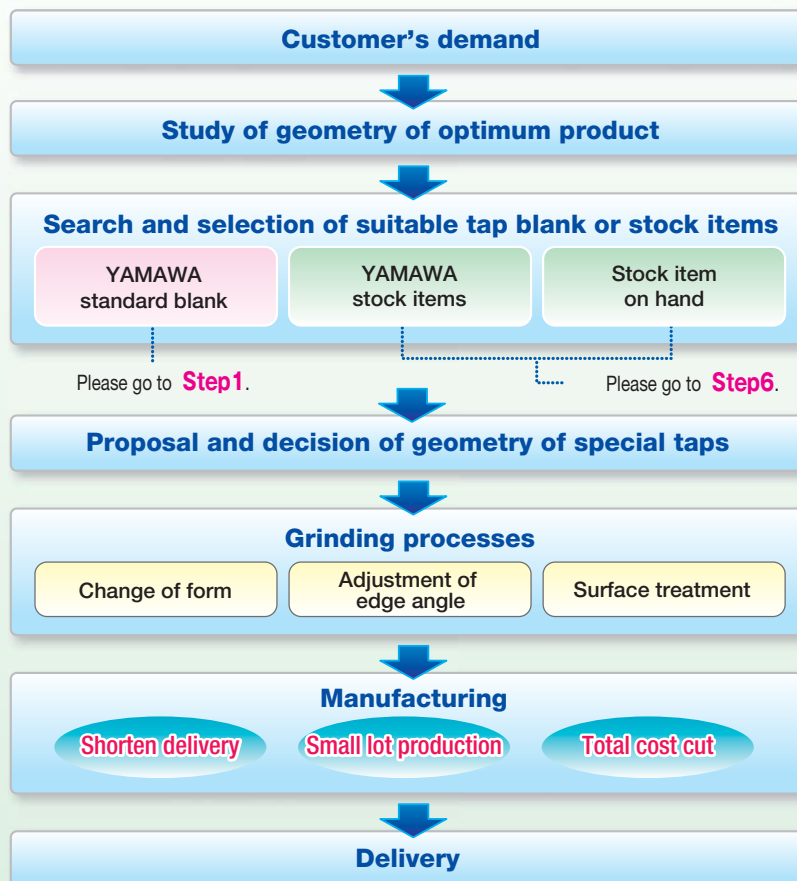
Product
Reborn
According to
Demand

Solution tool

PRAD system

PRAD system is YAMAWA's innovative production system in order to respond flexibly to user's needs diversifying recently such as requests of shorten lead time and small lot production.

Flow chart of PRAD system





Solution tool PRAD system

PRAD system

PRAD system is YAMAWA's innovative production system in order to respond flexibly to user's needs diversifying recently such as requests of shorten lead time and small lot production.

Process from standard blank to delivery of special taps selected by customers

Step 1

Search of size table of available standard blanks

When you decide tentatively geometry of special tap, please search the size table of available standard blanks and confirm this special tap is in the production range or can change tap blank in it.

※Followings are steps of a procedure for the sample case on the right hand.

Confirmation Study	Nominal size	Pitch	Type of thread	Category of taps		Overall length
Requested special tap	No.6	32	Right hand cut	Spiral Pointed	ZELX SS	2"
Result of size table	No.6 in table below means blank is available	Available	Right hand cut Left hand cut are available	Available	Available	Available

Overall length and scope of application for each size							
Nominal size	Applicable pitch size	Applicable threads' direction	Applicable type of taps	OAL(L)	Material of Taps	Maximum Thread length	Maximum P.D. limit
No.6	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2	○ : HSSE ● : HSSP	0.276	Cutting taps: up to GH6
			Spiral flute, Spiral point or Straight flute			0.413	
			Spiral flute, Spiral point, Straight flute or Forming				Cutting taps: up to GH6 Forming taps: up to H5

Complete search and study

YAMAWA staff supports you if you can not search. Please go to **Step3**.

Step 2

Geometry and quotation of special taps

- Please be settled geometry of special taps referred to following technical info of this catalog.
- After geometry was settled, please request us for quotation appointed to "Use standard blank+PRAD system."
- YAMAWA quotes price promptly considering "Shorten delivery", "Small lot production" and "Total cost cut".

(Technical information)

Category of taps	Product table contents - 17
Surface Treatment	contents-73~75
Thread Series	contents - 84~85

Please contact YAMAWA staff. Please go to **Step7**.

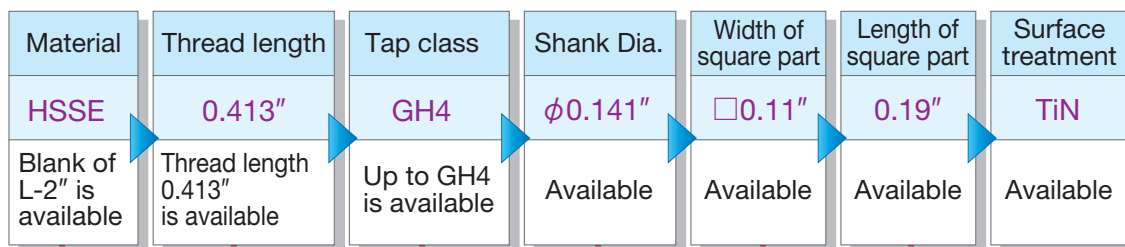
What is standard blank ?



- Blank is generic designation of semi-finished product before forming to tap.
- Standard blank is blank for manufacturing standard tap.
- Special taps is completed after process of edge only (process of flute,thread and chamfer),if standard blank completed process until shank portion is available.

Example of special geometry of tap requested by customer

- Left hand cut, for high speed tapping Geometry of ZELX SS
- Material : HSSE Surface treatment : TiN Tap class : GH4
- Qty.to produce : 20pcs Requested delivery : Urgently
- OAL : 2" Thread length : 0.413" Shank diam : ϕ 0.141"
- No.of flutes : 3 No.of chamfer : 4.5threads



Unit : inch

Common thread sizes and recommendable dimensions						
Size and TPI	l	l_n	D_s	K	ϕ_k	Type of shape
No.6-32UNC	0.276	0.687	0.141	0.11	0.19	1
No.6-40UNF						
No.6-32UNC	0.413	0.687	0.141	0.11	0.19	
No.6-40UNF						
No.6-32UNC						
No.6-40UNF						

Result

- For other options, standard blank is available.

Geometry of special tap after the result

- Left hand cut, for high speed tapping Geometry of ZELX SS No.6-32UNC
- Material : HSSE Surface treatment : TiN Tap class : GH4
- OAL : 2" Thread length : 0.413" Shank diam : ϕ 0.141"
- No.of flutes : 3 No.of chamfer : 4.5threads
- Quantity : **20pcs are okay** Delivery : **Meet requested delivery**



Solution tool
PRAD system

PRAD system

YAMAWA Staff proposes optimum products if step1 and step2 cannot be used or listed size is not available.

Step 3

Several info related to special tap from customer

- Category of internal thread and dimension
- Name of work material and hardness
- Machine
- Other info

Please contact us after filling the Inquiry sheet for special tap

※Please print out Inquiry sheet for special tap.

After confirmation of several info, please go to **Step4**.

Step 4

Selection of suitable tap blank or stock items by YAMAWA staff

YAMAWA
Standard blank

YAMAWA
Stock items

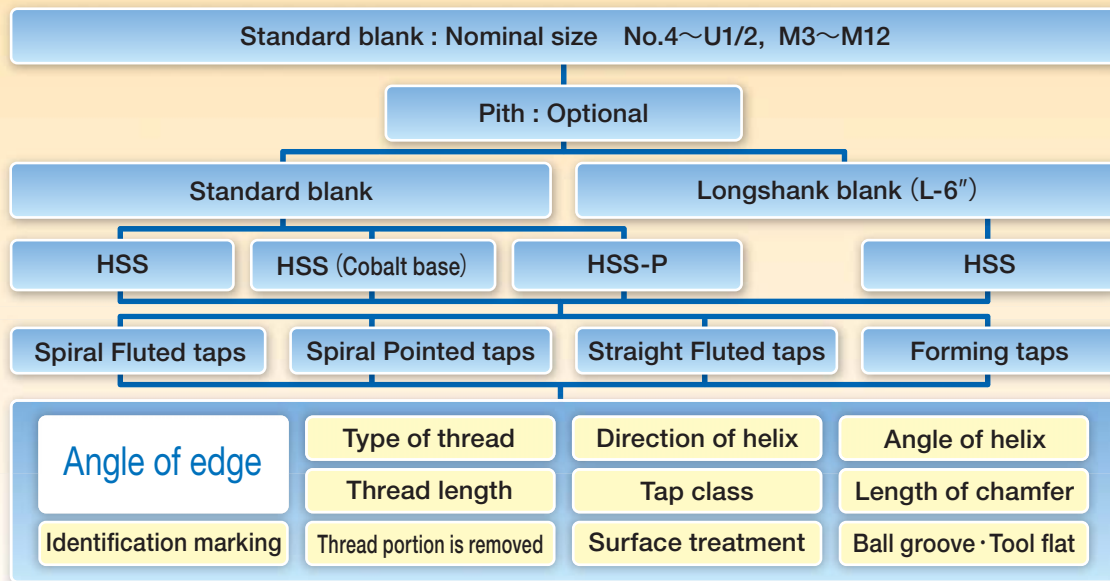
Stock item in
your hand

Please go to **Step5** in the case of usage of standard blank.

Please go to **Step6** in the case of modification process.

Step 5

Flow chart of standard blank by YAMAWA staff



Please go to **Step7** after geometry is confirmed.

PRAD SYSTEM



Step 6

PRAD system Modification process

Optimum of each part

Flute part, Thread part,
Shank part, Chamfer part,
Others

Special modification

- Heel cut
- Tap guidance
- Oil hole
- Others

Surface treatment

OX NI NX TiN
TiCN CrN

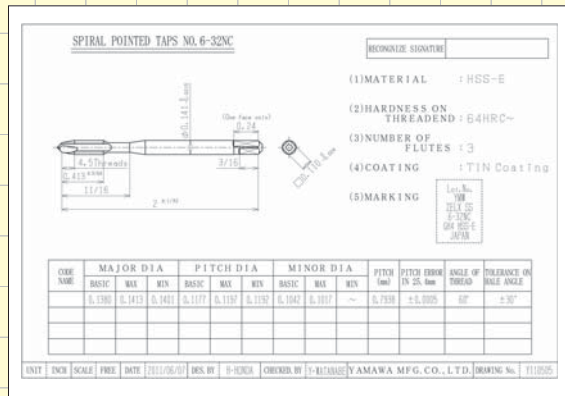


Please go to **Step7** after settled modification process.

Step 7

Proposal of dimension and quotation by temporary drawing

- Temporary drawing
- Quotation
- Schedule to deliver



Please go to **Step8** after dimension is confirmed.

Step 8

Production support

Shorten delivery

Small lot production

Total cost cut

Delivery



Yamawa Universal Taps' Blank based on USCTI

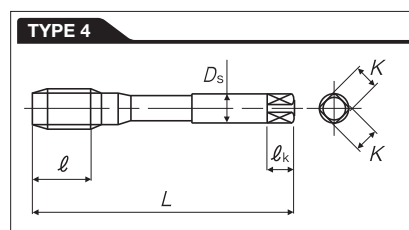
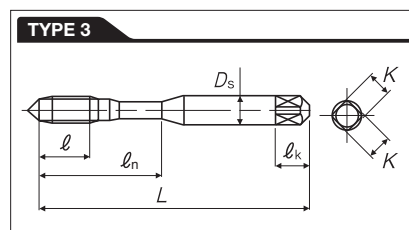
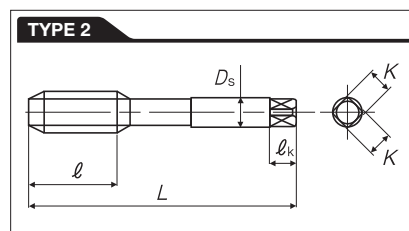
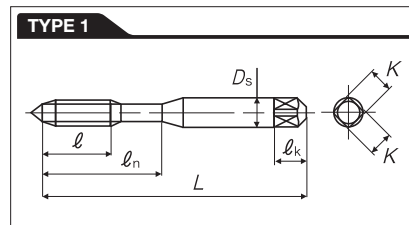
Material of taps HSSE : ○ HSSP : ◎

Overall length and scope of application for each size							
Nominal size	Applicable pitch size	Applicable threads' direction	Applicable type of taps	OAL(L)	Material of Taps	Maximum Thread length	Maximum P.D. limit
No.4	For any pitch size	Either right-hand or left-hand threads	Spiral flute	1.88	○◎	0.236	Cutting taps: up to GH5
			Spiral flute, Spiral point or Straight flute		○	0.335	
			Spiral flute, Spiral point, Straight flute or Forming		◎		Cutting taps: up to GH8 Forming taps: up to H5
No.5	For any pitch size	Either right-hand or left-hand threads	Spiral flute	1.94	○	0.236	Cutting taps: up to GH5
			Spiral flute, Spiral point or Straight flute			0.374	
No.6	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2	○	0.276	Cutting taps: up to GH6
			Spiral flute, Spiral point or Straight flute			0.413	
			Spiral flute, Spiral point, Straight flute or Forming		◎		Cutting taps: up to GH6 Forming taps: up to H5
No.8	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.13	○	0.276	Cutting taps: up to GH6
			Spiral flute, Spiral point or Straight flute			0.453	
			Spiral flute, Spiral point, Straight flute or Forming		◎		Cutting taps: up to GH6 Forming taps: up to H3
No.10	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.38	○	0.354	Cutting taps: up to GH6
			Spiral flute, Spiral point or Straight flute			0.531	
			Spiral flute, Spiral point, Straight flute or Forming		◎		Cutting taps: up to GH6 Forming taps: up to H4
No.12	For any pitch size	Either right-hand or left-hand threads	Spiral flute, Spiral point or Straight flute	2.38	○	0.571	Cutting taps: up to GH6

●YAMAWA can produce intermediate size and special size which are not listed above size table. please contact YAMAWA staff for details.

Unit : inch

Common thread sizes and recommendable dimensions						
Size and TPI	l	l_n	D_s	K	l_k	Type of shape
No.4-40UNC	0.236	0.562	0.141	0.11	0.19	1
No.4-48UNF						
No.4-36UNS						
No.4-40UNC	0.335	0.562	0.141	0.11	0.19	1
No.4-48UNF						
No.4-36UNS						
No.4-40UNC						
No.4-48UNF	0.236	0.625	0.141	0.11	0.19	1
No.5-44UNF						
No.5-40UNC	0.374	0.625	0.141	0.11	0.19	1
No.5-44UNF						
No.6-32UNC	0.276	0.687	0.141	0.11	0.19	1
No.6-40UNF						
No.6-32UNC	0.413	0.687	0.141	0.11	0.19	1
No.6-40UNF						
No.6-32UNC						
No.6-40UNF	0.276	0.75	0.168	0.131	0.25	1
No.8-32UNC						
No.8-36UNF	0.453	0.75	0.168	0.131	0.25	1
No.8-32UNC						
No.8-36UNF						
No.8-32UNC						
No.8-36UNF	0.354	0.875	0.194	0.152	0.25	1
No.10-24UNC						3
No.10-32UNF	0.531	0.875	0.194	0.152	0.25	1
No.10-24UNC						
No.10-32UNF						
No.12-24UNC	0.571	0.937	0.22	0.165	0.28	1
No.12-28UNF						
No.12-32UNEF						



● Above dimension is recommended if there is no request of specification.



Yamawa Universal Taps' Blank based on USCTI

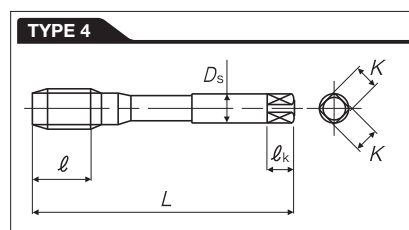
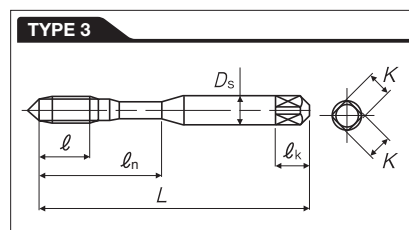
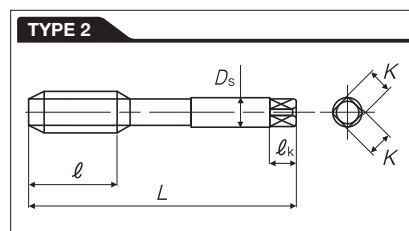
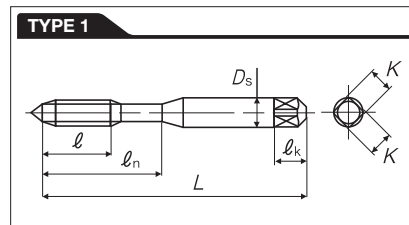
Material of taps HSSE : ○ HSSP : ◎

Overall length and scope of application for each size							
Nominal size	Applicable pitch size	Applicable threads' direction	Applicable type of taps	OAL(L)	Material of Taps	Maximum Thread length	Maximum P.D. limit
U1/4	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.5	○	0.433	Cutting taps: up to GH6
			Spiral flute, Spiral point or Straight flute				
			Spiral flute, Spiral point, Straight flute or Forming	6	◎	0.591	Cutting taps: up to GH6 Forming taps: up to H4
			Spiral flute, Spiral point or Straight flute				
U5/16	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.72	○	0.472	Cutting taps: up to GH6
			Spiral flute, Spiral point, Straight flute or Forming				
U3/8	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.94	○	0.551	Cutting taps: up to GH6
			Spiral flute, Spiral point or Straight flute				
U7/16	For any pitch size	Either right-hand or left-hand threads	Spiral flute	3.16	○	0.591	Cutting taps: up to GH6
			Spiral flute, Spiral point or Straight flute			0.866	
U1/2	For any pitch size	Either right-hand or left-hand threads	Spiral flute, Spiral point or Straight flute	3.38	○	0.984	Cutting taps: up to GH6

●YAMAWA can produce intermediate size and special size which are not listed above size table. please contact YAMAWA staff for details.

Unit : inch

Common thread sizes and recommendable dimensions																																									
Size and TPI	l	l_n	D_s	K	l_k	Type of shape																																			
1/4-20UNC	0.433	1	0.255	0.191	0.31	1																																			
1/4-28UNF	0.354					3																																			
1/4-32UNEF	0.276					1																																			
1/4-20UNC	0.591						1																																		
1/4-28UNF								0.255																																	
1/4-32UNEF									0.191																																
1/4-20UNC										0.31																															
1/4-28UNF											0.31																														
1/4-32UNEF												0.31																													
1/4-20UNC													0.31																												
1/4-28UNF														0.31																											
1/4-32UNEF						0.31																																			
5/16-18UNC	2																																								
5/16-20UNS	4																																								
5/16-24UNF	4																																								
5/16-28UNS	4																																								
5/16-32UNEF	4																																								
5/16-18UNC	1.125	0.318	0.238	0.38	1																																				
5/16-20UNS					1																																				
5/16-24UNF					3																																				
5/16-28UNS					3																																				
5/16-32UNEF					3																																				
3/8-16UNC					1.25	0.381	0.286	0.44	2																																
3/8-20UNS									4																																
3/8-24UNF									4																																
3/8-28UNS									4																																
3/8-32UNEF	4																																								
3/8-16UNC	0.748	0.381	0.286	0.44					1																																
3/8-20UNS									0.748	0.381	0.286	0.44	3																												
3/8-24UNF													0.748	0.381	0.286	0.44	3																								
3/8-28UNS																	0.748	0.381	0.286	0.44	3																				
3/8-32UNEF																					0.748	0.381	0.286	0.44	3																
7/16-14UNC																									0.591	0.323	0.242	0.41	2												
7/16-16UNS	0.591	0.323	0.242	0.41																									4												
7/16-20UNF					0.591	0.323	0.242	0.41	4																																
7/16-28UNEF									0.591	0.323	0.242	0.41	4																												
7/16-32UNS													0.591	0.323	0.242	0.41	4																								
7/16-14UNC																	0.866	0.323	0.242	0.41	2																				
7/16-16UNS																					0.866	0.323	0.242	0.41					2												
7/16-20UNF																													0.866	0.323	0.242	0.41	4								
7/16-28UNEF																																	0.866	0.323	0.242	0.41	4				
7/16-32UNS																																					0.866	0.323	0.242	0.41	4
1/2-13UNC																																									0.984
1/2-16UNS																	0.984	0.367	0.275	0.44																					
1/2-20UNF																					0.984	0.367	0.275	0.44	4																
1/2-28UNEF	0.984	0.367	0.275	0.44																					4																
1/2-32UNS					0.984	0.367	0.275	0.44																	4																



● Above dimension is recommended if there is no request of specification.



Yamawa Universal Taps' Blank based on USCTI

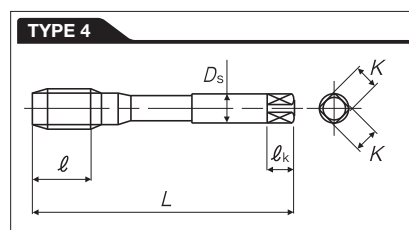
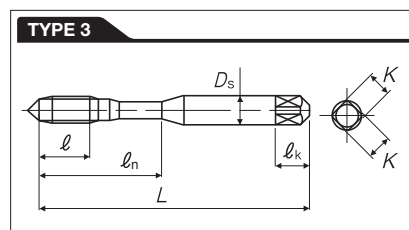
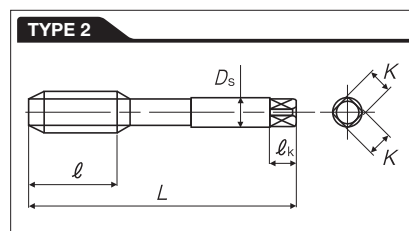
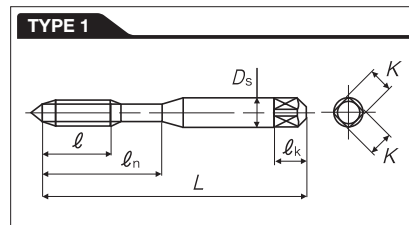
Material of taps HSSE : ○ HSSP : ◎

Overall length and scope of application for each size							
Nominal size	Applicable pitch size	Applicable threads' direction	Applicable type of taps	OAL(L)	Material of Taps	Maximum Thread length	Maximum P.D. limit
M3	For any pitch size	Either right-hand or left-hand threads	Spiral flute	1.94	○	0.197	Cutting taps: up to D3
			Spiral flute, Spiral point or Straight flute			0.374	
M4	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.13	○	0.276	Cutting taps: up to D4
			Spiral flute, Spiral point or Straight flute			0.453	
M5	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.38	○	0.354	Cutting taps: up to D4
			Spiral flute, Spiral point or Straight flute			0.531	
M6	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.5	○	0.433	Cutting taps: up to D5
			Spiral flute, Spiral point or Straight flute		◎◎	0.591	
M8	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.72	○	0.472	Cutting taps: up to D5
M10	For any pitch size	Either right-hand or left-hand threads	Spiral flute	2.94	○	0.512	Cutting taps: up to D6
			Spiral flute, Spiral point or Straight flute			0.748	
M12	For any pitch size	Either right-hand or left-hand threads	Spiral flute	3.38	○	0.551	Cutting taps: up to D5

●YAMAWA can produce intermediate size and special size which are not listed above size table. please contact YAMAWA staff for details.

Unit : inch

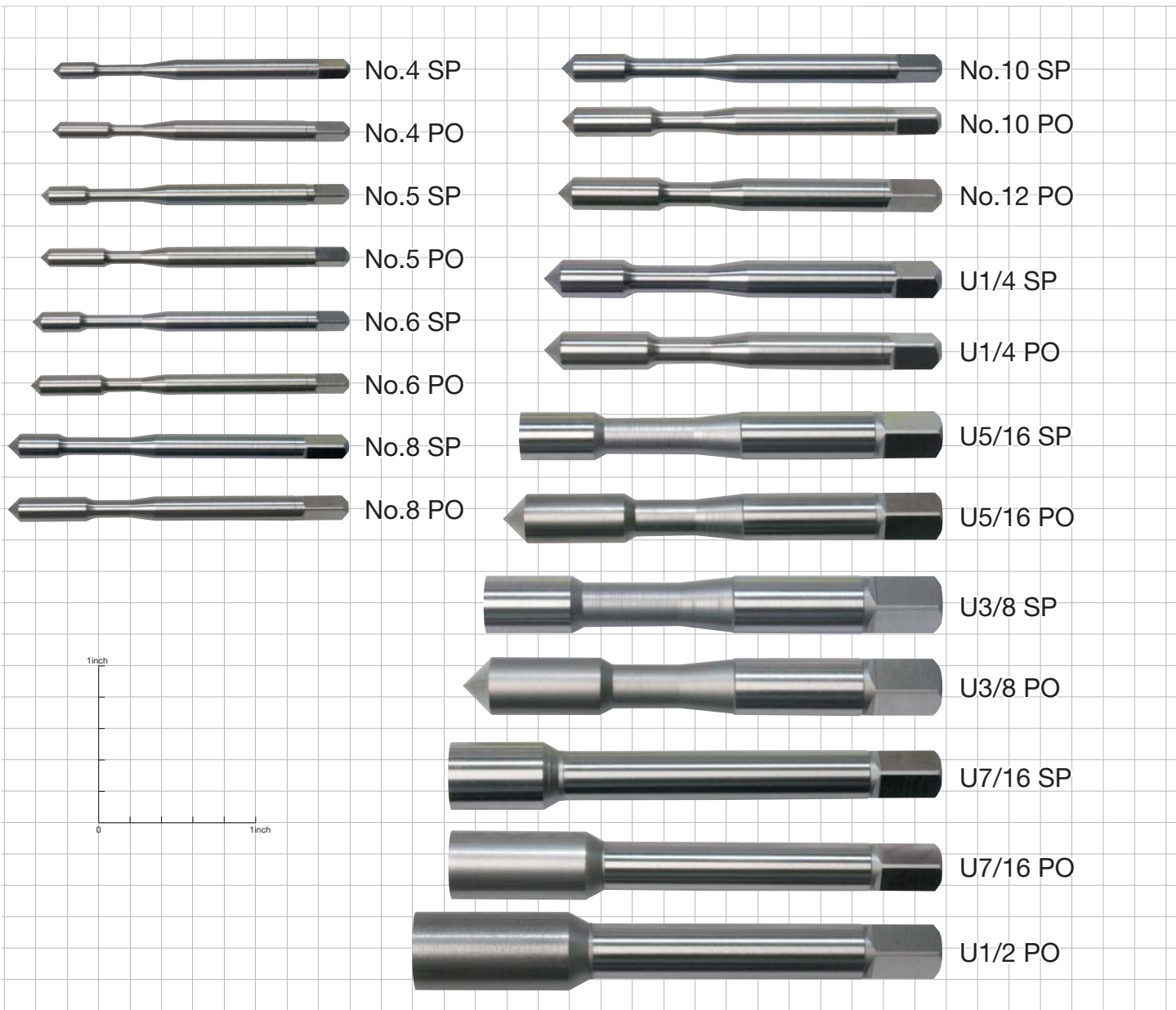
Common thread sizes and recommendable dimensions						
Size and TPI	l	l_n	D_s	K	l_k	Type of shape
M3X0.5	0.197	0.625	0.141	0.11	0.19	1
M3X0.35						
M3X0.6						
M3X0.5						
M3X0.35						
M3X0.6	0.374					
M3X0.5	0.256					
M3X0.6	0.374					
M4X0.7	0.276	0.75	0.168	0.131	0.25	1
M4X0.75						
M4X0.5						
M4X0.7						
M4X0.75						
M4X0.5	0.453					
M4X0.5	0.374					
M5X0.8	0.354	0.875	0.194	0.152	0.25	1
M5X0.75						
M5X0.5						
M5X0.9						
M5X0.8						
M5X0.75						
M5X0.5						
M5X0.9						
M5X0.8						
M5X0.75						
M5X0.5	0.531					
M5X0.5	0.374					
M5X0.9	0.531					
M6X1	0.433	1	0.255	0.191	0.31	1
M6X0.75						
M6X0.5						
M6X1						
M6X0.75						
M6X0.5						
M6X0.5	0.354					
M6X1	0.591					
M6X0.75	0.531					
M6X0.5	0.374					
M8X1.25	0.472	1.125	0.318	0.238	0.38	2
M8X1						
M8X0.75						
M8X0.5						
M8X0.5	0.354					
M10X1.5	0.512	1.25	0.381	0.286	0.44	4
M10X1.25						
M10X1						
M10X0.75						
M10X0.5						
M10X1.5						
M10X1.25						
M10X1						
M10X0.75						
M10X0.5						
M10X0.5	0.748					
M10X1	0.531					
M10X0.75	0.374					
M12X1.75	0.551	0.551	0.367	0.275	0.44	2
M12X1.5						
M12X1.25						
M12X1						
M12X0.75						
M12X0.5						
M12X0.5	0.512					
M12X0.5	0.354					



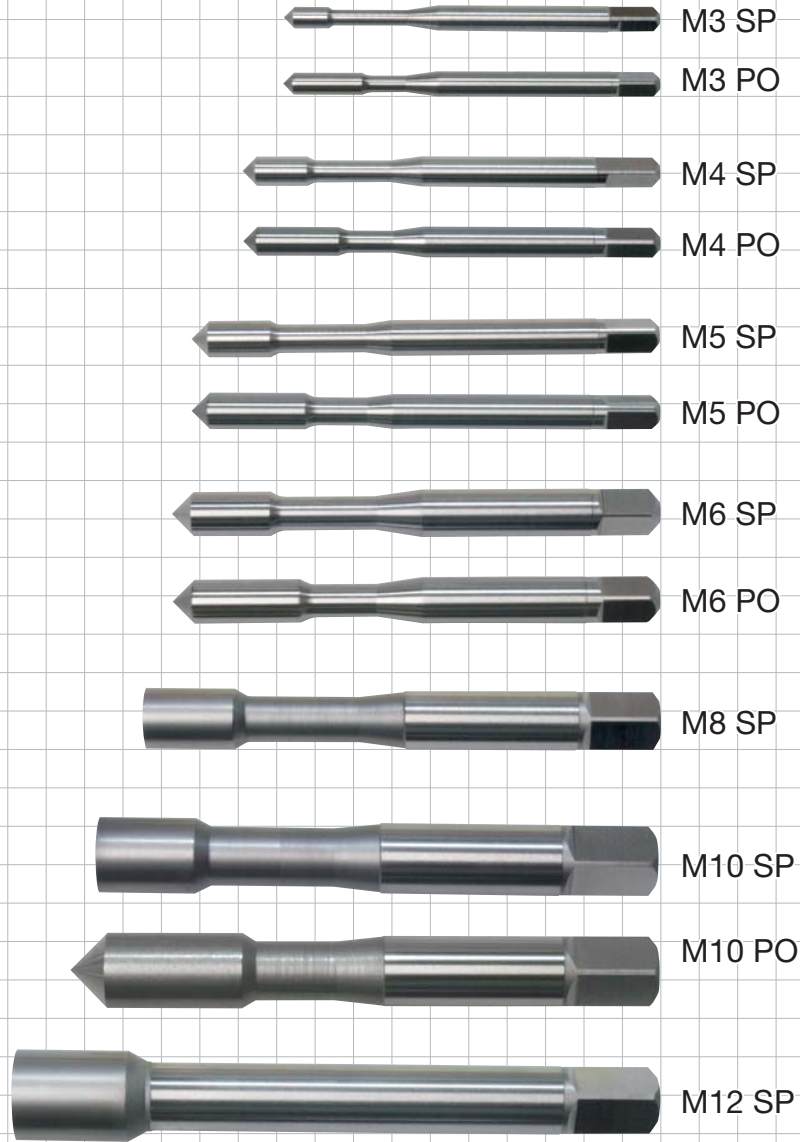
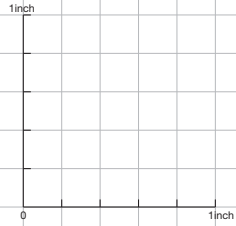
● Above dimension is recommended if there is no request of specification.



YAMAWA Standard blank Line UP



Think t
YAWA



threads with
YAMAWA



PRAD system Inquiry paper

Please fill in the blanks and send it to us by e-mail or FAX

e-mail: e-support@yamawa.com

FAX: +81-3-3564-6838

●Company name			
●Department		●Name	
●TEL		●FAX	
●e-mail address			

Customer's request

●Thread type	·Metric ·Unified ·Whitworth ·Special()		
●Size and pitch	() X ()	●Rotative direction	·Right hand ·Left hand
●Tap type	·SP ·PO ·HT ·ROLL ·Other item()		
●Overall length	·YMW standard ·L-70 ·L-100 ·L-120 ·L-150 ·L-() other length		
●Tap material	·HSS-E (HSS) ·HSS-E (Co HSS) ·HSS-P		
●Tolerance	·P () class ·GH () class ·JIS II class ·Request class ()		
●Thread length	·YMW standard ·Request length ()	●Shank dia.	·YMW standard ·Request dia. ()
●Chamfer length	·YMW standard ·Taper ·Plug ·Bottoming ·4P(P) ·2P(B) ·Request chamfer ()		
●Surface treatment	·Oxide ·Nitride ·Nitride-Oxide ·TiN ·TiCN ·CrN ·Bright finished		

Condition of Work-piece material

●Tapping part	() ·Unclear	●Hardness	() HRB () HRC ·Unclear
●Work material	·FC() ·SS() ·SPC() ·SUS() ·ADC() ·AC () ·BSBM () ·BC() ·S () C ·SCM() ·Synthetic resin () ·Else () ·Unclear ()		
●Parts shape			●Direction ·Vertical ·Horizontal
●How to make hole	·Drill ·Press ·Reamer ·Molding ·Other () ·Unclear		
●Gauge	·GP () ·NP (WP) () ·No check ·Unclear		

Machine, cutting condition

●Tapping machine	·Drill press ·Automatic lathe ·Special machine ·Tapping machine ·Machining Center ·Else		
●Holder	·Drilled chuck type ·Tapping folder (with spring) type ·Complete fixed holder type ·Else		
●Feed	·Manual feed ·Gear feed system ·Master lead screw feed system ·Asynchronous feed system by approximation ·Fully synchronous feed system ·Else		
●Cutting speed	() SFM or Revolution () rpm ·Unclear		
●Cutting oil	·Oil ·Water soluble oil ·Paste ·Else() ·Unclear		

<Comment>
