



Vol 5

Extreme Performance Forming Taps

# EXOPRO<sup>®</sup> XPF

XPF, XPF-OIL & XPF-LS



## Wide Range of Size Capabilities

No. 0 - 1-3/4" and M1-M45 available as stocked standard.

## 40-50% Less Machining Torque

Longer life at faster speeds and the ability to use larger forming taps.

## Increased Durability

17 times more durable than cut taps.

## Long Shank

Additional length provides greater reach capabilities.

## Available as Coolant-Through

For those with coolant-fed spindles, even more performance can be achieved.

## Premium High Performance Form Taps for Materials up to 45 HRC!

The EXOPRO<sup>®</sup> XPF & XPF-OIL represent an evolution in forming tap technology. These form taps generate up to 50% less torque versus other forming taps, making it feasible to tap materials up to 45 HRC and sizes exceeding 1" in diameter.

## 17x the Durability of Cutting Taps!

The EXOPRO<sup>®</sup> XPF is a superior thread-forming tap that stably makes threads without creating cutting chips. Its adoption rate in nonferrous materials is approximately 90%, in terms of the number of machined holes. In contrast, its diffusion rate in steel materials is 20% (per OSG data). The XPF is a new type of thread-rolling tap that eliminates the obstacles associated with thread-forming when tapping in steel materials.

## Expands the Range of Thread-Rolling Taps

The EXOPRO<sup>®</sup> XPF has significantly reduced friction resistance by adopting a special threading design and a special surface treatment. This results in a reduction in torque of 40% from the traditional product and a considerable suppression of heat generation (see example below)! It facilitates previously difficult applications such as 40 HRC steel materials and thread-forming of large diameters and enables high-speed operation using water-soluble coolant while attaining even longer tool life.



# Large Thread Tapping

## The XPF-OIL Provides Trouble-Free Tapping of Large Threads

The XPF-OIL tapped over 500 holes in 1045 Steel, while the competitor's cut tap only achieved 12 holes before chipping. Typically, thread forming is very difficult for larger threads (over 3/4" or M20) because of extremely high tapping torque, friction and machine power requirements. The XPF-OIL reduced tapping torque and friction, as well as kept the machine spindle load below 11.4 hp, making the XPF-OIL ideal for large threads and other extreme tapping applications.

<b>Tap Size</b>	M36x4.0	<b>Tool Life (Holes)</b>					
<b>Work Material</b>	1045	0	100	200	300	400	500
<b>Hole Size</b>	Ø33.97mm						
<b>Tapping Length</b>	93mm						
<b>Tapping Speed</b>	82 SFM (221 RPM)						
<b>Coolant</b>	Water Soluble						
<b>Machine</b>	Horizontal Machining Center						
<b>Internal XPF-OIL</b>		500 (Holes) Continue					
<b>Competitor Cut Tap</b>		12 (Holes) Chipping					

# Stable Performance with Internally-Fed Coolant

## Internally-Fed Coolant Improves Tool Life

Here is an example of water-soluble coolant machining using XPF-OIL containing coolant holes. It tapped approximately 2,000 holes in 4140 (35 HRC). Ordinarily, externally-fed coolant on horizontal machining centers results in poor coolant feeding. However, the XPF-OIL is able to perform stably due to its internally-fed coolant.

<b>Tap Size</b>	M10x1.5	<b>Tapping Holes (Holes)</b>			
<b>Work Material</b>	4140 (35HRC)	0	1,000	2,000	3,000
<b>Hole Size</b>	Ø9.3x24mm (Through)				
<b>Tapping Length</b>	20mm (2D) (Blind)				
<b>Tapping Speed</b>	33 SFM (320 RPM)				
<b>Coolant</b>	Water Soluble Chlorine-Free (5%)				
<b>Machine</b>	Horizontal Machining Center				
<b>Internal XPF-OIL</b>					
		1,946 Holes		Breakage	
<b>Internal Competitor A</b>		750 Holes		Excessive Wear	
		300 Holes		Excessive Wear	
<b>Internal Competitor B</b>		13 Holes		Breakage	
		38 Holes		Breakage	

## Internally-Fed Coolant and Selective Machining Conditions Improve Tool Life

By doubling the speed of the above example from 32.5 SFM to 65 SFM, the XPF-OIL's durability and tool life can be further increased.

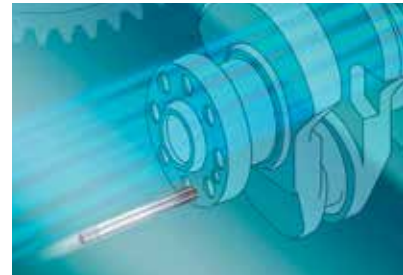
<b>Tap Size</b>	M10x1.5	<b>Tapping Holes (Holes)</b>						
<b>Work Material</b>	4140 (35HRC)	0	1,000	2,000	3,000			
<b>Hole Size</b>	Ø9.3x24mm (Through)							
<b>Tapping Length</b>	20mm (2D) (Blind)							
<b>Tapping Speed</b>	65 SFM (630 RPM)							
<b>Coolant</b>	Water Soluble Chlorine-Free (5%)							
<b>Machine</b>	Horizontal Machining Center							
<b>Internal XPF-OIL</b>						2,704 Holes		Excessive Rubbing Noise
						2,950 Holes		Excessive Wear
<b>Internal Competitor A</b>						77 Holes		Excessive Rubbing Noise
						44 Holes		Excessive Rubbing Noise
<b>Internal Competitor B</b>						421 Holes		Breakage
		200 Holes		Excessive Wear				
<b>Internal Competitor C</b>		1 Hole		Breakage				
		5 Holes		Breakage				
<b>External Traditional Product</b>		1 Hole		Excessive Wear				
		1 Hole		Excessive Wear				

## New Concept for Thread Forming

### Switching Over from a Cutting Tap with Externally-Fed Coolant

Minimum Quantity Lubrication (MQL), high efficiency, and cutting-edge machining proved to be impossible with the conventional form tap in the below example. Watch the videos on OSG's YouTube channel to see the XPF-OIL outperform.

Tool	XPF-OIL M12x1.75	Conventional Form Tap
Work Material	4130	
Hole Size	Ø11.1x45mm (Blind)	
Tapping Length	36mm (3D) (Blind)	
Tapping Speed	132 SFM (1,067 RPM)	
Coolant	MQL Internal	Water Soluble Chlorine-Free (10%) (External)
Machine	Horizontal Machining Center	





Discover the value of the XPF-OIL and its exceptional performance. Visit OSG's official YouTube channel at <http://www.youtube.com/user/osgtool> and find out how OSG's XPF-OIL MQL outperforms a conventional form tap.

OIL-S-XPF MQL



Conventional Form Tap

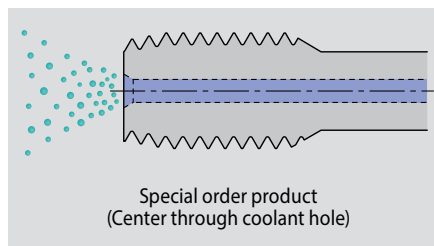


## Eco-Friendly Solutions with MQL

### Water-Soluble Coolant Machining Containing Coolant Holes

Ordinarily, horizontal machining centers result in poor coolant distribution for externally-fed taps. However, the XPF-OIL is able to perform stably due to its internally-fed coolant hole design, tapping approximately 2,000 holes in 1050 steel.

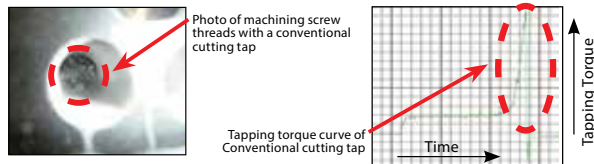
Tap Size	M8x1.25 (Special Order with Oil Hole)
Work Material	1050
Hole Size	Ø7.4x23mm (Blind)
Tapping Length	18mm (2.3D) (Blind)
Tapping Speed	32-131 SFM (388-1589 RPM)
Coolant	MQL 50cc/h (Internal)
Machine	Horizontal Machining Center



Tapping Speed	Tapping Holes						
	0	1,000	2,000	3,000	4,000	5,000	(Holes)
32 SFM	2,500 Holes						Excessive Wear
	3,000 Holes						Excessive Wear
65 SFM	4,500 Holes						Excessive Wear
	4,375 Holes						GP-OUT
98 SFM	3,806 (Holes)						Excessive Rubbing Noise
	3,355 (Holes)						GP-OUT
131 SFM	1,606 (Holes)						GP-OUT
	812 (Holes)						GP-OUT

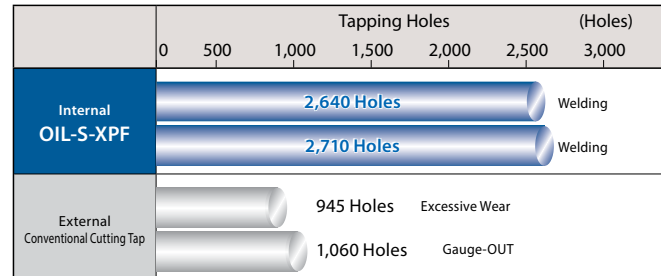
# Complete Solution for Chip Clearance Problems

Switching Over from a Cutting Tap with Externally-Fed Coolant



By switching from an externally-fed coolant tap to the XPF-OIL, cutting chip troubles can be eliminated while achieving a high level of durability in a stable manner. With the conventional cutting tap, the machining torque increases because cutting chips accumulate at the bottom of the blind hole.

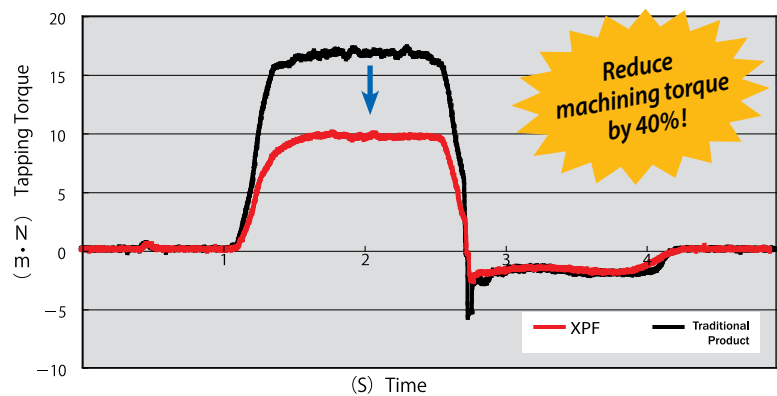
Tool	XPF-OIL (M16x1.5)	Conventional Cutting Tap
Work Material	1050 (90HRB)	
Hole Size	Ø15.25x46.5mm (Blind)	Ø14.5x46.5mm (Blind)
Tapping Length	40mm (2.5D) (Blind)	39mm (2.4D) (Blind)
Tapping Speed	50 SFM (303 RPM)	
Coolant	Water Soluble Chlorine-Free (10%)	
Machine	Horizontal Machining Center	



# Low Machining Torque

XPF Reduces Machining Torque for Use in Low-Lubrication Environments

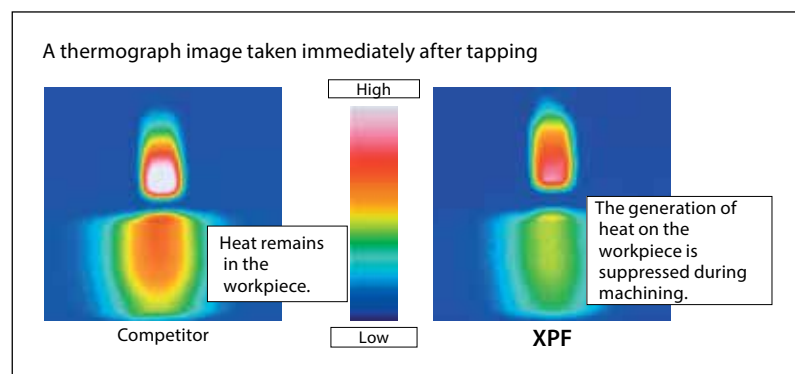
Tap Size	M8x1.25 2P
Work Material	4140 (30HRC)
Hole Size	Ø7.4x20mm (Through)
Tapping Length	16mm (2D) (Blind)
Tapping Speed	49 SFM (597 RPM)
Coolant	Water Soluble Chlorine-Free (10%)
Machine	Vertical Machining Center



# Reduced Heat Generation

Heat Generation is Reduced by 20%, Thus Improving Tool Life

Tap Size	M10x1.5 2P
Work Material	4140 (30HRC)
Hole Size	Ø9.4x25mm (Through)
Tapping Length	25mm (2.5D) (Through)
Tapping Speed	66 SFM (675 RPM)
Coolant	Paste Application
Machine	Radial Drill Press



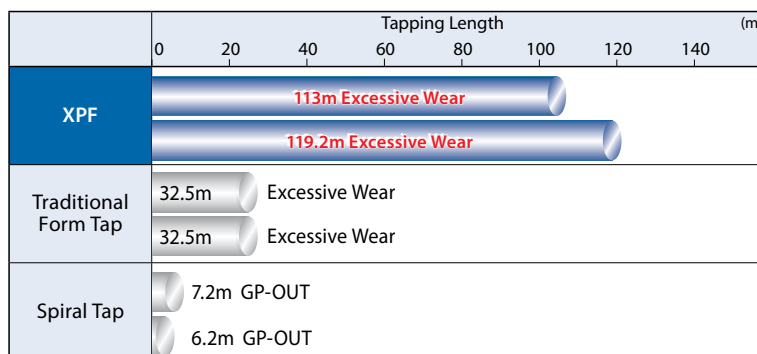
\* To photograph the process, machining was carried out by applying paste instead of using coolant. However, during normal machining, coolant should be used.

## 17x the Durability of Cutting Taps

### Expands the Range of Form Taps

On horizontal machining centers, tapping deep holes properly is considered difficult due to the insufficient feeding of coolant in the work area. However, the XPF has solved this problem and has succeeded in attaining superior performance. The outstanding durability of the XPF is clearly demonstrated in this type of operation. The more demanding the work, the more you will reach for XPF Taps!

Tool	XPF M6x1 2P	Conventional Cutting Tap	Spiral Tap M6x1
Work Material	1045		
Hole Size	Ø5.55x25mm (Through)	Ø5x15mm (Through)	
Tapping Length	18mm (3D) (Blind)	12mm (2D) (Blind)	
Tapping Speed	49 SFM (792 RPM)	33 SFM (533 RPM)	
Coolant	Water Soluble Chlorine-Free (10%)		
Machine	Horizontal Machining Center		

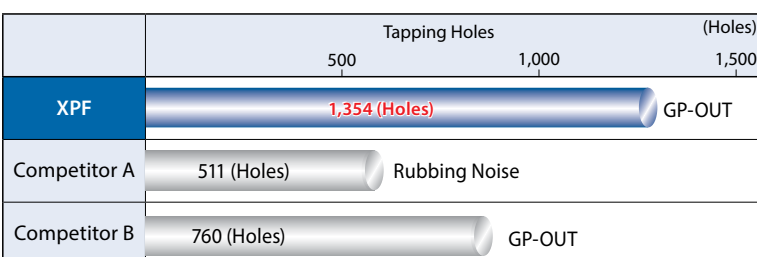


## Long Tool Life in Large Diameter Threads

### Increased Tool Life Leads to Cost Savings

The competitor's product could tap only 500 to 700 holes using a coolant that is highly diluted to five times. In contrast, the XPF could tap over 1,300 holes, successfully reducing costs. This cost reduction can also be applied to reducing the running cost of the coolant by increasing its dilution rate. The XPF can offer many ideas to optimize your work on the shop floor!

Tool	M14x1.5 2P
Work Material	4140 (30 HRC)
Hole Size	Ø13.3x25mm (Through)
Tapping Length	20mm (1.5D) (Blind)
Tapping Speed	50 SFM (346 RPM)
Coolant	Water Soluble Chlorine-Free (20%)
Machine	Vertical Machining Center

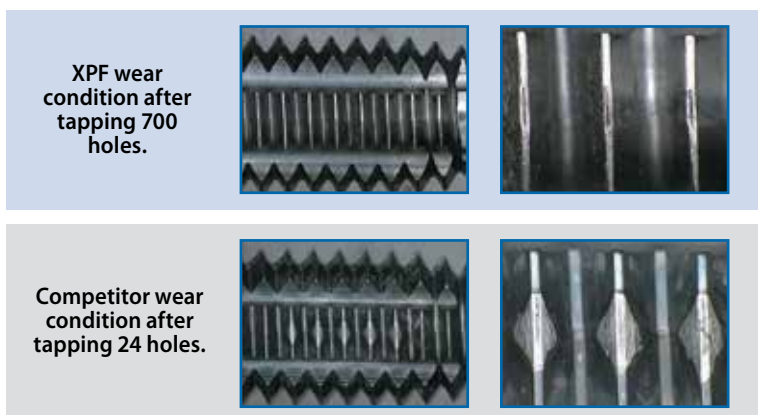
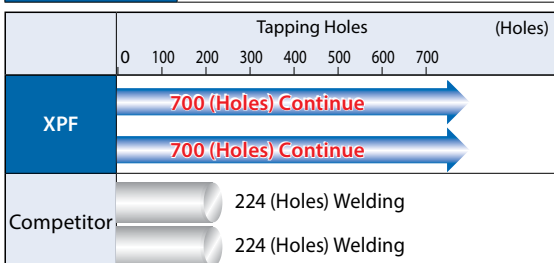


## High Speed Thread-Rolling

### Challenging High Speeds in SS400 Material

Here is an example of tapping in SS400 material at a high speed of 132 SFM on a horizontal machining center. The traditional product bound up considerably, shortening its tool life. After tapping almost three times the number of holes, the XPF bound up only slightly, and could continue to work. It simultaneously improved tapping efficiency and reduced tool cost.

Tool	M8x1.25 2P
Work Material	SS400
Hole Size	Ø7.4x18mm (Blind)
Tapping Length	13.5mm (1.7D) (Blind)
Tapping Speed	132 SFM (1,601 RPM)
Coolant	Water Soluble Chlorine-Free (10%)
Machine	Horizontal Machining Center



# List 16050



Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln		V	Min	Max	2B
1/4 - 20 UNC	1.5P	H6	80	30	1605014216	0.2245	0.2295	H6	H4
	2.5P	H4			1605014204				
	4.5P	H6			1605014206				
	4.5P	H6			1605014246				
1/4 - 28 UNF	1.5P	H6	80	30	1605014816	0.2318	0.2354	H6	H4
	2.5P	H4			1605014284				
	4.5P	H6			1605014286				
	4.5P	H6			1605014846				
5/16 - 18 UNC	1.5P	H7	90	35	1605051617	0.2842	0.2898	H7	H5
	2.5P	H5			1605056185				
	4.5P	H7			1605056187				
	4.5P	H7			1605051647				
5/16 - 24 UNF	1.5P	H7	90	35	1605056217	0.2912	0.0295	H7	H5
	2.5P	H5			1605056245				
	4.5P	H7			1605056247				
	4.5P	H7			1605056447				
3/8-16 UNC	1.5P	H7	100	40	1605038117	0.3431	0.3495	H7	H5
	2.5P	H5			1605038165				
	4.5P	H7			1605038167				
	4.5P	H7			1605038147				
3/8 - 24 UNF	1.5P	H7	100	40	1605038217	0.3537	0.3580	H7	H5
	2.5P	H5			1605038245				
	4.5P	H7			1605038247				
	4.5P	H7			1605038447				
7/16 - 14 UNC	1.5P	H8	100	43	1605076118	0.4011	0.4084	H8	H5
	2.5P	H5			1605076145				
	4.5P	H8			1605076148				
	4.5P	H8			1605076448				
7/16 - 20 UNF	1.5P	H8	100	43	1605076218	0.4120	0.4171	H8	H5
	2.5P	H5			1605076205				
	4.5P	H8			1605076208				
	4.5P	H8			1605076248				
1/2 - 13 UNC	1.5P	H8	110	49	1605012118	0.4608	0.4686	H8	H5
	2.5P	H5			1605012135				
	4.5P	H8			1605012138				
	4.5P	H8			1605012148				
1/2-20 UNF	1.5P	H8	100	49	1605012218	0.4745	0.4796	H8	H5
	2.5P	H5			1605012205				
	4.5P	H8			1605012208				
	4.5P	H8			1605012248				
9/16 - 12 UNC	1.5P	H10	110	50	1605091110	0.5200	0.5285	H10	H7
	2.5P	H7			1605096127				
	4.5P	H10			1605096120				
	4.5P	H10			1605091140				
9/16 - 18 UNF	1.5P	H10	100	50	1605091810	0.5342	0.5398	H10	H7
	2.5P	H7			1605096187				
	4.5P	H10			1605096180				
	4.5P	H10			1605091840				

Packed: 1 pc.  
Available V coating only.

continued on next page

Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
16050	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
SFM	75-130	75-130	65-100	65-100	20-65	20-50	20-45	15-40		80-130	75-110	8-10	8-10	50-100	8-20		

\*For Stainless Steel, please use non-water-soluble coolant.

good  best





## List 16050 (Continued)

Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln		V	Min	Max	2B
5/8 - 11 UNC	1.5P	H10	110	54	1605058150	0.5787	0.5879	H10	H7
	2.5P	H7			1605058117				
	4.5P	H10			1605058110				
5/8 - 18 UNF	1.5P	H10	100	54	1605058810	0.5967	0.6023	H10	H7
	2.5P	H7			1605058187				
	4.5P	H10			1605058180				
3/4 - 10 UNC	1.5P	H10	125	61	1605034110	0.6990	0.7092	H10	H7
	2.5P	H7			1605034107				
	4.5P	H10			1605034100				
3/4 - 16 UNF	1.5P	H10	110	61	1605034610	0.7181	0.7245	H10	H7
	2.5P	H7			1605034167				
	4.5P	H10			1605034160				
7/8 - 9 UNC	1.5P	H11	140	67	1605078911	0.8183	0.8297	H11	H8
	2.5P	H8			1605078908				
	4.5P	H11			1605078901				
7/8 - 14 UNF	1.5P	H11	125	67	1605078111	0.8386	0.8459	H11	H8
	2.5P	H8			1605078148				
	4.5P	H11			1605078141				
1" - 8 UNC	1.5P	H11	160	76	1605018111	0.9363	0.9490	H11	H8
	2.5P	H8			1605001088				
	4.5P	H11			1605001081				
1" - 12 UNF	1.5P	H11	140	76	1605011211	0.9575	0.9660	H11	H8
	2.5P	H8			1605001128				
	4.5P	H11			1605001121				
1, 1/8 - 7 UNC	2.5P	H13	180	72	1605011878	1.0521	1.0667	H13	-
1, 1/8 - 8 UNS	2.5P	H11	180	72	1605011888	1.0613	1.0740	H11	-
1, 1/8 - 12 UNF	2.5P	H11	150	60	1605011826	1.0825	1.0910	H11	-
1, 1/4 - 7 UNC	2.5P	H13	180	72	1605012578	1.1771	1.1917	H13	-
1, 1/4 - 8 UNS	2.5P	H11	180	72	1605012588	1.1863	1.1990	H11	-
1, 1/4 - 12 UNF	2.5P	H11	150	60	1605012526	1.2075	1.2160	H11	-
1, 3/8 - 6 UNC	2.5P	H14	200	80	1605013768	1.2900	1.3070	H14	-
1, 3/8 - 8 UNS	2.5P	H13	200	80	1605013788	1.3113	1.3240	H13	-
1, 3/8 - 12 UNF	2.5P	H11	170	68	1605013126	1.3325	1.3410	H11	-
1, 1/2 - 6 UNC	2.5P	H15	200	80	1605011268	1.4150	1.4320	H15	-
1, 1/2 - 8 UNS	2.5P	H13	200	80	1605011288	1.4363	1.4490	H13	-
1, 1/2 - 12 UNF	2.5P	H11	170	68	1605012126	1.4575	1.4660	H11	-
1, 5/8 - 8 UNS	2.5P	H13	200	80	1605016288	1.5613	1.5740	H13	-
1, 3/4 - 5 UNC	2.5P	H16	220	88	1605017558	1.6480	1.6684	H16	-
1, 3/4 - 8 UNS	2.5P	H13	200	80	1605017588	1.6863	1.6990	H13	-

Packed: 1 pc.  
Available V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels		Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium		Hardened Steels		
	Low	Med.	High	4140	4340	300	400	17-4 PH		6061	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16050	☉	☉	☉	☉	☉	☉*	☉*	☉*		☉	☉	☐	☐	☉	☐		
SFM	75-130	75-130	65-100	65-100	20-65	20-50	20-45	15-40		80-130	75-110	8-10	8-10	50-100	8-20		

\*For Stainless Steel, please use non-water-soluble coolant.

☐ good ☉ best





# List 16150



Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	6H	4H
M6 x 1.0	1.5P	D8	80	30	1615060118	5.49	5.59	D8	D5
	2.5P	D5			1615006015				
	4.5P	D8			1615006018				
M6 x 0.75	1.5P	D7	80	30	1615060148	5.62	5.69	D7	D4
	2.5P	D4			1615067517				
	4.5P	D7			1615006754				
M7 x 1.0	1.5P	D8	80	30	1615006757	6.49	6.59	D8	D5
	2.5P	D8			1615070118				
	4.5P	D8			1615007015				
M8 x 1.25	1.5P	D9	90	35	161507018	7.36	7.49	D9	D5
	2.5P	D5			1615081219				
	4.5P	D9			1615008255				
M8 x 1.0	1.5P	D8	90	35	1615008259	7.49	7.59	D8	D5
	2.5P	D5			1615081249				
	4.5P	D8			1615008018				
M8 x 0.75	1.5P	D7	80	30	161508018	7.62	7.69	D7	D4
	2.5P	D4			1615080148				
	4.5P	D7			1615087517				
M10 x 1.5	1.5P	D10	100	39	1615008754	9.24	9.39	D10	D6
	2.5P	D6			1615010110				
	4.5P	D10			1615010156				
M10 x 1.25	1.5P	D9	100	39	1615010150	9.36	9.49	D9	D5
	2.5P	D5			1615010140				
	4.5P	D9			1615010259				
M10 x 1.0	1.5P	D8	90	35	1615010149	9.49	9.59	D8	D5
	2.5P	D5			1615010118				
	4.5P	D8			1615010015				
M12 x 1.75	1.5P	D11	110	49	1615010018	11.11	11.23	D11	D6
	2.5P	D6			1615012711				
	4.5P	D11			1615012756				
M12 x 1.5	1.5P	D11	100	49	1615010751	11.24	11.39	D11	D6
	2.5P	D6			1615012541				
	4.5P	D11			1615012151				
M12 x 1.25	1.5P	D10	100	49	1615012141	11.36	11.49	D10	D6
	2.5P	D6			1615012111				
	4.5P	D10			1615012156				

Packed: 1 pc.  
Available V coating only.

**continued on next page**

List No.	Work Material																
	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High								6061	Casting	Inconel	6Al4V	~35 HRC	35-45 HRC	45-50 HRC
	1010 1018	1035 1045	1065	4140 4340	300	400	17-4 PH		7075			(30 HRC)					
16150	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SFM	75-130	75-130	65-100	65-100	20-65	20-50	20-45	15-40		80-130	75-110	8-10	8-10	50-100	8-20		

\*For Stainless Steel, please use non-water-soluble coolant.

good  best



## List 16150 (Continued)



Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	6H	4H
M12 x 1.0	1.5P	D10	100	49	1615012110	11.49	11.59	D10	D6
	2.5P	D6			1615012106				
		D10			1615012100				
M14 x 2.0	1.5P	D12	110	50	1615012140	12.98	13.18	D12	D7
	2.5P	D7			1615014212				
		D12			1615014027				
M14 x 1.5	1.5P	D11	100	50	1615014022	13.24	13.39	D11	D6
	2.5P	D6			1615014242				
		D11			1615014511				
M16 x 2.0	1.5P	D11	100	50	1615014541	14.98	15.18	D12	D7
	2.5P	D7			1615016212				
		D12			1615016207				
M16 x 1.5	1.5P	D12	100	54	1615016202	15.24	15.39	D11	D6
	2.5P	D6			1615016242				
		D11			1615016111				
M18 x 2.5	1.5P	D11	125	54	1615016152	16.73	16.98	D12	D7
	2.5P	D7			1615016151				
		D12			1615016141				
M18 x 1.5	1.5P	D12	110	55	1615016141	17.24	17.39	D11	D6
	2.5P	D6			1615018212				
		D11			1615018257				
M20 x 2.5	1.5P	D12	140	61	1615018252	18.73	18.98	D12	D7
	2.5P	D7			1615018242				
		D12			1615018111				
M20 x 1.5	1.5P	D11	125	61	1615018156	19.24	19.39	D11	D6
	2.5P	D6			1615020212				
		D11			1615020257				
M22 x 2.5	1.5P	D12	140	67	1615020151	20.73	20.98	D12	D7
	2.5P	D7			1615020252				
		D12			1615020242				
M22 x 2.0	1.5P	D12	140	67	1615020141	20.98	21.18	D12	D7
	2.5P	D7			1615020111				
		D12			1615020156				
M22 x 1.5	1.5P	D11	125	67	1615020151	21.24	21.39	D11	D6
	2.5P	D6			1615022512				
		D11			1615022257				
M24 x 3.0	1.5P	D12	160	68	1615022252	22.47	22.78	D15	D9
	2.5P	D9			1615022542				
		D12			1615022212				
M24 x 2.0	1.5P	D11	140	68	1615022207	22.98	23.18	D13	D7
	2.5P	D7			1615022202				
		D13			1615022242				

Packed: 1 pc.  
Available V coating only.



# List 16150 (Continued)



Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	6H	4H
M24 x 1.5	1.5P	D11	140	68	1615024111	23.24	23.39	D11	D6
	2.5P	D6			1615024156				
	4.5P	D11			1615024151				
M27 x 3.0	2.5P	D15	160	64	1615027309	25.47	25.78	D15	-
M30 x 3.5	2.5P	D15	180	72	1615030350	28.22	28.57	D15	-
M33 x 3.5	2.5P	D16	180	72	1615033350	31.22	31.57	D16	-
M36 x 4.0	2.5P	D17	200	80	1615036411	33.96	34.37	D17	-
M42 x 4.5	2.5P	D17	200	80	1615042451	39.71	40.16	D17	-
M45 x 4.5	2.5P	D17	220	88	1615045451	42.71	43.16	D17	-

Packed: 1 pc.  
Available V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16150	☉	☉	☉	☉	☉	☉*	☉*	☉*		☉	☉	○	○	☉	○		
SFM	75-130	75-130	65-100	65-100	20-65	20-50	20-45	15-40		80-130	75-110	8-10	8-10	50-100	8-20		

\*For Stainless Steel, please use non-water-soluble coolant.

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## List 16250

HSS-Co

V

DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln		V	Min	Max	2B
0 - 80 UNF	1.5P	H3	40	9	1625008013	0.0536	0.0549	H3	H2
	2.5P	H2			162500802				
	H3	162500803							
1 - 64 UNC	1.5P	H3	45	9	162500804	0.0650	0.0666	H3	H2
	2.5P	H2			1625016413				
	H3	1625001642							
1 - 72 UNF	1.5P	H3	45	9	1625001643	0.0659	0.0673	H3	H2
	2.5P	H2			1625001644				
	H3	1625016443							
2 - 56 UNC	1.5P	H3	45	11	1625017213	0.0769	0.0787	H3	H2
	2.5P	H2			1625002562				
	H3	1625002563							
2 - 64 UNF	1.5P	H3	45	11	1625025643	0.0780	0.0796	H3	H2
	2.5P	H2			1625026413				
	H3	1625002642							
3 - 48 UNC	1.5P	H3	50	11	1625002643	0.0884	0.0905	H3	H2
	2.5P	H2			1625034813				
	H3	1625003482							
3 - 56 UNF	1.5P	H3	50	11	162503483	0.0899	0.0917	H3	H2
	2.5P	H2			162503484				
	H3	1625003562							
4 - 40 UNC	1.5P	H5	56	19	162503563	0.0993	0.1018	H5	H3
	2.5P	H3			1625044015				
	H5	1625004403							
4 - 48 UNF	1.5P	H5	56	19	162504404	0.1014	0.1035	H5	H3
	2.5P	H3			1625044815				
	H5	1625004483							
5 - 40 UNC	1.5P	H5	56	19	162504484	0.1123	0.1148	H5	H3
	2.5P	H3			1625054015				
	H5	1625005403							
5 - 44 UNF	1.5P	H5	56	19	162505404	0.1134	0.1157	H5	H3
	2.5P	H3			1625054045				
	H5	1625005443							
6 - 32 UNC	1.5P	H5	56	21	162505444	0.1221	0.1252	H5	H3
	2.5P	H3			1625063215				
	H5	1625006323							
6 - 40 UNF	1.5P	H5	56	21	162506324	0.1253	0.1278	H5	H3
	2.5P	H3			1625064015				
	H5	1625006403							
8 - 32 UNC	1.5P	H5	63	22	162506404	0.1481	0.1512	H5	H3
	2.5P	H3			1625083215				
	H5	1625008323							

Packed: 1 pc.  
Available V coating only.





# List 16250 (Continued)

DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

Tap Size	Lead	Thread Limit	Overall Length	Neck Length		EDP Number	Tap Drill Size		Class of Fit	
				Ln	V		Min	Max	2B	3B
8 - 36 UNF	1.5P	H5	63	22		1625083615	0.1498	0.1526	H5	H3
	2.5P	H3				1625008363				
	4.5P	H5				1625083645				
10 - 24 UNC	1.5P	H6	70	25		1625010216	0.1688	0.1729	H6	H4
	2.5P	H4				1625010244				
	4.5P	H6				1625010249				
10 - 32 UNF	1.5P	H6	70	26		1625010316	0.1741	0.1772	H6	H4
	2.5P	H4				1625010324				
	4.5P	H6				1625010346				
12 - 24 UNC	1.5P	H7	80	30		1625012417	0.1948	0.1989	H7	H5
	2.5P	H5				1625012245				
	4.5P	H7				1625012447				
12 - 28 UNF	1.5P	H7	80	30		1625012817	0.1978	0.2014	H7	H5
	2.5P	H5				1625012285				
	4.5P	H7				1625012847				
1/4 - 20 UNC	1.5P	H6	80	32		1625014216	0.2245	0.2295	H6	H4
	2.5P	H4				1625014204				
	4.5P	H6				1625014206				
1/4 - 28 UNF	1.5P	H6	80	32		1625014816	0.2318	0.2354	H6	H4
	2.5P	H4				1625014284				
	4.5P	H6				1625014846				
5/16 - 18 UNC	1.5P	H7	90	35		1625051617	0.2842	0.2898	H7	H5
	2.5P	H5				1625056185				
	4.5P	H7				1625051647				
5/16 - 24 UNF	1.5P	H7	90	35		1625056217	0.2912	0.2955	H7	H5
	2.5P	H5				1625056245				
	4.5P	H7				1625056249				
3/8 - 16 UNC	1.5P	H7	100	40		1625038117	0.3431	0.3495	H7	H5
	2.5P	H5				1625038165				
	4.5P	H7				1625038147				
3/8 - 24 UNF	1.5P	H7	100	40		1625038217	0.3537	0.3580	H7	H5
	2.5P	H5				1625038245				
	4.5P	H7				1625038249				
7/16 - 14 UNC	1.5P	H8	100	43		1625076118	0.4011	0.4084	H8	H5
	2.5P	H5				1625076145				
	4.5P	H8				1625076149				
7/16 - 20 UNF	1.5P	H8	100	43		1625076218	0.4120	0.4171	H8	H5
	2.5P	H5				1625076205				
	4.5P	H8				1625076208				

Packed: 1 pc.  
Available V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16250	☐	☐	☐	☐	☐	☐*	☐*	☐*		☐	☐	☐	☐	☐	☐		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

\*For Stainless Steel, please use non-water-soluble coolant.

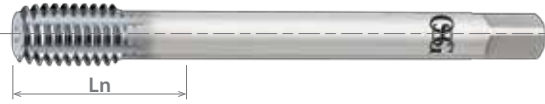
☐ good ☐ best



# List 16250 (Continued)



DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln		V	Min	Max	2B
1/2 - 13 UNC	1.5P	H8	110	49	1625012118	0.4608	0.4686	H8	H5
	2.5P	H5			1625012135				
		H8			1625012138				
	4.5P	H8			1625012148				
1/2 - 20 UNF	1.5P	H8	100	49	1625012218	0.4745	0.4796	H8	H5
	2.5P	H5			1625012205				
		H8			1625012208				
	4.5P	H8			1625012248				
9/16 - 12 UNC	1.5P	H7	110	50	1625091117	0.5200	0.5280	H10	H7
	2.5P	H7			1625096127				
		H10			1625096120				
	4.5P	H7			1625091147				
9/16 - 18 UNF	1.5P	H10	100	50	1625091810	0.5342	0.5398	H10	H7
	2.5P	H7			1625096187				
		H10			1625096180				
	4.5P	H10			1625091840				
5/8 - 11 UNC	1.5P	H10	110	54	1625058410	0.5787	0.5879	H10	H7
	2.5P	H7			1625058117				
		H10			1625058110				
	4.5P	H10			1625058140				
5/8 - 18 UNF	1.5P	H10	100	54	1625058810	0.5967	0.6023	H10	H7
	2.5P	H7			1625058187				
		H10			1625058180				
	4.5P	H10			1625058840				
3/4 - 10 UNC	1.5P	H10	125	62	1625034110	0.6990	0.7092	H10	H7
	2.5P	H7			1625034107				
		H10			1625034100				
	4.5P	H10			1625034140				
3/4 - 16 UNF	1.5P	H10	110	62	1625034610	0.7181	0.7245	H10	H7
	2.5P	H7			1625034167				
		H10			1625034160				
	4.5P	H10			1625034640				
7/8 - 9 UNC	1.5P	H11	140	67	1625078911	0.8183	0.8297	H11	H8
	2.5P	H8			1625078908				
		H11			1625078901				
	4.5P	H11			1625078941				
7/8 - 14 UNF	1.5P	H11	125	67	1625078111	0.8386	0.8459	H11	H8
	2.5P	H8			1625078148				
		H11			1625078141				
	4.5P	H11			1625078149				
1" - 8 UNC	1.5P	H11	160	76	1625018111	0.9363	0.9490	H11	H8
	2.5P	H8			1625001088				
		H11			1625001081				
	4.5P	H11			1625018411				
1" - 12 UNF	1.5P	H11	140	76	1625011211	0.9575	0.9660	H11	H8
	2.5P	H8			1625001128				
		H11			1625001121				
	4.5P	H11			1625011241				

Packed: 1 pc.  
Available V coating only.



Work Material																
List No.	P					M			K	N		S		H		
	Carbon Steels			Alloy Steels 4140 4340	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy Inconel	Titanium 6Al4V (30 HRC)	Hardened Steels		
	Low 1010 1018	Med. 1035 1045	High 1065			300	400	17-4 PH		6061 7075	Casting			~35 HRC	35-45 HRC	45-50 HRC
16250	☐	☐	☐	☐	☐	☐*	☐*	☐*		☐	☐	☐	☐	☐		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25	

\*For Stainless Steel, please use non-water-soluble coolant.

☐ good ☐ best



# List 16250 (Continued)



DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	2B	3B
1 1/8 - 7 UNC	2.5P	H13	180	72	1625011878	1.0521	1.0667	H13	-
1 1/8 - 8 UNS	2.5P	H11	180	72	1625011888	1.0613	1.0740	H11	-
1 1/8 - 12 UNF	2.5P	H11	150	60	1625011826	1.0825	1.0910	H11	-
1 1/4 - 7 UNC	2.5P	H13	180	72	1625012578	1.1771	1.1917	H13	-
1 1/4 - 8 UNS	2.5P	H11	180	72	1625012588	1.1863	1.1990	H11	-
1 1/4 - 12 UNF	2.5P	H11	150	60	1625012526	1.2075	1.2160	H11	-
1 3/8 - 6 UNC	2.5P	H14	200	80	1625013768	1.2900	1.3070	H14	-
1 3/8 - 8 UNS	2.5P	H13	200	80	1625013788	1.3113	1.3240	H13	-
1 3/8 - 12 UNF	2.5P	H11	170	68	1625013126	1.3325	1.3410	H11	-
1 1/2 - 6 UNC	2.5P	H15	200	80	1625011268	1.4150	1.4320	H15	-
1 1/2 - 8 UNS	2.5P	H13	200	80	1625011288	1.4363	1.4490	H13	-
1 1/2 - 12 UNF	2.5P	H11	170	68	1625012126	1.4575	1.4660	H11	-
1 5/8 - 8 UNS	2.5P	H13	200	80	1625016288	1.5613	1.5740	H13	-
1 3/4 - 5 UNC	2.5P	H16	220	88	1625017558	1.6480	1.6684	H16	-
1 3/4 - 8 UNS	2.5P	H13	200	80	1625017588	1.6863	1.6990	H13	-

Packed: 1 pc.  
Available V coating only.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16250	☉	☉	☉	☉	☉	☉*	☉*	☉*		☉	☉	☐	☐	☉	☐		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

\*For Stainless Steel, please use non-water-soluble coolant.

☐ good ☉ best



## List 16350

DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Tap Size	Lead	Thread Limit	Overall Length	Neck Length		Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	6H	4H
M1 x 0.25	1.5P	D5	40	6	1635012515	0.88	0.90	D5	D3
	2.5P	D5			1635012525				
	4.5P	D5			1635012545				
M1.2 x 0.35	1.5P	D5	40	7	1635012215	1.08	1.10	D5	D3
	2.5P	D5			1635012225				
	4.5P	D5			1635012245				
M1.4 x 0.3	1.5P	D5	40	8	1635014315	1.26	1.28	D5	D3
	2.5P	D5			1635014325				
	4.5P	D5			1635014345				
M1.6 x 0.35	1.5P	D5	40	9	1635016315	1.42	1.46	D5	D3
	2.5P	D3			1635016353				
		D5			1635016355				
	4.5P	D5			1635016345				
M1.7 x 0.35	1.5P	D5	40	9	1635017315	1.52	1.56	D5	D3
	2.5P	D3			1635017353				
		D5			1635017355				
	4.5P	D5			1635017345				
M1.8 X 0.35	1.5P	D5	40	9	1635018315	1.62	1.66	D5	D3
	2.5P	D3			1635018353				
		D5			1635018355				
	4.5P	D5			1635018345				
M2 x 0.4	1.5P	D5	45	9	1635024155	1.80	1.84	D5	D3
	2.5P	D3			1635002043				
		D5			1635002045				
	4.5P	D5			1635024455				
M2.5 x 0.45	1.5P	D5	50	11	1635025415	2.27	2.32	D5	D3
	2.5P	D3			1635025453				
		D5			1635025455				
	4.5P	D5			1635025445				
M2.6 x 0.45	1.5P	D5	50	11	1635026415	2.38	2.42	D5	D3
	2.5P	D5			1635026425				
		D5			1635026445				
	4.5P	D5							
M3 x 0.5	1.5P	D5	56	19	1635030515	2.75	2.80	D5	D3
	2.5P	D3			1635003053				
		D5			1635003055				
	4.5P	D5			1635030545				
M3 x 0.35	1.5P	D5	56	19	1635033515	2.83	2.89	D5	D3
	2.5P	D3			1635003353				
		D5			1635003355				
	4.5P	D5			1635033545				
M3.5 x 0.6	1.5P	D6	56	21	1635035616	3.19	3.26	D6	D4
	2.5P	D4			1635035064				
		D6			1635035066				
	4.5P	D6			1635035646				
M4 x 0.7	1.5P	D6	63	22	1635040716	3.64	3.71	D6	D4
	2.5P	D4			1635004074				
		D6			1635004076				
	4.5P	D6			1635040746				
M4 x 0.5	1.5P	D6	63	22	1635040516	3.75	3.80	D6	D4
	2.5P	D4			1635004054				
		D6			1635004056				
	4.5P	D6			1635040546				
M4.5 x 0.75	1.5P	D6	70	27	1635045716	4.13	4.19	D6	D4
	2.5P	D4			1635045754				
		D6			1635045756				
	4.5P	D6			1635045746				

Packed: 1 pc.  
Available V coating only.







# List 16350 (Continued)

DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	6H	4H
M5 x 0.8	1.5P	D7	70	27	1635050817	4.59	4.67	D6	D4
	2.5P	D4			1635005084				
	4.5P	D7			1635005087				
M5 x 0.5	1.5P	D5	70	27	1635050515	4.75	4.80	D5	D3
	2.5P	D3			1635005053				
	4.5P	D5			1635005055				
M6 x 1.0	1.5P	D8	80	32	1635060118	5.49	5.59	D8	D5
	2.5P	D5			1635006015				
	4.5P	D8			1635006018				
M6 X 0.75	1.5P	D7	80	32	1635060148	5.62	5.69	D6	D4
	2.5P	D4			1635067517				
	4.5P	D7			1635006754				
M7 x 1.0	1.5P	D8	80	30	1635070118	6.49	6.59	D8	D5
	2.5P	D5			1635007015				
	4.5P	D8			1635007018				
M8 x 1.25	1.5P	D9	90	35	1635070148	7.36	7.49	D9	D5
	2.5P	D5			1635081219				
	4.5P	D9			1635008255				
M8 x 1.0	1.5P	D8	90	35	1635008259	7.49	7.59	D8	D5
	2.5P	D5			1635081249				
	4.5P	D8			1635080118				
M8 x 0.75	1.5P	D7	80	30	1635080156	7.62	7.69	D6	D4
	2.5P	D4			1635008754				
	4.5P	D7			1635008757				
M10 x 1.5	1.5P	D10	100	39	1635087547	9.24	9.39	D10	D6
	2.5P	D6			1635010110				
	4.5P	D10			1635010156				
M10 x 1.25	1.5P	D9	100	39	1635010150	9.36	9.49	D9	D5
	2.5P	D5			1635010140				
	4.5P	D9			1635010119				
M10 x 1.0	1.5P	D8	90	35	1635010255	9.49	9.59	D8	D5
	2.5P	D5			1635010259				
	4.5P	D8			1635010149				
M12 x 1.75	1.5P	D11	110	49	1635010118	11.11	11.23	D11	D6
	2.5P	D6			1635010015				
	4.5P	D11			1635010018				
M12 x 1.5	1.5P	D11	100	49	1635010018	11.24	11.39	D11	D6
	2.5P	D6			1635012171				
	4.5P	D11			1635012756				

Packed: 1 pc.  
Available V coating only.



List No.	Work Material																
	P					M			K	N		S	H				
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low 1010 1018	Med. 1035 1045	High 1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16350	☉	☉	☉	☉	☉	☉*	☉*	☉*		☉	☉	○	○	☉	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

\*For Stainless Steel, please use non-water-soluble coolant.

○ good ☉ best



# List 16350 (Continued)



DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

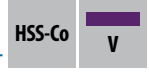


Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln		V	Min	Max	6H
M12 x 1.25	1.5P	D10	100	49	1635012210	11.36	11.49	D10	D6
	2.5P	D10			1635012220				
	4.5P	D10			1635012240				
M12 x 1.0	1.5P	D10	100	49	1635012110	11.49	11.59	D10	D6
	2.5P	D10			1635012120				
	4.5P	D10			1635012140				
M14 x 2.0	1.5P	D12	110	50	1635014212	12.98	13.18	D12	D7
	2.5P	D7			1635014027				
		D12			1635014022				
	4.5P	D12			1635014242				
M14 x 1.5	1.5P	D11	100	50	1635014511	13.24	13.39	D11	D6
	2.5P	D6			1635014156				
		D11			1635014151				
	4.5P	D11			1635014541				
M16 x 2.0	1.5P	D12	110	54	1635016212	14.98	15.18	D12	D7
	2.5P	D7			1635016207				
		D12			1635016202				
	4.5P	D12			1635016242				
M16 x 1.5	1.5P	D11	100	54	1635016111	15.24	15.39	D11	D6
	2.5P	D6			1635016156				
		D11			1635016151				
	4.5P	D11			1635016141				
M18 x 2.5	1.5P	D12	125	55	1635018212	16.73	16.98	D12	D7
	2.5P	D7			1635018257				
		D12			1635018252				
	4.5P	D12			1635018242				
M18 x 1.5	1.5P	D11	110	55	1635018111	17.24	17.39	D11	D6
	2.5P	D6			1635018156				
		D11			1635018151				
	4.5P	D11			1635018141				
M20 x 2.5	1.5P	D12	140	61	1635020212	18.73	18.98	D12	D7
	2.5P	D7			1635020257				
		D12			1635020252				
	4.5P	D12			1635020242				
M20 x 1.5	1.5P	D11	125	61	1635020111	19.24	19.39	D11	D6
	2.5P	D6			1635020156				
		D11			1635020151				
	4.5P	D11			1635020141				
M22 x 2.5	1.5P	D12	140	67	1635022512	20.73	20.98	D12	-
	2.5P	D12			1635022522				
	4.5P	D12			1635022542				
M22 x 2.0	1.5P	D12	140	67	1635022212	20.98	21.18	D12	-
	2.5P	D12			1635022222				
	4.5P	D12			1635022242				
M22 x 1.5	1.5P	D11	125	67	1635022111	21.24	21.39	D11	-
	2.5P	D11			1635022121				
	4.5P	D11			1635022141				
M24 x 3	1.5P	D15	160	68	1635024315	22.47	22.78	D15	-
	2.5P	D15			1635024325				
	4.5P	D15			1635024345				
M24 x 2.0	1.5P	D13	140	68	1635024123	22.98	23.18	D13	-
	2.5P	D13			1635024223				
	4.5P	D13			1635024243				
M24 x 1.5	1.5P	D11	140	68	1635024111	23.24	23.39	D11	-
	2.5P	D11			1635024121				
	4.5P	D11			1635024141				

Packed: 1 pc.  
Available V coating only.



# List 16350 (Continued)



DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	6H	4H
M27 x 3.0	2.5P	D15	160	64	1635027039	22.47	22.78	D15	-
M30 x 3.5	2.5P	D15	180	72	1635030350	28.22	28.57	D15	-
M33 x 3.5	2.5P	D16	180	72	1635033350	31.22	31.57	D16	-
M36 x 4.0	2.5P	D17	200	80	1635036411	33.96	34.37	D17	-
M42 x 4.5	2.5P	D17	200	80	1635042451	39.71	40.16	D17	-
M45 x 4.5	2.5P	D17	220	88	1635045451	42.71	43.16	D17	-

Packed: 1 pc.  
Available V coating only.



Work Material																	
List No.	P					M			K	N		S	H				
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low 1010 1018	Med. 1035 1045	High 1065	4140 4340	300	400	17-4 PH	6061 7075		Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
16350	☉	☉	☉	☉	☉	☉*	☉*	☉*		☉	☉	○	○	☉	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

\*For Stainless Steel, please use non-water-soluble coolant.

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## List 16255

HSS-Co

V

Long Shank, Modified Bottom (2.5P)



Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln		V	Min	Max	2B
5 - 40 UNC	2.5P	H5	80	19	1625554025	0.1123	0.1148	H5	H3
			120		1625554255				
5 - 44 UNF	2.5P	H5	80	19	1625554425	0.1134	0.1157	H5	H3
			120		1625554205				
6 - 32 UNC	2.5P	H5	80	21	1625563225	0.1221	0.1252	H5	H3
			120		1625563255				
6 - 40 UNF	2.5P	H5	80	21	1625564025	0.1253	0.1278	H5	H3
			120		1625564255				
8 - 32 UNC	2.5P	H5	80	22	1625583225	0.1481	0.1512	H5	H3
			120		1625583255				
8 - 36 UNF	2.5P	H5	80	22	1625583625	0.1498	0.1526	H5	H3
			120		1625586255				
10 - 24 UNC	2.5P	H6	100	25	1625510226	0.1688	0.1729	H6	H4
			150		1625510426				
10 - 32 UNF	2.5P	H6	100	26	1625510326	0.1741	0.1772	H6	H4
			150		1625510256				
12 - 24 UNC	2.5P	H7	100	30	1625512227	0.1948	0.1989	H7	H5
			150		1625512427				
12 - 28 UNF	2.5P	H7	100	30	1625512827	0.1978	0.2014	H7	H5
			150		1625512257				
1/4 - 20 UNC	2.5P	H6	100	32	1625514226	0.2245	0.2295	H6	H4
			150		1625514026				
1/4 - 28 UNF	2.5P	H6	100	32	1625514826	0.2318	0.2354	H6	H4
			150		1625514256				
5/16 - 18 UNC	2.5P	H7	110	35	1625551127	0.2842	0.2898	H7	H5
			150		1625556127				
5/16 - 24 UNF	2.5P	H7	110	35	1625551227	0.2912	0.2955	H7	H5
			150		1625551427				
3/8 - 16 UNC	2.5P	H7	120	40	1625538127	0.3431	0.3495	H7	H5
			150		1625538627				
3/8 - 24 UNF	2.5P	H7	120	40	1625538227	0.3537	0.3580	H7	H5
			150		1625538427				
7/16 - 14 UNC	2.5P	H8	120	43	1625571128	0.4011	0.4084	H8	H5
			150		1625576128				
7/16 - 20 UNF	2.5P	H8	120	43	1625571228	0.4120	0.4171	H8	H5
			150		1625576228				
1/2 - 13 UNC	2.5P	H8	150	49	1625512128	0.4608	0.4686	H8	H5
			180		1625512328				
1/2 - 20 UNF	2.5P	H8	150	49	1625512228	0.4745	0.4796	H8	H5
			180		1625512028				
9/16 - 12 UNC	2.5P	H7	150	50	1625591127	0.5200	0.5285	H10	H7
			180		1625591227				
9/16 - 18 UNF	2.5P	H7	150	50	1625591827	0.5342	0.5398	H10	H7
			180		1625596827				
5/8 - 11 UNC	2.5P	H7	150	54	1625558127	0.5787	0.5879	H10	H7
			180		1625558257				
5/8 - 18 UNF	2.5P	H7	150	54	1625558827	0.5967	0.6023	H10	H7
			180		1625551827				

Packed: 1 pc.  
Available V coating only.  
Shank diameter is standard ANSI.





# List 16255 (Continued)

Long Shank, Modified Bottom (2.5P)

Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	2B	3B
3/4 - 10 UNC	2.5P	H7	180	61	1625534127	0.6990	0.7092	H10	H7
			220		1625534027				
3/4 - 16 UNF	2.5P	H7	180	61	1625534627	0.7181	0.7245	H10	H7
			220		1625531627				
7/8 - 9 UNC	2.5P	H8	180	67	1625579828	0.8183	0.8297	H11	H8
			220		1625575258				
7/8 - 14 UNF	2.5P	H8	180	67	1625578128	0.8386	0.8459	H11	H8
			220		1625578428				
1" - 8 UNC	2.5P	H8	180	76	1625518208	0.9363	0.9490	H11	H8
			220		1625518258				
1" - 12 UNF	2.5P	H8	180	76	1625511428	0.9575	0.9660	H11	H8
			220		1625514208				

Packed: 1 pc.  
Available V coating only.  
Shank diameter is standard ANSI.



Work Material																	
List No.	P					M			K	N		S	H				
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
16255	☐	☐	☐	☐	☐	☐*	☐*	☐*		☐	☐	☐	☐	☐	☐		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

\*For Stainless Steel, please use non-water-soluble coolant.

☐ good ☐ best



## List 16355

Long Shank, Modified Bottom (2.5P)



Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	2B	3B
M3 x 0.5	2.5P	D5	80	19	1635530525	2.75	2.80	D5	D3
			120		1635535025				
M3 x 0.35	2.5P	D5	80	19	1635530325	2.83	2.89	D5	D3
			120		1635533525				
M3.5 x 0.6	2.5P	D6	80	21	1635535226	3.19	3.26	D6	D4
			120		1635535626				
M4 x 0.7	2.5P	D6	80	22	1635540726	3.64	3.71	D6	D4
			120		1635547256				
M4 x 0.5	2.5P	D6	80	22	1635540526	3.75	3.80	D6	D4
			120		1635545256				
M4.5 x 0.75	2.5P	D6	90	27	1635545726	4.13	4.19	D6	D4
			120		1635545526				
M5 x 0.8	2.5P	D7	100	27	1635550827	4.59	4.67	D7	D4
			150		1635550257				
M5 x 0.5	2.5P	D5	100	27	1635550525	4.75	4.80	D5	D3
			150		1635550255				
M6 x 1.0	2.5P	D8	100	32	1635561028	5.49	5.59	D8	D5
			150		1635561258				
M6 x 0.75	2.5P	D7	100	32	1635560727	5.62	5.69	D7	D4
			150		1635567527				
M7 x 1.0	2.5P	D8	100	30	1635571258	6.49	6.59	D8	D5
			150		1635571028				
M8 x 1.25	2.5P	D9	110	35	1635581229	7.36	7.49	D9	D5
			150		1635582529				
M8 x 1.0	2.5P	D8	110	35	1635581258	7.49	7.59	D8	D5
			150		1635581028				
M8 x 0.75	2.5P	D7	110	30	1635580727	7.62	7.69	D7	D4
			150		1635587527				
M10 x 1.5	2.5P	D10	120	39	1635510120	9.24	9.39	D10	D6
			150		1635510520				
M10 x 1.25	2.5P	D9	120	39	1635510129	9.36	9.49	D9	D5
			150		1635510229				
M10 x 1.0	2.5P	D8	120	35	1635510128	9.49	9.59	D8	D5
			150		1635510258				
M12 x 1.75	2.5P	D11	150	49	1635512721	11.11	11.23	D11	D6
			180		1635512751				
M12 x 1.5	2.5P	D11	150	49	1635512121	11.24	11.39	D11	D6
			180		1635512251				
M12 x 1.25	2.5P	D10	150	49	1635512520	11.41	11.49	D10	D6
			180		1635512250				
M12 x 1.0	2.5P	D10	150	49	1635512120	11.52	11.59	D10	D6
			180		1635512210				
M14 x 2.0	2.5P	D12	150	50	1635514222	12.98	13.18	D10	D7
			180		1635514252				
M14 x 1.5	2.5P	D11	150	50	1635514121	13.24	13.39	D11	D6
			180		1635514521				

Packed: 1 pc.  
Available V coating only.  
Shank diameter is standard ANSI.





## List 16355 (Continued)

Long Shank, Modified Bottom (2.5P)

Tap Size	Lead	Thread Limit	Overall Length	Neck Length	EDP Number	Tap Drill Size		Class of Fit	
				Ln	V	Min	Max	2B	3B
M16 x 2.0	2.5P	D12	150	54	1635516222	14.98	15.18	D12	D7
			180		1635516252				
M16 x 1.5	2.5P	D11	150	54	1635516121	15.24	15.39	D11	D6
			180		1635516521				
M18 x 2.5	2.5P	D12	150	55	1635518252	16.73	16.98	D12	D7
			180		1635518552				
M18 x 1.5	2.5P	D11	150	55	1635518121	17.24	17.39	D11	D6
			180		1635518521				
M20 x 2.5	2.5P	D12	180	61	1635520252	18.73	18.98	D12	D7
			220		1635520222				
M20 x 1.5	2.5P	D11	180	61	1635520121	19.24	19.39	D11	D6
			220		1635520521				

Packed: 1 pc.  
Available V coating only.  
Shank diameter is standard ANSI.



Work Material																	
List No.	P					M			K	N		S	H				
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
16355	☐	☐	☐	☐	☐	☐*	☐*	☐*		☐	☐	☐	☐	☐	☐		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

\*For Stainless Steel, please use non-water-soluble coolant.

☐ good ☐ best





*shaping your dreams*

 **Safe use of cutting tools**

- Use safety cover, safety glasses and safety shoes during operation.
- Do not touch cutting edges with bare hands.
- Do not touch cutting chips with bare hands. Chips will be hot after cutting.
- Stop cutting when the tool becomes dull.
- Stop cutting operation immediately if you hear any abnormal cutting sounds.
- Do not modify tools.
- Please use appropriate tools for the operation. Check dimensions to ensure proper selection.

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