






























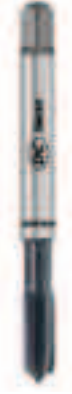

















	N							
Характеристики Cechy charakterystyczne								
Типы отверстий Typ otworu								
		<b>N320-3</b>	<b>N320-4</b>			<b>N350-3</b>	<b>N360-3</b>	
Длинный по DIN DIN długi	<b>DIN 371</b>	84	84			84	91	
Короткий по ISO ISO krótki	<b>ISO 529</b>							
Длинный по DIN DIN długi	~DIN 2174							
Класс точности Tolerancja	<b>ISO 2 6H</b>		84			84	91	
Повышенный класс точности Tolerancja dokładna	<b>ISO 1 4H</b>	84						
Класс точности Nadwymiar	<b>ISO 3 6G</b>						91	
	<b>N410-3</b>	<b>N420-3</b>	<b>N420-4</b>	<b>N420V-4</b>	<b>N420TN-4</b>	<b>N450-3</b>	<b>N460-3</b>	
Длинный по DIN DIN długi	<b>DIN 374</b>	85/90	88/89	85/90	85/88	85/86	84	92/93
Короткий по ISO ISO krótki	<b>ISO 529</b>							
Длинный по DIN DIN długi	~DIN 2174							
Класс точности Tolerancja	<b>ISO 2 6H</b>	85/90		85/90	85/88	85/86	84	92/93
Повышенный класс точности Tolerancja dokładna	<b>ISO 1 4H</b>							
Класс точности Nadwymiar	<b>ISO 3 6G</b>							92
Класс точности Tolerancja	<b>7H (EN 60423)</b>		<b>88/89</b>					
Левая резьба LH Gwint lewy	<b>ISO 2 6H</b>	90		90				

N					Z			
<b>N360V-3</b>	<b>N360TN-3</b>	<b>N1110-1</b>	<b>N1110-3</b>	<b>N1110-S</b>	<b>Z320V-3</b> <b>Z320V-4</b>	<b>Z320VS-4</b>	<b>Z360V-3</b>	<b>Z370VS-3</b>
91	91	106	106	106	94	94	94	94
91	91		106	106	94	94	94	94
					94			
<b>N460V-3</b>	<b>N460TN-3</b>	<b>N1210-1</b>	<b>N1210-3</b>	<b>N1210-S</b>	<b>Z420V-4</b>	<b>Z420VS-4</b>	<b>Z460V-3</b>	<b>Z470VS-3</b>
92/93	92	107/108	107/108	107/108	95	95	95	95
92/93	92		107/108	107/108	95	95	95	95



	H		S		SA		
Характеристики Cechy charakterystyczne			 VS	 VS			
							
Типы отверстий Typ otworu							
	<b>H320-4</b>	<b>H350-3</b>	<b>S320VS-4</b>	<b>S360VS-3</b>	<b>SA320-4</b>	<b>SA350-3</b>	<b>SA390-3</b>
Длинный по DIN DIN długi	DIN 371						
Короткий по ISO ISO krótki	ISO 529						
Длинный по DIN DIN długi	~DIN 2174						
Класс точности Tolerancja	ISO 2 6H	96	97	98	98	100	100
Повышенный класс точности Tolerancja dokładna	ISO 1 4H					100	100
Класс точности Nadwymiar	ISO 3 6G						
	<b>H420-4</b>	<b>H450-3</b>	<b>S420VS-4</b>	<b>S460VS-3</b>	<b>SA420-4</b>	<b>SA450-3</b>	
Длинный по DIN DIN długi	DIN 374						
Короткий по ISO ISO krótki	ISO 529						
Длинный по DIN DIN długi	~DIN 2174						
Класс точности Tolerancja	ISO 2 6H	96	97	98	98	101	101
Повышенный класс точности Tolerancja dokładna	ISO 1 4H					101	101

TL		K	RTS		FPS		FAS	
		 <b>TiCN</b>						
<b>VS</b>	<b>VS</b>		<b>VS</b>	<b>VS</b>	<b>CrN</b>	<b>VS</b>	<b>VS</b>	
		 <b>NEW</b>						
								
<b>TL320VS-4</b>	<b>TL351VS-3</b>	<b>K313TC-3</b>	<b>RTS320VS-4</b>	<b>RTS362VS-3</b>	<b>FPS381CN-3</b>	<b>FPS381VS-3</b>	<b>FAS381VS-3</b>	
100	100	103	102	102				
					104	104	105	
100	100	103	102	102	104	104	105	
100	100							
<b>TL420VS-4</b>	<b>TL451VS-3</b>	<b>K413TC-3</b>	<b>RTS420VS-4</b>	<b>RTS462VS-3</b>	<b>FPS481CN-3</b>	<b>FPS481VS-3</b>	<b>FAS481VS-3</b>	
101	101	103	102	102				
						104	105	
101	101	103	102	102		104	105	
101	101							

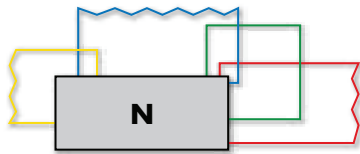
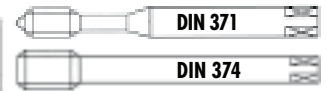
# MF ISO DIN 13

≤ Ø 2.8 > Ø 2.8

**PM** **HSSE**



**HSSE**



**N320-4**

**N350-3**

**N450-3**

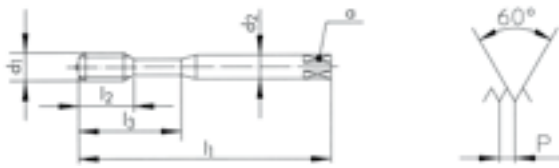
**N320-4**



**N350-3**



**N450-3**



**ISO 2 6H**

**ISO 2 6H**

**ISO 2 6H**

Ø d <sub>1</sub> MF	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> mm	d <sub>2</sub> mm	a mm		
*2	0.25	45	8.0		2.8	2.1	2	1.75
2.5	0.35	50	10.0		2.8	2.1	3	2.15
2.6	0.35	50	10.0		2.8	2.1	3	2.25
3	0.35	56	12.0	18	3.5	2.7	3	2.65
3.5	0.35	56	13.0	20	4.0	3.0	3	3.15

**ID**

142689  
142691  
142692  
142693  
142694

Ø d <sub>1</sub> MF	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> mm	d <sub>2</sub> mm	a mm		
4	0.50	63	14.0	21	4.5	3.4	2	3.50
5	0.50	70	15.0	25	6.0	4.9	3	4.50
6	0.75	80	17.0	30	6.0	4.9	3	5.25
8	1.00	90	20.0		6.0	4.9	3	7.00
9	0.75	90	20.0		7.0	5.5	3	8.25
10	1.00	100	22.0		7.0	5.5	3	9.00
12	1.00	100	24.0		9.0	7.0	3	11.00
12	1.50	100	24.0		9.0	7.0	3	10.50
14	1.50	100	24.0		11.0	9.0	3	12.50
16	1.50	100	26.0		12.0	9.0	3	14.50
18	1.50	110	26.0		14.0	11.0	4	16.50
20	1.50	125	28.0		16.0	12.0	4	18.50

**ID**

**ID**

101586  
101588  
101590

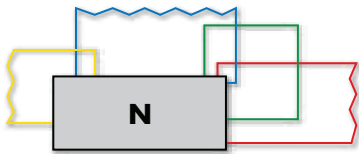
102326  
102328  
102313  
\* 102315  
\* 102316  
\* 102318  
\* 102320  
\* 102322  
\* 102323









\* N320-3



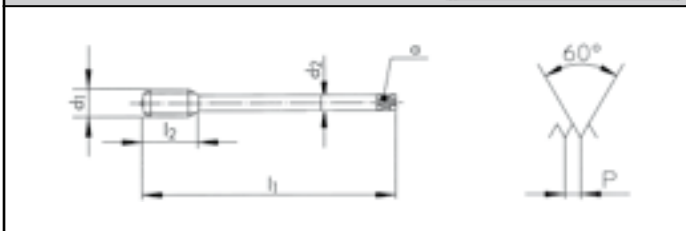
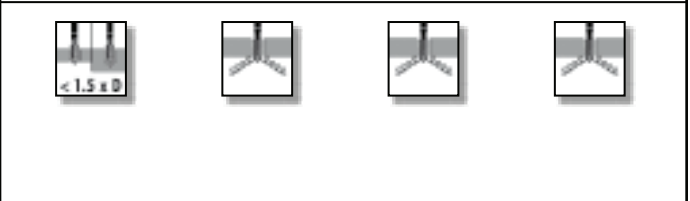
**P 0.25**















<b>N410-3</b>		
<b>N420-4</b>		
<b>N420V-4</b>	 <b>V</b>	
<b>N420TN-4</b>	 <b>TiN</b>	

N410-3	N420-4	N420V-4	N420TN-4
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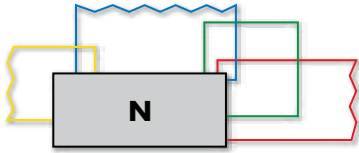




			
			



$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$d_2$ mm	a mm			ID	ID	ID	ID
4	0.35	63	14.0	2.8	2.1	3	3.65		142695		
4	0.50	63	14.0	2.8	2.1	3	3.50	101923	102145	142715	
4.5	0.50	70	15.0	3.5	2.7	3	4.00		102150		
5	0.50	70	15.0	3.5	2.7	3	4.50	101941	102167	142716	
5	0.75	70	15.0	3.5	2.7	3	4.25		102168		
5.5	0.50	80	17.0	4.0	3.0	3	5.00		142696		
6	0.50	80	17.0	4.5	3.4	3	5.50	101951	102178	142717	
6	0.75	80	17.0	4.5	3.4	3	5.25	101952	102179	102281	102249
7	0.50	80	17.0	5.5	4.3	3	6.50		102187		
7	0.75	80	17.0	5.5	4.3	3	6.25	101954	102188		
8	0.50	90	20.0	6.0	4.9	3	7.50	101955	102190	142718	
8	0.75	90	20.0	6.0	4.9	3	7.25	101956	102191	102283	
8	1.00	90	20.0	6.0	4.9	3	7.00	101957	102192	102284	102250
9	0.50	90	20.0	7.0	5.5	3	8.50		142697		
9	0.75	90	20.0	7.0	5.5	3	8.25		102200		
9	1.00	90	20.0	7.0	5.5	3	8.00		102201	143935	
9	0.50	100	22.0	7.0	5.5	3	9.50		142698		
10	0.75	100	22.0	7.0	5.5	3	9.25	101863	102056		
10	1.00	100	22.0	7.0	5.5	3	9.00	101864	102057	102262	102239
10	1.25	100	22.0	7.0	5.5	3	8.80	101865	102058	142719	



								N410-3	N420-4	N420V-4	N420TN-4
N410-3											
N420-4											
N420V-4	<b>V</b>										
N420TN-4	<b>TiN</b>										
								<b>ISO 2 6H</b>	<b>ISO 2 6H</b>	<b>ISO 2 6H</b>	<b>ISO 2 6H</b>
$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$d_2$ mm	a mm			ID	ID	ID	ID
11	0.50	100	19.0	8.0	6.2	3	10.50		142699		
11	0.75	100	19.0	8.0	6.2	3	10.25		142700		
11	1.00	100	19.0	8.0	6.2	3	10.00		142701		
11	1.25	100	19.0	8.0	6.2	3	9.80		142702		
12	0.50	100	14.0	9.0	7.0	3	11.50		102066		
12	0.75	100	24.0	9.0	7.0	3	11.25		142703		
12	1.00	100	24.0	9.0	7.0	3	11.00	101867	102067	142345	102241
12	1.25	100	24.0	9.0	7.0	3	10.80	101868	102068	142721	
12	1.50	100	24.0	9.0	7.0	3	10.50	101869	102069	102264	102242
13	1.00	100	21.0	11.0	9.0	3	12.00	158401	142704		
14	0.50	100	14.0	11.0	9.0	3	13.50		142705		
14	0.75	100	24.0	11.0	9.0	3	13.25		142706		
14	1.00	100	24.0	11.0	9.0	3	13.00	101871	102077		
14	1.25	100	24.0	11.0	9.0	3	12.80	101872	102078		
14	1.50	100	24.0	11.0	9.0	3	12.50	101873	102079	102266	102244
15	1.00	100	26.0	12.0	9.0	3	14.00	101875	102085		
15	1.50	100	26.0	12.0	9.0	3	13.50	101876	102086		
16	0.75	100	26.0	12.0	9.0	3	15.25		142708		
16	1.00	100	26.0	12.0	9.0	*3	15.00	101877	102087		
16	1.25	100	26.0	12.0	9.0	*3	14.80	101878	102088		
16	1.50	100	26.0	12.0	9.0	*3	14.50	101879	102089	102268	102246
17	1.00	100	26.0	12.0	9.0	3	16.00		142709		
17	1.50	100	26.0	12.0	9.0	3	15.50		142710		
18	0.75	110	26.0	14.0	11.0	4	17.25		142711		
18	1.00	110	26.0	14.0	11.0	4	17.00	101881	102095		
18	1.50	110	26.0	14.0	11.0	4	16.50	101882	102096	102270	
18	2.00	125	33.0	14.0	11.0	3	16.00		142712		
19	1.00	110	26.0	14.0	11.0	4	18.00		* 142713		

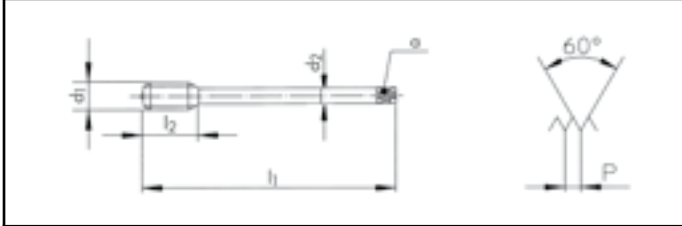
\* N410-3 = 4









**N410-3**  



**N420-4**  

**N420V-4**  

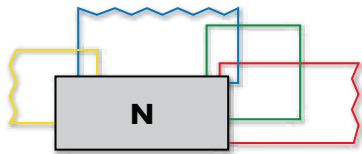


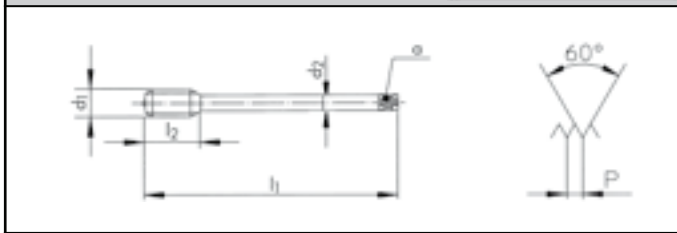
$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$d_2$ mm	$\alpha$ mm			ID	ID	ID
20	1.00	125	28.0	16.0	12.0	4	19.00		102098	
20	1.50	125	28.0	16.0	12.0	4	18.50	101884	102099	102272
20	2.00	140	36.0	16.0	12.0	3	18.00	105130	102100	
22	1.00	125	28.0	18.0	14.5	4	21.00		102104	
22	1.50	125	28.0	18.0	14.5	4	20.50	101886	102105	102274
22	2.00	140	36.0	18.0	14.5	3	20.00	101887	142714	
24	1.00	140	30.0	18.0	14.5	4	23.00		102107	
24	1.50	140	30.0	18.0	14.5	4	22.50	101889	102108	102276
24	2.00	140	34.0	18.0	14.5	4	22.00	101890	102109	102277
25	1.00	140	30.0	18.0	14.5	4	24.00		142722	
25	1.50	140	30.0	18.0	14.5	4	23.50	101892	102112	
25	2.00	140	34.0	18.0	14.5	4	23.00		142723	
26	1.00	140	30.0	18.0	14.5	4	25.00		102113	
26	1.50	140	30.0	18.0	14.5	4	24.50	101893	102114	145896
27	1.50	140	34.0	20.0	16.0	4	25.50		102115	
27	2.00	140	34.0	20.0	16.0	4	25.00	101894	102116	
28	1.00	140	30.0	20.0	16.0	4	27.00		142725	
28	1.50	140	30.0	20.0	16.0	4	26.50	101896	102118	
28	2.00	140	30.0	20.0	16.0	4	26.00	122023		





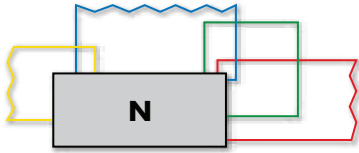
<b>N410-3</b>		
<b>N420-4</b>		
<b>N420V-4</b>	<b>V</b>	
<b>N420-3</b>		

N410-3	N420-4	N420V-4	N420-3



<b>ISO 2 6H</b>	<b>ISO 2 6H</b>	<b>ISO 2 6H</b>	<b>ISO 3 7H</b>

∅ d <sub>1</sub> MF	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	d <sub>2</sub> mm	α mm		6H mm	ID	ID	ID	ID
30	1.00	150	32.0	22.0	18.0	4	29.00	101898	102121		
30	1.50	150	32.0	22.0	18.0	4	28.50	101899	102122	143978	
30	2.00	150	32.0	22.0	18.0	4	28.00	101900	102123	143766	
32	1.00	150	32.0	22.0	18.0	4	31.00	101902			
32	1.50	150	32.0	22.0	18.0	4	30.50	101903	102126		143812
32	2.00	150	32.0	22.0	18.0	4	30.00	101904	102127		
33	1.50	160	32.0	25.0	20.0	4	31.50	101905	102128		
33	2.00	160	32.0	25.0	20.0	4	31.00	101906	102129		
34	1.00	170	32.0	28.0	22.0	4	33.00	* 101908			
34	1.50	170	32.0	28.0	22.0	4	32.50	101909	* 102131		
35	1.50	170	32.0	28.0	22.0	4	33.50	101910	102132		
35	2.00	170	32.0	28.0	22.0	4	33.00	101911			
36	1.00	170	34.0	28.0	22.0	4	35.00		* 102133		
36	1.50	170	34.0	28.0	22.0	4	34.50	101912	102134		
36	2.00	170	34.0	28.0	22.0	4	34.00	101913	102135		
36	3.00	200	45.0	28.0	22.0	4	33.00	101914	102136		
38	1.00	170	34.0	28.0	22.0	4	37.00	* 101916	* 102138		
38	1.50	170	34.0	28.0	22.0	4	36.50	101917	102139		
38	2.00	170	34.0	28.0	22.0	4	36.00	101918			
39	2.00	170	34.0	32.0	24.0	4	37.00	101920			
39	3.00	200	45.0	32.0	24.0	4	36.00	101921			



N410-3

N420-4

N420-3

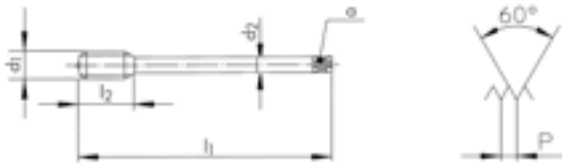
N410-3



N420-4



N420-3



$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$d_2$ mm	$a$ mm		$6H$ 
40	1.00	170	34.0	32.0	24.0	5	39.00
40	1.50	170	34.0	32.0	24.0	5	38.50
40	2.00	170	34.0	32.0	24.0	5	38.00
40	3.00	200	45.0	32.0	24.0	4	37.00
42	1.50	170	34.0	32.0	24.0	5	40.50
42	2.00	170	34.0	32.0	24.0	5	40.00
42	3.00	200	45.0	32.0	24.0	4	39.00
45	1.50	180	34.0	36.0	29.0	5	43.50
45	2.00	180	34.0	36.0	29.0	5	43.00
45	3.00	200	45.0	36.0	29.0	4	42.00
48	1.50	190	36.0	36.0	29.0	5	46.50
48	2.00	190	36.0	36.0	29.0	5	46.00
48	3.00	220	48.0	36.0	29.0	5	45.00
50	1.50	190	36.0	36.0	29.0	5	48.50
50	2.00	190	36.0	36.0	29.0	5	48.00
52	1.50	190	36.0	40.0	32.0	5	50.50
52	2.00	190	36.0	40.0	32.0	5	50.00
52	3.00	220	48.0	40.0	32.0	5	49.00
55	2.00	190	40.0	40.0	32.0	5	53.00
60	2.00	220	42.0	45.0	35.0	5	58.00
63	1.50	220	38.0	45.0	35.0	5	61.50

ID

ID

ID

101925

101926

102152

143813

101927

102153

\* 101928

\* 102154

101929

102155

101930

102156

101931

102157

101933

102159

101934

101935

\* 102161

101937

102163

101938

102164

101939

102165

101943

102176

143814

\* 101944

\* 102177

\* 101946

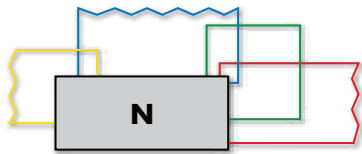
101947

\* 101948

\* 105131

105132

143815



N410-3 LH



LH



N420-4 LH

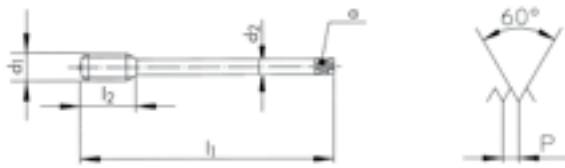




LH




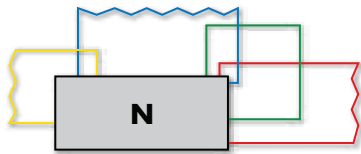
N410-3 LH

N420-4 LH






$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$d_2$ mm	a mm			ID	ID
4	0.50	63	14.0	2.8	2.1	3	3.50	104844	
5	0.50	70	15.0	3.5	2.7	3	4.50	104845	
6	0.50	80	17.0	4.5	3.4	3	5.50	104846	104870
6	0.75	80	17.0	4.5	3.4	3	5.25	104847	105133
7	0.75	80	17.0	5.5	4.3	3	6.25	104848	
8	0.50	90	20.0	6.0	4.9	3	7.50	104849	
8	0.75	90	20.0	6.0	4.9	3	7.25	104850	104871
8	1.00	90	20.0	6.0	4.9	3	7.00	104851	104872
10	0.75	100	22.0	7.0	5.5	3	9.25	104852	
10	1.00	100	22.0	7.0	5.5	3	9.00	104853	104873
10	1.25	100	22.0	7.0	5.5	3	8.80		104874
12	1.00	100	24.0	9.0	7.0	3	11.00	104854	104875
12	1.25	100	24.0	9.0	7.0	3	10.80	104855	104876
12	1.50	100	24.0	9.0	7.0	3	10.50	104856	104877
14	1.00	100	24.0	11.0	9.0	3	13.00	104857	104878
14	1.25	100	24.0	11.0	9.0	3	12.80	104858	
14	1.50	100	24.0	11.0	9.0	3	12.50	104859	104879
16	1.00	100	26.0	12.0	9.0	*3	15.00	104860	104880
16	1.50	100	26.0	12.0	9.0	*3	14.50	104861	104881
18	1.00	110	26.0	14.0	11.0	4	17.00	104862	
18	1.50	110	26.0	14.0	11.0	4	16.50	104863	104882
20	1.00	125	28.0	16.0	12.0	4	19.00	104864	
20	1.50	125	28.0	16.0	12.0	4	18.50	104865	104883
22	1.50	125	28.0	18.0	14.5	4	20.50	104866	104884
24	1.50	140	30.0	18.0	14.5	4	22.50	104867	104885
24	2.00	140	34.0	18.0	14.5	4	22.00	104868	104886
28	1.50	140	30.0	20.0	16.0	4	26.50	105166	
30	1.50	150	32.0	22.0	18.0	4	28.50	105167	105165
30	2.00	150	32.0	22.0	18.0	4	28.00	105168	

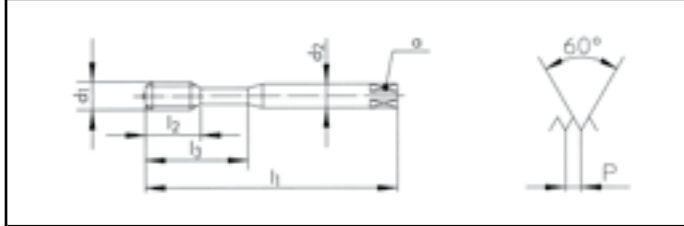
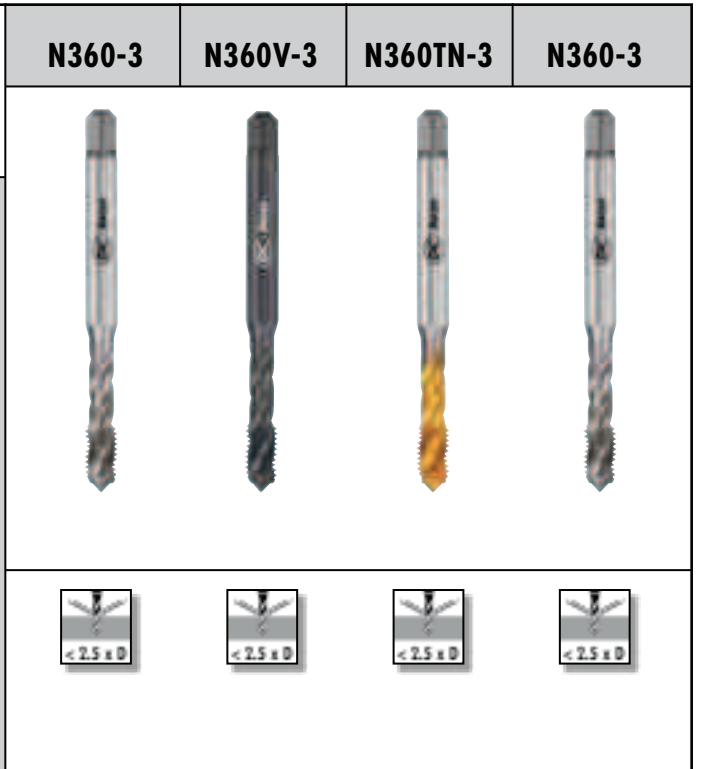
\* N410-3 LH =  4








**N360-3**  

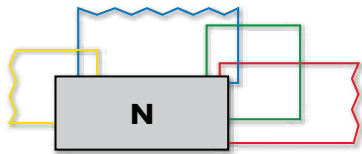
**N360V-3**   

**N360TN-3**   



			
<b>ISO 2 6H</b>	<b>ISO 2 6H</b>	<b>ISO 2 6H</b>	<b>ISO 3 6G</b>









$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2$ mm	a mm		$\pm 6H$ mm	ID	ID	ID	ID $6H$ + mm
4	0.50	63	7.5	21	4.5	3.4	3	3.50	101632	101712	111618	101631 0.020
5	0.50	70	9.0	25	6.0	4.9	3	4.50	101641	101714	111617	101640 0.020
6	0.50	80	11.0	30	6.0	4.9	3	5.50	101648	143990		
6	0.75	80	11.0	30	6.0	4.9	3	5.25	101650	101716	101702	101649 0.022
8	0.75	90	12.5	35	8.0	6.2	3	7.25	101658	101719		101657 0.022
8	1.00	90	12.5	35	8.0	6.2	3	7.00	101660	101720	101704	101659 0.026
10	0.75	100	14.0	39	10.0	8.0	3	9.25	101606	144401		
10	1.00	100	14.0	39	10.0	8.0	3	9.00	101608	101706	101695	101607 0.026
10	1.25	100	14.0	39	10.0	8.0	3	8.80	101609	105134	110965	

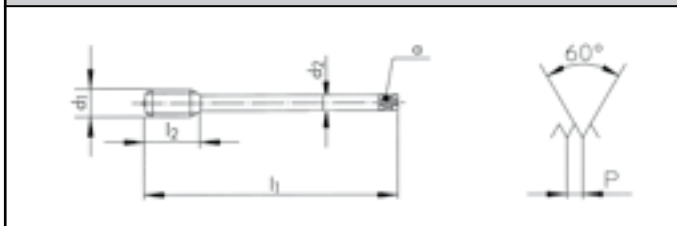






**N460-3**


**N460V-3**

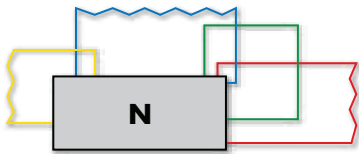
**N460TN-3**

N460-3	N460V-3	N460TN-3	N460-3
			
			



			
<b>ISO 2 6H</b>	<b>ISO 2 6H</b>	<b>ISO 2 6H</b>	<b>ISO 3 6G</b>

MF	∅ d <sub>1</sub> mm	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	d <sub>2</sub> mm	a mm		6H mm	ID	ID	ID	ID 6H + mm
12	1.00	100	14.0	9.0	7.0	3	11.00	102353	102462	102447	102352	0.026
12	1.25	100	14.0	9.0	7.0	3	10.80	102354	102463	144202		
12	1.50	100	14.0	9.0	7.0	3	10.50	102356	102464	102448	102355	0.032
13	1.00	100	14.0	11.0	9.0	3	12.00	102364				
14	1.00	100	14.0	11.0	9.0	3	13.00	102365	102466			
14	1.50	100	14.0	11.0	9.0	3	12.50	102367	102467	102450	102366	0.032
15	1.00	100	14.0	12.0	9.0	3	14.00	102370				
15	1.50	100	18.0	12.0	9.0	3	13.50	102371				
16	1.00	100	14.0	12.0	9.0	4	15.00	102372	102469			
16	1.50	100	14.0	12.0	9.0	4	14.50	102374	102470	102452	102373	0.032
18	1.00	110	18.0	14.0	11.0	4	17.00	102380	143926			
18	1.50	110	18.0	14.0	11.0	4	16.50	102382	102472		102381	0.032
20	1.00	125	20.0	16.0	12.0	4	19.00	102384	146377			
20	1.50	125	20.0	16.0	12.0	4	18.50	102386	102474			
20	2.00	140	24.0	16.0	12.0	4	18.00	102387	143566			
22	1.00	125	20.0	18.0	14.5	4	21.00	102392	147702			
22	1.50	125	20.0	18.0	14.5	4	20.50	102393	102476			
24	1.50	140	22.0	18.0	14.5	4	22.50	102396	102478			
24	2.00	140	22.0	18.0	14.5	4	22.00	102397	102479			
25	1.50	140	22.0	18.0	14.5	4	23.50	102399	143810			
26	1.50	140	22.0	18.0	14.5	4	24.50	102400	143952			
27	1.50	140	22.0	20.0	16.0	4	25.50	102401	143965			
27	2.00	140	22.0	20.0	16.0	4	25.00	102402	144201			
28	1.50	140	22.0	20.0	16.0	4	26.50	102403	144997			



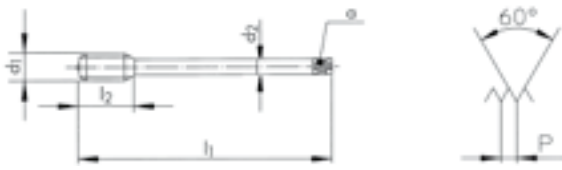
N460-3

N460V-3

N460-3





N460V-3



ISO 2  
6H

ISO 2  
6H

MF	∅ d <sub>1</sub> mm	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	d <sub>2</sub> mm	α mm		
30	1.50	150	24.0	22.0	18.0	4	28.50	
30	2.00	150	24.0	22.0	18.0	4	28.00	
32	1.50	150	24.0	22.0	18.0	4	30.50	
33	2.00	160	26.0	25.0	20.0	4	31.00	
33	3.00	180	33.0	25.0	20.0	4	30.00	
35	1.50	170	24.0	28.0	22.0	5	33.50	
36	1.50	170	24.0	28.0	22.0	5	34.50	
36	2.00	170	28.0	28.0	22.0	5	34.00	
36	3.00	200	36.0	28.0	22.0	4	33.00	
39	3.00	200	40.0	32.0	24.0	5	36.00	
42	3.00	200	40.0	32.0	24.0	5	39.00	

ID

ID

102404

142524

102405

142581

102406

143605

102407

147604

175437

150448

102408

146846

102409

143824

175436

164870

115072

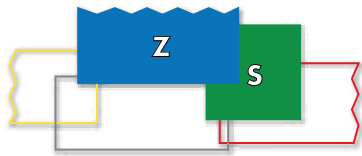
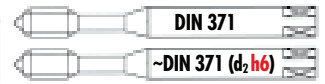
150453

174995

122669

174996

150436

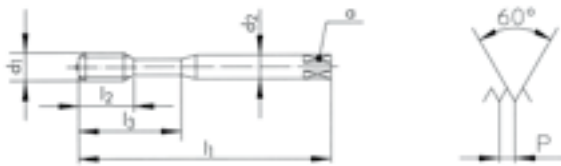

**Z320V-4**
**Z320VS-4**
**Z360V-3**
**Z370VS-3**
**Z320V-4**

**Z320VS-4**

**Z360V-3**

**Z370VS-3**

**NEW**

**PM**

**ISO 2  
6H**
**ISO 2  
6H**
**ISO 2  
6H**
**6HX**

$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2$ mm	$a$ mm		
*2	0.20	45	8.0		2.8	2.1	2	1.80
*2	0.25	45	8.0		2.8	2.1	2	1.75
*2.2	0.25	45	9.0		2.8	2.1	2	1.95
2.5	0.20	50	10.0		2.8	2.1	3	2.30
2.5	0.25	50	10.0		2.8	2.1	3	2.25
3	0.35	56	12.0	18	3.5	2.7	3	2.65
6	0.75	80	17.0	30	6.0	4.9	3	5.25
8	1.00	90	20.0	35	8.0	6.2	3	7.00
10	1.00	100	22.0	39	10.0	8.0	3	9.00

**ID**
**ID**

$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2$ mm	$a$ mm			ID
4	0.50	63	7.5	21	4.5	3.4	3	3.50	104675
5	0.50	70	9.0	25	6.0	4.9	3	4.50	104676
6	0.75	80	11.0	30	6.0	4.9	3	5.25	104677
8	1.00	90	12.5	35	8.0	6.2	3	7.00	104678
10	1.00	100	14.0	39	10.0	8.0	3	9.00	104674

$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2$ h6 mm	$a$ mm			ID
6	0.75	80	11.0	30	6.0	4.9	3	5.25	166117
8	1.00	90	12.5	35	8.0	6.2	3	7.00	166118
10	1.00	100	14.0	39	10.0	8.0	3	9.00	166119

\* Z320V-3


**P ≤ 0.25**
**ISO 1  
4H**

# MF ISO DIN 13

Z420

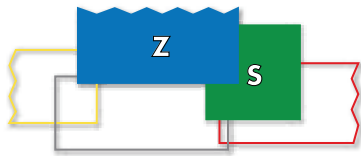
Z460

PM

HSSE

DIN 374

-DIN 376 (d<sub>2</sub>h<sub>6</sub>)



Z420V-4

Z420VS-4

Z460V-3

Z470VS-3

Z420V-4



Z420VS-4



Z460V-3



Z470VS-3



PM

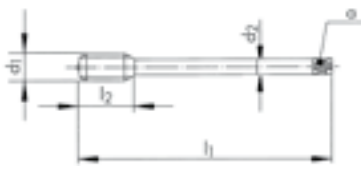


ISO 2  
6H

ISO 2  
6H

ISO 2  
6H

6HX



∅ d <sub>1</sub> MF	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	d <sub>2</sub> mm	a mm		
12	1.00	100	24.0	9.0	7.0	3	11.00
12	1.50	100	24.0	9.0	7.0	3	10.50
14	1.50	100	24.0	11.0	9.0	3	12.50
16	1.50	100	26.0	12.0	9.0	3	14.50

ID

ID

142729

142730

120421

142731

120688

142732

120878

∅ d <sub>1</sub> MF	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	d <sub>2</sub> mm	a mm		
12	1.00	100	14.0	9.0	7.0	3	11.00
12	1.50	100	14.0	9.0	7.0	3	10.50
14	1.50	100	14.0	11.0	9.0	3	12.50
16	1.50	100	14.0	12.0	9.0	4	14.50
18	1.50	110	18.0	14.0	11.0	4	16.50
20	1.50	125	20.0	16.0	12.0	4	18.50
22	1.50	125	20.0	18.0	14.5	4	20.50
24	1.50	140	22.0	18.0	14.5	4	22.50
24	2.00	140	22.0	18.0	14.5	4	22.00

ID

104729

104730

104731

104732

104733

104734

104735

104736

104737

∅ d <sub>1</sub> MF	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	d <sub>2</sub> h <sub>6</sub> mm	a mm		
12	1.50	110	14.0	*10.0	*8.0	4	10.50
14	1.50	110	14.0	*12.0	*9.0	4	12.50
16	1.50	110	18.0	12.0	9.0	4	14.50

ID

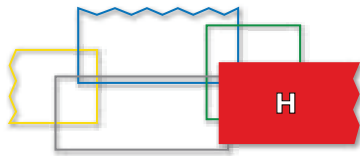
166120

166121

166122

\* Norme DC / \* DC Norm / \* Norma DC





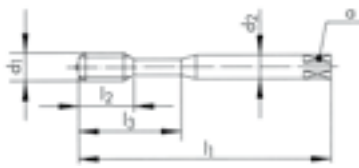
H320-4

H420-4

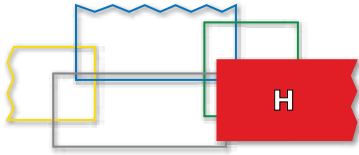
H320-4



H420-4



$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2$ mm	a mm			ID	ID
6	0.75	80	17.0	30	6.0	4.9	3	5.25	101214	
8	0.75	90	20.0	35	8.0	6.2	3	7.25	101216	
8	1.00	90	20.0	35	8.0	6.2	3	7.00	101217	
10	1.00	100	22.0	39	10.0	8.0	3	9.00	101204	
12	1.25	100	24.0		9.0	7.0	4	10.80		101273
12	1.50	100	24.0		9.0	7.0	4	10.50		101274
14	1.50	100	24.0		11.0	9.0	4	12.50		101276
16	1.50	100	26.0		12.0	9.0	4	14.50		101278
20	1.50	125	28.0		16.0	12.0	4	18.50		101282
24	2.00	140	34.0		18.0	14.5	4	22.00		101285



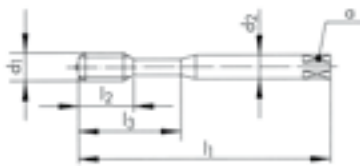
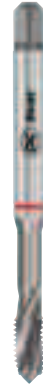
H350-3

H450-3

H350-3



H450-3



ISO 2  
6H

ISO 2  
6H

Ø d <sub>1</sub> MF	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> mm	d <sub>2</sub> mm	a mm		
6	0.75	80	11.0	30	6.0	4.9	3	5.25
8	0.75	90	12.5	35	8.0	6.2	3	7.25
8	1.00	90	12.5	35	8.0	6.2	3	7.00
10	1.00	100	14.0	39	10.0	8.0	3	9.00
12	1.00	100	14.0		9.0	7.0	4	11.00
12	1.50	100	14.0		9.0	7.0	4	10.50
14	1.50	100	14.0		11.0	9.0	4	12.50
16	1.50	100	14.0		12.0	9.0	4	14.50
18	1.50	110	18.0		14.0	11.0	4	16.50
20	1.50	125	20.0		16.0	12.0	4	18.50
22	1.50	125	20.0		18.0	14.5	4	20.50
24	1.50	140	22.0		18.0	14.5	4	22.50
24	2.00	140	22.0		18.0	14.5	4	22.00
27	2.00	140	22.0		20.0	16.0	4	25.00
30	1.50	150	24.0		22.0	18.0	4	28.50
30	2.00	150	24.0		22.0	18.0	4	28.00

ID

ID

101249

101252

101253

101235

101302

101303

101306

101308

101310

101312

101314

101316

101317

101319

101321

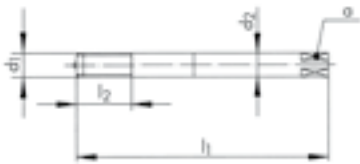
101322

										S320VS-4	S420VS-4	S360VS-3	S460VS-3	
S320VS-4		<b>VS</b>												
S420VS-4		<b>VS</b>												
S360VS-3		<b>VS</b>												
S460VS-3		<b>VS</b>												
$\varnothing d_1$	P	$l_1$	$l_2$	$l_3$	$d_2$	a				ID	ID			
MF	mm	mm	mm	mm	mm	mm								
6	0.75	80	17.0	30	6.0	4.9	3			* 123690				
8	1.00	90	20.0	35	8.0	6.2	3			124288				
10	1.00	100	22.0	39	10.0	8.0	3			120059				
12	1.50	100	24.0		9.0	7.0	4				120420			
14	1.50	100	24.0		11.0	9.0	4				120687			
16	1.50	100	26.0		12.0	9.0	4				120877			
$\varnothing d_1$	P	$l_1$	$l_2$	$l_3$	$d_2$	a				ID	ID			
MF	mm	mm	mm	mm	mm	mm								
8	1.00	90	12.5	35	8.0	6.2	3				111528			
10	1.00	100	14.0	39	10.0	8.0	3				111529			
12	1.50	100	14.0		9.0	7.0	4					111540		
14	1.50	100	14.0		11.0	9.0	4					111541		
16	1.50	100	14.0		12.0	9.0	4					111542		

# aero

SA390-3

SA390-3



$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$d_2$ mm	$a$ mm		
8	1.00	90	25.0	8.0	6.2	3	7.00
10	1.00	100	30.0	10.0	8.0	3	9.00
10	1.25	100	30.0	10.0	8.0	3	8.80
12	1.00	110	35.0	12.0	9.0	4	11.00
12	1.50	110	35.0	12.0	9.0	4	10.50
14	1.50	110	40.0	16.0	12.0	4	12.50

ID

- \* 149735
- \* 149751
- \* 149753
- \* 149769
- \* 149773
- \* 149790

MF

## aero

SA320-4

SA350-3

TL320VS-4

TL351VS-3

SA320-4



SA350-3



TL320VS-4



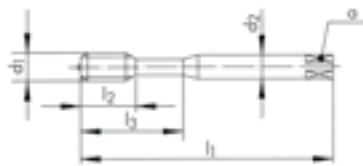
VS



TL351VS-3



VS



4HX

4HX

4HX

4HX

$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2$ mm	a mm		
4	0.50	63	14.0		4.5	3.4	3	3.50
5	0.50	70	15.0		6.0	4.9	3	4.50
6	0.50	80	15.0	23	6.0	4.9	3	5.50
8	1.00	90	18.0	29	8.0	6.2	3	7.00
10	1.00	100	20.0	33	10.0	8.0	3	9.00

ID

ID

ID

ID

		* 149079	* 152032	152033
* 149142	149144	* 152048	152049	
* 149193		* 152058	152059	
149304	149306	* 152079	152080	
149362	149364	* 152092	152093	

6HX

6HX

6HX

6HX

$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2$ mm	a mm		
4	0.50	63	14.0		4.5	3.4	3	3.50
5	0.50	70	15.0		6.0	4.9	3	4.50
6	0.50	80	15.0	23	6.0	4.9	3	5.50
8	1.00	90	18.0	29	8.0	6.2	3	7.00
10	1.00	100	20.0	33	10.0	8.0	3	9.00

ID

ID

ID

ID

149081	149083	* 152034	152035	
149146	149148	* 152050	152051	
	* 149199	* 152060	152061	
149308	149310		148019	
149366	149368	* 152094	148026	

## aero

SA420-4

SA450-3

TL420VS-4

TL451VS-3

SA420-4



SA450-3



TL420VS-4



VS



TL451VS-3



VS

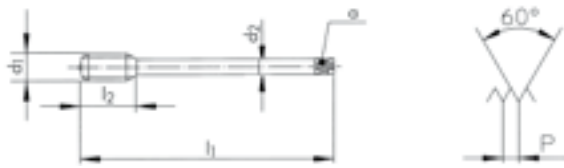


4HX

4HX

4HX

4HX



$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$d_2$ mm	a mm		
12	1.00	100	19.0	9.0	7.0	4	11.00
12	1.50	100	24.0	9.0	7.0	4	10.50
14	1.50	100	24.0	11.0	9.0	4	12.50
16	1.50	100	26.0	12.0	9.0	4	14.50

ID

ID

ID

ID

* 152209		* 152218	
* 152208	* 152213		
* 152210	* 152214		* 152224
* 152212	* 152216		* 152226

6HX

6HX

6HX

6HX

$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$d_2$ mm	a mm		
12	1.00	100	19.0	9.0	7.0	4	11.00
12	1.50	100	24.0	9.0	7.0	4	10.50
14	1.50	100	24.0	11.0	9.0	4	12.50
16	1.00	100	23.0	12.0	9.0	4	15.00
16	1.50	100	26.0	12.0	9.0	4	14.50

ID

ID

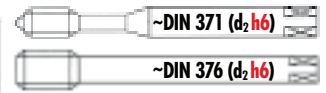
ID

ID

* 152228	* 148967	* 152237	* 152242
* 152227	* 152232		* 152241
* 152229	* 152233	* 152238	* 152243
		* 152239	* 152244
	* 152235	* 152240	* 152245



Uniquement pour taraudage synchrone  
Nur für Synchrontarung  
Only for rigid tapping  
Solo per maschiatura sincrona  
Solo para roscado sincronizado



## RTS Rigid Tapping Synchro

RTS320VS-4



11	12	13	14
15	21	22	31
32	61	63	72
73	74		

RTS420VS-4



11	12	13	14
15	21	22	31
32	61	63	72
73	74		

RTS362VS-3



RTS462VS-3

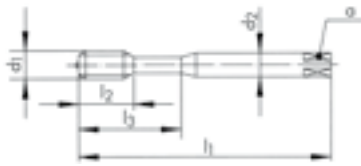


RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2 h6$ mm	a mm		
8	1.00	90	12.5	35	8.0	6.2	3	7.00
10	1.00	100	14.0	39	10.0	8.0	3	9.00
12	1.50	110	14.0		*10.0	*8.0	3	10.50
14	1.50	110	14.0		*12.0	*9.0	3	12.50
16	1.50	110	18.0		12.0	9.0	3	14.50

\* Norme DC / \* DC Norm / \* Norma DC

$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2 h6$ mm	a mm		
8	1.00	90	12.5	35	8.0	6.2	3	7.00
10	1.00	100	14.0	39	10.0	8.0	3	9.00
12	1.50	110	14.0		*10.0	*8.0	3	10.50
14	1.50	110	14.0		*12.0	*9.0	3	12.50
16	1.50	110	18.0		12.0	9.0	3	14.50

\* Norme DC / \* DC Norm / \* Norma DC

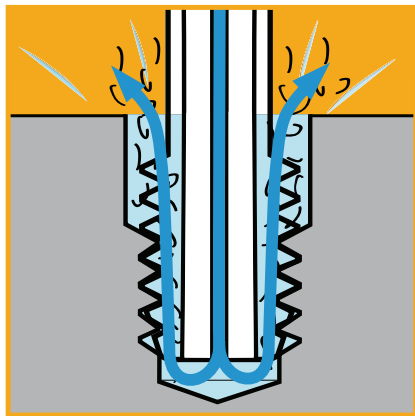
ID	ID
150615	
150630	
	150640
	150655
	150665

ID	ID	
	150617	
	150632	
		151862
		151869
		151871



sur demande  
auf Anfrage  
on request  
su richiesta  
sobre pedido

<b>K</b>										K313TC-3	K413TC-3														
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>K313TC-3</b></p> </div> <div style="width: 45%;"> <table border="1"> <tr><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>15</td><td>31</td><td>32</td><td>62</td></tr> <tr><td>63</td><td>74</td><td></td><td></td></tr> </table> </div> </div>										11	12	13	14	15	31	32	62	63	74						
11	12	13	14																						
15	31	32	62																						
63	74																								
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>K413TC-3</b></p> </div> <div style="width: 45%;"> <table border="1"> <tr><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>15</td><td>31</td><td>32</td><td>62</td></tr> <tr><td>63</td><td>74</td><td></td><td></td></tr> </table> </div> </div>										11	12	13	14	15	31	32	62	63	74			<b>NEW</b>	<b>NEW</b>		
11	12	13	14																						
15	31	32	62																						
63	74																								
										<b>6HX</b>	<b>6HX</b>														
$\varnothing d_1$	P	$l_1$	$l_2$	$l_3$	$l_4$	$d_2$	$\alpha$			<b>ID</b>	<b>ID</b>														
MF	mm	mm	mm	mm	mm	mm	mm																		
10	1.00	100	22.0	39	37	10.0	8.0	3	9.00	175729															
12	1.00	110	24.0		42	9.0	7.0	3	11.00		175731														
12	1.25	110	24.0		42	9.0	7.0	3	10.80		175733														
12	1.50	110	24.0		42	9.0	7.0	3	10.50		175735														
14	1.50	110	28.0		49	11.0	9.0	3	12.50		175737														
16	1.50	110	30.0		56	12.0	9.0	3	14.50		175739														
20	1.50	140	36.0		70	16.0	12.0	5	18.50		171205														





## FPS FORMING

**FPS381CN-3** CrN 

63	71	72	73
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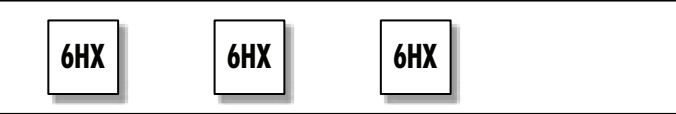
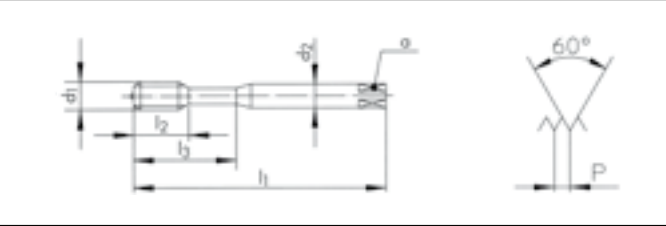
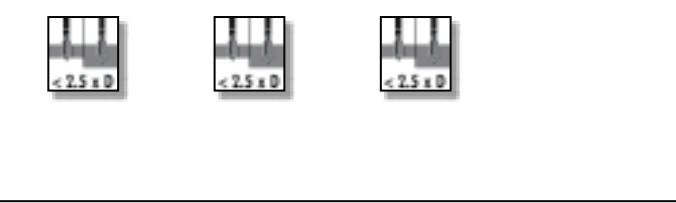
**FPS381VS-3** VS 

11	12	13	14	15
21	24	63		

**FPS481VS-3** VS 

11	12	13	14	15
21	24	63		

FPS381CN-3	FPS381VS-3	FPS481VS-3	
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$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2$ mm	$a$ mm	6HX → ←	Tol.
4	0.50	63	14.0	21	4.5	3.4	3.80	+ 0.03
5	0.50	70	15.0	25	6.0	4.9	4.80	+ 0.03
6	0.50	80	17.0	30	6.0	4.9	5.80	+ 0.03
6	0.75	80	17.0	30	6.0	4.9	5.65	+ 0.03
8	0.75	90	20.0	35	8.0	6.2	7.65	+ 0.03
8	1.00	90	20.0	35	8.0	6.2	7.55	+ 0.05
10	1.00	100	22.0	39	10.0	8.0	9.55	+ 0.05
12	1.00	100	19.0		9.0	7.0	11.55	+ 0.05
14	1.50	100	24.0		11.0	9.0	13.30	+ 0.05
16	1.50	100	26.0		12.0	9.0	15.30	+ 0.05

ID	ID	ID
	166631	
	166639	
	166699	
166648	166649	
166701	166702	
166658	166659	
166668	166669	
		166674
		166679
		166684

## FAS FORMING

FAS381VS-3



VS

12	13	14	15
21	22	23	24
41	51	61	63

FAS481VS-3

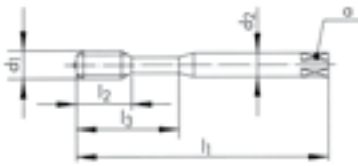


VS

12	13	14	15
21	22	23	24
41	51	61	63

FAS381VS-3

FAS481VS-3



6HX

6HX

$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$l_3$ mm	$d_2$ mm	$a$ mm	6HX Tol. → ←
4	0.50	63	14.0	21	4.5	3.4	3.80 + 0.03
5	0.50	70	15.0	25	6.0	4.9	4.80 + 0.03
6	0.50	80	17.0	30	6.0	4.9	5.80 + 0.03
6	0.75	80	17.0	30	6.0	4.9	5.65 + 0.03
8	0.75	90	20.0	35	8.0	6.2	7.65 + 0.03
8	1.00	90	20.0	35	8.0	6.2	7.55 + 0.05
10	1.00	100	22.0	39	10.0	8.0	9.55 + 0.05
12	1.00	100	19.0		9.0	7.0	11.55 + 0.05
14	1.50	100	24.0		11.0	9.0	13.30 + 0.05
16	1.50	100	26.0		12.0	9.0	15.30 + 0.05

ID

ID

166625

166633

166698

166642

166700

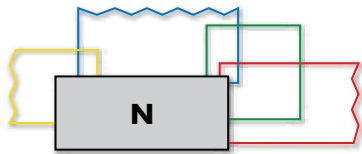
166652

166662

166672

166677

166682



N1110-1

N1110-3

N1110-S

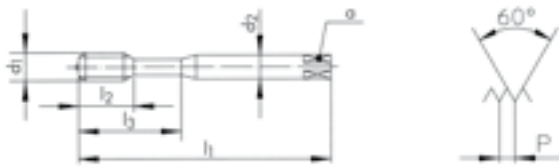
N1110-1



N1110-3



N1110-S



ISO 2  
6H

ISO 2  
6H

Ø d <sub>1</sub> MF	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> mm	d <sub>2</sub> mm	a mm		
2	0.25	45	8.0		2.80	2.10	3	1.75
2.2	0.25	45	9.5		2.80	2.10	3	1.95
2.3	0.25	45	9.5		2.80	2.10	3	2.05
2.5	0.35	45	9.5		2.80	2.10	3	2.15
3	0.35	48	11.0	18	3.15	2.50	3	2.65
3.5	0.35	50	13.0	20	3.55	2.80	3	3.15
4	0.35	53	13.0	21	4.00	3.15	3	3.65
4	0.50	53	13.0	21	4.00	3.15	3	3.50
4.5	0.50	53	13.0	21	4.50	3.55	3	4.00
5	0.35	58	16.0	25	5.00	4.00	3	4.65
5	0.50	58	16.0	25	5.00	4.00	3	4.50
5	0.75	58	16.0	25	5.00	4.00	3	4.25
5.5	0.50	62	17.0	26	5.60	4.50	3	5.00
6	0.50	66	19.0	30	6.30	5.00	3	5.50
6	0.75	66	19.0	30	6.30	5.00	3	5.25
7	0.50	66	19.0	30	7.10	5.60	3	6.50
8	0.75	72	22.0	35	8.00	6.30	3	7.25
8	1.00	72	22.0	35	8.00	6.30	3	7.00
9	0.50	72	22.0	36	9.00	7.10	3	8.50
9	0.75	72	22.0	36	9.00	7.10	3	8.25
9	1.00	72	22.0	36	9.00	7.10	3	8.00
10	0.50	80	24.0	39	10.00	8.00	3	9.50
10	1.00	80	24.0	39	10.00	8.00	3	9.00
10	1.25	80	24.0	39	10.00	8.00	3	8.80

ID

ID

ID

102933

102936

\* 102938

102940

102945

102949

102952

102773

102953

111040

102958

102960

102778

102961

111045

102963

102967

102783

102969

111050

102784

102971

111051

102975

102790

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111058

102988

102989

102990

102925

102756

102928

111024

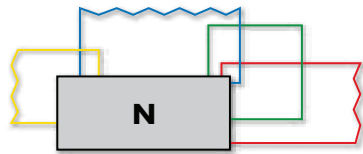
102758

102930

111025

P 0.25

ISO 1  
4H



N1210-1

N1210-3

N1210-S

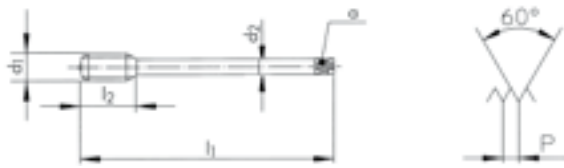
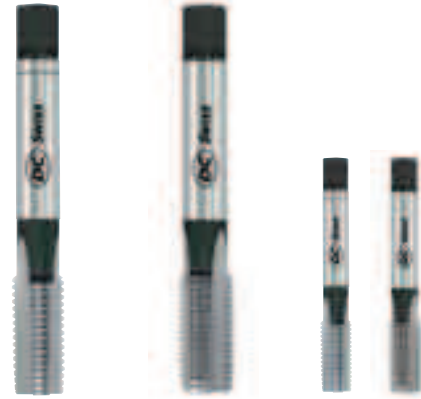
N1210-1



N1210-3





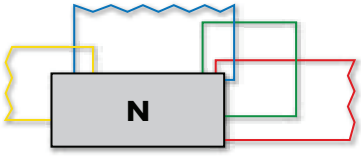

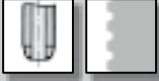
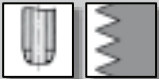





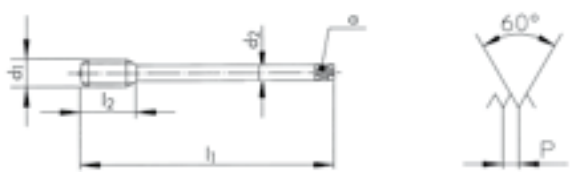






N1210-S



ISO 2  
6H

ISO 2  
6H

$\varnothing d_1$ MF	P mm	$l_1$ mm	$l_2$ mm	$d_2$ mm	a mm			ID	ID	ID
11	0.50	85	22.0	8.0	6.3	3	10.50		103485	
11	0.75	85	22.0	8.0	6.3	3	10.25		103486	
11	1.00	85	22.0	8.0	6.3	3	10.00		103487	
11	1.25	85	22.0	8.0	6.3	3	9.80		103488	
12	0.50	89	24.0	9.0	7.1	3	11.50		103490	
12	0.75	89	24.0	9.0	7.1	3	11.25		103491	
12	1.00	89	24.0	9.0	7.1	3	11.00	103305	103493	111169
12	1.25	89	24.0	9.0	7.1	3	10.80	103307	103495	111171
12	1.50	89	24.0	9.0	7.1	3	10.50	103308	103497	111172
14	0.50	95	24.0	11.2	9.0	3	13.50		103502	
14	0.75	95	24.0	11.2	9.0	3	13.25		103503	
14	1.00	95	24.0	11.2	9.0	3	13.00	103312	103504	111175
14	1.25	95	24.0	11.2	9.0	3	12.80	103314	103506	111177
14	1.50	95	24.0	11.2	9.0	3	12.50	103315	103508	111178
15	0.75	90	23.0	11.2	9.0	3	14.25		103512	
15	1.00	90	23.0	11.2	9.0	3	14.00		103513	
16	0.50	102	32.0	12.5	10.0	4	15.50		103515	
16	0.75	102	32.0	12.5	10.0	4	15.25		103516	
16	1.00	102	32.0	12.5	10.0	4	15.00	103321	103517	111183
16	1.50	102	32.0	12.5	10.0	4	14.50	103322	103520	111184
17	1.00	95	23.0	12.5	10.0	4	16.00		103525	
18	0.75	112	30.0	14.0	11.2	4	17.25		103527	
18	1.00	112	30.0	14.0	11.2	4	17.00	103326	103528	111187
18	1.50	112	30.0	14.0	11.2	4	16.50	103327	103531	111188
18	2.00	112	30.0	14.0	11.2	3	16.00		103533	
19	1.00	112	33.0	14.0	11.2	4	18.00		103536	

								N1210-1	N1210-3	N1210-S		
												
N1210-1												
N1210-3												
N1210-S												
												
												
												
∅ d <sub>1</sub> MF	P mm	l <sub>1</sub> mm	l <sub>2</sub> mm	d <sub>2</sub> mm	a mm			ID	ID	ID		
20	1.00	112	37.0	14.0	11.2	4	19.00	103332	103537	111198		
20	1.25	112	37.0	14.0	11.2	4	18.80		103539			
20	1.50	112	37.0	14.0	11.2	4	18.50	103334	103540	111195		
22	1.00	115	32.0	16.0	12.5	4	21.00		103545			
22	1.50	115	32.0	16.0	12.5	4	20.50	103340	103546	121669		
22	2.00	115	32.0	16.0	12.5	3	20.00		103548			
24	1.00	120	30.0	18.0	14.0	4	23.00		103552			
24	1.50	120	30.0	18.0	14.0	4	22.50	103343	103553	111202		
24	2.00	130	45.0	18.0	14.0	4	22.00	103344	103555	111203		
25	1.00	120	30.0	18.0	14.0	4	24.00		103559			
25	1.50	120	30.0	18.0	14.0	4	23.50		103560			
25	2.00	120	30.0	18.0	14.0	4	23.00		103561			
26	1.00	120	30.0	18.0	14.0	4	25.00		103562			
26	1.50	120	30.0	18.0	14.0	4	24.50	103346	103563	111207		
26	2.00	120	30.0	18.0	14.0	4	24.00		103564			
27	1.00	127	30.0	20.0	16.0	4	26.00		103565			
27	1.50	127	30.0	20.0	16.0	4	25.50		103566			
27	2.00	135	45.0	20.0	16.0	4	25.00	* 103351	* 103567	* 111210		
28	1.00	127	30.0	20.0	16.0	4	27.00		103570			
28	1.50	127	30.0	20.0	16.0	4	26.50		103571			
30	1.50	127	32.0	20.0	16.0	4	28.50	103355	103575	111214		
30	2.00	127	32.0	20.0	16.0	4	28.00	103356	103577	111215		