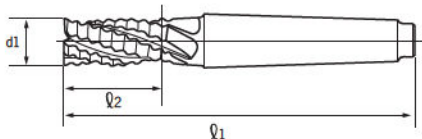


### OSG FRESAS DE TOPO Haste Cônica - Desbaste

Corte à Direita - Hélice Direita  
Aço Rápido com Cobalto

### OSG END MILLS Morse Taper Shank - Roughing

Right Hand Cut - Right Hand Helix  
High Speed Steel with Cobalt



REFERÊNCIA	836/1 TiN	836/1
GRUPO DE MATERIAIS	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1
TIPO DE FRESAMENTO		

### ESPECIFICAÇÃO DO PRODUTO



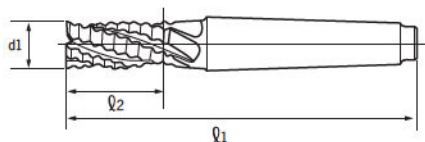
						EDP	
d <sub>1</sub> mm	1 mm	2 mm	Cone Morse	Nº de Cortes	PESO g		
10	92	22	1	4	55	06300284	06300280
12	96	26	1	4	65	06300334	06300330
14	111	26	2	4	150	06300384	06300380
15	111	26	2	4	150	06300404	06300400
16	117	32	2	4	160	06300424	06300420
18	117	32	2	4	180	06300464	06300460
20	123	38	2	4	200	06300504	06300500
22	123	38	2	6	220	06300524	06300520
24	147	45	3	6	400	06300544	06300540
25	147	45	3	6	410	06300554	06300550
26	147	45	3	6	420	06300564	06300560
28	147	45	3	6	450	06300584	06300580
30	147	45	3	6	480	06300604	06300600
32	201	53	4	6	1090	06300624	06300620
34	201	53	4	6	1130	06300644	06300640
35	201	53	4	6	1140	06300654	06300650
36	201	53	4	6	1160	06300664	06300660
40	211	63	4	6	1300	06300704	06300700
45	211	63	4	8	1430	06300754	06300750
50	261	75	5	8	3020	06300804	06300800
56	261	75	5	8	3270	06300864	06300860
63	276	90	5	8	3790	06300934	06300930

### OSG FRESAS DE TOPO Haste Cônica - Desbaste

Corte à Direita - Hélice Direita  
Aço Rápido com Cobalto

### OSG END MILLS Morse Taper Shank - Roughing

Right Hand Cut - Right Hand Helix  
High Speed Steel with Cobalt



REFERÊNCIA	836/2 TiN	836/2
GRUPO DE MATERIAIS	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1
TIPO DE FRESAMENTO		



#### ESPECIFICAÇÃO DO PRODUTO



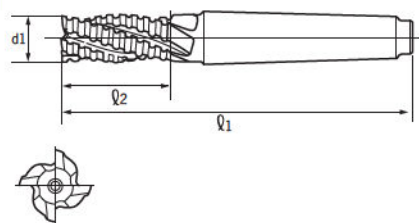
						EDP	
d <sub>1</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	Cone Morse	Nº de Cortes	PESO g		
10	115	45	1	4	65	06310284	06310280
12	123	53	1	4	80	06310334	06310330
14	138	53	2	4	170	06310384	06310380
15	138	53	2	4	180	06310404	06310400
16	148	63	2	4	190	06310424	06310420
18	148	63	2	4	220	06310464	06310460
20	160	75	2	4	260	06310504	06310500
22	160	75	2	6	290	06310524	06310520
24	192	90	3	6	500	06310544	06310540
25	192	90	3	6	520	06310554	06310550
26	192	90	3	6	550	06310564	06310560
28	192	90	3	6	590	06310584	06310580
30	192	90	3	6	640	06310604	06310600
32	254	106	4	6	1300	06310624	06310620
34	254	106	4	6	1370	06310644	06310640
35	254	106	4	6	1400	06310654	06310650
36	254	106	4	6	1440	06310664	06310660
40	273	125	4	6	1690	06310704	06310700
45	273	125	4	8	1930	06310754	06310750
50	336	150	5	8	3770	06310804	06310800
56	336	150	5	8	4200	06310864	06310860
63	366	180	5	8	5210	06310934	06310930

### OSG FRESAS DE TOPO Haste Cônica - Desbaste e Acabamento

Corte à Direita - Hélice Direita  
Aço Rápido com Cobalto

### OSG END MILLS Morse Taper Shank - Roughing and Finishing

Right Hand Cut - Right Hand Helix  
High Speed Steel with Cobalt



REFERÊNCIA	837/1 TiN	837/1
GRUPO DE MATERIAIS	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1
TIPO DE FRESAMENTO		



#### ESPECIFICAÇÃO DO PRODUTO



d <sub>1</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	Cone Morse	Nº de Cortes	PESO g	EDP	
10	92	22	1	4	55	06330284	06330280
12	96	26	1	4	65	06330334	06330330
14	111	26	2	4	150	06330384	06330380
15	111	26	2	4	150	06330404	06330400
16	117	32	2	4	160	06330424	06330420
18	117	32	2	4	180	06330464	06330460
20	123	38	2	4	200	06330504	06330500
22	123	38	2	6	220	06330524	06330520
24	147	45	3	6	400	06330544	06330540
25	147	45	3	6	410	06330554	06330550
26	147	45	3	6	420	06330564	06330560
28	147	45	3	6	450	06330584	06330580
30	147	45	3	6	480	06330604	06330600
32	201	53	4	6	1090	06330624	06330620
34	201	53	4	6	1130	06330644	06330640
35	201	53	4	6	1140	06330654	06330650
36	201	53	4	6	1160	06330664	06330660
40	211	63	4	6	1300	06330704	06330700
45	211	63	4	8	1430	06330754	06330750
50	261	75	5	8	3020	06330804	06330800
56	261	75	5	8	3270	06330864	06330860
63	276	90	5	8	3790	06330934	06330930

### OSG FRESAS DE TOPO

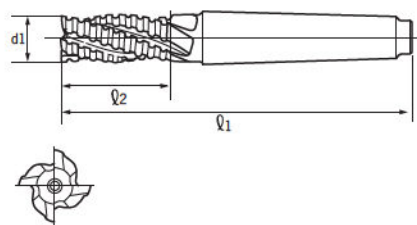
#### Haste Cônica - Desbaste e Acabamento

Corte à Direita - Hélice Direita  
Aço Rápido com Cobalto

### OSG END MILLS

#### Morse Taper Shank - Roughing and Finishing

Right Hand Cut - Right Hand Helix  
High Speed Steel with Cobalt



REFERÊNCIA	837/2 TiN	837/2
GRUPO DE MATERIAIS	1.2.0-1.3.1-1.3.2-1.4.1-1.4.3 1.5.3-2.1.2-2.1.3-3.1.1-3.2.1	1.2.0-1.3.1-1.3.2-1.4.1-1.4.3 1.5.3-2.1.2-2.1.3-3.1.1-3.2.1
TIPO DE FRESAMENTO		
ESPECIFICAÇÃO DO PRODUTO		

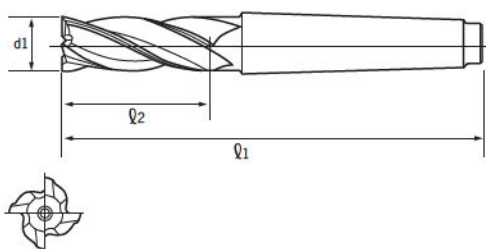
						EDP	
d <sub>1</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	Cone Morse	Nº de Cortes	PESO g		
10	115	45	1	4	65	06340284	06340280
12	123	53	1	4	80	06340334	06340330
14	138	53	2	4	170	06340384	06340380
15	138	53	2	4	180	06340404	06340400
16	148	63	2	4	190	06340424	06340420
18	148	63	2	4	220	06340464	06340460
20	160	75	2	4	260	06340504	06340500
22	160	75	2	6	290	06340524	06340520
24	192	90	3	6	500	06340544	06340540
25	192	90	3	6	520	06340554	06340550
26	192	90	3	6	550	06340564	06340560
28	192	90	3	6	590	06340584	06340580
30	192	90	3	6	640	06340604	06340600
32	254	106	4	6	1300	06340624	06340620
34	254	106	4	6	1370	06340644	06340640
35	254	106	4	6	1400	06340654	06340650
36	254	106	4	6	1440	06340664	06340660
40	273	125	4	6	1690	06340704	06340700
45	273	125	4	8	1930	06340754	06340750
50	336	150	5	8	3770	06340804	06340800
56	336	150	5	8	4200	06340864	06340860
63	366	180	5	8	5210	06340934	06340930

### OSG FRESAS DE TOPO Haste Cônic

Corte à Direita - Hélice Direita  
Aço Rápido com Cobalto

### OSG END MILLS Morse Taper Shank

Right Hand Cut - Right Hand Helix  
High Speed Steel with Cobalt



REFERÊNCIA	838/1 TiN	838/1
GRUPO DE MATERIAIS	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1
TIPO DE FRESAMENTO		



### ESPECIFICAÇÃO DO PRODUTO



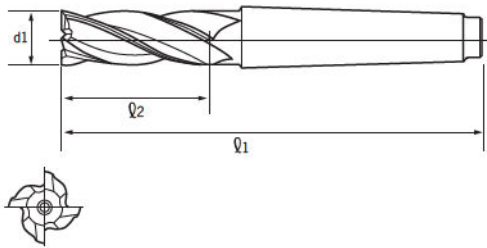
						EDP	
d <sub>1</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	Cone Morse	Nº de Cortes	PESO g		
10	92	22	1	4	55	06100284	06100280
12	96	26	1	4	65	06100334	06100330
14	111	26	2	4	150	06100384	06100380
15	111	26	2	4	150	06100404	06100400
16	117	32	2	4	160	06100424	06100420
18	117	32	2	4	180	06100464	06100460
20	123	38	2	4	200	06100504	06100500
22	123	38	2	6	220	06100524	06100520
24	147	45	3	6	400	06100544	06100540
25	147	45	3	6	410	06100554	06100550
26	147	45	3	6	420	06100564	06100560
28	147	45	3	6	450	06100584	06100580
30	147	45	3	6	480	06100604	06100600
32	201	53	4	6	1090	06100624	06100620
34	201	53	4	6	1130	06100644	06100640
35	201	53	4	6	1140	06100654	06100650
36	201	53	4	6	1160	06100664	06100660
40	211	63	4	6	1300	06100704	06100700
45	211	63	4	8	1430	06100754	06100750
50	261	75	5	8	3020	06100804	06100800
56	261	75	5	8	3270	06100864	06100860
63	276	90	5	8	3790	06100934	06100930

### OSG FRESAS DE TOPO Haste Cônica

Corte à Direita - Hélice Direita  
Aço Rápido com Cobalto

### OSG END MILLS Morse Taper Shank

Right Hand Cut - Right Hand Helix  
High Speed Steel with Cobalt



REFERÊNCIA	838/2 TiN	838/2
GRUPO DE MATERIAIS	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1	1.2.0 - 1.3.1 - 1.3.2 - 1.4.1 - 1.4.3 1.5.3 - 2.1.2 - 2.1.3 - 3.1.1 - 3.2.1
TIPO DE FRESAMENTO		



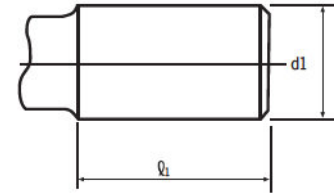
### ESPECIFICAÇÃO DO PRODUTO



						EDP	
d <sub>1</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	Cone Morse	Nº de Cortes	PESO g		
10	115	45	1	4	65	06110284	06110280
12	123	53	1	4	80	06110334	06110330
14	138	53	2	4	170	06110384	06110380
15	138	53	2	4	180	06110404	06110400
16	148	63	2	4	190	06110424	06110420
18	148	63	2	4	220	06110464	06110460
20	160	75	2	4	260	06110504	06110500
22	160	75	2	6	290	06110524	06110520
24	192	90	3	6	500	06110544	06110540
25	192	90	3	6	520	06110554	06110550
26	192	90	3	6	550	06110564	06110560
28	192	90	3	6	590	06110584	06110580
30	192	90	3	6	640	06110604	06110600
32	254	106	4	6	1300	06110624	06110620
34	254	106	4	6	1370	06110644	06110640
35	254	106	4	6	1400	06110654	06110650
36	254	106	4	6	1440	06110664	06110660
40	273	125	4	6	1690	06110704	06110700
45	273	125	4	8	1930	06110754	06110750
50	336	150	5	8	3770	06110804	06110800
56	336	150	5	8	4200	06110864	06110860
63	366	180	5	8	5210	06110934	06110930

## 1. Haste Cilíndrica DIN 1835 FORMA A

Plain Parallel Shanks  
DIN 1835 FORM A

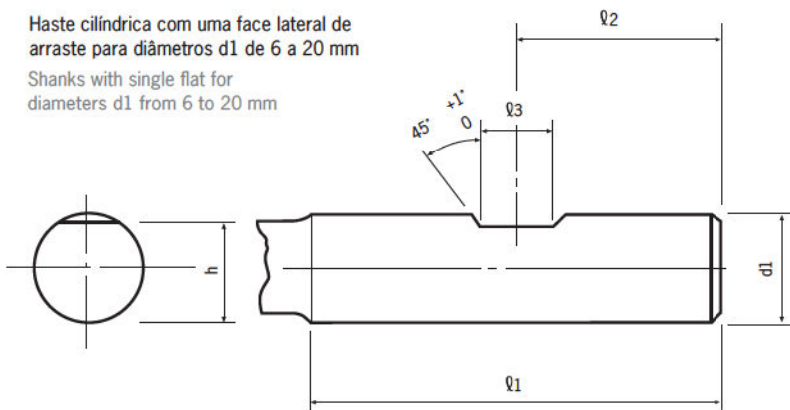


		mm												
d1	h8	4	5	6	8	10	12	16	20	25	32	40	50	63
l1	$\begin{matrix} +2 \\ 0 \end{matrix}$	28	28	36	36	40	45	48	50	56	60	70	80	90

## 2. Haste Cilíndrica com uma Face Lateral de Arraste DIN 1835 FORMA B

Flatted Parallel Shanks  
DIN 1935 FORM B

Haste cilíndrica com uma face lateral de  
arraste para diâmetros d1 de 6 a 20 mm  
Shanks with single flat for  
diameters d1 from 6 to 20 mm



d1	l1	l2	l3	l4	h
h6	$\begin{matrix} +2 \\ 0 \end{matrix}$	$\begin{matrix} 0 \\ -1 \end{matrix}$	$\begin{matrix} +0.05 \\ 0 \end{matrix}$	$\begin{matrix} +1 \\ 0 \end{matrix}$	h13
6	36	18	4,2	-	4,8
8	36	18	5,5	-	6,6
10	40	20	7	-	8,4
12	45	22,5	8	-	10,4
16	48	24	10	-	14,2
20	50	25	11	-	18,2
25	56	32	12	17	23
32	60	36	14	19	30
40	70	40	14	19	38
50	80	45	18	23	47,8
63	90	50	18	23	60,8

Haste com duas faces de arraste  
para diâmetros d1 de 25 a 63 mm  
Shanks with single flat for  
diameters d1 from 25 to 63 mm

