The new generation of

Fresas de alto rendimiento - Serie 3540x

The Next Level



Fresa HPC de Carburo Sólido

Series 35401, 35402, 35403 y 35404

? La fresa de la serie 35402 se amplía con nuevas variantes: versión corta con chaflán, longitud estándar con radio de esquina o chaflán protector

? Las fresas HPC de la serie 354... se caracterizan por geometría de corte con paso desigual, ángulos de hélice dinámicos, preparación de arista, ranuras amplias y núcleo reforzado

? Recubrimiento MnS1 de última tecnología para alta resistencia al desgaste térmico y abrasivo

? Funcionamiento muy suave
? Máx. estabilidad, vida útil y fiabilidad del proceso



Aplicación:

? Compatible con amplia gama de materiales

? Desbaste y acabado hasta 2,0xD en macizo

Datos

Material	Carburo sólido
Recubrimiento	**MnS1**
Diámetro	**3,0 - 20,0 mm**
Prof. fresado ap	**to 2,0xD**
Ancho corte ae	**0,5xD**
Áreas de aplicación	Apto mecanizado en seco y húmedo Especialm. producción en serie

Versiones

35401	Versión corta con chaflán de arista
35402	Long. estándar con chaflán de arista
	Long. estándar con radio de esquina
35402...H	Long. estándar, chaflán arista, mango HA
A 35403	Long. estándar con chaflán protector
35404	Versión larga con radio de esquina



4 aristas de corte
para alta extrac.

Paso desigual 35/38°
marcha suave

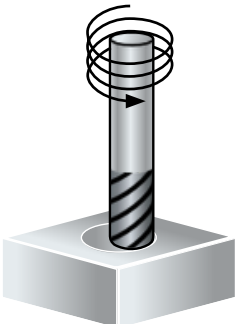
ALTO rendimiento
produc. en serie

Diferentes versiones:
corta con chaflán,
estándar con radio
o chaflán protector

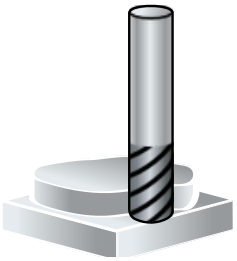
Aptitud

Clase de material	Apto
Acero	P
INOX	M
Fundición	K
Metales no ferrosos	
Aleac. especiales y titanio	
Materiales duros	

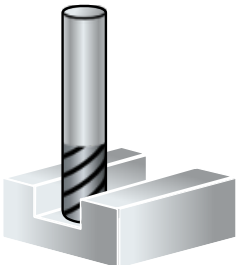
Alcance de aplicación



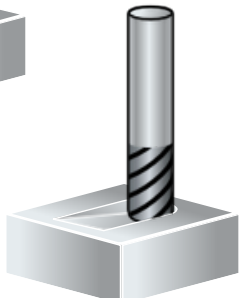
Fresado helicoidal



Refilado



Ranura completa



Rampa

35401

MnS1 | Z 4 | HB | VHM | Type N | HPC

Estándar fabricante

Fresa HPC de Carburo Sólido

Versión corta con chaflán de arista



d_1	d_2	Corner chamfer	l_2	l_1		coated	f_z Roughing	f_z Finishing
mm	mm		mm	mm	Z	Part No.	mm/Z	mm/Z
3.0	6	0.13	6	54	4	35401030	0.007 – 0.031	0.007 – 0.027
4.0	6	0.18	8	54	4	35401040	0.011 – 0.039	0.010 – 0.033
5.0	6	0.20	9	54	4	35401050	0.016 – 0.039	0.015 – 0.033
6.0	6	0.20	10	54	4	35401060	0.026 – 0.044	0.025 – 0.038
7.0	8	0.20	12	58	4	35401070	0.032 – 0.05	0.029 – 0.043
8.0	8	0.20	12	58	4	35401080	0.032 – 0.055	0.029 – 0.048
9.0	10	0.30	14	66	4	35401090	0.037 – 0.066	0.034 – 0.057
10.0	10	0.30	14	66	4	35401100	0.042 – 0.077	0.039 – 0.067
11.0	12	0.30	16	73	4	35401110	0.053 – 0.088	0.049 – 0.076
12.0	12	0.30	16	73	4	35401120	0.063 – 0.099	0.059 – 0.086
14.0	14	0.30	18	75	4	35401140	0.074 – 0.121	0.069 – 0.105
16.0	16	0.40	22	82	4	35401160	0.095 – 0.143	0.088 – 0.124
20.0	20	0.50	26	92	4	35401200	0.137 – 0.187	0.127 – 0.162

d_1	d_2
h10	h6



Fresado periférico
ae = 0,5xD
p = 2,0xD



Ranura completa
ap=2,0xD

V_c (m/min)	General structured steels		Free machining steels	Non-alloy Q & T steels	Alloyed Q & T steels	Tool steels	Cast iron (GG)	Cast iron (GGG. GT)	Stainless austenitic
Tensile strength / Hardness / etc.	≤ 500 N/mm²	≤ 850 N/mm²	≤ 1.000 N/mm²	≤ 1.000 N/mm²	≤ 1.200 N/mm²	≤ 1.300 N/mm²	< 450 N/mm²	> 260 HB	1.4301
Full slot a_p=1xD	220	190	180	160	130	110	160	130	90
Trimming a_p = 0.2xD	310	280	250	220	190	160	220	190	110

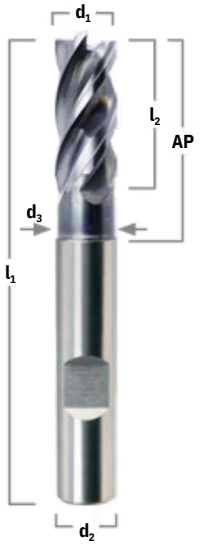
Familia producto 159

35402

MnS1 | Z 4 | HA | HB | ≠ | VHM | Type N | HPC | Manufacturer standard

Fresa HPC de Carburo Sólido

Con chaflán de arista



d1	d2
h10	h6

d1 mm	d2 mm	Corner chamfer	l2 mm	l1 mm	d3 mm	AP mm	Z	coaed (HA) Part No.	coated (HB) Part No.	fz Roughing mm/Z	fz Finishing mm/Z
3.0	6	0.13	8	57	2.8	18	4	35402030HA	35402030	0.007 – 0.031	0.007 – 0.027
3.5	6	0.18	11	57	3.3	21	4	35402035HA	35402035	0.009 – 0.035	0.008 – 0.030
4.0	6	0.18	11	57	3.8	21	4	35402040HA	35402040	0.011 – 0.039	0.010 – 0.033
5.0	6	0.20	13	57	4.8	21	4	35402050HA	35402050	0.016 – 0.039	0.015 – 0.033
6.0	6	0.20	13	57	5.5	21	4	35402060HA	35402060	0.026 – 0.044	0.025 – 0.038
7.0	8	0.20	19	63	6.5	27	4	35402070HA	35402070	0.032 – 0.050	0.029 – 0.043
8.0	8	0.20	19	63	7.5	27	4	35402080HA	35402080	0.032 – 0.055	0.029 – 0.048
9.0	10	0.30	22	72	8.5	32	4	35402090JA	35402090	0.037 – 0.066	0.034 – 0.057
10.0	10	0.30	22	72	9.5	32	4	35402100HA	35402100	0.042 – 0.077	0.039 – 0.067
11.0	12	0.30	26	83	10.5	38	4	35402110HA	35402110	0.053 – 0.088	0.049 – 0.076
12.0	12	0.30	26	83	11.5	38	4	35402120HA	35402120	0.063 – 0.099	0.059 – 0.086
13.0	14	0.30	26	83	12.5	42	4	35402130HA	35402130	0.074 – 0.099	0.069 – 0.086
14.0	14	0.30	26	83	13.5	42	4	35402140HA	35402140	0.074 – 0.121	0.069 – 0.105
16.0	16	0.40	32	92	15.5	44	4	35402160HA	35402160	0.095 – 0.143	0.088 – 0.124
18.0	18	0.40	32	92	17.5	50	4	35402180HA	35402180	0.116 – 0.143	0.108 – 0.124
20.0	20	0.50	38	104	19.5	54	4	35402200HA	35402200	0.137 – 0.187	0.127 – 0.162



Fresado periférico
ae = 0,5xD
p = 2,0xD



Ranura completa
ap=1,5xD

V_c (m/min)	General structured steels		Free machining steels	Non-alloy Q & T steels	Alloyed Q & T steels	Tool steels	Cast iron (GG)	Cast iron (GGG, GT)	Stainless austenitic
Tensile strength / Hardness / etc.	≤ 500 N/mm²	≤ 850 N/mm²	≤ 1.000 N/mm²	≤ 1.000 N/mm²	≤ 1.200 N/mm²	≤ 1.300 N/mm²	< 450 N/mm²	> 260 HB	1.4301
Full slot a_p=1xD	220	190	180	160	130	110	160	130	90
Trimming a_p = 0.2xD	310	280	250	220	190	160	220	190	110

Familia producto 159

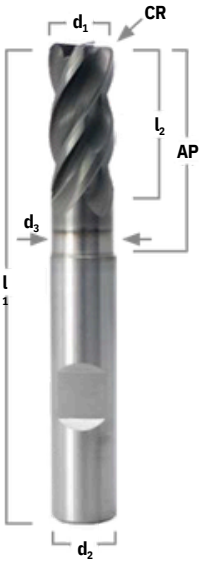
35402CR

MnS1 | Z 4 | HB | VHM | Type N | HPC

Estándar fabricante

Fresa HPC de Carburo Sólido

Con radio de esquina



d1	d2
h10	h6

d1 mm	d2 mm	l2 mm	l1 mm	CR +/- 0.02	d3 mm	AP mm	Z	coated Part No.	fz Roughing mm/Z	fz Finishing mm/Z
4.0	6	11	57	0.25	3.8	21	4	3540204025	0.011 – 0.039	0.010 – 0.033
4.0	6	11	57	0.50	3.8	21	4	354020405	0.011 – 0.039	0.010 – 0.033
4.0	6	11	57	1.00	3.8	21	4	354020410	0.011 – 0.039	0.010 – 0.033
5.0	6	13	57	0.50	4.8	21	4	354020505	0.016 – 0.039	0.015 – 0.033
5.0	6	13	57	1.00	4.8	21	4	354020510	0.016 – 0.039	0.015 – 0.033
5.0	6	13	57	1.50	4.8	21	4	354020515	0.016 – 0.039	0.015 – 0.033
6.0	6	13	57	0.50	5.5	21	4	354020605	0.026 – 0.044	0.025 – 0.038
6.0	6	13	57	1.00	5.5	21	4	354020610	0.026 – 0.044	0.025 – 0.038
6.0	6	13	57	1.50	5.5	21	4	354020615	0.026 – 0.044	0.025 – 0.038
6.0	6	13	57	2.00	5.5	21	4	354020620	0.026 – 0.044	0.025 – 0.038
8.0	8	19	63	0.50	7.5	27	4	354020805	0.032 – 0.055	0.029 – 0.048
8.0	8	19	63	1.00	7.5	27	4	354020810	0.032 – 0.055	0.029 – 0.048
8.0	8	19	63	1.50	7.5	27	4	354020815	0.032 – 0.055	0.029 – 0.048
8.0	8	19	63	2.00	7.5	27	4	354020820	0.032 – 0.055	0.029 – 0.048
10.0	10	22	72	0.50	9.5	32	4	354021005	0.042 – 0.077	0.039 – 0.067
10.0	10	22	72	1.00	9.5	32	4	354021010	0.042 – 0.077	0.039 – 0.067
10.0	10	22	72	1.50	9.5	32	4	354021015	0.042 – 0.077	0.039 – 0.067
10.0	10	22	72	2.00	9.5	32	4	354021020	0.042 – 0.077	0.039 – 0.067
10.0	10	22	72	3.00	9.5	32	4	354021030	0.042 – 0.077	0.039 – 0.067
12.0	12	26	83	0.50	11.5	38	4	354021205	0.063 – 0.099	0.059 – 0.086
12.0	12	26	83	1.00	11.5	38	4	354021210	0.063 – 0.099	0.059 – 0.086
12.0	12	26	83	1.50	11.5	38	4	354021215	0.063 – 0.099	0.059 – 0.086
12.0	12	26	83	2.00	11.5	38	4	354021220	0.063 – 0.099	0.059 – 0.086
12.0	12	26	83	3.00	11.5	38	4	354021230	0.063 – 0.099	0.059 – 0.086
14.0	14	26	83	1.00	13.5	42	4	354021410	0.074 – 0.121	0.069 – 0.105
14.0	14	26	83	2.00	13.5	42	4	354021420	0.074 – 0.121	0.069 – 0.105
16.0	16	32	92	1.00	15.5	44	4	354021610	0.095 – 0.143	0.088 – 0.124
16.0	16	32	92	1.50	15.5	44	4	354021615	0.095 – 0.143	0.088 – 0.124
16.0	16	32	92	2.00	15.5	44	4	354021620	0.095 – 0.143	0.088 – 0.124
16.0	16	32	92	2.50	15.5	44	4	354021625	0.095 – 0.143	0.088 – 0.124
16.0	16	32	92	3.00	15.5	44	4	354021630	0.095 – 0.143	0.088 – 0.124
16.0	16	32	92	4.00	15.5	44	4	354021640	0.095 – 0.143	0.088 – 0.124
20.0	20	38	104	1.00	19.5	54	4	354022010	0.137 – 0.187	0.127 – 0.162
20.0	20	38	104	1.50	19.5	54	4	354022015	0.137 – 0.187	0.127 – 0.162
20.0	20	38	104	2.00	19.5	54	4	354022020	0.137 – 0.187	0.127 – 0.162
20.0	20	38	104	2.50	19.5	54	4	354022025	0.137 – 0.187	0.127 – 0.162
20.0	20	38	104	3.00	19.5	54	4	354022030	0.137 – 0.187	0.127 – 0.162
20.0	20	38	104	4.00	19.5	54	4	354022040	0.137 – 0.187	0.127 – 0.162
20.0	20	38	104	5.00	19.5	54	4	354022050	0.137 – 0.187	0.127 – 0.162



Fresado periférico
ae = 0,5xD
p = 2,0xD



Ranura completa
ap=2,0xD

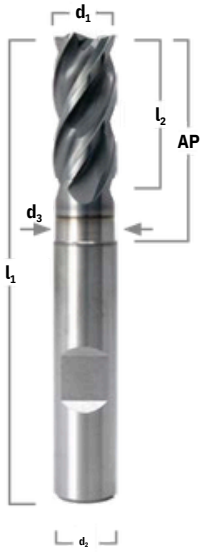
V_c (m/min)	General structured steels		Free machining steels	Non-alloy Q & T steels	Alloyed Q & T steels	Tool steels	Cast iron (GG)	Cast iron (GGG, GT)	Stainless austenitic
Tensile strength / Hardness / etc.	≤ 500 N/mm²	≤ 850 N/mm²	≤ 1.000 N/mm²	≤ 1.000 N/mm²	≤ 1.200 N/mm²	≤ 1.300 N/mm²	< 450 N/mm²	> 260 HB	1.4301
Full slot a_e=1xD	220	190	180	160	130	110	160	130	90
Trimming a_e = 0.2xD	310	280	250	220	190	160	220	190	110

Familia producto 159

35403

MnS1 | Z 4 | HB | VHM | Type N | HPC | Estándar fabricante

Fresa HPC de Carburo Sólido
Con chaflán protector



d1 mm	d2 mm	Protective chamfer	l2 mm	l1 mm	d3 mm	AP mm	Z	coated Part No.	fz Roughing mm/Z	fz Finishing mm/Z
3.0	6	0.03	8	57	2.8	18	4	35403030	0.007 – 0.031	0.007 – 0.027
4.0	6	0.04	11	57	3.8	21	4	35403040	0.011 – 0.039	0.010 – 0.033
5.0	6	0.05	13	57	4.8	21	4	35403050	0.016 – 0.039	0.015 – 0.033
6.0	6	0.06	13	57	5.5	21	4	35403060	0.026 – 0.044	0.025 – 0.038
8.0	8	0.08	19	63	7.5	27	4	35403080	0.032 – 0.055	0.029 – 0.048
10.0	10	0.10	22	72	9.5	32	4	35403100	0.042 – 0.077	0.039 – 0.067
12.0	12	0.12	26	83	11.5	38	4	35403120	0.063 – 0.099	0.059 – 0.086
16.0	16	0.15	32	92	15.5	44	4	35403160	0.095 – 0.143	0.088 – 0.124
20.0	20	0.15	38	104	19.5	54	4	35403200	0.137 – 0.187	0.127 – 0.162

d1	d2
h10	h6



Fresado periférico
ae=0,5xD
p=2,0xD

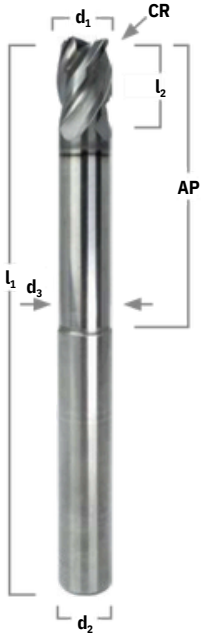


Ranura comp.
ap=2,0xD

35404

MnS1 | Z 4 | HB | VHM | Type N | HPC | Estándar fabricante

Fresa HPC de Carburo Sólido
Versión larga con radio de esquina



d1 mm	d2 mm	l2 mm	l1 mm	CR +/- 0.02	d3 mm	AP mm	Z	coated Part No.	fz Roughing mm/Z	fz Finishing mm/Z
6.0	6	7	75	0.50	5.5	32	4	354040605	0.023 – 0.04	0.023 – 0.034
6.0	6	7	75	1.00	5.5	32	4	354040610	0.023 – 0.04	0.023 – 0.034
6.0	6	7	75	1.50	5.5	32	4	354040615	0.023 – 0.04	0.023 – 0.034
6.0	6	7	75	2.00	5.5	32	4	354040620	0.023 – 0.04	0.023 – 0.034
8.0	8	9	85	0.50	7.5	42	4	354040805	0.029 – 0.05	0.026 – 0.043
8.0	8	9	85	1.00	7.5	42	4	354040810	0.029 – 0.05	0.026 – 0.043
8.0	8	9	85	1.50	7.5	42	4	354040815	0.029 – 0.05	0.026 – 0.043
8.0	8	9	85	2.00	7.5	42	4	354040820	0.029 – 0.05	0.026 – 0.043
10.0	10	11	100	0.50	9.5	52	4	354041005	0.038 – 0.069	0.035 – 0.06
10.0	10	11	100	1.00	9.5	52	4	354041010	0.038 – 0.069	0.035 – 0.06
10.0	10	11	100	1.50	9.5	52	4	354041015	0.038 – 0.069	0.035 – 0.06
10.0	10	11	100	2.00	9.5	52	4	354041020	0.038 – 0.069	0.035 – 0.06
12.0	12	12	110	0.50	11.5	62	4	354041205	0.057 – 0.089	0.045 – 0.077
12.0	12	12	110	1.00	11.5	62	4	354041210	0.057 – 0.089	0.045 – 0.077
12.0	12	12	110	1.50	11.5	62	4	354041215	0.057 – 0.089	0.045 – 0.077
12.0	12	12	110	2.00	11.5	62	4	354041220	0.057 – 0.089	0.045 – 0.077
16.0	16	16	140	0.50	15.5	82	4	354041605	0.086 – 0.129	0.079 – 0.112
16.0	16	16	140	1.00	15.5	82	4	354041610	0.086 – 0.129	0.079 – 0.112
16.0	16	16	140	1.50	15.5	82	4	354041615	0.086 – 0.129	0.079 – 0.112
16.0	16	16	140	2.00	15.5	82	4	354041620	0.086 – 0.129	0.079 – 0.112
16.0	16	16	140	2.50	15.5	82	4	354041625	0.086 – 0.129	0.079 – 0.112

d1	d2
h10	h6



Fresado periférico
ae=0,5xD
p=2,0xD



Ranura comp.
ap=2,0xD

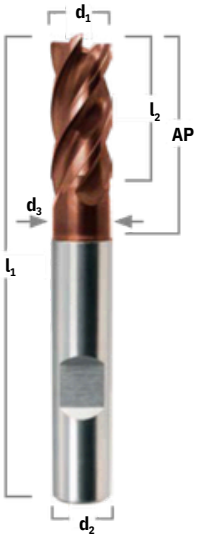
Vc (m/min)	General structured steels		Free machining steels	Non-alloy Q & T steels	Alloyed Q & T steels	Tool steels	Cast iron (GG)	Cast iron (GGG, GT)	Stainless austenitic
Tensile strength / Hardness / etc.	≤ 500 N/mm²	≤ 850 N/mm²	≤ 1.000 N/mm²	≤ 1.000 N/mm²	≤ 1.200 N/mm²	≤ 1.300 N/mm²	< 450 N/mm²	> 260 HB	1.4301
Full slot a_e=1xD	220	190	180	160	130	110	160	130	90
Trimming a_e = 0.2xD	310	280	250	220	190	160	220	190	110

35405

MnI1 | Z 4 | HB | VHM | Type N | HPC | Estándar fabricante

Fresa HPC de Carburo Sólido INOX-Titanium

Con chaflán de arista



D_1 MM	D_2 MM	Chaflán esquina	L_2 MM	L_1 MM	D_3 MM	AP MM	Z	COATED PART NO.	F_z ROUGHING	f_z Finishing mm/Z
3.0	6	0.13	8	57	2.8	18	4	35405030	0.0105 – 0.0170	0.0098 – 0.0140
3.0	6	0.13	8	57	2.8	12	4	35405031	0.0105 – 0.0170	0.0098 – 0.0140
4.0	6	0.18	11	57	3.8	21	4	35405040	0.0147 – 0.0220	0.0137 – 0.0190
4.0	6	0.18	11	57	3.8	15	4	35405041	0.0147 – 0.0220	0.0137 – 0.0190
5.0	6	0.20	13	57	4.8	21	4	35405050	0.0189 – 0.0260	0.0176 – 0.0230
5.0	6	0.20	13	57	4.8	17	4	35405051	0.0189 – 0.0260	0.0176 – 0.0230
6.0	6	0.20	13	57	5.5	21	4	35405060	0.0210 – 0.0310	0.0196 – 0.0270
7.0	8	0.20	19	63	6.5	27	4	35405070	0.0315 – 0.0420	0.0294 – 0.0360
8.0	8	0.20	19	63	7.5	27	4	35405080	0.0315 – 0.0420	0.0294 – 0.0360
9.0	10	0.30	22	72	8.5	32	4	35405090	0.0420 – 0.0550	0.0392 – 0.0480
10.0	10	0.30	22	72	9.5	32	4	35405100	0.0420 – 0.0550	0.0392 – 0.0480
11.0	12	0.30	26	83	10.5	38	4	35405110	0.0473 – 0.0610	0.0441 – 0.0520
12.0	12	0.30	26	83	11.5	38	4	35405120	0.0473 – 0.0610	0.0441 – 0.0520
13.0	14	0.30	26	83	12.5	42	4	35405130	0.0525 – 0.0660	0.0490 – 0.0570
14.0	14	0.30	26	83	13.5	42	4	35405140	0.0525 – 0.0660	0.0490 – 0.0570
16.0	16	0.40	32	92	15.5	44	4	35405160	0.0735 – 0.0880	0.0686 – 0.0760
18.0	18	0.40	32	92	17.5	50	4	35405180	0.0735 – 0.0990	0.0686 – 0.0860
20.0	20	0.50	38	104	19.5	54	4	35405200	0.0735 – 0.0990	0.0686 – 0.0860

d_1	d_2
h10	h6

d_1 mm	d_2 mm	Corner chamfer	l_2 mm	l_1 mm	d_3 mm	AP mm	Z	coated Part No.	f_z Roughing mm/Z	f_z Finishing mm/Z
3.0	6	0.13	8	57	2.8	12	4	35405031	0.0105 – 0.0170	0.0098 – 0.0140
4.0	6	0.18	11	57	3.8	15	4	35405041	0.0147 – 0.0220	0.0137 – 0.0190
5.0	6	0.20	13	57	4.8	17	4	35405051	0.0189 – 0.0260	0.0176 – 0.0230

Con medida AP reducida



Fresado periférico
ae=0,5xD
p=2,0xD



Ranura comp.
ap=1,5xD

V_c (m/min)	General structured steels	Alloyed Q & T steels	Cast iron (GGG,GT)	Stainless austenitic	Stainless acidresistant austenitic	Stainless ferritic-austenitic	Heat-resistant materials	Titanium alloy
Tensile strength / Hardness / etc.	≤ 850 N/mm²	≤ 1100 N/mm²	> 260 HB	1.4301	1.4571	Duplex	≤1200 N/mm²	≤850 N/mm²
Full slot a_e = 1xD	200	140	70	110	100	80	40	60
Trimming a_e = 0,2xD	300	200	100	150	130	100	60	80

¿Quiere aumentar su productividad?
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