STEEL INTEG

Steel Specialized End mills

HC35PS

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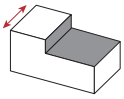
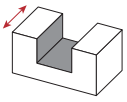
Introducing the HC35PS, a high-performance solid carbide end mill designed for precision machining of steel. This versatile tool excels in various operations like shouldering, slotting, ramp down and helical interpolation up to 15°, plunging and also drilling. Its innovative design features a variable pitch and helix angle, ensuring efficient cutting and reduced vibrations. The HC35PS also boasts cross-center cutting capabilities and exceptional robustness. Its front cutting edge cavity is shaped in a radius form to ensure superior chip removal and reduce stress concentration, making it ideal for demanding applications.
Available in cutting diameters ranging from 2 to 25 mm, the HC35PS is engineered to deliver reliable, high-quality results in steel operations.

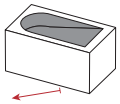
Benefits

- Higher material removal rate;
- Reliable machining performance up to 2xD;
- Enables higher feed rates and cutting depths;
- High angles in ramp and helical interpolation, up to 15°;
- Innovative variable pitch reducing harmonics and increasing tool life;
- Optimized rake angle for higher cutting efficiency and tool longevity;
- Suitable for dynamic trochoidal milling;
- With PHU910 grade for durability and wear resistance in steel machining.

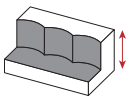
Operations

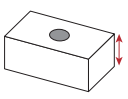

Shouldering

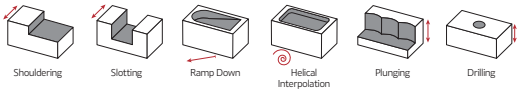

Slotting


Ramp Down


Helical Interpolation


Plunging


Drilling



Variable Helix Angles

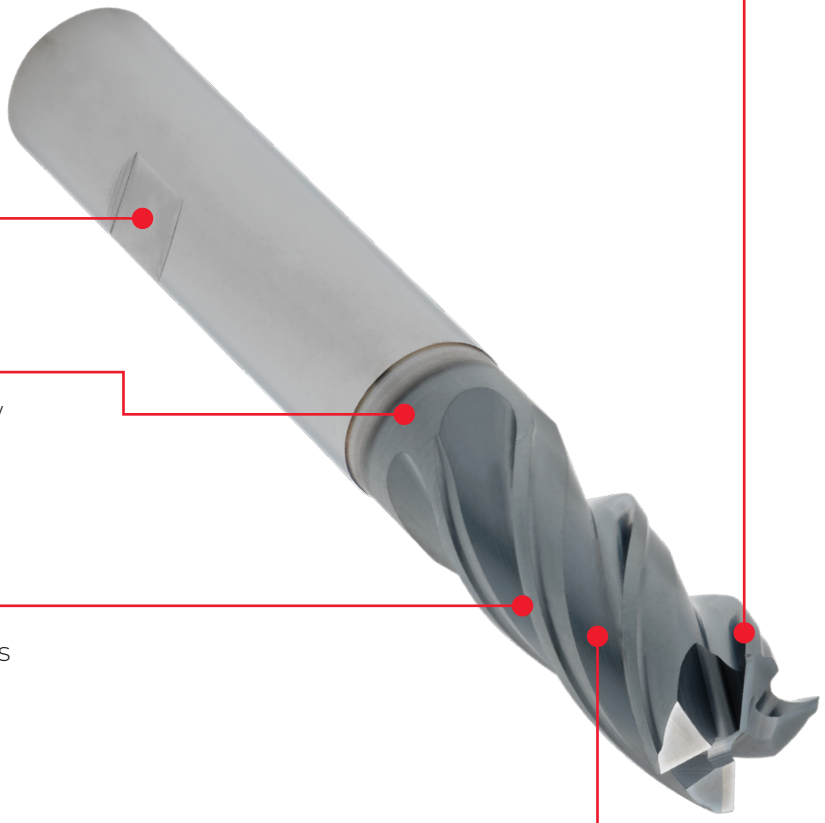
Ensures smooth and stable cutting, minimizing vibrations and improving surface finish.

Shank Type

With cylindrical or weldon shank for improved balance during machining.

Reduced Neck

Allows better accessibility in deep or narrow cutting applications.



Micro Edge Preparation

Enhances cutting performance and extends tool life by reducing chipping.

Optimized Flute Geometry

Improves chip removal, enhancing efficiency.

Cross-Center Cutting

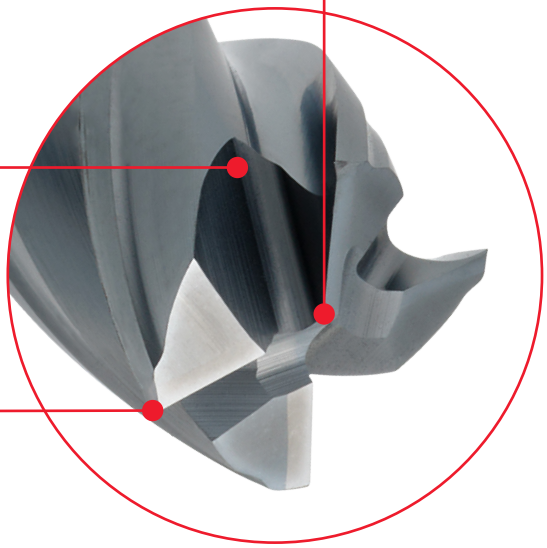
Also suitable for drilling operations.

Front Cutting Edge Cavity

Shaped in a radius form to ensure superior chip removal and reduce stress concentration.

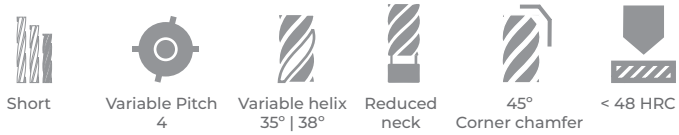
Corner Chamfer

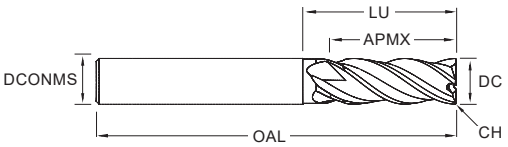
Minimize edge chipping and extending tool life ensuring precision and reliability.



HC35PS Corner chamfer

P K





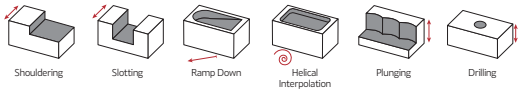
(1) Order code		(2) Grade code		2A	Dimensions | Dimensões | Dimensiones (mm)						
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHU910	DC	DCONMS	AMPX	CHW	KCH	LU	OAL
1182241	1182240	HC35PS 4 020 05	4	◈	2	6	5	0,08	45°	8	57
1182242	1181829	HC35PS 4 030 08	4	◈	3	6	8	0,10	45°	12	57
1182243	1181749	HC35PS 4 040 08	4	◈	4	6	8	0,10	45°	12	57
1182244	1181750	HC35PS 4 050 10	4	◈	5	6	10	0,15	45°	15	57
1182245	1181751	HC35PS 4 060 13	4	◈	6	6	13	0,20	45°	21	57
1182246	1181834	HC35PS 4 070 19	4	○	7	8	19	0,20	45°	27	63
1182247	1181752	HC35PS 4 080 19	4	◈	8	8	19	0,20	45°	27	63
1182248	1181830	HC35PS 4 090 22	4	○	9	10	22	0,20	45°	32	72
1182249	1181753	HC35PS 4 100 22	4	◈	10	10	22	0,20	45°	32	72
1182250	1181831	HC35PS 4 110 26	4	○	11	12	26	0,20	45°	32	83
1182180	1181828	HC35PS 4 120 26	4	◈	12	12	26	0,20	45°	38	83
1182251	1181832	HC35PS 4 130 26	4	○	13	14	26	0,20	45°	38	83
1182252	1181754	HC35PS 4 140 26	4	○	14	14	26	0,30	45°	38	83
1182253	1181755	HC35PS 4 160 32	4	◈	16	16	32	0,30	45°	44	92
1182254	1181756	HC35PS 4 180 32	4	◈	18	18	32	0,30	45°	44	92
1182255	1181757	HC35PS 4 200 38	4	◈	20	20	38	0,30	45°	50	104
1182256	1181833	HC35PS 4 250 42	4	○	25	25	42	0,30	45°	58	121

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

End mill order code = (1) Geometry Code + (2) Grade Code

Note: For HB (Weldon) end mills, the reference ends with "-W "

Example: "HC35PS 4 030 08-W"



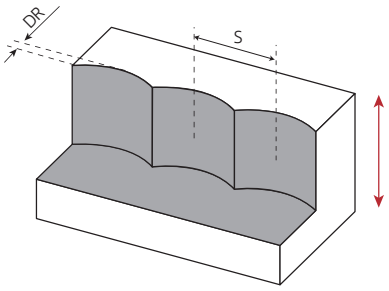
RECOMMENDED CUTTING CONDITIONS

ISO	Material	Vc (m/min)	Feed fz (mm/t)						
			DC (mm)						
			2-4	4-6	6-8	8-10	10-12	12-16	16-25
P	Unalloyed Steel	120-275	0,03-0,06	0,06-0,08	0,08-0,12	0,12-0,14	0,14-0,16	0,16-0,22	0,22-0,25
	Low-Alloyed Steel	120-200	0,02-0,05	0,05-0,08	0,08-0,11	0,11-0,13	0,13-0,15	0,15-0,20	0,20-0,24
	High-Alloyed Steel	100-180	0,02-0,04	0,04-0,07	0,07-0,010	0,10-0,12	0,12-0,14	0,14-0,17	0,17-0,20
K	Malleable Cast Iron	180-230	0,04-0,06	0,06-0,09	0,09-0,12	0,12-0,15	0,15-0,18	0,18-0,22	0,22-0,28
	Grey Cast Iron	170-220	0,04-0,06	0,06-0,09	0,09-0,12	0,12-0,15	0,15-0,18	0,18-0,22	0,22-0,28
	Nodular Cast Iron	120-180	0,03-0,05	0,05-0,07	0,07-0,10	0,10-0,12	0,12-0,14	0,14-0,19	0,19-0,24

Note: Vc and fz values shown in the table are for shouldering up to 2xDC

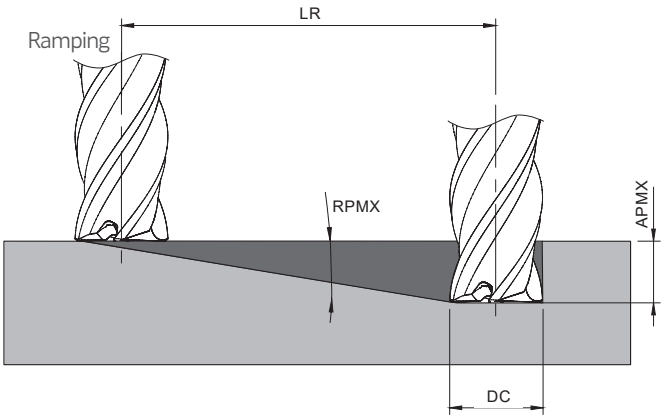
Operation	Cutting Conditions		
	Vc (m/min)	fz (mm/t)	APMX
Slotting	90%	80%	1xDC
Plunging	70%	35%	2xDC
Drilling	70%	5%	1xDC

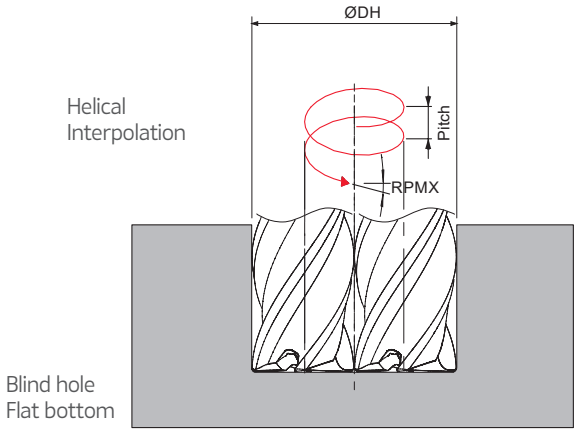
PLUNGING



S max and DR corresponding cutting diameter DC (mm)																	
DR (mm)	DC (mm)																
	2	3	4	5	6	7	8	9	10	11	12	13	14	16	18	20	25
0,2	0,6	0,7	0,9	1,0	1,1	1,2	1,2	1,3	1,4	1,5	1,5	1,6	1,7	1,8	1,9	2,0	2,2
0,5	0,9	1,1	1,3	1,5	1,7	1,8	1,9	2,1	2,2	2,3	2,4	2,5	2,6	2,8	3,0	3,1	3,5
1,0	-	1,4	1,7	2,0	2,2	2,4	2,6	2,8	3,0	3,2	3,3	3,5	3,6	3,9	4,1	4,4	4,9
1,5	-	-	-	-	2,6	2,9	3,1	3,4	3,6	3,8	4,0	4,2	4,3	4,7	5,0	5,3	5,9
2,0	-	-	-	-	-	-	3,5	3,7	4,0	4,2	4,5	4,7	4,9	5,3	5,7	6,0	6,8
2,5	-	-	-	-	-	-	-	-	4,3	4,6	4,9	5,1	5,4	5,8	6,2	6,6	7,5
3,0	-	-	-	-	-	-	-	-	-	-	5,2	5,5	5,7	6,2	6,7	7,1	8,1
4,0	-	-	-	-	-	-	-	-	-	-	-	-	-	6,9	7,5	8,0	9,2
5,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,7	10,0
6,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10,7

RAMPING AND HELICAL INTERPOLATION

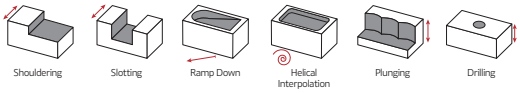




ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
2	15,0	5,0	18,7	2,7 -	- 3,8	0,56 1,50
3	15,0	8,0	29,9	4,0 -	- 5,8	0,84 2,35
4	15,0	8,0	29,9	5,3 -	- 7,8	1,09 3,15
5	15,0	10,0	37,3	6,7 -	- 9,7	1,40 3,95
6	15,0	13,0	48,5	8,0 -	- 11,6	1,68 4,70
7	15,0	19,0	70,9	9,3 -	- 13,6	1,93 5,55
8	15,0	19,0	70,9	10,7 -	- 15,6	2,24 6,35
9	15,0	22,0	82,1	12,0 -	- 17,6	2,52 7,20
10	15,0	22,0	82,1	13,3 -	- 19,6	2,77 8,05
11	15,0	26,0	97,0	14,7 -	- 21,6	3,08 8,90
12	15,0	26,0	97,0	16,0 -	- 23,6	3,36 9,75
13	15,0	26,0	97,0	17,3 -	- 25,6	3,61 10,60
14	15,0	26,0	97,0	18,7 -	- 27,6	3,96 11,40
16	15,0	32,0	119,4	21,3 -	- 31,4	4,45 12,95
18	15,0	32,0	119,4	24,0 -	- 35,4	5,04 14,60
20	15,0	38,0	141,8	26,7 -	- 39,4	5,64 16,30
25	15,0	42,0	156,7	33,3 -	- 49,4	6,97 20,50

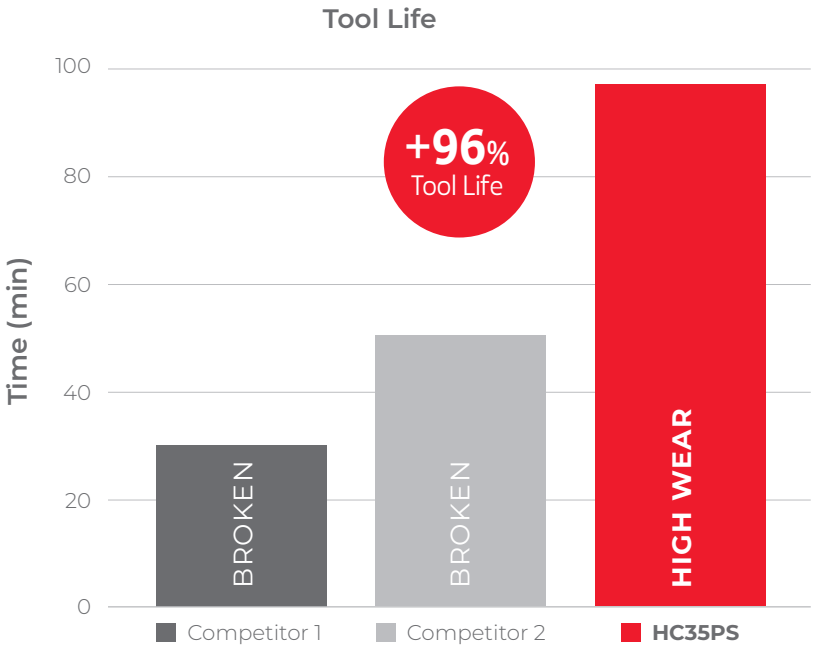
Note: During helical interpolation do not exceed APMX.

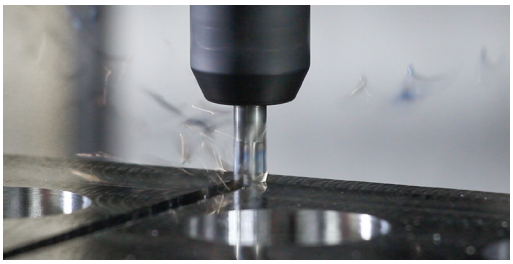


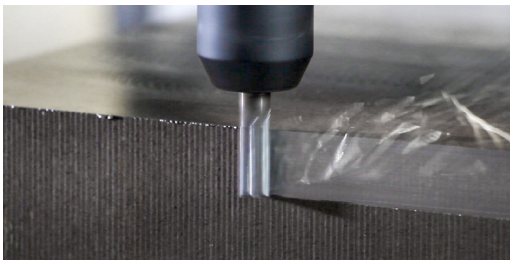
TEST REPORT

Endmill	HC35PS 4 100 22-W			
Grade	PHU910			
Operations	Slotting and Shouldering (Interrupted cut)			
Coolant	Air			
Cutting conditions	Vc = 140 m/min	Fn = 0,04 mm/t	Ap = 10 mm (1xDC)	Ae = 10 mm (100%)
	Vc = 160 m/min	Fn = 0,1 mm/t	Ap = 20 mm (2xDC)	Ae = 2 mm (20%)

Workpiece Material 1.2738 | 40 CrMnNiMo 8-6-4







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HEADQUARTERS

PALBIT. S.A.

P.O.Box 4 - Palhal

3854-908 - Branca ALB - Portugal

T (+351) 234 540 300 | F (+351) 234 540 301

palbit@palbit.pt | www.palbit.pt

Branch office:

PALBIT México, S de RL de CV

C/ Alfonso Esparza Oteo 37

Colonia Guadalupe Inn

Alcaldía Álvaro Obregón

01020 Ciudad de México

T (+52) 5555 454 543 | F (+52) 5552 509 190

info@palbit.com.mx | www.palbit.pt/mx

Branch office:

PALBIT Brasil

Av. João XXIII, nº20 Salas 41 e 65

Vila Gilda, Sto André, SP

CEP: 09190-500 – São Paulo

T (+55) 011 25 343 648

palbit@palbit.com.br | www.palbit.pt/br

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