

STEEL INTEG

# HC35PS

Steel specialized end mills

**MILLING**  
Solid Carbide



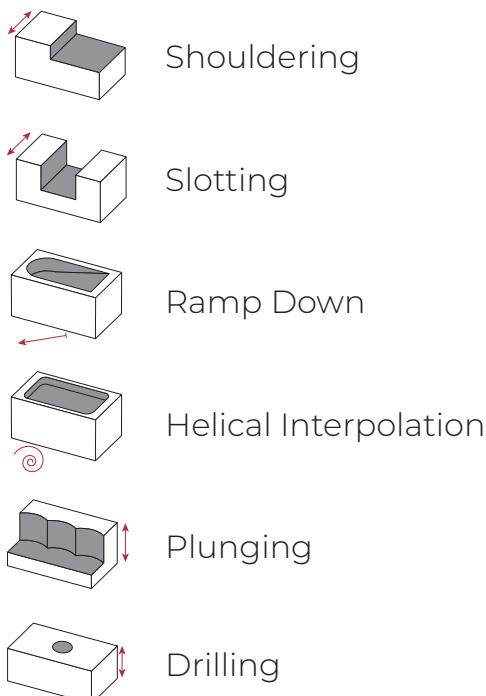
# STEEL INTEG Steel Specialized End mills

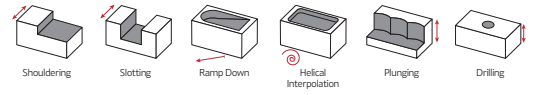
Introducing the HC35PS, a high-performance solid carbide end mill designed for precision machining of steel. This versatile tool excels in various operations like shouldering, slotting, ramp down and helical interpolation up to 15°, plunging and also drilling. Its innovative design features a variable 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





### **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**

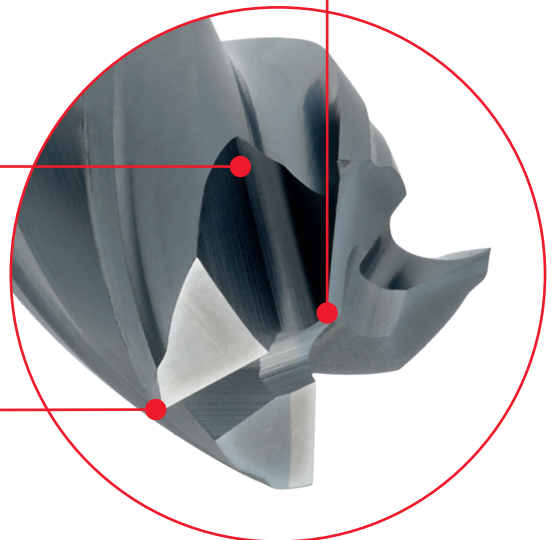
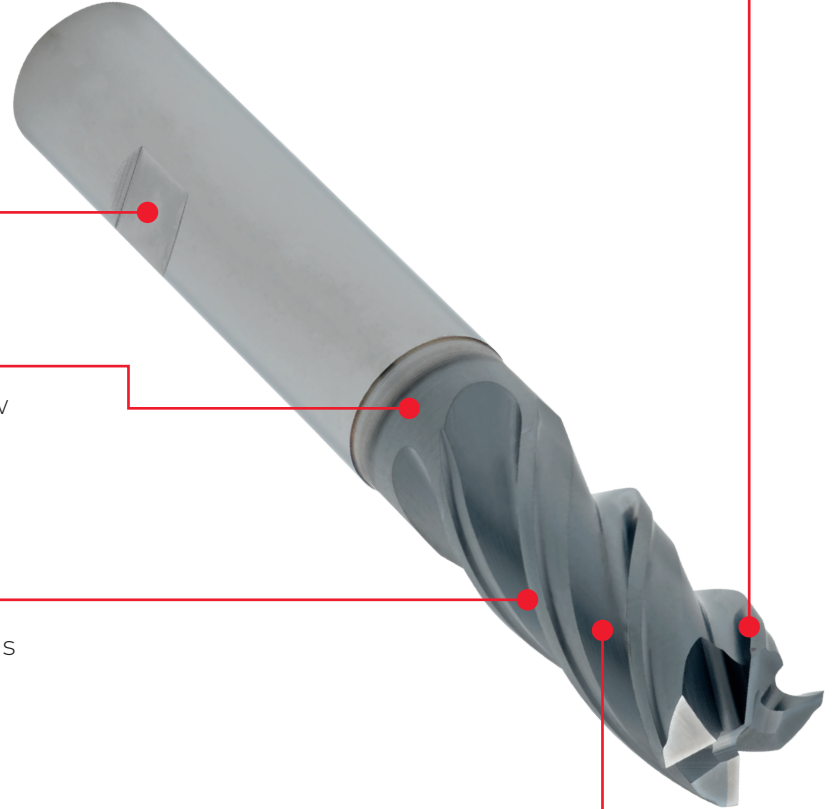
Also suitable for drilling operations.

### **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.

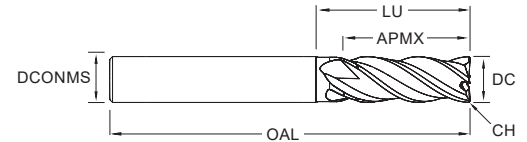


# STEEL INTEG Steel Specialized End mills

## HC35PS Corner chamfer



P K

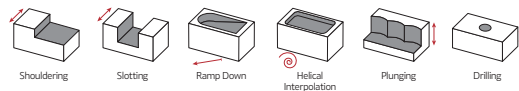


<sup>(1)</sup> Order code		<sup>(2)</sup> Grade code		2A	Dimensions   Dimensões   Dimensiones (mm)						
		Reference Referência Referencia	NOF		PHU910	DC	DCONMS	APMX	CHW	KCH	LU
HA (Cylindrical)	HB (Weldon)										
1182241	1182240	HC35PS 4 020 05	4	⊗	2	6	5	0,08	45°	8	57
1182242	1181829	HC35PS 4 030 08	4	⊗	3	6	8	0,1	45°	12	57
1182243	1181749	HC35PS 4 040 08	4	⊗	4	6	8	0,1	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	0,2	45°	21	57
1182246	1181834	HC35PS 4 070 19	4	⊗	7	8	19	0,2	45°	27	63
1182247	1181752	HC35PS 4 080 19	4	⊗	8	8	19	0,2	45°	27	63
1182248	1181830	HC35PS 4 090 22	4	⊗	9	10	22	0,2	45°	32	72
1182249	1181753	HC35PS 4 100 22	4	⊗	10	10	22	0,2	45°	32	72
1182250	1181831	HC35PS 4 110 26	4	○	11	12	26	0,2	45°	38	83
1182180	1181828	HC35PS 4 120 26	4	⊗	12	12	26	0,2	45°	38	83
1182251	1181832	HC35PS 4 130 26	4	○	13	14	26	0,3	45°	38	83
1182252	1181754	HC35PS 4 140 26	4	⊗	14	14	26	0,3	45°	38	83
1182253	1181755	HC35PS 4 160 32	4	⊗	16	16	32	0,3	45°	44	92
1182254	1181756	HC35PS 4 180 32	4	⊗	18	18	32	0,3	45°	44	92
1182255	1181757	HC35PS 4 200 38	4	⊗	20	20	38	0,3	45°	50	104
1182256	1181833	HC35PS 4 250 42	4	○	25	25	42	0,3	45°	56	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"



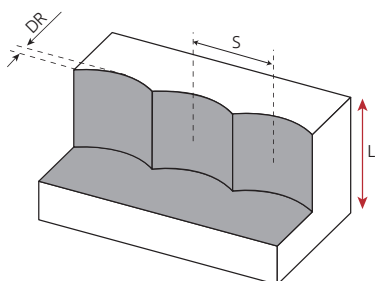
## RECOMMENDED CUTTING CONDITIONS

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

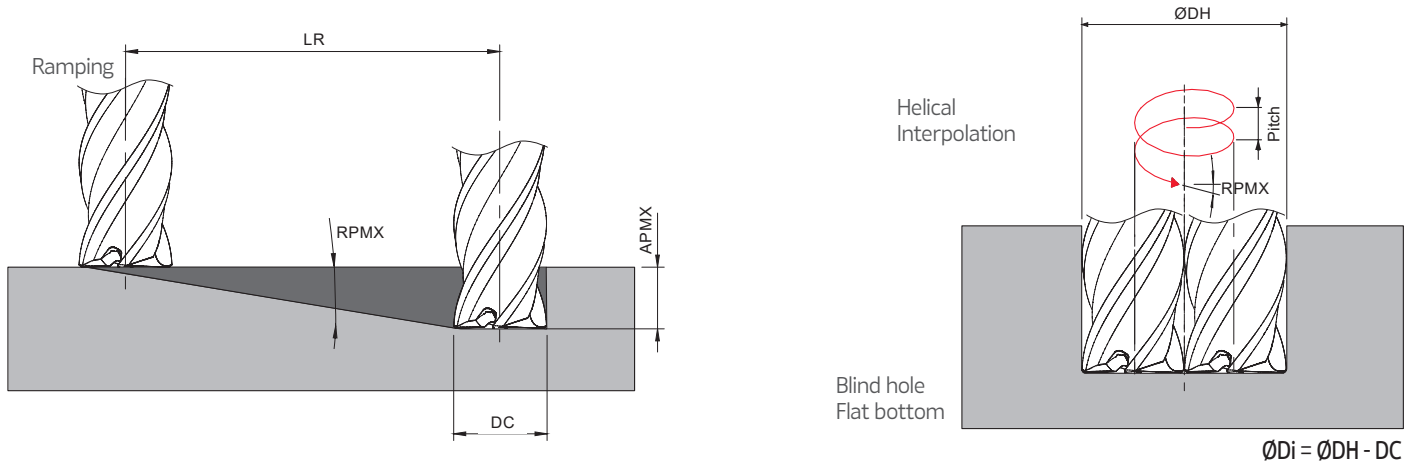
Operation	Cutting Conditions		
	Vc (m/min)	fz (mm/t)	APMX
Slotting	90%	80%	1xDC
Plunging	70%	35%	2xDC
Drilling	70%	5%	1xDC

## PLUNGING



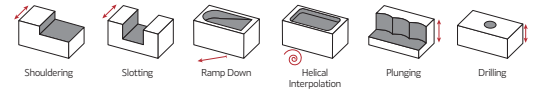
S max and DR corresponding cutting diameter DC (mm)																	
DR (mm)	DC (mm)																
	2	3	4	5	6	7	8	9	10	11	12	13	14	16	18	20	25
0,2	0,6	0,7	0,9	1,0	1,1	1,2	1,2	1,3	1,4	1,5	1,5	1,6	1,7	1,8	1,9	2,0	2,2
0,5	0,9	1,1	1,3	1,5	1,7	1,8	1,9	2,1	2,2	2,3	2,4	2,5	2,6	2,8	3,0	3,1	3,5
1,0	-	1,4	1,7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



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

Note: During helical interpolation do not exceed APMX.

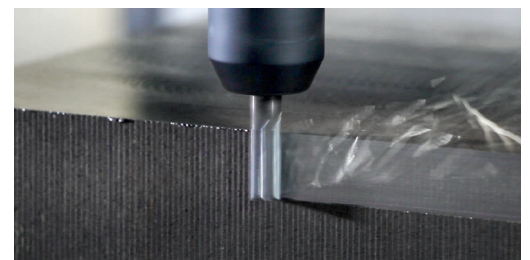
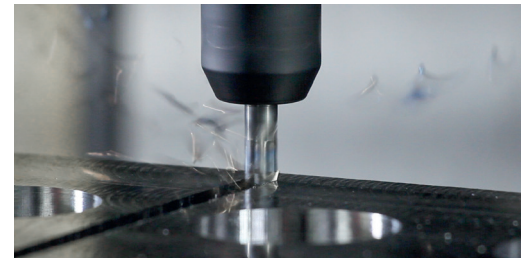
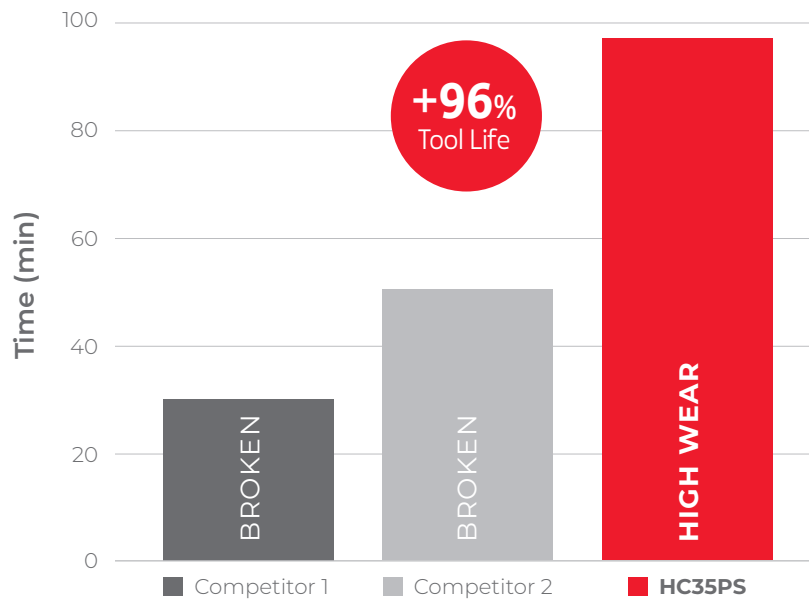


## TEST REPORT

<b>Endmill</b>	HC35PS 4 100 22-W			
<b>Grade</b>	PHU910			
<b>Operations</b>	Slotting and Shouldering (Interrupted cut)			
<b>Coolant</b>	Air			
<b>Cutting conditions</b>	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

**Tool Life**



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Check the QrCode for more information



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