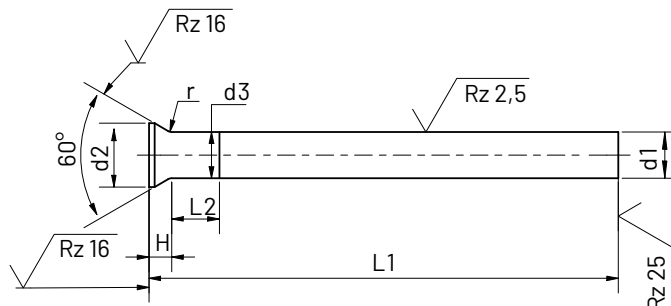


# 3 Rezilna igla Punch Pin

# DIN 9861 DA



## Klasična oblika s 60° - konično glavo in cilindričnim stebлом.

Classic design with 60° - conical head and cylindrical shank.

### Opomba | Note

Za ekstremno visoke zahteve priporočamo rezilne igle narejene iz orodnega jekla s PVD prevlekami in s pozavnastim ali cilindričnim vratom.

HSS igle so lahko na zahtevo prevlečene s posebno prevleko. Možne so tudi igle iz volfram karbida (hartmetall).

For extremely high demands, we recommend punch pins made of tool steel with Physical Vapor Deposition (PVD) surface layer with trombone or cylindrical neck.

HSS punch pins can be coated with a special coating upon request. Tungsten carbide (hartmetall) possible.

### Obseg uporabe:

V rezilnih orodjih za rezanje plošč iz jekla, ne-železne kovine, plastike, papir (in tiskana vezje z gladko površino). Dimenzije so prikazane v tabeli.

### Prileganje / tolerance:

Premer stebła d1, dolžina l1+0,5

ø	0,5 - 3	3 - 6	6 - 10	10 - 16
g6	-0,006	-0,008	-0,009	-0,011

### Material:

WS (legirno orodno jeklo za delo v hladnem) / HWS (visoko legirno orodno jeklo za delo v hladnem; vsebuje 12% kroma) / HSS (hitrorezno jeklo)

### Lastnosti materiala:

WS: povprečna trpežnost / HWS: visoka trpežnost, dolga življenjska doba / HSS: ekstremno visoka trpežnost, za materiale s katerimi se težko dela. Velika odpornost proti abraziji, visoka natezalna trdnost, visoka odpornost proti vročini.

### Trdota

Steblo: WS in HWS 60 - 64, HSS 62 - 66  
Glava: WS 40 - 50, HWS in HSS 45 - 55

### Obdelava:

Kaljeno, popuščeno, steblo precizno brušeno, 60° stožčasta vroče kovana glava, z dovoljeno nabreklostjo (d3) takoj pod glavo.

### Range of application:

Cutting boards, steel, non-ferrous metal, plastic, paper (and printed circuit boards with a smooth surface). The dimensions are shown in the table.

### Tolerance:

Shank diameter d1, length l1+0.5

ø	0,5 - 3	3 - 6	6 - 10	10 - 16
g6	-0,006	-0,008	-0,009	-0,011

### Material:

WS (Alloyed cold-work steel) / HWS (High alloy cold-work steel; approx. 12% Chrome) / HSS (HSS steel)

### Material properties:

WS: average durability / HWS: high durability, long life / HSS: extremely high durability for materials which are difficult to work with. Great abrasion resistance, high tear strength, high heat resistance.

### Hardness:

Shank: WS and HWS 60 - 64, HSS 62 - 66  
Head: WS 40 - 50, HWS in HSS 45 - 55

### Finish:

Hardened, tempered, precision steel blade, 60° conical hot-forged head with a permissible head to shank concentric (d3).



Ø d1 h6	L1+0,5 0			d2± 0,05	d3	h+ 0,20 0	L2 max	r
	71	80	100					
0,50	●	●		0,90	D1+0,02	0,55	5	0,20+0,20
0,60	●	●	●	1,10		0,63		
0,70	●	●	●	1,30		0,72		
0,80	●	●	●	1,40		0,92		
0,85	●	●				0,88		
0,90	●	●	●	1,60		1,01		
1,00	●	●	●	1,80	D1+0,03	1,19		0,40+0,30
1,10	●	●	●			1,11		
1,20	●	●	●	2,00		1,19		
1,30	●	●	●			1,11		
1,40	●	●	●	2,20		1,19		
1,45	●					1,15		
1,50	●	●	●			1,11		
1,60	●	●	●	2,50		1,28		
1,70	●	●	●			1,19		
1,80	●	●	●	2,80		1,37		
1,90	●	●	●			1,28		
2,00	●	●	●	3,00		1,37		
2,10	●	●	●	3,20		1,45		
2,20	●	●	●			1,37		
2,30	●	●	●	3,50		1,54		
2,35	●		●			1,50		
2,40	●	●	●			1,45		
2,50	●	●	●			1,37		
2,60	●	●	●	4,00		1,71		
2,65	●	●	●			1,67		
2,70	●	●	●			1,63		
2,80	●	●	●			1,54		
2,85	●					1,50		
2,90	●	●	●			1,45		
2,95	●					1,41		
3,00	●	●	●	4,50		1,80		0,60+0,40
3,10	●	●	●			1,71		
3,15	●					1,67		
3,20	●	●	●			1,63		
3,30	●	●	●			1,54		
3,40	●	●	●			1,45		
3,45	●					1,41		
3,50	●	●	●	5,00		1,80		
3,55	●	●	●			1,76		
3,60	●	●	●			1,71		
3,65	●					1,67		
3,70	●	●	●			1,63		
3,75	●	●	●			1,58		
3,80	●	●	●			1,54		
3,85	●	●	●			1,50		
3,90	●	●	●			1,45		
4,00	●	●	●	5,50		1,80		
4,10	●	●	●			1,71		
4,15	●	●	●			1,67		
4,20	●	●	●			1,63		
4,25	●					1,58		
4,30	●	●	●			1,54		
4,40	●	●	●			1,45		

Ø d1 h6	L1+0,5 0			d2± 0,05	d3	h+ 0,20 0	L2 max	r
	71	80	100					
4,50	●			6,00	D1+0,03	1,80	5	0,60+0,40
4,60	●					1,71		
4,70	●	●	●			1,63		
4,80	●	●	●			1,54		
4,90	●	●	●			1,45		
5,00	●	●	●	6,50		1,80	6	
5,10	●	●	●			1,71		
5,20	●	●	●			1,63		
5,30		●	●			1,54		
5,40			●			1,45		
5,50	●	●	●	7,00		1,80		
5,60	●	●	●		D1+0,04	1,71		
6,00	●	●	●	8,00		2,23		1,00+0,50
6,10	●		●			2,15		
6,20		●				2,06		
6,30	●					1,97		
6,40	●	●				1,89		
6,50	●	●	●	9,00		3,17		
6,70	●					2,99		
6,90	●					2,82		
7,00	●	●	●			2,73		
7,30	●	●				2,47		
7,40	●	●				2,39		
7,50	●	●	●	10,00		3,17		
7,60	●					3,08		
7,70	●					2,99		
8,00	●	●	●			2,73	8	
8,40	●					2,39		
8,50	●	●	●	11,00		3,17		
8,70	●	●				2,99		
8,75	●	●				2,95		
8,80	●					2,91		
8,90	●					2,82		
9,00	●	●	●			2,73		
9,25		●				2,52		
9,30	●	●				2,47		
9,40	●					2,39		
9,70	●			12,00		2,99		
9,80	●					2,91		
9,90	●					2,82		
10,00	●	●	●			2,73	10	
10,50	●			13,00		3,17		
10,60	●					3,08		
11,00	●	●	●			2,73		
11,60	●			14,00		3,08		
11,80		●				2,91		
12,00	●	●	●			2,73		
12,10	●					2,65		
12,30	●					2,47		
12,50	●			15,00		3,17		
14,00	●	●	●	16,00		3,23	12	1,50+0,50
14,90		●		17,00		3,32		
16,00			●	18,00		3,23		