



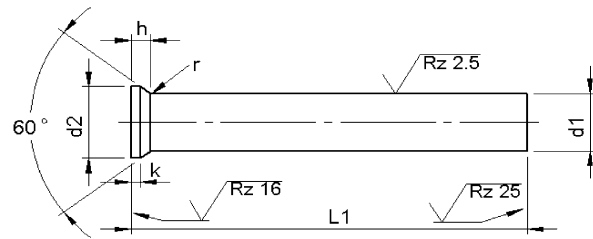
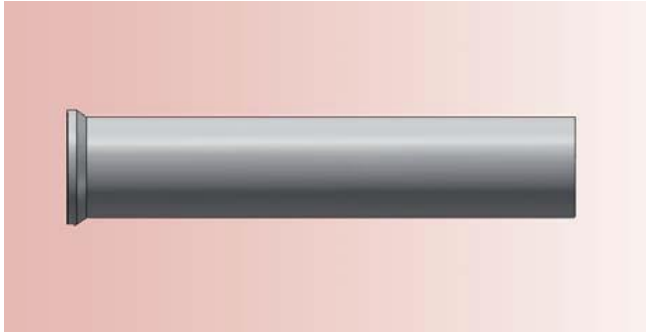
Price List

Production Program



Punches

DIN 9861 D HWS



Material: HWS (1.2379)

Hardness: Shaft: 62 ±2 HRC

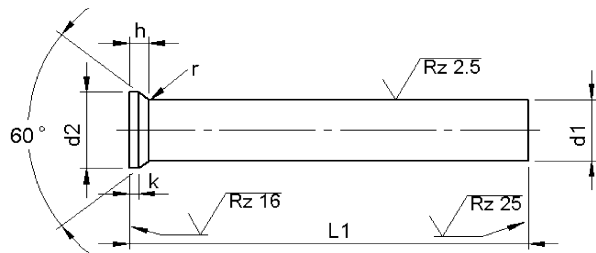
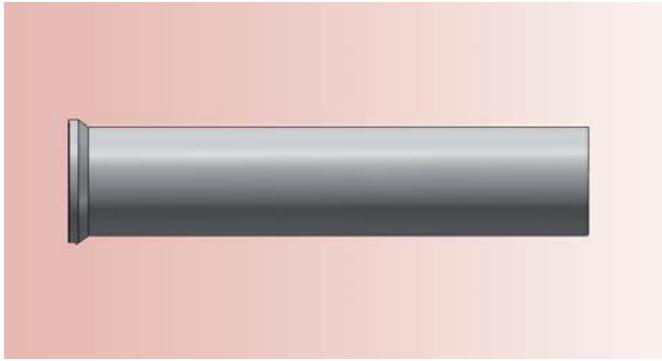
Head: 50 ±5 HRC

DISCONTINUED

d ₁	h ₆	d ₂ +0.05 -0.05	k +0.2 0	l ₁ +0.5 0						
				71	80	90	100	120	150	
				Price by piece in EUROS						
0.5		0.9	0.2	5,09						
0.6		1.1		5,09						
0.7		1.3		4,84						
0.8		1.4	0.4	4,84						
0.9		1.6		4,84						
1.0	t/m	1.1	0.5	3,80	4,45	5,03	5,67			
1.2	t/m	1.3		3,80	4,45	5,03	5,67			
1.4	t/m	1.5		3,80	4,45	5,03	5,67			
1.6	t/m	1.7		3,80	4,45	5,03	5,67			
1.8	t/m	1.9		3,80	4,45	5,03	5,67			
2.0		3.0		3,55	3,87	4,45	4,96	7,16		
2.1	t/m	2.2		3,55	3,87	4,45	4,96	7,16		
2.3	t/m	2.5		3,55	3,87	4,45	4,96	7,16		
2.6	t/m	2.9		3,55	3,87	4,45	4,96	7,16		
3.0	t/m	3.4		3,55	3,87	4,45	4,96	7,16		
3.5	t/m	3.9	4,00	4,32	4,90	5,61	7,93			
4.0	t/m	4.4	3,68	4,13	4,58	5,16	7,35	10,96		
4.5	t/m	4.9	4,00	4,26	4,77	5,61	7,93	11,86		
5.0	t/m	5.4	4,00	4,26	4,77	5,61	7,93	11,86		
5.5	t/m	5.9	4,00	4,32	5,09	5,61	7,93	11,93		
6.0	t/m	6.4	4,00	4,32	5,09	5,61	7,93	11,93		
6.5	+	7.0	1.0	4,26	4,64	5,29	5,93	8,45	12,64	
7.5	+	8.0		4,45	4,84	5,61	6,13	8,83	13,22	
8.5	+	9.0		4,96	5,54	6,19	7,03	9,93	14,83	
9.5	+	10.0		6,00	6,58	7,48	8,45	11,93	17,86	
10.5	+	11.0		6,58	7,35	8,25	9,28	13,15	19,73	
11.5	+	12.0		7,48	8,19	9,28	10,44	14,96	22,44	
12.5	+	13.0		7,74	8,70	9,86	10,96	15,47	23,21	

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

See page 2 for extra charges and discount.



Material: HWS (1.2379)

Hardness: Shaft: 62 ±2 HRC

Head: 50 ±5 HRC

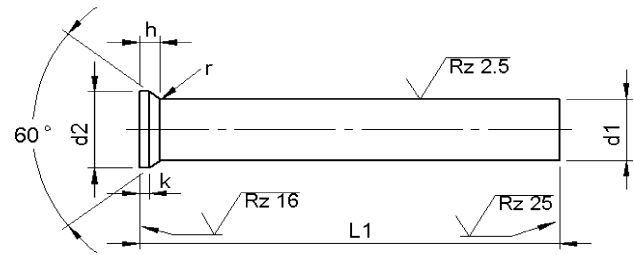
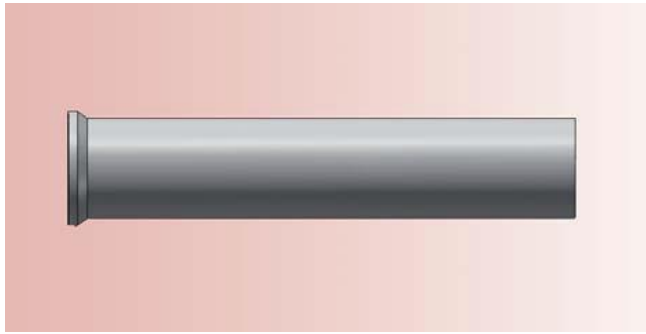
DISCONTINUED

d ₁			d ₂ +0.05 -0.05	k +0.2 0	l ₁ +0.5 0								
					71	80	90	100	120	150			
h ₆			Price by piece in EUROS										
13.5	+	14.0	16.0	1.5	9,03	9,99	11,28	12,70	18,05	27,08			
14.5	+	15.0	17.0		10,83	11,93	13,60	15,21	21,60	32,43			
15.5	+	16.0	18.0		12,06	13,34	15,09	16,89	24,05	36,10			
16.5			19.0	2.0	12,51	13,73	15,60	17,54	24,95	37,46			
17.0			19.5		12,51	13,73	15,60	17,54	24,95	37,46			
17.5			20.0		13,41	14,70	17,86	18,82	26,75	40,16			
18.0			20.5		13,41	14,70	17,86	18,82	26,75	40,16			
18.5			21.0		14,31	15,73	18,44	20,05	28,62	42,87			
19.0			21.5		14,31	15,73	18,44	20,05	28,62	42,87			
19.5			22.0		15,21	16,76	19,02	21,27	30,43	45,58			
20.0			22.5		15,21	16,76	19,02	21,27	30,43	45,58			
20.5			23.0		16,12	17,73	20,18	22,56	32,23	48,22			
21.0			23.5		16,12	17,73	20,18	22,56	32,23	48,22			
21.5			24.0		17,02	18,76	21,27	23,79	34,04	51,06			
22.0			24.5		17,02	18,76	21,27	23,79	34,04	51,06			
22.5			25.0		17,92	19,66	22,43	25,14	35,84	53,77			
23.0			25.5		17,92	19,66	22,43	25,14	35,84	53,77			
23.5			26.0		18,82	20,69	23,53	26,37	37,65	56,47			
24.0			26.5	18,82	20,70	23,53	26,37	37,65	56,47				
24.5			27.0	19,73	21,73	24,69	27,66	39,45	59,18				
25.0			27.5	19,73	21,73	24,69	27,66	39,45	59,18				

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%



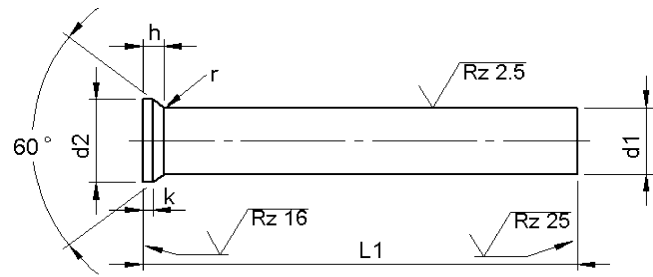
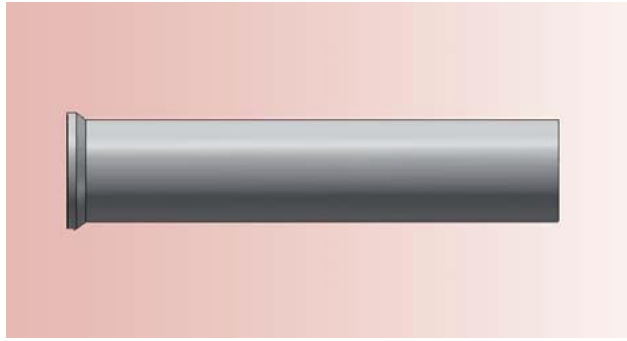
Material: HSS (1.3343)
Hardness: Shaft: 62 ±2 HRC
Head: 50 ±5 HRC

d ₁	h ₆	d ₂ +0.05 -0.05	k +0.2 0	l ₁ +0.5 0						
				71	80	90	100	120	150	
Price by piece in EUROS										
0.5		0.9	0.2	6,01						
0.6		1.1		6,01						
0.7		1.3		5,69						
0.8		1.4	0.4	5,69						
0.9		1.6		5,69						
1.0	t/m	1.1	0.5	4,65	5,24	5,82	6,53			
1.2	t/m	1.3		4,65	5,24	5,82	5,24			
1.4	t/m	1.5		4,65	5,24	5,82	5,24			
1.6	t/m	1.7		4,65	5,24	5,82	5,24			
1.8	t/m	1.9		4,65	5,24	5,82	5,24			
2.0		3.0		4,27	4,65	5,36	5,88	8,47		
2.1	t/m	2.2		4,27	4,65	5,36	5,88	8,47		
2.3	t/m	2.5		4,27	4,65	5,36	5,88	8,47		
2.6	t/m	2.9		4,27	4,65	5,36	5,88	8,47		
3.0	t/m	3.4		4,27	4,65	5,36	5,88	8,47		
3.5	t/m	3.9		4,65	5,24	5,82	6,53	9,31		
4.0	t/m	4.4		4,27	4,65	5,36	5,88	8,47		
4.5	t/m	4.9		4,65	5,24	5,82	6,53	9,31	13,90	
5.0	t/m	5.4		4,91	5,43	6,01	6,85	9,70	14,54	
5.5	t/m	5.9		4,85	5,43	6,01	6,85	9,70	14,54	
6.0	t/m	6.4	4,85	5,43	6,01	6,85	9,70	14,54		
6.5	+	7.0	1.0	5,36	5,75	6,59	7,37	10,66	15,97	
7.5	+	8.0		5,49	5,95	6,92	7,63	10,92	16,35	
8.5	+	9.0		6,01	6,66	7,43	8,40	11,96	17,90	
9.5	+	10.0		7,11	7,89	8,86	9,95	14,16	21,20	
10.5	+	11.0		7,95	8,66	9,82	11,12	15,84	23,72	
11.5	+	12.0		8,66	9,57	10,79	12,15	17,26	25,85	
12.5	+	13.0		10,60	11,57	13,19	14,74	21,14	31,74	

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

See page 2 for extra charges and discount.

Punches DIN 9861 D HSS



Material: HSS (1.3343)

Hardness: Shaft: 62 ±2 HRC

Head: 50 ±5 HRC

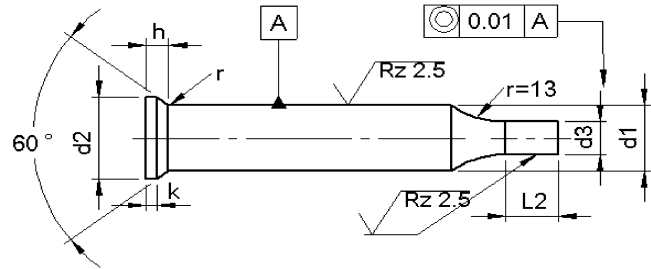
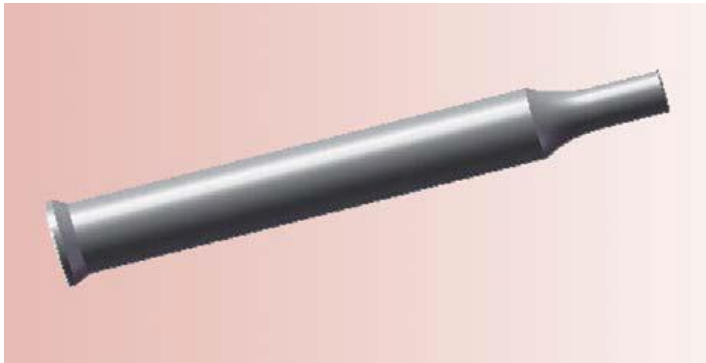
d ₁			d ₂ +0.05 -0.05	k +0.2 0	l ₁ +0.5 0					
					71	80	90	100	120	150
h ₆					Price by piece in EUROS					
13.5	+	14.0	16.0	1.5	12,15	13,25	15,12	16,87	24,24	36,39
14.5	+	15.0	17.0		12,99	14,28	16,22	18,16	25,98	38,91
15.5	+	16.0	18.0		14,54	15,97	18,16	20,36	29,09	43,63
16.5			19.0	2.0	14,93	16,42	18,68	20,88	29,86	44,79
17.0			19.5		14,93	16,42	18,68	20,88	29,86	44,79
17.5			20.0		15,90	17,52	19,91	22,30	31,80	47,70
18.0			20.5		15,90	17,52	19,91	22,30	31,80	47,70
18.5			21.0		16,87	18,55	21,07	23,59	33,74	37,62
19.0			21.5		16,87	18,55	21,07	23,59	33,74	37,62
19.5			22.0		17,84	19,65	22,30	25,01	35,68	55,46
20.0			22.5		17,84	19,65	22,30	25,01	35,68	55,46
20.5			23.0		18,81	20,68	23,46	26,31	37,49	56,23
21.0			23.5		19,26	20,68	23,46	26,31	37,49	57,78
21.5			24.0		19,78	21,72	24,69	27,66	39,56	59,34
22.0			24.5		19,78	21,72	24,69	27,66	39,56	59,34
22.5			25.0		20,75	22,23	25,92	29,02	27,28	62,24
23.0			25.5		20,75	22,23	25,92	29,02	41,50	62,24
23.5			26.0		21,72	23,85	27,08	30,38	43,44	65,15
24.0			26.5		21,72	23,85	27,08	30,38	43,44	65,15
24.5			27.0		22,69	24,95	28,31	31,74	45,37	68,06
25.0			27.5	22,69	24,95	28,31	31,74	45,37	68,07	

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

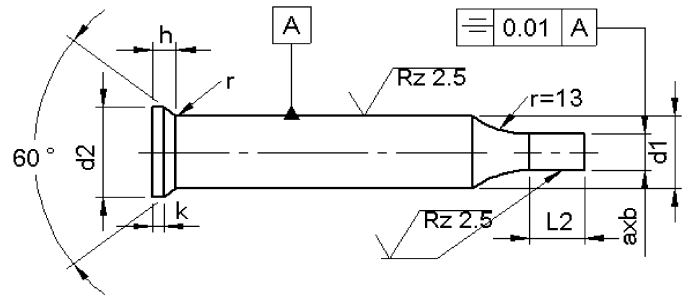
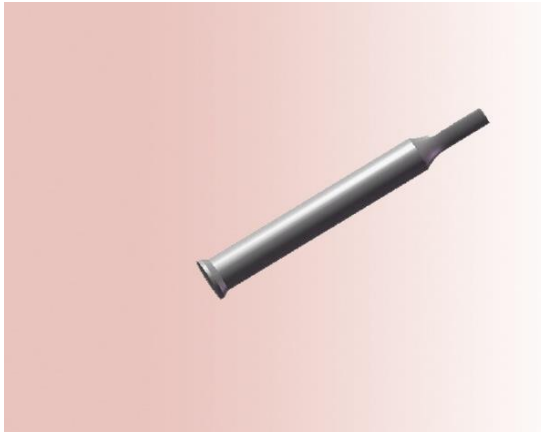
- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Reduced shaft 'Round' DIN 9861 C

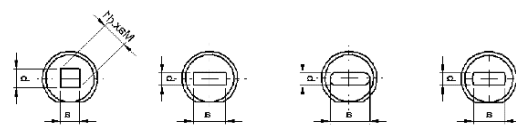


d ₁	d ₃ h ₆			l ₂ +0.5 0				
				Price by piece in EUROS/punch not included				
≥	≥	-	≤	7	10	13	17	
1.5	0.5	-	1,4	•				3,22
2	0.5	-	1,9	•				3,22
3	1.6	-	2,9	•				3,22
4	1.6	-	3,9		•			3,22
5	2.5	-	4,9		•			3,55
6	3	-	5,9		•			4,13
8	4	-	7,9			•		4,83
10	5	-	9,9				•	5,73
13	9	-	12,9				•	6,57
16	12	-	15,9				•	8,96
20	16	-	19,9				•	12,44
25	20	-	24,9				•	16,55
32	25	-	31,9				•	20,24
38	30	-	37,9				•	21,98

Reduced shaft 'Form' DIN 9861



type ..S type ..R type ..O type ..F



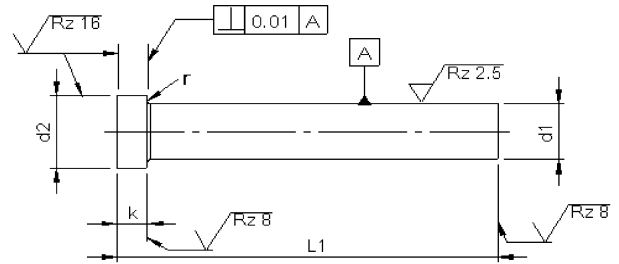
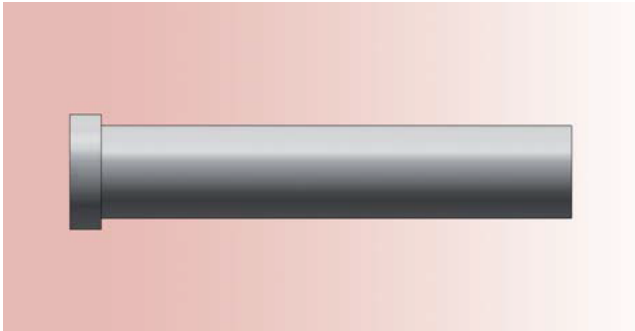
d ₁	AxB ± 0,01			l ₁				
				+0.5 0				
	≥	–	≤	Price by piece in EUROS				
≥	≥	–	≤	10	13	17	Locking flat	
5	2,5	–	4,9	•			20,31	5,05
6	3,0	–	5,9	•			22,33	
8	4,0	–	7,9		•		27,07	6,70
10	5,0	–	9,9			•	27,07	
13	9,0	–	12,9			•	27,07	
16	12,0	–	15,9			•	27,07	
20	16,0	–	19,9			•	40,53	10,10
25	20,0	–	24,9			•	47,39	11,75
32	27,0	–	31,9			•	54,22	13,45
38	33,0	–	37,9			•	54,22	

L2 max is 7 times size b, however never longer than 40 mm.

Punches with locking flat against extra charge.

Without detailed specifications the locking is parallel to the major flat axis of surface 'a'.

Punches ISO 8020 / type KP



Material: HSS (1.3343)
 Hardness: Shaft: 62 ±2 HRC
 Head: 50 ±5 HRC

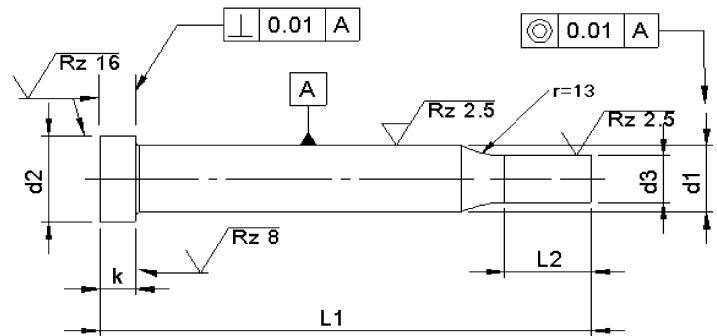
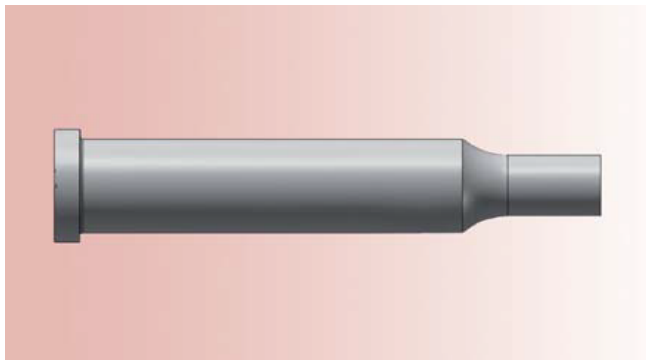
d ₁ m5	Type K d ₂ 0 -0.15	Type K k +0.2 +0.1	ISO 8020 A d ₂ 0 -0.15	ISO 8020 A k +0.2 +0.1	r +0.1 0	l ₁ +0.5 +0.2				
						63/71	80	90	100	120
						Price by piece in EUROS				
3	5	3	5	3	0.2	7,42	8,12	9,29		
4	6	3	6	3		7,42	8,12	9,29	10,38	
5	8	5	8	5	0.3	7,42	8,19	9,03	9,87	11,30
6	9	5	9	5		8,51	9,42	10,31	11,35	12,96
8	11	5	11	5		10,06	11,10	12,18	13,41	15,36
10	13	5	13	5	0.4	11,80	12,96	14,25	15,67	17,93
13	16	5	16	5		14,90	16,38	17,99	19,80	22,60
16	19	6	19	5		18,31	20,11	22,18	24,37	27,88
20	24	6	23	5		22,25	24,43	26,88	29,53	33,83
25	29	10	28	5		27,59	30,37	33,40	36,75	42,07
32	36	12	35	5		36,55	40,23	44,23	48,67	55,69
38	45	15	41	5		45,07	49,58	54,54	59,96	68,71

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Punches ISO 8020 / type KP With reduced shaft 'Round'



Material: HSS (1.3343)
Hardness: Shaft: 62 ±2 H
Head: 50 ±5 HRC

d ₁ m5	d ₃ j6		l ₂ +0.5 0	l ₁ +0.5 +0.2				
	≥	≤		63/71	80	90	100	120
Price by piece in EUROS								
3	1.6	– 2.9	7	10,64	11,35	12,51		
4	1.6	– 3.9	10	10,64	11,35	12,51	13,60	
5	2.5	– 4.9	10	10,96	11,73	12,57	13,41	15,41
6	3.0	– 5.9	10	12,64	13,54	14,44	15,47	17,73
8	4.0	– 7.9	13	14,89	15,93	17,02	18,25	20,95
10	5.0	– 9.9	17	17,54	18,70	19,99	21,41	24,56
13	9.0	– 12.9	17	21,34	22,95	24,56	26,37	30,30
16	12.0	– 15.9	17	27,27	29,08	31,08	33,33	38,17
20	16.0	– 19.9	17	34,62	36,88	39,33	41,97	47,97
25	20.0	– 24.9	17	43,65	46,42	49,45	52,80	60,22
32	27.0	– 31.9	17	56,80	60,48	64,47	68,92	78,72
38	33.0	– 37.9	17	67,05	71,57	76,53	81,95	113,35

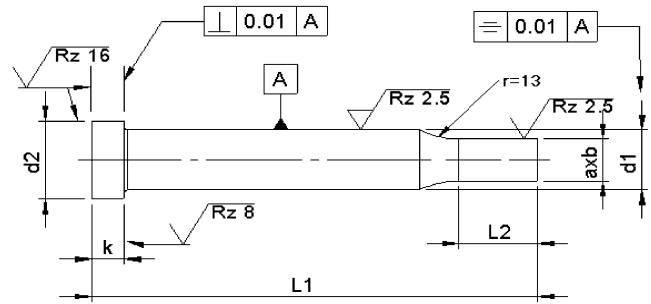
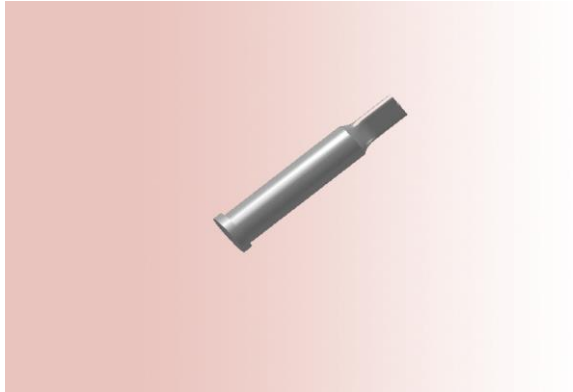
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

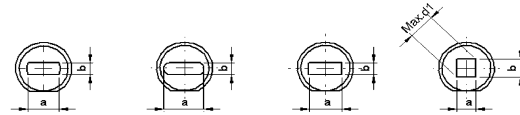
- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Punches ISO 8020 / type K..

With reduced shaft 'Form'



type..F type..O type..R type..S



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

d ₁	AxB		l ₂	l ₁					
	± 0,01			63/71	80	90	100	120	Locking flat
m5	B	A		Price by piece in EUROS					
	≥	≤							
3	1.6	2.9	7	27,45	28,21	28,98	29,87		6,10
4	1.6	3.9	10	27,45	28,21	28,98	29,87		
5	2.5	4.9	10	27,45	28,21	28,98	29,87	31,85	
6	3.0	5.9	10	28,53	29,43	30,32	31,34	33,57	8,15
8	4.0	7.9	13	36,77	37,79	38,87	40,08	42,77	
10	5.0	9.9	17	38,49	39,64	40,91	42,32	45,45	
13	9.0	12.9	17	41,55	43,02	44,62	46,40	50,30	11,15
16	12.0	15.9	17	44,94	46,72	48,77	50,94	55,79	
20	16.0	19.9	17	62,23	64,40	66,83	69,45	75,38	
25	20.0	24.9	17	74,23	76,98	79,98	83,30	90,64	12,95
32	27.0	31.9	17	89,81	93,45	97,40	101,81	108,96	
38	33.0	37.9	17	98,23	102,70	107,62	112,98	125,10	

Punches with key-flat against surcharge.

Without detailed specification the key-flat is parallel to the major axis of surface a.

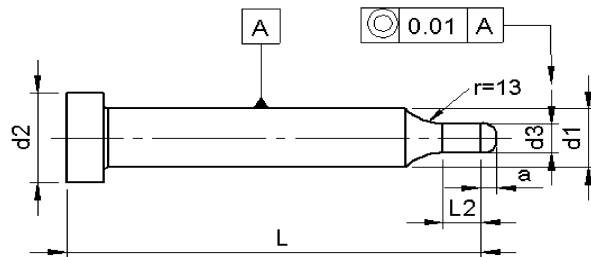
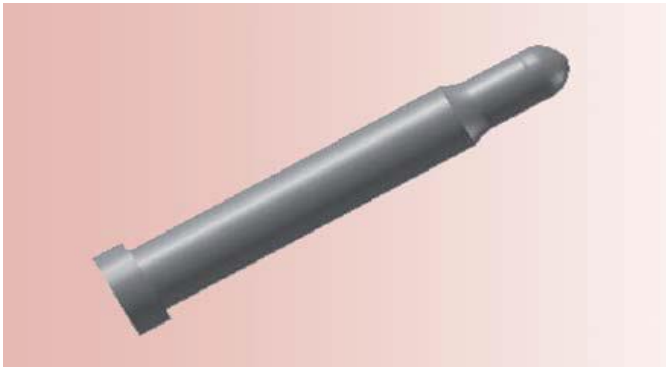
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Punches ISO 8020 / type KPL

With pilots



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

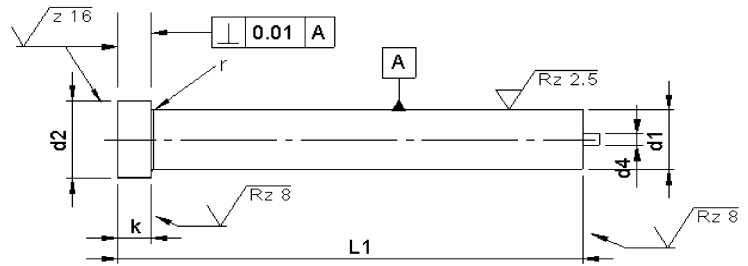
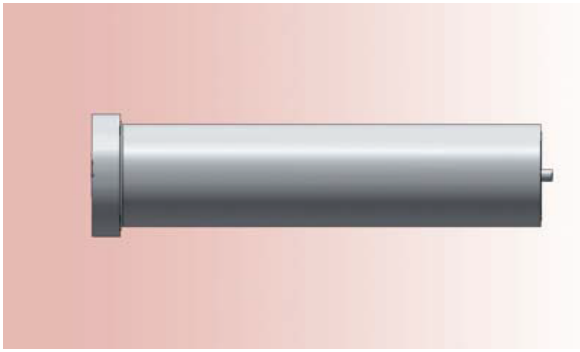
d ₁	d ₃		a	l ₂	l+a					
	m _s	+0.01 0			63/71	80	90	100	120	
	≥	–	≤		Price by piece in EUROS					
5	0.8	–	2.0	3.0	10	14,50	15,28	16,12	16,95	18,96
6	2.1	–	4.5	4.5	10	16,77	17,66	18,57	19,60	21,86
8	4.6	–	7.5	6.5	13	19,73	20,76	21,85	23,08	25,79
10	7.6	–	10.0	8.0	17	23,28	24,43	25,73	27,15	30,30
13	10.1	–	13.0	9.5	17	27,92	29,53	31,14	32,95	36,88
16	13.1	–	16.0	11.5	17	36,24	38,05	40,04	42,29	47,13
20	16.1	–	20.0	13.5	17	47,06	49,33	51,78	54,41	60,41
25	20.1	–	25.0	13.5	17	59,70	63,25	65,51	68,86	76,27

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Punches ISO 8020 / Type EK With ejector



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

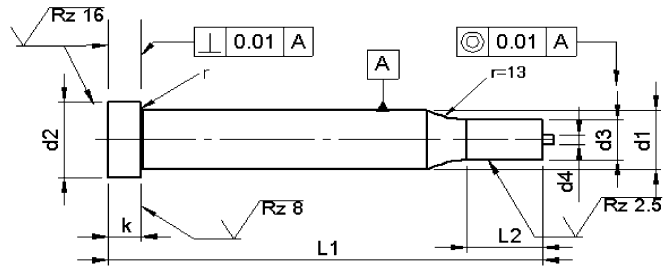
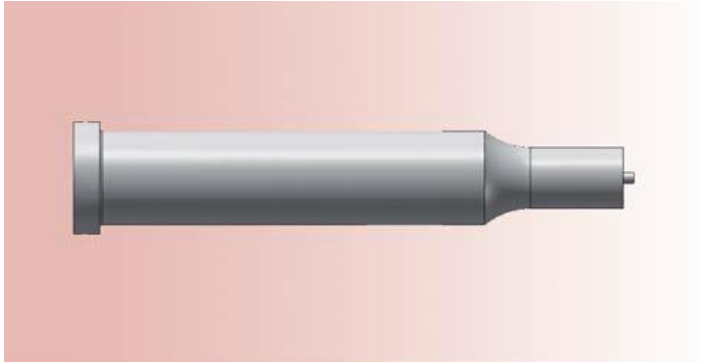
d ₁	d ₂	d ₄	k	r	l ₁				
					63/71	80	90	100	120
m ₅	0 -0.15		+0,2 +0.1	+0,1 0	+0.2 +0.2 Price by piece in EUROS				
5	8	1	5	0.3	20,96	23,08	25,40	27,92	
6	9		5		20,70	22,83	25,08	27,59	
8	11	1,5	5		20,88	23,02	25,27	27,86	33,40
10	13		5		22,63	24,89	27,34	30,11	36,11
13	16	2,3	5	0.5	25,73	28,25	31,08	34,17	41,00
16	19		5		29,14	32,05	35,27	38,82	46,55
20	23		5		33,08	36,36	39,97	43,97	52,80
25	28		5		38,43	42,29	46,48	51,12	61,38
32	35	3	5		48,62	52,42	56,67	65,90	69,37
38	41		5		56,03	60,80	65,51	70,99	82,98

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

- Extra charges and discounts:**
- 1 Pieces per dimension + 50%
 - 2-3 Pieces per dimension + 25%
 - 25 Pieces per dimension – 5%
 - 50 Pieces per dimension – 7%
 - 100 Pieces per dimension – 10%

Punches ISO 8020 / Typ EKP

With ejector with reduced shaft 'Round'



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

d ₁ m ₅	d ₃ j ₆		l ₂	l ₁ +0,5 +0,2					
				63/71	80	90	100	120	
				Price by piece in EUROS					
	≥	–	≤						
5	2.5	–	4.9	10	24,18	26,62	28,95	31,46	
6	3.0	–	5.9	10	24,89	26,96	29,20	31,72	
8	4.0	–	7.9	13	25,73	27,85	30,11	32,69	38,23
10	5.0	–	9.9	17	28,37	30,63	33,07	35,85	41,84
13	9.0	–	12.9	17	32,30	34,82	37,65	40,75	47,59
16	12.0	–	15.9	17	38,11	41,01	44,24	47,77	55,51
20	16.0	–	19.9	17	45,53	48,80	52,41	56,42	65,25
25	20.0	–	24.9	17	54,48	58,35	62,55	66,53	77,43
32	24.0	–	31.9	17	67,83	71,44	75,50	79,89	89,69
38	28.0	–	37.9	17	78,08	82,85	87,56	93,04	105,22

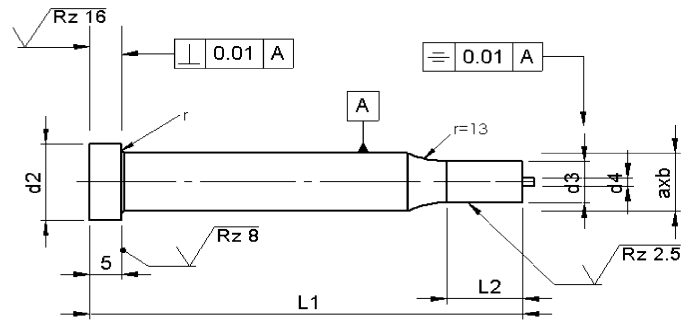
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Punches ISO 8020 / Typ EK..

With ejector with reduced shaft 'Form'



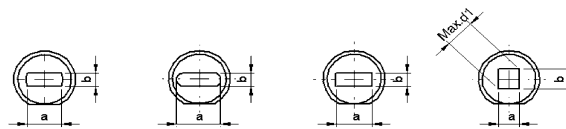
Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

type..F

type..O

type..R

type..S



d_1	$AxB \pm 0.01$			l_2	l_1					
	B \geq	-	A \leq		63/71	80	90	100	120	Locking flat
					Price by piece in EUROS					
5	2.5	-	4.9	10	41,26	43,39	45,71	48,23		6,10
6	3.0	-	5.9	10	41,01	43,13	45,39	47,90		
8	4.0	-	7.9	13	47,97	50,10	52,35	54,93	60,48	8,15
10	5.0	-	9.9	17	49,71	51,97	54,42	57,19	63,18	
13	9.0	-	12.9	17	52,80	55,32	58,16	61,25	68,08	
16	12.0	-	15.9	17	56,22	59,12	62,35	65,89	73,63	11,15
20	16.0	-	19.9	17	73,69	76,98	80,59	84,59	93,42	
25	20.0	-	24.9	17	85,82	89,68	93,94	98,58	108,77	12,95
32	24.0	-	31.9	17	102,84	106,58	110,83	120,05	123,53	14,70
38	28.0	-	37.9	17	110,25	114,96	119,66	125,27	137,14	

Punches with key-flat against surcharge.

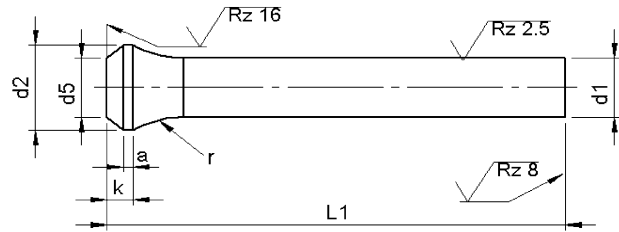
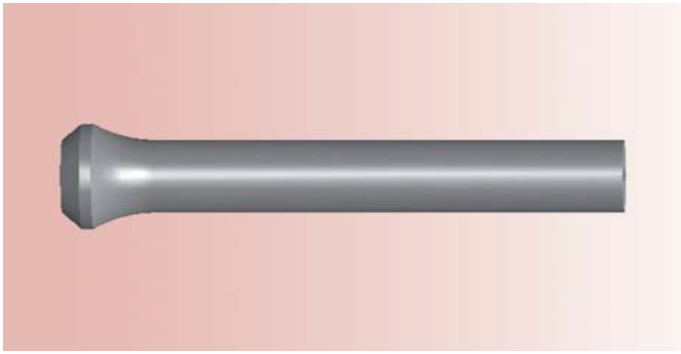
Without detailed specification the key-flat is parallel to the major axis of surface a.

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request. See page 2 for extra charges and discount.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension - 5%
- 50 Pieces per dimension - 7%
- 100 Pieces per dimension - 10%

Punches with bottle neck type P



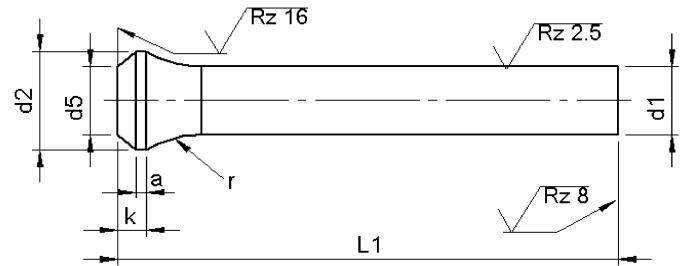
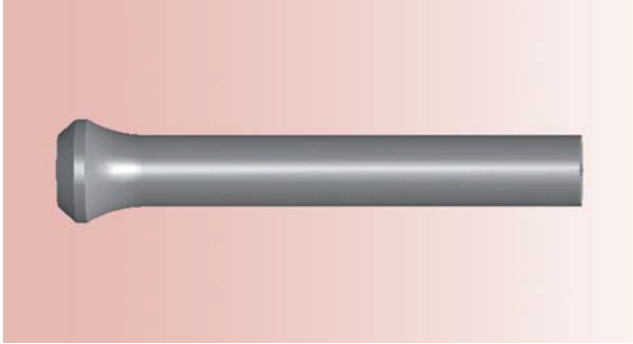
Material: HSS (1.3343)
 Hardness: Shaft: 64 ±2 HRC
 Head: 50 ±5 HRC

d ₁ h ₆	d ₂ 0 -0.2	k +0.2 0	a	d ₅	r 0 -0.2	l ₁ +0.5 0				
						71	80	90	100	120
						Price by piece in EUROS				
5,0	7,0	4.0	1.5	d1 ± 0.1	10.0	7,42	8,19	9,03	9,87	11,87
5,5	8,0					7,93	8,77	9,67	10,57	12,60
6,0	9,0					8,51	9,42	10,31	11,35	13,61
6,5	10,0					8,90	9,80	10,77	11,87	14,19
7,0	10,0					9,29	10,19	11,22	12,38	14,83
7,5	11,0					9,67	10,57	11,67	12,89	15,47
8,0	11,0				10,06	11,10	12,18	13,41	16,12	
8,5	13,0				10,51	11,54	12,71	13,99	16,77	
9,0	13,0				10,96	11,99	13,22	14,37	17,41	
9,5	14,0				11,41	12,45	13,73	14,96	18,05	
10,0	14,0				11,80	12,96	14,25	15,67	18,83	
10,5	15,0				12,32	13,60	14,90	16,35	19,64	
11,0	15,0				12,83	14,25	15,54	17,03	20,45	
11,5	16,0				13,35	14,90	16,18	17,72	21,27	
12,0	16,0				13,73	15,54	16,82	18,40	22,07	
12,5	17,0				14,32	15,54	17,48	19,09	22,89	
13,0	17,0				14,90	16,38	17,99	19,80	23,73	
13,5	18,0				15,47	17,00	18,63	20,57	24,63	
14,0	18,0	16,05	17,62	19,27	21,34	25,53				
14,5	19,0	16,64	18,24	19,93	22,12	26,44				

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

See page 2 for extra charges and discount.

Punches with bottle neck type P



Werkstoff: HSS (1.3343)
 Härte: Schaft: 64 ±2 HRC
 Kopf: 50 ±5 HRC

d ₁ h ₆	d ₂ 0 -0.2	k +0.2 0	a	d ₅	r 0 -0.2	l ₁ +0.5 0				
						71	80	90	100	120
						Price by piece in EUROS				
15,0	19,0	4.0	1.5	d1 ± 0.1	15.0	17,22	18,85	20,83	22,89	27,34
15,5	20,0					17,79	19,47	21,47	23,66	28,37
16,0	20,0					18,31	20,11	22,18	24,37	29,27
16,5	21,0					18,80	20,65	22,76	25,01	30,04
17,0	21,0					19,29	21,27	23,35	25,66	30,82
17,5	22,0					19,78	21,89	23,92	26,31	31,59
18,0	22,0					20,27	22,51	24,50	26,95	31,08
18,5	23,0					20,76	23,12	25,08	27,59	31,85
19,0	23,0					21,25	23,74	25,66	28,25	32,62
19,5	25,0					21,86	24,35	26,24	28,89	33,40
20,0	25,0	22,24	24,44	26,88	29,54	35,53				

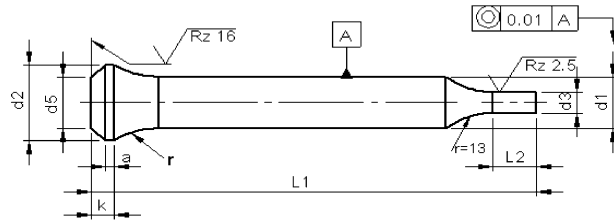
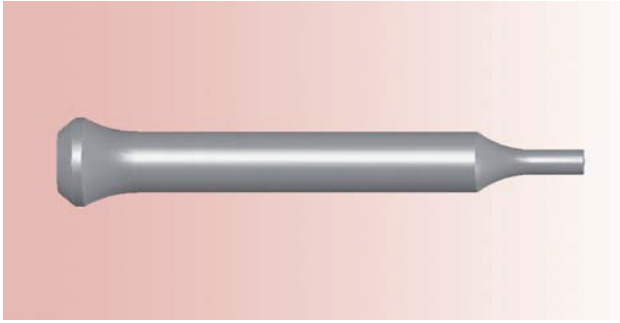
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Punches with bottle neck type PP

With reduced shaft 'Round'



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

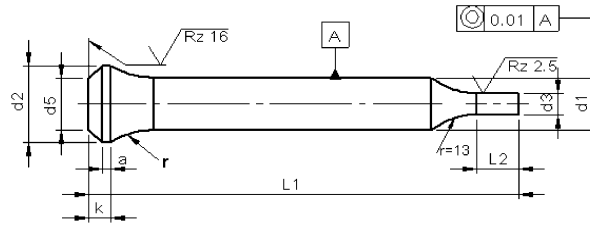
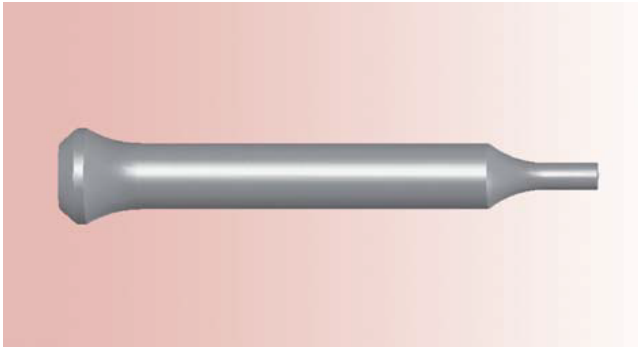
d ₁ h6	d ₃ h6		l ₂ +0.5 +0.0	l ₁ +0.5 0				
	≥	≤		71	80	90	100	120
Price by piece in EUROS								
5,0	2,5	- 4,9	10	10,96	11,74	12,58	13,41	15,41
5,5	2,5	- 4,4		12,06	12,89	13,80	14,70	16,83
6,0	3,0	- 5,9		12,64	13,54	14,44	15,47	17,73
6,5	3,0	- 6,4		13,74	14,64	15,61	16,70	19,02
7,0	3,5	- 6,9		14,12	15,03	16,06	17,22	19,67
7,5	3,0	- 7,4		14,51	15,41	16,51	17,73	20,31
8,0	3,5	- 7,9	13	14,90	15,93	17,02	18,25	20,96
8,5	4,0	- 8,4		16,24	17,28	18,44	19,73	22,50
9,0	4,0	- 8,9		16,70	17,73	18,95	20,11	23,14
9,5	4,5	- 9,4		17,15	18,18	19,47	20,69	23,79
10,0	5,0	- 9,9	17	17,53	18,69	19,98	21,40	24,56
10,5	5,5	- 10,4		18,90	20,19	21,48	22,93	26,22
11,0	5,5	- 10,9		19,41	20,83	22,12	23,62	27,03
11,5	6,0	- 11,4		19,93	21,48	22,77	24,30	27,85
12,0	6,0	- 11,9		20,32	22,12	23,41	24,98	28,66
12,5	7,0	- 12,4		20,90	22,12	24,06	25,67	29,47
13,0	9,0	- 12,9		21,48	22,96	24,57	26,38	30,31
13,5	9,0	- 13,4		24,44	25,96	27,60	29,53	33,59
14,0	9,5	- 13,9		25,02	26,58	28,24	30,31	34,50
14,5	9,5	- 14,4		25,60	27,20	28,89	31,08	35,40

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

See page 2 for extra charges and discount.

Punches with bottle neck type PP

With reduced shaft 'Round'



Material: HSS (1.3343)

Hardness: Shaft: 64 ±2 HRC

Head: 50 ±5 HRC

d ₁ h6	d ₃ h8		l ₂ +0.5 +0.0	l ₁ +0.5 0				
	≥	≤		71	80	90	100	120
				Price by piece in EUROS				
15,0	10,0	- 14,9	17	26,18	27,82	29,79	31,85	36,30
15,5	10,5	- 15,4		26,76	28,44	30,43	32,63	37,33
16,0	12,0	- 15,9		27,28	29,08	31,14	33,34	38,24
16,5	12,5	- 16,4		31,24	33,09	35,20	37,46	42,49
17,0	13,0	- 16,9		31,73	33,70	35,78	38,10	43,26
17,5	13,0	- 17,4		32,22	34,32	36,36	38,75	44,03
18,0	13,5	- 17,9		32,71	34,94	36,94	39,39	43,52
18,5	13,5	- 18,4		33,20	35,56	37,52	40,04	44,29
19,0	14,0	- 18,9		33,69	36,18	38,10	40,68	45,06
19,5	15,0	- 19,4		33,02	36,80	38,68	41,32	45,84
20,0	16,0	- 19,9		34,68	36,88	39,33	41,97	47,97
25,0	18,0	- 25,9		43,65	46,42	49,45	52,81	56,60

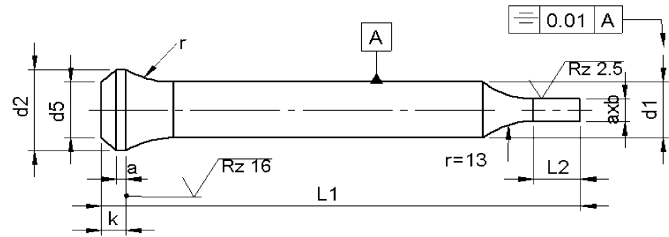
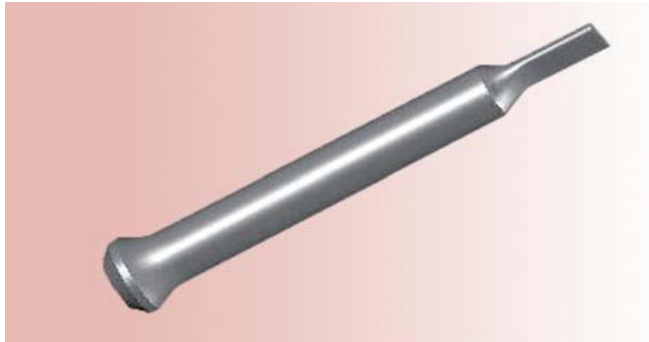
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

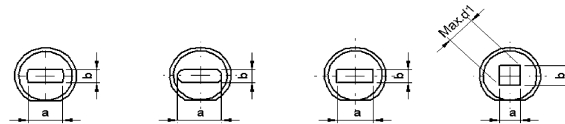
Punches with bottle neck type PP..

With reduced shaft 'Form'



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

Type PF Type PO Type PR Type PS



d ₁	AxB ± 0,01			l ₂	l ₁ +0.5 0					Locking flat
	B ≥	-	A ≤		71	80	90	100	120	
Price by piece in EUROS										
5	2,5	-	4,9	10	27,73	28,50	29,34	30,18	32,18	5,80
5.5	2,5	-	4,4		28,24	29,08	29,98	30,89	33,01	
6	3,0	-	5,9		28,82	29,73	30,63	31,66	33,92	
6.5	3,0	-	6,4		35,98	36,88	37,85	38,94	41,26	
7	3,5	-	6,9		36,36	37,27	38,30	39,46	41,91	
7.5	3,0	-	7,4		36,75	37,65	38,75	39,97	42,55	
8	3,5	-	7,9	13	37,14	38,17	39,26	40,49	43,20	7,75
8.5	4,0	-	8,4		37,59	38,62	39,78	41,07	43,84	
9	4,0	-	8,9		38,04	39,07	40,30	41,46	44,49	
9.5	4,5	-	9,4		38,49	39,52	40,81	42,04	45,13	
10	5,0	-	9,9		38,88	40,04	41,33	42,75	45,91	
10.5	5,5	-	10,4		39,39	40,68	41,97	43,43	46,72	
11	5,5	-	10,9	17	39,91	41,33	42,62	44,11	47,53	
11.5	6,0	-	11,4		40,43	41,97	43,26	44,80	48,34	
12	6,0	-	11,9		40,81	42,62	43,91	45,48	49,16	
12.5	7,0	-	12,4		41,39	42,62	44,55	46,16	49,97	
13	9,0	-	12,9		41,97	43,46	45,07	46,87	50,81	
13.5	9,0	-	13,4		42,55	44,07	45,71	47,65	51,71	
14	9,5	-	13,9	17	43,13	44,69	46,36	48,42	52,61	
14.5	9,5	-	14,4		43,71	45,31	47,00	49,19	53,51	

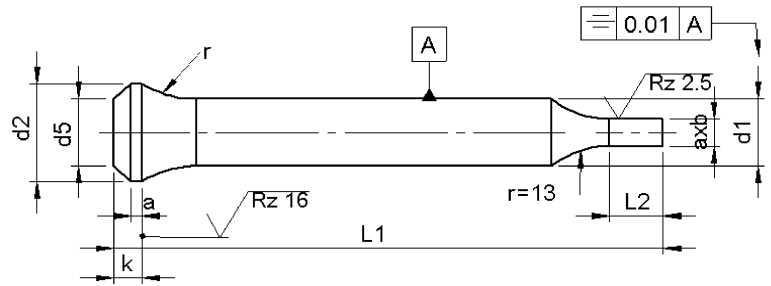
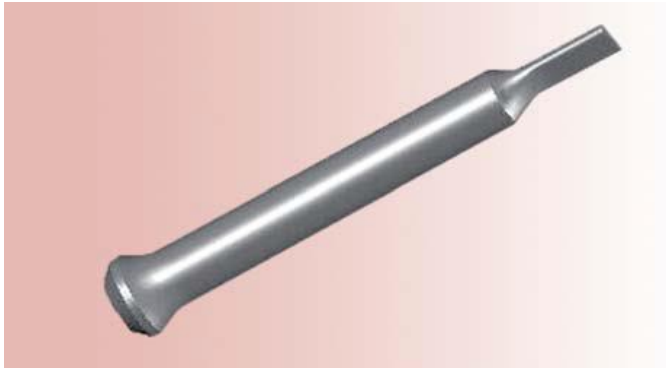
Punches with key-flat against surcharge.

Without detailed specification the key-flat is parallel to the major axis of surface a.

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Punches with bottle neck type PP..

With reduced shaft 'Form'

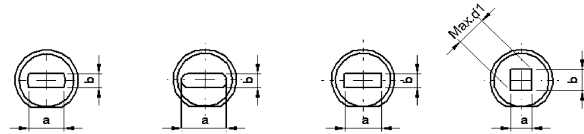


Type PF Type PO Type PR Type PS

Material: HSS (1.3343)

Hardness: Shaft: 64 ±2 HRC

Head: 50 ±5 HRC



d ₁ h ₆	d ₂	B	AxB ± 0,01		A	l ₂ +0.5 0	l ₁					Locking flat
			≥	-			≤	71	80	90	100	
15	19.0	-	10,0	-	14,9	17	44,29	45,93	47,90	49,97	54,42	8,15
15.5	20.0	-	10,5	-	15,4		44,87	46,55	48,55	50,74	55,45	
16	20.0	-	12,0	-	15,9		45,39	47,20	49,26	51,45	56,35	
16.5	21.0	-	12,5	-	16,4		59,43	61,27	63,38	65,64	70,67	11,15
17	21.0	-	13,0	-	16,9		59,92	61,89	63,96	66,29	71,44	
17.5	22.0	-	13,0	-	17,4		60,41	62,51	64,54	66,93	72,22	
18	22.0	-	13,5	-	17,9		60,90	63,13	65,13	67,58	71,70	
18.5	23.0	-	13,5	-	18,4		61,39	63,75	65,71	68,22	72,48	
19	23.0	-	14,0	-	18,9		61,88	64,36	66,29	68,86	73,25	
19.5	25.0	-	15,0	-	19,4		62,48	64,98	66,87	69,51	74,02	
20	25.0	-	16,0	-	19,9		62,87	65,06	67,51	70,15	76,15	
25	25.0	-	18,0	-	24,9		74,99	77,76	80,80	84,15	91,55	

Punches with key-flat against surcharge.

Without detailed specification the key-flat is parallel to the major axis of surface a.

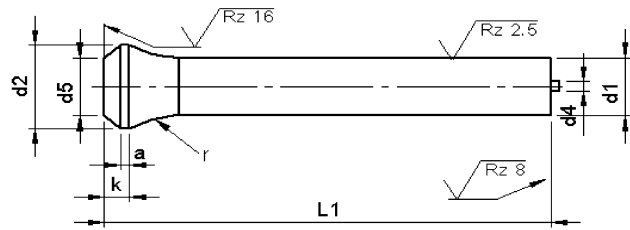
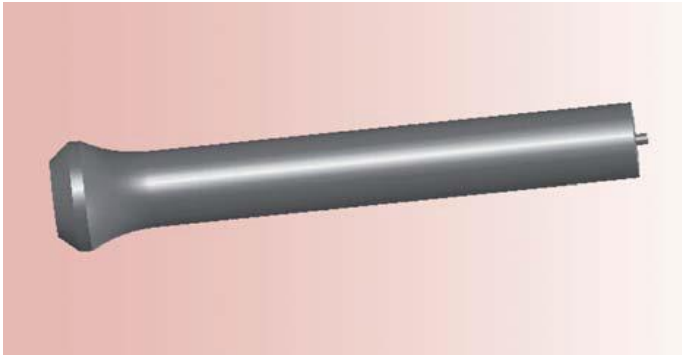
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension - 5%
- 50 Pieces per dimension - 7%
- 100 Pieces per dimension - 10%

PPunches with bottle neck type EP

With ejector



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

d ₁	d ₂	k	a	d ₅	r	d ₄	l ₁				
							71	80	90	100	120
h ₆		+0.2 0	+0.2 0				Price by piece in EUROS				
5	9	4	1.5	d1 ± 0.1	10	1	24,65	27,17	29,86	32,85	
6	10						24,95	27,48	30,24	33,23	
8	11				12	1.5	24,86	27,40	30,09	33,16	39,76
10	14						26,94	29,63	32,54	35,84	42,98
13	17				15	2.3	30,63	33,62	37,00	40,68	48,82
16	20						34,69	38,15	41,99	46,21	55,42
20	25						39,38	43,29	47,59	52,35	62,86
25	31								45,50	49,66	53,85

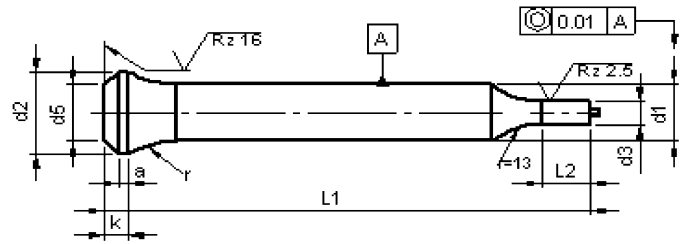
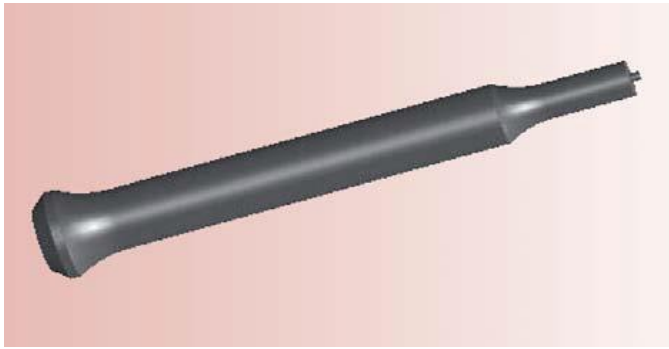
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Punches with bottle neck type EPP

With ejector and reduced shaft 'Round'



Material: HSS (1.3343)

Hardness: Shaft: 64 ±2 HRC

Head: 50 ±5 HRC

d ₁	d ₂	d ₃		l ₂	l ₁				
		≥	≤		71	80	90	100	120
5	9	3,0	– 4,9	10	+0.5 0				
6	10	3,0	– 5,9		Price by piece in EUROS				
8	11	3,5	– 7,9	13	29,52	32,10	34,99	38,12	
10	14	5,0	– 9,9	17	29,73	32,37	35,20	38,27	
13	17	9,0	– 12,9		30,69	33,33	36,15	39,35	46,16
16	20	12,0	– 15,9		33,74	36,56	39,57	43,01	50,44
20	25	16,0	– 19,9		37,21	43,79	43,58	47,27	55,40
25	31	18	– 25,9		45,07	48,63	52,62	57,04	66,62
					53,40	57,45	61,93	66,91	77,84
					61,55	65,71	69,90	74,54	87,26

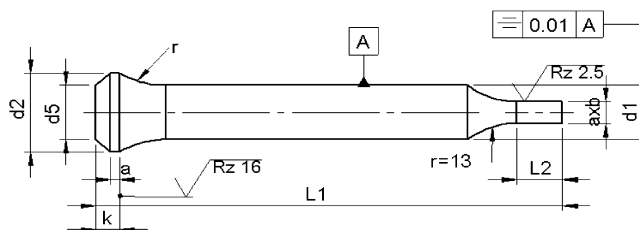
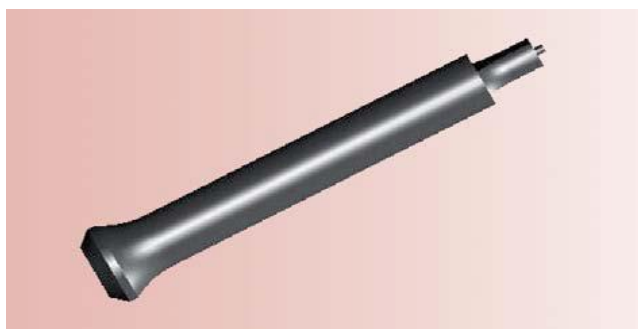
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

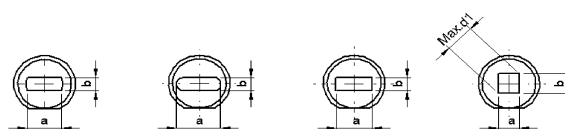
Punches with bottle neck type EP..

With ejector with reduced shaft 'Form'



Type EPF Type EPO Type EPR Type EPS

Werkstoff: HSS (1.3343)
 Härte: Schaft: 64 ±2 HRC
 Head: 50 ±5 HRC



d ₁	AxB ± 0,01			l ₂ +0.5 0	l ₁					
	B ≥	-	A ≤		63/71	80	90	100	120	Locking flat
					Price by piece in EUROS					
5	2.5	-	4.9	10	44,95	47,49	50,17	53,16		6,10
6	3.0	-	5.9		45,25	47,80	50,56	53,54		
8	4.0	-	7.9	13	51,95	54,48	57,17	60,24	66,84	8,15
10	5.0	-	9.9	17	53,91	56,71	59,62	62,93	70,06	
13	9.0	-	12.9		57,71	60,70	64,08	67,77	75,90	
16	12.0	-	15.9		61,77	65,22	69,07	73,29	82,50	
20	16.0	-	19.9		80,00	85,58	90,12	95,09	103,49	11,15
25	18	-	24.9		92,89	97,06	101,24	105,89	118,60	12,95

Punches with key-flat against surcharge.

Without detailed specification the key-flat is parallel to the major axis of surface a.

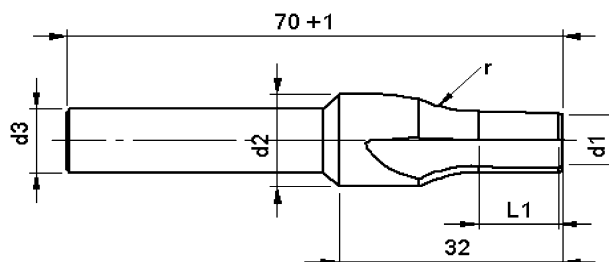
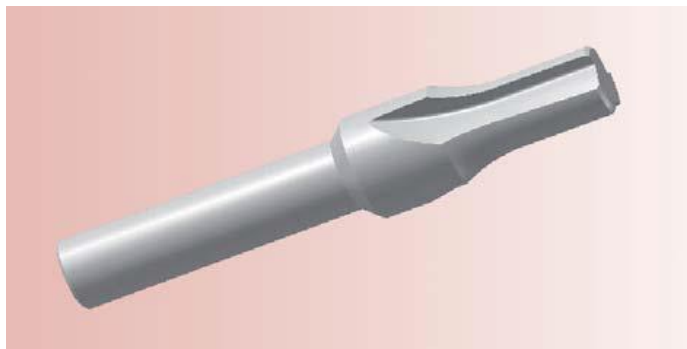
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Posaunenhead-countersink

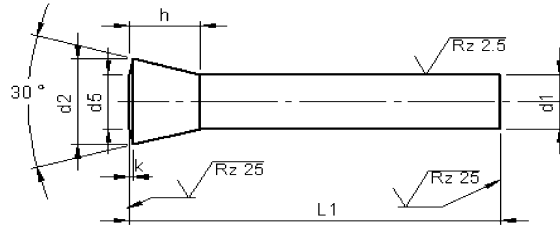
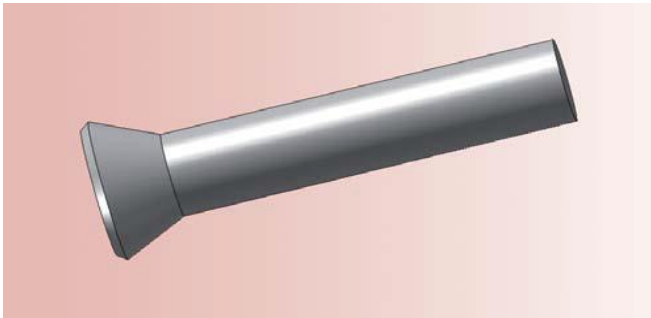
For punches with bottle neck



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC

d_1 f_7	d_2 h_8	d_3 h_{11}	r $+0.2$ 0	l_1	$X^*(d_1)$	Price by piece in EUROS
5,0	7,4	=d2	10,0	10,0	0,1	46,05
5,5	8,5					50,97
6,0	9,5					55,88
6,5 - 7,0	10,5	10	12,0	12,0		59,56
7,5 - 8,0	11,5					64,47
8,5 - 9,0	13,5					74,91
9,0	5,9					42,37
4,5-4,9	6,4					46,05
5,0-5,4	7,4					46,05
5,5-5,9	8,5		50,97			
6,0	9,5		55,88			
6,5-7,0	10,5		15,0	15,0		0,5
7,5-8,0	11,5				64,47	
8,5-9,0	13,5				74,91	
9,5 - 10,0	14,5				79,83	
10,5 - 11,0	15,5	79,83				
11,5 - 12,0	16,5	79,83				
12,5 - 13,0	17,5	16,0	15,0	0,5	97,02	
13,5 - 14,0	18,5				97,02	
14,5 - 15,0	19,5				97,02	
15,5 - 16,0	20,5				97,02	
16,5 - 17,0	21,5				109,30	
17,5 - 18,0	22,5				109,30	
18,5 - 19,0	23,5	16,0	15,0	0,5	109,30	
19,5 - 20,0	25,5				109,30	
25,0	30,5				116,67	

Punches with conical head 30°



Werkstoff: HSS (1.3343)
 Härte: Schaft: 64 ±2 HRC
 Kopf: 50 ±5 HRC

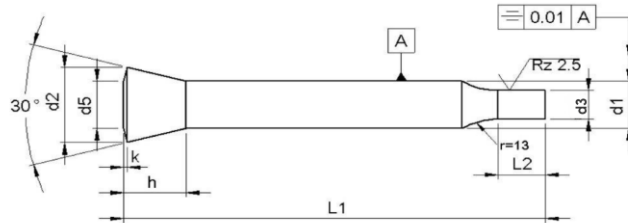
d ₁ h ₆	d ₂ 0 -0.3	d ₅	h	k	l ₁ +1.0 0				
					71	80	90	100	120
Price by piece in EUROS									
4	6.6	3.8	6	1	7,41	8,12	9,28	10,38	
5	8.2	5	7	1	7,41	8,19	9,03	9,86	11,86
6	9.7	6	8	1	8,51	9,41	10,32	11,35	13,60
7	11.8	7	10	1	10,06	11,09	12,19	13,41	16,12
8	12.8	8	10	1	11,80	12,96	14,25	15,67	18,83
9	14.4	9	11	1	13,35	14,51	15,80	17,21	20,37
10	15.9	10	12	1	14,89	16,38	17,99	19,79	23,73
11	17.4	11	13	1.5	16,57	18,05	18,38	21,47	25,40
12	18.7	12	14	1.5	18,31	20,12	22,18	24,37	29,27
13	20.2	13	15	1.5	19,60	21,41	23,47	25,66	30,56
14	21.8	14	16	1.5	20,95	22,89	24,76	26,95	31,85
15	23.3	15	17	1.5	22,24	24,44	26,89	29,53	35,53
16	24.6	16	18	2	23,53	25,73	28,17	30,82	36,81

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Punches with conical head 30°

With reduced shaft 'Round'



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

d ₁	d ₃ h ₆			l ₂ +0,5 0,0	l ₁ +1.0 0				
					71	80	90	100	120
h ₆	≥	-	≤	Price by piece in EUROS					
4	1,6	-	3,9	10	10,64	11,35	12,51	13,60	
5	2,5	-	4,9	10	10,96	11,73	12,57	13,41	15,41
6	3,0	-	5,9	10	12,64	13,54	14,44	15,47	17,73
7	3,0	-	6,9	10	14,89	15,93	17,02	18,25	20,95
8	4,0	-	7,9	13	16,63	17,79	19,08	20,50	23,66
9	4,5	-	8,9	13	19,08	20,24	21,53	22,95	26,11
10	5,0	-	9,9	17	20,63	22,11	23,73	25,73	29,46
11	5,0	-	10,9	17	23,15	24,50	24,95	28,05	31,85
12	6,0	-	11,9	17	24,89	26,69	28,76	30,95	35,85
13	9,0	-	12,9	17	26,18	27,98	30,05	32,24	37,14
14	9,5	-	13,9	17	29,92	31,85	33,72	35,91	40,81
15	10,0	-	14,9	17	31,21	33,40	35,85	38,49	44,49
16	12,0	-	15,9	17	32,50	34,68	37,13	39,78	45,78

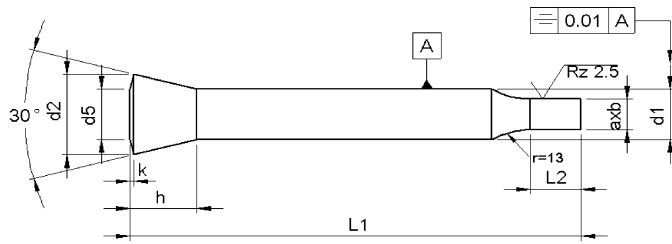
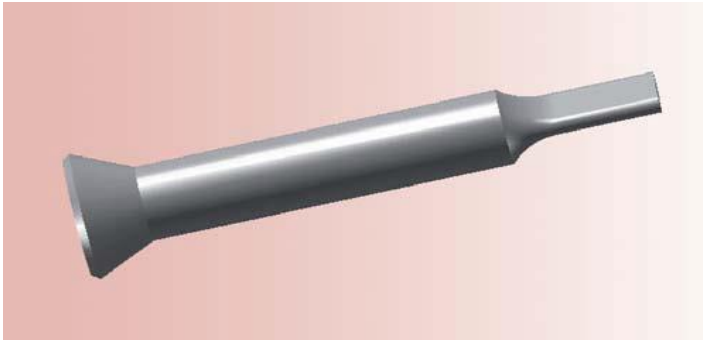
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension - 5%
- 50 Pieces per dimension - 7%
- 100 Pieces per dimension - 10%

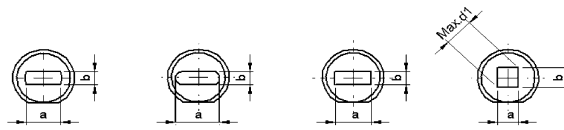
Punches with conical head 30°

With reduced shaft 'Form'



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

Type 30°F Type 30°O Type 30°R Type 30°S



d ₁	AxB ± 0.01		l ₂	l ₁ +1 0					Locking flat
	B ≥	A ≤		71	80	90	100	120	
h ₆			+0,5 0	Price by piece in EUROS					
4	1,6	- 3,9	10	27,72	28,43	29,60	30,70		6,10
5	2,5	- 4,9		27,72	28,50	29,33	30,17	32,18	
6	3,0	- 5,9		28,82	29,73	30,63	31,65	33,92	
7	3,0	- 6,9	13	30,37	31,40	32,49	33,72	36,42	8,15
8	4,0	- 7,9		38,87	40,04	41,33	42,75	45,91	
9	4,5	- 8,9		40,43	41,58	42,88	44,30	47,45	
10	5,0	- 9,9	17	41,98	43,46	45,07	46,88	50,81	
11	5,0	- 10,9		43,65	45,13	45,45	48,55	52,48	
12	6,0	- 11,9		45,40	47,19	49,26	51,45	56,35	
13	9,0	- 12,9		46,68	48,49	50,55	52,75	57,65	
14	9,5	- 13,9		48,03	49,97	51,84	54,66	58,93	
15	10,0	- 14,9		49,33	51,52	53,97	56,61	62,60	
16	12,0	- 15,9		50,61	52,80	55,25	57,90	63,90	

Punches with key-flat against surcharge.

Without detailed specification the key-flat is parallel to the major axis of surface a.

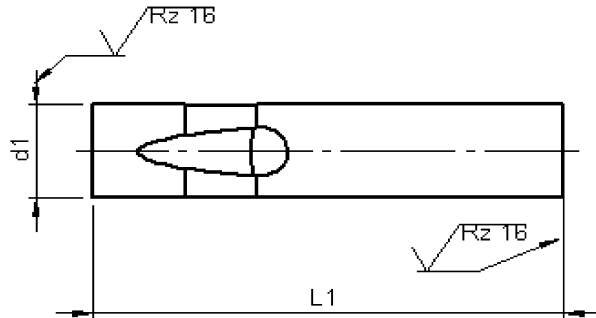
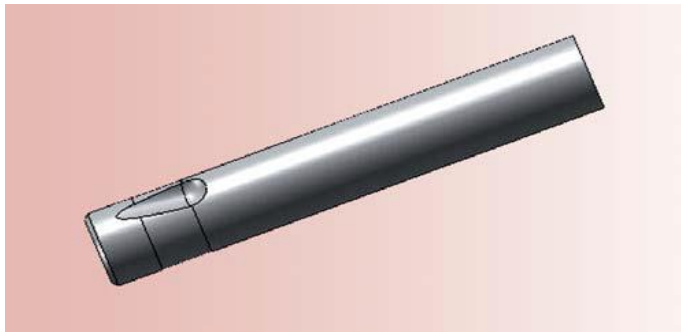
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension - 5%
- 50 Pieces per dimension - 7%
- 100 Pieces per dimension - 10%

Ball-Lock punch type BT (Light Duty)

Ball-Lock punch type BHT (Heavy Duty)



Material: HSS (1.3343)

Hardness: Shaft: 64 ±2 HRC

Head: 50 ±5 HRC

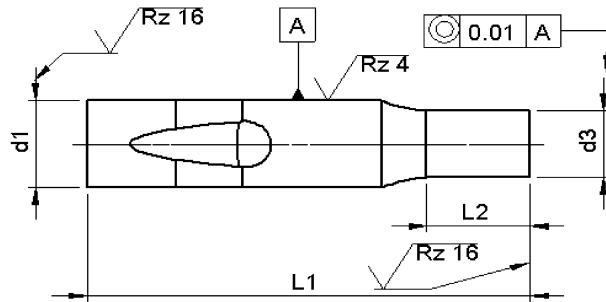
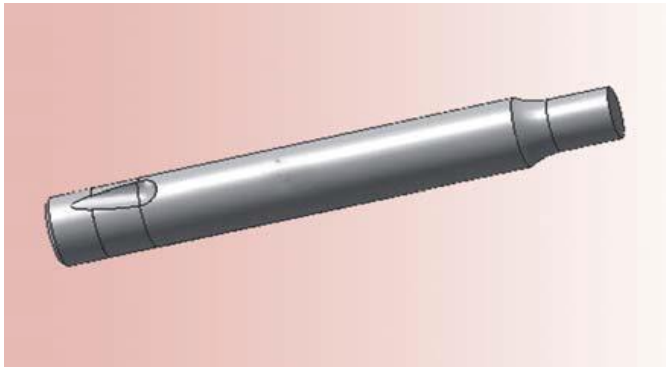
d ₁ g ₅	d ₃			l ₂	l ₁ +0,3 +0,1				
					63/71	80	90	100	125
	≥	-	≤		Price by piece in EUROS				
6	3,0	-	5,9	10	10,06	10,83	11,73	12,77	14,83
10	5,0	-	9,9	17	13,15	14,18	15,54	16,83	19,86
13	9,0	-	12,9	17	16,12	17,41	19,02	20,76	24,50
16	12,0	-	15,9	17	19,34	21,15	23,02	25,14	29,66
20	16,0	-	19,9	17	23,08	25,14	27,53	30,11	35,65
25	20,0	-	24,9	17	28,18	30,82	33,72	36,88	43,84

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension - 5%
- 50 Pieces per dimension - 7%
- 100 Pieces per dimension - 10%

Ball-Lock punch type BTP (Light Duty)
Ball-Lock punch type BTPP (Heavy Duty)
 With reduced shaft 'Round'



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

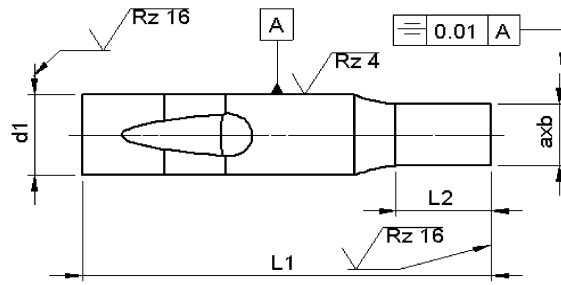
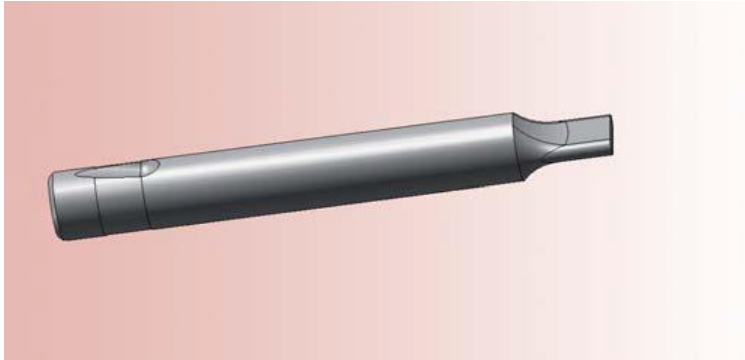
d ₁ g ₅	d ₃ +0.01 0			l ₂ +0,5 0	l ₁ +0.3 +0.2				
	≥	-	≤		63/71	80	93	100	125
Price by piece in EUROS									
6	3,0	-	5,9	10	14,18	14,96	15,86	16,89	18,95
10	5,0	-	9,9	17	18,89	19,92	21,27	22,56	25,59
13	9,0	-	12,9	17	22,69	23,98	25,59	27,33	31,07
16	12,0	-	15,9	17	28,30	30,11	31,98	34,10	38,62
20	16,0	-	19,9	17	35,52	37,58	39,97	42,55	48,09
25	20,0	-	24,9	17	44,22	46,87	49,77	52,93	59,89

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

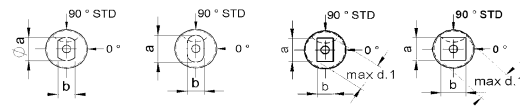
- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension - 5%
- 50 Pieces per dimension - 7%
- 100 Pieces per dimension - 10%

Ball-Lock punch type BT.. (Light Duty)
Ball-Lock punch type BHT.. (Heavy Duty)
 With reduced shaft 'Form'



type BTF type BTO type BTR type BTS

Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC



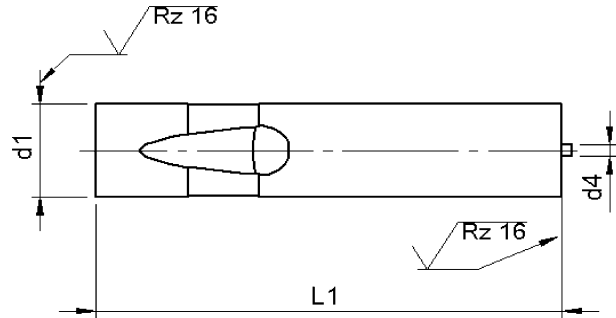
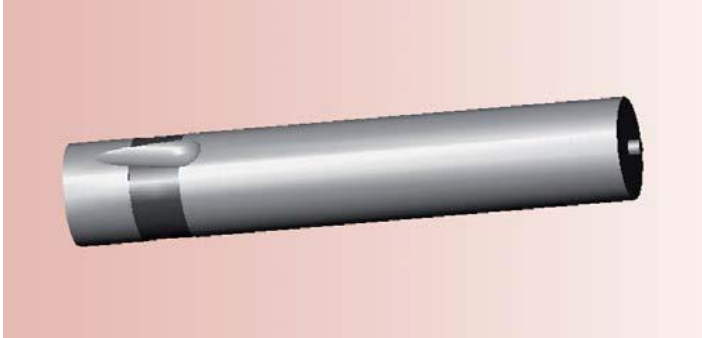
d ₁	AxB		l ₂	l ₁				
	± 0.01			+0.2	63/71	80	93	100
g ₅	B	A	0	Price by piece in EUROS				
	≥	≤						
6	3,0	5,9	10	30,36	31,14	32,04	33,07	35,13
10	5,0	9,9	17	40,23	41,26	43,19	43,90	46,93
13	9,0	12,9	17	43,19	44,48	46,09	47,83	51,57
16	12,0	15,9	17	46,42	48,22	50,09	52,22	56,73
20	16,0	19,9	17	63,69	65,76	68,14	70,72	76,26
25	20,0	24,9	17	75,56	78,20	81,10	84,26	91,22

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Ball-Lock punch type EB (Light Duty)
Ball-Lock punch type EHB (Heavy Duty)
 With ejector



Werkstoff: HSS (1.3343)
Härte: Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

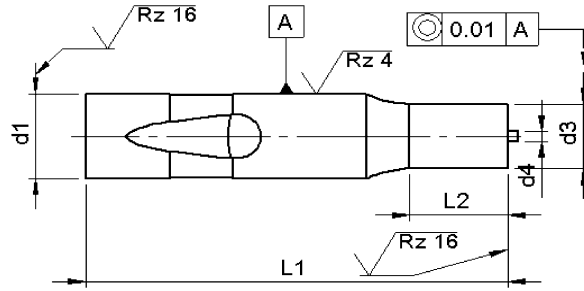
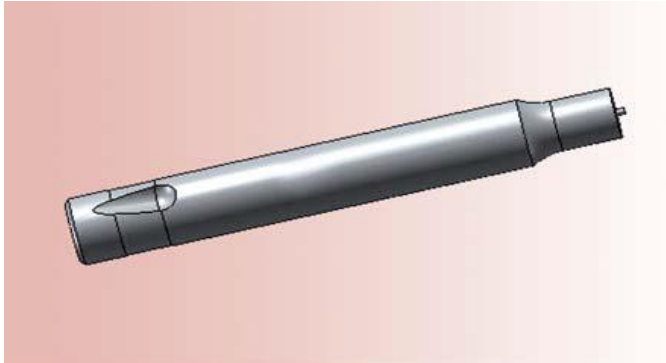
d ₁ g ₅	l ₁ +0.3 +0.2				
	63/71	80	93	100	125
Price by piece in EUROS					
6	22,95	23,73	24,63	25,66	27,72
10	26,05	27,08	28,43	29,72	32,75
13	29,01	30,30	31,91	33,66	37,40
16	32,24	34,04	35,91	38,04	42,55
20	35,98	38,04	40,43	43,00	48,55
25	41,07	43,71	46,61	49,77	56,74

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Ball-Lock punch type EBTP (Light Duty)
Ball-Lock punch type EBHTP (Heavy Duty)
 With ejector with reduced shaft 'Round'



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC

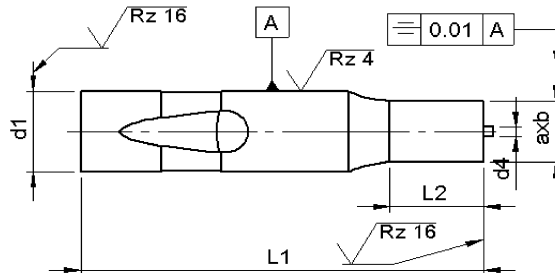
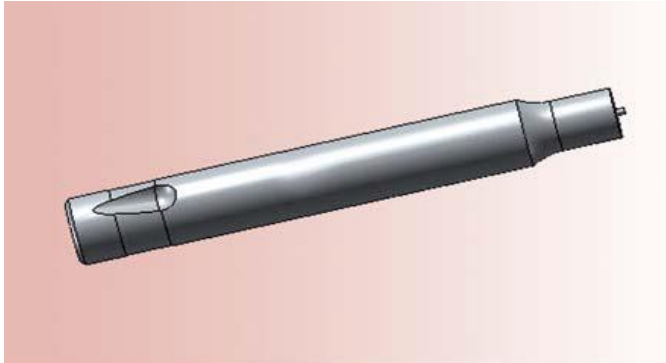
d ₁ g ₆	d ₃ +0.01 0		l ₂ +0.5 0	l ₁ +0.3 +0.2				
	≥	≤		63/71	80	93	100	125
				Price by piece in EUROS				
6	3,0	5,9	10	27,08	27,85	28,76	30,05	31,85
10	5,0	9,9	17	31,79	32,82	34,17	35,46	38,49
13	9,0	12,9	17	35,59	36,88	38,49	41,52	43,97
16	12,0	15,9	17	42,49	43,00	44,87	47,00	51,51
20	16,0	19,9	17	61,32	50,48	52,87	55,45	60,99
25	20,0	24,9	17	68,78	59,77	62,67	65,83	72,79

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

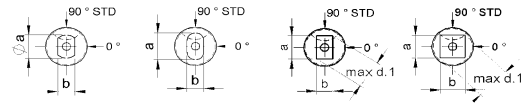
- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Ball-Lock punch type EBT.. (Light Duty)
Ball-Lock punch type EBHT.. (Heavy Duty)
 With ejector with reduced shaft 'Form'



type EBTf type EBTO type EBTR type EBTS

Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC
Head: 50 ±5 HRC



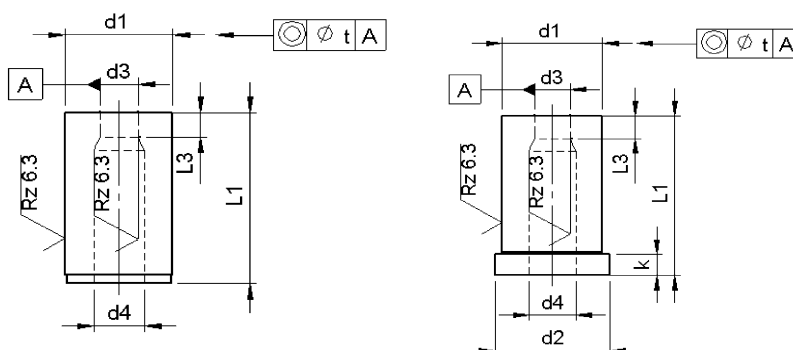
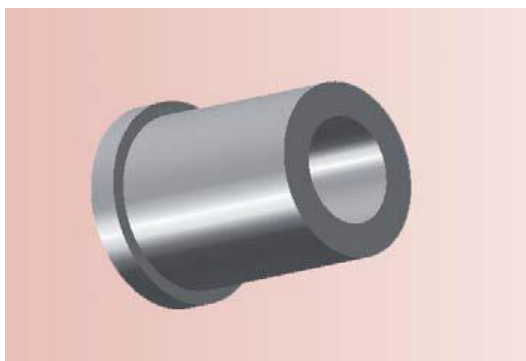
d ₁ g ₅	AxB			l ₂	l ₁				
	+0.01 0				+0.2 +0.1				
	B ≥	-	A ≤		63/71	80	93	100	125
Price by piece in EUROS									
6	3,0	-	5,9	10	43,26	44,03	44,93	45,97	48,03
10	5,0	-	9,9	17	53,12	54,15	56,09	56,80	59,83
13	9,0	-	12,9	17	56,09	57,38	58,99	60,73	64,47
16	12,0	-	15,9	17	59,31	61,11	62,98	65,11	69,62
20	16,0	-	19,9	17	76,59	78,65	81,04	83,61	89,16
25	20,0	-	24,9	17	88,45	91,09	93,99	97,15	104,11

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension - 5%
- 50 Pieces per dimension - 7%
- 100 Pieces per dimension - 10%

Die buttons DIN 9845 A / B

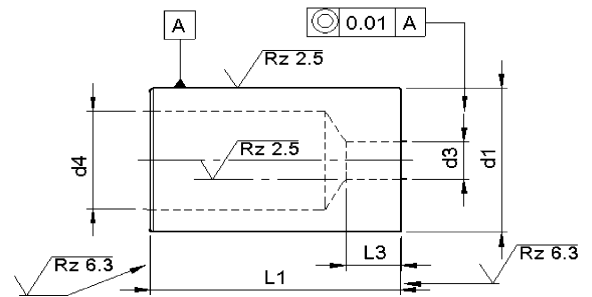
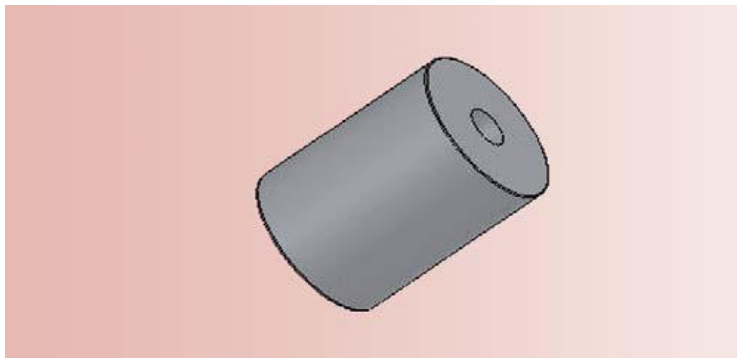


Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC

d ₁	d ₂	k	d ₃ H ₈ van t/m			l ₃	d ₄ ± 0.1	Form A		Form B	
								l ₁	l ₁	l ₁	l ₁
Type A n6	Type B k6						20	28	20	28	
							Price by piece in EUROS				
5	7	4		1.0	2.0	d ₃ + 0,3	22,00		26,46		
6	8		1.0	2.0	3.0	d ₃ + 0.3	15,07	19,37	17,64	23,42	
7	9		2.1	3.0	3.0	d ₃ + 0.5	12,55	15,70	17,64	18,90	
8	10		3.1	4.0	3.0	d ₃ + 0.5	12,55	14,60	17,64	18,90	
10	12		4.1	5.0	4.0	d ₃ + 0.7	12,55	14,60	17,64	18,90	
12	14		5.1	6.0	4.0	d ₃ + 0.7	12,55	14,60	17,64	18,90	
15	17		6.1	8.0	4.0	d ₃ + 0.7	12,55	16,96	16,33	20,42	
18	20		8.1	10.0	4.0	d ₃ + 1,0	12,55	17,90	17,96	21,68	
22	24		10.1	12.0	5.0	d ₃ + 1,0	15,38	17,90	18,53	22,84	
26	28		12.1	15.0	5.0	d ₃ + 1,0	20,42	24,68	24,73	29,87	
30	32		15.1	18.0	5.0	d ₃ + 1,0		30,66		37,64	

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Die buttons ISO 8977 A With round holes



Material: HSS (1.3343)
Hardness: Shaft: 64 ±2 HRC

d ₁	l ₃	d ₃ +0.02 0			d ₄	l ₁ +0,5 0							
		≥	-	≤		16	20	22	25	28	30	32	35
n ₅					Price by piece in EUROS								
5	2	1,0	-	2,4	2,8	17,50	17,73	17,97	18,20	18,43	18,67	18,90	19,13
6	3	1,6	-	3,0	3,5	17,50	17,73	17,97	18,20	18,43	18,67	18,90	19,13
8	4	2,0	-	3,5	4,0	17,50	17,73	17,97	18,20	18,43	18,67	18,90	19,13
10	4	2,5	-	5,0	5,8	18,20	18,43	18,67	18,90	19,13	19,37	19,60	19,83
13	5	3,0	-	7,0	8,0		19,19	19,43	19,66	19,89	20,13	20,36	20,59
16	5	4,0	-	9,0	9,5		19,89	20,13	20,36	20,59	20,83	21,06	21,29
20	8	6,0	-	11,0	12,0		20,59	20,83	21,06	21,29	21,53	21,76	21,99
22	8	8,0	-	11,0	15,0		21,58	21,82	22,05	22,28	22,52	22,75	22,98
25	8	8,0	-	16,0	17,3		22,93	23,16	23,39	23,63	23,86	24,09	24,33
32	8	8,0	-	20,0	20,7		31,56	31,79	32,03	32,26	32,49	32,73	32,96
40	8	19	-	27,0	27,7		49,93	50,17	50,40	50,63	50,87	51,10	51,33
50	8	26	-	36,0	37,0		59,97	60,20	60,43	60,67	60,90	61,13	61,37

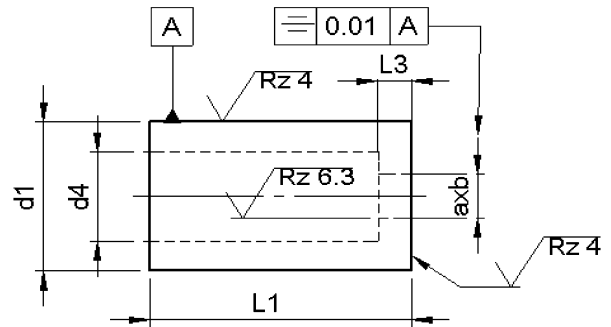
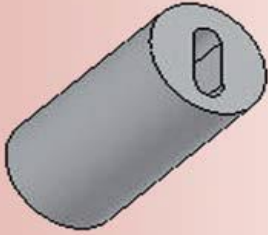
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension - 5%
- 50 Pieces per dimension - 7%
- 100 Pieces per dimension - 10%

Die buttons ISO 8977 A..

With shap e-hole



Materials: HSS (1.3343)
Hardness: Schacht: 64 ±2 HRC

d ₁	l ₃	AxB ± 0.01		d ₄	l ₁ +0.5 0								Locking flat	
		B	A		16	20	22	25	28	30	32	35		
n _s		≥	≤		Price by piece in EUROS									
5	2	1,0	2,4	2,8	18,90	18,90	18,90	18,90	18,90	18,90	18,90	18,90	18,90	6,10
6	3	1,6	3,0	3,5	18,90	18,90	18,90	18,90	18,90	18,90	18,90	18,90	18,90	
8	4	2,0	3,5	4,0	18,90	18,90	18,90	18,90	18,90	18,90	18,90	18,90	18,90	8,15
10	4	2,5	5,0	5,8	18,90	18,90	18,90	18,90	18,90	18,90	18,90	18,90	18,90	
13	5	3,0	7,0	8,0		18,90	18,90	18,90	18,90	18,90	18,90	18,90	18,90	
16	5	4,0	9,0	9,5		22,05	22,05	22,05	22,05	22,05	22,05	22,05	22,05	11,15
20	8	6,0	11,0	12,0		38,85	38,85	38,85	38,85	38,85	38,85	38,85	38,85	
22	8	8,0	11,0	15,0		45,50	45,50	45,50	45,50	45,50	45,50	45,50	45,50	12,95
25	8	8,0	16,0	17,3		52,50	52,50	52,50	52,50	52,50	52,50	52,50	52,50	
32	8	8,0	20,0	20,7		64,05	64,05	64,05	64,05	64,05	64,05	64,05	64,05	14,70
40	8	19	27,0	27,7			100,80	100,80	100,80	100,80	100,80	100,80	100,80	
50	8	26	36,0	37,0				131,25	131,25	131,25	131,25	131,25	131,25	18,90

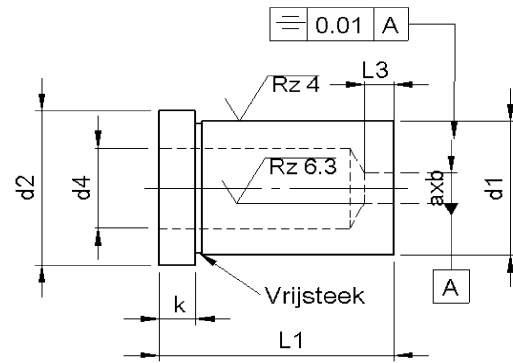
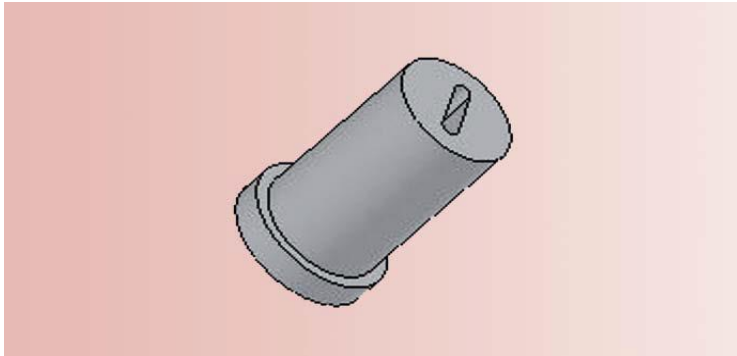
Without detailed specifications the locking is parallel to the major flat axis of surface 'a'.

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

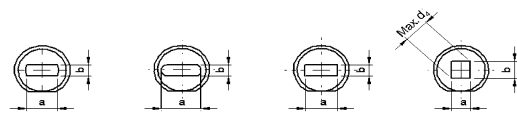
- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Die buttons ISO 8977 B.. With shap e-hole



type 8979B F type 8979B O type 8979B R type 8979B S

Materials: HSS (1.3343)
Hardness: Schacht: 64 ±2 HRC



d ₁	d ₂	l ₃	Ax B ± 0,01		d ₄	k	l ₁ +0.5 0								Locking flat		
			B ≥	A ≤			16	20	22	25	28	30	32	35			
m ₅						+0.25 0	Price by piece in EUROS										
5	8	2	1,0	2,4	2,8	5	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	6,10
6	9	3	1,6	3,0	3,5		21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	
8	11	4	2,0	3,5	4,0		21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	8,15
10	13	4	2,5	5,0	5,8		21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	
13	16	5	3,0	7,0	8,0			21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	21,00	
16	19	5	4,0	9,0	9,5			24,50	24,50	24,50	24,50	24,50	24,50	24,50	24,50	24,50	11,15
20	23	8	6,0	11,0	12,0			43,17	43,17	43,17	43,17	43,17	43,17	43,17	43,17	43,17	
22	25	8	8,0	14,0	15,0			51,33	51,33	51,33	51,33	51,33	51,33	51,33	51,33	51,33	12,95
25	28	8	8,0	16,0	17,3			58,33	58,33	58,33	58,33	58,33	58,33	58,33	58,33	58,33	
32	35	8	8,0	20,0	20,7			71,17	71,17	71,17	71,17	71,17	71,17	71,17	71,17	71,17	14,70
40	43	8	19	27,0	27,7			112,00	112,00	112,00	112,00	112,00	112,00	112,00	112,00	112,00	
50	53	8	26	36,0	37,0			145,83	145,83	145,83	145,83	145,83	145,83	145,83	145,83	145,83	15,75

Without detailed specifications the locking is parallel to the major flat axis of surface 'a'.

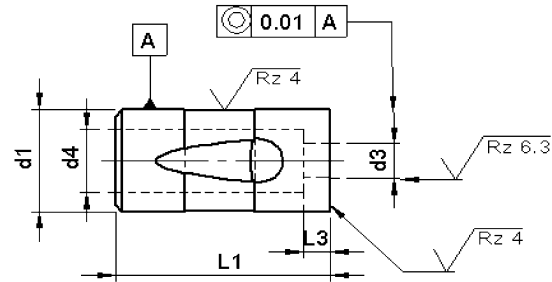
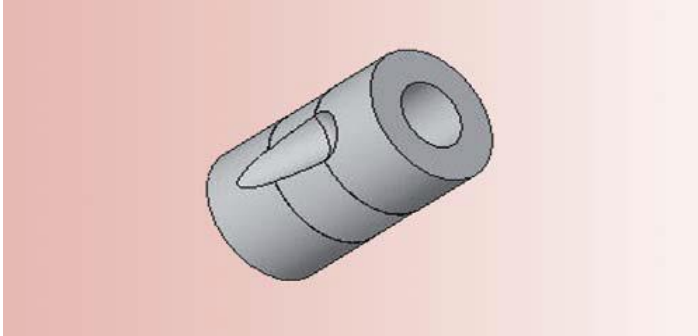
Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Stück pro Abmessung + 50%
- 2-3 Stück pro Abmessung + 25%
- 25 Stück pro Abmessung - 5%
- 50 Stück pro Abmessung - 7%
- 100 Stück pro Abmessung - 10%

Die buttons type BTB

With round holes



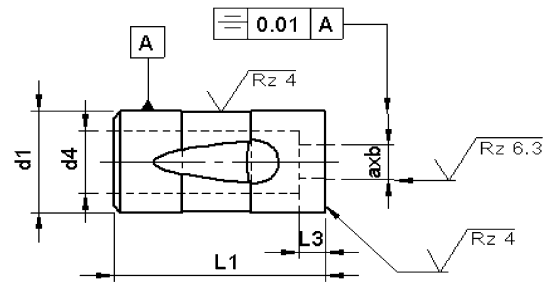
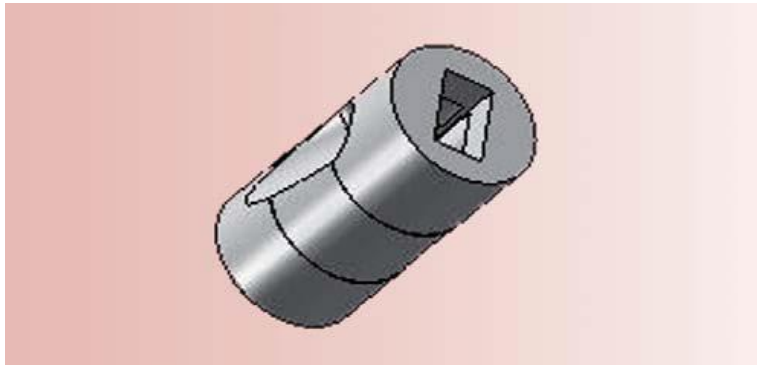
d ₁ h ₅	l ₃	d ₃ +0.01 0		d ₄	l ₁ +0.2 0	Price by piece in EUROS
		≥	≤			
13	3,5	3	7	7.5	32	21,82
16	4	4	8	9		24,97
20	4,5	6	11	12		41,77
25	5	12	16	17		55,42
32	6	13	20	22		66,97
38	6	16	26	28		103,72
63,5	7	25	50	51		157,50

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

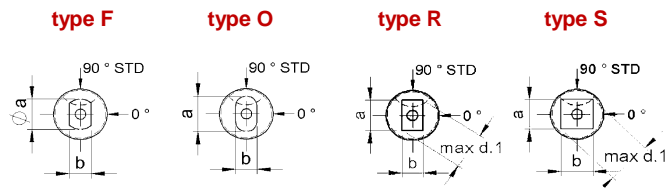
Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

Die buttons type BTB.. With shap e-hole



Material: HSS (1.33,43)
Hardness: Shaft: 64 ±2 HRC



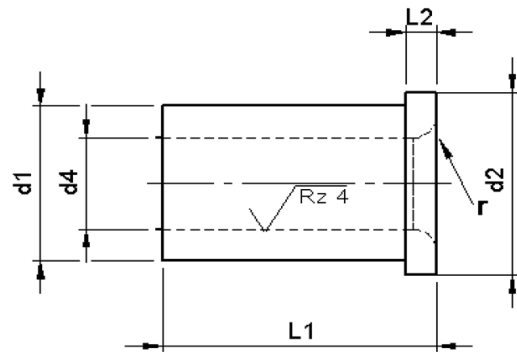
d ₁ h5	l ₃	B ≥	Ax B +0.01 0		d ₄	l ₁ +0,2 0	Price by piece in EUROS
				A ≤			
13	3,5	3	-	7	7.5	32	21,82
16	4	4	-	8	9		24,97
20	4,5	6	-	11	12		41,77
25	5	12	-	16	17		55,42
32	6	13	-	20	22		66,97
38	6	16	-	26	28		103,72
63,5	7	25	-	50	51		157,50

Intermediate diameters, other lengths and special materials e.g. ASP, CPM and Vanadis, are available on request.

Extra charges and discounts:

- 1 Pieces per dimension + 50%
- 2-3 Pieces per dimension + 25%
- 25 Pieces per dimension – 5%
- 50 Pieces per dimension – 7%
- 100 Pieces per dimension – 10%

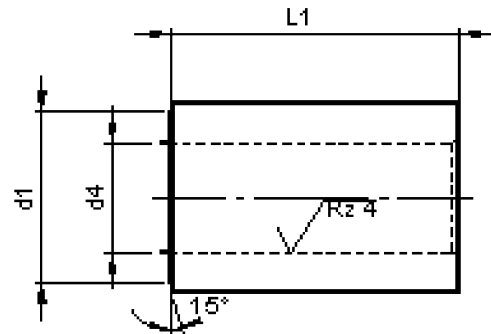
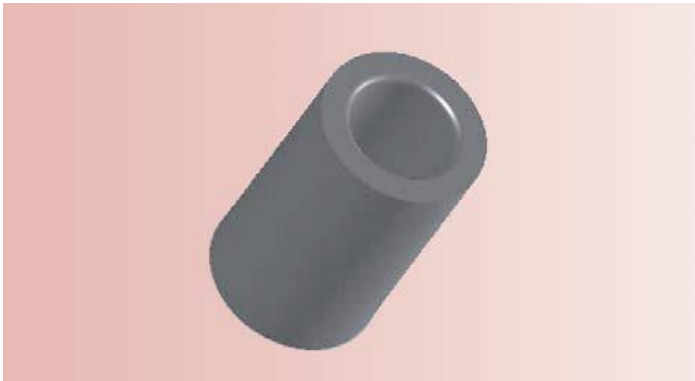
Press fit jig Bushes DIN 172 a With shoulder



Material: 1.7262
Hardness: 62-65 HRC

d ₄ F ₇		d ₃ n ₆	l ₁ short				EURO	l ₁ middle		EURO	l ₁ long		EURO
0,4	t/m	1,0	3	6	2	6							
1,1	t/m	1,8	4	7	2	6							
1,9	t/m	2,6	5	8	2	6	6,45	9	6,96				
2,7	t/m	3,3	6	9	2,5	8	4,85	12	4,02				
3,4	t/m	4,0	7	10	2,5	8	3,89	12	4,21	16	18,48		
4,1	t/m	5,0	8	11	2,5	8	4,02	12	4,28	16	18,48		
5,1	t/m	6,0	10	13	3	10	4,15	16	4,34	20	23,10		
6,1	t/m	8,0	12	15	3	10	4,28	16	4,79	20	23,10		
8,1	t/m	10,0	15	18	3	12	4,79	20	5,23	25	28,88		
10,1	t/m	12,0	18	22	4	12	5,17	20	5,87	25	28,88		
12,1	t/m	15,0	22	26	4	16	5,87	28	6,83	36	41,58		
15,25	t/m	18,0	26	30	4	16	6,83	28	8,68	36	41,58		
18,25	t/m	22,0	30	34	5	20	7,98	36	10,34				
22,25	t/m	26,0	35	39	5	20	10,34	36	14,04				
26,25	t/m	30,0	42	46	5	25	13,40	45					
30,25	t/m	35,0	48	52	5	25	15,83	45					
35,50	t/m	40,0	55	59	5	30	20,74	56					

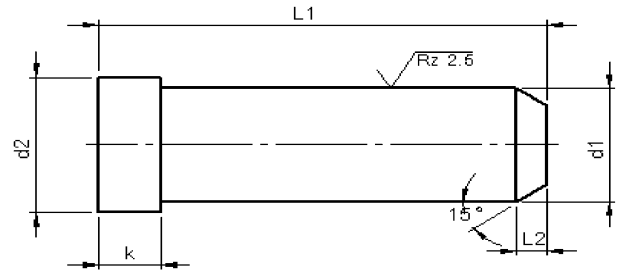
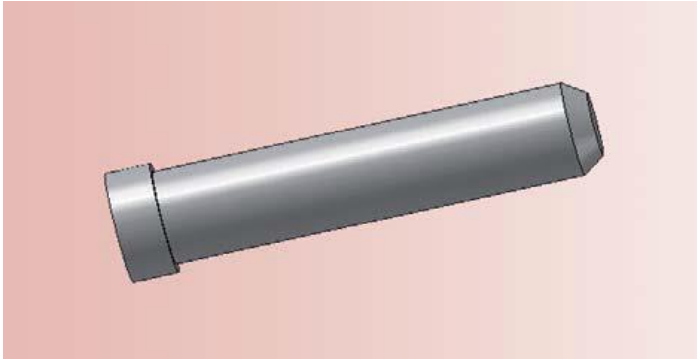
Press fit jig Bushes DIN 179 a Without shoulder



Material: 1.7262
Hardness: 62-65 HRC

d ₄ F ₇		d ₁ n ₆		Price by piece in EUROS					
				l ₁ short	EURO	l ₁ middle	EURO	l ₁ long	EURO
0,4	t/m	1,0	3	6	*		*		*
1,1	t/m	1,8	4	6	4,09	9	5,62		
1,9	t/m	2,6	5	6	2,81	9	3,77		
2,7	t/m	3,3	6	8	4,15	12	3,13	16	6,06
3,4	t/m	4,0	7	8	3,00	12	3,19	16	4,56
4,1	t/m	5,0	8	8	3,19	12	3,38	16	4,86
5,1	t/m	6,0	10	10	3,19	16	3,64	20	4,98
6,1	t/m	8,0	12	10	3,64	16	3,89	20	5,35
8,1	t/m	10,0	15	12	3,89	20	4,60	25	6,32
10,1	t/m	12,0	18	12	4,60	20	5,23	25	6,75
12,1	t/m	15,0	22	16	4,98	28	6,64	36	8,88
15,25	t/m	18,0	26	16	5,94	28	7,98	36	10,27
18,25	t/m	22,0	30	20	8,04	36	10,85		
22,25	t/m	26,0	35	20	10,15	36	12,89		
26,25	t/m	30,0	42	25	12,19	45	14,94		
30,25	t/m	35,0	48	25	15,70	45			
35,50	t/m	40,0	55	30	20,81	56			

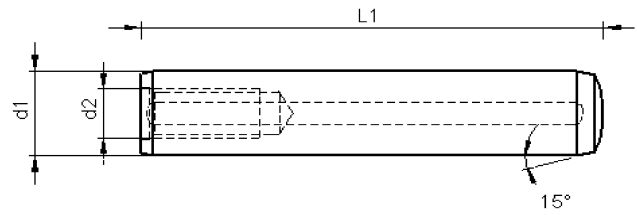
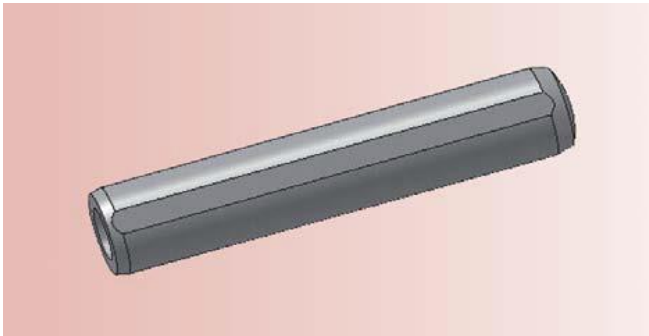
Guide pillar type G100



Material: 1.7262
Hardness: 60 ±2 HRC

d ₁ g ₆	10	12	14	16	18	20	22	24	26
d ₂	12	16	18	20	22	24	26	28	30
k -0,2	3	6	8	8	8	8	15	15	15
	Price by piece in EUROS								
l₁									
40	5,25	5,57							
60	5,41	6,04	6,30	6,77	7,35				
80	5,57	6,46	6,62	7,35	9,14	9,03	10,50		
100	6,20	7,19	7,67	8,40	9,14	10,08	11,87	13,49	17,60
120	7,05	7,93	8,40	9,45	10,34	11,97	14,44	16,07	20,15
140	11,39	8,87	10,08	10,97	11,87	13,23	15,91	17,27	22,45
160	14,49	9,61	11,87	12,60	13,23	14,70	17,27	18,74	24,75
180			13,39	14,12	15,07	16,70	18,95	20,42	26,90
200			18,17	15,59	16,49	18,95		21,95	29,05
220			19,22	17,12	18,74	20,84	23,57	25,36	39,05
240				23,10	24,15	24,41		28,67	
260								34,65	

Parallel Pins DIN 7979 D



Hardness: 60 ±2 HRC

Price by 100 pieces in EUROS (m6-tolerance)

d ₁ m ₆	4	5	6	8	10	12	14	16	20
d ₂	M3	M3	M4	M5	M6	M6	M8	M8	M10
l ₁									
10	47,67	45,10							
12	49,35	30,45	37,80						
14	51,45	32,03	37,80						
16	55,49	50,03	37,80	56,02	129,15				
18	66,05	51,08	39,48	56,02					
20	60,90	52,03	39,48	56,02	55,86	141,75			
24	68,25	53,45	41,21	57,07	61,95	77,60			
28	78,75	55,44	43,16	56,02	68,88	87,52			
32	100,70	57,44	45,04	58,74	76,13	95,87	245,70	200,18	
36	90,04	39,27	47,09	61,48	87,78	103,90	278,25	221,55	
40	91,82	61,27	49,93	64,31	92,03	112,51	266,70	245,70	424,20
50	313,95	65,99	57,75	80,75	108,41	134,03	298,20	299,25	500,85
60			73,50	99,75	126,11	154,35	327,60	325,50	565,95
70			141,75	111,30	169,37	196,35	381,15	366,45	656,25
80				126,00	190,21	221,55	432,60	435,75	730,80
90				213,15	288,75	344,40	612,15	495,60	882,00
100				234,15	329,70	366,45	520,80	550,20	823,20
120				309,75	404,25	447,30	708,75	635,25	893,55

Minimum order quantity:

- Ø 4 t/m Ø 8 50 pieces/dimension
- Ø 10 t/m Ø 20 25 pieces/dimension