



PARA 6.0

TOOLING

Solid Carbide Cutting Tools

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Cutting Conditions

SPEED per material group - m/min

MATERIAL GROUP	Rm (N/mm ²)	CUTTING SPEEDS V _c (m/min)	
		min	max
Carbon Steel	<600	120	240
Alloy Steel	<1200	80	180
High Alloy Steel	<1400	50	120
Aust./Ferr. Stainless Steel	<680	60	140
Mart. Stainless Steel	<820	40	120
Grey Cast Iron		80	180
Cast Iron		60	140
Copper Alloys		160	600
Aluminium Alloys		160	500
High temp. Alloys Fe, Ni and Co based	<3300	30	80
Titanium Alloys	<2100	40	90

a _e : Width of cut	mm
a _p : Depth of cut	mm
V _c : Cutting speed	m/min
f _z : Feed per tooth	mm/t
V _f : Feedrate	mm/min
n : Spindle speed	rpm
d : Cutting diameter	mm
z : Number of teeth	
Spindle speed:	$n = \frac{V_c \cdot 1000}{d \cdot \pi}$
Cutting speed:	$V_c = \frac{d \cdot \pi \cdot n}{1000}$
Feed per tooth:	$f_z = \frac{V_f}{z \cdot n}$
Feedrate:	$V_f = f_z \cdot z \cdot n$

Tolerances

Diameter range	Cutting diameter ∅d-h9	Shank ∅d1-h5
d ≤ 3	0	0
	-0,025	-0,004
3 < d ≤ 6	0	0
	-0,030	-0,005
6 < d ≤ 10	0	0
	-0,036	-0,006
10 < d ≤ 18	0	0
	-0,043	-0,008
18 < d ≤ 30	0	0
	-0,052	-0,009



CONTOURING



SLOTTING



PROFILING

FEED Application/diameter - mm/t

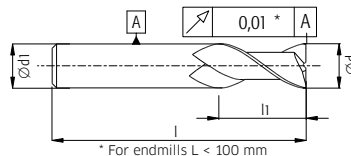
∅	CONTOURING			SLOTTING		PROFILING	
	a _e = 0,4 x d a _p = 1,25 x d			a _e = 1,0 x d a _p = 0,5 x d	a _e = 1,0 x d a _p = 1,0 x d	a _e = 0,4 x d a _p = 0,1 x d	a _e = 0,2 x d a _p = 0,05 x d
	Roughing f _z	Semi Finishing f _z	Finishing f _z	0,5xD f _z	1,0xD f _z	Semi Finishing f _z	Finishing f _z
1	0,005	0,007	0,009	0,008	0,005	0,020	0,040
2	0,008	0,009	0,011	0,010	0,008	0,030	0,050
3	0,015	0,025	0,035	0,020	0,010	0,040	0,060
4	0,020	0,030	0,045	0,025	0,013	0,050	0,080
5	0,025	0,035	0,055	0,030	0,015	0,060	0,100
6	0,030	0,040	0,065	0,035	0,020	0,070	0,120
8	0,035	0,045	0,075	0,045	0,030	0,080	0,140
10	0,040	0,055	0,085	0,055	0,040	0,100	0,180
12	0,050	0,065	0,095	0,065	0,050	0,120	0,200
16	0,070	0,090	0,115	0,075	0,060	0,140	0,220
20	0,090	0,110	0,130	0,085	0,075	0,160	0,250



AS2 - 2 Flute Aluminium Straight 45°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
AS2 3,0x57	3,0	6	57	8				2
AS2 4,0x57	4,0	6	57	11				2
AS2 5,0x57	5,0	6	57	13				2
AS2 6,0x57	6,0	6	57	13				2
AS2 8,0x63	8,0	8	63	19				2
AS2 10,0x72	10,0	10	72	22				2
AS2 12,0x83	12,0	12	83	26				2
AS2 16,0x92	16,0	16	92	32				2
AS2 20,0x104	20,0	20	104	38				2

Starting from shank Ø6 mm available with Weldon shank



AS2 - 2 Flute Aluminium Straight 45°

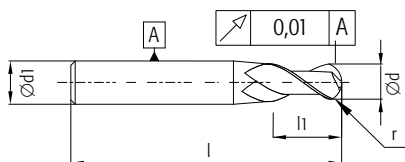


BT2 - 2 Flute Ballnose 30°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
BT2 1,0x40	1,0	3	40	3		0,50		2
BT2 1,5x40	1,5	3	40	5		0,75		2
BT2 2,0x40	2,0	3	40	7		1,00		2
BT2 2,5x40	2,5	3	40	7		1,25		2
BT2 3,0x40	3,0	3	40	10		1,50		2
BT2 3,5x50	3,5	4	50	12		1,75		2
BT2 4,0x50	4,0	4	50	15		2,00		2
BT2 4,5x50	4,5	5	50	15		2,25		2
BT2 5,0x50	5,0	5	50	15		2,50		2
BT2 6,0x65	6,0	6	65	20		3,00		2
BT2 7,0x65	7,0	8	65	20		3,50		2
BT2 8,0x65	8,0	8	65	20		4,00		2
BT2 9,0x70	9,0	10	70	22		4,50		2
BT2 10,0x70	10,0	10	70	22		5,00		2
BT2 11,0x70	11,0	11	70	25		5,50		2
BT2 12,0x80	12,0	12	80	25		6,00		2
BT2 14,0x90	14,0	14	90	30		7,00		2
BT2 16,0x90	16,0	16	90	32		8,00		2
BT2 18,0x100	18,0	18	100	35		9,00		2
BT2 20,0x100	20,0	20	100	38		10,00		2

Only even shanks starting from Ø6 mm available with Weldon shank

All items are available uncoated for the same price



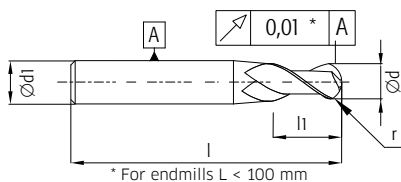
BT2 - 2 Flute Ballnose 30°



BTL2 - 2 Flute Ballnose 30° long length

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
BTL2 1,0x50	1,0	4	50	2,5		0,50		2
BTL2 1,5x50	1,5	4	50	4		0,75		2
BTL2 2,0x50	2,0	6	50	5		1,00		2
BTL2 3,0x60	3,0	6	60	8		1,50		2
BTL2 4,0x70	4,0	6	70	8		2,00		2
BTL2 5,0x80	5,0	6	80	10		2,50		2
BTL2 6,0x90	6,0	6	90	12		3,00		2
BTL2 8,0x100	8,0	8	100	14		4,00		2
BTL2 10,0x100	10,0	10	100	18		5,00		2
BTL2 12,0x110	12,0	12	110	22		6,00		2
BTXL2 2,0x80	2,0	3	80	6		1,00		2
BTXL2 3,0x100	3,0	3	100	8		1,50		2
BTXL2 4,0x100	4,0	4	100	8		2,00		2
BTXL2 5,0x120	5,0	6	120	10		2,50		2
BTXL2 6,0x120	6,0	6	120	10		3,00		2
BTXL2 8,0x140	8,0	8	140	14		4,00		2
BTXL2 10,0x180	10,0	10	180	18		5,00		2
BTXL2 12,0x200	12,0	12	200	22		6,00		2

Starting from shank $\varnothing 6$ mm available with Weldon shank



BTL2 - 2 Flute Ballnose 30° long length

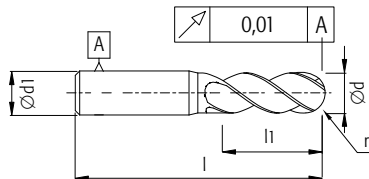


BT3 - 3 Flute Ballnose 30°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
BT3 1,0x40	1,0	3	40	3		0,50		3
BT3 1,5x40	1,5	3	40	5		0,75		3
BT3 2,0x40	2,0	3	40	7		1,00		3
BT3 2,5x40	2,5	3	40	7		1,25		3
BT3 3,0x40	3,0	3	40	10		1,50		3
BT3 3,5x50	3,5	4	50	12		1,75		3
BT3 4,0x50	4,0	4	50	15		2,00		3
BT3 4,5x50	4,5	5	50	15		2,25		3
BT3 5,0x50	5,0	5	50	15		2,50		3
BT3 6,0x65	6,0	6	65	20		3,00		3
BT3 7,0x65	7,0	8	65	20		3,50		3
BT3 8,0x65	8,0	8	65	20		4,00		3
BT3 9,0x70	9,0	10	70	22		4,50		3
BT3 10,0x70	10,0	10	70	22		5,00		3
BT3 11,0x70	11,0	11	70	25		5,50		3
BT3 12,0x80	12,0	12	80	25		6,00		3
BT3 14,0x90	14,0	14	90	30		7,00		3
BT3 16,0x90	16,0	16	90	32		8,00		3
BT3 18,0x100	18,0	18	100	35		9,00		3
BT3 20,0x100	20,0	20	100	38		10,00		3

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BT3 - 3 Flute Ballnose 30°

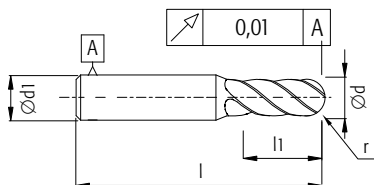


BT4 - 4 Flute Ballnose 30°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
BT4 1,0x40	1,0	3	40	3		0,50		4
BT4 1,5x40	1,5	3	40	5		0,75		4
BT4 2,0x40	2,0	3	40	7		1,00		4
BT4 2,5x40	2,5	3	40	7		1,25		4
BT4 3,0x40	3,0	3	40	10		1,50		4
BT4 3,5x50	3,5	4	50	12		1,75		4
BT4 4,0x50	4,0	4	50	15		2,00		4
BT4 4,5x50	4,5	5	50	15		2,25		4
BT4 5,0x50	5,0	5	50	15		2,50		4
BT4 6,0x65	6,0	6	65	20		3,00		4
BT4 7,0x65	7,0	8	65	20		3,50		4
BT4 8,0x65	8,0	8	65	20		4,00		4
BT4 9,0x70	9,0	10	70	22		4,50		4
BT4 10,0x70	10,0	10	70	22		5,00		4
BT4 11,0x70	11,0	11	70	25		5,50		4
BT4 12,0x80	12,0	12	80	25		6,00		4
BT4 14,0x90	14,0	14	90	30		7,00		4
BT4 16,0x90	16,0	16	90	32		8,00		4
BT4 18,0x100	18,0	18	100	35		9,00		4
BT4 20,0x100	20,0	20	100	38		10,00		4

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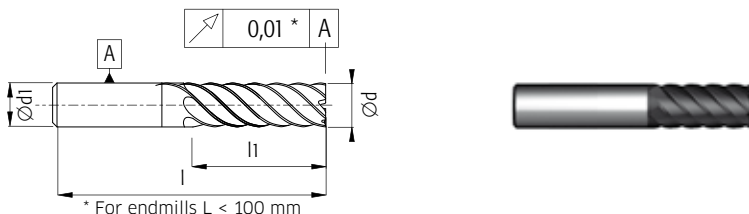
BT4 - 4 Flute Ballnose 30°



MS - Multiple Flute Straight 45°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
MS 6,0x58	6,0	6	58	13				6
MS 8,0x65	8,0	8	65	19				6
MS 10,0x72	10,0	10	72	22				6
MS 12,0x83	12,0	12	83	26				6
MS 16,0x92	16,0	16	92	32				6
MS 20,0x103	20,0	20	103	38				8
MSL 6,0x70	6,0	6	70	26				6
MSL 8,0x90	8,0	8	90	36				6
MSL 10,0x100	10,0	10	100	46				6
MSL 12,0x110	12,0	12	110	56				6
MSL 16,0x130	16,0	16	130	66				6
MSL 20,0x140	20,0	20	140	76				6

Starting from shank $\varnothing 6$ mm available with Weldon shank



MS - Multiple Flute Straight 45°

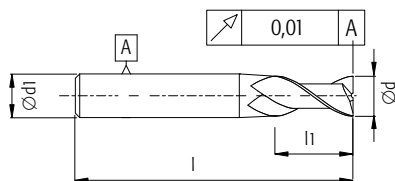


ST2 - 2 Flute Straight 30°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
ST2 1,0x40	1,0	3	40	3				2
ST2 1,5x40	1,5	3	40	5				2
ST2 2,0x40	2,0	3	40	7				2
ST2 2,5x40	2,5	3	40	7				2
ST2 3,0x40	3,0	3	40	10				2
ST2 3,5x50	3,5	4	50	12				2
ST2 4,0x50	4,0	4	50	15				2
ST2 4,5x50	4,5	5	50	15				2
ST2 5,0x50	5,0	5	50	15				2
ST2 6,0x65	6,0	6	65	20				2
ST2 7,0x65	7,0	8	65	20				2
ST2 8,0x65	8,0	8	65	20				2
ST2 9,0x70	9,0	10	70	22				2
ST2 10,0x70	10,0	10	70	22				2
ST2 11,0x70	11,0	11	70	25				2
ST2 12,0x80	12,0	12	80	25				2
ST2 14,0x90	14,0	14	90	30				2
ST2 16,0x90	16,0	16	90	32				2
ST2 18,0x100	18,0	18	100	35				2
ST2 20,0x100	20,0	20	100	38				2

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ST2 - 2 Flute Straight 30°

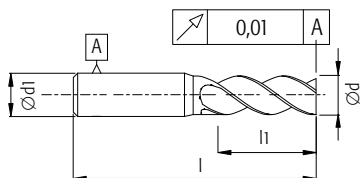


ST3 - 3 Flute Straight 30°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
ST3 1,0x40	1,0	3	40	3				3
ST3 1,5x40	1,5	3	40	5				3
ST3 2,0x40	2,0	3	40	7				3
ST3 2,5x40	2,5	3	40	7				3
ST3 3,0x40	3,0	3	40	10				3
ST3 3,5x50	3,5	4	50	12				3
ST3 4,0x50	4,0	4	50	15				3
ST3 4,5x50	4,5	5	50	15				3
ST3 5,0x50	5,0	5	50	15				3
ST3 6,0x65	6,0	6	65	20				3
ST3 7,0x65	7,0	8	65	20				3
ST3 8,0x65	8,0	8	65	20				3
ST3 9,0x70	9,0	10	70	22				3
ST3 10,0x70	10,0	10	70	22				3
ST3 11,0x70	11,0	11	70	25				3
ST3 12,0x80	12,0	12	80	25				3
ST3 14,0x90	14,0	14	90	30				3
ST3 16,0x90	16,0	16	90	32				3
ST3 18,0x100	18,0	18	100	35				3
ST3 20,0x100	20,0	20	100	38				3

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ST3 - 3 Flute Straight 30°

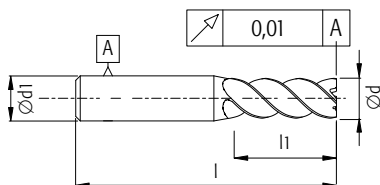


ST4 - 4 Flute Straight 30°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
ST4 1,0x40	1,0	3	40	3				4
ST4 1,5x40	1,5	3	40	5				4
ST4 2,0x40	2,0	3	40	7				4
ST4 2,5x40	2,5	3	40	7				4
ST4 3,0x40	3,0	3	40	10				4
ST4 3,5x50	3,5	4	50	12				4
ST4 4,0x50	4,0	4	50	15				4
ST4 4,5x50	4,5	5	50	15				4
ST4 5,0x50	5,0	5	50	15				4
ST4 6,0x65	6,0	6	65	20				4
ST4 7,0x65	7,0	8	65	20				4
ST4 8,0x65	8,0	8	65	20				4
ST4 9,0x70	9,0	10	70	22				4
ST4 10,0x70	10,0	10	70	22				4
ST4 11,0x70	11,0	11	70	25				4
ST4 12,0x80	12,0	12	80	25				4
ST4 14,0x90	14,0	14	90	30				4
ST4 16,0x90	16,0	16	90	32				4
ST4 18,0x100	18,0	18	100	35				4
ST4 20,0x100	20,0	20	100	38				4

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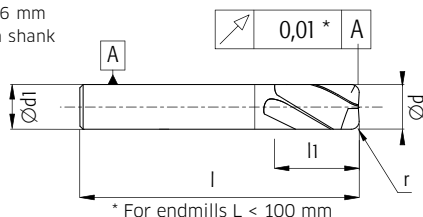
ST4 - 4 Flute Straight 30°



STR2 - 2 Flute 30° with corner radius

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
STR2 3,0x50 R=0,3	3,0	6	50	12		0,3		2
STR2 4,0x50 R=0,3	4,0	6	50	15		0,3		2
STR2 4,0x50 R=0,5	4,0	6	50	15		0,5		2
STR2 5,0x60 R=0,3	5,0	6	60	20		0,3		2
STR2 5,0x60 R=0,5	5,0	6	60	20		0,5		2
STR2 6,0x60 R=0,3	6,0	6	60	20		0,3		2
STR2 6,0x60 R=0,5	6,0	6	60	20		0,5		2
STR2 6,0x60 R=1,0	6,0	6	60	20		1,0		2
STR2 8,0x70 R=0,3	8,0	8	70	25		0,3		2
STR2 8,0x70 R=0,5	8,0	8	70	25		0,5		2
STR2 8,0x70 R=1,0	8,0	8	70	25		1,0		2
STR2 8,0x70 R=1,5	8,0	8	70	25		1,5		2
STR2 8,0x70 R=2,0	8,0	8	70	25		2,0		2
STR2 10,0x90 R=0,3	10,0	10	90	30		0,3		2
STR2 10,0x90 R=0,5	10,0	10	90	30		0,5		2
STR2 10,0x90 R=1,0	10,0	10	90	30		1,0		2
STR2 10,0x90 R=1,5	10,0	10	90	30		1,5		2
STR2 10,0x90 R=2,0	10,0	10	90	30		2,0		2
STR2 12,0x90 R=0,5	12,0	12	90	30		0,5		2
STR2 12,0x90 R=1,0	12,0	12	90	30		1,0		2
STR2 12,0x90 R=1,5	12,0	12	90	30		1,5		2
STR2 12,0x90 R=2,0	12,0	12	90	30		2,0		2
STR2 16,0x110 R=0,5	16,0	16	110	50		0,5		2
STR2 16,0x110 R=1,0	16,0	16	110	50		1,0		2
STR2 16,0x110 R=1,5	16,0	16	110	50		1,5		2
STR2 16,0x110 R=2,0	16,0	16	110	50		2,0		2
STR2 20,0x110 R=0,5	20,0	20	110	50		0,5		2
STR2 20,0x110 R=1,0	20,0	20	110	50		1,0		2
STR2 20,0x110 R=1,5	20,0	20	110	50		1,5		2
STR2 20,0x110 R=2,0	20,0	20	110	50		2,0		2

Starting from shank $\varnothing 6$ mm
available with Weldon shank



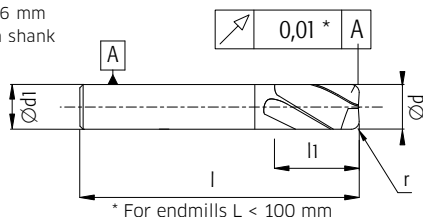
STR2 - 2 Flute 30° with corner radius



STR4 - 4 Flute 30° with corner radius

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
STR4 3,0x50 R=0,3	3,0	6	50	12		0,3		4
STR4 4,0x50 R=0,3	4,0	6	50	15		0,3		4
STR4 4,0x50 R=0,5	4,0	6	50	15		0,5		4
STR4 5,0x60 R=0,3	5,0	6	60	20		0,3		4
STR4 5,0x60 R=0,5	5,0	6	60	20		0,5		4
STR4 6,0x60 R=0,3	6,0	6	60	20		0,3		4
STR4 6,0x60 R=0,5	6,0	6	60	20		0,5		4
STR4 6,0x60 R=1,0	6,0	6	60	20		1,0		4
STR4 8,0x70 R=0,3	8,0	8	70	25		0,3		4
STR4 8,0x70 R=0,5	8,0	8	70	25		0,5		4
STR4 8,0x70 R=1,0	8,0	8	70	25		1,0		4
STR4 8,0x70 R=1,5	8,0	8	70	25		1,5		4
STR4 8,0x70 R=2,0	8,0	8	70	25		2,0		4
STR4 10,0x90 R=0,3	10,0	10	90	30		0,3		4
STR4 10,0x90 R=0,5	10,0	10	90	30		0,5		4
STR4 10,0x90 R=1,0	10,0	10	90	30		1,0		4
STR4 10,0x90 R=1,5	10,0	10	90	30		1,5		4
STR4 10,0x90 R=2,0	10,0	10	90	30		2,0		4
STR4 12,0x90 R=0,5	12,0	12	90	30		0,5		4
STR4 12,0x90 R=1,0	12,0	12	90	30		1,0		4
STR4 12,0x90 R=1,5	12,0	12	90	30		1,5		4
STR4 12,0x90 R=2,0	12,0	12	90	30		2,0		4
STR4 16,0x110 R=0,5	16,0	16	110	50		0,5		4
STR4 16,0x110 R=1,0	16,0	16	110	50		1,0		4
STR4 16,0x110 R=1,5	16,0	16	110	50		1,5		4
STR4 16,0x110 R=2,0	16,0	16	110	50		2,0		4
STR4 20,0x110 R=0,5	20,0	20	110	50		0,5		4
STR4 20,0x110 R=1,0	20,0	20	110	50		1,0		4
STR4 20,0x110 R=1,5	20,0	20	110	50		1,5		4
STR4 20,0x110 R=2,0	20,0	20	110	50		2,0		4

Starting from shank $\varnothing 6$ mm
available with Weldon shank



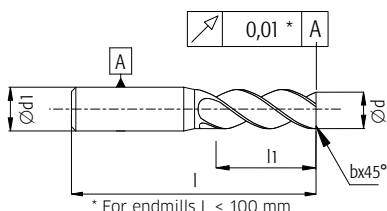
STR4 - 4 Flute 30° with corner radius



RS3 - 3 Flute Roughing 45° with chamfer

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
RS3 2,0x40	2,0	3	40	8			0,10	3
RS3 3,0x40	3,0	3	40	10			0,10	3
RS3 4,0x50	4,0	4	50	12			0,10	3
RS3 5,0x50	5,0	5	50	15			0,15	3
RS3 6,0x65	6,0	6	65	15			0,15	3
RS3 8,0x65	8,0	8	65	20			0,20	3
RS3 10,0x70	10,0	10	70	22			0,20	3
RS3 12,0x80	12,0	12	80	25			0,25	3
RS3 16,0x90	16,0	16	90	35			0,25	3
RS3 20,0x102	20,0	20	102	40			0,25	3

Starting from shank $\varnothing 6$ mm available with Weldon shank



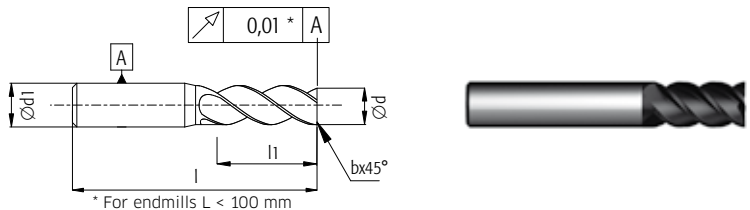
RS3 - 3 Flute Roughing 45° with chamfer



RS4 - 4 Flute Roughing 50° with chamfer

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
RS4 3,0x40	3,0	3	40	10			0,10	4
RS4 4,0x50	4,0	4	50	12			0,10	4
RS4 5,0x50	5,0	5	50	15			0,15	4
RS4 6,0x65	6,0	6	65	15			0,15	4
RS4 8,0x65	8,0	8	65	20			0,20	4
RS4 10,0x70	10,0	10	70	22			0,20	4
RS4 12,0x80	12,0	12	80	25			0,25	4
RS4 16,0x90	16,0	16	90	35			0,25	4
RS4 20,0x102	20,0	20	102	40			0,25	4

Starting from shank $\varnothing 6$ mm available with Weldon shank



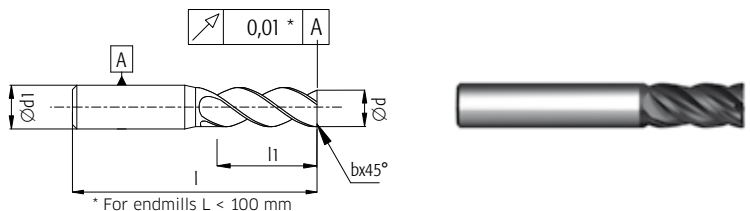
RS4 - 4 Flute Roughing 50° with chamfer



RV4 - 4 Flute Roughing 35°-38° with chamfer

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
RV4 4,0x57	4,0	6	57	11			0,25	4
RV4 5,0x57	5,0	6	57	13			0,25	4
RV4 6,0x57	6,0	6	57	13			0,25	4
RV4 8,0x63	8,0	8	63	19			0,25	4
RV4 10,0x72	10,0	10	72	22			0,25	4
RV4 12,0x83	12,0	12	83	26			0,25	4
RV4 16,0x92	16,0	16	92	32			0,25	4
RV4 20,0x104	20,0	20	104	38			0,40	4

Starting from shank $\varnothing 6$ mm available with Weldon shank



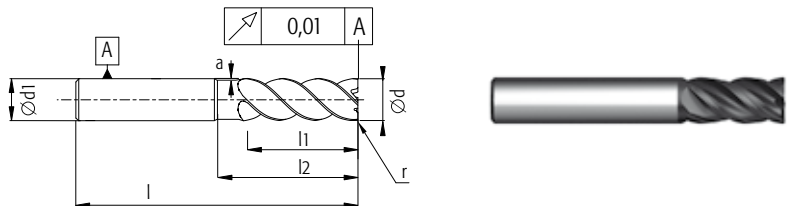
RV4 - 4 Flute Roughing 35°-38° with chamfer



RVR - 4 Flute Roughing 35°-38° with corner radius Standard

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
RVR 3,0x57 R=0,25	3,0	6	57	11		0,25		4
RVR 3,0x57 R=0,50	3,0	6	57	13		0,50		4
RVR 4,0x57 R=0,50	4,0	6	57	13		0,50		4
RVR 5,0x57 R=0,50	5,0	6	57	13		0,50		4
RVR 6,0x57 R=0,50	6,0	6	57	13		0,50		4
RVR 6,0x57 R=1,00	6,0	6	57	13		1,00		4
RVR 6,0x57 R=1,50	6,0	6	57	13		1,50		4
RVR 8,0x63 R=0,50	8,0	8	63	19		0,50		4
RVR 8,0x63 R=1,00	8,0	8	63	19		1,00		4
RVR 8,0x63 R=1,50	8,0	8	63	19		1,50		4
RVR 10,0x72 R=0,50	10,0	10	72	22		0,50		4
RVR 10,0x72 R=1,00	10,0	10	72	22		1,00		4
RVR 10,0x72 R=1,50	10,0	10	72	22		1,50		4
RVR 12,0x83 R=0,50	12,0	12	83	26		0,50		4
RVR 12,0x83 R=1,50	12,0	12	83	26		1,50		4
RVR 16,0x92 R=1,50	16,0	16	92	32		1,50		4
RVR 16,0x92 R=3,00	16,0	16	92	32		3,00		4

Starting from shank $\varnothing 6$ mm available with Weldon shank



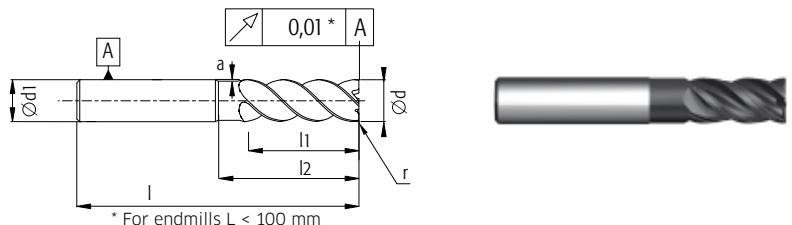
RVR - 4 Flute Roughing 35°-38° with corner radius



RVR - 4 Flute Roughing 35°-38° with corner radius With neck relief

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
RVR 3,0x57 L021 R=0,25	3,0	6	57	11	21	0,25		4
RVR 3,0x57 L021 R=0,50	3,0	6	57	13	21	0,50		4
RVR 4,0x57 L021 R=0,50	4,0	6	57	13	21	0,50		4
RVR 5,0x57 L021 R=0,50	5,0	6	57	13	21	0,50		4
RVR 6,0x57 L021 R=0,50	6,0	6	57	13	21	0,50		4
RVR 6,0x57 L021 R=1,00	6,0	6	57	13	21	1,00		4
RVR 6,0x57 L021 R=1,50	6,0	6	57	13	21	1,50		4
RVR 6,0x63 L026 R=0,50	6,0	6	63	13	26	0,50		4
RVR 8,0x63 L028 R=0,50	8,0	8	63	19	28	0,50		4
RVR 8,0x63 L028 R=1,00	8,0	8	63	19	28	1,00		4
RVR 8,0x63 L028 R=1,50	8,0	8	63	19	28	1,50		4
RVR 8,0x72 L034 R=0,50	8,0	8	72	19	34	0,50		4
RVR 10,0x72 L032 R=0,50	10,0	10	72	22	32	0,50		4
RVR 10,0x72 L032 R=1,00	10,0	10	72	22	32	1,00		4
RVR 10,0x72 L032 R=1,50	10,0	10	72	22	32	1,50		4
RVR 10,0x83 L042 R=0,50	10,0	10	83	22	42	0,50		4
RVR 12,0x83 L038 R=0,50	12,0	12	83	26	38	0,50		4
RVR 12,0x83 L038 R=1,50	12,0	12	83	26	38	1,50		4
RVR 12,0x100 L050 R=0,50	12,0	12	100	26	50	0,50		4
RVR 16,0x92 L044 R=1,50	16,0	16	92	32	44	1,50		4
RVR 16,0x92 L044 R=3,00	16,0	16	92	32	44	3,00		4
RVR 16,0x120 L066 R=1,50	16,0	16	120	32	66	1,50		4

Starting from shank Ø6 mm available with Weldon shank



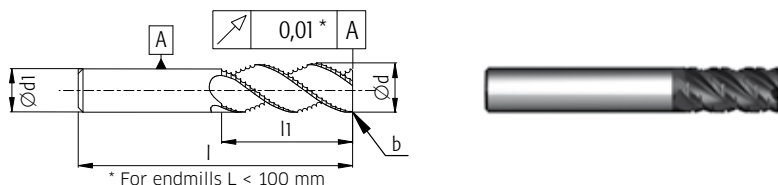
RVR - 4 Flute Roughing 35°-38° with corner radius



RSR4 - 4 Flute Semi Roughing 45° with chip breaker

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
RSR4 4,0x57	4,0	6	57	11			0,25	4
RSR4 5,0x57	5,0	6	57	13			0,25	4
RSR4 6,0x57	6,0	6	57	13			0,25	4
RSR4 8,0x63	8,0	8	63	19			0,25	4
RSR4 10,0x72	10,0	10	72	22			0,25	4
RSR4 12,0x83	12,0	12	83	26			0,25	4
RSR4 16,0x92	16,0	16	92	32			0,25	4
RSR4 20,0x104	20,0	20	104	38			0,40	4

Starting from shank $\varnothing 6$ mm available with Weldon shank



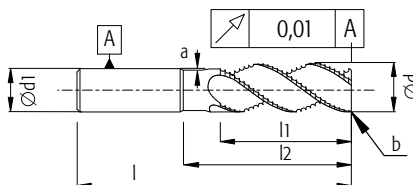
RSR4 - 4 Flute Semi Roughing 45° with chip breaker



RR - Roughing 45° with ripper profile

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
RR 4,0x57	4,0	6	57	11			0,25	3
RR 5,0x57	5,0	6	57	13			0,25	4
RR 6,0x57	6,0	6	57	13			0,25	4
RR 8,0x63	8,0	8	63	19			0,25	4
RR 10,0x72	10,0	10	72	22			0,25	4
RR 12,0x83	12,0	12	83	26			0,25	4
RR 16,0x92	16,0	16	92	32			0,25	5
RR 20,0x104	20,0	20	104	38			0,40	6
RR 6,0x57 L021	6,0	6	57	13	21		0,25	4
RR 8,0x63 L027	8,0	8	63	19	27		0,25	4
RR 10,0x72 L032	10,0	10	72	22	32		0,25	4
RR 12,0x83 L038	12,0	12	83	26	38		0,25	4
RR 16,0x92 L044	16,0	16	92	32	44		0,25	5
RR 20,0x104 L054	20,0	20	104	38	54		0,40	6

Standard with Weldon shank



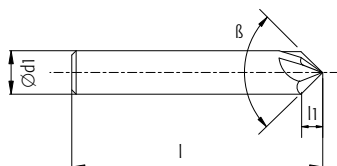
RR - Roughing 45° with ripper profile



CH - Deburring 60°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
CH3 1,0x39 60°	1,0	3	39	0,8				3
CH3 2,0x39 60°	2,0	3	39	1,7				3
CH3 3,0x39 60°	3,0	3	39	2,6				3
CH4 4,0x51 60°	4,0	4	51	3,5				4
CH4 6,0x64 60°	6,0	6	64	5,2				4
CH4 8,0x64 60°	8,0	8	64	6,9				4
CH5 8,0x64 60°	8,0	8	64	6,9				5
CH4 10,0x70 60°	10,0	10	70	8,7				4
CH6 10,0x70 60°	10,0	10	70	8,7				6
CH4 12,0x78 60°	12,0	12	78	10,4				4
CH6 12,0x78 60°	12,0	12	78	10,4				6
CH6 16,0x89 60°	16,0	16	89	13,8				6

Starting from shank $\varnothing 6$ mm available with Weldon shank



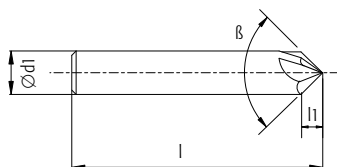
CH - Deburring 60°



CH - Deburring 90°

	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
CH3 1,0x39 90°	1,0	3	39	0,5				3
CH3 2,0x39 90°	2,0	3	39	1,0				3
CH3 3,0x39 90°	3,0	3	39	1,5				3
CH4 4,0x51 90°	4,0	4	51	2,0				4
CH4 6,0x64 90°	6,0	6	64	3,0				4
CH4 8,0x64 90°	8,0	8	64	4,0				4
CH5 8,0x64 90°	8,0	8	64	4,0				5
CH4 10,0x70 90°	10,0	10	70	5,0				4
CH6 10,0x70 90°	10,0	10	70	5,0				6
CH4 12,0x78 90°	12,0	12	78	6,0				4
CH6 12,0x78 90°	12,0	12	78	6,0				6
CH6 16,0x89 90°	16,0	16	89	8,0				6
CH6 20,0x104 90°	20,0	20	104	10,0				6

Starting from shank Ø6 mm available with Weldon shank



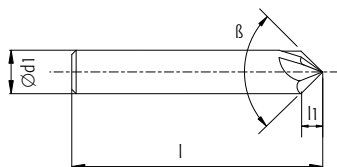
CH - Deburring 90°



CH - Deburring 120°






















	d	d1	l	l1	l2	r	b	z
	mm	mm	mm	mm	mm	mm	mm	
CH3 1,0x39 120°	1,0	3	39	0,2				3
CH3 2,0x39 120°	2,0	3	39	0,5				3
CH3 3,0x39 120°	3,0	3	39	0,8				3
CH4 4,0x51 120°	4,0	4	51	1,1				4
CH4 6,0x64 120°	6,0	6	64	1,7				4
CH4 8,0x64 120°	8,0	8	64	2,3				4
CH5 8,0x64 120°	8,0	8	64	2,3				5
CH4 10,0x70 120°	10,0	10	70	2,8				4
CH6 10,0x70 120°	10,0	10	70	2,8				6
CH4 12,0x78 120°	12,0	12	78	3,4				4
CH6 12,0x78 120°	12,0	12	78	3,4				6
CH6 16,0x89 120°	16,0	16	89	4,6				6

Starting from shank Ø6 mm available with Weldon shank



CH - Deburring 120°

Symbol Overview

Number of Flutes	2 Centre cutting	3 Centre cutting	4 Centre cutting	3-6 Centre cutting	3-6 Not centre	6-8 Not centre
						
Shank	Cylinder	Cylinder Weldon				
						
Helix angle	Angle 0°	Angle 30°	Angle 35-38°	Angle 45°	Angle 50°	
						
Diameter Tolerance	Shank	Cutting diameter				
						
End face	Ballnose	Sharp	Cornerradius	Chamfer		
						
Coating	TiAlN	Uncoated				
						



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