

RO18

UD90

SC  
UD90



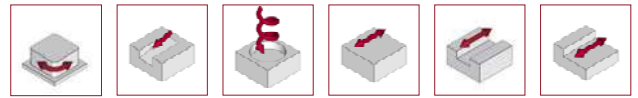
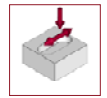
The copy milling cutters are designed for high-performance milling with high dynamics. Indexable insert milling cutters and solid carbide mills provide the necessary stability for precision and maximum Q in all machining options such as pocket milling or 90° machining.

High performance milling  
with max. Q

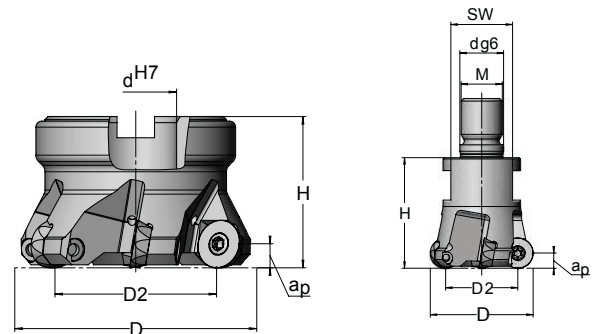
# COPY MILLING AND HIGH FEED CUTTERS | SOLID CARBIDE MILLS

# COPY MILLING CUTTERS

## RO18



The RDGX indexable insert with facets prevents twisting and defines the fixation in the tool body  
 The axial and radial cutting angle guarantees a smooth cut



RO18 Screw-in milling cutters												
Article	D	D <sub>2</sub>	d <sub>g6</sub>	H	M	SW	z <sub>eff</sub>	a <sub>p</sub>	Ramp	lc	kg	INS
18R.2028.001	20	10	10.5	28	10	15	2	5.0	–	no	0.05	RD..10T3.N*
18R.2433.001	24	12	12.5	33	12	17	2	6.0	5°	no	0.09	RD..1204.N*
18R.3243.003	32	20	17.0	43	16	24	3	6.0	4°	no	0.21	RD..1204.N
18R.3243.004	32	22	17.0	43	16	24	4	5.0	4°	yes	0.22	RD..10T3.N
18R.4043.001	40	28	17.0	43	16	24	4	6.0	3°	no	0.25	RD..1204.N
18R.4043.002	40	28	17.0	43	16	24	3	6.0	3°	no	0.23	RD..1204.N

\*Note that the screw length required varies depending on the insert used

RO18 Plug-in milling cutters											
Article	D	D <sub>2</sub>	d <sup>H7</sup>	H	z <sub>eff</sub>	a <sub>p</sub>	Ramp	lc	kg	INS	
18R.5050.001	50	38	22	50	5	6.0	3°	yes	0.30	RD..1204.N	
18R.5050.002	50	40	22	50	5	5.0	3°	yes	0.31	RD..10T3.N	
18R.5250.001	52	40	22	50	5	6.0	3°	yes	0.35	RD..1204.N	
18R.5250.002	52	42	22	50	6	5.0	3°	yes	0.35	RD..10T3.N	
18R.6350.021	63	51	27	50	6	6.0	3°	yes	0.46	RD..1204.N	
18R.6350.001	63	47	27	50	5	8.0	3°	yes	0.42	RD..1605.N	
18R.6650.001	66	50	27	50	5	8.0	4°	yes	0.51	RD..1605.N	
18R.6650.005	66	56	27	50	8	5.0	4°	yes	0.51	RD..10T3.N	
18R.8050.002	80	64	27	50	6	8.0	3°	yes	0.96	RD..1605.N	
18R.1050.002	100	84	32	50	7	8.0	3°	yes	1.49	RD..1605.N	
18R.1263.001	125	109	40	63	8	8.0	2°	yes	2.91	RD..1605.N	

# INS SHAPE RD

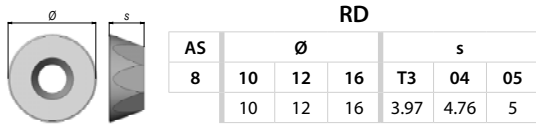
RD						
AS	Ø			s		
8	10	12	16	T3	04	05
	10	12	16	3.97	4.76	5

Matching of machining parameters  
with the AV material groups

			Recomm. $a_p$ 1/4 INS-Ø	Steel						
Article	Designation			A22	A21	A20	A19	A18	A17	A16
RD..10T3	RD.10T3.002.02 SKY77	RDGX 10T3M0 TN- 25	$f_z$	0.75	0.65	0.60	0.55	0.50	0.40	0.35
			$v_c$	280-320	240-280	210-240	180-210	140-180	110-140	80-110
RD..1204..	RD.1204.001.02 SKY77	RDGX 1204 MOTN-25	$f_z$	0.75	0.65	0.60	0.55	0.50	0.40	0.35
			$v_c$	280-320	240-280	210-240	180-210	140-180	110-140	80-110
RD..1605..	RD.1605.001.02 SKY77	RDGX 1605 MOTN-25	$f_z$	0.65	0.60	0.55	0.50	0.45	0.35	0.25
			$v_c$	280-320	240-280	210-240	180-210	140-180	110-140	80-110

			Recomm. $a_p$ 1/4 INS-Ø	Cast iron					
Article	Designation			D21	D20	D19	D18	D17	D16
RD..10T3	RD.10T3.002.02 SKY77	RDGX 10T3M0 TN- 25	$f_z$	0.50	0.45	0.40	0.40	0.35	0.25
			$v_c$	280-310	260-290	230-270	210-240	180-210	140-180
RD..1204..	RD.1204.001.02 SKY77	RDGX 1204 MOTN-25	$f_z$	0.70	0.55	0.50	0.45	0.45	0.30
			$v_c$	280-310	260-290	230-270	210-240	180-210	140-180
RD..1605..	RD.1605.001.02 SKY77	RDGX 1605 MOTN-25	$f_z$	0.50	0.45	0.40	0.40	0.35	0.25
			$v_c$	280-310	260-290	230-270	210-240	180-210	140-180



# INS SHAPE RD



Matching of machining parameters with the AV material groups

Article	Designation	Recomm. $a_p$ 1/4 INS-Ø	Stainless steels				Titanium			
			C12	C11	C10	C09	S10	S09	S08	
RD..10T3	RD.10T3.031.02 AV1055	RDKT 10T3M0 SN-28	$f_z$	0.50	0.35	0.30	0.25	0.35	0.30	0.25
			$v_c$	120-200	140-170	100-140	60-100	60-80	40-70	20-50
RD..1204..	RD.1204.031.03 AV1055	RDKT 1204M0 SN-28	$f_z$	0.50	0.40	0.35	0.25	0.45	0.35	0.25
			$v_c$	120-200	140-170	100-140	60-100	60-80	40-70	20-50
RD..1605..	RD.1605.031.02 AV1055	RDKT 1605M0 SN-28	$f_z$	0.50	0.40	0.35	0.25	0.45	0.35	0.25
			$v_c$	120-200	140-170	100-140	60-100	60-80	40-70	20-50

Adaptation of $f_z$ at different $a_p$ values													
INS	$a_p$	0.5	1	1.5	2	2.5	3	3.5	4	5	6	7	8
RD..10T3...	$f_z$	2.00	1.50	1.25	1.10	1.00	0.95	0.90	0.85	0.90	-	-	-
RD..1204...	$f_z$	2.10	1.50	1.30	1.15	1.10	1.00	0.95	0.90	0.85	0.85	-	-
RD..1605...	$f_z$	2.40	1.80	1.50	1.30	1.20	1.10	1.05	1.00	0.95	0.90	0.85	0.85

INS		
RD..10T3...	08B.0375.7991	TX208
RD..10T3...*	08B.0363.7991	TX208
RD..1204...	08B.3509.7991	TX215
RD..1204...*	08B.3578.7991	TX215
RD..1605...	08B.0513.7991	TX220

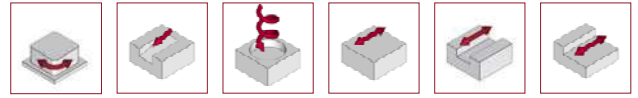
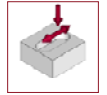
\* Note that the screw length required varies depending on the insert used

Technical information ramp and adaptation of  $f_z$  at different  $a_p$  values page 146



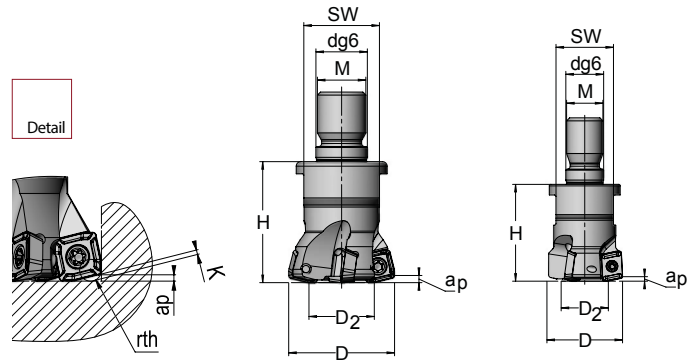
# HIGH FEED MILLING CUTTERS

## UD90



The versions with  $\varnothing$  16–50 mm are optimal for powerful milling on live tooling lathes and machining centers with rather low rigidity and drive power

DIN tool holders with standard adaptation shank and spindle connection for HSK, Capto and SK

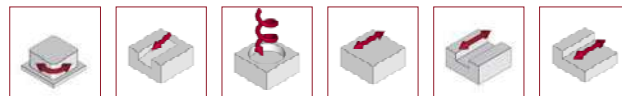


UD90 Screw-in milling cutters														INS
Article	D	D <sub>2</sub>	dg <sub>6</sub>	H	M	SW	z <sub>eff</sub>	a <sub>p</sub>	rth	K	Ramp	lc	kg	
18U.1625.130	16	6.6	8.5	25	8	12	2	1.0	1.5	0.7	3°	yes	0.05	UD..0602.R*
18U.2025.130	20	10.6	10.5	25	10	15	2	1.0	1.5	0.7	3°	yes	0.05	UD..0602.R
18U.2532.130	25	15.6	12.5	32	12	17	3	1.0	1.5	0.7	3°	yes	0.10	UD..0602.R
18U.2532.080	25	14.6	12.5	32	12	17	2	1.3	2.1	0.8	4°	yes	0.10	UD..0803.R
18U.3240.130	32	22.6	17	40	16	24	4	1.0	1.5	0.7	2.5°	yes	0.21	UD..0602.R
18U.3240.080	32	21.7	17	40	16	24	4	1.3	2.1	0.8	2.8°	yes	0.18	UD..0803.R
18U.3240.100	32	18.6	17	40	16	24	3	1.7	2.5	1.0	3.5°	yes	0.19	UD..10T3.R
18U.3540.130	35	25.6	17	40	16	24	5	1.0	1.5	0.7	2.5°	yes	0.25	UD..0602.R
18U.3540.080	35	24.7	17	40	16	24	4	1.3	2.1	0.8	2.5°	yes	0.22	UD..0803.R
18U.3540.100	35	21.6	17	40	16	24	4	1.7	2.5	1.0	2.9°	yes	0.20	UD..10T3.R
18U.3540.070	35	19.6	17	40	16	24	3	2.0	2.5	1.3	3.8°	yes	0.25	UD..1204.R
18U.4040.130	40	30.6	17	40	16	24	5	1.0	1.5	0.7	2.0°	yes	0.32	UD..0602.R
18U.4040.080	40	27.2	17	40	16	24	5	1.3	2.1	0.8	2.3°	yes	0.26	UD..0803.R
18U.4040.100	40	26.6	17	40	16	24	4	1.7	2.5	1.0	2.5°	yes	0.27	UD..10T3.R
18U.5040.070	50	34.6	17	40	16	24	5	2.0	2.5	1.3	3.0°	yes	0.36	UD..1204.R

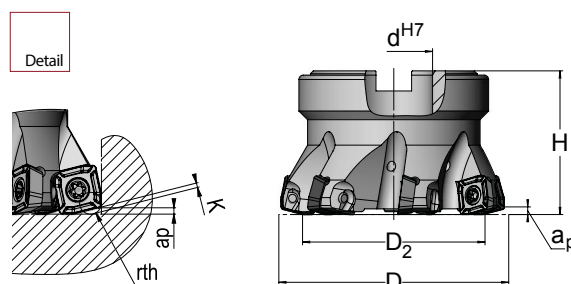
\* Note that the screw length required varies depending on the insert used

# HIGH FEED MILLING CUTTERS

## UD90



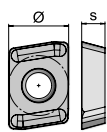
Suitable for universal use with 4-cutting edge UDGT indexable insert in particular for high alloy steels  
Smooth cutting ensures maximum metal removal rate  $Q$  even in case of extreme overhang – ideal for pocket milling



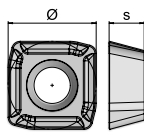
UD90 Plug-in milling cutters												
Article	D	D <sub>2</sub>	d <sup>H7</sup>	H	Z <sub>eff</sub>	a <sub>p</sub>	rth	K	Ramp	Ic	kg	INS
18U.5050.080	50	39.7	22	50	7	1.3	2.1	0.8	3.0°	Ja	0.39	UD..0803.R
18U.5050.100	50	36.6	22	50	6	1.7	2.5	1.0	2.1°	yes	0.38	UD..10T3.R
18U.5050.070	50	34.6	22	50	5	2.0	2.5	1.3	3.0°	yes	0.36	UD..1204.R
18U.5250.100	52	38.6	22	50	6	1.7	2.5	1.0	1.9°	yes	0.40	UD..10T3.R
18U.5250.070	52	36.6	22	50	5	2.0	2.5	1.3	3.0°	yes	0.42	UD..1204.R
18U.6350.100	63	49.6	22	50	7	1.7	2.5	1.0	1.6°	yes	0.65	UD..10T3.R
18U.6350.070	63	47.6	22	50	6	2.0	2.5	1.3	2.0°	yes	0.62	UD..1204.R
18U.6650.100	66	52.6	27	50	7	1.7	2.5	1.0	1.5°	yes	0.65	UD..10T3.R
18U.6650.070	66	50.6	27	50	6	2.0	2.5	1.3	1.8°	yes	0.67	UD..1204.R
18U.8050.070	80	64.6	27	50	7	2.0	2.5	1.3	1.3°	yes	1.03	UD..1204.R
18U.8050.160	80	56.2	27	50	5	3.0	3.8	3.0	1.1°	yes	0.94	UD..1606.R
18U.1050.070	100	84.6	32	50	9	2.0	2.5	1.3	1.2°	yes	1.57	UD..1204.R
18U.1050.160	100	76.2	32	50	7	3.0	3.8	3.0	1.1°	yes	1.57	UD..1606.R
18U.1263.070	125	109.6	40	63	11	2.0	2.5	1.3	0.8°	yes	3.14	UD..1204.R
18U.1263.160	125	98.6	40	63	9	3.0	3.8	3.0	1.1°	yes	3.10	UD..1606.R
18U.1663.160**	160	136.2	40	63	10	3.0	3.8	3.0	0.8°	yes	5.73	UD..1606.R

\*\* On request

# INS SHAPE UD



UD		
AS	Ø	s
2	06	02
	6.7	2.4



UD								
AS	Ø				s			
	08	10	12	16	03	T3	04	06
4	8.4	10	12.7	16.5	3.2	3.97	4.76	6.35

Matching of machining parameters with the AV material groups

				Steel						
Article		Designation		A22	A21	A20	A19	A18	A17	A16
UD.0602..	UD.0602.002.01 SKY77	UDGT 060215 SR-28	f <sub>z</sub>	1.10	1.00	0.85	0.80	0.80	-	-
			v <sub>c</sub>	280-320	240-280	210-240	180-210	140-180	-	-
	UD.0602.002.01 AV1077	UDGT 060215 SR-28	f <sub>z</sub>	-	-	-	-	0.80	0.70	0.60
			v <sub>c</sub>	-	-	-	-	170-200	140-180	90-130
UD.0803..	UD.0803.003.01 SKY77	UDGT 080321 SR-28	f <sub>z</sub>	1.30	1.15	1.00	1.00	1.00	-	-
			v <sub>c</sub>	280-320	240-280	210-240	180-210	140-180	-	-
	UD.0803.003.01 AV1077	UDGT 080321 SR-28	f <sub>z</sub>	-	-	-	-	1.00	0.80	0.60
			v <sub>c</sub>	-	-	-	-	170-200	140-180	90-130
UD.10T3..	UD.10T3.002.01 SKY77	UDGT 10T325 SR-25	f <sub>z</sub>	1.40	1.30	1.20	1.20	1.20	-	-
			v <sub>c</sub>	280-320	240-280	210-240	180-210	140-180	-	-
	UD.10T3.002.01 AV1077	UDGT 10T325 SR-25	f <sub>z</sub>	-	-	-	-	1.20	0.90	0.65
			v <sub>c</sub>	-	-	-	-	150-210	130-170	80-120
UD.1204..	UD.1204.002.01 SKY77	UDGT 120425 SR-25	f <sub>z</sub>	1.70	1.50	1.40	1.40	1.40	-	-
			v <sub>c</sub>	280-320	240-280	210-240	180-210	140-180	-	-
	UD.1204.002.01 AV1077	UDGT 120425 SR-25	f <sub>z</sub>	-	-	-	-	1.40	1.00	0.70
			v <sub>c</sub>	-	-	-	-	150-210	130-170	80-120
UD.1606..	UD.1606.002.01 SKY77	UDGT 160638 SR-25	f <sub>z</sub>	2.00	1.80	1.60	1.60	1.60	-	-
			v <sub>c</sub>	280-320	240-280	210-240	180-210	140-180	-	-
	UD.1606.002.01 AV1077	UDGT 160638 SR-25	f <sub>z</sub>	-	-	-	-	1.60	1.20	0.80
			v <sub>c</sub>	-	-	-	-	150-210	130-170	80-120

				Cast iron					
Article		Designation		D21	D20	D19	D18	D17	D16
UD.0602..	UD.0602.002.01 SKY77	UDGT 060215 SR-28	f <sub>z</sub>	1.20	1.10	0.95	0.80	0.60	0.60
			v <sub>c</sub>	290-340	260-310	240-280	210-240	180-210	140-180
UD.0803..	UD.0803.003.01 SKY77	UDGT 080321 SR-28	f <sub>z</sub>	1.40	1.20	1.00	1.00	0.80	0.70
			v <sub>c</sub>	290-340	260-310	240-280	210-240	180-210	140-180
UD.10T3..	UD.10T3.002.01 SKY77	UDGT 10T325 SR-25	f <sub>z</sub>	1.50	1.40	1.20	1.20	1.00	0.75
			v <sub>c</sub>	290-340	260-310	240-280	210-240	180-210	140-180
UD.1204..	UD.1204.002.01 SKY77	UDGT 120425 SR-25	f <sub>z</sub>	1.80	1.60	1.40	1.40	1.20	0.90
			v <sub>c</sub>	290-340	260-310	240-280	210-240	180-210	140-180
UD.1606..	UD.1606.002.01 SKY77	UDGT 160638 SR-25	f <sub>z</sub>	2.10	1.90	1.60	1.60	1.40	1.00
			v <sub>c</sub>	290-340	260-310	240-280	210-240	180-210	140-180





# INS SHAPE UD

UD			UD							
AS	Ø	s	Ø				s			
2	06	02	08	10	12	16	03	T3	04	06
	6.7	2.4	8.4	10	12.7	16.5	3.2	3.97	4.76	6.35

Matching of machining parameters  
with the AV material groups

Article	Designation		Stainless steels				Titanium			
			C12	C11	C10	C09	S10	S09	S08	
UD.0602..	UD.0602.002.01 AV1077	UDGT 060215 SR-28	f <sub>z</sub>	0.80	-	-	-	-	-	-
			v <sub>c</sub>	120-200	-	-	-	-	-	-
	UD.0602.002.01 AV1055	UDGT 060215 SR-28	f <sub>z</sub>	0.80	0.75	0.70	0.50	0.70	0.50	0.45
			v <sub>c</sub>	120-200	140-170	100-140	60-100	60-80	40-70	20-50
UD.0803..	UD.0803.003.01 AV1077	UDGT 080321 SR-28	f <sub>z</sub>	0.80	-	-	-	-	-	-
			v <sub>c</sub>	120-200	-	-	-	-	-	-
	UD.0803.003.01 AV1055	UDGT 080321 SR-28	f <sub>z</sub>	0.80	0.75	0.70	0.55	0.70	0.50	0.45
			v <sub>c</sub>	120-200	100-170	100-140	60-100	60-80	40-70	20-50
UD.10T3..	UD.10T3.002.01 AV1077	UDGT 10T325 SR-25	f <sub>z</sub>	0.90	-	-	-	-	-	-
			v <sub>c</sub>	100-150	-	-	-	-	-	-
	UD.10T3.002.02 AV1055	UDGT 10T325 SR-28	f <sub>z</sub>	0.90	0.80	0.75	0.60	0.70	0.60	0.45
			v <sub>c</sub>	100-200	100-170	100-140	60-100	60-80	40-70	20-50
UD.1204..	UD.1204.002.01 AV1077	UDGT 120425 SR-25	f <sub>z</sub>	1.00	-	-	-	-	-	-
			v <sub>c</sub>	100-150	-	-	-	-	-	-
	UD.1204.002.02 AV1055	UDGT 120425 SR-28	f <sub>z</sub>	1.00	0.85	0.75	0.60	0.70	0.60	0.45
			v <sub>c</sub>	120-200	100-170	100-140	60-100	60-80	40-70	20-50
UD.1606..	UD.1606.002.01 AV1077	UDGT 160638 SR-25	f <sub>z</sub>	1.20	-	-	-	-	-	-
			v <sub>c</sub>	100-150	-	-	-	-	-	-
	UD.1606.002.02 AV1055	UDGT 160638 SR-28	f <sub>z</sub>	1.20	0.90	0.80	0.70	0.75	0.70	0.50
			v <sub>c</sub>	120-200	100-170	100-140	60-100	60-80	40-70	20-50

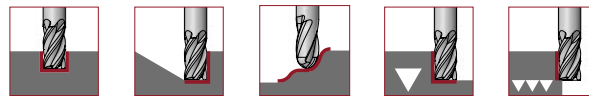
INS		
UD..0602...*	08TP.2555.500	TP711
UD..0602...	08TP.2565.501	TP711
UD..0803...	08B.0307.7991	TX208
UD..10T3...	08B.3509.7991	TX215
UD..1606...	08B.0513.7991	TX220

\* Note that the screw length required varies depending on the insert used

Theoretical corner radius page 145  
Technical information ramp page 146

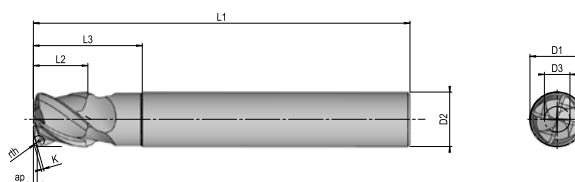
# SOLID CARBIDE MILLS

## SC UD90



**NEWT**ool

Highly dynamic high feed milling cutter  
for extreme feed rates  
Especially suitable for difficult-to-cut materials



### SC UD90

Article	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	z	r <sub>th</sub>	a <sub>p</sub>	K	lc	Shank	kg
22U.0606.001	6	6	2.0	58	6	12	4	0.9	0.40	0.22	no	HA	0.02
22U.0606.002	6	6	2.0	58	6	12	4	0.9	0.40	0.22	no	HB	0.02
22U.0808.001	8	8	3.5	64	8	16	4	1.0	0.50	0.26	no	HA	0.04
22U.0808.002	8	8	3.5	64	8	16	4	1.0	0.50	0.26	no	HB	0.04
22U.1010.001	10	10	4.8	73	10	20	4	1.1	0.60	0.33	no	HA	0.08
22U.1010.002	10	10	4.8	73	10	20	4	1.1	0.60	0.33	no	HB	0.08
22U.1212.001	12	12	5.6	84	12	24	4	1.2	0.75	0.45	no	HA	0.13
22U.1212.002	12	12	5.6	84	12	24	4	1.2	0.75	0.45	no	HB	0.13
22U.1414.001	14	14	6.5	84	14	28	4	1.4	0.90	0.56	no	HA	0.17
22U.1414.002	14	14	6.5	84	14	28	4	1.4	0.90	0.56	no	HB	0.17
22U.1616.001	16	16	7.0	93	16	32	4	1.6	1.10	0.71	no	HA	0.25
22U.1616.002	16	16	7.0	93	16	32	4	1.6	1.10	0.71	no	HB	0.25



## Shoulder milling

$$a_p \times a_e = 0.04d \times 0.65d$$

Shoulder	
D <sub>1</sub>	fz mm
6	0.250
8	0.320
10	0.350
12	0.400
14	0.480
16	0.550



Cutting data for short version		Shoulder	
Material		N/mm <sup>2</sup>	v <sub>c</sub> m/min
<b>P</b>	Gen. structural/ case hard. steels 1.0037   1.0570   1.0503   1.7131	< 800	200
	Tool/ tempering steels 1.2367   1.2379   1.7225	< 1100	180
	Alloyed/ cold work steels 1.2312   1.2767   1.3505   1.7707	< 1400	120
<b>M</b>	Stainless steels 1.4301   1.4305   1.4034	< 750	120
	Stainless steels 1.4435   1.4571	< 850	90
<b>H</b>	Hardened steel HRC 45–50	–	180
	Hardened steel HRC 51–58	–	120
	Hardened steel HRC 59–65	–	90

All cutting values are for guidance only. Feed rates in prehardened and stainless materials must be reduced by 25%.

