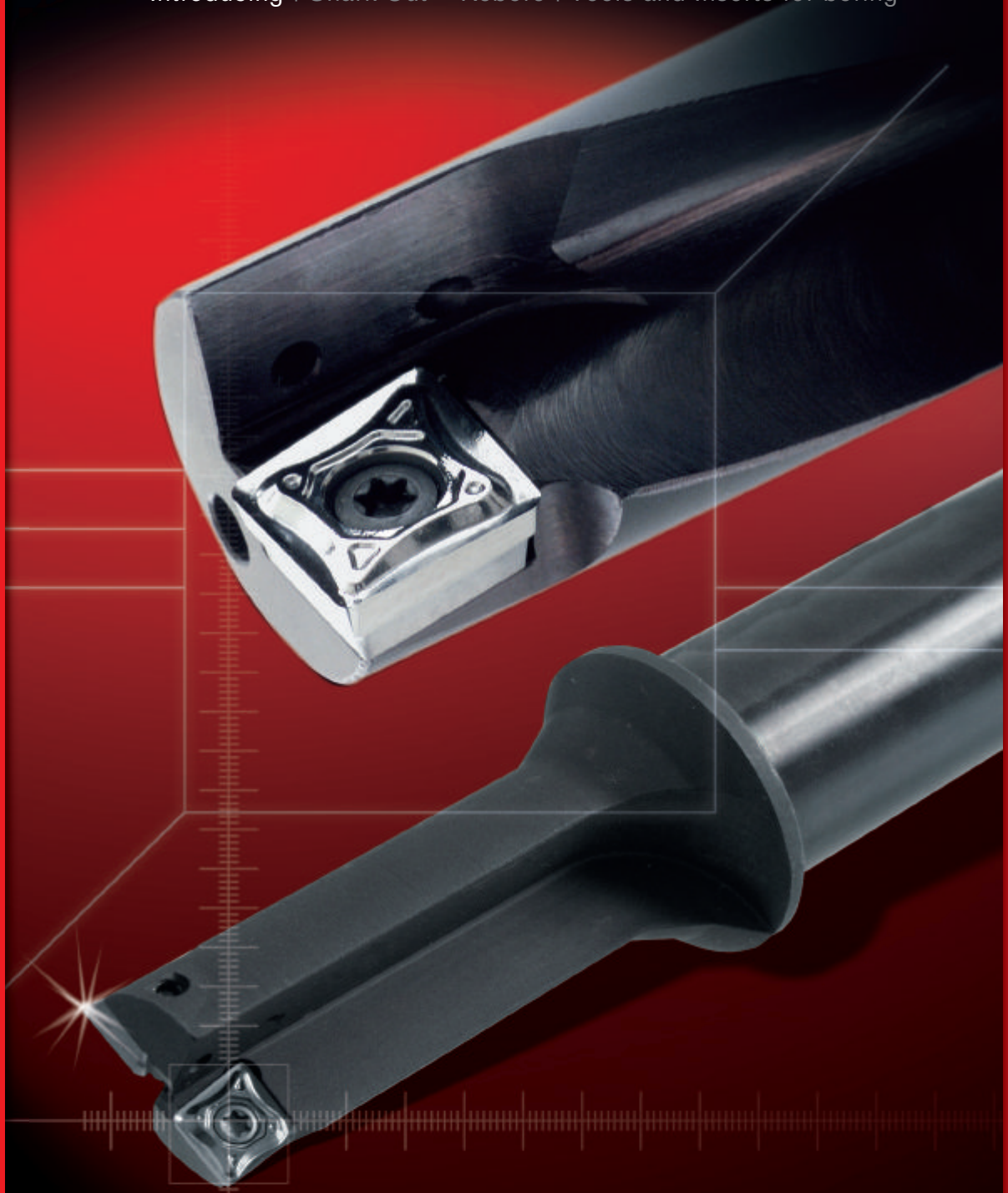


ARNO® WERKZEUGE

www.arno.de

Due to the unique positioning and insert geometry excellent hole quality is achieved also for deeper holes.

Easy handling and efficient in production

SHARK-CUT® + SHARK-CUT Rebore

Cost reduction through Performance

Especially developed performance drill and turn system.

The ARNO® SHARK-Cut® is designed to be a multi purpose tool for drilling and turning. With just one tool, complete no less than 4 applications:

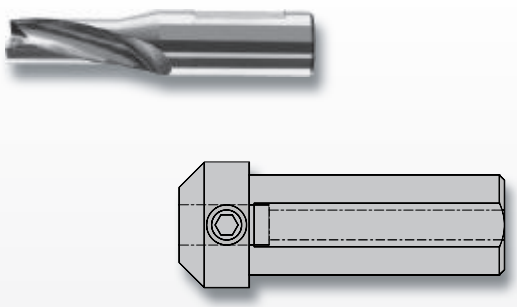
Drilling into solid | internal turning
Internal facing | external turning

- All holders are equipped with through tool coolant
- Inserts available in various grades and coatings
- Ground and precision sintered inserts available
- Wiper geometry (LPET) for better surface finish and reduced machine time

Overview >>

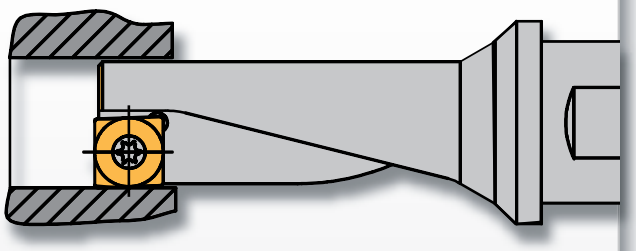
Mini-Solid carbide tool

		Page
Cutter and Holder		4



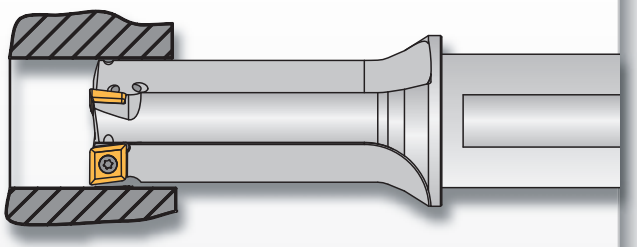
Standard Holder

		Page
1,5 x D	Ø 8 - 32 mm	5
2,25 x D	Ø 8 - 32 mm	6
3 x D Densimet	Ø 8 - 32 mm	7



Rebore Holder

		Page
2,25 x D	2 edged	9
	3 edged	10



Indexable inserts

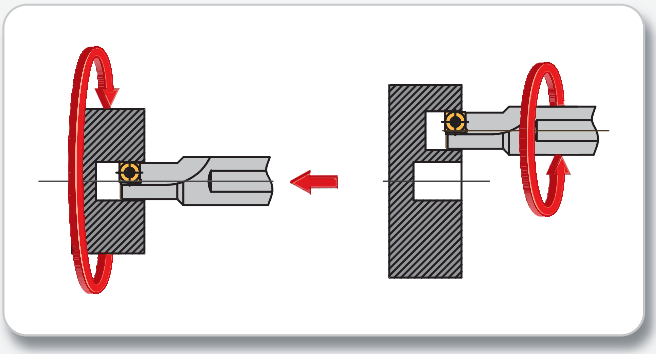
		Page
LPET	(wiper geometry)	14
LPNT		15

Cutting data and application recommendations from page 16

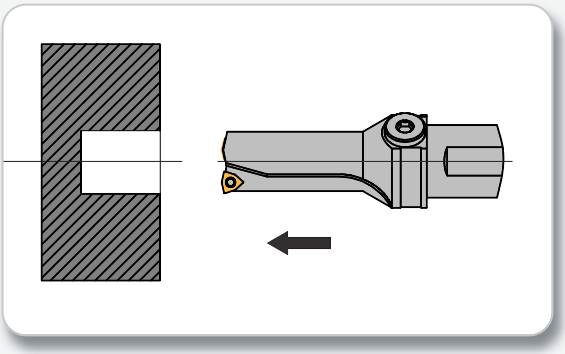
Holder >>

TURNING + DRILLING >> Four machining operations with only one tool!

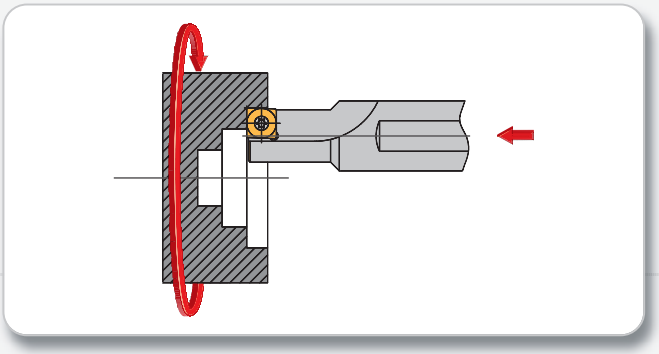
Drilling with flat bottom face



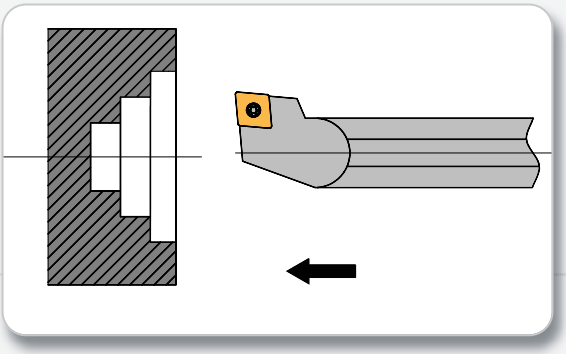
Conventional machining



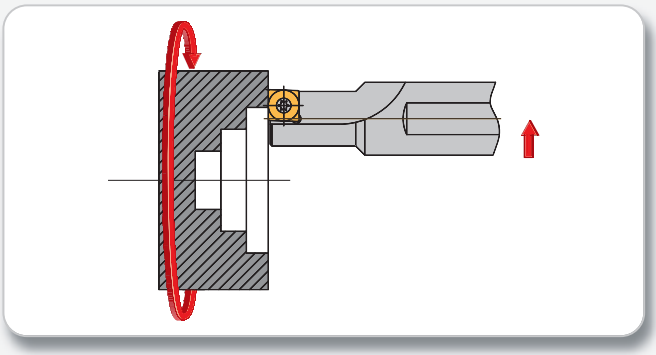
Turning of internal profiles



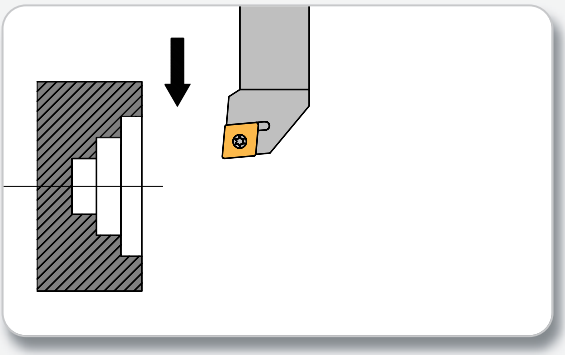
Conventional machining



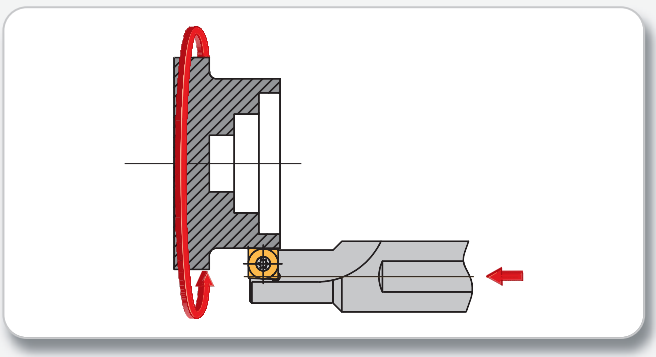
Facing operations



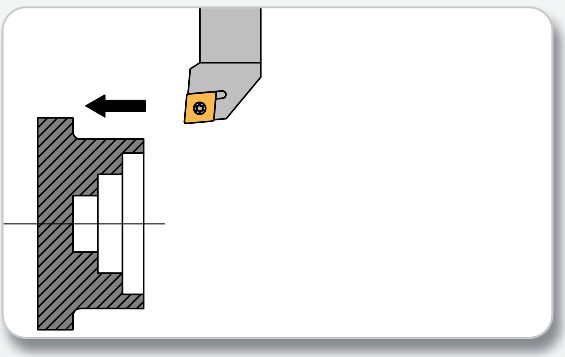
Conventional machining



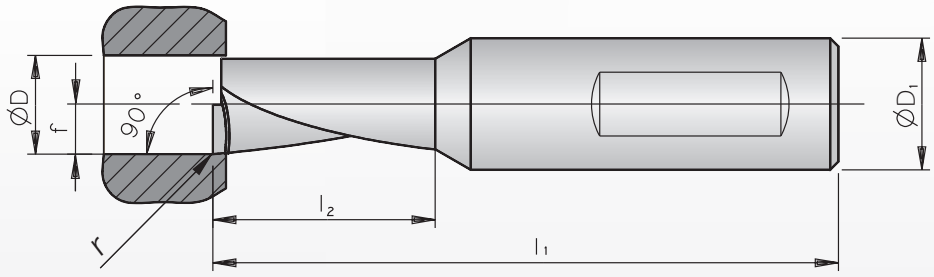
Turning of external profiles



Conventional machining



Solid carbide cutter
with internal cooling supply

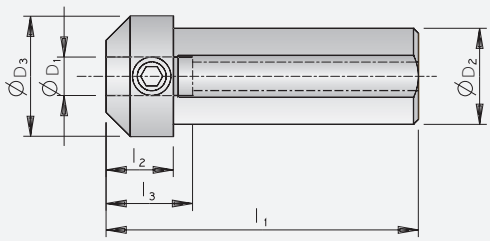


Right-hand execution shown

Holder

Designation	Ø D [mm]	Ø D1 [mm]	l1 [mm]	l2 [mm]	f [mm]	r [mm]	Grades coated AL350	coated AM35C	uncoated AK10	uncoated AP40
SC 04 R/L -009SP	4	6	35	9,00	2,0	0,2	●			
SC 04 R/L -009SP-ALU	4	6	35	9,00	2,0	0,2			●	
SC 04 R/L -016SP	4	6	41	16,00	2,0	0,2	●			
SC 04 R/L -016SP-ALU	4	6	41	16,00	2,0	0,2			●	
SC 05 R/L -011SP	5	6	37	11,25	2,5	0,2	●			
SC 05 R/L -011SP-ALU	5	6	37	11,25	2,5	0,2			●	
SC 05 R/L -020SP	5	6	45	20,00	2,5	0,2	●			
SC 05 R/L -020SP-ALU	5	6	45	20,00	2,5	0,2			●	
SC 06 R/L -013SP	6	8	38	13,50	3,0	0,2	●			
SC 06 R/L -013SP-ALU	6	8	38	13,50	3,0	0,2			●	
SC 06 R/L -024SP	6	8	49	24,00	3,0	0,2	●			
SC 06 R/L -024SP-ALU	6	8	49	24,00	3,0	0,2			●	
SC 07 R/L -015SP	7	8	42	15,75	3,5	0,2	●			
SC 07 R/L -015SP-ALU	7	8	42	15,75	3,5	0,2			●	
SC 07 R/L -028SP	7	8	53	28,00	3,5	0,2	●			
SC 07 R/L -028SP-ALU	7	8	53	28,00	3,5	0,2			●	
SC 08 R/L -018SP	8	8	45	18,00	4,0	0,2	●			
SC 08 R/L -018SP-ALU	8	8	45	18,00	4,0	0,2			●	
SC 08 R/L -032SP	8	8	57	32,00	4,0	0,2	●			
SC 08 R/L -032SP-ALU	8	8	57	32,00	4,0	0,2			●	

Holder



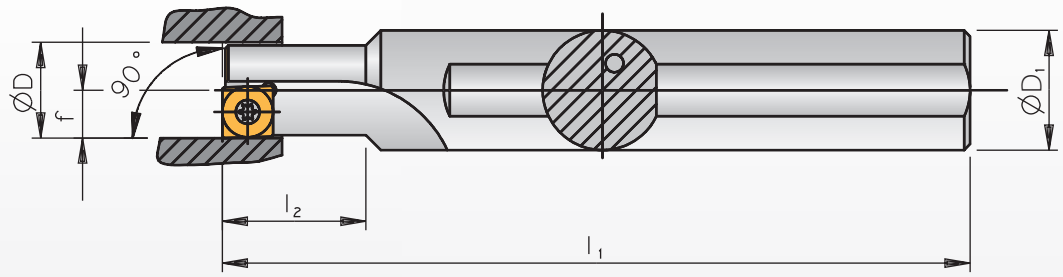
Holder

Designation	Ø D1 [mm]	Ø D2 [mm]	Ø D3 [mm]	l1 [mm]	l2 [mm]	l3 [mm]	Clamping screw
SC AD20-06	6	20	25	65	14	18	7897989
SC AD20-08	8	20	25	65	14	18	7897989

Holder

Drilling depth up to **1,5 x D**

Ø 8 - 32 mm



Right-hand execution shown

Holder

Designation	Ø D [mm]	Ø D1 [mm]	Ø D2 [mm]	l1 [mm]	l2 [mm]	f [mm]	Indexable insert
SC08R/L-0012G-04 *	8	12	-	80	12,0	4,0	LPET / LPNT 0401....
SC10R/L-0015G-05	10	12	-	90	15,0	5,0	LPET / LPNT 0502....
SC12R/L-0018G-06	12	16	-	100	18,0	6,0	LPET / LPNT 0602....
SC14R/L-0021G-07	14	16	-	110	21,0	7,0	LPET / LPNT 0703....
SC16R/L-0024G-08	16	20	-	125	24,0	8,0	LPET / LPNT 0803....
SC18R/L-0027G-09	18	25	-	135	27,0	9,0	LPET / LPNT 09T3....
SC20R/L-0030G-10	20	25	-	150	30,0	10,0	LPET / LPNT 10T3....
SC25R/L-0038G-13	25	32	-	180	37,5	12,5	LPET / LPNT 1304....
SC32R/L-0048G-17	32	40	-	200	48,0	16,0	LPET / LPNT 1705....

* Right-hand holder - Right-hand indexable insert
Left-hand holder - Left-hand indexable insert.

INFORMATION:
Holder will be supplied with clamping screws and spare screws, however without key.

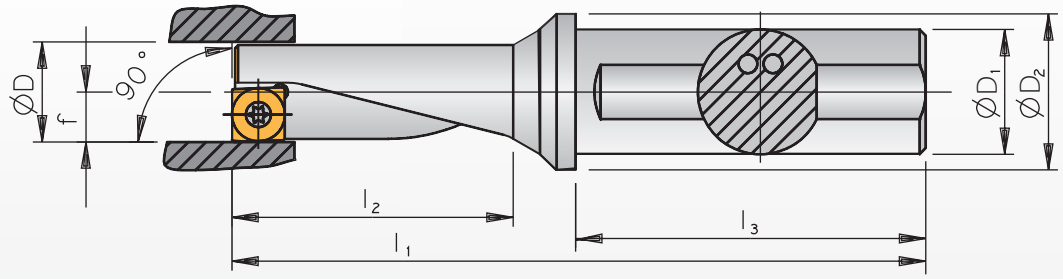
Spare parts

Holder	Screw	Key
SC08R/L-….G-04	7815108	T 5106
SC10R/L-….G-05	7815110	T 5106
SC12R/L-….G-06	SS 5151	T 5107
SC14R/L-….G-07	SS 1751	T 5108
SC16R/L-….G-08	SS 8831	T 5108
SC18R/L-….G-09	SS 8831	T 5108
SC20R/L-….G-10	SS 2314	T 5115
SC25-32R/L-….G-13-17	7822114	T 5120

Holder

Drilling depth up to **2,25 x D**

Ø 8 - 32 mm



Right-hand execution shown

Holder

Designation	Ø D [mm]	Ø D_1 [mm]	Ø D_2 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	f [mm]	Indexable insert
SC08R/L-0018SP-04 *	8	10	12	60,0	18,0	38	4,0	LPET / LPNT 0401....
SC10R/L-0023SP-05	10	12	16	69,5	22,5	42	5,0	LPET / LPNT 0502....
SC12R/L-0027SP-06	12	16	20	78,0	27,0	45	6,0	LPET / LPNT 0602....
SC14R/L-0032SP-07	14	16	20	83,5	31,5	45	7,0	LPET / LPNT 0703....
SC16R/L-0036SP-08	16	20	25	94,0	36,0	50	8,0	LPET / LPNT 0803....
SC18R/L-0041SP-09	18	25	32	109,5	40,5	56	9,0	LPET / LPNT 09T3....
SC20R/L-0045SP-10	20	25	32	111,0	45,0	56	10,0	LPET / LPNT 10T3....
SC25R/L-0057SP-13	25	32	40	129,0	56,5	60	12,5	LPET / LPNT 1304....
SC32R/L-0072SP-17	32	40	50	158,0	72,0	70	16,0	LPET / LPNT 1705....

* Right-hand holder - Right-hand indexable insert
Left-hand holder - Left-hand indexable insert.

INFORMATION:
Holder will be supplied with clamping screws and spare screws, however without key.

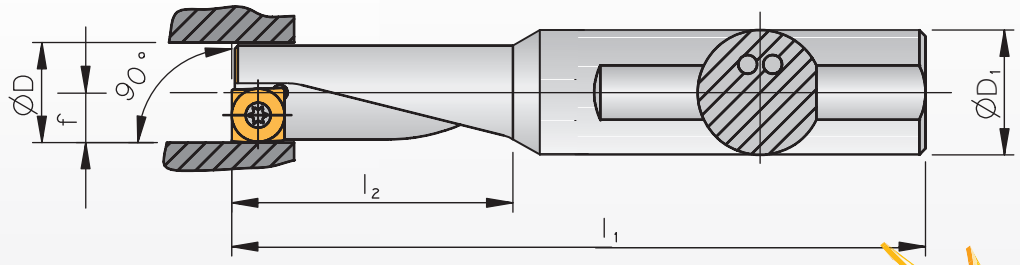
Spare parts

Holder	Screw	Key
SC08R/L-….SP-04	7815108	T 5106
SC10R/L-….SP-05	7815110	T 5106
SC12R/L-….SP-06	SS 5151	T 5107
SC14R/L-….SP-07	SS 1751	T 5108
SC16R/L-….SP-08	SS 8831	T 5108
SC18R/L-….SP-09	SS 8831	T 5108
SC20R/L-….SP-10	SS 2314	T 5115
SC25-32R/L-….SP-13-17	7822114	T 5120

Holder

Drilling depth up to **3 x D**

Ø 8 - 32 mm



Right-hand execution shown

Vibration damped

Holder

Designation	Ø D [mm]	Ø D_1 [mm]	Ø D_2 [mm]	l_1 [mm]	l_2 [mm]	f [mm]	Indexable insert
SC08R/L-0024SP-04 *	8	12	-	80,0	24,0	4,0	LPET / LPNT 0401....
SC10R/L-0030SP-05	10	12	-	85,0	30,0	5,0	LPET / LPNT 0502....
SC12R/L-0036SP-06	12	16	-	95,0	36,0	6,0	LPET / LPNT 0602....
SC14R/L-0042SP-07	14	16	-	100,0	42,0	7,0	LPET / LPNT 0703....
SC16R/L-0048SP-08	16	20	-	110,0	48,0	8,0	LPET / LPNT 0803....
SC18R/L-0054SP-09	18	25	-	125,0	54,0	9,0	LPET / LPNT 09T3....
SC20R/L-0060SP-10	20	25	-	130,0	60,0	10,0	LPET / LPNT 10T3....
SC25R/L-0075SP-13	25	32	-	150,0	75,0	12,5	LPET / LPNT 1304....
SC32R/L-0096SP-17	32	40	-	185,0	96,0	16,0	LPET / LPNT 1705....

* Right-hand holder - Right-hand indexable insert
Left-hand holder - Left-hand indexable insert.

INFORMATION:
Holder will be supplied with clamping screws and spare screws, however without key.

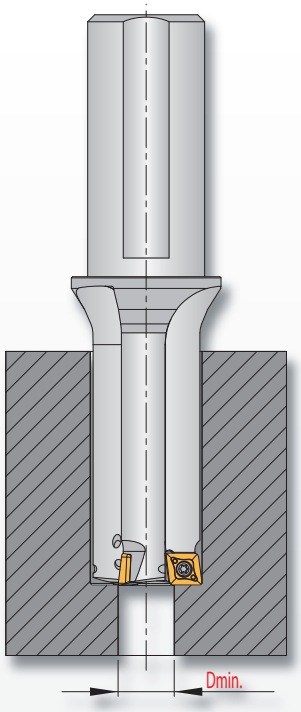
Spare parts

Holder	Screw	Key
SC08R/L-….SP-04	7815108	T 5106
SC10R/L-….SP-05	7815110	T 5106
SC12R/L-….SP-06	SS 5151	T 5107
SC14R/L-….SP-07	SS 1751	T 5108
SC16R/L-….SP-08	SS 8831	T 5108
SC18R/L-….SP-09	SS 8831	T 5108
SC20R/L-….SP-10	SS 2314	T 5115
SC25-32R/L-….SP-13-17	7822114	T 5120

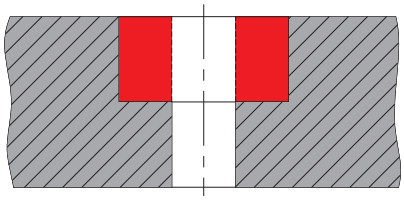
Holder

Tools for boring with 2 or 3 edges

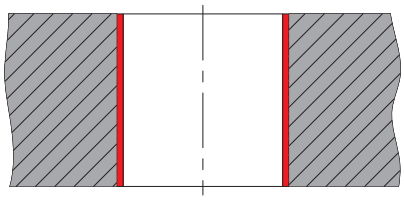
Pre-hole [Ø D_{1min}] necessary!



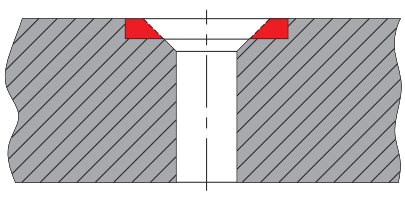
Counter boring



Boring



Spot Facing

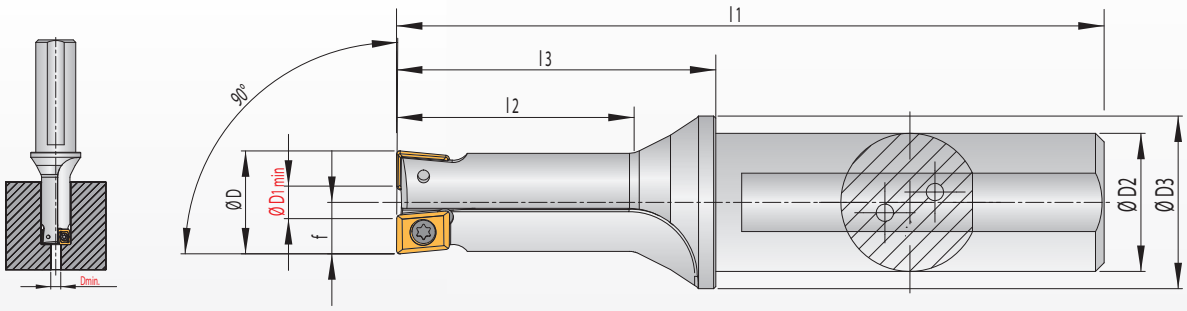


Facing and turning possible subject to conditions

Boring tool

Drilling depth up to **2,25 x D**

Ø 12 - 50 mm
2 edged



Right-hand execution shown

Holder

Designation	Ø D [mm]	Ø $D_{1\ min}$ [mm]	Ø D_2 [mm]	Ø D_3 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	f [mm]	z	Indexable insert
SCR 1204 R02-0027G04 *	12	4	16	20	82	27	37	5	2	LPET / LPNT 0401....
SCR 1305 R02-0029G04 *	13	5	16	20	84	29	39	6	2	LPET / LPNT 0401....
SCR 1406 R02-0032G04 *	14	6	16	20	86	32	41	7	2	LPET / LPNT 0401....
SCR 1507 R02-0034G04 *	15	7	16	20	88	34	43	8	2	LPET / LPNT 0401....
SCR 1606 R02-0036G05	16	6	20	25	97	36	47	7	2	LPET / LPNT 0502....
SCR 1707 R02-0038G05	17	7	20	25	99	38	49	8	2	LPET / LPNT 0502....
SCR 17575 R02-0039G05	17,5	7,5	20	25	101	39	51	8,5	2	LPET / LPNT 0502....
SCR 1806 R02-0041G06	18	6	20	25	102	41	52	7	2	LPET / LPNT 0602....
SCR 1907 R02-0043G06	19	7	20	25	104	43	54	8	2	LPET / LPNT 0602....
SCR 2006 R02-0045G07	20	6	25	32	114	45	58	7	2	LPET / LPNT 0703....
SCR 2107 R02-0047G07	21	7	25	32	116	47	60	8	2	LPET / LPNT 0703....
SCR 2208 R02-0050G07	22	8	25	32	118	50	62	9	2	LPET / LPNT 0703....
SCR 2309 R02-0052G07	23	9	25	32	120	52	64	10	2	LPET / LPNT 0703....
SCR 2408 R02-0054G08	24	8	25	32	122	54	66	9	2	LPET / LPNT 0803....
SCR 2509 R02-0056G08	25	9	32	40	130	56	70	10	2	LPET / LPNT 0803....
SCR 2608 R02-0059G09	26	8	32	40	134	59	74	9	2	LPET / LPNT 09T3....
SCR 2709 R02-0061G09	27	9	32	40	137	61	77	10	2	LPET / LPNT 09T3....
SCR 2810 R02-0063G09	28	10	32	40	140	63	80	11	2	LPET / LPNT 09T3....
SCR 2909 R02-0065G10	29	9	32	40	144	65	84	10	2	LPET / LPNT 10T3....
SCR 3010 R02-0068G10	30	10	32	40	146	68	86	11	2	LPET / LPNT 10T3....
SCR 3111 R02-0070G10	31	11	32	40	149	70	89	12	2	LPET / LPNT 10T3....
SCR 3212 R02-0072G10	32	12	32	40	151	72	91	13	2	LPET / LPNT 10T3....
SCR 3313 R02-0075G10	33	13	32	40	154	75	94	13	2	LPET / LPNT 10T3....
SCR 3414 R02-0077G10	34	14	32	40	156	77	96	15	2	LPET / LPNT 10T3....
SCR 3510 R02-0079G13	35	10	40	50	166	79	96	10	2	LPET / LPNT 1304....
SCR 3611 R02-0081G13	36	11	40	50	168	81	98	11	2	LPET / LPNT 1304....
SCR 3712 R02-0083G13	37	12	40	50	170	83	100	12	2	LPET / LPNT 1304....
SCR 3813 R02-0086G13	38	13	40	50	173	86	103	13	2	LPET / LPNT 1304....
SCR 3914 R02-0088G13	39	14	40	50	175	88	105	14	2	LPET / LPNT 1304....
SCR 4015 R02-0090G13	40	15	40	50	177	90	107	15	2	LPET / LPNT 1304....
SCR 4116 R02-0092G13	41	16	40	50	179	92	109	16	2	LPET / LPNT 1304....
SCR 4217 R02-0095G13	42	17	40	50	182	95	112	17	2	LPET / LPNT 1304....
SCR 4318 R02-0097G13	43	18	40	50	185	97	115	18	2	LPET / LPNT 1304....
SCR 4419 R02-0099G13	44	19	40	50	187	99	117	19	2	LPET / LPNT 1304....
SCR 4513 R02-0101G17	45	13	40	55	192	101	122	13	2	LPET / LPNT 1705....
SCR 4614 R02-0104G17	46	14	40	55	194	104	124	14	2	LPET / LPNT 1705....
SCR 4715 R02-0106G17	47	15	40	55	196	106	126	15	2	LPET / LPNT 1705....
SCR 4816 R02-0108G17	48	16	40	55	198	108	128	16	2	LPET / LPNT 1705....
SCR 4917 R02-0110G17	49	17	40	55	200	110	130	17	2	LPET / LPNT 1705....
SCR 5018 R02-0113G17	50	18	40	55	203	113	133	18	2	LPET / LPNT 1705....

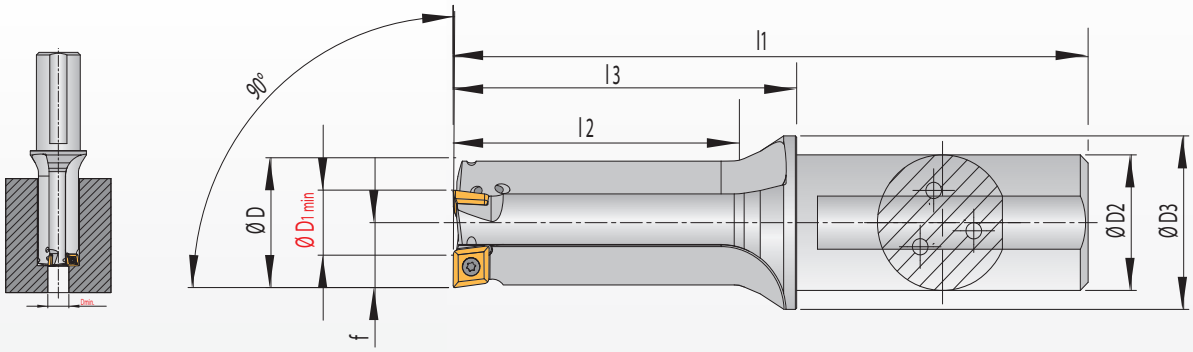
*Right-hand holder - Right-hand indexable insert
INFORMATION: Holder will be supplied with clamping screws and spare screws, however without key.

SHARK-Cut® Rebore 3 edged

Boring tool >>

Drilling depth up to 2,25 x D

Ø 24 - 50 mm
3 edged



Right-hand execution shown

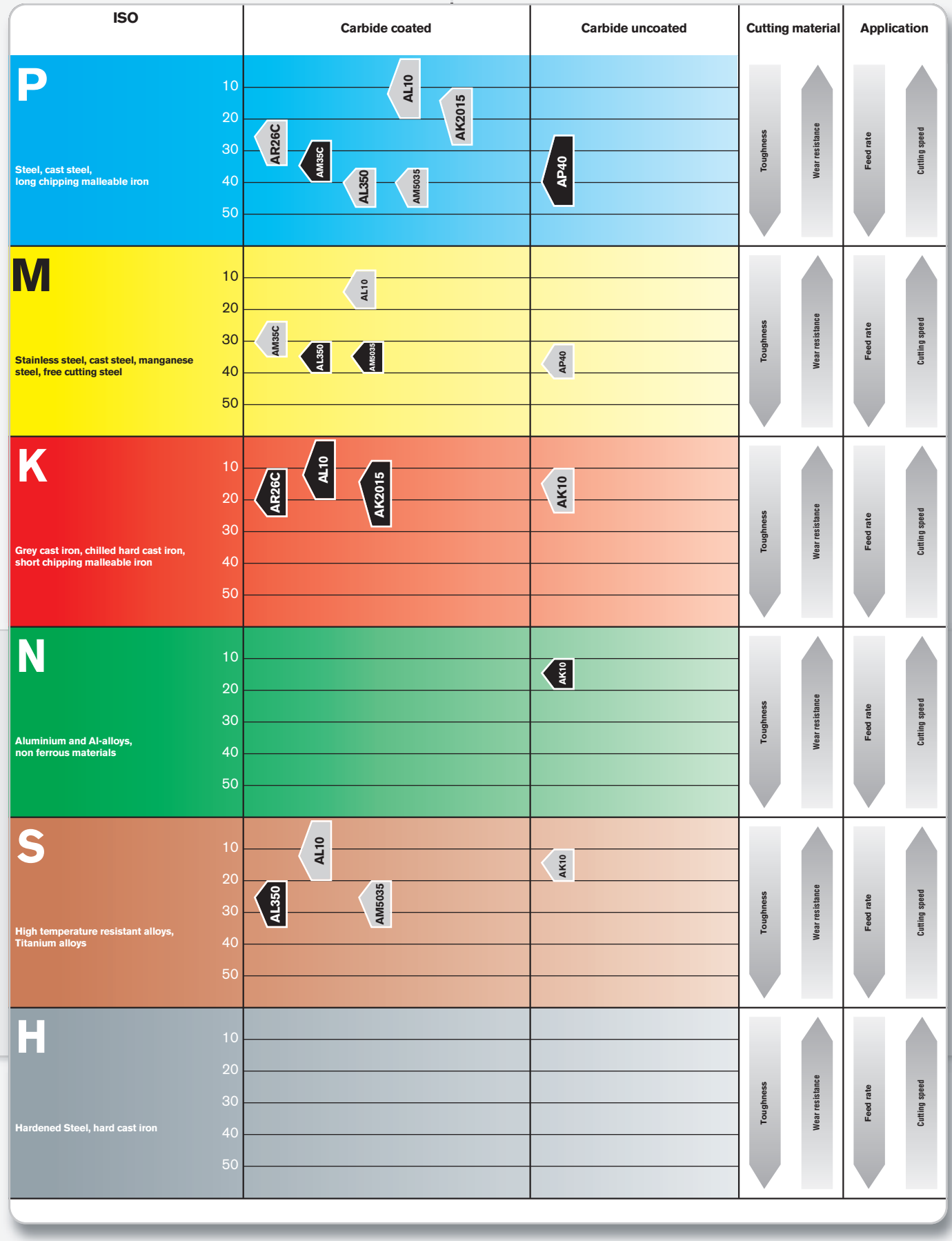
Holder

Designation	Ø D [mm]	Ø $D_{1\,min}$ [mm]	Ø D_2 [mm]	Ø D_3 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	f [mm]	z	Indexable insert
SCR 2412 R03-0054G06	24	12	25	32	122	54	66	13	3	LPET / LPNT 0602....
SCR 2513 R03-0056G06	25	13	32	40	130	56	70	14	3	LPET / LPNT 0602....
SCR 2612 R03-0059G07	26	12	32	40	134	59	74	13	3	LPET / LPNT 0703....
SCR 2713 R03-0061G07	27	13	32	40	137	61	77	14	3	LPET / LPNT 0703....
SCR 2814 R03-0063G07	28	14	32	40	140	63	80	15	3	LPET / LPNT 0703....
SCR 2913 R03-0065G08	29	13	32	40	144	65	84	14	3	LPET / LPNT 0803....
SCR 3014 R03-0068G08	30	14	32	40	146	68	86	15	3	LPET / LPNT 0803....
SCR 3115 R03-0070G08	31	15	32	40	149	70	89	16	3	LPET / LPNT 0803....
SCR 3216 R03-0072G08	32	16	32	40	151	72	91	17	3	LPET / LPNT 0803....
SCR 3317 R03-0074G08	33	17	32	40	154	74	94	18	3	LPET / LPNT 0803....
SCR 3418 R03-0077G08	34	18	32	40	156	77	96	19	3	LPET / LPNT 0803....
SCR 3517 R03-0079G09	35	17	40	50	166	79	96	18	3	LPET / LPNT 09T3....
SCR 3618 R03-0081G09	36	18	40	50	168	81	98	19	3	LPET / LPNT 09T3....
SCR 3719 R03-0083G09	37	19	40	50	170	83	100	20	3	LPET / LPNT 09T3....
SCR 3820 R03-0086G09	38	20	40	50	173	86	103	21	3	LPET / LPNT 09T3....
SCR 3921 R03-0088G09	39	21	40	50	175	88	105	22	3	LPET / LPNT 09T3....
SCR 4022 R03-0090G09	40	22	40	50	177	90	107	23	3	LPET / LPNT 09T3....
SCR 4121 R03-0092G10	41	21	40	50	179	92	109	22	3	LPET / LPNT 10T3....
SCR 4222 R03-0095G10	42	22	40	50	182	95	112	23	3	LPET / LPNT 10T3....
SCR 4323 R03-0097G10	43	23	40	50	185	97	115	24	3	LPET / LPNT 10T3....
SCR 4424 R03-0099G10	44	24	40	50	187	99	117	25	3	LPET / LPNT 10T3....
SCR 4525 R03-0101G10	45	25	40	50	190	101	120	26	3	LPET / LPNT 10T3....
SCR 4626 R03-0104G10	46	26	40	50	192	104	122	27	3	LPET / LPNT 10T3....
SCR 4727 R03-0106G10	47	27	40	50	195	106	125	28	3	LPET / LPNT 10T3....
SCR 4823 R03-0108G13	48	23	40	55	198	108	128	23	3	LPET / LPNT 1304....
SCR 4924 R03-0110G13	49	24	40	55	200	110	130	24	3	LPET / LPNT 1304....
SCR 5025 R03-0113G13	50	25	40	55	203	113	133	25	3	LPET / LPNT 1304....

INFORMATION:
Holder will be supplied with clamping screws and spare screws, however without key.

Notes >>

ISO - application area



Main application area

AM35C — Grade

Recommended application area

Secondary application area

AR26C — Grade

Recommended application area

Grade Description

Carbide coated

AM5035 HC – P40, HC – M35
(AL350) PVD-multilayer coating, substrate + TiAlN.
Grade for machining stainless steel, but can also be used for steel materials with low to medium hardness as well as for high temperature alloys. Optimum cutting edge stability. Excellent results at low to medium cutting speeds.

AK2015 HC – P15, HC – K15 – CVD
CVD-multilayer coating, substrate + TiCN + TiCN + TiCNB + Al_2O_3
The main application area for this grade is the machining of all cast materials. It is also suitable for machining steel. The new substrate offers the necessary toughness and heat resistance.

AL10 HC – P10, HC – M15, HC – K10, HC – N15, HC – S10
PVD-multilayer coating, substrate + AlTiN.
Extremly wear resistant grade for machining steel materials, cast iron and non ferrous products. Due to high hardness in coating, high wear-resistance can be achieved. Specially suitable for high cutting speeds.

AM35C HC – P35, HC – M30
CVD-multilayer coating, substrate + TiC + TiCN + TiN.
Carbide grade with high toughness for machining steel materiales at medium cutting speeds.

AR26C HC – P25, HC – K20
CVD-multilayer coating, substrate + TiN + TiCN + Al_2O_3.
Carbide grade with high wear resistance for machining cast iron and steel materiales.

Indexable inserts

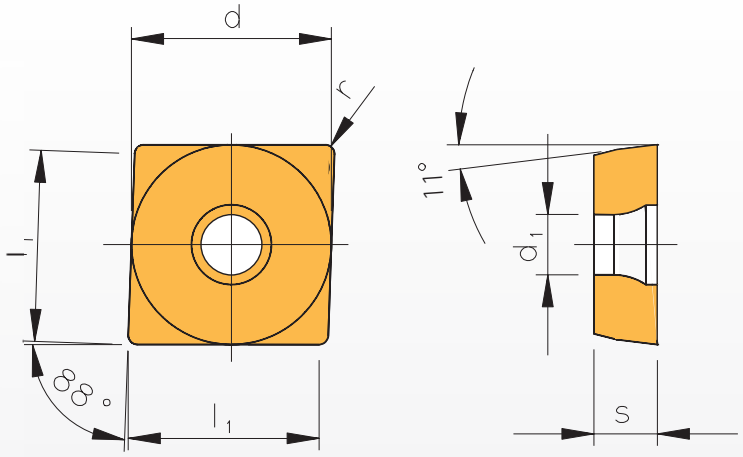
Uncoated carbide grades

AK10 HW – K10, HW – N10, HW – S10
Grade for machining aluminium, aluminium alloys, non-ferrous metals and plastics. Grade can also be used for machining cast iron and high temperature metals.Insert is peripheryground and the chipbreaker is polished.

AP40 HW – P40, HW – M35
Special carbide grade for steel materiales at cutting speeds below 80 m/min and unstable machining conditi-ons.

Indexable inserts >>

LPET...



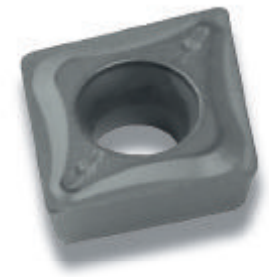
Indexable inserts

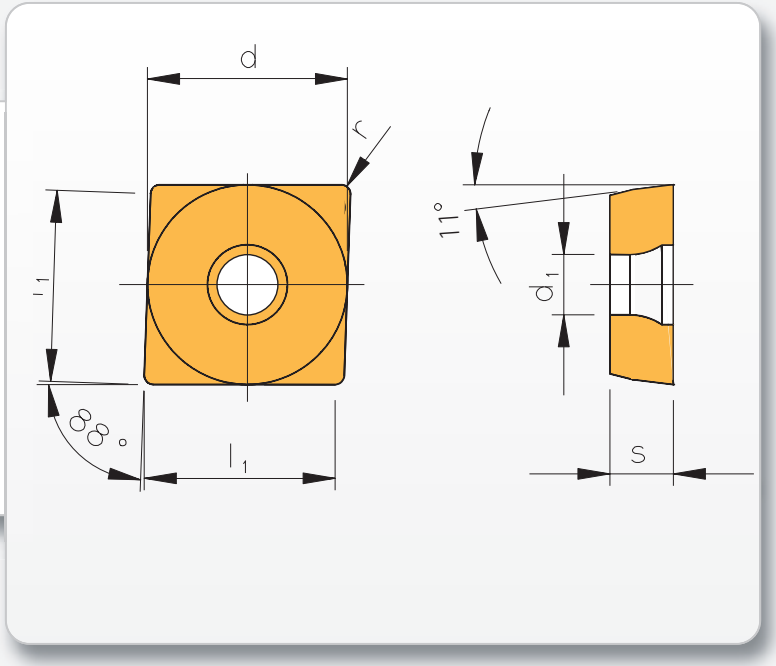
	Designation	l_1 [mm]	d ① [mm]	s [mm]	r [mm]	d_1 [mm]	Grades: coated AM5035	AK2015	AL10	AL350	AM35C	AR26C	uncoated AK10	AP40
	LPET 040102FL -AWI	4,0	4,5	1,80	0,2	2,10			●				●	
	LPET 040104FL -AWI	4,0	4,5	1,80	0,4	2,10			●				●	
	LPET 040102FR -AWI	4,0	4,5	1,80	0,2	2,10			●				●	
	LPET 040104FR -AWI	4,0	4,5	1,80	0,4	2,10			●				●	
	LPET 050202FN -AWI	4,0	5,8	2,10	0,2	2,25			●				●	
	LPET 050204FN -AWI	4,0	5,8	2,10	0,4	2,25			●				●	
	LPET 060202FN -AWI	6,0	6,5	2,38	0,2	2,50			●				●	
	LPET 060204FN -AWI	6,0	6,5	2,38	0,4	2,50			●				●	
	LPET 070304FN -AWI	7,0	7,6	3,18	0,4	2,80			●				●	
	LPET 080304FN -AWI	8,0	8,5	3,18	0,4	3,40			●				●	
	LPET 09T304FN -AWI	9,0	9,6	3,97	0,4	3,40			●				●	
	LPET 10T304FN -AWI	10,0	10,6	3,97	0,4	4,40			●				●	
	LPET 10T308FN -AWI	10,0	10,6	3,97	0,8	4,40			●				●	
	LPET 130404FN -AWI	12,5	13,5	4,76	0,4	5,30			●				●	
	LPET 130408FN -AWI	12,5	13,5	4,76	0,8	5,30			●				●	
	LPET 170508FN -AWI	16,0	17,5	5,56	0,8	5,30			●				●	
	LPET 10T304EN -WI	10,0	10,6	3,97	0,4	4,40					●	●		
	LPET 130404EN -WI	12,5	13,5	4,76	0,4	5,30					●	●		
	LPET 170508EN -WI	16,0	17,5	5,56	0,8	5,30					●	●		

① Dimension“d“ measured to heigth „s“.

Indexable inserts

LPNT...





Indexable inserts

Designation	l_1 [mm]	d ① [mm]	s [mm]	r [mm]	d_1 [mm]	Grades: coated AM5035	AK2015	AL10	AL350	AM35C	AR26C	uncoated AK10	AP40
LPNT 040102ER/EL *	4,0	4,5	1,80	0,2	2,10				●	●	●		●
LPNT 040104ER/EL *	4,0	4,5	1,80	0,4	2,10	●	●		●	●	●		●
LPNT 050202EN	5,0	5,8	2,10	0,2	2,25				●	●	●		●
LPNT 050204EN	5,0	5,8	2,10	0,4	2,25	●	●		●	●	●		●
LPNT 060202EN	6,0	6,5	2,38	0,2	2,50				●	●	●		●
LPNT 060204EN	6,0	6,5	2,38	0,4	2,50	●	●		●	●	●		●
LPNT 070304EN	7,0	7,6	3,18	0,4	2,80	●	●		●	●	●		●
LPNT 080304EN	8,0	8,5	3,18	0,4	3,40	●	●		●	●	●		●
LPNT 09T304EN	9,0	9,6	3,97	0,4	3,40	●	●		●	●	●		●
LPNT 10T304EN	10,0	10,6	3,97	0,4	4,40	●	●		●	●	●		●
LPNT 10T308EN	10,0	10,6	3,97	0,8	4,40				●	●	●		●
LPNT 130404EN	12,5	13,5	4,76	0,4	5,30	●	●		●	●	●		●
LPNT 130408EN	12,5	13,5	4,76	0,8	5,30				●	●	●		●
LPNT 170508EN	16,0	17,5	5,56	0,8	5,30	●	●		●	●	●		●

*Right-hand holder - Right-hand indexable insert
Left-hand holder - Left-hand indexable insert.

①Dimension“d“ measured to heigth „s“.

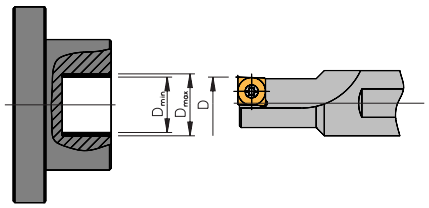
Application recommendations

Maximum drilling depth

SHARK-Cut® – Ø [mm]	max. drilling depth				
	Mini (2,25 x D) [mm]	Mini ALU (4 x D) [mm]	1,5 x D [mm]	2,25 x D [mm]	3 x D [mm]
4	9,00	16	–	–	–
5	11,25	20	–	–	–
6	13,50	24	–	–	–
7	15,75	28	–	–	–
8	18,00	32	12	18,0	24
10	–	–	15	22,0	30
12	–	–	18	27,0	36
14	–	–	21	31,5	42
16	–	–	24	36,0	48
18	–	–	27	40,5	54
20	–	–	30	45,0	60
25	–	–	38	56,0	75
32	–	–	48	72,0	96

Drilling off centre

Type of tool	Nominal tool diameter D [mm]	Drilling diameter D_{min} [mm]	Drilling diameter D_{max} [mm]
SC 04 R/L-..SP…(Mini)	4	3,90	4,2
SC 05 R/L-..SP…(Mini)	5	4,90	5,2
SC 06 R/L-..SP…(Mini)	6	5,90	6,2
SC 07 R/L-..SP…(Mini)	7	6,90	7,2
SC 08 R/L-..SP…(Mini)	8	7,90	8,2
SC 08 R/L-..04	8	7,85	8,3
SC 10 R/L-..05	10	9,85	10,5
SC 12 R/L-..06	12	11,85	12,5
SC 14 R/L-..07	14	13,85	14,5
SC 16 R/L-..08	16	15,85	16,5
SC 18 R/L-..09	18	17,85	18,5
SC 20 R/L-..10	20	19,80	20,5
SC 25 R/L-..13	25	24,80	25,8
SC 32 R/L-..17	32	31,80	33,0



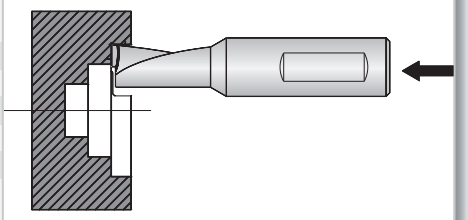
Because of the special design of the holder and indexable inserts, it is possible to drill off centre.

Recommended cutting data

Turning

SHARK-Cut® – Ø	Depth of Cut ap [mm]							
[mm]	0,5	1	1,5	2	2,5	3	3,5	4
	Feed rate f [mm/rev]							
SC04	0,1	0,1	0,08	0,05	-	-	-	-
SC05	0,1	0,1	0,09	0,06	0,04	-	-	-
SC06	0,1	0,1	0,1	0,08	0,06	0,04	-	-
SC07	0,1	0,1	0,1	0,1	0,08	0,06	0,04	-
SC08	0,1	0,1	0,1	0,1	0,1	0,08	0,06	0,04

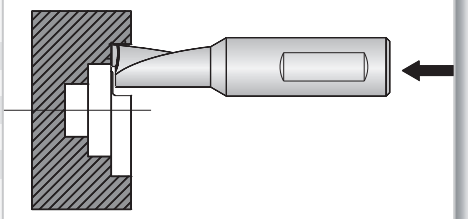
SC... R/L....SP 2,25 x D



Turning

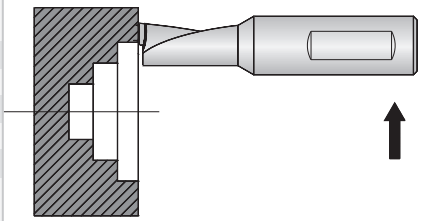
SHARK-Cut® – Ø	Depth of Cut ap [mm]					
[mm]	0,5	1	1,5	2	2,5	3
	Feed rate f [mm/rev]					
SC04	0,1	0,08	0,05	-	-	-
SC05	0,1	0,09	0,06	0,04	-	-
SC06	0,1	0,09	0,06	0,04	-	-
SC07	0,1	0,1	0,08	0,06	0,04	-
SC08	0,1	0,1	0,085	0,075	0,055	0,04

SC... R/L....SP 4 x D



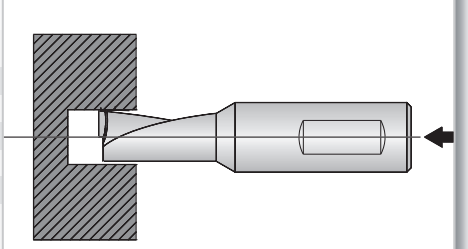
Facing

SHARK-Cut® – Ø	SC... R/L....SP (2,25 x D)		SC... R/L....SP-ALU (4 x D)	
[mm]	ap [mm]	f [mm/rev]	ap [mm]	f [mm/rev]
SC04	0,7	0,07	0,7	0,05
SC05	0,7	0,07	0,7	0,05
SC06	0,7	0,07	0,7	0,05
SC07	1,0	0,08	1,0	0,06
SC08	1,0	0,08	1,0	0,06



Drilling

SHARK-Cut® – Ø	SC... R/L....SP (2,25 x D)	SC... R/L....SP-ALU (4 x D)
[mm]	f [mm/rev]	f [mm/rev]
SC04	0,005 - 0,030	0,005 - 0,020
SC05	0,005 - 0,030	0,005 - 0,020
SC06	0,005 - 0,030	0,005 - 0,020
SC07	0,005 - 0,035	0,005 - 0,025
SC08	0,005 - 0,040	0,005 - 0,030



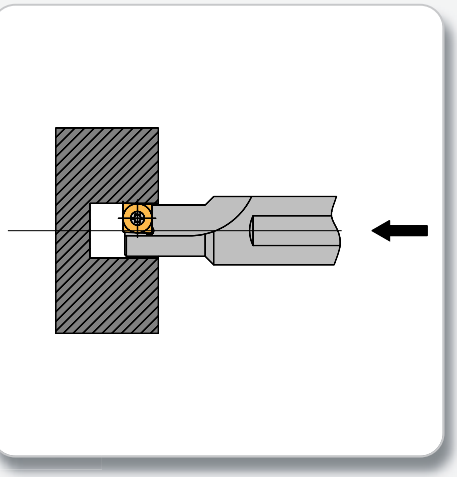
The data given are only approximate values.It can be necessary to adjust these data to the individual machining operation.

Recommended cutting data

SHARK-Cut® ➪ Depth of Cut and Feed rate

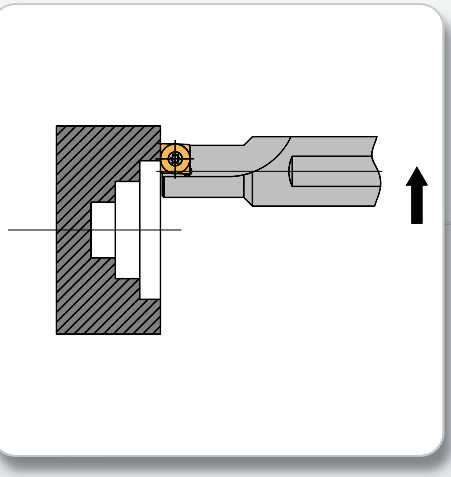
Drilling

SHARK-Cut® – Ø [mm]	1,5 - 2,25 x D f [mm/rev]	3 x D – Densimet f [mm/rev]
6	0,01 - 0,02	–
8	0,01 - 0,04	0,01 - 0,02
10	0,01 - 0,05	0,01 - 0,03
12	0,01 - 0,05	0,01 - 0,04
14	0,01 - 0,07	0,01 - 0,05
16	0,02 - 0,08	0,02 - 0,06
18	0,03 - 0,09	0,03 - 0,07
20	0,03 - 0,10	0,03 - 0,08
25	0,03 - 0,12	0,04 - 0,09
32	0,05 - 0,15	0,05 - 0,11



Facing

SHARK-Cut® – Ø [mm]	1,5 x D ap [mm]	1,5 x D f [mm/rev]	2,25 x D ap [mm]	2,25 x D f [mm/rev]	3 x D – Densimet ap [mm]	3 x D – Densimet f [mm/rev]
6	–	–	0,5	0,06	–	–
8	2,0	0,10	1,5	0,07	1,0	0,10
10	2,5	0,12	2,0	0,12	1,2	0,12
12	3,0	0,15	2,5	0,14	1,5	0,15
14	3,5	0,16	3,0	0,15	1,7	0,16
16	4,0	0,17	3,5	0,16	2,0	0,17
18	5,0	0,18	3,5	0,17	2,3	0,18
20	5,0	0,20	4,0	0,18	2,5	0,20
25	6,0	0,24	5,0	0,22	3,0	0,24
32	8,0	0,27	6,0	0,26	3,5	0,27



The data given are only approximate values.It can be necessary to adjust these data to the individual machining operation.

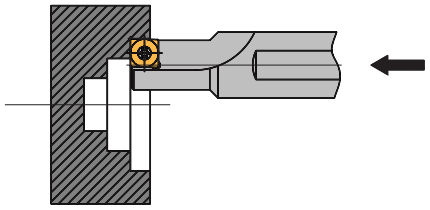
Recommended cutting data

Turning

SHARK-Cut® – Ø [mm] | **Depth of Cut ap** [mm]

	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f [mm/rev]											
8	0,12	0,11	0,10	0,07	–	–	–	–	–	–	–	–
10	0,15	0,15	0,12	0,10	0,09	–	–	–	–	–	–	–
12	0,16	0,16	0,15	0,13	0,12	0,10	–	–	–	–	–	–
14	0,18	0,18	0,18	0,15	0,13	0,11	–	–	–	–	–	–
16	0,20	0,20	0,20	0,19	0,17	0,15	0,14	0,12	–	–	–	–
18	0,21	0,21	0,21	0,21	0,19	0,17	0,16	0,14	–	–	–	–
20	0,22	0,22	0,22	0,22	0,22	0,21	0,19	0,17	0,16	0,15	–	–
25	0,26	0,26	0,26	0,26	0,26	0,26	0,25	0,23	0,22	0,20	0,16	–
32	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,28	0,27	0,25	0,17	0,18

1,5 x D

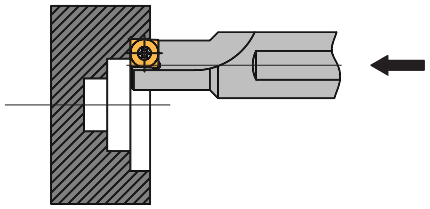


Turning

SHARK-Cut® – Ø [mm] | **Depth of Cut ap** [mm]

	1	2	2,5	3	3,5	4	5	6	7
	Feed rate f [mm/rev]								
8	0,12	0,09	0,07	–	–	–	–	–	–
10	0,15	0,12	–	0,09	–	–	–	–	–
12	0,18	0,16	–	0,12	0,10	–	–	–	–
14	0,14	0,18	–	0,14	0,11	–	–	–	–
16	0,20	0,20	–	0,16	–	0,12	–	–	–
18	0,21	0,21	–	0,18	–	0,14	–	–	–
20	0,22	0,22	–	0,21	–	0,17	0,12	–	–
25	0,28	0,28	–	0,28	–	0,23	0,20	0,17	–
32	0,30	0,30	–	0,30	–	0,28	0,25	0,20	0,18

2,25 x D

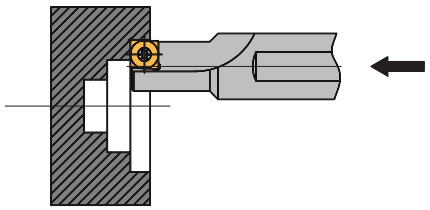


Turning

SHARK-Cut® – Ø [mm] | **Depth of Cut ap** [mm]

	1	2	2,5	3	3,5	4	5	6	7
	Feed rate f [mm/rev]								
6	–	–	–	–	–	–	–	–	–
8	0,12	0,09	0,07	–	–	–	–	–	–
10	0,13	0,11	0,09	0,07	–	–	–	–	–
12	0,15	0,13	–	0,11	0,10	–	–	–	–
14	0,16	0,16	–	0,13	0,11	–	–	–	–
16	0,18	0,18	–	0,15	–	0,12	–	–	–
18	0,20	0,20	–	0,17	–	0,14	–	–	–
20	0,22	0,22	–	0,21	–	0,16	0,14	–	–
25	0,25	0,25	–	0,25	–	0,22	0,18	0,16	–
32	0,28	0,28	–	0,28	–	0,28	0,22	0,19	0,16

3,0 x D
Densimet



3,0 x D –Densimet

Material	Modulus of elasticity [kg/mm²]	Thickness [g/cm³]
Densimet	360	17,50
Steel	210	7,85

Absolute precision, excellent surface quality and improved tool life have been achieved as a result of the high modulus of elasticity and density since these particularly reduce vibrations.

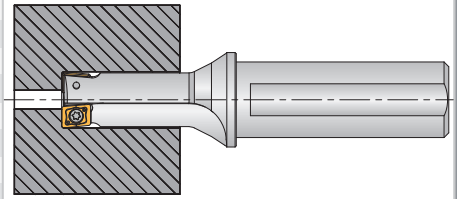
The data given are only approximate values.It can be necessary to adjust these data to the individual machining operation.

Recommended cutting data

Boring

2 edged

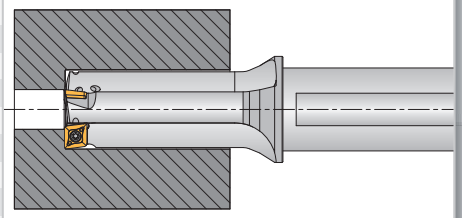
SHARK-Cut® Rebore – Ø [mm]	Depth of Cut ap [mm] 1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f [mm/rev]											
12 - 15 (LP....04)	0,25	0,22	0,20	0,16	-	-	-	-	-	-	-	-
16 - 17,5 (LP....05)	0,30	0,30	0,28	0,24	0,20	-	-	-	-	-	-	-
18 - 19 (LP....06)	0,34	0,34	0,34	0,30	0,25	0,20	-	-	-	-	-	-
20 - 23 (LP....07)	0,36	0,36	0,36	0,33	0,30	0,26	0,22	-	-	-	-	-
24 - 25 (LP....08)	0,42	0,42	0,42	0,42	0,38	0,34	0,30	0,25	-	-	-	-
26 - 28 (LP....09)	0,44	0,44	0,44	0,44	0,44	0,40	0,35	0,32	0,28	-	-	-
29 - 34 (LP....10)	0,48	0,48	0,48	0,48	0,48	0,45	0,40	0,36	0,32	0,30	-	-
35 - 44 (LP....13)	0,52	0,52	0,52	0,52	0,52	0,52	0,50	0,47	0,43	0,38	0,30	-
45 - 50 (LP....17)	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,55	0,50	0,42	0,35



Boring

3 edged

SHARK-Cut® Rebore – Ø [mm]	Depth of Cut ap [mm] 1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f [mm/rev]											
12 - 15 (LP....04)	0,37	0,33	0,30	0,24	-	-	-	-	-	-	-	-
16 - 17,5 (LP....05)	0,45	0,45	0,42	0,36	0,30	-	-	-	-	-	-	-
18 - 19 (LP....06)	0,51	0,51	0,51	0,45	0,38	0,30	-	-	-	-	-	-
20 - 23 (LP....07)	0,54	0,54	0,54	0,49	0,45	0,39	0,33	-	-	-	-	-
24 - 25 (LP....08)	0,63	0,63	0,63	0,63	0,57	0,51	0,45	0,38	-	-	-	-
26 - 28 (LP....09)	0,66	0,66	0,66	0,66	0,66	0,60	0,53	0,48	0,42	-	-	-
29 - 34 (LP....10)	0,72	0,72	0,72	0,72	0,72	0,68	0,60	0,54	0,48	0,45	-	-
35 - 44 (LP....13)	0,78	0,78	0,78	0,78	0,78	0,78	0,75	0,70	0,65	0,57	0,45	-
45 - 50 (LP....17)	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,83	0,75	0,63	0,52



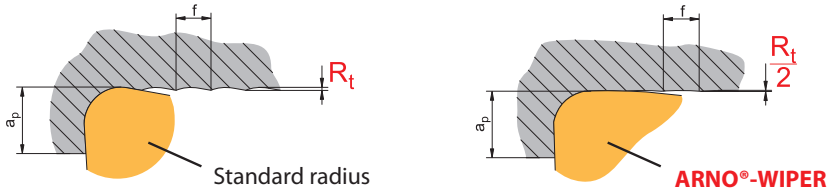
Application recommendations

WIPER geometry

Information

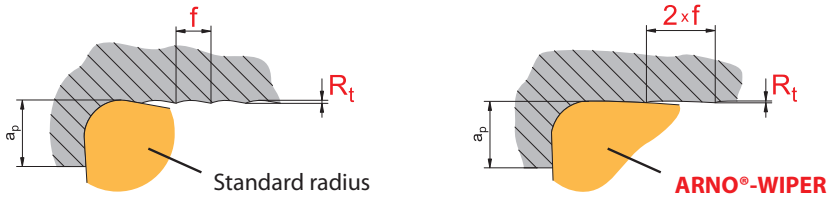
Better surface

At the same feed rate the **WIPER** insert achieves a much better R_a-value against a conventional insert.



Reduced machine time

If the required R_a-Value is achieved with a standard insert, the **WIPER** insert can be applied using up to twice the feed rate and thereby reducing machine time.



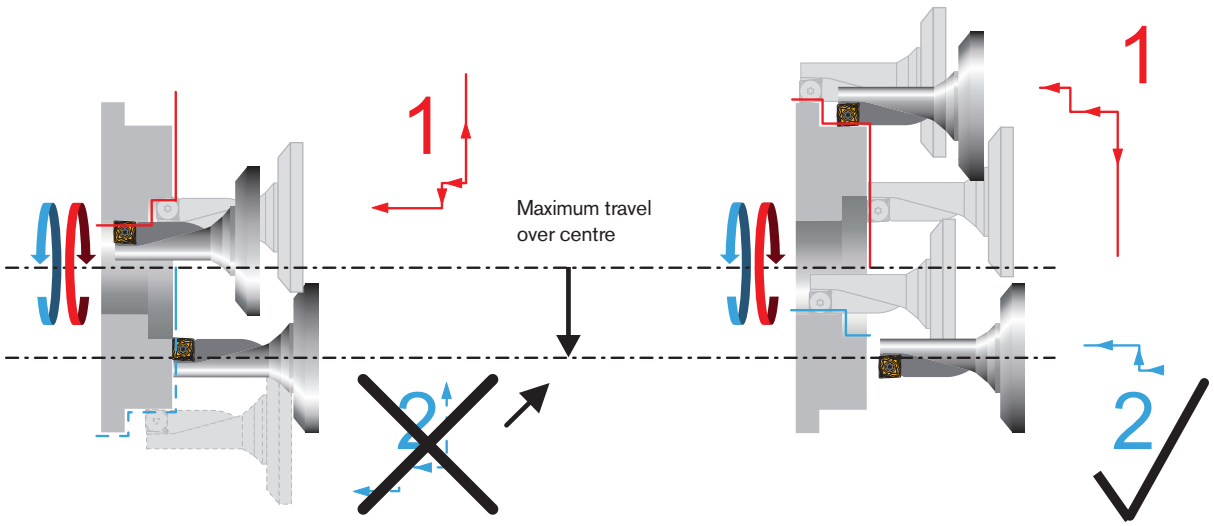
Machining over centre

Situation

At not adequate travel of the machine over the centre the outside diameter can not be machined with the same tool

Solution:

Using a right hand SHARK-Cut® tool.

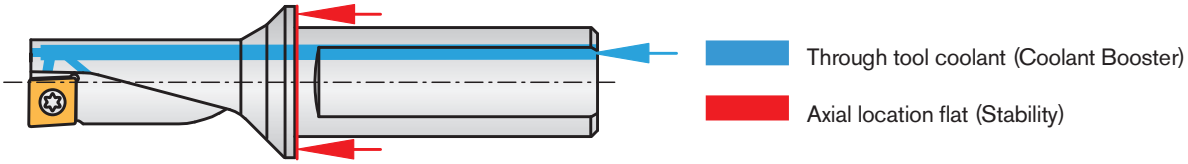


Application recommendations

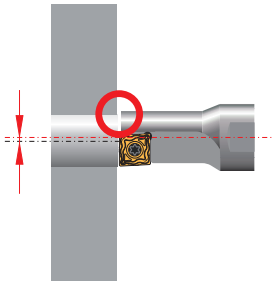
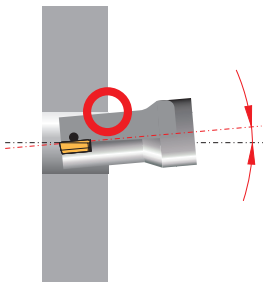
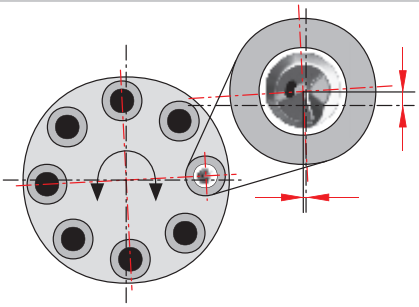
Coolant-Booster

Coolant pressure

The SHARK-Cut® tool offer a unique detail when it comes to swarf evacuation. A “return” (pointing back up the flute) coolant channel ensures optimum swarf evacuation, therefore the coolant pressure, no matter the diameter, must be 1.5 – 3 bar **(optimum 5-7 bar)**.



Displacement of the machine

Situation		Solution
Displacement in X-direction		Correct tool positioning
Angle error		Turret or spindle adjustment
Turret positioning error		Adjust turret plate (Y-axis)

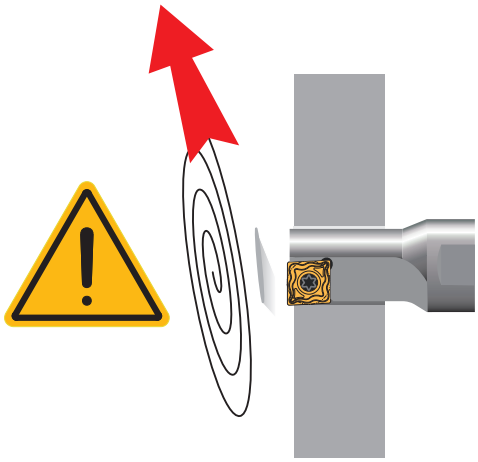
Application recommendations

Through hole drilling

Information:

When through hole drilling with stationary tool and rotating component a sharp disc is produced, please ensure adequate safety precautions.

The coolant pressure for a 1.5 x D SHARK-Cut® should be minimum 1.5-3 bar, for 2.25 x D drill depth 5-7 bar is required. If the necessary coolant pressure is not available, it could be beneficial to interrupt the cutting briefly in order to clear the hole.



Formulas

Calculation units

D	Diameter	[mm]	**n**	Spindle revolution	[rev/min]
v_c	Cutting speed	[m/min]	**Q**	Chip removal rate	[cm³/min]
f_n	Feed rate per revolution	[mm/rev]			
a_p	Depth of cut	[mm]			

Formulas

Cutting speed

$$v_c = \frac{\pi \cdot D \cdot n}{1000}$$

Revolution per minute

$$n = \frac{v_c \cdot 1000}{\pi \cdot D}$$

Chip removal rate

$$Q = v_c \cdot a_p \cdot f_n$$

Recommended cutting data

ISO	Material		Tensile strenght [mm²]	Cutting speed Vc [m/min] AM5035	AK2015	AL10	AL350	AM35C	AR26C	AK10	AP40
P	Unalloyed steel and cast steel	ca. 0,15% C	340	120-230	120-220	200-300	120-230	140-250	150-280	–	80-140
		ca. 0,45% C	640	80-160	100-160	170-280	80-160	100-180	120-200	–	70-100
		ca. 0,45% C	830	80-160	100-160	160-250	80-160	100-180	120-200	–	70-100
		ca. 0,75% C	900	60-130	80-140	150-250	60-130	80-150	100-180	–	60-100
		ca. 0,75% C	1000	50-130	80-130	150-250	50-130	70-150	100-170	–	50-100
	Low alloyed steel	annealed	600	80-160	100-160	170-270	80-160	100-180	120-200	–	60-100
	and cast steel	hardened and tempered	920	60-130	70-130	160-250	60-130	80-150	90-160	–	50-90
		annealed	1000	60-120	60-130	150-250	60-120	80-150	80-160	–	50-80
		hardened and tempered	1170	60-100	60-110	150-220	60-100	70-120	80-140	–	50-80
	High alloyed steel, high alloyed tools-	annealed	670	80-140	90-140	–	80-140	100-160	110-180	–	60-80
	teel and cast steel	hardened and tempered	1100	50-100	60-110	–	50-100	60-120	80-140	–	–
	Stainless steel and	ferritic / martensitic, annealed	670	50-200	-	160-280	50-200	100-180	–	–	–
	cast steel	martensitic, hardened and tempered	1000	50-150	-	140-280	50-150	80-150	–	–	–
M	Stainless steel and	austenitic and austenitic/ferritic,	450-600	50-190	-	140-280	50-190	100-190	–	–	50-150
	cast steel	chilled	600-900	50-100	-	–	50-100	–	–	–	40-90
K	Cast iron	pearlitic, ferritic	500-700	-	140-240	170-300	–	–	120-200	100-150	–
		pearlitic, martensitic	700-850	-	140-240	150-270	–	–	120-200	100-150	–
			800-1100	-	120-190	120-240	–	–	100-160	80-120	–
	Cast iron with nodular graphite	ferritic	550	-	130-240	140-230	–	–	110-200	100-140	–
		pearlitic	800	-	130-240	120-170	–	–	110-200	100-140	–
	Malleable cast iron	ferritic	450	-	120-240	150-200	–	–	100-200	100-160	–
		pearlitic	750	-	120-240	140-200	–	–	100-200	100-160	–
N	Aluminium alloys, long chipping	not heat treatable	200	-	-	800-1300	–	–	–	100-500	–
		heat treatable, heat - treated	350	-	-	400-900	–	–	–	100-300	–
	Casted aluminium alloys	≤ 12% Si, hardened	250	-	-	250-800	–	–	–	100-500	–
		≤ 12% Si, heat treatable, hardened	300	-	-	200-550	–	–	–	100-300	–
		≤ 12% Si, not heat treatable	450	-	-	200-550	–	–	–	100-300	–
	Copper and copper alloys	Lead alloys, Pb > 1%	400	-	-	–	–	–	–	100-500	–
	(brass / bronze)	Brass, bronze	300	-	-	–	–	–	–	100-500	–
		Aluminium bronze	500	-	-	–	–	–	–	100-300	–
		Copper and electrolyte copper	200	-	-	–	–	–	–	100-300	–
	Non ferrous materials	Duroplastics		-	-	–	–	–	–	80-180	–
		Re - inforced plastics		-	-	–	–	–	–	60-150	–
		Hard rubber		-	-	–	–	–	–	100-250	–
S	High temperature resistant alloys	Fe-alloyed annealed	700	20-50	-	20-50	20-50	–	–	–	–
		heat - treated	950	20-40	-	20-50	20-40	–	–	–	–
		Ni- or annealed	800	15-25	-	15-40	15-25	–	–	–	–
		Co based casting	1100	10-20	-	15-30	10-20	–	–	–	–
		heat - treated	1200	10-20	-	15-30	10-20	–	–	–	–
	Titanium alloys, high strength	Pure titan	500-700	50-120	-	–	50-120	–	–	50-120	–
	Alpha- and Beta- alloys, hardened		700-1000	30-50	-	–	30-50	–	–	30-50	–
H	Hardened steel	hardened and tempered	1000-1350	-	-	–	–	–	–	–	–
		hardened and tempered	1350-1700	-	-	–	–	–	–	–	–
	Hard cast iron	casting	1350	-	-	–	–	–	–	–	–
	Hardened cast iron	hardened and tempered	1900	-	-	–	–	–	–	–	–

The data given are only approximate values.It can be necessary to adjust these data to the individual machining operation.

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