ARNO®

WERKZEUGE

We have a passion for precision.

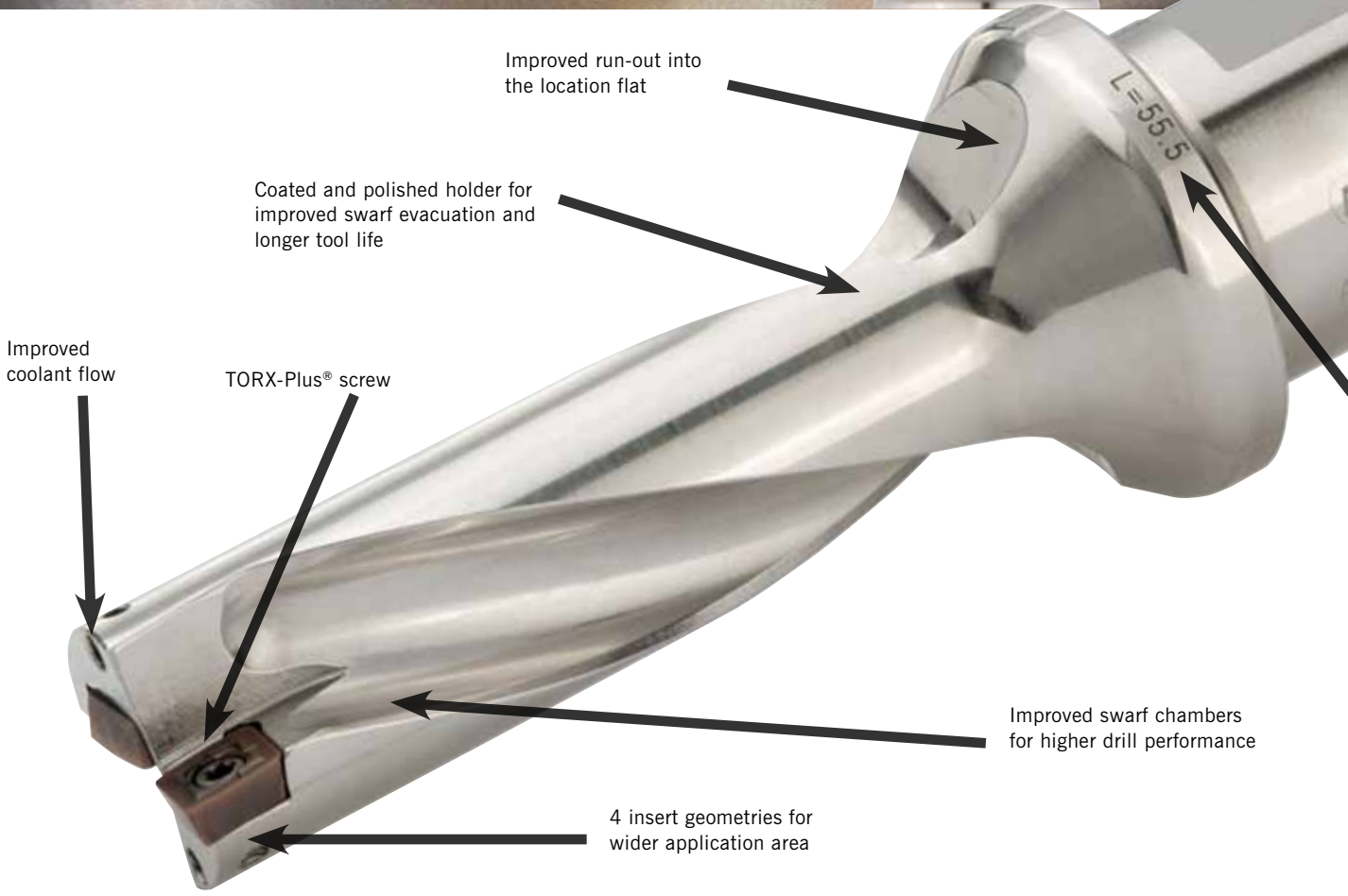
ARNO® AKB

Short-hole drill for performance drilling

www.arno.de

ARNO® AKB

Easy handling and economical in use.



System introduction

With the ARNO® AKB drilling system we offer you even more options for performance drilling

- For high performance drilling in steel and cast materials
- With through tool coolant
- Right hand cutting
- Available in drill depth 2 x D and 3 x D
- Diameter range 14 mm – 45 mm
- 14 – 30 mm available with 0.5 mm increments
- 31 – 45 mm available with 1.0 mm increments
- Torx-Plus screws for better locking
- Inside and outside insert the same
- Product extension with other drill depths planned for quarter 1 / 2013

Advantages

- 4 edges per insert
- Inserts available in 4 geometries and 4 grades
- Strong cutting edges and edge radii
- Generates low axial cutting forces
- Centre cutting
- Nickel plated and polished surface for better swarf evacuation
- No drill retraction marks
- Strong insert seats
- Suitable for use on machining centres and lathes
- High process security due to very strong inserts
- High productivity due to high feed rate potential
- Also suitable for cross hole drilling
- Ideal for drilling out chambers

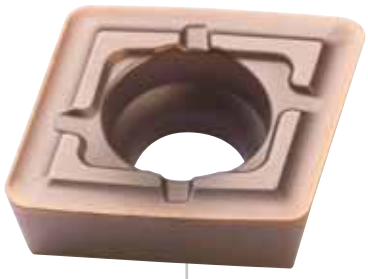
ARNO® AKB

Drill body

Designation code – Drill body

AKB	2	–	1400	R20	-04
AKB = ARNO Short-hole drill	Drill depth 2 x D		14.00mm diameter	R = right hand cutting 20 = cylindrical shank dimension	Insert reference size

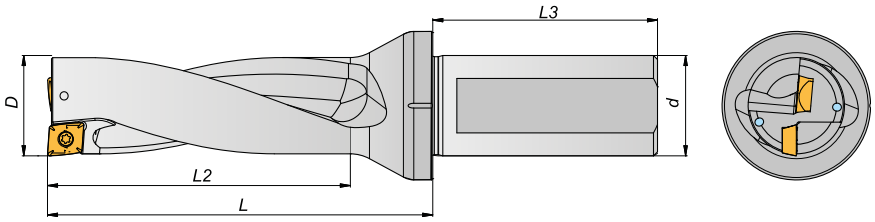
Designation code – Inserts



XDMT	050204EN	BM	AK1010
ISO insert shape	Insert size 05 = edge length 02 = thickness 04 = edge radius EN = edge preparation	Geometry BS = fine machining BM = medium machining BR = rough machining BAL = none ferrous maching	Grade

All dimensions in mm.

Drill body



Drill body 2 × D*

Designation	D	L	L2	L3	d	PG 34	Insert
AKB2-1400R20-04	14.0	46	28	44	20	●	XDMT 04...
AKB2-1450R20-04	14.5	47	29	44	20	●	XDMT 04...
AKB2-1500R20-04	15.0	48	30	44	20	●	XDMT 04...
AKB2-1550R20-05	15.5	49	31	44	20	●	XDMT 05...
AKB2-1600R20-05	16.0	50	32	44	20	●	XDMT 05...
AKB2-1650R20-05	16.5	51	33	44	20	●	XDMT 05...
AKB2-1700R20-05	17.0	52	34	44	20	●	XDMT 05...
AKB2-1750R25-05	17.5	53	35	56	25	●	XDMT 05...
AKB2-1800R25-05	18.0	54	36	56	25	●	XDMT 05...
AKB2-1850R25-06	18.5	55	37	56	25	●	XDMT 06...
AKB2-1900R25-06	19.0	56	38	56	25	●	XDMT 06...
AKB2-1950R25-06	19.5	57	39	56	25	●	XDMT 06...
AKB2-2000R25-06	20.0	58	40	56	25	●	XDMT 06...
AKB2-2050R25-06	20.5	59	41	56	25	●	XDMT 06...
AKB2-2100R25-06	21.0	60	42	56	25	●	XDMT 06...
AKB2-2150R25-06	21.5	61	43	56	25	●	XDMT 06...
AKB2-2200R25-06	22.0	62	44	56	25	●	XDMT 06...
AKB2-2250R25-06	22.5	63	45	56	25	●	XDMT 06...
AKB2-2300R25-07	23.0	67	46	56	25	●	XDMT 07...
AKB2-2350R25-07	23.5	68	47	56	25	●	XDMT 07...
AKB2-2400R25-07	24.0	69	48	56	25	●	XDMT 07...
AKB2-2450R25-07	24.5	70	49	56	25	●	XDMT 07...
AKB2-2500R25-07	25.0	71	50	56	25	●	XDMT 07...
AKB2-2550R32-07	25.5	74	51	60	32	●	XDMT 07...
AKB2-2600R32-07	26.0	75	52	60	32	●	XDMT 07...
AKB2-2650R32-07	26.5	76	53	60	32	●	XDMT 07...
AKB2-2700R32-07	27.0	77	54	60	32	●	XDMT 07...
AKB2-2750R32-07	27.5	78	55	60	32	●	XDMT 07...
AKB2-2800R32-07	28.0	79	56	60	32	●	XDMT 07...
AKB2-2850R32-07	28.5	80	57	60	32	●	XDMT 07...
AKB2-2900R32-09	29.0	83	58	60	32	●	XDMT 09...
AKB2-2950R32-09	29.5	84	59	60	32	●	XDMT 09...
AKB2-3000R40-09	30.0	88	60	70	40	●	XDMT 09...
AKB2-3100R40-09	31.0	90	62	70	40	●	XDMT 09...

INFORMATION:
Please note cutting recommendations on page 15.

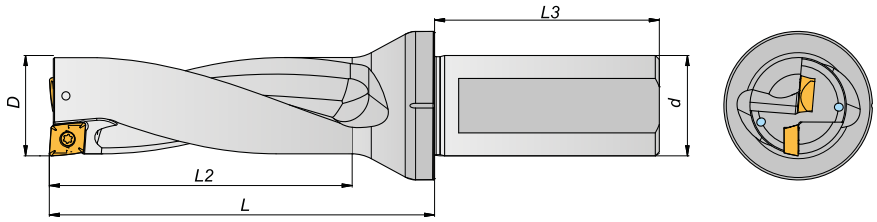
More holders
on next page.

*Available by Q2/2013

All dimensions in mm.

ARNO® AKB

Drill body



Drill body 2 × D*

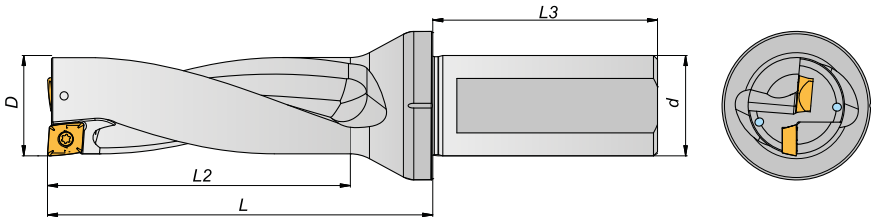
Designation	D	L	L2	L3	d	PG 34	Insert
AKB2-3200R40-09	32.0	92	64	70	40	●	XDMT 09...
AKB2-3300R40-09	33.0	94	66	70	40	●	XDMT 09...
AKB2-3400R40-09	34.0	96	68	70	40	●	XDMT 09...
AKB2-3500R40-09	35.0	98	70	70	40	●	XDMT 09...
AKB2-3600R40-09	36.0	100	72	70	40	●	XDMT 09...
AKB2-3700R40-12	37.0	109	74	70	40	●	XDMT 12...
AKB2-3800R40-12	38.0	111	76	70	40	●	XDMT 12...
AKB2-3900R40-12	39.0	113	78	70	40	●	XDMT 12...
AKB2-4000R40-12	40.0	115	80	70	40	●	XDMT 12...
AKB2-4100R40-12	41.0	117	82	70	40	●	XDMT 12...
AKB2-4200R40-12	42.0	119	84	70	40	●	XDMT 12...
AKB2-4300R40-12	43.0	121	86	70	40	●	XDMT 12...
AKB2-4400R40-12	44.0	123	88	70	40	●	XDMT 12...
AKB2-4500R40-12	45.0	125	90	70	40	●	XDMT 12...

INFORMATION:
Please note cutting recommendations on page 15.

*Available by Q2/2013

All dimensions in mm.

Drill body



Drill body 3 × D*

Designation	D	L	L2	L3	d	PG 34	Insert
AKB3-1400R20-04	14.0	60	42	44	20	●	XDMT 04...
AKB3-1450R20-04	14.5	61.5	43.5	44	20	●	XDMT 04...
AKB3-1500R20-04	15.0	63	45	44	20	●	XDMT 04...
AKB3-1550R20-05	15.5	64.5	46.5	44	20	●	XDMT 05...
AKB3-1600R20-05	16.0	66	48	44	20	●	XDMT 05...
AKB3-1650R20-05	16.5	67.5	49.5	44	20	●	XDMT 05...
AKB3-1700R20-05	17.0	69	51	44	20	●	XDMT 05...
AKB3-1750R25-05	17.5	70.5	52.5	56	25	●	XDMT 05...
AKB3-1800R25-05	18.0	72	54	56	25	●	XDMT 05...
AKB3-1850R25-06	18.5	73.5	55.5	56	25	●	XDMT 06...
AKB3-1900R25-06	19.0	75	57	56	25	●	XDMT 06...
AKB3-1950R25-06	19.5	76.5	58.5	56	25	●	XDMT 06...
AKB3-2000R25-06	20.0	78	60	56	25	●	XDMT 06...
AKB3-2050R25-06	20.5	79.5	61.5	56	25	●	XDMT 06...
AKB3-2100R25-06	21.0	81	63	56	25	●	XDMT 06...
AKB3-2150R25-06	21.5	82.5	64.5	56	25	●	XDMT 06...
AKB3-2200R25-06	22.0	84	66	56	25	●	XDMT 06...
AKB3-2250R25-06	22.5	85.5	67.5	56	25	●	XDMT 06...
AKB3-2300R25-07	23.0	90	69	56	25	●	XDMT 07...
AKB3-2350R25-07	23.5	91.5	70.5	56	25	●	XDMT 07...
AKB3-2400R25-07	24.0	93	72	56	25	●	XDMT 07...
AKB3-2450R25-07	24.5	94.5	73.5	56	25	●	XDMT 07...
AKB3-2500R25-07	25.0	96	75	56	25	●	XDMT 07...
AKB3-2550R32-07	25.5	99.5	76.5	60	32	●	XDMT 07...
AKB3-2600R32-07	26.0	101	78	60	32	●	XDMT 07...
AKB3-2650R32-07	26.5	102.5	79.5	60	32	●	XDMT 07...
AKB3-2700R32-07	27.0	104	81	60	32	●	XDMT 07...
AKB3-2750R32-07	27.5	105.5	82.5	60	32	●	XDMT 07...
AKB3-2800R32-07	28.0	107	84	60	32	●	XDMT 07...
AKB3-2850R32-07	28.5	108.5	85.5	60	32	●	XDMT 07...
AKB3-2900R32-09	29.0	112	87	60	32	●	XDMT 09...
AKB3-2950R32-09	29.5	113.5	88.5	60	32	●	XDMT 09...
AKB3-3000R40-09	30.0	118	90	70	40	●	XDMT 09...
AKB3-3100R40-09	31.0	121	93	70	40	●	XDMT 09...

INFORMATION:
Please note cutting recommendations on page 15.

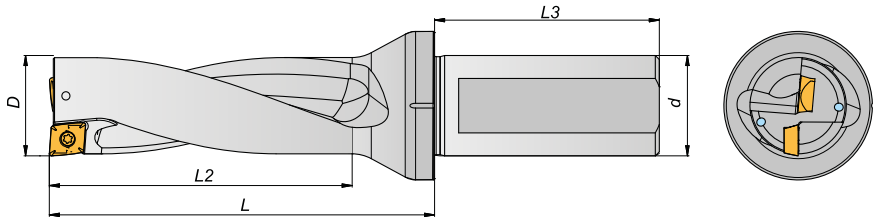
More holders on next page.

*Available from January 2013

All dimensions in mm.

ARNO® AKB

Drill body



Drill body 3 × D*

Designation	D	L	L2	L3	d	PG 34	Insert
AKB3-3200R40-09	32.0	124	96	70	40	●	XDMT 09...
AKB3-3300R40-09	33.0	127	99	70	40	●	XDMT 09...
AKB3-3400R40-09	34.0	130	102	70	40	●	XDMT 09...
AKB3-3500R40-09	35.0	133	105	70	40	●	XDMT 09...
AKB3-3600R40-09	36.0	136	108	70	40	●	XDMT 09...
AKB3-3700R40-12	37.0	146	111	70	40	●	XDMT 12...
AKB3-3800R40-12	38.0	149	114	70	40	●	XDMT 12...
AKB3-3900R40-12	39.0	152	117	70	40	●	XDMT 12...
AKB3-4000R40-12	40.0	155	120	70	40	●	XDMT 12...
AKB3-4100R40-12	41.0	158	123	70	40	●	XDMT 12...
AKB3-4200R40-12	42.0	161	126	70	40	●	XDMT 12...
AKB3-4300R40-12	43.0	164	129	70	40	●	XDMT 12...
AKB3-4400R40-12	44.0	167	132	70	40	●	XDMT 12...
AKB3-4500R40-12	45.0	170	135	70	40	●	XDMT 12...

INFORMATION:
Please note cutting recommendations on page 15.

*Available from January 2013

Spare parts

Screw	Key	Torque max.	Insert
SS4104	**T5106-IP**	**0.6 Nm**	**XDMT 04...**
SS4105	**T5106-IP**	**0.8 Nm**	**XDMT 05...**
SS4106	**T5107-IP**	**1.0 Nm**	**XDMT 06...**
SS4107	**T5108-IP**	**1.0 Nm**	**XDMT 07...**
SS4109	**T5115-IP**	**3.0 Nm**	**XDMT 09...**
SS4112	**T5120-IP**	**5.0 Nm**	**XDMT 12...**

All dimensions in mm.

Geometry and grade description

Geometry description

BS

LOW FEED RATES / SWARF CONTROL

- Good swarf control at low feed rate
- Excellent hole quality
- High surface finish

BM

UNIVERSAL APPLICATION

- General purpose geometry
- Good swarf control
- Generates low cutting forces and low to medium feed rates

BR

STRONG CUTTING EDGE / HIGH FEED RATES

- Strengthened cutting edges for high feed rates
- Absorbs vibrations well
- Reduced noise

BA

FOR DRILLING ALUMINIUM

- Good swarf control
- High resistance to build up edge
- Excellent tool life

Grade description

AP5020

PVD-Multilayer coating, substrate +TIALN
For machining steel, stainless steel and cast materials. A versatile grade for low to medium cutting speed. The harder substrate is very wear resistant and therefore offers good tool life. High heat resistance.

AP5030

PVD-Multilayer coating, substrate + TIALN
A tougher universal grade in the P30-P35 ISO area. Main application area is steel drilling but also suitable for stainless steel. Can also be used for interrupted cutting

AK5020

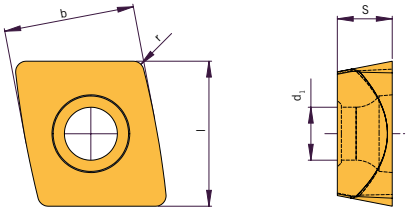
PVD-Multilayer coating, substrate + TIALN
Main grade for drilling cast materials. Extreme performance due to combination of fine grain substrate and coating. For use with medium cutting speeds under normal to stable machine conditions.

AK1010

Uncoated
The main grade for drilling GG cast iron, aluminium, aluminium alloys, copper and copper alloys as well as bronze and brass at medium data and in good machine conditions.

ARNO® AKB

Inserts



XDMT Geometry for fine machining – BS

Designation	l	b	S	d_1	r	PG 36 coated AP5020	PG 36 coated AK5020	PG 36 coated AP5030	PG 36 uncoated AK1010
XDMT 042004EN-BS*	4.8	4.3	2.0	1.8	0.4		●	●	
XDMT 052504EN-BS*	5.7	5.1	2.5	2.3	0.4		●	●	
XDMT 063006EN-BS*	6.9	6.2	3.0	2.5	0.6		●	●	
XDMT 073506EN-BS*	8.55	7.7	3.5	2.9	0.6		●	●	
XDMT 094008EN-BS*	10.96	9.9	4.0	4.0	0.8	●	●		
XDMT 125012EN-BS*	14.14	12.8	5.0	5.5	1.2		●	●	

*Available from January 2013

P	●		●
M	○		●
K		●	
N		○	
S			○
H			

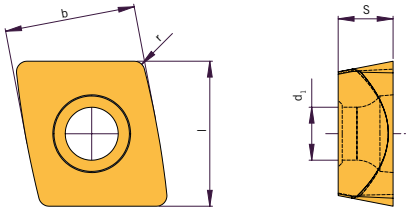
XDMT Geometry for medium machining – BM

Designation	l	b	S	d_1	r	PG 36 coated AP5020	PG 36 coated AK5020	PG 36 coated AP5030	PG 36 uncoated AK1010
XDMT 042004EN-BM	4.8	4.3	2.0	1.8	0.4		●	●	
XDMT 052504EN-BM	5.7	5.1	2.5	2.3	0.4		●	●	
XDMT 063006EN-BM	6.9	6.2	3.0	2.5	0.6		●	●	
XDMT 073506EN-BM	8.55	7.7	3.5	2.9	0.6		●	●	
XDMT 094008EN-BM	10.96	9.9	4.0	4.0	0.8		●	●	
XDMT 125012EN-BM	14.14	12.8	5.0	5.5	1.2		●	●	

P			●
M			●
K		●	
N		○	
S			○
H			

All dimensions in mm. ● = Main application ○ = Secondary application

Inserts



XDMT

Geometry for heavy machining – BR

Designation	l	b	S	d_1	r	PG 36			
						coated			uncoated
						AP5020	AK5020	AP5030	AK1010
XDMT 042004EN-BR*	4.8	4.3	2.0	1.8	0.4		●	●	
XDMT 052504EN-BR*	5.7	5.1	2.5	2.3	0.4		●	●	
XDMT 063006EN-BR*	6.9	6.2	3.0	2.5	0.6		●	●	
XDMT 073506EN-BR*	8.55	7.7	3.5	2.9	0.6		●	●	
XDMT 094008EN-BR*	10.96	9.9	4.0	4.0	0.8	●	●		
XDMT 125012EN-BR*	14.14	12.8	5.0	5.5	1.2		●	●	

*Available from January 2013

P	●		●	
M	○		●	
K		●		
N		○		
S			○	
H				

XDMT

Geometry for aluminium – BAL

Designation	l	b	S	d_1	r	PG 36			
						coated			uncoated
						AP5020	AK5020	AP5030	AK1010
XDMT 042004EN-BAL*	4.8	4.3	2.0	1.8	0.4				●
XDMT 052504EN-BAL*	5.7	5.1	2.5	2.3	0.4				●
XDMT 063006EN-BAL*	6.9	6.2	3.0	2.5	0.6				●
XDMT 073506EN-BAL*	8.55	7.7	3.5	2.9	0.6				●
XDMT 094008EN-BAL*	10.96	9.9	4.0	4.0	0.8				●
XDMT 125012EN-BAL *	14.14	12.8	5.0	5.5	1.2				●

On request also available as coated insert

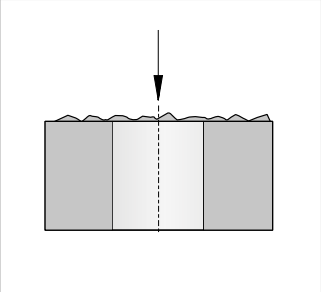
P	
M	
K	
N	●
S	
H	

All dimensions in mm. ● = Main application ○ = Secondary application

ARNO® AKB

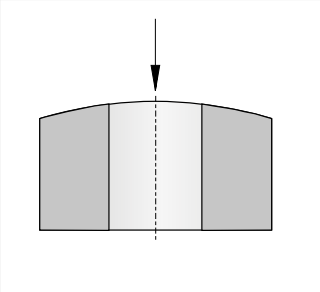
Application area

Drilling into poor surfaces



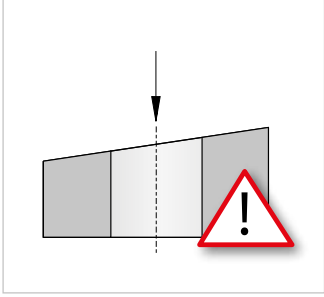
- Depending on quality of surface, feed rate may need to be reduced.

Drilling into a cambered surface



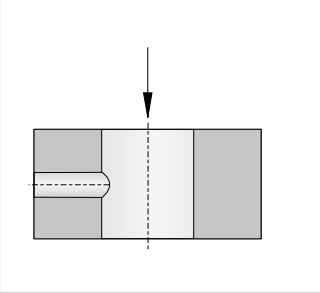
- Reducing feed rate may be required

Drilling into an angle



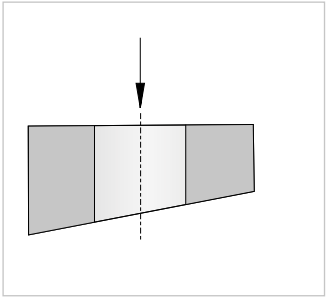
- Up to maximum 3° no need to reduce feed rate
- Above 3° reduce feed rate by 50–70% until drill is in full cut
- Use strong edge radius

Cross-hole drilling



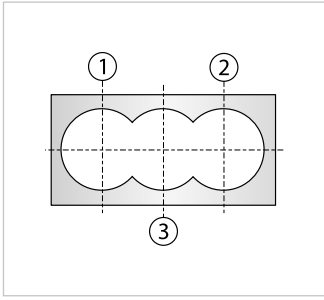
- Reduce feed rate by 50–70%
- Be aware of swarf jamming
- Use tough carbide grade
- Use strong edge radius

Drilling exit into an angle



- Above 3° reduce feed rate by 50–70% until drill is in full cut
- Use tough carbide grade
- Use strong edge radius

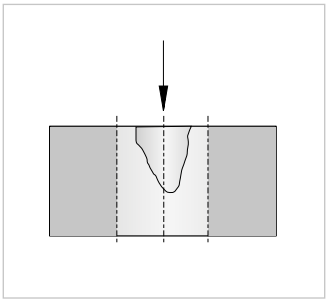
Drilling of chamber



- Drill in order as shown on picture
- Ensure symmetrical machining
- Reduce feed rate by 50–70%
- Use tough carbide grade
- Use strong edge radius

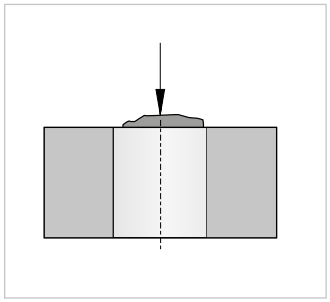
Application area

Drilling into groove or large centre bore Spot



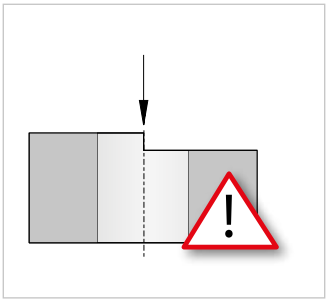
- Facing may be required
- Reduce feed rate

Drilling into welded seam



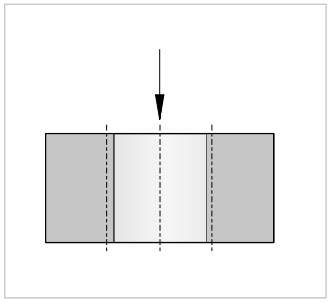
- Reduce feed rate

Drilling into edge



- Must be prepared by either spot facing or face milling

Boring



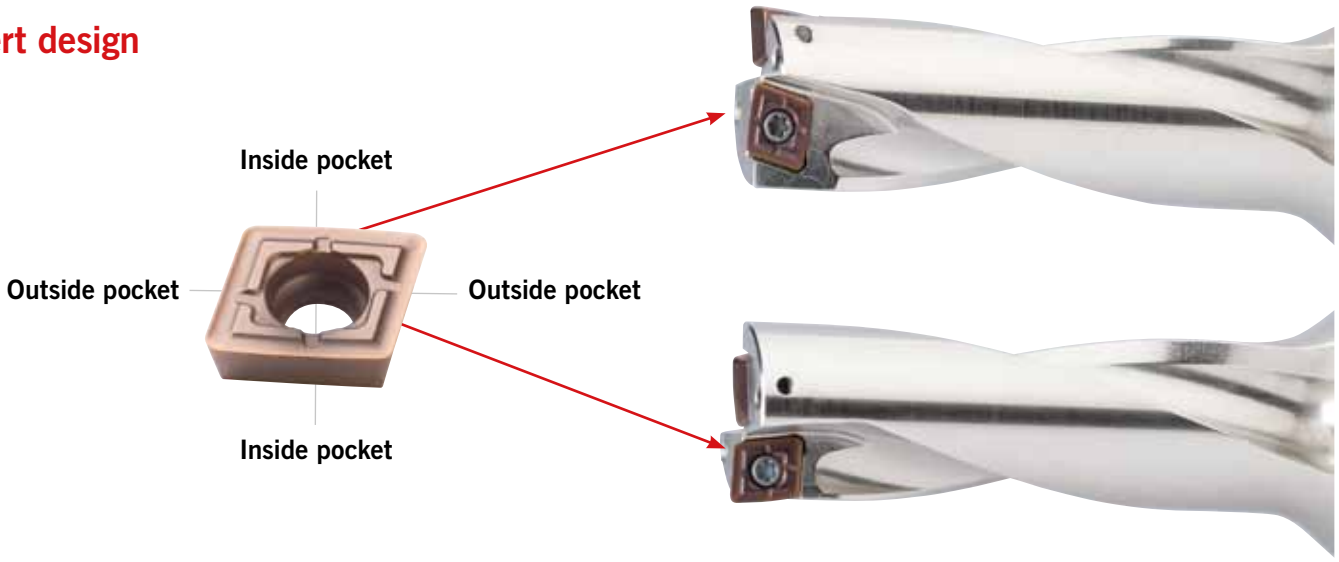
- Avoid swarf jamming
- Possibly reduce diameter of drill body

For further information please ask for our complete catalogue.

ARNO® AKB

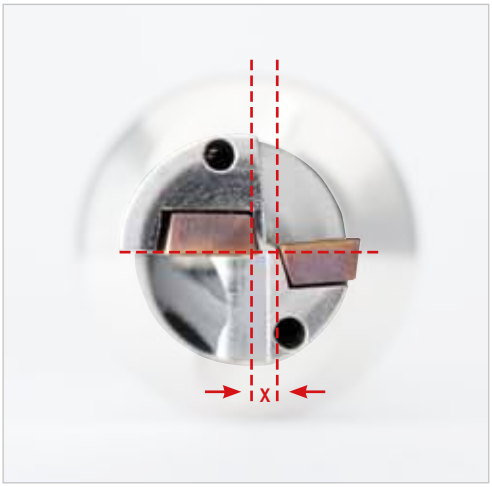
Information

Insert design



Offsetting centreline

By offsetting the centreline of the drill in the direction of the outside pocket by a maximum of “x” it is possible to create a larger diameter bore. Please do not offset above the max values in chart.



Diameter Holder (mm)	Max offset (mm)	Diameter Holder (mm)	Max offset (mm)
14.0	0.25	**26.0**	0.40
14.5	0.20	**26.5**	0.35
15.0	0.15	**27.0**	0.25
15.5	0.40	**27.5**	0.20
16.0	0.40	**28.0**	0.15
16.5	0.35	**28.5**	0.10
17.0	0.30	**29.0**	1.00
17.5	0.25	**29.5**	0.95
18.0	0.20	**30.0**	0.90
18.5	0.50	**31.0**	0.80
19.0	0.45	**32.0**	0.70
19.5	0.40	**33.0**	0.55
20.0	0.30	**34.0**	0.45
20.5	0.30	**35.0**	0.35
21.0	0.20	**36.0**	0.20
21.5	0.15	**37.0**	1.00
22.0	0.10	**38.0**	1.00
22.5	0.06	**39.0**	0.90
23.0	0.70	**40.0**	0.80
23.5	0.70	**41.0**	0.70
24.0	0.60	**42.0**	0.60
24.5	0.50	**43.0**	0.50
25.0	0.50	**44.0**	0.50
25.5	0.45	**45.0**	0.40

The chart values are recommendations, reduce feed rate to 30 %.
Values may change depending on application

For further information please ask for our complete catalogue.

Recommended cutting data

Recommendations 2 x D

ISO	Material	Toughness [N/mm²]	Geometry	Grade	Cutting speed V_c [m/min]	Feed rate f [mm/U]			
						14.0–18.0 mm	18.5–29.0 mm	29.5–36.0 mm	37.0–45.0 mm
P	Carbon steel	440	BS	AP5030*	150 - 220 - 250	0.04 - 0.08 - 0.12	0.04 - 0.08 - 0.12	0.04 - 0.08 - 0.13	0.05 - 0.10 - 0.15
		670	BM	AP5030*	150 - 220 - 250	0.08 - 0.13 - 0.24	0.04 - 0.13 - 0.24	0.08 - 0.14 - 0.26	0.09 - 0.16 - 0.29
		880	BM	AP5030*	125 - 170 - 230	0.06 - 0.11 - 0.18	0.06 - 0.11 - 0.18	0.06 - 0.12 - 0.19	0.07 - 0.13 - 0.22
		980	BM	AP5030*	125 - 170 - 230	0.08 - 0.13 - 0.22	0.08 - 0.14 - 0.24	0.08 - 0.14 - 0.23	0.09 - 0.16 - 0.26
		1050	BM	AP5030*	100 - 130 - 170	0.06 - 0.11 - 0.17	0.06 - 0.12 - 0.18	0.06 - 0.12 - 0.18	0.07 - 0.13 - 0.20
	Low alloyed steel	640	BS	AP5030*	150 - 180 - 220	0.05 - 0.08 - 0.14	0.05 - 0.08 - 0.14	0.05 - 0.08 - 0.16	0.06 - 0.09 - 0.17
		970	BM	AP5030*	125 - 150 - 200	0.06 - 0.11 - 0.17	0.06 - 0.11 - 0.17	0.06 - 0.12 - 0.18	0.07 - 0.13 - 0.20
		1050	BM	AP5030*	100 - 140 - 170	0.06 - 0.11 - 0.17	0.06 - 0.11 - 0.17	0.06 - 0.12 - 0.18	0.07 - 0.13 - 0.20
		1230	BM	AP5030*	80 - 120 - 150	0.06 - 0.11 - 0.17	0.06 - 0.11 - 0.17	0.06 - 0.12 - 0.18	0.07 - 0.13 - 0.20
	High alloyed steel	700	BM	AP5030*	100 - 150 - 200	0.08 - 0.13 - 0.24	0.08 - 0.13 - 0.24	0.08 - 0.14 - 0.26	0.09 - 0.16 - 0.29
		1140	BM	AP5030*	80 - 120 - 160	0.06 - 0.11 - 0.18	0.06 - 0.11 - 0.18	0.06 - 0.12 - 0.19	0.07 - 0.13 - 0.22
M	Stainless Steel	700	BS/BM	AP5030*	100 - 150 - 200	0.06 - 0.11 - 0.18	0.06 - 0.11 - 0.18	0.06 - 0.12 - 0.19	0.07 - 0.13 - 0.22
		840	BS/BM	AP5030*	90 - 120 - 150	0.06 - 0.11 - 0.18	0.06 - 0.11 - 0.18	0.06 - 0.12 - 0.19	0.07 - 0.13 - 0.22
		640	BS/BM	AP5030*	100 - 150 - 200	0.04 - 0.08 - 0.18	0.06 - 0.11 - 0.18	0.06 - 0.12 - 0.19	0.07 - 0.13 - 0.22
		810	BS/BM	AP5030*	80 - 120 - 150	0.04 - 0.08 - 0.18	0.06 - 0.11 - 0.18	0.06 - 0.12 - 0.19	0.07 - 0.13 - 0.22
K	Cast iron (GG)	640	BR	AK5020	120 - 160 - 200	0.09 - 0.20 - 0.32	0.10 - 0.22 - 0.36	0.11 - 0.24 - 0.39	0.12 - 0.26 - 0.44
		910	BR	AK5020	120 - 160 - 200	0.09 - 0.20 - 0.32	0.10 - 0.22 - 0.36	0.11 - 0.24 - 0.39	0.12 - 0.26 - 0.44
	Nodular cast iron (GGG)	560	BR	AK5020	90 - 120 - 250	0.09 - 0.20 - 0.32	0.10 - 0.22 - 0.36	0.11 - 0.24 - 0.39	0.12 - 0.26 - 0.44
		880	BR	AK5020	90 - 120 - 150	0.09 - 0.20 - 0.32	0.10 - 0.22 - 0.36	0.11 - 0.24 - 0.39	0.12 - 0.26 - 0.44
N	Aluminium alloy		BAL	AK1010	200 - 260 - 320	0.06 - 0.11 - 0.17	0.06 - 0.11 - 0.17	0.06 - 0.12 - 0.18	0.07 - 0.13 - 0.20
	Copper alloy		BAL	AK1010	180 - 230 - 280	0.06 - 0.11 - 0.17	0.06 - 0.11 - 0.17	0.06 - 0.12 - 0.18	0.07 - 0.13 - 0.20
S	Heat resistant alloy	700	BS/BM	AP5030*	25 - 50 - 70	0.06 - 0.11 - 0.18	0.06 - 0.11 - 0.18	0.06 - 0.12 - 0.19	0.07 - 0.13 - 0.22

*2nd choice AP5020

Recommendations 3 x D

ISO	Material	Toughness [N/mm²]	Geometry	Grade	Cutting speed V_c [m/min]	Feed rate f [mm/U]			
						14.0–18.0 mm	18.5–29.0 mm	29.5–36.0 mm	37.0–45.0 mm
P	Carbon steel	440	BS	AP5030*	150 - 220 - 250	0.04 - 0.07 - 0.10	0.04 - 0.07 - 0.10	0.04 - 0.08 - 0.11	0.05 - 0.09 - 0.12
		670	BM	AP5030*	150 - 220 - 250	0.08 - 0.12 - 0.20	0.08 - 0.12 - 0.20	0.08 - 0.13 - 0.22	0.09 - 0.14 - 0.24
		880	BM	AP5030*	125 - 170 - 230	0.06 - 0.10 - 0.15	0.06 - 0.10 - 0.15	0.06 - 0.11 - 0.16	0.07 - 0.12 - 0.18
		980	BM	AP5030*	125 - 170 - 230	0.08 - 0.12 - 0.18	0.08 - 0.12 - 0.18	0.08 - 0.13 - 0.19	0.09 - 0.14 - 0.22
		1050	BM	AP5030*	100 - 130 - 170	0.06 - 0.10 - 0.14	0.06 - 0.10 - 0.14	0.06 - 0.11 - 0.15	0.07 - 0.12 - 0.17
	Low alloyed steel	640	BS	AP5030*	150 - 180 - 220	0.05 - 0.07 - 0.12	0.05 - 0.07 - 0.12	0.05 - 0.08 - 0.13	0.06 - 0.08 - 0.15
		970	BM	AP5030*	125 - 150 - 200	0.06 - 0.10 - 0.14	0.06 - 0.10 - 0.14	0.06 - 0.11 - 0.15	0.07 - 0.12 - 0.17
		1050	BM	AP5030*	100 - 140 - 170	0.06 - 0.10 - 0.14	0.06 - 0.10 - 0.14	0.06 - 0.11 - 0.15	0.07 - 0.12 - 0.17
		1230	BM	AP5030*	80 - 120 - 150	0.06 - 0.10 - 0.14	0.06 - 0.10 - 0.14	0.06 - 0.11 - 0.15	0.07 - 0.12 - 0.17
	High alloyed steel	700	BM	AP5030*	100 - 150 - 200	0.08 - 0.12 - 0.20	0.08 - 0.12 - 0.20	0.08 - 0.13 - 0.22	0.09 - 0.14 - 0.24
		1140	BM	AP5030*	80 - 120 - 160	0.06 - 0.10 - 0.15	0.06 - 0.10 - 0.15	0.06 - 0.11 - 0.16	0.07 - 0.12 - 0.18
M	Stainless Steel	700	BS/BM	AP5030*	100 - 150 - 200	0.06 - 0.10 - 0.15	0.06 - 0.10 - 0.15	0.06 - 0.11 - 0.16	0.07 - 0.12 - 0.18
		840	BS/BM	AP5030*	90 - 120 - 150	0.06 - 0.10 - 0.15	0.06 - 0.10 - 0.15	0.06 - 0.11 - 0.16	0.07 - 0.12 - 0.18
		640	BS/BM	AP5030*	100 - 150 - 200	0.04 - 0.10 - 0.15	0.06 - 0.10 - 0.15	0.06 - 0.11 - 0.16	0.07 - 0.12 - 0.18
		810	BS/BM	AP5030*	80 - 120 - 150	0.04 - 0.10 - 0.15	0.06 - 0.10 - 0.15	0.06 - 0.11 - 0.16	0.07 - 0.12 - 0.18
K	Cast iron (GG)	640	BR	AK5020	120 - 160 - 200	0.09 - 0.18 - 0.27	0.10 - 0.20 - 0.30	0.11 - 0.22 - 0.32	0.12 - 0.24 - 0.36
		910	BR	AK5020	120 - 160 - 200	0.09 - 0.18 - 0.27	0.10 - 0.20 - 0.30	0.11 - 0.22 - 0.32	0.12 - 0.24 - 0.36
	Nodular cast iron (GGG)	560	BR	AK5020	90 - 120 - 250	0.09 - 0.18 - 0.27	0.10 - 0.20 - 0.30	0.11 - 0.22 - 0.32	0.12 - 0.24 - 0.36
		880	BR	AK5020	90 - 120 - 150	0.09 - 0.18 - 0.27	0.10 - 0.20 - 0.30	0.11 - 0.22 - 0.32	0.12 - 0.24 - 0.36
N	Aluminium alloy		BAL	AK1010	200 - 260 - 320	0.06 - 0.11 - 0.17	0.06 - 0.11 - 0.17	0.06 - 0.12 - 0.18	0.07 - 0.13 - 0.20
	Copper alloy		BAL	AK1010	180 - 230 - 280	0.06 - 0.11 - 0.17	0.06 - 0.11 - 0.17	0.06 - 0.12 - 0.18	0.07 - 0.13 - 0.20
S	Heat resistant alloy	700	BS/BM	AP5030*	25 - 50 - 70	0.06 - 0.10 - 0.15	0.06 - 0.10 - 0.15	0.06 - 0.11 - 0.16	0.07 - 0.12 - 0.18

*2nd choice AP5020

For applications with average conditions (work holding, coolant pressure and stability) please use the middle recommendation. The values are only recommendations, it may be necessary to adjust in line with machining conditions.

All dimensions in mm.

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