

ARNO[®]

WERKZEUGE



AFD | Diamond-coated solid carbide milling cutters for the demanding machining of graphite

SOLID CARBIDE GRAPHITE MILLING CUTTER

ARNO – Precision Driven By Passion Since 1941

We are a Swabian family business in its fourth generation – with a clear mission: machining solutions that make a difference. Every year, we grind over 2.5 million highly positive indexable inserts – each individually inspected, each a promise of quality. Our strength lies in innovative tool systems, developed with deep process expertise and genuine engineering spirit. Whether manufactured conventionally, additively or in hybrid form – we set new standards in cooling, chip removal and vibration damping. Numerous patents underline our innovative strength. ARNO stands for durability, precision and flexibility – with short decision-making paths, dedicated teams and true customer focus. Our future is built on three pillars: digitalization, customer service and human resources. **Our drive? Solutions for your challenges. Our promise? WE LIVE QUALITY TOOLING.**

WE ARE CLOSE TO YOU ALL OVER THE WORLD

Branches & Sales partners // Our tools are in use all over the world – that's why we are close to you all over the world. With five branches (UK, France, Italy, South East Asia & USA) and over 100 sales partners in many countries, we are always close to our customers and keep a close eye on market developments.

EXPORT Team // From our headquarters in Ostfildern, our dedicated export team serves as the direct point of contact for our international customers. We provide fast, reliable support in all technical and commercial matters – from tool selection and process optimization to order handling and logistics. With in-depth product knowledge, years of experience, and the ARNO spirit of precision and ingenuity, we ensure seamless communication across borders. Whether by phone, email, video call, or in person at your facility – our experts are always close at hand, helping you achieve outstanding results in your production.

Our ARNO Application Technicians // When nothing else helps, the application technicians and tool designers at ARNO step in. For special challenges – especially with difficult-to-machine materials – we dive deep into the technical details of machining together with you. In 9 out of 10 cases, our tools deliver longer tool life than others available on the market. If your requirement calls for a custom tool, we provide fast results. Depending on complexity, we deliver the desired tool within three days up to a maximum of six weeks.



A high-speed team with state-of-the-art production and logistics.

Shipping Service & Product Availability // We are always ready to deliver – with 95% of our tools in stock. Every month, we ship around 9,000 orders, many of them on the same day they are placed. Our shipping team works with exceptional reliability – with an error rate of less than 0.1%.

Order Directly - Delivered to You // You can order through your local dealer or branch, and we can deliver your tools directly to your address. This makes it faster and easier for you to get the products you need, right when you need them.



ESPECIALLY FOR GRAPHITE MACHINING

Diamond coating increases hardness and improves wear resistance for a longer tool life

The ultra-fine diamond coating ensures a smooth and excellent surface finish on the materials. Solid carbide end mill, specially developed for graphite machining. The geometry and diamond coating ensure fine milling and long tool life.

In mould and die making, the production of graphite electrodes is a fundamentally important component alongside copper electrodes. Electrodes make possible what cannot be produced directly on the stamping or injection moulding tool using cutting tools. Even complicated 3D contours can be produced precisely in the μm range with the right tools. Wear-resistant diamond coatings are required to mould the abrasive graphite with lasting precision.





STRONG ADVANTAGES

of the ARNO AFD | solid carbide milling cutter for graphite

Coated - diamond coating for graphite

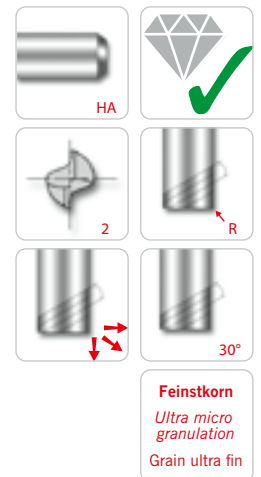
h5 shank accuracy - for precise concentricity, low vibration and high surface quality

Variety - short and long cutting edges, small and large diameters

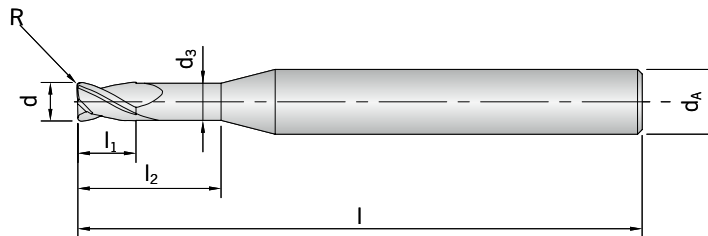
HC - carbide coated								
Grade	Coating colour	Properties	Material group					
			P	M	K	N	S	H
D100 		<ul style="list-style-type: none"> Controlled layer build-up Ideal for abrasive graphite Optimum wear resistance due to high coating hardness 				●		

AFD50724-...R...

2 cutting edges, mini version, with corner radius



Feinstkorn
Ultra micro
granulation
Grain ultra fin

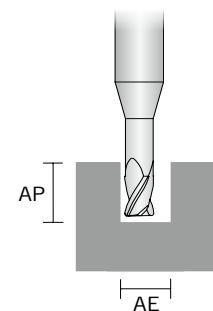


Only for processing graphite

Article	EDP-No.	d 0 -0,02	d _A h5	d ₃	l ₁	l ₂	l	R	HC
									D100
AFD50724-010AR0,1	40180	1,0	3	0,95	1,5	5,0	40	0,10	◆
AFD50724-010BR0,1	40181	1,0	3	0,95	1,5	8,5	40	0,10	◆
AFD50724-010CR0,1	40182	1,0	3	0,95	1,5	12,0	40	0,10	◆
AFD50724-020AR0,15	40188	2,0	3	1,90	2,2	10,0	60	0,15	◆
AFD50724-020BR0,15	40189	2,0	3	1,90	2,2	16,0	60	0,15	◆
AFD50724-020CR0,15	40190	2,0	3	1,90	2,2	25,0	60	0,15	◆
AFD50724-030BR0,2	40192	3,0	4	2,90	3,0	15,0	65	0,20	◆
AFD50724-030ER0,2	40195	3,0	4	2,90	3,0	30,0	75	0,20	◆
AFD50724-040AR0,2	40196	4,0	6	3,90	4,0	20,0	65	0,20	◆
AFD50724-040CR0,2	40198	4,0	6	3,90	4,0	40,0	90	0,20	◆
AFD50724-050AR0,3	40199	5,0	6	4,90	5,0	20,0	75	0,30	◆
AFD50724-050DR0,3	40202	5,0	6	4,90	5,0	50,0	90	0,30	◆
AFD50724-060AR0,3	40203	6,0	6	5,90	6,0	30,0	75	0,30	◆
AFD50724-060DR0,3	40206	6,0	6	5,90	6,0	60,0	100	0,30	◆

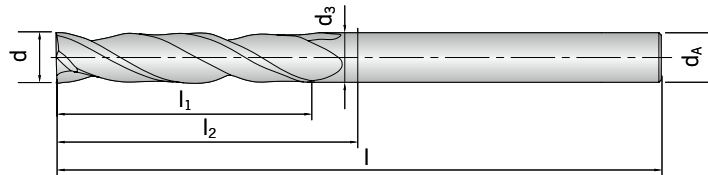
Cutting data - Slot milling

Material group	Machining group	Material	Cutting width AE [mm]	Cutting depth AP [mm]	Diameter d [mm]						
					1.0	2.0	3.0	4.0	5.0	6.0	
N	16	Graphite	1 x d	0.5 x d	Cutting speed VC [mm/min]	125	250	255	250	250	265
					Feed per tooth FZ [mm]	0.012	0.020	0.035	0.058	0.072	0.082
					Speed N [min ⁻¹]	39789	39789	27056	19894	15915	14059
					Feed speed VF [mm/min]	955	1592	1894	2308	2292	2306



AFD50121-...

2 cutting edges, long version



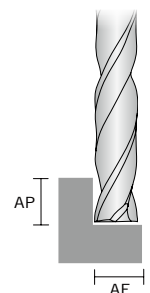
AFD

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Article	EDP-No.	d 0 -0,03	d _A h5	d ₃	l ₁	l ₂	l	HC
								D100
AFD50121-007	40258	0,7	3	0,65	2	4	40	◆
AFD50121-010	40261	1,0	4	0,95	3	8	75	◆
AFD50121-015	40262	1,5	4	1,45	4	10	75	◆
AFD50121-020	40263	2,0	4	1,90	6	16	100	◆
AFD50121-025	40264	2,5	4	2,40	8	20	100	◆
AFD50121-030	40265	3,0	6	2,80	8	30	100	◆
AFD50121-040	40267	4,0	6	3,70	20	40	100	◆
AFD50121-050	40268	5,0	6	4,60	25	50	125	◆
AFD50121-080	40271	8,0	8	7,40	40	80	150	◆
AFD50121-100	40273	10,0	10	9,40	50	80	150	◆

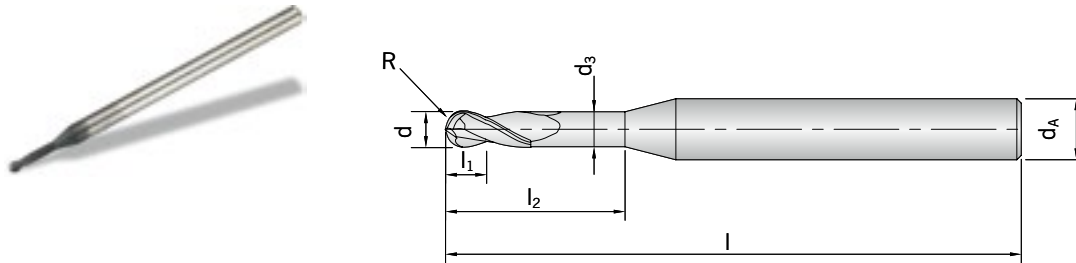
Cutting data - Corner milling

Material group	Machining group	Material	Cutting width AE (mm)	Cutting depth AP (mm)	Durchmesser d [mm]									
					1.0	1.5	2.0	2.5	3.0	4.0	5.0	8.0	10.0	
N	16	Graphite	0.1 x d	1.5 x d	Cutting speed VC [mm/min]	125	190	155	172	190	225	220	200	205
					Feed per tooth FZ [mm]	0.009	0.010	0.016	0.018	0.020	0.026	0.043	0.081	0.092
					Speed N [min-1]	39789	40319	24669	22415	20160	17905	14006	7958	6525
					Feed speed VF [mm/min]	716	806	789	797.5	806	931	1204	1289	1201



AFD51824-...

2 cutting edges, mini version

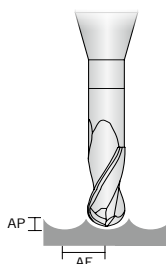


Only for processing graphite

Article	EDP-No.	d 0 -0,02	d _A h5	d ₃	l ₁	l ₂	l	R ± 0,01	HC
									D100
AFD51824-002A	40318	0,2	3	-	0,2	-	40	0,10	◆
AFD51824-004A	40320	0,4	3	-	0,4	-	40	0,20	◆
AFD51824-005A	40321	0,5	3	0,45	0,5	2,5	40	0,25	◆
AFD51824-008A	40324	0,8	3	0,75	0,8	4,0	40	0,40	◆
AFD51824-008B	40325	0,8	3	0,75	0,8	7,0	40	0,40	◆
AFD51824-010A	40326	1,0	3	0,95	1,0	5,0	40	0,50	◆
AFD51824-010B	40327	1,0	3	0,95	1,0	8,5	40	0,50	◆
AFD51824-010C	40328	1,0	3	0,95	1,0	12,0	40	0,50	◆
AFD51824-015C	40333	1,5	3	1,40	1,5	18,0	50	0,75	◆
AFD51824-020A	40334	2,0	3	1,90	2,2	10,0	60	1,00	◆
AFD51824-020B	40335	2,0	3	1,90	2,2	16,0	60	1,00	◆
AFD51824-020C	40336	2,0	3	1,90	2,2	25,0	60	1,00	◆
AFD51824-030A	40337	3,0	4	2,90	3,0	10,0	65	1,50	◆
AFD51824-030E	40341	3,0	4	2,90	3,0	30,0	75	1,50	◆
AFD51824-040A	40342	4,0	6	3,90	4,0	20,0	65	2,00	◆
AFD51824-040C	40344	4,0	6	3,90	4,0	40,0	90	2,00	◆
AFD51824-050A	40345	5,0	6	4,90	5,0	20,0	65	2,50	◆
AFD51824-050D	40348	5,0	6	4,90	5,0	50,0	90	2,50	◆
AFD51824-060A	40349	6,0	6	5,90	6,0	30,0	75	3,00	◆
AFD51824-060D	40352	6,0	6	5,90	6,0	60,0	100	3,00	◆

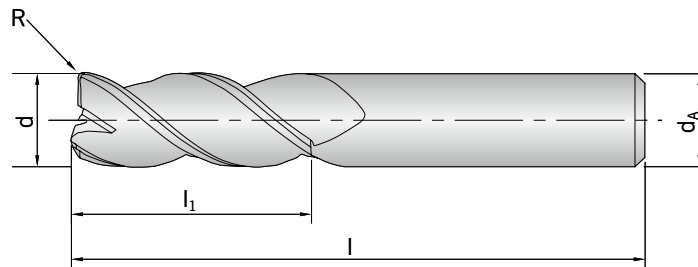
Cutting data

Material group	Machining group	Material	Cutting width AE [mm]	Cutting depth AP [mm]	Diameter d [mm]												
					0.2	0.4	0.5	0.8	1.0	1.5	2.0	3.0	4.0	5.0	6.0		
N	16	Graphite	0.2 x d	0.2 x d	Cutting speed VC [mm/min]	50	50	75	100	125	190	250	255	250	250	250	265
					Feed per tooth FZ [mm]	0.008	0.008	0.010	0.012	0.015	0.020	0.025	0.041	0.073	0.091	0.104	
					Speed N [min ⁻¹]	39789	39789	39789	39789	39789	40319	39789	27056	19894	15915	14059	
					Feed speed VF [mm/min]	637	637	796	955	1194	1613	1989	2219	2905	2897	2924	



AFD54030-...R...

3 cutting edges, short version, with corner radius



HA

3

40°

Feinstkorn
Ultra micro
granulation
Grain ultra fin

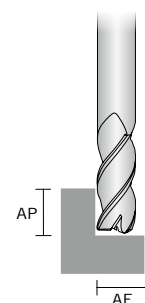
AFD

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Article	EDP-No.	d 0 -0,03	d _A h5	l ₁	l	R	HC
							D100
AFD54030-020R0,15	40490	2	3	6	40	0,15	◆
AFD54030-030R0,15	40491	3	3	12	40	0,15	◆
AFD54030-040R0,2	40492	4	4	14	50	0,20	◆
AFD54030-050R0,3	40493	5	5	16	50	0,30	◆
AFD54030-060R0,3	40494	6	6	20	65	0,30	◆
AFD54030-080R0,5	40495	8	8	20	65	0,50	◆
AFD54030-100R0,5	40496	10	10	25	75	0,50	◆
AFD54030-120R0,5	40497	12	12	25	75	0,50	◆

Cutting data - Corner milling

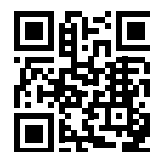
Material group	Machining group	Material	Cutting width AE [mm]	Cutting depth AP [mm]	Diameter d [mm]								
					2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
N	16	Graphite	0.3 x d	0.3 x d	Cutting speed VC [mm/min]	250	375	505	630	755	805	815	790
					Feed per tooth FZ [mm]	0.025	0.035	0.05	0.06	0.07	0.088	0.11	0.13
					Speed N [min-1]	39789	39789	40187	40107	40054	32030	25942	20955
					Feed speed VF [mm/min]	2984	4178	6028	7219	8411	8456	8561	8173



LET'S TALK ABOUT YOUR NEXT PROJECT.

No matter where you are in the world – ARNO is right by your side. Our experts are ready to support you with tool selection, process optimization, and everything you need to achieve the best results.

For more information see: www.arno.de



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