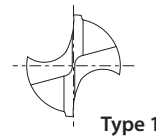
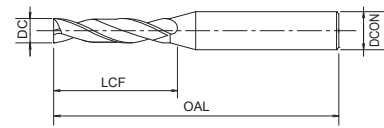


ADF-2D NEW SIZES

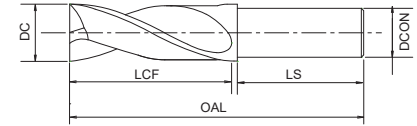
Drilling | Solid carbide | Flat drills



Type 1



Type 2



- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- Flat drilling application
- 253 sizes

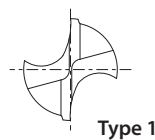


EDP	DC	LCF	OAL	DCON	Type
3330020	0,2	0,7	40	3	1
3330025	0,25	0,9	40	3	1
3330030	0,3	1	40	3	1
3330035	0,35	1,2	40	3	1
48315037	0,37	1,4	40	3	1
3330040	0,4	1,3	40	3	1
3330045	0,45	1,5	40	3	1
48315046	0,46	1,7	40	3	1
3330050	0,5	1,9	40	3	1
3330055	0,55	2,1	40	3	1
3330060	0,6	2,2	40	3	1
48315062	0,62	2,3	40	3	1
3330065	0,65	2,4	40	3	1
3330070	0,7	2,6	40	3	1
3330071	0,71	2,6	40	3	1
3330072	0,72	2,6	40	3	1
3330074	0,74	2,7	40	3	1
3330075	0,75	2,8	40	3	1
3330080	0,8	2,9	40	3	1
3330081	0,81	3	40	3	1
3330085	0,85	3,1	40	3	1
48315087	0,87	3,2	40	3	1
48315088	0,88	3,2	40	3	1
3330089	0,89	3,2	40	3	1
3330090	0,9	3,3	40	3	1
3330091	0,91	3,3	40	3	1
3330092	0,92	3,3	40	3	1
3330095	0,95	3,4	40	3	1
3330100	1	4,3	45	3	1
48315104	1,04	4,2	45	3	1
48315105	1,05	4,2	45	3	1
3330109	1,09	4,7	45	3	1
3330110	1,1	4,7	45	3	1
3330111	1,11	4,7	45	3	1
3330112	1,12	4,8	45	3	1
48315115	1,15	4,9	45	3	1
48315116	1,16	4,9	45	3	1
3330120	1,2	5,1	45	3	1
3330125	1,25	5,3	45	3	1
3330126	1,26	5,3	45	3	1
3330127	1,27	5,4	45	3	1
3330128	1,28	5,4	45	3	1
3330129	1,29	5,5	45	3	1
3330130	1,3	5,5	45	3	1
48315132	1,32	5,3	45	3	1
48315133	1,33	5,3	45	3	1

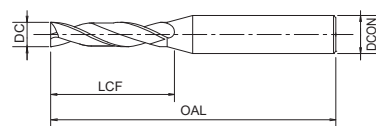
EDP	DC	LCF	OAL	DCON	Type
3330135	1,35	5,7	45	3	1
3330140	1,4	5,9	45	3	1
48315143	1,43	5,7	45	3	1
3330144	1,44	6,1	45	3	1
3330145	1,45	6,1	45	3	1
3330146	1,46	6,1	45	3	1
3330147	1,47	6,2	45	3	1
3330148	1,48	6,2	45	3	1
3330150	1,5	6,3	45	3	1
48315152	1,52	6,4	45	3	1
3330153	1,53	6,4	45	3	1
3330154	1,54	6,5	45	3	1
3330155	1,55	6,5	45	3	1
3330156	1,56	6,5	45	3	1
3330157	1,57	6,6	45	3	1
3330158	1,58	6,6	45	3	1
3330160	1,6	6,7	45	3	1
48315165	1,65	6,9	45	3	1
48315167	1,67	7	45	3	1
48315168	1,68	7	45	3	1
3330170	1,7	7,1	45	3	1
3330175	1,75	7,3	45	3	1
3330180	1,8	7,5	45	3	1
3330182	1,82	7,6	45	3	1
3330183	1,83	7,6	45	3	1
3330184	1,84	7,7	45	3	1
3330185	1,85	7,7	45	3	1
3330186	1,86	7,7	45	3	1
3330190	1,9	7,9	45	3	1
3330195	1,95	8,1	45	3	1
48315199	1,99	8,3	45	3	1
3330200	2	10,3	50	4	1
3330210	2,1	10,5	50	4	1
3330220	2,2	11	50	4	1
3330230	2,3	11	50	4	1
3330232	2,32	11	50	4	1
3330240	2,4	12	50	4	1
3330242	2,42	12	50	4	1
3330250	2,5	12	50	4	1
3330254	2,54	12	50	4	1
3330258	2,58	12	50	4	1
3330260	2,6	13	50	4	1
3330270	2,7	13	50	4	1
3330276	2,76	14	50	4	1
3330278	2,78	14	50	4	1
3330280	2,8	14	50	4	1

ADF-2D

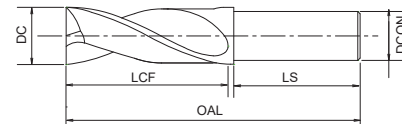
Drilling | Solid carbide | Flat drills



Type 1



Type 2



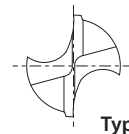
- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- Flat drilling application
- 253 sizes



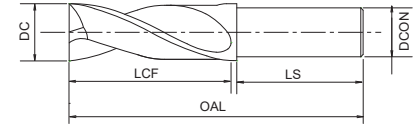
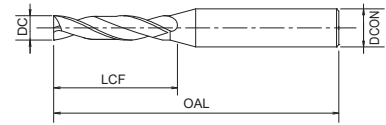
EDP	DC	LCF	OAL	DCON	Type
3330290	2,9	14	50	4	1
3330300	3	15	55	6	1
3330303	3,03	15	55	6	1
3330310	3,1	15	55	6	1
3330315	3,15	15	55	6	1
3330320	3,2	15	55	6	1
3330330	3,3	15	55	6	1
3330340	3,4	16	55	6	1
3330350	3,5	16	55	6	1
3330353	3,53	16	55	6	1
3330360	3,6	16	55	6	1
3330366	3,66	16	55	6	1
3330368	3,68	16	55	6	1
3330370	3,7	16	55	6	1
3330380	3,8	19	60	6	1
3330390	3,9	19	60	6	1
3330400	4	19	60	6	1
3330403	4,03	19	60	6	1
3330410	4,1	19	60	6	1
3330420	4,2	21	60	6	1
3330430	4,3	21	60	6	1
3330440	4,4	21	60	6	1
3330450	4,5	21	60	6	1
3330453	4,53	21	60	6	1
3330460	4,6	21	60	6	1
3330462	4,62	21	60	6	1
3330464	4,64	21	60	6	1
3330470	4,7	21	60	6	1
3330480	4,8	24,8	65	6	1
3330490	4,9	24,9	65	6	1
3330500	5	25,1	65	6	1
3330503	5,03	25,2	65	6	1
3330510	5,1	25,3	65	6	1
3330520	5,2	25,5	65	6	1
3330530	5,3	25,7	65	6	1
3330540	5,4	27	65	6	1
3330550	5,5	27	65	6	1
3330552	5,52	27	65	6	1
3330554	5,54	27	65	6	1
3330560	5,6	27	65	6	1
3330570	5,7	27	65	6	1
3330580	5,8	27	65	6	1
3330590	5,9	27	65	6	1
3330600	6	27	65	6	2
3330603	6,03	30	70	6	2
3330610	6,1	30	70	6	2

EDP	DC	LCF	OAL	DCON	Type
3330620	6,2	30	70	6	2
3330630	6,3	30	70	6	2
3330640	6,4	30	70	6	2
3330650	6,5	30	70	6	2
3330653	6,53	30	70	6	2
3330660	6,6	30	70	6	2
3330670	6,7	30	70	6	2
3330680	6,8	30	70	6	2
3330690	6,9	30	70	6	2
3330700	7	30	70	6	2
3330703	7,03	34	75	6	2
3330710	7,1	34	75	6	2
3330720	7,2	34	75	6	2
3330730	7,3	34	75	6	2
3330740	7,4	34	75	6	2
3330750	7,5	34	75	6	2
3330760	7,6	34	75	6	2
3330770	7,7	34	75	6	2
3330780	7,8	34	75	6	2
3330790	7,9	34	75	6	2
3330800	8	34	75	8	2
3330803	8,03	38	80	8	2
3330810	8,1	38	80	8	2
3330820	8,2	38	80	8	2
3330830	8,3	38	80	8	2
3330840	8,4	38	80	8	2
3330850	8,5	38	80	8	2
3330853	8,53	38	80	8	2
3330860	8,6	38	80	8	2
3330870	8,7	38	80	8	2
3330880	8,8	38	80	8	2
3330890	8,9	38	80	8	2
3330900	9	38	80	8	2
3330903	9,03	42	85	8	2
3330910	9,1	42	85	8	2
3330920	9,2	42	85	8	2
3330930	9,3	42	85	8	2
3330940	9,4	42	85	8	2
3330950	9,5	42	85	8	2
3330960	9,6	42	85	8	2
3330970	9,7	42	85	8	2
3330980	9,8	42	85	8	2
3330990	9,9	42	85	8	2
3331000	10	42	85	10	2
3331003	10,03	46	90	10	2
3331010	10,1	46	90	10	2

Drilling | Solid carbide | Flat drills



Type 1



Type 2

- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- Flat drilling application
- 253 sizes

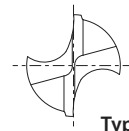


EDP	DC	LCF	OAL	DCON	Type
3331020	10,2	46	90	10	2
3331030	10,3	46	90	10	2
3331040	10,4	46	90	10	2
3331050	10,5	46	90	10	2
3331060	10,6	46	90	10	2
3331070	10,7	46	90	10	2
3331080	10,8	46	90	10	2
3331090	10,9	46	90	10	2
3331100	11	46	90	10	2
3331103	11,03	50	95	10	2
3331110	11,1	50	95	10	2
3331120	11,2	50	95	10	2
3331130	11,3	50	95	10	2
3331140	11,4	50	95	10	2
3331150	11,5	50	95	10	2
3331160	11,6	50	95	10	2
3331170	11,7	50	95	10	2
3331180	11,8	50	95	10	2
3331190	11,9	50	95	10	2
3331200	12	50	95	12	2
3331203	12,03	56	100	12	2
3331210	12,1	56	100	12	2
3331220	12,2	56	100	12	2
3331230	12,3	56	100	12	2
3331240	12,4	56	100	12	2
3331250	12,5	56	100	12	2
3331260	12,6	56	100	12	2
3331270	12,7	56	100	12	2
3331280	12,8	56	100	12	2
3331290	12,9	56	100	12	2
3331300	13	56	100	12	2
3331310	13,1	60	105	12	2
3331320	13,2	60	105	12	2
3331330	13,3	60	105	12	2
3331340	13,4	60	105	12	2
3331350	13,5	60	105	12	2
3331360	13,6	60	105	12	2
3331370	13,7	60	105	12	2
3331380	13,8	60	105	12	2
3331390	13,9	60	105	12	2
3331400	14	60	105	12	2
3331410	14,1	64	110	12	2
3331420	14,2	64	110	12	2
3331430	14,3	64	110	12	2
3331440	14,4	64	110	12	2
3331450	14,5	64	110	12	2

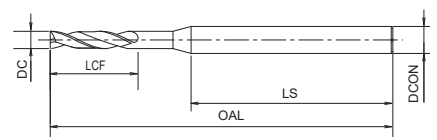
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ADFLS-2D

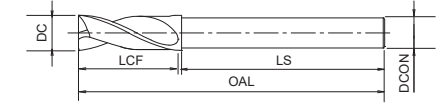
Drilling | Solid carbide | Flat drills



Type 1



Type 2



Type 3



- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- For deep reach flat drilling application
- 78 sizes

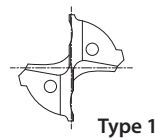


EDP	DC	LCF	OAL	DCON	Type
3332300	3	15	100	6	1
3332310	3,1	15	100	6	1
3332320	3,2	15	100	6	1
3332330	3,3	15	100	6	1
3332340	3,4	16	100	6	1
3332350	3,5	16	100	6	1
3332360	3,6	16	100	6	1
3332370	3,7	16	100	6	1
3332380	3,8	19	100	6	1
3332390	3,9	19	100	6	1
3332400	4	19	100	6	1
3332410	4,1	19	100	6	1
3332420	4,2	21	100	6	1
3332430	4,3	21	100	6	1
3332440	4,4	21	100	6	1
3332450	4,5	21	100	6	1
3332460	4,6	21	100	6	1
3332470	4,7	21	100	6	1
3332480	4,8	24	100	6	1
3332490	4,9	24	100	6	1
3332500	5	24	110	6	1
3332510	5,1	24	110	6	1
3332520	5,2	24	110	6	1
3332530	5,3	24	110	6	1
3332540	5,4	27	110	6	1
3332550	5,5	27	110	6	1
3332560	5,6	27	110	6	1
3332570	5,7	27	110	6	1
3332580	5,8	27	110	6	1
3332590	5,9	27	110	6	1
3332600	6	27	110	6	2
3334060	6	27	110	6	3
3332650	6,5	30	120	6	2
3332680	6,8	30	120	6	2
3332690	6,9	30	120	6	2
3332700	7	30	120	6	2
3332740	7,4	34	130	6	2
3332750	7,5	34	130	6	2
3332780	7,8	34	130	6	2
3332800	8	34	130	8	2
3334080	8	34	130	8	3
3332850	8,5	38	140	8	2
3332860	8,6	38	140	8	2
3332880	8,8	38	140	8	2
3332900	9	38	140	8	2
3332920	9,2	42	150	8	2

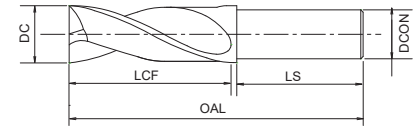
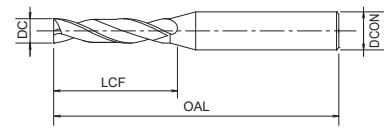
EDP	DC	LCF	OAL	DCON	Type
3332950	9,5	42	150	8	2
3332980	9,8	42	150	8	2
3333000	10	42	150	10	2
3334100	10	42	150	10	3
3333030	10,3	46	160	10	2
3333040	10,4	46	160	10	2
3333050	10,5	46	160	10	2
3333080	10,8	46	160	10	2
3333100	11	46	160	10	2
3333110	11,1	50	170	10	2
3333150	11,5	50	170	10	2
3333180	11,8	50	170	10	2
3333200	12	50	170	12	2
3334120	12	50	170	12	3
3333250	12,5	56	180	12	2
3333300	13	56	180	12	2
3333350	13,5	60	190	12	2
3333400	14	60	190	12	2
3333450	14,5	64	200	12	2
3333500	15	64	200	12	2
3333550	15,5	68	210	12	2
3333600	16	68	210	16	2
3334160	16	68	210	16	3
3333650	16,5	74	220	16	2
3333700	17	74	220	16	2
3333750	17,5	78	230	16	2
3333800	18	78	230	16	2
3333850	18,5	84	240	16	2
3333900	19	84	240	16	2
3333950	19,5	88	250	16	2
3334000	20	88	250	20	2
3334200	20	88	250	20	3

ADFO-3D

Drilling | Solid carbide | Flat drills



Type 1



Type 2

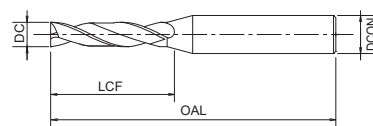
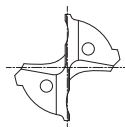
- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- Flat drilling application
- 160 sizes



EDP	DC	LCF	OAL	DCON	Type
3334300	3	16	55	4	1
3334301	3,03	16	55	4	1
3334302	3,1	16	55	4	1
3334303	3,15	16	55	4	1
3334304	3,2	16	55	4	1
3334305	3,3	16	55	4	1
3334306	3,4	17	55	4	1
3334307	3,5	17	55	4	1
3334308	3,53	17	55	4	1
3334309	3,6	17	55	4	1
3334310	3,66	17	55	4	1
3334311	3,68	17	55	4	1
3334312	3,7	17	55	4	1
3334313	3,8	20	60	4	1
3334314	3,9	20	60	4	1
3334315	4	20	60	4	2
3334316	4,03	22	60	6	1
3334317	4,1	22	60	6	1
3334318	4,2	22	60	6	1
3334319	4,3	22	60	6	1
3334320	4,4	22	60	6	1
3334321	4,5	22	60	6	1
3334322	4,53	21	60	6	1
3334323	4,6	21	60	6	1
3334324	4,62	21	60	6	1
3334325	4,64	21	60	6	1
3334326	4,7	21	60	6	1
3334327	4,8	24	65	6	1
3334328	4,9	24	65	6	1
3334329	5	24	65	6	1
3334330	5,03	24	65	6	1
3334331	5,1	24	65	6	1
3334332	5,2	24	65	6	1
3334333	5,3	24	65	6	1
3334334	5,4	27	65	6	1
3334335	5,5	27	65	6	1
3334336	5,52	27	65	6	1
3334337	5,54	27	65	6	1
3334338	5,6	27	65	6	1
3334339	5,7	27	65	6	1
3334340	5,8	27	65	6	1
3334341	5,9	27	65	6	1
3334342	6	27	65	6	2
3334343	6,03	30	70	8	1
3334344	6,1	30	70	8	1
3334345	6,2	31	70	8	1

EDP	DC	LCF	OAL	DCON	Type
3334346	6,3	31	70	8	1
3334347	6,4	31	70	8	1
3334348	6,5	31	70	8	1
3334349	6,53	31	70	8	1
3334350	6,6	31	70	8	1
3334351	6,7	31	70	8	1
3334352	6,8	31	70	8	1
3334353	6,9	31	70	8	1
3334354	7	31	70	8	1
3334355	7,03	31	70	8	1
3334356	7,1	35	75	8	1
3334357	7,2	35	75	8	1
3334358	7,3	35	75	8	1
3334359	7,4	35	75	8	1
3334360	7,5	35	75	8	1
3334361	7,6	35	75	8	1
3334362	7,7	35	75	8	1
3334363	7,8	35	75	8	1
3334364	7,9	35	75	8	1
3334365	8	35	75	8	2
3334366	8,03	39	80	10	1
3334367	8,1	39	80	10	1
3334368	8,2	39	80	10	1
3334369	8,3	39	80	10	1
3334370	8,4	39	80	10	1
3334371	8,5	39	80	10	1
3334372	8,53	39	80	10	1
3334373	8,6	39	80	10	1
3334374	8,7	39	80	10	1
3334375	8,8	39	80	10	1
3334376	8,9	39	80	10	1
3334377	9	39	80	10	1
3334378	9,03	39	80	10	1
3334379	9,1	43	85	10	1
3334380	9,2	43	85	10	1
3334381	9,3	43	85	10	1
3334382	9,4	43	85	10	1
3334383	9,5	43	85	10	1
3334384	9,6	43	85	10	1
3334385	9,7	43	85	10	1
3334386	9,8	43	85	10	1
3334387	9,9	43	85	10	1
3334388	10	43	85	10	2
3334389	10,03	47	90	12	1
3334390	10,1	47	90	12	1
3334391	10,2	47	90	12	1

Drilling | Solid carbide | Flat drills



- | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|
| P  | P  | P  | P  | M  | K  | K  | N  | N  | H  | H  | H  |
| C < 0,2% | 0,25 < C < 0,4 | C ≥ 0,45% | SCM | INOX | GG | GGG | Al | AC, ADC | 25-35 HRC | 35-45 HRC | 45-52 HRC |



CARBIDE



20°

[illegible]

Drilling | Solid carbide

Flat drills

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

ADF-2D

	Low Carbon Steel - Alloy Steel (C<0.3%)		Carbon Steel		Alloy Steel		Plastic Mold Steel		Stainless Steel	
	SS400・SCM ~710N/mm ²		S35C・S50C ~210HB ~710N/mm ²		SCM・SCr・SNCM 28~35HRC 900~1,100N/mm ²		NAK80 ~40HRC		SUS304 480 ~ 800N/mm ²	
Vc	30~100m/min		30~100m/min		30~90m/min		20~40m/min		10~30m/min	
Ø	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)
0.2	40.000	0.001 ~ 0.006	40.000	0.001 ~ 0.006	40.000	0.001 ~ 0.006	40.000	0.001 ~ 0.004	40.000	0.001 ~ 0.004
0.5	28.700	0.003 ~ 0.015	28.700	0.003 ~ 0.015	25.500	0.003 ~ 0.015	19.000	0.003 ~ 0.01	15.900	0.003 ~ 0.01
1	17.500	0.005 ~ 0.03	17.500	0.005 ~ 0.03	15.900	0.005 ~ 0.03	9.550	0.005 ~ 0.02	8.000	0.005 ~ 0.02
1.5	13.800	0.008 ~ 0.045	13.800	0.008 ~ 0.045	12.700	0.008 ~ 0.045	6.350	0.008 ~ 0.03	5.300	0.008 ~ 0.03
2	12.700	0.01 ~ 0.06	12.700	0.01 ~ 0.06	9.550	0.01 ~ 0.06	4.750	0.01 ~ 0.04	-	-
3	8.500	0.015 ~ 0.09	8.500	0.015 ~ 0.09	6.350	0.015 ~ 0.09	3.200	0.015 ~ 0.06	-	-
4	6.350	0.02 ~ 0.12	6.350	0.02 ~ 0.12	4.750	0.02 ~ 0.12	2.400	0.02 ~ 0.08	-	-
6	4.250	0.03 ~ 0.18	4.250	0.03 ~ 0.18	3.200	0.03 ~ 0.18	1.600	0.03 ~ 0.12	-	-
8	3.200	0.04 ~ 0.24	3.200	0.04 ~ 0.24	2.400	0.04 ~ 0.24	1.200	0.04 ~ 0.16	-	-
10	2.550	0.05 ~ 0.3	2.550	0.05 ~ 0.3	1.900	0.05 ~ 0.3	950	0.05 ~ 0.2	-	-
12	2.100	0.06 ~ 0.3	2.100	0.06 ~ 0.3	1.600	0.06 ~ 0.3	800	0.06 ~ 0.24	-	-
14	1.800	0.07 ~ 0.35	1.800	0.07 ~ 0.35	1.350	0.07 ~ 0.35	700	0.07 ~ 0.28	-	-
16	1.600	0.08 ~ 0.36	1.600	0.08 ~ 0.36	1.200	0.08 ~ 0.36	600	0.08 ~ 0.32	-	-
18	1.400	0.09 ~ 0.38	1.400	0.09 ~ 0.38	1.050	0.09 ~ 0.38	550	0.09 ~ 0.36	-	-
20	1.250	0.1 ~ 0.4	1.250	0.1 ~ 0.4	950	0.1 ~ 0.4	500	0.1 ~ 0.4	-	-

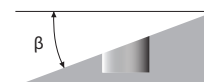
	Special Alloy Steel - Hardened Steel - Prehardened Steel		Cast Iron		Ductile Cast Iron		Aluminium		Aluminium Alloy	
	FC250 ~45HRC		FC250 ~350N/mm²		FCD600 400 ~600N/mm²		A5052 • A7075 ~350N/mm²		AC4C • ADC 400~600N/mm²	
Vc	20~30m/min		30~120m/min		30~80m/min		30~200m/min		30~200m/min	
Ø	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)
0,2	40.000	0,001 ~ 0,004	40.000	0,001 ~ 0,006	40.000	0,001 ~ 0,006	40.000	0,001 ~ 0,006	40.000	0,001 ~ 0,006
0,5	15.900	0,003 ~ 0,01	32.000	0,003 ~ 0,015	25.000	0,003 ~ 0,015	35.000	0,003 ~ 0,015	35.000	0,003 ~ 0,015
1	7.950	0,005 ~ 0,02	22.500	0,005 ~ 0,03	15.900	0,005 ~ 0,03	30.000	0,005 ~ 0,03	30.000	0,005 ~ 0,03
1,5	5.300	0,008 ~ 0,03	17.000	0,008 ~ 0,045	11.500	0,008 ~ 0,045	25.000	0,008 ~ 0,045	25.000	0,008 ~ 0,045
2	4.000	0,01 ~ 0,03	14.300	0,01 ~ 0,06	10.350	0,01 ~ 0,06	22.300	0,01 ~ 0,06	22.300	0,01 ~ 0,06
3	2.650	0,015 ~ 0,045	9.550	0,015 ~ 0,09	6.900	0,015 ~ 0,09	14.850	0,015 ~ 0,09	14.850	0,015 ~ 0,09
4	2.000	0,02 ~ 0,06	7.150	0,02 ~ 0,12	5.150	0,02 ~ 0,12	11.150	0,02 ~ 0,12	11.150	0,02 ~ 0,12
6	1.350	0,03 ~ 0,09	4.750	0,03 ~ 0,18	3.450	0,03 ~ 0,18	7.450	0,03 ~ 0,18	7.450	0,03 ~ 0,18
8	1.000	0,04 ~ 0,12	3.600	0,04 ~ 0,24	2.600	0,04 ~ 0,24	5.550	0,04 ~ 0,24	5.550	0,04 ~ 0,24
10	800	0,05 ~ 0,15	2.850	0,05 ~ 0,3	2.050	0,05 ~ 0,3	4.450	0,05 ~ 0,3	4.450	0,05 ~ 0,3
12	650	0,06 ~ 0,18	2.400	0,06 ~ 0,3	1.700	0,06 ~ 0,3	3.700	0,06 ~ 0,36	3.700	0,06 ~ 0,36
14	550	0,07 ~ 0,21	2.050	0,07 ~ 0,35	1.500	0,07 ~ 0,35	3.200	0,07 ~ 0,42	3.200	0,07 ~ 0,42
16	500	0,08 ~ 0,24	1.800	0,08 ~ 0,36	1.300	0,08 ~ 0,36	2.800	0,08 ~ 0,48	2.800	0,08 ~ 0,48
18	450	0,09 ~ 0,27	1.600	0,09 ~ 0,38	1.150	0,09 ~ 0,38	2.500	0,09 ~ 0,54	2.500	0,09 ~ 0,54
20	400	0,1 ~ 0,3	1.450	0,1 ~ 0,4	1.050	0,1 ~ 0,4	2.250	0,1 ~ 0,6	2.250	0,1 ~ 0,6

ADFLS-2D

	Low Carbon Steel - Alloy Steel (C<0.3%)		Carbon Steel		Alloy Steel		Plastic Mold Steel		Special Alloy Steel-Hardened Steel-Pre-hardened steel	
	SS400・SCM ~710N/mm ²		S35C・S50C ~210HB ~710N/mm ²		SCM・SCr・SNCM 28~35HRC 900~1,100N/mm ²		NAK80 ~40HRC		SKD61 ~50HRC	
Vc	60~100m/min		60~100m/min		30~90m/min		20~40m/min		20~30m/min	
Ø	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)
3	8.500	0.045 ~ 0.075	8.500	0.045 ~ 0.075	6.350	0.045 ~ 0.075	3.200	0.045 ~ 0.06	2.650	0.03 ~ 0.06
4	6.350	0.06 ~ 0.1	6.350	0.06 ~ 0.1	4.750	0.06 ~ 0.1	2.400	0.06 ~ 0.08	2.000	0.04 ~ 0.08
6	4.250	0.09 ~ 0.15	4.250	0.09 ~ 0.15	3.200	0.09 ~ 0.15	1.600	0.09 ~ 0.12	1.350	0.06 ~ 0.12
8	3.200	0.12 ~ 0.2	3.200	0.12 ~ 0.2	2.400	0.12 ~ 0.2	1.200	0.12 ~ 0.16	1.000	0.08 ~ 0.16
10	2.550	0.15 ~ 0.25	2.550	0.15 ~ 0.25	1.900	0.15 ~ 0.25	950	0.15 ~ 0.2	800	0.1 ~ 0.2
12	2.100	0.18 ~ 0.3	2.100	0.18 ~ 0.3	1.600	0.18 ~ 0.3	800	0.18 ~ 0.24	650	0.12 ~ 0.24
14	1.800	0.21 ~ 0.35	1.800	0.21 ~ 0.35	900	0.21 ~ 0.35	700	0.21 ~ 0.28	550	0.14 ~ 0.28
16	1.600	0.24 ~ 0.4	1.600	0.24 ~ 0.4	800	0.24 ~ 0.4	600	0.24 ~ 0.32	500	0.16 ~ 0.32
18	1.400	0.27 ~ 0.45	1.400	0.27 ~ 0.45	700	0.27 ~ 0.45	550	0.27 ~ 0.36	450	0.18 ~ 0.36
20	1.250	0.3 ~ 0.5	1.250	0.3 ~ 0.5	650	0.3 ~ 0.5	500	0.3 ~ 0.4	400	0.2 ~ 0.4

	Cast Iron FC250 ~350N/mm ²		Ductile Cast Iron FCD600 400 ~600N/mm ²		Aluminium A5052・A7075 ~350N/mm ²		Aluminium Alloy AC4C・ADC 400~600N/mm ²	
	Vc	60~120m/min		50~80m/min		80~200m/min		80~200m/min
Ø	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)
3	9.550	0,06 ~ 0,09	6.900	0,06 ~ 0,09	14.850	0,015 ~ 0,09	14.850	0,015 ~ 0,09
4	7.150	0,08 ~ 0,12	5.150	0,08 ~ 0,12	11.150	0,02 ~ 0,12	11.150	0,02 ~ 0,12
6	4.750	0,12 ~ 0,18	3.450	0,12 ~ 0,18	7.450	0,03 ~ 0,18	7.450	0,03 ~ 0,18
8	3.600	0,16 ~ 0,24	2.600	0,16 ~ 0,24	5.550	0,04 ~ 0,24	5.550	0,04 ~ 0,24
10	2.850	0,2 ~ 0,3	2.050	0,2 ~ 0,3	4.450	0,05 ~ 0,3	4.450	0,05 ~ 0,3
12	2.400	0,24 ~ 0,36	1.700	0,24 ~ 0,36	3.700	0,06 ~ 0,36	3.700	0,06 ~ 0,36
14	2.050	0,28 ~ 0,42	1.500	0,28 ~ 0,42	3.200	0,07 ~ 0,42	3.200	0,07 ~ 0,42
16	1.800	0,32 ~ 0,48	1.300	0,32 ~ 0,48	2.800	0,08 ~ 0,48	2.800	0,08 ~ 0,48
18	1.600	0,36 ~ 0,54	1.150	0,36 ~ 0,54	2.500	0,09 ~ 0,54	2.500	0,09 ~ 0,54
20	1.450	0,4 ~ 0,6	1.050	0,4 ~ 0,6	2.250	0,1 ~ 0,6	2.250	0,1 ~ 0,6

1. To process flat surfaces, prior Centre-drilling with a larger diameter is required.
2. Water-soluble coolant may be applied as noted in the above table only under the premise that the work surface has been flattened by milling.
3. When using non-water soluble oil or water-emulsifiable (over 20 times dilution), reduce cutting speed by 30%.
4. Use a rigid and precise machine and holder.
5. Please minimize tool hang over as much as possible during machining.
6. Adjust the rotational speed and the feed rate in accordance with conditions such as the machining shape, machine rigidity, or work holding.
7. Please set up the drill so that the runout of the cutting edge is under 0.01 mm.
8. When machining an inclined plane, adjust the rotational speed and the feed rate in accordance with the angle of the incline (β).
 - When the machining incline angle(β) is less than 30°, please reduce the feed to 40~60%.
 - When the machining incline angle(β) is over 30°, please reduce the speed to 60~80%, the feed to 20~40%.
9. Please use step drilling in pilot holes to improve cutting chip separation.
10. If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed rate as indicated above (in accordance with the machining precision requirement).



CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

ADFO-3D

	Low Carbon Steel - Alloy Steel (C<0.3%) SS400 • SCM ~710N/mm ²		Carbon Steel S35C • S50C ~210HB ~710N/mm ²		Alloy Steel SCM • SCr • SNCM 28~35HRC 900~1,100N/mm ²		Plastic Mold Steel NAK80 ~40HRC		Stainless Steel SUS304 480~800N/mm ²	
Vc	80~120m/min		80~120m/min		50~90m/min		20~40m/min		40~60m/min	
Ø	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)
3	10.600	0,045 ~ 0,09	10.600	0,045 ~ 0,09	7.450	0,045 ~ 0,09	3.200	0,045 ~ 0,09	5.300	0,045 ~ 0,09
4	8.000	0,045 ~ 0,12	8.000	0,045 ~ 0,12	5.550	0,045 ~ 0,12	2.400	0,045 ~ 0,12	4.000	0,045 ~ 0,12
6	5.300	0,06 ~ 0,18	5.300	0,06 ~ 0,18	3.700	0,06 ~ 0,18	1.600	0,06 ~ 0,18	2.650	0,06 ~ 0,18
8	4.000	0,08 ~ 0,24	4.000	0,08 ~ 0,24	2.800	0,08 ~ 0,24	1.200	0,08 ~ 0,24	2.000	0,08 ~ 0,24
10	3.200	0,10 ~ 0,30	3.200	0,10 ~ 0,30	2.250	0,10 ~ 0,30	950	0,10 ~ 0,30	1.600	0,10 ~ 0,30
12	2.650	0,12 ~ 0,36	2.650	0,12 ~ 0,36	1.850	0,12 ~ 0,36	800	0,12 ~ 0,36	1.350	0,12 ~ 0,36
14	2.250	0,14 ~ 0,42	2.250	0,14 ~ 0,42	1.600	0,14 ~ 0,42	700	0,14 ~ 0,42	1.150	0,14 ~ 0,42
16	2.000	0,16 ~ 0,48	2.000	0,16 ~ 0,48	1.400	0,16 ~ 0,48	600	0,16 ~ 0,48	1.000	0,16 ~ 0,48
18	1.750	0,18 ~ 0,54	1.750	0,18 ~ 0,54	1.250	0,18 ~ 0,54	550	0,18 ~ 0,54	900	0,18 ~ 0,54
20	1.600	0,20 ~ 0,60	1.600	0,20 ~ 0,60	1.100	0,20 ~ 0,60	500	0,20 ~ 0,60	800	0,20 ~ 0,60

	Cast Iron FC250 ~350N/mm ²		Ductile Cast Iron FCD600 400 ~600N/mm ²		Aluminium A5052 • A7075 ~350N/mm ²		Aluminium Alloy AC4C • ADC 400~600N/mm ²	
Vc	80~120m/min		60~100m/min		120~200m/min		120~200m/min	
Ø	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)	Speed (min ⁻¹)	Feed Rate (mm/rev.)
3	10.600	0,045 ~ 0,09	8.500	0,045 ~ 0,09	17.000	0,045 ~ 0,09	17.000	0,045 ~ 0,09
4	8.000	0,045 ~ 0,12	6.350	0,045 ~ 0,12	12.750	0,045 ~ 0,12	12.750	0,045 ~ 0,12
6	5.300	0,06 ~ 0,18	4.250	0,06 ~ 0,18	8.500	0,06 ~ 0,18	8.500	0,06 ~ 0,18
8	4.000	0,08 ~ 0,24	3.200	0,08 ~ 0,24	6.350	0,08 ~ 0,24	6.350	0,08 ~ 0,24
10	3.200	0,10 ~ 0,30	2.550	0,10 ~ 0,30	5.100	0,10 ~ 0,30	5.100	0,10 ~ 0,30
12	2.650	0,12 ~ 0,36	2.100	0,12 ~ 0,36	4.250	0,12 ~ 0,36	4.250	0,12 ~ 0,36
14	2.250	0,14 ~ 0,42	1.800	0,14 ~ 0,42	3.650	0,14 ~ 0,42	3.650	0,14 ~ 0,42
16	2.000	0,16 ~ 0,48	1.600	0,16 ~ 0,48	3.200	0,16 ~ 0,48	3.200	0,16 ~ 0,48
18	1.750	0,18 ~ 0,54	1.400	0,18 ~ 0,54	2.850	0,18 ~ 0,54	2.850	0,18 ~ 0,54
20	1.600	0,20 ~ 0,60	1.250	0,20 ~ 0,60	2.550	0,20 ~ 0,60	2.550	0,20 ~ 0,60

1. Water-soluble coolant may be applied as noted in the above table only under the premise that the work surface has been flattened by milling.
2. Use a rigid and precise machine and holder.
3. Please minimize overhang length as much as possible during machining.
4. Adjust the rotational speed and the feed in accordance with conditions such as the machining shape, machine rigidity, or work holding.
5. Please set up the drill so that the runout of the cutting edge is under 0.02 mm.
6. Please select a cutting fluid that is most suitable for the work material with minimal smoke formation.
7. In the case of dry machining, please use air blow to remove chips to prevent clogging.
Please do not machine stainless steel dry.
8. When machining an inclined plane, adjust the rotational speed and the feed in accordance with the angle of the incline (β).
When the machining incline angle (β) is less than 30°, please reduce the feed to 40-60%.
When the machining incline angle (β) is over 30°, please reduce the speed to 60-80%, the feed to 20-40%.
9. Please use step drilling in pilot holes to improve cutting chip separation.
10. If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed as indicated above (in accordance with the machining precision requirement).
11. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.

