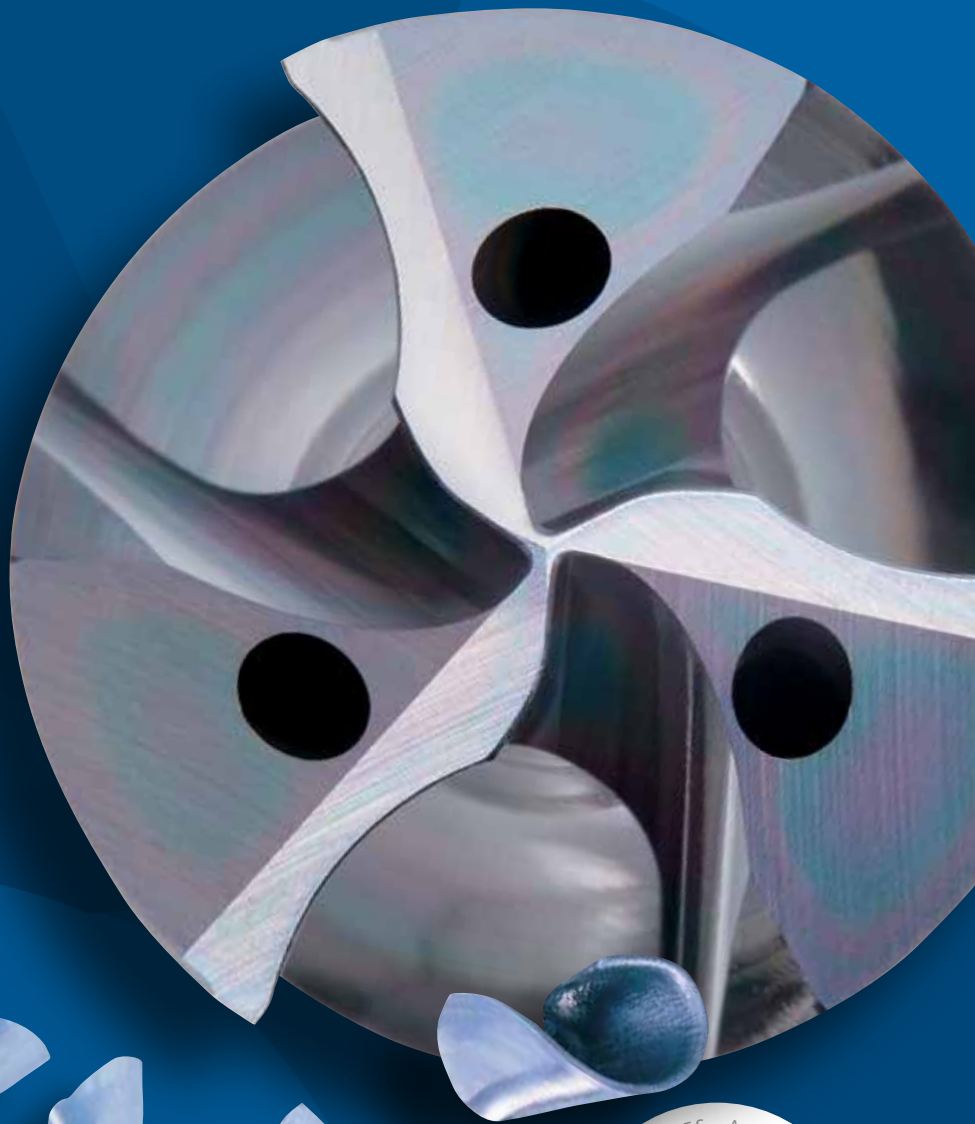




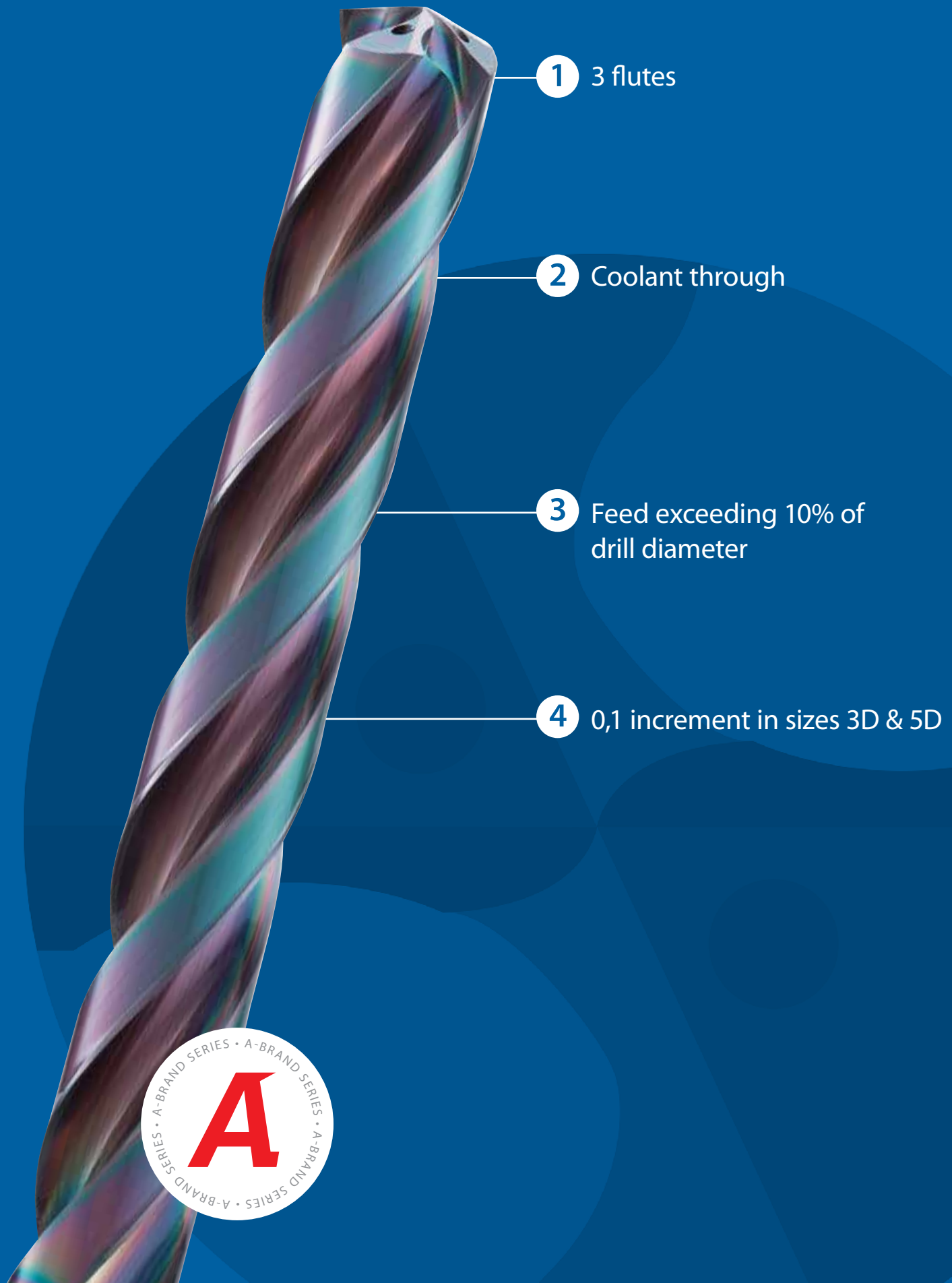
Coolant-through, 3-fluted carbide drill series

ADO-TRS SERIES

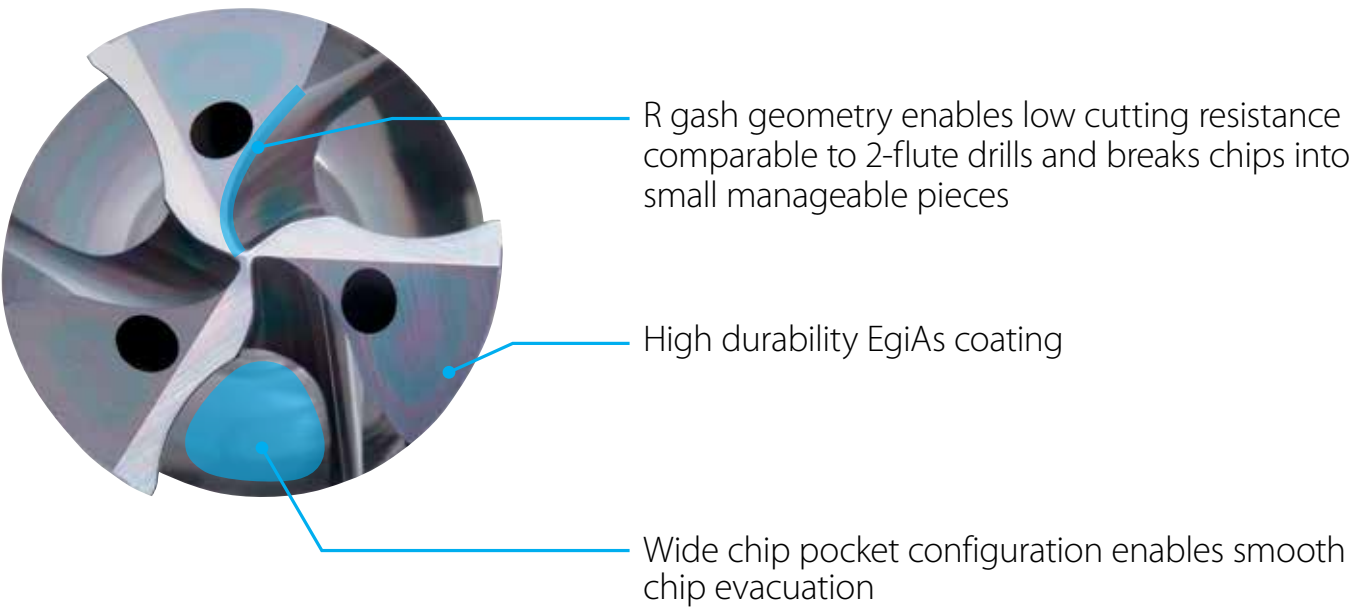
Volume 1



KEY FEATURES: ADO-TRS



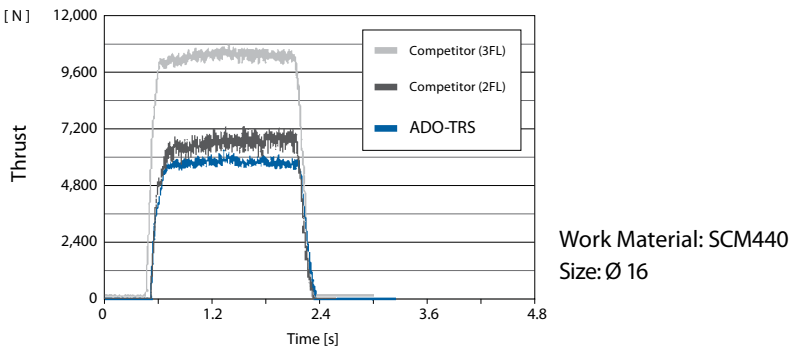
3-FLUTES CARBIDE DRILL WITH OIL HOLE



High thrust force

ADO-TRS enables low resistance drilling

Reduces thrust force by over 30% against a competitor 3-flute drill with even lower thrust force versus a competitor 2-flute drill



Poor Chip Evacuation

ADO-TRS offers outstanding chip management capability and consistent chip form

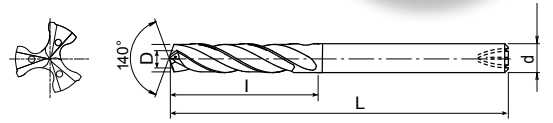
Chips from the competitor 3-flute and 2-flute drills are elongated and are the common cause of chip evaluation troubles

ADO-TRS	Competitor (3 flutes)	Competitor (2 flutes)

Work Material: S50C

ADO-TRS-3D NEW

Drilling | Solid carbide | 3xD



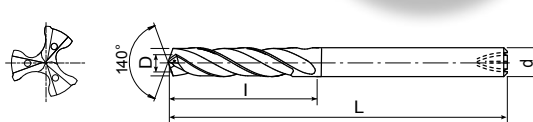
- First choice in quality and performance
- 3 flute carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- Allows high feed 1.000mm/min process in steel and cast iron
- 112 sizes



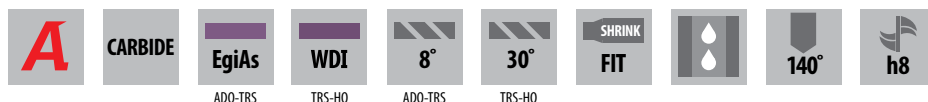
TRS-HO EDP	ADO-TRS EDP	D	L	I	d	Price
-	8720300 NEW	3	66	18	3	
-	8720330 NEW	3,3	74	20	4	
-	8720350 NEW	3,5	74	21	4	
-	8720366 NEW	3,66	74	22	4	
-	8720400 NEW	4	74	24	4	
-	8720420 NEW	4,2	80	26	6	
-	8720450 NEW	4,5	80	27	6	
-	8720460 NEW	4,6	80	28	6	
48157050	8720500	5	80	25	6	
8660510	8720510	5,1	82	26	6	
8660520	8720520	5,2	82	26	6	
8660530	8720530	5,3	82	27	6	
8660540	8720540	5,4	82	27	6	
8660550	8720550	5,5	82	28	6	
48157555	48323555	5,55	82	28	6	
8660560	8720560	5,6	82	28	6	
8660570	8720570	5,7	82	29	6	
8660580	8720580	5,8	82	29	6	
8660590	8720590	5,9	82	30	6	
8660600	8720600	6	82	30	6	
48157061	8720610	6,1	88	31	8	
48157062	8720620	6,2	88	31	8	
48157063	8720630	6,3	88	32	8	
48157064	8720640	6,4	88	32	8	
48157065	8720650	6,5	88	33	8	
48157066	8720660	6,6	88	33	8	
48157067	8720670	6,7	88	34	8	
48157068	8720680	6,8	88	34	8	
48157069	8720690	6,9	88	35	8	
48157070	8720700	7	88	35	8	
8660710	8720710	7,1	94	36	8	
8660720	8720720	7,2	94	36	8	
8660730	8720730	7,3	94	37	8	
-	8720738 NEW	7,38	94	37	8	
8660740	8720740	7,4	94	37	8	
-	48323745 NEW	7,45	94	38	8	
8660750	8720750	7,5	94	38	8	
48157755	-	7,55	94	38	8	
8660760	8720760	7,6	94	38	8	
8660770	8720770	7,7	94	39	8	
8660780	8720780	7,8	94	39	8	
8660790	8720790	7,9	94	40	8	
8660800	8720800	8	94	40	8	
48157081	8720810	8,1	101	41	10	
48157082	8720820	8,2	101	41	10	

TRS-HO EDP	ADO-TRS EDP	D	L	I	d	Price
48157083	8720830	8,3	101	42	10	
48157084	8720840	8,4	101	42	10	
48157085	8720850	8,5	101	43	10	
48157086	8720860	8,6	101	43	10	
48157087	8720870	8,7	101	44	10	
48157088	8720880	8,8	101	44	10	
48157089	8720890	8,9	101	45	10	
48157090	8720900	9	101	45	10	
8660910	8720910	9,1	106	46	10	
8660920	8720920	9,2	106	46	10	
-	8720925 NEW	9,25	106	47	10	
8660930	8720930	9,3	106	47	10	
-	8720938 NEW	9,38	106	47	10	
8660940	8720940	9,4	106	47	10	
8660950	8720950	9,5	106	48	10	
48157955	-	9,55	106	48	10	
8660960	8720960	9,6	106	48	10	
8660970	8720970	9,7	106	49	10	
8660980	8720980	9,8	106	49	10	
8660990	8720990	9,9	106	50	10	
8661000	8721000	10	106	50	10	
48157101	8721010	10,1	113	51	12	
48157102	8721020	10,2	113	51	12	
48157103	8721030	10,3	113	52	12	
48157104	8721040	10,4	113	52	12	
48157105	8721050	10,5	113	53	12	
48157106	8721060	10,6	113	53	12	
48157107	8721070	10,7	113	54	12	
48157108	8721080	10,8	113	54	12	
48157109	8721090	10,9	113	55	12	
48157110	8721100	11	113	55	12	
8661110	8721110	11,1	120	56	12	
8661120	8721120	11,2	120	56	12	
-	8721125 NEW	11,25	120	57	12	
8661130	8721130	11,3	120	57	12	
-	8721138 NEW	11,38	120	57	12	
8661140	8721140	11,4	120	57	12	
8661150	8721150	11,5	120	58	12	
8661160	8721160	11,6	120	58	12	
8661170	8721170	11,7	120	59	12	
8661180	8721180	11,8	120	59	12	
8661190	8721190	11,9	120	60	12	
8661200	8721200	12	120	60	12	
48157125	8721250	12,5	128	63	14	
48157130	8721300	13	128	65	14	

Drilling | Solid carbide | 3xD

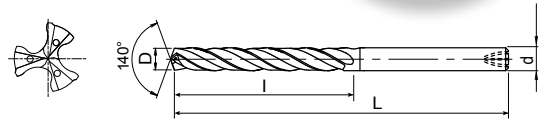


- | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|
| P  | P  | P  | P  | M  | K  | K  | S  | H  | H  | H  |
| C: ≤0,2% | C: 0,25-0,4% | C: ≥0,45% | SCM | INOX | GG | GGG | Ti | 25-35 HRC | 35-45 HRC | 45-52 HRC |

[illegible][illegible]

ADO-TRS-5D NEW

Drilling | Solid carbide | 5xD



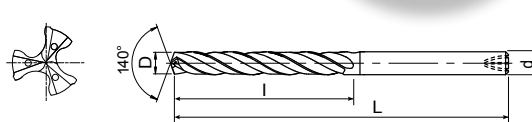
- First choice in quality and performance
- 3 flute carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- Allows high feed 1.000mm/min process in steel and cast iron
- 112 sizes



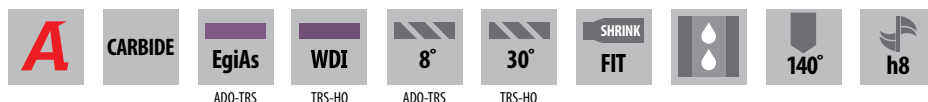
TRS-HO EDP	ADO-TRS EDP	D	L	I	d	Price
-	8722300 NEW	3	78	27	3	
-	8722330 NEW	3,3	86	30	4	
-	8722350 NEW	3,5	86	32	4	
-	8722366 NEW	3,66	86	33	4	
-	8722400 NEW	4	86	36	4	
-	8722420 NEW	4,2	95	38	6	
-	8722450 NEW	4,5	95	41	6	
-	8722460 NEW	4,6	95	42	6	
48158050	8722500	5	95	45	6	
8662510	8722510	5,1	100	41	6	
8662520	8722520	5,2	100	42	6	
8662530	8722530	5,3	100	43	6	
8662540	8722540	5,4	100	44	6	
8662550	8722550	5,5	100	44	6	
48158555	48324555	5,55	100	45	6	
8662560	8722560	5,6	100	45	6	
8662570	8722570	5,7	100	46	6	
8662580	8722580	5,8	100	47	6	
8662590	8722590	5,9	100	48	6	
8662600	8722600	6	100	48	6	
48158061	8722610	6,1	109	49	8	
48158062	8722620	6,2	109	50	8	
48158063	8722630	6,3	109	51	8	
48158064	8722640	6,4	109	52	8	
48158065	8722650	6,5	109	52	8	
48158066	8722660	6,6	109	53	8	
48158067	8722670	6,7	109	54	8	
48158068	8722680	6,8	109	55	8	
48158069	8722690	6,9	109	56	8	
48158070	8722700	7	109	56	8	
8662710	8722710	7,1	118	57	8	
8662720	8722720	7,2	118	58	8	
8662730	8722730	7,3	118	59	8	
-	8722738 NEW	7,38	118	60	8	
8662740	8722740	7,4	118	60	8	
-	48324745 NEW	7,45	118	60	8	
8662750	8722750	7,5	118	60	8	
48158755	-	7,55	118	60	8	
8662760	8722760	7,6	118	61	8	
8662770	8722770	7,7	118	62	8	
8662780	8722780	7,8	118	63	8	
8662790	8722790	7,9	118	64	8	
8662800	8722800	8	118	64	8	
48158081	8722810	8,1	128	65	10	
48158082	8722820	8,2	128	66	10	

TRS-HO EDP	ADO-TRS EDP	D	L	I	d	Price
48158083	8722830	8,3	128	67	10	
48158084	8722840	8,4	128	68	10	
48158085	8722850	8,5	128	68	10	
48158086	8722860	8,6	128	69	10	
48158087	8722870	8,7	128	70	10	
48158088	8722880	8,8	128	71	10	
48158089	8722890	8,9	128	72	10	
48158090	8722900	9	128	72	10	
8662910	8722910	9,1	136	73	10	
8662920	8722920	9,2	136	74	10	
-	8722925 NEW	9,25	136	74	10	
8662930	8722930	9,3	136	75	10	
-	8722938 NEW	9,38	136	76	10	
8662940	8722940	9,4	136	76	10	
8662950	8722950	9,5	136	76	10	
48158955	-	9,55	136	77	10	
8662960	8722960	9,6	136	77	10	
8662970	8722970	9,7	136	78	10	
8662980	8722980	9,8	136	79	10	
8662990	8722990	9,9	136	80	10	
8663000	8723000	10	136	80	10	
48158101	8723010	10,1	146	81	12	
48158102	8723020	10,2	146	82	12	
48158103	8723030	10,3	146	83	12	
48158104	8723040	10,4	146	84	12	
48158105	8723050	10,5	146	84	12	
48158106	8723060	10,6	146	85	12	
48158107	8723070	10,7	146	86	12	
48158108	8723080	10,8	146	87	12	
48158109	8723090	10,9	146	88	12	
48158110	8723100	11	146	88	12	
8663110	8723110	11,1	156	89	12	
8663120	8723120	11,2	156	90	12	
-	8723125 NEW	11,25	156	90	12	
8663130	8723130	11,3	156	91	12	
-	8723138 NEW	11,38	156	92	12	
8663140	8723140	11,4	156	92	12	
8663150	8723150	11,5	156	92	12	
8663160	8723160	11,6	156	93	12	
8663170	8723170	11,7	156	94	12	
8663180	8723180	11,8	156	95	12	
8663190	8723190	11,9	156	96	12	
8663200	8723200	12	156	96	12	
48158121	-	12,1	167	97	14	
48158122	-	12,2	167	98	14	

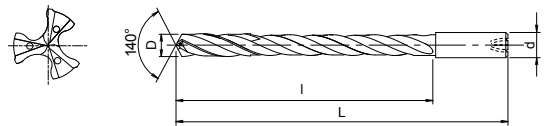
Drilling | Solid carbide | 5xD



- | | | | | | | | |
|--|--|--|--|--|--|--|--|
| P | P | P | P | M | K | K | H |
| C: ≤0,2% | C: 0,25-0,4% | C: ≥0,45% | SCM | INOX | GG | GGG | 25-35 HRC |

[illegible][illegible]

Drilling | Solid carbide | 10xD



- | | | | | | |
|--|--|--|--|--|--|
| P  | P  | P  | P  | K  | K  |
| C: ≤0,2% | C: 0,25-0,4% | C: ≥0,45% | SCM | GG | GGG |

[illegible][illegible]

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

ADO-TRS-3D/5D

	Mild Steel - Low Carbon Steel SS400 - S10C ~150HB ~500 N/mm ²		Carbon Steel S35C - S50C ~210HB ~710 N/mm ²		Alloy Steel SCM - SCr - SNCM 710 ~900 N/mm ²	
	80 ~ 120 m/min		80 ~ 120 m/min		60 ~ 100 m/min	
Vc						
Ø	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)
3	10.000	0,11 ~ 0,15	10.000	0,11 ~ 0,15	8.500	0,11 ~ 0,15
4	8.000	0,14 ~ 0,2	8.000	0,14 ~ 0,2	6.400	0,14 ~ 0,2
5	6.400	0,18 ~ 0,25	6.400	0,18 ~ 0,25	5.100	0,18 ~ 0,25
6	5.300	0,21 ~ 0,3	5.300	0,21 ~ 0,3	4.200	0,21 ~ 0,3
7	4.500	0,25 ~ 0,35	4.500	0,25 ~ 0,35	3.600	0,25 ~ 0,35
8	4.000	0,28 ~ 0,4	4.000	0,28 ~ 0,4	3.200	0,28 ~ 0,4
9	3.500	0,32 ~ 0,45	3.500	0,32 ~ 0,45	2.800	0,32 ~ 0,45
10	3.200	0,35 ~ 0,5	3.200	0,35 ~ 0,5	2.500	0,35 ~ 0,5
11	2.900	0,39 ~ 0,55	2.900	0,39 ~ 0,55	2.300	0,39 ~ 0,55
12	2.700	0,42 ~ 0,6	2.700	0,42 ~ 0,6	2.100	0,42 ~ 0,6
13	2.400	0,46 ~ 0,65	2.400	0,46 ~ 0,65	2.000	0,46 ~ 0,65
14	2.300	0,49 ~ 0,7	2.300	0,49 ~ 0,7	1.800	0,49 ~ 0,7
15	2.100	0,53 ~ 0,75	2.100	0,53 ~ 0,7	1.700	0,53 ~ 0,7
16	2.000	0,56 ~ 0,8	2.000	0,56 ~ 0,72	1.600	0,56 ~ 0,72
17	1.900	0,6 ~ 0,85	1.900	0,6 ~ 0,77	1.500	0,6 ~ 0,77
18	1.800	0,63 ~ 0,9	1.800	0,63 ~ 0,81	1.400	0,63 ~ 0,81
19	1.700	0,67 ~ 0,9	1.700	0,67 ~ 0,86	1.300	0,67 ~ 0,86
20	1.600	0,7 ~ 0,9	1.600	0,7 ~ 0,9	1.300	0,7 ~ 0,9

	Alloy Steel SCM - SCr - SNCM 900 ~1.100 N/mm ²		Cast Iron FC250 ~350N/mm ²		Ductile Cast Iron FCD450 - FCD600 400 ~600 N/mm ²	
	60 ~ 90 m/min		80 ~ 120 m/min		60 ~ 100 m/min	
Vc						
Ø	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)
3	8.000	0,11 ~ 0,15	10.000	0,11 ~ 0,18	8.500	0,11 ~ 0,15
4	6.000	0,14 ~ 0,2	8.000	0,14 ~ 0,24	6.400	0,14 ~ 0,2
5	4.800	0,18 ~ 0,25	6.400	0,18 ~ 0,3	5.100	0,18 ~ 0,25
6	4.000	0,21 ~ 0,3	5.300	0,21 ~ 0,36	4.200	0,21 ~ 0,3
7	3.400	0,25 ~ 0,35	4.500	0,25 ~ 0,42	3.600	0,25 ~ 0,35
8	3.000	0,28 ~ 0,4	4.000	0,28 ~ 0,48	3.200	0,28 ~ 0,4
9	2.700	0,32 ~ 0,45	3.500	0,32 ~ 0,54	2.800	0,32 ~ 0,45
10	2.400	0,35 ~ 0,5	3.200	0,35 ~ 0,6	2.500	0,35 ~ 0,5
11	2.200	0,39 ~ 0,55	2.900	0,39 ~ 0,66	2.300	0,39 ~ 0,55
12	2.000	0,42 ~ 0,6	2.700	0,42 ~ 0,72	2.100	0,42 ~ 0,6
13	1.800	0,46 ~ 0,65	2.400	0,46 ~ 0,78	2.000	0,46 ~ 0,65
14	1.700	0,49 ~ 0,7	2.300	0,49 ~ 0,84	1.800	0,49 ~ 0,7
15	1.600	0,53 ~ 0,70	2.100	0,53 ~ 0,75	1.700	0,53 ~ 0,7
16	1.500	0,56 ~ 0,72	2.000	0,56 ~ 0,8	1.600	0,56 ~ 0,72
17	1.400	0,6 ~ 0,77	1.900	0,6 ~ 0,85	1.500	0,6 ~ 0,77
18	1.300	0,63 ~ 0,81	1.800	0,63 ~ 0,9	1.400	0,63 ~ 0,81
19	1.300	0,67 ~ 0,86	1.700	0,67 ~ 0,95	1.300	0,67 ~ 0,86
20	1.200	0,7 ~ 0,9	1.600	0,7 ~ 1	1.300	0,7 ~ 0,9

1. The indicated speeds and feeds are for drilling with [water-soluble coolant](#).
2. Water-soluble high density coolant (less than 20 times dilution) is recommended.
3. When using non-water-soluble or water-soluble coolant (over 20 times dilution), reduce cutting speed by 30%.
4. Equip the drill with a scratch- and dust-free collet and [minimize drill deflection to less than 0.02mm](#).
5. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
6. A clogged oil hole can lead to breakage. Make sure that a filter is attached to the oil feeder.

TRS-HO-10D

	Mild Steel - Low Carbon Steel St-52 ~150HB ~500 N/mm ²		Carbon Steel C45 ~210HB ~710 N/mm ²		Alloys Steel 42CrMo4 16~28HRC 710~900 N/mm ²		Alloys Steel 42CrMo4 16~28HRC 900~110 N/mm ²		Cast Iron GG-25 ~350 N/mm ²		Ductile Cast Iron GGG-60 400~600 N/mm ²	
	80 ~ 120 m/min		80 ~ 120 m/min		60 ~ 100 m/min		60 ~ 90 m/min		80 ~ 150 m/min		60 ~ 120 m/min	
Ø	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)	S (min ⁻¹)	F (mm/rev.)
	10D		10D		10D		10D		10D		10D	
5	6.400	0,18 ~ 0,25	6.400	0,18 ~ 0,25	4.800	0,18 ~ 0,25	5.700	0,18 ~ 0,25	6.400	0,18 ~ 0,30	6.400	0,18 ~ 0,25
6	5.300	0,21 ~ 0,30	5.300	0,21 ~ 0,30	4.000	0,21 ~ 0,30	4.800	0,21 ~ 0,30	5.300	0,21 ~ 0,36	5.300	0,21 ~ 0,30
7	4.500	0,25 ~ 0,35	4.500	0,25 ~ 0,35	3.400	0,25 ~ 0,35	4.100	0,25 ~ 0,35	4.500	0,25 ~ 0,42	4.500	0,25 ~ 0,35
8	4.000	0,28 ~ 0,40	4.000	0,28 ~ 0,40	3.000	0,28 ~ 0,40	3.600	0,28 ~ 0,40	4.000	0,28 ~ 0,48	4.000	0,28 ~ 0,40
9	3.500	0,32 ~ 0,45	3.500	0,32 ~ 0,45	2.700	0,32 ~ 0,45	3.200	0,32 ~ 0,45	3.500	0,32 ~ 0,54	3.500	0,32 ~ 0,45
10	3.200	0,35 ~ 0,50	3.200	0,35 ~ 0,50	2.400	0,35 ~ 0,50	2.900	0,35 ~ 0,50	3.200	0,35 ~ 0,60	3.200	0,35 ~ 0,50
11	2.900	0,39 ~ 0,55	2.900	0,39 ~ 0,55	2.200	0,39 ~ 0,50	2.600	0,39 ~ 0,50	2.900	0,39 ~ 0,66	2.900	0,39 ~ 0,55
12	2.700	0,42 ~ 0,60	2.700	0,42 ~ 0,60	2.000	0,42 ~ 0,54	2.400	0,42 ~ 0,54	2.700	0,42 ~ 0,72	2.700	0,42 ~ 0,60

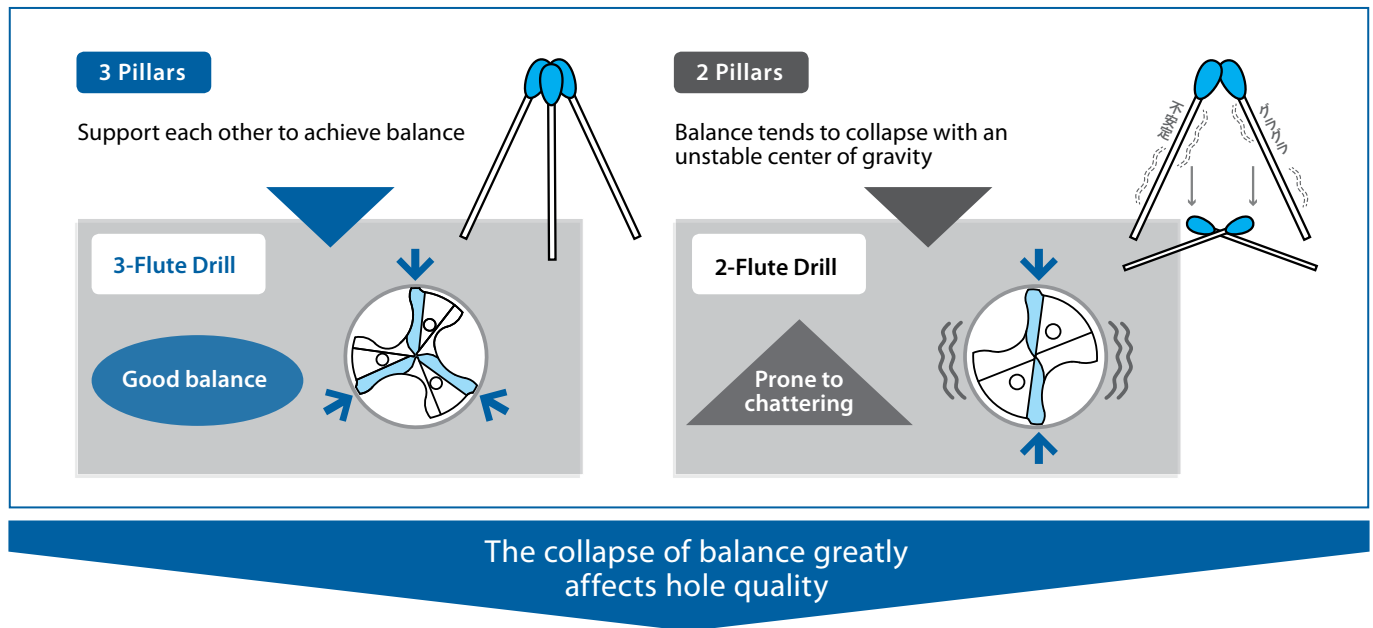
CUSTOM TOOLING

A V A I L A B L E O N R E Q U E S T



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ADO-TRS: 3 FLUTES DRILL IS WELL-BALANCED



		ADO-TRS	Competitor (3FL)	Competitor (2FL)
Hole Expansion Comparison	Entry	0,005mm	0,051mm	0,025mm
	Middle	0,002mm	0,039mm	0,022mm
	Exit	0,003mm	0,05mm	0,018mm
Roundness Cylindricity		16 μm 28 μm	30 μm 32 μm	52 μm 40 μm

Tool	ADO-TRS	Cutting Speed	90m/min (1.791min ⁻¹)		Coolant	Water Soluble 3MPa
Work Material	SCM420H	Feed	3FL 1,075mm/min (0.6mm/rev)	2FL 537mm/min (0.3mm/rev)	Machine	Horizontal Machining Center

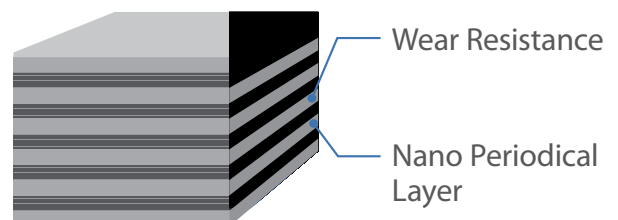
The quality of the pre-drilled hole will affect the performance of the next process such as tapping.

EgiAs Coating

EgiAs coating with high toughness and wear resistance characteristics

Constructed with extreme toughness, high wear and heat resistance characteristics to ensure stable and consistent tool life.

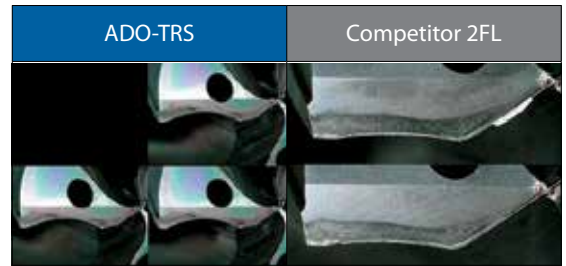
EgiAs



Coating Color	Coating Structure	Hardness (Hv)	Oxidation Temperature (C°)	Heat Resistance	Adhesion Strength	Wear Resistance	Welding Resistance	Toughness
Interference Color	Periodic Nano-layered	40	1.100	☉	☉	☉	☉	☉

Outstanding cutting chip breakage and consistent chip form

Tool	ADO-TRS-5D	Competitor 3FL	Competitor 2FL
Size	Ø 14		
Work Material	S50C		
Cutting Speed	100m/min (2.275min ⁻¹)		
Feed	1,365mm/min (0,6mm/rev)	965mm/min (0,42mm/rev)	
Depth of Hole	70mm (Blind)		
Coolant	Water Soluble		
Machine	Horizontal Machining Center		



	Number of holes		
	500	1.000	1.500
ADO-TRS	1.600 (Holes) Still Running		
Competitor 3FL	100 (Holes) Breakage		
Competitor 2FL	1.400 (Holes) Chipping		

Stable performance with trouble-free chip evacuation even in SS400

Tool	ADO-TRS-5D
Size	Ø 8,5
Work Material	SS400
Cutting Speed	100m/min (3.745 min ⁻¹)
Feed	1,273mm/min (0,34mm/rev)
Depth of Hole	43mm (Blind)
Coolant	Water Soluble 3MPa
Machine	Horizontal Machining Center

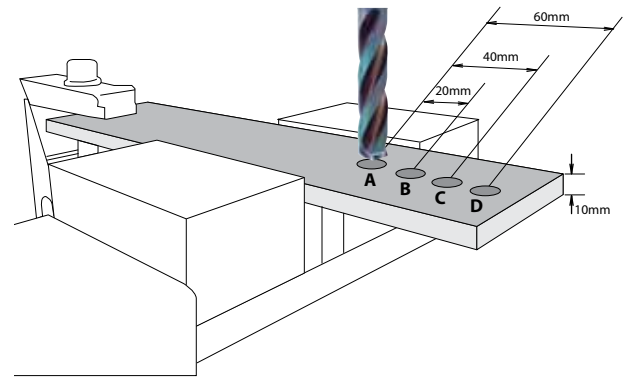
	Number of holes		
	1.000	2.000	3.000
ADO-TRS	2.900 (Holes) Still Running		
Competitor 3FL	1 (Hole) Tangled chips at early stage		
Competitor 2FL	290 (Holes) Tool breakage due to tangled chips		

Smooth chip evacuation capability enables long and stable tool life in SS400, a material prone to the elongation of chips



Demonstrates low resistance characteristic in thin plate processing

Tool	ADO-TRS-3D	Competitor 3FL	Competitor 2FL
Size	Ø 14		
Work Material	S53C (30HRC)		
Cutting Speed	100m/min (2.275min ⁻¹)		
Feed	1,274mm/min (0,56mm/rev)	956mm/min (0,42mm/rev)	
Depth of Hole	100mm (Through)		
Coolant	Water Soluble		
Machine	Vertical Machining Center		



Hole precision equivalent to low-feed 2-flute drills

Tool	Feed	Hole Position Accuracy				Hole Diameter			
		A	B	C	D	A	B	C	D
ADO-TRS	1.274mm/min	0,031	0,033	0,038	0,042	13,996	13,998	14,009	14,022
Competitor (3FL)	1.274mm/min	0,055	0,075	0,131	0,272	14,004	14,007	14,020	14,062
Competitor (2FL)	956mm/min	0,023	0,029	0,045	0,046	14,013	14,021	14,026	14,026

Comparison of tapping performance based on quality of pre-drilled holes

A close-up on the differences between tapping in a good quality pre-drilled hole and a poor quality pre-drilled hole with significant deviation.

Size	M6 X 1	Cutting Speed	15m/min (1.791min ⁻¹)	Coolant	Water Soluble 3MPa
Work Material	S50C	Tapping Length	12mm	Machine	Horizontal Machining Center

Cutting Tap (Drill hole size: Ø 5 x 15mm)

Good pre-drilled hole quality	Poor pre-drilled hole quality
	 Unstable chip generation with various thickness ➔ Risk of breakage, poor thread accuracy

Forming Tap (Drill hole size: Ø 5,52 x 15mm)

Good pre-drilled hole quality	Poor pre-drilled hole quality
 Thrust (N) vs Time (s)	 Thrust (N) vs Time (s) Tapping torque sharply increases in the latter half of machining ➔ Risk of breakage, poor thread accuracy

CUTTING DATA

Crankshaft (alloy steel) cycle time reduction example

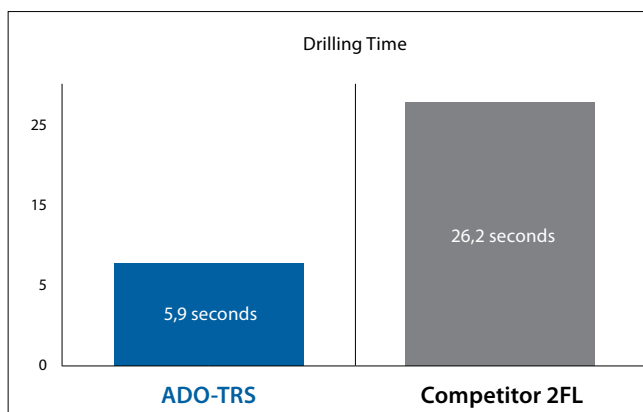


Section A

Tool	ADO-TRS Special	Competitor 2FL
Size	Ø 8,8	
Work Material	Alloy Steel	
Cutting Speed	80m/min (2.895min ⁻¹)	
Feed	1,563mm/min (0,54mm/rev)	347mm/min (0,12mm/rev)
Coolant	MQL	
Machine	Horizontal Machining Center	



	Number of holes		
	2.000	4.000	6.000
ADO-TRS	6.400 (Holes)	Still Running	
Competitor 2FL	3.200 (Holes)	Tool Change	

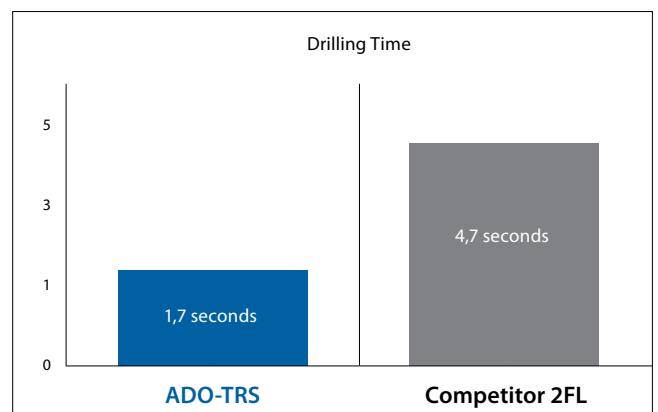


Section B

Tool	ADO-TRS Special	Competitor 2FL
Size	Ø 12,5	
Work Material	Alloy Steel	
Cutting Speed	80m/min (2.038min ⁻¹)	
Feed	1,101mm/min (0,54mm/rev)	408mm/min (0,2mm/rev)
Coolant	MQL	
Machine	Horizontal Machining Center	



	Number of holes		
	1.000	2.000	3.000
ADO-TRS	3.000 (Holes)	Still Running	
Competitor 2FL	1.500 (Holes)	Tool Change	

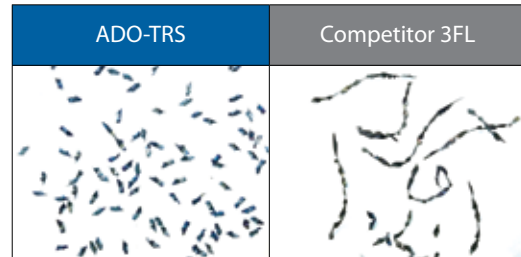


Breaks chips into small manageable pieces even in SCM440 with MQL

Tool	ADO-TRS-5D
Size	Ø 5
Work Material	SCM440(30HRC)
Cutting Speed	75m/min (4.777 min ⁻¹)
Feed	1,194mm/min (0,25mm/rev)
Depth of Hole	25mm (Through)
Coolant	MQL
Machine	Horizontal Machining Center

The competitor ejected long cutting chips that tangled around the tool. The ADO-TRS, on the other hand, is able to achieve trouble-free drilling by breaking cutting chips into small manageable pieces

	Number of Holes		
	1.000	2.000	3.000
ADO-TRS	3.000 (Holes) Still Running		
Competitor 3FL	500 (Holes) Tangled chips		

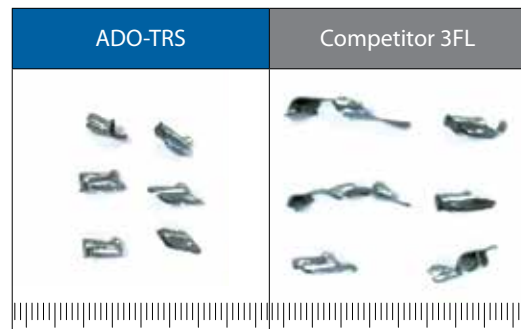


Excellent chip evacuation even in deep hole drilling on a lathe machine

Tool	ADO-TRS-8D Special
Size	Ø 14
Work Material	Alloy Steel
Cutting Speed	80m/min (1.820 min ⁻¹)
Feed	946mm/min (0,52mm/rev)
Depth of Hole	90mm
Coolant	Water Soluble
Machine	Lathe (rotating workpiece)

Demonstrates stable chip evacuation even in deep hole drilling of a rotating workpiece that is difficult to discharge chips

	Number of Holes		
	1.000	3.000	5.000
ADO-TRS	4.950 (Holes) Still Running		
Competitor 3FL	4.000 (Holes) Breakage		





shaping your dreams

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