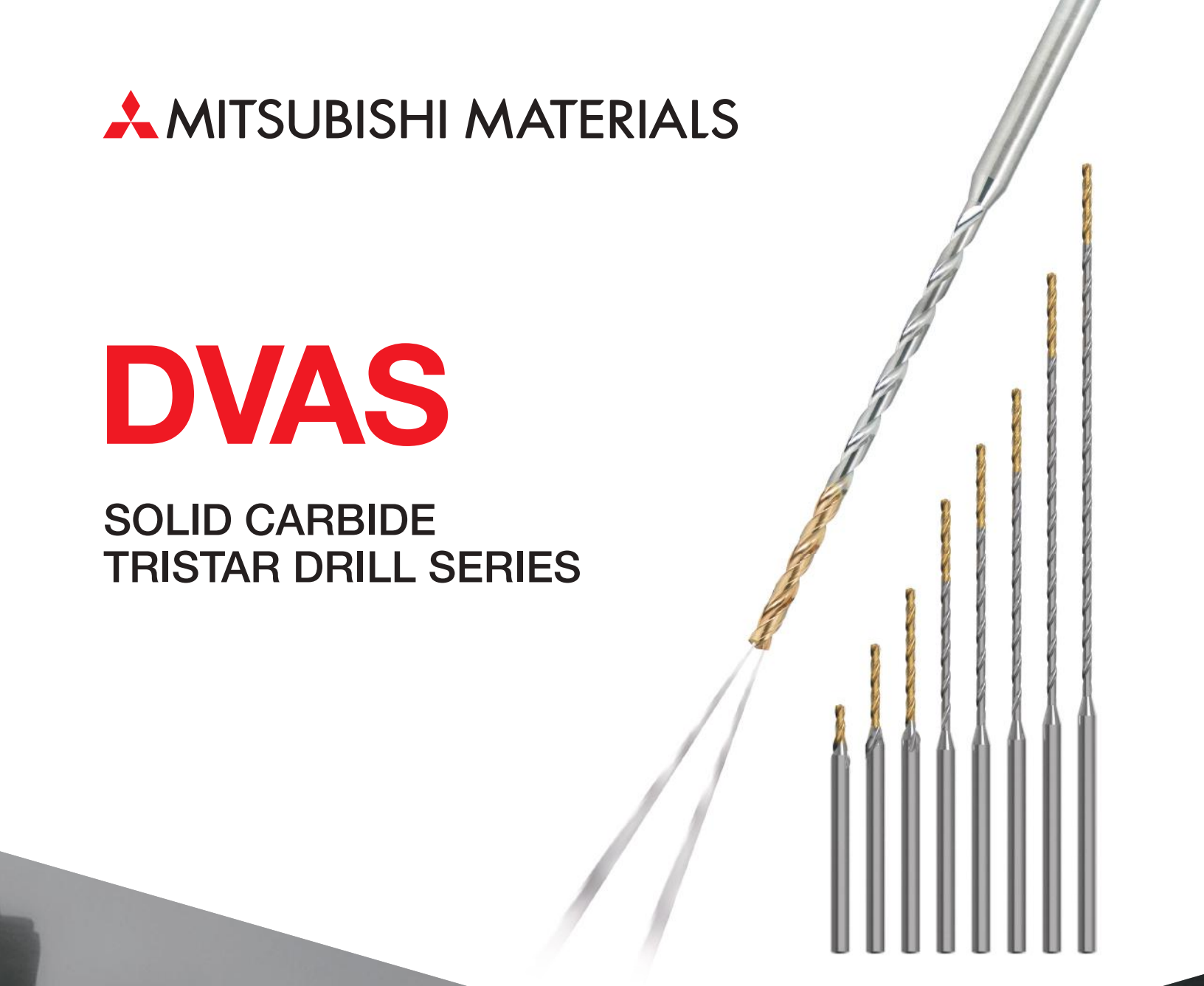
MITSUBISHI MATERIALS

DVAS

SOLID CARBIDE TRISTAR DRILL SERIES



TOOL NEWS **B267A**

Mitsubishi Materials New Drill Series

TRISTAR Drill Series

High Efficiency - Long Tool Life - High Precision

TRISTAR, a new generation drill series from Mitsubishi Materials provides 3 strong advantages.

The first of the TRISTAR series is a small diameter drill with "Five New Technologies" features for FAST, RELIABLE and ACCURATE drilling.

FAST

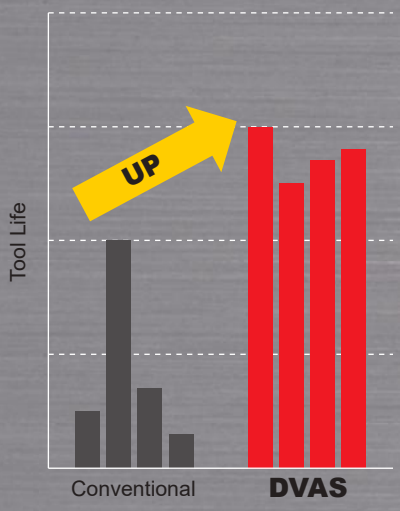
"Deep hole drilling is usually a slow process."



Deep holes can be drilled quickly and efficiently.

RELIABLE

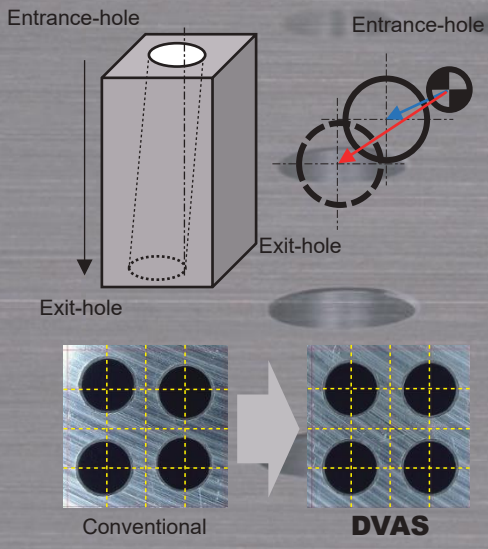
"Breakages, short tool life and lack of coolant thru can be common."



Tool life exceeds all normal expectations.

ACCURATE

"Holes can wander considerably and have poor positioning."



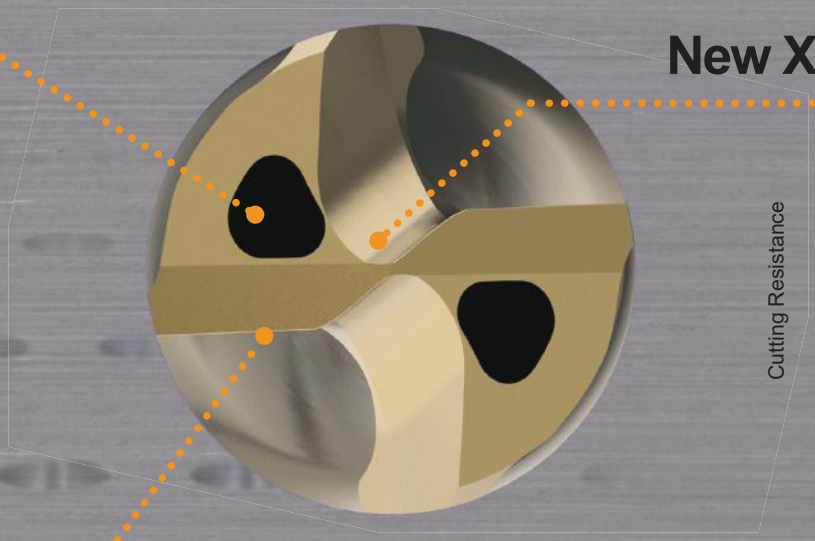
Straighter holes and improved dimensional accuracy.

Solid Carbide Drill
TRISTAR Drill Series
DVAS

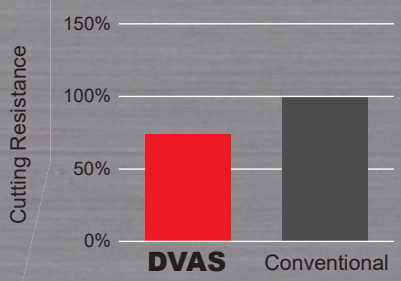
Mini Size 1.0mm – 2.9mm (.0394” – .1142”)
L/D = 2 – 50

FAST, RELIABLE and ACCURATE.
New standards enabled by the "Five New Technologies"

Advanced Coolant Hole



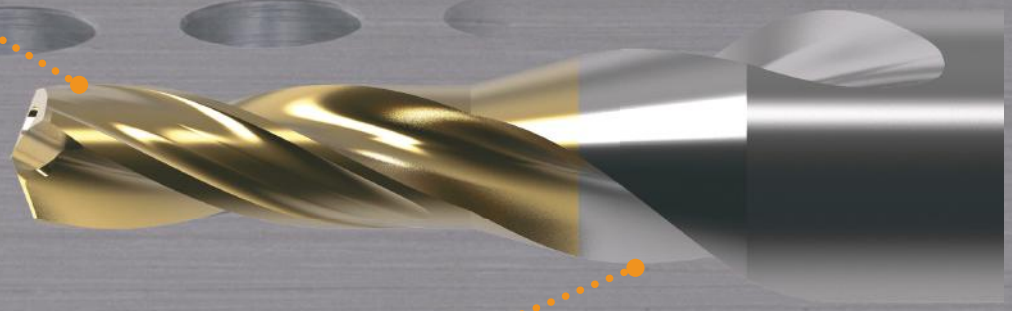
New XR Point Thinning



<Cutting Conditions>
Material : AISI 4140
Tool : DC=ø.0394 inch, L/D=20
Cutting Speed : vc= 230 SFM
Feed per Rev. : fr= .0016 IPR

Tough and Sharp Cutting Edge Design

New Coated Grade **DP1120**

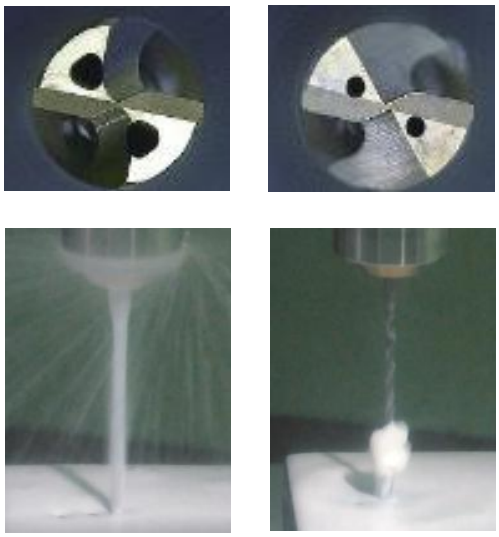


Unique Rigid Form

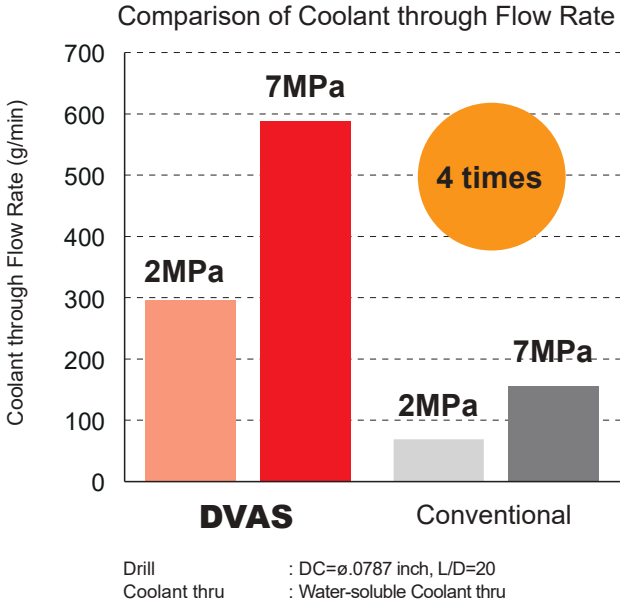
*By CG image

Mitsubishi Material's unique coolant thru with TRI-Cooling Technology.

TRI-Cooling is optimal for small-diameter drills and can achieve more than double the conventional coolant through discharge volume. This can dramatically improve chip discharge and heat dissipation, contributing greatly to tool life stability.



DVAS Conventional

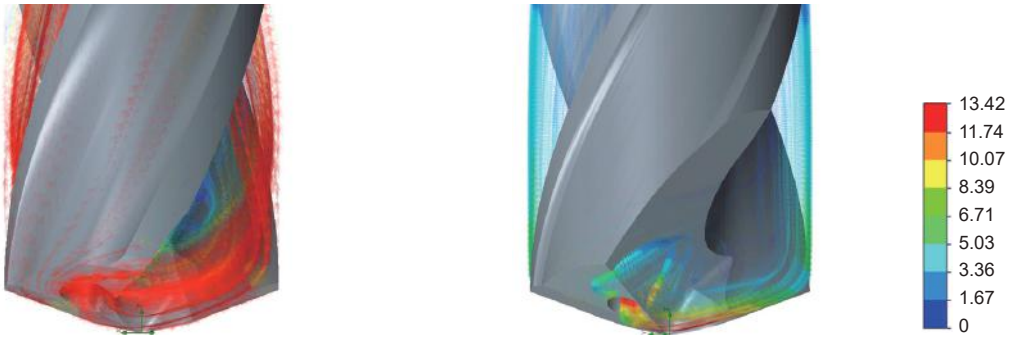


Drill : DC=ø.0787 inch, L/D=20
Coolant thru : Water-soluble Coolant thru

Large coolant through volume reduces tool damage due to the improved cooling effect, thereby greatly increasing tool life.

Increased coolant through flow provides effective cooling even in difficult applications or when using an oil based cutting fluid.

Coolant Through Flow Speed Simulation

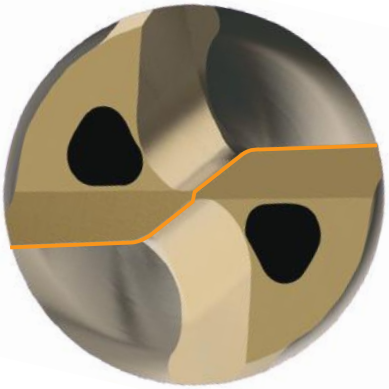


DVAS Conventional

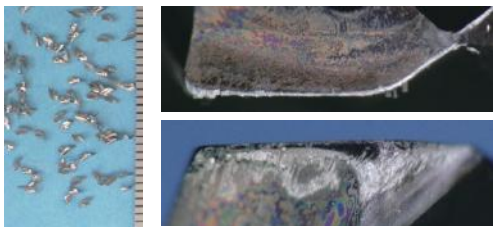
YouTube

Tough, sharp, cutting edge design.

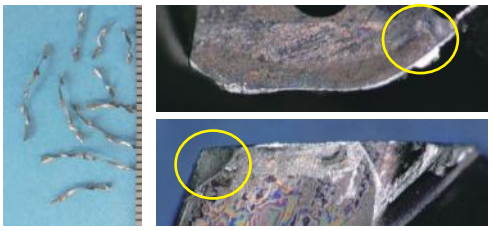
The straight cutting edge and thinned point are connected with a smoothly curved geometry that significantly improves fracture resistance. The geometry of the rake angles and lands also improves wear and chip disposal.



Large crater wear and fracture of the outer edge.



DVAS



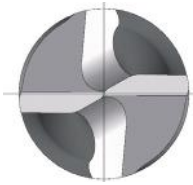
Conventional

<Cutting Conditions>
Material : AISI 4140
Tool : DC=ø.0787 inch, L/D=20
Cutting Speed : vc= 165 SFM
Feed per Rev. : fr= .0024 IPR
Cutting Mode : Wet Cutting
Water-soluble coolant thru, 2MPa

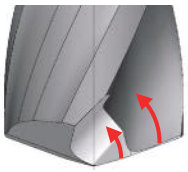
New XR point thinning, reduces cutting load and optimizes chip flow.

The new point thinning breaks chips into the optimum shape for streamlined flow and achieves a much lower cutting resistance.

DVAS

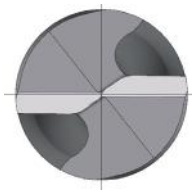


The R shaped space created by the point thinning forms compact chips that aids chip flow.

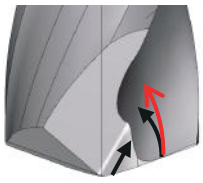




Conventional



Larger chips are created that means a lower rate of chip flow that can cause chip clogging.



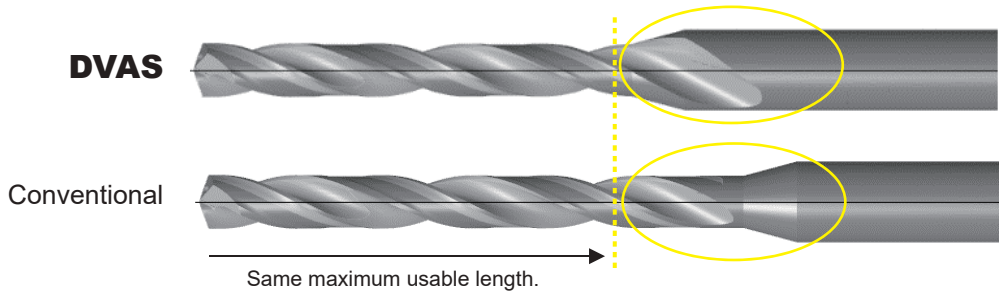


<Cutting Conditions>
Material : AISI 4140
Tool : DC=ø.0787 inch, L/D=20
Cutting Speed : vc= 165 SFM
Feed per Rev. : fr= .0024 IPR
Cutting Mode : Wet Cutting
Water-soluble coolant thru, 2MPa

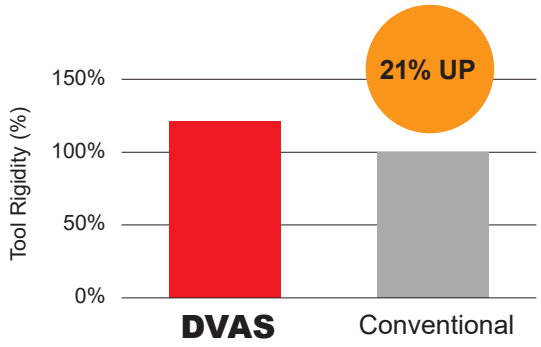
Unique form that is Tough and Rigid

Applies to L/D=2, 7, 12

The short drill is designed for high rigidity and good chip evacuation by minimizing the neck length. A chip discharge area is provided over the tapered section, increasing the tool rigidity by 20% more than the conventional model as well as improving the positional accuracy of the hole.

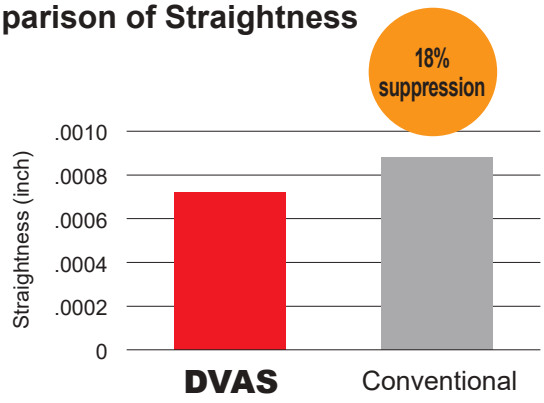


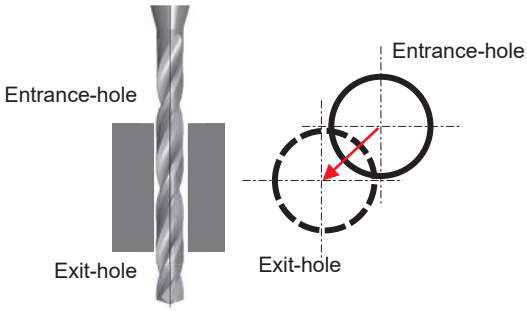
Comparison of Tool Rigidity



<Analysis Conditions>
Analysis Model : DC=ø.0787 inch, L/D=7
Overall Length : 2.362 inch
Constraints : Shank to tip range of 0-1.181 inch
Load : Distributed load of 140N in Z axis direction.

Comparison of Straightness

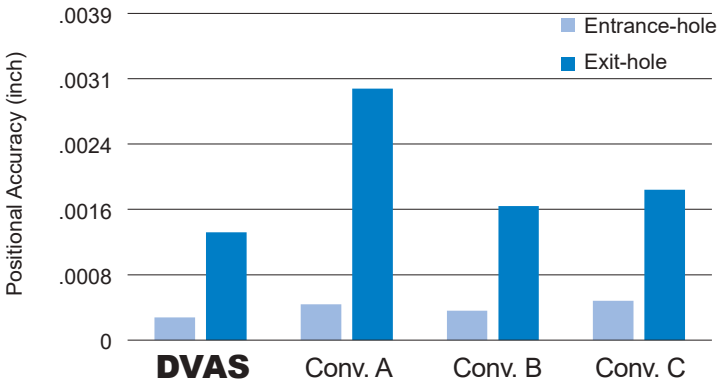


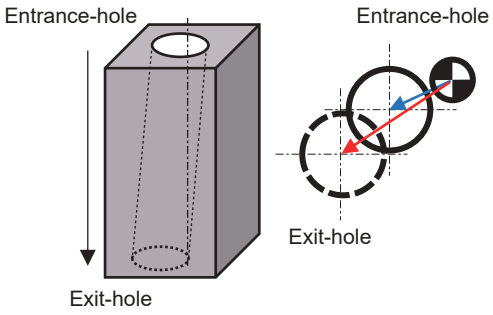


<Cutting Conditions>
Material : AISI 4140
Tool : DC=ø.0787 inch, L/D=7
Cutting Speed : vc= 230 SFM
Feed per Rev. : fr= .0031 IPR
Hole Depth : .394 inch
Cutting Mode : Wet Cutting,
Water-soluble coolant thru, 5MPa
Hydro Chuck
Number of Holes : 100 holes

Deep Hole Machining Example

For deep holes, a DVAS pilot drill is recommended to improve precision of hole entry and control deviation of exit hole.



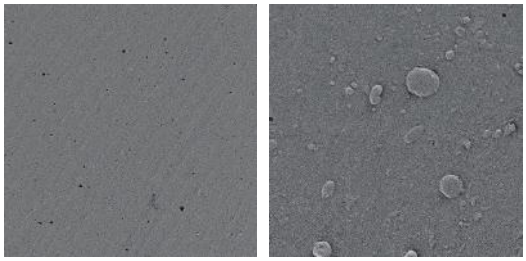


<Cutting Conditions>
Material : AISI 4140
Tool : Pilot Drill DC=ø.0787 inch, L/D=2
Long Drill DC=ø.0787 inch, L/D=20
Cutting Speed : vc= 230 SFM
Feed per Rev. : fr= .0028 IPR
Cutting Mode : Wet Cutting,
Water-soluble coolant thru, 2MPa
Number of Holes : 100 holes

New Coated Grade **DP1120**

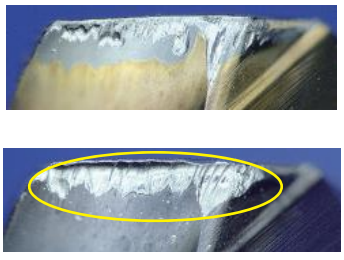
DP1120 grade combines an ultra-multilayer PVD coating specifically developed for drills combined with a micro-grain, ultra-hard substrate to provide outstanding smoothness that can suppress chip packing and prevent fracture. Additionally, excellent abrasion resistance and fracture resistance helps in maintaining cutting edge sharpness for long periods of time, extending the tool life.

Enlarged view of the flute surface.



DVAS Conventional

DVAS



Conventional Large crater wear

<Cutting Conditions>
Tool : DC=ø.0787 inch, L/D=20
Cutting Speed : vc= 165 SFM
Feed per Rev. : fr= .0024 IPR
Cutting Mode : Wet Cutting,
Water-soluble coolant thru, 2MPa
Number of Holes : 500 holes

DRILL SELECTION CHART

Applications	Product Code	Size Range	Item	Hole Depth (L/D)	Material P Steel	Material M Stainless Steel	Material K Cast Iron	Material N Non-ferrous Metal	Material S Heat Resistant Alloy	Shape
For Small Diameter	DVAS…X02	ϕ.0394" –ϕ.1142"	42	2	◎	◎	○	○	◎	Pilot drill etc.
	DVAS…X07	ϕ.0394" –ϕ.1142"	42	7	◎	◎	○	○	◎	
	DVAS…X12	ϕ.0394" –ϕ.1142"	42	12	◎	◎	○	○	◎	
	DVAS…X20	ϕ.0394" –ϕ.1142"	42	20	◎	◎	○	○	◎	
	DVAS…X25	ϕ.0394" –ϕ.1142"	42	25	◎	◎	○	○	◎	
	DVAS…X30	ϕ.0394" –ϕ.1142"	42	30	◎	◎	○	○	◎	
	DVAS…X40	ϕ.0394" –ϕ.1142"	42	40	◎	◎	○	○	◎	
	DVAS…X50	ϕ.0394" –ϕ.1142"	42	50	◎	◎	○	○	◎	

IDENTIFICATION

DVA **S** **0100** **X50** **S040**

Applications	Coolant thru	Diameter	L/D	Type of Shank
DVA : General-purpose	**S** : Internal Coolant thru	0100 → ϕ.0394" 0290 → ϕ.1142"	**X50** : L/D=50 **X02** : L/D=2	**S040** : Shank Diameter .158"

DVAS Mini Size

TRISTAR Drills

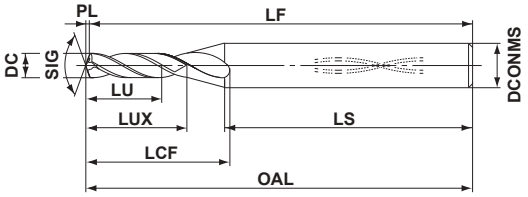
P M K N S H

Internal Coolant Through

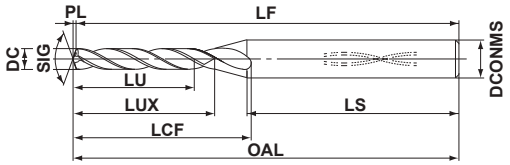




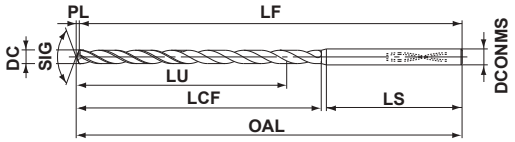




Type1



Type2



Type3

L/D=2	L/D>2
.00024 — .00016	0 — .00039
DCONMS	
0 — .00031	

DC					L/D	Coolant Thru (Int./Ext.)	Order Number	Stock	LU		LUX		LCF		LS		OAL		LF		PL		DCONMS		Type
Metric (mm)	Decimal (inch)	Fraction (inch)	Wire / Letter	Thread Size				DP1120	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
1.0	.0394				2	int.	DVAS0100X02S040	●	2.2	.087	3.2	.126	8.6	.339	41.2	1.623	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0100X07S040	●	7.2	.283	8.2	.323	13.6	.535	41.2	1.622	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0100X12S040	●	12.2	.480	13.2	.520	18.6	.732	39.2	1.543	58	2.283	57.8	2.276	0.2	.008	4	.157	2
					20	int.	DVAS0100X20S040	●	20.2	.795	–	–	23.2	.913	38.2	1.504	67	2.638	66.8	2.630	0.2	.008	4	.157	3
					25	int.	DVAS0100X25S040	●	25.2	.992	–	–	28.2	1.110	39.2	1.543	73	2.874	72.8	2.866	0.2	.008	4	.157	3
					30	int.	DVAS0100X30S040	●	30.2	1.189	–	–	33.2	1.307	40.2	1.582	79	3.110	78.8	3.102	0.2	.008	4	.157	3
					40	int.	DVAS0100X40S040	●	40.2	1.583	–	–	43.2	1.701	41.2	1.622	90	3.543	89.8	3.535	0.2	.008	4	.157	3
					50	int.	DVAS0100X50S040	●	50.2	1.976	–	–	53.2	2.094	43.2	1.701	102	4.016	101.8	4.008	0.2	.008	4	.157	3
1.016	.0400		60		2	int.	DVAS0102X02S040	●	2.2	.087	3.4	.134	8.9	.350	41.2	1.622	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0102X07S040	●	7.3	.287	8.6	.339	14.1	.555	41.1	1.618	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0102X12S040	●	12.4	.487	13.9	.547	19.4	.763	39.0	1.535	58	2.283	57.8	2.276	0.2	.008	4	.157	2
					20	int.	DVAS0102X20S040	●	20.5	.807	–	–	24.4	.960	37.0	1.457	67	2.638	66.8	2.630	0.2	.008	4	.157	3
					25	int.	DVAS0102X25S040	●	25.6	1.007	–	–	29.6	1.165	37.8	1.488	73	2.874	72.8	2.866	0.2	.008	4	.157	3
					30	int.	DVAS0102X30S040	●	30.7	1.207	–	–	34.9	1.374	38.5	1.516	79	3.110	78.8	3.102	0.2	.008	4	.157	3
					40	int.	DVAS0102X40S040	●	40.8	1.607	–	–	45.4	1.787	39.0	1.535	90	3.543	89.8	3.535	0.2	.008	4	.157	3
					50	int.	DVAS0102X50S040	●	51.0	2.007	–	–	55.9	2.200	40.5	1.594	102	4.016	101.8	4.008	0.2	.008	4	.157	3

DC = Cutting Diameter
LU = Usable Length
LUX = Max. Usable Length
LCF = Length Chip Flute
LS = Shank Length
OAL = Overall Length
LF = Functional Length
PL = Point Length
DCONMS = Connection Diameter

● : USA Stock

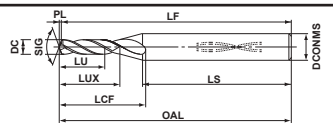
DVAS Mini Size

TRISTAR Drills

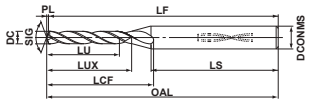
DC					L/D	Coolant Thru (Int./Ext.)	Order Number	Stock	LU		LUX		LCF		LS		OAL		LF		PL		DCONMS		Type
Metric (mm)	Decimal (inch)	Fraction (inch)	Wire / Letter	Thread Size				DP1120	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
1.042	.0410		59		2	int.	DVAS0104X02S040	●	2.3	.089	3.4	.134	8.9	.350	41.2	1.622	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0104X07S040	●	7.5	.295	8.6	.339	14.1	.555	41.0	1.614	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0104X12S040	●	12.7	.499	13.9	.547	19.4	.764	38.8	1.528	58	2.283	57.8	2.276	0.2	.008	4	.157	2
					20	int.	DVAS0104X20S040	●	21.0	.827	–	–	24.4	.960	37.1	1.461	67	2.638	66.8	2.630	0.2	.008	4	.157	3
					25	int.	DVAS0104X25S040	●	26.2	1.032	–	–	29.6	1.165	37.9	1.492	73	2.874	72.8	2.866	0.2	.008	4	.157	3
					30	int.	DVAS0104X30S040	●	31.4	1.237	–	–	34.9	1.374	38.6	1.520	79	3.110	78.8	3.102	0.2	.008	4	.157	3
					40	int.	DVAS0104X40S040	●	41.8	1.647	–	–	45.4	1.787	39.1	1.539	90	3.543	89.8	3.535	0.2	.008	4	.157	3
					50	int.	DVAS0104X50S040	●	52.2	2.057	–	–	55.9	2.201	40.6	1.598	102	4.016	101.8	4.008	0.2	.008	4	.157	3
1.067	.0420		58		2	int.	DVAS0107X02S040	●	2.3	.091	3.5	.138	9.1	.358	41.1	1.618	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0107X07S040	●	7.7	.302	9.1	.358	14.6	.575	40.8	1.606	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0107X12S040	●	13.0	.512	14.6	.575	20.1	.791	38.5	1.516	58	2.283	57.8	2.276	0.2	.008	4	.157	2
					20	int.	DVAS0107X20S040	●	21.5	.848	–	–	25.5	1.004	36.0	1.417	67	2.638	66.8	2.630	0.2	.008	4	.157	3
					25	int.	DVAS0107X25S040	●	26.9	1.058	–	–	31.0	1.220	36.5	1.437	73	2.874	72.8	2.866	0.2	.008	4	.157	3
					30	int.	DVAS0107X30S040	●	32.2	1.268	–	–	36.5	1.437	37.0	1.457	79	3.110	78.8	3.102	0.2	.008	4	.157	3
					40	int.	DVAS0107X40S040	●	42.9	1.688	–	–	47.5	1.870	37.0	1.457	90	3.543	89.8	3.535	0.2	.008	4	.157	3
					50	int.	DVAS0107X50S040	●	53.5	2.108	–	–	58.5	2.303	38.0	1.496	102	4.016	101.8	4.008	0.2	.008	4	.157	3
1.093	.0430		57		2	int.	DVAS0109X02S040	●	2.4	.094	3.5	.138	9.1	.358	41.1	1.618	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0109X07S040	●	7.8	.309	9.1	.358	14.6	.575	40.6	1.598	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0109X12S040	●	13.3	.524	14.6	.575	20.1	.792	38.2	1.504	58	2.283	57.8	2.276	0.2	.008	4	.157	2
					20	int.	DVAS0109X20S040	●	22.0	.868	–	–	25.5	1.004	36.1	1.421	67	2.638	66.8	2.630	0.2	.008	4	.157	3
					25	int.	DVAS0109X25S040	●	27.5	1.083	–	–	31.0	1.221	36.6	1.441	73	2.874	72.8	2.866	0.2	.008	4	.157	3
					30	int.	DVAS0109X30S040	●	33.0	1.298	–	–	36.5	1.437	37.1	1.461	79	3.110	78.8	3.102	0.2	.008	4	.157	3
					40	int.	DVAS0109X40S040	●	43.9	1.728	–	–	47.5	1.870	37.1	1.461	90	3.543	89.8	3.535	0.2	.008	4	.157	3
					50	int.	DVAS0109X50S040	●	54.8	2.158	–	–	58.5	2.303	38.1	1.500	102	4.016	101.8	4.008	0.2	.008	4	.157	3
1.1	.0433				2	int.	DVAS0110X02S040	●	2.4	.094	3.5	.138	9.0	.354	41.1	1.619	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0110X07S040	●	7.9	.311	9.1	.358	14.5	.571	40.6	1.598	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0110X12S040	●	13.4	.528	14.6	.575	20.0	.787	38.1	1.500	58	2.283	57.8	2.276	0.2	.008	4	.157	2
					20	int.	DVAS0110X20S040	●	22.2	.874	–	–	25.5	1.004	36.1	1.421	67	2.638	66.8	2.630	0.2	.008	4	.157	3
					25	int.	DVAS0110X25S040	●	27.7	1.091	–	–	31.0	1.220	36.6	1.441	73	2.874	72.8	2.866	0.2	.008	4	.157	3
					30	int.	DVAS0110X30S040	●	33.2	1.307	–	–	36.5	1.437	37.1	1.460	79	3.110	78.8	3.102	0.2	.008	4	.157	3
					40	int.	DVAS0110X40S040	●	44.2	1.740	–	–	47.5	1.870	37.1	1.461	90	3.543	89.8	3.535	0.2	.008	4	.157	3
					50	int.	DVAS0110X50S040	●	55.2	2.173	–	–	58.5	2.303	38.1	1.500	102	4.016	101.8	4.008	0.2	.008	4	.157	3
1.182	.0465		56		2	int.	DVAS0118X02S040	●	2.6	.101	3.9	.154	9.5	.374	41.0	1.614	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0118X07S040	●	8.5	.334	9.9	.390	15.5	.611	40.1	1.579	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0118X12S040	●	14.4	.567	15.9	.626	21.5	.847	39.2	1.543	60	2.362	59.8	2.354	0.2	.008	4	.157	2
					20	int.	DVAS0118X20S040	●	23.8	.939	–	–	27.8	1.095	37.9	1.492	71	2.795	70.8	2.787	0.2	.008	4	.157	3
					25	int.	DVAS0118X25S040	●	29.7	1.171	–	–	33.8	1.332	37.9	1.492	77	3.031	76.8	3.024	0.2	.008	4	.157	3
					30	int.	DVAS0118X30S040	●	35.7	1.404	–	–	39.8	1.568	38.9	1.531	84	3.307	83.8	3.299	0.2	.008	4	.157	3
					40	int.	DVAS0118X40S040	●	47.5	1.869	–	–	51.8	2.040	39.9	1.571	97	3.819	96.8	3.811	0.2	.008	4	.157	3
					50	int.	DVAS0118X50S040	●	59.3	2.333	–	–	63.8	2.513	40.9	1.610	110	4.331	109.8	4.323	0.2	.008	4	.157	3
1.2	.0472				2	int.	DVAS0120X02S040	●	2.6	.102	3.9	.154	9.4	.370	41.0	1.615	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0120X07S040	●	8.6	.339	9.9	.390	15.4	.606	40.0	1.574	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0120X12S040	●	14.6	.575	15.9	.626	21.4	.843	39.0	1.535	60	2.362	59.8	2.354	0.2	.008	4	.157	2
					20	int.	DVAS0120X20S040	●	24.2	.953	–	–	27.8	1.094	38.0	1.496	71	2.795	70.8	2.787	0.2	.008	4	.157	3
					25	int.	DVAS0120X25S040	●	30.2	1.189	–	–	33.8	1.331	38.0	1.496	77	3.031	76.8	3.024	0.2	.008	4	.157	3
					30	int.	DVAS0120X30S040	●	36.2	1.425	–	–	39.8	1.567	39.0	1.535	84	3.307	83.8	3.299	0.2	.008	4	.157	3
					40	int.	DVAS0120X40S040	●	48.2	1.898	–	–	51.8	2.039	40.0	1.575	97	3.819	96.8	3.811	0.2	.008	4	.157	3
					50	int.	DVAS0120X50S040	●	60.2	2.370	–	–	63.8	2.512	41.0	1.614	110	4.331	109.8	4.323	0.2	.008	4	.157	3

● = NEW

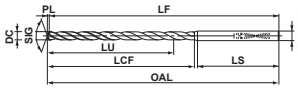
● : USA Stock



Type1



Type2



Type3

DC			Wire / Letter	Thread Size	L/D	Coolant Thru (Int./Ext.)	Order Number	Stock	LU		LUX		LCF		LS		OAL		LF		PL		DCONMS		Type
Metric (mm)	Decimal (inch)	Fraction (inch)						DP1120	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
1.3	.0512				2	int.	DVAS0130X02S040	●	2.8	.110	4.2	.165	9.9	.390	40.8	1.607	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0130X07S040	●	9.3	.366	10.7	.421	16.4	.646	39.3	1.547	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0130X12S040	●	15.8	.622	17.2	.677	22.9	.902	37.8	1.488	60	2.362	59.8	2.354	0.2	.008	4	.157	2
					20	int.	DVAS0130X20S040	●	26.2	1.031	–	–	30.1	1.185	35.8	1.409	71	2.795	70.8	2.787	0.2	.008	4	.157	3
					25	int.	DVAS0130X25S040	●	32.7	1.287	–	–	36.6	1.441	35.3	1.389	77	3.031	76.8	3.024	0.2	.008	4	.157	3
					30	int.	DVAS0130X30S040	●	39.2	1.543	–	–	43.1	1.697	35.8	1.409	84	3.307	83.8	3.299	0.2	.008	4	.157	3
					40	int.	DVAS0130X40S040	●	52.2	2.055	–	–	56.1	2.209	35.8	1.410	97	3.819	96.8	3.811	0.2	.008	4	.157	3
					50	int.	DVAS0130X50S040	●	65.2	2.567	–	–	69.1	2.720	35.8	1.410	110	4.331	109.8	4.323	0.2	.008	4	.157	3
1.321	.0520		55		2	int.	DVAS0132X02S040	●	2.9	.113	4.3	.169	10.1	.399	40.8	1.606	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0132X07S040	●	9.5	.374	11.1	.437	16.8	.663	39.2	1.543	55	2.165	54.8	2.157	0.2	.008	4	.157	2
					12	int.	DVAS0132X12S040	●	16.1	.634	17.9	.705	23.6	.931	40.6	1.598	63	2.480	62.8	2.472	0.2	.008	4	.157	2
					20	int.	DVAS0132X20S040	●	26.7	1.050	–	–	31.3	1.234	38.7	1.524	75	2.953	74.8	2.945	0.2	.008	4	.157	3
					25	int.	DVAS0132X25S040	●	33.3	1.310	–	–	38.0	1.498	39.0	1.535	82	3.228	81.8	3.220	0.2	.008	4	.157	3
					30	int.	DVAS0132X30S040	●	39.9	1.570	–	–	44.8	1.766	40.2	1.583	90	3.543	89.8	3.535	0.2	.008	4	.157	3
					40	int.	DVAS0132X40S040	●	53.1	2.090	–	–	58.3	2.297	41.7	1.642	105	4.134	104.8	4.126	0.2	.008	4	.157	3
					50	int.	DVAS0132X50S040	●	66.3	2.610	–	–	71.8	2.829	43.2	1.701	120	4.724	119.8	4.717	0.2	.008	4	.157	3
1.397	.0550		54		2	int.	DVAS0139X02S040	●	3.0	.120	4.5	.177	10.3	.407	40.7	1.602	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0139X07S040	●	10.0	.395	11.5	.453	17.4	.684	38.7	1.524	55	2.165	54.7	2.154	0.3	.012	4	.157	2
					12	int.	DVAS0139X12S040	●	17.0	.670	18.5	.728	24.4	.959	39.7	1.563	63	2.480	62.7	2.469	0.3	.012	4	.157	2
					20	int.	DVAS0139X20S040	●	28.2	1.110	–	–	32.5	1.278	37.7	1.484	75	2.953	74.7	2.941	0.3	.012	4	.157	3
					25	int.	DVAS0139X25S040	●	35.2	1.385	–	–	39.5	1.554	37.7	1.484	82	3.228	81.7	3.217	0.3	.012	4	.157	3
					30	int.	DVAS0139X30S040	●	42.2	1.660	–	–	46.5	1.829	38.7	1.524	90	3.543	89.7	3.531	0.3	.012	4	.157	3
					40	int.	DVAS0139X40S040	●	56.1	2.210	–	–	60.5	2.380	39.7	1.563	105	4.134	104.7	4.122	0.3	.012	4	.157	3
					50	int.	DVAS0139X50S040	●	70.1	2.760	–	–	74.5	2.932	40.7	1.602	120	4.724	119.7	4.713	0.3	.012	4	.157	3
1.4	.0551				2	int.	DVAS0140X02S040	●	3.0	.118	4.5	.177	10.3	.406	40.7	1.603	50	1.969	49.8	1.961	0.2	.008	4	.157	1
					7	int.	DVAS0140X07S040	●	10.1	.398	11.5	.453	17.3	.681	38.7	1.523	55	2.165	54.7	2.154	0.3	.012	4	.157	2
					12	int.	DVAS0140X12S040	●	17.1	.673	18.5	.728	24.3	.957	39.7	1.563	63	2.480	62.7	2.469	0.3	.012	4	.157	2
					20	int.	DVAS0140X20S040	●	28.3	1.114	–	–	32.5	1.280	37.7	1.484	75	2.953	74.7	2.941	0.3	.012	4	.157	3
					25	int.	DVAS0140X25S040	●	35.3	1.390	–	–	39.5	1.555	37.7	1.484	82	3.228	81.7	3.217	0.3	.012	4	.157	3
					30	int.	DVAS0140X30S040	●	42.3	1.665	–	–	46.5	1.831	38.7	1.523	90	3.543	89.7	3.531	0.3	.012	4	.157	3
					40	int.	DVAS0140X40S040	●	56.3	2.217	–	–	60.5	2.382	39.7	1.563	105	4.134	104.7	4.122	0.3	.012	4	.157	3
					50	int.	DVAS0140X50S040	●	70.3	2.768	–	–	74.5	2.933	40.7	1.602	120	4.724	119.7	4.713	0.3	.012	4	.157	3
1.5	.0591			#1-64	2	int.	DVAS0150X02S040	●	3.3	.130	4.8	.189	10.7	.421	40.6	1.599	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0150X07S040	●	10.8	.425	12.3	.484	18.2	.717	38.1	1.500	55	2.165	54.7	2.154	0.3	.012	4	.157	2
					12	int.	DVAS0150X12S040	●	18.3	.720	19.8	.780	25.7	1.012	38.6	1.519	63	2.480	62.7	2.469	0.3	.012	4	.157	2
					20	int.	DVAS0150X20S040	●	30.3	1.193	–	–	34.8	1.370	35.6	1.402	75	2.953	74.7	2.941	0.3	.012	4	.157	3
					25	int.	DVAS0150X25S040	●	37.8	1.488	–	–	42.3	1.665	35.1	1.382	82	3.228	81.7	3.217	0.3	.012	4	.157	3
					30	int.	DVAS0150X30S040	●	45.3	1.783	–	–	49.8	1.961	35.6	1.401	90	3.543	89.7	3.531	0.3	.012	4	.157	3
					40	int.	DVAS0150X40S040	●	60.3	2.374	–	–	64.8	2.551	35.6	1.402	105	4.134	104.7	4.122	0.3	.012	4	.157	3
					50	int.	DVAS0150X50S040	●	75.3	2.965	–	–	79.8	3.142	35.6	1.401	120	4.724	119.7	4.713	0.3	.012	4	.157	3
1.588	.0625	1/16			2	int.	DVAS0159X02S040	●	3.5	.136	5.1	.201	11.2	.440	40.5	1.594	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0159X07S040	●	11.4	.449	13.1	.516	19.2	.756	39.5	1.555	57	2.244	56.7	2.232	0.3	.012	4	.157	2
					12	int.	DVAS0159X12S040	●	19.4	.762	21.1	.831	27.2	1.071	40.6	1.598	66	2.598	65.7	2.587	0.3	.012	4	.157	2
					20	int.	DVAS0159X20S040	●	32.1	1.262	–	–	37.1	1.461	37.4	1.472	79	3.110	78.7	3.098	0.3	.012	4	.157	3
					25	int.	DVAS0159X25S040	●	40.0	1.575	–	–	45.1	1.775	38.4	1.512	88	3.465	87.7	3.453	0.3	.012	4	.157	3
					30	int.	DVAS0159X30S040	●	47.9	1.887	–	–	53.1	2.090	41.4	1.630	99	3.898	98.7	3.886	0.3	.012	4	.157	3
					40	int.	DVAS0159X40S040	●	63.8	2.512	–	–	69.1	2.720	39.4	1.551	113	4.449	112.7	4.437	0.3	.012	4	.157	3
					50	int.	DVAS0159X50S040	●	79.7	3.138	–	–	85.1	3.350	40.4	1.591	130	5.118	129.7	5.106	0.3	.012	4	.157	3

● = NEW

DC = Cutting Diameter
LU = Usable Length
LUX = Max. Usable Length
LCF = Length Chip Flute
LS = Shank Length
OAL = Overall Length
LF = Functional Length
PL = Point Length
DCONMS = Connection Diameter

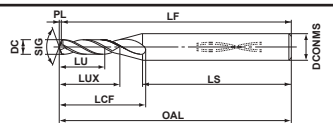
DVAS Mini Size

TRISTAR Drills

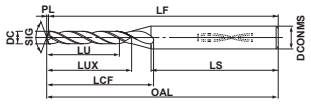
DC					L/D	Coolant Thru (Int./Ext.)	Order Number	Stock	LU		LUX		LCF		LS		OAL		LF		PL		DCONMS		Type
Metric (mm)	Decimal (inch)	Fraction (inch)	Wire / Letter	Thread Size				DP1120	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
1.6	.0630				2	int.	DVAS0160X02S040	●	3.5	.138	5.1	.201	11.1	.437	40.4	1.591	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0160X07S040	●	11.5	.453	13.1	.516	19.2	.756	39.4	1.551	57	2.244	56.7	2.232	0.3	.012	4	.157	2
					12	int.	DVAS0160X12S040	●	19.5	.768	21.1	.831	27.2	1.071	40.4	1.590	66	2.598	65.7	2.587	0.3	.012	4	.157	2
					20	int.	DVAS0160X20S040	●	32.3	1.272	–	–	37.1	1.461	37.4	1.472	79	3.110	78.7	3.098	0.3	.012	4	.157	3
					25	int.	DVAS0160X25S040	●	40.3	1.587	–	–	45.1	1.776	38.4	1.512	88	3.465	87.7	3.453	0.3	.012	4	.157	3
					30	int.	DVAS0160X30S040	●	48.3	1.902	–	–	53.1	2.091	41.4	1.630	99	3.898	98.7	3.886	0.3	.012	4	.157	3
					40	int.	DVAS0160X40S040	●	64.3	2.531	–	–	69.1	2.720	39.4	1.551	113	4.449	112.7	4.437	0.3	.012	4	.157	3
					50	int.	DVAS0160X50S040	●	80.3	3.161	–	–	85.1	3.350	40.4	1.591	130	5.118	129.7	5.106	0.3	.012	4	.157	3
1.613	.0635		52		2	int.	DVAS0161X02S040	●	3.5	.138	5.3	.209	11.4	.448	40.4	1.591	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0161X07S040	●	11.6	.456	13.6	.535	19.7	.776	39.3	1.547	57	2.244	56.7	2.232	0.3	.012	4	.157	2
					12	int.	DVAS0161X12S040	●	19.7	.774	21.8	.858	27.9	1.098	40.3	1.587	66	2.598	65.7	2.587	0.3	.012	4	.157	2
					20	int.	DVAS0161X20S040	●	32.6	1.282	–	–	38.3	1.508	36.2	1.425	79	3.110	78.7	3.098	0.3	.012	4	.157	3
					25	int.	DVAS0161X25S040	●	40.6	1.599	–	–	46.5	1.831	37.0	1.457	88	3.465	87.7	3.453	0.3	.012	4	.157	3
					30	int.	DVAS0161X30S040	●	48.7	1.917	–	–	54.8	2.158	39.7	1.563	99	3.898	98.7	3.886	0.3	.012	4	.157	3
					40	int.	DVAS0161X40S040	●	64.8	2.552	–	–	71.3	2.807	37.2	1.465	113	4.449	112.7	4.437	0.3	.012	4	.157	3
					50	int.	DVAS0161X50S040	●	81.0	3.187	–	–	87.8	3.457	37.7	1.484	130	5.118	129.7	5.106	0.3	.012	4	.157	3
1.7	.0669				2	int.	DVAS0170X02S040	●	3.7	.146	5.5	.217	11.6	.457	40.3	1.587	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0170X07S040	●	12.2	.480	14.0	.551	20.1	.791	38.8	1.527	57	2.244	56.7	2.232	0.3	.012	4	.157	2
					12	int.	DVAS0170X12S040	●	20.7	.815	22.5	.886	28.6	1.126	39.3	1.547	66	2.598	65.7	2.587	0.3	.012	4	.157	2
					20	int.	DVAS0170X20S040	●	34.3	1.350	–	–	39.4	1.551	35.3	1.390	79	3.110	78.7	3.098	0.3	.012	4	.157	3
					25	int.	DVAS0170X25S040	●	42.8	1.685	–	–	47.9	1.886	35.8	1.410	88	3.465	87.7	3.453	0.3	.012	4	.157	3
					30	int.	DVAS0170X30S040	●	51.3	2.020	–	–	56.4	2.220	38.3	1.508	99	3.898	98.7	3.886	0.3	.012	4	.157	3
					40	int.	DVAS0170X40S040	●	68.3	2.689	–	–	73.4	2.890	35.3	1.390	113	4.449	112.7	4.437	0.3	.012	4	.157	3
					50	int.	DVAS0170X50S040	●	85.3	3.358	–	–	90.4	3.559	35.3	1.390	130	5.118	129.7	5.106	0.3	.012	4	.157	3
1.778	.0700		50	#2-56	2	int.	DVAS0178X02S040	●	3.9	.152	5.8	.228	12.0	.473	40.2	1.583	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0178X07S040	●	12.8	.503	14.8	.583	21.0	.828	40.3	1.587	59	2.323	58.7	2.311	0.3	.012	4	.157	2
					12	int.	DVAS0178X12S040	●	21.7	.853	23.8	.937	30.0	1.182	41.4	1.630	69	2.717	68.7	2.705	0.3	.012	4	.157	2
					20	int.	DVAS0178X20S040	●	35.9	1.413	–	–	41.7	1.643	38.1	1.500	84	3.307	83.7	3.295	0.3	.012	4	.157	3
					25	int.	DVAS0178X25S040	●	44.8	1.763	–	–	50.7	1.997	39.1	1.539	94	3.701	93.7	3.689	0.3	.012	4	.157	3
					30	int.	DVAS0178X30S040	●	53.7	2.113	–	–	59.7	2.352	40.1	1.579	104	4.094	103.7	4.083	0.3	.012	4	.157	3
					40	int.	DVAS0178X40S040	●	71.5	2.813	–	–	77.7	3.060	41.1	1.618	123	4.843	122.7	4.831	0.3	.012	4	.157	3
					50	int.	DVAS0178X50S040	●	89.2	3.513	–	–	95.7	3.769	43.1	1.697	143	5.630	142.7	5.618	0.3	.012	4	.157	3
1.8	.0709				2	int.	DVAS0180X02S040	●	3.9	.154	5.8	.228	12.0	.472	40.2	1.583	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0180X07S040	●	12.9	.508	14.8	.583	21.0	.827	40.2	1.583	59	2.323	58.7	2.311	0.3	.012	4	.157	2
					12	int.	DVAS0180X12S040	●	21.9	.862	23.8	.937	30.0	1.181	41.2	1.623	69	2.717	68.7	2.705	0.3	.012	4	.157	2
					20	int.	DVAS0180X20S040	●	36.3	1.429	–	–	41.7	1.642	38.2	1.504	84	3.307	83.7	3.295	0.3	.012	4	.157	3
					25	int.	DVAS0180X25S040	●	45.3	1.783	–	–	50.7	1.996	39.2	1.544	94	3.701	93.7	3.689	0.3	.012	4	.157	3
					30	int.	DVAS0180X30S040	●	54.3	2.138	–	–	59.7	2.350	40.2	1.582	104	4.094	103.7	4.083	0.3	.012	4	.157	3
					40	int.	DVAS0180X40S040	●	72.3	2.846	–	–	77.7	3.059	41.2	1.622	123	4.843	122.7	4.831	0.3	.012	4	.157	3
					50	int.	DVAS0180X50S040	●	90.3	3.555	–	–	95.7	3.768	43.2	1.701	143	5.630	142.7	5.618	0.3	.012	4	.157	3
1.855	.0730		49		2	int.	DVAS0186X02S040	●	4.0	.159	6.1	.240	12.4	.489	40.1	1.579	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0186X07S040	●	13.3	.525	15.6	.614	21.9	.864	39.8	1.567	59	2.323	58.7	2.311	0.3	.012	4	.157	2
					12	int.	DVAS0186X12S040	●	22.6	.890	25.1	.988	31.4	1.238	40.5	1.594	69	2.717	68.7	2.705	0.3	.012	4	.157	2
					20	int.	DVAS0186X20S040	●	37.4	1.473	–	–	44.0	1.734	35.9	1.413	84	3.307	83.7	3.295	0.3	.012	4	.157	3
					25	int.	DVAS0186X25S040	●	46.7	1.838	–	–	53.5	2.108	36.4	1.433	94	3.701	93.7	3.689	0.3	.012	4	.157	3
					30	int.	DVAS0186X30S040	●	56.0	2.203	–	–	63.0	2.482	36.9	1.453	104	4.094	103.7	4.083	0.3	.012	4	.157	3
					40	int.	DVAS0186X40S040	●	74.5	2.933	–	–	82.0	3.230	36.9	1.453	123	4.843	122.7	4.831	0.3	.012	4	.157	3
					50	int.	DVAS0186X50S040	●	93.0	3.663	–	–	101.0	3.978	37.9	1.492	143	5.630	142.7	5.618	0.3	.012	4	.157	3

● = NEW

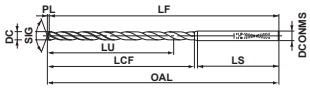
● : USA Stock



Type1



Type2



Type3

DC					L/D	Coolant Thru (Int./Ext.)	Order Number	Stock	LU		LUX		LCF		LS		OAL		LF		PL		DCONMS		Type
Metric (mm)	Decimal (inch)	Fraction (inch)	Wire / Letter	Thread Size				DP1120	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
1.9	.0748				2	int.	DVAS0190X02S040	●	4.1	.161	6.1	.240	12.4	.488	40.0	1.575	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0190X07S040	●	13.7	.539	15.6	.614	21.9	.862	39.5	1.555	59	2.323	58.6	2.307	0.4	.016	4	.157	2
					12	int.	DVAS0190X12S040	●	23.2	.913	25.1	.988	31.4	1.236	40.0	1.575	69	2.717	68.6	2.701	0.4	.016	4	.157	2
					20	int.	DVAS0190X20S040	●	38.4	1.512	–	–	44.1	1.736	36.0	1.417	84	3.307	83.6	3.291	0.4	.016	4	.157	3
					25	int.	DVAS0190X25S040	●	47.9	1.886	–	–	53.6	2.110	36.5	1.437	94	3.701	93.6	3.685	0.4	.016	4	.157	3
					30	int.	DVAS0190X30S040	●	57.4	2.260	–	–	63.1	2.484	37.0	1.456	104	4.094	103.6	4.079	0.4	.016	4	.157	3
					40	int.	DVAS0190X40S040	●	76.4	3.008	–	–	82.1	3.232	37.0	1.457	123	4.843	122.6	4.827	0.4	.016	4	.157	3
					50	int.	DVAS0190X50S040	●	95.4	3.756	–	–	101.1	3.980	38.0	1.496	143	5.630	142.6	5.614	0.4	.016	4	.157	3
1.931	.0760		48		2	int.	DVAS0193X02S040	●	4.2	.165	6.2	.244	12.6	.498	40.0	1.575	50	1.969	49.7	1.957	0.3	.012	4	.157	1
					7	int.	DVAS0193X07S040	●	13.9	.546	16.0	.630	22.5	.884	39.3	1.547	59	2.323	58.6	2.307	0.4	.016	4	.157	2
					12	int.	DVAS0193X12S040	●	23.5	.926	25.8	1.016	32.2	1.266	39.7	1.563	69	2.717	68.6	2.701	0.4	.016	4	.157	2
					20	int.	DVAS0193X20S040	●	39.0	1.534	–	–	45.3	1.782	34.9	1.374	84	3.307	83.6	3.291	0.4	.016	4	.157	3
					25	int.	DVAS0193X25S040	●	48.6	1.914	–	–	55.0	2.164	35.2	1.386	94	3.701	93.6	3.685	0.4	.016	4	.157	3
					30	int.	DVAS0193X30S040	●	58.3	2.294	–	–	64.8	2.550	35.4	1.394	104	4.094	103.6	4.079	0.4	.016	4	.157	3
					40	int.	DVAS0193X40S040	●	77.6	3.054	–	–	84.3	3.317	34.9	1.374	123	4.843	122.6	4.827	0.4	.016	4	.157	3
					50	int.	DVAS0193X50S040	●	96.9	3.813	–	–	103.8	4.085	35.4	1.394	143	5.630	142.6	5.614	0.4	.016	4	.157	3
1.994	.0785				2	int.	DVAS0199X02S040	●	4.3	.171	6.4	.252	12.9	.506	39.9	1.571	50	1.969	49.6	1.953	0.4	.016	4	.157	1
					7	int.	DVAS0199X07S040	●	14.3	.564	16.4	.646	22.9	.901	41.9	1.650	62	2.441	61.6	2.425	0.4	.016	4	.157	2
					12	int.	DVAS0199X12S040	●	24.3	.957	26.4	1.039	32.9	1.294	43.0	1.693	73	2.874	72.6	2.858	0.4	.016	4	.157	2
					20	int.	DVAS0199X20S040	●	40.3	1.585	–	–	46.4	1.826	40.9	1.610	91	3.583	90.6	3.567	0.4	.016	4	.157	3
					25	int.	DVAS0199X25S040	●	50.2	1.977	–	–	56.4	2.219	41.9	1.650	102	4.016	101.6	4.000	0.4	.016	4	.157	3
					30	int.	DVAS0199X30S040	●	60.2	2.370	–	–	66.4	2.613	42.9	1.689	113	4.449	112.6	4.433	0.4	.016	4	.157	3
					40	int.	DVAS0199X40S040	●	80.1	3.155	–	–	86.4	3.401	45.9	1.807	136	5.354	135.6	5.339	0.4	.016	4	.157	3
					50	int.	DVAS0199X50S040	●	100.1	3.940	–	–	106.4	4.188	47.9	1.886	158	6.220	157.6	6.205	0.4	.016	4	.157	3
2.0	.0787			#3-48	2	int.	DVAS0200X02S040	●	4.4	.173	6.4	.252	12.9	.508	39.9	1.571	50	1.969	49.6	1.953	0.4	.016	4	.157	1
					7	int.	DVAS0200X07S040	●	14.4	.567	16.4	.646	22.9	.902	41.9	1.650	62	2.441	61.6	2.425	0.4	.016	4	.157	2
					12	int.	DVAS0200X12S040	●	24.4	.961	26.4	1.039	32.9	1.295	42.9	1.689	73	2.874	72.6	2.858	0.4	.016	4	.157	2
					20	int.	DVAS0200X20S040	●	40.4	1.591	–	–	46.4	1.827	40.9	1.611	91	3.583	90.6	3.567	0.4	.016	4	.157	3
					25	int.	DVAS0200X25S040	●	50.4	1.984	–	–	56.4	2.220	41.9	1.650	102	4.016	101.6	4.000	0.4	.016	4	.157	3
					30	int.	DVAS0200X30S040	●	60.4	2.378	–	–	66.4	2.614	42.9	1.689	113	4.449	112.6	4.433	0.4	.016	4	.157	3
					40	int.	DVAS0200X40S040	●	80.4	3.165	–	–	86.4	3.402	45.9	1.807	136	5.354	135.6	5.339	0.4	.016	4	.157	3
					50	int.	DVAS0200X50S040	●	100.4	3.953	–	–	106.4	4.189	47.9	1.885	158	6.220	157.6	6.205	0.4	.016	4	.157	3
2.058	.0810		46		2	int.	DVAS0206X02S040	●	4.5	.176	6.7	.264	13.4	.526	39.8	1.567	50	1.969	49.6	1.953	0.4	.016	4	.157	1
					7	int.	DVAS0206X07S040	●	14.8	.582	17.2	.677	23.9	.940	41.5	1.634	62	2.441	61.6	2.425	0.4	.016	4	.157	2
					12	int.	DVAS0206X12S040	●	25.1	.987	27.7	1.091	34.4	1.354	42.2	1.661	73	2.874	72.6	2.858	0.4	.016	4	.157	2
					20	int.	DVAS0206X20S040	●	41.5	1.635	–	–	48.7	1.917	38.7	1.524	91	3.583	90.6	3.567	0.4	.016	4	.157	3
					25	int.	DVAS0206X25S040	●	51.8	2.040	–	–	59.2	2.330	39.2	1.543	102	4.016	101.6	4.000	0.4	.016	4	.157	3
					30	int.	DVAS0206X30S040	●	62.1	2.445	–	–	69.7	2.743	39.7	1.563	113	4.449	112.6	4.433	0.4	.016	4	.157	3
					40	int.	DVAS0206X40S040	●	82.7	3.255	–	–	90.7	3.570	41.7	1.642	136	5.354	135.6	5.339	0.4	.016	4	.157	3
					50	int.	DVAS0206X50S040	●	103.2	4.064	–	–	111.7	4.397	42.7	1.681	158	6.220	157.6	6.205	0.4	.016	4	.157	3
2.1	.0827				2	int.	DVAS0210X02S040	●	4.6	.181	6.7	.264	13.3	.524	39.8	1.567	50	1.969	49.6	1.953	0.4	.016	4	.157	1
					7	int.	DVAS0210X07S040	●	15.1	.594	17.2	.677	23.8	.937	41.3	1.626	62	2.441	61.6	2.425	0.4	.016	4	.157	2
					12	int.	DVAS0210X12S040	●	25.6	1.008	27.7	1.091	34.3	1.350	41.8	1.646	73	2.874	72.6	2.858	0.4	.016	4	.157	2
					20	int.	DVAS0210X20S040	●	42.4	1.669	–	–	48.7	1.917	38.8	1.528	91	3.583	90.6	3.567	0.4	.016	4	.157	3
					25	int.	DVAS0210X25S040	●	52.9	2.083	–	–	59.2	2.331	39.3	1.547	102	4.016	101.6	4.000	0.4	.016	4	.157	3
					30	int.	DVAS0210X30S040	●	63.4	2.496	–	–	69.7	2.744	39.8	1.567	113	4.449	112.6	4.433	0.4	.016	4	.157	3
					40	int.	DVAS0210X40S040	●	84.4	3.323	–	–	90.7	3.571	41.8	1.646	136	5.354	135.6	5.339	0.4	.016	4	.157	3
					50	int.	DVAS0210X50S040	●	105.4	4.150	–	–	111.7	4.398	42.8	1.685	158	6.220	157.6	6.205	0.4	.016	4	.157	3

● = NEW

DC = Cutting Diameter
LU = Usable Length
LUX = Max. Usable Length
LCF = Length Chip Flute
LS = Shank Length
OAL = Overall Length
LF = Functional Length
PL = Point Length
DCONMS = Connection Diameter

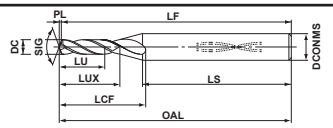
DVAS Mini Size

TRISTAR Drills

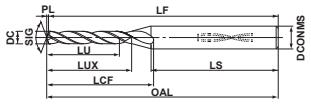
DC					L/D	Coolant Thru (Int./Ext.)	Order Number	Stock	LU		LUX		LCF		LS		OAL		LF		PL		DCONMS		Type
Metric (mm)	Decimal (inch)	Fraction (inch)	Wire / Letter	Thread Size				DP1120	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
2.185	.0860		44		2	int.	DVAS0218X02S040	●	4.8	.187	7.0	.276	13.8	.543	39.7	1.563	50	1.969	49.6	1.953	0.4	.016	4	.157	1
					7	int.	DVAS0218X07S040	●	15.7	.618	18.1	.713	24.8	.977	40.7	1.602	62	2.441	61.6	2.425	0.4	.016	4	.157	2
					12	int.	DVAS0218X12S040	●	26.6	1.048	29.1	1.146	35.8	1.410	40.8	1.606	73	2.874	72.6	2.858	0.4	.016	4	.157	2
					20	int.	DVAS0218X20S040	●	44.1	1.736	–	–	51.0	2.008	36.6	1.441	91	3.583	90.6	3.567	0.4	.016	4	.157	3
					25	int.	DVAS0218X25S040	●	55.0	2.166	–	–	62.0	2.441	36.6	1.441	102	4.016	101.6	4.000	0.4	.016	4	.157	3
					30	int.	DVAS0218X30S040	●	65.9	2.596	–	–	73.0	2.874	36.6	1.441	113	4.449	112.6	4.433	0.4	.016	4	.157	3
					40	int.	DVAS0218X40S040	●	87.8	3.455	–	–	95.0	3.740	37.6	1.480	136	5.354	135.6	5.339	0.4	.016	4	.157	3
					50	int.	DVAS0218X50S040	●	109.6	4.315	–	–	117.0	4.607	37.6	1.480	158	6.220	157.6	6.205	0.4	.016	4	.157	3
2.2	.0866				2	int.	DVAS0220X02S040	●	4.8	.189	7.0	.276	13.7	.539	39.7	1.563	50	1.969	49.6	1.953	0.4	.016	4	.157	1
					7	int.	DVAS0220X07S040	●	15.8	.622	18.1	.713	24.7	.972	40.6	1.598	62	2.441	61.6	2.425	0.4	.016	4	.157	2
					12	int.	DVAS0220X12S040	●	26.8	1.055	29.1	1.146	35.7	1.406	40.6	1.598	73	2.874	72.6	2.858	0.4	.016	4	.157	2
					20	int.	DVAS0220X20S040	●	44.4	1.748	–	–	51.0	2.008	36.6	1.441	91	3.583	90.6	3.567	0.4	.016	4	.157	3
					25	int.	DVAS0220X25S040	●	55.4	2.181	–	–	62.0	2.441	36.6	1.441	102	4.016	101.6	4.000	0.4	.016	4	.157	3
					30	int.	DVAS0220X30S040	●	66.4	2.614	–	–	73.0	2.874	36.6	1.441	113	4.449	112.6	4.433	0.4	.016	4	.157	3
					40	int.	DVAS0220X40S040	●	88.4	3.480	–	–	95.0	3.740	37.6	1.480	136	5.354	135.6	5.339	0.4	.016	4	.157	3
					50	int.	DVAS0220X50S040	●	110.4	4.346	–	–	117.0	4.606	37.6	1.480	158	6.220	157.6	6.205	0.4	.016	4	.157	3
2.261	.0890		43	#4-40	2	int.	DVAS0226X02S040	●	4.9	.194	7.4	.291	14.2	.559	44.6	1.756	55	2.165	54.6	2.150	0.4	.016	4	.157	1
					7	int.	DVAS0226X07S040	●	16.2	.640	18.9	.744	25.7	1.013	43.2	1.701	65	2.559	64.6	2.543	0.4	.016	4	.157	2
					12	int.	DVAS0226X12S040	●	27.6	1.085	30.4	1.197	37.2	1.465	44.9	1.768	78	3.071	77.6	3.055	0.4	.016	4	.157	2
					20	int.	DVAS0226X20S040	●	45.6	1.797	–	–	53.3	2.099	41.4	1.630	98	3.858	97.6	3.843	0.4	.016	4	.157	3
					25	int.	DVAS0226X25S040	●	56.9	2.242	–	–	64.8	2.552	42.9	1.689	111	4.370	110.6	4.354	0.4	.016	4	.157	3
					30	int.	DVAS0226X30S040	●	68.3	2.687	–	–	76.3	3.005	44.4	1.748	124	4.882	123.6	4.866	0.4	.016	4	.157	3
					40	int.	DVAS0226X40S040	●	90.9	3.577	–	–	99.3	3.910	47.4	1.866	150	5.906	149.6	5.890	0.4	.016	4	.157	3
					50	int.	DVAS0226X50S040	●	113.5	4.467	–	–	122.3	4.816	50.4	1.984	176	6.929	175.6	6.913	0.4	.016	4	.157	3
2.3	.0906				2	int.	DVAS0230X02S040	●	5.0	.197	7.4	.291	14.1	.555	44.5	1.752	55	2.165	54.6	2.150	0.4	.016	4	.157	1
					7	int.	DVAS0230X07S040	●	16.5	.650	18.9	.744	25.7	1.012	43.0	1.693	65	2.559	64.6	2.543	0.4	.016	4	.157	2
					12	int.	DVAS0230X12S040	●	28.0	1.102	30.4	1.197	37.2	1.465	44.5	1.752	78	3.071	77.6	3.055	0.4	.016	4	.157	2
					20	int.	DVAS0230X20S040	●	46.4	1.827	–	–	53.3	2.098	41.5	1.634	98	3.858	97.6	3.843	0.4	.016	4	.157	3
					25	int.	DVAS0230X25S040	●	57.9	2.280	–	–	64.8	2.551	43.0	1.693	111	4.370	110.6	4.354	0.4	.016	4	.157	3
					30	int.	DVAS0230X30S040	●	69.4	2.732	–	–	76.3	3.004	44.5	1.752	124	4.882	123.6	4.866	0.4	.016	4	.157	3
					40	int.	DVAS0230X40S040	●	92.4	3.638	–	–	99.3	3.909	47.5	1.870	150	5.906	149.6	5.890	0.4	.016	4	.157	3
					50	int.	DVAS0230X50S040	●	115.4	4.543	–	–	122.3	4.815	50.5	1.988	176	6.929	175.6	6.913	0.4	.016	4	.157	3
2.382	.0938	3/32			2	int.	DVAS0238X02S040	●	5.2	.204	7.7	.303	14.6	.576	44.4	1.748	55	2.165	54.6	2.150	0.4	.016	4	.157	1
					7	int.	DVAS0238X07S040	●	17.1	.674	19.7	.776	26.6	1.049	42.5	1.673	65	2.559	64.6	2.543	0.4	.016	4	.157	2
					12	int.	DVAS0238X12S040	●	29.0	1.143	31.7	1.248	38.6	1.521	43.6	1.717	78	3.071	77.6	3.055	0.4	.016	4	.157	2
					20	int.	DVAS0238X20S040	●	48.1	1.894	–	–	55.6	2.191	39.3	1.547	98	3.858	97.6	3.843	0.4	.016	4	.157	3
					25	int.	DVAS0238X25S040	●	60.0	2.363	–	–	67.6	2.663	40.3	1.587	111	4.370	110.6	4.354	0.4	.016	4	.157	3
					30	int.	DVAS0238X30S040	●	71.9	2.832	–	–	79.6	3.136	41.3	1.626	124	4.882	123.6	4.866	0.4	.016	4	.157	3
					40	int.	DVAS0238X40S040	●	95.8	3.770	–	–	103.6	4.081	43.3	1.705	150	5.906	149.6	5.890	0.4	.016	4	.157	3
					50	int.	DVAS0238X50S040	●	119.6	4.708	–	–	127.6	5.025	45.3	1.783	176	6.929	175.6	6.913	0.4	.016	4	.157	3
2.4	.0945				2	int.	DVAS0240X02S040	●	5.2	.205	7.7	.303	14.6	.575	44.4	1.748	55	2.165	54.6	2.150	0.4	.016	4	.157	1
					7	int.	DVAS0240X07S040	●	17.2	.677	19.7	.776	26.6	1.047	42.4	1.669	65	2.559	64.6	2.543	0.4	.016	4	.157	2
					12	int.	DVAS0240X12S040	●	29.2	1.150	31.7	1.248	38.6	1.520	43.4	1.709	78	3.071	77.6	3.055	0.4	.016	4	.157	2
					20	int.	DVAS0240X20S040	●	48.4	1.906	–	–	55.6	2.189	39.4	1.551	98	3.858	97.6	3.843	0.4	.016	4	.157	3
					25	int.	DVAS0240X25S040	●	60.4	2.378	–	–	67.6	2.661	40.4	1.590	111	4.370	110.6	4.354	0.4	.016	4	.157	3
					30	int.	DVAS0240X30S040	●	72.4	2.850	–	–	79.6	3.134	41.4	1.630	124	4.882	123.6	4.866	0.4	.016	4	.157	3
					40	int.	DVAS0240X40S040	●	96.4	3.795	–	–	103.6	4.079	43.4	1.709	150	5.906	149.6	5.890	0.4	.016	4	.157	3
					50	int.	DVAS0240X50S040	●	120.4	4.740	–	–	127.6	5.024	45.4	1.787	176	6.929	175.6	6.913	0.4	.016	4	.157	3

● = NEW

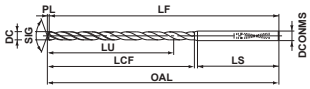
● : USA Stock



Type1



Type2



Type3

DC			Wire / Letter	Thread Size	L/D	Coolant Thru (Int./Ext.)	Order Number	Stock	LU		LUX		LCF		LS		OAL		LF		PL		DCONMS		Type
Metric (mm)	Decimal (inch)	Fraction (inch)						DP1120	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
2.439	.0960		41		2	int.	DVAS0244X02S040	●	5.3	.209	7.8	.307	14.8	.584	44.3	1.744	55	2.165	54.6	2.150	0.4	.016	4	.157	1
					7	int.	DVAS0244X07S040	●	17.5	.690	20.1	.791	27.1	1.065	42.1	1.657	65	2.559	64.5	2.539	0.5	.020	4	.157	2
					12	int.	DVAS0244X12S040	●	29.7	1.170	32.4	1.276	39.4	1.549	42.9	1.689	78	3.071	77.5	3.051	0.5	.020	4	.157	2
					20	int.	DVAS0244X20S040	●	49.2	1.938	–	–	56.9	2.238	38.2	1.504	98	3.858	97.5	3.839	0.5	.020	4	.157	3
					25	int.	DVAS0244X25S040	●	61.4	2.418	–	–	69.1	2.719	39.0	1.535	111	4.370	110.5	4.350	0.5	.020	4	.157	3
					30	int.	DVAS0244X30S040	●	73.6	2.897	–	–	81.4	3.203	39.7	1.563	124	4.882	123.5	4.862	0.5	.020	4	.157	3
					40	int.	DVAS0244X40S040	●	98.0	3.857	–	–	105.9	4.168	41.2	1.622	150	5.906	149.5	5.886	0.5	.020	4	.157	3
					50	int.	DVAS0244X50S040	●	122.4	4.817	–	–	130.4	5.132	42.7	1.681	176	6.929	175.5	6.909	0.5	.020	4	.157	3
2.5	.0984				2	int.	DVAS0250X02S040	●	5.5	.217	8.0	.315	15.0	.591	44.3	1.744	55	2.165	54.6	2.150	0.4	.016	4	.157	1
					7	int.	DVAS0250X07S040	●	18.0	.709	20.5	.807	27.5	1.083	41.7	1.642	65	2.559	64.5	2.539	0.5	.020	4	.157	2
					12	int.	DVAS0250X12S040	●	30.5	1.201	33.0	1.299	40.0	1.575	42.2	1.662	78	3.071	77.5	3.051	0.5	.020	4	.157	2
					20	int.	DVAS0250X20S040	●	50.5	1.988	–	–	58.0	2.283	37.2	1.464	98	3.858	97.5	3.839	0.5	.020	4	.157	3
					25	int.	DVAS0250X25S040	●	63.0	2.480	–	–	70.5	2.776	37.7	1.484	111	4.370	110.5	4.350	0.5	.020	4	.157	3
					30	int.	DVAS0250X30S040	●	75.5	2.972	–	–	83.0	3.268	38.2	1.504	124	4.882	123.5	4.862	0.5	.020	4	.157	3
					40	int.	DVAS0250X40S040	●	100.5	3.957	–	–	108.0	4.252	39.2	1.544	150	5.906	149.5	5.886	0.5	.020	4	.157	3
					50	int.	DVAS0250X50S040	●	125.5	4.941	–	–	133.0	5.236	40.2	1.583	176	6.929	175.5	6.909	0.5	.020	4	.157	3
2.566	.1010				2	int.	DVAS0257X02S040	●	5.6	.220	8.3	.327	15.5	.608	44.2	1.740	55	2.165	54.5	2.146	0.5	.020	4	.157	1
					7	int.	DVAS0257X07S040	●	18.4	.726	21.3	.839	28.5	1.121	41.3	1.626	65	2.559	64.5	2.539	0.5	.020	4	.157	2
					12	int.	DVAS0257X12S040	●	31.3	1.231	34.3	1.350	41.5	1.633	41.5	1.634	78	3.071	77.5	3.051	0.5	.020	4	.157	2
					20	int.	DVAS0257X20S040	●	51.8	2.039	–	–	60.3	2.373	35.0	1.378	98	3.858	97.5	3.839	0.5	.020	4	.157	3
					25	int.	DVAS0257X25S040	●	64.6	2.543	–	–	73.3	2.885	35.0	1.378	111	4.370	110.5	4.350	0.5	.020	4	.157	3
					30	int.	DVAS0257X30S040	●	77.4	3.048	–	–	86.3	3.397	35.0	1.378	124	4.882	123.5	4.862	0.5	.020	4	.157	3
					40	int.	DVAS0257X40S040	●	103.1	4.058	–	–	112.3	4.420	35.0	1.378	150	5.906	149.5	5.886	0.5	.020	4	.157	3
					50	int.	DVAS0257X50S040	●	128.7	5.068	–	–	138.3	5.444	35.0	1.378	176	6.929	175.5	6.909	0.5	.020	4	.157	3
2.6	.1024				2	int.	DVAS0260X02S040	●	5.7	.224	8.3	.327	15.4	.606	44.1	1.736	55	2.165	54.5	2.146	0.5	.020	4	.157	1
					7	int.	DVAS0260X07S040	●	18.7	.736	21.3	.839	28.4	1.118	41.1	1.618	65	2.559	64.5	2.539	0.5	.020	4	.157	2
					12	int.	DVAS0260X12S040	●	31.7	1.248	34.3	1.350	41.4	1.630	41.1	1.618	78	3.071	77.5	3.051	0.5	.020	4	.157	2
					20	int.	DVAS0260X20S040	●	52.5	2.067	–	–	60.3	2.374	35.1	1.382	98	3.858	97.5	3.839	0.5	.020	4	.157	3
					25	int.	DVAS0260X25S040	●	65.5	2.579	–	–	73.3	2.886	35.1	1.382	111	4.370	110.5	4.350	0.5	.020	4	.157	3
					30	int.	DVAS0260X30S040	●	78.5	3.091	–	–	86.3	3.398	35.1	1.382	124	4.882	123.5	4.862	0.5	.020	4	.157	3
					40	int.	DVAS0260X40S040	●	104.5	4.114	–	–	112.3	4.421	35.1	1.382	150	5.906	149.5	5.886	0.5	.020	4	.157	3
					50	int.	DVAS0260X50S040	●	130.5	5.138	–	–	138.3	5.445	35.1	1.382	176	6.929	175.5	6.909	0.5	.020	4	.157	3
2.642	.1040		37	#5-44	2	int.	DVAS0264X02S040	●	5.8	.226	8.5	.335	15.7	.617	44.1	1.736	55	2.165	54.5	2.146	0.5	.020	4	.157	1
					7	int.	DVAS0264X07S040	●	19.0	.748	21.7	.854	29.0	1.141	43.8	1.724	68	2.677	67.5	2.657	0.5	.020	4	.157	2
					12	int.	DVAS0264X12S040	●	32.2	1.268	35.0	1.378	42.2	1.661	45.6	1.795	83	3.268	82.5	3.248	0.5	.020	4	.157	2
					20	int.	DVAS0264X20S040	●	53.3	2.100	–	–	61.5	2.421	43.0	1.693	107	4.213	106.5	4.193	0.5	.020	4	.157	3
					25	int.	DVAS0264X25S040	●	66.5	2.620	–	–	74.7	2.941	44.8	1.764	122	4.803	121.5	4.783	0.5	.020	4	.157	3
					30	int.	DVAS0264X30S040	●	79.8	3.140	–	–	88.0	3.464	46.5	1.831	137	5.394	136.5	5.374	0.5	.020	4	.157	3
					40	int.	DVAS0264X40S040	●	106.2	4.180	–	–	114.5	4.508	50.0	1.969	167	6.575	166.5	6.555	0.5	.020	4	.157	3
					50	int.	DVAS0264X50S040	●	132.6	5.220	–	–	141.0	5.551	53.5	2.106	197	7.756	196.5	7.736	0.5	.020	4	.157	3
2.693	.1060				2	int.	DVAS0269X02S040	●	5.9	.231	8.6	.339	15.9	.625	44.0	1.732	55	2.165	54.5	2.146	0.5	.020	4	.157	1
					7	int.	DVAS0269X07S040	●	19.3	.762	22.2	.874	29.4	1.158	43.5	1.713	68	2.677	67.5	2.657	0.5	.020	4	.157	2
					12	int.	DVAS0269X12S040	●	32.8	1.292	35.7	1.406	42.9	1.689	45.1	1.776	83	3.268	82.5	3.248	0.5	.020	4	.157	2
					20	int.	DVAS0269X20S040	●	54.3	2.139	–	–	62.6	2.465	42.0	1.654	107	4.213	106.5	4.193	0.5	.020	4	.157	3
					25	int.	DVAS0269X25S040	●	67.8	2.669	–	–	76.1	2.996	43.5	1.713	122	4.803	121.5	4.783	0.5	.020	4	.157	3
					30	int.	DVAS0269X30S040	●	81.3	3.199	–	–	89.6	3.528	45.0	1.772	137	5.394	136.5	5.374	0.5	.020	4	.157	3
					40	int.	DVAS0269X40S040	●	108.2	4.259	–	–	116.6	4.591	48.0	1.890	167	6.575	166.5	6.555	0.5	.020	4	.157	3
					50	int.	DVAS0269X50S040	●	135.1	5.319	–	–	143.6	5.654	51.0	2.008	197	7.756	196.5	7.736	0.5	.020	4	.157	3

● = NEW

DC = Cutting Diameter
LU = Usable Length
LUX = Max. Usable Length
LCF = Length Chip Flute
LS = Shank Length
OAL = Overall Length
LF = Functional Length
PL = Point Length
DCONMS = Connection Diameter

DVAS Mini Size

TRISTAR Drills

DC					L/D	Coolant Thru (Int./Ext.)	Order Number	Stock	LU		LUX		LCF		LS		OAL		LF		PL		DCONMS		Type
Metric (mm)	Decimal (inch)	Fraction (inch)	Wire / Letter	Thread Size				DP1120	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
2.7	.1063		36	#6-32	2	int.	DVAS0270X02S040	●	5.9	.232	8.6	.339	15.8	.622	44.0	1.732	55	2.165	54.5	2.146	0.5	.020	4	.157	1
					7	int.	DVAS0270X07S040	●	19.4	.764	22.2	.874	29.4	1.157	43.5	1.712	68	2.677	67.5	2.657	0.5	.020	4	.157	2
					12	int.	DVAS0270X12S040	●	32.9	1.295	35.7	1.406	42.9	1.689	45.0	1.772	83	3.268	82.5	3.248	0.5	.020	4	.157	2
					20	int.	DVAS0270X20S040	●	54.5	2.146	–	–	62.6	2.465	42.0	1.654	107	4.213	106.5	4.193	0.5	.020	4	.157	3
					25	int.	DVAS0270X25S040	●	68.0	2.677	–	–	76.1	2.996	43.5	1.712	122	4.803	121.5	4.783	0.5	.020	4	.157	3
					30	int.	DVAS0270X30S040	●	81.5	3.209	–	–	89.6	3.528	45.0	1.772	137	5.394	136.5	5.374	0.5	.020	4	.157	3
					40	int.	DVAS0270X40S040	●	108.5	4.272	–	–	116.6	4.591	48.0	1.890	167	6.575	166.5	6.555	0.5	.020	4	.157	3
					50	int.	DVAS0270X50S040	●	135.5	5.335	–	–	143.6	5.654	51.0	2.008	197	7.756	196.5	7.736	0.5	.020	4	.157	3
2.779	.1094	7/64			2	int.	DVAS0278X02S040	●	6.1	.238	8.9	.350	16.3	.641	43.9	1.728	55	2.165	54.5	2.146	0.5	.020	4	.157	1
					7	int.	DVAS0278X07S040	●	20.0	.786	23.0	.906	30.3	1.194	43.0	1.693	68	2.677	67.5	2.657	0.5	.020	4	.157	2
					12	int.	DVAS0278X12S040	●	33.9	1.333	37.0	1.457	44.3	1.745	44.1	1.736	83	3.268	82.5	3.248	0.5	.020	4	.157	2
					20	int.	DVAS0278X20S040	●	56.1	2.209	–	–	64.9	2.556	39.8	1.567	107	4.213	106.5	4.193	0.5	.020	4	.157	3
					25	int.	DVAS0278X25S040	●	70.0	2.756	–	–	78.9	3.107	40.8	1.606	122	4.803	121.5	4.783	0.5	.020	4	.157	3
					30	int.	DVAS0278X30S040	●	83.9	3.303	–	–	92.9	3.658	41.8	1.646	137	5.394	136.5	5.374	0.5	.020	4	.157	3
					40	int.	DVAS0278X40S040	●	111.7	4.397	–	–	120.9	4.761	43.8	1.724	167	6.575	166.5	6.555	0.5	.020	4	.157	3
					50	int.	DVAS0278X50S040	●	139.5	5.491	–	–	148.9	5.863	45.8	1.803	197	7.756	196.5	7.736	0.5	.020	4	.157	3
2.8	.1102		35		2	int.	DVAS0280X02S040	●	6.1	.240	8.9	.350	16.3	.642	43.9	1.728	55	2.165	54.5	2.146	0.5	.020	4	.157	1
					7	int.	DVAS0280X07S040	●	20.1	.791	23.0	.906	30.3	1.193	42.8	1.685	68	2.677	67.5	2.657	0.5	.020	4	.157	2
					12	int.	DVAS0280X12S040	●	34.1	1.343	37.0	1.457	44.3	1.744	43.8	1.725	83	3.268	82.5	3.248	0.5	.020	4	.157	2
					20	int.	DVAS0280X20S040	●	56.5	2.224	–	–	64.9	2.555	39.8	1.567	107	4.213	106.5	4.193	0.5	.020	4	.157	3
					25	int.	DVAS0280X25S040	●	70.5	2.776	–	–	78.9	3.106	40.8	1.606	122	4.803	121.5	4.783	0.5	.020	4	.157	3
					30	int.	DVAS0280X30S040	●	84.5	3.327	–	–	92.9	3.657	41.8	1.646	137	5.394	136.5	5.374	0.5	.020	4	.157	3
					40	int.	DVAS0280X40S040	●	112.5	4.429	–	–	120.9	4.760	43.8	1.724	167	6.575	166.5	6.555	0.5	.020	4	.157	3
					50	int.	DVAS0280X50S040	●	140.5	5.531	–	–	148.9	5.862	45.8	1.803	197	7.756	196.5	7.736	0.5	.020	4	.157	3
2.9	.1142				2	int.	DVAS0290X02S040	●	6.3	.248	9.3	.366	16.7	.657	43.7	1.720	55	2.165	54.5	2.146	0.5	.020	4	.157	1
					7	int.	DVAS0290X07S040	●	20.8	.819	23.8	.937	31.2	1.228	42.2	1.661	68	2.677	67.5	2.657	0.5	.020	4	.157	2
					12	int.	DVAS0290X12S040	●	35.3	1.390	38.3	1.508	45.7	1.799	42.7	1.681	83	3.268	82.5	3.248	0.5	.020	4	.157	2
					20	int.	DVAS0290X20S040	●	58.5	2.303	–	–	67.2	2.646	37.7	1.485	107	4.213	106.5	4.193	0.5	.020	4	.157	3
					25	int.	DVAS0290X25S040	●	73.0	2.874	–	–	81.7	3.217	38.2	1.504	122	4.803	121.5	4.783	0.5	.020	4	.157	3
					30	int.	DVAS0290X30S040	●	87.5	3.445	–	–	96.2	3.787	38.7	1.524	137	5.394	136.5	5.374	0.5	.020	4	.157	3
					40	int.	DVAS0290X40S040	●	116.5	4.587	–	–	125.2	4.929	39.7	1.563	167	6.575	166.5	6.555	0.5	.020	4	.157	3
					50	int.	DVAS0290X50S040	●	145.5	5.728	–	–	154.2	6.071	40.7	1.602	197	7.756	196.5	7.736	0.5	.020	4	.157	3

● = NEW

DC = Cutting Diameter
LU = Usable Length
LUX = Max. Usable Length
LCF = Length Chip Flute
LS = Shank Length
OAL = Overall Length
LF = Functional Length
PL = Point Length
DCONMS = Connection Diameter

● : USA Stock

Recommended Cutting Conditions

(inch)

Material			Mild Steel Carbon Steel, Alloy Steel AISI 1010, 1045, 4140 etc.		Austenitic Stainless Steel, Ferritic Stainless Steel Ferritic and Martensitic Stainless Steel Precipitation Hardening Stainless Steel AISI 304, 316, 410 etc.	
DC		Hole Depth **L/D**	Cutting Speed **vc** (Min.—Max.) (SFM)	Feed **fr** (Min.—Max.) (IPR)	Cutting Speed **vc** (Min.—Max.) (SFM)	Feed **fr** (Min.—Max.) (IPR)
mm	inch					
1.0	**.0394**	**2–30**	210(100—330)	.0014(.0008—.0020)	195(65—330)	.0010(.0004—.0016)
1.0	**.0394**	**40, 50**	210(100—330)	.0012(.0008—.0016)	195(65—330)	.0008(.0004—.0012)
1.5	**.0591**	**2–30**	210(100—330)	.0021(.0012—.0030)	195(65—330)	.0015(.0006—.0024)
1.5	**.0591**	**40, 50**	210(100—330)	.0018(.0012—.0024)	195(65—330)	.0012(.0006—.0018)
2.0	**.0787**	**2–30**	230(130—330)	.0028(.0016—.0039)	195(65—330)	.0020(.0008—.0031)
2.0	**.0787**	**40, 50**	230(130—330)	.0024(.0016—.0031)	195(65—330)	.0016(.0008—.0024)
2.5	**.0984**	**2–30**	230(130—330)	.0035(.0020—.0049)	195(65—330)	.0025(.0010—.0039)
2.5	**.0984**	**40, 50**	230(130—330)	.0030(.0020—.0039)	195(65—330)	.0020(.0010—.0030)
2.9	**.1142**	**2–30**	230(130—330)	.0040(.0023—.0057)	195(65—330)	.0029(.0011—.0046)
2.9	**.1142**	**40, 50**	230(130—330)	.0034(.0023—.0046)	195(65—330)	.0023(.0011—.0034)

Material			Cast Iron Ductile Cast Iron ASTM No 45B, 60-60-8 etc.		Aluminum Alloys ASTM 6061, 7075 etc.	
DC		Hole Depth **L/D**	Cutting Speed **vc** (Min.—Max.) (SFM)	Feed **fr** (Min.—Max.) (IPR)	Cutting Speed **vc** (Min.—Max.) (SFM)	Feed **fr** (Min.—Max.) (IPR)
mm	inch					
1.0	**.0394**	**2–30**	230(130—330)	.0014(.0008—.0020)	460(330—590)	.0016(.0008—.0024)
1.0	**.0394**	**40, 50**	230(130—330)	.0012(.0008—.0016)	460(330—590)	.0014(.0008—.0020)
1.5	**.0591**	**2–30**	230(130—330)	.0021(.0012—.0030)	460(330—590)	.0024(.0012—.0035)
1.5	**.0591**	**40, 50**	230(130—330)	.0018(.0012—.0024)	460(330—590)	.0021(.0012—.0030)
2.0	**.0787**	**2–30**	230(130—330)	.0028(.0016—.0039)	460(330—590)	.0031(.0016—.0047)
2.0	**.0787**	**40, 50**	230(130—330)	.0024(.0016—.0031)	460(330—590)	.0028(.0016—.0039)
2.5	**.0984**	**2–30**	230(130—330)	.0035(.0020—.0049)	460(330—590)	.0039(.0020—.0059)
2.5	**.0984**	**40, 50**	230(130—330)	.0030(.0020—.0039)	460(330—590)	.0035(.0020—.0049)
2.9	**.1142**	**2–30**	230(130—330)	.0040(.0023—.0057)	460(330—590)	.0046(.0023—.0069)
2.9	**.1142**	**40, 50**	230(130—330)	.0034(.0023—.0046)	460(330—590)	.0040(.0023—.0057)

Material			Heat Resistant Alloys Inconel718 etc.		Titanium Alloys Ti-6Al-4V etc.	
DC		Hole Depth **L/D**	Cutting Speed **vc** (Min.—Max.) (SFM)	Feed **fr** (Min.—Max.) (IPR)	Cutting Speed **vc** (Min.—Max.) (SFM)	Feed **fr** (Min.—Max.) (IPR)
mm	inch					
1.0	**.0394**	**2–30**	100(30—165)	.0006(.0004—.0008)	100(65—130)	.0008(.0004—.0012)
1.0	**.0394**	**40, 50**	100(30—165)	.0006(.0004—.0008)	100(65—130)	.0008(.0004—.0012)
1.5	**.0591**	**2–30**	100(30—165)	.0009(.0006—.0012)	100(65—130)	.0012(.0006—.0018)
1.5	**.0591**	**40, 50**	100(30—165)	.0009(.0006—.0012)	100(65—130)	.0012(.0006—.0018)
2.0	**.0787**	**2–30**	100(30—165)	.0012(.0008—.0016)	100(65—130)	.0016(.0008—.0024)
2.0	**.0787**	**40, 50**	100(30—165)	.0012(.0008—.0016)	100(65—130)	.0016(.0008—.0024)
2.5	**.0984**	**2–30**	100(30—165)	.0015(.0010—.0020)	100(65—130)	.0020(.0010—.0030)
2.5	**.0984**	**40, 50**	100(30—165)	.0015(.0010—.0020)	100(65—130)	.0020(.0010—.0030)
2.9	**.1142**	**2–30**	100(30—165)	.0017(.0011—.0023)	100(65—130)	.0023(.0011—.0034)
2.9	**.1142**	**40, 50**	100(30—165)	.0017(.0011—.0023)	100(65—130)	.0023(.0011—.0034)

Material			Cobalt Chrome Alloys ASTM F1537, F799 etc.	
DC		Hole Depth **L/D**	Cutting Speed **vc** (Min.—Max.) (SFM)	Feed **fr** (Min.—Max.) (IPR)
mm	inch			
1.0	**.0394**	**2–30**	195(100—295)	.0008(.0004—.0012)
1.0	**.0394**	**40, 50**	195(100—295)	.0008(.0004—.0012)
1.5	**.0591**	**2–30**	195(100—295)	.0012(.0006—.0018)
1.5	**.0591**	**40, 50**	195(100—295)	.0012(.0006—.0018)
2.0	**.0787**	**2–30**	195(100—295)	.0016(.0008—.0024)
2.0	**.0787**	**40, 50**	195(100—295)	.0016(.0008—.0024)
2.5	**.0984**	**2–30**	195(100—295)	.0020(.0010—.0030)
2.5	**.0984**	**40, 50**	195(100—295)	.0020(.0010—.0030)
2.9	**.1142**	**2–30**	195(100—295)	.0023(.0011—.0034)
2.9	**.1142**	**40, 50**	195(100—295)	.0023(.0011—.0034)

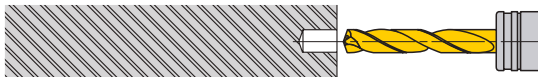
Note 1) This recommended condition is only when using internal coolant through.
Note 2) Check the condition of chips and perform step machining if necessary. * Reference step length: 0.2 to 1.0 DC
Note 3) Adjust the cutting conditions according to machine tool and workpiece clamp rigidity and machining geometry, etc.
Note 4) Machining depths exceeding flute length (LU) are not recommended.
Note 5) Ensure the drill runout is within .00012 inch.
Note 6) Do not clamp the flute part of the drill.

Operational Guidance

Operational Guidance for the DVAS L/D=2–40

Flat Face Drilling ●Drilling a Blind Hole

1. Drilling a Pilot Hole



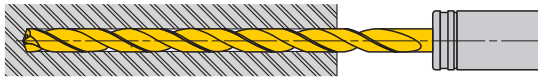
①Use a drill with a larger (flatter) point angle than the super long type. Use the shortest flute possible.
A DVAS drill with L/D = 2 can be machined up to L/D = 3 when drilling pilot holes.
②Ensure a high precision hole is drilled for the guide.
③Drill depth : Approx DC×3.
(Adjust the pilot hole depth according to the length of the long type drill)

2. Initial Cutting with the Long Type Drill



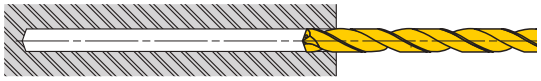
①Insert drill into pilot hole using a low revolution speed.
(spindle speed 500—1000 min-1, feed rate 39.37—78.74 IPM)
②Stop the drill in the pilot hole .020—.039 inch away from the bottom of the hole.
③It is recommended to reverse the spindle rotation when entering the pilot hole.

3. Drill the Deep Hole



①Start cutting at the recommended speed and feed with a non-peck (continuous feed) cycle.

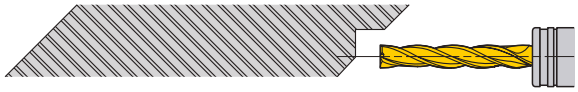
4. Drill Retraction



①After drilling, lower the cutting revolution about .020—.039 inch away from the bottom of the hole. (revolutions around 500—1000min^{-1})
②Next, pull out the drill at a feed rate of 39.37—78.74 IPM.

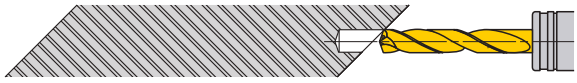
Interrupted Drilling ●Drilling and Breaking Through on Irregular Faces or Angles

1. Spot Facing



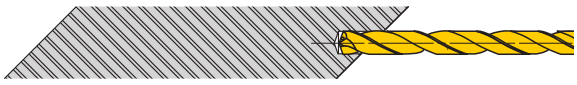
①Machine a flat or the irregular face by using an end mill or slot drill capable of spot facing. Make the spot face diameter the same size as the required deep hole diameter.

2. Drilling a Pilot Hole



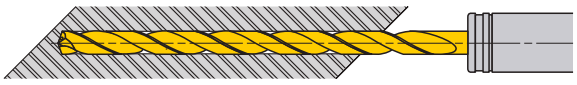
①Use a drill with a larger (flatter) point angle than the super long type. Use the shortest flute possible.
②Ensure a high precision hole is drilled for the guide.
③Drill depth : Approx DC×2.
(Adjust the pilot hole depth according to the length of the long type drill)

3. Initial Cutting with Long Type Drills



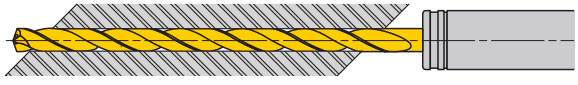
①Insert the drill into the pilot hole at low revolutions.
(spindle speed 500—1000 min^{-1}, feed rate 39.37—78.74 IPM)
②Stop the drill 0.5 - 1 mm from the bottom of the pilot hole.
③It is recommended to reverse the spindle rotation when entering the pilot hole.

4. Drill the Deep Hole



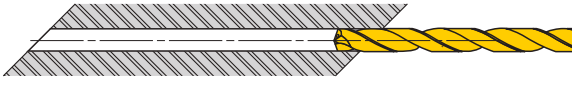
①Start cutting at the recommended speed and feed with a non-peck (continuous feed) cycle.

5. Breaking Through



①When breaking through, the cutting edge can be damaged.
②Lower the feed rate when penetrating.

6. Drill Retraction

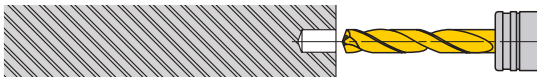


①After penetrating, change the spindle speed to 500—1000 min^{-1}.
②Next, pull out the drill at a feed rate of 39.37—78.74 IPM.

Operational Guidance for the DVAS L/D=50

Flat Face Drilling ●Drilling a Blind Hole

1. Drilling a Pilot Hole



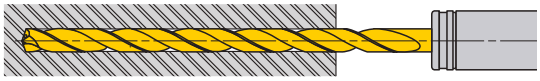
①Use a drill with a larger (flatter) point angle than the super long type.
Use a DVAS drill with L/D = 7.
②Ensure a high precision hole is drilled for the guide.
③Drill depth : Approx DC×7.
(Adjust the pilot hole depth according to the length of the long type drill)

2. Initial Cutting with the Long Type Drill



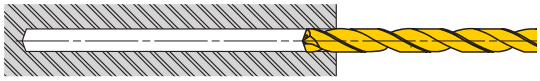
①Insert drill into pilot hole using a low revolution speed.
(spindle speed 500—1000 min-1, feed rate 39.37—78.74 IPM)
②Stop the drill in the pilot hole .020—.039 inch away from the bottom of the hole.
③It is recommended to reverse the spindle rotation when entering the pilot hole.

3. Drill the Deep Hole



①Start cutting at the recommended speed and feed with a non-peck (continuous feed) cycle.

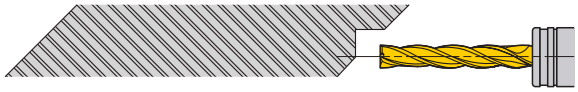
4. Drill Retraction



①After drilling, lower the cutting revolution about .020—.039 inch away from the bottom of the hole. (revolutions around 500—1000min^{-1})
②Next, pull out the drill at a feed rate of 39.37—78.74 IPM.

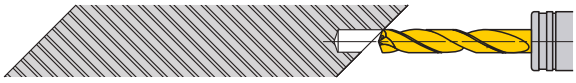
Interrupted Drilling ●Drilling and Breaking Through on Irregular Faces or Angles

1. Spot Facing



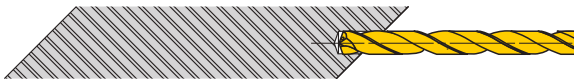
①Machine a flat or the irregular face by using an end mill or slot drill capable of spot facing. Make the spot face diameter the same size as the required deep hole diameter.

2. Drilling a Pilot Hole



①Use a drill with a larger (flatter) point angle than the super long type.
Use a DVAS drill with L/D = 7.
②Ensure a high precision hole is drilled for the guide.
③Drill depth : Approx DC×7.
(Adjust the pilot hole depth according to the length of the long type drill)

3. Initial Cutting with Long Type Drills



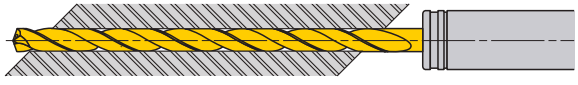
①Insert the drill into the pilot hole at low revolutions.
(spindle speed 500—1000 min^{-1}, feed rate 39.37—78.74 IPM)
②Stop the drill 0.5 - 1 mm from the bottom of the pilot hole.
③It is recommended to reverse the spindle rotation when entering the pilot hole.

4. Drill the Deep Hole



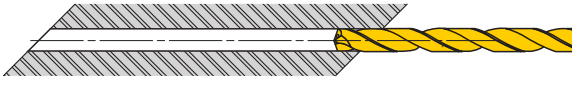
①Start cutting at the recommended speed and feed with a non-peck (continuous feed) cycle.

5. Breaking Through



①When breaking through, the cutting edge can be damaged.
②Lower the feed rate when penetrating.

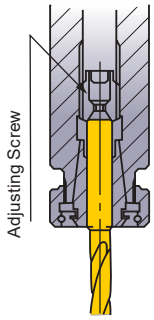
6. Drill Retraction



①After penetrating, change the spindle speed to 500—1000 min^{-1}.
②Next, pull out the drill at a feed rate of 39.37—78.74 IPM.

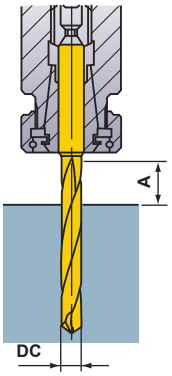
Operational Guidance

Drill Holding



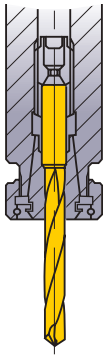
Thrust bearing type collet chuck holds the drill securely.

Drill Length



A ≥ DC x 2

Drill Installation



Do not clamp on the flutes.

Coolant Thru Pressure

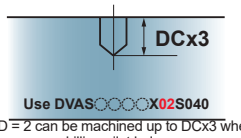
Adjust the coolant through pressure according to the type and concentration of coolant through.

Drill Dia. **DC**	Water-soluble	Water-insoluble
DC<.0787"	≥ 3MPa	≥ 7MPa
DC<.1181"	≥ 2MPa	≥ 5MPa

Pilot Drill

For deep hole drilling, refer to the figure below.

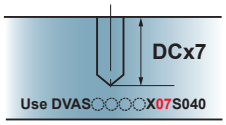
L/D≤40



Use DVAS○○○○X02S040

*L/D = 2 can be machined up to DCx3 when drilling pilot holes.

L/D>40



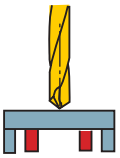
Use DVAS○○○○X07S040

Coolant Thru Handling

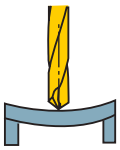
Small particles of swarf will jam in the oil hole of small diameter drills.
Always use a fine mesh filter as a preventive measure.

Drill Dia. **DC**	Fine Mesh Filter
DC<.0787"	≤ .394 μ-inch
DC<.1181"	≤ .787 μ-inch

Thin Workpiece

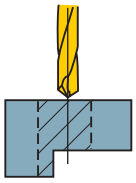


Support the Workpiece



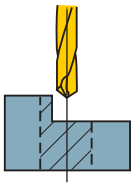
If Bending Occurs

Interrupted Cutting



One Process

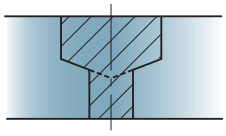
①Lower the feed when drilling the interrupted part.



Requires Prior Machining

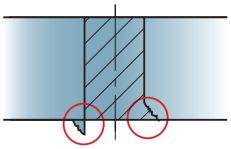
①Spot face with an end mill prior to drilling.

Stepped Holes



①Divide the two processes.
②Drill the larger hole first.
*A tool for machining both chamfer and spot face can be produced to order.

Burring and Workpiece Chipping



①Lower the feed rate by 50% at the end of through cutting.
②Change the point angle.

Tips for drilling a deep hole exceeding L/D = 40

Workpiece rotation method: small lathes, automatic lathes, etc.

(1) Face countersink (DLE drill is recommended)



(2) Drill the pilot hole to a depth of approx. 3D (DVAS drill is recommended)



(3) Drill the deep hole using DVAS○○○○X50S040.



Tool rotation method: Machining centers, composite machines, etc.

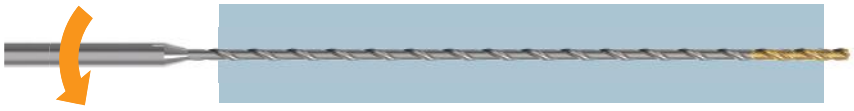
(1) Drill the pilot hole to a depth of approx. 3D (DVAS drill is recommended)



(2) Drill the pilot hole deeper to a approx. 7D
If extra stability is required, drill a pilot hole deeper than 7D.



(3) Drill the deep hole using DVAS○○○○X50S040.



Cutting Example

Comparison of Drilling Efficiency on Automatic Lathe

Drilling efficiency is 10 times higher compared to gun drills.
It provides high efficiency and stability even when machining stainless and alloy steels.

Drilling for AISI 4135

General Cutting Conditions for Gun Drills

<Cutting Conditions>
Tool : DC=ø.0787 inch, L/D=50
Cutting Speed : vc= 165 SFM
Feed per Rev. : fr= .0003 IPR
Hole Depth : 3.937 inch
Cutting Mode : Wet Cutting, Oil, 15MPa

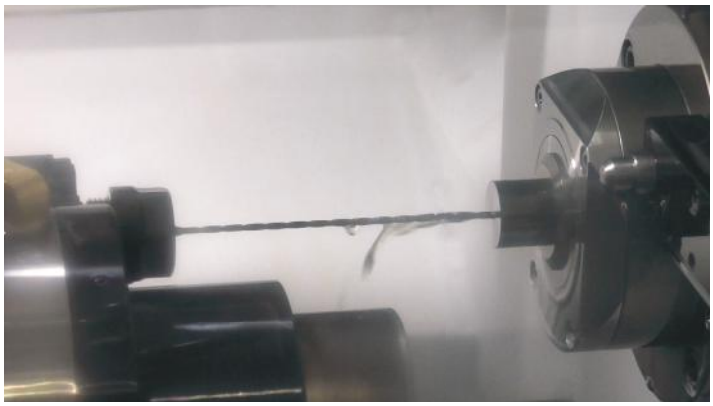
Cutting Time 107.8 sec./hole

DVAS Cutting Conditions

<Cutting Conditions>
Tool : DC=ø.0787 inch, L/D=50
Cutting Speed : vc= 165 SFM
Feed per Rev. : fr= .0028 IPR
Hole Depth : 3.937 inch
Cutting Mode : Wet Cutting, Oil, 15MPa

Cutting Time 10.8 sec./hole

DVAS Drill





YouTube

Drilling for AISI 304

General Cutting Conditions for Gun Drills

<Cutting Conditions>
Tool : DC=ø.0787 inch, L/D=50
Cutting Speed : vc= 130 SFM
Feed per Rev. : fr= .0002 IPR
Hole Depth : 3.937 inch
Cutting Mode : Wet Cutting, Oil, 15MPa

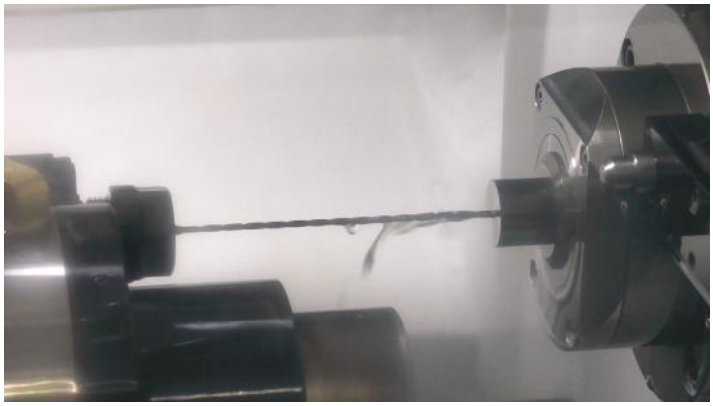
Cutting Time 188.4 sec./hole

DVAS Cutting Conditions

<Cutting Conditions>
Tool : DC=ø.0787 inch, L/D=50
Cutting Speed : vc= 130 SFM
Feed per Rev. : fr= .0020 IPR
Hole Depth : 3.937 inch
Cutting Mode : Wet Cutting, Oil, 15MPa

Cutting Time 18.8 sec./hole

DVAS Drill





YouTube

Example of Improved Drilling Efficiency on Automatic Lathes

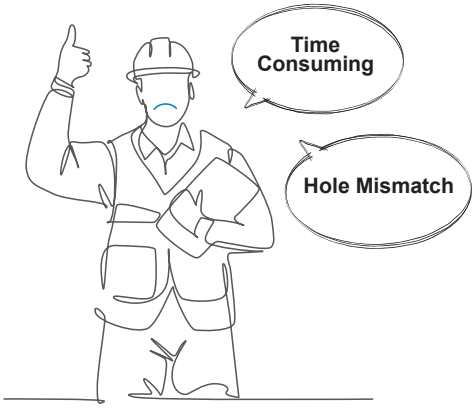
DVAS significantly reduces cycle times and ensures consistent drilling.

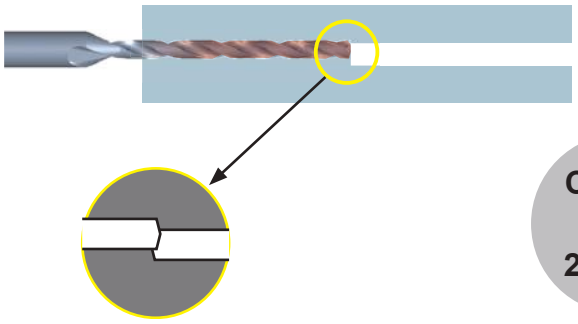
Drilling from both ends method

First step: One side drilled with a blind hole.



Second step: Workpiece is inverted to produce a through hole.





Hole mismatch is likely to occur.

Cutting Time 20 min.

Drilling Process with a **DVAS** drill

First step: Drilling a through hole from one side only.





Cutting Time is Approx 1 Minute

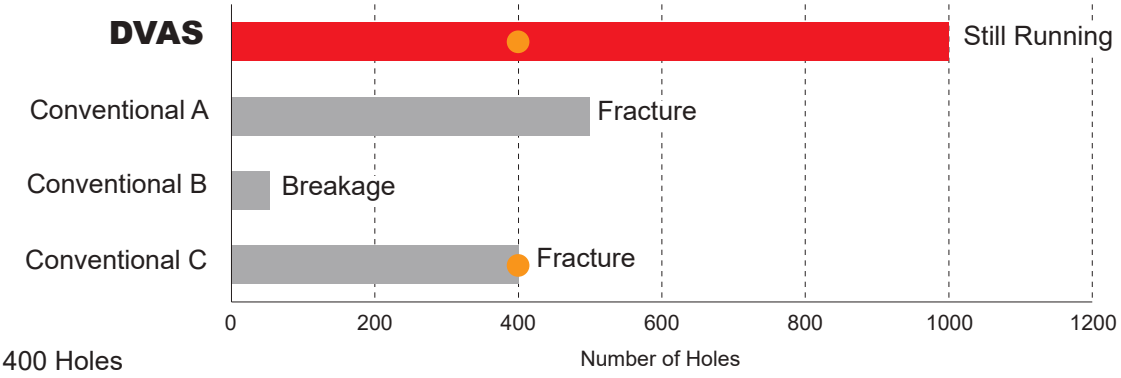
DVAS

<Cutting Conditions>
Material : AISI 1045
Tool : .0984 inch, L/D=50
Cutting Speed : vc= 230 SFM
Feed per Rev. : fr= .0035 - .0047 IPR
Hole Depth : 4.606 inch
Cutting Mode : Wet Cutting, Oil, 7MPa

Cutting Performance

AISI 4140 Comparison of Fracture Resistance

DVAS has excellent fracture resistance and double tool life compared to conventional products.



After 400 Holes



DVAS

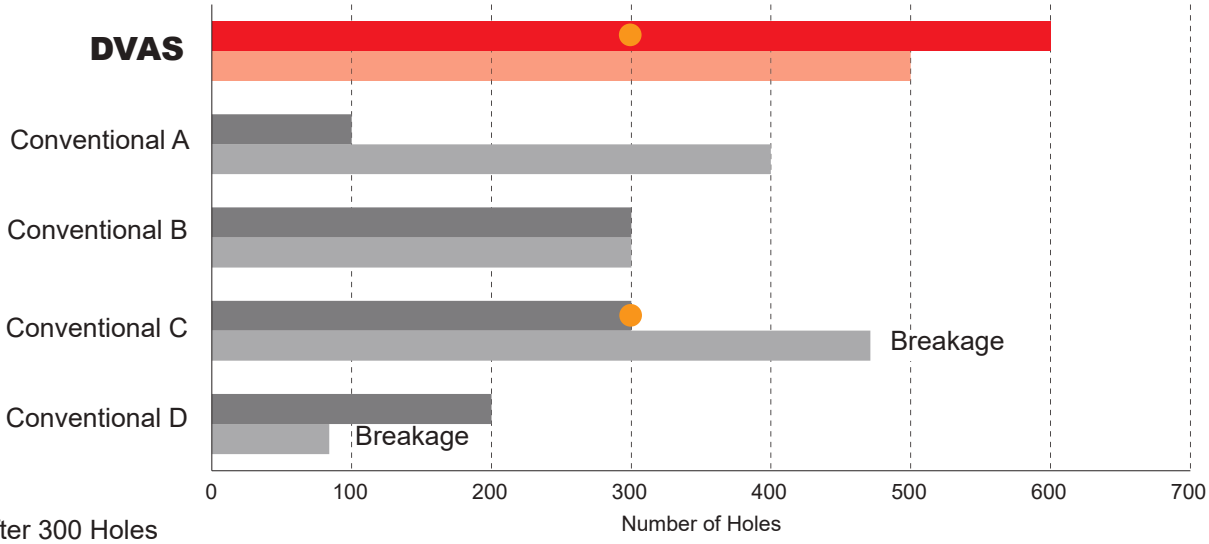


Conventional C

<Cutting Conditions>
Material : AISI 4140
Tool : DC=ø.0787 inch, L/D=20
Cutting Speed : vc= 165 SFM
Feed per Rev. : fr= .0024 IPR
Hole Depth : 1.575 inch
Cutting Mode : Wet Cutting
Water-soluble coolant thru, 2MPa
Pilot Drills : DC=ø.0787 inch, L/D=2
Hole Depth .157 inch/holes

AISI 4140 Comparison of Fracture Resistance in High-efficiency Cutting

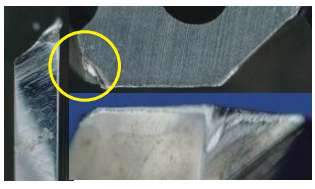
DVAS drill is highly stable even under high-efficiency cutting conditions.



After 300 Holes



DVAS



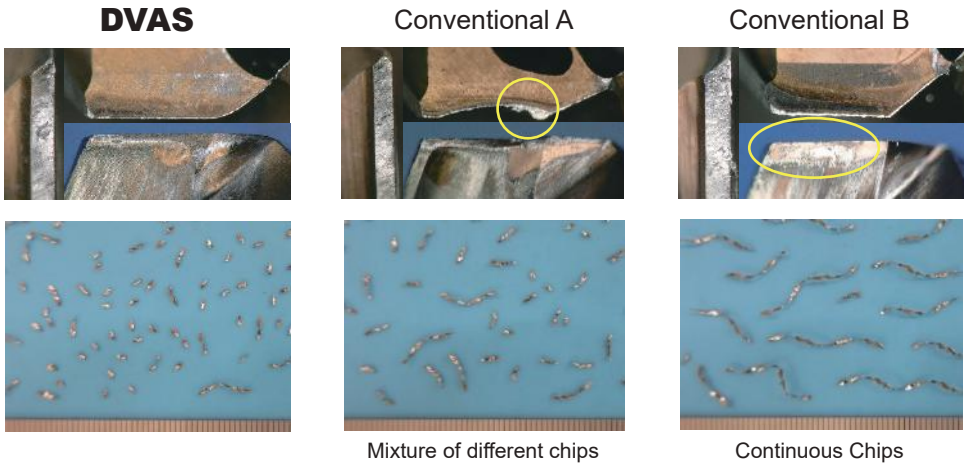
Conventional C

<Cutting Conditions>
Material : AISI 4140
Tool : DC=ø.0787 inch, L/D=20
Cutting Speed : vc= 230 SFM
Feed per Rev. : fr= .0028 IPR
Hole Depth : 1.575 inch
Cutting Mode : Wet Cutting
Water-soluble coolant thru, 2MPa
Pilot Drills : DC=ø.0787 inch, L/D=2
Hole Depth .157 inch/holes

AISI 304 Comparison of Welding Resistance and Chip Disposal under High-efficiency Cutting

Displays excellent welding resistance and chip control when drilling stainless steel.

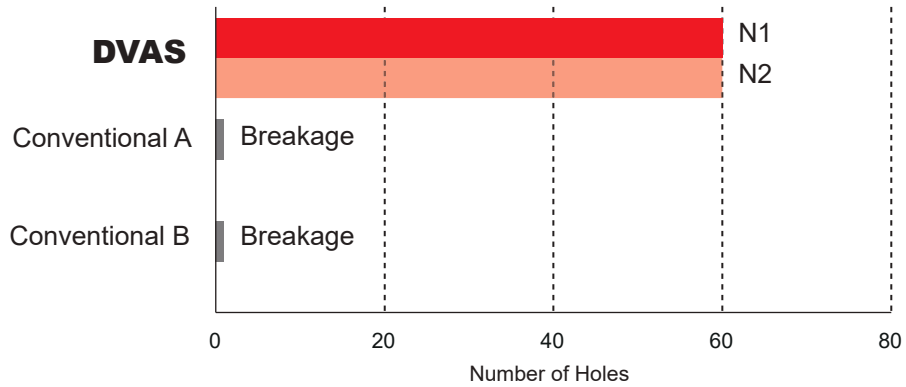
After 1200 Holes



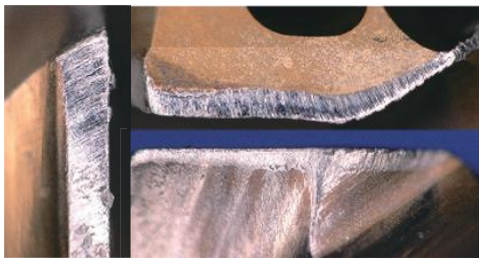
<Cutting Conditions>
Material : AISI 304
Tool : Pilot Drill
DC=ø.0787 inch, L/D=2
Hole Depth .157 inch
Long Drill
DC=ø.0787 inch, L/D=20
Hole Depth 1.575 inch
Cutting Speed : vc= 165 SFM
Feed per Rev. : fr= .0024 IPR
Cutting Mode : Wet Cutting
Water-soluble coolant thru 2MPa

Inconel718 Comparison of Breakage Resistance

Increased coolant through discharge rate achieves stable machining of heat resistant alloys when compared to conventional products.



After 60 Holes



DVAS

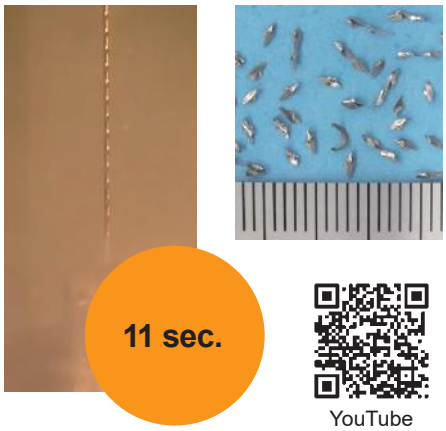
<Cutting Conditions>
Material : Inconel718
Tool : Pilot Drill
DC=ø.0787 inch, L/D=2
Hole Depth .157 inch
Long Drill
DC=ø.0787 inch, L/D=12
Hole Depth .787 inch
Cutting Speed : vc= 100 SFM
Feed per Rev. : fr= .0012 IPR
Hole Depth : .787 inch
Cutting Mode : Wet Cutting
Water-soluble coolant thru 2MPa

Cutting Performance

AISI 304 L/D =50 High-efficiency Cutting Example

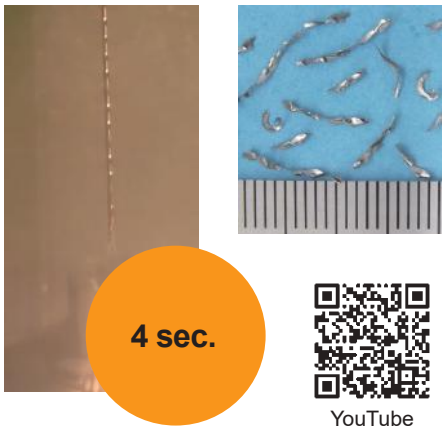
Achieves excellent chip disposal and high efficiency in deep hole drilling of stainless steel.

Cutting Speed : vc= 195 SFM
Feed per Rev. : fr= .0020 IPR



YouTube

Cutting Speed : vc= 330 SFM
Feed per Rev. : fr= .0031 IPR

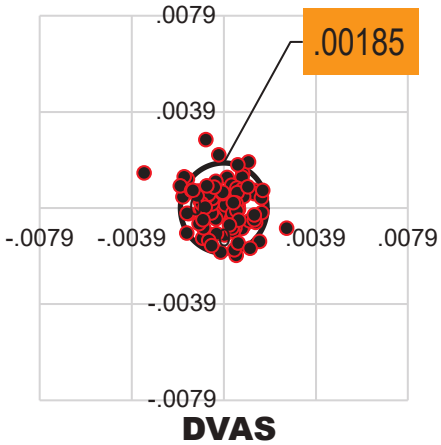


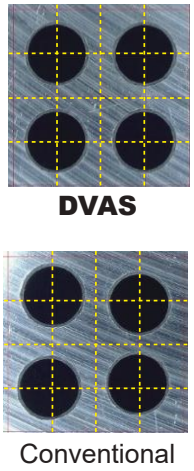
YouTube

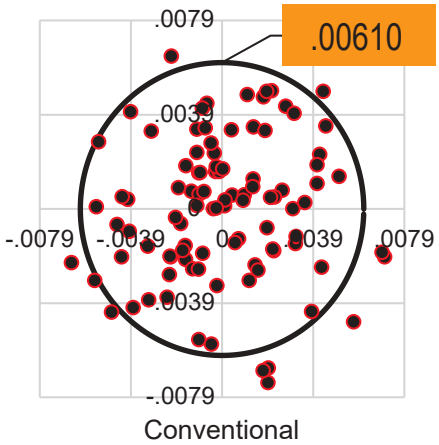
<Cutting Conditions>
Material : AISI 304
Tool : Pilot Drill
DC=ø.0787 inch, L/D=2
Hole Depth .236 inch
Short Drill
DC=ø.0787 inch, L/D=7
Hole Depth .551 inch
Long Drill
DC=ø.0787 inch, L/D=12
Hole Depth 3.937 inch
Cutting Mode : Wet Cutting
Water-soluble coolant thru
7Mpa

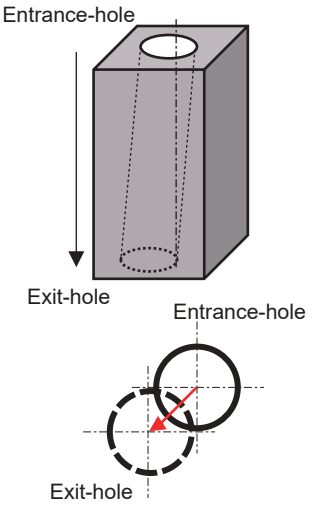
AISI 4140 L/D=40 Comparison of True Straightness

Hole wandering is greatly reduced when compared to conventional products.









<Cutting Conditions>
Material : AISI 4140
Tool : Pilot Drill
DC=ø.0787 inch, L/D=2
Hole Depth .236 inch
Long Drill
DC=ø.0787 inch, L/D= 40
Hole Depth 3.150 inch

Feed per Rev.: fr= .0028 IPR
Cutting Mode : Wet Cutting
Water-soluble coolant thru, 7Mpa

Memo

MITSUBISHI MATERIALS U.S.A.

MITSUBISHI MATERIALS U.S.A. CORPORATION

California Office
(Headquarters)

3535 Hyland Avenue, Suite 200
Costa Mesa, CA 92626
Customer Service: 800.523.0800
Technical Service: 800.486.2341

Chicago Office
(Engineering)

300 N. Martingale Road, Suite 500
Schaumburg, IL 60173
Main: 847.252.6300
Fax: 847.519.1732

MMC Metal de Mexico, S.A. DE C.V.

Av. La Cañada No.16,
Parque Industrial Bernardo
Quintana, El Marques,
Queretaro C.P. 76246 MEXICO
Main: +52.442.221.61.36
Fax: +52.442.221.61.34

North Carolina-MTEC
(Marketing & Technical Center)

105 Corporate Center Drive, Suite A
Mooresville, NC 28117
Main: 980.312.3100
Fax: 704.746.9292

Toronto Office
(Canada Branch)

600 Matheson Blvd. Unit 5 (Office)
Mississauga, ON L5R 4C1
Main: 905.814.0240
Fax: 905.814.0245

Detroit Office
(Moldino CS)

41700 Gardenbrook Road, Suite 120
Novi, MI 48375
Main: 248.308.2620
Fax: 248.308.2627

FOR YOUR SAFETY

- Don't handle inserts and chips without gloves.
- Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage.
- Please use safety covers and wear safety glasses.
- When using compounded cutting oils, please take fire precautions.
- When attaching inserts or spare parts, please use only the correct wrench or driver.
- When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

www.mmc-carbide.com/us

Tools specifications subject to change without notice.

B267A-US-2025.4