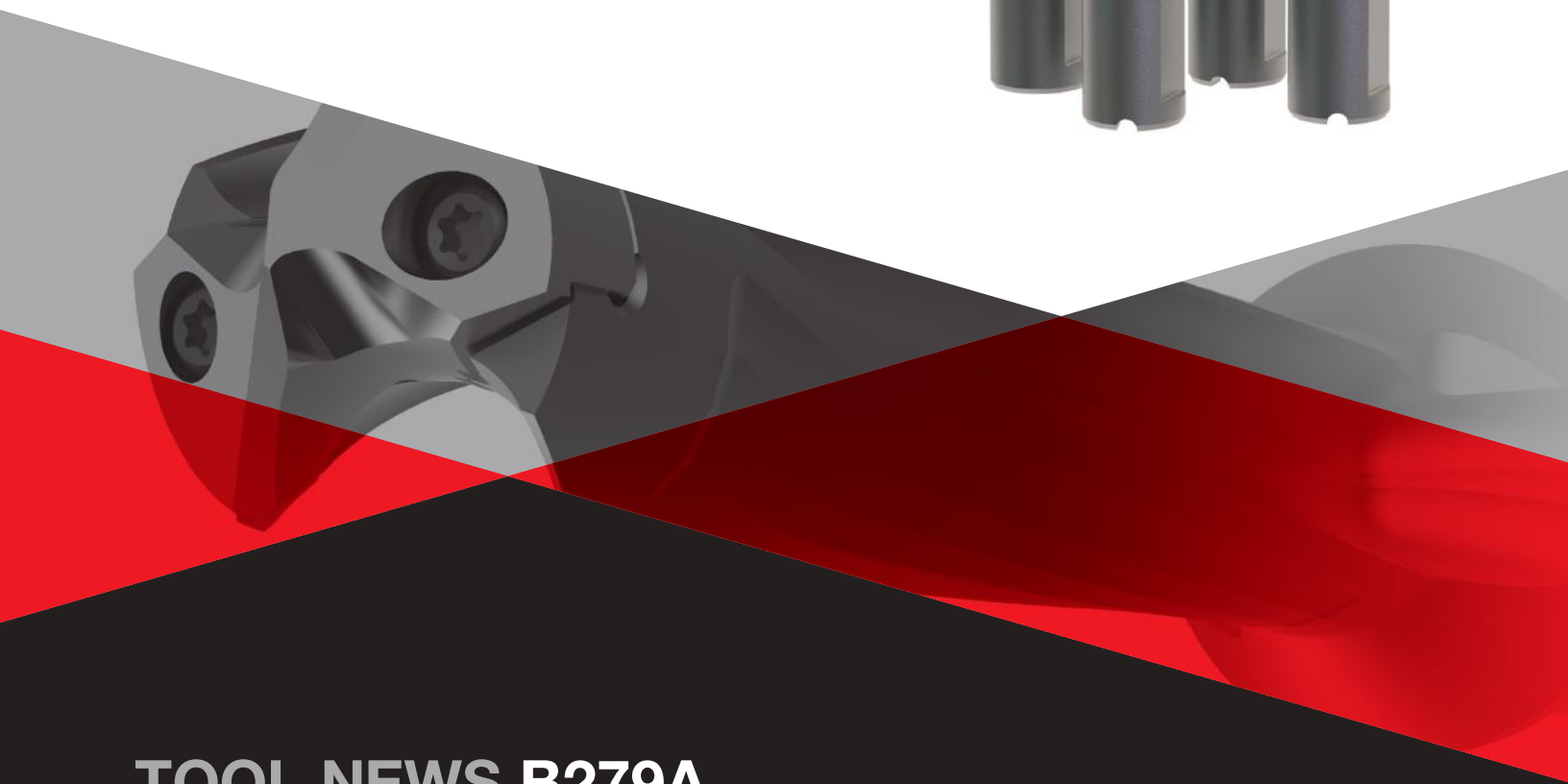
MITSUBISHI MATERIALS

DXAS

EXCHANGEABLE HEAD TYPE CARBIDE DRILL





TOOL NEWS **B279A**

New Drills from Mitsubishi Materials

TRISTAR Drill Series

Reduced Running Costs
- High Precision - High Efficiency

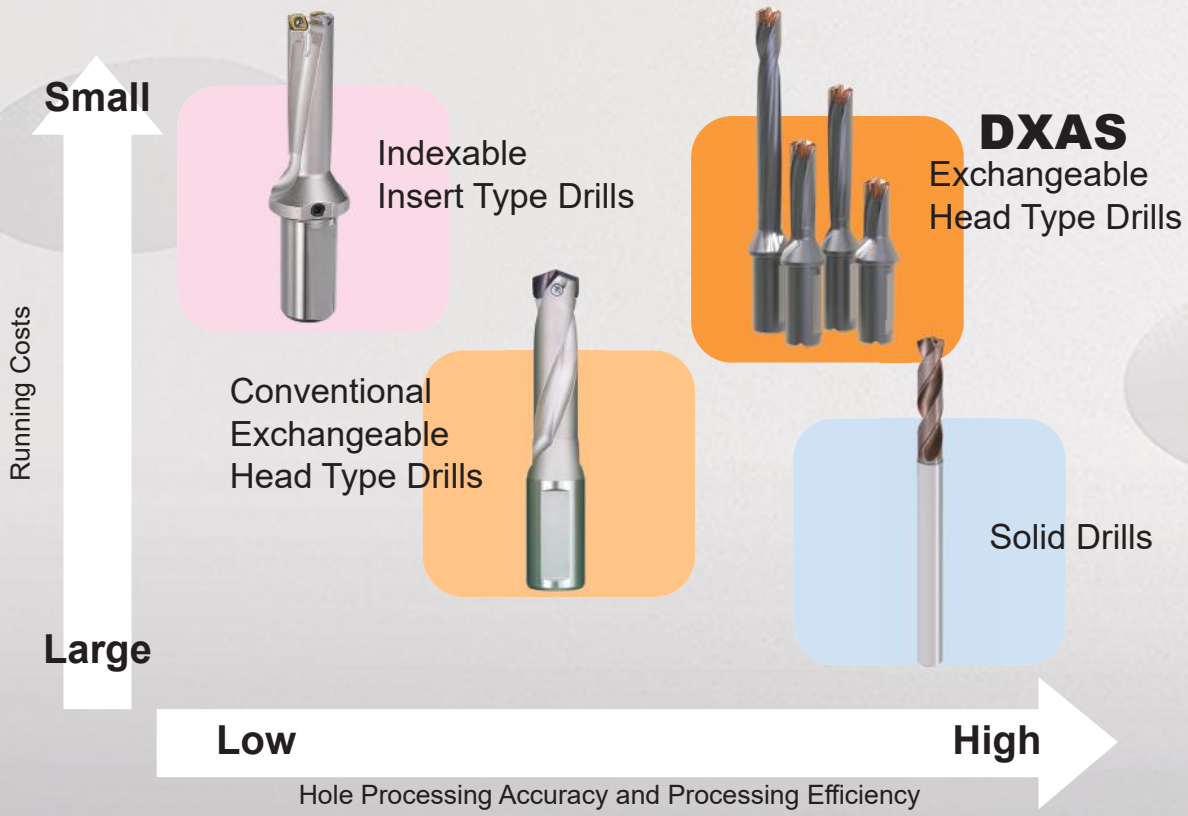
TRISTAR, a new generation drill series from Mitsubishi Materials provides 3 strong advantages.

Reduced Running Costs

High Precision

High Efficiency

Exceptionally long life and reduced running costs compared to conventional exchangeable head drills. In addition, it achieves machining accuracy and efficiency comparable to that of solid drills.



Exchangeable Head Type Carbide Drill

DXAS

Dramatically reduced running costs with improved accuracy and efficiency comparable to solid carbide drills.

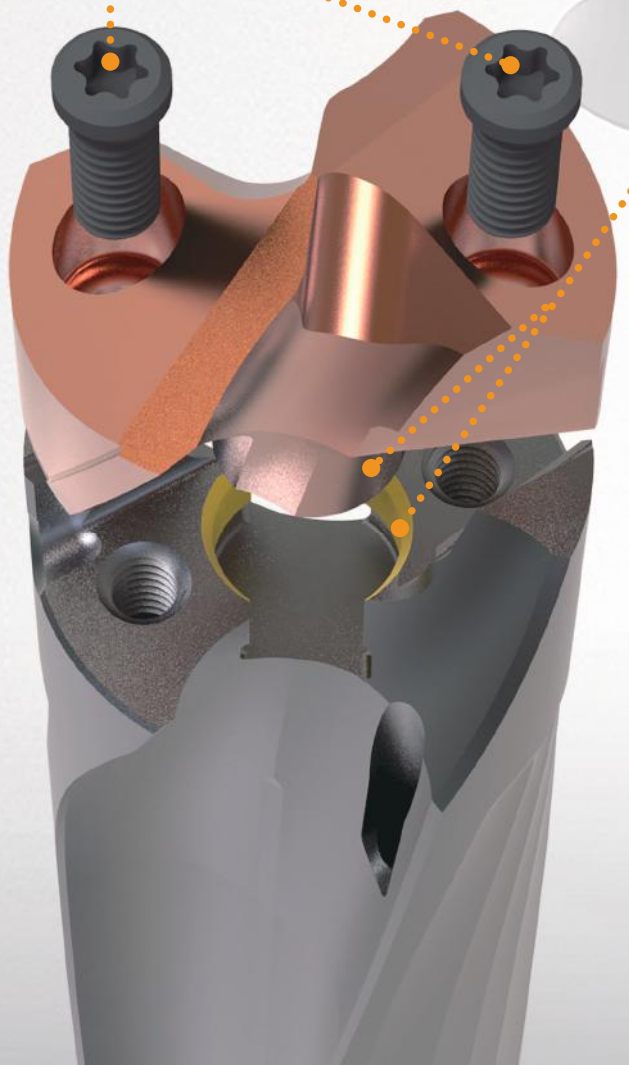
Strong and Intuitive Two-Screw System

The two-screw fastening suppresses deformation of the holder and enables extra-strength fastening, that remains secure even during high load applications.

Notes from the Developer

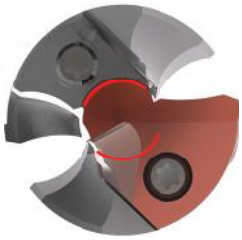
Simple but with excellent results

The new design was made in response to requests for longer tool life, more accuracy and efficiency. Every detail was analyzed during tests and a simple fastening method was developed. It is expected that the DXAS will satisfy all criteria for optimum drilling.

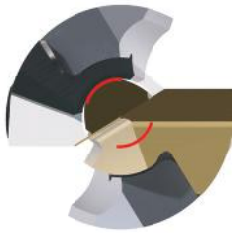


Perfect Centering

Perfect centering minimizes the misalignment of the central axes of the head and holder that occurs when tightened. This achieves levels of hole precision comparable to that of a solid carbide drill.



DXAS

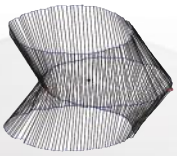


Conventional

Hole Cylindricity



DXAS



Conventional A



Conventional B

	DXAS	Conventional A	Conventional B
	Exchangeable Head Type		Solid Drills
Cylindricity (in)	.0020	.0087	.0024

DXAS

Carbide Head for P Class Materials

Recommended Material

P Steel

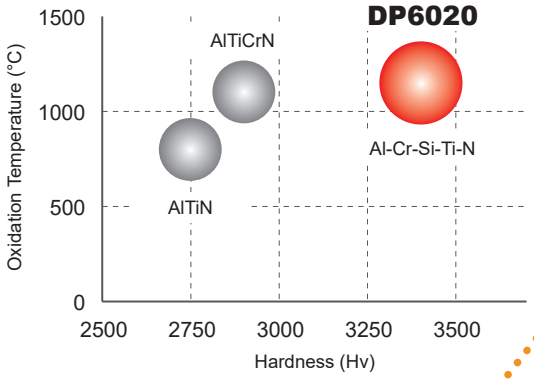
K Cast Iron

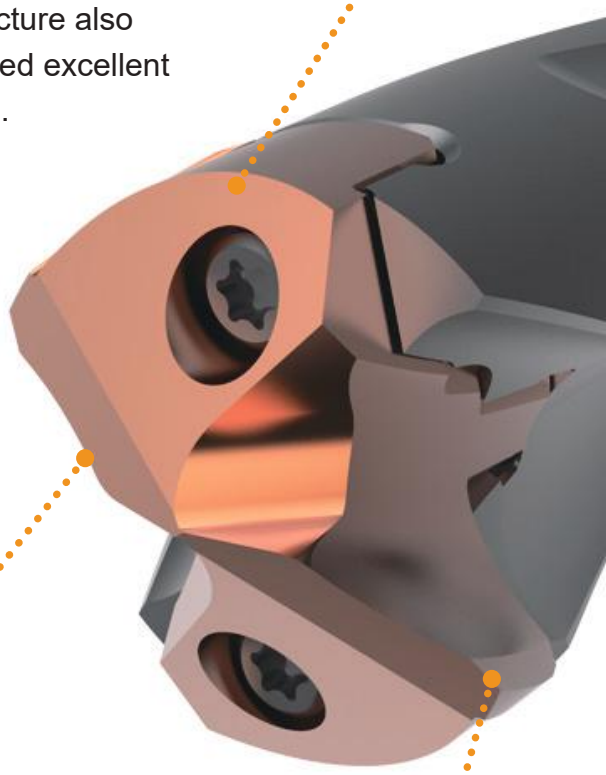
DP6020 with excellent heat resistance and hardness

By adding Si, the coating hardness and the temperature at which oxidation started to occur were significantly raised. This multi-layer structure also improves wear and crack resistance during cutting and provided excellent wear resistance even during high-speed, high feed machining.



*By Image

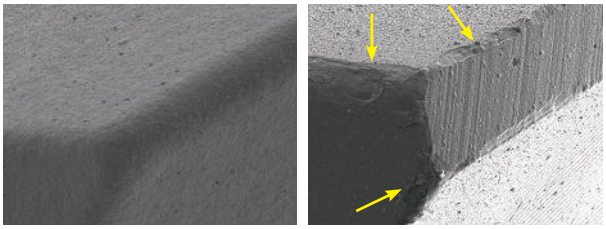




High-Quality Cutting Edge

The cutting edge is less susceptible to stress concentration and has excellent adhesion to the coating, providing both wear resistance and prevention of sudden breakage.

Enlarged photo of cutting edge



DXAS

Conventional
Peeling of coating

High Strength Negative Cutting Edge

The negative rake edge improves wear resistance. It also breaks up chips when penetrating the workpiece, preventing them from wrapping around the holder.

Cutting edge wear photo

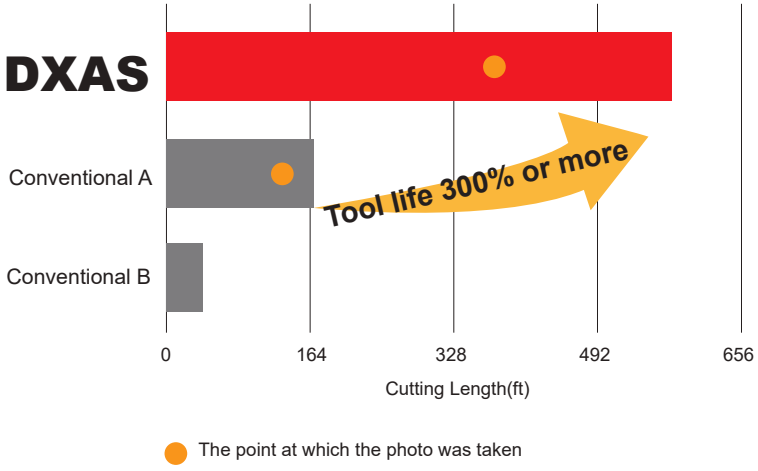


DXAS
Can continue
after 377'

Conventional
Breakage at 148'

1050: Tool life comparison under general cutting conditions F = 20.9 IPM

Enables incredible tool life that is more than three times longer than conventional products.
In addition to significantly reducing running costs, it also reduces the frequency of head replacement.



DXAS — Can continue after 377'



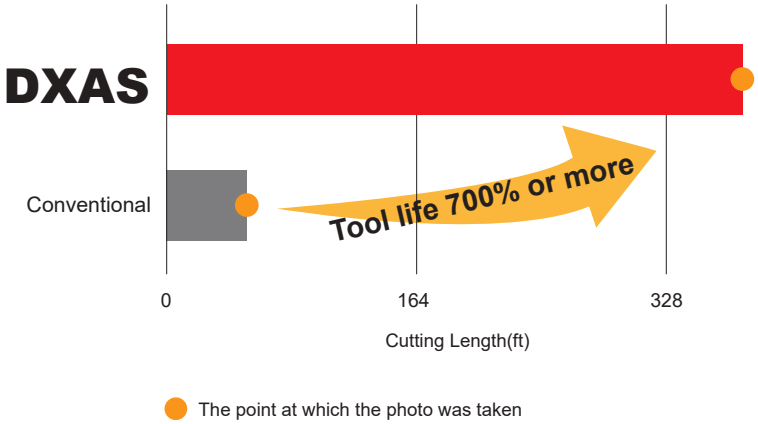
Conventional A — Breakage at 148'



<Cutting Conditions>
Material : AISI 1050
Tools : DC=.709", L/D=5
Cutting Speed : vc=330 SFM
Feed per Rev. : fr=.0118 IPR
Hole Depth : 3.543" (Through hole)
Cutting Mode : Wet cutting Internal coolant
Water-soluble coolant, 145 PSI (1 MPa)

1050: Tool life comparison at high efficiency cutting conditions F = 37.6 IPM

DXAS has excellent wear resistance even under high-efficiency conditions, achieving more than seven times the normal tool life.
The low resistance design enables stable machining.



DXAS — Can continue after 377'



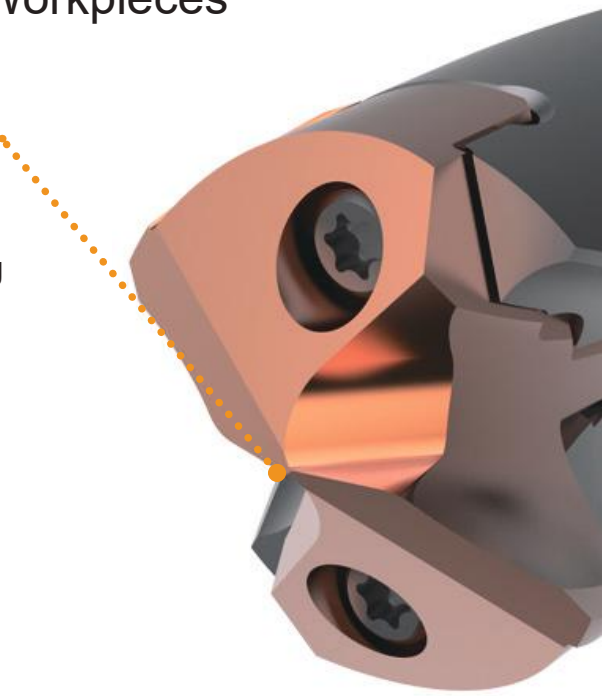
Conventional — Breakage at 52'



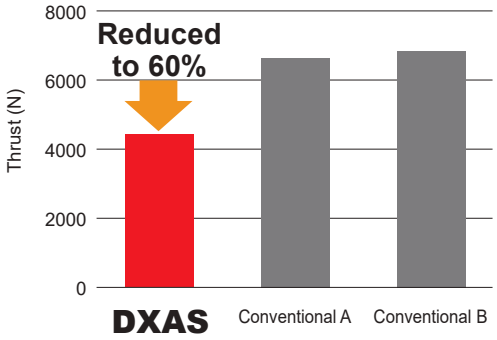
<Cutting Conditions>
Material : AISI 1050
Tools : DC=.709", L/D=5
Cutting Speed : vc=395 SFM
Feed per Rev. : fr=.0177 IPR
Hole Depth : 3.543" (Through hole)
Cutting Mode : Wet cutting Internal coolant
Water-soluble coolant, 145 PSI (1 MPa)

Stable Machining Even for Low Rigidity Workpieces

XR Point Thinning

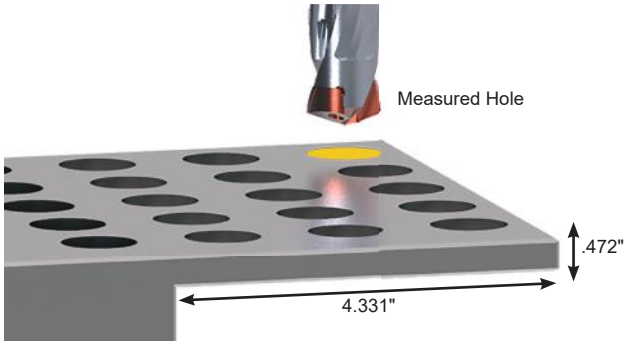


The XR point thinning enables optimum curling and separation of the chips to provide low cutting resistance.
The low resistance design achieves highly efficient machining and reduces power consumption during machining.



1050: Comparison of one-sided clamping and drilling of thin plate

The high-strength fastening mechanism and low-resistance cutting edge have dramatically improved the processing stability of low-rigidity workpieces.
High-precision drilling can be achieved even in thin plates, thereby improving quality.



	DXAS	Conventional
Hole oversize (in)	.003	.005
Machine Load Value (%)	88	124

<Cutting Conditions>
Material : AISI 1050
Tools : DC=1.1810", L/D=5
Cutting Speed : vc=230 SFM
Feed per Rev. : fr=.0138 IPR
Hole Depth : .472" (Through hole)
Cutting Mode : Wet cutting Internal coolant
Water-soluble coolant, 145 PSI (1 MPa)

Burr condition on the exit side



DXAS



Conventional

Stable Machining Even for Deep Holes

New Coolant System

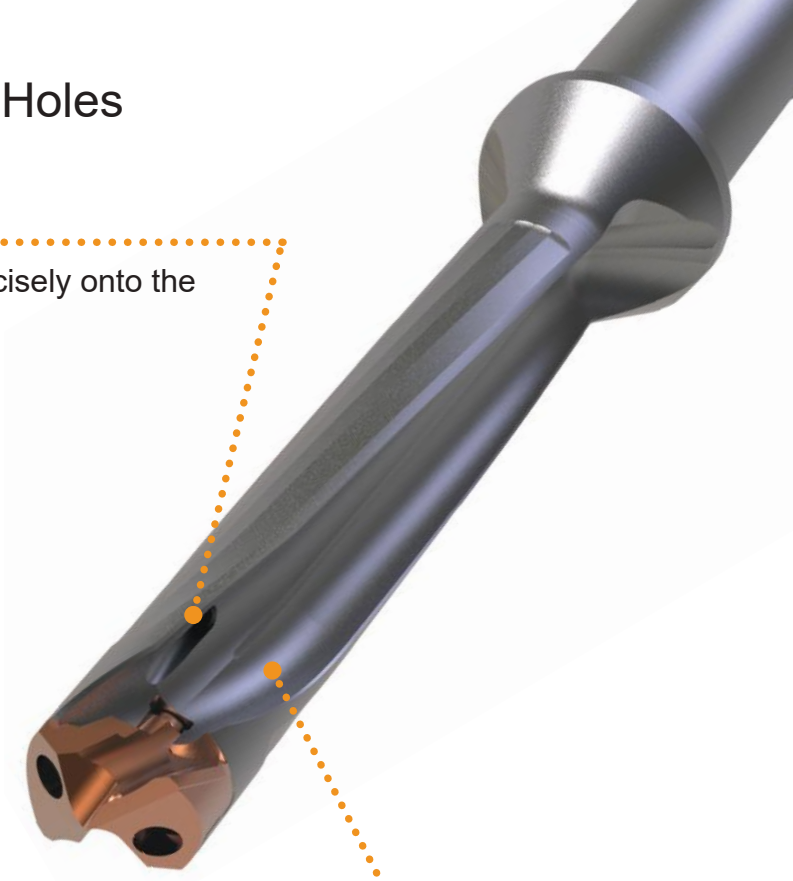
The new design directs coolant from the flute precisely onto the cutting edge, thereby providing excellent cooling.



DXAS



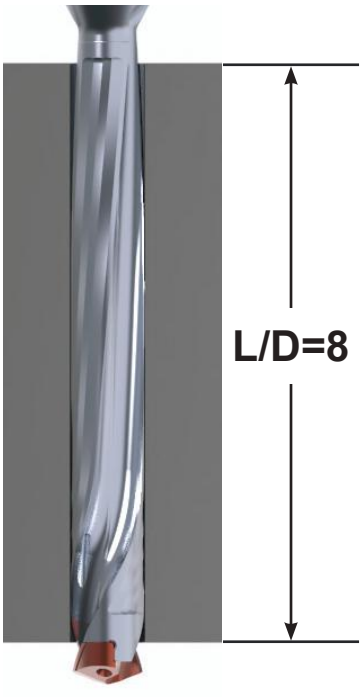
Conventional

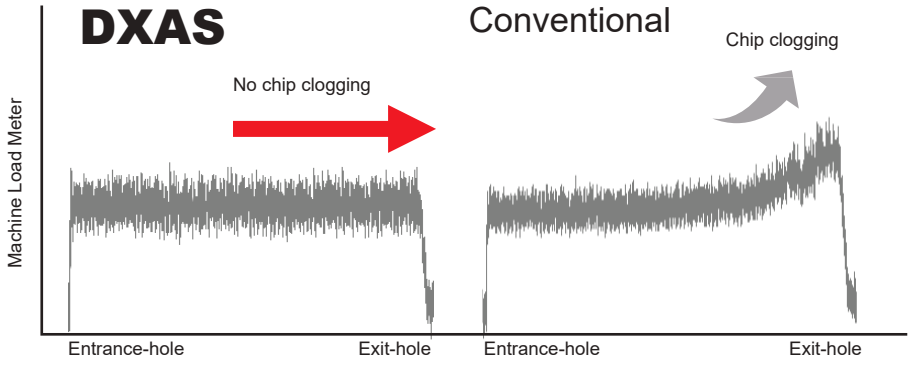


Flute design with excellent chip evacuation

The sharp spiral section at the tip directs chips into the wide main section of the flute, and the variable helix design along the flutes achieves high chip removal performance.

1050: Comparison of chip removal when drilling large diameter deep holes





<Cutting Conditions>
Material : AISI 1050
Tools : DC=1.1810", L/D=8
Cutting Speed : vc=230 SFM
Feed per Rev. : fr=.0098 IPR
Hole Depth : 9.449" (Through hole)
Cutting Mode : Wet cutting Internal coolant
Water-soluble coolant, 145 PSI (1 MPa)

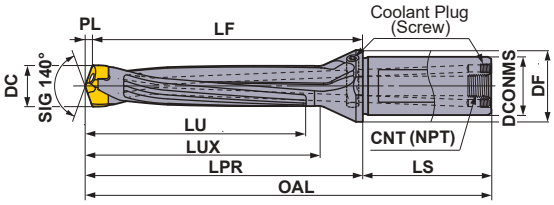
DXAS

TRISTAR Drills

P	M	K	N	S	H
Steel		Cast Iron			

INCH STANDARD





DC= .7087	.7087<DC≤1.1811	1.1811<DC
.00075 .00004	.00091 .00008	.00106 .00008
DCONMS=1.000	DCONMS=1.250	
0 — .00051	0 — .00063	

Order Number	Stock	Hole Depth (L/D)	No.of Teeth	Dimensions (in) DC	LU	LUX	LPR	LS	OAL	LF	PL	DCONMS	DF	NPT Plug CNT	Applicable Head Type
DXAS1800X1F2540	●	1.5	2	.7087≤ <.7480	1.260	1.575	2.283	2.205	4.488	2.165	0.118	1.000	1.232	1/8	DXAS18○○○
DXAS1800X3F2540	●	3	2		2.323	2.638	3.346	2.205	5.551	3.228	0.118	1.000	1.232	1/8	
DXAS1800X5F2540	●	5	2		3.740	4.055	4.764	2.205	6.969	4.646	0.118	1.000	1.232	1/8	
DXAS1800X8F2540	●	8	2		5.866	6.181	6.890	2.205	9.094	6.772	0.118	1.000	1.232	1/8	
DXAS1900X1F2540	●	1.5	2	.7480≤ <.7874	1.319	1.634	2.343	2.205	4.547	2.217	0.126	1.000	1.232	1/8	DXAS19○○○
DXAS1900X3F2540	●	3	2		2.441	2.756	3.465	2.205	5.669	3.339	0.126	1.000	1.232	1/8	
DXAS1900X5F2540	●	5	2		3.937	4.252	4.961	2.205	7.165	4.835	0.126	1.000	1.232	1/8	
DXAS1900X8F2540	●	8	2		6.181	6.496	7.205	2.205	9.409	7.079	0.126	1.000	1.232	1/8	
DXAS2000X1F2540	●	1.5	2	.7874≤ <.8268	1.378	1.693	2.402	2.205	4.606	2.268	0.134	1.000	1.232	1/8	DXAS20○○○
DXAS2000X3F2540	●	3	2		2.559	2.874	3.583	2.205	5.787	3.449	0.134	1.000	1.232	1/8	
DXAS2000X5F2540	●	5	2		4.134	4.449	5.157	2.205	7.362	5.024	0.134	1.000	1.232	1/8	
DXAS2000X8F2540	●	8	2		6.496	6.811	7.520	2.205	9.724	7.386	0.134	1.000	1.232	1/8	
DXAS2100X1F2540	●	1.5	2	.8268≤ <.8661	1.437	1.752	2.461	2.205	4.665	2.319	0.142	1.000	1.232	1/8	DXAS21○○○
DXAS2100X3F2540	●	3	2		2.677	2.992	3.701	2.205	5.906	3.559	0.142	1.000	1.232	1/8	
DXAS2100X5F2540	●	5	2		4.331	4.646	5.354	2.205	7.559	5.213	0.142	1.000	1.232	1/8	
DXAS2100X8F2540	●	8	2		6.811	7.126	7.835	2.205	10.039	7.693	0.142	1.000	1.232	1/8	
DXAS2200X1F2540	●	1.5	2	.8661≤ <.9055	1.496	1.811	2.520	2.205	4.724	2.374	0.146	1.000	1.232	1/8	DXAS22○○○
DXAS2200X3F2540	●	3	2		2.795	3.110	3.819	2.205	6.024	3.673	0.146	1.000	1.232	1/8	
DXAS2200X5F2540	●	5	2		4.528	4.843	5.551	2.205	7.756	5.406	0.146	1.000	1.232	1/8	
DXAS2200X8F2540	●	8	2		7.126	7.441	8.150	2.205	10.354	8.004	0.146	1.000	1.232	1/8	
DXAS2300X1F2540	●	1.5	2	.9055≤ <.9449	1.555	1.870	2.579	2.205	4.783	2.425	0.154	1.000	1.232	1/8	DXAS23○○○
DXAS2300X3F2540	●	3	2		2.913	3.228	3.937	2.205	6.142	3.783	0.154	1.000	1.232	1/8	
DXAS2300X5F2540	●	5	2		4.724	5.039	5.748	2.205	7.953	5.594	0.154	1.000	1.232	1/8	
DXAS2300X8F2540	●	8	2		7.441	7.756	8.465	2.205	10.669	8.311	0.154	1.000	1.232	1/8	
DXAS2400X1F2540	●	1.5	2	.9449≤ <.9843	1.614	1.929	2.638	2.205	4.843	2.476	0.161	1.000	1.232	1/8	DXAS24○○○
DXAS2400X3F2540	●	3	2		3.031	3.346	4.055	2.205	6.260	3.894	0.161	1.000	1.232	1/8	
DXAS2400X5F2540	●	5	2		4.921	5.236	5.945	2.205	8.150	5.783	0.161	1.000	1.232	1/8	
DXAS2400X8F2540	●	8	2		7.756	8.071	8.780	2.205	10.984	8.618	0.161	1.000	1.232	1/8	
DXAS2500X1F2540	●	1.5	2	.9843≤ <1.0236	1.673	1.988	2.697	2.205	4.902	2.531	0.165	1.000	1.232	1/8	DXAS25○○○
DXAS2500X3F2540	●	3	2		3.150	3.465	4.173	2.205	6.378	4.008	0.165	1.000	1.232	1/8	
DXAS2500X5F2540	●	5	2		5.118	5.433	6.142	2.205	8.346	5.976	0.165	1.000	1.232	1/8	
DXAS2500X8F2540	●	8	2		8.071	8.386	9.094	2.205	11.299	8.929	0.165	1.000	1.232	1/8	

● : USA Stock

Order Number	Stock	Hole Depth (L/D)	No.of Teeth	Dimensions (in)										NPT Plug CNT	Applicable Head Type
				DC	LU	LUX	LPR	LS	OAL	LF	PL	DCONMS	DF		
DXAS2600X1F3175	●	1.5	2		1.732	2.047	3.031	2.362	5.394	2.858	0.173	1.250	1.626	1/4	
DXAS2600X3F3175	●	3	2	**1.0236≦**	3.268	3.583	4.567	2.362	6.929	4.394	0.173	1.250	1.626	1/4	DXAS26○○○
DXAS2600X5F3175	●	5	2	**<1.0630**	5.315	5.630	6.614	2.362	8.976	6.441	0.173	1.250	1.626	1/4	
DXAS2600X8F3175	●	8	2		8.386	8.701	9.685	2.362	12.047	9.512	0.173	1.250	1.626	1/4	
DXAS2700X1F3175	●	1.5	2		1.791	2.106	3.091	2.362	5.453	2.909	0.181	1.250	1.626	1/4	
DXAS2700X3F3175	●	3	2	**1.0630≦**	3.386	3.701	4.685	2.362	7.047	4.504	0.181	1.250	1.626	1/4	DXAS27○○○
DXAS2700X5F3175	●	5	2	**<1.1024**	5.512	5.827	6.811	2.362	9.173	6.630	0.181	1.250	1.626	1/4	
DXAS2700X8F3175	●	8	2		8.701	9.016	10.000	2.362	12.362	9.819	0.181	1.250	1.626	1/4	
DXAS2800X1F3175	●	1.5	2		1.850	2.165	3.150	2.362	5.512	2.965	0.185	1.250	1.626	1/4	
DXAS2800X3F3175	●	3	2	**1.1024≦**	3.504	3.819	4.803	2.362	7.165	4.618	0.185	1.250	1.626	1/4	DXAS28○○○
DXAS2800X5F3175	●	5	2	**<1.1417**	5.709	6.024	7.008	2.362	9.370	6.823	0.185	1.250	1.626	1/4	
DXAS2800X8F3175	●	8	2		9.016	9.331	10.315	2.362	12.677	10.130	0.185	1.250	1.626	1/4	
DXAS2900X1F3175	●	1.5	2		1.909	2.224	3.209	2.362	5.571	3.016	0.193	1.250	1.626	1/4	
DXAS2900X3F3175	●	3	2	**1.1417≦**	3.622	3.937	4.921	2.362	7.283	4.728	0.193	1.250	1.626	1/4	DXAS29○○○
DXAS2900X5F3175	●	5	2	**<1.1811**	5.906	6.220	7.205	2.362	9.567	7.012	0.193	1.250	1.626	1/4	
DXAS2900X8F3175	●	8	2		9.331	9.646	10.630	2.362	12.992	10.437	0.193	1.250	1.626	1/4	
DXAS3000X1F3175	●	1.5	2		1.969	2.283	3.268	2.362	5.630	3.067	0.201	1.250	1.626	1/4	
DXAS3000X3F3175	●	3	2	**1.1811≦**	3.740	4.055	5.039	2.362	7.402	4.839	0.201	1.250	1.626	1/4	DXAS30○○○
DXAS3000X5F3175	●	5	2	**<1.2205**	6.102	6.417	7.402	2.362	9.764	7.201	0.201	1.250	1.626	1/4	
DXAS3000X8F3175	●	8	2		9.646	9.961	10.945	2.362	13.307	10.744	0.201	1.250	1.626	1/4	

Note 1) If the coolant plug is loose, it may cause a malfunction. Before use, always check that it is properly tightened.
The plug for the flange side hole (coolant plug) complies with JIS B1177 and is equivalent to the ISO 4026:2003 standard.

DC = Cutting Diameter
LU = Usable Length
LUX = Max. Usable Length
LPR = Protruding Length
LS = Shank Length
OAL = Overall Length
LF = Functional Length
PL = Point Length
DCONMS = Connection Diameter
DF = Flange Diameter

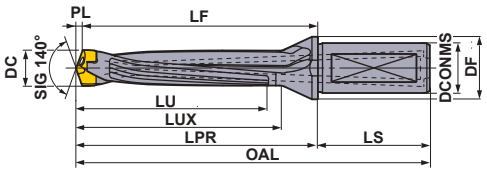
DXAS

TRISTAR Drills

P Steel | M | K Cast Iron | N | S | H

METRIC STANDARD





DC≤18	18<DC≤30	30<DC
0.019 0.001	0.023 0.002	0.027 0.002
DCONMS=25	DCONMS=32	
0 −0.013	0 −0.016	

Order Number	Stock	Hole Depth (L/D)	No.of Teeth	Dimensions (mm)										Applicable Head Type
				DC	LU	LUX	LPR	LS	OAL	LF	PL	DCONMS	DF	
DXAS1800X1F25	●	1.5	2	18.0≤ <19.0	32.0	40.0	58	56	114	55.0	3.0	25	31.3	DXAS18○○○
DXAS1800X3F25	●	3	2		59.0	67.0	85	56	141	82.0	3.0	25	31.3	
DXAS1800X5F25	●	5	2		95.0	103.0	121	56	177	118.0	3.0	25	31.3	
DXAS1800X8F25	●	8	2		149.0	157.0	175	56	231	172.0	3.0	25	31.3	
DXAS1900X1F25	●	1.5	2	19.0≤ <20.0	33.5	41.5	59.5	56	115.5	56.3	3.2	25	31.3	DXAS19○○○
DXAS1900X3F25	●	3	2		62.0	70.0	88	56	144	84.8	3.2	25	31.3	
DXAS1900X5F25	●	5	2		100.0	108.0	126	56	182	122.8	3.2	25	31.3	
DXAS1900X8F25	●	8	2		157.0	165.0	183	56	239	179.8	3.2	25	31.3	
DXAS2000X1F25	●	1.5	2	20.0≤ <21.0	35.0	43.0	61	56	117	57.6	3.4	25	31.3	DXAS20○○○
DXAS2000X3F25	●	3	2		65.0	73.0	91	56	147	87.6	3.4	25	31.3	
DXAS2000X5F25	●	5	2		105.0	113.0	131	56	187	127.6	3.4	25	31.3	
DXAS2000X8F25	●	8	2		165.0	173.0	191	56	247	187.6	3.4	25	31.3	
DXAS2100X1F25	●	1.5	2	21.0≤ <22.0	36.5	44.5	62.5	56	118.5	58.9	3.6	25	31.3	DXAS21○○○
DXAS2100X3F25	●	3	2		68.0	76.0	94	56	150	90.4	3.6	25	31.3	
DXAS2100X5F25	●	5	2		110.0	118.0	136	56	192	132.4	3.6	25	31.3	
DXAS2100X8F25	●	8	2		173.0	181.0	199	56	255	195.4	3.6	25	31.3	
DXAS2200X1F25	●	1.5	2	22.0≤ <23.0	38.0	46.0	64	56	120	60.3	3.7	25	31.3	DXAS22○○○
DXAS2200X3F25	●	3	2		71.0	79.0	97	56	153	93.3	3.7	25	31.3	
DXAS2200X5F25	●	5	2		115.0	123.0	141	56	197	137.3	3.7	25	31.3	
DXAS2200X8F25	●	8	2		181.0	189.0	207	56	263	203.3	3.7	25	31.3	
DXAS2300X1F25	●	1.5	2	23.0≤ <24.0	39.5	47.5	65.5	56	121.5	61.6	3.9	25	31.3	DXAS23○○○
DXAS2300X3F25	●	3	2		74.0	82.0	100	56	156	96.1	3.9	25	31.3	
DXAS2300X5F25	●	5	2		120.0	128.0	146	56	202	142.1	3.9	25	31.3	
DXAS2300X8F25	●	8	2		189.0	197.0	215	56	271	211.1	3.9	25	31.3	
DXAS2400X1F25	●	1.5	2	24.0≤ <25.0	41.0	49.0	67	56	123	62.9	4.1	25	31.3	DXAS24○○○
DXAS2400X3F25	●	3	2		77.0	85.0	103	56	159	98.9	4.1	25	31.3	
DXAS2400X5F25	●	5	2		125.0	133.0	151	56	207	146.9	4.1	25	31.3	
DXAS2400X8F25	●	8	2		197.0	205.0	223	56	279	218.9	4.1	25	31.3	

● : USA Stock

Order Number	Stock	Hole Depth (L/D)	No.of Teeth	Dimensions (mm)										Applicable Head Type
				DC	LU	LUX	LPR	LS	OAL	LF	PL	DCONMS	DF	
DXAS2500X1F25	●	1.5	2	**25.0≦ <26.0**	42.5	50.5	68.5	56	124.5	64.3	4.2	25	31.3	DXAS25○○○
DXAS2500X3F25	●	3	2		80.0	88.0	106	56	162	101.8	4.2	25	31.3	
DXAS2500X5F25	●	5	2		130.0	138.0	156	56	212	151.8	4.2	25	31.3	
DXAS2500X8F25	●	8	2		205.0	213.0	231	56	287	226.8	4.2	25	31.3	
DXAS2600X1F32	●	1.5	2	**26.0≦ <27.0**	44.0	52.0	77	60	137	72.6	4.4	32	41.3	DXAS26○○○
DXAS2600X3F32	●	3	2		83.0	91.0	116	60	176	111.6	4.4	32	41.3	
DXAS2600X5F32	●	5	2		135.0	143.0	168	60	228	163.6	4.4	32	41.3	
DXAS2600X8F32	●	8	2		213.0	221.0	246	60	306	241.6	4.4	32	41.3	
DXAS2700X1F32	●	1.5	2	**27.0≦ <28.0**	45.5	53.5	78.5	60	138.5	73.9	4.6	32	41.3	DXAS27○○○
DXAS2700X3F32	●	3	2		86.0	94.0	119	60	179	114.4	4.6	32	41.3	
DXAS2700X5F32	●	5	2		140.0	148.0	173	60	233	168.4	4.6	32	41.3	
DXAS2700X8F32	●	8	2		221.0	229.0	254	60	314	249.4	4.6	32	41.3	
DXAS2800X1F32	●	1.5	2	**28.0≦ <29.0**	47.0	55.0	80	60	140	75.3	4.7	32	41.3	DXAS28○○○
DXAS2800X3F32	●	3	2		89.0	97.0	122	60	182	117.3	4.7	32	41.3	
DXAS2800X5F32	●	5	2		145.0	153.0	178	60	238	173.3	4.7	32	41.3	
DXAS2800X8F32	●	8	2		229.0	237.0	262	60	322	257.3	4.7	32	41.3	
DXAS2900X1F32	●	1.5	2	**29.0≦ <30.0**	48.5	56.5	81.5	60	141.5	76.6	4.9	32	41.3	DXAS29○○○
DXAS2900X3F32	●	3	2		92.0	100.0	125	60	185	120.1	4.9	32	41.3	
DXAS2900X5F32	●	5	2		150.0	158.0	183	60	243	178.1	4.9	32	41.3	
DXAS2900X8F32	●	8	2		237.0	245.0	270	60	330	265.1	4.9	32	41.3	
DXAS3000X1F32	●	1.5	2	**30.0≦ <31.0**	50.0	58.0	83	60	143	77.9	5.1	32	41.3	DXAS30○○○
DXAS3000X3F32	●	3	2		95.0	103.0	128	60	188	122.9	5.1	32	41.3	
DXAS3000X5F32	●	5	2		155.0	163.0	188	60	248	182.9	5.1	32	41.3	
DXAS3000X8F32	●	8	2		245.0	253.0	278	60	338	272.9	5.1	32	41.3	

DC = Cutting Diameter
LU = Usable Length
LUX = Max. Usable Length
LPR = Protruding Length
LS = Shank Length
OAL = Overall Length
LF = Functional Length
PL = Point Length
DCONMS= Connection Diameter
DF = Flange Diameter

Spare Parts

Holder Type	 Clamp Screw	Clamp Torque (lbf-in)	 Wrench	Drive Size
DXAS1800X○F, DXAS1900X○F	**TPS25-1**	9	TIP07F	7IP
DXAS2000X○F—DXAS2200X○F	**TPS3-1**	18	TIP10F	10IP
DXAS2300X○F—DXAS2500X○F	**TPS351-1**	22	TIP10W	10IP
DXAS2600X○F—DXAS3000X○F	**TPS43**	35	TIP15W	15IP

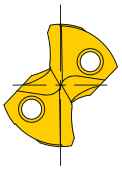
DXAS

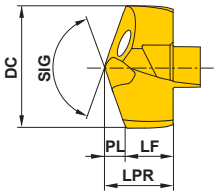
TRISTAR Drills

P Steel | M | K Cast Iron | N | S | H

HEAD







DC=.7087	.7087<DC≤1.1811	1.1811<DC
.00075 .00004	.00091 .00008	.00106 .00008

Order Number	Coated		Dimensions									Applicable Holder Type
	DP6020		DC		LF		LPR		PL		SIG	
			mm	in	mm	in	mm	in	mm	in		
DXAS1800P	●		18.000	.7087	7.0	.276	10.0	.394	3.0	.118	140°	DXAS1800X◌F
DXAS1810P	●		18.100	.7126	6.9	.272	10.0	.394	3.1	.122	140°	
DXAS1820P	●		18.200	.7165	6.9	.272	10.0	.394	3.1	.122	140°	
DXAS1826P	●		18.258	.7188	6.9	.272	10.0	.394	3.1	.122	140°	
DXAS1830P	●		18.300	.7205	6.9	.272	10.0	.394	3.1	.122	140°	
DXAS1840P	●		18.400	.7244	6.9	.272	10.0	.394	3.1	.122	140°	
DXAS1850P	●		18.500	.7283	6.9	.272	10.0	.394	3.1	.122	140°	
DXAS1860P	●		18.600	.7323	6.9	.272	10.0	.394	3.1	.122	140°	
DXAS1865P	●		18.654	.7344	6.8	.269	10.0	.394	3.2	.124	140°	
DXAS1870P	●		18.700	.7362	6.8	.268	10.0	.394	3.2	.126	140°	
DXAS1880P	●		18.800	.7402	6.8	.268	10.0	.394	3.2	.126	140°	
DXAS1890P	●		18.900	.7441	6.8	.268	10.0	.394	3.2	.126	140°	
DXAS1900P	●		19.000	.7480	6.8	.268	10.0	.394	3.2	.126	140°	DXAS1900X◌F
DXAS1905P	●		19.050	.7500	6.8	.267	10.0	.394	3.2	.127	140°	
DXAS1910P	●		19.100	.7520	6.8	.268	10.0	.394	3.2	.126	140°	
DXAS1920P	●		19.200	.7559	6.7	.264	10.0	.394	3.3	.130	140°	
DXAS1930P	●		19.300	.7598	6.7	.264	10.0	.394	3.3	.130	140°	
DXAS1940P	●		19.400	.7638	6.7	.264	10.0	.394	3.3	.130	140°	
DXAS1945P	●		19.446	.7656	6.7	.264	10.0	.394	3.3	.130	140°	
DXAS1950P	●		19.500	.7677	6.7	.264	10.0	.394	3.3	.130	140°	
DXAS1960P	●		19.600	.7717	6.7	.264	10.0	.394	3.3	.130	140°	
DXAS1970P	●		19.700	.7756	6.7	.264	10.0	.394	3.3	.130	140°	
DXAS1980P	●		19.800	.7795	6.6	.260	10.0	.394	3.4	.134	140°	
DXAS1985P	●		19.845	.7813	6.6	.261	10.0	.394	3.4	.132	140°	
DXAS1990P	●		19.900	.7835	6.6	.260	10.0	.394	3.4	.134	140°	
DXAS2000P	●		20.000	.7874	8.1	.319	11.5	.453	3.4	.134	140°	DXAS2000X◌F
DXAS2024P	●		20.241	.7969	8.1	.318	11.5	.453	3.4	.135	140°	
DXAS2050P	●		20.500	.8071	8.0	.315	11.5	.453	3.5	.138	140°	
DXAS2064P	●		20.638	.8125	8.0	.315	11.5	.453	3.5	.138	140°	
DXAS2100P	●		21.000	.8268	7.9	.311	11.5	.453	3.6	.142	140°	DXAS2100X◌F
DXAS2103P	●		21.034	.8281	7.9	.313	11.5	.453	3.6	.140	140°	
DXAS2143P	●		21.433	.8438	7.9	.310	11.5	.453	3.6	.143	140°	
DXAS2150P	●		21.500	.8465	7.9	.311	11.5	.453	3.6	.142	140°	
DXAS2183P	●		21.829	.8594	7.8	.307	11.5	.453	3.7	.146	140°	
DXAS2200P	●		22.000	.8661	7.8	.307	11.5	.453	3.7	.146	140°	DXAS2200X◌F
DXAS2223P	●		22.225	.8750	7.7	.303	11.5	.453	3.8	.150	140°	
DXAS2250P	●		22.500	.8858	7.7	.303	11.5	.453	3.8	.150	140°	
DXAS2262P	●		22.621	.8906	7.7	.302	11.5	.453	3.8	.151	140°	
DXAS2300P	●		23.000	.9055	9.1	.358	13.0	.512	3.9	.154	140°	DXAS2300X◌F
DXAS2302P	●		23.020	.9063	9.1	.358	13.0	.512	3.9	.154	140°	
DXAS2342P	●		23.416	.9219	9.0	.356	13.0	.512	4.0	.156	140°	
DXAS2350P	●		23.500	.9252	9.0	.354	13.0	.512	4.0	.157	140°	
DXAS2381P	●		23.813	.9375	9.0	.353	13.0	.512	4.0	.159	140°	

● : USA Stock

Order Number	Coated		Dimensions									Applicable Holder Type
	DP6020		DC		LF		LPR		PL		SIG	
			mm	in	mm	in	mm	in	mm	in		
DXAS2400P	●		**24.000**	**.9449**	8.9	.350	13.0	.512	4.1	.161	140°	DXAS2400X◌F
DXAS2421P	●		**24.209**	**.9531**	8.9	.350	13.0	.512	4.1	.161	140°	
DXAS2450P	●		**24.500**	**.9646**	8.9	.350	13.0	.512	4.1	.161	140°	
DXAS2461P	●		**24.608**	**.9688**	8.8	.348	13.0	.512	4.2	.164	140°	
DXAS2470P	●		**24.700**	**.9724**	8.8	.346	13.0	.512	4.2	.165	140°	
DXAS2500P	●		**25.000**	**.9843**	8.8	.346	13.0	.512	4.2	.165	140°	DXAS2500X◌F
DXAS2540P	●		**25.400**	**1.0000**	8.7	.342	13.0	.512	4.3	.170	140°	
DXAS2550P	●		**25.500**	**1.0039**	8.7	.343	13.0	.512	4.3	.169	140°	
DXAS2579P	●		**25.796**	**1.0156**	8.6	.340	13.0	.512	4.4	.172	140°	
DXAS2600P	●		**26.000**	**1.0236**	10.1	.398	14.5	.571	4.4	.173	140°	DXAS2600X◌F
DXAS2619P	●		**26.195**	**1.0313**	10.1	.396	14.5	.571	4.4	.175	140°	
DXAS2650P	●		**26.500**	**1.0433**	10.0	.394	14.5	.571	4.5	.177	140°	
DXAS2659P	●		**26.591**	**1.0469**	10.0	.393	14.5	.571	4.5	.178	140°	
DXAS2670P	●		**26.700**	**1.0512**	10.0	.394	14.5	.571	4.5	.177	140°	
DXAS2699P	●		**26.988**	**1.0625**	9.9	.391	14.5	.571	4.6	.180	140°	
DXAS2700P	●		**27.000**	**1.0630**	9.9	.390	14.5	.571	4.6	.181	140°	DXAS2700X◌F
DXAS2738P	●		**27.384**	**1.0781**	9.9	.388	14.5	.571	4.6	.183	140°	
DXAS2750P	●		**27.500**	**1.0827**	9.8	.386	14.5	.571	4.7	.185	140°	
DXAS2778P	●		**27.783**	**1.0938**	9.8	.385	14.5	.571	4.7	.185	140°	
DXAS2800P	●		**28.000**	**1.1024**	9.8	.386	14.5	.571	4.7	.185	140°	DXAS2800X◌F
DXAS2818P	●		**28.179**	**1.1094**	9.7	.383	14.5	.571	4.8	.188	140°	
DXAS2850P	●		**28.500**	**1.1220**	9.7	.382	14.5	.571	4.8	.189	140°	
DXAS2858P	●		**28.575**	**1.1250**	9.7	.380	14.5	.571	4.8	.191	140°	
DXAS2897P	●		**28.971**	**1.1406**	9.6	.378	14.5	.571	4.9	.193	140°	
DXAS2900P	●		**29.000**	**1.1417**	10.6	.417	15.5	.610	4.9	.193	140°	DXAS2900X◌F
DXAS2937P	●		**29.370**	**1.1563**	10.5	.414	15.5	.610	5.0	.196	140°	
DXAS2950P	●		**29.500**	**1.1614**	10.5	.413	15.5	.610	5.0	.197	140°	
DXAS2977P	●		**29.766**	**1.1719**	10.5	.411	15.5	.610	5.1	.199	140°	
DXAS3000P	●		**30.000**	**1.1811**	10.4	.409	15.5	.610	5.1	.201	140°	DXAS3000X◌F
DXAS3016P	●		**30.163**	**1.1875**	10.4	.409	15.5	.610	5.1	.201	140°	

DC = Cutting Diameter
LF = Functional Length
PL = Point Length
SIG = Point Angle
LPR = Protruding length

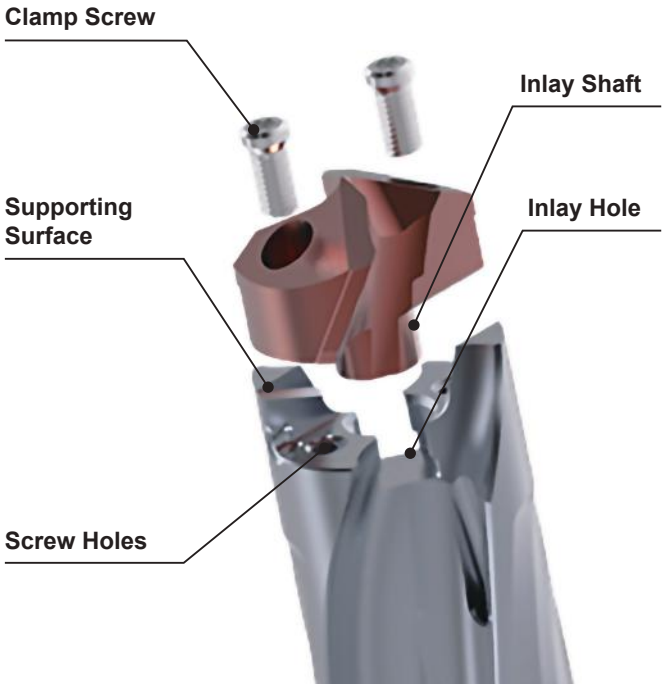
How to Install the Head

1. Thoroughly clean the head mounting area of the holder using an air blower, etc., and check that there are no foreign objects or dirt on the screw holes or the head support surface.

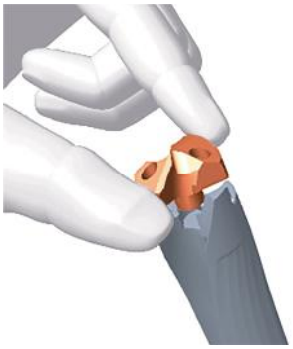
2. Insert the inlay shaft of the head into the holder.

3. Insert the two clamp screws from the head and temporarily tighten each one.

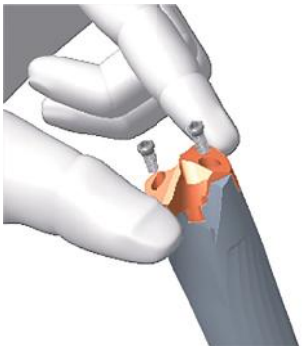
4. While lightly pressing the head against the support surface of the holder, tighten the two clamp screws to the recommended torque.



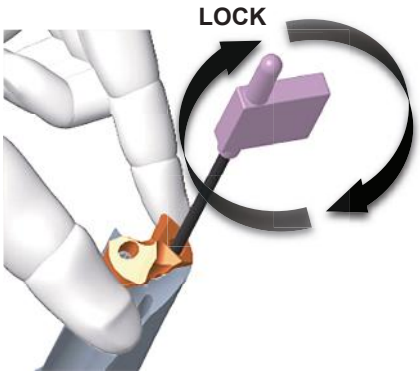
2.



3.



4.



RECOMMENDED CUTTING CONDITIONS

Material			Mild Steel AISI 1010 etc.			Carbon Steel AISI 1050 etc.		
Dia. **DC** (in)	Dia. **DC** (mm)	Hole Depth (L/D)	Cutting Speed (Min.—Max.) **vc** (SFM)	Revolution **n** (min-1)	Feed Rate (Min.—Max.) **fr** (IPR)	Cutting Speed (Min.—Max.) **vc** (SFM)	Revolution **n** (min-1)	Feed Rate (Min.—Max.) **fr** (IPR)
.7087	**18.0**	**1.5—8**	360 (260 — 560)	1900	.0118 (.0079 — .0177)	330 (230 — 560)	1800	.0118 (.0079 — .0177)
.7480	**19.0**	**1.5—8**	360 (260 — 560)	1800	.0118 (.0079 — .0177)	300 (230 — 560)	1700	.0118 (.0079 — .0177)
.7874	**20.0**	**1.5—8**	360 (260 — 560)	1800	.0118 (.0079 — .0177)	330 (230 — 560)	1600	.0118 (.0079 — .0177)
.8268	**21.0**	**1.5—8**	360 (260 — 560)	1700	.0118 (.0079 — .0177)	300 (230 — 560)	1500	.0118 (.0079 — .0177)
.8661	**22.0**	**1.5—8**	360 (260 — 560)	1600	.0118 (.0079 — .0177)	330 (230 — 560)	1400	.0118 (.0079 — .0177)
.9055	**23.0**	**1.5—8**	360 (260 — 560)	1500	.0118 (.0079 — .0177)	300 (230 — 560)	1400	.0118 (.0079 — .0177)
.9449	**24.0**	**1.5—8**	360 (260 — 560)	1500	.0118 (.0079 — .0177)	330 (230 — 560)	1300	.0118 (.0079 — .0177)
.9843	**25.0**	**1.5—8**	360 (260 — 560)	1400	.0138 (.0098 — .0177)	300 (230 — 560)	1300	.0138 (.0098 — .0177)
1.0236	**26.0**	**1.5—8**	360 (260 — 560)	1300	.0138 (.0098 — .0177)	330 (230 — 560)	1200	.0138 (.0098 — .0177)
1.0630	**27.0**	**1.5—8**	360 (260 — 560)	1300	.0138 (.0098 — .0177)	300 (230 — 560)	1200	.0138 (.0098 — .0177)
1.1024	**28.0**	**1.5—8**	360 (260 — 560)	1300	.0138 (.0098 — .0177)	330 (230 — 560)	1100	.0138 (.0098 — .0177)
1.1417	**29.0**	**1.5—8**	360 (260 — 560)	1200	.0138 (.0098 — .0177)	300 (230 — 560)	1100	.0138 (.0098 — .0177)
1.1811	**30.0**	**1.5—8**	360 (260 — 560)	1200	.0138 (.0098 — .0177)	330 (230 — 560)	1100	.0138 (.0098 — .0177)

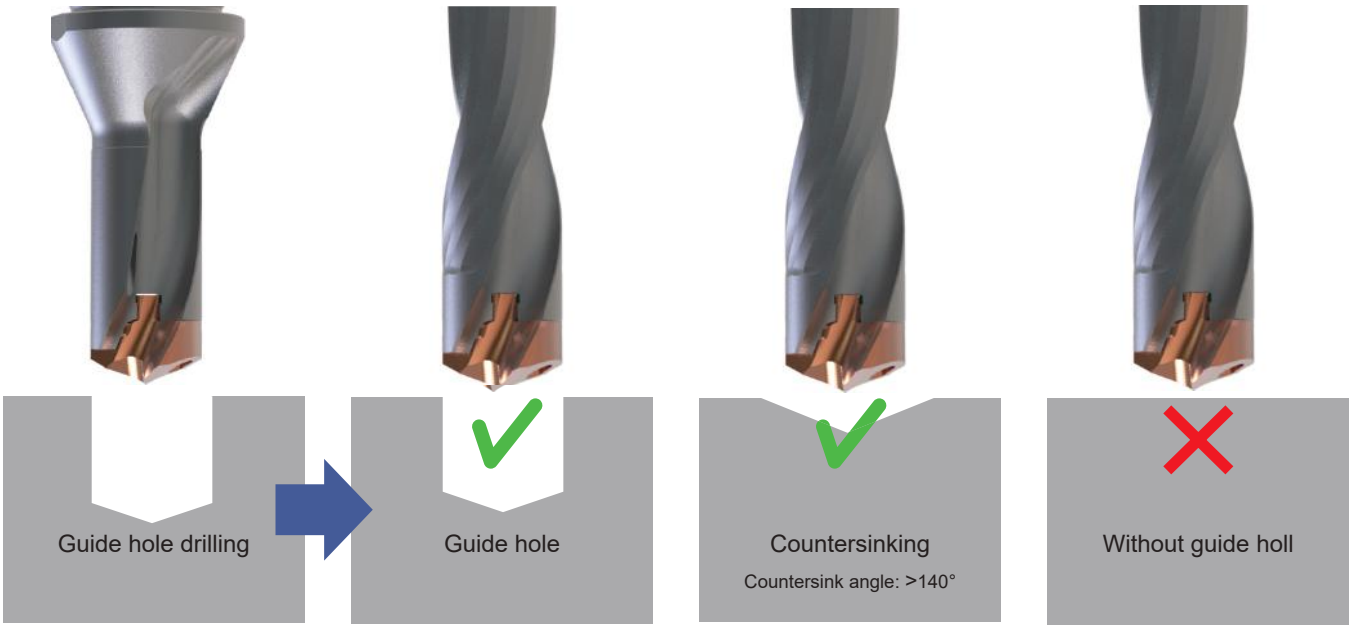
Material			Alloy Steel AISI 4140, 4142, 5120 etc.			Cast Iron AISI No45B, 60-40-18 etc.		
Dia. **DC** (in)	Dia. **DC** (mm)	Hole Depth (L/D)	Cutting Speed (Min.—Max.) **vc** (SFM)	Revolution **n** (min-1)	Feed Rate (Min.—Max.) **fr** (IPR)	Cutting Speed (Min.—Max.) **vc** (SFM)	Revolution **n** (min-1)	Feed Rate (Min.—Max.) **fr** (IPR)
.7087	**18.0**	**1.5—8**	330 (230 — 460)	1800	.0118 (.0079 — .0177)	330 (230 — 560)	1800	.0118 (.0079 — .0177)
.7480	**19.0**	**1.5—8**	330 (230 — 460)	1700	.0118 (.0079 — .0177)	330 (230 — 560)	1700	.0118 (.0079 — .0177)
.7874	**20.0**	**1.5—8**	330 (230 — 460)	1600	.0118 (.0079 — .0177)	330 (230 — 560)	1600	.0118 (.0079 — .0177)
.8268	**21.0**	**1.5—8**	330 (230 — 460)	1500	.0118 (.0079 — .0177)	330 (230 — 560)	1500	.0118 (.0079 — .0177)
.8661	**22.0**	**1.5—8**	330 (230 — 460)	1400	.0118 (.0079 — .0177)	330 (230 — 560)	1400	.0118 (.0079 — .0177)
.9055	**23.0**	**1.5—8**	330 (230 — 460)	1400	.0118 (.0079 — .0177)	330 (230 — 560)	1400	.0118 (.0079 — .0177)
.9449	**24.0**	**1.5—8**	330 (230 — 460)	1300	.0118 (.0079 — .0177)	330 (230 — 560)	1300	.0118 (.0079 — .0177)
.9843	**25.0**	**1.5—8**	330 (230 — 460)	1300	.0138 (.0079 — .0177)	330 (230 — 560)	1300	.0138 (.0098 — .0177)
1.0236	**26.0**	**1.5—8**	330 (230 — 460)	1200	.0138 (.0079 — .0177)	330 (230 — 560)	1200	.0138 (.0098 — .0177)
1.0630	**27.0**	**1.5—8**	330 (230 — 460)	1200	.0138 (.0079 — .0177)	330 (230 — 560)	1200	.0138 (.0098 — .0177)
1.1024	**28.0**	**1.5—8**	330 (230 — 460)	1100	.0138 (.0079 — .0177)	330 (230 — 560)	1100	.0138 (.0098 — .0177)
1.1417	**29.0**	**1.5—8**	330 (230 — 460)	1100	.0138 (.0079 — .0177)	330 (230 — 560)	1100	.0138 (.0098 — .0177)
1.1811	**30.0**	**1.5—8**	330 (230 — 460)	1100	.0138 (.0079 — .0177)	330 (230 — 560)	1100	.0138 (.0098 — .0177)

Note 1) Refer to the table above for more details on how to set the cutting conditions.
Note 2) When using non-water-soluble cutting fluid, reduce the cutting speed to 80% to 90%.
Note 3) When using L/D=8, the maximum feed per rate should be .0157 IPR.
Note 4) M.Q.L. and dry machining are not recommended because sludge will accumulate on the clamping screws.

Operational Guidance

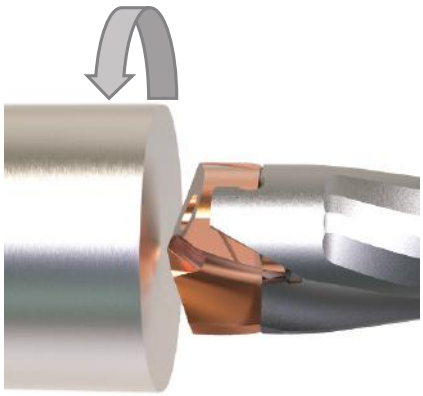
1. When to use L/D=8 and how to improve hole accuracy

Machining without guide holes increases the possibility of problems such as rifling occurring.



2. How to suppress chatter and vibration in machining operations where the workpiece is rotating

To reduce chatter and vibration when machining workpieces with rotating shafts, try machining at a lower peripheral speed and higher feed rate.



When cutting speed is high



vc=330 SFM
fr=.0134 IPR
F=15.4 IPM

Low cutting speed and high feed rate



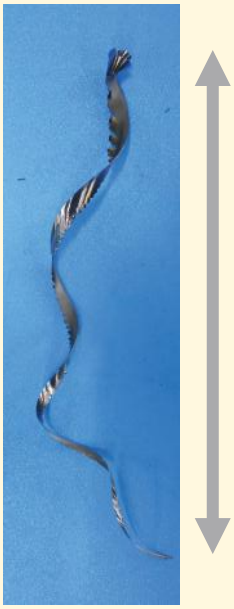
vc=230 SFM
fr=.0177 IPR
F=14.1 IPM

3. How to prevent chips from wrapping around the workpiece

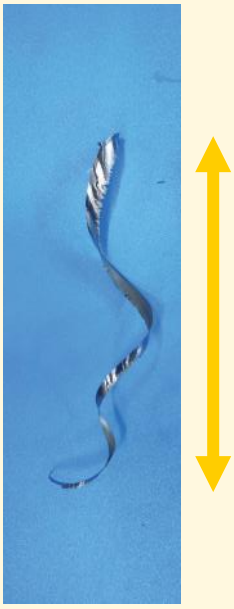
We do not recommend lowering the feed rate when penetrating the workpiece, as this can cause chips to wrap around the drill.

When cutting conditions can be increased

We recommend improving the cutting speed and feed rate



vc=260 SFM
fr=.0118 IPR



vc=330 SFM
fr=.0138 IPR

When cutting conditions cannot be increased

It is recommended to introduce a peck and stop the feed when half the drill point protrudes when drilling through holes.



Long chips produced when no peck feed is used.



Chips are successfully broken when a peck feed is used.

Successful Examples of Improved Machining Efficiency

Successful examples of Significant Improvements in Tool Life and Machining Efficiency

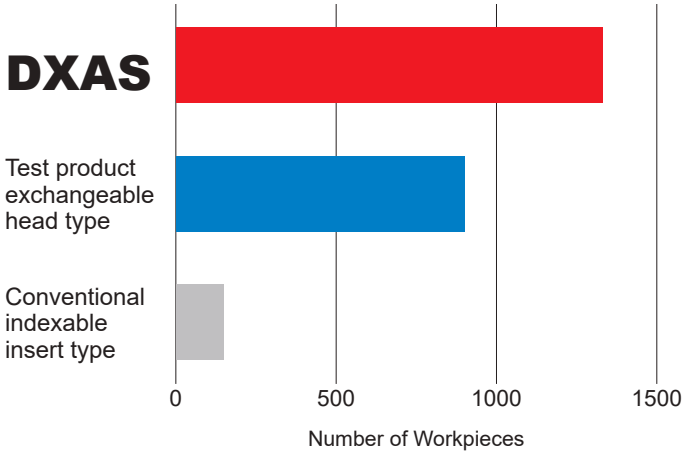
A 1.7 times improvement in machining efficiency, enabled an astonishing 8.8 times tool life.
Thereby greatly increasing overall machining efficiency.

Tool Life 8.8 Times

Efficiency 1.7 Times

*Comparison with conventional indexable insert type





	Cutting Speed **vc** (SFM)	Feed per Rev. **fr** (IPR)
DXAS	410	.0118
Test product exchangeable head type	355	.0087
Conventional indexable insert type	715	.0039

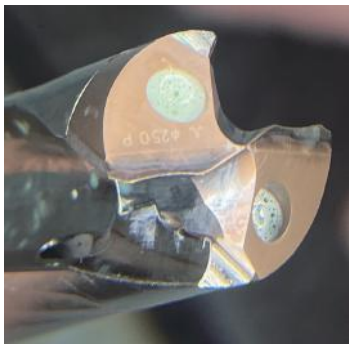
<Cutting Conditions>
Material : Carbon Steel
Parts : Mold Parts
Holder : DXAS2400X5F25
Head : DXAS2450P DP6020
Hole Depth : 3.406" Hole dia. precision ± .004"
Cutting Mode : Wet cutting Internal coolant
Machine Spindle Type : Multi-task MC

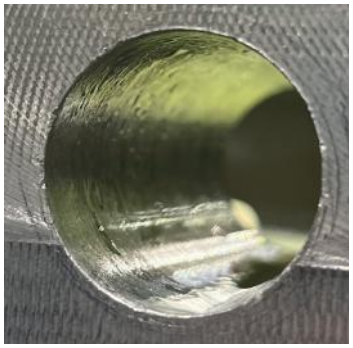
Examples of Improved Machining Efficiency

A significant improvement of three times tool life with only slight wear.
Possibility of extending machining even further.

Efficiency 3 Times

Improved Cutting Speed : vc=210 → **395 SFM**
Improved Feed per Rate : fr=.0071 → **.0118 IPR**





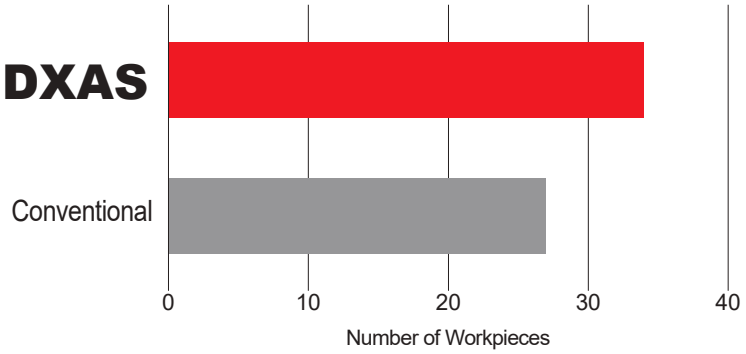


<Cutting Conditions>
Material : Carbon Steel
Parts : Machine Parts
Holder : DXAS2500X5F25
Head : DXAS2500P DP6020
Hole Depth : 3.346"
Cutting Mode : Wet cutting
Internal coolant (Water-soluble)
Machine Spindle Type : Gate-type MC

Comparison to Solid Drills

Comparing Examples of Cutting with Solid Drills

Enables tool life that is 1.3 times greater when compared to conventional solid drills.



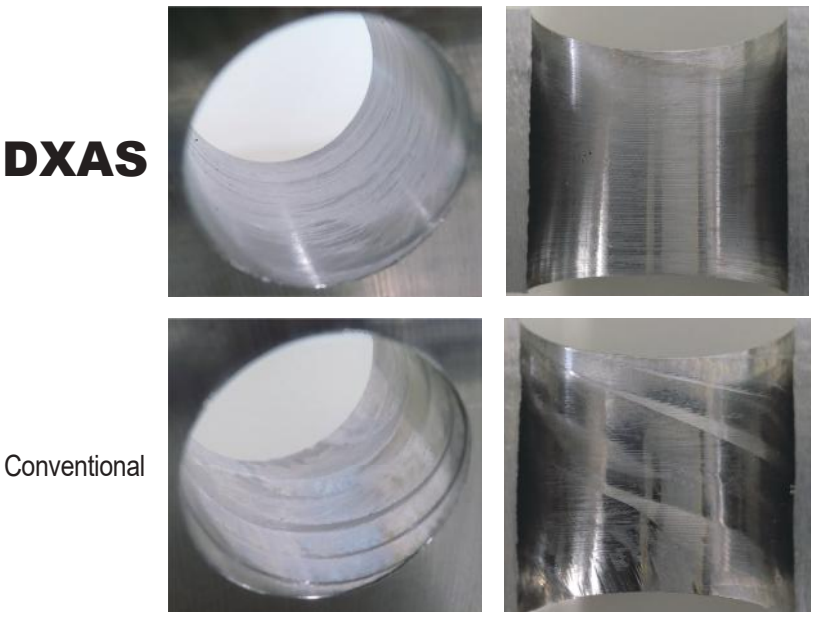


<Cutting Conditions>
Material : Alloy Steel
Parts : Flange Parts
Holder : DXAS1800X3F25
Head : DXAS1880P DP6020
Cutting Speed : vc=360→330 SFM
Feed per Rate : fr=.0118 IPR
Hole Depth : 1.181"
Cutting Mode : Wet cutting
Internal coolant (Water-soluble)
Machine Spindle Type : Multi-task MC

Usual problems alleviated

Reduction of Rifling Marks

The problem of abnormal noise and rifling during alleviated.



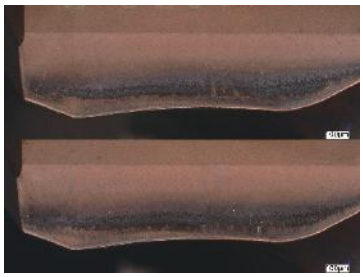


<Cutting Conditions>
Material : JIS SS400
Parts : Mold Parts
Holder : DXAS2800X5F32
Head : DXAS2800P DP6020
Cutting Speed : vc=295 SFM
Feed per Rate : fr=.0114 IPR
Hole Depth : 1.181"
Cutting Mode : Wet cutting
Internal coolant (Water-soluble)
Machine Spindle Type : Vertical MC

Wide Range of Applications

Deep Hole Drilling Example

Constant cutting force, low noise and stable drilling compare favorably with conventional products that were damaged due to chip clogging.



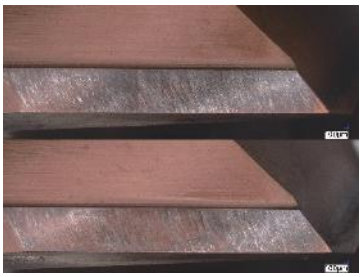
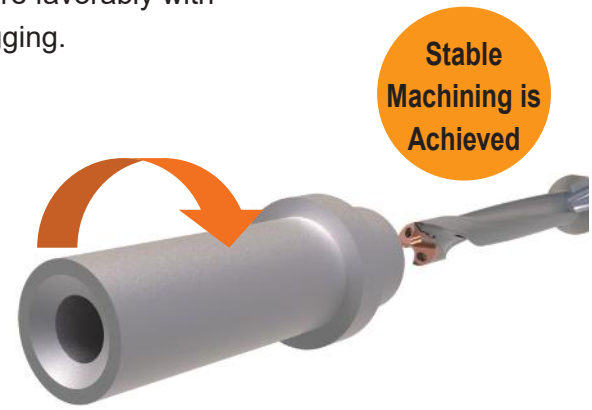




Photo after 30 holes were drilled



<Cutting Conditions>
Material : AISI 1038 Forgings
Parts : Shaft
Holder : DXAS2300X8F25
Head : DXAS2300P DP6020
Cutting Speed : vc=295 SFM
Feed per Rate : fr=.0079 IPR
Hole Depth : 7.087" Hole dia. precision ±.012" pilot hole .787"
Cutting Mode : Wet cutting
Internal coolant (Water-soluble)
Machine Spindle Type : Lathe

Example of Machining with External Coolant

Enables 1.4 times longer tool life than conventional products with minimal damage.

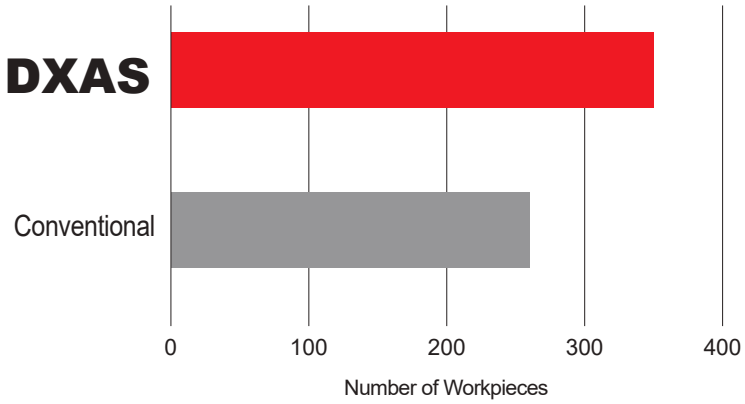






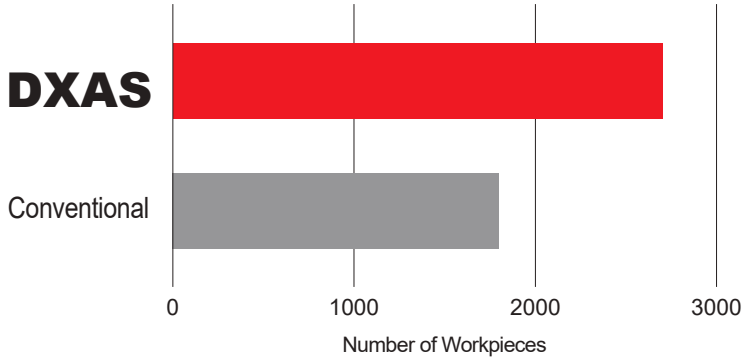


Photo after 350 holes were drilled

<Cutting Conditions>
Material : Equivalent to AISI 1055
Parts : Machine Parts
Holder : DXAS2000X3F25
Head : DXAS2000P DP6020
Cutting Speed : vc=260 SFM
Feed per Rate : fr=.0118 IPR
Hole Depth : 1.201" Hole dia. precision 0+.020"
Cutting Mode : Wet cutting
External coolant (Water-soluble)
Machine Spindle Type : Horizontal MC

Examples of Machining for Stacked Workpieces

Enables 1.5 times longer tool life by negating the chip entanglement experienced with conventional products.



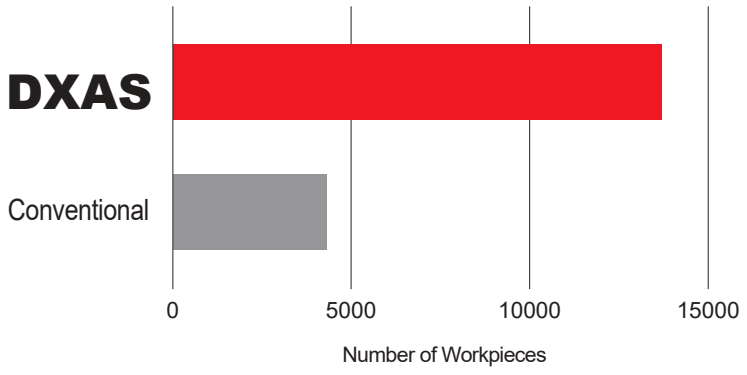
Tool Life 1.5 Times



<Cutting Conditions>
Material : Carbon Steel
Parts : Flange
Holder : DXAS2400X3F25
Head : DXAS2450P DP6020
Cutting Speed: vc=375 SFM
Feed per Rate: fr=.0130 IPR
Hole Depth : .591" x2(Two overlapping steel plates)
Cutting Mode : Wet cutting
Internal coolant (Water-soluble)
Machine Spindle Type : Horizontal MC

Example of High-Speed Cutting of Thin Plate

Enables 3.2 times longer tool life than conventional products when machining thin plates at high efficiency cutting conditions.



Tool Life 3.2 Times



<Cutting Conditions>
Material : Carbon Steel Forgings
Parts : Plate
Holder : DXAS2100X3F25
Head : DXAS2100P DP6020
Cutting Speed: vc=565 SFM
Feed per Rate: fr=.0083 IPR
Hole Depth : .630"
Cutting Mode : Wet cutting
Internal coolant (Water-soluble)
580 PSI (4 MPa)
Machine Spindle Type : Horizontal MC

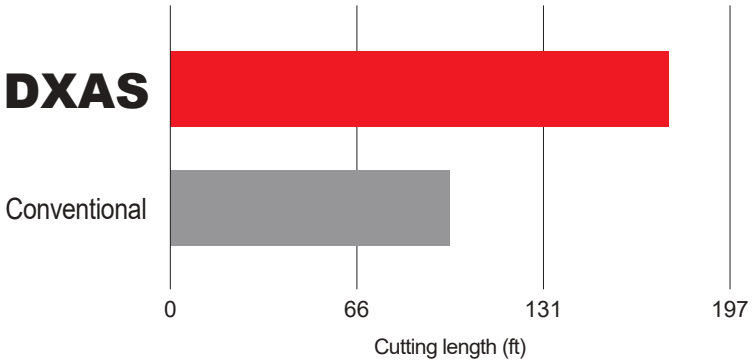
Wide Range of Applications

Example of Ductile Cast Iron Drilling

Enables 1.8 times longer tool life than conventional products without hole wandering or chip clogging.

Tool Life 1.8 Times

Efficiency 1.1 Times



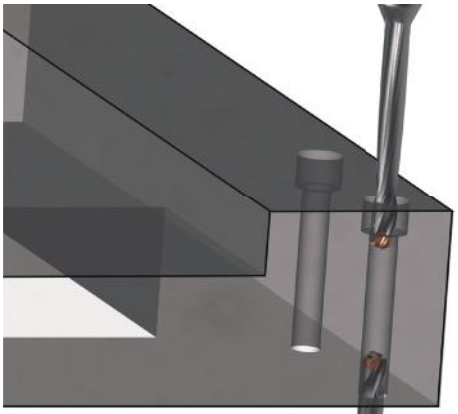


Image of excavation from both ends

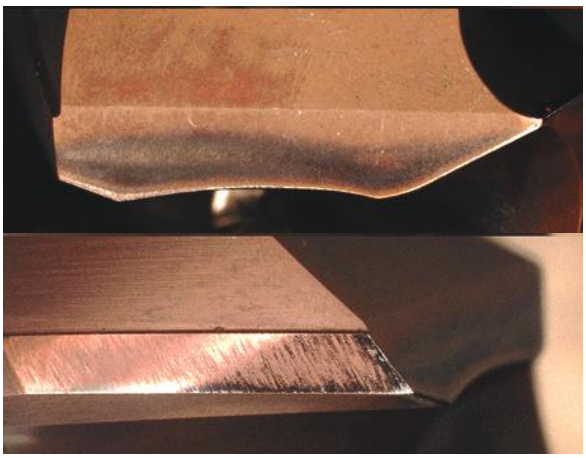


Photo after machining after a total cutting length of 175 ft

<Cutting Conditions>
Material : ASTM 60-40-18
Parts : Plate
Holder : DXAS2200X8F25
Head : DXAS2200P DP6020
Cutting Speed : vc=262.5 →259.0 SFM
Feed per Rate : fr=.0098 →.011 IPR
Hole depth (one side) : 5.866" (Drilling from both ends)
.984" With pilot hole
Cutting Mode : Wet cutting
Internal coolant (Water-soluble)
435 PSI (3 MPa)
Machine Spindle Type : 5-sided MC

Ideal for finish reaming after drilling with DXAS.

Exchangeable Head Reamer

RX1S

Simple to change head with high runout accuracy.

Optimum Head Design to Suit Coolant Flow

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B276A RX1S



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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.

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Tools specifications subject to change without notice.

B279A-US-2026.4