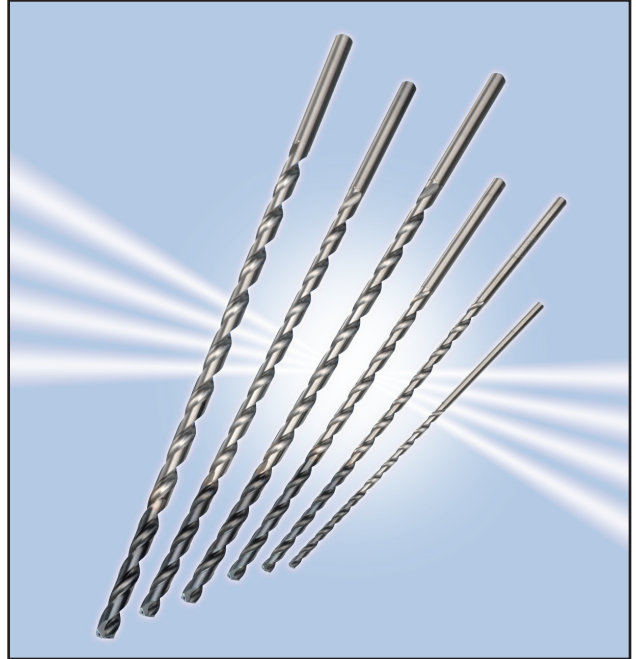


DEEP HOLE CARBIDE DRILLS

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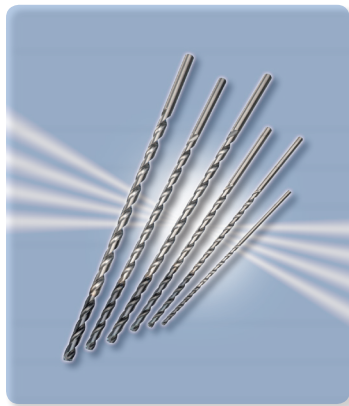
Deep Hole
Carbide
Drills

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FEATURES & BENEFITS

MDW-XHV

Deep Hole Carbide Drills



■ Features & Benefits

- **Deep hole drilling**
New flute shape with improved chip evacuation during deep drilling. High-efficiency drilling to depths of over 30 times drill diameter ($V_f = 28$ IPM). Stable deep hole drilling with double margin design.
- **Longer tool life**
Special DEX coating provides long tool life in a variety of work material.
- **Eco-friendly**
Compatible with the MQL (Minimum Quantity Lubrication) system.

■ Application Examples

• **Automotive Component**
1045 steel (250HB)
Machine: Horizontal single axis NC machine
Coolant: MQL Air pressure 0.9MPa
MQL Volume Approx. 1cc/H

Pilot hole:

- $\phi 0.23 \times 0.47$ in ($\phi 5.73 \times 12$ mm)
- Drill point angle: 150°
- $V_c = 262.5$ SFM (80m/min)
- $f = 0.008$ IPR (0.20mm/min)

Deep hole:

- $\phi 0.22 \times 3.27$ in ($\phi 5.7 \times 83$ mm)
- $V_c = 262.5$ SFM (80m/min)
- $f = 0.010$ IPR (0.25mm/min)
- $V_f = 44$ IPM (1117mm/min)

⇒ **Tool Life: 250 parts**

• **Automotive Component**
Gray cast iron

Machine: Horizontal single axis NC machine
Coolant: MQL (volume 3cc/H) Air discharge 0.45 MPa

Pilot hole:

- $\phi 0.30 \times 0.51$ in ($\phi 7.63 \times 13$ mm)
- Drill point angle: 150°
- $V_c = 262.5$ SFM (80m/min)
- $f = 0.010$ IPR (0.25mm/min)

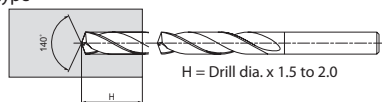
Deep hole:

- $\phi 0.30 \times 9.10$ in ($\phi 7.60 \times 230$ mm)
- $V_c = 197$ SFM (60m/min)
- $f = 0.011$ IPR (0.30mm/min)
- $V_f = 29.70$ IPM (754mm/min)

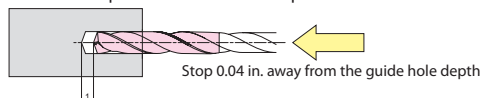
⇒ **Tool Life: 500 parts**

■ Recommended Drilling Method

1. **Make a guide hole using the MDW-PHV type drill**
• Use a guide hole MDW-PHV style drill with diameter the same as the MDW-XHV type

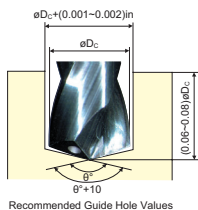


2. Feed the MDW-XHV type through the guide hole at low rotation speed
• Rotation: 500 rpm Feed Rate: 40 - 80 ipm

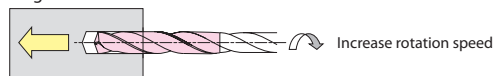


OTHER NOTES

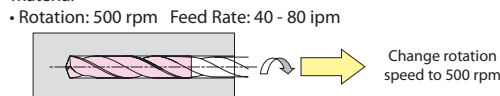
- A flat base should be prepared when the surface for the guide tool is slanted
- When drilling through a slanted surface, reduce the drill feed to 0.002 ipm before the drill exits



3. Increase rotation speed until the set rotation speed is reached and start normal drilling



4. After drilling, rotation speed is reduced and the drill is retracted from the work material



COOLANT

- Internal Coolant (Water Soluble): Pump Pressure Steel: 200-300 PSI
Cast Iron or Aluminum: 500-1000 PSI
- Internal MQL: Air Pressure: 50-100 PSI or above
Volume (Edge)

■ Recommended Cutting Conditions

$V_c = \text{sfm} / \text{m/min}$
 $f = \text{ipr} / \text{mm/rev}$

		General Steel (>300HB)	Hardened Steel (>45HRC)	Stainless Steel (>200HB)	Gray Cast Iron	Ductile Iron
~ $\phi 0.125$ in ~ $\phi 3.0$ mm	Vc	165~330 / 50~100	65~130 / 20~40	100~165 / 30~50	165~295 / 50~90	130~260 / 40~80
	f	0.003~0.006 / 0.08~0.15	0.002~0.003 / 0.06~0.05	0.002~0.005 / 0.06~0.12	0.006~0.010 / 0.15~0.25	0.005~0.008 / 0.12~0.20
$\phi 0.125$ ~ $\phi 0.203$ in $\phi 3.1$ ~ $\phi 5.0$ mm	Vc	260~395 / 80~120	65~130 / 20~40	100~195 / 30~60	165~295 / 50~90	130~260 / 40~80
	f	0.006~0.010 / 0.15~0.25	0.003~0.004 / 0.08~0.10	0.003~0.006 / 0.08~0.15	0.006~0.012 / 0.15~0.30	0.006~0.010 / 0.15~0.25
$\phi 0.203$ ~ $\phi 0.406$ in $\phi 5.1$ ~ $\phi 10.0$ mm	Vc	260~395 / 80~120	65~130 / 20~40	130~260 / 40~80	195~330 / 60~100	165~295 / 50~90
	f	0.008~0.014 / 0.20~0.35	0.004~0.006 / 0.10~0.15	0.004~0.008 / 0.10~0.20	0.008~0.014 / 0.20~0.35	0.008~0.014 / 0.20~0.35
$\phi 0.406$ ~ $\phi 0.625$ in $\phi 10.1$ ~ $\phi 16.0$ mm	Vc	260~425 / 80~130	65~130 / 20~40	165~260 / 50~80	230~395 / 70~120	195~330 / 60~100
	f	0.010~0.014 / 0.25~0.35	0.004~0.006 / 0.10~0.15	0.004~0.008 / 0.10~0.20	0.010~0.014 / 0.25~0.35	0.010~0.014 / 0.25~0.35

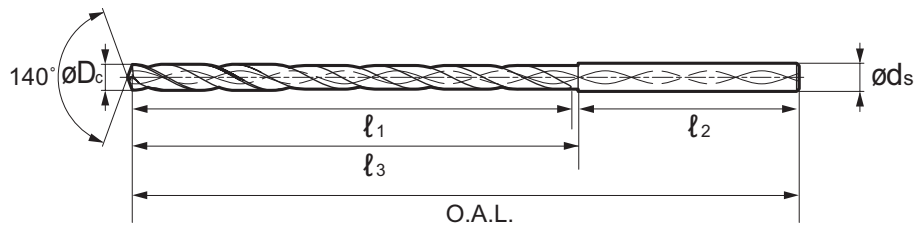


**MDW-XHV Deep Hole
Carbide Coolant Through Drills**

12XD MDW-XHV



Tolerance of Diameters	
ϕD	Tolerance
.1181 < ϕD \leq .2362	-0.0080 -0.0145
.2362 < ϕD \leq .3937	-0.0080 -0.0165
.3937 < ϕD \leq .7087	-0.0080 -0.0185



Deep Hole
Carbide
Drills

12XD-INCH

Catalog Number	Stock	Cutting Dia. ϕD_c		O.A.L.	l_3	l_2	l_1	ϕd_s
		Fraction	Decimal					
MDW1250XHV12	●	1/8"	0.125	3.780	1.890	1.890	1.772	0.157
MDW1406XHV12	●	9/64"	0.141	4.134	2.244	1.890	2.126	0.157
MDW1563XHV12	●	5/32"	0.156	4.370	2.480	1.890	2.362	0.157
MDW1719XHV12	●	11/64"	0.172	4.607	2.638	1.969	2.520	0.236
MDW1875XHV12	●	3/16"	0.188	5.158	3.189	1.969	3.071	0.236
MDW2031XHV12	●	13/64"	0.203	5.158	3.189	1.969	3.071	0.236
MDW2131XHV12	●	#3	0.213	5.158	3.189	1.969	3.071	0.236
MDW2187XHV12	●	7/32"	0.219	5.433	3.465	1.969	3.346	0.236
MDW2500XHV12	●	1/4"	0.250	6.102	4.055	2.047	3.937	0.315
MDW2570XHV12	●	#F	0.257	6.102	4.055	2.047	3.937	0.315
MDW2656XHV12	●	17/64"	0.266	6.102	4.055	2.047	3.937	0.315
MDW2813XHV12	●	9/32"	0.281	6.496	4.449	2.047	4.331	0.315
MDW2969XHV12	●	19/64"	0.297	6.496	4.449	2.047	4.331	0.315
MDW3125XHV12	●	5/16"	0.313	6.496	4.449	2.047	4.331	0.315
MDW3320XHV12	●	#Q	0.332	7.677	5.551	2.126	5.433	0.394
MDW3438XHV12	●	11/32"	0.344	7.677	5.551	2.126	5.433	0.394
MDW3594XHV12	●	23/64"	0.359	7.677	5.551	2.126	5.433	0.394
MDW3750XHV12	●	3/8"	0.375	7.677	5.551	2.126	5.433	0.394
MDW3906XHV12	●	25/64"	0.391	7.677	5.551	2.126	5.433	0.394
MDW4063XHV12	●	13/32"	0.406	8.543	6.339	2.205	6.220	0.472
MDW4219XHV12	●	27/64"	0.422	8.543	6.339	2.205	6.220	0.472
MDW4375XHV12	●	7/16"	0.438	8.543	6.339	2.205	6.220	0.472
MDW4531XHV12	●	29/64"	0.453	8.543	6.339	2.205	6.220	0.472
MDW4688XHV12	●	15/32"	0.469	8.543	6.339	2.205	6.220	0.472
MDW4844XHV12	●	31/64"	0.484	9.566	7.283	2.283	7.165	0.551
MDW5000XHV12	●	1/2"	0.500	9.566	7.283	2.283	7.165	0.551
MDW5312XHV12	●	17/32"	0.531	9.566	7.283	2.283	7.165	0.551
MDW5625XHV12	●	9/16"	0.563	10.669	8.307	2.362	8.189	0.630
MDW6250XHV12	●	5/8"	0.625	10.669	8.307	2.362	8.189	0.630
MDW7500XHV12	●	3/4"	0.750	12.709	10.268	2.441	10.157	0.787

● = USA Stocked item

12XD-METRIC

Catalog Number	Stock	ϕD_c	O.A.L.	l_3	l_2	l_1	ϕd_s
MDW030XHV12	●	3.0	96	48	48	45	4
MDW035XHV12	●	3.5	105	57	48	54	4
MDW040XHV12	●	4.0	111	63	48	60	4
MDW045XHV12	●	4.5	117	67	50	64	6
MDW050XHV12	●	5.0	131	81	50	78	6
MDW051XHV12	●	5.1	131	81	50	78	6
MDW055XHV12	●	5.5	138	88	50	85	6
MDW060XHV12	●	6.0	138	88	50	85	6
MDW065XHV12	●	6.5	155	103	52	100	8
MDW069XHV12	●	6.9	165	113	52	110	8
MDW070XHV12	●	7.0	165	113	52	110	8
MDW075XHV12	●	7.5	165	113	52	110	8
MDW080XHV12	●	8.0	165	113	52	110	8
MDW085XHV12	●	8.5	195	141	54	138	10
MDW090XHV12	●	9.0	195	141	54	138	10
MDW093XHV12	●	9.3	195	141	54	138	10
MDW095XHV12	●	9.5	195	141	54	138	10
MDW100XHV12	●	10.0	195	141	54	138	10
MDW105XHV12	●	10.5	217	161	56	158	12
MDW110XHV12	●	11.0	217	161	56	158	12
MDW115XHV12	●	11.5	217	161	56	158	12
MDW120XHV12	●	12.0	217	161	56	158	12
MDW125XHV12	●	12.5	243	185	58	182	14
MDW130XHV12	●	13.0	243	185	58	182	14
MDW140XHV12	●	14.0	243	185	58	182	14



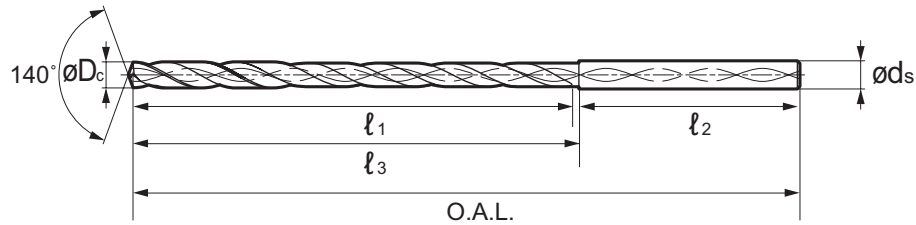
20XD MDW-XHV

MDW-XHV Deep Hole

Carbide Coolant Through Drills



Tolerance of Diameters	
ϕD	Tolerance
$.1181 < \phi D \leq .2362$	-.00080 -.00145
$.2362 < \phi D \leq .3937$	-.00080 -.00165
$.3937 < \phi D \leq .7087$	-.00080 -.00185



Deep Hole
Carbide
Drills

20XD-INCH

Catalog Number	Stock	Cutting Dia. ϕD_c		O.A.L.	l_3	l_2	l_1	ϕd_s
		Fraction	Decimal					
MDW1250XHV20	●	1/8"	0.125	4.842	2.952	1.890	2.834	0.157
MDW1406XHV20	●	9/64"	0.141	5.472	3.582	1.890	3.464	0.157
MDW1563XHV20	●	5/32"	0.156	5.472	3.582	1.890	3.464	0.157
MDW1719XHV20	●	11/64"	0.172	6.418	4.449	1.969	4.331	0.236
MDW1875XHV20	●	3/16"	0.188	6.614	4.645	1.969	4.527	0.236
MDW2031XHV20	●	13/64"	0.203	6.614	4.645	1.969	4.527	0.236
MDW2130XHV20	●	#3	0.213	7.520	5.551	1.969	5.433	0.236
MDW2187XHV20	●	7/32"	0.219	7.520	5.551	1.969	5.433	0.236
MDW2500XHV20	●	1/4"	0.250	7.913	5.866	2.047	5.748	0.315
MDW2570XHV20	●	#F	0.257	7.913	5.866	2.047	5.748	0.315
MDW2656XHV20	●	17/64"	0.266	7.913	5.866	2.047	5.748	0.315
MDW2813XHV20	●	9/32"	0.281	9.094	7.047	2.047	6.929	0.315
MDW2969XHV20	●	19/64"	0.297	9.094	7.047	2.047	6.929	0.315
MDW3125XHV20	●	5/16"	0.313	9.094	7.047	2.047	6.929	0.315
MDW3320XHV20	●	#Q	0.332	10.905	8.779	2.126	8.661	0.394
MDW3438XHV20	●	11/32"	0.344	10.905	8.779	2.126	8.661	0.394
MDW3594XHV20	●	23/64"	0.359	10.905	8.779	2.126	8.661	0.394
MDW3750XHV20	●	3/8"	0.375	10.905	8.779	2.126	8.661	0.394
MDW3906XHV20	●	25/64"	0.391	10.905	8.779	2.126	8.661	0.394
MDW4063XHV20	●	13/32"	0.406	12.713	10.508	2.205	10.394	0.472
MDW4219XHV20	●	27/64"	0.422	12.713	10.508	2.205	10.394	0.472
MDW4375XHV20	●	7/16"	0.438	12.713	10.508	2.205	10.394	0.472
MDW4531XHV20	●	29/64"	0.453	12.713	10.508	2.205	10.394	0.472
MDW4688XHV20	●	15/32"	0.469	12.713	10.508	2.205	10.394	0.472
MDW4844XHV20	●	31/64"	0.484	14.521	12.238	2.283	12.126	0.551
MDW5000XHV20	●	1/2"	0.500	14.521	12.238	2.283	12.126	0.551
MDW5312XHV20	●	17/32"	0.531	14.521	12.238	2.283	12.126	0.551

● = USA Stocked item

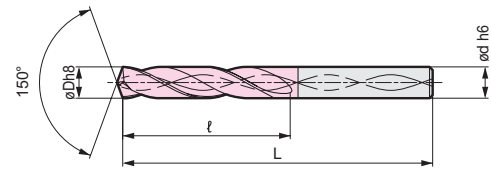
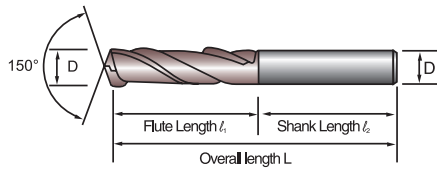
20XD-METRIC

Catalog Number	Stock	ϕD_c	O.A.L.	l_3	l_2	l_1	ϕd_s
MDW030XHV20	●	3.0	123.0	75	48	72.0	4
MDW035XHV20	●	3.5	139.0	91	48	88.0	4
MDW040XHV20	●	4.0	139.0	91	48	88.0	4
MDW045XHV20	●	4.5	163.0	113	50	110.0	6
MDW050XHV20	●	5.0	168.0	118	50	115.0	6
MDW051XHV20	●	5.1	168.0	118	50	115.0	6
MDW055XHV20	●	5.5	191.0	141	50	138.0	6
MDW060XHV20	●	6.0	191.0	141	50	138.0	6
MDW065XHV20	●	6.5	201.0	149	52	146.0	8
MDW069XHV20	●	6.9	231.0	179	52	176.0	8
MDW070XHV20	●	7.0	231.0	179	52	176.0	8
MDW075XHV20	●	7.5	231.0	179	52	176.0	8
MDW080XHV20	●	8.0	231.0	179	52	176.0	8
MDW085XHV20	●	8.5	277.0	223	54	220.0	10
MDW090XHV20	●	9.0	277.0	223	54	220.0	10
MDW093XHV20	●	9.3	277.0	223	54	220.0	10
MDW095XHV20	●	9.5	277.0	223	54	220.0	10
MDW100XHV20	●	10.0	277.0	223	54	220.0	10
MDW105XHV20	●	10.5	322.9	267	56	264.0	12
MDW110XHV20	●	11.0	322.9	267	56	264.0	12
MDW115XHV20	●	11.5	322.9	267	56	264.0	12
MDW120XHV20	●	12.0	322.9	267	56	264.0	12
MDW125XHV20	●	12.5	368.8	311	58	308.0	14
MDW130XHV20	●	13.0	368.8	311	58	308.0	14
MDW140XHV20	●	14.0	368.8	311	58	308.0	14



**MDW-PHV Series Solid Carbide
Pilot Drills**

**SERIES
MDW-PHV**



Catalog Number (inch/metric)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (mm)	Overall Length L (in)	Flute Length ℓ₁ (in)	Shank Length ℓ₂ (in)	Shank Diameter Dₛ (mm)
MDW0300PHV	•		0.1181	3.00	2.672	0.703	1.891	6.00
MDW01250PHV	•	1/8	0.1250	3.18	2.672	0.703	1.891	6.00
MDW0350PHV	•		0.1378	3.50	2.828	0.703	1.891	6.00
MDW01406PHV	•	9/64	0.1406	3.57	2.828	0.891	1.891	6.00
MDW01563PHV	•	5/32	0.1563	3.97	2.828	0.891	1.891	6.00
MDW0400PHV	•		0.1575	4.00	2.828	0.891	1.891	6.00
MDW01719PHV	•	11/64	0.1719	4.37	3.156	0.984	1.969	6.00
MDW0450PHV	•		0.1772	4.50	3.156	0.984	1.969	6.00
MDW01875PHV	•	3/16	0.1875	4.76	3.156	1.078	1.969	6.00
MDW0500PHV	•		0.1968	5.00	3.156	1.078	1.969	6.00
MDW0510PHV	•		0.2010	5.10	3.234	1.078	2.047	6.00
MDW02031PHV	•	13/64	0.2031	5.20	3.234	1.078	2.047	6.00
MDW02131PHV	•	#3	0.2131	5.41	3.234	1.078	2.047	6.00
MDW0550PHV	•		0.2165	5.50	3.234	1.078	2.047	6.00
MDW02187PHV	•	7/32	0.2187	5.56	3.234	1.078	2.047	6.00
MDW0600PHV	•		0.2362	6.00	3.234	1.188	2.047	6.00
MDW02500PHV	•	1/4	0.2500	6.35	3.469	1.281	2.094	8.00
MDW0650PHV	•		0.2559	6.50	3.469	1.281	2.094	8.00
MDW02570PHV	•	#F	0.2570	6.53	3.469	1.375	2.094	8.00
MDW02656PHV	•	17/64	0.2656	6.75	3.469	1.375	2.094	8.00
MDW0690PHV	•		0.2716	6.90	3.469	1.375	2.094	8.00
MDW0700PHV	•		0.2726	7.00	3.469	1.375	2.094	8.00
MDW02813PHV	•	9/32	0.2813	7.14	3.703	1.484	2.125	8.00
MDW0750PHV	•		0.2953	7.50	3.703	1.484	2.125	8.00
MDW02969PHV	•	19/64	0.2969	7.54	3.703	1.474	2.125	8.00
MDW03125PHV	•	5/16	0.3125	7.94	3.703	1.578	2.125	8.00
MDW0800PHV	•		0.3149	8.00	3.703	1.578	2.125	8.00
MDW03281PHV	•	21/64	0.3281	8.33	3.938	1.672	2.156	10.00
MDW03320PHV	•	#Q	0.3320	8.43	3.938	1.672	2.156	10.00
MDW0850PHV	•		0.3346	8.50	3.938	1.672	2.156	10.00
MDW03438PHV	•	11/32	0.3438	8.73	3.938	1.766	2.156	10.00
MDW0900PHV	•		0.3543	9.00	3.938	1.766	2.156	10.00
MDW03594PHV	•	23/64	0.3594	9.13	3.938	1.766	2.156	10.00
MDW0930PHV	•		0.3661	9.30	4.172	1.875	2.203	10.00
MDW0950PHV	•		0.3740	9.50	4.172	1.875	2.203	10.00
MDW03750PHV	•	3/8	0.3750	9.53	4.172	1.875	2.203	10.00
MDW03906PHV	•	25/64	0.3906	9.92	4.172	1.969	2.203	10.00
MDW1000PHV	•		0.3937	10.00	4.172	1.969	2.203	10.00
MDW1020PHV	•		0.4016	10.20	4.563	2.047	2.406	12.00
MDW04063PHV	•	13/32	0.4063	10.32	4.563	2.047	2.406	12.00
MDW1050PHV	•		0.4134	10.50	4.563	2.047	2.406	12.00
MDW04219PHV	•	27/64	0.4219	10.72	4.563	2.172	2.406	12.00
MDW1100PHV	•		0.4331	11.00	4.563	2.172	2.406	12.00
MDW04375PHV	•	7/16	0.4375	11.11	4.563	2.172	2.406	12.00
MDW1150PHV	•		0.4527	11.50	4.813	2.281	2.438	12.00
MDW04531PHV	•	29/64	0.4531	11.51	4.813	2.281	2.438	12.00
MDW04688PHV	•	15/32	0.4688	11.91	4.813	2.359	2.438	12.00
MDW1200PHV	•		0.4724	12.00	4.813	2.359	2.438	12.00
MDW04844PHV	•	31/64	0.4844	12.30	5.032	2.469	2.484	14.00
MDW1250PHV	•		0.4921	12.50	5.032	2.469	2.484	14.00
MDW05000PHV	•	1/2	0.5000	12.70	5.032	2.562	2.484	14.00
MDW1300PHV	•		0.5118	13.00	5.032	2.562	2.484	14.00
MDW05312PHV	•	17/32	0.5312	13.49	5.281	2.656	2.516	14.00
MDW1400PHV	•		0.5512	14.00	5.281	2.750	2.516	14.00
MDW05625PHV	•	9/16	0.5625	14.29	5.516	2.859	2.562	16.00
MDW06250PHV	•	5/8	0.6250	15.88	5.750	3.156	2.594	16.00
MDW07500PHV	•	3/4	0.7500	19.05	6.453	3.750	2.719	20.00

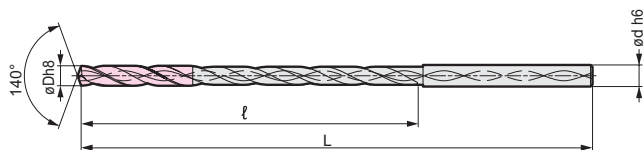
Solid Carbide Drills



15, 25 & 30XD - METRIC MDW-XHT

MDW-XHT Deep Hole

Carbide Coolant Through Drills

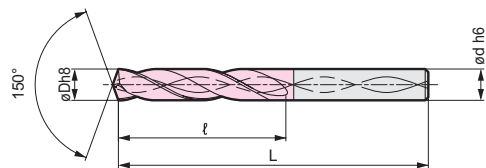


MDW-XHT-METRIC

Tool Dia. ϕD_c (mm)	Shank Dia. ϕD_s (mm)	Catalog Number	15XD			25XD			30XD		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)		Stock	Dimensions (mm)	
				15	L		ℓ	25		L	ℓ
2.97	3.0	MDW0297XHT□□	★	108	60	★	138	90	★	153	105
3.47	4.0	MDW0347XHT□□	★	118	70	★	153	105	★	171	123
3.97	4.0	MDW0397XHT□□	★	128	80	★	168	120	★	188	140
4.47	5.0	MDW0447XHT□□	★	140	90	★	185	135	★	208	158
4.97	5.0	MDW0497XHT□□	★	150	100	★	200	150	★	225	175
5.47	6.0	MDW0547XHT□□	★	162	110	★	217	165	★	245	193
5.97	6.0	MDW0597XHT□□	★	172	120	★	232	180	★	262	210
6.47	7.0	MDW0647XHT□□	★	183	130	★	248	195	★	281	228
6.97	7.0	MDW0697XHT□□	★	193	140	★	263	210	★	298	245
7.47	8.0	MDW0747XHT□□	★	204	150	★	279	225	★	317	263
7.97	8.0	MDW0797XHT□□	★	214	160	★	294	240	★	334	280

★ = Worldwide Warehouse item available in 10 business days

NOTE: MDW-PHT is the recommended guide drill for the XHT series. Use a guide hole drill with a diameter +0.001 to +0.002 inch larger than that of the MDW-XHT type.



MDW-PHT-METRIC

Tool Dia. ϕD_c (mm)	Shank Dia. ϕD_s (mm)	Catalog Number	Guide Hole Drill		
			Stock	Dimensions (mm)	
				L	ℓ
3.0	3.0	MDW0300PHT□□	★	68	17.5
3.5	4.0	MDW0350PHT□□	★	72	20.0
4.0	4.0	MDW0400PHT□□	★	72	22.5
4.5	5.0	MDW0450PHT□□	★	80	25.0
5.0	5.0	MDW0500PHT□□	★	80	27.5
5.5	6.0	MDW0550PHT□□	★	82	27.5
6.0	6.0	MDW0600PHT□□	★	82	30.0
6.5	7.0	MDW0650PHT□□	★	88	32.5
7.0	7.0	MDW0700PHT□□	★	88	35.0
7.5	8.0	MDW0750PHT□□	★	94	37.5
8.0	8.0	MDW0800PHT□□	★	94	40.0

★ = Worldwide Warehouse item available in 10 business days

