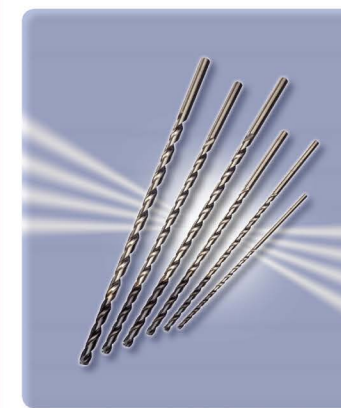


# FEATURES & BENEFITS

## MDW-XHV



### 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°  
•  $V_f = 262.5$  SFM (80m/min)  
•  $f = 0.008$  IPR (0.25mm/min)

**Deep hole:**  
•  $\phi 0.22 \times 3.27$ in ( $\phi 5.7 \times 83$ mm)  
•  $V_f = 262.5$  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°  
•  $V_f = 262.5$  SFM (80m/min)  
•  $f = 0.010$  IPR (0.25mm/min)

**Deep hole:**  
•  $\phi 0.30 \times 9.10$ in ( $\phi 7.63 \times 230$ mm)  
•  $V_f = 197$  SFM (60m/min)  
•  $f = 0.011$  IPR (0.30mm/min)  
•  $V_f = 29.70$  IPM (754mm/min)

⇒ Tool Life: 500 parts

### Recommended Drilling Method

- Make a guide hole using the MDS-V type drill. Use a guide hole MDS-V style drill with diameter the same as the MDW-XHV type.  
 $H = \text{Drill dia.} \times 1.5 \text{ to } 2.0$
- Feed the MDW-XHV type through the guide hole at low rotation speed.  
• Rotation: 500 rpm Feed Rate: 40 - 80 ipm  
Stop 0.04 in. away from the guide hole depth.
- Increase rotation speed until the set rotation speed is reached and start normal drilling.  
Increase rotation speed
- After drilling, rotation speed is reduced and the drill is retracted from the work material.  
• Rotation: 500 rpm Feed Rate: 40 - 80 ipm  
Change rotation speed to 500 rpm

**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.

**Recommended Guide Hole Values**

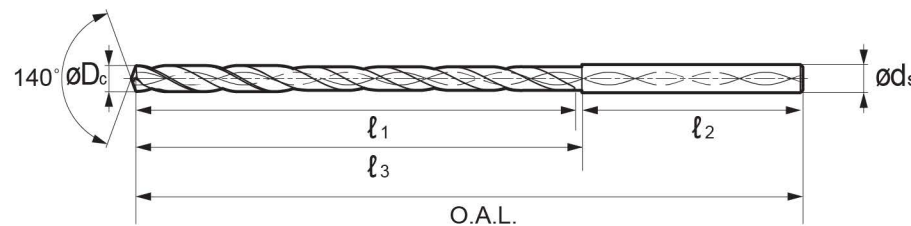
### Recommended Cutting Conditions

Diameter	Material	General Steel (>300HB)		Hardened Steel (>45HRC)		Stainless Steel (>200HB)		Gray Cast Iron		Ductile Iron	
		Vc	f	Vc	f	Vc	f	Vc	f	Vc	f
~0.125 in ~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	
0.125-0.203 in 3.1-5.0 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	
0.203-0.406 in 5.1-10.0 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	
0.406-0.625 in 10.1-16.0 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



Tolerance of Diameters	
$\phi D$	Tolerance
.1181 < $\phi D$ ≤ .2362	-0.0080 -0.0145
.2362 < $\phi D$ ≤ .3937	-0.0080 -0.0165
.3937 < $\phi D$ ≤ .7087	-0.0080 -0.0185



### 12XD-INCH

Catalog Number	Stock	Cutting Dia. $\phi D_c$	O.A.L.	$\ell_3$	$\ell_2$	$\ell_1$	$\phi d_s$	
		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	5.433	3.465	1.969	3.346	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

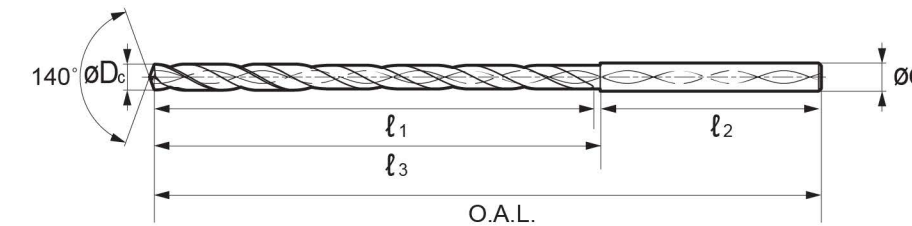
● = USA Stocked item

# 12XD MDW-XHV

# 20XD MDW-XHV



Tolerance of Diameters	
$\phi D$	Tolerance
.1181 < $\phi D$ ≤ .2362	-0.0080 -0.0145
.2362 < $\phi D$ ≤ .3937	-0.0080 -0.0165
.3937 < $\phi D$ ≤ .7087	-0.0080 -0.0185



### 20XD-INCH

Catalog Number	Stock	Cutting Dia. $\phi D_c$	O.A.L.	$\ell_3$	$\ell_2$	$\ell_1$	$\phi d_s$	
		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

### 12XD-METRIC

Catalog Number	Stock	$\phi D_c$	O.A.L.	$\ell_3$	$\ell_2$	$\ell_1$	$\phi d_s$
		Fraction/Decimal					
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

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# MDW-XHV

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