

# MULLEN CIRCLE BRAND

## VORTEX *Heavy Duty Hydraulic Oil*

**Mullen  
Circle Brand  
Blended Products:**

*Cutting Oils  
Circle Cut #729  
Soluble Oils  
Synthetic Coolants*

*Semi-Synthetic Coolants  
Rust Preventives  
Cleaners  
Grease*

*Hydraulic Oil  
Compressor Oil  
Gear Oil  
Way Oil*

*Spindle Oil  
Machine Oil  
Synthetic Oil*

*Made In U.S.A.*



**Mullen Circle Brand, Inc.**  
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Skokie, IL 60076  
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### *Hydraulic Oil For Severe Operating Environments*

**Vortex Hydraulic Oils** are designed for more severe operating environments than typical antiwear hydraulic oils.

**Vortex Hydraulic Oils** possess a high viscosity index to minimize viscosity loss as temperatures increase as well minimize viscosity gain as temperatures decrease. This effectively increases the operational temperature range of the fluid.

**Vortex Hydraulic Oils** are fully formulated antiwear fluids, showing exceptional thermal and oxidative stability as well as low foam and exceptional corrosion control.

*More ==>*

**...Providing Solutions To Industry Since 1912...**



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## VORTEX HYDRAULIC OILS

	#15	#22	#32	#46	#68	#100
<b>ISO Grade</b>	15	22	32	46	68	100
<b>SAE Grade</b>	N/A	5	10	20	20	30
<b>Viscosity, SUS @ 100 F</b>	82	110	160	240	353	520
<b>Flash Point, F</b>	252	400	400	400	400	400
<b>Pounds/Gallon</b>	7.01	7.1	7.1	7.29	7.43	7.56
<b>Oxidation Stability, ASTM D-943</b>						
1000 Hours, Neutralization Number						0.3
Sludge						56 mg
Copper						100.33 mg
<b>Thermal Stability, 135 C</b>						
Viscosity Change, %						1.2
Neutralization Number Change, %						133
Sludge, mg/100 ml						2.3
Steel Rod	Visual					1
	Deposit, mg					0.3
Copper Rod	Visual					2
	Deposit, mg					0.1
<b>Demulsibility, ASTM D-1401</b>						
Oil/Water/Emulsion (Minutes)						40/40/0 (5)
<b>Steel Corrosion Test, ASTM D-665</b>						
Distilled Water						No Rust
Synthetic Seawater						No Rust
<b>Foam Tests, ASTM D-982, Seq I, II, III</b>						
Foam, ml, 10 Minutes						None
<b>Copper Corrosion, ASTM D-130</b>						
						1B
<b>Wear Test, Four Ball</b>						
40 kg, 1800 rpm, 1 Hour, 55C						.62 m3

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**Cutting Fluids \* Industrial Lubricants \* Greases \* Cleaners**

The Information Given Herein Is Believed To Be Reliable, But No Guarantee Is Made Nor Liability Assumed.