

## LE's MONOLEC® Hydraulic Oils Greatly Outperform Commercial Hydraulic Oils In Three Critical Tests.

	Test	Upper Limits for "Acceptable" Performance	LE's MONOLEC® Hydraulic Oil	Commercial Oil		
				A	B	C
1. In this test, a sample of the test oil and preweighted copper test rods are heated in a beaker at 135°C for 168 hrs. At the end of this time period, the amount of sludge and the weight loss of the copper test rod are determined.	<b>Cincinnati Milacron Thermal Stability</b> Sludge, mg Copper wt. loss, mg	25 10	5 Nil	148 8	270 5	120 7
2. In this test an oil sample is reacted with a controlled flow of oxygen in the presence of water and an iron-copper catalyst at 95°C. The test is continued until the measured total acid number (TAN) of the oil reaches 2.0 mg KOH/GM. The sludge forming tendencies are measured by weighing the oxidation by-product residue formed during the test. And metal attack is measured by the weight loss of the catalyst metal.	<b>Oxidative Stability, ASTM D-943</b> Sludge, mg Copper, mg Iron, mg	200 5 50	44 20 1	290 195 3	450 270 10	380 170 7
3. This test measures the relative stability of hydraulic fluids in the presence of water and a copper test specimen while rotating at 93°C for 48 hours.	<b>Hydrolytic Stability, ASTM D-2619</b> Copper wt. loss, mg Acidity of water layer, mg KOH	0.2 4.0	0.05 Nil	0.8 3.5	0.5 2.8	1.4 4.5

### PHYSICAL CHARACTERISTICS - TYPICAL:

	<b>6105</b>	<b>6110</b>	<b>6120</b>	<b>6520</b>
ISO Grade	22	46	68	---
Equivalent SAE Grade	---	---	20	5W-20
Gravity, °API	33.1	31.2	30.6	31.7
Viscosity				
SUS @ 100°F	110.9	240.4	348.9	169.6
SUS @ 210°F	40.03	48.82	55.13	46.79
cSt @ 40°C	21.21	46.77	67.56	33.29
cSt @ 100°C	4.17	6.84	8.69	6.24
Viscosity Index	95	95	95	135
Flash Point, °F (°C)	375 (190)	415 (212)	435 (224)	385 (196)
Pour Point, °F (°C)	-33 (-36)	-27 (-33)	-22 (-30)	-44 (-42)
Color	Red	Red	Red	Red

### PERFORMANCE TEST REQUIREMENTS:

Copper Corrosion,				
ASTM D-130	1b	1b	1b	1b
Rust Test,				
ASTM D-665B	pass	pass	pass	pass
Oxidation Test, hrs.,				
ASTM D-943	2600	2600	2600	2600
Water Separation, ASTM D-1401				
ml oil-ml water-ml emulsion (mins.)	40-40-0 (5)	40-40-0 (5)	40-40-0 (5)	40-40-0 (5)
Fire Resistant Fluid	No	No	No	No
Dielectric Strength,				
ASTM D-877, KV	38	38	38	38

### MEETS PERFORMANCE REQUIREMENTS OF:

Rexroth	Denison HF-O
AFNOR 48-600	David Brown ET-33
U.S. Steel 126/127	DIN 51524 & 51525
USDA H2	
Vickers I-286-S (Industrial) and M-2950-S (Mobile)	
Cincinnati Machine P-69 (6120) and P-70 (6110)	

**LUBRICATION**  
**ENGINEERS, Inc.**

Leaders in Lubricants

