

# Macron Oils

## Premium tri-purpose cutting oils

### DESCRIPTION

Macron cutting oils are transparent, light colored cutting oils formulated from high quality severely hydro-processed base stocks with a naturally high viscosity index. The **Macron 221CM** and **222CM** cutting oils are formulated with a conventional chlorinated extreme pressure additive, whereas the **Macron "M series Macron"** of cutting oils utilize a unique combination of passive and inactive extreme pressure additives. The EP properties of the **Macron** cutting oils allow faster machining rates, provide extended tool life, and protect against staining of yellow metals. The **Macron** additive systems provide excellent performance in reacting at the chip-tool interface to reduce friction, but will not promote unfavorable reactions with internal components in hydraulic and lubrication systems. These cutting oils are also extremely effective at providing rust and corrosion protection of parts, cutting tools, and the machine. All of these oils have excellent anti-wear properties to minimize tool wear and reduce machine down time due to tool change-out. The **Macron "M series"** contains a special lubricity additive that will impart a better finish on the part without varnish or sludge formation in the machine tool or hydraulic system like those formed by many fatty oils or materials. All of these cutting oils have high flash points, that helps minimize the potential for fire. All of the **Macron** products contain an extremely effective anti-mist additive which reduces the formation of mist around the machine. This in turn will reduce stray mist in the atmosphere, lower machine maintenance costs, and improve shop cleanliness. The unique combination of additives in the **Macron series** of cutting oils also imparts excellent cooling properties which make these products good choices in many of today's newer, hi-tech machines operating at greatly increased speed and feed rates. The excellent cooling properties of these oils have been observed in certain machining operations to eliminate overheating (blueing) of parts and chips. **Macron oils** are tri-purpose because they can be used as the hydraulic oil, machine lube, and cutting oil in machine tools such as automatic screw machines and NC/CNC machining centers.

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### FEATURES/ BENEFITS

- Excellent machining without zinc, phosphorus and heavy metals
- Excellent machining without chlorine (M series only)
- Good oxidation stability
- Corrosion/rust protection of parts and machines
- Better finish on parts
- Less smoke/reduced mist
- Reduced tool wear
- Prevention of varnish and sludge formation
- Non-staining to yellow metals
- Tri-purpose oil
- Enhanced lubricity provides extended tool life and reduces tooling cost.
- Provides improved part finish which reduces overall cost through reduced rework and scrap rates
- Allows grinding wheels to run clean with less loading which saves money by extending time between wheel dressing and wheel changes.

### HEALTH AND SAFETY

Refer to MSDS for proper handling and disposal. Please note that the MSDS includes handling, health and disposal information which should be passed on to your employees, and to anyone else who comes in contact with our product. Additional advice can also be obtained from your local Houghton representative.

NOTE: Read and understand all precautions on container labels before using this product.



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## APPLICATIONS

- Turning, milling, reaming, drilling, milling and shaping of a wide variety of metals.
- Broaching of some alloys of aluminum, copper and brass and magnesium.
- Tapping and external threading of cast iron and some alloys of copper and magnesium.
- Hobbing of high machinability carbon steels and some alloys of copper and magnesium.
- Gundrilling of high machinability carbon steels and some alloys of copper and magnesium.
- Automatic Screw applications.

## DATA (TYPICAL VALUES)

### Typical Properties of Macron Oils

	Test Method	221 CM-32	222 CM-58
		61025	61026
Product Code		61025	61026
Appearance		Light Pale	Light Pale
Odor		Mild	Mild
Gravity, °API	D 1298	31.2	29.1
Viscosity:			
@ 40°C, cSt	D 445	31.0	58.2
@ 100°C, cSt	D 445	5.73	8.16
@ 100°F, SUS	D 88	159	307
@ 210°F, SUS	D 88	45.4	53.3
Viscosity Index	D 2270	128	106
Flash Point, COC, °F	D 92	400	425
Pour Point, °F	D 97	5	10
Copper Strip Corrosion	D 130		
6 hours @ 160°F		1a	1a
3 hours @ 212°F		1b	1b
Four-Ball EP	D 2783		
Load Wear Index, kgf		37	37
Weld Point, kgf		200	200
Chlorine		Present	Present

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## DATA (TYPICAL VALUES)

Typical Properties of Macron Oils (Chlorine free "M Series")

	Test Method	Test Method			
		221M-32	222M-70	223M-37	224M-70
Product Code		61027	61028	61029	61030
Appearance		Light Pale	Light Pale	Light Pale	Light Pale
Odor		Mild	Mild	Mild	Mild
Gravity, °API @ 60°F	D 1298	31.7	30.2	30.6	29.2
Flash Point, COC, °F	D 92	395	440	395	445
Pour Point, °F	D 97	10	10	5	10
Viscosity:					
@ 40°C, cSt	D 445	36.6	69.5	36.7	70.2
@ 100°C, cSt	D 445	6.27	8.60	6.27	9.30
@ 100°F, SUS	D 88	188	361	188	364
@ 210°F, SUS	D 88	47.2	55.2	47.2	62.6
Viscosity Index	D 2270	121	94	120	109
Copper Strip Corrosion	D 130				
		1b	1b	1b	1b
6 hours @ 160°F					
		1b	1b	1b	1b
3 hours @ 212°F					
Four-Ball EP	D 2783				
Load Wear Index, kgf		36	41	52	51
Weld Point, kgf		250	315	400	400
Sulfur		Present	Present	Present	Present
Chlorine		None	None	None	None
Calcium		Present	Present	Present	Present

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