

L800 PAG SYNTHETIC GEAR OIL

Gear, Bearing and Compressor Oil — ISO VG 68–1000

OPERATION AND HANDLING INSTRUCTIONS

Document no.	Revision	Issue date	Release status
MOTTA-L800-OHI-EN	REV.03	2026-09-13	Issued for use

Use with the current product TDS, SDS and the equipment manufacturer's instructions. Issued by MOTTA Lubricants. The current revision of this document is published at motta-lube.com/documents/ — if your copy differs, that list governs.

1 Scope

This document applies to the selection, conversion, filling, in-service monitoring and oil change of MOTTA L800, a full synthetic polyalkylene glycol (PAG) oil, in enclosed spur, helical, bevel and worm gear drives, industrial reducers and circulating gear-lubrication systems. For use only by trained personnel.

Not covered: gear units lubricated with mineral, PAO or ester oils (see MOTTA-L500-OHI); open gears; and compressors, unless the compressor manufacturer approves a PAG oil for that machine in writing.

The equipment manufacturer's instructions, the product TDS and SDS and local regulations take precedence. Where requirements conflict, apply the stricter condition.

- User responsibility: confirm the gear unit accepts a PAG oil, and that seals, paints and sight glasses are compatible.
- Operator responsibility: record the previous oil, conversion steps, batch numbers, oil-sample results and abnormal events.
- Technical boundary: this document does not replace equipment design or professional engineering judgement.

MOTTA products covered by this handbook

Product	Grades	Standards and performance levels	Pack sizes
MOTTA L800	VG 68, VG 100, VG 150, VG 220, VG 320, VG 460, VG 680, VG 1000	DIN 51517 Part 3 (CLP) · ISO 6743	18L / 200L

Grades, standards and pack sizes as published on each product's technical data sheet at motta-lube.com/products/. Where a data sheet and this table differ, the data sheet governs.

DIN 51517-3 CLP, ISO 12925-1 CKC/CKD and AGMA 9005 are the performance references on the L800 data sheet. No gearbox- or compressor-manufacturer approval is claimed unless separately documented. L800 is a PAG and must not be mixed with mineral or PAO oils.

2 Selection and pre-use inspection (critical: PAG compatibility)

Important: L800 is not compatible with mineral oils, PAO or most other synthetic gear oils, and not with every other PAG. Mixing can form gel and sludge, block filters and oil passages, and cause foaming. A matching viscosity grade tells you nothing about compatibility.

Item	Check	Why
Gear unit	The manufacturer allows a PAG oil for the unit	Some units are designed and warranted for mineral or PAO oils only
Seals	Confirm the elastomer with the seal maker — nitrile and fluorocarbon are commonly used	Incompatible seals shrink, swell or harden and leak
Interior paint	Unpainted, or a coating the maker confirms for PAG	Many conventional paints soften and lift in PAG, and block filters
Sight glasses and plastics	Material confirmed for PAG	Some transparent plastics craze or cloud
Viscosity grade	The grade the manufacturer specifies	PAG's high viscosity index means the same grade runs thicker when hot

- Performance references on the data sheet — DIN 51517-3 CLP, ISO 12925-1 CKC/CKD, AGMA 9005 — are formulation targets. Confirm they meet the gear unit's requirement.
- Verify product name, grade, batch number and intact seal. Label all equipment used for L800 as PAG only.

3 Conversion, flushing and filling

- Drain the old oil completely while warm, including coolers, filters, lines and low points.
- Replace filter elements. Replace seals, and remove paint from wetted surfaces, where they are not confirmed for PAG.
- Fill with L800, run at no load or light load to circulate, then drain this flushing charge.
- Refill with L800. Where the previous oil was mineral or PAO, check the oil early for haze, gel or foam; repeat the flush if they appear.
- Record the previous oil, flushing steps and new batch number. Take a new-oil reference sample.

4 Start-up and in-service monitoring

Start at light load after filling, then check level, leaks, noise and temperature before full load.

Item	Minimum requirement	Key judgement point
Oil level	Check at a fixed interval	A steady fall means a leak — check seals for incompatibility
Appearance	Watch for haze, layering, gel or foam	Points at contamination with another oil or excess water
Water	Check at the top of the oil, not only at the drain	L800 is denser than water (typical 1.08 kg/L): separated water collects above the oil
Temperature	Record against the unit's normal	A rise points at overload, overfilling, cooling problems or oil degradation
Noise and vibration	Compare with the unit's baseline	A change points at lubrication or mechanical problems

5 Oil-change judgement

No oil-change interval is promised independent of load and temperature. Manage by a new-oil reference, fixed sampling and trends. The gear manufacturer's or laboratory's limits take precedence.

Parameter	Continue in service	Caution / investigate	Change oil
Kinematic viscosity	Within ± 10 % of new oil	10–20 %: resample; check for mixing	Above 20 %, confirmed by the laboratory
Water content	Near the new-oil reference	Rising: check seals, breathers and wash-down	Free water, or above the laboratory's limit
Acid number	Near the new-oil reference	Rising trend	At the laboratory's in-service limit
Wear metals	Stable trend	Iron or copper rising	Sharp rise: inspect the gears and bearings
Appearance	Clear	Slight haze	Gel, sludge or layering: drain, flush and refill

Note: these are field-screening starting points where no equipment-specific limit is available, not a product guarantee. Ask the laboratory to use methods validated for PAG oils.

Recommended methods: kinematic viscosity ASTM D445; water ASTM D6304 (Karl Fischer); acid number ASTM D664; wear metals by ICP; cleanliness reported as an ISO 4406 code where the circuit is filtered.

6 Top-up and mixing

- Top up only with L800 of the same grade. Never top up with a mineral, PAO or other gear oil, even in an emergency.
- If another oil has been added by mistake, stop, drain and flush as in Section 3. Do not run on to see what happens.
- Keep containers closed between uses; PAG absorbs moisture from the air.

7 Shutdown and abnormal-condition handling

Situation	Primary action
Gel, sludge or layering	Stop; confirm contamination with another oil; drain, flush and refill
Seal leakage	Check the seal material is confirmed for PAG; replace with a compatible material
Foam	Check for contamination with another oil, overfilling and air ingress
Rising noise, vibration or temperature	Reduce load or stop; check level, oil condition and bearings
Leakage	Isolate the source; select protective equipment and clean-up measures per the SDS

8 Reference values — indicative, not a MOTTA specification

The figures below are published industry references, given so that a reading can be judged on site when the machine documentation is not to hand. They are screening prompts, not scrap limits. Where the equipment manufacturer, the component manufacturer or your oil analysis laboratory states a figure, that figure governs and this table does not apply.

Specification reference

Reference	What it covers	Published by
DIN 51517-3 CLP	Enclosed industrial gear oils with EP performance	DIN
ISO 12925-1 CKC / CKD	Industrial gear lubricant classes cited on the L800 data sheet	ISO
AGMA 9005	Grade cross-reference where an AGMA number is specified	AGMA

When a reading is worth investigating

What is measured	Prompt to investigate	Why this figure
Kinematic viscosity at 40 °C	More than ± 10 % from the new-oil reference for that product	Common condition-monitoring screening value; also confirms the correct product is in the system
Water	A rising trend, or free water on top of the oil	L800 is denser than water, so separated water floats; seals and breathers are the usual entry points
Appearance	Haze, gel, layering or persistent foam	The usual sign of contamination with a mineral, PAO or other incompatible oil
Wear metals	A change in the iron or copper trend	Iron from gear teeth and bearings, copper from bronze worm wheels and bushes; the trend on one unit is the signal
Sustained sump temperature	Above the limit stated by the gearbox maker	PAG tolerates higher temperatures than mineral oil; a rise against the unit's own normal is still the signal

A single result is a reason to look, not a reason to drain. Establish the new-oil reference for the product actually in use, trend against it, and find the cause before changing the oil — changing the oil does not remove a contamination source or a mechanical fault.

9 Storage and waste oil

- Keep containers tightly closed in a cool, dry, ventilated area; PAG absorbs moisture if left open.
- Use dedicated, labelled transfer equipment that has never held mineral or other lubricants.
- Collect waste L800 separately from mineral waste oil and hand it to a compliant disposal organisation under local regulations; tell the collector it is a PAG.

Use and document information

Caution: this document provides general operating guidance. It is not engineering design, legal advice or a guarantee of results for any specific equipment, country or site.

- Conditions of use: confirm the gear unit, seals, paints and plastics are suitable for a PAG oil. Any unconfirmed substitution or mixing requires a written technical assessment first.
- Data and limits: grades, intervals, analysis limits and other figures are governed by the equipment manufacturer's documents, the product TDS and SDS and your laboratory. This document sets no general guaranteed values.
- Limitation: to the extent permitted by applicable law, MOTTA gives no warranty for loss arising from mixing with incompatible oils, material incompatibility, incorrect selection, equipment defects or failure to follow mandatory requirements. This does not exclude liability that cannot be excluded or limited by law.

Revision 03: moved to the current MOTTA document format; added the conversion procedure from mineral or PAO oils, water behaviour in an oil denser than water, and paint, sight-glass and seal compatibility; limited compressor use to manufacturer-approved PAG service; added reference values, the table of MOTTA products covered, and the copyright and trademark notice.

Recommended Records to Retain

Record	Details to retain
Equipment	Unit number, manufacturer, model, PAG approval reference, oil volume.
Product	Full product name, grade, batch number, fill quantity.
Conversion	Previous oil, drain and flush steps, parts replaced, date, person responsible.
Oil analysis	Sample date, viscosity, water, acid number, wear metals, appearance, action.
Abnormal event	Mixing, gel or foam, seal leaks, temperature or noise changes, action taken.

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