



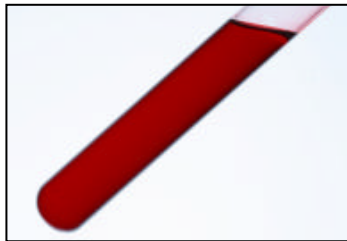
Omega
The Ultimate Lubricant

690

DESCRIPTION:

OMEGA 690 is a revolutionary CTA (Compensatory Thermostat Action) gear oil that surpasses the API GL-5 AND GL-6 requirements. In general, even the best ordinary gear oils can barely attain the GL-4 (or at the very best GL-5) requirements, and very rarely can oils meet API GL-6 requirement.

Notes on API GL-6: Inactive since testing equipment is no longer available. The designation API GL-6 denotes lubricants intended for gears designed with a very high pinion offset. Such designs typically require protection from gear scoring in excess of that provided by API GL-5 gear oils.



SUPREME TENACITY:

OMEGA 690 has a marked ability to follow a gear train and stay in position. This well-known OMEGA 690 trait has been subject to many - mainly unsuccessful - attempts to copy or assimilate this action. But there is always a difference between a "copy" and the genuine quality of OMEGA 690. OMEGA 690 retains a fine film on the metal surface regardless of how thoroughly it is wiped away. This ensures that OMEGA 690 is performing its major "stay put" function. Ordinary gear oils migrate away from the metal surface. They leave the friction surface exposed to direct and unprotected contact. This lends itself to oxidation that causes corrosion.



COMPENSATORY THERMOSTAT ACTION (CTA):

OMEGA 690 contains billions of extremely sensitive, micro thermostat - action Megalite* polymers that compensate for the natural tendencies of an oil to thin out or thicken when subjected to high and low temperature fluctuations, respectively. These polymers become expanded when the oil temperature is high and the oil is therefore thinner. They also contract when the temperature is low, and the oil is therefore thicker. This compensatory expansion and contraction action is essential to the quality of the lubricant and protection of the equipment on which it is used.

This unique CTA feature ensures OMEGA 690 provides uniform flow at all operating temperatures for more consistent, high lubricity performance and ensures consistent fluid drag over the extended useful operating life of the lubricant.

Megalite* polymers can be likened to a spring-loaded metal roll. Each tiny polymer is so sensitive that even very slight temperature fluctuations create either a slight expansion or contraction (depending on whether the environment was hot or cold). As soon as a temperature drop is experienced, the polymer's "spring" immediately shuts, allowing the fluidity of the lubricant to retain its original characteristics and bypass clearances with the same dynamic "bearing" friction as that during ambient temperature conditions. The lubricant avoids becoming heavy and viscous. Similarly when a temperature increase takes place, before the lubricant has a chance to thin out and begin "floating" through clearances, the polymers expand, taking with their expansion an equal "filling" of the lubricant and thereby retaining the essential viscosity stability needed for the well-being of the equipment.

Without "CTA" (Compensatory Thermostat Action), as provided by OMEGA 690, the oil characteristic easily becomes thick and heavy during temperature drops. This results in the difficult coursing of the equipment, draining of energy due to increased fluid drag, increase in oil consumption and the formation of heavy deposits that become hard -- clogging the systems and filters. In hot climatic conditions, equipment wears rapidly and any number of internal "hot spots" formed soon transform into gums and varnishes, forming heavy carbon build-up. OMEGA 690 resists these costly and regular defects through the scientific development of CTA.



EXTREME PRESSURE:

OMEGA 690 is heavily-fortified with carefully-calibrated, extreme pressure- resistant supplements. Its additional supplements for corrosion resistance, oxidation resistance, water wash qualities and many others far outnumber those of most ordinary gear oils. The special extreme pressure supplements are designed to withstand such adverse performance conditions as:

Load	Inductance	Limited Radiation
Compression	Displacement	High Pressure Displacement
Impact	Contact Migration	Explosive Migration
Shock	Surface Depolarization	Implosive Fragmentation
Impression	Capacitance	Reverberation
Thermal Conductivity	Contact Chaff	

FRICTION MODIFICATION:

OMEGA 690 contains a selection of friction modifiers. These supplements have been only recently developed and OMEGA 690 is considered to be one of the very few gear oils to boast their usage.

WATERPROOF:

OMEGA 690 is completely water and waterwash resistant. It resists condensation and humidity, rain and other forms of water and moisture contact without thinning or contamination.

VIBRATION RESISTANT:

OMEGA 690 dramatically reduces the noise level in a gear system. This prevents scuffing, scoring, galling, pitting and scraping. These major causes of noise (and wear) are largely eliminated and OMEGA 690 promotes the near-silent running of gears of gearboxes.

VERSATILE RANGE:

- **OMEGA 690 is available in seven different grades:**
 - OMEGA 690 SAE 90
 - OMEGA 690 SAE 140
 - OMEGA 690 SAE 80W90
 - OMEGA 690 SAE 85W140
 - OMEGA 690 SAE 75W90
 - OMEGA 690 SAE 75W140
 - OMEGA 690 ISO VG 460
- **Military Specifications**

OMEGA 690 meets or exceeds the following U.S. Military specifications:

MIL-L-2105D	SAE J2360 (Formerly MIL-PRF-2105E)
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- **Automotive Specifications**

API GL 5 / GL 6, MT-1	GM HN-1561, HN-2040
PG-2 Limited Slip	MB 235.8
MACK GO-H, MACK GO-J	Arvin Meritor 0-76N
EATON PS-037	SCANIA STO – 1;00
- **Industrial Specifications**

US STEEL 224
CINCINNATI MILACRON,
AGMA 9005-D94
(Non-exhaustive list of manufacturers)

LIMITED SLIP DIFFERENTIAL PERFORMANCE:

OMEGA 690 performs perfectly well in limited slip differentials. In contrast, ordinary gear oils form a heavy energy-consuming drag and the oil migrates away from the friction area.



HYPOID GEAR APPLICATION:

OMEGA 690 can be used in hypoid gears where the pinion gear is less than 25% of the crown wheel or where the pinion-and-crown-wheel has more than 2 inches (50mm) of offset. Ordinary gear oils, even those which can meet the API GL-4/5 requirements are unable to achieve this performance.



APPLICATION:

Initial fill, top-up or refill of:

- (a) Automotive Transmissions
- (b) Hypoid differentials (especially limited slip type)
- (c) Industrial gearboxes



TOTAL RANGE MULTIGRADE: SAE 75W140

OMEGA 690 SAE 75W140 is formulated with a special blend of fully synthetic base fluids to provide outstanding low-temperature fluidity as well as superior high-temperature oil film strength.

- ❑ **LOW TEMPERATURE APPLICATION:** OMEGA 690 SAE 75W140 is eminently suitable for use at ambient temperatures as low as -40°C . It gives the gear a smooth and quiet start during cold running and yet maintains a high oil viscosity to protect the gear metal surfaces from all forms of wear and scoring after warming up.
- ❑ **FUEL ECONOMY:** Because of the lower fluid drag generate during the starting period, OMEGA 690 SAE 75W/140 produces fuel savings of up to 5% when compared to monograde or conventional multigrade gear oils.
- ❑ **OUTSTANDING SHEAR STABILITY:** Because of the severe shearing encountered in gear service, ordinary multigrade and extra-range multigrade gear oils can suffer from huge viscosity loss during service. The special blend of fully synthetic base fluids in OMEGA 690 SAE 75W140 is designed to overcome this shortcoming. When tested according to the Volkswagen KRL test method, the viscosity drop is less than 5%
- ❑ **SUPER PERFORMANCE:** Like other grades of OMEGA 690, SAE 75W140 meets and exceeds the API GL-6 performance level. It protects gears from wear and scoring in a manner far superior to that of ordinary gear oils meeting the API GL-5 standard.

OMEGA 690 ISO VG 460 PERFORMANCE CHARACTERISTICS:

With its high base on viscosity, OMEGA 690 ISO VG 460 is recommended for high load application, including many demanding gear applications in the canning / bottling plants, conveyors, paper, construction, and mining industries.

OMEGA 690 ISO VG 460 meets or exceeds the following industrial specifications:

US Military:	Automotive:	Industrial:
MIL-L-2105D	API GL 5 / GL 6, MT-1	US Steel 224
SAE J2360 (Formerly MIL-PRF-2105E)	Mack GO-J, Mack GO-H	Cincinnati Milacron
	PG-2 Limited Slip	AGMA 9005-D94
	EATON PS-037	
	GM HN-1561, HN-2040	
	MB 235.8	

TYPICAL DATA:

TEST	ASTM	TEST RESULT						
		SAE 90	SAE 140	SAE 80W90	SAE 85W140	SAE 75W90	SAE 75W140	ISO VG 460
ISO Viscosity Grade	D-2422	150	320	150	320	100	220	460
Appearance	Visual	Red	Red	Red	Red	Red	Red	Red
Density Kg/L @ 15.0°C	D-1298	0.910	0.914	0.910	0.914	0.903	0.884	0.913
Viscosity, cSt @ 40°C	D-445	166	343	166	343	103	197	460
Viscosity, cSt @ 100°C	D-445	16.4	26	16.4	26	14.5	25	32
Viscosity Index	D-2270	103	102	103	102	145	160	102
Flash Point, COC, °C (°F)	D-92	219 (426)	222 (432)	219 (426)	222 (432)	200 (392)	220 (428)	222 (432)
Fire Point, COC, °C (°F)	D-92	237 (459)	249 (480)	237 (459)	249 (480)	-	-	245 (473)
Pour Point, °C (°F)	D-97	-28 (-18)	-20 (-4)	-28 (-18)	-20 (-4)	-45 (-49)	-45 (-49)	-24 (-11)
Total Acid Number, mg KOH/g	D-974	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Foaming Characteristics -								
All Sequences, After Settling	D-892	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Copper Strip Corrosion, 3 hrs. @ 100°C	D-130	1b	1b	1b	1b	1b	1b	1b
Four Ball, Wear Scar Dia, mm	D-2266	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Four Ball, Weld Load, Kg	D-2596	> 450	> 450	> 450	> 450	> 450	> 450	> 450
Timken, OK Load, lbs	D-2782	70	70	70	70	70	70	70
FZG, Pass Stages	DIN 51354	12	12	12	12	12	12	12
Sulphur, % Mass	D.129	1.90	1.90	1.90	1.90	1.90	1.90	1.90
Phosphorus, % Mass	D-1091	0.075	0.075	0.075	0.075	0.075	0.075	0.075

The characteristics given above are typical of current production only and slight batch to batch variations should be expected.

SAFETY DATA SHEET



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Supersedes date: 2015-10-19
Product No.:

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SDS-ID: GB-EN/6.1

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name: Cont Omega 690
Container size: 5 l, 20 l, 205 l

1.2. Relevant identified uses of the substance or mixture and uses advised against

Application: Gear oil.

1.3. Details of the supplier of the safety data sheet

Supplier: EU importer:

Manufacturer ITW PP & F Korea Limited.
13th Fl., Unit B, PAX Tower
609 Eonju-ro, Gangnam-gu
Seoul, Korea 06108
Tel:+82-2-2088-3560
Fax:+82-2-513-3567
www.magnagroup.com

1.4. Emergency telephone number

Emergency telephone: Call a Poison Center, emergency number or doctor/physician.

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP: Aquatic Chronic 3;H412

2.2. Label elements

Safety data sheet available on request.

H412 Harmful to aquatic life with long lasting effects.
P273 Avoid release to the environment.
P501 Dispose of contents/container in accordance with local regulations.
P501 Dispose of contents/container in accordance with local regulations.
Contains: Long-chain alkyl amine. May produce an allergic reaction.

2.3. Other hazards

Other: Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema, skin cracking and oil acne. Degreasing to skin. The harmful effects may increase in used oil.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

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The product contains: mineral oil and additives.
DMSO<3% (IP 346)

Only classified substances above threshold limits or substances with an exposure limit are shown.

CLP:

<u>%:</u>	<u>CAS-No.:</u>	<u>EC No.:</u>	<u>REACH Reg. No.:</u>	<u>Chemical name:</u>	<u>Hazard classification:</u>	<u>Notes:</u>
0,1-<1	-	-	-	Long-chain alkyl amine	Acute Tox. 3;H311 Acute Tox. 3;H331 Skin Corr. 1B;H314 Skin Sens. 1;H317 STOT RE 2;H373 Aquatic Acute 1;H400 Aquatic Chronic 1;H410	
0,1-1	-	-	-	Long-chain alkenyl amine	Acute Tox. 4;H302 Skin Corr. 1A;H314 Aquatic Acute 1;H400	

Notes: M: M-Factor

References: The full text for all hazard statements is displayed in section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Move into fresh air and keep at rest. In case of persistent throat irritation or coughing or after inhalation of oil mist: Seek medical attention and bring along these instructions.

Skin contact: Remove contaminated clothing immediately and wash skin with soap and water. In case of rashes, wounds or other skin disorders: Seek medical attention and bring along these instructions.

Eye contact: Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids widely. If irritation persists: Seek medical attention and bring along these instructions.

Ingestion: Immediately rinse mouth and drink plenty of water. Keep person under observation. If person becomes uncomfortable seek hospital and bring these instructions.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects: See section 11 for more detailed information on health effects and symptoms.

4.3. Indication of any immediate medical attention and special treatment needed

Medical attention/treatments: Treat symptomatically.

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SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media: Small fires: Extinguish with carbon dioxide or dry powder.
Larger fires: Extinguish with foam, carbon dioxide or dry powder.
Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards: During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Protective equipment for firefighters: Selection of respiratory protection for fire fighting: follow the general fire fighting precautions indicated in the workplace.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Avoid inhalation of oil mist and contact with skin and eyes. Follow precautions for safe handling described in this safety data sheet.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Absorb spillage with oil-absorbing material. Clean contaminated area with oil-removing material.

6.4. Reference to other sections

References: For personal protection, see section 8.
For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling advice: Observe good chemical hygiene practices. Avoid prolonged and repeated contact with oil, particularly used oil. Always remove oil with soap and water or skin cleaning agent, never use organic solvents. Do not use oil-contaminated clothing or shoes, and do not put rags moistened with oil into pockets.

Technical measures: Use work methods which minimise oil mist production.

Technical precautions: When working with heated oil, mechanical ventilation may be required.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures for safe storage: No special precautions.

Storage conditions: Store in tightly closed original container.

7.3. Specific end use(s)

Specific use(s): Lubricant.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

No occupational exposure limit assigned.

8.2. Exposure controls

<u>Engineering measures:</u>	Provide adequate ventilation and minimise the risk of inhalation of vapours and oil mist. Provide access to washing facilities incl. soap, skin cleanser and fatty cream.
<u>Personal protection:</u>	Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
<u>Respiratory equipment:</u>	In case of inadequate ventilation or risk of inhalation of oil mist, suitable respiratory equipment with combination filter (type A2/P3) can be used.
<u>Hand protection:</u>	Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Other types of gloves can be recommended by the glove supplier.
<u>Eye protection:</u>	Risk of contact: Wear goggles/face shield.
<u>Hygiene measures:</u>	Wash hands after contact. Remove contaminated clothing and wash the skin thoroughly with soap and water after work. Wash contaminated clothing before reuse.
<u>Environmental Exposure Controls:</u>	Not available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<u>Appearance:</u>	red liquid
<u>Odour:</u>	Almost odourless.
<u>pH:</u>	Not relevant.
<u>Boiling point:</u>	Not available.
<u>Flash point:</u>	>150°C
<u>Explosive limits</u>	Not available.
<u>Relative density:</u>	~0,9
<u>Solubility:</u>	insoluble in water (<0,1 g/l)

9.2. Other information

<u>Other data:</u>	No information available.
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SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity: Not reactive.

10.2. Chemical stability

Stability: Stable under normal temperature conditions.

10.3. Possibility of hazardous reactions

Hazardous Reactions: None known.

10.4. Conditions to avoid

Conditions to avoid None specific.

10.5. Incompatible materials

Incompatible materials: Strong oxidising substances.

10.6. Hazardous decomposition products

Hazardous decomposition products: None in particular.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Inhalation: Inhalation of oil mist or vapours formed during heating of the product will irritate the respiratory system and provoke coughing.

Skin contact: Degreasing. Prolonged or frequent contact may cause redness, itching, irritation, eczema, skin cracking and oil acne. The product contains a small amount of sensitising substance which may provoke an allergic reaction among sensitive individuals after repeated contact.

Eye contact: Splashes may irritate.

Ingestion: May irritate and cause malaise.

Specific effects: Prolonged or repeated contact with used oil may cause serious skin diseases, such as dermatitis and skin cancer. The harmful effects may increase in used oil.

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SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

The product contains substance which are very toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

Expected LC/EC50 value: 0,1 < LC50 Š 1 mg/l (Long-chain alkyl amine) Exp
ected LC/EC50 value 0.01 < LC50 Š 0.1 mg/l (Long-chain alkenylamine)

12.2. Persistence and degradability

Degradability: The product is expected to be slowly biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No data available on bioaccumulation.

12.4. Mobility in soil

Mobility: No data available.

12.5. Results of PBT and vPvB assessment

PBT/vPvB: No data available.

12.6. Other adverse effects

Other adverse effects: None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements. Waste is classified as hazardous waste.

Waste from residues: EWC-code: 13 02 05

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SECTION 14: TRANSPORT INFORMATION

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

UN-No: -

14.2. UN proper shipping name

Proper Shipping Name: -

14.3. Transport hazard class(es)

Class: -

14.4. Packing group

PG: -

14.5. Environmental hazards

Marine pollutant: -

Environmentally Hazardous substance: -

14.6. Special precautions for user

Special precautions: -

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk: -

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulation: Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, with amendments.
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.
The Control of Substances Hazardous to Health Regulations 2002 (S.I 2002 No. 2677) with amendments.
EH40/2005, Workplace exposure limits 2005, with amendments.
The List of Wastes (England) (Amendment) Regulations 2005. (SI 2005 No. 895).

15.2. Chemical Safety Assessment

CSA status: No information available.

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SECTION 16: OTHER INFORMATION

The user must be instructed in the proper work procedure and be familiar with the contents of these instructions.

Handling of used oils:

Protect health - avoid prolonged and repeated skin contact. Wash with soap and water. Protect the environment - do not pollute drains, water courses or the soil. Contact your local authority for any used oil disposal instructions.

The following sections contain revisions or new statements: 1

Omega Manufacturing Division
13th floor, Unit B, PAX Tower, 609 Eonju-ro,
Gangnam-Gu, Seoul, Korea 06108
Tel : +82-2-2088-3560
Fax : +82-2-513-3567
Web site : www.magnagroup.com

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Additional information: Classification according to Regulation (EC) No. 1272/2008: Calculation method.

Wording of H-statements:

H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

The information on this data sheet represents our current data and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product which involves using the product in combination with any other product or any other process is the responsibility of the user.

Made by DHI - Environment and Toxicology, Agern Allé 5, DK-2970 Hørsholm, Denmark.
www.dhigroup.com
