



The Ultimate Lubricant

# 693

## DESCRIPTION:

Omega 693 X-Guard Synthetic Gear Oil is specially designed with synthetic base fluid and unique additive package to provide efficient protection and lubrication to enclosed gear units exposed to harsh service conditions at extremely high and low temperatures. Verified by a few stringent tests with outstanding chemical and physical properties, Omega 693 is recommended to be applied in the helical, bevel, and planetary gear units in almost all industries such as cement, chemicals, general manufacturing, mining, steel, power generation, wind energy, and so on.



## Exceptional Oxidation & Thermal Stability:

Unlike most conventional mineral gear oil, Omega 693 is formulated with synthetic base fluid that carries exceptional oxidation and thermal stability. Effectively alleviating the deterioration of oil performance under thermal and oxidative stresses, Omega 693 extends the gear oil re-lubrication intervals for gear units frequently exposed to elevated temperatures. In addition, synthetically formulated, Omega 693 offers excellent fluidity at extremely low temperatures. Hence, Omega 693 is ideally suitable for most gear units exposed to extremely high or low temperatures and dramatic ambient temperature fluctuation.

## Super Protection Against Micro-pitting and Wear:

Omega 693 provides super protection against wear and micro-pitting which are common causes of gear failure. Without proper inspection and/or test, micro-pitting is usually undetected. The potential damage to the gear teeth caused by micro-pitting cannot be ignored since micro-pitting will ultimately aggravate to cause premature gear unit failure. Verified by intensive tests including the demanding FZG scuffing and micro-pitting tests, Omega 693 offers excellent micro-pitting & wear resistance to lower the risk of premature failure of gear units operating under high and shock loads. Ultimately, Omega 693 reduces both maintenance and downtime costs and even increases gear efficiency.

## Low Friction Fluid Film:

Omega 693 provides a very low friction lubricity film on the gear teeth and rolling bearings of gear units. Not only does this special property serve as an extra smooth protective fluid film against wears caused by metal-to-metal contact between gear teeth, it also increases the gear efficiency and hence reduces the energy consumption by the gear units.

## Good Compatibility with Seal Materials & Coatings:

Evidenced by several material compatibility tests established by "Siemens - Flender Gear Units", Omega 693 can be applied safely on the seal materials and coating paints of most enclosed gear units, eliminating the potential hazard caused by many other gear oils on the seal materials and coatings of gear units. This surely saves considerable amount of extra maintenance resources required to keep the casing or parts of the gear systems in decent operating conditions.

## Excellent Demulsibility Characteristics:

Formulated with deliberately calibrated amount of demulsibility agent, Omega 693 provides superb water separation ability that most other gear oils cannot match. By reducing the risk of water contamination, Omega 693 offers prolonged service life and extends the re-lubrication interval. Coupled with its outstanding resistance to corrosion, Omega 693 effectively protects the gear units frequently exposed to moisture and humid conditions.

## Foam-Resistant

Ordinary oils have a tendency to foam under agitated conditions. This promotes oxidation and oxidation is the cause of lubricant breakdown and corrosion. Omega 693 however, has specially built-in foam inhibitors which ensure that the lubricant remains stable and unaerated during operation.

## Performance Specifications:

Omega 693 is recommended to lubricate and protect helical, bevel, and planetary gear units and geared motors. Omega 693 meets and exceeds the following performance specifications:

- DIN 51517/3 CLP
- FLENDER Gear Approval Rev.9 for helical-, bevel, and planetary gear units
- US STEEL 224
- AGMA 9005-EO2
- ISO 12925-1 CKC/CKD
- Cincinnati Machine Gear

## TYPICAL DATA:

TEST	TEST METHOD	TEST RESULT
Appearance	-	Transparent, Yellow
Density, gram / cc @ 15°C(59°F)	ASTM D-4052	0.86
Viscosity @ 40°C, cSt	ASTM D-445	320
Viscosity @ 100°C, cSt	ASTM D-445	36
Viscosity Index	ASTM D-2270	160
Flash Point, COC, °C(°F)	ASTM D-92	250
Pour Point, °C(°F)	ASTM D-97	-41
Copper Corrosion, level	ISO-2160	1a
Foam formation, ml/ml, ml/ml, ml/ml	ISO-6247	0/0, 40/0, 0/0
FZG test, A/8.3/90, load level	ISO-14635-1	>12
FZG Micro-pitting test	FVA-54	Pass
FAG FE8 test,	DIN-51819-3	
Roller weight loss, mg		< 30
Cage weight loss, mg		< 100
Water content, %	DIN-51777-2	< 0.1
Operating Temperatures, °C	-	-30 to 220

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

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SDS-ID: GB-EN/3.0

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

### 1.1. Product identifier

Product name: Omega 693 ISO VG320

### 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

<u>Supplier:</u>	EU importer:	<u>Distributed by:</u>	Trust Engineering Company
	.		9 Abdel Hamid El Deeb Street Alexandria, 21613 Egypt T: +(20)3 5822779 T: +(20)10 1223554
	.		5 Ahmed Shaker Street Fourth Zone Nasr City, 11586 Egypt T: +(20)2 26909965 T: +(20)10 1223553
<u>Manufacturer:</u>	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		info@trustengineering-eg.com www.trustengineering-eg.com

### 1.4. Emergency telephone number

Emergency telephone: NHS: 111

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

CLP: Not classified.

### 2.2. Label elements

Safety data sheet available on request.

Contains Reaction products of bis(2-methylpentan-2-yl)dithiophosphoric acid with phosphorus oxid, propylenoxide and amines, C12-14 alkyl (branched). 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. Oil spills are generally hazardous to the environment.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2. Mixtures

The product contains: synthetic oils, mineral oil and additives.

Only classified substances above threshold limits are shown.

All substances in the product are either registered or exempt from registration under REACH.

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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>
0.1-0.5 -		931-384-6	01-2119493620-38-XXXX	Reaction products of bis(2-methylpentan-2-yl)dithiophosphoric acid with phosphorus oxid, propylenoxide and amines, C12-14 alkyl (branched)	Acute Tox. 4;H302 Eye Dam. 1;H318 Skin Sens. 1;H317 Aquatic Chronic 2;H411	SCL

Notes: SCL: Specific Concentration Limit

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: Seek medical attention and bring 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 at least 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. Do not induce vomiting.

### 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.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

Extinguishing media: Extinguish with foam, carbon dioxide, dry powder or water fog. Do not use water jet as an extinguisher, as this will spread the fire. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

### 5.2. Special hazards arising from the substance or mixture

Specific hazards: During fire, gases hazardous to health may be formed. The product is combustible, but not flammable.

### 5.3. Advice for firefighters

Protective equipment for fire-fighters: Wear a self contained breathing apparatus in fire conditions.

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## 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. Collect and reclaim or dispose in sealed containers in licensed waste.  
Clean contaminated area with oil-removing material. In case of spills, beware of slippery floors and surfaces.

### **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. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site.  
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 in a dry, cool and well-ventilated place. Keep away from heat, sparks and open flame. Protect against direct sunlight.

### **7.3. Specific end use(s)**

Specific use(s): Not relevant.

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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. Breakthrough time: > 4h; Thickness: > 0.3 mm 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. 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>	Oil, pale yellow
<u>Odour:</u>	faint
<u>pH:</u>	not relevant
<u>Melting point / freezing point:</u>	not available
<u>Boiling point:</u>	not available
<u>Flash point:</u>	>150°C (COC)
<u>Vapour pressure:</u>	not available
<u>Relative density:</u>	~0,85 g/cm <sup>3</sup>
<u>Solubility:</u>	<0,1 g/l in water
<u>Viscosity:</u>	~320 mm <sup>2</sup> /s (100°C)

### 9.2. Other information

<u>Other data:</u>	Not relevant.
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## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

Reactivity: None known.

### 10.2. Chemical stability

Stability: Stable under normal temperature conditions and recommended use.

### 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: Carbon monoxide, carbon dioxide.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

Acute Toxicity (Oral): Based on available data, the classification criteria are not met.

Acute Toxicity (Dermal): Based on available data, the classification criteria are not met.

Acute Toxicity (Inhalation): Based on available data, the classification criteria are not met.

Skin Corrosion/Irritation: Based on available data, the classification criteria are not met.

Serious eye damage/irritation: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive Toxicity: Based on available data, the classification criteria are not met.

STOT - Single exposure: Based on available data, the classification criteria are not met.

STOT - Repeated exposure: Based on available data, the classification criteria are not met.

Aspiration hazard: Based on available data, the classification criteria are not met.

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.

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.

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## SECTION 12: ECOLOGICAL INFORMATION

### **12.1. Toxicity**

Ecotoxicity: Oil spills are generally hazardous to the environment.

### **12.2. Persistence and degradability**

Degradability: The degradability of the product has not been stated.

### **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: Not relevant.

### **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 06

## 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: Not regulated.

### **14.2. UN proper shipping name**

Proper Shipping Name: Not regulated.

### **14.3. Transport hazard class(es)**

Class: Not regulated.

### **14.4. Packing group**

PG: Not regulated.

### **14.5. Environmental hazards**

Marine pollutant: Not regulated.

Environmentally Hazardous substance: Not regulated.

### **14.6. Special precautions for user**

Special precautions: Not regulated.

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

Transport in bulk: Not regulated.

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## 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.

The List of Wastes (England) (Amendment) Regulations 2005. (SI 2005 No. 895).

### **15.2. Chemical Safety Assessment**

CSA status: Not relevant.

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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: 3, 8, 16

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Abbreviations and acronyms used in the safety data sheet: PBT = Persistent, Bioaccumulative and Toxic.  
vPvB = very Persistent and very Bioaccumulative.

Key literature references and sources for data: None.

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

Wording of H-statements:

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.

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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.  
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