



Catalogue of
**lubricants for the
mining and oil industry**





REPSOL

Technology Lab



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1. Introduction

When you choose Repsol lubricants, **you choose much more**. In addition to a high-quality product, you get the Repsol guarantee. An **integrated, global energy company** that carries out exploration, production, refining, distribution and marketing activities in **more than 90 countries**. It provides millions of people and companies around the world with the most efficient, responsible and innovative energy solutions.

And what's more, you get **maximum innovation**. At Repsol we have our **Repsol Technology Lab** research centre, at the world's forefront of R&D&I, where our technicians and researchers continuously improve each product, ensuring the highest efficiency and technical and environmental quality.

In the mining and oil industry, a sector in which new technological advances are incorporated every day, at Repsol we work to develop a wide range of industrial lubricants and to this end we make our greatest efforts in terms of resources, research and technology.

Repsol has a wide range of industrial lubricants that meet the **most demanding quality standards**. This is the only way we can guarantee that your machines and equipment will be perfectly lubricated and protected, with the aim of enhancing their functions, improving their performance, favouring energy savings and extending their useful life.

Repsol lubricants are the best solution for your industrial machinery and equipment.

We have selected the products with the highest consumption in the sector in this catalogue, although Repsol has a wide range of products at your disposal. For more information, you can consult our catalogues at [lubricants.repsol.com](https://www.lubricants.repsol.com).



2. Sector challenges

The challenges faced by mining equipment today are increasing and are presented in different ways. Whether due to the demands of production, which requires full availability of equipment often used at full load, but mainly due to the **extreme environments** in which they operate (high aggregate contamination, presence of water, the very nature of the raw materials, etc.).

Under these extreme operating conditions, lubricants must provide, in addition to their usual function, **additional protection** to maintain or increase the reliability and availability of the equipment and facilitate maintenance management. Repsol Lubricants, with their extensive experience in this type of application, have demonstrated their response capacity and high performance, allowing full availability of equipment for their customers.

The Repsol range of lubricants is designed to respond to extremely demanding operating conditions: **greater resistance to oxidation** (higher operating temperatures), **lower viscosity loss** (use of better quality bases), **greater anti-wear capacity** (tailor-made developments), etc. offering great resistance under this operating environment.

As well as the **cutting-edge technology** that Repsol uses in the manufacture of its lubricants, its extensive experience in the field and the data obtained from the analysis of thousands of samples provide valuable information that is taken into account in the development and adaptation of its range of lubricating oils, contributing greatly to the excellence of its products.



3. Engine oils

Repsol is **constantly researching** to offer a wide range of lubricants that adapt to the specific needs of each of our customers in this sector, in which new technological advances are incorporated every day.

In addition to complying with the **most demanding quality standards and regulations**, the exclusive formulation of our products provides perfect lubrication and maximum care for the engine, allowing maximum performance and durability of these systems.



GIANT 9630 LS-LL 10W-40



Synthetic technology lubricating oil of the highest UHPD (Ultra High Performance Diesel) quality. The letters LS in its name indicate a low ash content, which prevents clogging of particulate filter systems, protects catalytic after-treatment systems and minimises pollutant emissions. Its excellent composition gives it the status of a long-life lubricant, with extraordinarily long change periods. It is compatible with all types of fuel (diesel, LPG, CNG and biodiesel), and for all its characteristics, it is the ideal oil for mixed fleets. Valid for Euro VI and earlier engines.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
10W-40	86	13.3	155	<-30	>223	13

QUALITY LEVELS [* FORMAL APPROVAL]

API: C J-4*, CUMMINS: CES 20081*, DEUTZ: DQC-IV-10 LA*, DTNA: DFS 93K218*, JASO: DH-2*, MACK: EO-O Premium Plus*, MAN: 3477/3575/3271-1*, MB: 228.51 / 235.28*, MTU: Type 3.1*, RENAULT: VI RLD-3*, VOITH: Retarder Oil Class B*, VOLVO: VDS-4*, ACEA: E6, E4, E7, E9, CATERPILLAR: CAT ECF-3, SCANIA: LOW ASH [obsolete].

GIANT 9530 LL 10W-40



Latest generation synthetic lubricating oil especially recommended for supercharged diesel engines in commercial vehicles with extremely long service periods. Product specifically designed for low emission Euro V and some Euro VI diesel engines.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
10W-40	104	14.5	150	-30	>225	14

QUALITY LEVELS [* FORMAL APPROVAL]

API: CI-4*, DEUTZ: DQC IV-18*, MACK: EO-N*, MAN: 3377/3277*, MB: 228.5*, MTU: Type 3*, RENAULT: VI RLD2*, VOITH: VDS 3*, ACEA: E7, E4.

GIANT 7630 LS 15W-40



Top quality synthetic technology lubricating oil. Its low ash content prevents clogging of particulate filter systems, as well as protecting catalytic after-treatment devices and minimising pollutant emissions. It is compatible with diesel and biodiesel, and undoubtedly plays a key role in the lubrication of mixed fleet engines. It is designed to meet the most demanding requirements of the latest generation EURO VI and North American [EPA 2007] diesel engines.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
15W-40	113.5	15	136	<-27	>225	9.8

QUALITY LEVELS [* FORMAL APPROVAL]

API: CK-4/CJ-4/CL-4 Plus/CL-4/SN*, DEUTZ: DQC III-10 LA.*, DTNA: DFS 93K222*, MACK: EOS 4.5*, MAN: M 3775*, MB: 228.31*, MTU: Type 2.1*, RENAULT: RLD-3*, VOLVO: VDS 4.5*, ACEA: E7, E9, CATERPILLAR: CAT ECF-3, CUMMINS: CES 20086, FORD: WSS-M2C171-F1.

GIANT 7530 10W-40



THPD (**Top High Performance Diesel**) synthetic lubricant oil, which optimises the performance of the most demanding latest generation heavy diesel engines. It has been developed for engines that require lubricants with ACEA E7 and API CI-4 quality levels, and due to its viscosity and composition it allows oil change periods to be considerably extended, although always taking into account the manufacturer's recommendations. It stands out for its validity in all climatic conditions and cold starting qualities, being compatible with biodiesel and systems equipped with EGR valve and SCR catalytic converters. Valid for Euro V engines and earlier.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
10W-40	90	14.6	150	-30	225	10

QUALITY LEVELS (* FORMAL APPROVAL)

API: CI-4/SL*, DEUTZ: DQC III-10*, MACK: EO-N*, MAN: 3275-1*, MB: 228.3*, Renault: VI RLD-2/RLD *, VOLVO: VDS 3*, ACEA: E7, CATERPILLAR: CAT ECF-2/ECF-1-a, CUMMINS: CES 20076/20077, DTNA: DFS 93K215, MTU: Type 2.

GIANT 7530 15W-40



THPD (**Top High Performance Diesel**) lubricant oil which optimises the performance of the most demanding latest generation heavy diesel engines. It is specifically designed for engines that require ACEA E7 and API CI-4 quality level lubricants, and due to its viscosity and composition it allows oil change periods to be extended, although always in accordance with the manufacturer's recommendations. The modern formulation gives it excellent anti-wear properties, especially protecting the turbocharger. It is compatible with biodiesel and systems equipped with EGR valve and SCR catalytic converters, and valid for Euro V and earlier engines.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
15W-40	104	14.3	141	<-27	236	10.5

QUALITY LEVELS (* FORMAL APPROVAL)

API: CI-4/SL*, DEUTZ: DQC III-18*, MACK: EO-N*, MAN: 3275-1*, MB: 228.3*, Renault: VI RLD-2/RLD *, VOLVO: VDS 3*, ACEA: E7, CATERPILLAR: CAT ECF-2/ECF-1-a, CUMMINS: CES 20076/20077, DTNA: DFS 93K215, MTU: Type 2.

GIANT 1060 SAE 40



Monograde lubricating oil made from highly refined basestocks. Specially selected additives are incorporated to improve characteristics such as oxidation resistance, anti-wear properties and high detergent-dispersing power. Its composition makes it suitable for turbocharged or naturally aspirated diesel engines operating under severe conditions. This oil is particularly recommended for the lubrication of Detroit Diesel two-stroke engines. It can also be used in transmissions and torque converters.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
40	138	14.9	95	-21	230	7.8

QUALITY LEVELS [* FORMAL APPROVAL]

API: CF-2/CF/SJ, DTNA: DFS Series 149.



4. Hydraulic oils

Repsol **hydraulic oils** are formulated with carefully selected and refined bases. As a result, they provide all parts of your machines and equipment with the robustness and reliability they need, even under extreme working conditions.

Their excellent **anti-wear** characteristics, together with **anti-oxidant** and **anti-degradation** properties, **protection against corrosion and very good water separation**, place them at the forefront of current lubricating oil technology.

In addition, Repsol has a wide range of hydraulic oils from which to choose the best for your industry, from conventional oils with zinc-based additives to cutting-edge oils with ashless technology and specific applications requiring a fire-resistant fluid.

Repsol is **committed** to **sustainability** and the **environment** thanks to the use of biodegradable fluids.



MAKER TELEX HVLP



Hydraulic oil for use in hydraulic circuits subjected to very different temperature conditions, outdoors or at low working temperatures. Also very suitable for hydraulic systems used in marine applications.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step	Time for neutralisation no. 2 [h]
15	3.7	145	-45	180	11	>2500
22	4.8	147	-39	198	11	>2500
32	6.1	141	-33	220	12	>2500
46	7.9	143	-33	226	12	>2500
68	10.4	143	-33	242	12	>2500

QUALITY LEVELS [* FORMAL APPROVAL]

IBERCISA* (32, 46), IMS DELTA MATIC* (32, 46, 68), MANULI* (46), THYSSENKRUPP: HVLP* (32, 46, 68), AFNOR: NF ISO 11158 HV, 48-690, 48-691 (15, 22, 32, 46, 68), DIN: 51524-HVLP (15, 22, 32, 46, 68), FIVES CINCINNATI (32, 68, 46), ISO: 6743/4 HV, 11158 HV (15, 22, 32, 46, 68), GIA: Billet extrusion system (46, 68)*

MAKER TELEX E



Hydraulic oil for use in hydraulic circuits and public works machinery equipped with any type of pump. In general, for any mechanism requiring an oil with high anti-wear properties.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step	Time for neutralisation no. 2 [h]
5	1.6	-	-30	128	-	>1000
10	2.7	108	-27	183	-	>1000
15	3.4	113	-27	198	12	>2500
22	4.4	107	-27	210	12	>2500
32	5.4	100	-24	226	12	>2500
46	6.8	98	-24	231	12	>2500
68	8.5	98	-24	246	12	>2500
100	11	97	-21	264	12	>2500

QUALITY LEVELS [* FORMAL APPROVAL]

ABB: ABB Turbocharger VTR304-11 / -21* [68], AFNOR: NF E 48-603 HL [5, 10], AFNOR: NF ISO 11158 HM, 48-690, 48-691 [100, 15, 22, 32, 46, 68], BOSCH REXROTH: RDE 90235 [32, 46, 68], DIN: 51524-HL [5, 10], DIN: 51524-HLP [100, 15, 22, 32, 46, 68], EATON VICKERS: I-286-S Y M2950-S [32, 46, 68], ENGEL: Engel Injection Moulding Machines* [46], FIVES CINCINNATI [32, 46, 68], IBERCISA: HYDRAULICS* [32, 46], IMS DELTA MATIC [32, 46, 68], ISO: 6743/4 HL, 11158 HL [5, 10], ISO: 6743/4 HM, 11158 HM [100, 15, 22, 32, 46, 68], NEGRI BOSSI: ELEOS, eCANBIO JANUS AND VESTA series* [46], ORTLINGHAUS: Standard ON 9.2.19* [46], PARKER DENISON: HFO, HF1, HF2* [32, 46, 68], THYSSENKRUPP: HLP* [32, 46, 68], VOITH: Variable speed coupling [22, 32, 46], GIA: Billet extrusion system* [46, 68].

MAKER HYDROFLUX EP



General purpose hydraulic oil with high oxidation and ageing resistance, anti-wear protection, good anti-foaming properties and excellent water separation.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step	Time for neutralisation no. 2 [h]
32	5.4	104	-24	226	11	>1500
46	6.7	97	-24	231	11	>1500
68	8.6	97	-24	246	11	>1500
100	11.1	97	-21	264	11	>1500

QUALITY LEVELS [* FORMAL APPROVAL]

AFNOR: NF ISO 11158 HM, 48-690, 48-691, DIN: 51524-HLP, ISO: 6743/4 HM, 11158.

MAKER LIBRA HYDRAULIC HLP



Hydraulic oil formulated with a mixture of high quality mineral and regenerated bases, suitable for use in circuits with severe anti-wear requirements. With this range of products we are committed to sustainable development, as it closes the ecological chain in the production, use, collection and reuse of lubricants.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step	Time for neutralisation no. 2 [h]
32	5.4	102	-21	205	11	>1500
46	6.9	105	-21	210	11	>1500
68	8.6	97	-18	210	11	>1500

QUALITY LEVELS [* FORMAL APPROVAL]

DIN: 51524-HLP, ISO: 6743/4 HM, 11158.

MAKER ARIES



Multifunctional lubricating oil, for applications such as heavily revved mechanisms, in its lower viscosities, hydraulic or steam turbines in grades between ISO 32 and ISO 100 and for lubrication of various mechanical parts in crankcase or circulating lubrication in its higher viscosities.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	Time for neutralisation no. 2 [h]
15	3.4	95	-18	180	>2000
22	4.3	100	-15	200	>2000
32	5.4	100	-15	215	>2000
46	6.8	98	-12	220	>2000
68	8.5	98	-12	230	>2000
100	11.0	97	-12	245	>2000
[125]	13	97	-12	255	>2000
150	14.5	97	-12	260	>2000
220	19	95	-12	260	>2000

QUALITY LEVELS [* FORMAL APPROVAL]

ISO 6743/4 HL, DIN 51524 HL, BURCKHARDT COMPRESSION: VSB 1001132/1001133* (150), DIN: 51506, L-VBL (15, 22, 32, 46, 68, 100, 125, 150, 220), DIN: 51515, L-TD (32, 46, 68, 100), DIN: 51517 part 2 - CL (32, 46, 68, 100, 125, 150, 220), DIN: 51524 HL (15, 22, 32, 46, 68, 100, 125, 150, 220), ISO: 6743/2 - FC (15, 22, 32, 46, 68, 100, 125, 150, 220), ISO: 6743/4 HL, 11158 HL (15, 22, 32, 46, 68, 100, 125, 150, 220), ISO: 6743/5 TGA/TSA (15, 22, 32, 46, 68, 100, 125, 150, 220), ISO: 6743/6-CKB (15, 22, 32, 46, 68, 100, 125, 150, 220), ISO: 6743-3A, DAB/DVA/DVC/DVE (15, 22, 32, 46, 68, 100, 125, 150, 220), GEK: 46506 E (32), ABB Turbocharger VTR304-11 / -21 (68).

ASHLESS OILS

MAKER HIDROLEO



Hydraulic oil for use in circuits under severe conditions and where filterability is very demanding (servo-valves, robotics, etc.), as well as in systems where high temperature changes occur.

ISO GRADE	Viscosity at 100 °C (cSt)	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step	Time for neutralisation no. 2 (h)
32	6.1	141	-39	220	11	>2000
46	7.9	143	-39	226	11	>2000
68	10.4	143	-39	242	11	>2000
100	14.8	143	-36	250	11	>2000

QUALITY LEVELS [* FORMAL APPROVAL]

MANULI: Hydraulics* (46), AFNOR: NF ISO 11158 HV (100, 32, 46, 68), DIN: 51524-HVLP (100, 32, 46, 68), FIVES CINCINNATI (32, 46, 68), ISO: 6743/4 HVLP, 11158 (100, 32, 46, 68), VOITH: R, EA, EH, RW (32).

MAKER HYDRAULIC SC



Hydraulic oil for use in hydraulic circuits with very fine tolerance servo valves and where high filterability is required.

ISO GRADE	Viscosity at 100 °C (cSt)	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step	Time for neutralisation no. 2 (h)
32	5.1	100	-27	226	11	>2000
46	6.6	98	-27	231	11	>2000
68	8.7	98	-24	246	11	>2000

QUALITY LEVELS [* FORMAL APPROVAL]

ARBURG: Injection moulding machines* (46), KRAUSS-MAFFEI: Hydraulic Oil* (46, 68), MANULI: Hydraulics* (46), SIEMENS: zinc free hydraulic oils HLP 46* (46), AFNOR: NFE 48603-HM (32, 46, 68), DIN: 51524-HLP (32, 46, 68), FIVES CINCINNATI (32, 46, 68), ISO: 6743/4 HM, 11158 HM (32, 46, 68), PARKER DENISON: HFO, HF1, HF2 (32, 46, 68).

BIODEGRADABLE OILS

MAKER BIO TELEX



Synthetic and biodegradable hydraulic fluid, intended to replace conventional oils where there is a need or interest for a fluid of a biodegradable nature. Product with Ecolabel Certification.



ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step
46	9.8	180	-45	310	>10
68	12.4	182	-39	318	12

QUALITY LEVELS [* FORMAL APPROVAL]

MANULI* [46], Biodegradable according to OECD 301-B [46, 68], DIN: 51524/3 HV (except ageing resistance) [46, 68], ISO: 6743/4 HEES, 15380 HEES [46, 68], ECOLABEL Certificate [46,68].

INCREASED SAFETY

MAKER TELEX HFC



Fire resistant fluid (HFC type) based on a water-glycol mixture. For use in hydraulic systems which, due to their characteristics or location, are at risk of fire, and where the fluid does not exceed a temperature of 60°C.

ISO GRADE	Rust A	Cu corrosion	Pour Point [°C]	4 balls, footprint [mm]	pH at 20°C	water %
46	Pass	1b	-48	0.95	9.54	40%

QUALITY LEVELS [* FORMAL APPROVAL]

7th Luxembourg Protocol, ISO: 6743/4 HFC, 12922 HFC.

MAKER TELEX VULCANO



Fire resistant fluid (type HFDU) based on synthetic esters, intended for use in hydraulic systems which by their characteristics or location are at risk of fire, and where the fluid does not exceed a temperature of 90°C.

ISO GRADE	Viscosity at 100°C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
68	12.6	185	-18	326

QUALITY LEVELS [* FORMAL APPROVAL]

MANULI*, 7th Luxembourg Protocol, ISO: 6743/4 HFDU.

SPECIAL APPLICATIONS

MAKER HIDRAPLATFORM



Water/glycol based hydraulic control fluid specifically formulated for use in subsea production control systems. While its low viscosity allows for quick system response, its optimised additive package provides a high degree of protection against wear, salt corrosion and degradation. In addition, in the event of a spill, it is rapidly biodegradable and will not accumulate on the sea surface.

Density at 20°C [g/ml]	Viscosity at 40°C [cSt]	Pour Point [°C]	Foams at 24°C [ml/ml]	Cu corrosion
1.12	2.21	33	0/0	1b

5. Transmission oils

Our lubricants meet the **highest standards and quality norms**, the unique formulation of our lubricants provides perfect lubrication and maximum care in demanding lubrication systems such as transmissions subject to high loads.



NAVIGATOR TO-4 SAE 50



Lubricating oil specially formulated to meet the requirements of CATERPILLAR, ALLISON and KOMATSU specifications, applicable in servo transmissions, clutches and brakes, as well as final drives, sprockets and differentials where a SAE 50 viscosity grade is required.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
50	208	18	97	97	-18	<220

QUALITY LEVELS [* FORMAL APPROVAL]

API: GL-4/CF, CATERPILLAR: CAT TO-4, KOMATSU: KES 07.868.1.

NAVIGATOR TO-4 SAE 30



Lubricating oil for public works machinery, specially formulated to meet the requirements of CATERPILLAR, ALLISON and KOMATSU specifications, applicable in power transmissions, clutches and brakes, as well as final drives, hydraulic systems, crown gears and differentials where a SAE 30 viscosity grade is required.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
30	110	11.3	97	-33	<220	10

QUALITY LEVELS [* FORMAL APPROVAL]

ALLISON: C-4, API: GL-4/CF, CATERPILLAR: CAT TO-4, KOMATSU: KES 07.868.1, ZF TE-ML: 03C and 07F.

NAVIGATOR TO-4 SAE 10W



Lubricating oil for public works machinery, specially formulated to meet the requirements of CATERPILLAR, ALLISON and KOMATSU specifications, applicable in power transmissions, clutches and brakes, as well as final drives, hydraulic systems, crown gears and differentials where a SAE 10W viscosity grade is required.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
10W	37	6.5	115	-42	<200	10

QUALITY LEVELS [* FORMAL APPROVAL]

ALLISON: C-4, CATERPILLAR: CAT TO-4, KOMATSU: KES 07.868.1, ZF TE-ML: 03C.

GIANT 1020 SAE 10W



High quality monograde mineral lubricating oil made with highly refined bases, to which specially selected additives are incorporated to improve characteristics such as resistance to oxidation, anti-wear power, detergency-dispersancy among others, allowing a long service life. It can be used as a hydraulic fluid in public works machinery, as well as in transmissions where the manufacturer recommends this viscosity grade.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
10W	39	6.6	110	-27	>200

QUALITY LEVELS [* FORMAL APPROVAL]

ALLISON: C-3, API: CF/SF, CATERPILLAR: CAT TO-2, MB: 228.0.

FARMER ORION UTTO



Universal lubricating oil for tractor transmissions (U.T.T.O.) and public works machinery. Its studied formulation makes it suitable for use in gearboxes, conical differential groups, power take-offs, hydraulic systems, wet brakes (sintered or compound) and clutches.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
10W-30	65	10.8	>140	-33	>180

QUALITY LEVELS [* FORMAL APPROVAL]

MANULI*, ZF TE-ML: 03E/05F/17E/21F*, ALLISON: C-4, API: GL-4/SAE 80W, CATERPILLAR: CAT TO-2, FORD: M2C 134D, JOHN DEERE: J-20C, KUBOTA: UDT, MASSEY FERGUSON: M-1145/M-1143/M-1141, NEW HOLLAND/FNHA: CNH MAT 3525/FNHA 201.00, PARKER DENISON: UTTO/THF, VOLVO: WB 101.

NAVIGATOR LL 80W-90



Long life oil for differentials and some manual gearboxes requiring a GL-5 quality level. Especially recommended for differentials in commercial and public works vehicles, which operate under severe conditions and require a high performance lubricant. Complies with current manufacturers' standards requiring long drain interval oils that allow a doubling or tripling of the change interval over conventional mineral oils.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
80W-90	135	14.25	102	< -30	204

QUALITY LEVELS [* FORMAL APPROVAL]

SCANIA STO 1:0 for gearboxes*, MAN: 342 M3 / 341 GA1*, MB: 235.20*, ZF TE-ML: 5A/12L/12M/16B/17B/19B/21A*, ZF TE-ML: 07A/08, API: GL-5/MT-1, ARVIN MERITOR: 076-D, DAF: API GL-5, IVECO: Axle, MACK: GO-J, RENAULT: Axle, SAE: J 2360, VOLVO: 97310.



NAVIGATOR LL 85W-140



Long life oil for differentials and some manual gearboxes requiring a GL-5 quality level. Especially recommended for differentials in commercial and public works vehicles, which operate under severe conditions and require a high performance lubricant. Complies with current manufacturers' standards requiring long drain interval oils that allow a doubling or tripling of the change interval over conventional mineral oils.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
85W-140	320	24.55	98	<-12	218

QUALITY LEVELS [* FORMAL APPROVAL]

SCANIA STO 1:0 for gearboxes*, SCANIA STO 1:0 for differentials*, ZF TE-ML: 05A/12M/16D/21A*, API: GL-5/MT-1, ARVIN MERITOR: 076-A, DAF: API GL-5, IVECO: Axle, MACK: GO-J, SAE: J 2360, VOLVO: 97310.

NAVIGATOR HQ GL-5 80W-90



Extreme pressure multigrade lubricating oil, used in vehicle differentials or in transmission groups and manual gearboxes where an API GL-5 oil is required. Its high load-carrying capacity makes it especially recommended for hypoid differentials.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
80W-90	140	15.4	>105	-27	>170

QUALITY LEVELS [* FORMAL APPROVAL]

MB: 235.0*, ZF TE-ML: 16B/17B/19B/21A*, API: GL-5, DAF: API GL-5, MAN: 342 M1, MIL: L-2105 D, RENAULT: Axle, VOITH: Turbo 132.00374400 [formerly 3.325-339].

NAVIGATOR HQ GL-5 85W-140



Extreme pressure multigrade lubricating oil, used in vehicle differentials or in transmission groups and manual gearboxes where an API GL-5 oil is required. Its high load-carrying capacity makes it especially recommended for hypoid differentials.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
85W-140	400	28.3	>95	-18	>190

QUALITY LEVELS [* FORMAL APPROVAL]

ZF TE-ML: 07A/08/16C/16D/21A*, API: GL-5, DAF: API GL-5, MIL: L-2105 D, VOLVO: 97310.

NAVIGATOR LSD 80W-90



An extreme pressure multigrade lubricating oil, recommended for use in self-locking differentials and drive axles of four-wheel drive off-road or public works vehicles where fluids with LSD (limited slip differential) characteristics are required. It can also be used in non self-locking differentials where an API GL-5 quality level is required.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
80W-90	150	16.3	113	-30	>180

QUALITY LEVELS [* FORMAL APPROVAL]

ZF TE-ML: 07A/08/16C/16D/21A*, API: GL-5, DAF: API GL-5, MIL: L-2105 D, VOLVO: 97310..

AUTOMATOR ATF III



A lubricating oil formulated with synthetic components and specially designed for automatic transmissions requiring an extended shift period, and vehicle power assisted steering where a fluid meeting GM Dexron III or Dexron II specification is required. It can be used in light vehicles as well as in public works machinery and commercial vehicles.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
-	34	7.5	181	-50	226

QUALITY LEVELS [* FORMAL APPROVAL]

MAN: 339 V2/339 Z2, Z11/339 L1*, MB: 236.9*, VOITH: H55.6336*, ZF TE-ML: 03D/04D/14B/17C/20B/25B*, ALLISON: C-4/TES 295/TES 389, DEXRON: III H, FORD: MERCON V, VOLVO: 97341*.

AUTOMATOR ATF II



Mineral lubricating oil type Dexron II D for automatic transmissions in passenger cars, commercial vehicles, buses and power steering. Particularly recommended where a large fleet of vehicles is available and a single general purpose ATF type fluid is required.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]
-	43	7.8	161	<-40	>177

QUALITY LEVELS [* FORMAL APPROVAL]

MAN: 339 V1/339 Z1/339 L2*, MB: 236.9*, VOITH: H55.6335*, VOLVO: 97341*, ZF TE-ML: 04D/14A*, ALLISON: C-4, DEXRON: II D, FORD: MERCON.

6. GEAR OILS

Repsol has designed a complete range of lubricating oils to meet the technical challenges of the wide variety of industrial gear applications.

Maker Super Tauro mineral oil offers excellent **anti-rust, anti-corrosion, anti-foaming and anti-foaming properties**, together with its high load capacity, providing superior performance in industrial gears subjected to severe service.

Repsol synthetic lubricants, which allow a longer oil change interval, thus saving on maintenance costs, are recommended for systems where operating conditions reach extreme temperatures.

The range is completed with an oil specially designed for those systems that suffer from the phenomenon known as "**micropitting**", which occurs in gearboxes subjected to high cyclic loads and frequent starts and stops.



MAKER SUPER TAURO PAG



High-performance synthetic lubricant for systems requiring a very high level of oxidation resistance and load capacity. Exceeds Flender requirements.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step
150	25	200	-39	250	12
220	32	180	-33	290	12
320	45	195	-36	295	12
460	67	220	-36	295	12
680	122	272	-30	287	12
1000	165	284	-27	296	12

QUALITY LEVELS [* FORMAL APPROVAL]

ZANINI RENK: 00-90263/4n* (150, 220, 320, 460, 680, 1000), FLENDER: Rev. 15 (680, 1000), DIN: CLP (150, 220, 320, 460, 680, 1000), ISO: CKT (150, 220, 320, 460, 680, 1000), AGMA: 9005-F16 (150, 220, 320, 460), AIST: 224 (US Steel 224) (150, 220, 320, 460), DIN: 51517/3 – CLP (150, 220, 320, 460), DAVID BROWN: G (680, 1000), DIN: 51517-CLP (except demulsion) (680, 1000).

MAKER SUPER TAURO SYNTH



PAO and ester based synthetic lubricant for gears operating under very severe conditions and at high temperatures. Its excellent oxidation resistance allows for long changeover times. Exceeds Flender requirements.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step
100	14.5	148	-54	205	12
150	19.4	148	-51	272	12
220	25.7	148	-42	250	12
320	34.9	154	-42	256	12
460	47.2	161	-39	252	12

QUALITY LEVELS [* FORMAL APPROVAL]

FLENDER GEAR UNITS* (150, 220, 320, 460), ZANINI RENK: 00-90263/4n* (100, 150, 220, 320, 460), ISO: CKT (100, 150, 220, 320, 460), REINTJES: BV1597/2, BV1917/2* (100), REINTJES: BV1597/4, BV1917/4* (150), THYSSENKRUPP* (150, 220, 320, 460), AGMA: 9005-F16 (100, 150, 220, 320, 460), AIST: 224 (US Steel 224) (100, 150, 220, 320, 460), DIN: 51517 part 3-CLP (100, 150, 220, 320, 460), FIVES CINCINNATI (100, 150, 220, 320, 460).

MAKER SUPER TAURO 320 FND



Lubricant for all types of industrial gears, being very suitable for those requiring high levels of oxidation resistance and load capacity. Exceeds Flender requirements. It is well suited for all cases where maximum levels of oxidation resistance and/or load carrying capacity are required.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step
320	24.0	95	-9	210	12

QUALITY LEVELS [* FORMAL APPROVAL]

ZANINI RENK*, DIN: 51517/3 - CLP, FLENDER (rev.13), ISO: 12925-1 CKD.

MAKER SUPER TAURO



Lubricant for industrial gears with high load requirements. It is well suited for all cases where maximum levels of oxidation resistance and/or load carrying capacity are required.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	FZG min. step
68	8.5	98	-12	230	12
100	11	97	-12	245	12
150	14.5	97	-9	260	12
220	19	95	-9	260	12
320	23	93	-9	260	12
460	30	92	-9	260	12
680	40	95	-9	260	12
1000	50	95	-6	260	12

QUALITY LEVELS [* FORMAL APPROVAL]

DIN: 51517/3 - CLP (68, 100, 150, 220, 320, 460, 680, 1000), ISO: 12925-1 CKD (68, 100, 150, 220, 320, 460, 680, 1000), FIVES CINCINNATI (68, 100, 150, 220, 320, 460, 680, 1000), SIEMENS: Gamesa Gearbox* (68, 100, 150, 220, 320, 460, 680, 1000), MANULI: Gear* (320), ENGEL: Engel Injection Moulding Machines* (320), REINTJES: BV1597/2, BV2060/2* (100), REINTJES: BV1597/4, BV2060/4 * (150), SCHOTTEL: GOST 23652-79 TAP-15V * (68, 100, 150, 220), IBERCISA* (220, 320), AGMA: 9005-F16 (68, 100, 150, 220, 320, 460, 680, 1000), AIST: 224 (US Steel 224) (68, 100, 150, 220, 320, 460, 680, 1000), DAVID BROWN: S1.53.101 Type M, A & E (68, 100, 150, 220, 320, 460, 680, 1000).

7. OILS FOR COMPRESSORS

At Repsol we know that the reliability and efficiency of **air compression, process gases, refrigerant gases or vacuum pump equipment** are key to the proper functioning of your installations. Therefore, the correct selection of the lubrication system is an essential part of the maintenance systems.

That is why we have formulated a range of high quality lubricants with excellent refined bases and the latest additive technologies that cover all the needs required by the different types of compressors on the market.

The Repsol range of lubricants includes highly refined paraffinic oils for normal working conditions, as well as other long-life synthetic technology oils for those compressors with more severe operating conditions.



MAKER SYNTHETIC THOR 100



Ester-based synthetic lubricant recommended for the lubrication of reciprocating and rotary compressors under severe operating conditions, requiring maximum durability of the oil's service life.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	Auto-ignition Temperature[°C]	Welding load 4 balls [kg]
100	10.2	85	-33	274	425	130

QUALITY LEVELS [* FORMAL APPROVAL]

MACGREGOR (HATLAPA, PORSGRUNN, PUSNES)*, SPERRE: X-Range Compressors*, DIN: 51506 VDL, ISO: 6743/3 DAB, DAJ, DGE, DVE.

MAKER MERAK VDL



Oil recommended for the lubrication of cylinders and mechanisms of rotary and reciprocating compressors, whether air or inert gas, having high discharge temperatures.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Oxidation with Fe ₂ O ₃	
				Conradson Carbon %	Evaporation Losses %
46	6.8	98	-12	1.2	5.0
68	8.5	98	-12	2.7	4.5
100	11	97	-12	3.0	3.0

QUALITY LEVELS [* FORMAL APPROVAL]

DIN: 51506 VDL (100, 46, 68), ISO: 6743/3 DAA, DAG, DGA, DGB y DVA (100, 46, 68), MACGREGOR (HATLAPA, PORSGRUNN, PUSNES)* (100), OIL-TECH, ref. AL-34877 certified (100, 46, 68).

MAKER ARIES TURBO GAS CC



Oil made with hydrogenated bases for lubrication of high generation turbines and combined cycles (steam turbines, gas turbines and turbo compressors), also for ammonia compressors.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	Time for neutralisation no. 2 [h]
46	6.8	98	-12	1.2	5.0
68	8.5	98	-12	2.7	4.5

QUALITY LEVELS [* FORMAL APPROVAL]

DIN: 51515, L-TGP/ 51506 VDL (32, 46), SIEMENS: TLV 901304 and TLV 901305 (Turbojets with & without Gearbox) (32, 46), GEK: 107395A (32), GEK: 46506E, 32568J, 28143B, 101941A, 120498 and 27070 (32, 46), ISO: 6743/5 TGE/TSE (32, 46), REINTJES: BV2327* (46), ALSTOM: HTGD 90117 V0001T (32, 46), SOLAR: ES9-224AA Class II (32, 46), MAN: 10000494596-Rev.02.* (46), CSN: 65 6620 (32, 46), DOOSAN SKODA: TP0010P* (32, 46), TGM KANIS: WN000023 Rev. 14* (32, 46), SIEMENS: TLV 9013 04* (32), ISO: 6743/3 - DAB, DAH (32, 46), ISO: 6743/4 HM (32, 46), ISO: 6743/6-CKB (32, 46), HOWDEN & KKK (46).

MAKER TURBO ARIES



Lubricating oil for steam turbines requiring high resistance to oxidation and corrosion and very long service life.

ISO GRADE	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	Time for neutralisation no. 2 [h]
32	5.4	100	-15	215	>4000
46	6.8	98	-12	220	>3000
68	8.5	98	-12	230	>3000

QUALITY LEVELS [* FORMAL APPROVAL]

ISO: 6743/5 TGB/TSA [32, 46, 68], ALSTOM: HTGD 90117 V0001T [32, 46, 68], GEK: 46506 E; 32568 J; 28143 B [32, 46, 68], SOLAR: ES 9-224 AA Class II [32, 46], CSN: 65 6620 [32], DOOSAN SKODA: Tp0010P* [32], HOWDEN & KKK* [46], DIN 51515 TD, 51506 VDL, SIEMENS: TLV 901304* [32, 46], SIEMENS: TLV 901305 (Turbosets without Gearbox) [32, 46], DIN: 51506, L-VBL [32, 46, 68], DIN: 51515, L-TD [32, 46, 68], DIN: 51517/2 - CL [32, 46, 68], DIN: 8659-2 [32, 46, 68], ISO: 3498-CKB [32, 46, 68], ISO: 6743/3 - DAA [32, 46, 68].

MAKER ARIES TURBO GAS 80



Turbine lubricating oil with MIL 17331H specification.

Viscosity at 40°C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	Time for neutralisation no. 2 [h]
80	9.5	95	-12	250	>1000

QUALITY LEVELS [* FORMAL APPROVAL]

MIL-PRF-17331K (NATO O-250), DIN: 51515, L-TGP, GEK: 101941a, 32568f, ISO: 6743/4 HM, ISO: 6743/5 TGE, ISO: 6743/6-CKB, SIEMENS: TLV 9013 04.

8. GAS ENGINE OILS

GENERATOR LONG LIFE GAS 4005



Long-life lubricating oil that incorporates hydrogenated bases and the latest generation additives that increase the change intervals with respect to traditional mineral oils for gas cogeneration. Suitable for modern stationary gas engines that use natural gas as fuel and require the use of an oil with a maximum ash content of 0.5%. Its balanced formulation allows it to resist oxidation and the nitration present in this type of engines operating under severe conditions much better than conventional lubricants. For applications where biogas or other types of gas are used as fuel, the service life of the lubricant will depend on the level of contaminants in the gas.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
40	118	13.2	107	-12	>225	5

QUALITY LEVELS [* FORMAL APPROVAL]

BERGEN* for B35:40 engines, K-GAS, CR-G, CATERPILLAR TR 2105 CG132, CG170, CG260* engines, CUMMINS* QSK60 engines, INNIO JENBACHER TA 1000-1109* for all types of 2, 3, 4 and 6 Series (F&J) engines using natural gas as fuel. Also suitable for CAT. MAN 3271-2, MAN ENERGY SOLUTIONS* (formerly DIESEL & TURBO MEDIUM-SPEED ENGINES), MWM TR 2105*, WÄRTSILÄ.

GENERATOR SUPER LONG LIFE GAS 4005



Latest generation lubricating oil specially designed for stationary gas engines that require extended change periods. This product is formulated with base oils with a higher degree of refinement than conventional oils. Together with an innovative additive technology it gives excellent performance, with very high resistance to oxidation and optimum TBN retention. This allows you to increase change periods over other products designed for similar applications.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
40	116	13.2	107	-36	>210	5.7

QUALITY LEVELS [* FORMAL APPROVAL]

BERGEN* for B36:45, B35:40, K-GAS C26:33, CATERPILLAR engines (field test engines G-3516), WÄRTSILÄ for 175SG, 220SG, 255SG, 285SG, 315G, 345G, 505G, 20DF, 31DF, 32DF, 34DF, 46DF, 50DF* engines, WAUKESHA* COGENERATION/GAS COMPRESSION APPLICATIONS.

GENERATOR SUPER MOTOR GAS 4005



Long-life mineral lubricating oil specially designed to meet the lubrication requirements of modern stationary gas engines using natural gas as fuel. Contains a maximum ash content of 0.5%, minimising deposit formation and ensuring maximum performance and uptime. Allows longer oil change periods and minimises maintenance costs.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
40	125	13.6	102	-21	>225	6.4

QUALITY LEVELS [* FORMAL APPROVAL]

BERGEN para motores K-G1/K-G2/K-G3, CATERPILLAR TR 2105 motores CG132, CG170, CG260*, GUASCOR, INNIO JENBACHER TA 1000-1109* para motores 2,3,4,6C&E para gas tipo A (gas natural), MWM TR 2105*, WÄRTSILÄ, WAUKESHA, BAUDOUIN (homologación en proceso).

GENERATOR EXTRA LONG LIFE GAS 4005



Very high performance lubricating oil specially designed for stationary gas engines. This product has been developed in response to the new generation of engines that work at higher pressures and temperatures in the combustion chamber to achieve greater efficiency and performance. Its formulation incorporates base oils with a higher degree of refinement than conventional ones, together with advanced additive technology that provides superior performance in terms of cleanliness and reduction of deposits in the engine. This avoids phenomena such as valve recession and pre-ignition, protecting the internal parts of the engine exposed to high loads.

SAE GRADE	Viscosity at 40 °C [cSt]	Viscosity at 100 °C [cSt]	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN [mg KOH/g]
40	120	13.8	107	-30	256	7.5

QUALITY LEVELS [* FORMAL APPROVAL]

BERGEN* for engines B36:45, B35:40, K-GAS, C26:33, INNIO JENBACHER TA 1000-1109 * for engines type 2, 3, 4 and 6 H&K, including 624 with fuel gas type A, MWM (In-Process Approval), WÄRTSILÄ (In-Process Approval), WAUKESHA Cogeneration/Gas Compression Applications*.

GENERATOR MOTOR GAS HTM 40



Mineral lubricating oil for stationary gas engines, both naturally aspirated and turbocharged. Suitable for a wide variety of gases such as natural gas, biogas, landfill gas, process gas or others with higher sulphur content than natural gas (after consultation with the manufacturer). It is specially formulated for applications where manufacturers demand a product with high alkaline reserve and medium ash content.

SAE GRADE	Viscosity at 40 °C (cSt)	Viscosity at 100 °C (cSt)	Viscosity Index	Pour Point [°C]	Flash Point [°C]	TBN (mg KOH/g)
40	130	13.2	96	-12	>220	8

QUALITY LEVELS [* FORMAL APPROVAL]

API CD, BERGEN old engines KG-1, KG-2, KG-3 for biogas as fuel, GUASCOR, INNIO JENBACHER 1000-1109 (for engines installed until September 2009), PERKINS 4008 TESI, WAUKESHA.

9. PNEUMATIC TOOL OILS

MAKER ASTRA



Fluid for lubrication of drills, hammers and pneumatic tools in severe working conditions, as well as for pneumatic mechanisms that require a fluid with the capacity to capture humidity avoiding its contact with metallic surfaces (de-emulsion test values of 0-0-80 after 30 minutes).

SAE GRADE	Viscosidad a 100 °C	Viscosity Index	Pour Point [°C]	Flash Point [°C]	4 Balls Tread diameter at 40 kg [mm]	Water separability [ml]
46	7	100	-24	220	0.42	0-0-80
100	11.3	97	-18	230	0.36	0-0-80
150	14.7	97	-15	230	0.36	0-0-80

QUALITY LEVELS [* FORMAL APPROVAL]

Atlas Copco, Gardner Denver, Ingersol Rand, ISO: 6743/11 - PAC/PBC.

10. ANTIFREEZE

GUARD COOLANT OAT MQ



Engine coolant based on ethylene glycol. Additive with totally organic inhibitors that give it an excellent protection capacity against corrosion of all metals, especially aluminium and other light alloys present in engine cooling circuits. Although it can be used in all types of cooling circuits (aluminium, copper, cast iron) it is particularly recommended for high pressure aluminium engines where high temperature protection is very important.

COLOUR	% MEG.	Density at 20 °C [g/cm ³]	Freezing Point [°C]	Dilution
MAGENTA	50%	1.068	-40	50%

QUALITY LEVELS [* FORMAL APPROVAL]

DAF: 74002*, DEUTZ: DQC CB-14*, MAN: 324 type SNF*, MB: 325.3 (concentrated)*, 326.3 (diluted), ASTM: D3306/D4985/D6210, BS: 6580, CATERPILLAR: Motoren GmbH & Co.KG GCM34, FORD: WSS-M97B44-D, GM: GMW 3420, JENBACHER: TA 1000-0200, RENAULT: 41-01-001/- S Type D, RENAULT: Trucks, SAE: J 1034 / J 814, UNE: 26-361-88, VW: 774F [G 12+]/TL-774D [G 12].

GUARD COOLANT PSI-OAT MQ



Engine coolant antifreeze based on ethylene glycol with organic, silicate and phosphate additives (PSi-OAT). It offers maximum protection against corrosion of all metals and alloys present in the cooling circuits of the latest generation of vehicles. Although it can be used in all types of cooling circuits, due to its high thermal resistance it is especially recommended for high-pressure aluminium engines.

COLOUR	% MEG.	Density at 20 °C [g/cm ³]	Freezing Point [°C]	Dilution
MAGENTA	50%	1.072	-38	50%
MAGENTA	30%	1.050	-15	30%

QUALITY LEVELS [* FORMAL APPROVAL]

VW TL: 774-C, D, F, G, J, L [G11, G12, G12+, G12++, G13, G12evo], AFNOR: 15-601, ASTM: D 3306, BMW: LC 87, LC 97, LC 18, BS 6580:2010, CHRYSLER: MS 7170, FVV R 530:2005, JIS: K2234:2018, Ö-Norm.

11. GREASES

To ensure the excellent performance of your machinery, the Repsol team offers you high-performance **lubricating greases**. With this complete range, the needs of the most diverse industrial sectors are covered.

It is possible to select from multi-purpose greases which cover the lubrication needs of the vast majority of installations, to special products capable of working under very demanding conditions of loads, temperatures or environmental contamination. Following the **most demanding standards and quality norms**, the exclusive formulation of our greases provides excellent performance in all types of machinery, increasing its useful life and providing an **extra reliability**, making the range of greases from Repsol the best investment for your company.



Extreme Pressure Greases

PROTECTOR LITHIUM EP



Grease for all types of bearings that support loads and vibrations (steel, rolling mills, mining, PW machinery), couplings, chains, guides, shear bearings, rolling mills (blades, bearings, supports...).

PRODUCT	BASE	THICKENER	NLGI	DROPPING POINT	WORKING TEMPERATURE	QUALITY LEVELS [* FORMAL APPROVAL]
R0 V150	Mineral base (150 cSt)	Lithium	0	185 °C	-20 °C 100 °C	DIN 51502 GP OG - 20 US Steel 370 and 375
R1 V150	Mineral base (150 cSt)	Lithium	1	190 °C	-20 °C 120 °C	DIN: 51825 KP 1K-20 US Steel 370 and 375 THYSSENKRUPP: 49*
R2 V150	Mineral base (150 cSt)	Lithium	2	195 °C	-20 °C 120 °C	DIN: 51825 KP 2K-20 US Steel 370 and 375 ENGEL GAMESA GEARBOX: Industrial Gearboxes* THYSSENKRUPP: 55*
R3 V150	Mineral base (150 cSt)	Lithium	3	200 °C	-20 °C 120 °C	DIN 51825 KP3K - 20 US Steel 370 and 375

PROTECTOR LITHIUM MOLYB R2 V150



Lubrication of mechanisms exposed to very severe services, involving sliding, very high loads and long lubrication periods (plain bearings, hydraulic hammer bearings, fifth wheel, rolling mills etc.).

PRODUCT	BASE	THICKENER	NLGI	DROPPING POINT	WORKING TEMPERATURE	QUALITY LEVEL
PROTECTOR LITHIUM MOLYB R2 V150	Mineral base (150 cSt)	Lithium	2	185 °C	-20 °C 120 °C	DIN 51825 KPF 2K-20

PROTECTOR LITHIUM COMPLEX MOLYB R2 V320



Excellent performance in severe conditions thanks to its extreme pressure additives and its 3% molybdenum disulphide. It also incorporates a specific additive to protect equipment against oxidation at high temperatures and corrosion.

PRODUCT	BASE	THICKENER	NLGI	DROPPING POINT	WORKING TEMPERATURE	QUALITY LEVEL
PROTECTOR LITHIUM COMPLEX MOLYB R2 V320	Mineral base (320 cSt)	Lithium Complex	2	>260 °C	-10 °C 150 °C	DIN 51502 KPF 2N-10

Greases for special applications

PROTECTOR OGL R00 V1500



Lubrication of highly loaded open gears and girth gears in the cement, steel, mining, chemical and sugar industries.

PRODUCT	BASE	THICKENER	NLGI	DROPPING POINT	WORKING TEMPERATURE	QUALITY LEVELS [* FORMAL APPROVAL]
PROTECTOR OGL R00 V1500	Semi-synthetic base (1500 cSt)	Aluminium complex	00	160 °C	-10 °C 120 °C	DIN: 51502 OGP 00K-10 THYSSENKRUPP: 71*

12. MINING INDUSTRY, OPENCAST



1 HYDRAULIC DRILLING RIGS:
MAKER TELEX E 32/46/68
NAVIGATOR TO-4 SAE 10/30/50
PROTECTOR LITHIUM MOLYB R2 V150
PROTECTOR LITHIUM COMPLEX MOLYB R2 V320

2 PNEUMATIC DRILLS:
MAKER ASTRA 100/150

3 PORTABLE SCREW COMPRESSOR:
MAKER MERAK VDL 46/68/100

4

LOADING AND TRANSPORT EQUIPMENT: DUMPERS, PAYLOADERS, BACKHOE LOADERS

• DIESEL ENGINE:

GIANT 9630 LS-LL 10W-40
 GIANT 9530 LL 10W-40
 GIANT 7630 LS 15W-40
 GIANT 7530 10W-40
 GIANT 7530 15W-40
 GIANT 1060 SAE 40

• HYDRAULIC TRANSMISSION AND TORQUE CONVERTER:

NAVIGATOR TO-4 SAE
 GIANT 1020 SAE 10W
 FARMER ORION UTTO
 AUTOMATOR ATF III
 AUTOMATOR ATF II

• HYDRAULIC SYSTEM:

NAVIGATOR TO-4 SAE 10W
 GIANT 1020 SAE 10W
 MAKER TELEX E 32/46
 MAKER BIO TELEX 46/68

• FINAL DRIVES, GEARBOXES AND DIFFERENTIALS:

NAVIGATOR TO-4 SAE 50
 NAVIGATOR LL 80W-90
 NAVIGATOR LL 85W-140
 NAVIGATOR HQ GL-5 80W-90
 NAVIGATOR HQ GL-5 85W-140
 NAVIGATOR LSD 80W-90

• COOLING SYSTEM:

GUARD COOLANT OAT MQ
 GUARD COOLANT PSI-OAT MQ

• GREASE POINTS:

PROTECTOR LITHIUM MOLYB R2 V150
 PROTECTOR LITHIUM EP



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SHOVELS / CRANES

• DIESEL ENGINE:

GIANT 9630 LS-LL 10W-40
 GIANT 9530 LL 10W-40
 GIANT 7630 LS 15W-40
 GIANT 7530 10W-40
 GIANT 7530 15W-40
 GIANT 1060 SAE 40

• SPROCKET WHEELS:

PROTECTOR OGL R00 V1500

• HYDRAULIC SYSTEM:

NAVIGATOR TO-4 SAE 10W
 MAKER TELEX E 32/46
 MAKER BIO TELEX 46/68

• FINAL DRIVES/ GEARBOXES:

NAVIGATOR TO-4 SAE 50

• TRACTION MOTORS:

MAKER SUPER TAURO SYNTH 320/220

• COOLING:

GUARD COOLANT OAT MQ 50%
 GUARD COOLANT PSI-OAT MQ

• GREASE POINTS:

PROTECTOR LITHIUM MOLYB R2 V150
 PROTECTOR LITHIUM EP

DRILLS AND EQUIPMENT

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JUMBO DRILLS

• **MOTOR DIESEL** - Deutz, Caterpillar, MWM, Detroit Diesel:

GIANT 9630 LS-LL 10W-40
GIANT 9530 LL 10W-40
GIANT 7630 LS 15W-40
GIANT 7530 10W-40
GIANT 7530 15W-40
GIANT 1060 SAE 40

• **HYDROSTATIC TRANSMISSION** - Clark:
NAVIGATOR TO-4

• **HYDROSTATIC TRANSMISSION:** - Sundstrand:

FARMER OTION UTTO
MAKER TELEX HVLP 32/46/68
MAKER TELEX E 32/46/68

• **DIFFERENTIAL - FRONT AND REAR:**

NAVIGATOR HQ GL-5 85W-140
NAVIGATOR LL 85W-140

• **WET BRAKES** - Rockwell

FARMER ORION UTTO

• **MAIN HYDRAULICS AND STEERING:**

FARMER ORION UTTO
MAKER TELEX HVLP 32/46/68
MAKER TELEX E 32/46/68
MAKER BIO TELEX 46/68

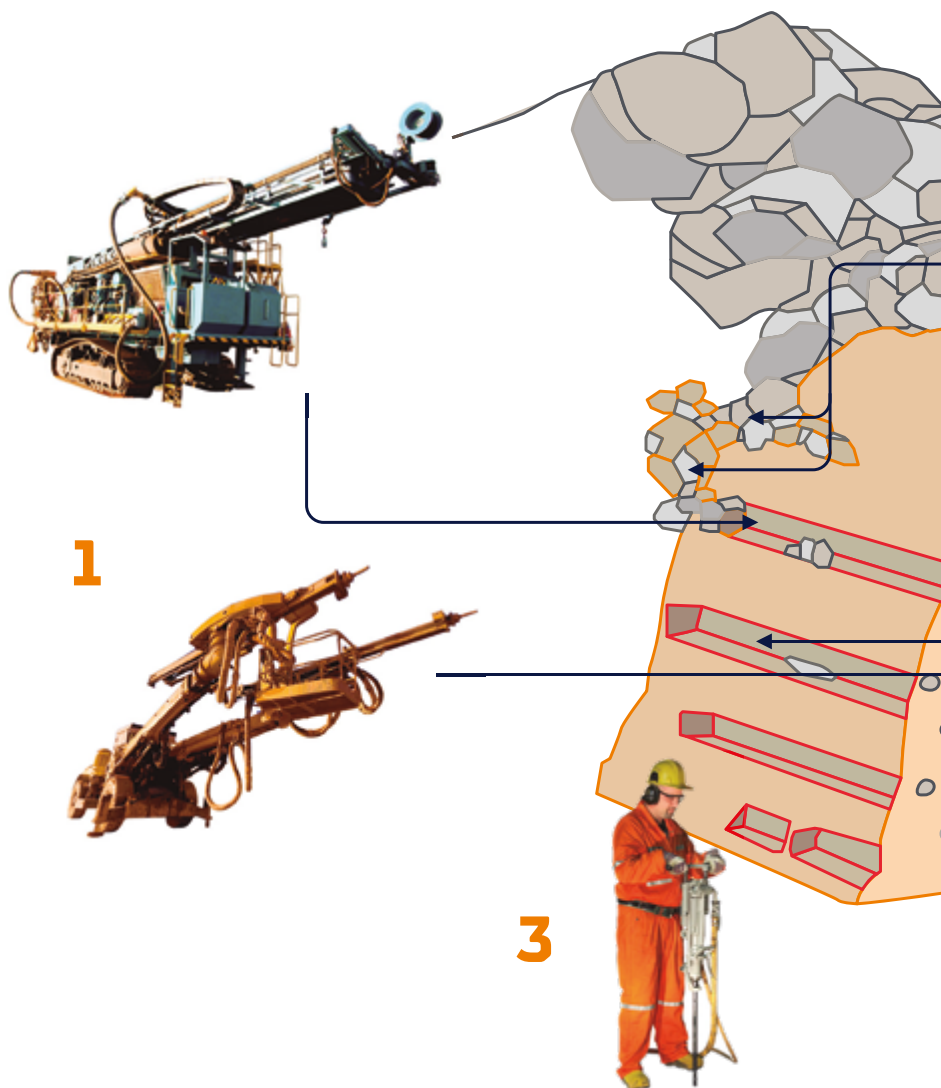
• **FRONT AND REAR WHEEL HUBS, REAR DIFFERENTIAL:**

PROTECTOR LITHIUM MOLYB R2 V150

• **UNIVERSAL JOINTS,**

MISCELLANEOUS AND OTHER ITEMS:

PROTECTOR LITHIUM MOLYB R2 V150
PROTECTOR LITHIUM COMPLEX MOLYB R2 V320



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HAND-HELD DRILLS:

Air Line

MAKER ASTRA 100/150

2

LOW-PROFILE EQUIPMENT: DUMPS, SCOOPS

• **MOTOR DIESEL - Deutz, Caterpillar, MWM, Detroit Diesel:**

GIANT 9630 LS-LL 10W-40
GIANT 9530 LL 10W-40
GIANT 7630 LS 15W-40
GIANT 7530 10W-40
GIANT 7530 15W-40
GIANT 1060 SAE 40

• **TORQUE CONVERTER AND TRANSMISSIONS**

- **Borg & Beck/Clark:**

FARMER ORION UTTO

- **Sundstrand:**

FARMER ORION UTTO

CHAIN BOX:

NAVIGATOR TO-4

• **DIFFERENTIAL - FRONT AND REAR - John Deere, Ford:**

FARMER ORION UTTO

• **DIFFERENTIAL - FRONT AND REAR - Clark, Rockwell, Rock Torque**

NAVIGATOR HQ GL-5 85W-140
NAVIGATOR LL 85W-140

• **WET BRAKES - Rockwell:**

FARMER ORION UTTO

• **FLAT WHEEL HUBS - Clark, Rockwell, Rock Torque:**

NAVIGATOR HQ GL-5 85W-140

• **MAIN HYDRAULIC SYSTEM AND STEERING BOOSTER - ALL HYDRAULIC PUMPS:**

FARMER ORION UTTO

• **FRONT AND REAR WHEEL HUBS, REAR DIFFERENTIAL:**

PROTECTOR LITHIUM MOLYB R2 V150

• **BEARINGS (John Deere only) CHAIN LUBRICATOR, MAIN HYDRAULIC RESERVOIR:**

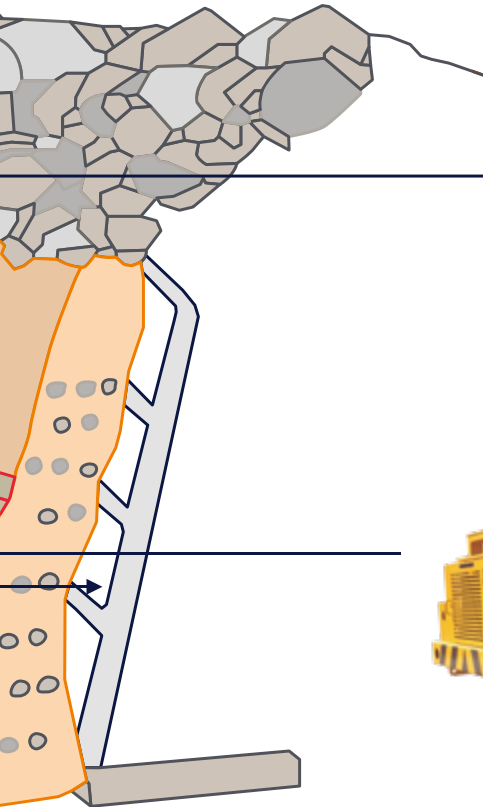
FARMER ORION UTTO

• **UNIVERSAL JOINTS, MISCELLANEOUS AND OTHER ITEMS:**

PROTECTOR LITHIUM MOLYB R2 V150

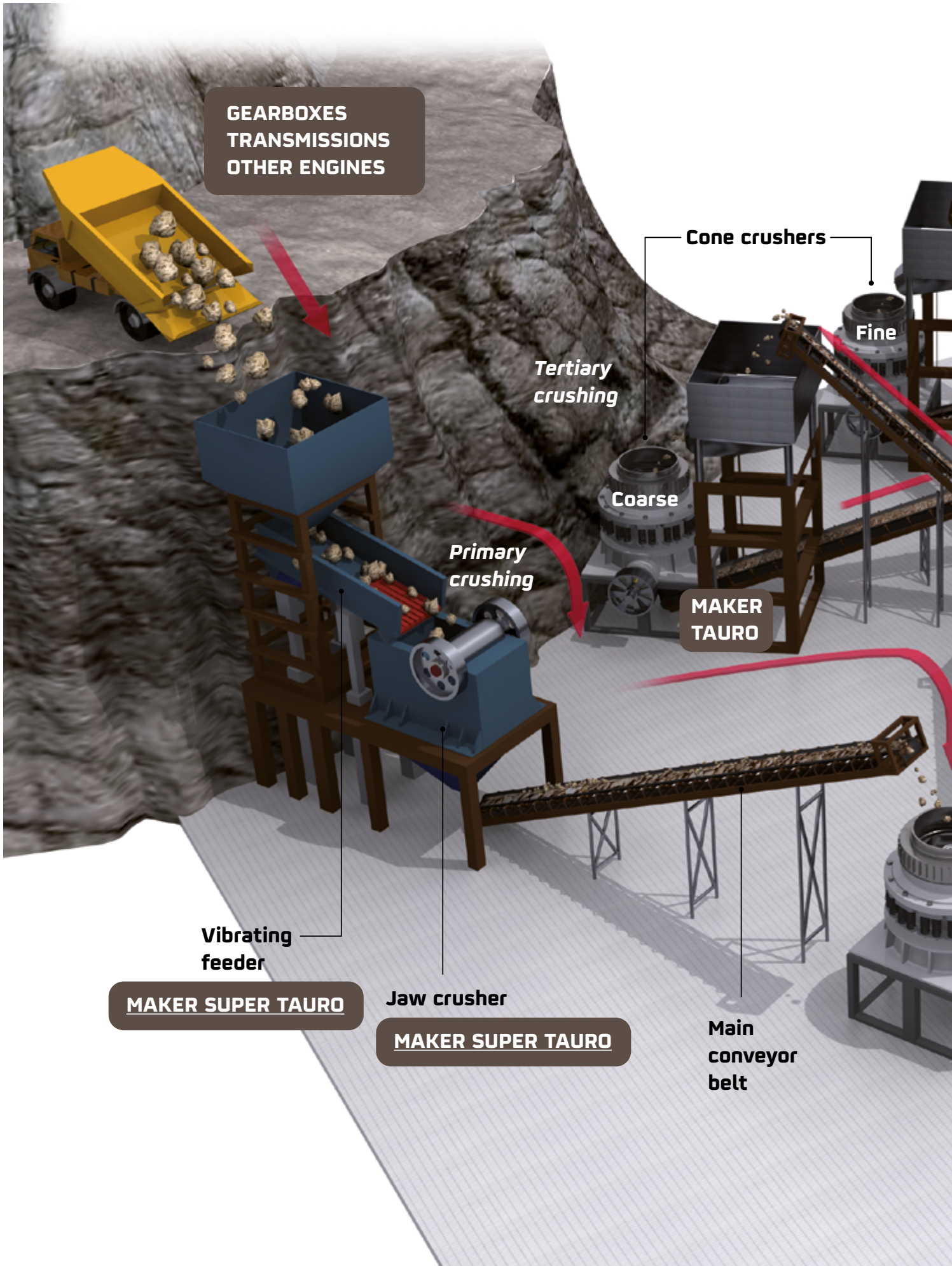
• **AIR-OPERATED HYDRAULIC BRAKES:**

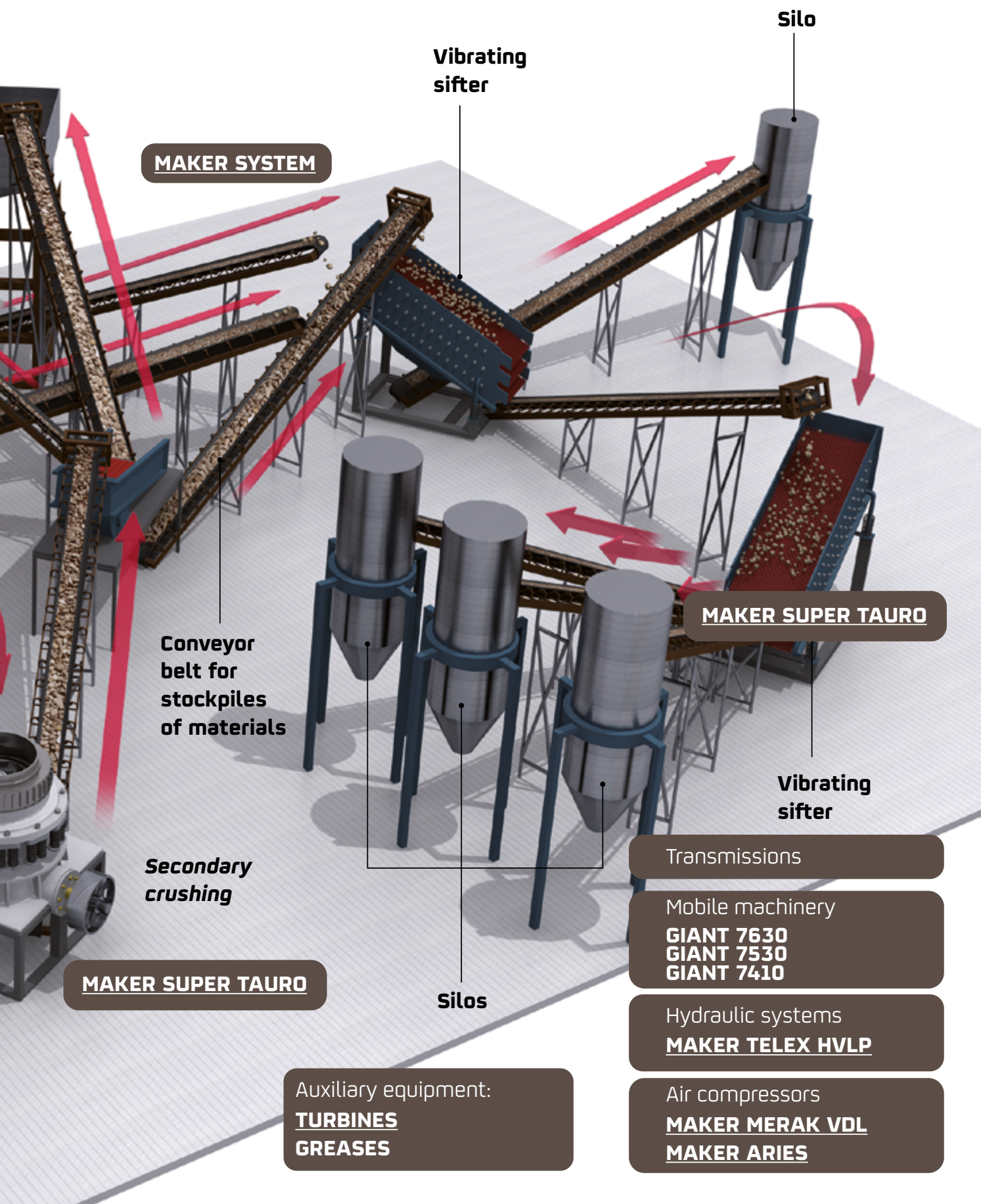
FARMER ORION UTTO



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13. TECHNICAL SUPPORT SERVICES

IN-SERVICE OIL ANALYSIS

At Repsol we know how important it is to ensure that your machines and mechanisms work in the best conditions. That is why it is essential to ensure that they are properly lubricated.

The **ADLIS programme** is an exclusive service available to our customers, based on more than 20 years' experience in lubricant analysis. By periodically analysing a sample of the oil in service in our laboratory, the programme allows you to know the state and evolution of your machines and mechanisms, while predicting mechanical failures before they occur.



Advantages of the ADLIS programme:

- Improves the performance and productivity of your equipment.
- Reduces maintenance costs and unscheduled downtime.
- Extends the useful life of lubricants and mechanical components by minimising the associated replacement costs and capital tied up in spare parts.
- Allows maintenance and control interventions to be scheduled.
- Develops a significant improvement in the optimal working conditions of lubricants and components.

Other services:

Technical Support.

Our team of technical specialists is available both to give advice in your factory and to provide specialised lubricant training.

On-site support services.

We offer expert advice on lubrication best practices, lubrication performance improvement, sampling selection and machinery troubleshooting to help increase machine life and efficiency.

On-site lubrication services.

Customised lubricants are developed to solve specific problems.

14. SALES OFFICES



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