



MAK[®]
LUBRICANTS

MAK[®]

LOADED WITH BENEFITS

LUBRICANTS & SPECIALITIES



MAK[®] *makes it possible.*

Lubricating Oils and Specialities

PRODUCT (Category)	VISCOSITY GRADES / PERFORMANCE LEVEL	APPLICATION / REMARKS
Bearing Oils		
MAK CABOL (General Purpose Machinery Oil)	ISO VG: 15, 22, 32, 46, 68, 100, 150, 220, 320 & 460. IS 493:1981 (Part 1) [Reaffirmed June 2014]	General purpose machinery oils for non-critical and mild operating condition in bearings, gears etc.
MAK CANE CRUSHING OIL (Bearing Oil-Bituminous)	Grade: 40,80 & 120. Proprietary grades	It is suitable for heavily loaded cane crushing mill roll bearing applications in sugar industries. Major Approvals: MAK Cane Crushing Oil 40 is approved by Walchandnagar and for its Sugar Division.
MAK CANE CRUSHING OIL NB40 (Bearing Oil - Non Bituminous)	Proprietary grade	Non-bituminous oil for heavily loaded, slow-speed mill roll bearing in sugar mills. Being non-bituminous in nature, it is easier to dispose off the used lubricant.
MAK FILM BEAR (Oil-film bearing)	ISO VG: 46,68,100,150,220 IPSS: 1-09-001-97	For oil film bearings operating under high temperature and conditions with possibility of water ingress into the system. Major Approvals: MAK Filmbear 100 is approved by Bhilai Steel Plant for their plate mill and wire rod mill.
MAK STEEL OILS (Premium grade Morgan Bearing oil)	VG 257, 320, 381, 460, 521 & 680 Meets OEM specification MORGOL (Revision 1.0 a) IPSS: 1-09-001-97.	It is suitable for Morgan Bearings used in Roll Neck of Steel Plants where the conditions are very severe due to high temperature coupled with proximity to water and ingress of foreign materials. Major Approvals: MAK Steel-460 is approved by Bhilai Steel Plant for use in gear box applications in plate mill.
MAK STEEL EP OILS (Premium grade EP type circulating Oil)	ISO VG: 100 Meets Morgan No Twist Mill & Danielli Specification	Suitable for use in High Speed No-Twist Wire Rod mill. Also suitable for lubrication of Bearings & Gears of circulation system in steel plants. Major Approvals: 1. New Engineers Pvt. Ltd for use in their NTM blocks.
Compressor Oils		
MAK COMPRESSOR OIL (Compressor Oil)	ISO VG: 32, 46, 68, 100, 150, 220 & 320 DIN 51 506 VDL ISO / DP 6521 IS 13256:1992 DAA & DAB [Reaffirmed June 2014]	For high performance reciprocating & rotary air compressors where air discharge temperatures may go up to 220°C. Major Approvals: RDSO for use in Expressors / Compressors on diesel and electric locomotives of Indian Railways.
MAK COMPRESSOR OIL C	ISO VG: 100, 150 & 220 Proprietary grade	Cylinder lubrication in reciprocating single & multi-stage air compressors handling moist air and moist natural gas.
MAK TURBOLAC (Ammonia & Syn-Gas Compressor Oil)	ISO VG: 46 IS 1012:2002 [Reaffirmed April 2013]	Recommended for Ammonia & syn-gas centrifugal and screw type turbo compressors. Major Approvals: M/s BHEL for their turbo machines being used in ammonia and syn-gas services.
MAK TURGONA (Compressor Oil)	SAE Grade: 30,40 & 50 Proprietary grade	These oils are recommended for reciprocating and vane type air compressors for which straight mineral oils are suitable.
Gear Oils		
MAK AMOCAM (Industrial Gear Oil)	VG 46, 68, 100, 150, 220, 257, 320, 460, 680 & 1000 IS 8406: 1993 (EP Type) [Reaffirmed Dec. 2016] IPSS: 1-09-003 US Steel 224 David Brown S.1.53, 101 DIN 51 517 (Part 3) AGMA 250.04 5EP & AGMA 251.02 5EP	Premium quality EP type industrial gear oil for enclosed gear drives operating at high load and speed conditions. Major Approvals: 1. MAK Amocam 68 - RDSO for Gear Lubricant to IS: 8406-1993 (EP type with Demulsibility, 4 ball test and min. pass load of 12th stage in FZG Niemann Test) 2. MAK Amocam 220-RDSO for Gear Lubricant to IS: 8406-1993 (EP type with Demulsibility, 4 ball test and min. pass load of 12th stage in FZG Niemann Test Walchandnagar Inds- Gear Division and Hyderabad Industries Ltd. 3. MAK Amocam 320 - Walchandnagar Inds-Sugar Division, Gear Division and Cement Division. 4. MAK Amocam 460 - BHEL for Pulverizer Tube Mill, Bhilai Steel plant and Walchandnagar Inds for their Cement Division and Gear division.
MAK AMOCAM PLUS (Premium Industrial Gear Oil)	ISO VG 100, 220, 320, 460 IS 8406: 1993 (EP Type) [Reaffirmed Dec. 2016] US Steel 224 IPSS:1-09-003 DIN 51 517 (Part 3) DAVID BROWN S. 1. 53, 101 AGMA 250.04 5EP & AGMA 251.02 5EP Micropitting performance - Flender AG	Premium quality EP type industrial gear oil, which meets Flenders requirement for anti micropitting gear oil to take care of shock loads. Major Approvals: 1. Bearing manufacturers like FAG & SKF. 2. MAK Amocam Plus 320 - Bhushan Steel for Gear box lubrication in the gear box of their uncoiler and Walchandnagar Inds for their Cement Division. 3. MAK Amocam Plus 460 - Walchandnagar Inds, Cement Division.
MAK ENGOL (Gear Oil - High Viscosity type)	ISO VG: 460, 680, 1000, 1500 IS 1589: 1994 (Type 1) [Reaffirmed Dec. 2016]	Bath lubricated gears which operate at low speeds and normal loads. Major Approvals: MAK Engol 680 - RDSO for Oil cylinder - Pure mineral to IS: 1589-1994, Gr. VG-680 Type-1

Lubricating Oils and Specialities



PRODUCT (Category)	VISCOSITY GRADES / PERFORMANCE LEVEL	APPLICATION / REMARKS
MAK ENGOL J (Gear Oil - Compounded Type)	ISO VG: 460, 680, 800, 1000 & 1500 IPSS: 1-09-010 IS 1589:1994 (Type 2) [Reaffirmed Dec. 2016]	Highly viscous, compounded oil for lubrication of gear boxes and for worm gears where sulphur/phosphorus type EP additives are not recommended. Major Approvals: MAK Engol J 460 - Walchandnagar Inds for its Sugar Division.
MAK LITHUMOL (Gear Oil - High Viscosity type)	ISO VG: 680 & 1000 IS 1589: 1994 (Type 1) [Reaffirmed Dec. 2016]	Spur, helical & worm type gears where high viscosity oils are required.
MAK LITHUMOL J (Compounded type high viscosity gear oil)	ISO VG: 680 IS 1589: 1994 (Type 2) [Reaffirmed Dec. 2016]	Recommended for use in gear boxes where high viscosity and compounded type of oils are required.
Gear Compounds		
MAK CAMEX COMPOUND (Open Gear Compound)	Grades: D & H - IS 9554:1980 [Reaffirmed June 2014] B, F & G: Proprietary grades	Open gears and slow-speed enclosed gears where high viscosity adhesive products are required. Major Approvals: 1. MAK Camex Compound D is approved by Walchandnagar Inds for its Sugar Division. 2. MAK Camex Compound H is approved by Hyderabad Industries Ltd.
MAK CAMEX TAK 40 (Open Gear Compound)	Proprietary grade	Open gears working under heavy and shock loads under varying operating conditions. Major Approvals: MAK Camex Tak 40 - BHEL Pulverizer Tube Mill.
Heat Transfer Fluids		
MAK THERMIC FLUID A (Heat Transfer Fluid)	IS 14745:1999 [Reaffirmed April 2014]	It is ideal for a wide range of closed-to-atmosphere (Inertly sealed) applications up to 300 °C.
Heat Treatment Oils		
MAK MARQUENCH OIL 220 (Marquenching Oil)	IS 4543:1977 [Reaffirmed June 2014]	Suitable for marquenching application at bath temperatures of 150 to 200°C and recommended for mass production of high precision, high quality products such as automotive gears, bearings, tools, dies etc.
MAK QUENCHING OIL C (Quenching Oil - Compounded Type)	IS 2664:1980 [Reaffirmed April 2014]	Quenching operations where a compounded oil is preferred. Major Approvals: MAK Quenching Oil C-RDSO for Quenching Oil to IS:2664-1980/Reaffirmed-2004 for quenching operation of Metals
MAK THERMOL (Quenching Oil)	ISO VG 22, 32, 68 & 100 IS 2664:1980 [Reaffirmed April 2014]	MAK THERMOL 22 (cold oils) Quenching Medium for normal quenching operation. MAK THERMOL 68 & 100 (hot oils) are used as quenching medium in general heat treatment applications where high quenching speed is desired. Suitable for quenching application at bath temperatures upto 100°C. Major Approvals: Mak Thermol 22 & 32 – RDSO for quenching operation.
Hydraulic Oil		
MAK HYDROL (Hydraulic Oil Anti-wear)	ISO VG: 15, 22, 32, 46, 68, 100, 150, 220, 320 & 460 Non ISO VG 12, 37, 57, 81, 121 & 176 IS 3098:1983 [Reaffirmed June 2014] IPSS: 1-09-022 IS 10522:1983 [Reaffirmed June 2014] Vickers V-104 C Vane pump test DIN 51 524 Part 1 HL Type	Hydraulic systems and a wide variety of circulating systems of industrial and automotive equipments. They are also used in general manufacturing, metal and power equipments. Major Approvals: 1. MAK Hydrol 32, 46, 68, 100 & 150 - Bharat Electronics Ltd. 2. MAK Hydrol 32, 46, 68 & 150 - RDSO as Hydraulic oil 3. MAK Hydrol 46, 68 & 220 - Bhilai Steel Plant. MAK Hydrol 68 & 150 - Walchandnagar Inds for its Sugar Division. 4. MAK Hydrol 220, 320 & 460 - Walchandnagar Inds for its Gear Division.
MAK HYDROL AW (Hydraulic Oil Anti-wear)	ISO VG: 32, 46, 68 IS 3098:1983 [Reaffirmed June 2014] IPSS: 1-09-022 IS 10522:1983 [Reaffirmed June 2014] Vickers V-104 C Vane pump test; DIN 51 524 Part 1 HL Type	General hydraulic equipment in control and power transmission systems and for circulating equipments. Major Approvals: 1. MAK Hydrol AW 68 is approved by Walchandnagar Inds in its Sugar Division.
MAK HYDROL HLP (Hydraulic Oil - Extra Heavy Duty Anti-wear Type)	ISO VG: 32, 46, 68, 100 & 150 IS 11656:1986 [Reaffirmed April 2013] FZG Niemann EP 11th FLS DIN 51 524 Part 2 HLP Type Denison HF-0 & HF-2 Eaton Vickers 1-286-S & M-2950-S Eaton Vickers 35VQ25 Pump Test US Steel 127 Cincinnati Milacron P-70	High pressure hydraulic systems, pumps, industrial hydraulic machinery operating at high speeds, loads and temperatures. Sophisticated high performance electro-hydraulic or controlled systems, numerically Screw and vane type rotary compressors. Major Approvals: 1. MAK Hydrol HLP 32-M/s. Voith (I) Ltd. Hyderabad, BHEL, DGQA and RDSO. 2. MAK Hydrol HLP 68-Barani Hydraulics, Coimbatore, DGQA and RDSO. 3. MAK Hydrol HLP 46 & 100 - DGQA.
MAK HYDROL HLP SC (Super Clean hydraulic Oil)	ISO VG: 32, 46, 68, 100 & 150 IS 11656:1986 [Reaffirmed April 2013] FZG Niemann EP 11th FLS DIN 51 524 Part 2 HLP Type Denison HF-0 & HF-2, Eaton Vickers 1-286-S Eaton Vickers 35VQ25 Pump Test US Steel 127 Cincinnati Milacron P-70	Super clean type oil with NAS value 7 supplied in HDPE barrels. Mostly used in Sophisticated high performance electro-hydraulic or numerically controlled systems and servo valves.

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MAK HYDROL HVLP (Premium quality hydraulic oils High Viscosity Index Extra Heavy Duty)	ISO VG: 32, 46 & 68 IS 11656:1986 [Reaffirmed April 2013] DIN 51 524 Part 3 HVL Type Denison HF-0 & HF-2 Vickers 1-286-S US Steel 127 Cincinnati Milacron P-70	These oils are recommended for high pressure systems and power transmission systems requiring very high viscosity index oil, operating under high speeds, load and temperatures. These oils are also recommended for hydraulic applications with sophisticated high performance electro-hydraulic or numerically controlled systems.
MAK HYDROL CE 68 (Hydraulic Oil)	ISO VG: 68 FZG Niemann EP 11 th FLS IS 11656:1986 [Reaffirmed April 2013] DIN 51524 Part 2 HLP type Denison HF-0 & HF-2 Vickers 1-286-S US Steel 127 Cincinnati Milacron P-70	Zinc free ash less type oil suitable for high pressure hydraulic systems, pumps, industrial hydraulic machineries operating at high speeds, loads and temperatures. Sophisticated high performance electro-hydraulic or numerically controlled systems found in concrete mixture units used in construction applications. Major Approval: M/s: Putzmeister Concrete Machines Pvt. Ltd and Schwing Stetter
MAK HYDROL TQ 32 (Hydraulic Oil for Torque Converters & Fluid Couplings)	3.90-8A of Voith Getriebe, Germany	It is recommended for use in Torque Converters, Fluid Couplings and Turbo Transmission systems.
MAK HYDROVIS POWER 46 (Energy Efficient Hydraulic Oils)	Exceeds DIN 51524 Part III specification	Recommended for all kind of hydraulic systems operating under High Pressure Systems and Power Transmission Systems, requiring very high Viscosity Index, operating under high speeds, loads and temperatures. This is specially developed for use in mobile equipment such as, hydraulic excavators, hydraulic cranes, forestry equipment, construction equipment etc.
MAK FRHF DU 46 (Fire Resistant Hydraulic Oils)	ISO 12922 : 2012 Category HFDU ISO VG 46 & 68	This fluid is polyol ester type fire resistant hydraulic fluid. This is biodegradable in nature and is fortified with anti-wear, anti-corrosion additives etc. Suitable for use in Mining, Steel, Hot Rolling, Glass, Tunneling, Offshore Drilling, Food Processing industries etc. This grade is also suitable for use in hydraulic systems.
Machine Toolway Oils/Slideway Oils		
MAK METAMOL (Machine Toolway Oil)	ISO VG: 32,68 & 220 Proprietary grade	Lubrication of slides & tables of machine tools for both horizontal and vertical guide ways. Major Approvals: MAK Metamol 32,68 & 220 - RDSO as pneumatic tool oil.
MAK METAMOL H	ISO VG: 32, 68 & 220 Performance Level: Cincinnati Milacron Specification GM Ls2-97 Specification	Suitable for machine tools, which have combined hydraulic and way lubrication system. These oils are not recommended for - Cincinnati Milacron specificationscritical hydraulic systems. Oils have excellent adhesion in - GM specification LS2-97 specificationsmachine slideway and also provide capability to operate in the stick-slip region and ability to cater to anti-chatter properties under moderate load conditions.
Marine Engine Oils		
MAK MARINE 301,302,303,304,401,402,403,404, 405,502,503,504 (Marine Engine Oil Trunk Piston, Four-Stroke)	SAE Grades: 30, 40 & 50 API CF	All types of trunk piston engines in medium speed marine engines operating with residual fuels having high sulphur content. Major Approvals: MAK Marine 401,402 & 403 - Fuji DG set.
MAK MARINE CYL 507 (Marine Engine Oil Cylinder Lubrication, Two-Stroke)	SAE Grade 50 API CF	Cylinder lubrication of all types of two-stroke cross-head marine engines burning inferior quality high-sulphur residual fuel oils and used in power generation and marine propulsion. Major Approvals: MAK Marine CYL 507 - M/s MAN DIESELS & TURBO for usage in 2 stroke MAN B&W marine engines.
Metal Working Oils		
MAK SHEROL B (Premium grade Soluble Cutting Oil)	IS 1115:1986 [Reaffirmed April 2013] UK DEFSTAN 91-23 for oil ZX-1 specifications	Soluble cutting oil recommended for cutting operations like drilling, forming, planing, milling, sawing on ferrous & non-ferrous materials, water-to-oil ratios between 20:1 and 30:1. Major Approvals: MAK Sherol B is approved by RDSO and Bharat Electronics Ltd.
MAK SHEROL BN (Soluble Cutting Oil)	IS 1115: 1986 [Reaffirmed April 2013]	Soluble cutting oil recommended for cutting operations like drilling, forming, planing, milling, sawing on ferrous materials. Used at water-to-oil ratios between 20:1 and 30:1
MAK SHEROL EPSS Semi-synthetic Soluble Cutting oil	IS 1115: 1986 [Reaffirmed April 2013]	Water miscible semi synthetic soluble cutting oil with a unique blend of extreme pressure additives, synthetic lubricity esters and corrosion inhibitors. Recommended for use on wide range of machining applications such as sawing, turning, milling, drilling etc. It is suitable for machining of ferrous and non-ferrous materials, including copper, aluminum and its alloys.
MAK SHEROL BS (Semi synthetic soluble cutting Oil)	Proprietary Grade	Semi-synthetic cutting oil for cutting operations like sawing, turning, milling, drilling and other chip forming operations on ferrous & non-ferrous materials. Used at water-to-oil ratios between 20:1 and 30:1 Forms stable emulsion in hard water upto 1000 ppm hardness.

Lubricating Oils and Specialities



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MAK SHEROL SUPER (Semi-Synthetic Soluble Cutting Oil-Chlorine Free)	Proprietary Grade	Semi-synthetic metal working fluid designed for a multitude of machining and grinding operations on both ferrous and non ferrous metals especially of titanium. It does not contain sulfur, chlorine, nitrites, phenols, amines, and other heavy metals.
MAK NORCAM (Neat Cutting Oil, Inactive Type)	Grades: B, C, E & 22 Proprietary grade	For machining yellow metals without fear of staining. Suitable or less severe classes of machining on ferrous metals and are excellent for automatic lathes, screw cutting machines etc. MAK Norcam 22 is designed as multipurpose neat cutting oil. MAK Norcam E is recommended for machining operations on medium machinability metals and also for severe operations on certain highly machinable steels & alloys. Major Approvals: 1. MAK Norcam C - DGQA meeting ZX-6 requirements and RDSO.
MAK TRIPONOL (Neat Cutting Oil Active Type)	Grades: B, C, D, H, R & HX Triponol C meets IS 3065:1985 [Reaffirmed April 2013] B, D, H & R: Proprietary grades	Severe cutting operations on materials difficult to machine. MAK Triponol H is a speciality oil for use in deep boring and gun drilling operations. MAK Triponol D is used in form operation, gives grinding better surface finish and improves gear cutting tool life. MAK Triponol D is approved by M/s. Tata Motors. MAK Triponol R is a specialised metal working oil for grinding of stainless steel strips.
MAK HONEX (Honing Oil)	Grades: A & D Proprietary grade	Light coloured low viscosity oil suitable for super finishing operations like honing and lapping of all ferrous & non-ferrous material. MAK Honex D is suitable for honing of nickel alloys, toughened steel, and ensures very good finishes in short stroke, micro finishing operations on tough materials like bearing steels.
MAK FORM SM (Stamping Oil)	Proprietary grade	It is suitable for use in hot and cold forging large or small fasteners, like nuts, bolts made out of all types of steels.
MAK FORM AL (Aluminum drawing oil)	Proprietary Grade	This oil is suitable for use in wire drawing /forming of Aluminum and Aluminum alloy. It is a premium quality aluminum wire drawing lubricant containing high level of lubricity additives, which facilitate drawing / forming by providing proper lubrication between the metal and the die even at elevated temperatures. It is Suitable for a wide range of Aluminum and Aluminum alloy metal.
MAK FORM BL (Blanking Oil)	Proprietary Grade	Metal forming oil developed specially for blanking, fine blanking and stamping applications. It consists of specially selected combination of anti-wear, EP & polar additives to improve tool life, and delivers surface finish with much cleaner cuts of components.
MAK TRIPONOL TDL (Low viscosity drawing oil)	Proprietary grade	Suitable for use in forging large or small fasteners, nuts & bolts made out of all types of stainless steels, metal tube drawing, blanking and stamping where it performs the most arduous tasks.
MAK TRIPONOL TDH (High viscosity drawing oil)	Proprietary grade	Suitable for cold reducing, pilgering & deep drawing of steel, stainless steel & other high nickel alloys retaining high surface finish.
MAK METAMOL T (Metal Forming Oil)	ISO VG: 68 & 220 Proprietary grade	This oil is used as metal forming lubricant for application such as Car / Cab body drawing operation. Major Approvals: M/s. Telco, Pune, for their cab body drawing operation.
MAK HYDRACUT (Cutting cum Hydraulic oil)	ISO VG: 46 Proprietary grade	This oil can be used for wide range of machining operation ranging from turning, gear generation and broaching. This oil can also be used for hydraulic system of same machine tools.
MAK ROLLUBE 22 (Cold Rolling Oil)	Proprietary grade	It is specially developed for Salem Steel Plant for use in cold rolling stainless steel strip. It is treated with optimum friction reducing agent to minimise friction between rolls and metals, as well as improve surface finish.
MAK ROLLUBE SS	Proprietary Grade	This oil is specially developed for Salem Steel plant for use in cold rolling of Stainless Steel coils of different grades in Sendzimir mills.
MAK SHEROL E (Grinding oil - Water Based)	IS 11186:1985 [Reaffirmed April 2013]	Grinding operations for ferrous metals and alloys. Also used as a quenching medium in certain heat treatment process requiring an aqueous solution. Used at water to fluid ratios between 50 to 80:1.
Off Highway		
MAK CD (Engine Oil - Stationary DG Set / Off highway equipments)	SAE Grade: 10W,30,40,50, 20W-40 IS 13656:2002 Type EDL2 & EPL1 [Reaffirmed Apr 2013] API CF US MIL-L-45199B UK DEF 2101D Caterpillar series 3.	Naturally aspirated, supercharged & turbo charged diesel engines operating under heavy loads in stationary DG-Sets, off-highway, construction, earth moving equipments. SAE 10W is also recommended for use in certain earth moving equipment as transmission oil.

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MAK CD 10W	SAE 10W API CF IS 13656:2002 type EDL2 & EPL1 (Reaffirmed April 2013) US MIL-L-45199 B UK DEF-2101D Caterpillar Series 3	Premium hydraulic oil designed especially for on & off-highway heavy duty application for efficient power transmission under severe operating conditions. Recommended for use in hydraulic systems of different on & off-highway equipments used in mining, construction, material handling, heavy industries, agriculture etc.
MAK HYDROL P (Hydraulic Oil - Exceptionally High VI, Anti-wear type)	ISO VG- 46, 68 & 100 P 46: Proprietary grade P 68: L&T-(R-201-032-11) Index A Specification P 100: L&T-(Z-00-032-42) Index G Specification	Major Approvals: 1. MAK Hydrol P 46 is approved by M/s. TELCO for use in Tata Hitachi Excavators. 2. MAK Hydrol P 68 is recommended for use in small L&T - Komatsu excavators. 3. MAK Hydrol P 100 is approved by M/s Hyderabad Industries Ltd. for use in Demag Excavators. MAK Hydrol P 100 is recommended for use in large L&T - Poclain excavators.
MAK HYDRAULIC TRANSMISSION FLUID C-4 (Hydraulic Transmission oil -off-highway)	SAE Grade: 10W & 30 Type C-4 of Allison Transmission Division of General Motors, USA Caterpillar TO-2	Heavy duty automatic and power shift transmissions of both on-highway & off-highway equipment and earthmoving machinery. Major Approvals: Approved by M/s. Allison Transmission Division of General Motors, USA.
MAK SPIROL BHT	SAE : 10W-30 Meets the requirements of " John Deere JDM J20C " Volvo WB101 " Ford M2C 134D " Massey Ferguson CMS M1141/M1135 " API GL-4	Premium Universal Tractor Transmission Oil (UTTO) specially formulated from superior quality base oils and specially selected performance additive components to cater to the needs of off highway and on-highway vehicles transmission which require lubricating oil with wet-brake performance. Used in power assisted steering & power take-offs (PTO) with wet clutches, automatic transmissions, torque converters, hydrostatic transmissions and off-road / construction equipment (e.g. back hoe loaders) requiring UTTO lubricant with API GL-4 performance.
MAK DH1 15W-40	SAE : 15W-40 Exceeds JASO DH-1 Meets Komatsu KES 07.851 specifications for Engine Oil	High performance diesel engine oil recommended for use in extensive range of construction & mining equipment, industrial equipment, on-highway trucks and power generation.
MAK SPIROL LS 80W-90	SAE Grade: 80W-90 API GL-5, MIL-L-2105D; limited-slip requirements	This is specially formulated for final drives differential which utilize limited-slip clutches and friction discs. These oils contain special friction modifiers and additives to eliminate "chatter" and offer smooth performance throughout a variety of difficult traction situations. The most common limited-slip differentials (mainly used in earthmoving machinery) are of cone or clutch type; MAK SPIROL LS 80W-90 is recommended for these types of differentials to prevent the clutches or cones from chattering. Using regular gear oil can cause noise and rough operation that can damage parts.
MAK METAMOL R (Pneumatic Tool Oil)	VG: 100 & 181 Proprietary grade	Recommended for Percussion type pneumatic tools especially rock drills, where lubrication requirements are critical.
Refrigeration Oils		
MAK FREEZOL (Refrigeration Compressor Oil)	ISO VG: 12, 32, 46, 68 IS 4578:1997. (Reaffirmed June 2014)	All refrigeration compressors of open, hermetically sealed and semi-sealed industrial type, both reciprocating as well as rotary type. Major Approvals: MAK Freezol 32 - approved by M/s. Godrej & Boyce for use in their compressors.
MAK FREEZOL CS (Refrigeration Compressor Oil)	ISO VG: 68 Proprietary grade	Suitable for compressors of cold storage plants where temperatures go upto - 10 Deg. C.
Rust Preventive Oils		
MAK RUSTROL 152 (Oil type - Rust Preventive Oil)	Proprietary grade	Protecting steel sheets and strips, metal stacks during the interprocess storage period.
MAK RUSTROL 164 (Oil type - Rust Preventive Oil)	Proprietary grade	Suitable for protecting steel sheets and strips, metal stacks during the transit and storage period. Applied by spraying method & easily removed by wiping off with rags / waste soaked in kerosene / MTO or by alkaline degreasants / or solvent.
MAK RUSTROL 271 (De-watering type - Rust Preventive Oil)	Proprietary grade	Protection of metal parts and assemblies during the manufacture process where protected components are regularly handled but quick removal of film is not required. Major Approvals: Approved by ZF Steering Gear India Ltd.
MAK RUSTROL 275 (De-watering type - Rust Preventive Oil)	Proprietary grade	Solvent based, water displacing and soft film forming temporary rust preventive fluid. This grade imparts excellent finger print neutralization characteristics making it most suitable for applications at the final packaging stages.
MAK TCPF (Rust Preventive-Solvent Based)	TCPF 54 - IS 1154:2000 (Reaffirmed Dec. 2016) TCPF 60 - IS 1154:2000 (Reaffirmed Dec. 2016) TCPF 62 - IS 1153:2000 (Reaffirmed Dec. 2016)	MAK TCPF 54 provides soft & thin film over the metal surface, thereby provides protection for up to 12 months of indoor storage. MAK TCPF 60 develops a medium tacky film. MAK TCPF 62 provides touch dry film leading to indoor protection of material for period of up to 18 months.

Lubricating Oils and Specialities



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Stationary Gas Engine Oil		
MAK GES - LA (Stationary Gas Engine Oil - Low Ash)	SAE Grade: 40 & 15W-40 API CF	Spark ignition stationary natural gas engines used for gas gathering/compression, power generation requiring low ash oil.
MAK GES XLA Low Ash gas engine oil	SAE Grade : 40 API CF	Recommended for use in highly rated spark ignition stationary natural gas engines used for power generation / gas gathering / compression requiring low ash oil. MAK GES XLA 40 has been approved by M/s. Wärtsilä for use in the mentioned engine types with natural gas as main fuel. Wärtsilä® 175 SG, Wärtsilä® 220 SG, Wärtsilä® 25 SG, Wärtsilä® 28 SG, Wärtsilä® 34 SG, Wärtsilä® 50SG, Wärtsilä® 20DF, Wärtsilä® 32 DF, Wärtsilä® 34 DF and Wärtsilä® 50 DF.
Textile Machinery Oils		
MAK SPINDLE 22 (Textile Machinery Oil - Spindle bearings)	Proprietary grade	Spindle bearings of textile machinery operating at low to medium speed.
MAK TEXTROL (Textile Machinery Oil - Spindle bearings)	ISO VG: 15, 22 & C 32 Proprietary grade	Spindle bearings of ring frames operating at very high rpm, also recommended for lubrication of looms and textile machinery. MAK TEXTROL C 32 is used in Textile industry for Lubrication of twister rings, circular knitting machines.
MAK Textrol EE 10 Energy Efficient Spindle Oil	Proprietary Grade	Energy efficient spindle oils for textile industries, recommended for spindle bearings of ring frame operating at very high RPM in Textile mills, Paper mills etc. Have Excellent scour ability and superior tackiness which avoids cloth staining.
MAK TEXTROL EE 11 (Textile Machinery Oil - Spindle bearings)	Proprietary grade	Spindle bearings of ring frame operating at very high RPM in paper mills and textile mills.
Transformer Oil		
MAK HIVOLTOL (Transformer Oil)	IS 335:1993 (Reaffirmed March 2015)	It is ISI marked, uninhibited electrical insulating oil for power and distribution electrical apparatus such as transformers, switch gears, capacitors and other allied equipment.
Turbine Oil		
MAK TURBOL (Turbine Oil)	VG: 32, 37, 46, 57, 68 & 78 IS 1012:2002 (Reaffirmed Apr 2013) DIN 51 515 Part 1 BS 489:1983 GEK 32568 A	Premium quality turbine oil for steam, gas & water turbines. Also suitable for bearings of rotary / turbo compressors and bearings prone to water contamination where demulsibility becomes a very important parameter for selection of oil. Major Approvals: 1. MAK Turbol 32 & 46 is approved by Siemens AG, BHEL, Alstom Power, India and RDSO. 2. MAK Turbol 46 is approved by Bhilai Steel Plant. 3. MAK Turbol 68 is approved by Walchandnagar Inds. Sugar Division, BHEL.
MAK TURBOL EP (Turbine Oil - EP Type)	ISO VG: 32 & 46 IS 1012:2002 (Reaffirmed April 2013) DIN 51 515 Part 2 BS 489:1983 GEK 32568A SIEMENS 0 - 1130-0468-01 Brown Boveri HTGD 90117E	Geared turbines which requires extreme pressure properties, bearings of rotary/turbo compressors. Major Approvals: Brown Boveri HTGD 90117E MAK Turbol EP 32 & 46 are approved by Siemens AG, Alstom Power, India & BHEL.
Greases		
MAK GARONEX R 250 (Calcium based graphited grease)	NLGI Grade: 1 IS 508:2009 (Grade 1) [Reaffirmed June 2014] CS / 653 specifications of DGQA for grease XG-280	This is specially designed for rail flange lubrication and has good water wash out properties. They also have good structural stability and extra tackiness.
MAK GRAPHITE GREASE SPECIAL (Calcium based graphited grease)	NLGI Grade: 2 IS 508:2009 (Grade 2) [Reaffirmed June 2014]	This is recommended for plain bearings operating in wet conditions. It possesses good water resistance and sealing properties.
MAK HITEMP XTRA GREASE (High Temperature Clay based grease with MoS2)	NLGI Grade: 2 IS 12790:1999 (Grade 2) [Reaffirmed June 2014]	For machine elements, plain bearings and anti-friction bearings operating at very high temperatures and shock load conditions.
MAK HITEMP XTRA SM GREASE (Clay based bearing grease for Sugar Mill)	NLGI Grade: 2 Proprietary grade	For lubrication of machine elements, plain bearing and anti-friction bearings operating at very high temperatures and shock load conditions. Specially recommended for lubrication of crushing mill journal bearings of Sugar Mill industry applications.

Lubricating Oils and Specialities

PRODUCT (Category)	VISCOSITY GRADES / PERFORMANCE LEVEL	APPLICATION / REMARKS
MAK LANTHAX EP GREASE (Lithium Soap Grease - EP Type)	NLGI Grades: 0, 1 & 2 IS 7623:2011 EP Type [Reaffirmed December 2016] IPSS:1-09-005-99	For all plain & roller bearings in equipment operating under severe shock loading conditions and temperatures up to 130°C. NLGI Grade 1 is used in centralised grease lubrication system.
MAK LANTHAX BRIGHT EP GREASE (Lithium based EP grease)	NLGI Grade: 00,0,1 & 2 IS 7623:2011 EP Type [Reaffirmed December 2016] IPSS:1-09-005-99	This grease is recommended for all plain & roller type bearings in off-highway, construction and earthmoving equipment operating under severe shock loading conditions. Major Approvals: MAK Lanthax Bright EP Grease 2 is approved by Walchandnagar Inds., Cement Division.
MAK MOLEX GREASE (Calcium based grease)	NLGI Grade: 2 & 3 IS 507:2001 [Reaffirmed December 2016]	These are recommended for roller bearings operating in moist conditions and at moderate temperatures. It has good structural and thermal stability.
MAK MOLY GREASE (Lithium based grease with MoS ₂)	NLGI Grade: 2 IS 12203:1999 (Grade 3) [Reaffirmed June 2014]	For industrial applications where lithium based grease required with 3% by wt. MoS ₂ . Used for certain automobile parts where shock loading occurs.
MAK MP GREASE (Lithium based Multipurpose Grease)	NLGI Grade: 2 & 3 IS 7623:2011 Regular Type [Reaffirmed Dec. 2016] IPSS:1-09-006-97	Multipurpose grease for heavy-duty plain & roller bearings operating under moderate loads and temperature. It has good oxidation and structural stability. Major Approvals: 1. MAK MP Grease 2 is approved by Walchandnagar Inds-Gear Division. 2. MAK MP Grease 3 is approved by Walchandnagar Inds for its Cement Division, Sugar Division and Gear Division.
MAK MULTIPLEX CS GREASE (Calcium Sulphonate Grease)	NLGI Grade: 0,1 & 2 Proprietary Grade	Heavy duty steel plant and engineering applications where resistance to high temperatures, loads, humidity and water is critical. Specially recommended in Rotary Kilns lubrication. Major Approvals: MAK Multiplex CS Grease 2 is approved by JSW Steel Ltd, Bellary for lubrication of roller bearings used in discharge tables of reheat furnaces of HSM.
MAK MULTIPLEX L (Lithium Complex Grease)	NLGI Grade: 1,2 & 3 MAK MULTIPLEX L Grease 2 & 3 meets IS 14847:2000 [Reaffirmed December 2016] MAK MULTIPLEX L Grease 1 Proprietary grade MAK MULTIPLEX L Grease 2 meets IPSS:1-09-020-99	Steel plants, mining & engineering industries. It has good shear stability and high temperature properties.
MAK ROLLING MILL GREASE 2 (lithium based water resistant grease)	NLGI Grade: 2 Proprietary Grade	The grease is specially recommended for lubricating bearings installed in rolling mills subject to water ingress. Major Approvals: 1. MAK Rolling Mill Grease is approved by JSW Steel Ltd, Bellary for lubrication of roller bearings in run out table and approach table applications. 2. MAK Rolling Mill Grease is also approved by Durgapur Steel Plant, Durgapur for lubrication in Roll Stands of Skep Mill for bearing lubrication.
MAK SINTHAX EP GREASE 2 (Lithium based EP grease with extra tackiness)	NLGI Grade: 2 IS 7623:2011 EP Type [Reaffirmed December 2016] IPSS:1-09-005-99	The grease is specially recommended for sealing application in sinter plants. Plain & Roller bearings in equipments operating under severe shock loading conditions and temperatures up to about 130°C. Major Approvals: MAK Sintmax EP Grease 2 is approved by Bokaro Steel Ltd for use in sinter plant for sealing application.

NOTE : * For specific non-ISO VG grades, please contact the nearest BPCL office.