

KOMATSU OILS AND LUBRICANTS MEET THE CHALLENGES OF MODERN ENGINE DESIGN.

In the recent years, construction and mining equipment engine manufacturers are required to reduce diesel emissions to meet strict Tier 3 stage IIIA emission levels imposed by environmental authorities worldwide. This has been accomplished by changes in engine design that include the use of cooled Exhaust Gas Recirculation (EGR) and sophisticated engine management systems. With the EGR process, exhaust gases are re-circulated back into the combustion chambers to be burned a second time, a process which puts increased demands on the engine oil.

Accordingly, to extend the life of your equipment, Komatsu has developed a whole new range of quality oils and lubricants to handle the increased demands of modern high technology low emission engines.

These new generation oils and lubricants have been developed with unique and unrivalled technology. Using them with Komatsu engines is essential to increase durability and achieve top performance.



These Komatsu Genuine Oils are marketed and distributed by L&T Construction & Mining Machinery through its Dealer outlets nationwide.

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			N K B Industrial Products Pvt Limited	Bhubaneshwar	Mobile: 9437018997 / 9437475578
			SRL Earthmoving Solution Private Limited	Kolkata	Mobile: 9434778016
			Saurav Auto Pvt. Ltd	Durgapur	Mobile: 9434778011
			Hiralal Industrial Technologies Pvt. Limited	Guwahati	Tel: (0361) 2229135 / Mobile:9435103306
				Ranchi	Mobile: 9771485412
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NORTH	L&T Office - Delhi	"Larsen and Toubro limited, Construction Equipment Business 32, Shivaji Marg, New Delhi 110015"	Abhinav Industrial Products	Jaipur/Kota	Tel: (0744) 2410221 / Mobile 9828111484 , 9828111483
				Jodhpur	Mobile: 9828314446
			Rajasthan Diesels Sales & Services	Udaipur	Tel: (0294) 3051419 / Mobile: 9414160863
				Raj Samand	Mobile: 9829910767, 9001796734
			Gajanan Motors	Jhansi	Mobile:9415113757 / 9415030262 / 8874207327
			A S Engineering Associates	Lucknow	Tel: (0522) 4016591, 4075197,9936294696
				Chopan	Mobile: 9936294697
				Waidhan	Mobile : 7773012190, 7773012191
			P K Enterprises	Chandigarh	Tel: (0172) 2734092, Mobile: 9417002521
			Action Earthmovers	Delhi	Tel: (011) 25065478 Mobile : 9213097955
			Darson Traders	Srinagar	Tel: (0194) 2456895 Mobile : 9596500993,9419060236
			I M G Engineering Company	Dehradun	Tel: (0135) 2669654, Mobile: 9410393944, 9410393940
SOUTH	L&T Office - Hyderabad	"Larsen & Toubro Limited, Construction Equipment Business Vasantha Chambers, 1nd Floor 5-10-173 Fateh Maidan Road, Hyderabad-500004"	Mithra Earth Movers	Hyderabad	Tel: (040) 66510245 Mobile: 7032980984
				Vijayawada	Tel: (0866)-6666175 Mobile : 9963993766
			M S Engineers	Coimbatore	Tel (0422) 2441943 Mobile:9443369047 / 9489069047
			G.P. Enterprises	Madurai	Tel: (0452) 4200010 Mobile: 9894671234
			AayCee Excon	Chennai	Tel: (044) 24764970 Mobile:9444946384 / 9444946385
SOUTH	L&T Office - Bangalore	"Larsen & Toubro Limited, Construction Equipment Business 38, Cubbon Road, Bangalore - 560001"	Anugraha Construction Eqpt Services & Support Pvt Ltd	Bengaluru	Tel: 080 41280481 / Mobile: 9902030126
			Cinzac Corporation	Kochi	Tel: (0484) 4081047 / 9447139532
WEST	L&T Office - Pune	"Larsen & Toubro Limited, Construction Equipment Business L&T House, 191/1, Dhole Patil Road, Pune 411 001"	Deccan Earthmovers Ahmedabad	Gujarat	Tel: +91 9714504004 / 9714504009
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				Kolhapur	Mobile :+91 7447410670
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KOMATSU GENUINE DIESEL ENGINE OIL 15W-40 DH1

- New formulation
- Meets API CI-4 specification

PEPA1059



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Komatsu Genuine Oil 15W-40 DH1

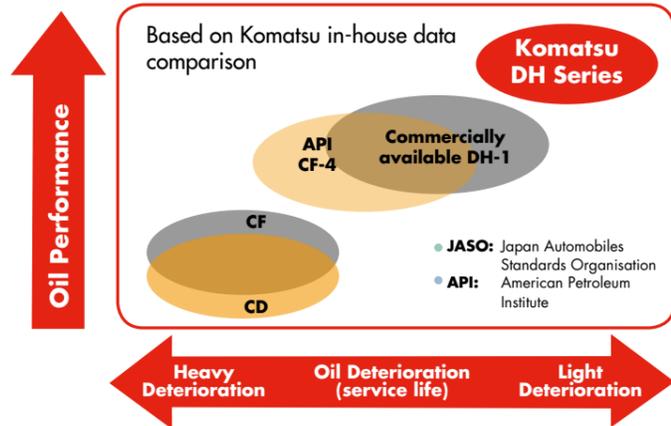
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Engine emission controls for construction machinery have recently been tightened and all diesel engine manufacturers have to abide by these new rules. For this reason, Komatsu produces world class eco-friendly diesel engines that maximizes the emission performance and extend the component life of these engines.



Komatsu DH Series is a high quality oil that greatly exceeds the JASO standard requirements and meets Komatsu's original quality standards (KES)



JASO Standards

The JASO standards are a set of oil quality requirements for construction machinery and automobiles engines developed by JASO in cooperation with the Japan Construction Mechanization Association.

DH - 1

A heavy duty standard developed for emission controlled engines that specifies antiwear and anticorrosion performance, thermal oxidative availability and soot control among others.

DH - 2

An oil standard developed for engines equipped with after treatment systems such as emission controls diesel particles filters (DPF's) and catalyzers typically installed in trucks and buses.

DL - 1

A light duty oil standard developed for controlling emission primarily an diesel passengers cars.

TYPE	PARTS NO.	VISCOCITY	PACKAGING	FEATURES	
Multi- grade oil	E015W40-DH	SYZZ-E015W40-MN	SAE 15W-40	5L	All season oils for use at ambient temperatures between -15degreeC and + 50degree C
	E015W40-DH	SYZZ-E015W40-DM	SAE 15W-40	20L	All season oils for use at ambient temperatures between -15degreeC and + 50degree C
	E015W40-DH	SYZZ-E015W40-CN	SAE 15W-40	209L	All season oils for use at ambient temperatures between -15degreeC and +50degreeC

Komatsu has introduced an improved heavy-duty diesel engine oil that meets the API CI-4 specification. This version of KGO EO 15W-40 is the first oil in Komatsu's lubricant portfolio to meet this specification in India.

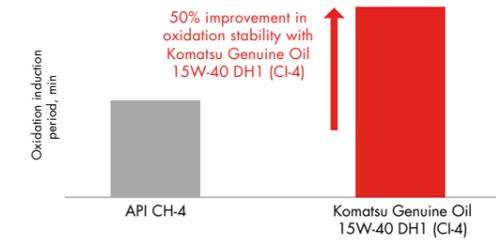
The API CI-4 performance standard means the new product is also suitable for a wide range of construction equipment in the Indian market.

Komatsu multigrade heavy-duty engine oils are made from quality base stocks blended with a unique additive system and are designed to provide superior performance in all diesel engines operating on high- and low-sulphur fuels. Only Komatsu Genuine Oils are approved to meet Komatsu Engineering Standards.

OXIDATION AND DEPOSIT CONTROL

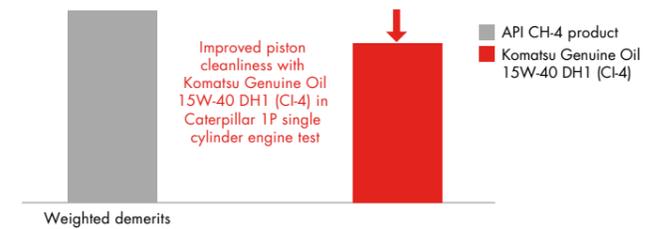
Komatsu Genuine Oil 15W-40 DH-1 helps to prevent oil thickening and the formation of harmful deposits in many areas of the engine, such as the oil sump and piston ring areas. The product's improved oxidation control is demonstrated in laboratory rig tests.

In the PDSC laboratory oxidation control test for ACEA heavy-duty diesel engine oil specifications, Komatsu KGO shows significantly longer induction periods, i.e., better oxidation control performance relative to an API CH-4 oil.



Oxidation induction period = time to onset of oxidation

Komatsu KGO offers strong piston deposit control in engines with iron and aluminium pistons, which is demonstrated by the low levels of carbon and lacquer deposits in the industry-standard Caterpillar 1P test.



Weighted demerits = overall rating of piston cleanliness, i.e., carbon and lacquer deposits – a lower number is better

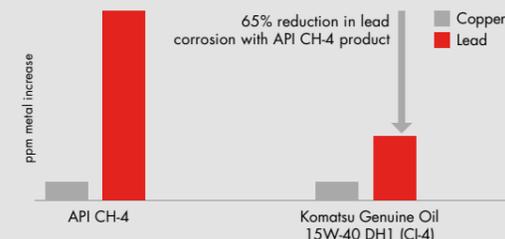
ENGINE CLEANLINESS

Maintaining cleanliness in an engine is crucial for engine operating efficiency and wear control. This level of cleanliness is achieved by using detergents to reduce piston deposits and soot dispersants to reduce sludge deposits in various parts of heavy-duty diesel engines.

The optimised detergent additive system in this Komatsu Genuine Oil 15W040 DH-1 is designed to keep pistons cleaner than previous-generation Komatsu products.

ACID AND CORROSION CONTROL

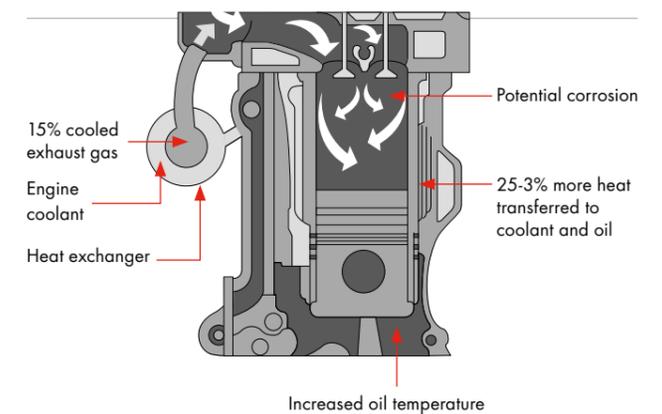
The superior acid and oxidation control in Komatsu KGO contribute to the control of chemical corrosion in engine bearings. Low bearing wear levels observed in real-world field trials demonstrate strong bearing corrosion control for Komatsu KGO. In the Cummins high-temperature corrosion bench test, Komatsu KGO demonstrated a 65% reduction in lead corrosion compared with a standard API CH-4 product.



PROTECTION FOR ENGINES EQUIPPED WITH EGR

Exhaust gas recirculation (EGR) introduces some exhaust gas into the inlet air charge to reduce peak combustion temperatures. These gases contain acids (sulphurous and sulphuric) and soot particles that can have a detrimental effect on oil performance in terms of corrosion and soot-induced wear. EGR can lead to higher oil temperatures, which stress the oil further.

Komatsu KGO has been designed to lubricate in the performance-demanding environment of engines equipped with EGR to reduce oxides of nitrogen (NOx) and particulate (soot) emissions, i.e., US 2002 and many Euro 2, 3, 4 and 5 (Tier 2 and Tier 3) engines.



EGR increases heat transfer and potential corrosion, so the lubricant must prevent corrosion and oil oxidation

SPECIFICATIONS AND APPROVALS

	Previous engine oil 15W-40 DH-1	NEW engine oil 15W-40 DH-1
API	CH-4/CG-4/CF-4/CF	CI-4/SL
JASO	DH-1	DH-1
ACEA	E5, E3	E7
Cat	ECF-1A	ECF-2/ECF-1A
Cummins	20077/76/75/72/71	20078
Volvo	VDS-2	VDS-3