

4-STROKE

MOTORCYCLE

PRODUCT	SAE	QUALITY	JASO	API
300V FACTORY LINE ROAD RACING	5W30	100% SYNTHETIC / <i>ESTER</i> Core®	ABOVE EXISTING STANDARDS	
	5W40			
	10W40			
	15W50			
300V FACTORY LINE OFF ROAD	5W40			
	15W60			
7100	5W40	100% SYNTHETIC / ESTER	MA2	SN
	10W30			
	10W40			
	10W50			
	10W60			
	15W50			
	20W50			
5100	10W30	TECHNOSYNTHESE® / ESTER	MA2	SM
	10W40			
	10W50			
	15W50			
5000	10W40	HC-TECH®	MA2	SL
3000	10W30	MINERAL	MA2	SJ
	10W40			
	20W50			
SCOOTER POWER 4T	5W40	100% SYNTHETIC	MA	SL
SCOOTER EXPERT 4T	10W40	TECHNOSYNTHESE®		

January 2003 - 200358 - Ferno

MOTORCYCLE  
LUBRICANTS & TECHNICAL FLUIDS

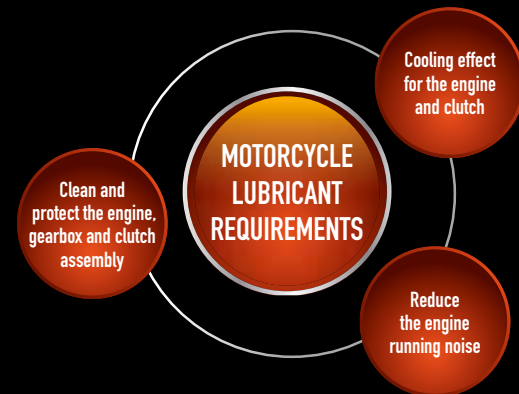
MOTUL

fluid force

## LUBRICANTS

### WHY DO YOU NEED A SPECIAL MOTORCYCLE LUBRICANT?

Most modern motorcycles use the same lubricant in the engine, gearbox and clutch. Motorcycle lubricants therefore contain a package of base oils and specific additives to optimize engine performance at high speeds, protect the moving parts of the gearbox and improve clutch response during gear shifting.



### MOTUL'S KNOW-HOW

Over several decades, Motul has consistently improved the performance of its motorcycle lubricants through development of its own unique type of ester technology, with the latest result being the introduction of **ESTER Core®** technology. This technology combines carefully chosen esters with an optimal selection of top quality synthetic base oils coupled with an innovative additive package.

This has now allowed Motul to create the new generation of high performance racing motorcycle lubricants which in turn offers a technical solution for standard lubricants that will fulfill all OEM recommendations and meet the most demanding of customer expectations.

Motul **ESTER Core®** technology guarantees:

- »» Power
- »» Reliability
- »» Protection
- »» Minimal oil consumption

## INTERNATIONAL STANDARDS

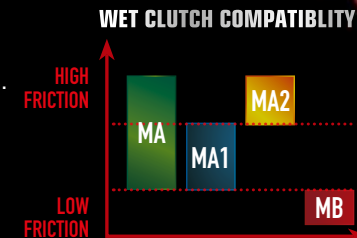
### 4-STROKE LUBRICANTS

#### API

The API (American Petroleum Institute) standard defines the performance of engine lubricants through "S" (Service) categories that are rated from the latest "SN" introduced in 2010 to the oldest "SJ" introduced in 2001. It is important to know that the latest category covers the performance requirements of the previous ones.

#### JASO

JASO has created its own 4-Stroke motorcycle standard - JASO T 903 - which now has three grades - MA, MA1 and MA2 - to facilitate the choice of lubricants that are specifically developed for wet clutch applications. JASO MA2 offers the most efficient friction levels to guarantee the clutch engagement during the three riding modes: starting, acceleration and constant speed. Motul 4-Stroke engine lubricants meet JASO MA2 specifications under the latest standard JASO T 903, except for the 300V racing motorcycle lubricants which are above existing standards.



### 2-STROKE LUBRICANTS

#### JASO

JASO has created its own 2-Stroke motorcycle standard - JASO M 345 - which has three grades - FB, FC, FD - with the aim of improving the quality of lubricants for these applications. JASO M 345 evaluates the quality of a lubricant according to four criteria:

- »» Lubricating power
- »» Smoke emission reduction
- »» Engine cleanliness
- »» Port blocking

Motul 2-Stroke engine lubricants meet JASO FD and FC specifications under the latest standards, except for 800 racing motorcycle lubricants which are above existing standards. JASO M 345 with FD being the highest grade.

## GEARBOX PROTECTION

### EVALUATION OF SCUFFING LOAD CAPACITY OF LUBRICANT

#### FZG GEAR TESTING (ASTM D5182)

The FZG (Forschungsstelle für Zahnrad und Getriebebau) Test evaluates fluid lubricating and wear protection properties at the interface of a loaded set of gears.

The gears are operated at 1450 rpm through 12 progressive load stages (max load of 534.5 Nm) at 15 minutes intervals with a fluid temperature stabilized at 90°C (194°F). For additional performance, two extended stages have been checked to go up to stage 14 with a torque of 714.2 Nm.

Gear teeth are inspected after each load stage for scuffing, to visually detect scratches on the pinions. Lubricants are then graded based on their "Failure Load Stage" or FLS rating from FLS 1 (very poor result) up to FLS 14 (outstanding result).

This test allows checking if adequate lubrication film thickness is built between the gears for gearbox reliability.

## MOTORCYCLE LUBRICANTS

### FACTORY LINE 4-STROKE

Motul's racing motorcycle lubricant benefits from the latest *ESTER* Core® innovation to provide new exceptional performances.

Involved since many years in the highest levels of racing, Motul has developed specific racing motorcycle lubricants to satisfy demanding riders in terms of power, torque and clutch response during gear shifting.

#### 300V 4-STROKE OFF ROAD 100% SYNTHETIC



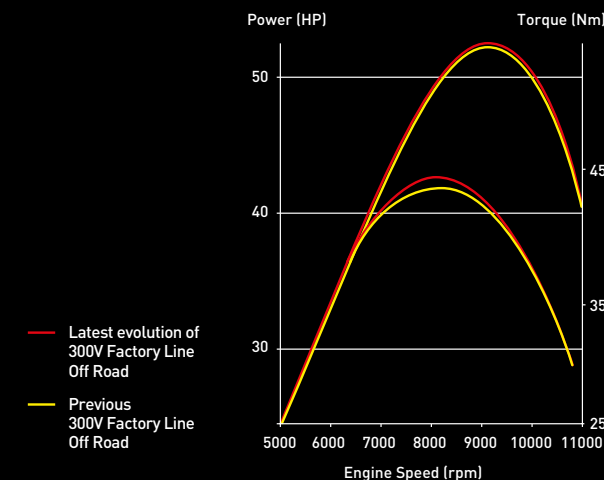
#### ESTER Core® technology:

- »» Brings outstanding oil film protection at high temperature to ensure oil pressure stability
- »» Ensures perfect clutch grip at start-up, acceleration and full speed
- »» Outstanding anti-wear and extreme pressure protection under heavy load (FLS > 14)

Available in: 5W40, 15W60

#### 300V FACTORY LINE OFF ROAD 5W40: POWER & TORQUE COMPARISON

Test performed on Suzuki RM-Z450s MX1 engine



»» Latest 300V vs previous 300V:  
+ 2.5 % torque increase

FACTORY LINE 4-STROKE



300V 4-STROKE ROAD RACING - 100% SYNTHETIC

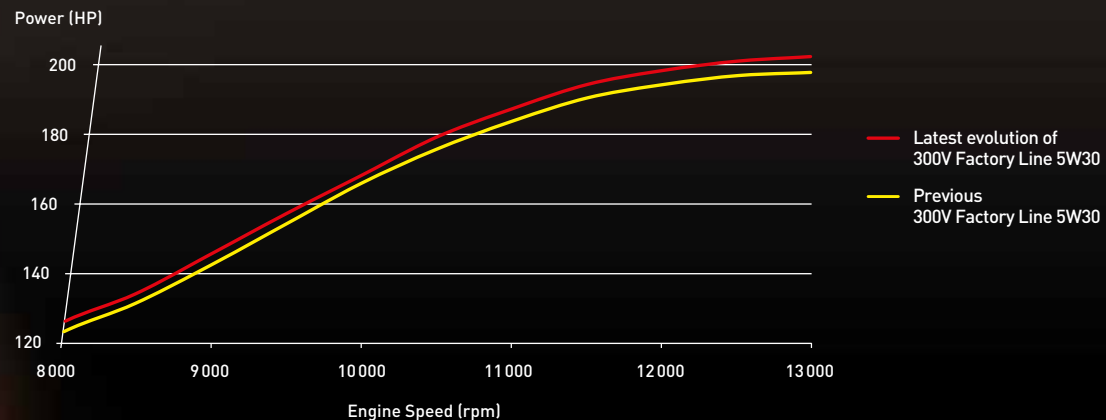
ESTER Core® technology:

- »» Brings extra power by minimizing engine internal frictions (low traction coefficient) without any compromise on clutch response
- »» Ensures oil pressure and shear stability
- »» Outstanding anti-wear and extreme pressure protection at high rpm (FLS > 14)

Available in: 5W30, 5W40, 10W40, 15W50

300V FACTORY LINE 5W30 POWER COMPARISON

Test performed on Suzuki GSX-R 1000cc racing engine

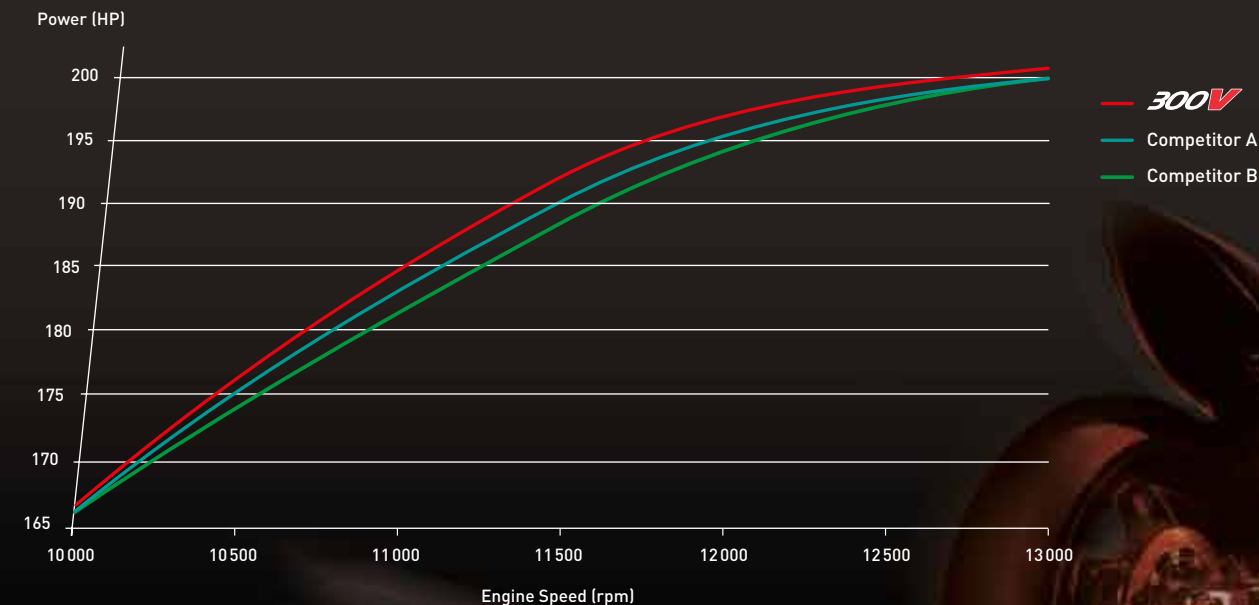


»» Latest 300V vs previous 300V : +1.3 % HP on average

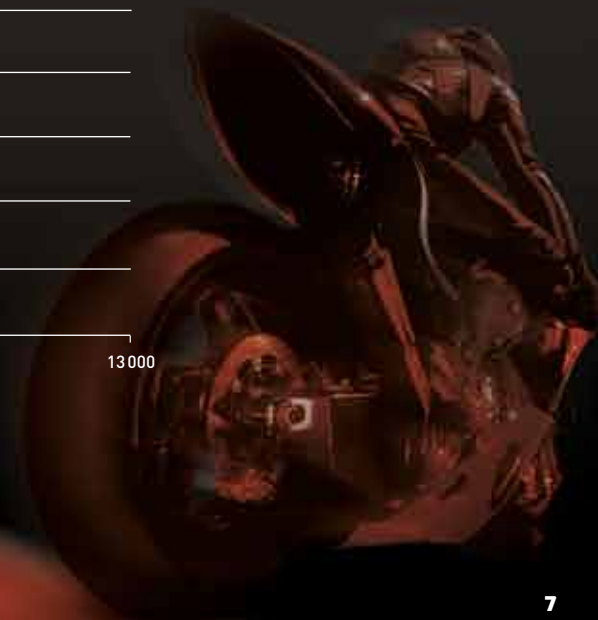
MAXIMUM ENGINE POWER

300V FACTORY LINE 5W30 VS COMPETITORS

Test performed on Suzuki GSX-R 1000cc racing engine



»» Latest 300V vs competitors: up to + 2.5 HP





## 4-STROKE LUBRICANTS

### 7100 - 100% SYNTHETIC

7100 line is formulated to meet the latest manufacturers' specifications in terms of standards (JASO and API), oil consumption and fuel economy.

Developed with Ester, 7100 offers a complete solution to protect the engine, the clutch and the gearbox.

- » JASO MA2 ensures optimal clutch performances at start-up, acceleration and full speed
- » API SN provides improved high temperature deposit protection, more stringent sludge control
- » Extra power by reducing engine internal frictions
- » Extreme pressure performances to protect the gears (FLS > 14)

*Available in: 5W40, 10W30, 10W40, 10W50, 10W60, 15W50, 20W50*



JASO T 903 : 2011  
PERFORMANCE IS GUARANTEED by  
MOTUL

### 5100 - TECHNOSYNTHÈSE®

5100 line is formulated to meet manufacturers' specifications in terms of standards (JASO and API) and oil consumption.

Based on Ester, 5100 line extends engine life and ensures anti-wear and gear protections.

- » JASO MA2 ensures optimal clutch performances at start-up, acceleration and full speed
- » API SM provides oxidation resistance and wear protection (FLS 14)

*Available in: 10W30, 10W40, 10W50, 15W50*



### 3000 - MINERAL

3000 line is formulated to meet most of manufacturers' specifications in terms of standards (JASO and API).

Formulated with high quality base stock to improve temperature resistance and increase engine durability.

- » JASO MA2 ensures optimal clutch performances at start-up, acceleration and full speed
- » API SJ provides wear protection

*Available in: 10W30, 10W40, 20W50*



## FACTORY LINE 2-STROKE



### 800 2-STROKE ROAD RACING & OFF ROAD - 100% SYNTHETIC

**ESTER** Core® technology brings high lubrication properties under stringent conditions:

- »» Engine protection
- »» Protection against deposits and piston ring sticking
- »» Engine lubrication by premix



## 2-STROKE LUBRICANTS

### HIGH PERFORMANCE 2-STROKE LUBRICANTS

Motul has developed a full range of lubricants dedicated to all 2-Stroke engines lubricated by injector system or premix, with or without catalytic converters.

710 is a 100% synthetic lubricant formulated with Ester to enjoy high performance riding at high rpm without any compromise on the protection and reliability of the engine.

- »» Improved power output
- »» Improved oil film resistance
- »» Anti-smoke formulations
- »» Instantaneous and stable mixing with gasoline



710



PRODUCT MEETING JASO M 345  
COMPANY GUARANTEEING THIS FD  
PERFORMANCE: MOTUL



510

100

## SCOOTER LUBRICANTS

Scooter engines do not have the same lubrication requirements as motorcycle: difficult engine cooling, stop-and-go use for daily commuting, urban riding...

Motul has therefore developed a full range of 4-Stroke lubricants suitable for any engine displacement and 2-Stroke lubricants for engines running at high rpm.

### 4-STROKE LUBRICANTS



#### SCOOTER POWER 4T 5W40 & SCOOTER EXPERT 4T 10W40

- »» Compatible with catalytic converters
- »» Improved wear protection
- »» Improved oil film resistance
- »» Very low 4-Stroke lubricant volatility to reduce oil consumption

### 2-STROKE LUBRICANTS



#### SCOOTER POWER 2T & SCOOTER EXPERT 2T

- »» For direct injection and carburetor 2-Stroke engines
- »» For oil injector system and premix
- »» Compatible with catalytic converters
- »» Improved oil film resistance and wear protection
- »» Keep the engine clean

## TECHNICAL FLUIDS

### FACTORY LINE RANGE



#### FORK OIL FACTORY LINE

100% Synthetic hydraulic fluid for cartridge and standard upside-down telescopic forks. 1L

*Available in: 2.5W, 5W, 7.5W, 10W*



#### SHOCK OIL FACTORY LINE

Technosynthese® - Ester based hydraulic fluid for shock absorbers used in road & off road racing. 1L



#### RBF 660 FACTORY LINE

100% Synthetic fluid for brake and clutch hydraulic control. Resists to very high temperatures. Dry boiling point: 325°C / 617°F. 500ml



#### RBF 600 FACTORY LINE

Dry boiling point: 312°C / 594°F. 500ml



#### MOTOCOOL FACTORY LINE

High performances ready-to-use cooling liquid. Maximal protection against frost (-35°C / -31°F) and corrosion. 1L

### COOLING



#### MOCOOOL

Reduces engine running temperature by 15°C (30° F). Mix with distilled water at 5%. 500ml



#### MOTOCOOL EXPERT

Ready-to-use cooling liquid. Protects durably the entire cooling system against frost (-37°C / -35°F) and corrosion. 1L



#### FORK OIL EXPERT

Technosynthese® hydraulic fluid for cartridge and standard upside-down telescopic forks. 1L  
*Available in: 5W, 10W, 15W, 20W*

### BRAKES



#### DOT 5.1

100% Synthetic non silicone fluid. For hydraulic brake and clutch controls. Recommended for ABS systems. 500ml



#### DOT 3&4

100% Synthetic fluid. For all types of brake and clutch hydraulic controls. 500ml

TECHNICAL  
FLUIDS

ENGINE CLEANERS



**ENGINE CLEAN**  
Add to the oil before drain.  
Cleans and protects the engine.  
Decreases oil and fuel consumption.  
Re-establishes compressions. 200ml



**FUEL SYSTEM CLEAN**  
Add to fuel for higher engine  
performances. Strengthened action  
on valves, carburetors, injectors and  
combustion chambers. 200ml - 75ml



**STABILIZER**  
Gasoline conservation  
additive protecting  
petrol from oxidation  
(wintering, occasional  
driving only). 250ml



**VALVE EXPERT**  
Lead substitute  
additive for engines  
requiring leaded  
fuel. 250ml

MC CARE



A complete range dedicated  
to Maintenance & Care for  
motorcycles, motorcyclists  
and their equipment.

TRANSMISSION



**GEAR 300 75W90**  
100% Synthetic. For high  
performance use and racing. 1L



**MOTYLGEAR 75W90**  
Technosynthese®. Makes gear  
changing easier. 1L



**GEARBOX 80W90**  
Reinforced with Molybdenum  
bisulphide MoS<sub>2</sub>. Recommended for  
loaded gearboxes. 1L



**TRANSOIL EXPERT 10W40**  
Technosynthese®. Ester formula.  
Makes gear changing easier in  
tough conditions. 1L



**TRANSOIL 10W30**  
Recommended for integrated clutch  
gearboxes. 1L



**SCOOTER GEAR  
80W90**  
Transmission oil for 2-stroke and  
4-stroke scooters.  
Extreme  
pressure.150ml

2-STROKE

MOTORCYCLE

PRODUCT	USE	QUALITY	JASO	API	ISO
800 2T FACTORY LINE OFF ROAD	PREMIX	100% SYNTHETIC / <i>ESTER</i> Core®			ABOVE EXISTING STANDARDS
800 2T FACTORY LINE ROAD RACING	PREMIX				
BIO 2T	PREMIX + OIL INJECTION	100% SYNTHETIC / ESTER / BIODEGRADABLE	FC	TC	ISO-L-EGC
710 2T	PREMIX + OIL INJECTION	100% SYNTHETIC / ESTER	FD	TC	ISO-L-EGD
510 2T	PREMIX + OIL INJECTION	TECHNOSYNTHESE®	FD	TC	ISO-L-EGD
100 2T	PREMIX + OIL INJECTION	MINERAL	FB	TC	-

SCOOTER

SCOOTER POWER 2T	PREMIX + OIL INJECTION	100% SYNTHETIC / ESTER	FC	TC	ISO-L-EGC
SCOOTER EXPERT 2T	PREMIX + OIL INJECTION	TECHNOSYNTHESE®	FC	TC	-

For 4-Stroke motorcycle & scooter summary chart, see back cover