

What are the differences between JASO MA/MA1/MA2 and JASO MB?

What does the JASO MA and JASO MA2 Standard Mean?

In 1998 the Japanese Automotive Standards Organization (or JASO for short) developed a grading system for motorcycle oils.

The grading system measured (amongst other things) an oil's ability to resist clutch friction (or slippage), protection offered against engine wear and pitting in the gear box.

Up to 1998 car oils had been used as the base for many motorcycle oils. As car technology evolved over the years the oils that cars needed changed and additives were added that weren't good for motorcycle engines (especially motorbike clutches and gearboxes, mainly due to the fact that, unlike most motorcycles, cars use a separate oil for the gearbox).

Car oils had been blended using more and more friction modifiers, which, although good for cars, wasn't too good for motorcycles as these modifiers can cause clutches to slip at higher revs and gearbox pitting.

JASO introduced 2 ratings for 4 stroke motorcycle oils:

JASO MA – This was the standard for single unit engines where the wet clutch, gearbox and engine used the same oil. JASO-MA oils don't contain friction modifiers.

JASO MB – This lower standard was for bikes that use separate oils for the engine, clutch and gearbox (e.g Harley Davidson's and BMW's).

Modern motorcycles usually have the same oil lubricating the engine and the wet clutch. For this purpose most of the time the regular friction modified engine oils are not good enough. To make sure that the right oil is used motorcycle manufacturers usually require the oil to meet one of the **JASO standards** explained below.

The motor oils that meet the JASO T 903:2006 standard can be classified into four grades: **JASO MA, JASO MA1, JASO MA2 and JASO MB**. The classification is based on the results of the JASO T 904:2006 clutch system friction test.

In order for a motor oil to meet any of the above mentioned JASO standards it must be at least of one of the following quality levels:

- [API](#) SG, SH, SJ, SL, SM
- [ILSAC](#) GF-1, GF-2, GF-3
- [ACEA](#) A1/B1, A3/B3, A3/B4, A5/B5, C2, C3

Furthermore, the motor oil's Dynamic Friction Characteristic Index (DFI), Static Friction Characteristic Index (SFI) and Stop Time Index (STI) should be within the following limits according to the JASO 904:2006 friction test:

	JASO MA1	JASO MB
Dynamic Friction Characteristic Index (DFI)	≥1.45 and <1.8	≥0.5 and <1.45
Static Friction Characteristic Index (SFI)	≥1.15 and <1.7	≥0.5 and <1.15
Stop Time Index (STI)	≥1.55 and <1.9	≥0.5 and <1.55

The JASO MA range is further divided into 2 distinct ranges - the JASO MA and JASO MA2 ranges - as follows:

	JASO MA	JASO MA2
Dynamic Friction Characteristic Index (DFI)	≥1.45 and <2.5	≥1.8 and <2.5
Static Friction Characteristic Index (SFI)	≥1.15 and <2.5	≥1.7 and <2.5
Stop Time Index (STI)	≥1.55 and <2.5	≥1.9 and <2.5

If all three properties of a JASO MA oil fall within the limits specified as MA1 then the oil can be classified as a JASO MA1 oil.

If some properties fall within the MA1 subcategory but others in MA2 then the product is simply a JASO MA product.

If all its properties fall within the limits of MA2 then it can be classified as a JASO MA2 oil.

(The MA2 specification is actually encompassed within the MA specification)