



# THE SUSPENSION SPECIALIST

Professional Service and Suspension Set Up • After Market Sales • Mobile Service Van  
Proven Results 2009/2010: Hayward Suspension Bikes have brought home 12 National Championships  
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## ADJUSTING PRELOAD

### Front fork:

Some front forks are equipped with a preload adjuster on top of the fork. If the fork does not have a preload adjuster, preload can be changed by adding or taking away preload bushes (on top of the spring).

### Shock absorber:

Some shock absorbers have a hydraulic preload adjuster. If the shock does not have a hydraulic adjuster, preload can be changed by turning the ring on top of the spring.

### Sag Measurements:

There are three conditions in which we take our measurements:

- Unloaded
- Static
- Loaded

### Unloaded:

The first measurement taken when setting the sag, is when the bike is unloaded. Unloaded means that the bike's wheels are lifted off the ground, so the suspension is fully extended.

### Static:

The Static sag is the amount the suspension is compressed under the bike's own weight. Measure this sag with both wheels on the ground, so the bike's weight is supported by the suspension.

### Loaded:

The Loaded sag is the amount the suspension is compressed under the rider's weight. Take this measurement with the rider, in riding gear, sitting on the bike.

### Replacement springs

If, after setting the correct static sag, the loaded sag is not correct, a different spring is needed. Replacement springs are listed in the setting lists.

If the weight of the rider does not match the springs advised in the setting list, a complete list of springs is available in the KTM dealer.net.

**Note:** If the shock absorber spring is changed, the front fork springs should be changed accordingly.

### Spring variables

The spring rate is determined by:

- Spring material
- Coil Diameter
- Number of coils
- Distance between the coils
- Wire Thickness

Some of the above variables can be helpful when checking the spring rate of a specific spring.

### Spring Material

Normally the spring material will be steel. A special kind of 'spring-steel' is used for manufacturing springs.

On SXS models, polished front fork springs are used. These springs are polished to reduce wear between the spring and the inside of the inner fork leg.

For competition use, (expensive) titanium springs are sometimes used to save weight.

### Coil Diameter

Measuring the coil diameter can be used to identify a spring (rate). The coil diameter is usually constant throughout the spring. Sometimes the coil diameter varies. A varying coil diameter can be found on shock absorber springs. Varying the coil diameter is done if there is not enough room to mount the spring on the bike.

### Number of coils

The number of coils can also be used to identify a specific spring.

### Distance between the coils

Normally KTM's are equipped with linear springs. This means that the distance between the coils is the same throughout the spring. The spring rate on linear springs is always the same, no matter how far the spring is compressed.

Occasionally, progressive springs are used. Progressive springs do not have the same distance between the coils throughout the spring. The effect of the varying distance between the coils is that the spring rate varies, depending on the amount the spring is compressed.



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## Wire thickness

Checking the wire thickness can also be used to identify a spring.

### Note:

- When servicing suspension components, make sure you check the total spring length (when the spring is not under tension/load). If the length is not within the values specified in the workshop manual, the spring preload needs to be adjusted accordingly.
- Do not forget to place the washers when mounting the spring. The spring needs to be able to 'turn' when it is compressed. The washers on the spring supports make sure the spring is able to do this.

## Replacement spring list Dealer.net

Below is an example of what the replacement spring list in Dealer.net looks like.

The most important variable will be the spring rate. Check the advised springs on the setting list. If the advised springs do not match the rider's weight, or if a different spring is wanted for other reasons, these can be found in the replacement spring list. Where applicable, the unit for each value is also listed in this example.

The model used for this example is an 85 SX.

## Available Front Fork springs 2007 Models

| Spring Description           | Spring Rate | Number of coils | Article number |
|------------------------------|-------------|-----------------|----------------|
| <b>380.510.00.036W d 4.6</b> | <b>3.6</b>  | 34.7            | 9501.0010.     |

| Outer Diameter Spring | Spring length | Spring Rate | Wire Diameter |
|-----------------------|---------------|-------------|---------------|
| 380                   | 510           | 00.036 W    | d4.6          |
| =                     | =             | =           | =             |
| 38 mm                 | 510 mm        | 3,6 N/mm    | 4,6 mm        |

## Available Shock Absorber springs 2007 Models

| Spring Description and Length number         | Wire Diam. |
|--|------------|
| (59) 35- 215 d 9.25 35-215 White 9101.0240.S |            |
| Outer Diameter                               |            |
| Spring Rate                                  |            |
| Spring length                                |            |
| Wire Diam.                                   |            |

(59) 35 215 d9.25

= = =

59 mm 35

N/mm

215 mm 9,25

mm

### Note:

If two values are listed for the spring rate, this means that the spring is progressive.