



# DOYLE

## INTERNATIONAL 420 CLASS TUNING GUIDE

### MAINSAIL CM 19

GEAR	RAKE	PREBEND	TENSION	WIND STRENGTH
1	6110	55 mm	31.5	0-12 knots
2	6080	55 mm	32	9-16 knots
3	6040	55 mm	32	14-20 knots
4	6010	60-70 mm	32	17-24 knots
5	5980	65-75 mm	32.5	dogs off chains

### MAINSAIL CM 24/25

GEAR	RAKE	PREBEND	TENSION	WIND STRENGTH
1	6110	60-65 mm	31.5	0-12 knots
2	6080	60-65 mm	32	9-16 knots
3	6040	60-65 mm	32	14-20 knots
4	6010	65-75 mm	32	17-24 knots
5	5980	70-80 mm	32.5	dogs off chains

### TUNING TIPS:

**Rake** number can be +/- 10mm. Measure by pulling up halyard to 4900mm from black band at gooseneck (top of that black band to the transom face, top middle location).

Tips for measuring mast rake: To get an accurate measurement each time ensure the main halyard is hoisted correctly.

- Securely attach the tape measure to the halyard (find a system that works and do the same each time)
- Pull the halyard all the way to the top of the mast
- Measure to the top of the black band (near the gooseneck), it must be 4900mm

**Tension** measured on a Loos PT-1m gauge – these numbers can be different depending on each gauge

Tip for tension: always place the Loos gauge at the same height from the deck – 500mm is good target.

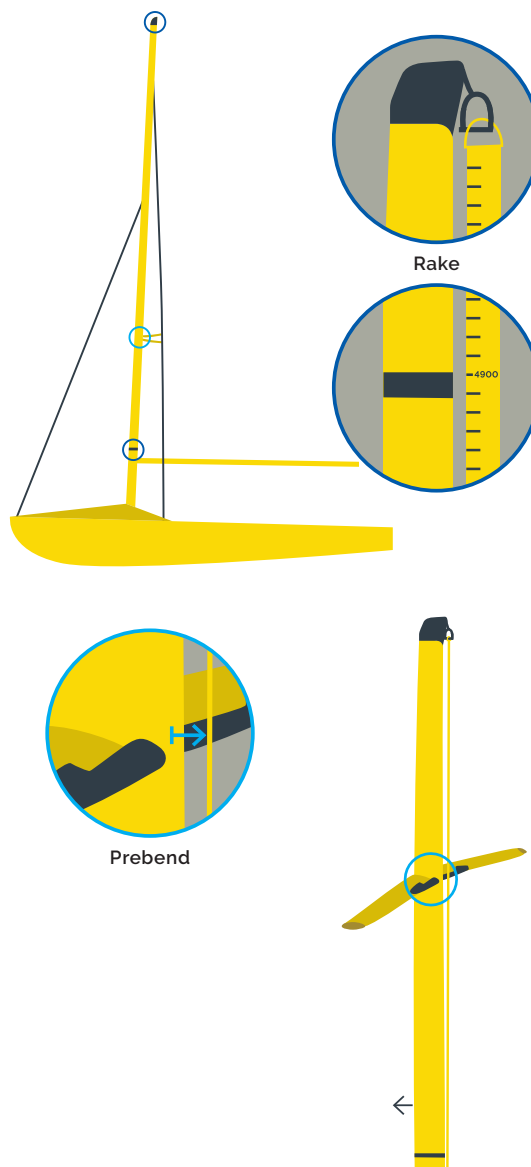
**Top Batten:** This is tensioned with an RBS rocket tensioner, which is tidier and you can more effectively tension the batten. You will need a small flathead screwdriver to use this. With the rocket tensioner, it is easy to over-tension the top batten. With this in mind, start by just removing the wrinkles either side of the batten pocket. Hoist the sail and check if there are any wrinkles through the pocket when set in the boat park with a little wind. If it has no wrinkles, this is your base tension. From there, only a half turn of the screw may be all the adjustment you need between loose and tight setting.

If the mainsail is to be stored for some time, consider easing one full turn so that you can easily get to your previous setting when sailing sessions resume.

**Prebend** in Gear 4 and 5 have a 10mm difference. If you are a lighter team or its wavy it is good to have more prebend and therefore less vang and more twist in the main. If you are heavier and can still handle the tighter leech then a straighter mast is better.

Tips for measuring Pre Bend – this is easiest with two people. To measure prebend, pull tension on the main halyard and hold the main halyard as tight as possible against the black band near gooseneck.

Measure between the mast track and the forward edge of the halyard at the junction of the spreaders.





# DOYLE

## INTERNATIONAL 420 CLASS TUNING GUIDE

### JIB CJ 24

It is good to have tuning marks on the deck of the 420, and marks on the Jib sheet so you can accurately trim the Jib.

The Jib height is an important adjustment to make sure you have the leech set up closed or twisted.

Hint here is to have the foot of the Jib just kissing the deck at the Jibs lowest point when you do not have any Jib Cunningham on.

The Jib Clew attachment point is where the radial seams all meet and this is slightly higher on the Jib. This means you do not have to windward sheet the jib as hard to get the same fullness and closed leech.

### SPINNAKER CS 24

The CS24 spinnaker is built big. This is a powerful sail that is very quick downwind and on the reaches through smart design and engineering.

On the downwind make sure you have the pole height set up correctly. You need to match the leeward clew height with the clew that your pole is attached to.

This will be lower in the lighter wind and higher when windy.

The sail is designed so the foot folds when on an extremely tight reach – this makes the spinnaker flatter meaning you can sail a higher angle.

### GET 100% OUT OF YOUR SAIL

*Are we getting the most out of our sail? There is no magic formula to prepare a sail. Then, how can we know if we perfectly prepare the sail for the different conditions?*

Seeing the evidence from speed testing is the answer. The best and the only way to see if your sail needs adjustments is testing your boat speed with other sailors who have a similar level. It is very important that during the tests the changes are introduced one by one and tested several times before the next change. If you introduce several changes at the same time, you will never know which of them have really affected the speed.

Good luck, have fun, and keep learning!



DOYLE ONE DESIGN EXPERT

Andrew Brown  
andrew.brown@doylesails.co.nz

MAJOR SUPPORTER OF

LIVE OCEAN

OFFICIAL SAILMAKER TO

SAIL GP

