

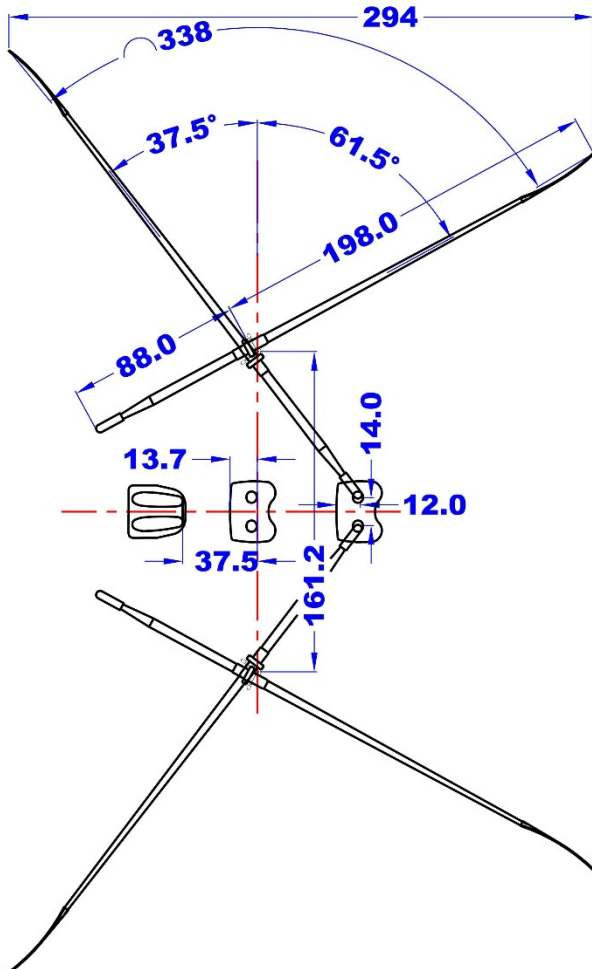
Custom rigging is the process of analyzing an individual's size, flexibility and power to develop settings for the boat, rigger and oar that provide comfort and efficiency. Developing a Custom Rigging setup for an individual involves a number of steps and this paper briefly describes the process.

Develop Rigging Standards Based on Measurements

1. Compile data related to body anthropometrics including size, flexibility and power for athletes in various categories (M, W, LM, LW, MM, MW). The chart to the right shows the measurements captured.
2. Analyze the data in each category to determine mean, maximum, minimum, and standard deviations for all measurement data sets.
3. Determine links between athlete measurement data and rigging dimensions. For example, the adjustment of span relates to athlete stroke length, sleeve length, power capacity and target stroke rate.
4. Develop standard rigging dimensions for all race categories based on average athlete measurement data.

Determine Custom Rigging Settings for Individual Measurements

1. Athlete completes measurement data for custom rigging.
2. Athlete measurements are evaluated and custom rigging settings calculated. The custom setting is calculated by adding and/or subtracting an adjustment values for each rigging dimension based on the difference from average. In Example A, the span will be changed (from the standard dimension) by +1.3 cm based on the individual's data.



customer name: Name				
Athlete Measurement Description	Name	Rigging Dimension Description	Rigging Measurement Set-up (metric)	Imperial Measurement (inches)
current date	2020-05-14	hull type	Super Lightweight	
Gender	M	boat size	63.5-72.6kg	140-160lbs
year of birth	N/A	boat length (m)	7.75m	25' 5"
age	N/A		137.7	74.8
race category	LM	back bowball to stern rigger bracket bolt	343.2	135 1/8
athlete race weight (kg)	68.0	pin line to back bow ball	413.2	162 5/8
shoe size	M9.5	toe bar from back bow ball (approx.)	474.0	186 5/8
height (cm)	180	span	161.2	63 4/8
seat to shoulder height (cm)	64.0	footstop distance (pin line to heel cup)	42.0	16 4/8
sleeve length (spine to knuckle)	85.0	toe bar location (holes from bow approx.)	8	8
right leg shin length (cm)	57.2	footstop height	16.5	6 2/4
left leg shin length (cm)	57.2	footstop angle (degrees)	40.0	40.0
inseam length (to floor, no shoes)	79	work through (extra 2.5cm travel)	18.2	7 1/4
ankle flexibility (degrees)	37	finish seat distance (front seat to pin line)	35.3	14
stroke length (on erg)	137.0	starboard oarlock pitch (degrees)	4.0	4.0
NEW front seat at finish to heelcup (on erg)	n/a	port oarlock pitch (degrees)	4.0	4.0
seat travel distance (on erg)	51.0	starboard oarlock height	16.0	6 2/8
oarhandle behind front seat at finish	12.0	port oarlock height	15.0	5 7/8
oarhandle finish split dist	14.0	oar manufacturer	C2	
target 2k race rate	34	oar stiffness	Med	
2k erg score (U19, U23 & Sr.)	06:32.0	oar length range	284-289	
1k erg score (Masters)	N/A	oar length	283.5	111 2/4
Race Power (Watts)	372	inboard	85.5	33 3/4
Current Oar Manufacturer	C2	outboard	198.0	78
Current oar Length Range	284-289	blade type	Smth2	
current oar length	N/A	blade area	822	127 3/8
current oar inboard	N/A	Approximate Catch Angle	65.1	65.0%
oar shaft flex	Med	Approximate Finish Angle	35.1	35.0%
blade type	Smth2	Outboard Stroke Length	302	
blade area	822	Outboard Arc Length	343	
current span	N/A			

Example A - Calculating Custom Span

- a) start with the standard span dimension (159.5)
- b) long athlete length, add 0.8cm
- c) long sleeve length, add 0.3cm
- d) strong erg score, subtract 0.5cm
- e) low target race rate, subtract 0.1cm
- f) new span dimension setting is 161.2cm

3. The span and oar outboard dimensions are calculated as they relate to the length and power measurements of the individual as noted in Example A. The rigging settings determines the stroke length and stroke arc angle. Blade area is also a factor.

4. The calculation of oar Inboard relates to span and along with footstop distance determine an effective stroke position.

5. Footstop distance is determined relative to the position of the hands at finish, oarhandle to front seat, leg inseam, span and inboard. The footstop position controls the relative location of the stroke arc beside the boat (catch and finish angles) and is a critical dimension of effective rigging.

6. Footstop height and angle are calculated from the athlete's ankle flexibility, shoe size, shin length and seat to shoulder height.

7. Oarlock height is determined from the athlete's weight and seat to shoulder height.

Once all calculations are complete the rigging dimension sheet (upper) is populated with the adjustment settings and a graphic (left) of the stroke length, arc, position, seat and footstop position is developed. The Custom Rigging Setup dimensions and Graphic are reviewed and evaluated and possible rowing technique modifications added to the sheet. The athlete receives a copy of both sheets. Follow-up Purcerverance video analysis is recommended to analyze the efficiency of the rigging.

For a complete list of athlete measurements required to calculate a Custom Rigging Setup go to <https://purcerverance.ca/coach-support>