

Spec	Source	Specification (metric)	Unit of Measure	Min/Max Value	Ideal Value
S1	CN1, CN2	User above XX height can see flow over test specimen	in	50	40
S2	CN7	Fully loaded structure with factor of safety of XX	#	2	>2
S3	CN12	Requires <XX lbs to accelerate each cart from standstill	lbs	50	25
S4	CN7	Equipment is cleared safe for use by university safety official? (Y/N)	Y/N	Y	Y
S5	CN7, CN21	Machine makes noise of less than XX dB when measured at ear level	dB	Max: 70	55
S6	CN 4, CN14	Average fluid velocity consistent to XX ft/s	ft/s	0.05	0.025
S7	CN4, CN14, CN16	Flat velocity profile as defined by XX% of average in middle XX% of channel at test section for a measured velocity with range from XX to XX ft/s?	%average speed, % channel, ft/s	10%, 25%, 0.1 to 0.5	5%, 75%, .1 to 1
S8	CN1, CN2, CN4	Has flow visualizer that generates XX number of streamlines	number	5	10
S9	CN2, CN5,CN6	Angle of attack of test specimen variability by XX degrees from 0°	degrees	±90 degrees in 1 degree increments	±90 degrees continuously
S10	CN1, CN2, CN4	For ten separate flow tests on a cylinder, the average separation point over a cylinder is accurate to +/- XX degrees	degrees	12	5
S11	CN8, CN17	All water can be input into system within XX minutes	min	< 60	30
S12	CN3, CN18, CN20	Amount of water lost from system during operation over 1 hour	gallons	0	0
S13	CN3, CN18, CN20	Amount of water lost from system during setup?	gallons	<1	0
S14	CN3, CN8	Test setup can be run for XX hours without changing the water with intermittent use over 1 week	hours	5	10
S15	CN18	XX% of water can be drained/removed from system within XX minutes	% Water, mins	90%, 120	95%, 30
S16	CN17	Fits through standard doorway (width/height)	in	<36" wide, <84" tall	<36" wide, <84" tall
S17	CN1, CN2, CN5, CN6	Size of test specimen area is XX length by XX wide	in	<5" long, <5" wide	<10" long, <10" wide
S18	CN18	Time to clean water table (not including draining system)	min	<30	15
S19	CN13, CN15	On average, XX% of students can operate system after reading documentation to change mass flow rate of the water flow?	Survey of Students %	80	95
S20	CN7, CN15	Has emergency shutoff capability? (Y/N)	Y/N	Y	Y
S21	CN3, CN4, CN15, CN17	Test reaches steady state channel flow in under XX minutes	min	1	0.5
S22	CN3, CN4	Test setup can run continuously for XX minutes	min	> 30	> 60
S23	CN2, CN5	Test specimen able to withstand XX lateral force on top of specimen	lbf	>5	>10
S24	CN7, CN17	Maximum current for system from power supply	Amps	<17	<15
S25	CN8, CN9	Test setup can interface with storage/pumping apparatus using XX number of connections	number	Max: 4	2
S26	CN9, CN10, CN11	Contains "off-the-shelf" components where applicable? (Y/N)	Y/N	Majorly	Y
S27	CN8, CN11	Design can be broken down for multiple purposes? (Y/N)	Y/N	Y	Y