

| 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 usable at two locations more than XX feet apart? (Y/N) | ft | 8 | 12 |
| 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 |