



# The RedBack Bucket Meter

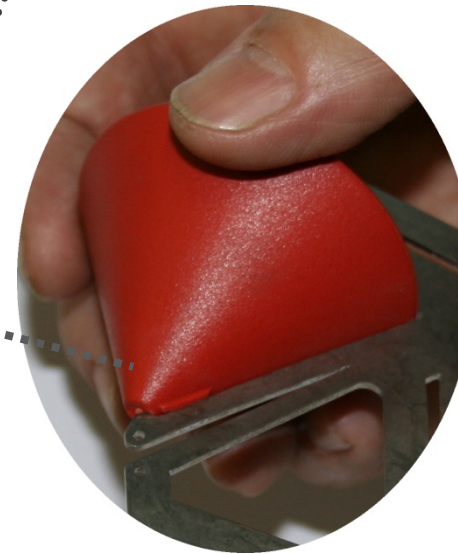
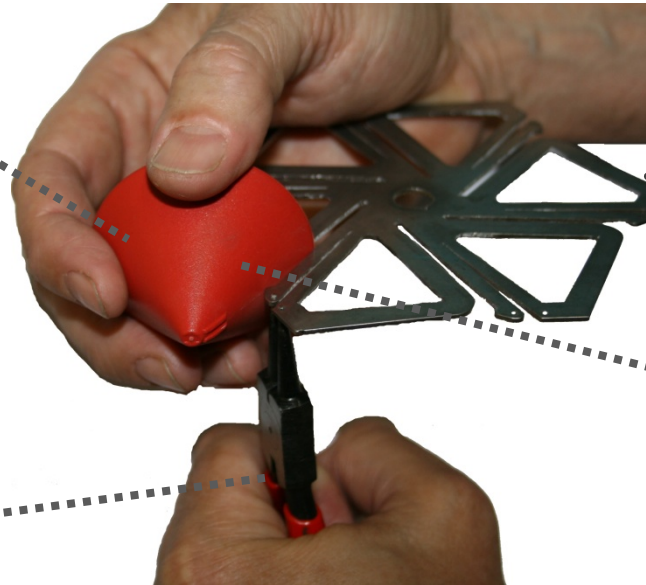
## 1. Features & Advantages

1) Interchangeable glass filled nylon buckets in case of damage

2) Change of bucket is easily done using a Circlip tool

4) Balanced bucket assembly moulded to exact shape and weight

3) Impact resistant spring stainless steel frame



The advantages of the RedBack over the traditional bucket meter can be summarised as follows:

- Flexible spring stainless steel frame which can resist force; where traditional stainless steel frame will bend slightly causing frame assembly to be out of balance, hence drift in calibration results
- Glass filled nylon interchangeable buckets are used ; where traditional stainless steel bucket if dented will cause bad performance and inaccurate measurement
- Moulded glass filled nylon buckets are the same in weight and shape. Hence, better calibration results

## 2. Features & Advantages cont's

7) **Low starting velocity**  
0.034 m/sec

5) **Advanced & compact reed switching system**

8) **Robust construction;**  
**Maximum velocity**  
5m/sec

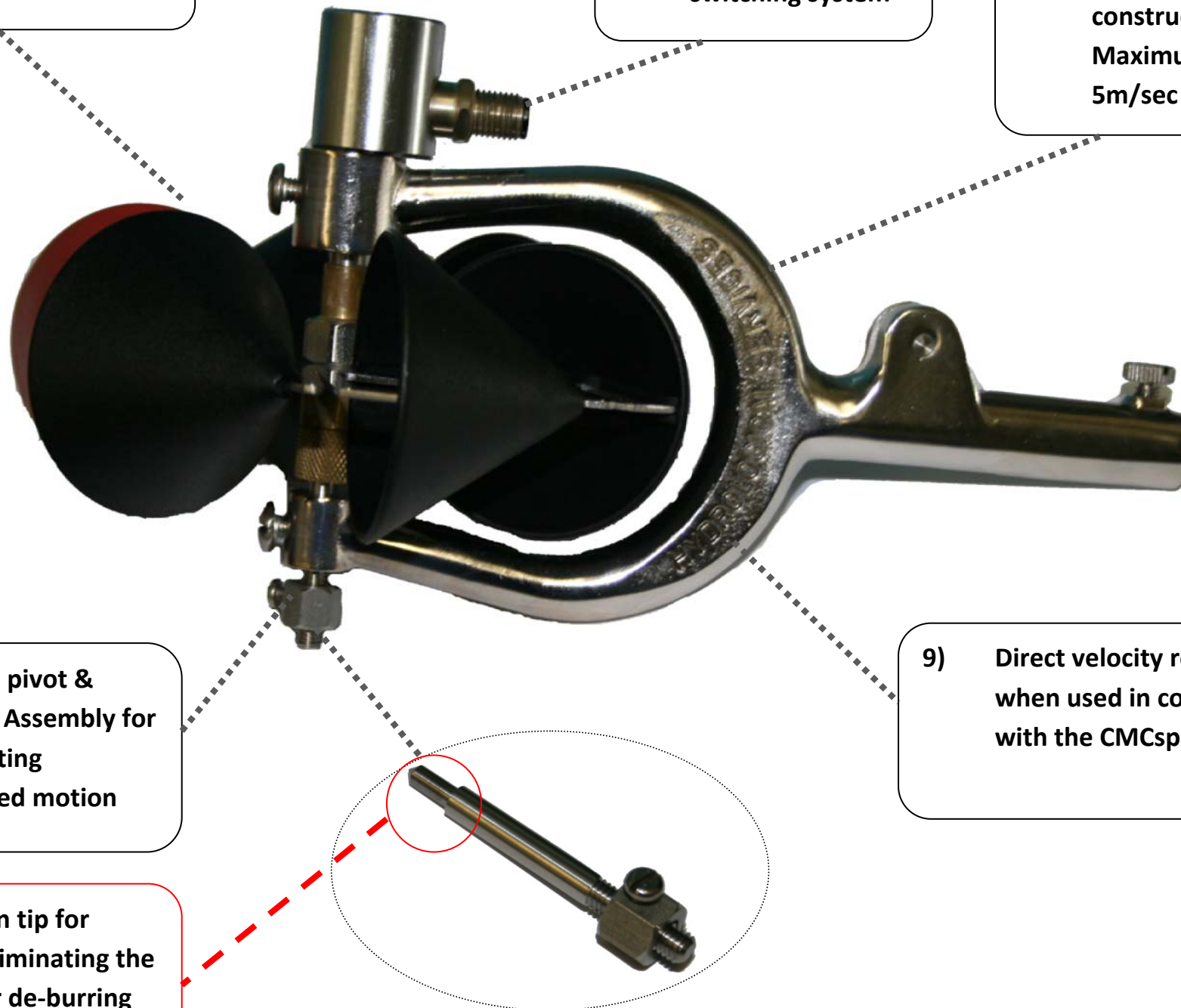
### Advantages Cont's

- d) Advanced magnet reed switch assembly provides reliability; unlike traditional bucket meter where reed switch lock up and operates intermittently
- e) The pivot tip is made out of tungsten and bearing made up of hard metal. Hence, the turning motion is long lasting and replicated ensuring accuracy of water flow measurement
- f) Low maintenance and cost effective; The RedBack cost is incomparable to its accuracy +/-1%

6) **Durable pivot & Bearing Assembly for long lasting replicated motion**

9) **Direct velocity reading when used in conjunction with the CMCsp or PVD100**

10) **Tungsten tip for pivot; eliminating the need for de-burring tip in the future**



### 3. Calibration, Repeatability & Reliability

NOTE: CALIBRATION 3 & 4 WERE UNDERTAKING USING A DIFFERENT REED SWITCH AND A DIFFERENT SET OF BUCKETS

**Calibration 1**

Meter Revolution	Meter Time in sec	Trolley Time in sec	V/N	N	Trolley Velocity	Meter Velocity	%error
15	199.9	202.828	0.788451	0.075038	0.059163	0.059003	-0.27%
16	152.837	151.712	0.755562	0.104687	0.079097	0.079512	0.52%
16	120.608	121.17	0.746521	0.132661	0.099034	0.098862	-0.17%
17	104.951	100.864	0.734485	0.16198	0.118972	0.119424	0.38%
16	77.483	80.085	0.725632	0.206497	0.149841	0.150705	0.58%
17	67.84	66.17	0.723697	0.25059	0.181351	0.181689	0.19%
17	30.512	30.048	0.716783	0.557158	0.399361	0.397115	-0.56%
17	14.998	14.976	0.706919	1.133484	0.801282	0.8021	0.10%
17	10.013	9.968	0.709069	1.697793	1.203852	1.199265	-0.38%
17	7.474	7.486	0.704751	2.274552	1.602992	1.605649	0.17%
17	5.962	5.993	0.702231	2.851392	2.002336	2.012091	0.49%
18	3.156	2.998	0.701801	5.703422	4.002668	4.021631	0.47%
17	2.405	2.399	0.707648	7.068607	5.002084	4.983541	-0.37%

**Calibration 3**

Meter Revolution	Meter Time in sec	Trolley Time in sec	V/N	N	Trolley Velocity	Meter Velocity	%error
15	202.607	202.838	0.799089	0.074035	0.059161	0.05889	-0.46%
16	150.979	151.717	0.746352	0.105975	0.079095	0.079507	0.52%
16	117.844	121.177	0.729371	0.135773	0.099029	0.098741	-0.29%
17	102.828	100.872	0.71957	0.165325	0.118963	0.119234	0.23%
17	80.919	80.091	0.71318	0.210087	0.14983	0.150352	0.35%
17	66.885	66.174	0.713467	0.254168	0.18134	0.180997	-0.19%
17	29.886	30.051	0.702007	0.568828	0.399321	0.399749	0.11%
17	14.931	14.977	0.703714	1.138571	0.801229	0.799871	-0.17%
17	9.939	9.969	0.703758	1.710434	1.203732	1.202119	-0.13%
17	7.43	7.486	0.700602	2.288022	1.602992	1.608394	0.34%
17	5.941	5.993	0.699758	2.861471	2.002336	2.011759	0.47%
17	2.974	2.998	0.700232	5.716207	4.002668	4.01978	0.43%
17	2.399	2.399	0.705882	7.086286	5.002084	4.983494	-0.37%

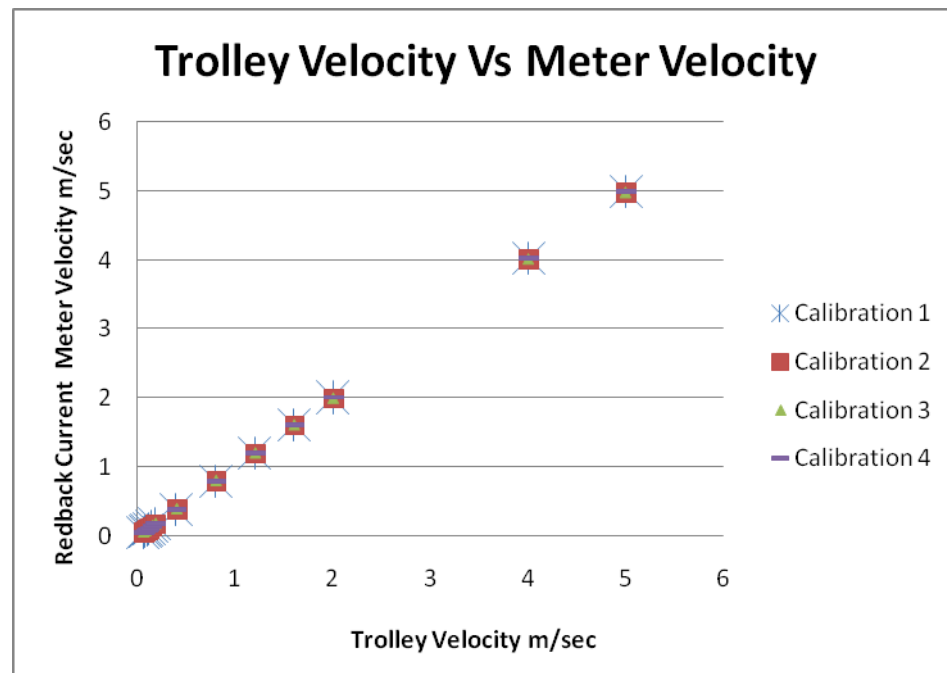
**Calibration 2**

Meter Revolution	Meter Time in sec	Trolley Time in sec	V/N	N	Trolley Velocity	Meter Velocity	%error
15	212.601	202.836	0.838514	0.070555	0.059161	0.058833	0.56%
16	158.759	151.712	0.784837	0.100782	0.079097	0.079197	-0.13%
16	121.888	121.171	0.754438	0.131268	0.099034	0.099735	-0.71%
16	100.643	100.87	0.748312	0.158978	0.118965	0.118403	0.47%
16	78.49	80.089	0.735026	0.203848	0.149833	0.148632	0.80%
17	66.734	66.17	0.711899	0.254743	0.181351	0.18292	-0.87%
17	30.514	30.05	0.716782	0.557121	0.399334	0.395578	0.94%
17	14.898	14.977	0.702159	1.141093	0.801229	0.805818	-0.57%
17	9.943	9.969	0.704041	1.709746	1.203732	1.205296	-0.13%
18	7.858	7.485	0.699889	2.290659	1.603206	1.613388	-0.64%
17	5.985	5.993	0.70494	2.840434	2.002336	1.999605	0.14%
17	2.975	2.998	0.700467	5.714286	4.002668	4.018486	-0.40%
17	2.398	2.4	0.705294	7.089241	5	4.984392	0.31%

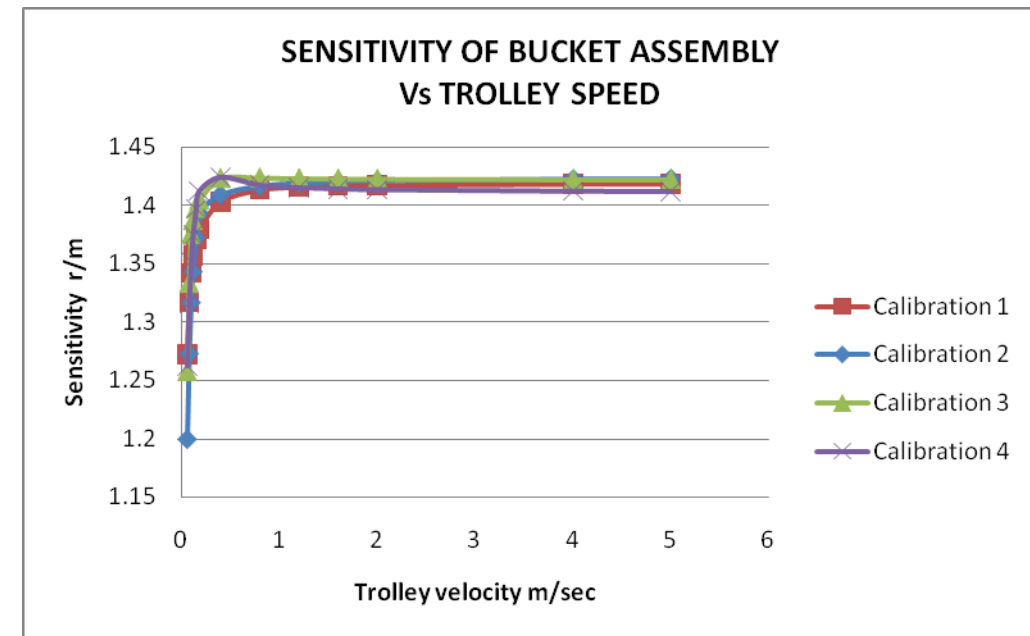
**Calibration 4**

Meter Revolution	Meter Time in sec	Trolley Time in sec	V/N	N	Trolley Velocity	Meter Velocity	%error
15	199.906	202.833	0.788456	0.075035	0.059162	0.059436	0.46%
16	154.782	151.719	0.765141	0.103371	0.079094	0.07852	-0.72%
17	126.767	121.184	0.738403	0.134104	0.099023	0.099219	0.20%
16	97.467	100.873	0.724676	0.164158	0.118961	0.11946	0.42%
16	76.575	80.089	0.717093	0.208945	0.149833	0.149625	-0.14%
17	66.568	66.176	0.710064	0.255378	0.181335	0.180897	-0.24%
17	30.086	30.052	0.706681	0.565047	0.399308	0.396918	-0.60%
18	15.771	14.977	0.70201	1.141335	0.801229	0.805507	0.53%
17	9.98	9.968	0.706732	1.703407	1.203852	1.204015	0.01%
17	7.45	7.485	0.702582	2.281879	1.603206	1.614152	0.68%
17	5.997	5.993	0.706353	2.834751	2.002336	2.006138	0.19%
17	2.994	2.998	0.704941	5.678023	4.002668	4.022018	0.48%
17	2.417	2.398	0.711475	7.033513	5.00417	4.98306	-0.42%

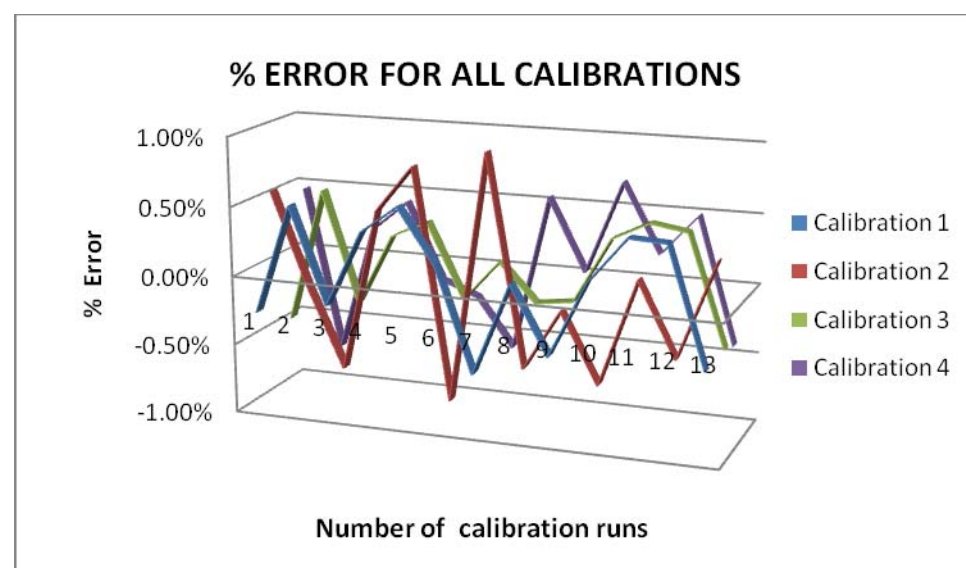
## 4. Calibration, Repeatability & Reliability cont's



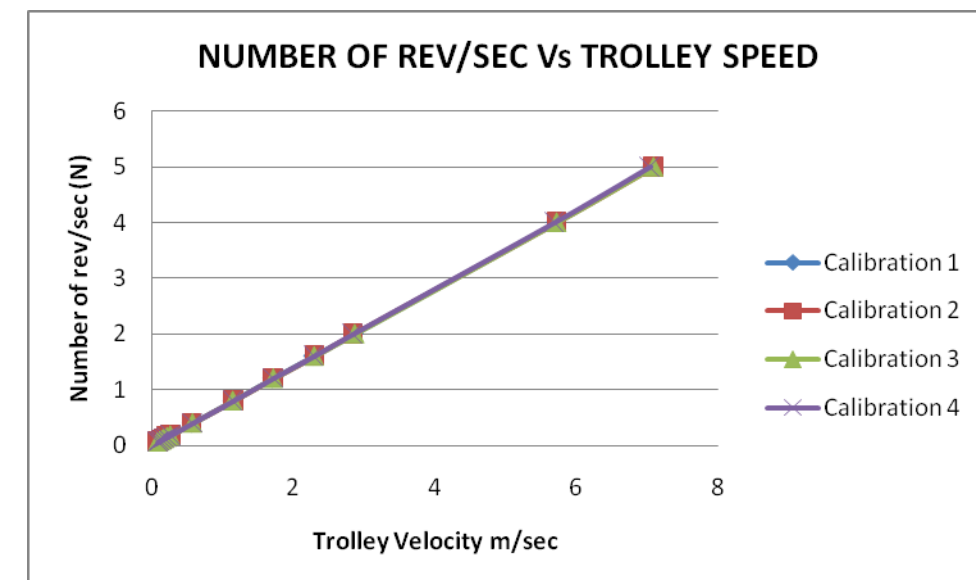
Repeatability in velocity results



Sensitivity behaving in a similar manner for all calibrations



% Error is always less or equal to +/- 1%



Linear relationship between Bucket Meter & Trolley Velocity