

1002-1.23 Electric Thruster with 19300XLR Motor Performance Table

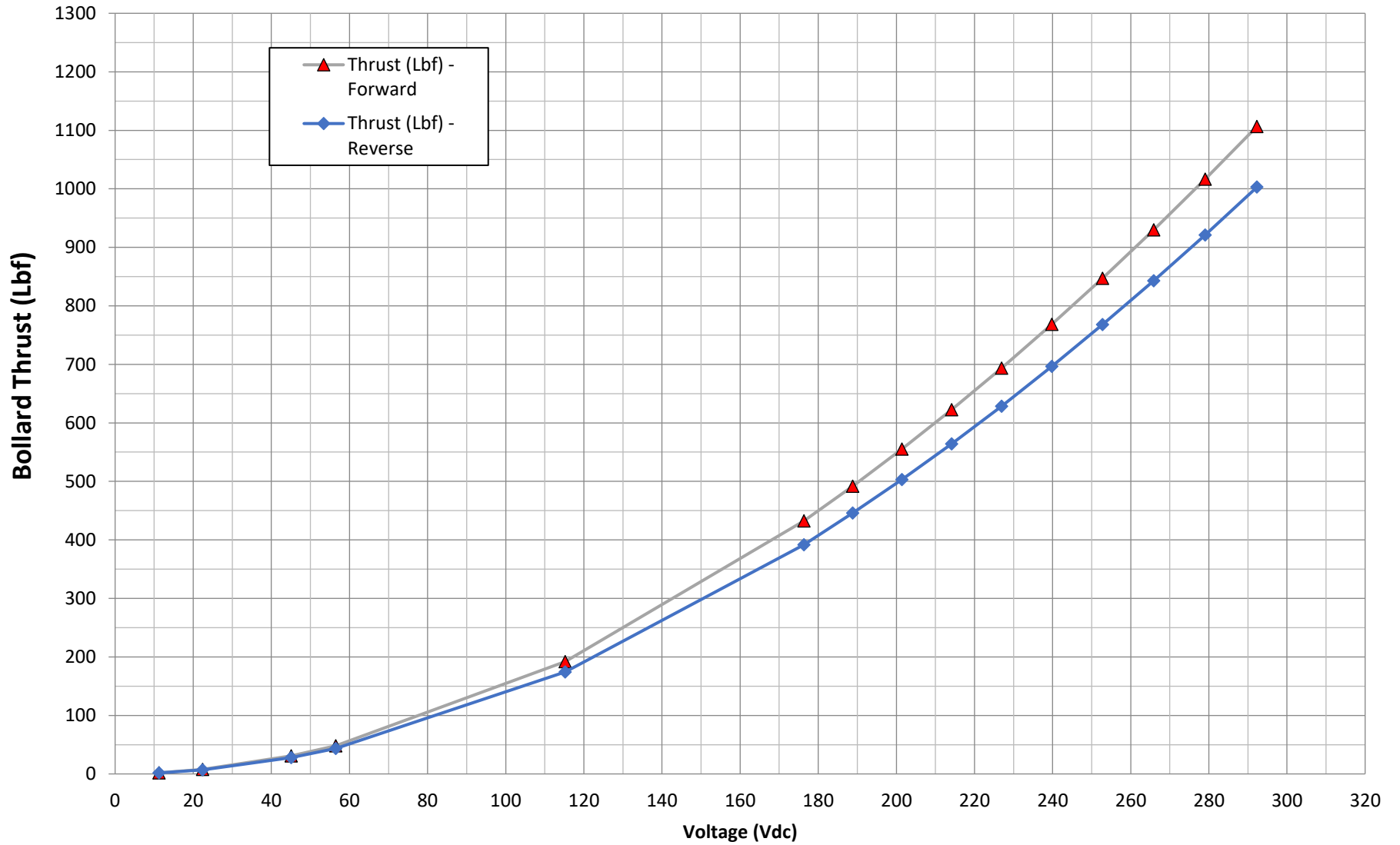
Speed (RPM)	System Voltage (VDC)	Min Voltage (VDC)	Current (A rms)	Torque		Bollard Thrust		Reverse Thrust		Power Shaft		Power In		Efficiency (Pout/Pin)
				(N-M)	(In-Lbs)	0 (Lbf)	0 (Kgf)	(Lbf)	(Kgf)	(HP)	(Watts)	(Watts)	(HP)	
100	300	11.3	1.1	1.2	10.2	2	0.9	2	0.8	0.02	12	12	0.0	98.6%
200	300	22.4	1.9	1.9	16.8	8	3.5	7	3.2	0.05	40	40	0.1	98.8%
400	300	45.1	4.8	4.9	43.2	31	13.9	28	12.6	0.27	204	208	0.3	98.5%
500	300	56.5	7.0	7.1	63.0	48	21.8	44	19.7	0.50	373	379	0.5	98.2%
1000	300	115.2	25.2	25.7	227.9	192	87.1	174	79.0	3.62	2697	2785	3.7	96.8%
1500	300	176.3	55.6	56.8	502.7	432	196.1	392	177.7	11.97	8926	9354	12.5	95.4%
1600	300	188.8	63.1	64.5	570.9	492	223.1	446	202.2	14.49	10812	11364	15.2	95.1%
1700	300	201.4	71.2	72.7	643.5	555	251.9	503	228.2	17.36	12948	13649	18.3	94.9%
1800	300	214.1	79.7	81.4	720.4	622	282.4	564	255.9	20.58	15349	16228	21.8	94.6%
1900	300	226.9	88.7	90.6	801.8	694	314.6	629	285.1	24.17	18032	19121	25.6	94.3%
2000	300	239.8	98.1	100.3	887.5	769	348.6	696	315.9	28.16	21011	22345	30.0	94.0%
2100	300	252.8	108.1	110.5	977.7	847	384.3	768	348.3	32.58	24302	25922	34.7	93.8%
2200	300	265.9	118.6	121.2	1072.2	930	421.8	843	382.2	37.43	27921	29869	40.0	93.5%
2300	300	279.0	129.5	132.3	1171.2	1016	461.0	921	417.8	42.74	31884	34208	45.9	93.2%
2400	300	292.3	140.9	144.0	1274.5	1107	502.0	1003	454.9	48.53	36206	38959	52.2	92.9%

Table Information:

- 1) The Minimum Voltage column in the above table shows the minimum Voltage needed to achieve the performance at that corresponding propeller RPM/Thrust.
- 2) The Current shown represents the continues RMS Current to the motor to achieve the Thrust at the corresponding propeller RPM.
- 3) The Shaft HP developed is a function of the propeller and increases with propeller RPM.
- 4) The maximum performance achieved will depend on the limitations of customers system Voltage and driver Current capacity.
- 5) For Thrust at Forward Vehicle Speed (Kts), anything lower than 500 RPM varies greatly with vehicle design.
- 6) The Current/RPM might need to be limited depending on customer connector spec and or system Current limitations.
- 7) Minimum Voltage to achieve full Thrust is 292 VDC.
- 8) Max Voltage should not exceed 10% of rated Voltage.



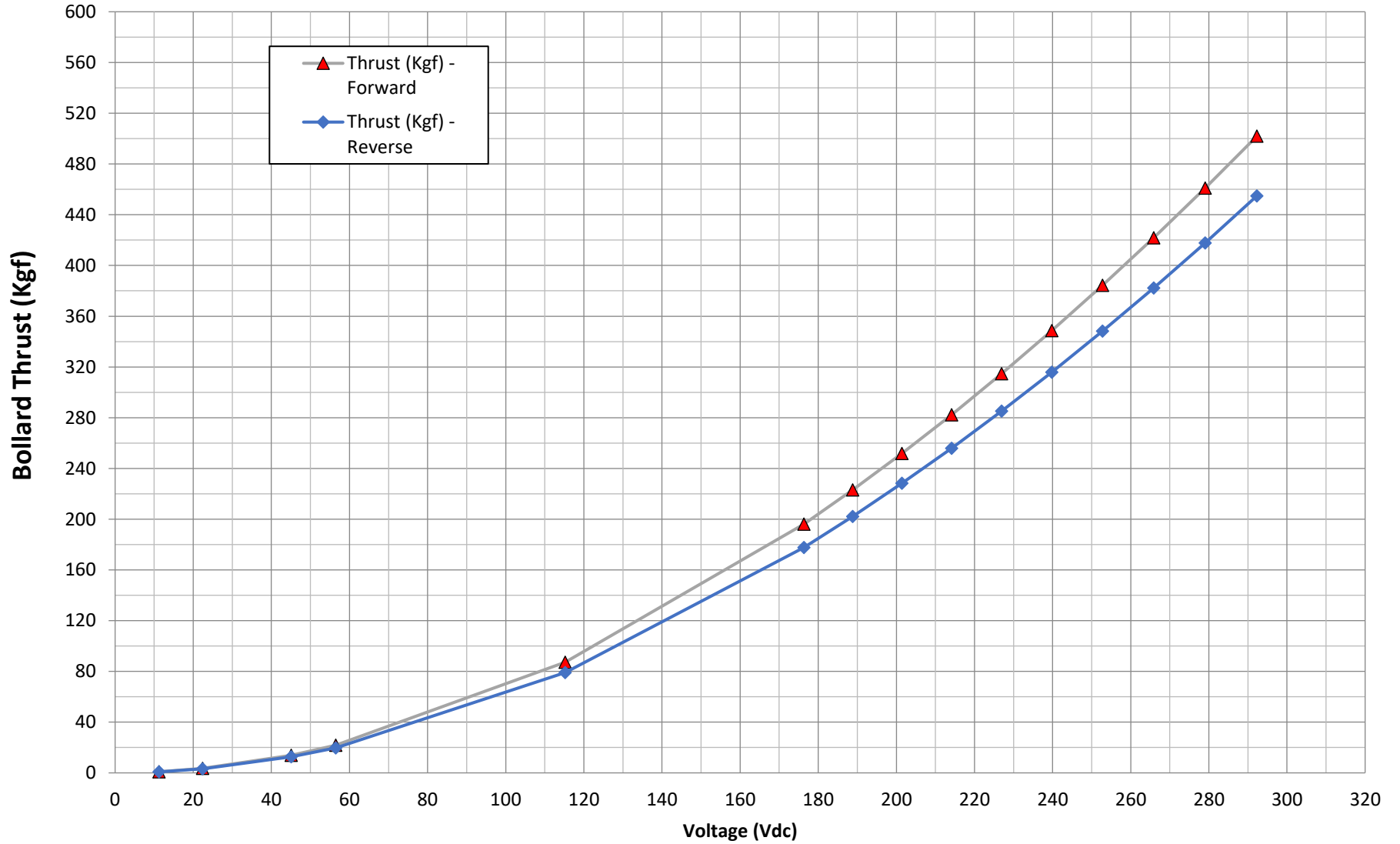
1002-1.23-19300XLR Electric Thruster Thrust (Lbf) vs Voltage (Vdc)



Note:
System Voltage equals 300VDC. Graph shows Thrust with Voltages below 300VDC.



1002-1.23-19300XLR Electric Thruster Thrust (Kgf) vs Voltage (Vdc)

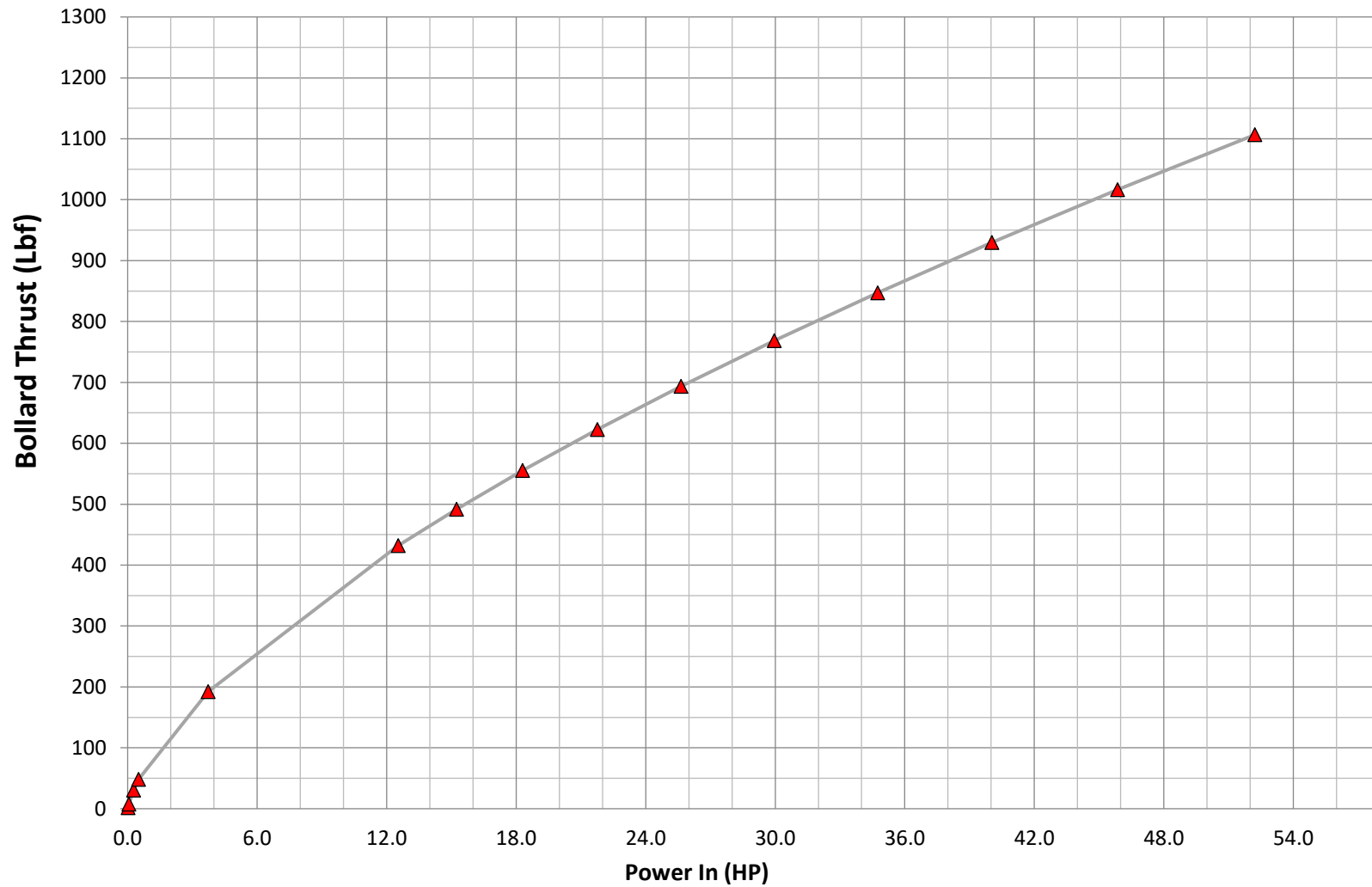


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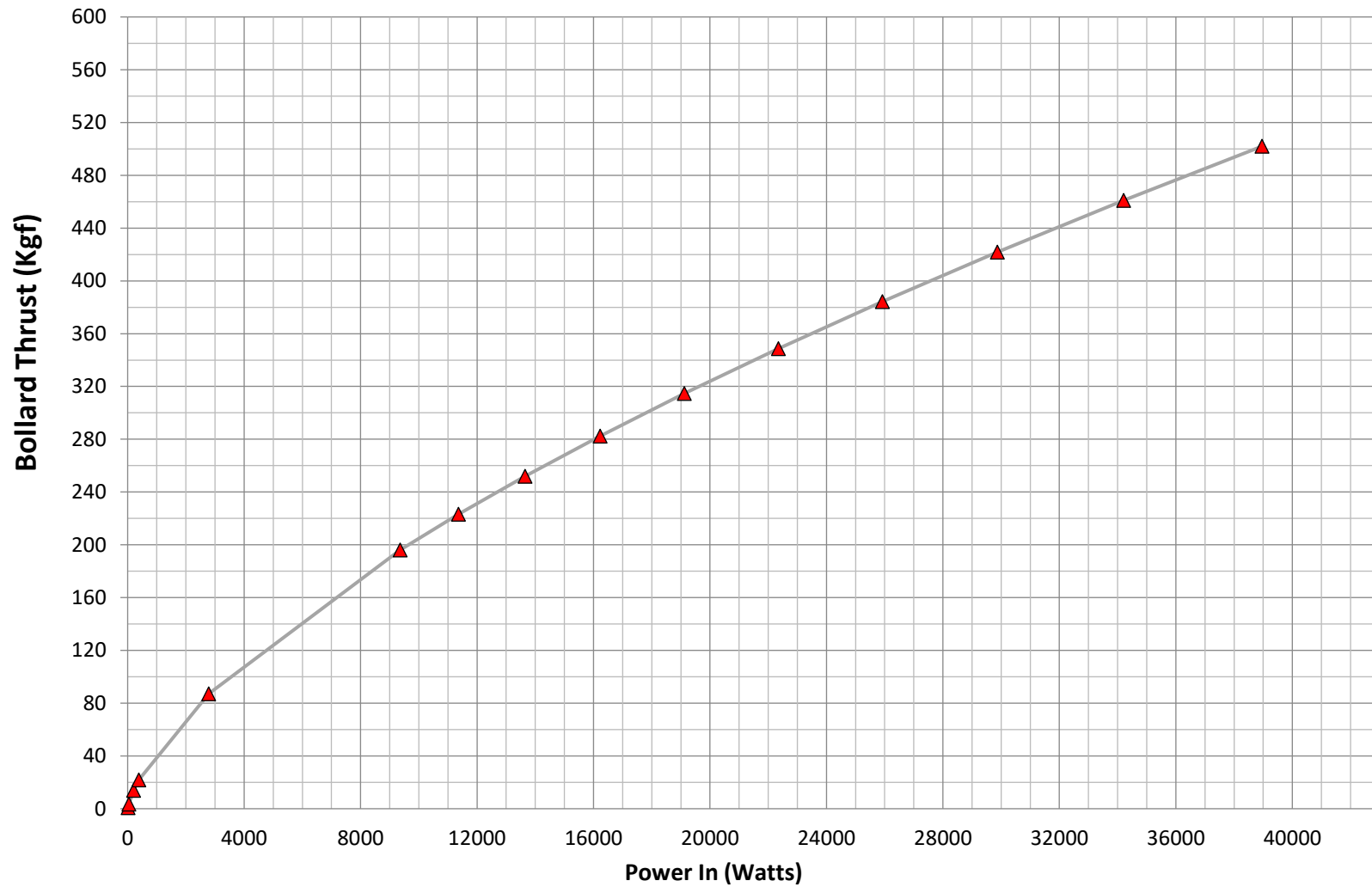
1002-1.23-19300XLR Electric Thruster Thrust (Lbf) vs Power In (HP)





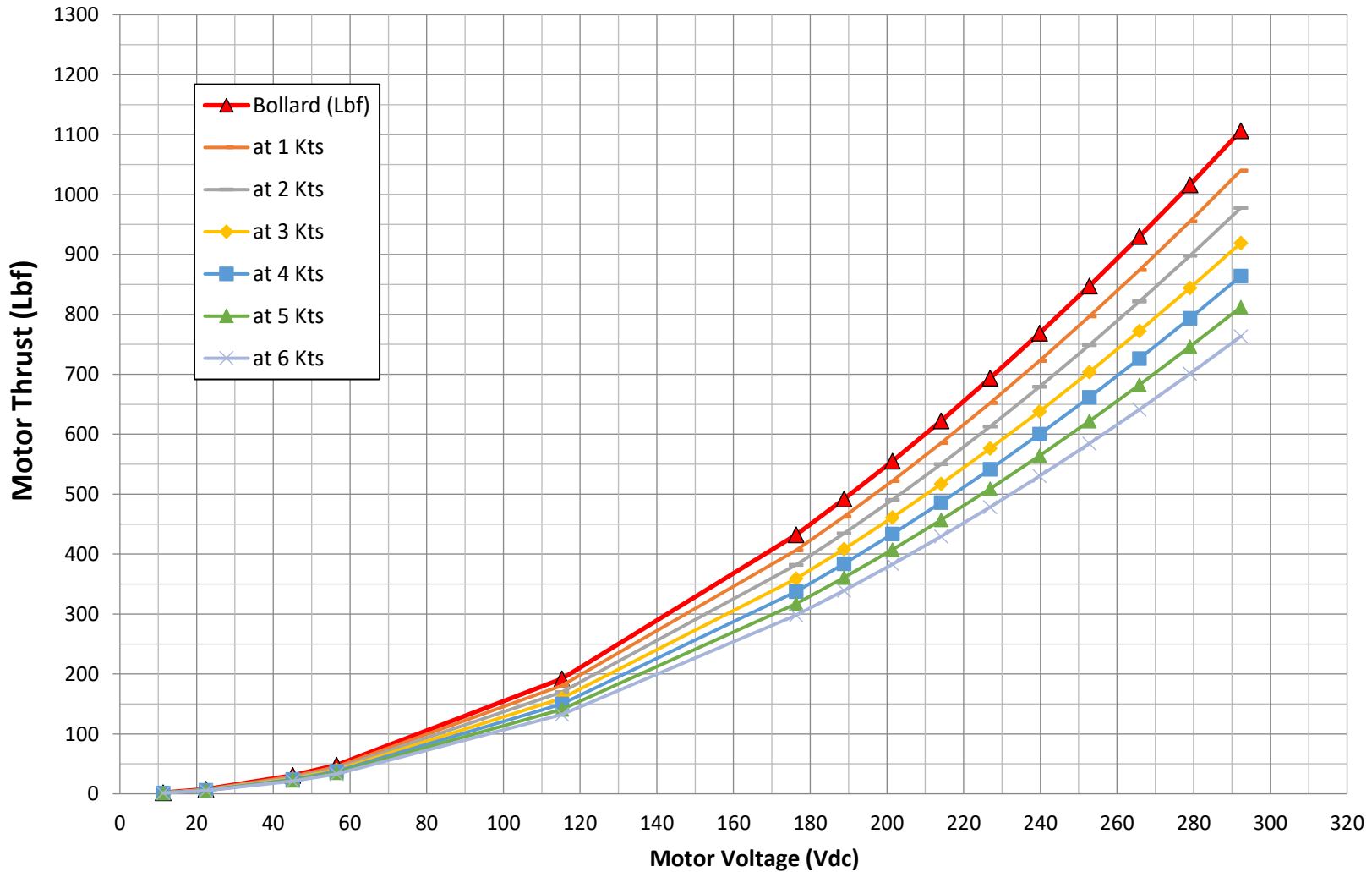
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1002-1.23-19300XLR Electric Thruster Thrust (Kgf) vs Power In (Watts)





1002-1.23-19300XLR Electric Thruster Thrust (Lbf) vs Voltage (Vdc)

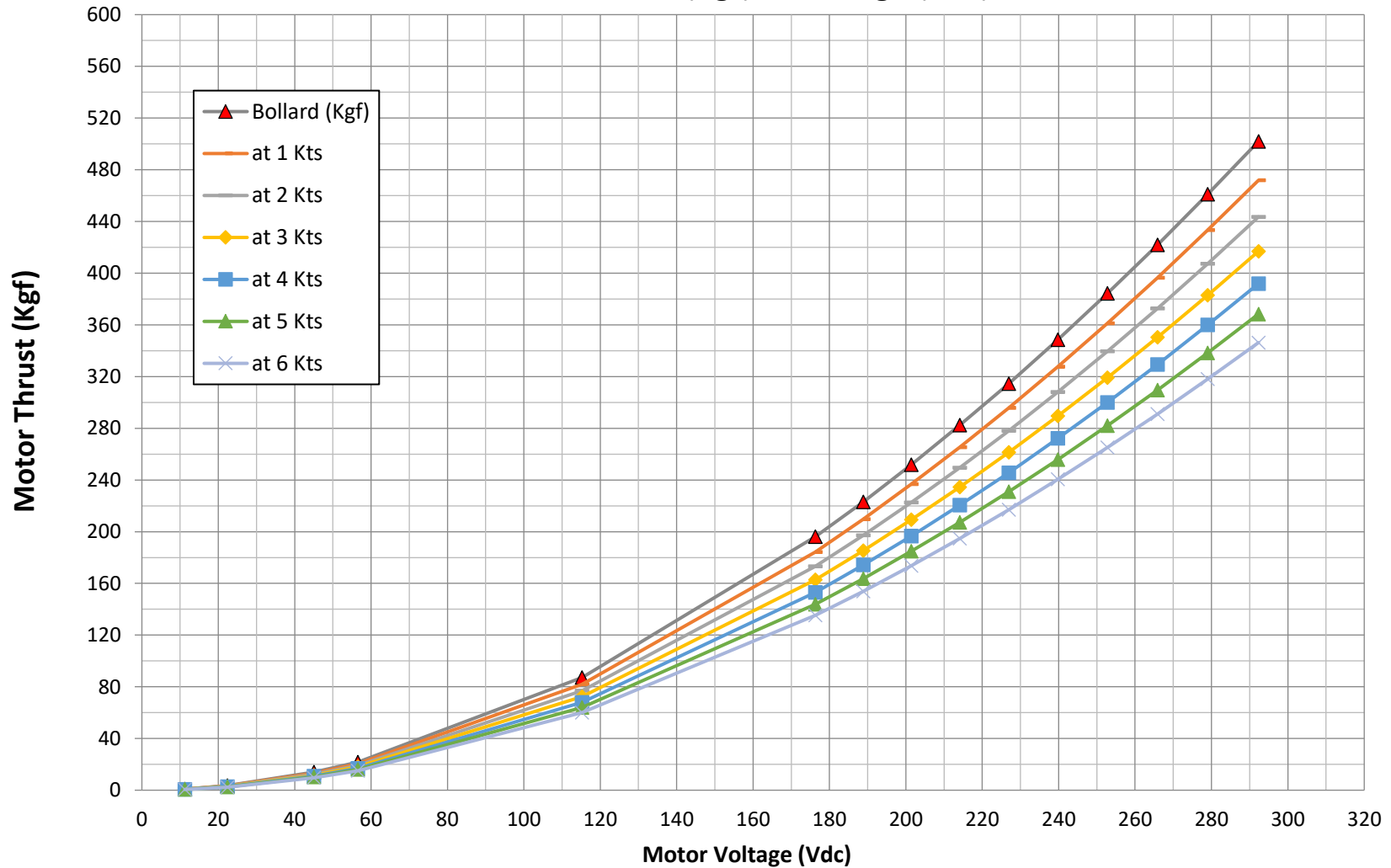


Note:

- 1) For Thrust at Forward Vehicle Speed (Kts), anything lower than 500 RPM varies greatly with vehicle design.
- 2) Thrust at forward vehicle speed from 1 Kts to 6 Kts is based on a local water speed with a very conservative vehicle wake factor.
- 3) System Voltage equals 300VDC. Graph shows Thrust with Voltages below 300VDC.



1002-1.23-19300XLR Electric Thruster Thrust (Kgf) vs Voltage (Vdc)



Note:

- 1) For Thrust at Forward Vehicle Speed (Kts), anything lower than 500 RPM varies greatly with vehicle design.
- 2) Thrust at forward vehicle speed from 1 Kts to 6 Kts is based on a local water speed with a very conservative vehicle wake factor.
- 3) System Voltage equals 300VDC. Graph shows Thrust with Voltages below 300VDC.