

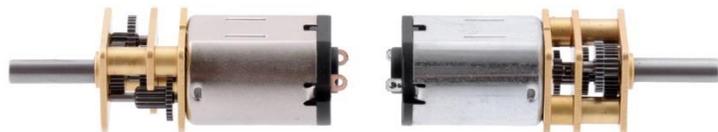


The [Pololu Micro Metal Gearmotor family](#) consists of small, bidirectional, brushed DC metal gearmotors with nitride-hardened martensitic stainless steel gears. They are available in a wide range of gear ratios, motor windings, brushes, and encoder configurations:

Gear ratio options	Motor winding/brush options	Encoder options
<ul style="list-style-type: none"> <li>• 5:1</li> <li>• 10:1</li> <li>• 15:1</li> <li>• 30:1</li> <li>• 50:1</li> <li>• 75:1</li> <li>• 100:1</li> <li>• 150:1</li> <li>• 210:1</li> <li>• 250:1</li> <li>• 298:1</li> <li>• 380:1</li> <li>• 1000:1</li> </ul>	<ul style="list-style-type: none"> <li>• <b>HPCB 12V</b>: high-power 12V with long-life carbon brushes</li> <li>• <b>HPCB 6V</b>: high-power 6V with long-life carbon brushes</li> <li>• <b>HP 6V</b>: high-power 6V with precious metal brushes</li> <li>• <b>MP 6V</b>: medium power 6V with precious metal brushes</li> <li>• <b>LP 6V</b>: low-power 6V with precious metal brushes</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated 12 CPR quadrature encoder with back connector</li> <li>• Integrated 12 CPR quadrature encoder with side connector</li> <li>• Encoder-compatible (extended motor shaft for adding an encoder)</li> <li>• No encoder</li> </ul>

## Motor winding and brush options

The 6V and 12V HPCB are high-power motors with long-life carbon brushes. They offer nearly the same performance at their respective nominal voltages, just with the 12 V motor drawing half the current of the 6 V motor.



The HP, MP, and LP motors are intended for operation around 6V and offer three different power levels, with the lowest-power LP versions drawing the least current and the highest-power HP versions drawing the most current. These motors have shorter-life precious metal brushes, which are lower-friction than carbon brushes and generally preferred for lower-current applications.



carbon brushes

precious metal brushes

The HPCB versions can be differentiated from versions with precious metal brushes by their copper-colored terminals. Note that the HPCB terminals are 0.5 mm wider than those on the HP/MP/LP versions (2 mm vs. 1.5 mm), and they are approximately 1 mm closer together (6 mm vs. 7 mm).

## Encoder options

Each motor/gearbox combination is optionally available with an integrated incremental quadrature encoder on the motor shaft (i.e. the input to the gearbox). The two-channel Hall effect encoder senses the rotation of a 6-pole magnetic disc on a rear protrusion of the motor shaft, providing a resolution of 12 counts per revolution (CPR) of the motor shaft when counting both edges of both channels. To compute the gearbox output CPR, multiply 12 by the gearbox reduction factor. For example, for a 50:1 gearbox, the encoder would provide approximately 617 CPR of the gearbox output shaft (see exact gear ratios below).



The encoders are available in two styles—*Back Connector*, which has a connector oriented parallel to the motor, and *Side Connector*, which has a connector perpendicular to the motor—and work with Pololu’s assortment of [6-pin JST SH-style cables](#) and [6-pin JST SH-style connector boards](#). More generally, the encoder connectors are compatible with JST part number SHR-06V-S. A plastic snap-on housing covers the encoder disc and electronics.

Motor versions are also optionally available with an extended motor shaft but no encoder. These are intended for those who want to implement their own encoder solutions or who want to assemble them with separately available [encoder modules](#).



No encoder



Encoder-compatible (extended motor shaft)



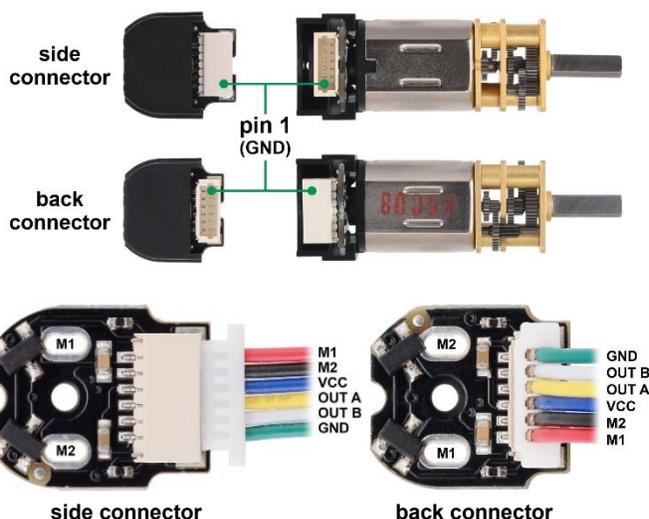
Encoder with back connector



Encoder with side connector

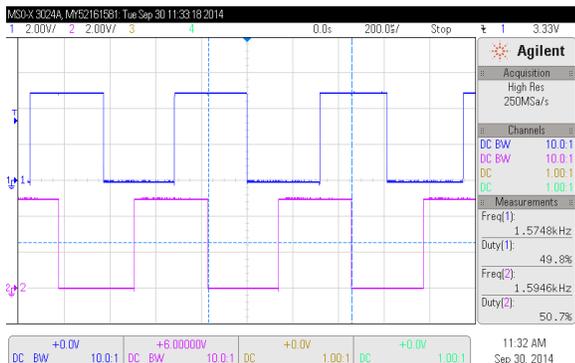
## Using the encoder (for versions with encoders)

Pin	Wire Color	Function
1	Green	Encoder GND
2	White	Encoder channel B output
3	Yellow	Encoder channel A output
4	Blue	Encoder Vcc (2.7 V to 18 V)
5	Black	Motor power M2
6	Red	Motor power M1 (“+” terminal)

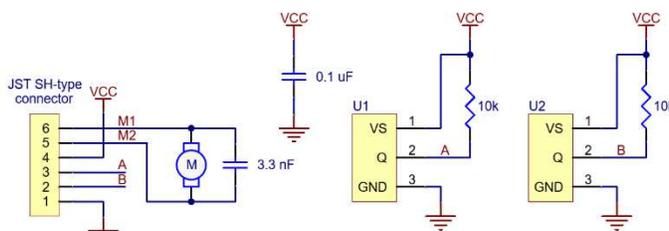


The table above shows the encoder connector pinout and the corresponding cable colors when used with Pololu JST cables. Note that the connector side with pin 1 is different for the two different connector styles, but they are drop-in compatible with each other when using Pololu cables. For consistency, pin 6 (M1, red wire) always connects to the motor terminal marked with a “+” on the end cap. This mark gets covered by the encoder, but it can be seen on the versions without encoders. (Note that this is just an identifying mark, and the motor is intended to be operated in both directions by alternating the polarity of the power to the motor leads.)

The encoder is powered through the Vcc and GND pins. Vcc should be between 2.7 V and 18 V. The quadrature outputs A and B are digital signals that are either driven low (0 V) or pulled to Vcc through 10 kΩ pull-up resistors, depending on the orientation of the motor. The sensors' comparators have built-in hysteresis, which prevents spurious signals in cases where the motor is near a transition point. The A and B signals are square waves with roughly 50% duty cycles that are approximately 90° out of phase. The order of the A and B transitions indicates motor direction (B will always lead A when the positive supply is connected to M1 and trail A when polarity is flipped), and the frequency indicates motor speed.



Example of encoder A and B outputs with Vcc = 6V, HP 6V version running at 6V, no load.



Note: U1 and U2 are Hall Effect sensor ICs in SOT-23 packages, e.g. DRV5013.

Encoder schematic diagram.

## Gearbox options

Nominal	Exact	Nominal	Exact
5 : 1	$\frac{27 \times 37}{20 \times 10} = 4.995 : 1$	150 : 1	$\frac{25 \times 32 \times 34 \times 35 \times 38}{12 \times 11 \times 14 \times 13 \times 10} \approx 150.5828 : 1$
10 : 1	$\frac{35 \times 37}{13 \times 10} \approx 9.9615 : 1$	210 : 1	$\frac{25 \times 34 \times 34 \times 35 \times 38}{12 \times 9 \times 13 \times 13 \times 10} \approx 210.5906 : 1$
15 : 1	$\frac{25 \times 34 \times 31}{12 \times 9 \times 16} \approx 15.2488 : 1$	250 : 1	$\frac{25 \times 34 \times 37 \times 35 \times 38}{12 \times 10 \times 10 \times 14 \times 10} \approx 248.9792 : 1$
30 : 1	$\frac{31 \times 33 \times 35 \times 34}{16 \times 14 \times 13 \times 14} \approx 29.8609 : 1$	298 : 1	$\frac{25 \times 34 \times 37 \times 35 \times 38}{12 \times 9 \times 10 \times 13 \times 10} \approx 297.9238 : 1$
50 : 1	$\frac{32 \times 33 \times 35 \times 38}{15 \times 14 \times 13 \times 10} \approx 51.4462 : 1$	380 : 1	$\frac{25 \times 35 \times 39 \times 36 \times 39}{12 \times 9 \times 9 \times 13 \times 10} = 379.1\bar{6} : 1$
75 : 1	$\frac{34 \times 34 \times 35 \times 38}{13 \times 12 \times 13 \times 10} \approx 75.8126 : 1$	1000 : 1	$\frac{25 \times 34 \times 35 \times 34 \times 34 \times 34 \times 27}{12 \times 9 \times 12 \times 14 \times 14 \times 14 \times 9} \approx 986.4064 : 1$
100 : 1	$\frac{35 \times 37 \times 35 \times 38}{12 \times 11 \times 13 \times 10} \approx 100.3700 : 1$		

The table above shows the exact gear ratios for the available options. All gearboxes have the same overall dimensions except for 1000:1, which is 3.5 mm longer than the others. Gearbox plates are brass on all versions except 380:1, which has steel plates for increased durability and resistance to wear from radial loads.

Note that the highest gear ratios can generate enough torque to damage themselves if exposed to loads beyond what they are rated for (25 kg-mm for 1000:1 and 380:1, 20 kg-mm for everything else). The point of these highest gear ratios is not to deliver more overall torque but rather to allow for slower speeds at a given voltage and to draw less current for a given torque within its rated operating range.

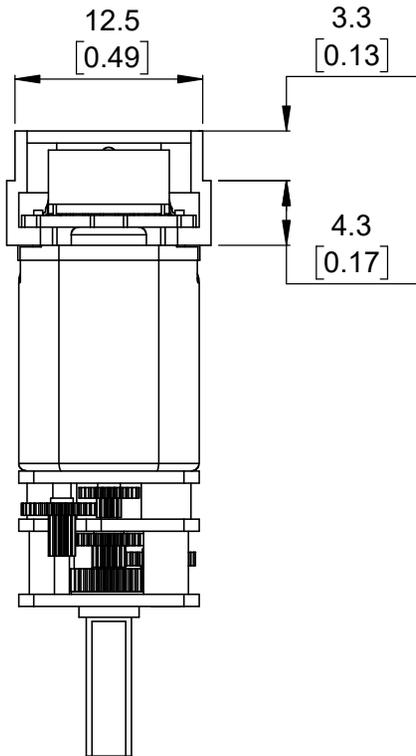


## Performance summary and graph table of contents

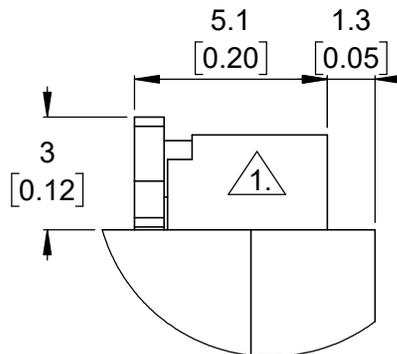
Motor Type	Rated Voltage	Pololu Item # <sup>(4)</sup>				Approx Gear Ratio	No Load		At Maximum Efficiency					Max Power	Stall Extrapolation <sup>(2)</sup>		Graph Page
							Speed	Current	Speed	Torque	Current	Output	Eff.		Torque	Current	
		A	B	C	D	:1	RPM (±20%)	mA (±50%)	RPM	kg-mm	A	W	%	W	kg-mm	A	
Low-Power (LP 6V)	6 V	1100, 2200, 5100, 5101				4.995	2500	50	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	0.37	0.5	0.36	
		1099, 2201, 5102, 5103				9.96	1300		- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	0.37	1.0		9
		4780, 4781, 5104, 5105				15.25	860		640	0.40	0.11	0.27	40	0.37	1.7		10
		993, 2202, 5106, 5107				29.86	450		320	0.66	0.11	0.22	34	0.31	2.9		11
		1098, 2203, 5108, 5109				51.45	270		200	1.0	0.10	0.20	34	0.29	4.4		12
		2360, 2209, 5110, 5111				75.81	180		140	1.3	0.10	0.19	33	0.29	6.4		13
		992, 2204, 5112, 5113				100.37	130		100	1.7	0.10	0.17	28	0.25	7.4		14
		1097, 2205, 5114, 5115				150.58	90		67	2.6	0.11	0.18	28	0.25	11		15
		1096, 2206, 5116, 5117				210.59	65		46	4.1	0.12	0.19	27	0.25	16		16
		1095, 2207, 5118, 5119				248.98	54		39	4.2	0.11	0.17	26	0.23	17		17
		1094, 2208, 5120, 5121				297.92	45		34	4.4	0.09	0.15	27	0.22	20		18
		4790, 4791, 5122, 5123				379.17	36		29	5.4	0.08	0.16	34	0.27	29		19
		1596, 3058, 5124, 5125				986.41	13		10	12	0.09	0.12	24	- <sup>(3)</sup>	55		
		2362, 2376, 5126, 5127				4.995	4400	80	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	0.70	0.6		
		2363, 2377, 5128, 5129				9.96	2200		- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	0.70	1.1		
		4782, 4783, 5130, 5131				15.25	1400		1000	0.47	0.21	0.50	39	0.70	2.0		20
		2364, 2378, 5132, 5133				29.86	720		510	0.80	0.21	0.41	33	0.57	3.3		21
		2365, 2379, 5134, 5135				51.45	420		310	1.2	0.19	0.38	33	0.55	5.4		22
		2366, 2380, 5136, 5137				75.81	290		220	1.6	0.17	0.35	34	0.54	7.8		23
2367, 2381, 5138, 5139				100.37	220		170	1.9	0.17	0.32	33	0.50	9.4	24			
2368, 2382, 5140, 5141				150.58	150		110	2.6	0.15	0.30	33	0.48	13	25			
2369, 2383, 5142, 5143				210.59	100		83	3.4	0.16	0.29	31	0.46	17	26			
2370, 2384, 5144, 5145				248.98	88		69	4.5	0.17	0.31	31	0.48	22	27			
2371, 2385, 5146, 5147				297.92	73		56	5.0	0.17	0.29	29	0.44	24	28			
4792, 4793, 5148, 5149				379.17	57		46	6.9	0.16	0.33	34	0.53	36	29			
2372, 3059, 5150, 5151				986.41	22		17	13	0.16	0.23	24	- <sup>(3)</sup>	67	30			
High-Power (HP 6V)	6 V	1000, 2210, 5152, 5153				4.995	6100	120	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	1.6	1.1	1.6	
		999, 2211, 5154, 5155				9.96	3100		2300	0.46	0.42	1.1	43	1.6	2.2		31
		4784, 4785, 5156, 5157				15.25	2000		1600	0.58	0.37	0.95	42	1.5	3.0		32
		1093, 2212, 5158, 5159				29.86	1000		830	1.0	0.36	0.89	41	1.5	5.7		33
		998, 2213, 5160, 5161				51.45	590		490	1.5	0.32	0.75	38	1.3	8.6		34
		2361, 2215, 5162, 5163				75.81	410		340	2.3	0.34	0.80	40	1.4	13		35
		1101, 2214, 5164, 5165				100.37	310		250	2.9	0.33	0.73	37	1.3	17		36
		997, 2386, 5166, 5167				150.58	210		170	3.9	0.31	0.68	37	1.2	24		37
		996, 2216, 5168, 5169				210.59	150		120	5.0	0.32	0.62	32	1.1	30		38
		995, 2217, 5170, 5171				248.98	120		100	5.5	0.30	0.59	32	1.1	34		39
		994, 2218, 5172, 5173				297.92	100		87	6.5	0.31	0.58	31	1.1	40		40
		4794, 4795, 5174, 5175				379.17	84		70	8.4	0.28	0.61	36	- <sup>(3)</sup>	55		41
		1595, 2373, 5176, 5177				986.41	31		26	20	0.32	0.53	28	- <sup>(3)</sup>	120		42
		3060, 3082, 5178, 5179				4.995	6500	170	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	1.3	0.9		
		3061, 3071, 5180, 5181				9.96	3300		2300	0.42	0.51	1.0	33	1.3	1.7		43
		4786, 4787, 5182, 5183				15.25	2100		1500	0.60	0.49	0.94	32	1.3	2.5		44
		3062, 3072, 5184, 5185				29.86	1100		840	1.0	0.43	0.85	33	1.2	4.5		45
		3063, 3073, 5186, 5187				51.45	650		490	1.6	0.42	0.80	32	1.2	7.4		46
		3064, 3074, 5188, 5189				75.81	430		330	2.5	0.43	0.87	34	1.3	11		47
3065, 3075, 5190, 5191				100.37	330		260	3.3	0.44	0.86	33	1.3	16	48			
3066, 3076, 5192, 5193				150.58	220		170	4.1	0.39	0.73	31	1.1	20	49			
3067, 3077, 5194, 5195				210.59	160		120	5.9	0.40	0.74	31	1.1	28	50			
3068, 3078, 5196, 5197				248.98	130		100	6.6	0.40	0.71	29	1.1	32	51			
3069, 3079, 5198, 5199				297.92	110		85	7.4	0.42	0.65	26	1.0	34	52			
4796, 4797, 5200, 5201				379.17	85		68	10	0.40	0.71	30	- <sup>(3)</sup>	50	53			
3070, 3080, 5202, 5203				986.41	33		26	22	0.39	0.59	25	- <sup>(3)</sup>	110	54			
3036, 3047, 5204, 5205				4.995	6800	100	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	- <sup>(1)</sup>	1.5	0.9				
3037, 3048, 5206, 5207				9.96	3400		2500	0.43	0.25	1.1	37	1.5	1.7	55			
4788, 4789, 5208, 5209				15.25	2200		1700	0.59	0.23	1.0	37	1.4	2.5	56			
3038, 3049, 5210, 5211				29.86	1100		840	1.0	0.23	0.82	30	1.1	3.9	57			
3039, 3050, 5212, 5213				51.45	650		500	1.5	0.22	0.79	31	1.1	6.7	58			
3040, 3051, 5214, 5215				75.81	450		350	2.1	0.20	0.76	31	1.1	10	59			
3041, 3052, 5216, 5217				100.37	330		260	2.9	0.21	0.78	31	1.1	13	60			
3042, 3053, 5218, 5219				150.58	220		170	4.2	0.22	0.73	28	1.0	18	61			
3043, 3054, 5220, 5221				210.59	160		120	5.6	0.21	0.71	28	1.0	25	62			
3044, 3055, 5222, 5223				248.98	130		110	6.6	0.21	0.72	29	1.1	30	63			
3045, 3056, 5224, 5225				297.92	110		87	7.3	0.21	0.65	26	1.0	33	64			
4798, 4799, 5226, 5227				379.17	85		67	11	0.20	0.75	31	- <sup>(3)</sup>	50	65			
3046, 3057, 5228, 5229				986.41	35		27	21	0.19	0.59	25	- <sup>(3)</sup>	100	66			

### Notes:

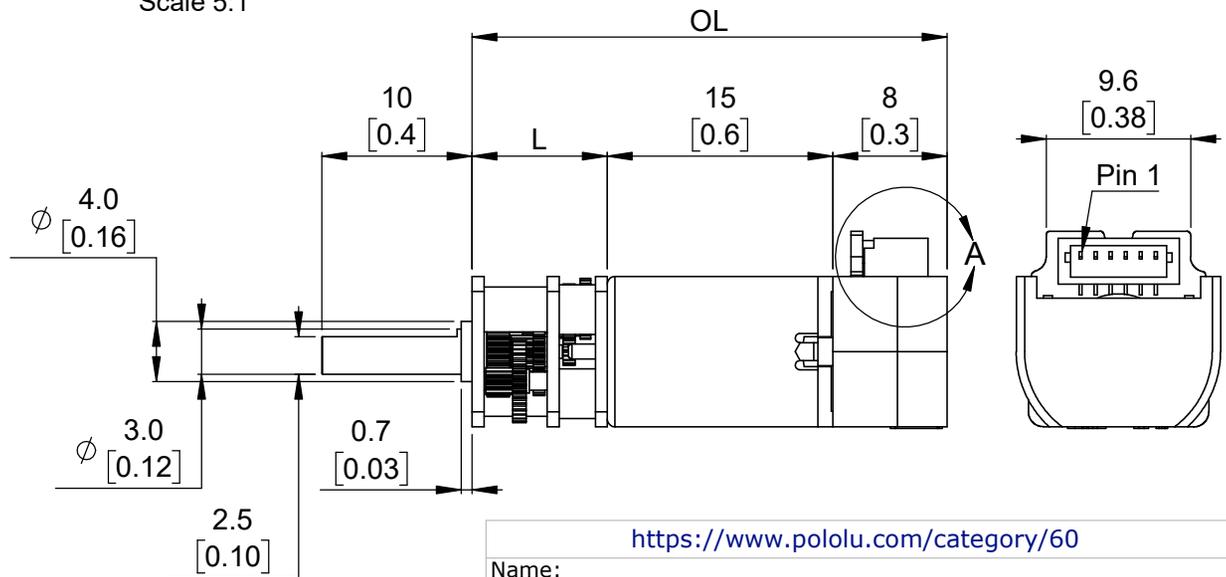
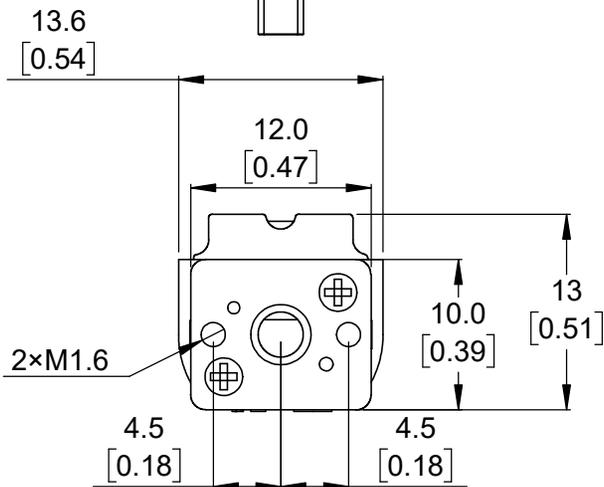
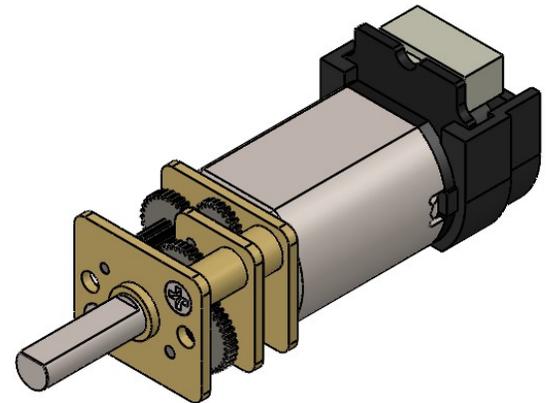
- (1) Max efficiency data and performance graphs are currently unavailable for 5:1 gear ratios and LP and MP 10:1 gear ratios.
- (2) Listed stall torques and currents are theoretical extrapolations; units will typically stall well before these points as the motors heat up. Stalling or overloading gearmotors can greatly decrease their lifetimes and even result in immediate damage. The recommended upper limit for instantaneous torque is 25 kg-mm for the 380:1 and 1000:1 gearboxes, and 20 kg-mm for all other gear ratios; **we strongly advise keeping applied loads well under these limits**. Stalls can also result in rapid (potentially on the order of seconds) thermal damage to the motor windings and brushes, especially for the versions that use high-power (HP and HPCB) motors; a general recommendation for brushed DC motor operation is 25% or less of the stall current.
- (3) Operating these versions at maximum power is likely to damage the gearboxes.
- (4) A = no encoder; B = encoder-compatible (extended motor shaft); C = integrated encoder, back connector; D = integrated encoder, side connector.



Gear Ratio	L	OL max. (overall length maximum)
1000:1	12.5 mm [0.5 in]	36 mm [1.42 in]
All others	9 mm [0.35 in]	32.5 mm [1.28 in]



Detail A  
Scale 5:1



Scale 2:1

<https://www.pololu.com/category/60>

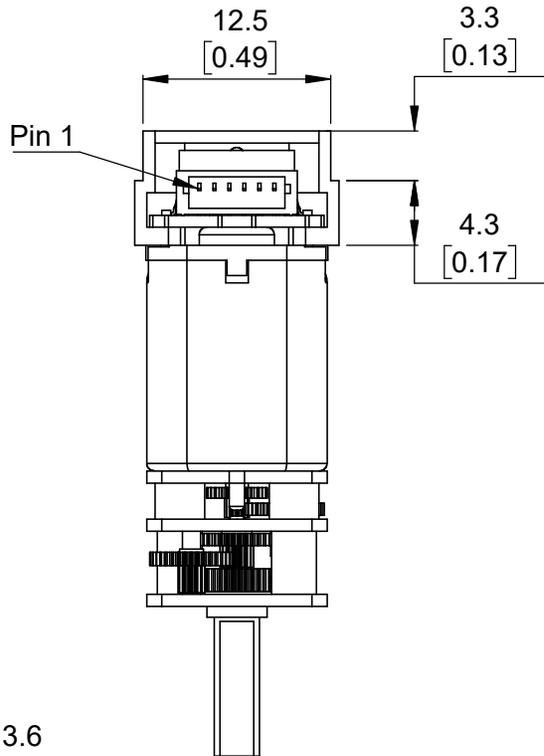
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Drawing date:  
02 April 2024

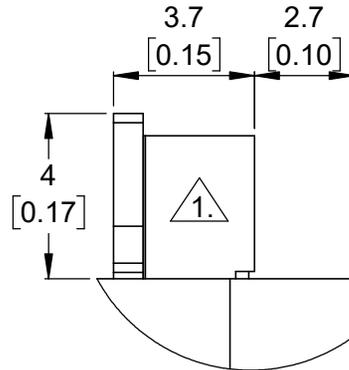
Units: mm [in]  
Material: mixed



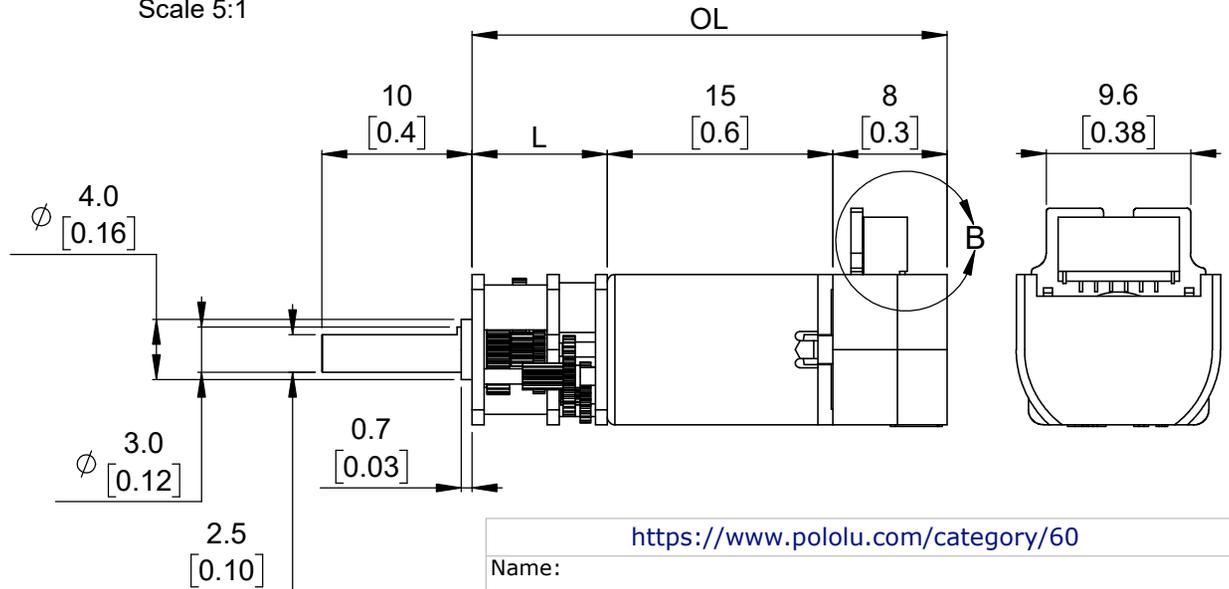
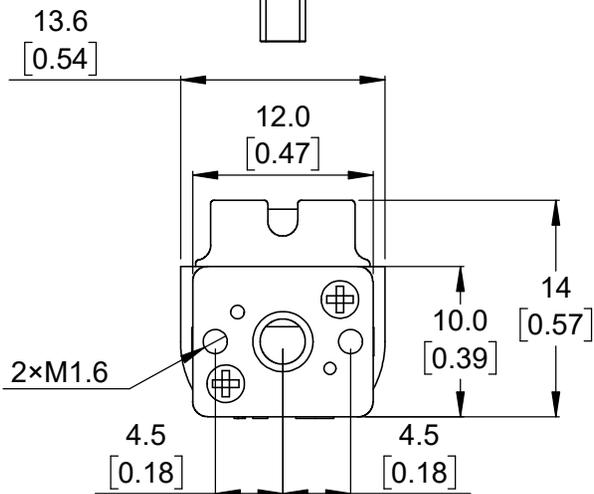
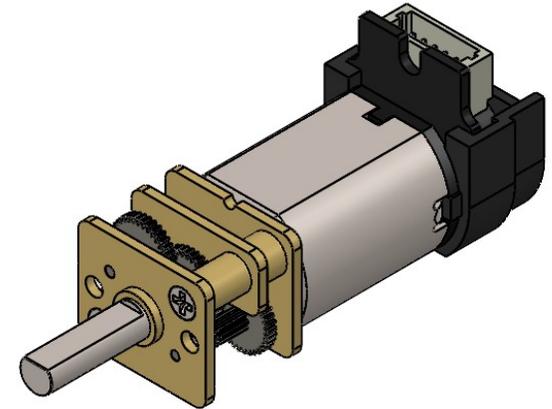
1. This connector is compatible with JST part number SHR-06V-S and Pololu 6-Pin Female JST SH-Style Cables.
2. To get the specified scale, select 100% in print settings.



Gear Ratio	L	OL max. (overall length maximum)
1000:1	12.5 mm [0.5 in]	36 mm [1.42 in]
All others	9 mm [0.35 in]	32.5 mm [1.28 in]



Detail B  
Scale 5:1



Scale 2:1

1. This connector is compatible with JST part number SHR-06V-S and Pololu 6-Pin Female JST SH-Style Cables.
2. To get the specified scale, select 100% in print settings.

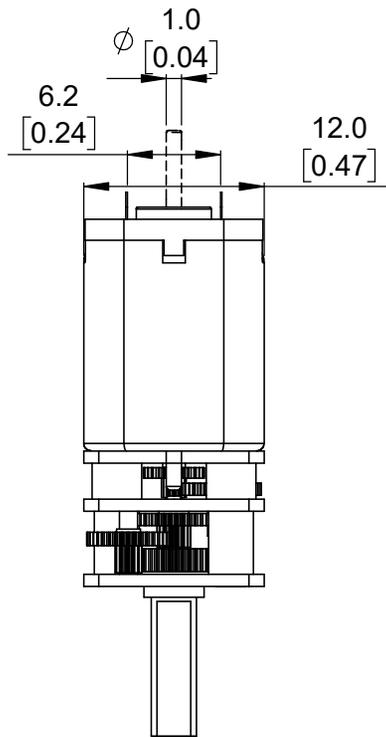
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Name:  
Micro Metal Gearmotors with 12 CPR Encoder, Side Connector

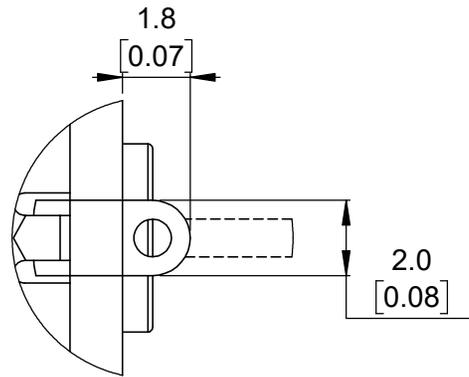
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Units: mm [in]      Material: mixed

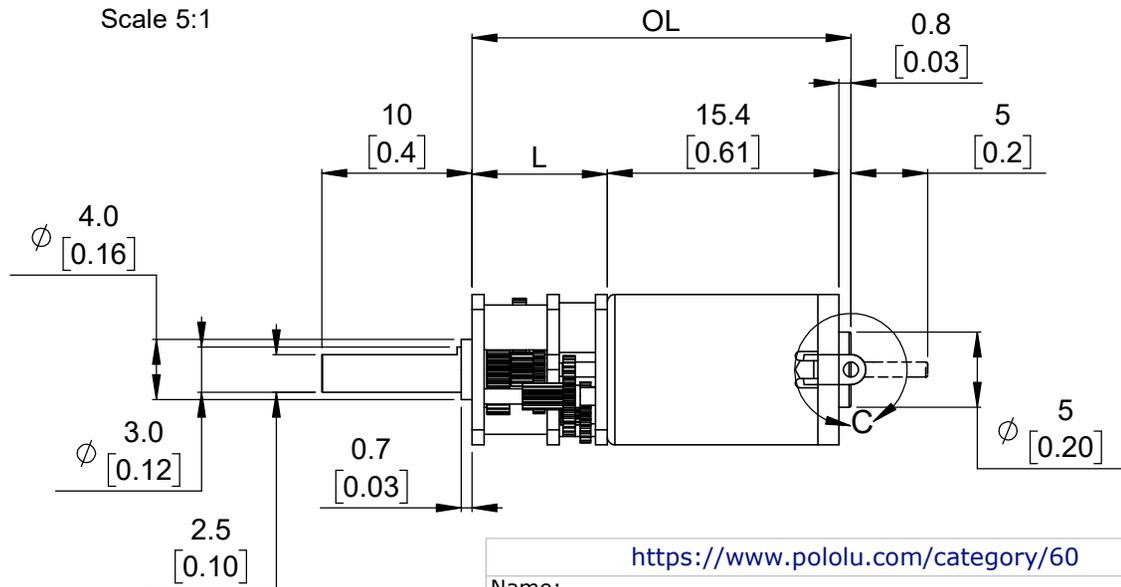
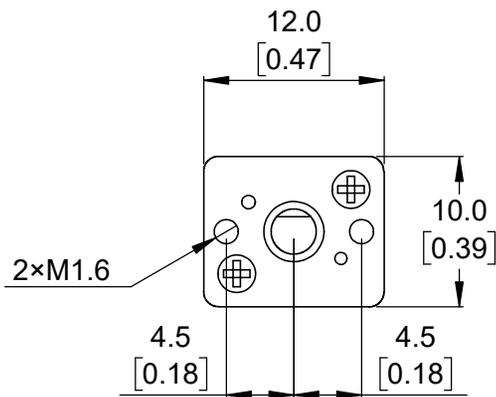
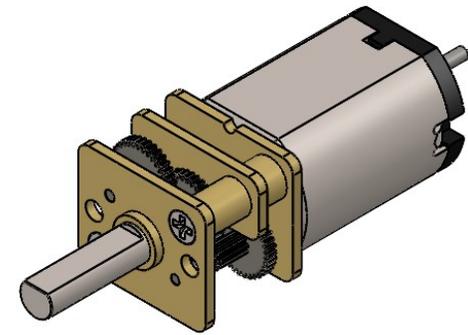




Gear Ratio	L	OL max. (overall length maximum)
1000:1	12.5 mm [0.5 in]	29.1 mm [1.15 in]
All others	9 mm [0.35 in]	25.6 mm [1.01 in]



Detail C  
Scale 5:1



Scale 2:1

<https://www.pololu.com/category/60>

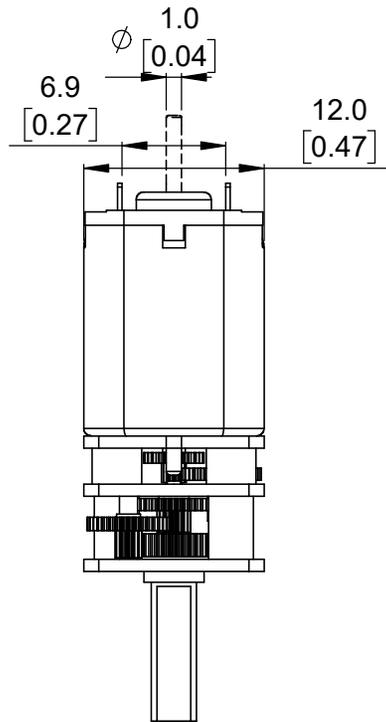
Name:  
Micro Metal Gearmotors with carbon brushes (HPCB) and no encoder

Drawing date:  
02 April 2024

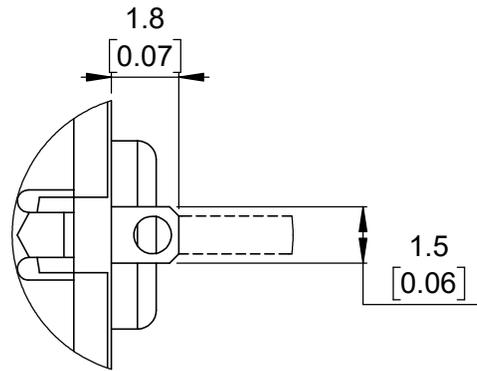
Units: mm [in]  
Material: mixed

  
Pololu  
Robotics & Electronics  
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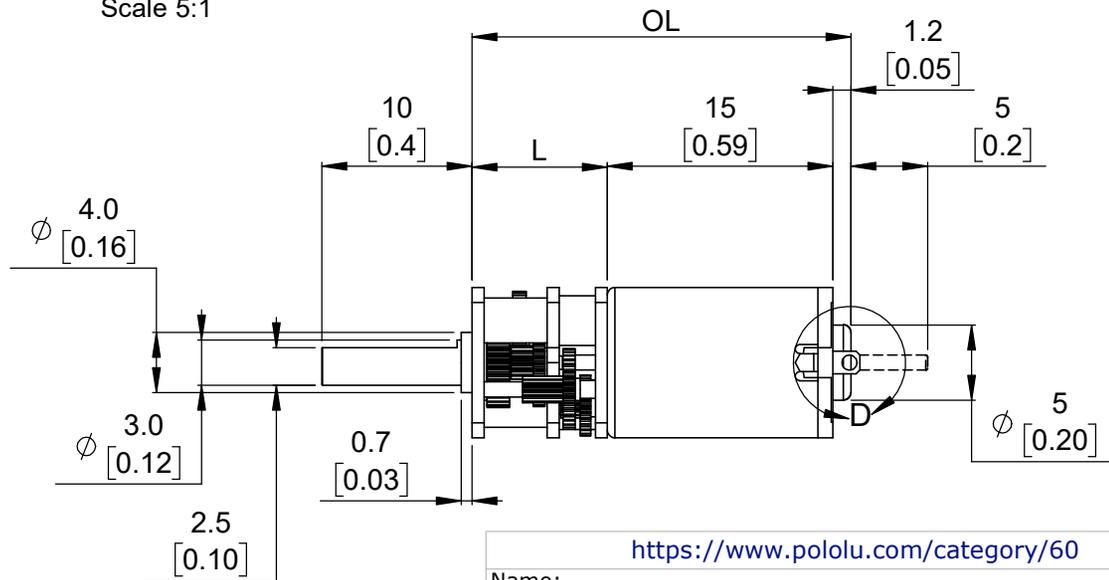
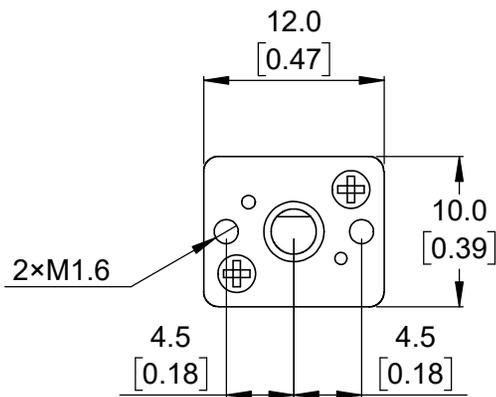
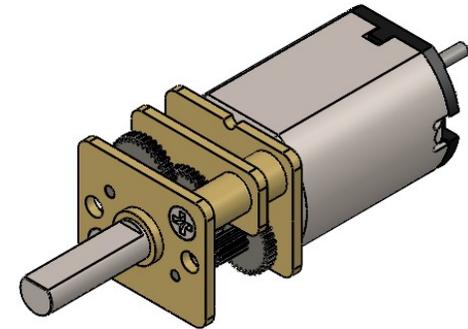
1. To get the specified scale, select 100% in print settings.
2. The dashed line indicates the location of the Rear motor Shaft which is present on "Extended Motor Shaft" versions.
3. These dimensions apply to all Micro Metal Gearmotors that are labeled "HPCB" (i.e. all ones with carbon brushes).



Gear Ratio	L	OL max. (overall length maximum)
1000:1	12.5 mm [0.5 in]	29.1 mm [1.15 in]
All others	9 mm [0.35 in]	25.6 mm [1.01 in]



Detail D  
Scale 5:1



Scale 2:1

<https://www.pololu.com/category/60>

Name:  
Micro Metal Gearmotors with precious metal brushes (LP, MP, and HP) and no encoder

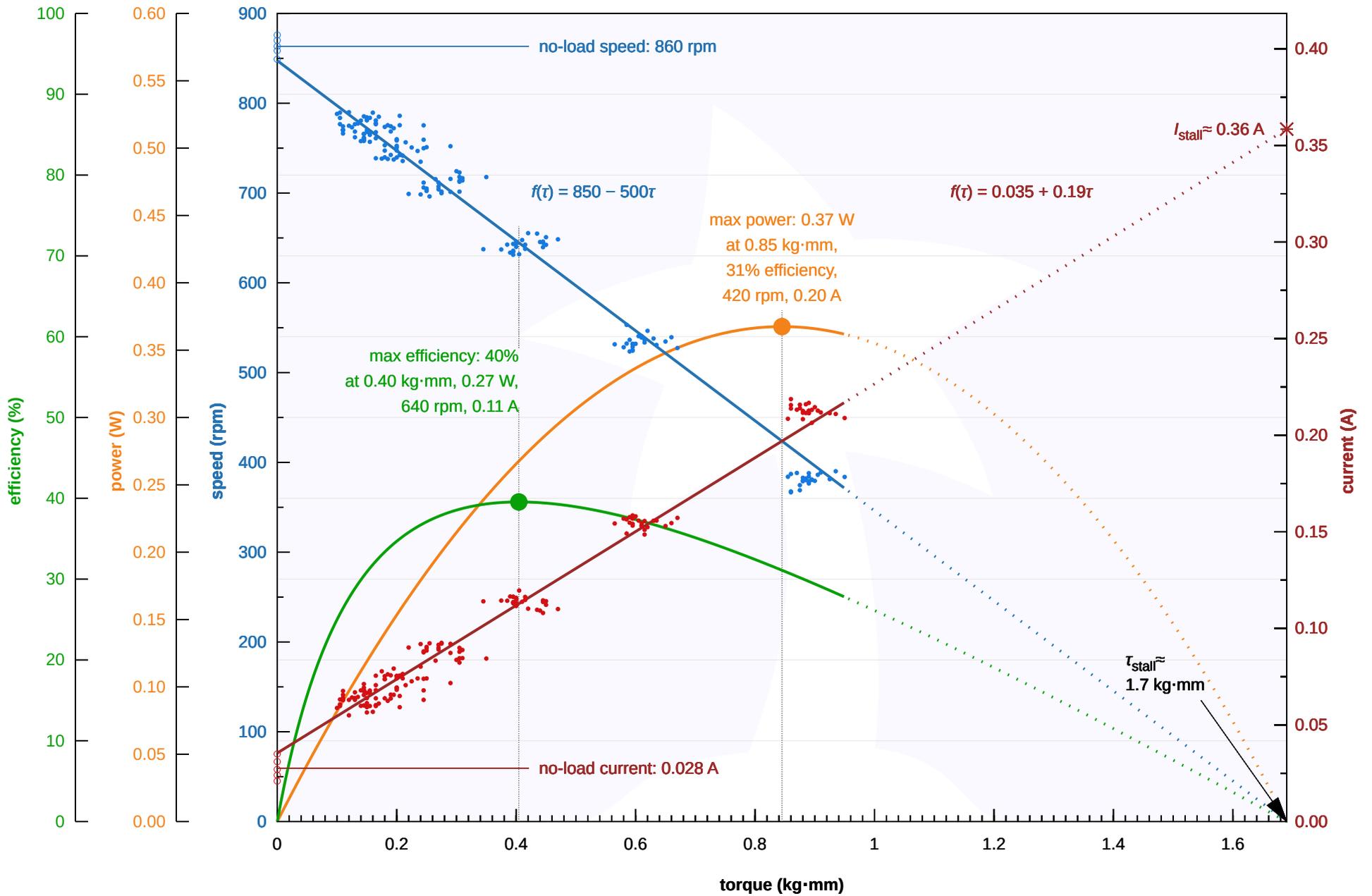
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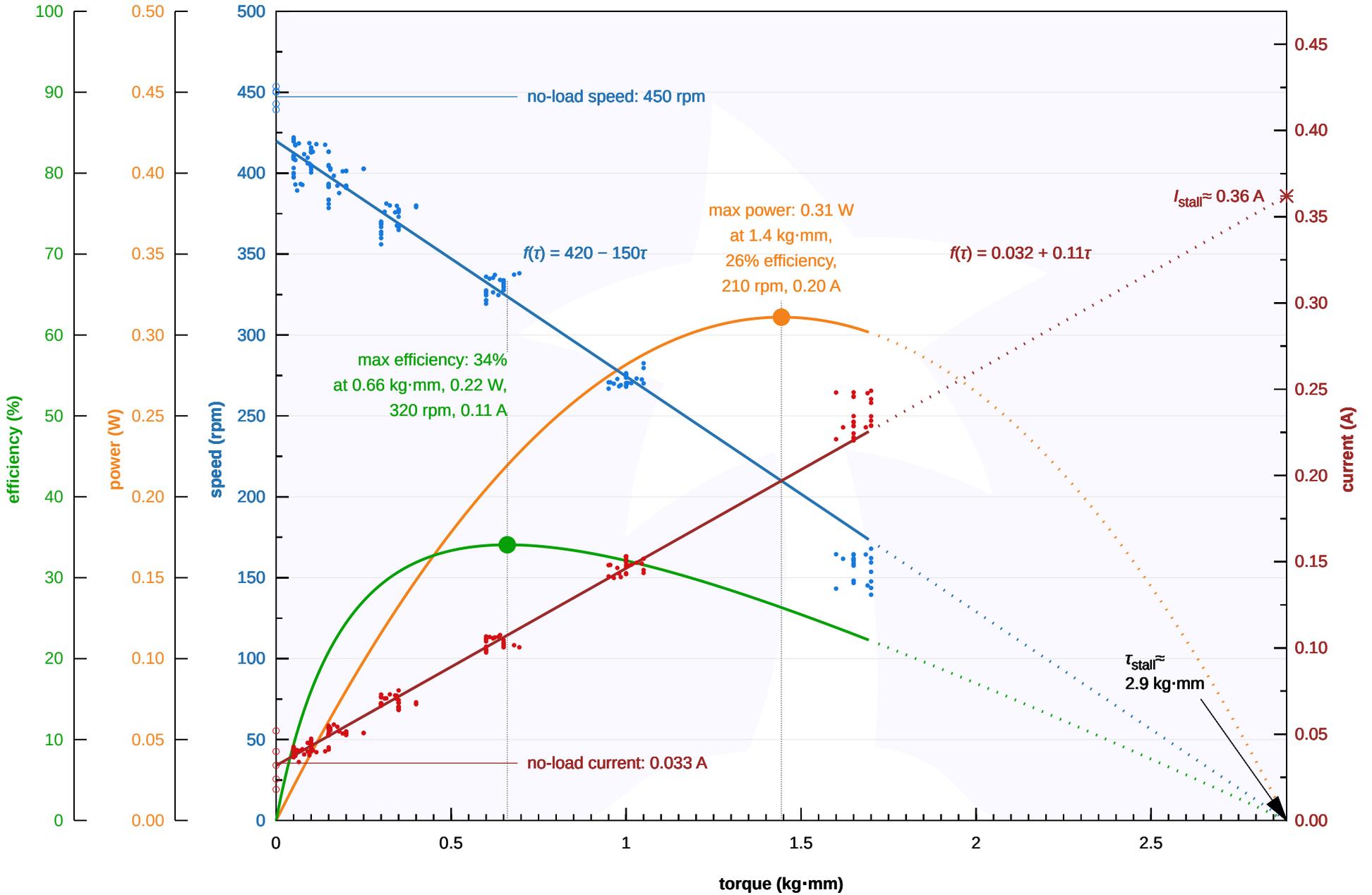
  
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1. To get the specified scale, select 100% in print settings.
2. The dashed line indicates the location of the Rear motor Shaft which is present on "Extended Motor Shaft" versions.
3. These dimensions apply to all Micro Metal Gearmotors that are not labeled "HPCB" (i.e. all ones with precious metal brushes).

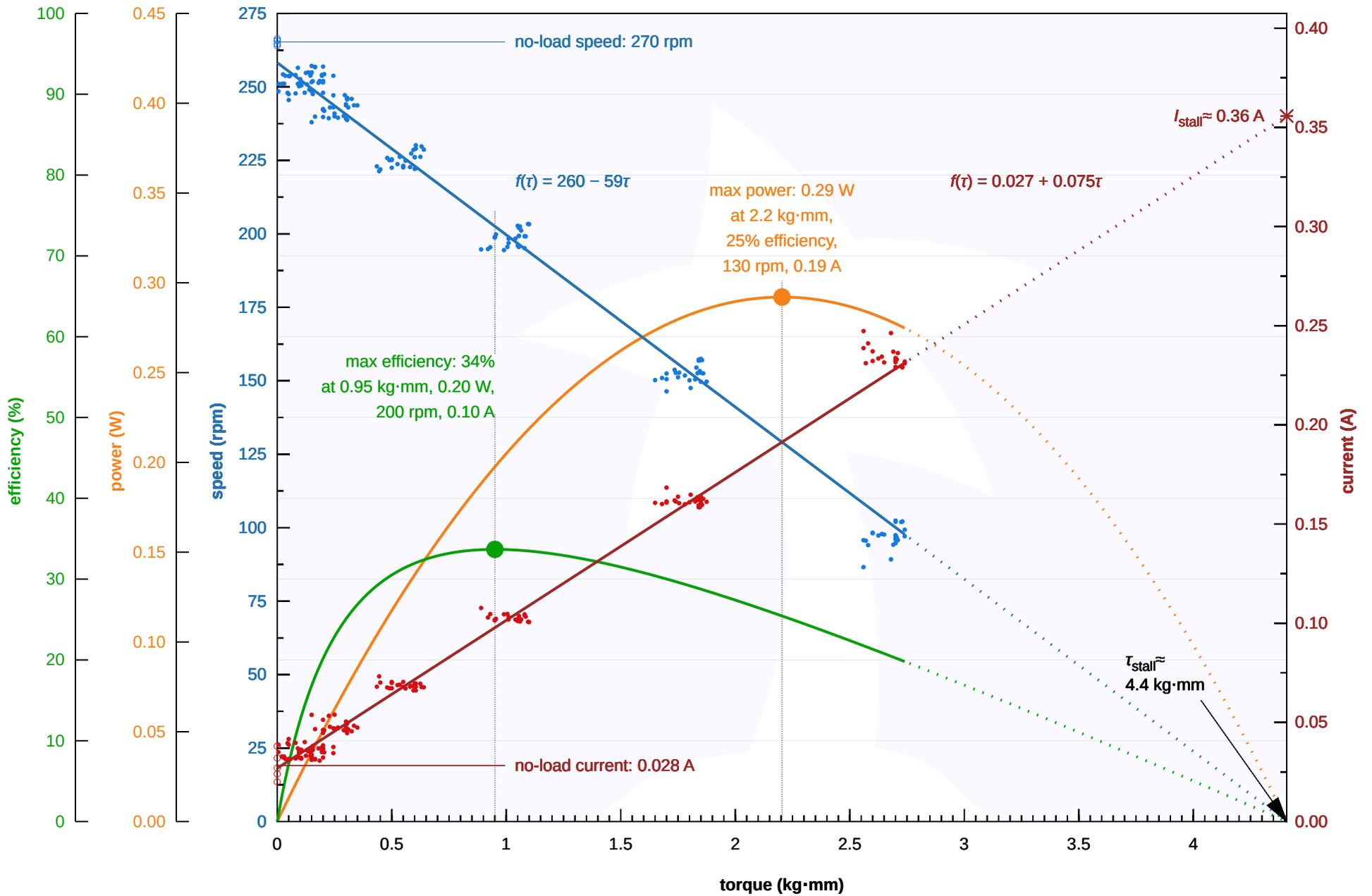
# Pololu Items #4780, #4781, #5104, #5105 (15:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



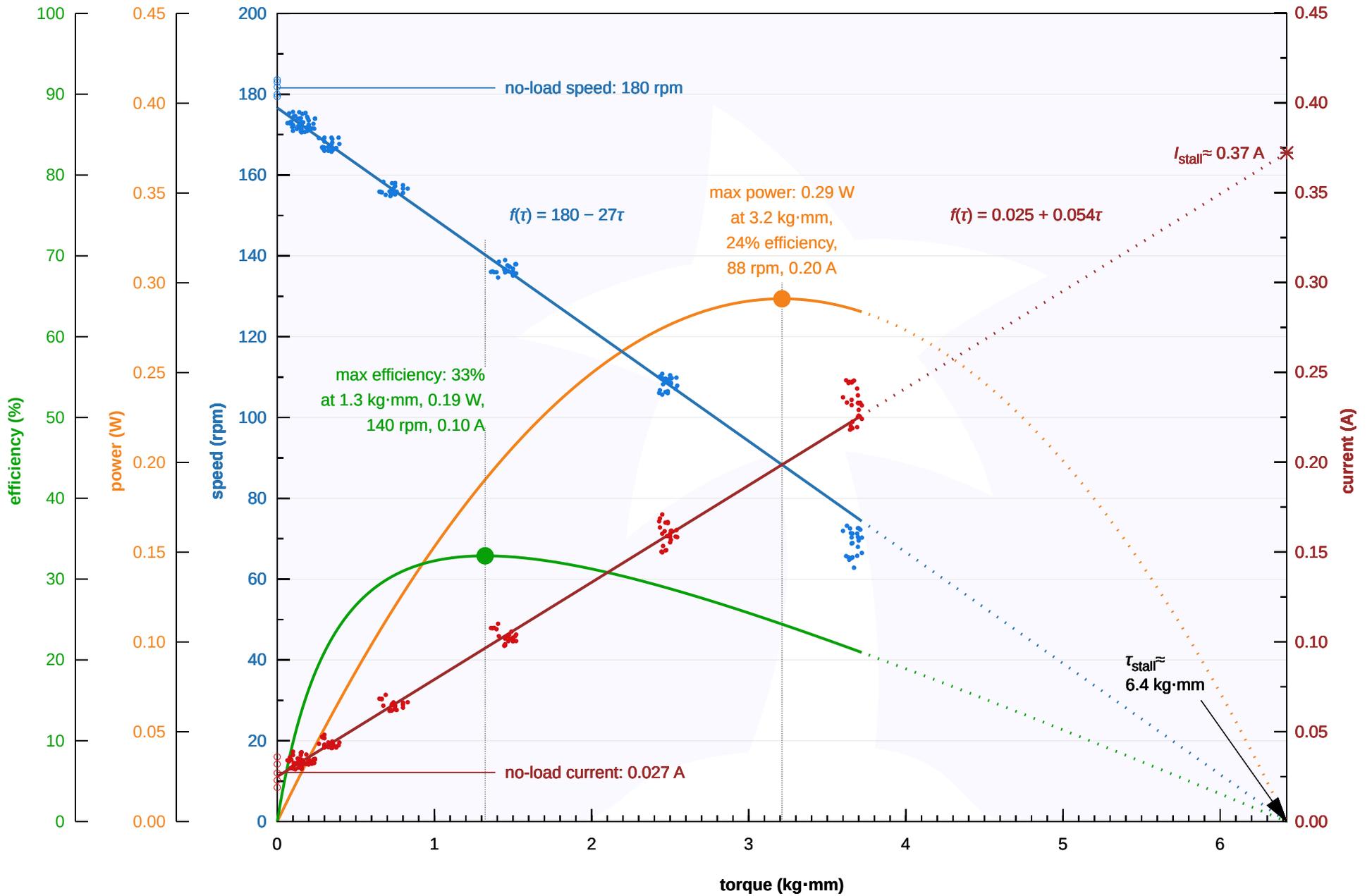
# Pololu Items #993, #2202, #5106, #5107 (30:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



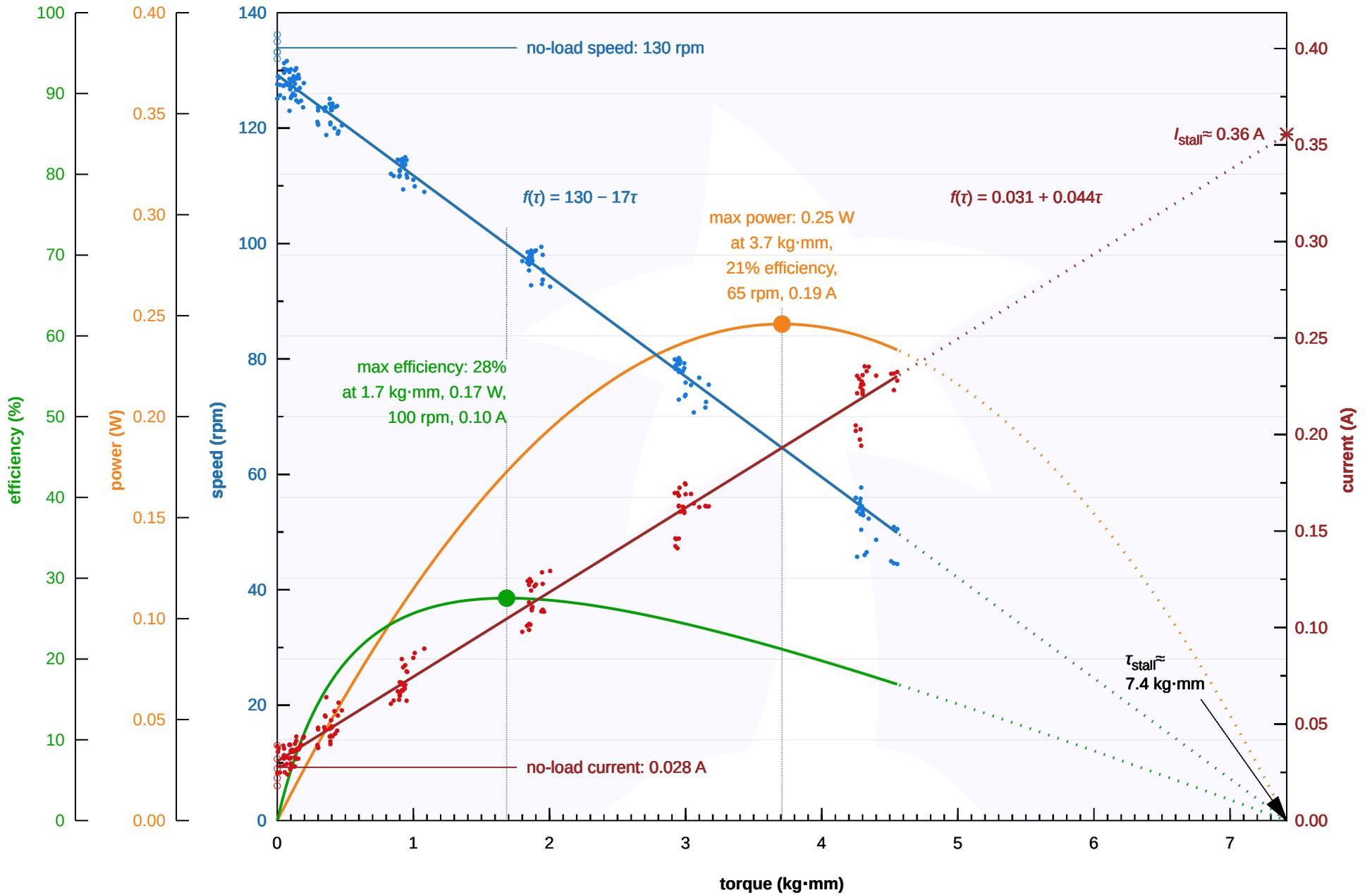
# Pololu Items #1098, #2203, #5108, #5109 (50:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



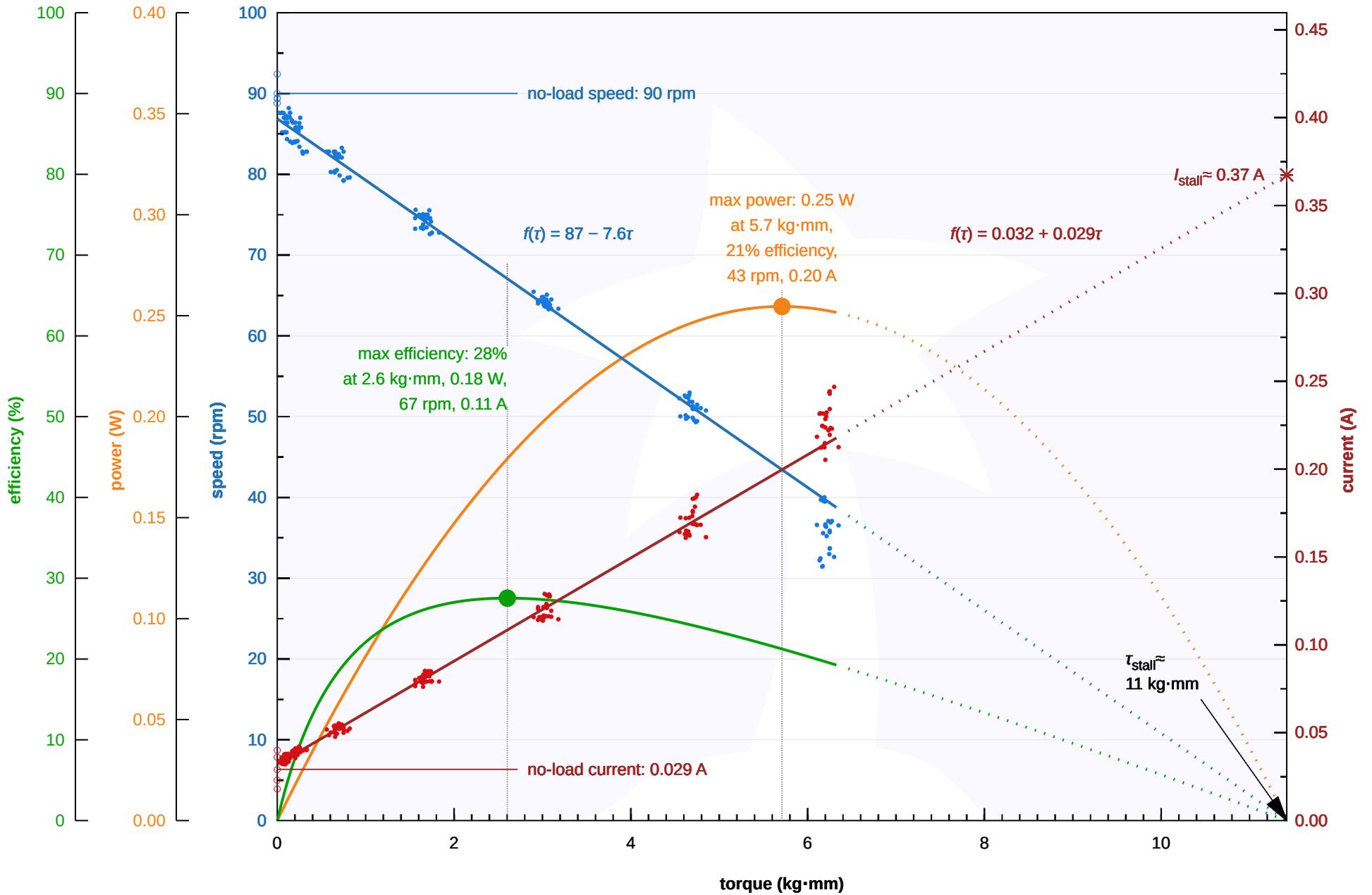
# Pololu Items #2360, #2209, #5110, #5111 (75:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



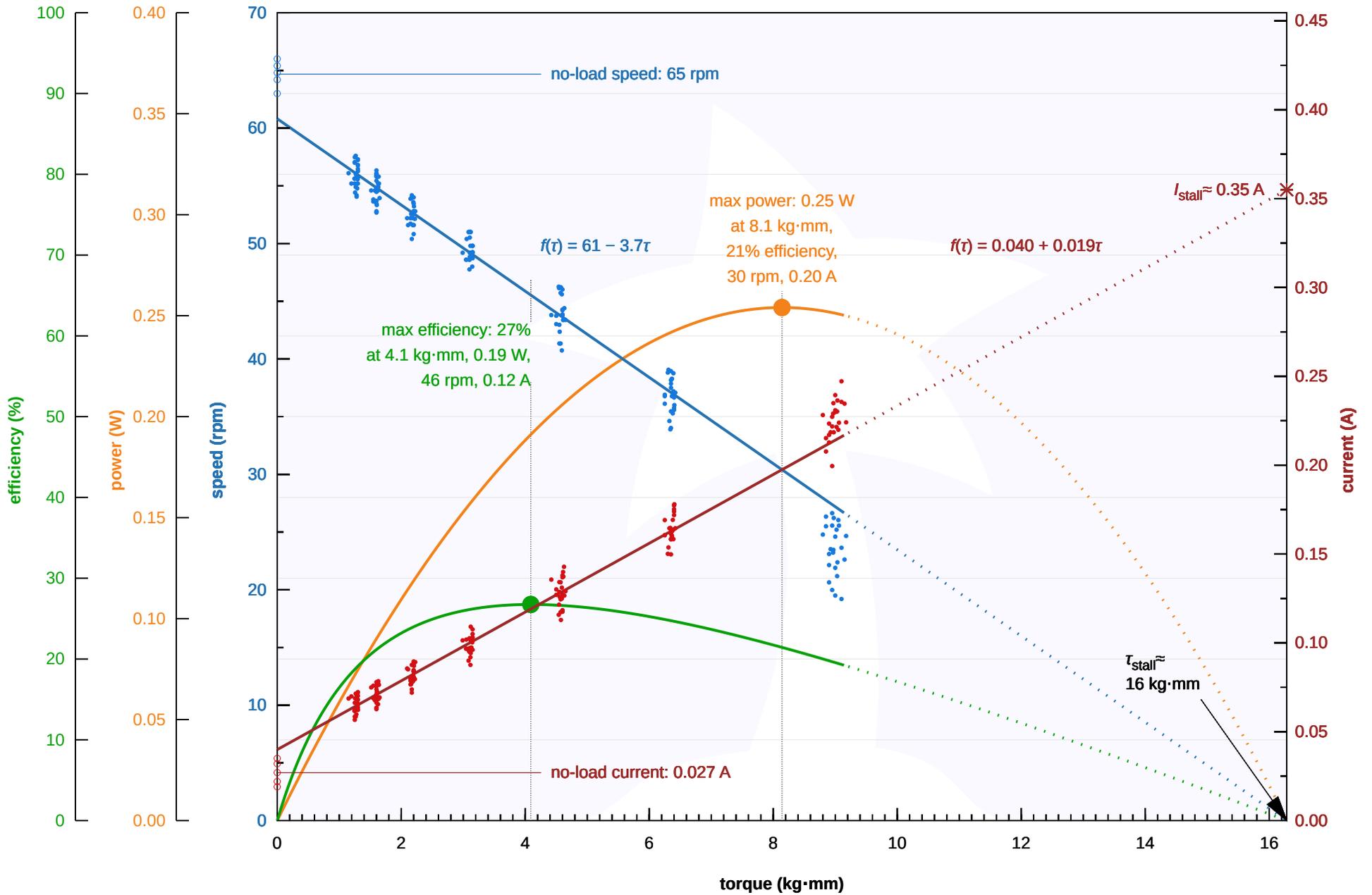
# Pololu Items #992, #2204, #5112, #5113 (100:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



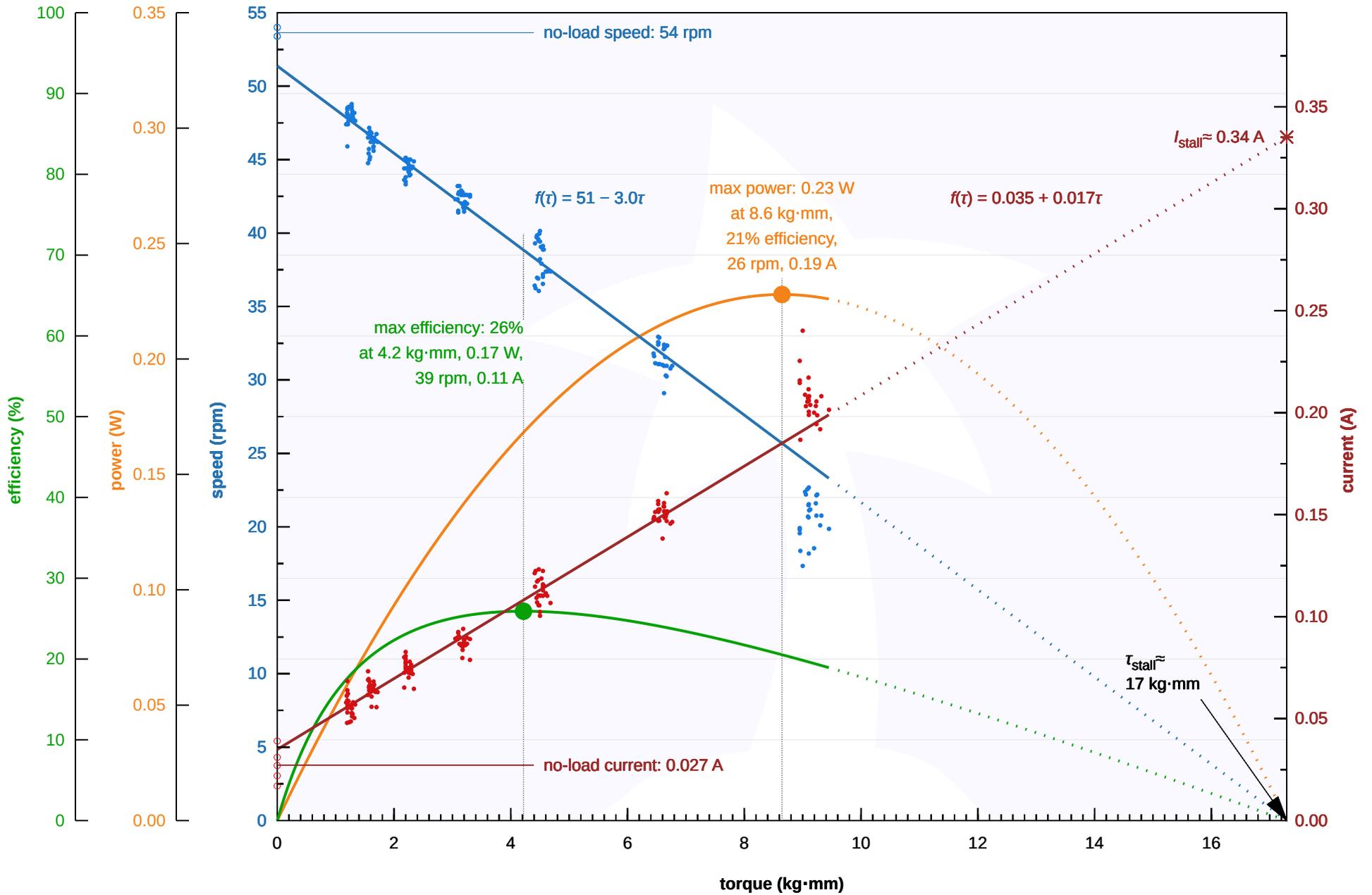
# Pololu Items #1097, #2205, #5114, #5115 (150:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



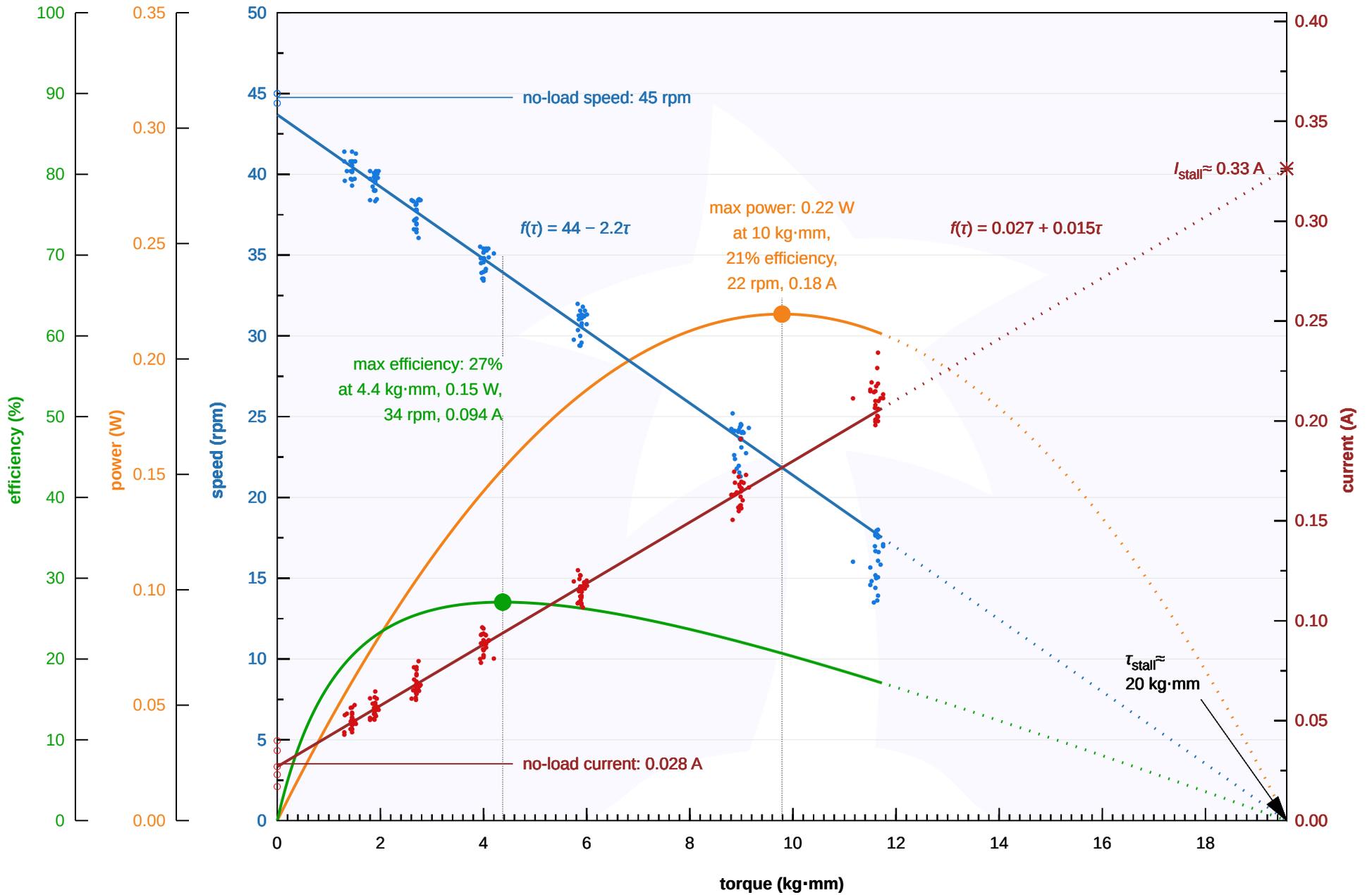
# Pololu Items #1096, #2206, #5116, #5117 (210:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



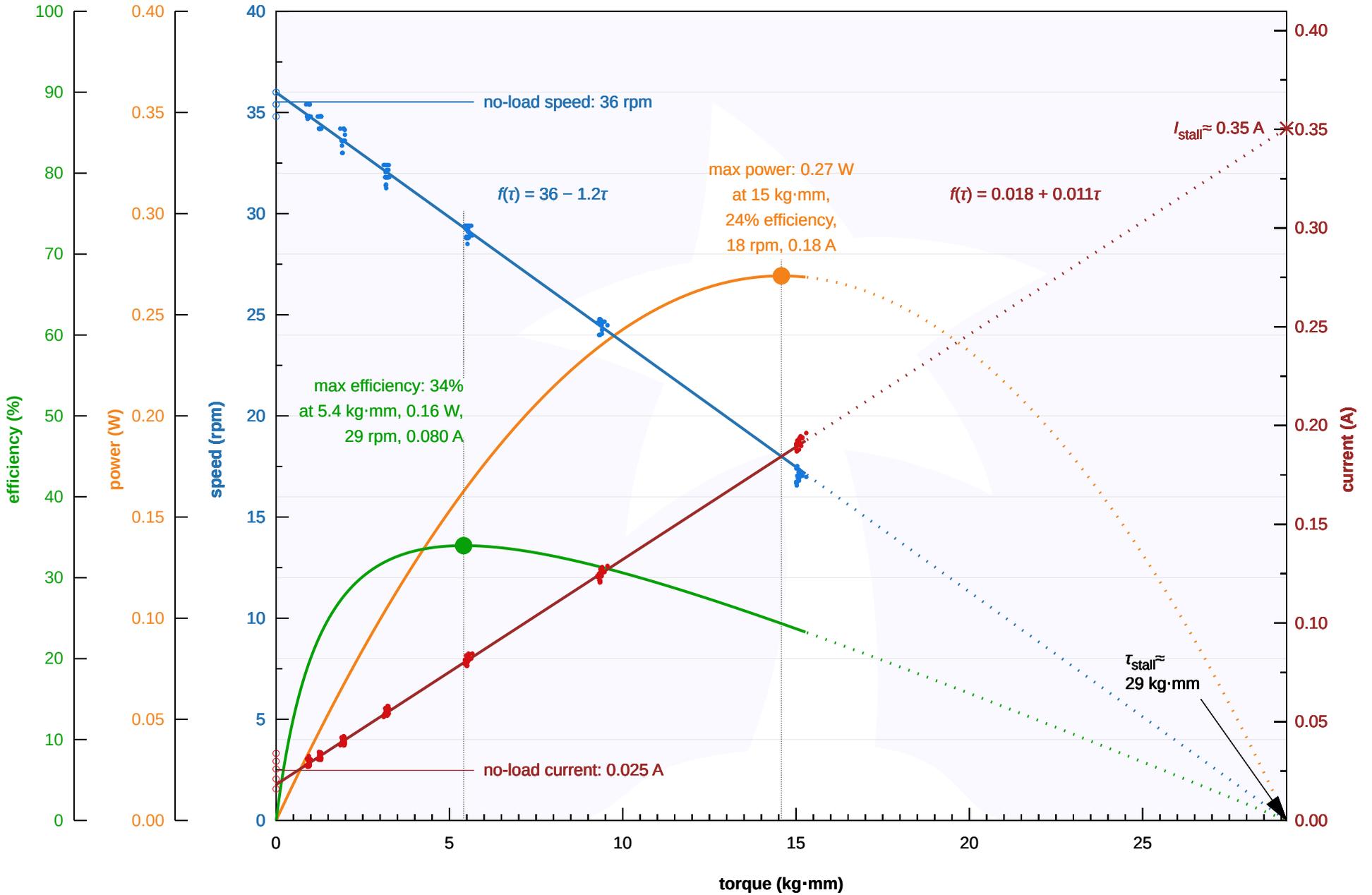
# Pololu Items #1095, #2207, #5118, #5119 (250:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



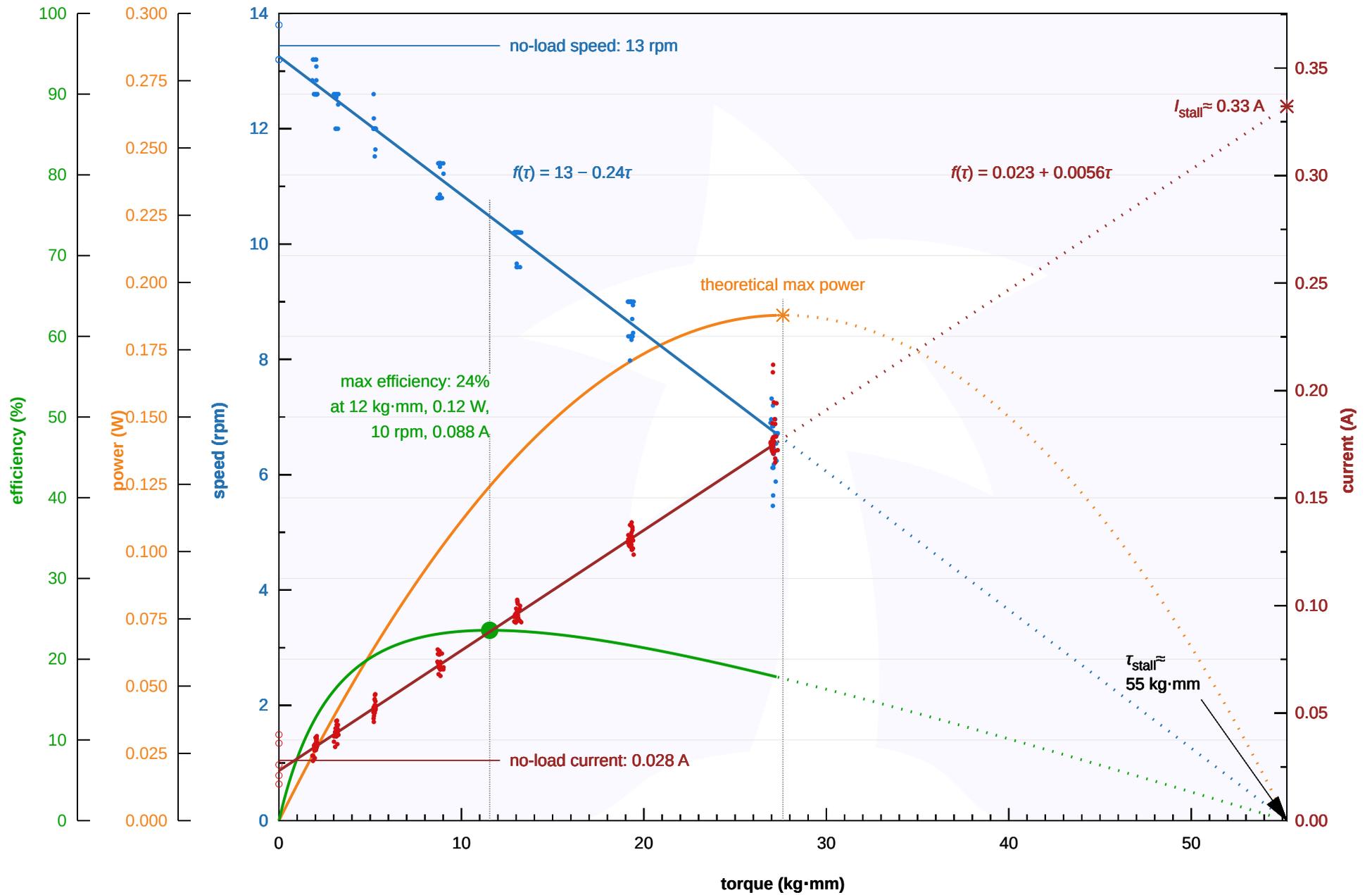
# Pololu Items #1094, #2208, #5120, #5121 (298:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



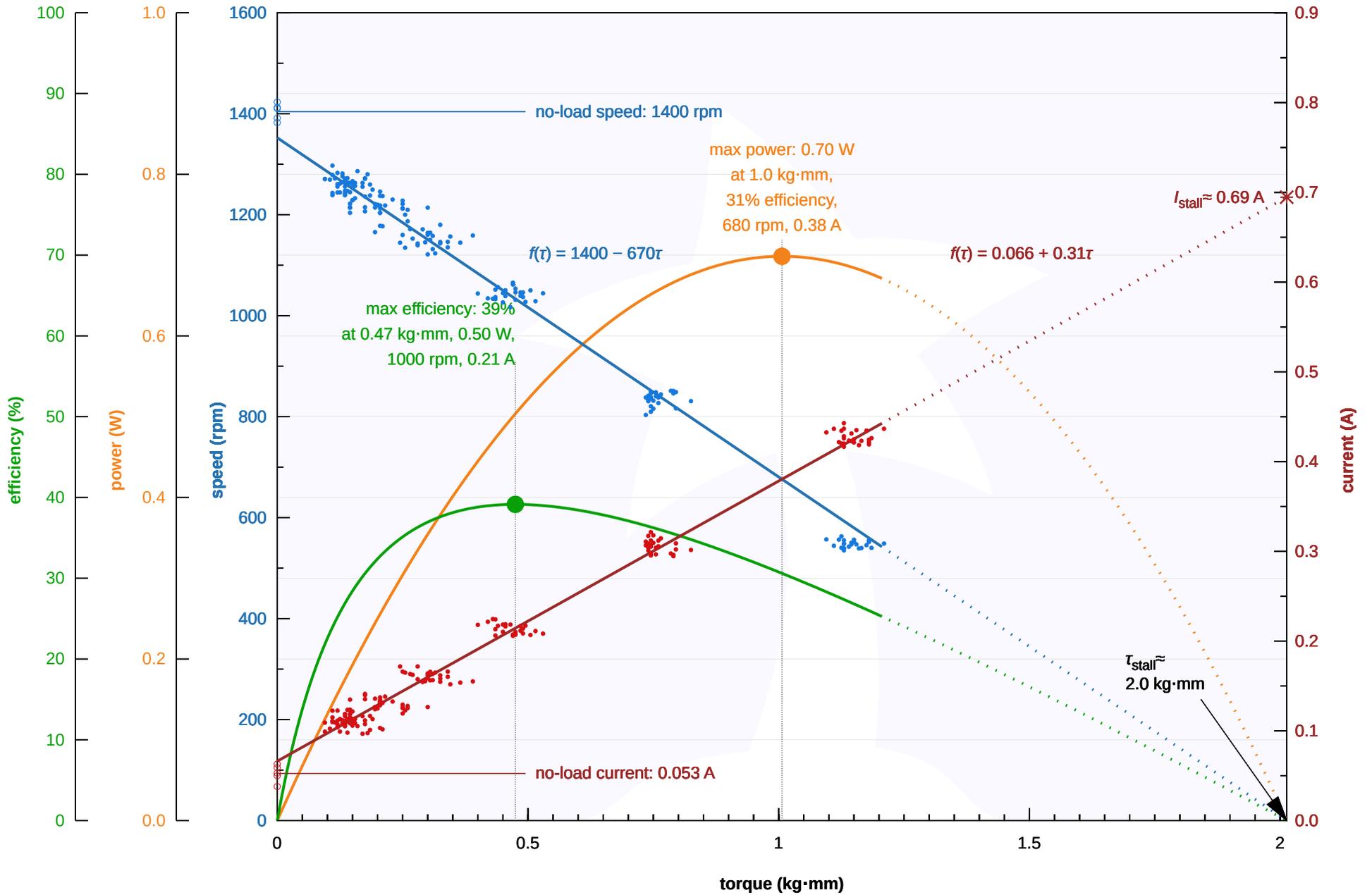
# Pololu Items #4790, #4791, #5122, #5123 (380:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



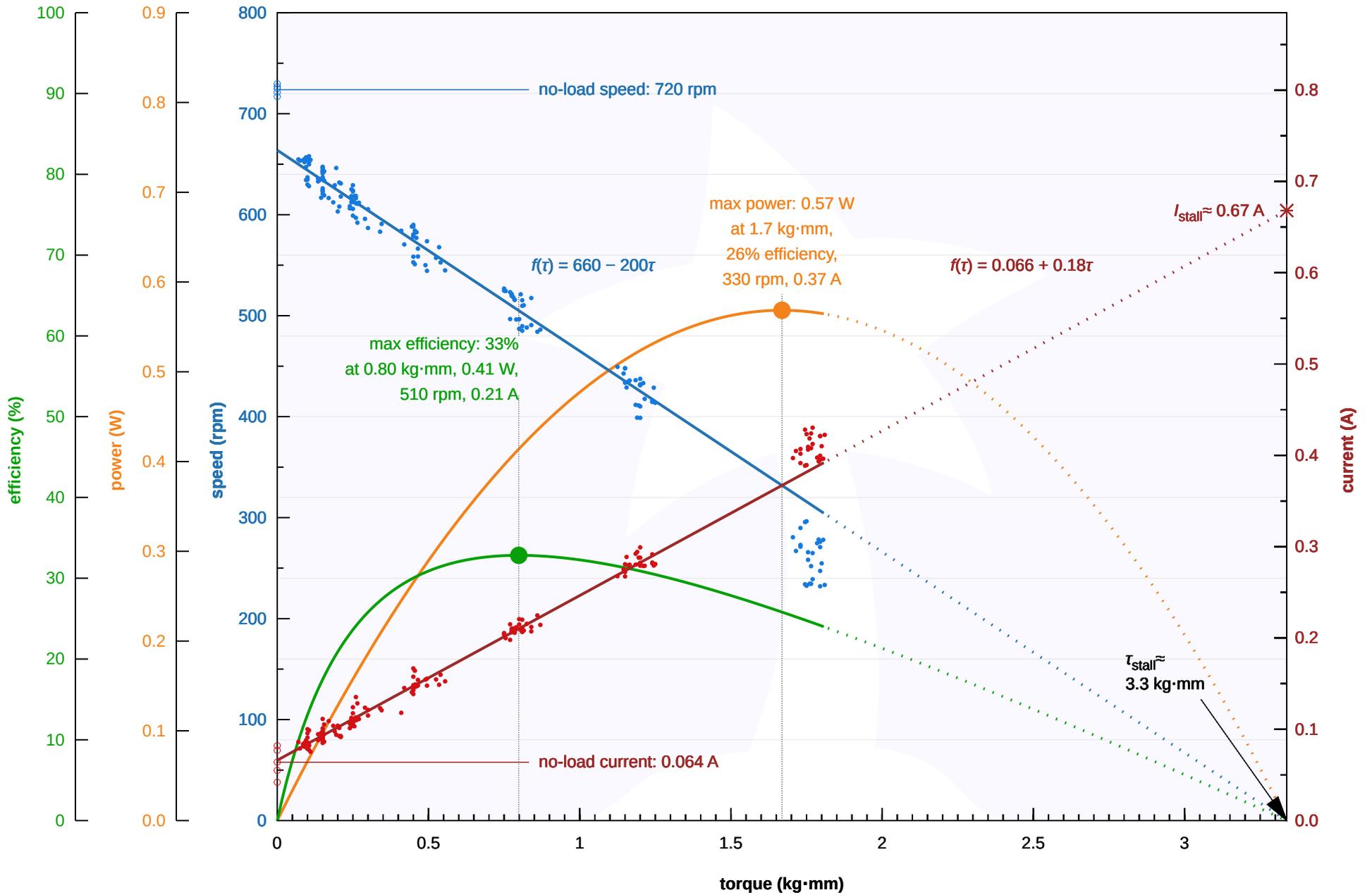
# Pololu Items #1596, #3058, #5124, #5125 (1000:1 Micro Metal Gearmotor LP 6V) Performance at 6 V



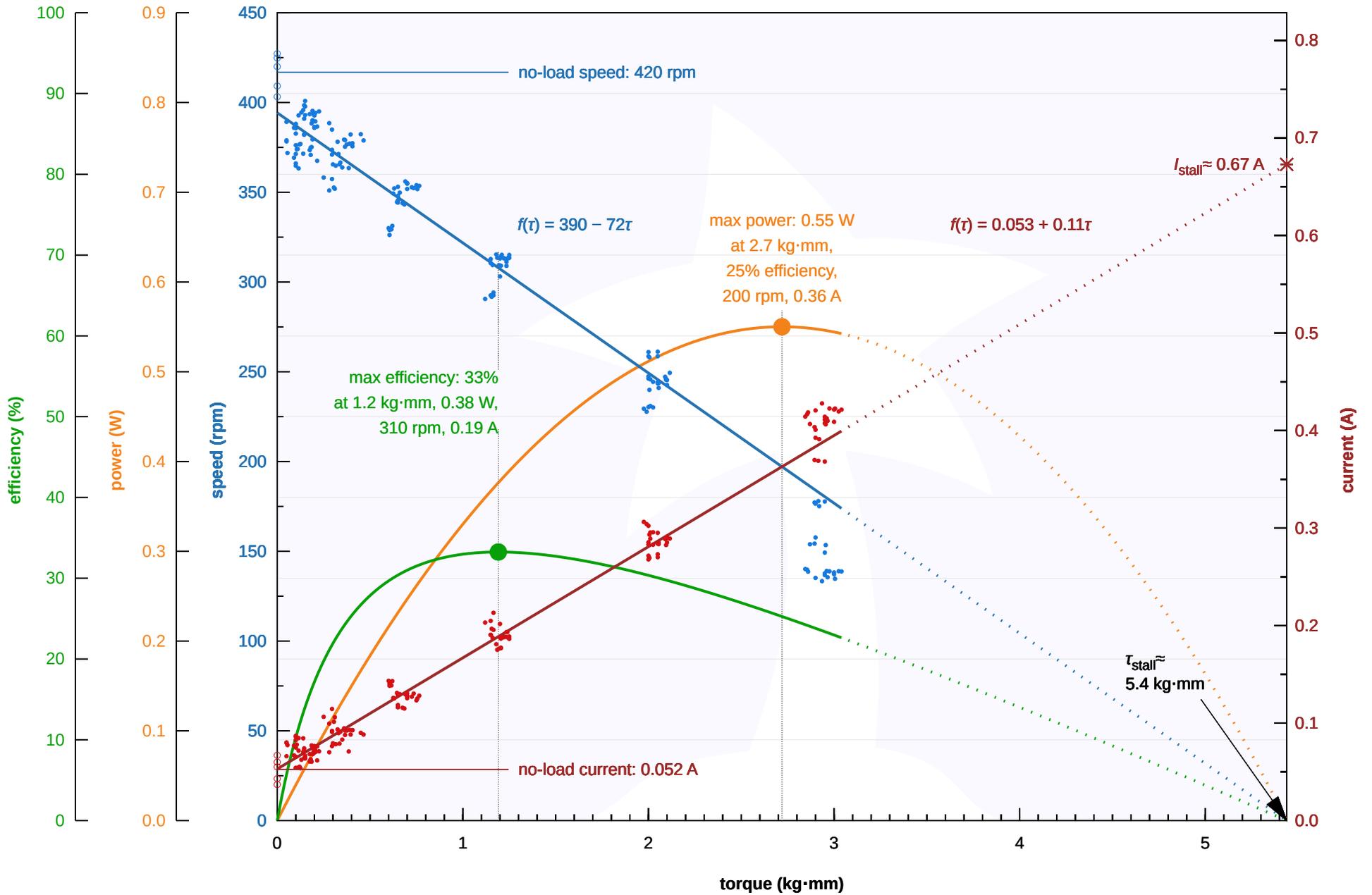
# Pololu Items #4782, #4783, #5130, #5131 (15:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



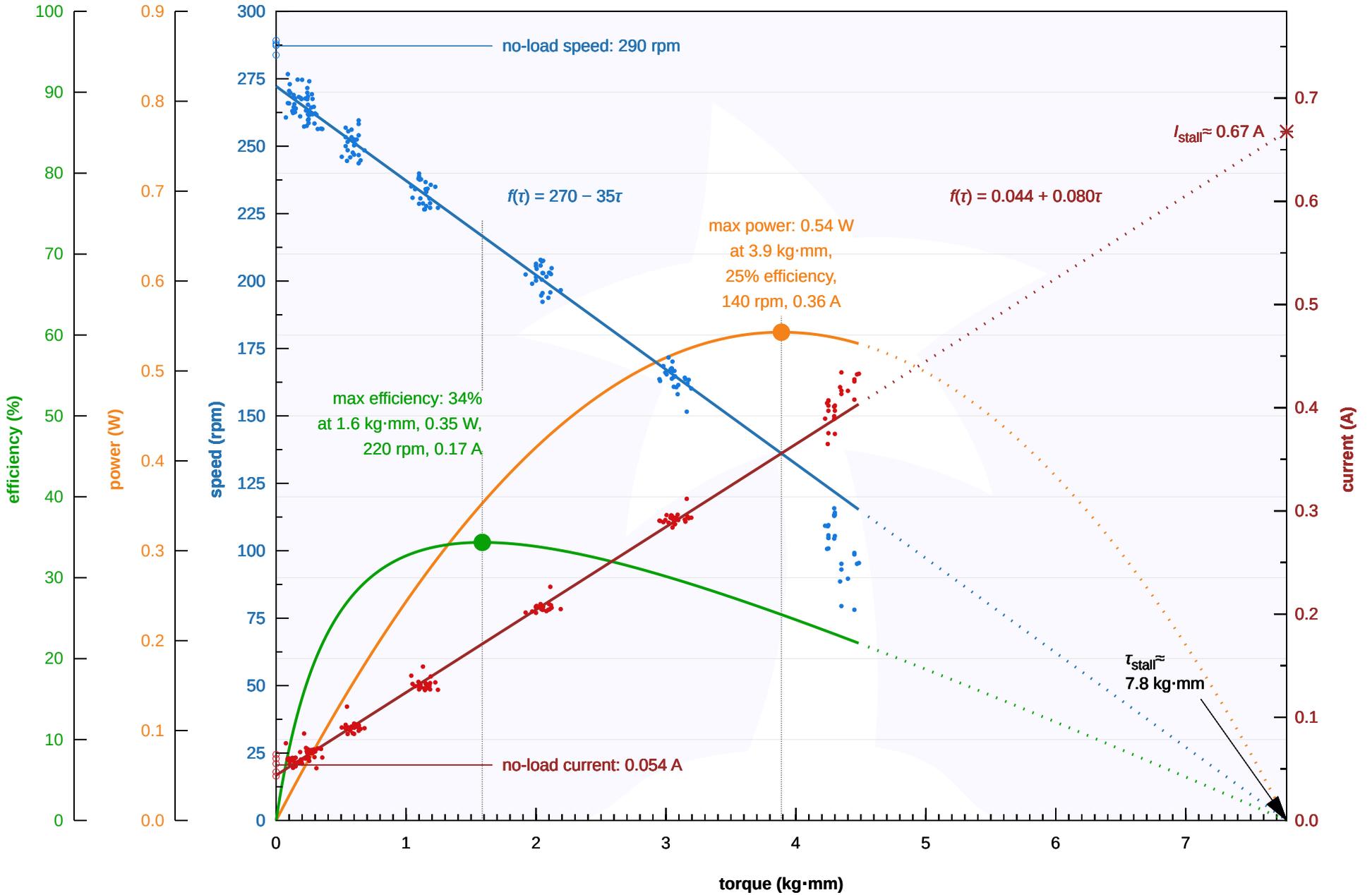
# Pololu Items #2364, #2378, #5132, #5133 (30:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



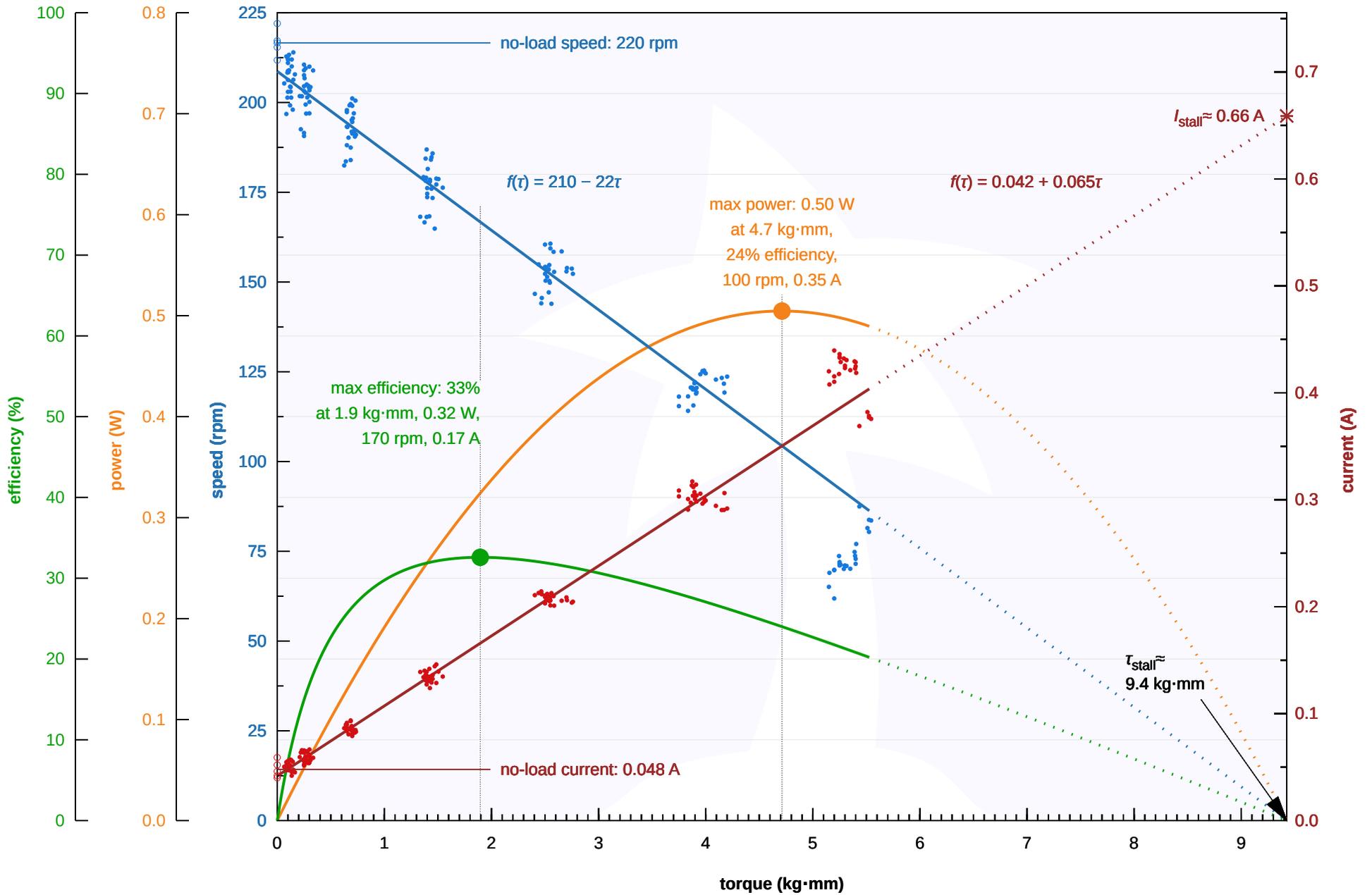
# Pololu Items #2365, #2379, #5134, #5135 (50:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



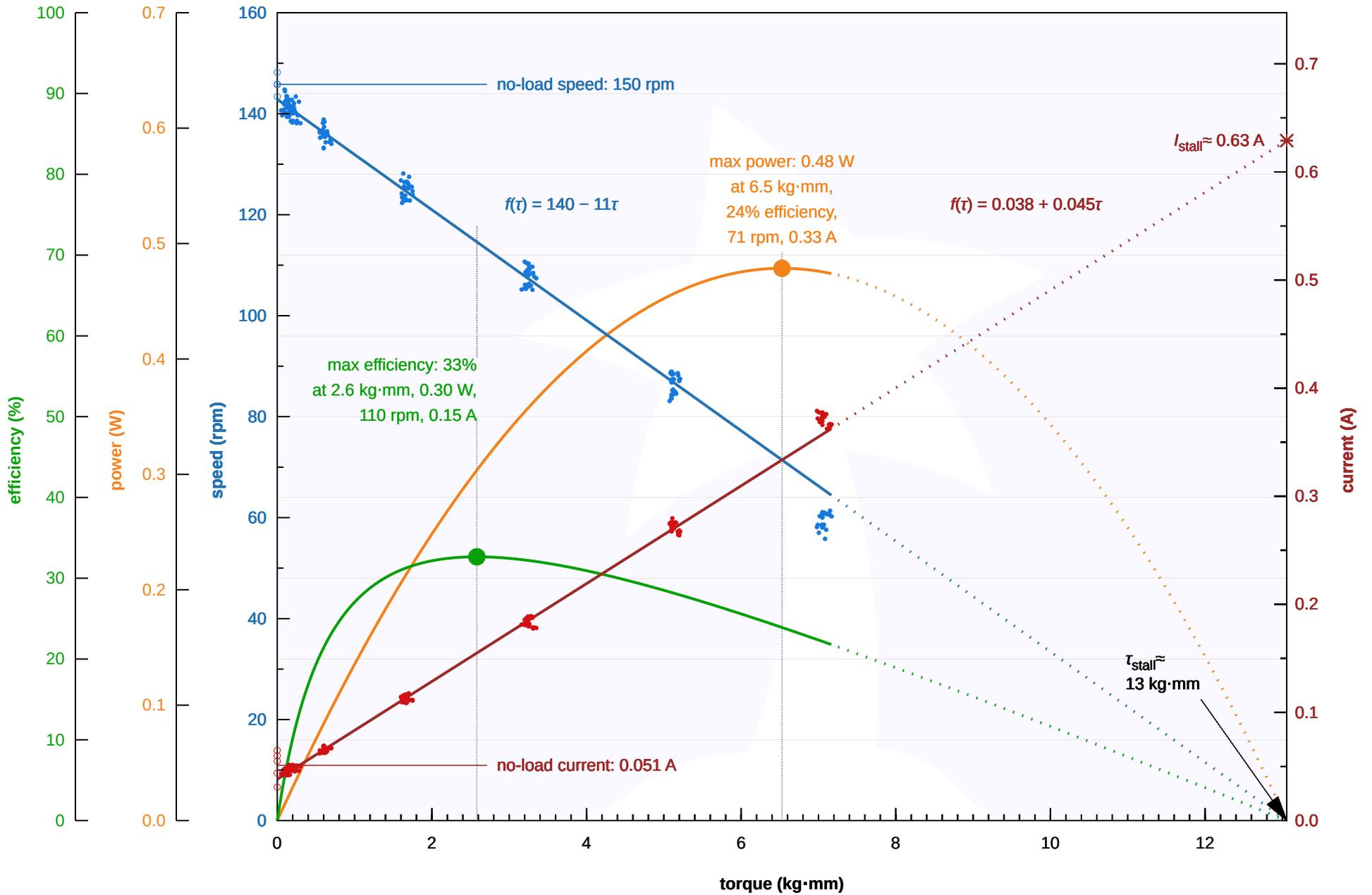
# Pololu Items #2366, #2380, #5136, #5137 (75:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



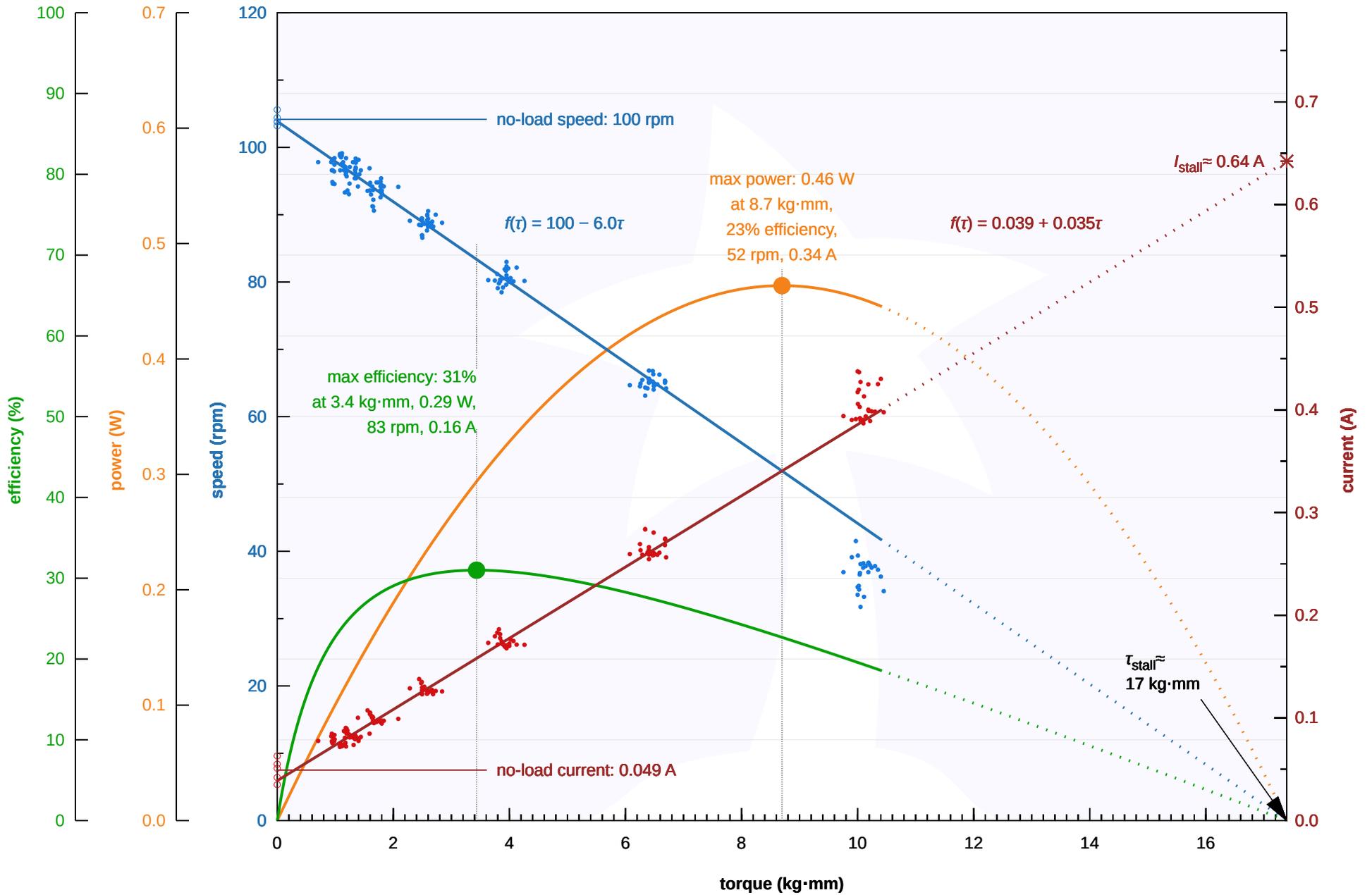
# Pololu Items #2367, #2381, #5138, #5139 (100:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



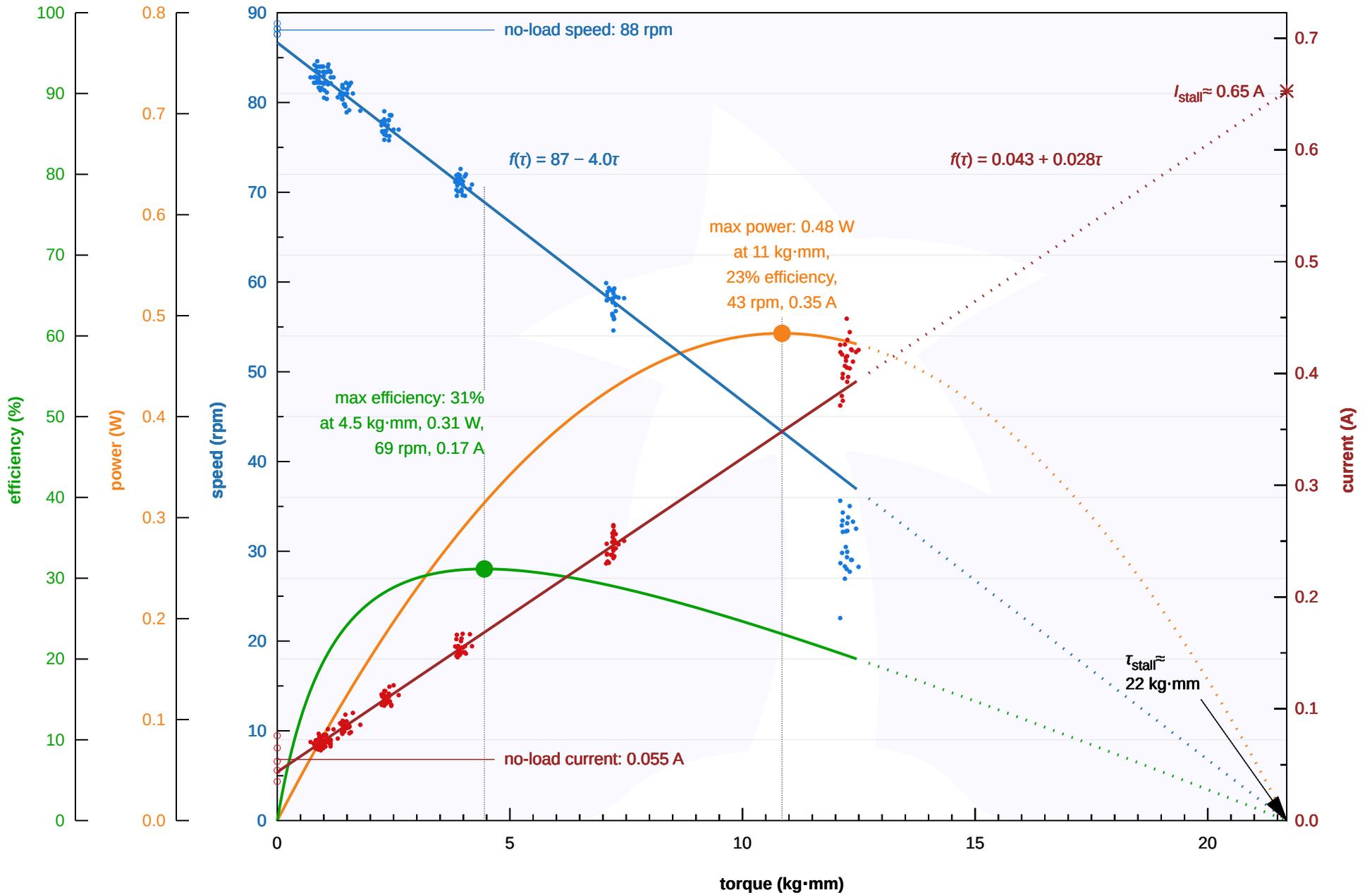
# Pololu Items #2368, #2382, #5140, #5141 (150:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



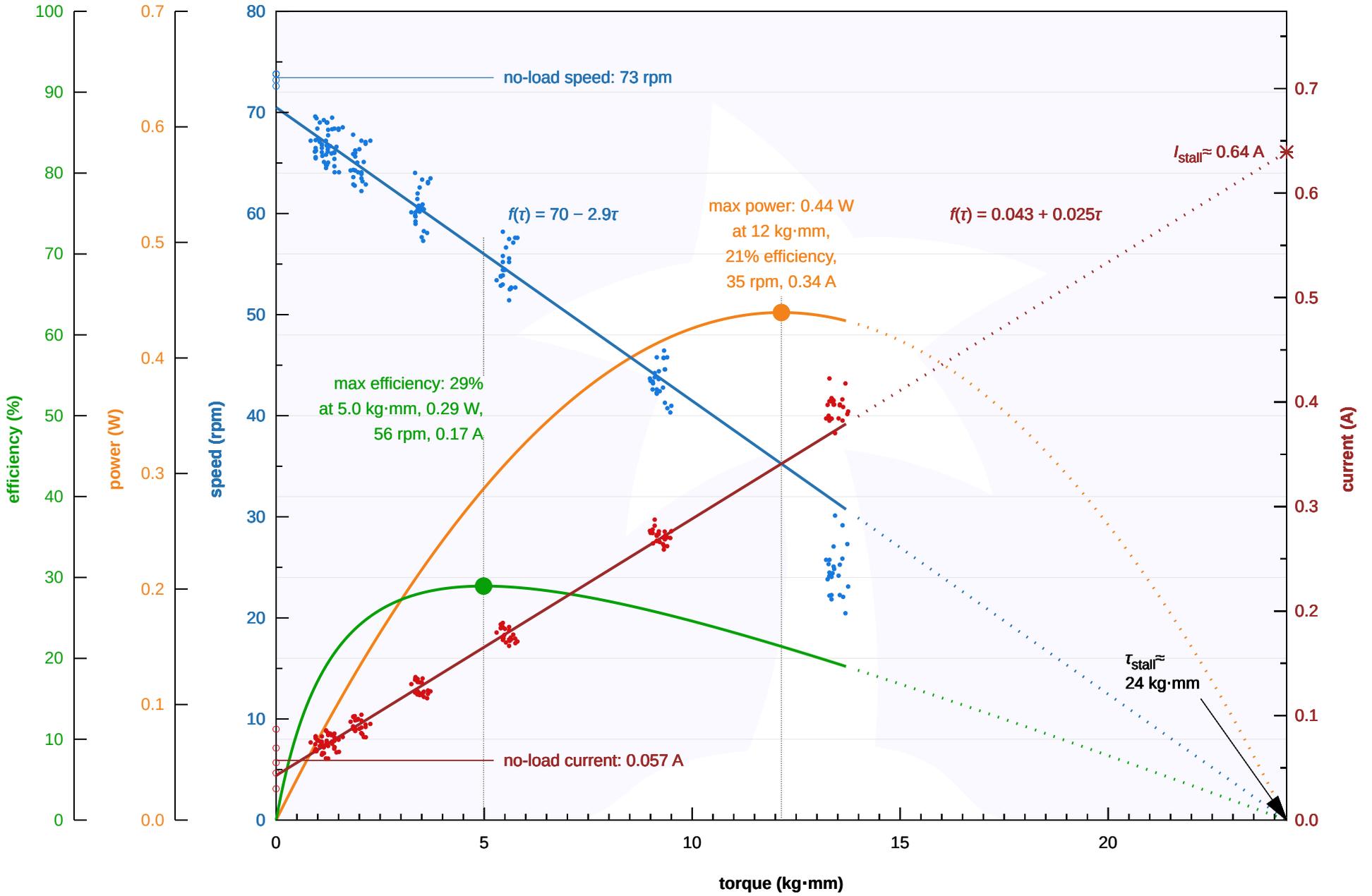
# Pololu Items #2369, #2383, #5142, #5143 (210:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



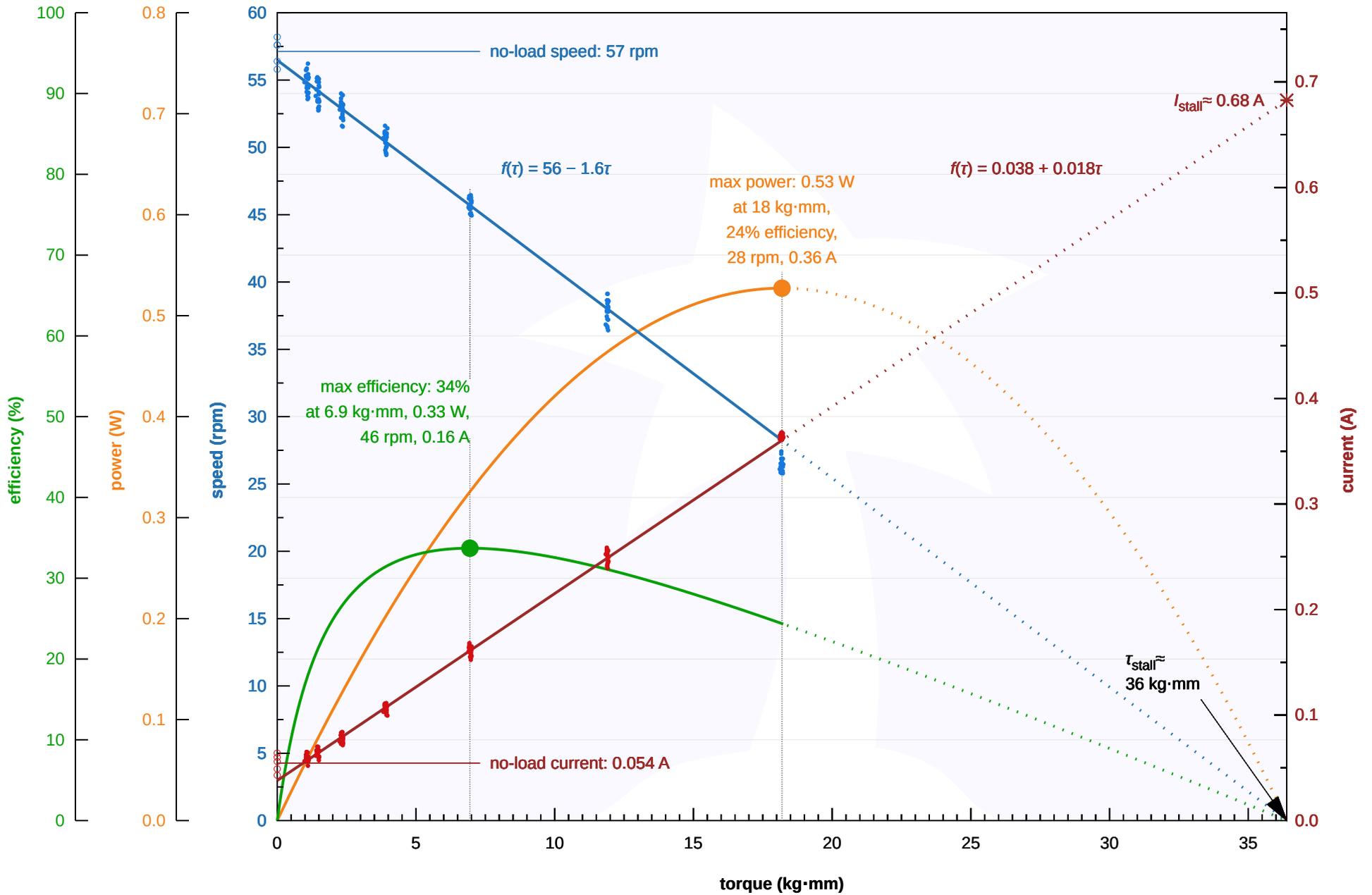
# Pololu Items #2370, #2384, #5144, #5145 (250:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



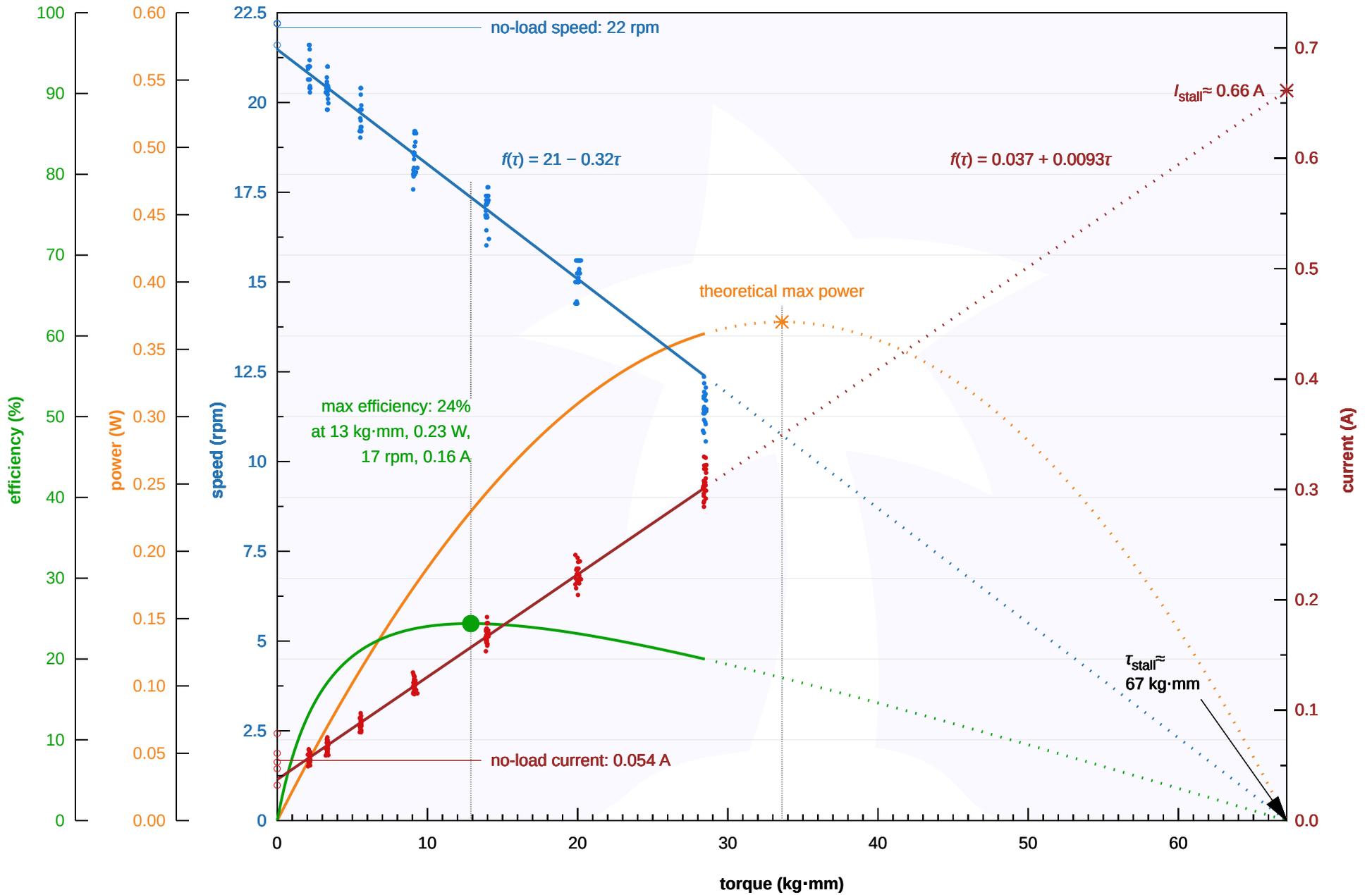
# Pololu Items #2371, #2385, #5146, #5147 (298:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



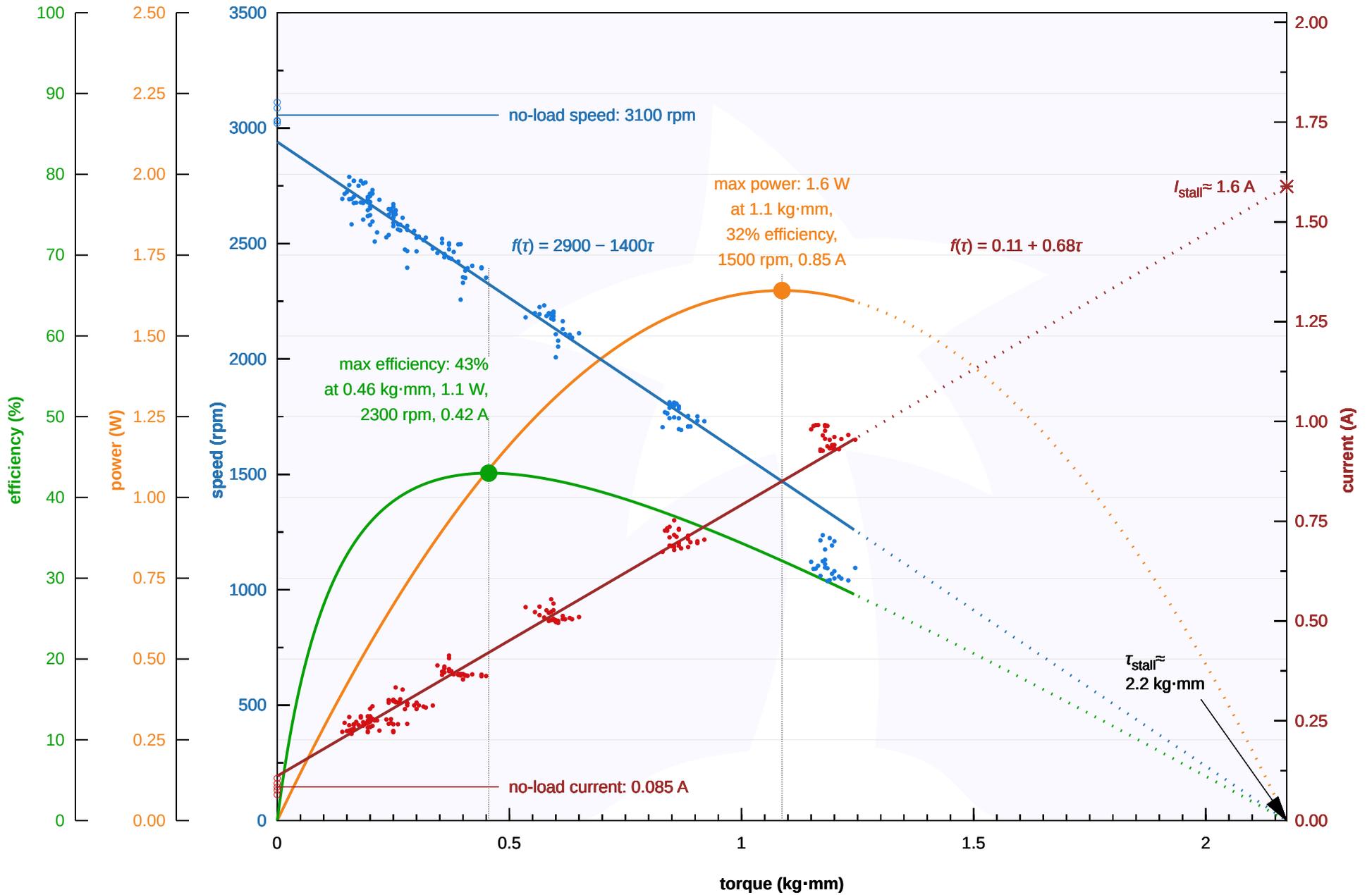
# Pololu Items #4792, #4793, #5148, #5149 (380:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



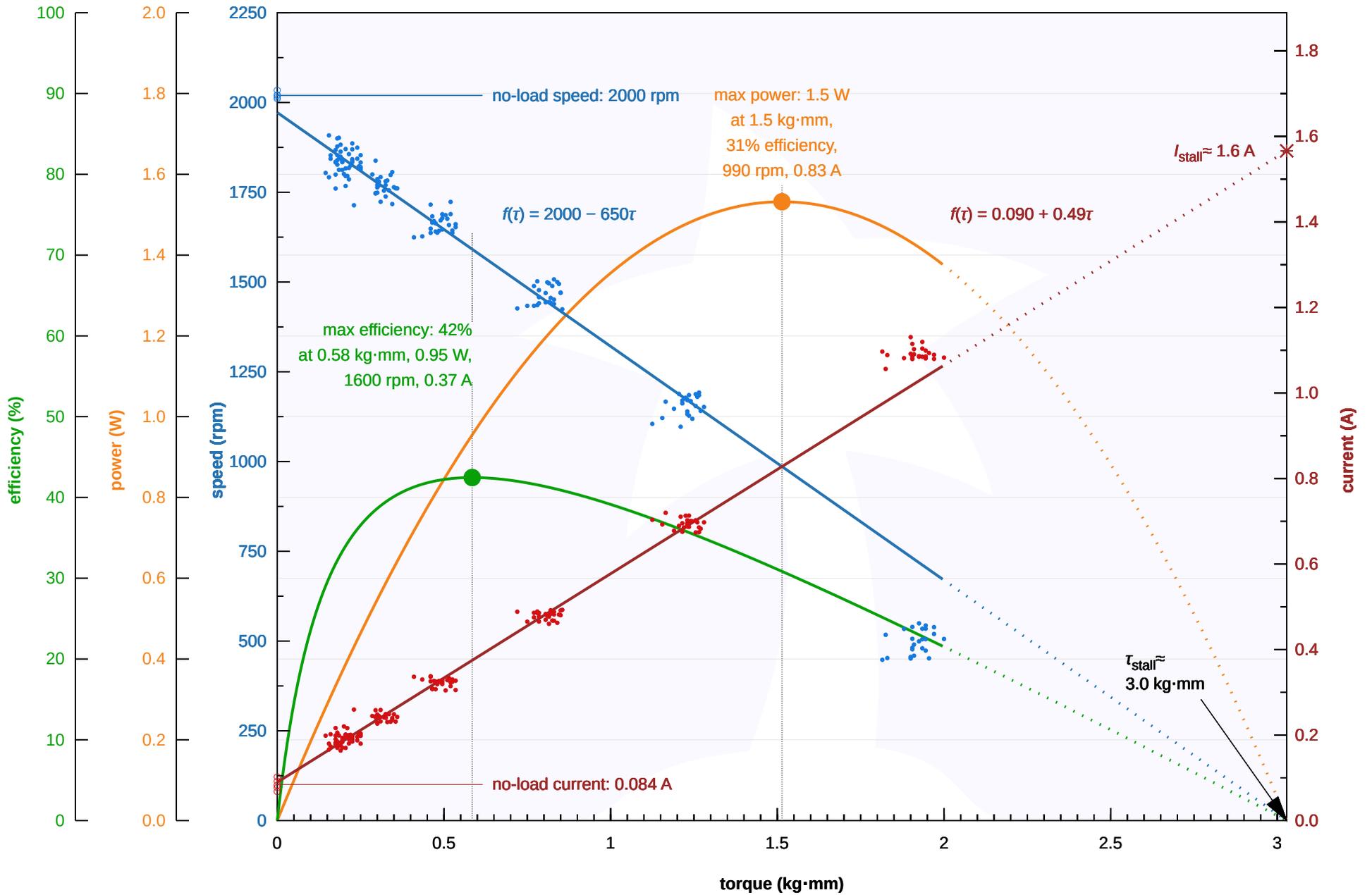
# Pololu Items #2372, #3059, #5150, #5151 (1000:1 Micro Metal Gearmotor MP 6V) Performance at 6 V



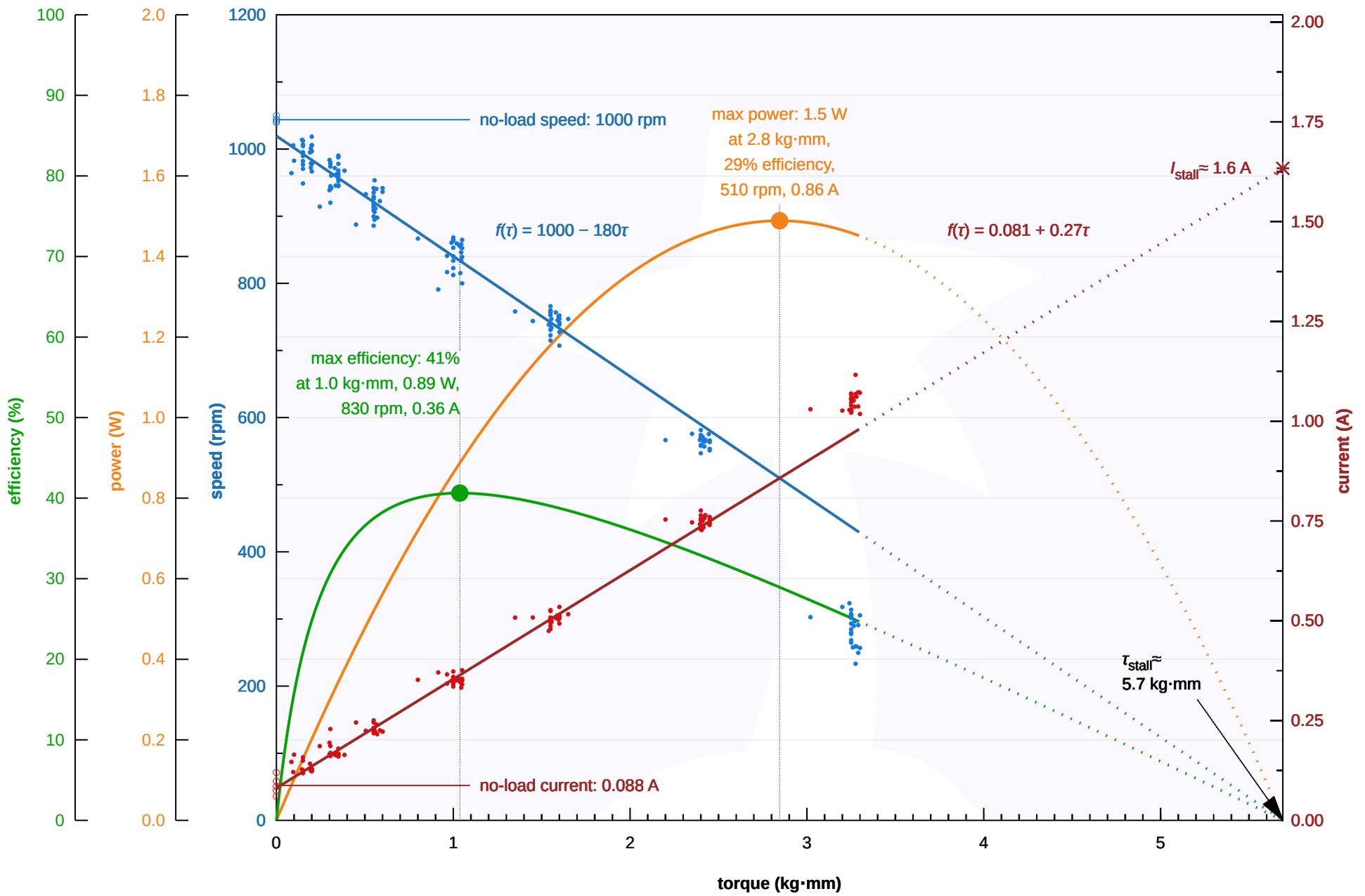
# Pololu Items #999, #2211, #5154, #5155 (10:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



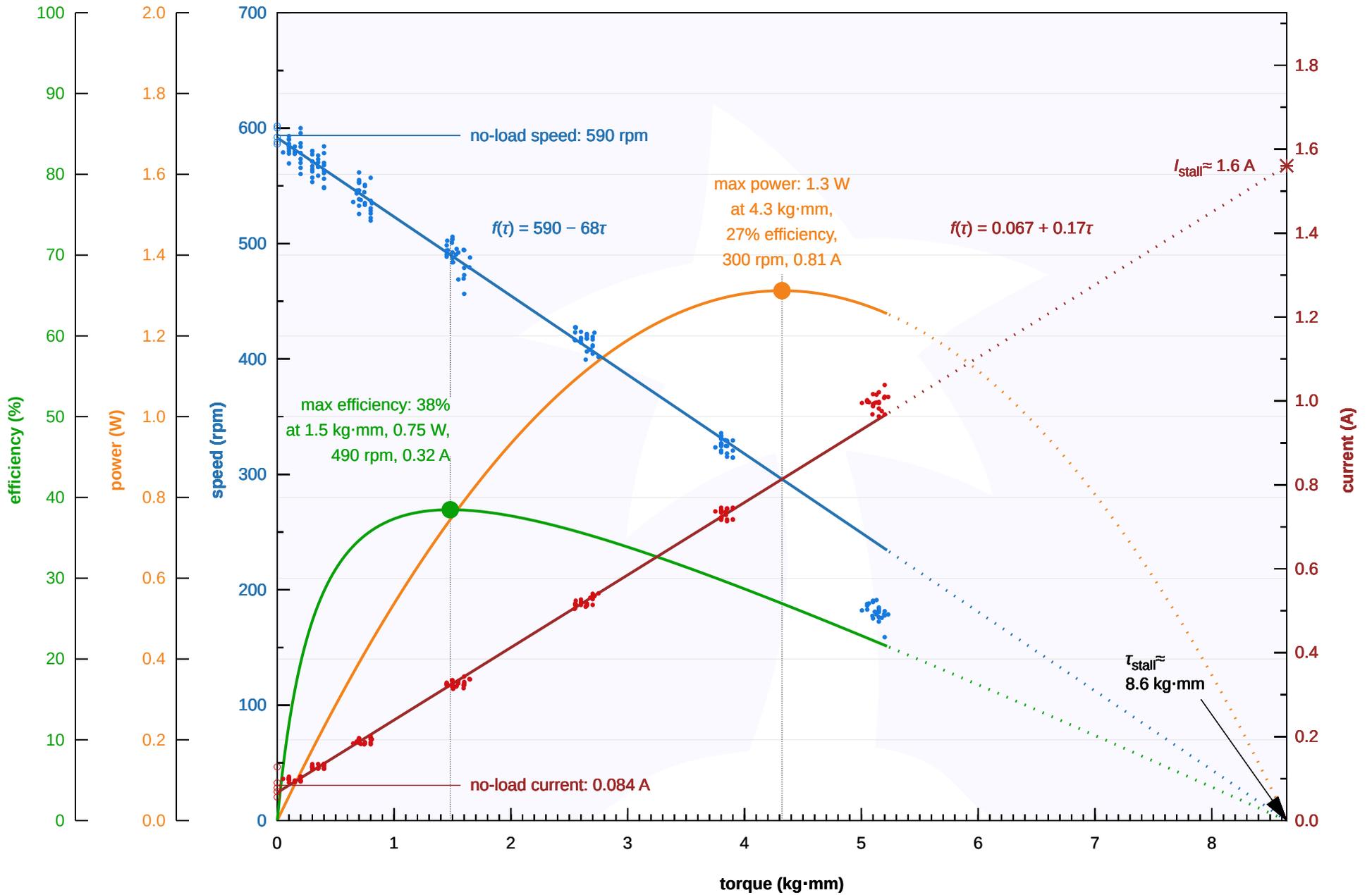
# Pololu Items #4784, #4785, #5156, #5157 (15:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



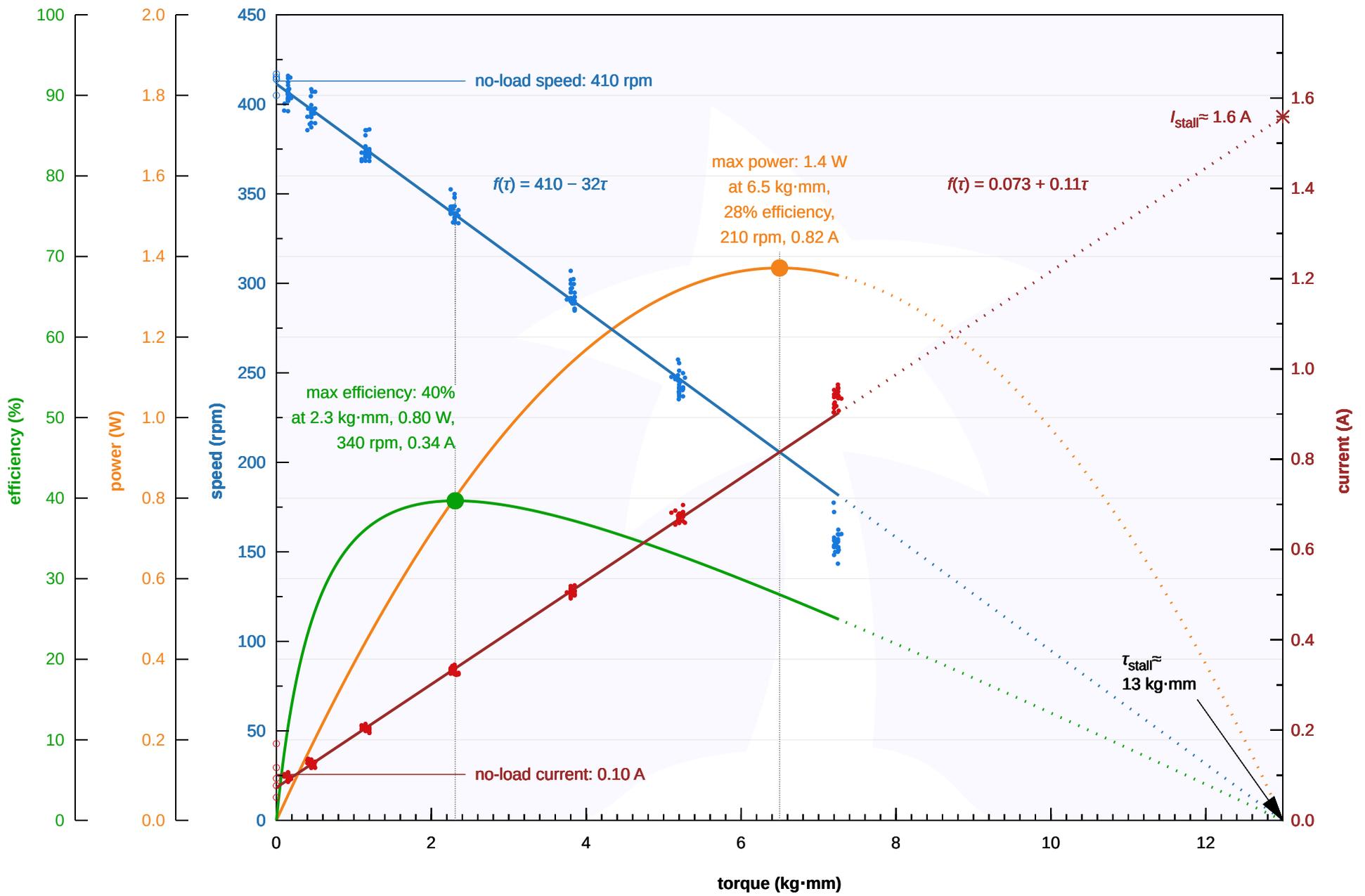
# Pololu Items #1093, #2212, #5158, #5159 (30:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



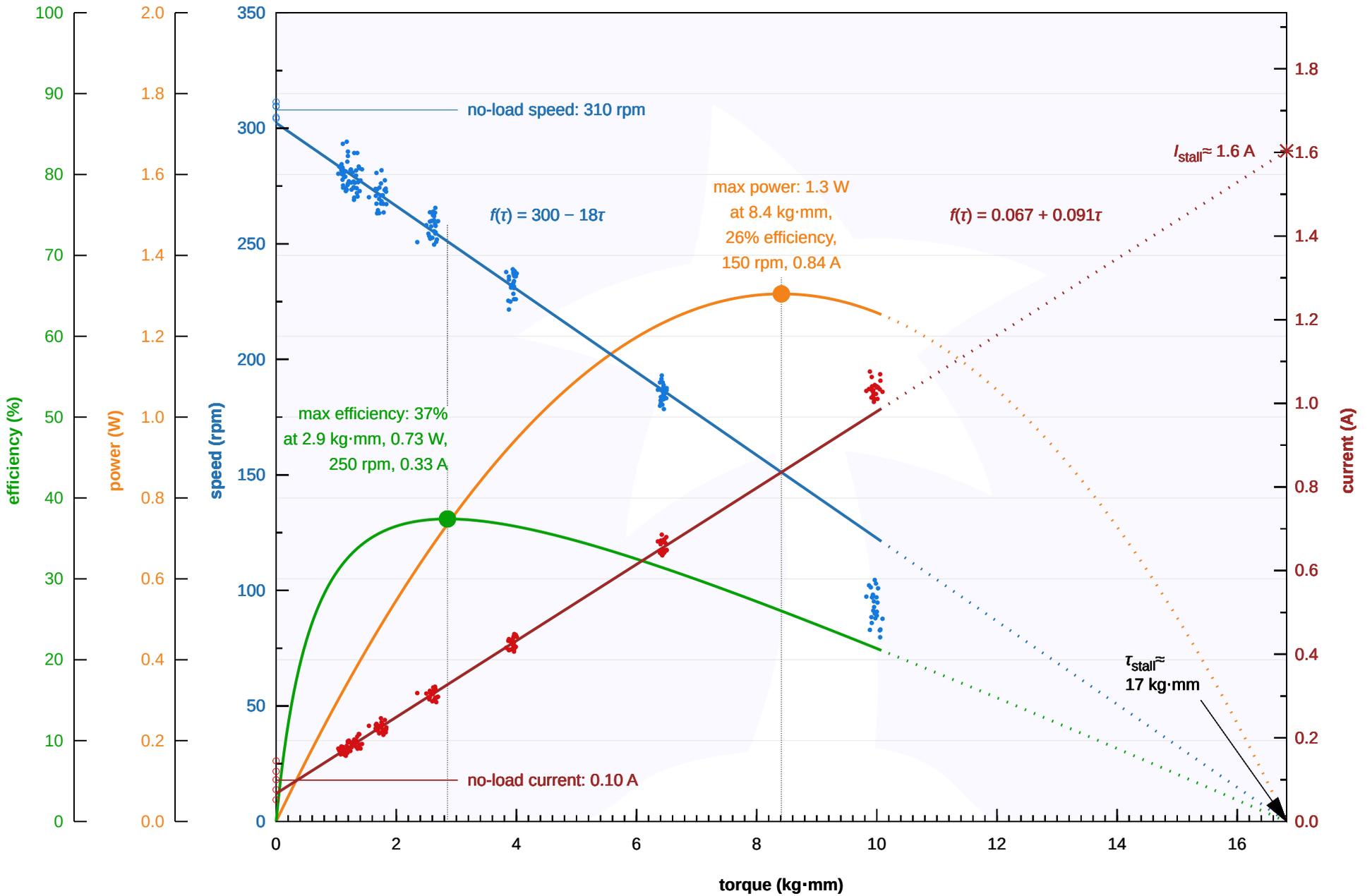
# Pololu Items #998, #2213, #5160, #5161 (50:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



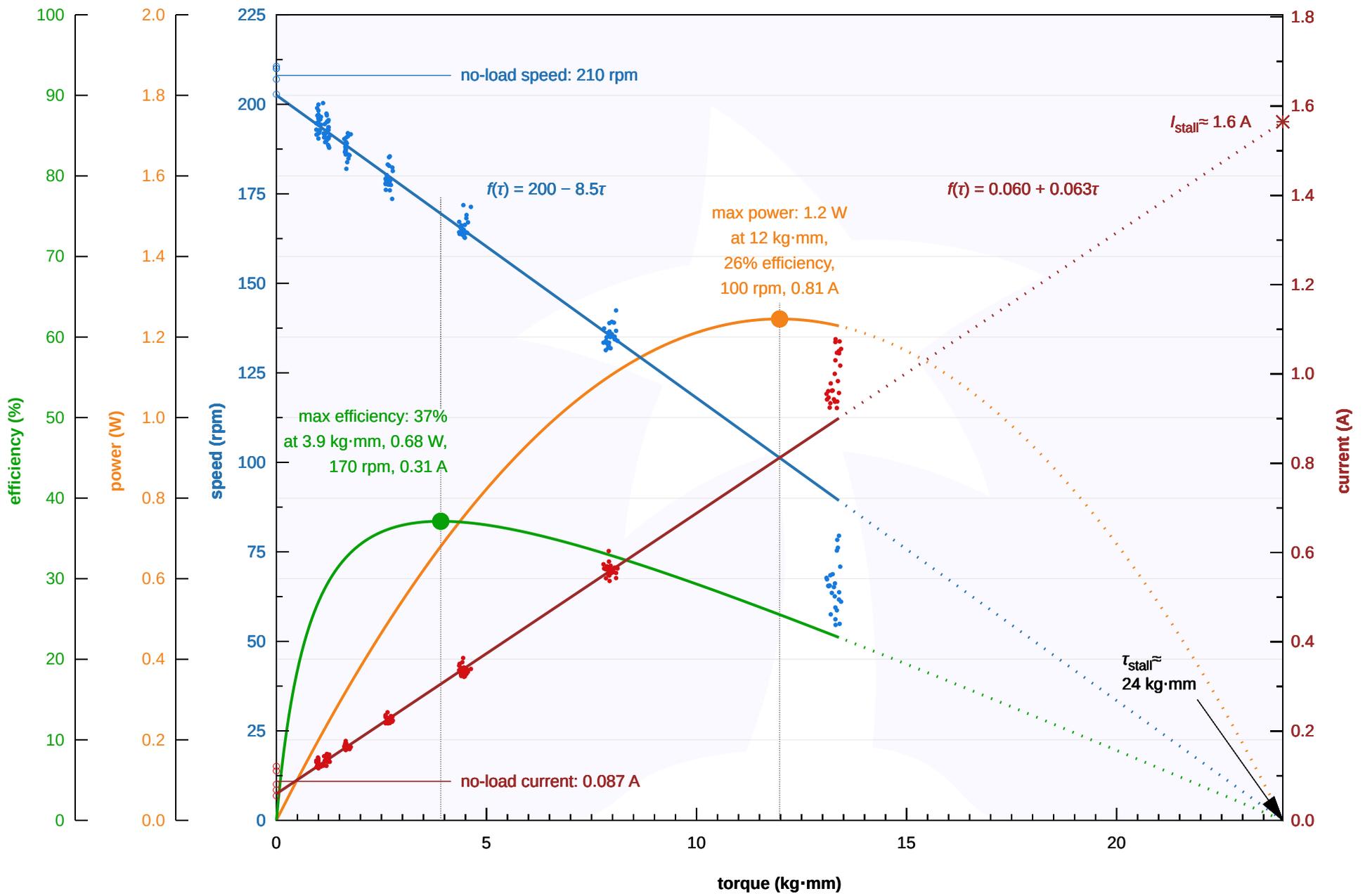
# Pololu Items #2361, #2215, #5162, #5163 (75:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



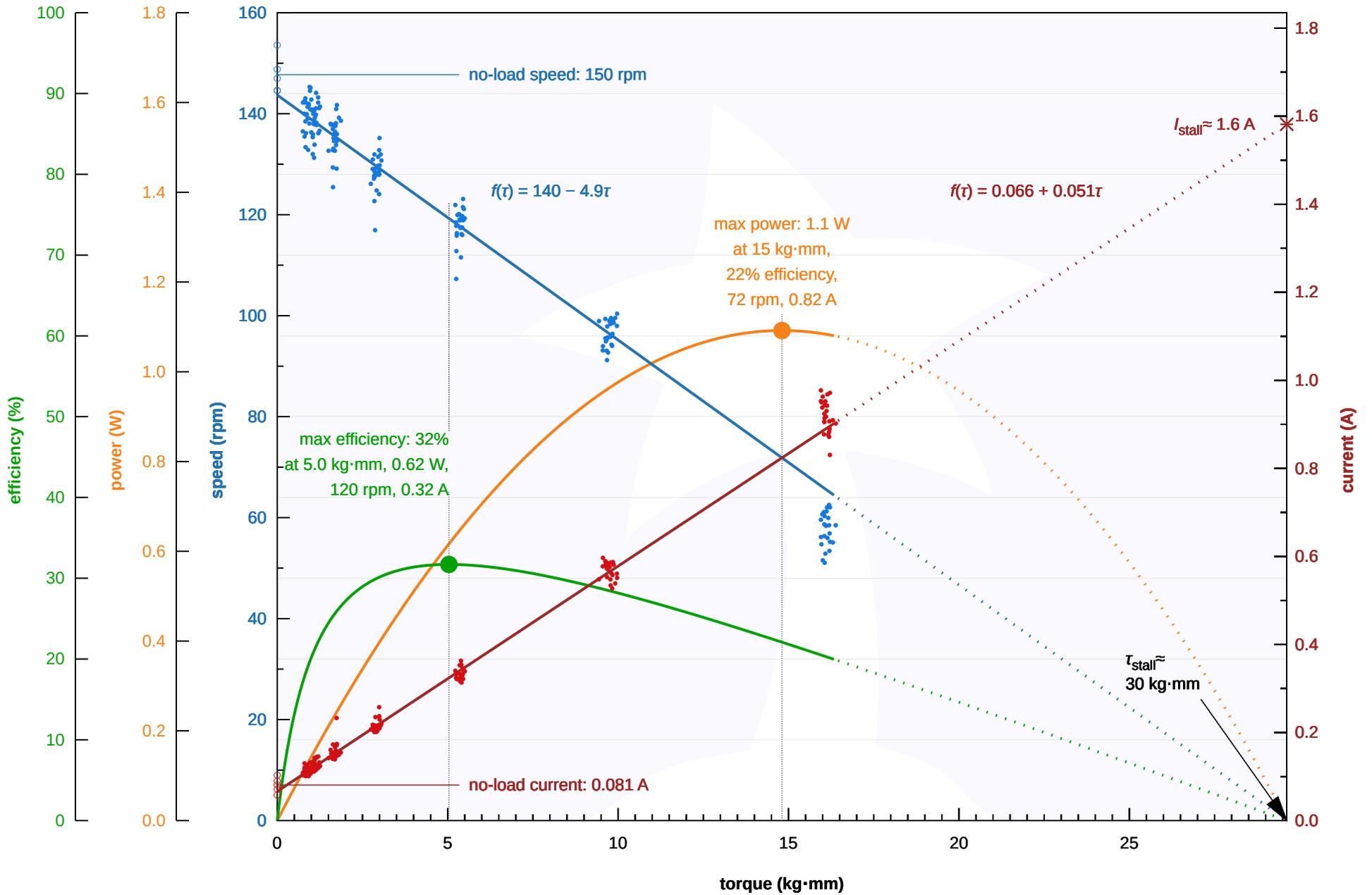
# Pololu Items #1101, #2214, #5164, #5165 (100:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



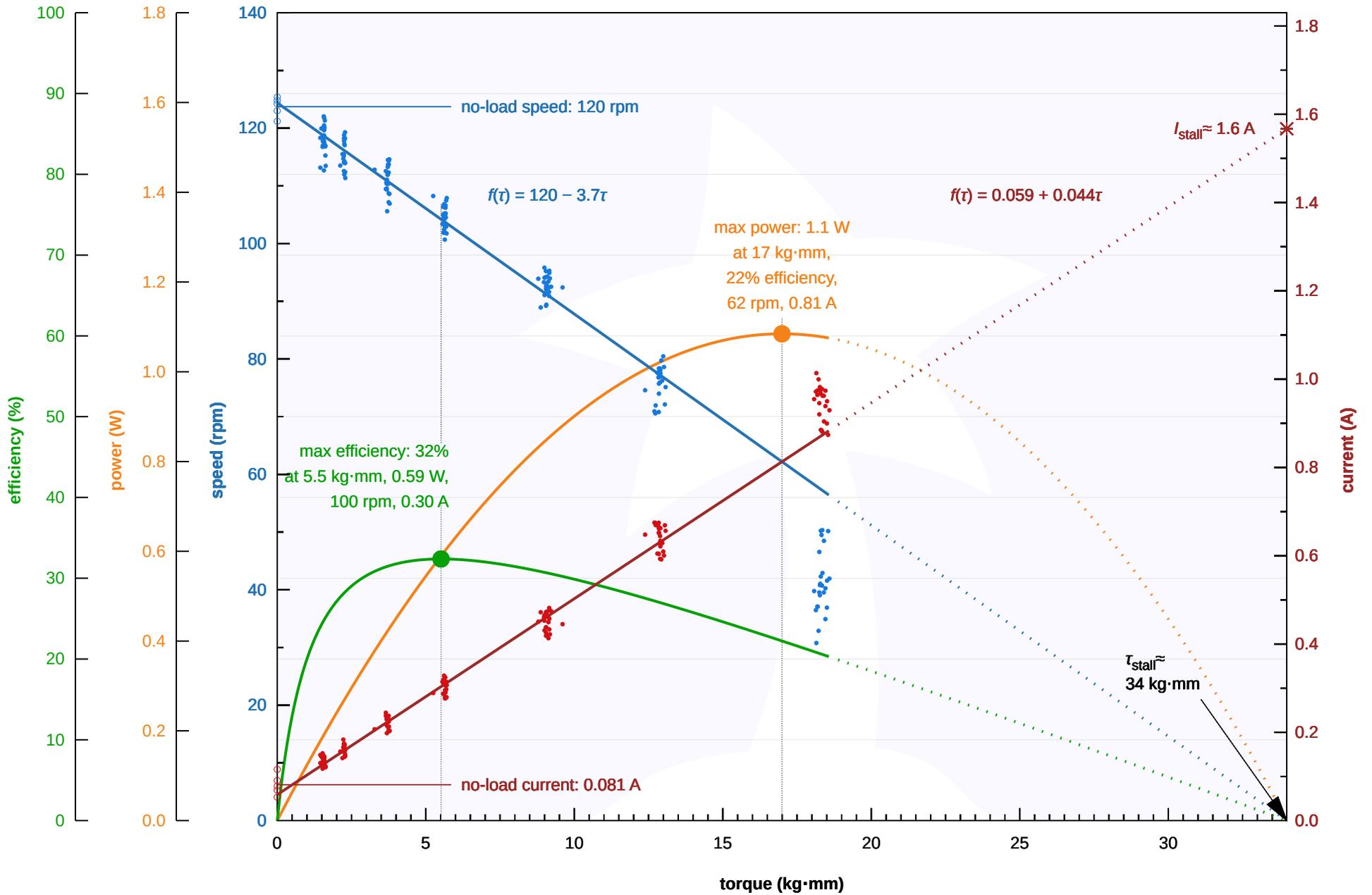
# Pololu Items #997, #2386, #5166, #5167 (150:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



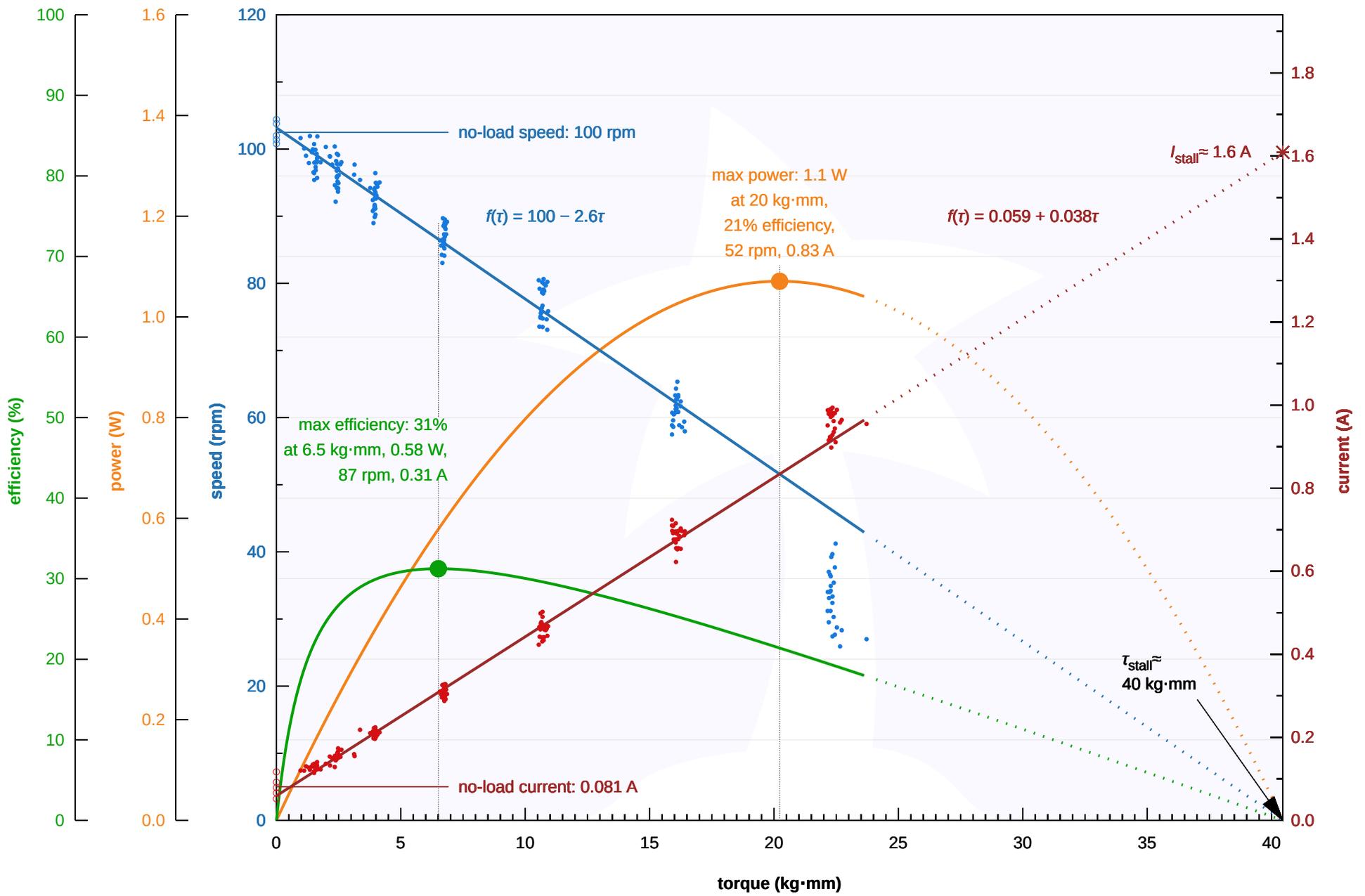
# Pololu Items #996, #2216, #5168, #5169 (210:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



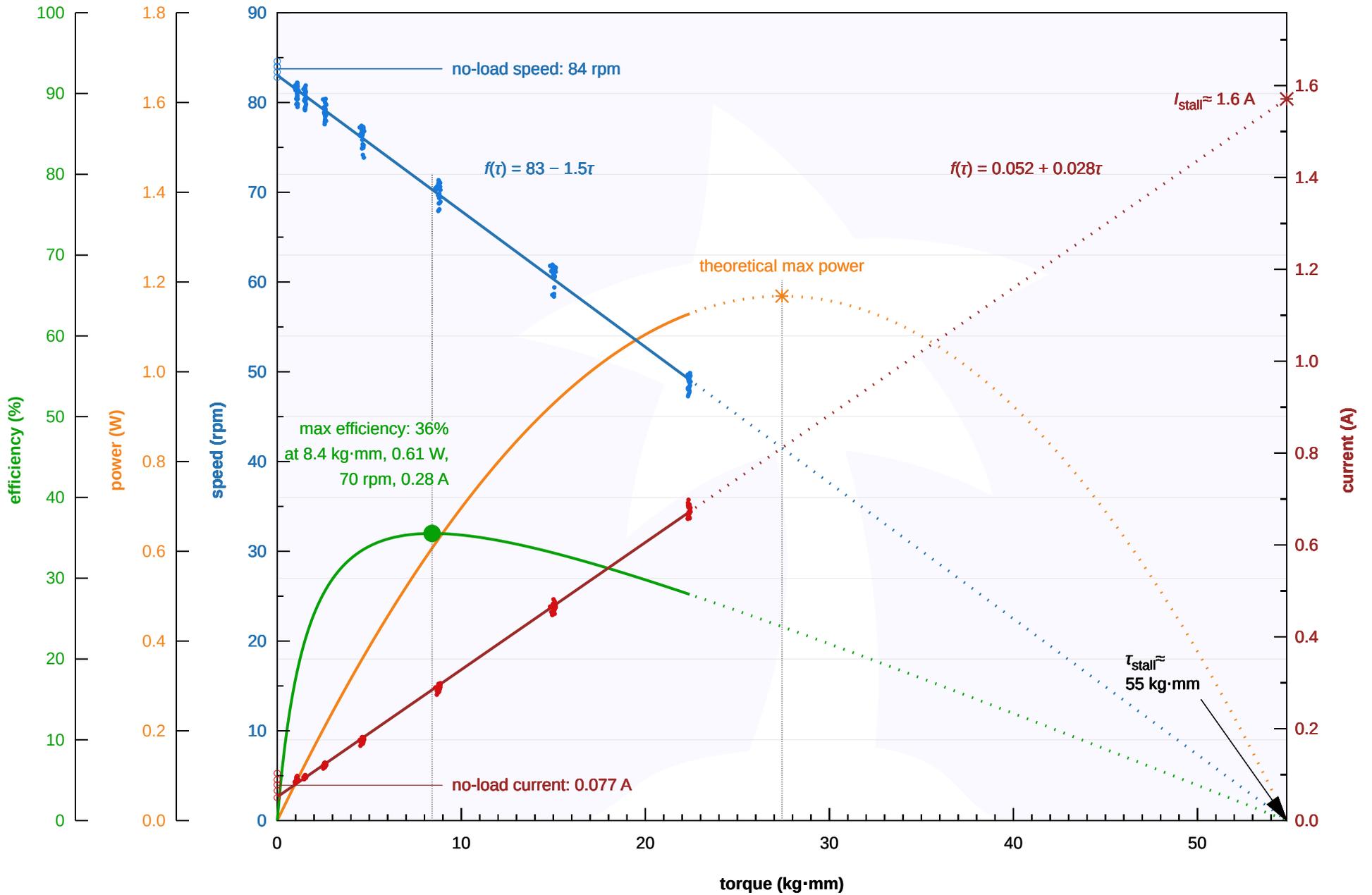
# Pololu Items #995, #2217, #5170, #5171 (250:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



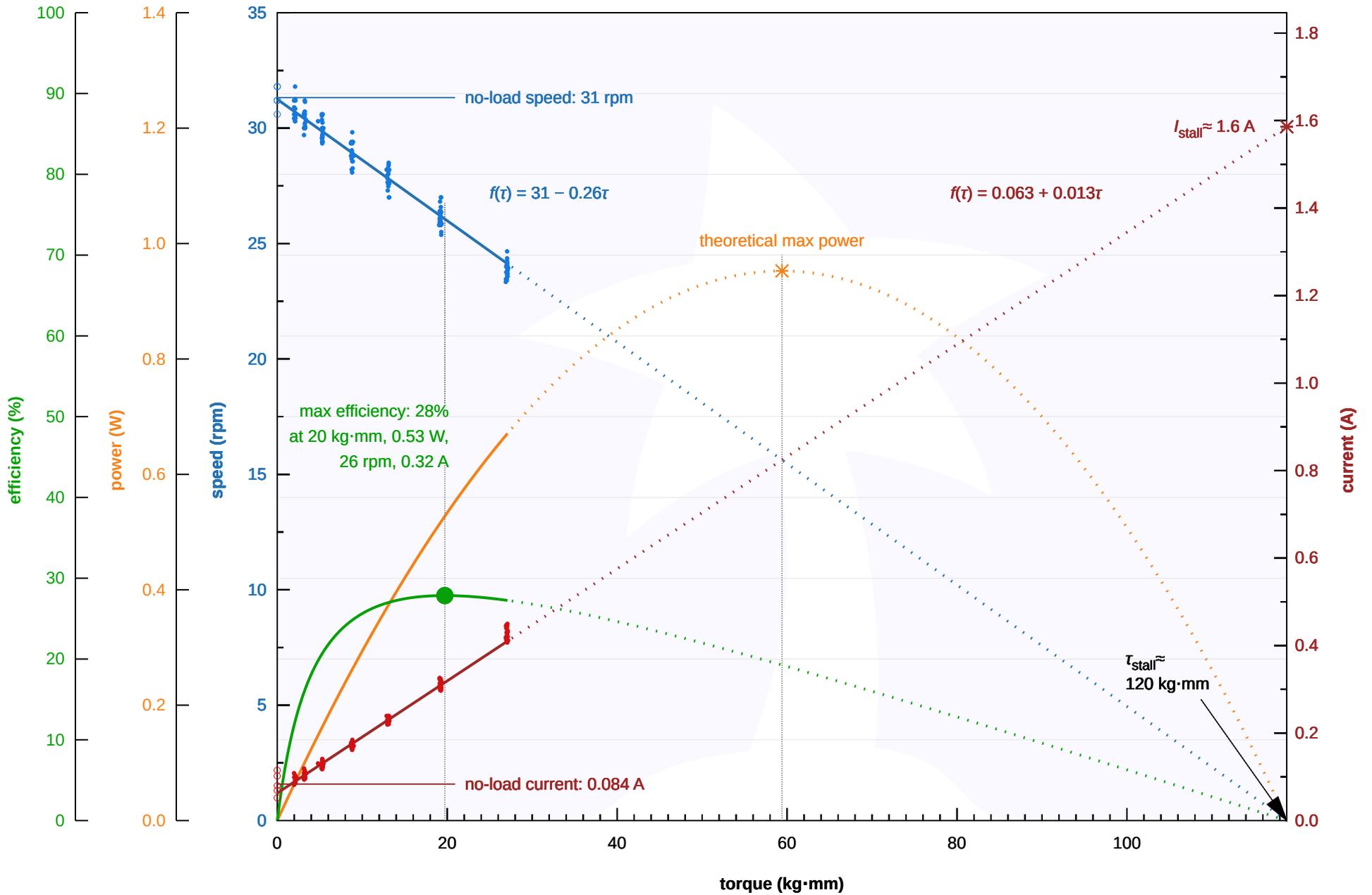
# Pololu Items #994, #2218, #5172, #5173 (298:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



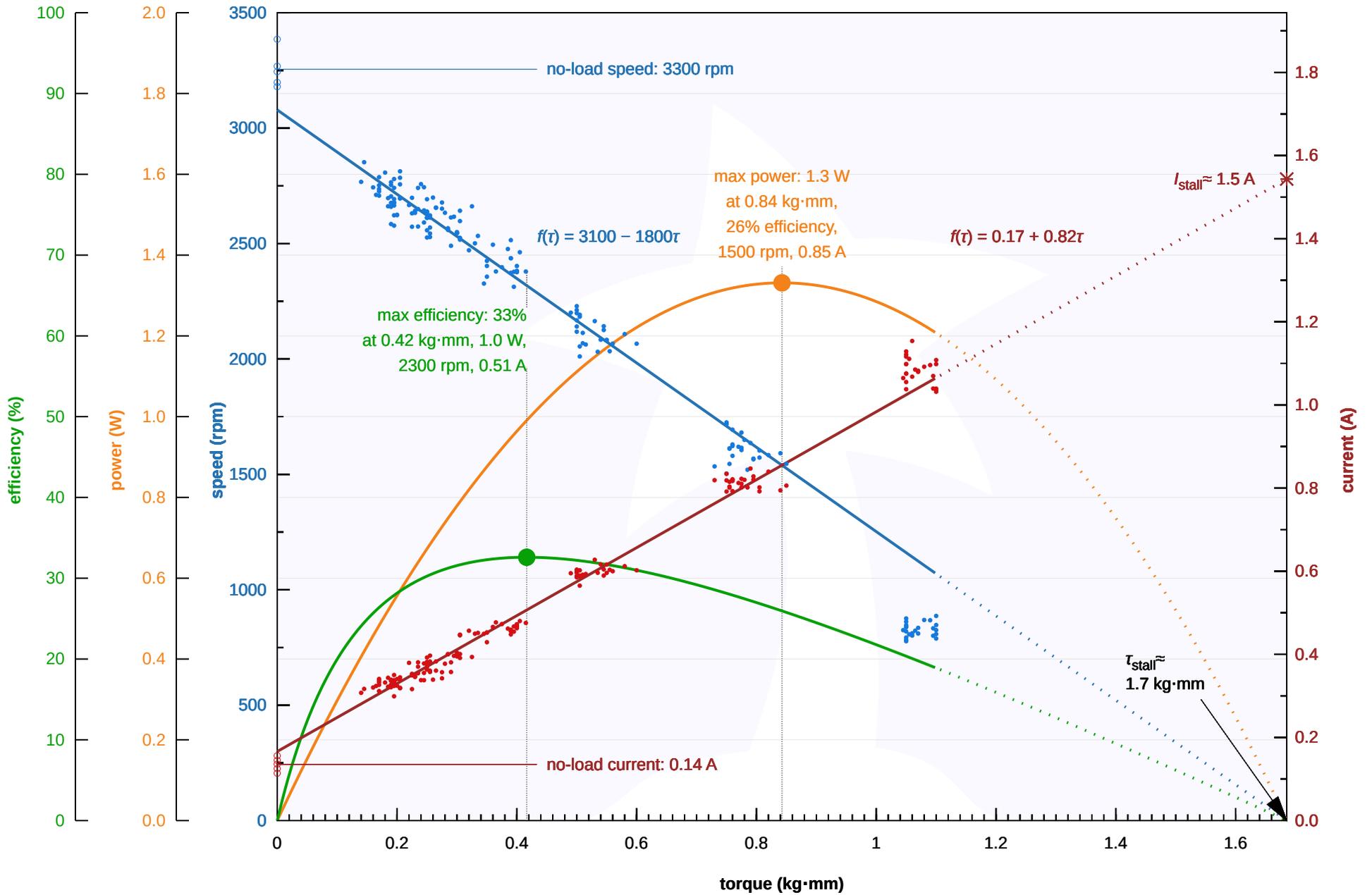
# Pololu Items #4794, #4795, #5174, #5175 (380:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



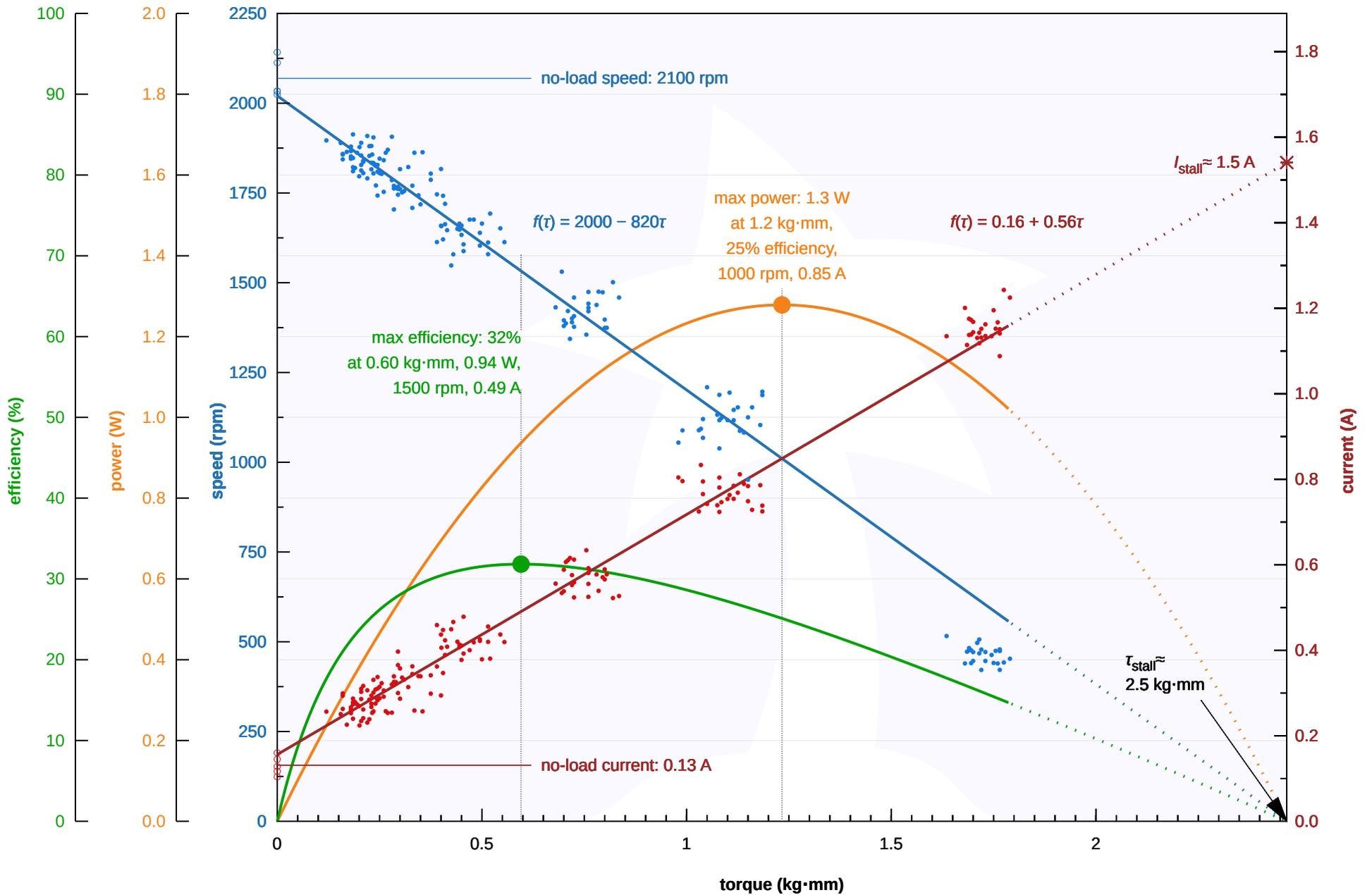
# Pololu Items #1595, #2373, #5176, #5177 (1000:1 Micro Metal Gearmotor HP 6V) Performance at 6 V



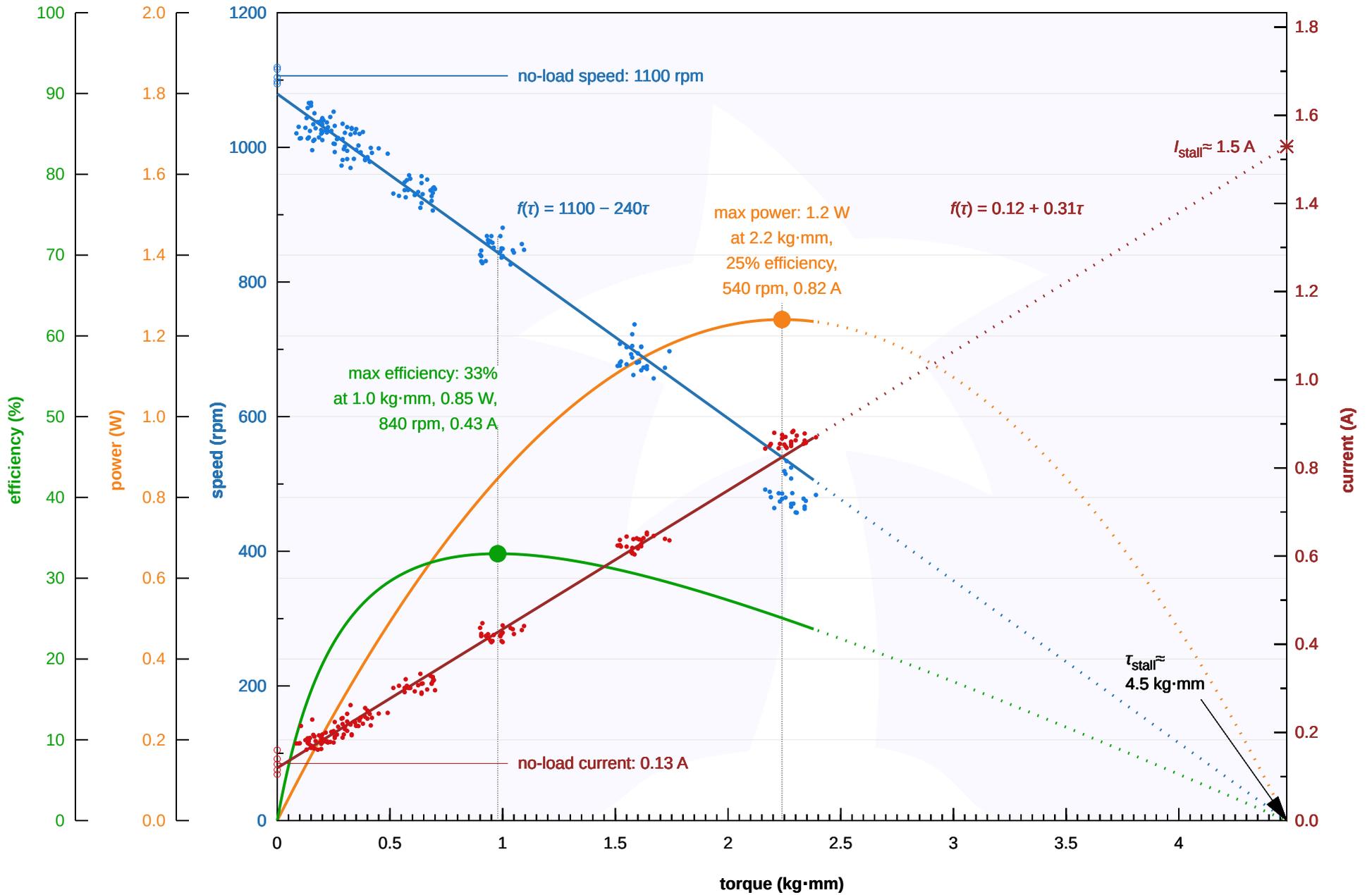
# Pololu Items #3061, #3071, #5180, #5181 (10:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



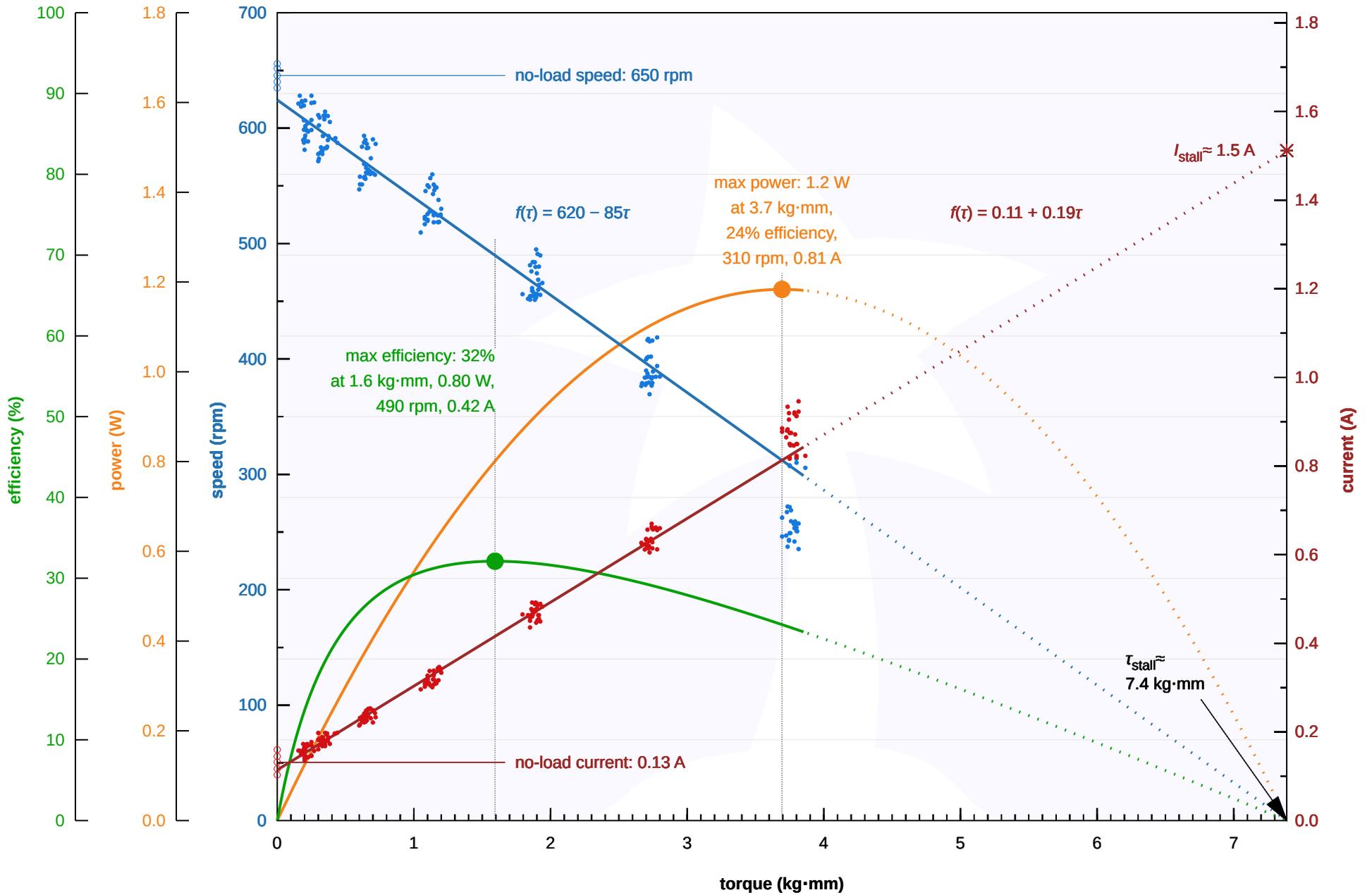
# Pololu Items #4786, #4787, #5182, #5183 (15:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



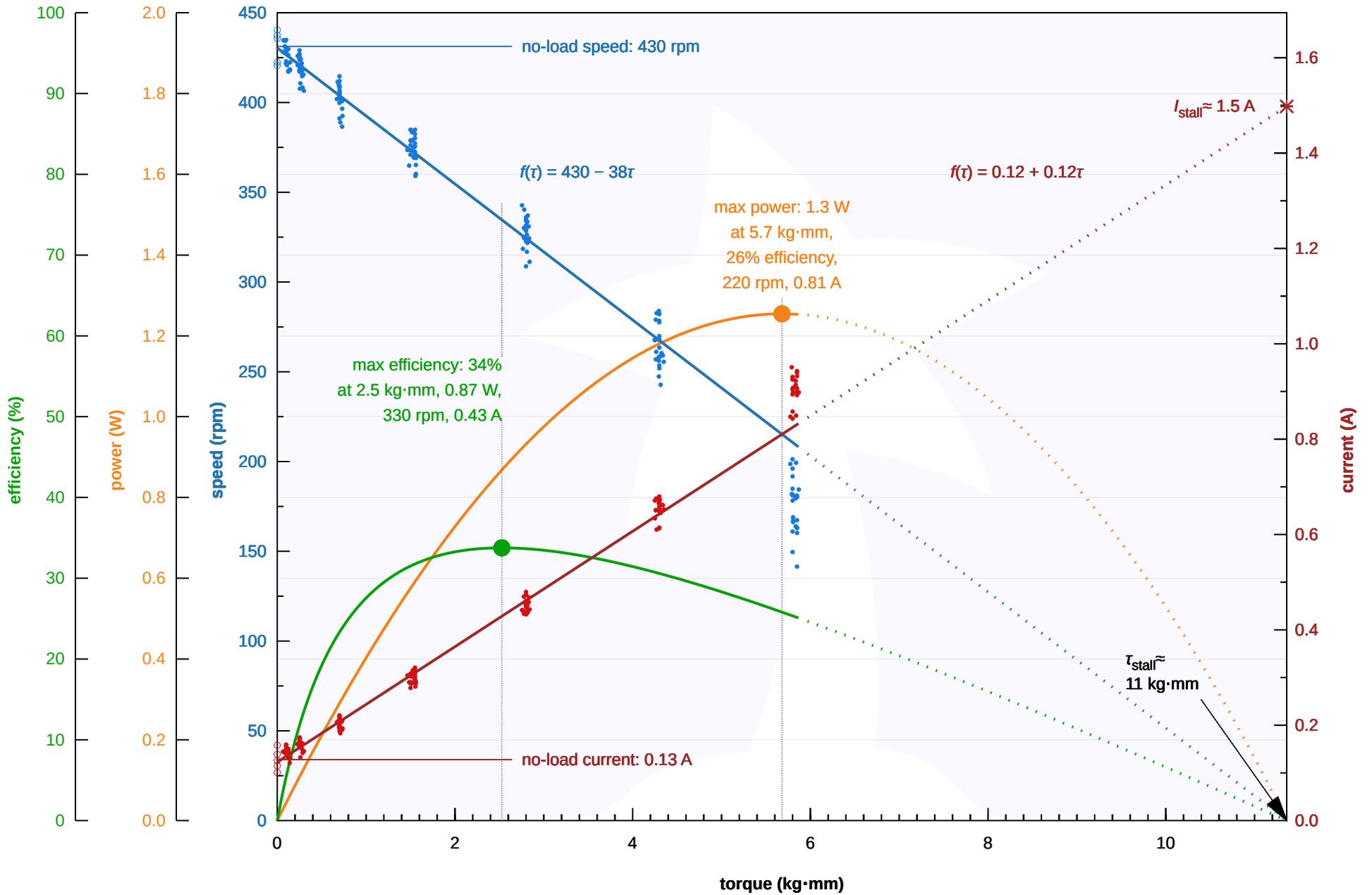
# Pololu Items #3062, #3072, #5184, #5185 (30:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



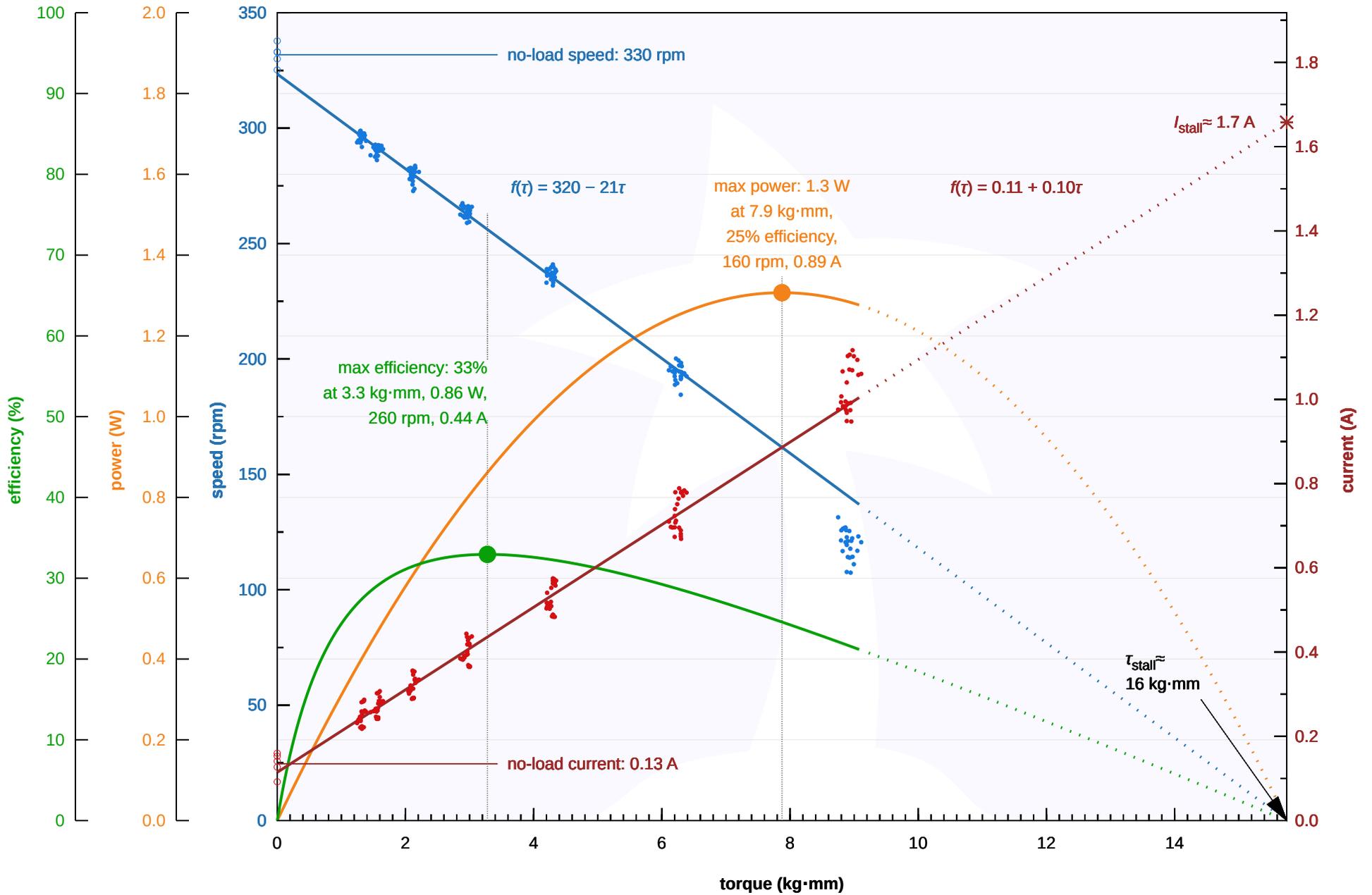
# Pololu Items #3063, #3073, #5186, #5187 (50:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



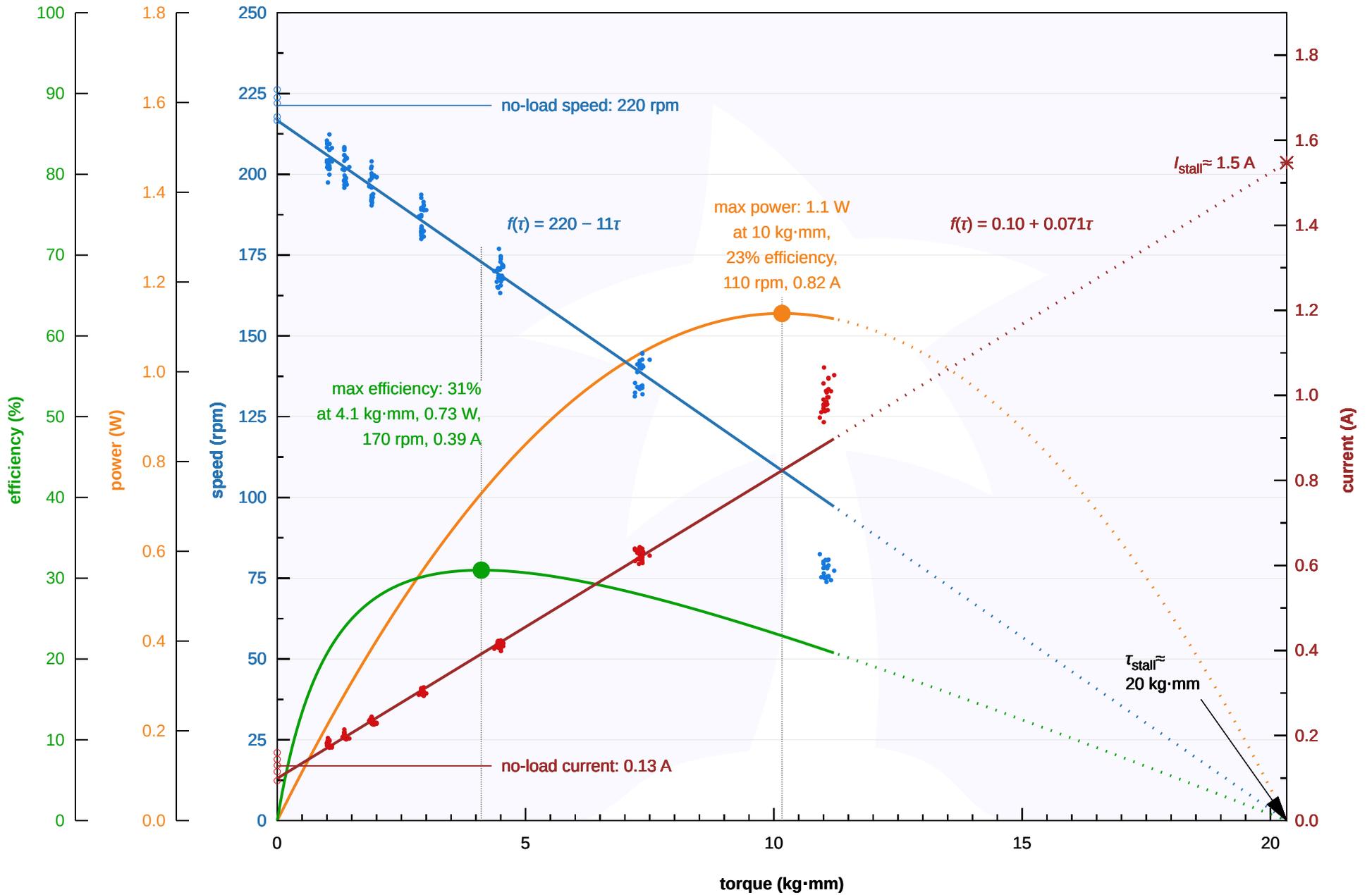
# Pololu Items #3064, #3074, #5188, #5189 (75:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



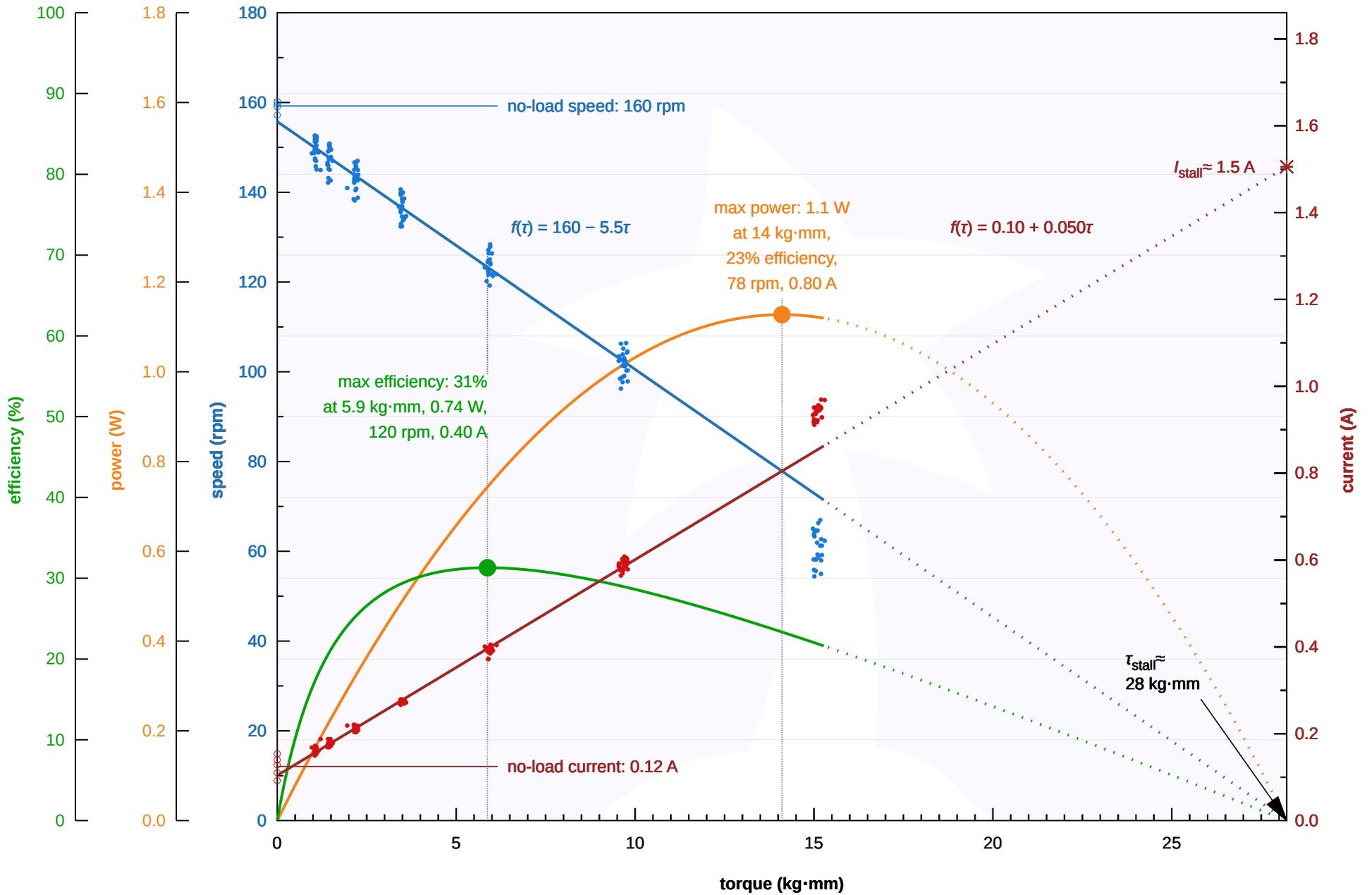
# Pololu Items #3065, #3075, #5190, #5191 (100:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



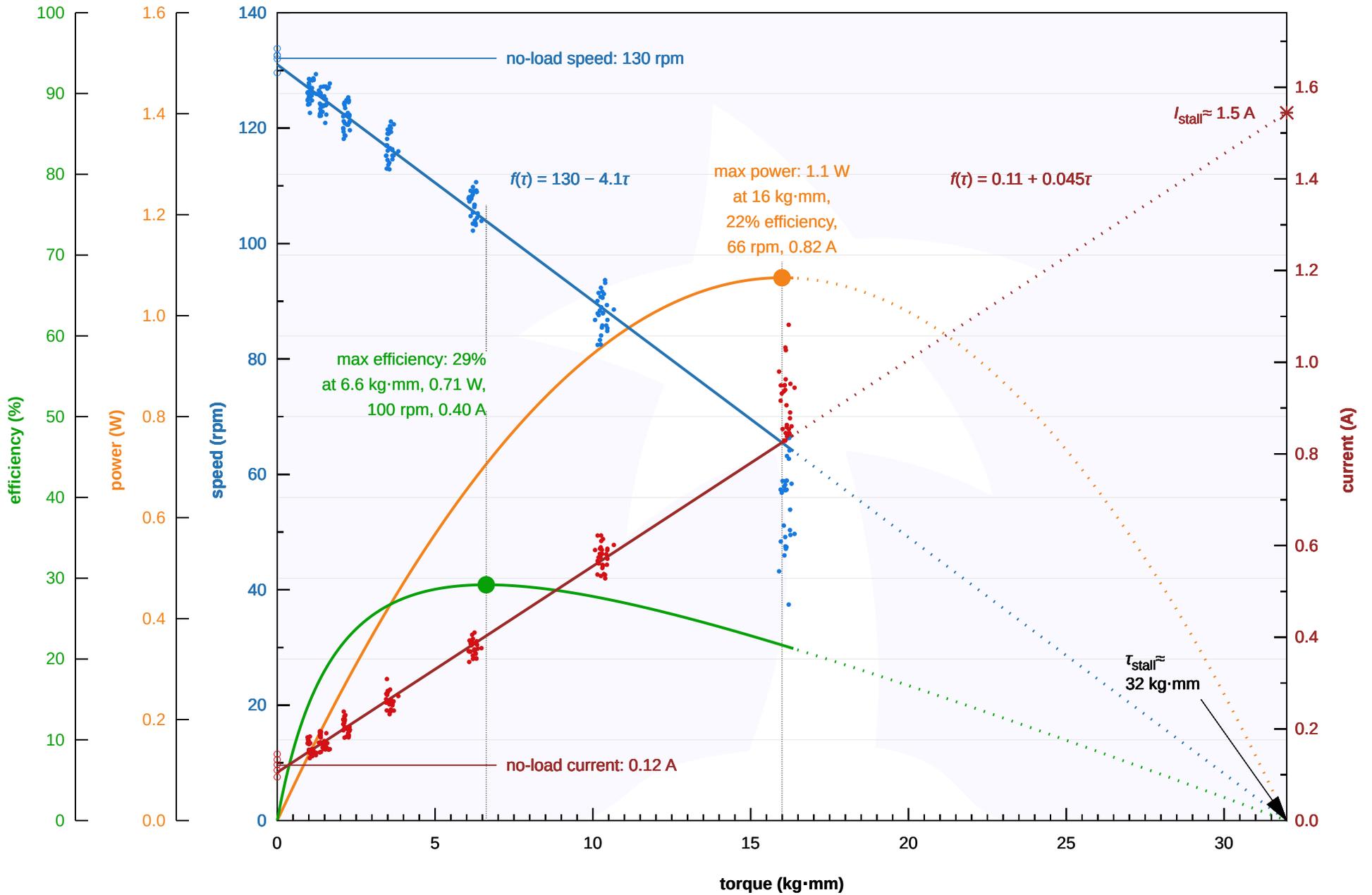
# Pololu Items #3066, #3076, #5192, #5193 (150:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



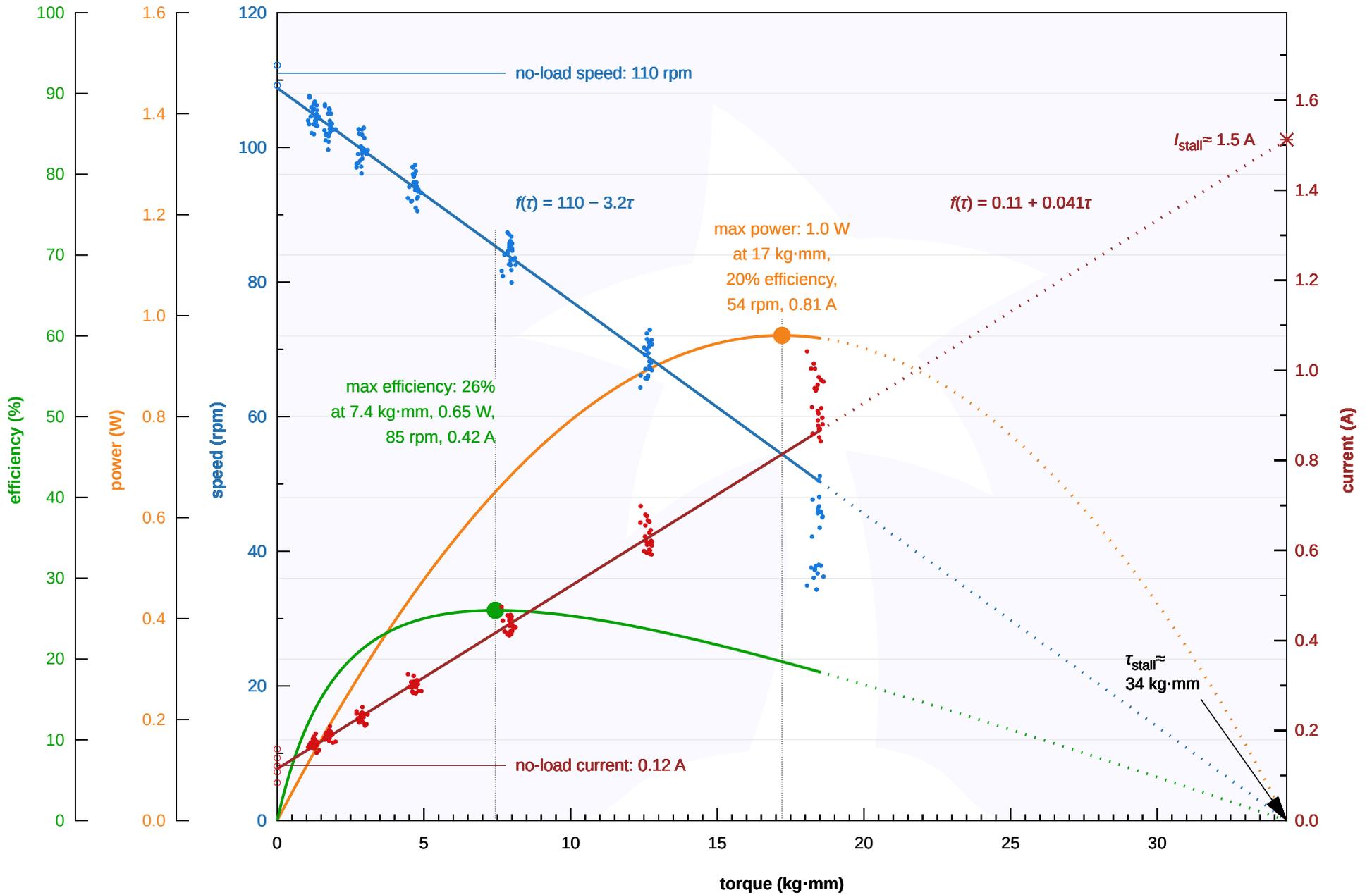
# Pololu Items #3067, #3077, #5194, #5195 (210:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



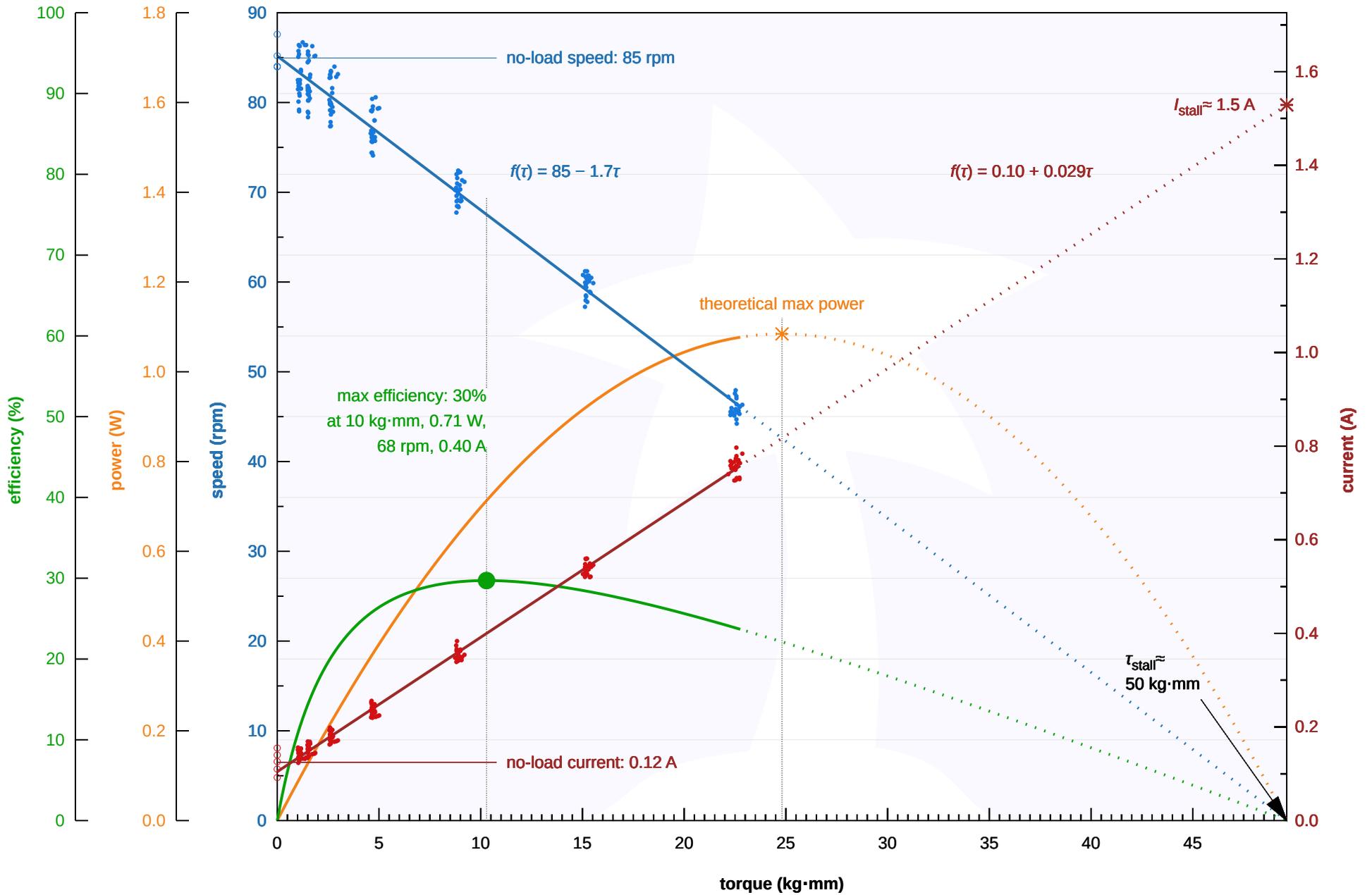
# Pololu Items #3068, #3078, #5196, #5197 (250:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



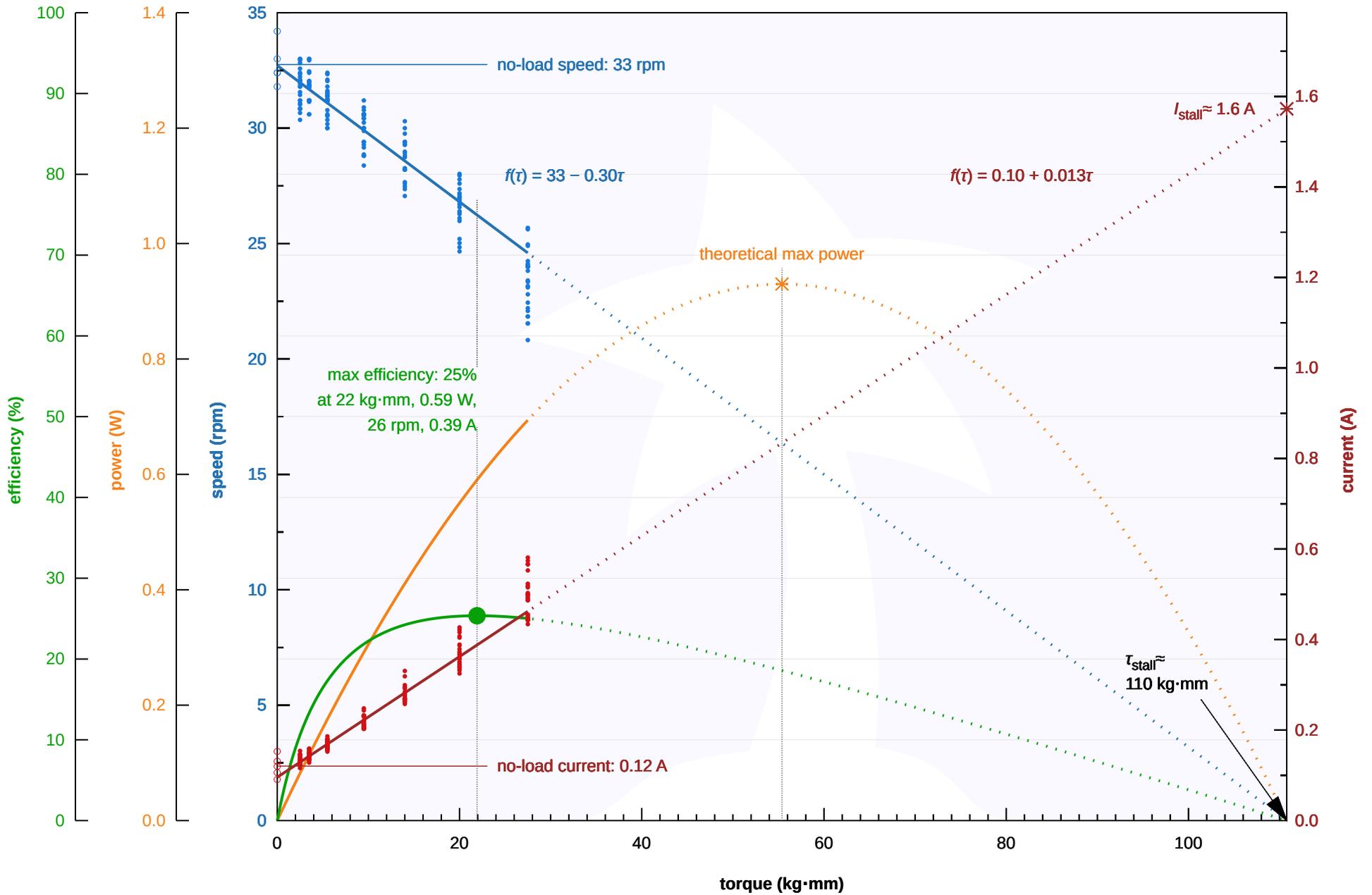
# Pololu Items #3069, #3079, #5198, #5199 (298:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



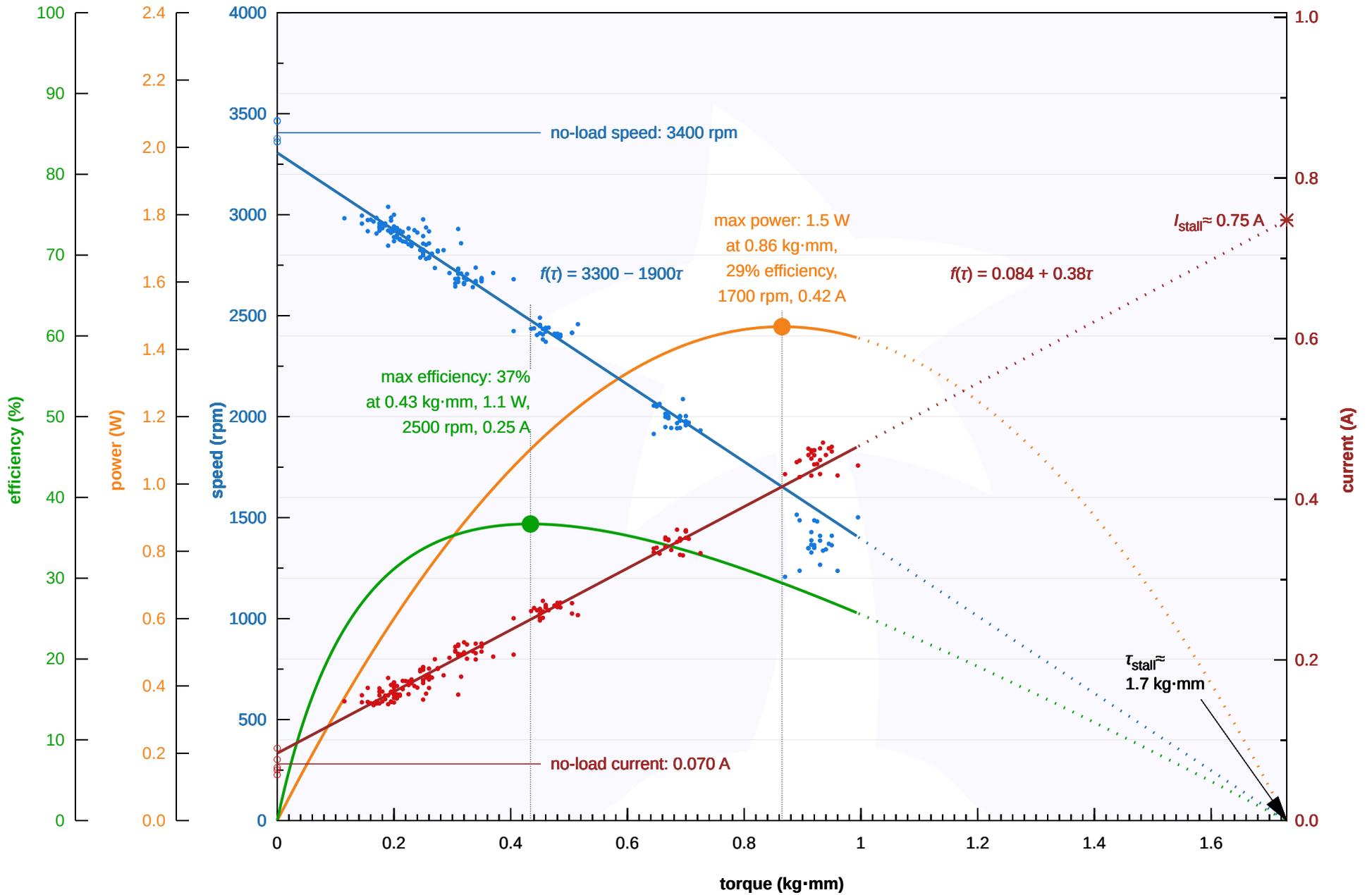
# Pololu Items #4796, #4797, #5200, #5201 (380:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



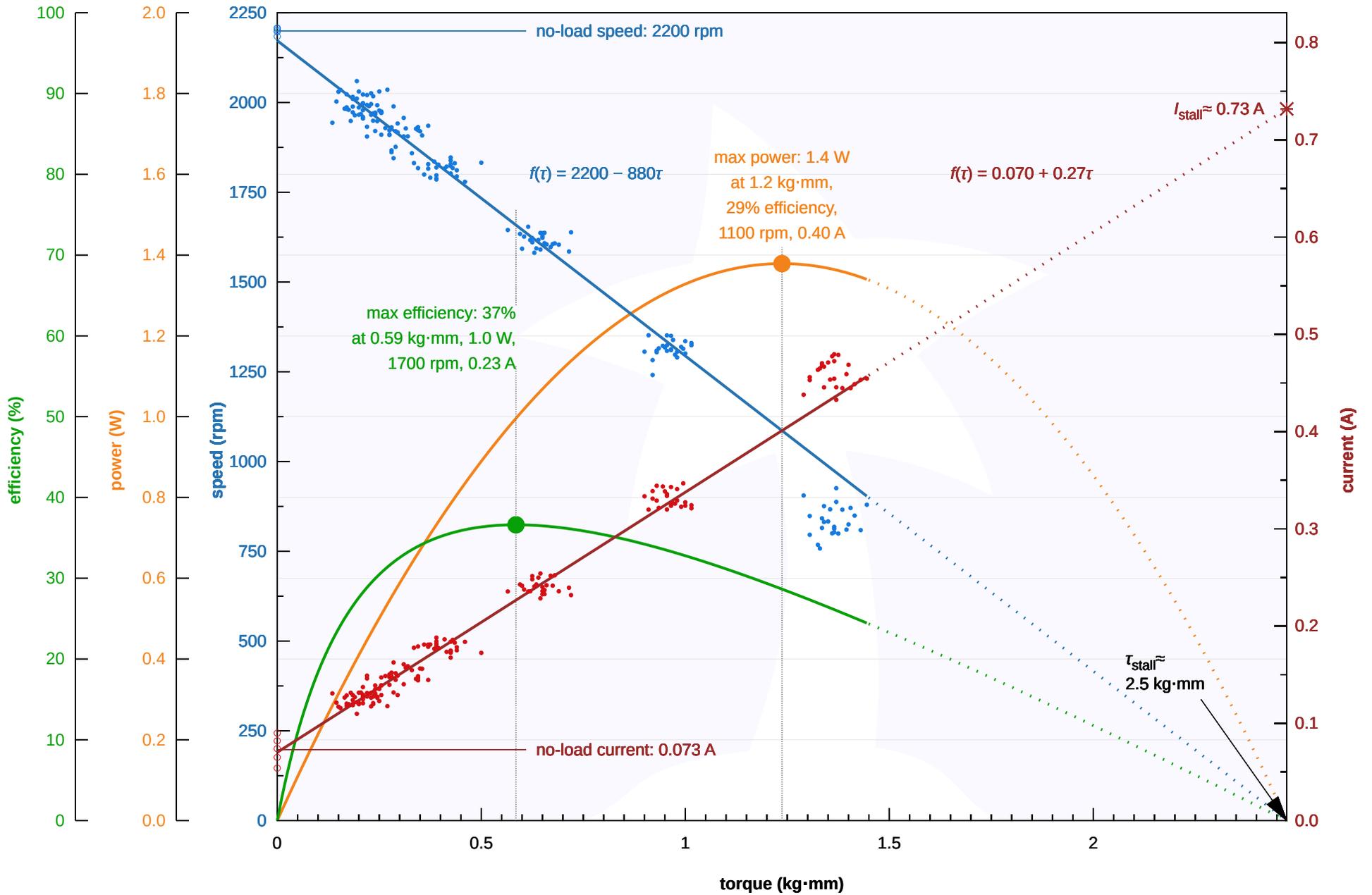
# Pololu Items #3070, #3080, #5202, #5203 (1000:1 Micro Metal Gearmotor HPCB 6V) Performance at 6 V



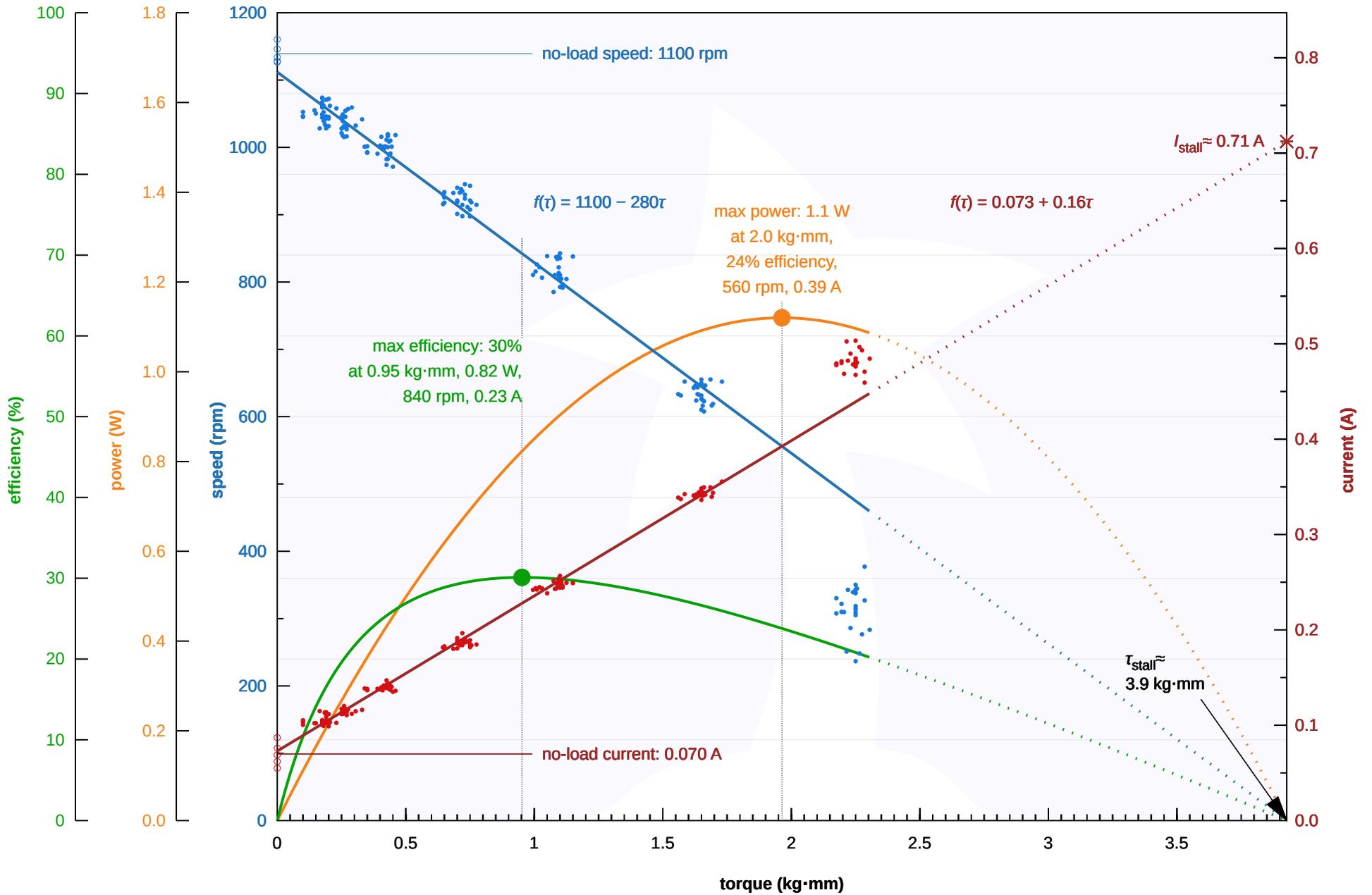
# Pololu Items #3037, #3048, #5206, #5207 (10:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



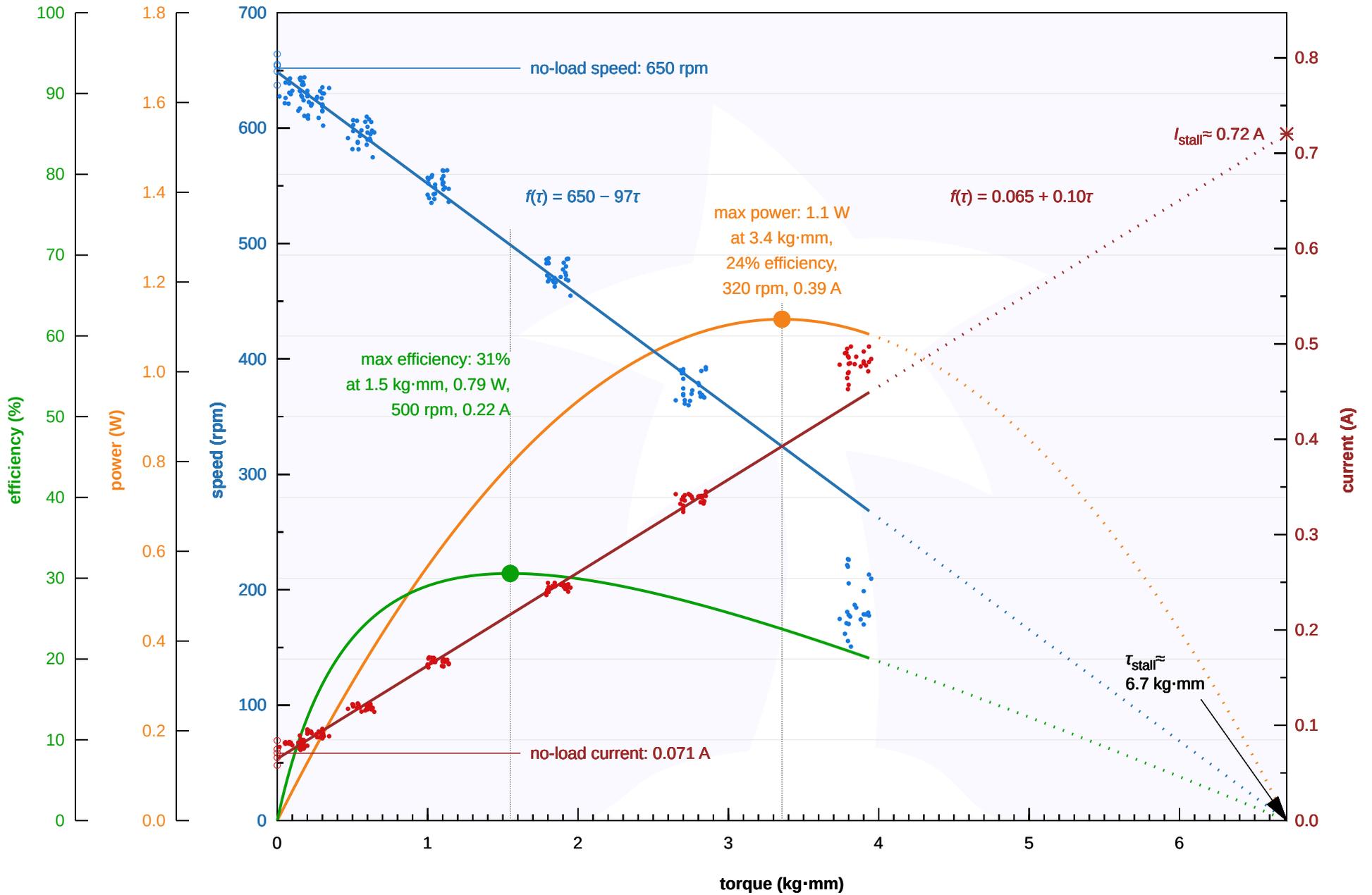
# Pololu Items #4788, #4789, #5208, #5209 (15:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



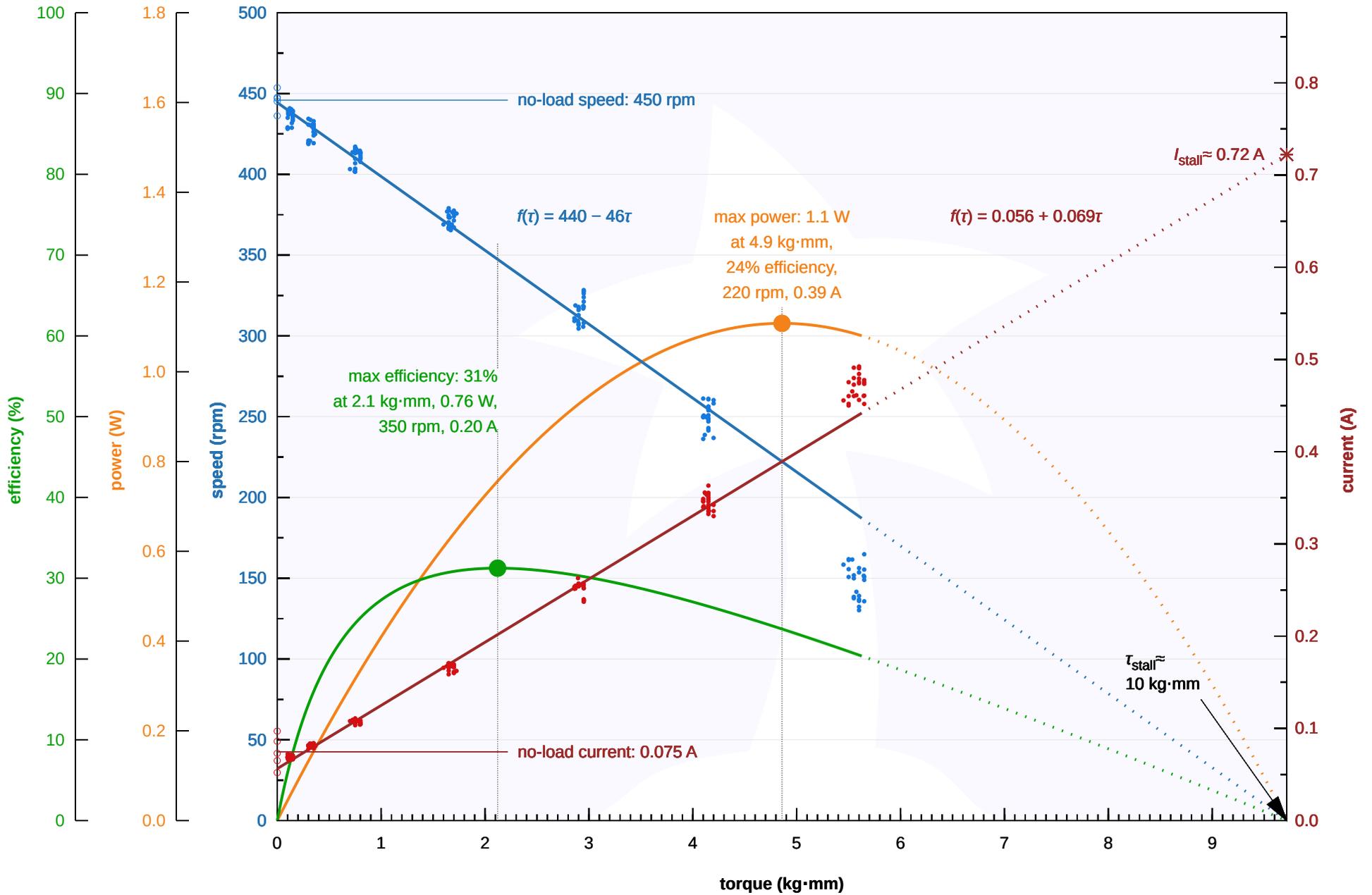
# Pololu Items #3038, #3049, #5210, #5211 (30:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



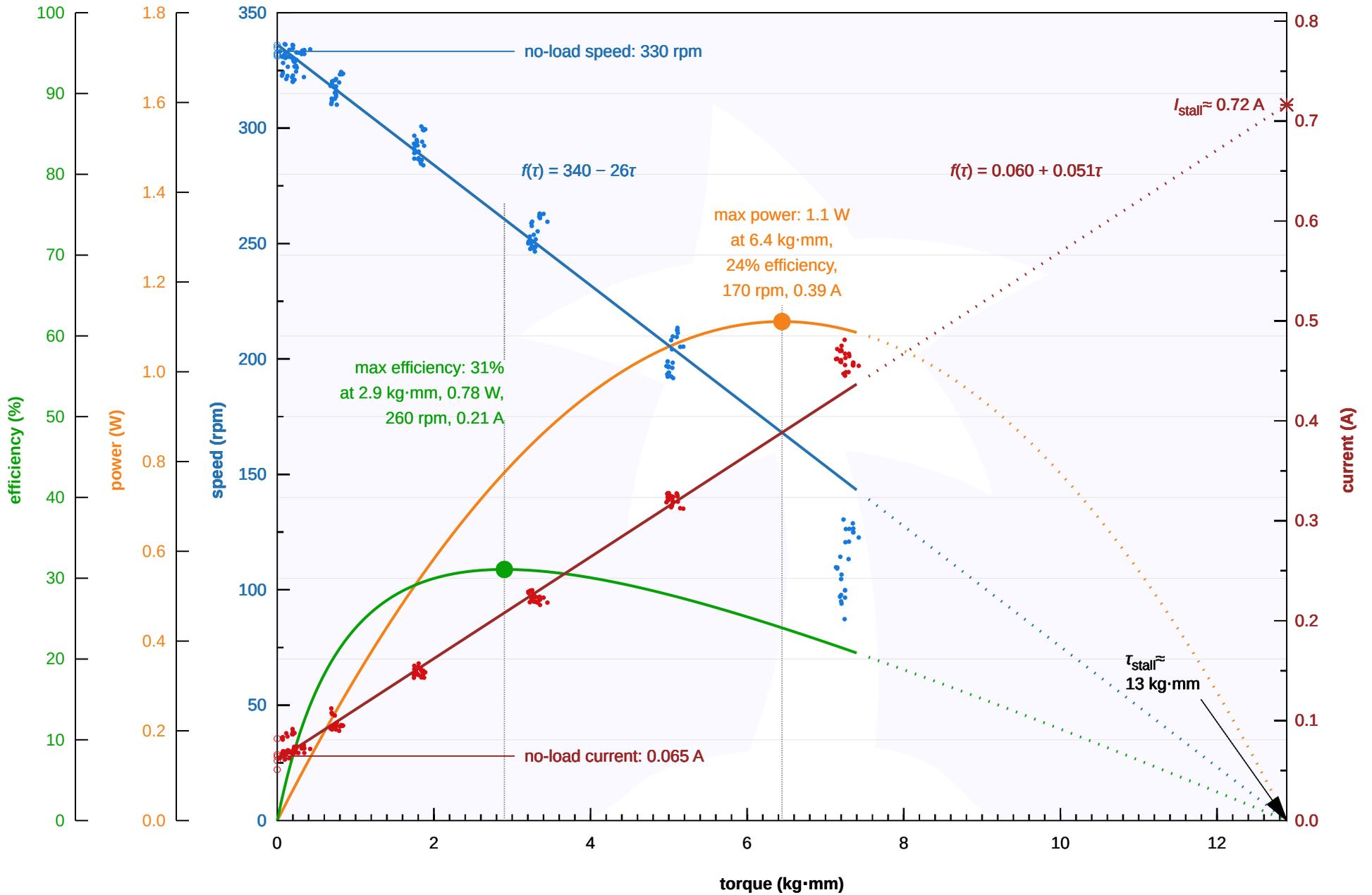
# Pololu Items #3039, #3050, #5212, #5213 (50:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



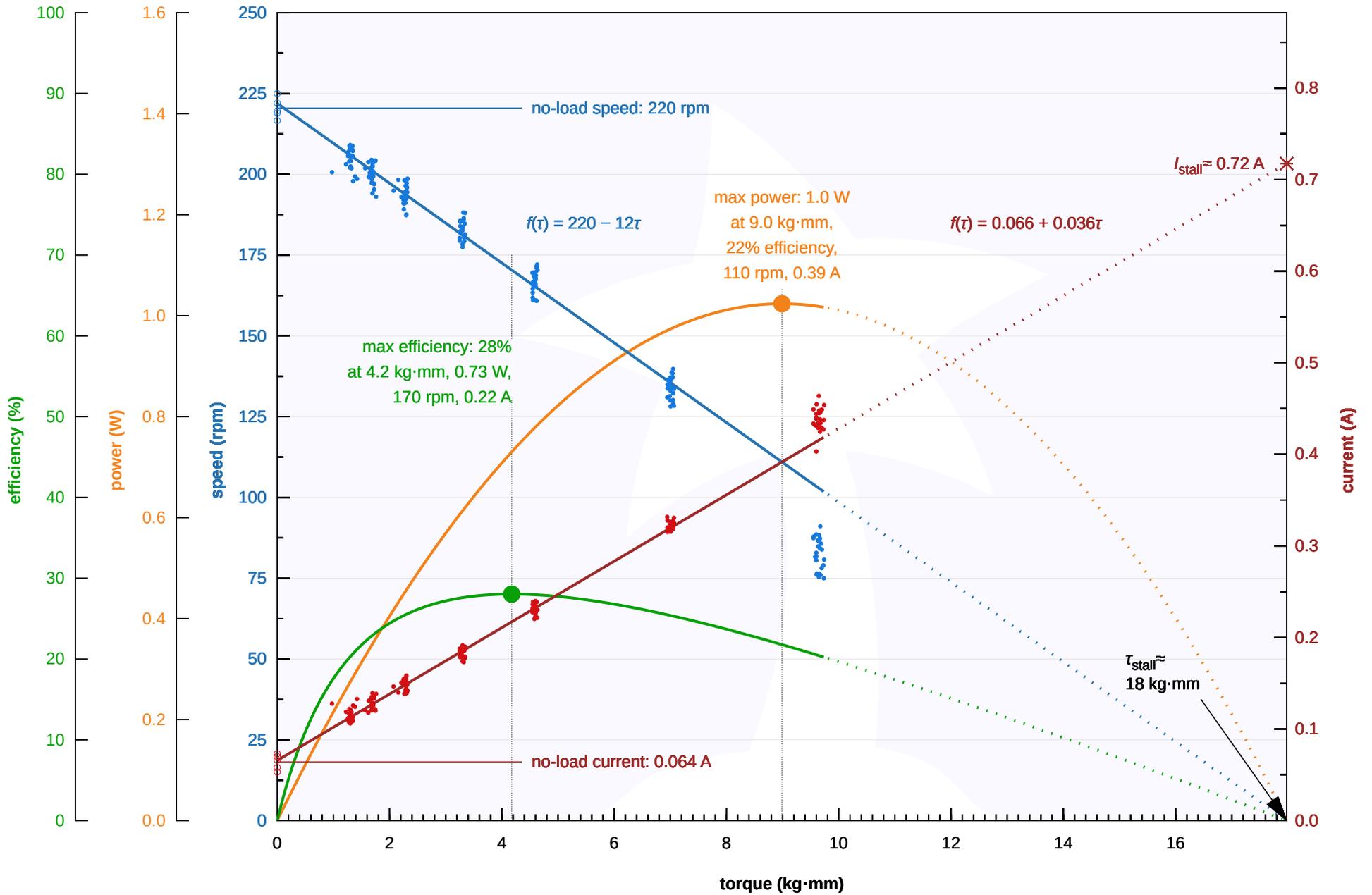
# Pololu Items #3040, #3051, #5214, #5215 (75:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



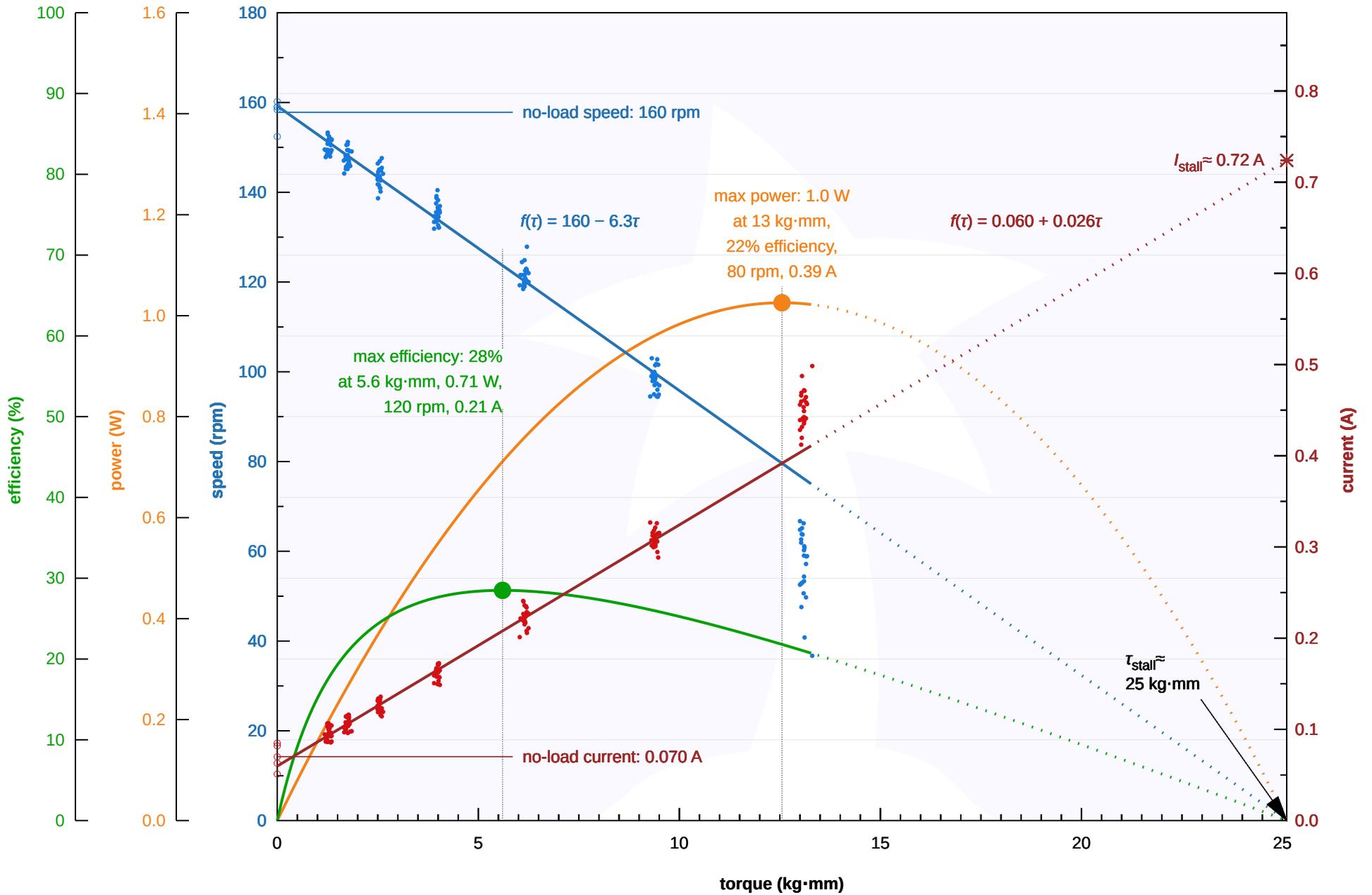
# Pololu Items #3041, #3052, #5216, #5217 (100:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



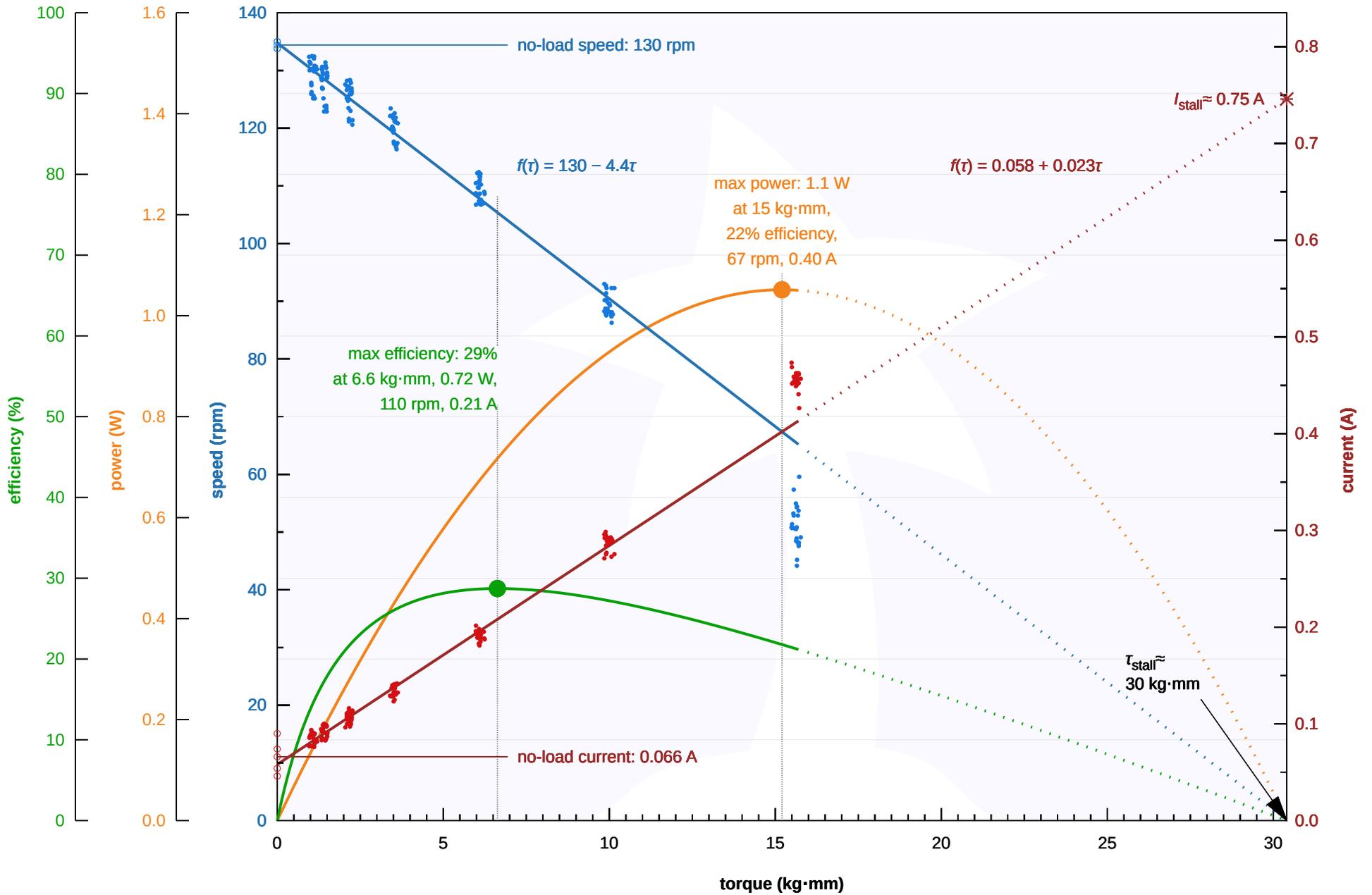
# Pololu Items #3042, #3053, #5218, #5219 (150:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



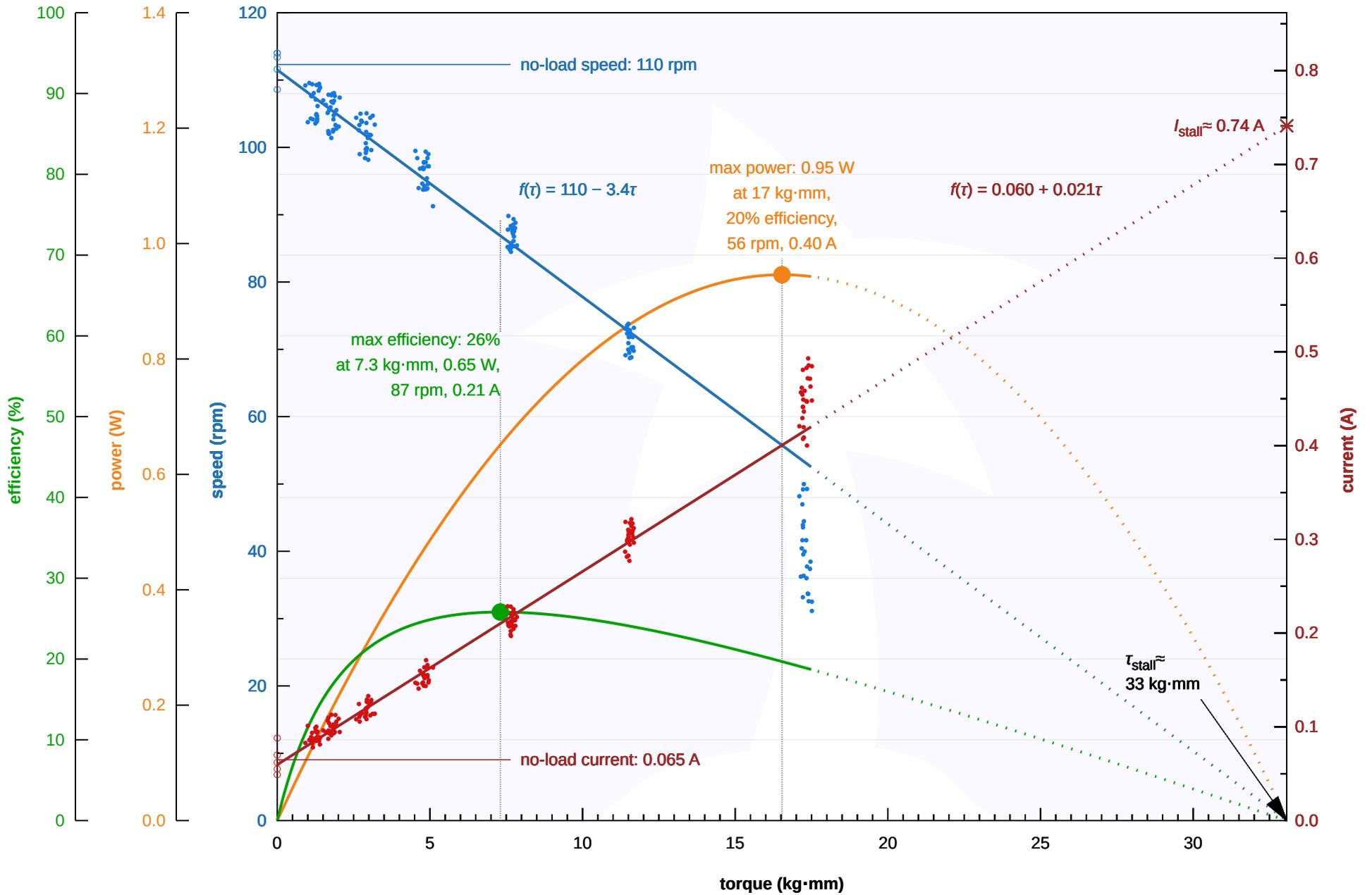
# Pololu Items #3043, #3054, #5220, #5221 (210:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



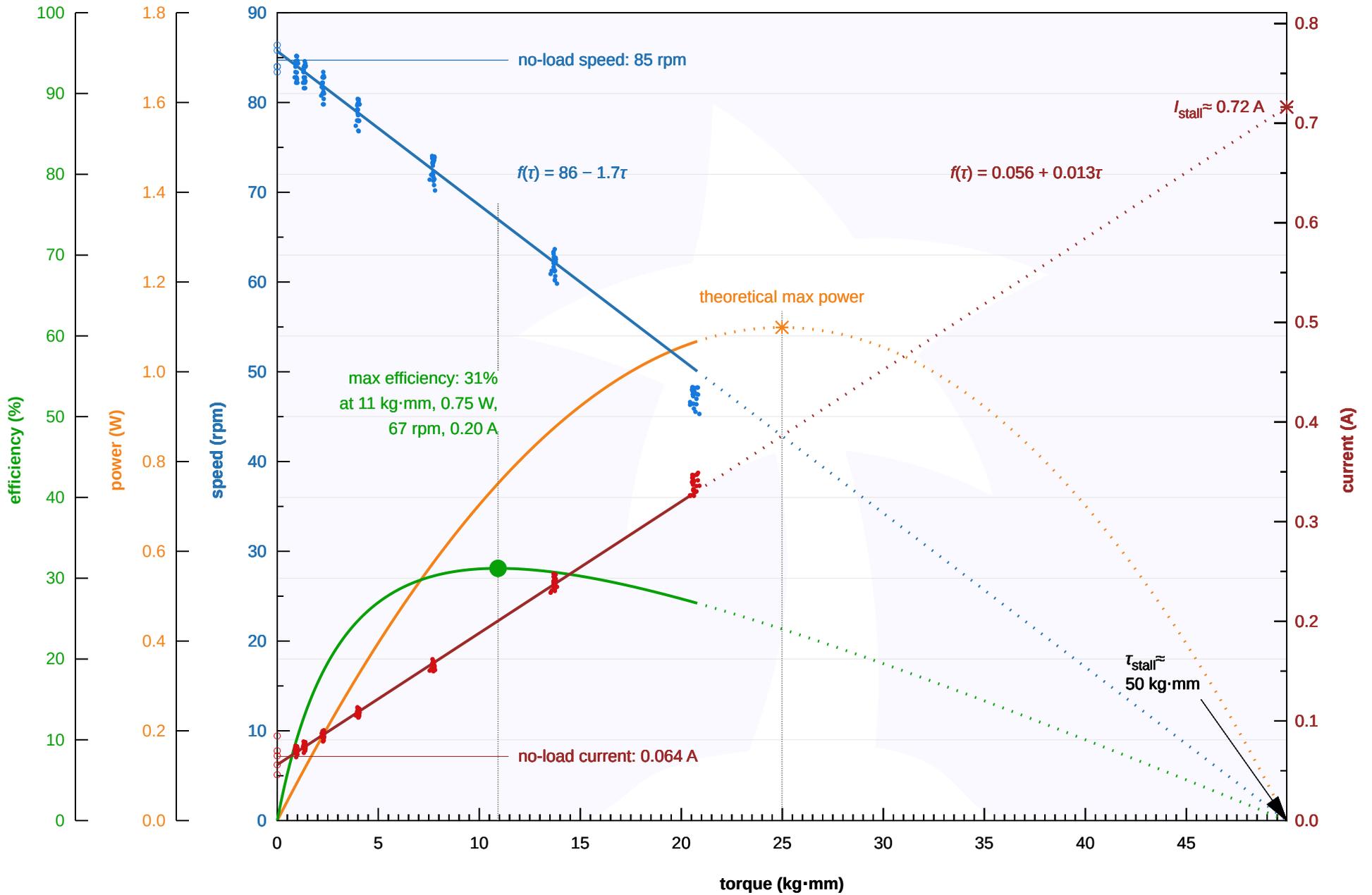
# Pololu Items #3044, #3055, #5222, #5223 (250:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



# Pololu Items #3045, #3056, #5224, #5225 (298:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



# Pololu Items #4798, #4799, #5226, #5227 (380:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V



# Pololu Items #3046, #3057, #5228, #5229 (1000:1 Micro Metal Gearmotor HPCB 12V) Performance at 12 V

