AmpFlow Gearmotors

The AmpFlow speed reducers are heavy-duty, low-cost gearheads that work with any of the three-inch diameter AmpFlow motors.

The speed reducers use a unique three-stage chain-and-sprocket mechanism that reduces cost while delivering very high torque capacity.

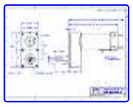
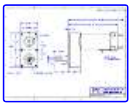
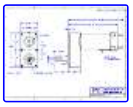
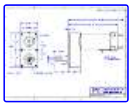
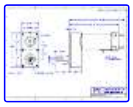
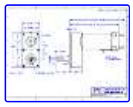
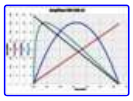
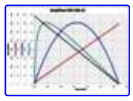
This unit provides speed reduction and torque multiplication, and it's an easy way to "bolt in" the AmpFlow motors.

Motor voltages range from 6V to 72V, and reduction ratios range from 1:4 to 1:27. Find the perfect combination below, or we can design a custom gearmotor.

Here are some tips for choosing the best reduction ratio.

Click the tabs to see the different reduction ratios.

1:4 Reduction | **1:8 Reduction** | 1:16 Reduction | 1:27 Reduction

Type	High-Performance Economy Motors					
Voltage Range	6 to 18 Volts		12 to 36 Volts		24 to 72 Volts	
Model	E30-400-12-G8	E30-150-12-G8	E30-400-24-G8	E30-150-24-G8	E30-400-48-G8	E30-150-48-G8
Nominal Voltage	12V[1]	12V[1]	24V[1]	24V[1]	48V[1]	48V[1]
Peak Horsepower	1.6	0.7	2.1	1.0	2.7	1.1
Reduction Ratio	1:8.3	1:8.3	1:8.3	1:8.3	1:8.3	1:8.3
Stall Torque (in-lbs)	500	230	770	360	960	390
No-Load RPM	780	700	680	670	690	670
Weight (lbs)	9.4	7.1	9.4	7.1	9.4	7.1
Price	$294	$264	$294	$264	$294	$264
Pictures						
Drawings						
Performance Charts						
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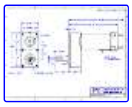
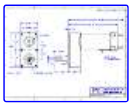
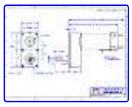
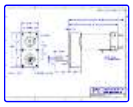
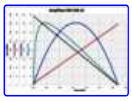
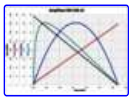
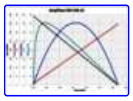
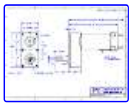
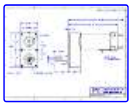
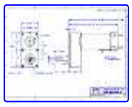
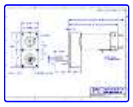
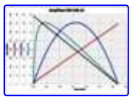
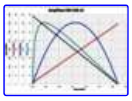
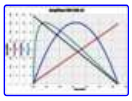
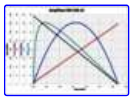
1:4 Reduction | **1:8 Reduction** | 1:16 Reduction | 1:27 Reduction

Type	High-Performance		Mid-Range	
Model	A28-400-G8	A28-150-G8	F30-400-G8	F30-150-G8
Nominal Voltage	24V[1]	24V[1]	24V[1]	24V[1]

Peak Horsepower	4.3	3.0	2.5	2.3
Reduction Ratio	1:8.3	1:8.3	1:8.3	1:8.3
Stall Torque (in-lbs)	1930	1020	1160	710
No-Load RPM	580	720	540	830
Weight (lbs)	10.5	7.4	11.9	8.1
Price	$634	$529	$474	$424
Pictures				
Drawings				
Performance Charts				
Order	Add to Cart	Add to Cart	Add to Cart	Add to Cart

On Sale! Fan Cooled Motors

1:4 Reduction | **1:8 Reduction** | 1:16 Reduction | 1:27 Reduction

Type	Fan Cooled 24V		Fan Cooled 48V	
Model	A28-400-F24-G8	A28-150-F24-G8	A28-400-F48-G8	A28-150-F48-G8
Nominal Voltage	24V[1]	24V[1]	48V[1]	48V[1]
Peak Horsepower	4.3	3.0	11.5[3]	4.6
Reduction Ratio	1:8.3	1:8.3	1:8.3	1:8.3
Stall Torque (in-lbs)	1930	1020	3740[2]	1290
No-Load RPM	580	720	750	880
Weight (lbs)	10.6	7.5	10.8	7.6
Price	$684	$579	~~$684~~ $599	~~$579~~ $519
Pictures				
Drawings				
Performance Charts				
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The fan motors have ventilation holes in the front and rear aluminum plates to allow for flow-through cooling. The holes in the front plate are positioned so they are not blocked when mounting the motor to a flat surface. These motors also feature low-profile motor leads for better fit into smaller spaces.

[1] The above specifications are for the motor's nominal voltage. The motors can also be used at lower or higher voltages. The RPM is proportional to the voltage, so running at half the nominal voltage will result in half the speed, and twice the voltage will double the speed. The maximum achievable torque is also proportional to the voltage. Shorter duty cycles are recommended for higher voltages to allow the motors time to cool. Please note that the above torque figures are the theoretical peak torques when stalled. Operating any high-performance motor while stalled will damage it.

[2] Maximum torque limited by speed reducer.

[3] Theoretical peak power is 11.5 HP. Power at the recommended short-term current limit of 200A is 9.1 HP. The current required to reach this figure is far outside the safe operating limits of this motor. This figure is theoretical and should be used for comparative purposes only.

These speed reducers are made with a three-piece aluminum case that has been precision CNC machined. A total of six sprockets, three roller chains, and five bearings comprise the mechanism. The long output shaft makes it easy to mount pulleys, sprockets, gears, or wheels in the required position. Care was taken to make this unit as compact as possible. The overall size of the 1:4 and 1:8 reducers is 6 x 3 x 2 inches. But the motor is recessed slightly into the reducer, so the net length added to the motor is only 1.8 inches.

The speed reducer uses a unique arrangement of roller chains. This results in torque and efficiency comparable to gear-type reducers at just 1/2 or even 1/3 of the cost of high-torque, geared speed reducers. There is slightly more noise, but these units are ideal when silent operation is not required.

The output shaft is 3/4-inch diameter and 2.2 inches long. It has a 1/4-inch keyway and a 5/16-24 tapped hole. The shaft and the large final sprocket are made from a single piece of steel to maximize strength. If something other than the 1/4-inch key is required, step key stock is available.

A single stage of roller chain reduction is generally considered to be about 98% efficient. Add in some friction from the five bearings, and we are at about 90% efficiency.

Testing

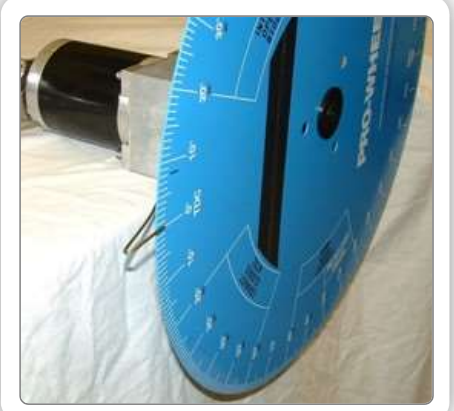
Torque Test

This picture shows the speed reducer undergoing a torque capacity test. The motor is locked and unable to turn. Weight is loaded onto the end of the 40-inch bar until the speed reducer fails. The failure points are:

- 1:4 ratio: 3000 inch-pounds
- 1:8 ratio: 3500 inch-pounds
- 1:16 ratio: 4300 inch-pounds
- 1:27 ratio: 5000 inch-pounds

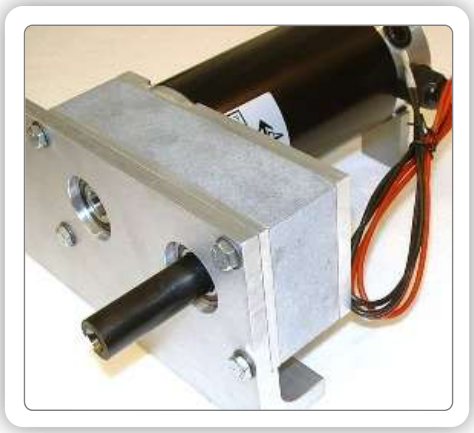
The failure point is the chain on the final stage of speed reduction. The gearbox suffers no other damage, and the chain is easily replaceable.

Backlash Test



The gearhead is tested for backlash by locking the motor in place. A load of 200 ounce-inches is applied in both clockwise and counterclockwise directions. The total deflection is +/- 1.2 degrees. This figure may increase somewhat with higher loads and chain wear, but replacement chains are available.

Mounting



Four long 1/4-20 bolts go all the way through the width of the reducer. The four mounting bolts are supplied with the unit. They are sufficient in length to mount the gear motor to a 3/8-inch thick panel. If the panel is thicker, longer bolts will be needed. Do not operate the speed reducer with bolts that are missing or too short - they are required for structural integrity.

Replacement parts are available here.

Warranty

The gearmotors are warranted to be free from manufacturing defects and fully operational when you receive them. AmpFlow gives no other warranty, either expressed or implied. Warranties are not transferable. In no event shall AmpFlow's liability exceed the buyer's purchase price, nor shall AmpFlow be liable for any indirect or consequential damages.

We accept Visa, MasterCard, and PayPal.

Contact us for custom gearmotors and volume pricing: sales@ampflow.com