

A&G MERCURY TOW TRACTORS

(A DIVISION OF A&G MANUFACTURING CO., INC.)

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INFORMATION GUIDE



IN MAJOR MATERIALS HANDLING, A&G MERCURY MEANS:

- EFFICIENCY
- FIELD PROVEN
- HEAVY DUTY CONSTRUCTION (ONE-PIECE WELDED FRAMES)
- UNIQUE STEERING AXLE DESIGN
- LEAF-SPRING SUSPENSION
- OPERATOR FRIENDLY
- CONVENIENT MAINTENANCE
- SUPERIOR FACTORY SUPPORT
- ENVIRONMENTALLY DESIGNED FOR YOUR NEEDS ANYWHERE

Probably more customers than you realize need Tow Tractors.

A&G Mercury Tow Tractors are an integral and necessary part of material handling needs. We need to keep in mind where they apply:

- ON PRODUCTS MOVED OVER 400 FEET
- WHERE PRODUCT IS BULKY, LARGE AND MAY REQUIRE TRAILER(S)
- WHERE LIFTING IS NOT REQUIRED
- MOVING LARGER QUANTITIES OVER LONG DISTANCE EFFICIENTLY
- WHERE LOADS ARE EXTREMELY HEAVY

TOW TRACTOR MARKETS:

- AUTOMOTIVE INDUSTRY
- AIRCRAFT MANUFACTURERS
- AIRPORT GSE
- STEEL AND OTHER RELATED METAL INDUSTRY
- MACHINERY MANUFACTURES
- TEXTILE INDUSTRY
- RUBBER INDUSTRY
- RAILROAD
- STONE, CLAY, AND GLASS MANUFACTURERS
- PAPER INDUSTRY
- AMUSEMENT PARKS AND ZOO'S
- LARGE WAREHOUSING

NOW THAT YOU HAVE DETERMINED THAT YOUR CUSTOMER NEEDS A TOW TRACTOR, YOU MUST NOW PICK THE ONE THAT IS CORRECT FOR THE JOB.

1. ELECTRIC
2. GASOLINE
3. DIESEL
4. LP GAS
5. CNG

WHAT IS DRAWBAR PULL? & HOW TO DETERMINE ACCURATE DBP

DRAWBAR PULL, (DBP): The towing force, usually expressed in pounds or Newtons, of an Industrial tractor or any other type of Industrial truck, exerted at its coupler or equivalent in the direction of motion of the coupling point. When the towing truck is moving in a straight line, the drawbar pull is equal to tractive effort minus:

1. Rolling Resistance of Tractor
2. Grade Resistance of Tractor
3. Acceleration Resistance of Tractor

DRAWBAR PULL, MAXIMUM: The maximum towing force in pounds or Newtons at a specified coupler height that a truck will develop on a level surface. Based upon a prescribed coefficient of friction existing between the driving wheel(s) and the supporting surface, when the load is being moved at a uniform rate of one (1) MPH / (1.6 KPH).

DRAWBAR PULL, RATED NORMAL: The greatest sustained towing force in pounds or Newtons at a specified coupler height that a truck will develop on a level surface and within a given duty cycle without exceeding the allowable continuous temperature rating for the components.

DRAWBAR PULL ACCURACY IS CRITICAL FOR PROPER OPERATION CONSIDER THE FOLLOWING WHEN HELPING THE CUSTOMER TO IDENTIFY SPECIFICATIONS

Drawbar pull is defined as the pulling force a tractor can develop on a level surface with surface coefficient of friction of .9

This surface is described as "clean, dry concrete". This type of surface provides the best conditions to develop maximum drawbar pull without tractor drive wheel slippage.

Any surface less than described, can cause the drive wheels to break traction and reduce drawbar pull.

The theoretical situation rarely exists. Therefore, you must compensate for variable surface conditions such as wet pavement, or paved surfaces with sand, ice, grease or oil that can be present. Any of these conditions will produce lower coefficient of friction and reduce tow tractor drawbar pull capability.

CACULATE REQUIRED DRAWBAR PULL AS FOLLOWS:

1. Take 4% of the total trailed weight. This value is the approximate drawbar pull required to begin movement. Drawbar pull of about 2% of the trailed weight is required once movement of the load has begun.

$$80,000\# \times 4\% = 3,200\# \text{ DBP}$$

$$80,000\# \times 2\% = 1,600\# \text{ DBP}$$

2. For every % of grade, multiply by 1% (i.e., a 3% grade, multiply by 3)

$$80,000\# \times 3\% = 2,400$$

3,200# Drawbar required to start

2,400# Drawbar required for grade

5,600# Required for this application

3. For wet or poor surfaces as described above, multiply the total in #2 (5,600#) by 1.4

$$5,600\# \times 1.4 = 7,840\# \text{ Drawbar Pull Required for this extreme condition}$$

This requirement would need a Series 1000, Model 80, 8,000# drawbar pull A&G Mercury Tow Tractor.

How do I determine if I need a TOW TRACTOR or a Lift truck?

1. Consider the time factor of transportation to and from over a length of travel that could exceed 400'.
2. The quantities of units required (lift trucks) to move the same amount of load.
Example: one (1) 5,000# Lift Truck moving the load 400+feet would require 20 trips of one (1) 5,000# Drawbar A&G Mercury Tow Tractor.
3. This computes to saved **Unit cost, Manpower, Time, & Maintenance**, overhead is a cost that always needs our consideration. In the Example above, 20 units would have been required to perform the same work, in the same amount of time, over the 400' distance.

The Modern world of Material Handling suggest that economically Tow Tractors, out perform Lift Trucks for moving material long distances, with reduced overall cost both initially and long term.