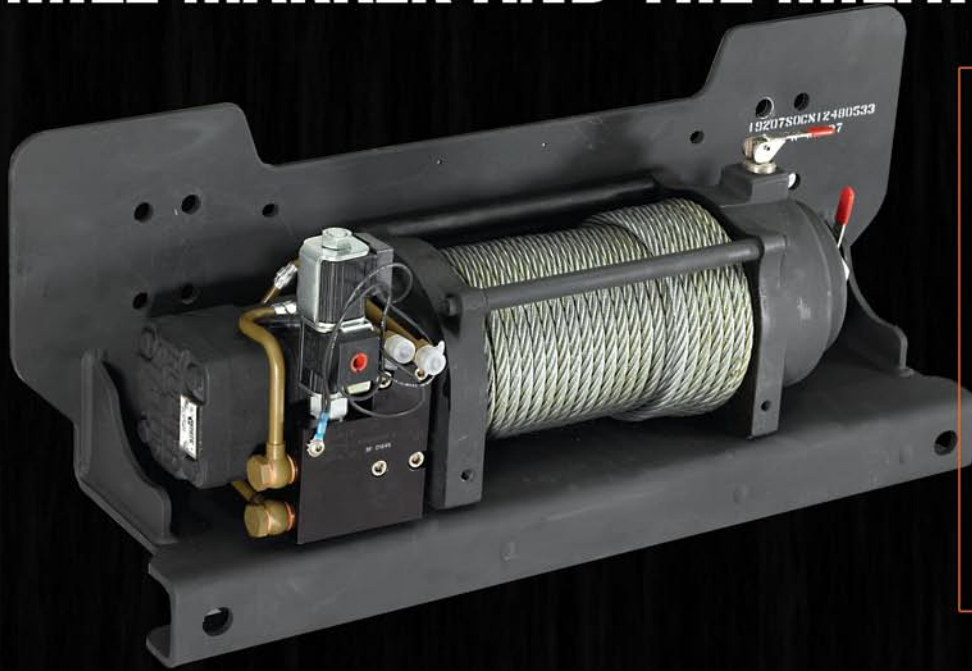


MILE MARKER AND THE MILITARY



As the only approved supplier of winches for the U.S. Military's HMMWV (Hummer), all Mile Marker Military Hydraulic Winch systems must meet or exceed the following list of Testing, Quality Assurance, and Military Standard Requirements for the U.S. Government. This is only a partial listing of the requirements met or exceeded by Mile Marker Hydraulic Winches.

Specifications

- Cable, Type I, Class 2, Construction 4, extra improved plowsteel, galvanized, minimum .375-inch diameter, IAW RR-W-410, 100 feet minimum, lubricated with Amsoil MP/HD (heavy duty metal protector) and installed on winch drum.
- Cable, hook, fasteners and swaged sleeve assembled shall withstand a minimum pull of 14,400 lbs. without separation of assembly or deformation of hook.
- The winch assembly shall be compatible with hydraulic fluid IAW GM-6297M
- Hydraulic motor shall be compatible with and function when subjected to fluid temperatures of -40 to +250 degrees Fahrenheit (-40.0 to +121.1 degrees Celsius) without leakage.

Performance requirements

All performance requirements shall be initiated with winch assembly sealed to prevent contamination from dust, oil and water and start with five wraps of wire rope on the bare drum. Rated layer load requirements shall start on the third wrap of the tested layer. Also, the timing of the winch shall not be affected if the wire cable becomes crossed wrapped. At that time, the winch shall be stopped and the cable shall be adjusted before continuing with remaining time.

A: Hot Temperature Requirements

The winch assembly shall be capable of pulling a minimum load of 9,000 lbs. on first layer for a minimum distance of 12 feet. Without stopping, the winch shall be capable of pulling a minimum load of 4,000 lbs. for 55 feet at a minimum ambient temperature of 125 degrees Fahrenheit (51.7 degrees Celsius) during test. Oil Temperature may be cooled to 200 degrees Fahrenheit (93.3 degrees Celsius) if required.

B: Cold Temperature Requirement (low gear)

The winch assembly shall be capable of pulling a minimum load of 9,000 lbs. on the first layer for a minimum distance of 12 feet. Then, without stopping, the winch shall be capable of pulling a minimum load of 4,000 lbs. for 55 feet at a maximum ambient temperature of -40 degrees Fahrenheit (40 degrees Celsius).

THE U.S. MILITARY TRUSTS ONLY MILE MARKER HYDRAULIC WINCHES FOR THEIR HUMVEES (HMMWVS) - YOU CAN TOO.

Mile Marker sells a hydraulic winch for civilian and commercial applications. If you are a serious off-roader or have commercial trucks that travel off roads – you need a Mile Marker hydraulic winch. See page 3.

C: Functional Requirement (low gear)

The winch assembly shall be operated with a 24-28 VDC electrical power source and a 1.5 GPM 1300 PSI minimum to 4 GPM 1500 PSI maximum hydraulic power source. Winch shall be capable of continuously pulling a minimum line load of 4,000 lbs. for a minimum distance of 55 feet, within a maximum time period of 28 minutes at an ambient temperature of 60 to 90 degrees Fahrenheit (15.6 to 32.2 degrees Celsius).

D: Rated Layer Load Requirements

The winch assembly shall be capable of continuously pulling each layer of wire rope at the rated layer line load as specified in the following:

LOW GEAR					High GEAR				
Layer number	1	2	3	4	Layer number	1	2	3	4
Min. rated line load (lb.)	9000	7500	6100	5000	Min. rated line load (lb.)	1200	1100	1000	800
Rope capacity (ft.)	17	20	24	28	Rope capacity (ft.)	17	20	24	28
Max load/stall (lb.)	10500	9200	7900	6500	Max load/stall (lb.)	1700	1600	1450	1400
Max amp draw	2	2	2	2	Max amp draw	2	2	2	2

E: Durability Requirements (low gear)

The winch assembly shall be capable of completing a minimum of 50 durability cycles, one cycle shall be capable defined as follows: The winch assembly shall pull a minimum load of 4,000 lbs. a minimum distance of 60 feet within a maximum time period of 28 minutes, at an ambient temperature between 60 and 90 degrees Fahrenheit (15.6 to 32.2 degrees Celsius). At the start and every 10 cycles, check cable for wear.

F: Functional Requirement (high gear)

The winch assembly system shall be operated with a 24-28 VDC electrical power source and a 1.5 GPM 1300 PSI minimum to 4 GPM 1500 PSI maximum hydraulic power source, Winch shall be capable of continuously pulling a minimum line load of 600 lbs. for a minimum distance of 55 feet within a maximum time period of five minutes, at ambient temperatures between 60 and 90 degrees Fahrenheit (15.6 to 32.2 degrees Celsius).

G: Durability Requirements (high gear)

The winch assembly shall be capable of completing a minimum 50 durability cycles. One cycle means the winch assembly shall pull a minimum load of 600 lbs. a minimum distance of 55 feet within a maximum time period of five minutes, at an ambient temperature between 60 and 90 degrees Fahrenheit (15.6 to 32.2 degrees Celsius). At the start of each cycle and every 10 cycles, check cable for wear.

- The winch shall be equipped with two speed (gearing) settings (low and high). the winch shall also be equipped with a locking and free spool setting.
- The handles which engage and disengage the winch settings shall be permanently stamped IAW MIL-STD-130, with the words low, high and free. When levers are engaged in positions, as noted in the table below, the winch shall operate as indicated in mode columns below:

Lever #1	Lever #2	Position
Free	Free	Free spool
Low	High	Lock
Low	Free	Low gear
Free	High	High gear

Submergence Requirement:

- The winch solenoid assembly shall meet the requirements of MIL-STD-1184, type II, class II, test method 100.
- The winch solenoids shall be powered by a 24-28 VDC power source. A hydraulic pump shall provide 1300 PSI minimum pressure at 1.5 GPM minimum flow to the hydraulic motor, and a maximum of 3.5 GPM and at 1500 PSI.

Initial Production Inspection (IPI)

- Complete dimensional and tolerance verification. Complete performance verification of noted test requirements. Material/finish certification verification.

- UNLIMITED DUTY CYCLE - PULLS ALL DAY AND ALL NIGHT
 - POWERFUL
 - RUGGED AND RELIABLE AS A HUMVEE
 - THOUSANDS IN USE IN THE DESERTS, JUNGLES, FORESTS AND ANYWHERE THERE ARE HUMVEES
 - THOROUGHLY TESTED BY TACOM

- WATERPROOF
 - FAST WITH 2 SPEEDS
 - EASILY CONNECTS TO THE POWER STEERING PUMP - NO PTO REQUIRED.
 - ALLOWS YOU TO USE THE VEHICLE'S DRIVE TRAIN IN THE RECOVERY.