Yale Materials Handling Corporation Competitive Performance Test Report

YALE® GP050MX vs. TOYOTA® 8FGU25

In March 2017, a Yale® GP050MX and a Toyota® 8FGU25 were vigorously evaluated against one another. The purpose of this testing was to accurately document the respective productivity and fuel usage data of these trucks under controlled test conditions.

Test Vehicles

The following lift trucks participated in the test.

	Yale	Toyota
Model	GP050MX	8FGU25
Rated load	5,000 lbs.	5,000 lbs.
Fuel	LPG	LPG
Engine	PSI 2.4L	4Y ECS 2.2L
Transmission	1 speed	1 speed
Drive tires	Solid 7.00 x 12	Solid 7.00 x 12
Mast	Class II 3stg FFL	Class II 3stg FFL
Mast height	189 in.	189 in.

Test Procedure

Certain guidelines and test procedures were followed in order to assemble fair and accurate data:

1. Prior to testing, the trucks were checked and 'set-up' according to the manufacturer's recommended procedures and specifications and utilized a fully charged battery.
2. The operators selected drove both trucks and were familiar with operating trucks in the 5,000-pound capacity counterbalanced electric range.
3. A variety of operational requirements were utilized to ensure equitable comparison of full operating cycles. (See appendix.)
4. Any cycle times that included operator error were eliminated from the overall average cycle calculation, ensuring representative results of the trucks were achieved.

The test results obtained from the evaluation are given on the following pages.

Sanctioning Organization

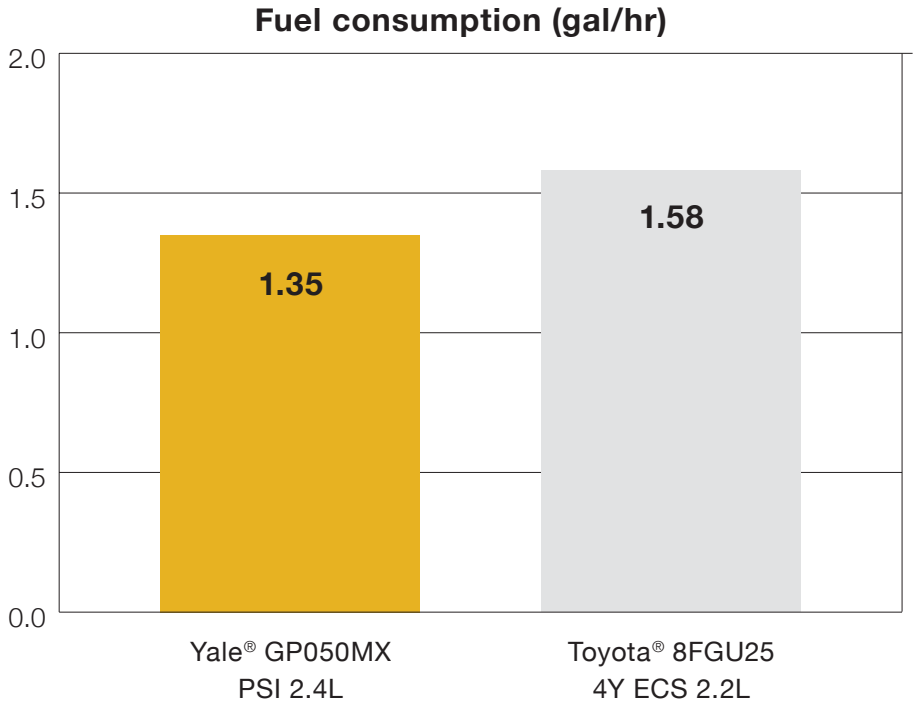
Test results listed in this report are the actual performances recorded by USAC Properties. USAC Properties is an independent testing organization specializing in the design and implementation of tests for products relating to the automotive industry. They are highly regarded for delivering accurate and reliable product evaluations.

Fuel Consumption Test

This test was performed using the VDI 2198-2012 Fuel Consumption procedures as follows:

- Each driver drove each of the test trucks for one hour without interruption.
- Each of the trucks carried the same 2240 kg load.
- The speed driven was adjusted to one (1) cycle per minute to meet the sixty (60) cycle VDI test procedure specification.
- Driver technique was used to minimize fuel use by limiting acceleration rates and high speed when lifting the load.

The Yale® GP050MX used 14.474% less fuel than the Toyota® 8FGU25.



While 0.23 gallons per hour might sound small, it adds up to big savings over time. Assuming the truck works for seven hours out of an eight-hour shift, operations can save up to 1.84 gallons per shift. That equates to 5.52 gallons over a three-shift period, resulting in a financial savings of nearly $15 at $2.70 per gallon.

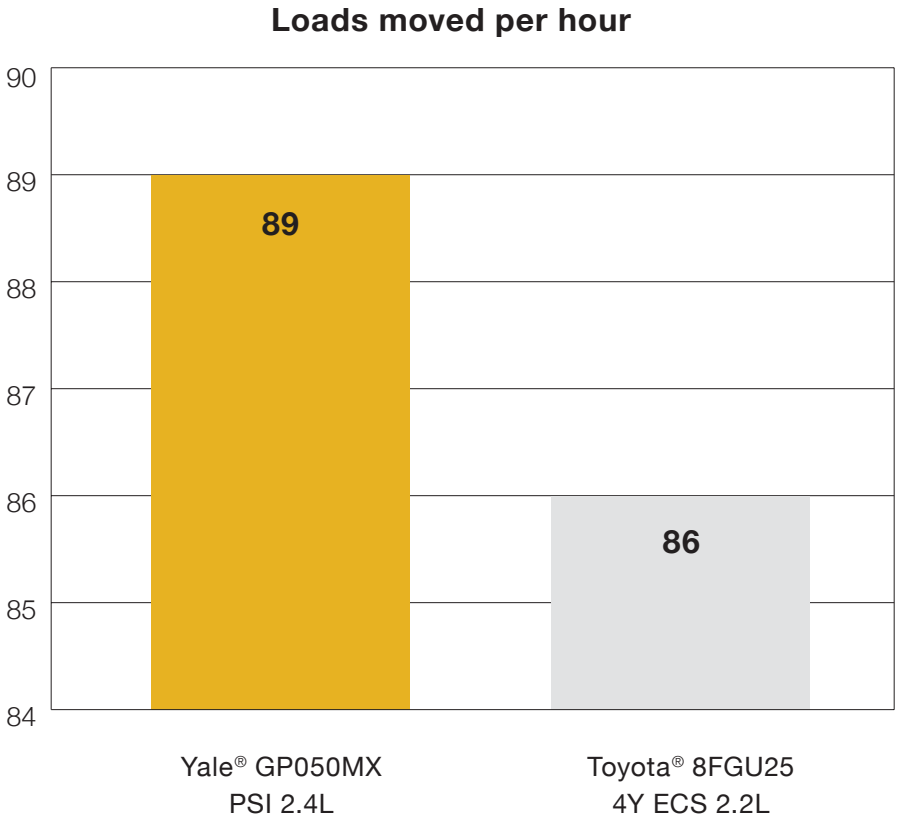
How many trucks are in your fleet? Do you run 24/7? With annual savings as much as $5,000 per truck, more efficient fuel consumption can save you big money.

Turnover Output Test

This test was performed using the VDI 2198-2012 Fuel Consumption procedures as follows:

- Each driver drove each of the test trucks for thirty (30) minutes without interruption.
- Each of the trucks carried the same 1130 kg load.
- Maximum speed was driven to optimize the number of cycles competed within the time period.
- Drivers used care to insure safe operation and that all wheels remain on the ground at all times.

The Yale® GP050MX moved 2.918% more loads than the Toyota® 8FGU25.



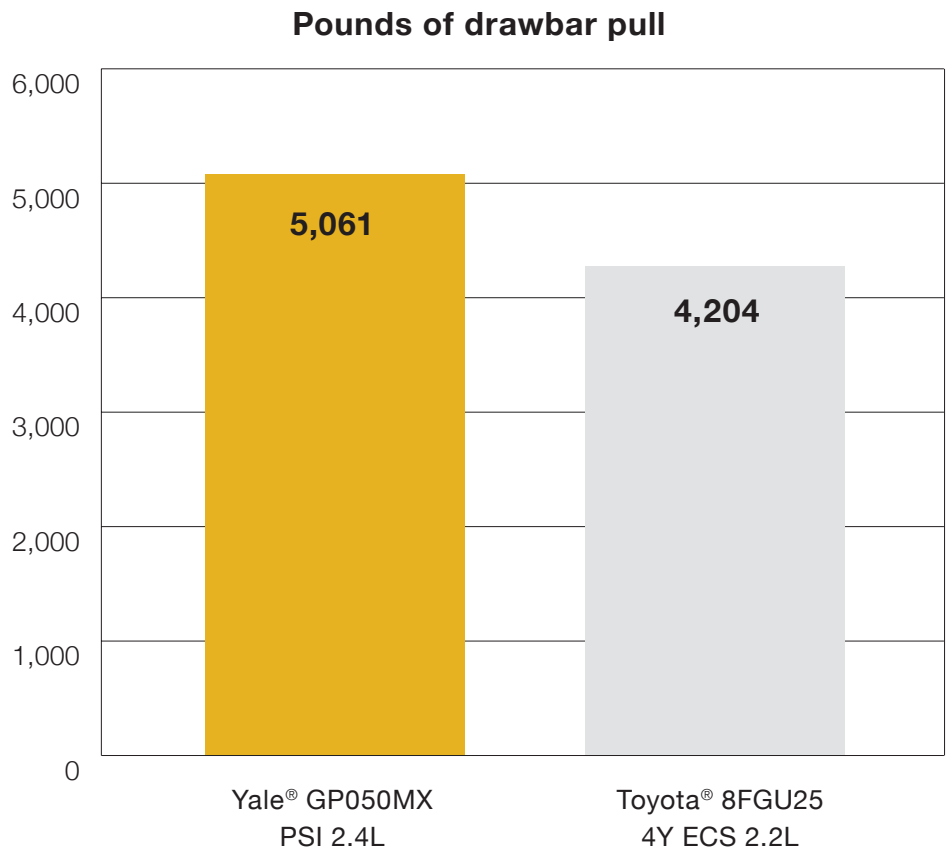
Three loads per hour adds up to major productivity over the course of a shift. Assuming the truck is in operation for seven hours, the Yale® GP050MX moves 21 more loads over the course of one shift and 63 more over three shifts. Considering a standard 48-foot trailer holds 24 pallets, the Yale MX enables operations to load nearly three more trailers over the course of three shifts.

Drawbar Pull Test

This test measures the power of each truck and its grade climbing ability. The test consisted of the following:

- Each truck carries the same 4,920-lb. load – enough weight to maintain traction.
- A load cell attached to each truck measures “pulling power.”
- The test is conducted a minimum of three times and until three test values are within 5%, to ensure an accurate measurement.

The Yale® GP050MX demonstrated 20.385% more power and climbing ability than the Toyota® 8FGU25.



Most forklifts can handle a 15% grade, but when you need more power for the toughest grades, count on the Yale® MX Series. The maximum calculated grade the Yale® GP050MX can handle is 38.2%. The Toyota? 31.6%.

Appendix

Testing Procedure

Prior to the start of the test:

- The truck being tested was placed at position 1 with the forks fully tilted back, inserted into the test load and lifted to the travel height of 0.2 m.
- The engine was turned off.
- The fuel tank was removed, weighed to an accuracy of one one-hundredth (0.01) of a pound, then re-installed.
- The engine was started.
- Timing started.

One complete cycle consisted of the following driving pattern.

a) The truck was driven to position 2 where it began a left turn that continued until the load was completely within the position boundary.

b) The mast was returned from backward tilt to vertical.

c) The forks were lifted to two (2) meters then lowered to the travel height.

d) The mast was returned to full back tilt.

e) The truck was backed into position 3.

f) The truck was driven to position 4 where it made a right turn that continued until the load was completely within the position boundary.

g) The mast was returned from backward tilt to vertical.

h) The forks were lifted to two (2) meters then lowered to the travel height.

i) The mast was returned to full back tilt.

j) The truck was backed into position 1 completing one cycle.

Steps (a) through (j) were repeated a number of times, depending on the test being performed, by each driver. Timing commenced when the engine was started and stopped when the engine was turned off after the truck returned to position 1 at the end of the last test cycle.

The fuel tank was removed and weighed after the driver completed his sequence.

Course Map Rendering

VDI 2198-2012 Fuel Consumption and Turnover Output Course

March 13 - 15, 2017