



Tesla Model 3 China Benchmark Report

Email: Sales@leandesign.com for a quote!

The Munro US Long Range Premium Package Model 3 cost analysis reconfigured to a Standard Package Trim level.

Purchasers of this report will receive the following:

All Report Costs Represented in US dollars.

A. Zone Quick Cost Estimate Reports with Zone Summaries

Zone 1 Body and Chassis

Zone 2 Controlling Electronics

Zone 3 Interiors and Safety

Zone 4 Powertrain and Battery Pack

B. Vehicle Costed Bill of Material (CBOM) with weights and most materials identified.

- CBOM reports the vehicle as manufactured in China using China material, machine, and labor rates.

C. Side by Side Report

- US manufactured Long Range Premium Package compared to China manufactured Long Range Premium Package and Standard Package.



Description of the Analyzed Tesla 3

Base or Standard Equipment Trim Package

- ❖ The Base Model 3 at \$35,000 has been promised for almost a year now and its launch date continues to be delayed. The Base Model 3 is expected to have:
 - 258 HP, 317 lb-ft torque, all-electric RWD using one rear drive MGU for the rear wheels.
 - 50 kWh microprocessor controlled, lithium-ion battery
 - 220 miles of range
- ❖ Munro has disassembled the Premium Package Tesla Model 3 down to: nuts, bolts, sensors, PCBs, battery pack, control management, drivetrain, etc. This package has been de-contented and reconfigured to develop the Standard Equipment package.
- ❖ Munro documented our assumptions and findings related to weights, number of parts, materials and suppliers, where possible, and conducted a complete Munro Vehicle Quick Cost Analysis.

Report Delivery

- ❖ All reports and accompanying deliverables will be made available for easy access through a secure File Transfer Protocol (FTP) site.
- ❖ A user-friendly PDF format will help ensure that customers can easily locate a wide range of materials in addition to the reports.
- ❖ The large reports utilize hyperlinks within a table of contents to facilitate the ability to easily navigate throughout the contents and quickly find specific data and information to meet user needs.

Tesla Model 3 Teardown and Benchmarking Study



Cost Estimates

Each Zone is broken down to systems and components for Quick Cost Estimating (QCE). QCE is gaining popularity due to the need for speed-driven results. In response, Munro has developed a proprietary methodology. Quick Cost estimates provide the customer with approximate versus detailed costs which are more expensive and time consuming to generate. A Quick Cost analysis will deliver complete vehicle estimates with an accuracy of +/- 8%. This level of accuracy provides OEM's and Suppliers the ability to make sound comparisons and directional decisions.

[Richman from EPA]

“Munro is recognized as being technically competent, highly experienced, knowledgeable, and creative in benchmarking and lean engineering of automotive and non-automotive systems. Costing models are thorough, covering all elements of total production cost.”

Costed Bill of Materials

Zone 2: Controlling Electronics

Part Name	Quantity	Unit Cost	Weight (kg)	Volume (cm³)
...

Low Voltage Wire Harnesses

Component Summary

Zone	Zone 2: Controlling Electronics
System	Low Voltage Wire Harnesses
Part	Wire Harness Assy Main LV Power Distr, Front Trunk
Supplier Name/Code	-
Material	Wire Harness

Data & Power Outlets

Component Summary

Zone	Zone 2: Controlling Electronics
System	Data & Power Outlets
Part	Power & Data Module, Console
Supplier Name/Code	-
Material	Commodity Item
Parts	1
Fasteners	0
Total Weight (kg)	0.07

Material Cost**

Process Cost	
SG&A and Profit	
Total Cost*	

Disclaimers

This cost analysis utilizes the Quick Cost Estimating method:

Quick Cost Estimating (QCE) is gaining popularity due to the need for speed driven and accurate results. In response, Munro has developed a proprietary methodology. The goal of QCE is to provide the customer with approximate, rather than technical costs which are much more expensive and time consuming to generate. A QCE's level of accuracy provides customers with the ability to make sound comparisons and directional decisions with confidence.

The QCE process starts with the disassembly of the vehicle and the creation of a bill of materials and a bill of process within Design Profit® Software, which is referred to as a cost map. For each component in the Design Profit® cost map, properties such as material, manufacturing process, complexity, weight, size, etc. are analyzed to determine how it should be costed. The QCE process relies on Munro's expertise, knowledge base, process calculators, and supporting labor, material, and manufacturing & machinery databases. The costs reported for this analysis will include material costs (raw material & purchased parts), process costs (manufacturing and assembly of components), and final assembly costs for the supplier and OEM.

11 February 2019 Copyright © Munro & Associates, Inc. 2015 www.LeanDesign.com

Tesla Model 3 Teardown and Benchmarking Study



A

Model 3 Zone Benchmark Report

- ❖ The Benchmark Report is highly advantageous for OEMs or Tier Suppliers looking to effectively expand and compete in new EV markets.
- ❖ The report is a comprehensive cost analysis of all four Zones of the vehicle.
- ❖ This report contains descriptive and pictorial detail on every facet of the vehicle from manufacturing to Quick Cost Analysis.
- ❖ Those who purchase the report will receive:
 - a. Vehicle Executive Summary
 - b. Zone Summary
 - c. Zone Quick Cost Estimate by sub assembly and component
 - d. Zone Costed Bill of Material

Tesla Model 3 Teardown and Benchmarking Study



B

Vehicle or Zone Summary Costed Bill of Material

- ❖ The vehicle costed bill of material is a consolidated view of the information presented in the Zone reports. An overall vehicle CBOM report is provide, in addition to CBOM sections at the end of each Zone report.
- ❖ The bill of material is an indented format and includes:
 - Part name
 - Material
 - Supplier (as is feasible)
 - Total Cost
 - Weight
 - Quantity
 - Total Weight

Assembly Name							
Symbol Name	Material Name	Supplier Name	Total Cost*	Weight (kg)	Item Qty	Total Cost* (Total)	Weight (kg) (Total)
Cost Bill Of Material Example							
Suspension Front Bolt	Commodity Item	-					
Suspension Middle Bolt	Commodity Item	-					
Suspension Front Cradle Bolt close to vehicle Rear	Commodity Item	-					
Suspension Rear Bolt close to vehicle Rear	Commodity Item	-	\$0.29	0.0673	2	\$0.58	0.1346
M8-1.25x35 Class 10 SHex Extra Big Flange Bolt	Commodity Item	-	\$0.08	0.0244	4	\$0.32	0.0976
M10-1.5x33 Class 10 SHex Flange Head Bolt	Commodity Item	-	\$0.11	0.0336	4	\$0.44	0.1344
Brake Line Clip Front Wheel	Commodity Item	-	\$0.05	0.0032	2	\$0.10	0.0064
Rear Suspension Assembly	Multiple	-	\$423.87	65.4812	1	\$423.87	65.0000
Rear Cradle Assy with Swaybar	Multiple	-	\$114.71	26.1172	1	\$114.71	26.1000
Rear Cradle Assy without Swaybar	Multiple	-	\$102.15	23.0000	1	\$102.15	23.0000
Rear Stabilizer Bar Assembly	Multiple	-	\$11.82	3.8360	1	\$11.82	3.8360
Bolt Swaybar Brackets to RR Cradle	Commodity Item	-	\$0.06	0.0203	4	\$0.24	0.0812
Bolt Motor Mount to RR Cradle Assy	Commodity Item	-	\$0.37	0.0974	3	\$1.11	0.2922
Rear Suspension Assembly LH	Multiple	-	\$149.44	18.8255	1	\$149.44	18.8000
Rear Knuckle	Al - A305	-	\$45.13	4.8160	1	\$45.13	4.8160
Rear Lower Track Bar Aft	Multiple	-	\$5.94	0.9460	1	\$5.94	0.9460
M12-1.75x75 Hex Hd. Shoulder Screw	Commodity Item	-	\$0.31	0.0803	3	\$0.93	0.2409
M12-1.75 Hex Nut	Commodity Item	-	\$0.06	0.0213	3	\$0.18	0.0639
Rear LTB-Fox	Multiple	-	\$6.36	0.7960	1	\$6.36	0.7960
Rear Link Bar	Multiple	-	\$7.87	0.3261	1	\$7.87	0.3261
M10-1.8 HEX NUT	Commodity Item	-	\$0.05	0.0147	1	\$0.05	0.0147
Rear UTB-Fox	Multiple	-	\$5.90	0.7460	1	\$5.90	0.7460
REAR UTB-AR	Multiple	REAR	\$6.24	0.9140	1	\$6.24	0.9140
M14-2 x 95 Hex Hd Bolt	Commodity Item	-	\$0.83	0.1497	3	\$1.89	0.4491
M14-2 Hex Nut	Commodity Item	-	\$0.10	0.0327	3	\$0.30	0.0981
Rear Spring Seat Assembly	Multiple	-	\$7.22	3.8397	1	\$7.22	3.8000
Rear Spring Seat	Steel 1015 - Coil	-	\$5.80	2.7900	1	\$5.80	2.7900
Rear Spring Seat Cover	PP-GF30	-	\$1.10	0.2300	1	\$1.10	0.2300
M6x19 Hex Screw/washer, Front Aero Shield	Commodity Item	-	\$0.12	0.0117	1	\$0.12	0.0117
Rear Shock Assembly	Multiple	Mando	\$28.50	2.8940	1	\$28.50	2.8940
Rear Coil Spring Assembly	Commodity Item	-	\$14.53	3.7530	1	\$14.53	3.7530
Rear Spring Bottom Pad	NBR	-	\$1.24	0.1390	1	\$1.24	0.1390

Please note the costed bill of material is provided in PDF format and will not be available or provided in Excel.



C

Side by Side Report

- ❖ The vehicle Side by Side Report is a high level comparison between three vehicle trim packages. It compares the US built Long Range & Premium Trim Package, Estimated China built Long Range & Premium Trim Package, and Estimated China built Standard Range & Trim Package.
- ❖ The report provides a comparison of total cost and weight between the three different trim packages. A quick analysis explaining the difference between trim packages is included on system slides.

Side-by-Side Comparison

Low Voltage Wire Harnesses

US Premium Tesla Model 3		China Premium Tesla Model 3		China Standard Tesla Model 3	
Cost	Weight (kg)	Cost	Weight (kg)	Cost	Weight (kg)

Side-by-Side Comparison

ZONE 2: Controlling Electronics

US Premium Tesla Model 3		China Premium Tesla Model 3		China Standard Tesla Model 3	
Cost	Weight (kg)	Cost	Weight (kg)	Cost	Weight (kg)

**Tesla Model 3
Side-by-Side Analysis**

20 February 2019 Copyright © Munro & Associates, Inc. 2015 www.LeanDesign.com 1



FAQ (Frequently Asked Questions)

- ❖ Was Tesla involved in the study?
No, Tesla proprietary costs nor any Tesla 3 suppliers quoted costs were used in this study.
- ❖ Is there any Tesla 3 propriety (stolen) IP in this report?
No. All data was developed through Munro's proven methodologies from th purchased production Tesla 3
- ❖ Is the car costed using only NAFTA costing centers?
Yes, Munro includes labor, factory floor cost, taxes and SG&A for OEM or Tier Suppliers.
- ❖ Is this a Costing or Pricing report?
This is a Costing Report. Pricing has too many variables.

Legal Disclaimers & Sales Condition

- ❖ How can I see the sample report before purchasing?
Please contact your regional Munro sales person. They can provide sample information in digital PDF format NOTE: critical data will be hidden in the sample.
- ❖ Is this report allowed to Reproduce, Distribute, Disseminate, Photocopy, Fax, Transmit in the same organization when a company purchases the report?
Internal Company correspondence is authorized.
NOTE: The purchasing company shall not be legally permitted to reproduce, distribute, disseminate, photocopy, fax, transmit, sell, publish, or send this material, or any portion thereof, by any means without the express written permission of Munro & Associates Inc. under penalty of law. The reports are Copyright Protected.
- ❖ If there is a request for someone from Munro to visit and to explain in detail the report, is it possible to do or is it included in the price of report?
No, it is not included in the price of report.
Munro will visit if the customer pays for the travel and daily fee.
- ❖ If there are a few but specific questions on the content of report, is it possible to support a phone or e-mail communication?
Yes, please contact the local area sales person and we will respond with our answers.