

3M Science.
Applied to Life.™

Precision Wheel Balance Composite System

SPE ACCE 2021



Precision Wheel Balance System

OEM Trends in Wheel Assemblies



MY13 Toyota RAV4	MY15 Ford Edge	MY19 Chevrolet Blazer	MY20 Tesla Model Y	MY20 Kia Telluride	MY21 BMW X7
17"	18"	21"	21"	20"	21"
26.3 kg	27.4 kg	31.2 kg	29.2 kg	30.1 kg	37.5 kg

Images and Data Source: A2Mac1

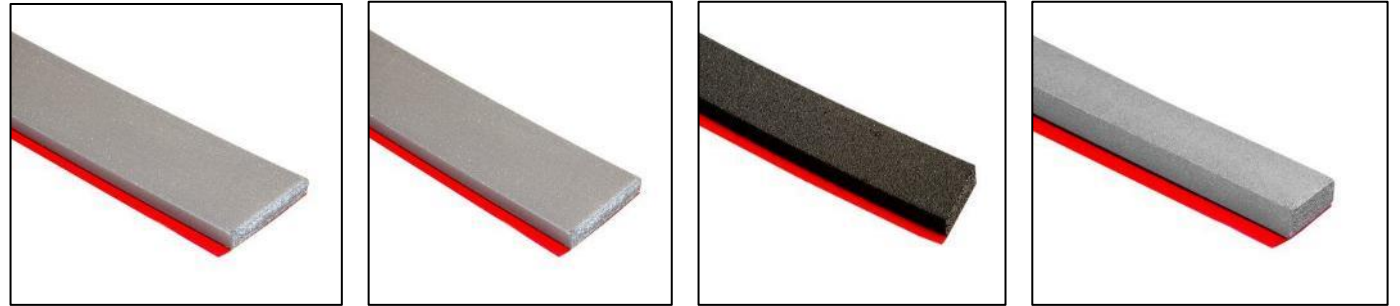
Precision Wheel Balance System

Legacy Balance Weight Solutions



Precision Wheel Balance System

3M Solution - Introduction



3M Cut-to-Length Precision Wheel Balance System

- Ultra High Density Thermoplastic Composite
- 5.8 SG. Density precision controlled to +/- <2%
- Flexible + Conformable
- Extruded to customizable continuous profile
- Level wound and supplied in 82kg continuous spools
- Easy to cut to precision weight (+/-0.5g)
- Color matched to customer preference
- 9 OEM customers in Americas & Europe

20+ SKUs  1 SKU

Precision Wheel Balance System

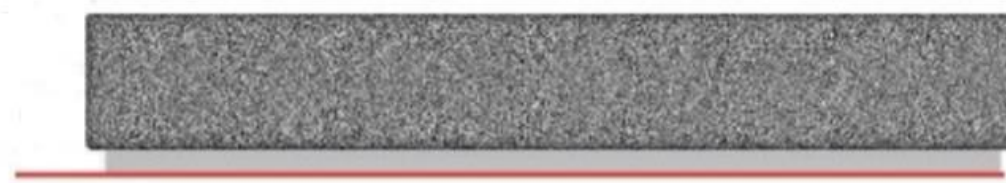
3M Solution - Construction

3M Dyneon Fluorothermoplastic Matrix:

- High density polymer - 1.93g/cc
- Excellent flexibility - Flex Modulus 80MPa
- Material rheology favorable for high filler loading w/uniform dispersion
- Inherently chemical resistant (fuel, oils, lubricants, brake fluid, carwash solvent, tire + wheel cleaners)
- Inherently weather and UV resistant

Highly Filled Composite:

- 67 vol % PIR metal alloy filler
- Mix of alloy powders to impart magnetic properties while maintaining superb corrosion resistance
- Proprietary surface coating for compatibility with matrix
- Retention of polymer-like properties



3M Acrylic Pressure Sensitive Adhesive Tape

- Provides excellent bond to any wheel type
- Robust bond even to mounting lube contaminated surface
- Removable for aftermarket service without wheel damage

Precision Wheel Balance System

Customer Advantages



Precision Balanced Wheel Assembly (+/-0.5g) = Improved Ride Quality + Increased Tire Life



Continuous Material Solution Enables High Speed Automation vs Previous Manual Assembly Solution



Reduced Tire Balance Assembly Cycle Time (up to 50%). First Time Throughput increased 20%



Manufactured from 89% Recycled Content. End of Life Recyclable. Returnable & Reusable Packaging



Direct + Indirect Cost Savings. Material Cost Savings (~10%), Inventory Cost Savings, Labor Cost Savings (\$200K/yr), Reduced Rework and Warranty Cost. Replicated across GM; Total Cost Save to OEM ~\$3M/yr

Precision Wheel Balance System

Turnkey Automation Enabled by 3rd Party Automation Integrators



Precision Wheel Balance System

Turnkey Automation Enabled by 3rd Party Automation Integrators

AutoW8t
Assembly
Automation

[Youtube
Link](#)

Precision Wheel Balance System

Low Volume Solution

- Available In Planetary Rolls
- Ideal for Service, Aftermarket, and Repair Applications
- 3M Surface Cleaning Solutions Ensure Proper Preparation of Wheel Substrate
- Proprietary Adhesive Tape For Robust Bond in Challenging Cold Temperature Environment
- 3M Manual Application Kits
- Used Prevalently By US Based Wheel & Tire Service Retailers
- Adhesive Mounted Profiles Can Replace Clip Mounted Weights used on Steel & Flanged Wheels



Precision Wheel Balance System

Industry Recognition



AUTOMOTIVE
INNOVATION AWARDS
COMPETITION & GALA
HONORING THE BEST IN AUTOMOTIVE PLASTICS

Automotive News
PACE
AWARD

