Product Assessment Technology

Calsonic Kansei has a test and assessment system that enables the company to recommend specifications in a short period of time, by either incorporating the customers’ quality requirements into bench test for each intake and exhaust system or conducting the test individually for each unit. The company is also able to conduct an assessment analysis on the sound dampening performance and reliability.

**Exhaust system assessment**
1. Sound dampening performance (output sound, radiated sound and so on)
2. Engine power output
   - Blower test (exhaust pressure performance)
   - Actual engine output test
3. Vibration strength characteristics test (roadside, engine, engine roll)
   - Vibration durability test
   - Roadside (oil pressure two-axis vibrator)
   - Engine (High-frequency vibrator with electric motor, engine test)
   - Roll (roll vibrator)
4. Heat load durability test: Heat cycle durability

**Basic analysis**
1. Acoustic intensity
2. Pulsator
3. Acoustic vibration

**Unit assessment**
1. Flexible tubes
   - Spring constant characteristics (static and dynamic characteristics)
   - Heat and vibration durability (vibration and roll)
2. Muffler
   - E/P, shell radiation sound characteristics
   - Gas leakage characteristics of the body of the muffler
   - Muffler pressure resistance characteristics
   - Bracket strength (characteristics and durability)
   - Assessment of the strength of welded parts
   - Rust, corrosion (internal and external)

**Actual vehicles (chassis dynamo)**
- Exhaust output sound test
- Assessment of actual vehicle emission by country

**Exhaust manifold**
1. Flow analysis (O2 sensor characteristics)
2. Blower test (resistance to flow of exhaust gas)
3. Reliability
   1. Strength characteristics (engine vibration)
   2. Go-stop durability at high temperature

**Material research and analysis**
1. Composition analysis
2. Fracture analysis, mechanical character (Instron)
3. Gas analysis (Gas chromatin and the like)
   - Material formation (EPM, microscope)

**Catalytic converter assessment**
1. Exhaust gas flow distribution
2. Resistance to flow of exhaust gas of the converter
3. Performance of catalytic converter with light off
4. Catalytic equilibrium performance
5. Catalyst T50 performance
6. Catalytic deterioration and aging
7. Basic catalytic analysis (property, reaction)
8. Catalytic coating (prototype)
9. Stop and go durability of catalytic converters at high temperature
10. Heat cycle durability of the bench test
11. Catalytic coat separation durability (car emission assessment for the catalyst)