

State of
the art engineering,
A&G Technology



www.angtec.com

We will become a first class Partner



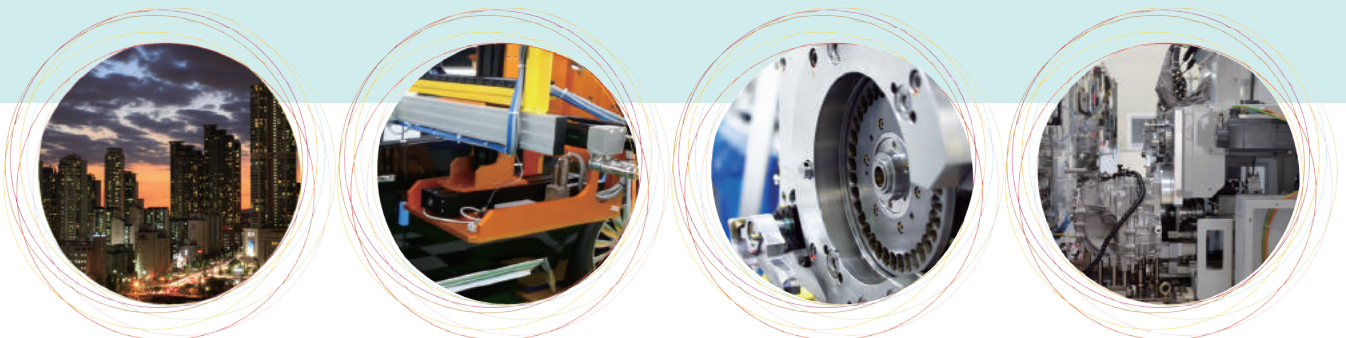
Technical innovation is the main factor driving industrial development and economic growth - only first-class, global products and technologies can survive in today's competitive international environment. In this situation, A&G has vision to develop as the best "Total Solution Provider for Automotive Testing" in the world.

Since founding in 1996, A&G is accomplishing its mission as a unique company which raises its customer's competitiveness by supplying vehicle and component test/inspection equipment which have proven their world-class performance with domestic and foreign customers.

Based on the management philosophy that regards a person as most important, our employees have cooperated with one another and achieved technical development, quality improvement, and customer satisfaction by a spirit of value-centered fellowship and respect for our customer.

A&G will make every effort so it will not only contribute to our customers' development through future-oriented and advanced technical development, but will also play a pivotal role in national industrial development.

So that A&G will be able to carry out our role and mission in promoting our country to a technically-advanced nation for the 21st century, we hope you will favor us with your continued support and advice.



Product Range

Turnkey test systems for vehicle, powertrain and components

A&G supplies turnkey test systems for research and development, quality control & assurance and production. Its activities focus on the following applications;

Research and Development, Quality Assurance

- **EV / HEV Testing**
- **Engine Testing** : Durability / Performance Dynamometer, End of line load test, Automation, Host System
- **Transmission Testing** : Durability / Performance Dynamometer, Automation, NVH performance test, Automatic Transmission Oil Pressure evaluation test
- **Vehicle Testing** : In-vehicle DAQ, Chassis Dynamometer, Mileage durability dynamometer system, Environmental Test Chamber Component Testing : Calorimeter, Air-conditioner test

Production

- Engine Assembly Production Line
- Engine Assembly Quality Test Equipment
- Transmission Assembly Quality and EOL Test Equipment
- Vehicle Assembly End of Line Test Equipment
- EV Component Assembly Line & End of Line Test System
- Fuel Cell Test Station
- Robotic Automation

The benefits to the customer

Attractive price to reduce the total project cost
Short delivery time
Short installation and commissioning time
High quality and quick local service capability
Continuos and endless techical support

High quality and proven technology from Korea and the global automotive market.

Major Customer List

• OEM

Hyundai Motor Company
- HMMA in USA
- BHMC in China
- HMMC in Czech
- HMMR in Russia
- HMI in India
- HMB in Brazile
Kia Motor Company
- KIA Georgia Plant in USA
- DYK in China
- KIA Slovakia Plant in Europe
- KIA Mexico Plant
GM Korea
Ssangyong Motor Company
Renault Samsung Motor
Great Wall Motor in China
NAZA Automotive Manufacturing in Malaysia
Yokogawa Electronics manufac
Canon-Korea Business solution
LG Electronics
Samsung Electro-Mechatronics
LSCNS

• Government Test Lab

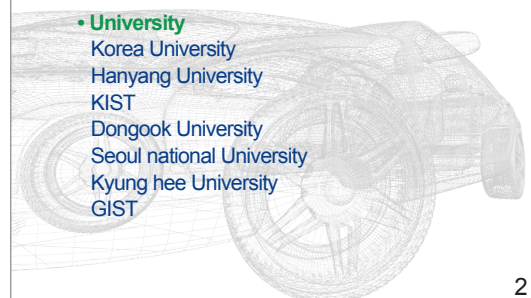
KATRI (Korea Automobile Testing & Research Institute)
KATECH (Korea Automotive Technology Institute)
NIER (National Institute of Environmental Research)
KTL (Korea Testing Laboratory)
KRRRI (Korea Railroad Research Institute)
KORDI (Korea Ocean Research Development Institute)
KETI (Korea Electronics Technology Institute)
KIDI (Korea Insurance Development Institute)
KITECH
KEPCO KPS
KIER
ETRI

• Tier1

Hyundai MOBIS (Korea & China)
Hyundai WIA (Korea & China)
Hyundai Powertech (Korea & Mexico)
Hyundai DYMOS (Korea, USA, China, India & Europe)
Samsung Electronics
Samsung Advanced Institute of Technology
LG Electronics
LG Chemical
SK Innovation
GS Caltex
Faurecia
JCI (Johnson Controls Inc)
LEAR
Hankook Tire
Mando
Continental Automtive system
M-Seat
HLB
ITW
MannHummel
Saint-Gobain
Weldex
Doowon

• University

Korea University
Hanyang University
KIST
Dongook University
Seoul national University
Kyung hee University
GIST



■ ■ ■ for End of Line

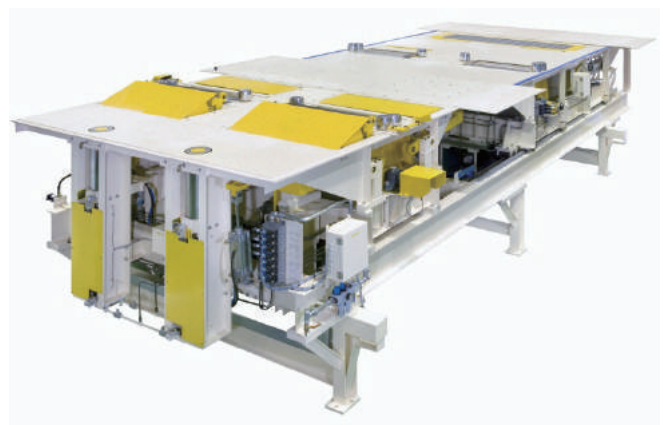
As a global supplier of End of Line vehicle test equipment, A&G stands for leading edge Technology, high quality, and local customer service.

The benefits to our customer include reliable quality assurance testing and functional product testing, leading to high levels of competitiveness, and customer satisfaction.

Over 20 years of experience and system development drive our team to innovate and establish high levels of specific process knowledge.

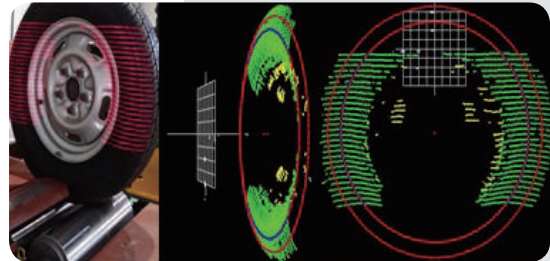
Roll & Brake Tester

- Acceleration Performance Test
- Air Gap Test
- Drag Force Test
- ESP Valve Test
- Brake Test
- ABS Valve Test
- Cruise Control Test
- Parking Brake Test



3D Non-Contact Wheel Aligner

- Turning Radius Test
- EV(Equipment Variability) & Matrix Test
- Toe, Camber Measuring System
- SWA Tool Calibration
- Z-height Test



Head Lamp Aimer

- Digital Calibration System
- Intensity Calibration
- Optical Axis Calibration
- Verification Calibration



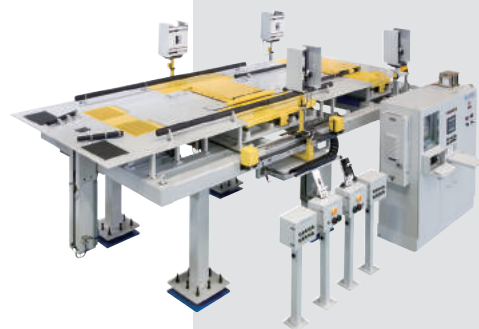
Side Slip Tester

- Side Slip Measuring System
- Axle Slip Measuring System



EAS Tester

- Vehicle Height Measuring System

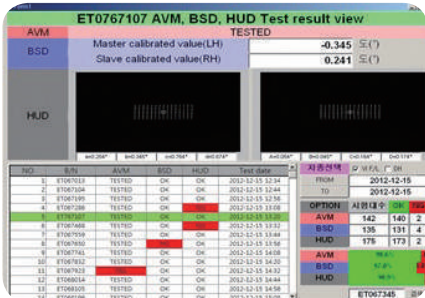


Data Measurement System

- Test Result Data Managing
- Data Analysis & Storing



Vehicle Pull Measurement System



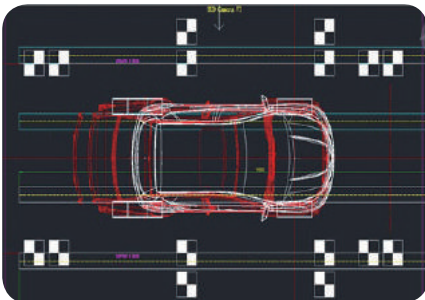
■ ■ ■ for Vehicle Electronics Function Tester

As a leading provider of End of Line equipment, we are configuring and supplying the test / calibration system for various electronics functions and also we are responding flexibly to needs of customer and plant. In addition, A&G has the Vision software ability to test and calibrate the Head-up Display and Around View Monitoring module automatically.



Vehicle Electronics Function Tester

- Error Eraser System
- Immobilizer Coding System
- System Checker
- ADAS Calibration System
 - : HUD Calibration System
 - : AVM Calibration System
 - : BSD Calibration System
 - : LDWS(LKAS) Calibration System
 - : SCC(AEBS) Calibration System



Engine Assembly Production Line

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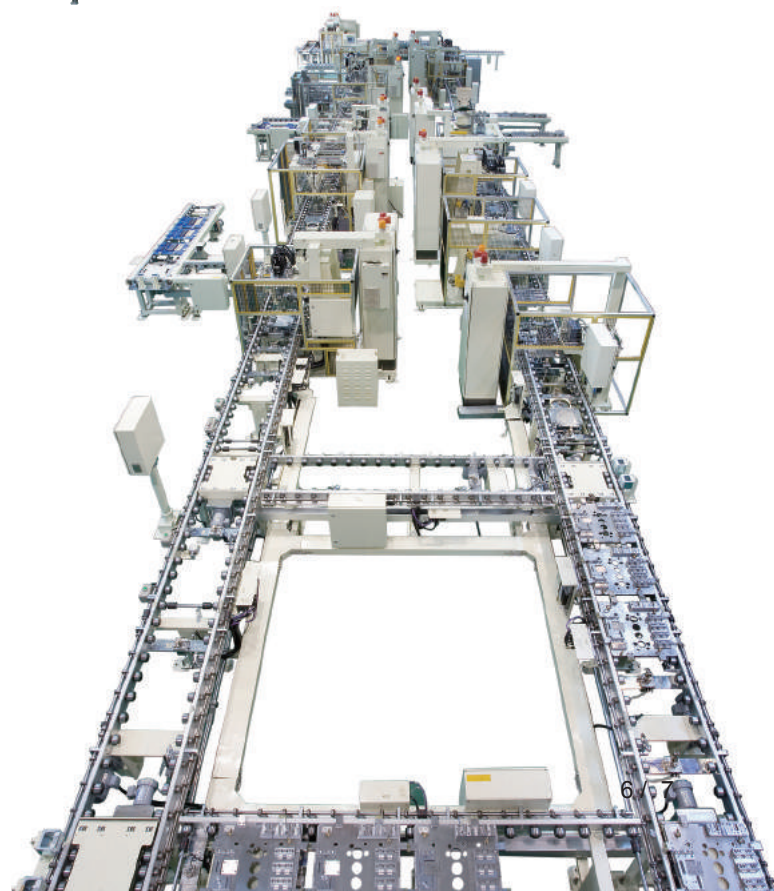
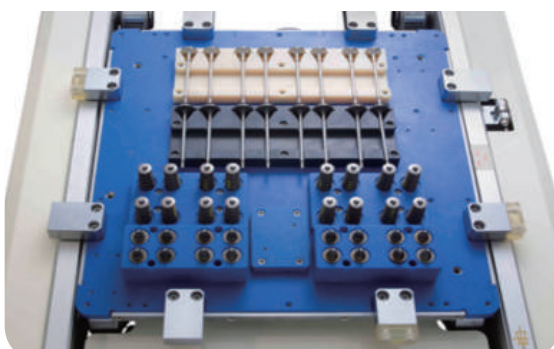
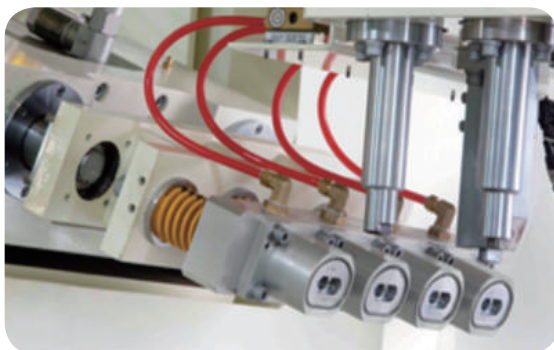
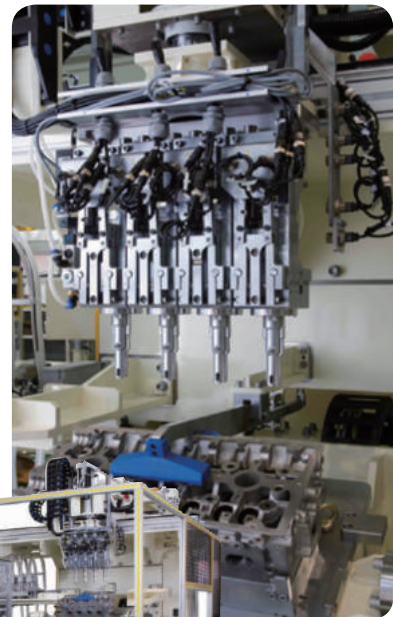
■ ■ ■ for Engine Assembly Production Line

The Engine Assembly production line consists of complex manufacturing processes including: assembly area, transportation system, parts supply, control system (hardware/software), reporting/analysis system, and inspection systems.

Inspection can include in-process testers and final quality testers (both cold test and hot test).

A&G provides production in assembly lines to car manufacturers including Entire Engine Assembly, Engine Cylinder Head Assembly, as well as Sub Module Assembly with robot, pallet and other types of transportation.

All components and technologies for tightening and joining systems, NC axes, transport, robot and handling system, as well as A&G know-how, dedicated to the supply of production systems that satisfy even the highest productivity, quality and process reliability requirements



Engine Assembly Quality Test Systems

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Engine Quality test equipment has been integrated into the world's premier engine manufacturing lines since the late 1980's. These In-Process Test (IPT) systems have helped OEMs produce higher-quality engines, with fewer defects, and controlled repair costs.

By running performance tests, checking assembly quality, and inspecting for faulty components in the early stages of assembly, an IPT system reduces repair and costs and improves overall engine quality.

Each specific IPT tester is designed and configured for the application depending on the engine build level and required test items



Cold Test System

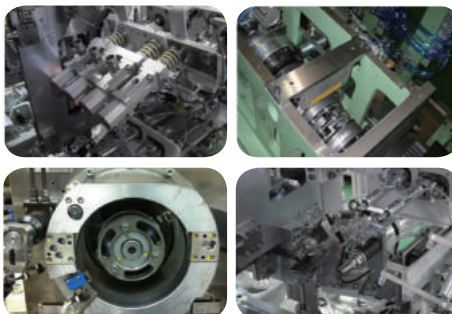
The engine assembled at the last station of Engine assembly production line enters the cold test station

The cold test checks the functioning of the mechanical engine components.

Measuring and Test Items

1. Breakaway torque test
2. Running torque test
3. Intake pressure test
4. Exhaust pressure test
5. Oil pressure test
6. Oil temperature measure
7. Cam to crank timing test
8. Vibration test
9. Fuel line test
10. Vacuum pump test

Cold Test #2			
1	Sensor Check	0 RPM	OK
2	Breakaway Torque Test	50 RPM	OK
3	Fuel Leak Test	50 RPM	OK
4	Crank Cam Monitoring	500 RPM	OK
5	Oil Pressure Monitoring	500 RPM	OK
6	Vibration Test	1200 RPM	OK
7	Oil Pressure 1 (High Speed)	1200 RPM	OK
8	Rail Pressure Test	1200 RPM	OK
9	Vacuum Pump Test	1200 RPM	NG
10	Cam_Crank Timing Test	120 RPM	OK
11	Running Torque Test	120 RPM	OK
12	Exhaust Test	120 RPM	OK
13	Intake Test	120 RPM	OK
14	Oil Pressure 2 (Low Speed)	120 RPM	OK



IPT System

1. Crank torque test
2. Crank with Piston torque test
3. Con-rod test
4. NVH test
5. Cam torque test
6. Oil line, Water line & fuel line leak test



Hot Test System

1. Engine start-up
2. Idle stability
3. Misfire
4. Oil leakage
5. Acceleration test
6. Injector test
7. Oil temperature sensor test
8. water temperature sensor test
9. CVVT test
10. Oil pressure test
11. Ignition test
12. MAP sensor
13. Throttle position sensor



Cam Torque To Turn Test

1. Breakaway torque test
2. Running torque test



Leak Test

1. Water leak
2. Fuel leak
3. Oil leak



Spark Plug Gap Test System

1. Spark voltage values
2. Spark plug over gap
3. Spark plug under gap
4. Broken Insulator

Transmission End of Line Test Systems

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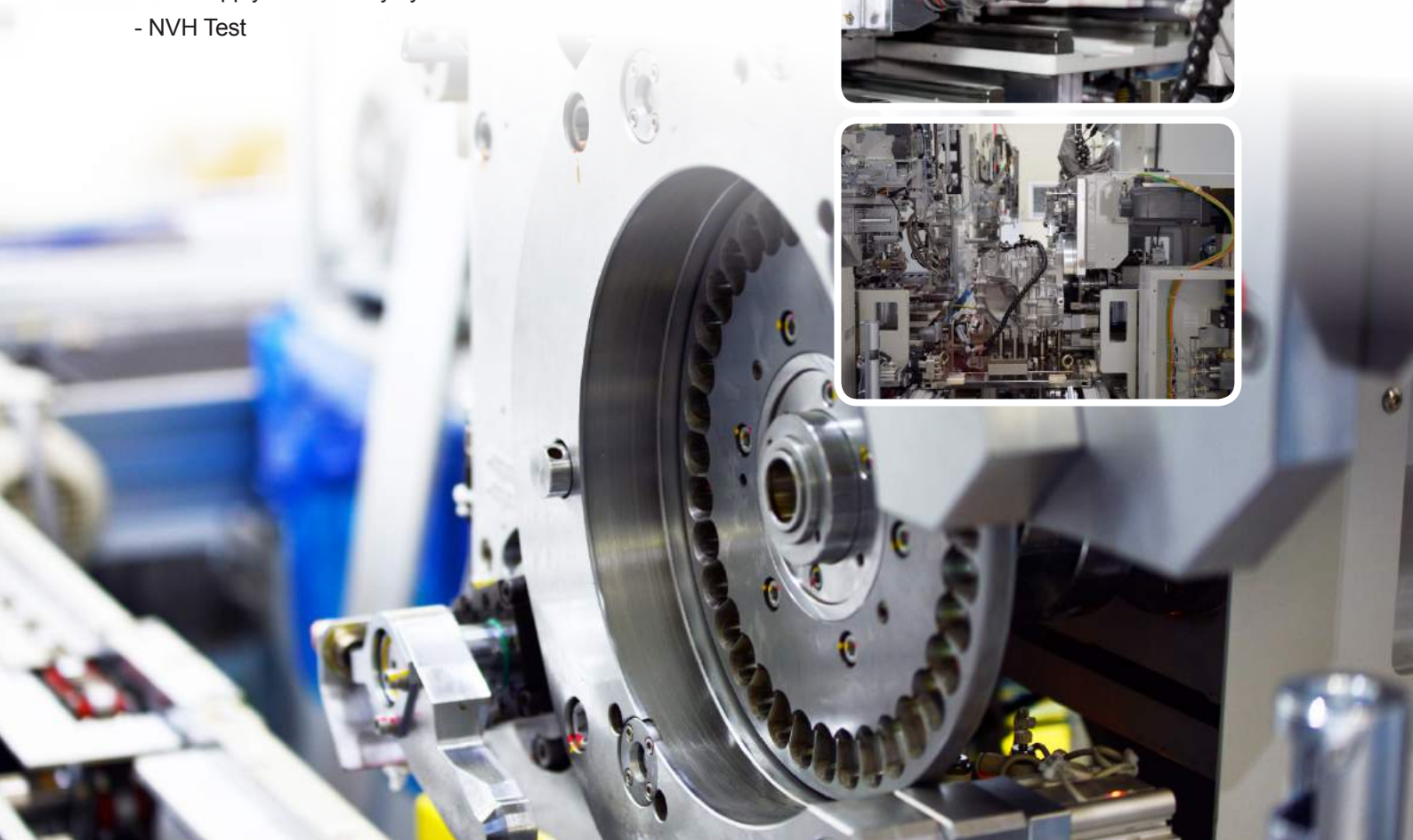
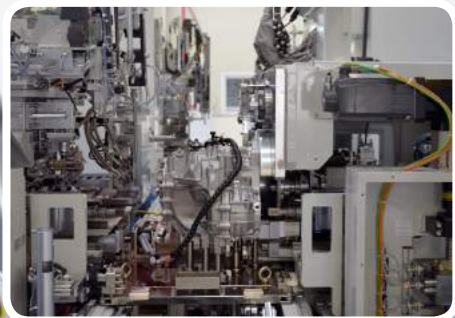
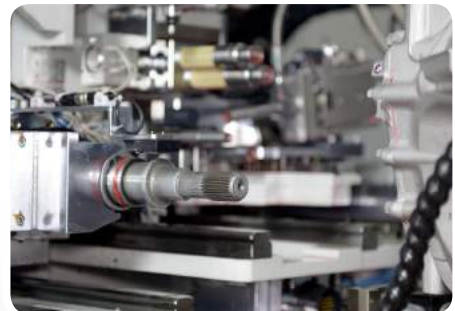
■ ■ ■ for End of Line testing of transmission production

A&G offers End of Line production test bench for the quality and performance test at transmission (Manual, Automatic, CVT and DCT) production line. In order to enhance the quality and technology, we design mechanical, electrical, and software systems by ourselves in house.

Our products for transmission testing range covers from motorcycles car and heavy trucks. This includes stand-alone test bench as well as test areas with the other test stands, assembly station and transportation line.

Noise, Vibration, and Harshness (NVH), gear ratio verification, shift ability, hydraulic pressures, and TCU interface could be verified by our test benches as the end of production line quality check.

- X,Y,Z window adjustment with servo motor
- Automatic Tool Changer (Dummy shaft)
- Automatic Oil Filling and Leveling Control
- Automatic Shifting Lever Control
- ATF supply and refinery system
- NVH Test



■ ■ ■ for Valve Body testing of transmission production

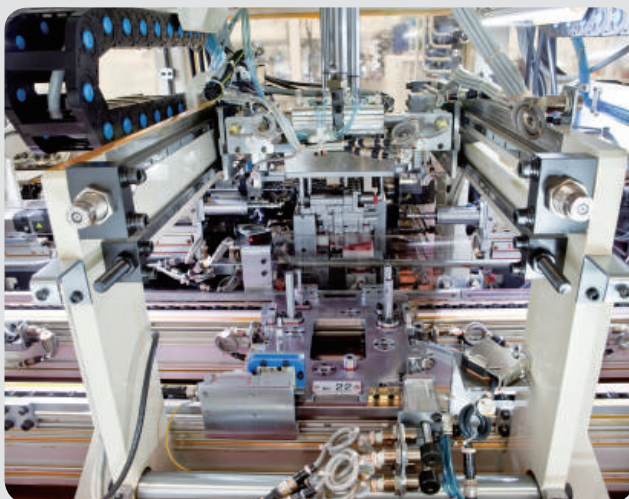
A&G offer automatic and wet type dual clutch transmission valve body test bench for the production line. In order to enhance the quality and technology, we design mechanical, electrical, and software systems by ourselves in house.

The valve body test bench measures valve body assembly pressure and adjusts the VFS valve.

Valve body testers can be configured as stand-alone test benches, or can be integrated into complete test areas with other test stands and part transport/conveyer systems.

Test and Measurement Items:

- Hydraulic Pressure (Clutch, Brake and Cooler)
- Pressure Adjustment – Regulator Adjustment Function
- Flexible Adjustment Actuator Position Control – Servo System
- Manual Valve Position Control
- Flow Rate (Cooler In & Out) Control
- Oil Pressure / Temperature Monitoring and Evaluation
- Oil Supply System with Flow rate Control
- ATF (Automatic Transmission Fluid) Supply System



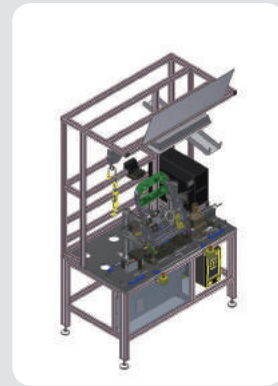
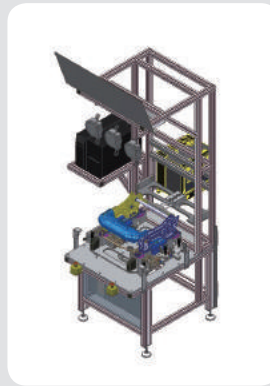
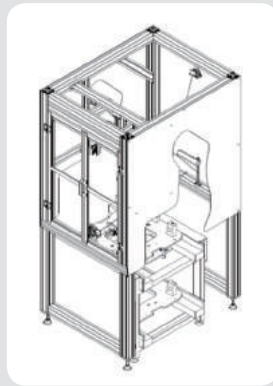
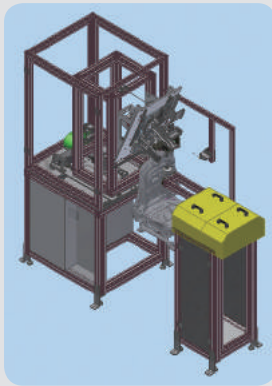
Seat Testers and Production line for Complete seat & Seat Frame

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As Vehicle Seat becomes a more functional part, it is not only part of vehicle but also accommodate emotional quality, health and safety matter. It results in various test and research activity to satisfy market needs.

Seat Test System provides more reliability on its electrical function and mechanical performance. In particular advanced vision and sensing technology give more confidence for productivity and quality control.

Moreover, test result will be utilized with our customer friendly software which also assures more precised test analyzing and defect detection.



Electrical Function Test System

- Power Seat Moving Test : Current, Voltage, Noise
- Heater
- Ventilation
- SAB
- Buckle
- IMS Setting and Tester



Mechanical Performance Test and Detection System

- Headrest Up & Down Performance
- Pumping Up & Down Performance
- Sliding Performance
- Pop up & Sinking Performance
- Full Proof Tester



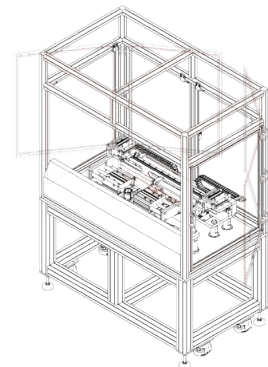
All Kinds of Occupant Classification & Detection System

- Force Applying Machine / FAM
- PODS Series
- ODS
- WCS
- SBR



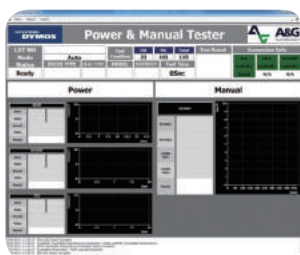
Seat Frame Assembly production line

- Cushion track production line
- Backrest frame production line
- Seat Sliding track Assembly and Force tester
- Function tester for cushion & Backrest production line



Other Quality Control Test System

- Vision Tester
- Back Angle Check Tester
- Static Load Tester
- Other Durability & Performance Tester using Hydraulic and Pneumatic



Environment Chamber for Vehicle Testing

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■ ■ ■ for the test run in the environmental chamber

The full vehicle hot/cold chamber (Environmental Test Chamber) brings a wide range of environmental conditions into the laboratory for repeatable testing. Static and dynamic performance of electrical and electronic systems can be assessed at any specific environmental condition, and thereby improve vehicle and component reliability. Labor productivity and testing cost can be controlled by not having to wait for certain weather conditions.

Chambers feature precise control of temperature, humidity, solar heat load, altitude, rain and wind, providing controlled laboratory conditions for product reliability improvement.

Typical test items are:

- Electrical / Electronic systems
- Battery charge/ discharge, power control, wiring, electronic control unit test
- Electrical equipment, intensity of light laws and regulations, telecommunications test
- Battery charge/discharge test per each drive mode
- Alternator & Battery output tests in actual vehicle operating conditions
- TDP development and field problem reappearance test
- Diagnostic and fail safe test
- Efficiency of the time when cluster driving mode & torque confirmation
- Heat- resistance test of front exterior lamp
- Water spray system
- Altitude control system



Climatic chamber

- Performance Capabilities

- : temperatures from -40°C to 60°C
- : air flow range of 5 to 120 kph
- : humidity range from 10%RH to 95%RH
- : full spectrum solar simulation with range of 600 to 1,200 w/m²

- Key Features

- : 17m (l) x 7.5m (w) x 5.5m (h) test chamber
- : internally-mounted AC motor-driven fan
- : 4WD movable chassis dynamometer
- : axially-extendible nozzle section
- : complete data acquisition and control system with specialized hardware Test Applications
- : Emission Testing
- : Dynamic Vehicle Testing
- : engine cooling system
- : engine management system test



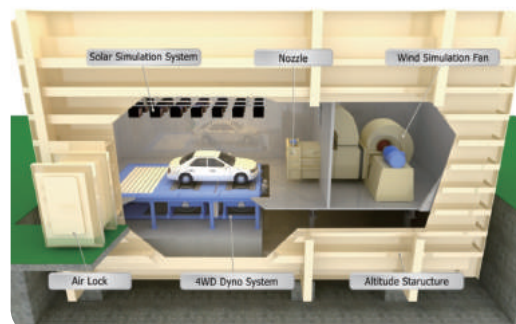
Altitude chamber

- Performance Capabilities

- : Altitude range from -90m to 4,000m
- : temperatures from -40°C to 60°C
- : air flow range of 5 to 120 kph
- : humidity range from 10%RH to 95%RH
- : full spectrum solar simulation with range of 600 to 1,200 w/m²

- Key Features

- : 20m (l) x 7.5m (w) x 5.5m (h) test chamber
- : internally-mounted AC motor-driven fan
- : 4WD movable chassis dynamometer for both FWD and RWD vehicles
- : axially-extendible nozzle section
- : city idle nozzle closure drop-down door with associated flow bypass ducting
- : complete data acquisition and control system with specialized hardware Test Applications
- : Altitude testing
- : Dynamic Vehicle Testing
- : engine cooling systems
- : cold startability
- : engine management system test



Chassis Dynamometer System

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■ ■ ■ for Vehicle test in R&D & QC

Chassis Dynamometer system is the test equipment for powertrain of vehicle. This system can perform the vehicle performance and durability test under operating conditions similar to those found on road. The users gather and analyze the required data.

Application

Emissions Testing

- Exhaust & Evaporate GAS analysis test
- Dynamometer performance is according to EPA Specification.

Mileage Accumulation (Durability Test)

- Vehicle durability test
- 50,000 mile EPA repetition test
- Testing with Automatic driving robot system



Specification

2WD & 4WD MIM Ch-Dyno system

- Roller Diameter : 48 inch
- Roll Width : 36inch(914mm)
- Motor Power : 150KW(MIM Type)
This will be changed by customer requirement.
- Max Speed : 250KPH
- Constant Tractive Force : 5,840N for 1Axle
- Response Time : <100ms
- Inertia Simulation : Electrical Simulation
- Inertia simulation range : 454 ~ 6350Kg
- Max Acceleration Range : +/-8MPH/s

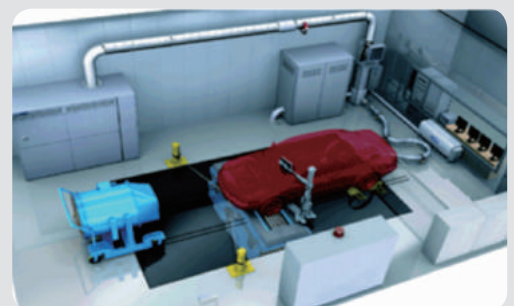
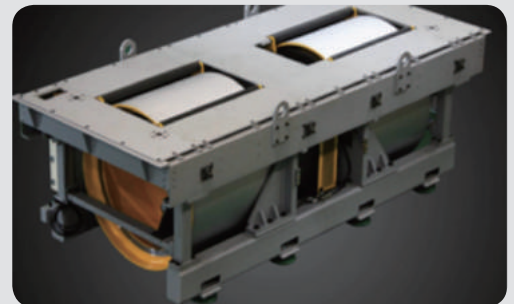
- Force Measuring Accuracy : +/- 0.1% F.S
- 4WD Synchronyze : +/- 0.1KPH
- Control Mode
 - Constant Speed
 - Constant Force
 - Constant Acceleration
 - Constant Current
 - Road Load Simulation
- Option
 - Automatic Roll Cover
 - Centering Device
- Coastdown test
 - WLTP
 - SAE J2264
 - EU
 - AAMA
 - etc.

Peripherals

Vehicle Cooling Fan for EU6 Regulation

- Max Speed : 135KPH
- Outlet Duct Size : 800mm(W) X 400mm(H)
- Height of the lower edge above ground : 200mm
- Total Size : 2,500mm(L) X 1,698mm(W) X 1,190mm(H)
- Variable Speed Control
- Divided Outlet duct 9section speed
 - 0 ~ 50KPH : within +/-5KPH
 - More than 50KPH : within +/-10KPH
- Option : Semi-Auto Moving Cart

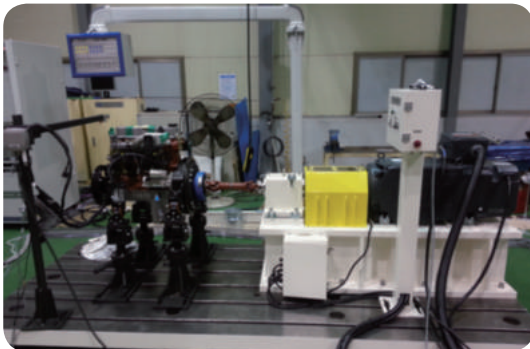
Vehicle Restrainin System for 2WD



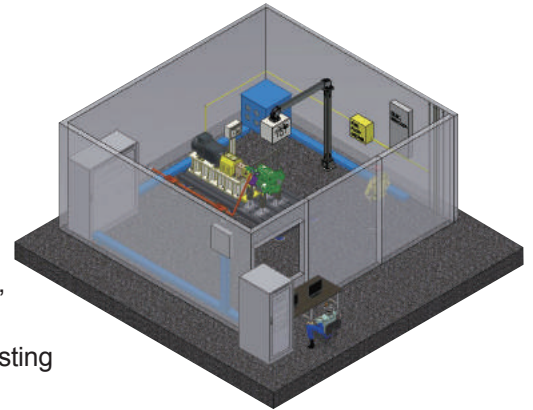
Powertrain Dynamometer System



■ ■ ■ for Engine test in R&D Center



From steady state to dynamic testing for engine development and quality assurance, A&G is in the business of providing superior testing equipment.

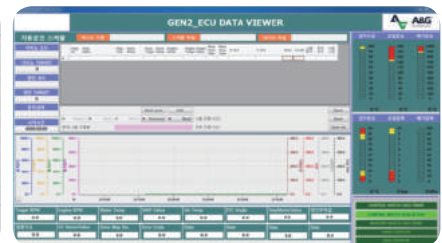
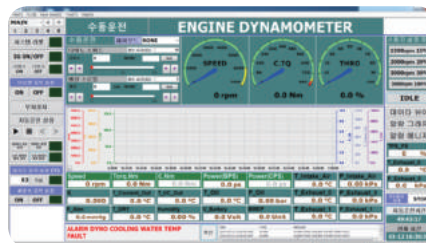


A&G is a system supplier, from a single test stand up to complete facility including the measurement system. We supply the whole range of engine testing

as durability, torque and power measurement, emission and fuel consumption analysis, production power check, noise analysis, functional testing and components testing.

Test Applications with Automation system

- Durability test
- Engine efficiency test
- Engine performance test
- Functional Test
- Exhaust gas Test
- Fuel efficiency test
- Oil consumption test
- All inspection in engine



Type of Test Systems

- EC Dynamometer System
- AC Dynamometer System
- DC Dynamometer System
- Hydraulic Dynamometer System

Used to control the throttle of the engine

Description	Specification
Max. Stroke	200mm
Max. Travel Speed	1000mm/sec
Response Time	0.2sec for Full Stroke
Static Force	400N
Dynamic Force	1200N

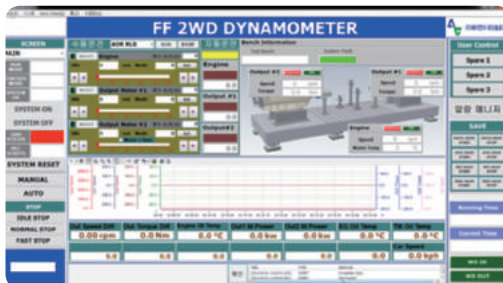


■ ■ ■ for powertrain test in R&D Center

The Transmission Dynamometer System is used for R&D and quality assurance testing of vehicle transmissions and other powertrain components. The main applications are performance, durability, and NVH testing of manual and automatic transmissions, including CVT and dual-clutch types. As the transmission is driven by an AC dynamometer or combustion engine, extensive performance data is gathered by the measurement system. In addition to vehicle transmissions, the dynamometer can be configured to test other powertrain components such as rear axles, transfer cases, and gear-boxes.



Optionally, an NVH analyzer can be integrated according to the customer's specification or preference.

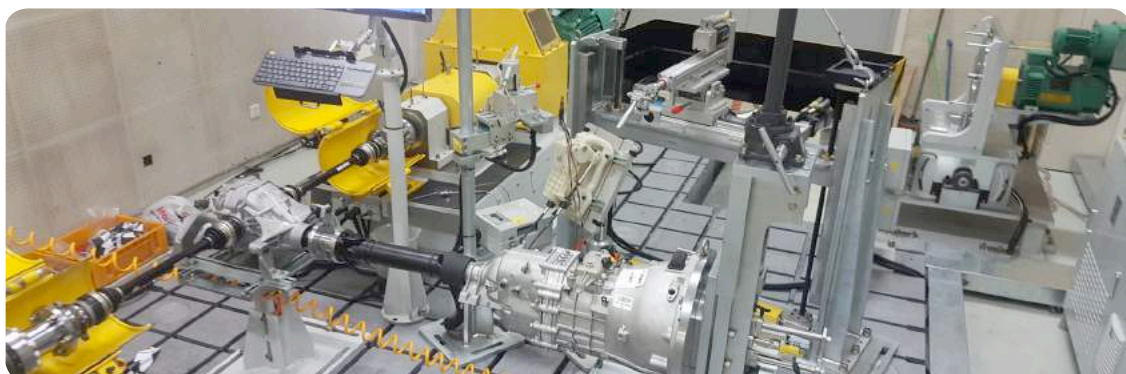


Test Applications

- Durability test
- Transmission efficiency test
- Powertrain NVH Test
- Functional Test

Type of Test Systems

- FF 2/4WD Powertrain Test System
- FR 2/4WD Powertrain Test System
- Front/Rear Axle Test System
- Torque Converter Test System



EV(Electric Vehicle) Testing Solution

A&G

■ ■ ■ for Motor Test System



As Electric Vehicles use electric motors as the prime mover, their performance and durability must be checked and confirmed under the developing phase, just as combustion engines have been traditionally tested for conventional vehicles.

Motor Test Dynamometers utilizing A&G-developed technology provide high performance and stable test results.

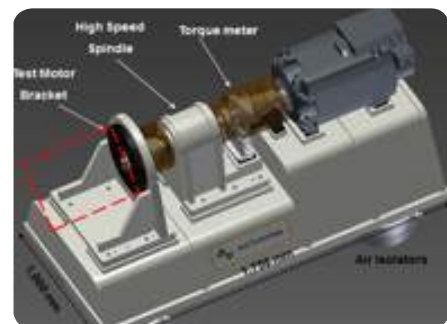
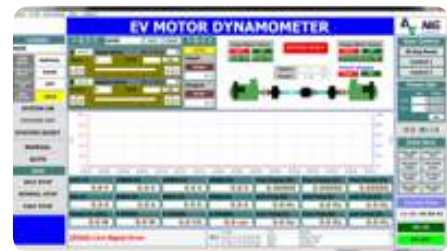
Test items include

The range of production

- Power : 15 ~ 400 kW
- Rated Torque : 30 ~ 700 Nm
- Max Speed : 2,300 ~ 20,000 rpm
- Battery Simulator : 50 ~ 1,000 Vdc / 1,000 kW

The Motor Test Dynamometer consists of

- Synchronous PM Dynamometer (or AC Dynamometer)
- High performance and durable dynamometer motor
- Inverter System – Variable frequency conversion and Regeneration Functions
- Battery Simulator – Bi-Direction DC Power Supply for MCU(Motor Control Unit)
- Data Acquisition and Control System – Data Management and Control System
- Other Equipment
 - Power Analyzer
 - Temperature and Humidity Chamber
 - Chiller



■ ■ ■ for EV Powertrain Test System



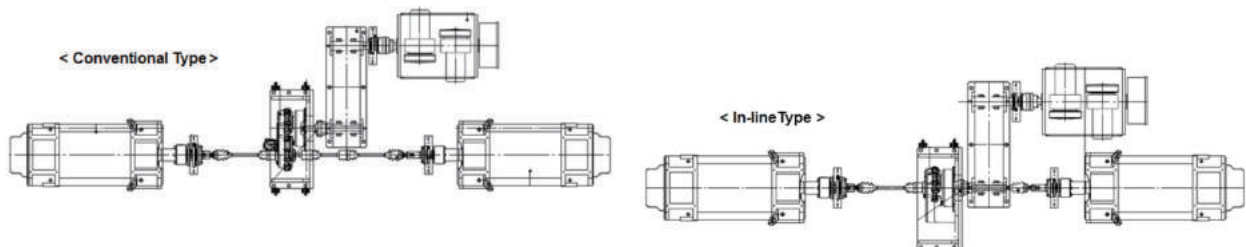
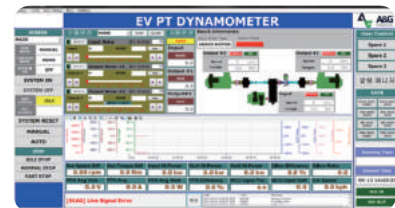
A conventional vehicle powered by a combustion engine requires a multi-speed manual or automatic transmission to adapt the engine's limited torque/speed output to the vehicle's wide torque/speed requirement. However, an EV can be driven by a fixed-speed gearbox due to the much greater torque/speed range of electric motors.

Gearbox dynamometers featuring A&G-developed technology provide high performance and stable test results.

Test items include

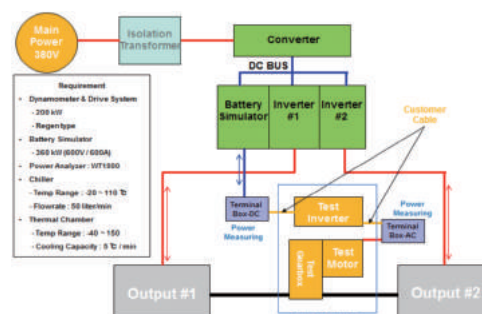
The Gearbox Test Dynamometer can be used for the following tests

- Gearbox Performance : Power, Torque, Speed, Efficiency
- Gearbox Durability : Duration of Max Power, Life Cycle, Cooling Capacity
- Gearbox NVH : Gear Noise, Gear Vibration



The Gearbox Test Dynamometer consists of:

- Input AC Motor (or PM Motor) : High performance and durable dynamometer motor
- Output AC Motor : High torque dynamometer motor
- Inverter System : Variable frequency conversion and Regeneration Functions
- Data Acquisition and Control System : Data Management and Control System
- Battery Simulator : Optional DC Power Supply for testing vehicle inverter,
- Other Equipments
 - Cooling Water Conditioner
 - Gearbox Oil Conditioner
 - Sensors



EV Component Assembly Line & End of Line Test Systems

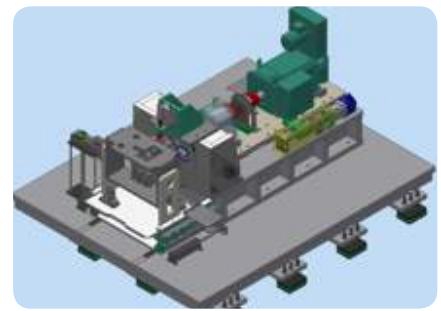
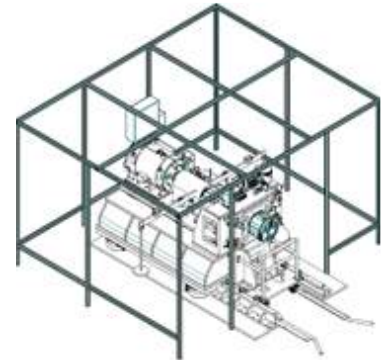
■ ■ ■ for Assembly Line and End of Line testing of EV Motor

A&G is providing motor assembly & test line for EV motor plant as total solution provider.

EV Motor has to be tested and guaranteed the performance and production quality at the end of line of production shop.

A&G offers various different end of line test equipment for EV Motor production line.

- Motor production equipment & assembly line
- Leak Test System
 - Coolant, Cavity, Chassis, etc
- EV Motor Performance Test System
 - B-EMF, Resolver Resistance, Hipot, Insulation Resistance, etc
- EV Motor EOL Dynamometer System
 - Torque, RPM, NVH(Vibration), etc



■ ■ ■ for End of Line testing of DU(Drive Unit)

A&G offers End of Line test bench for the DU(EV Motor + MCU + EV Gearbox) production line. In order to enhance the quality and technology, we design mechanical, electrical, and software systems by ourselves in house. In addition, we can provide End of Line test bench for EV Gearbox itself, too.

To guarantee the performance and production quality of DU at production line, this end of line test system will check road load test condition and NVH performance, etc with the following sub-equipment.

- X and Y window adjustment with servo motor
- Automatic Tool Changer (Dummy shaft)
- Accurate Weight Verification System
- ATF supply and refinery system
- NVH Measurement Tool



■ ■ ■ for Transmission & Gearbox Test Service

High reliable and durable Powertrain Dynamometer System at A&G 2nd facility can be operated 24 hours and 7 days all the time.

The dyno test bench has various layout and enough power(torque), so we can do test all kinds of transmission and gearbox in the market.

- Transmission : FF Transmission / FR Transmission / Rear(Front) Axle
- Gearbox : Traditional Offset Type / Hollow In-line Type
- DU(Drive Unit) : EV Motor + MCU + Gearbox

The specifications of Powertrain Dynamometer System

- System Layout : 1 x input / 2 x output dynamometer
- Input Dynamometer (M1) : 550 Nm at 4,000 rpm / Max. 10,000 rpm
- Output Dynamometer (M2 & M3) : 3,300 Nm at 550 rpm / 3,000 rpm(8,000 rpm)
- Battery Simulator : 240 kw (600 V / 600 A)

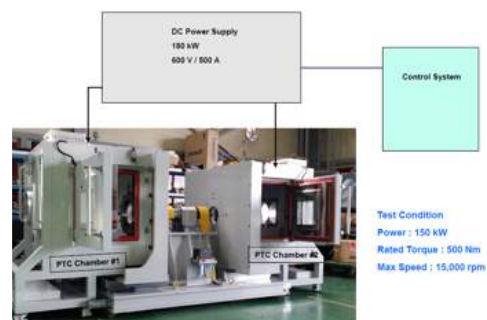


■ ■ ■ for EV Motor Test Service

Three different kinds of dynamometer system are installed at A&G 2nd facility. We test mainly EV motor but HEV motor also can be tested on the benches. The environmental condition will be set by separated movable chamber and water chiller and oil chiller system will control coolant temperature for the test specimen.

The specifications of Motor Dynamometer System

- Power : 150 kw
- orque : 340 Nm
- Max. Speed : 10,000 rpm
- Battery Simulator : 200 kw (500 V / 400 A)
- Power Analyzer
- Chamber
- Chiller (Water / Oil)



Hydraulic testing solution



■ ■ ■ for Hydraulic & Safety test System

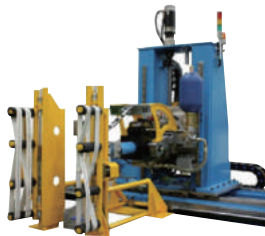
A&G provides a full range of hydraulic system.
 This specially designed hydraulic system can support to perform exact and reliable test.
 Hydraulic system allow perfect speed and position control by using closed loop control in real time.
 A&G is supplying hydraulic system to meet the vehicle regulation of domestic and foreign.
 Also, this system is applicable for hydraulic test other than vehicle regulation.

Multi-function Impact Test System

Multi-function Impact Test System can be used for various impact simulation test on the vehicle and vehicle components.
 A&G satisfied full range of impact test item.
 Also, A&G provides cost- effective customized system for limited test as customer needs.

- WG17 Pedestrian Impact Head Impact/ Lower Leg/ Upper Leg
- ECE R21 Pendulum Impact
- ECE R12 Guided Head/Body Block
- FMVSS201 Interior Head
- FMVSS226 Ejection Mitigation

Performance	
Max Speed	45 kph
Max Weight	40 Kg
Max Force	10 KN



System for Lower leg & PDI
(Pyeong-Haw Automotive)



Multi-function Impact Test System
(Hyundai-Mobis)



Bumper Pendulum Test System
(Hyundai Motor Company)

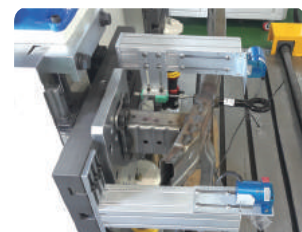
Bumper Beam Shipping and Tow Test System.

Shipping & Towing tester is designed for testing strength and durability of draft link.

This System can change left, right, up and down of impact position. Also, this system can apply to real car simulation test by using damper option. This system can check following parameter.

- Position Transducer : Displacement of Bumper
- Loadcell : Load test(Compress & Tensile)

Performance	
Max Test Load	5 Ton
Max Test Frequency	3 Hz
Actuator Displacement	Adjustable 150 ~ 200 mm



Low Speed Crash Facility

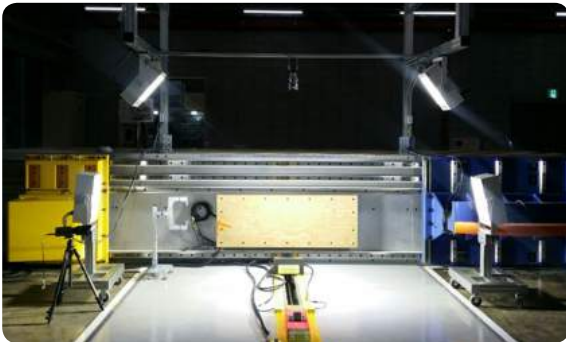
Low Speed Crash Facility can be used for various crash test simulation using Motor and Wire.

This system can be adjusted for test speed and rail length according to requirements of customers

This system can be tested for following test regulation.

- FMVSS Part 581
- CMVSS215
- ECE R42
- RCAR
- IIHS and other similar standards

Performance	
Max. Speed	30 Kph
Max. Specimen Load	3 Ton
Accuracy	+/- 1% of Input Speed



Air Craft Landing Gear Test System

Landing Gear tester is specially designed for testing strength and load of air craft landing gear.

Pressure and flow rate can be adjustable for various type of similar application. This system can check following parameter.

- Pressure(High, middle and low) : Leak test of landing gear
- Flow rate : Speed and load control

Performance	
Max Test Load	50 Ton
Max Actuator Displacement	800 mm
Test Pressure	Adjustable 0.05 ~ 37 Mpa
Test Flow	Adjustable 0 ~ 30 L



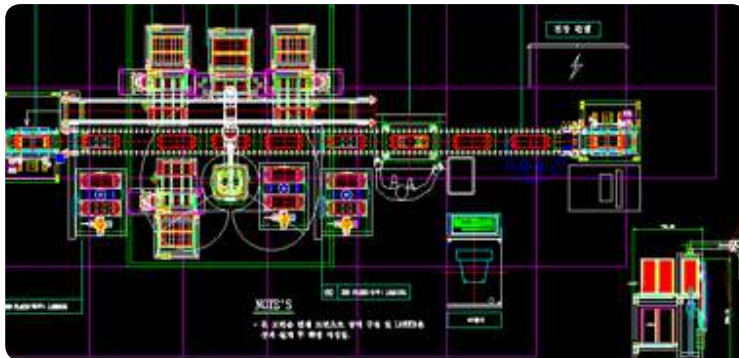
Fuel Cell Test Station.

■ ■ ■ for Fuel Cell Test Station for production

A&G provide the test station required to test and manufacture products for the new renewable energy application including

- PEMFC (available with multi-channel fuel cell test)
- PAFC (referenced up to 400 kW)
- Fuel cell engine test application.
- Stack tilting simulation system
- Automation & Software integrated
- Test plant utility & Facility safety system
- Fuel cell stacking system (stacking & press)
- Fuel cell stack leak test system
- Cell voltage monitoring system (available with portable CVM system)

In order to enhance the quality and technology, we design mechanical, electrical, and software systems by ourselves in house.



■ ■ ■ For Robotic Automation

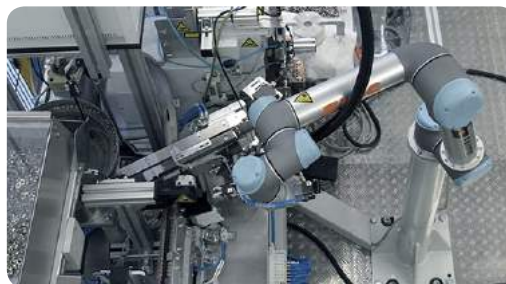
A&G provide the total solution of robot integration service and factory automation. By using collaborative robot, we can provide the improvement of existing production line and new automation including

- Turn-key product assembly line including MES
- Loading & unloading system
- Inspection system
- End effector
- 2D & 3D Vision system
- Robot welding system
- Robot screw driving system
- Robot application & function development
- Safety system (up to Category 4)
- Smart Factory (Industry 4.0)

The collaborative robot is able to configure the automation system without traditional fence.

Now you can replace human operators in dirty, dangerous, and dull jobs to reduce repetitive strain and accidental injuries

In order to enhance the quality and technology, we design mechanical, electrical, and software systems by ourselves in house.





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