

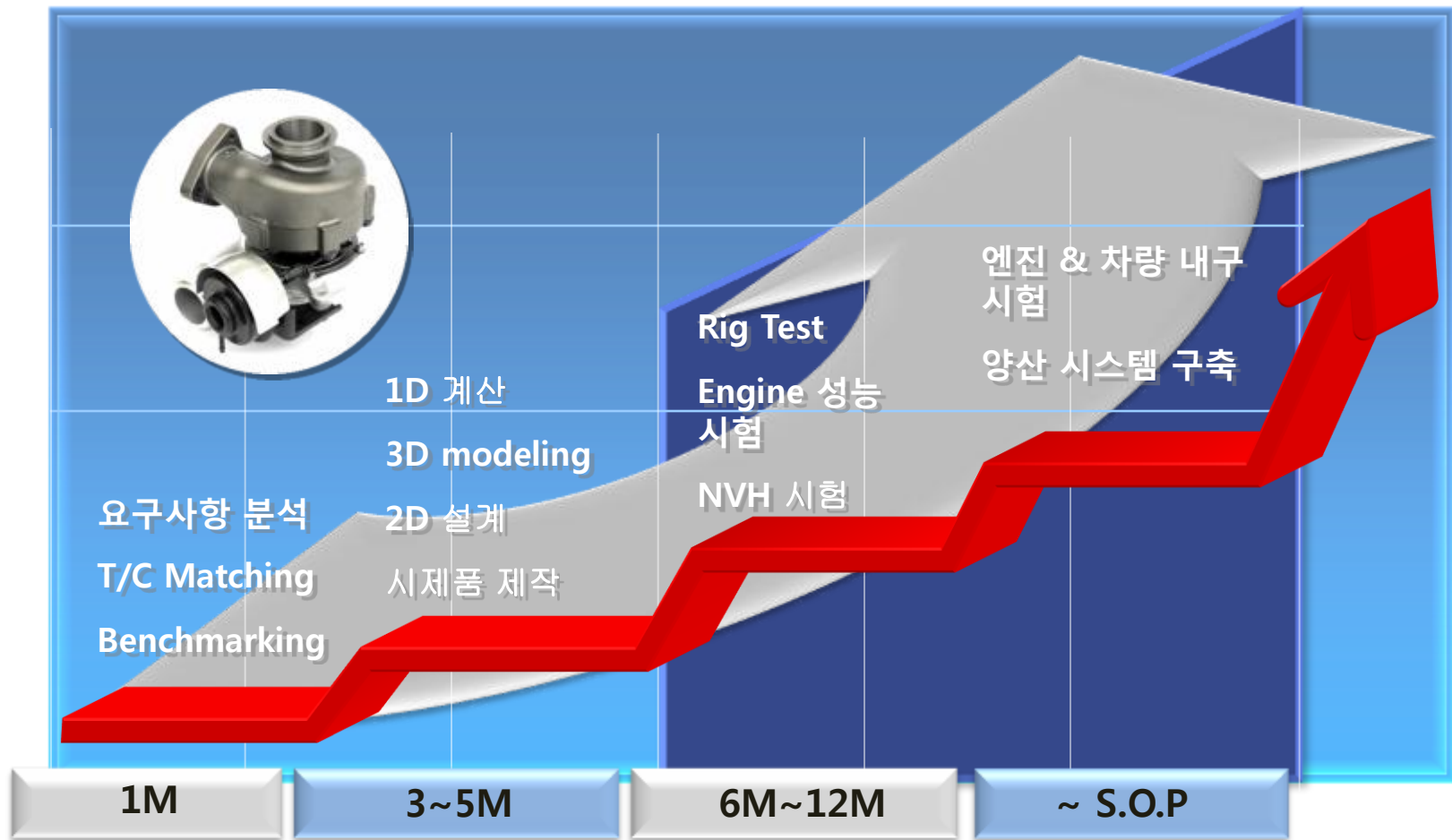


연구개발 현황

R&D Status

R&D Process

R & D Process > Standard term of Dev. step

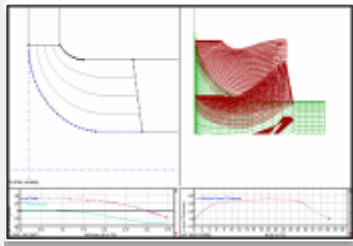
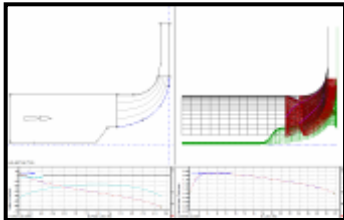


3D Modeling and simulation

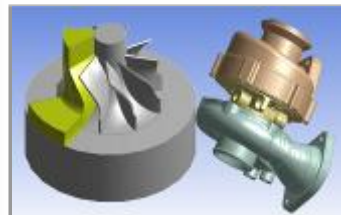
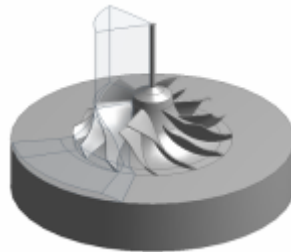
R & D Process > 3D Modeling and Simulation

3D model & 해석

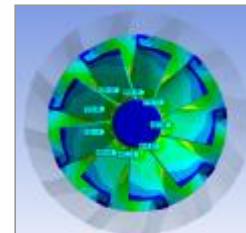
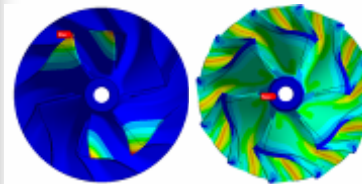
Compressor Wheel
Quasi-3D Modeling
(Blade Gen)



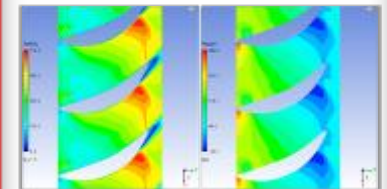
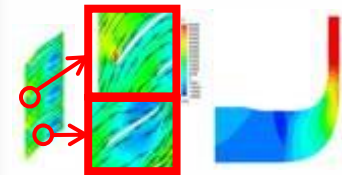
C/Wheel 3D Modeling



Modal & 원심응력 해석



성능 / 유동 해석



Proto- sample preparation

R & D Process > sample preparation

Wheel 가공 제작 - 5축 가공기

1st machining



5-axis machining

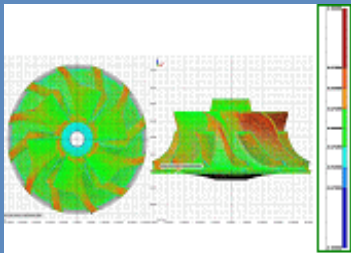


Full Machined
Compressor Wheel



3D 측정 / 역설계 / 성능 측정시험

3D scanning and inspection





◀ Turbocharger 성능 측정

- Compressor Map, Turbine Map

◀ Turbocharger assembly 와 구성품 내구 평가

- Low Cycle Fatigue, Over Speed

- Bearing 소착시험, 저유압 시험, Shaft motion, 무급유 내구 시험, 유량 측정

- 열충격 시험



▲ GAS Bench



▲ T/C 성능시험, 내구시험



▲ 구성품 내구, 파괴시험

좌 : Compressor wheel

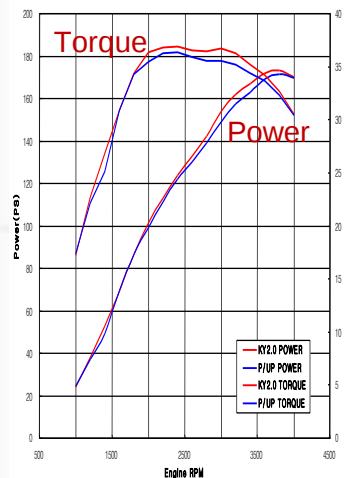
우 : Turbine wheel



- ◀ 엔진 상태 성능 측정
 - 저속 Torque, 고속 출력, 연비 등 엔진 기본 성능
- ◀ 엔진 장착 상태의 터보차저 내구성 평가
 - 엔진 상태의 진동, 열충격 조건에서의 터보차저 성능 및 내구성 평가
 - 구성 부품의 내구성, 터빈 하우징의 Crack, 열변형 평가



▲ Engine Dyno.



▲ Performance test



▲ Wheel damages



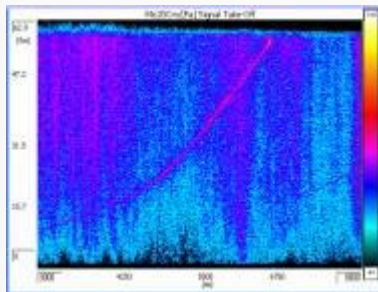
▲ Checking wear

N.V.H 평가 (내용, 실차 부문)

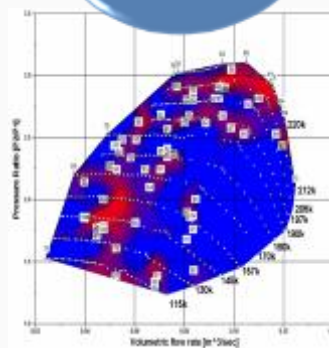
R & D Process > N.V.H Test



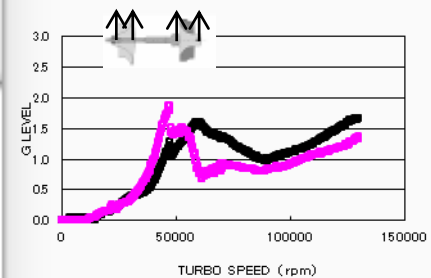
- ◀ 무향실, 가스벤치, 엔진, 차량 상태에서의
소음평가
 - 터보차저 소음의 원인 분석
 - 개발 초기에 소음 수준의 분석,
개선 활동을 통한 조기 소음 안정성 확보



▲ Noise measurement



▲ NOISE MAP



▲ Whine mode analysis



연구소 설비

R&D Facilities

시작실 구성

01. Cartridge 조립 Line
& G-balance bench



02. Turbocharger 조립 Line
& NVH 측정 & ACT setting



03. 시작 가공실 (5축가공 외)



04. Gas Bench Tester



05. 무향실



06. Laser CMM (3차원 측정)



07. 5축 가공기



08. Engine Dynamometer



09. Burst Tester



10. Engine Idle Tester



11. Vibrator (가진기)



THANK YOU

We Set New Standards of Excellence.

