Research and development of SCR technology using middle speed engine

JAPAN

Objective & Outline

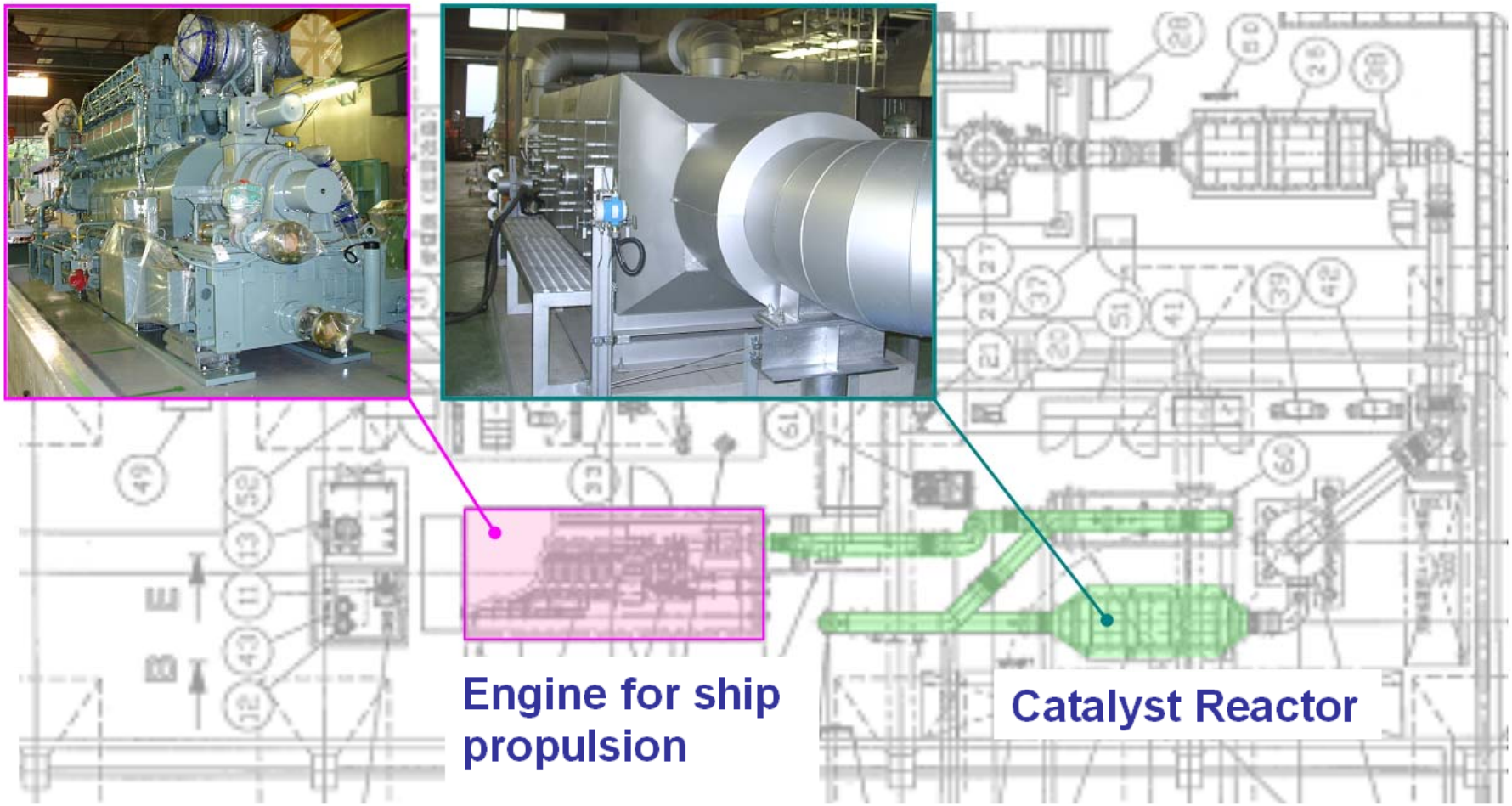
- Problem to be solved
  - Heavy Fuel
  - Compact of Catalyst
  - Low exhaust temperature
  - Acid ammonium sulfate
  - The damage to a catalyst

The research and development for solving these problems were carried out.

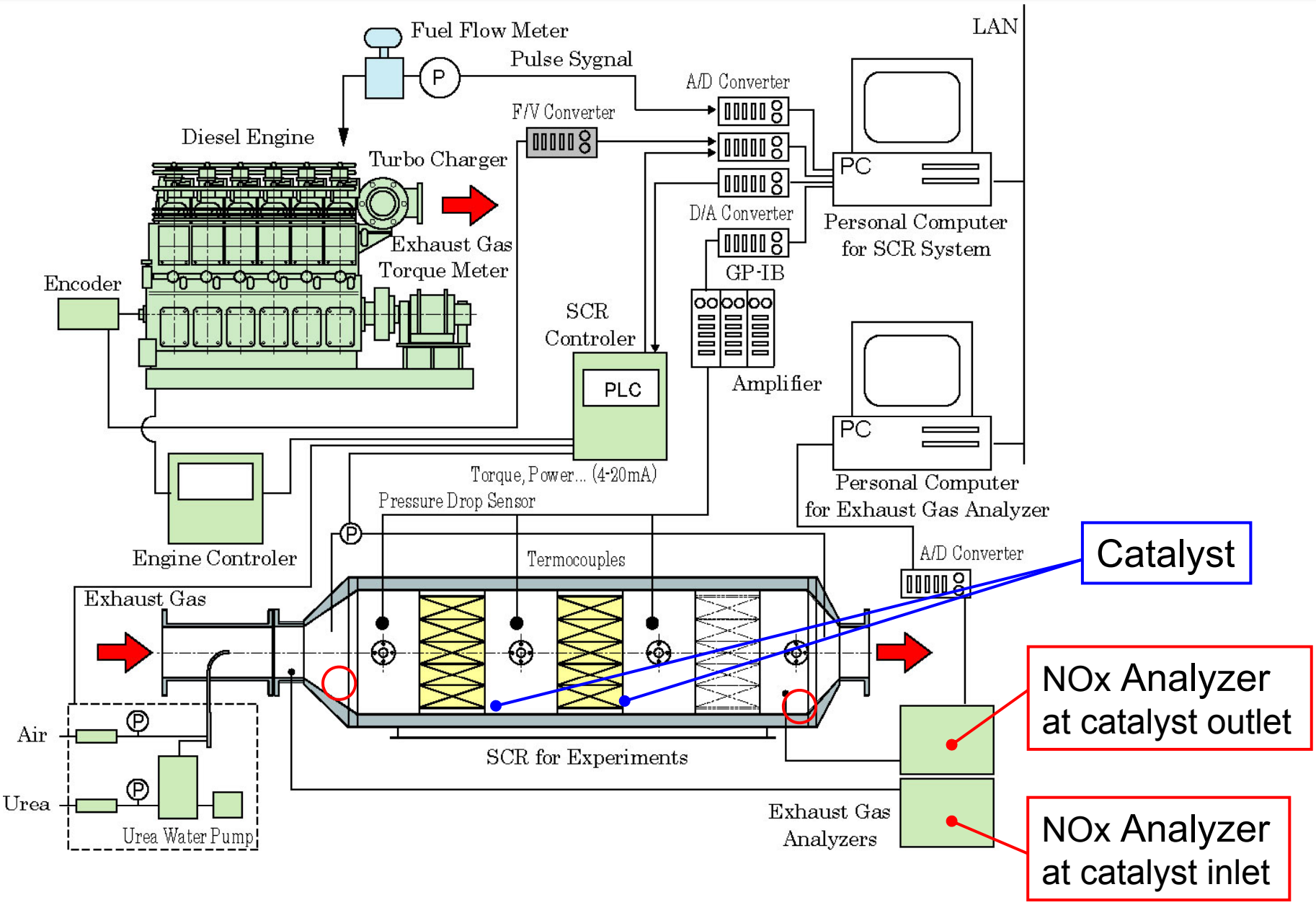
Participant of this project

- Niigata Power Systems Co., Ltd.
- DAIHATSU DIESEL MFG.Co., Ltd
- Mitsui Engineering & Shipbuilding Co., Ltd
- National Maritime Research Institute

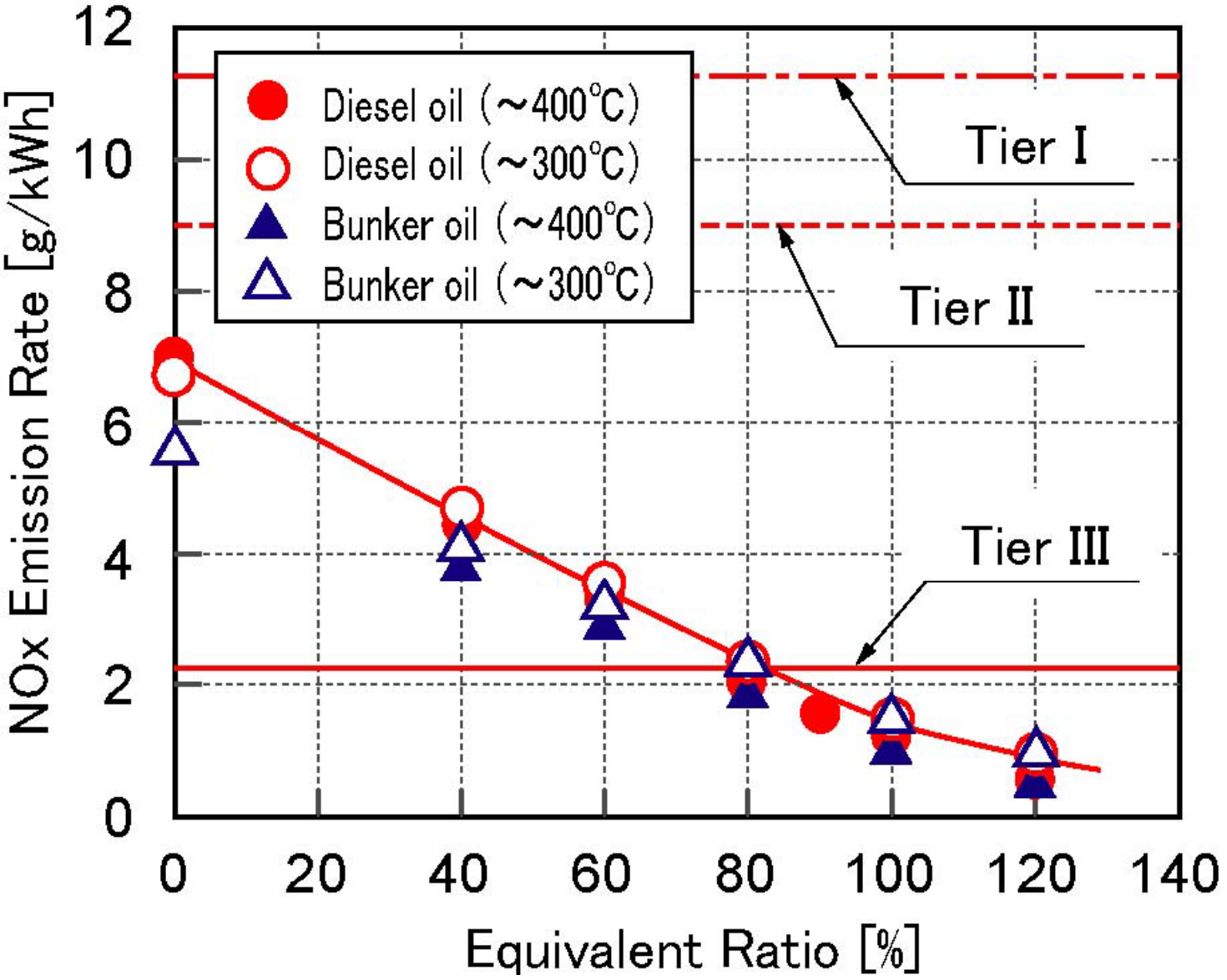
Layout of Test-bench



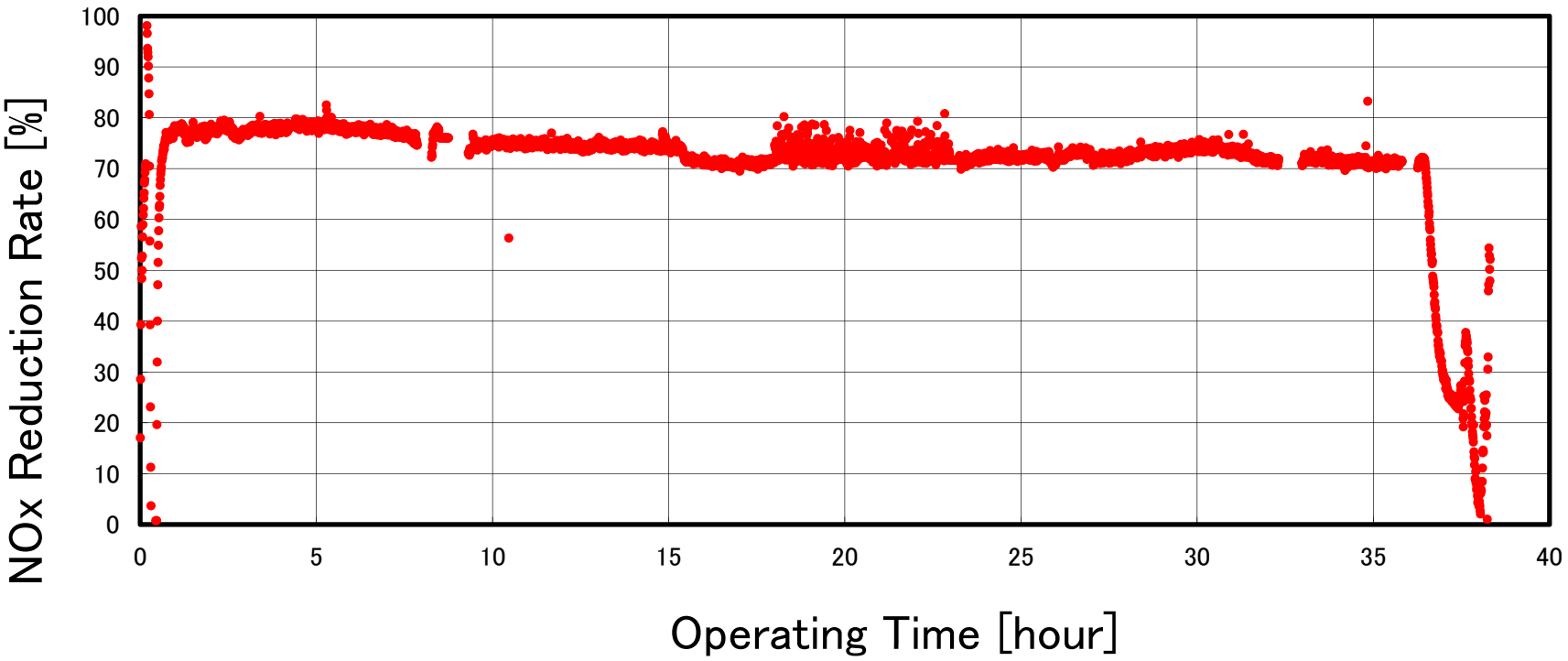
Layout of Catalyst and NOx Measuring point



SCR Performance



Experiment time



This figure showed it is history of NOx reduction rate at 36 hours SCR operation.

SV：12000h^{-1}

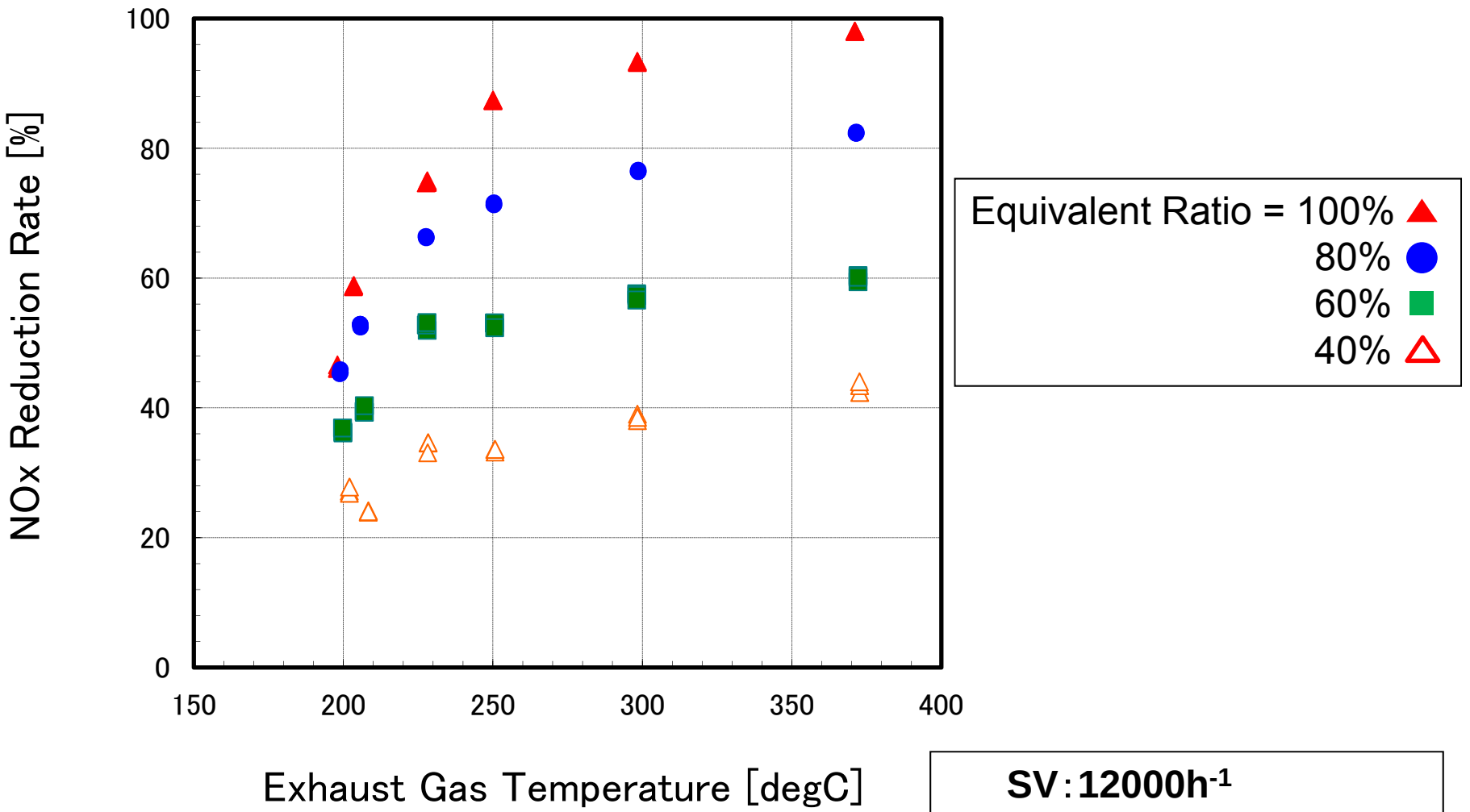
Load: 75% (570kW / 910rpm)

Exhaust gas temperature: 250℃

S content of fuel: 2.5%

Equivalent ratio: 80%

History of operation and SCR performance



SV：12000h^{-1}
Load:75%
S content of fuel:2.5%

Evaluation of SV

- Medium Speed Diesel Engine
- Reducing Agent: Urea
- Exhaust temp. at catalyst reactor inlet:410 degC

$SV \leq 13000h^{-1}$

According to test bed SCR test results, SV $13000h^{-1}$ comply with reducing rate of NOx more than 80%