

WinGD Korea Training Centre

Training Programme Catalogue

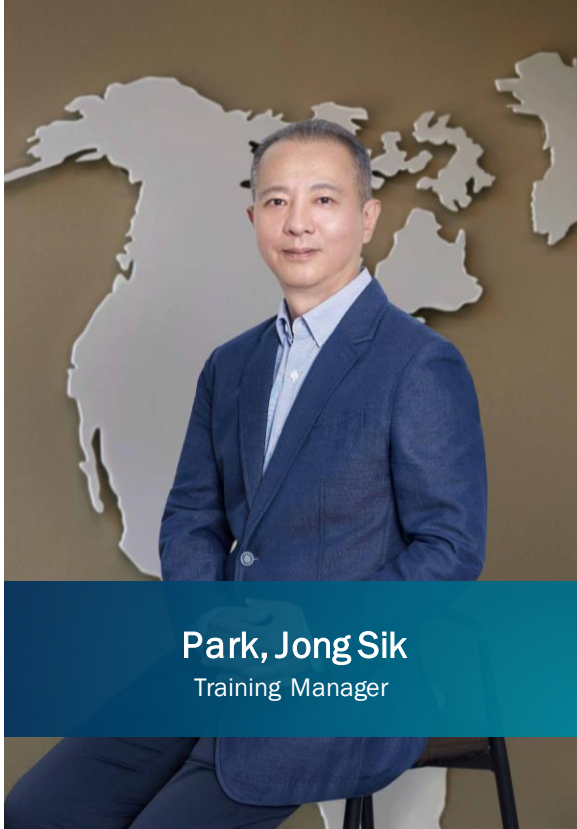
WIN GD

WinGD Korea Training Centre

- Content

1	WinGD Korea Instructors
2	WinGD KR Location
3	Local arrangements
4	Available Courses
5	Training Facilities
6	
7	
8	

WinGD Korea Instructors



Park, Jong Sik
Training Manager

Education / Experience

- Graduated Korea Maritime University
Major: Marine engineering
- 7 years experience of Ship's Engineer at Hyundai Merchant Marine Co.
- 3 years experience of Manufacturing / Assembling Supervision Engineer of WinGD 2-Stroke Engines at Site office in Korean Licensees
- 10 years experience of Instructor at Wärtsilä Training Centre
- At the present, Manager at WinGD Training Centre

Certificates

- IMO Model Course 6.09 (Train the Trainer)
- IMO Model Course 3.12 (Maritime Assessor Course / STCW 95)

WinGD Korea Instructors



Education / Experience

- Graduated Mokpo Maritime University
Major: Marine engineering
Studied electrical engineering
- 4 years of ship engineer in HMM
- Worked as field service engineer in commissioning department
- 9 years of Wärtsilä 2-stroke engine training service as a trainer
- Currently working as trainer in WinGD training centre

Certificates

- IMO Model Course 6.09 (Train the Trainer)
- IMO Model Course 3.12 (Maritime Assessor Course / STCW 95)

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WinGD Korea Location

Address and Contact Information

- Address: 2 Floor, 8, Bagyeongjun-gil, Ilgwang-myeon, Gijang-gun, Busan, 46040, Korea
- Contact: + 82 51 320 9824 / jiyoung.kim_external@wingd.com (Jiyoung Kim, Training coordinator)



WinGD Korea Location

Connectivity – Major shipyards & Engine builders

WinGD Korea is located at eastern of Busan.

It is within 1 hours distance by car from HHI & HSD and 2 hours distance by car from SHI & Hanwha Ocean.

QR code links to view google map for WinGD Korea location.



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Local Arrangement

Centum Premier Hotel

- Address: 1521,U-Dong, Haeundae-Gu, Busan, Korea / 부산시 해운대구 우동 1521
- Contact: +82-51-755-9000



- Hotel is located in downtown where is around 30 minutes away from WinGD Training Centre.
 - Room rate: 110,000 KRW (Included breakfast and daily commuting service from/to Training Centre)
 - Daily commuting service is provided free of charge if more than 4 trainees book. In case of less 4 trainees, additional cost will be charged to the room rate and the additional cost depends on the number of trainees.
- ❖ Note: This benefit is provided only under the condition of pre-payment by WinGD.

Local Arrangement

Transportation



- If you request, we can arrange transportation from your location to your destination (ex. Airport, Hotel, Mokpo, Geoje, Ulsan etc..)
- The cost depends on the distance and the number of people.
- The vehicle is always cleaned and disinfected before & after transfer to avoid COVID-19.

❖ Note: This benefit is provided only under the condition of pre-payment by WinGD.

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Available Courses

Engine Training Courses

	Theoretical Course 3-Day, Classroom Lecture	Advanced Course 5-Day Classroom Lecture, Hands-on & Simulation
WECS-9520 Controlled RT-flex48/50/58/68, X82 & X92	Theoretical Course WECS-9520 Controlled Engines	Operation Advanced Course WECS-9520 Controlled Engines
UNIC Diesel Controlled X35, X40, X52, X62 & X72	Theoretical Course UNIC Diesel Controlled Engines	Operation Advanced Course UNIC Diesel Controlled Engines
UNIC DF Controlled RT-flex50DF, X52DF, X62DF & X72DF	Theoretical Course UNIC-DF Controlled Engines	Operation Advanced Course UNIC-DF Controlled Engines
WiCE X Controlled X52-S2.0, X62-S2.0, X72-B, X82-2.0, X92-B	Theoretical Course WiCE Diesel Controlled Engines	Operation Advanced Course WiCE Diesel Controlled Engines
WiCE DF Controlled X40DF-1.0 X52DF-1.1 / X52DF-2.1 / X52DF-S1.0 / X52XDF-S2.0 X62DF-1.1 / X62DF- 2.1 / X62DF-S1.0 / X62DF-S2.0, X72DF-1.1 / X72DF-2.1 / X52DF-1.2 / X52DF-2.2 X82DF-1.0 / X82DF-2.0 / X92DF / X92DF-2.0	Theoretical Course WiCE-DF Controlled Engines	Operation Advanced Course WiCE-DF Controlled Engines

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Training Facilities

Training Classroom “Otto”



Training Facilities

Training Classroom “Diesel”



Training Facilities

Trainees' lounge



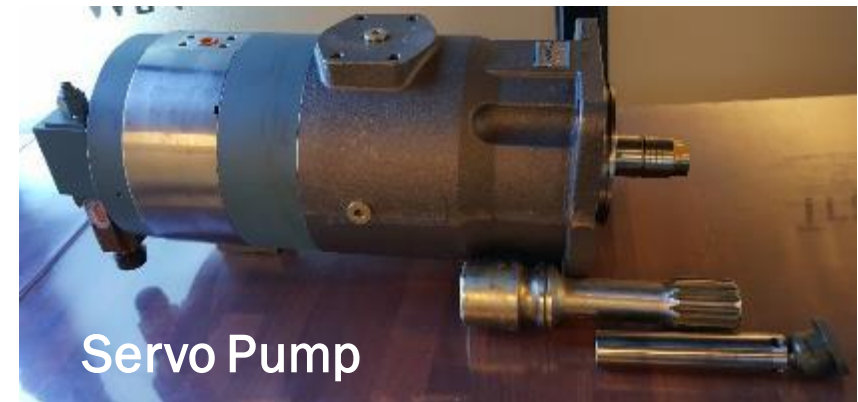
Training Facilities

Training Workshop Overview



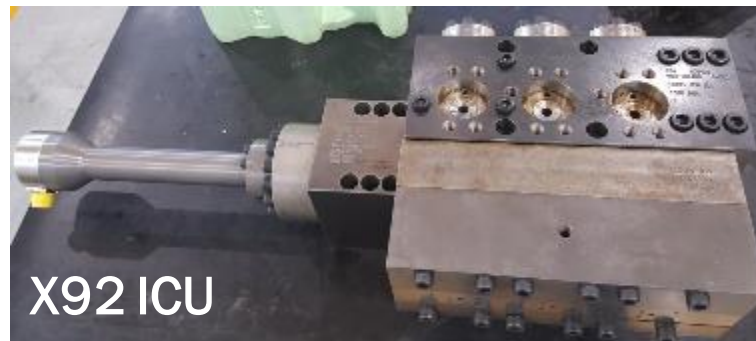
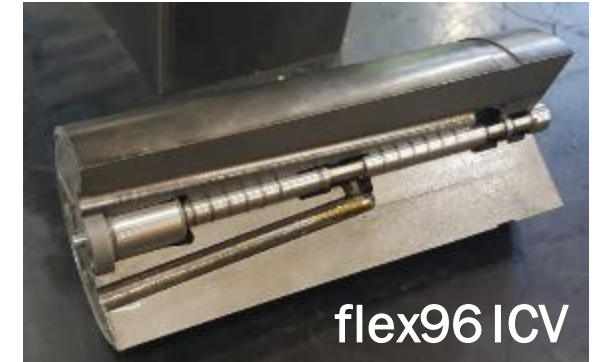
Training Facilities

Flex Components, Supply Unit



Training Facilities

Flex Components, Rail Unit



Training Facilities

Cylinder Lubrication System, flexLube Mk-1 with iCAT, flexLube Mk-ε and CLU-5



Training Facilities

X62/72DF Main Fuel Injector with Tester and Pilot Fuel Injector with Pre-chamber



Training Facilities

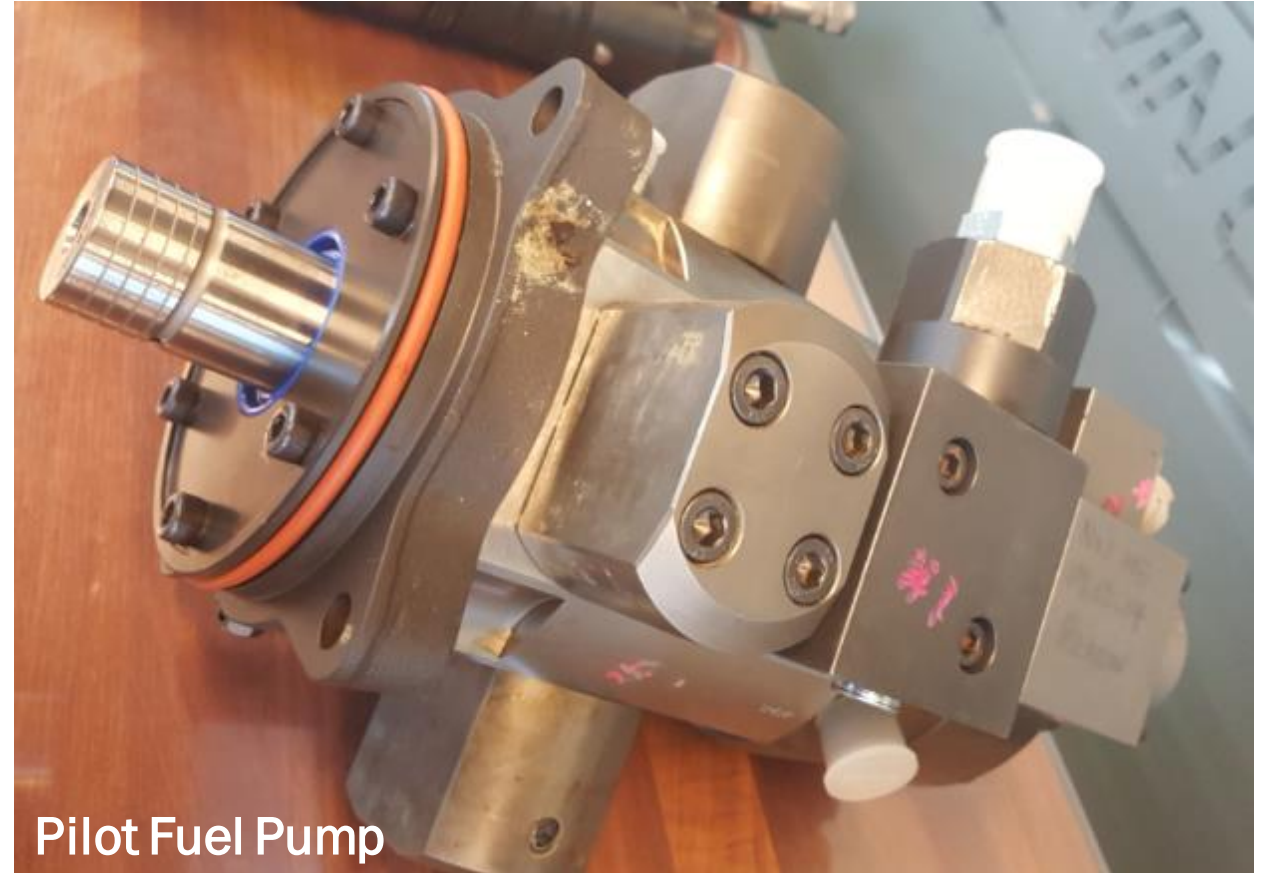
X-DF Gas Admission Valves & Pilot Fuel Pump



X62/72DF GAV



flex50DF GAV



Pilot Fuel Pump

Training Facilities

Start Air Valve, Pressure Control Valve & Safety Valve and EXV Upper Housing



Start Air Valve



PCV & Safety Valve



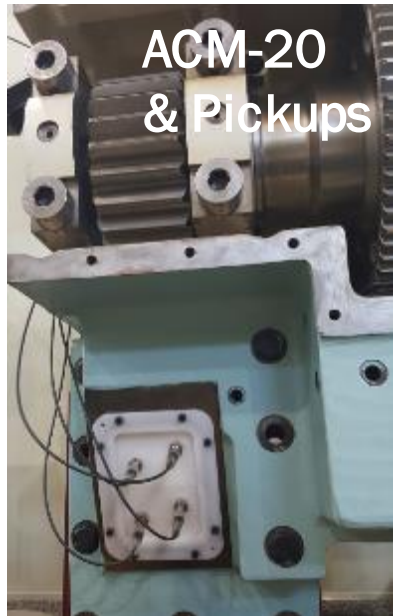
EXV Up. Housing

Training Facilities

WECS-9520 ECS Components & Sensors



ALM-20 & FCM-20



ACM-20
& Pickups



Encoder CAS



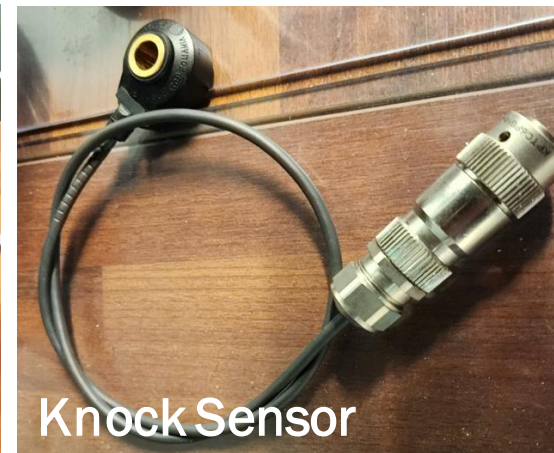
RVs & ICU FQS



Kistler Press Sensor



ABB Press Sensor



Knock Sensor



EXV Stroke Sensor

WiCE Modular Simulator

E26



WinGD Korea Training Centre

UNIC & WiCE Simulator

Simulator Training Objective

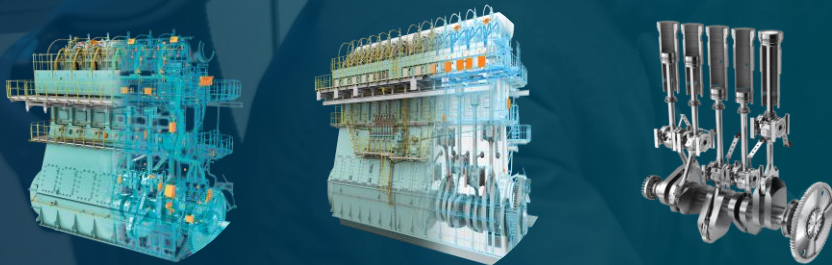
The main purpose of these simulators is operational training for the Crew and technical management of the Ship-owners. Simulator training helps trainees learn engine performance and optimization of troubleshooting items. With a deeper understanding of the product and its applied technologies, engine operators will be able to enhance the performance of the engine by increasing its efficiency and reliability, by reducing maintenance costs, and lowering emission levels.

W-Xpert Full Mission Engine Room Simulator(FMS)

Trainees will have a better understanding of the structure and principle of key engine components through 3D graphical specific components display on touch screens. Trainer will guide participants through operational aspects of main engines as well as demonstrate certain troubleshooting outline.

Available engine type

- 5 ~8 cylinder for UNIC X or X-DF engines
- Up to 12 cylinder for WiCE X or X-DF engines



Modular Simulator

- UNIC Modular Simulators for UNIC X or X-DF engines
- WiCE Modular Simulator for WiCE X or X-DF engines

The modular simulators were developed in order to optimize training outcome. This simulators were built-up with actual UNIC and WiCE electronic hard-wares as well as standard internal wiring connection. Which means that those simulators physical lay-out would be almost same as actual engine control system, UNIC and WiCE. Therefore, training participants can fully understand our ECS lay-out and internal functionalities.

Furthermore, trainees are able to understand better engine manual operation and trouble shooting through monitoring engine parameters by means of user interface panel. (LDU for UNIC, MCP and flexView2 monitoring system for WiCE)

Finally, by exercising actual module replacement, trainees are able to understand how to replace modules and how to process “Auto-downloading” into the new module and by fault simulation of sensors or signals, they also be capable of analysing it’s display , consequently trouble shooting as well.



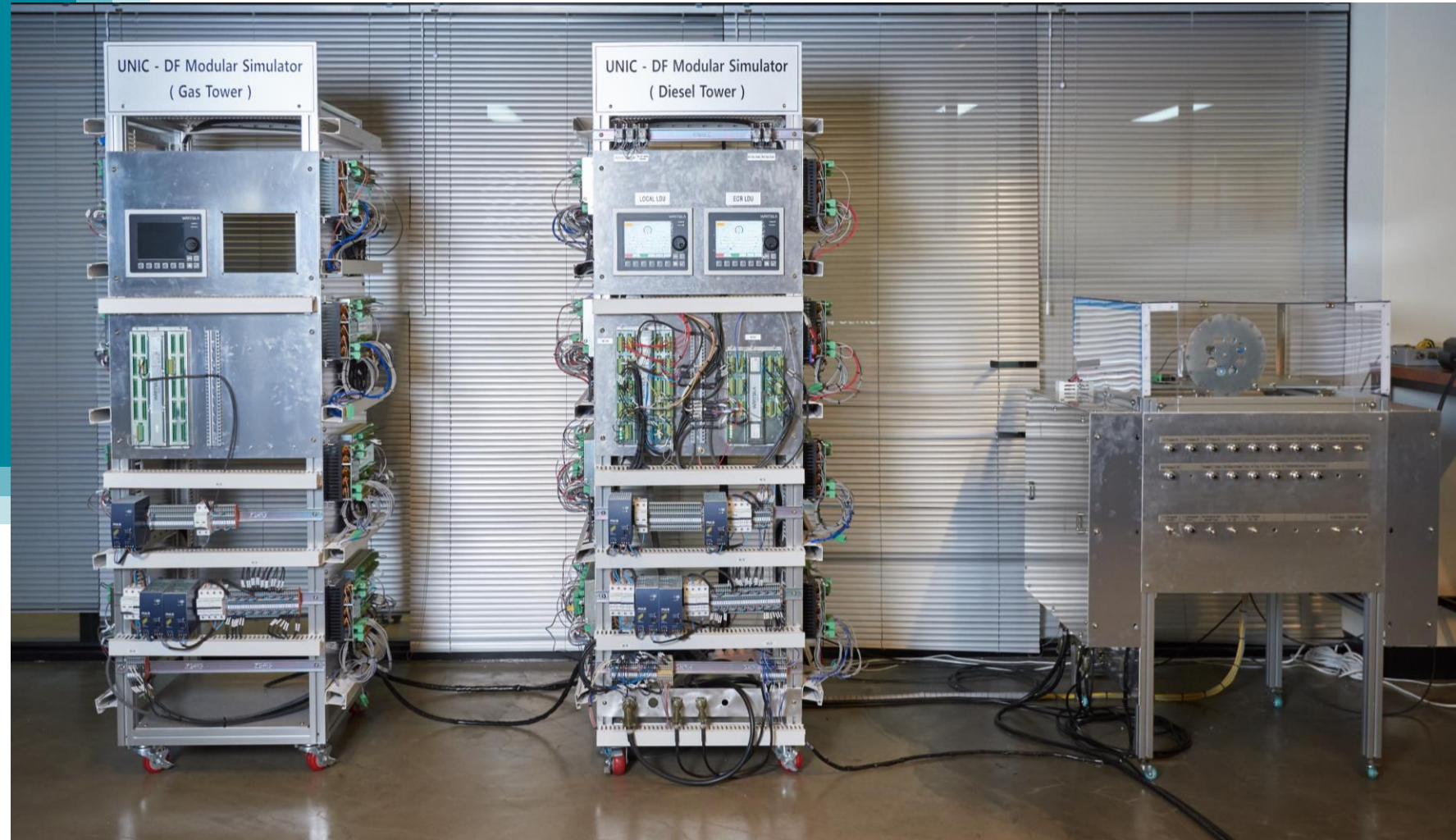
Sunwoo Kang (Sunny)
Global Training development Manager, Automation and Control



UNIC Modular Simulator

Overview

- ❑ Gas Tower (Up to 8 cylinders)
- ❑ Diesel Tower (Up to 8 cylinders)
- ❑ Shaft Simulator



Interface of UNIC Simulator

**Gas Tower
(Up to 8 cylinders)**



CA signal
(A, B, C, D TDC and BDC)



CAN S Bus #1 & #2



**Diesel Tower
(Up to 8 cylinders)**



CA signal
(A, B, C, D TDC and BDC)



Analogue, TC, Digital signal
feedback to UNIC(F.O, S.O,
Scav', Pilot, Gas Pressure,
Scav, Temp, T.G position, etc.)



Shaft Simulator

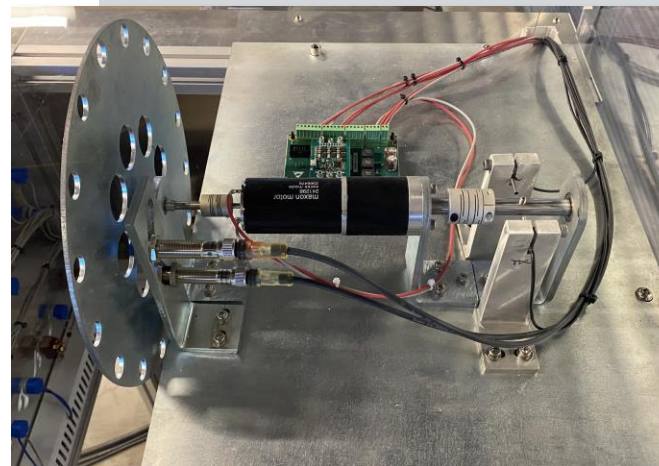


UNIC Simulator

Shaft Simulator



The simulator's engine shaft driven by DC motor. The shaft speed is controlled by UNIC according to the setting on LDUs by Operator. Two Gear wheel pick-up and TDC pick-up installed on the shaft simulator's wheel can give position and speed feedback to UNIC like actual engines.



Available functions through LDUs

- Engine Start Ahead
- Engine Start Astern
- Engine Stop
- Diesel mode and Gas mode
- Air Run
- Speed control



Analogue, Digital feedback to UNIC

Any analogue(4-20 mA) or digital signals' feedback to UNIC designed by means of potentiometers and toggle switches.

UNIC Simulator

Designed by LED connection

WIN GD

Diesel CCMs DRV Output Connection



- One FlexLub pump
- One VCU
- 3 Fuel Injectors

Gas CCMs DRV Output Connection



- 2 GAVs
- 2 Pilot fuel injectors

WiCE Modular Simulator

Overview

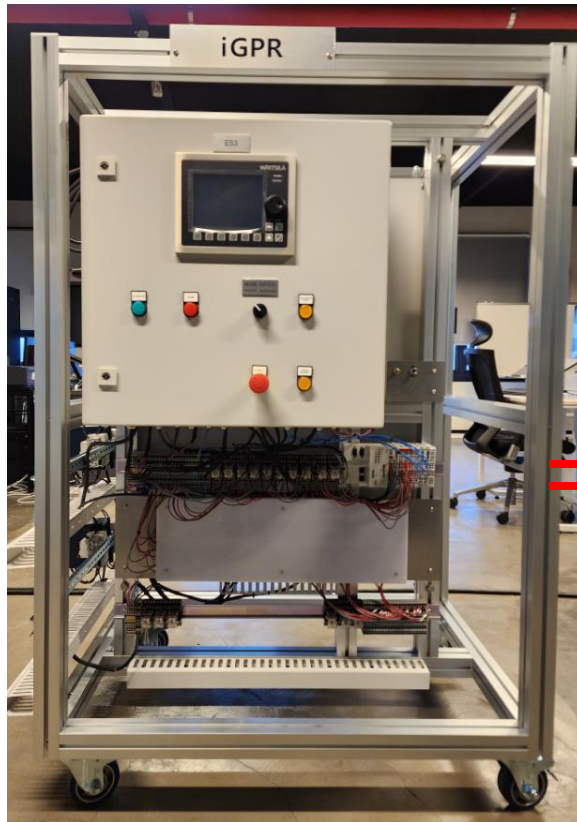
- ❑ Simulator HMI
- ❑ PLC modules
- ❑ Two WiCE module towers
(Up to 12 cylinder X or X-DF engines)
- ❑ Flex view 2 Engine Monitoring
- ❑ Shaft Simulator



WinGD Korea WiCE Modular Simulator

XDF-2.0 with iCER & iGPR

Two WiCE module towers

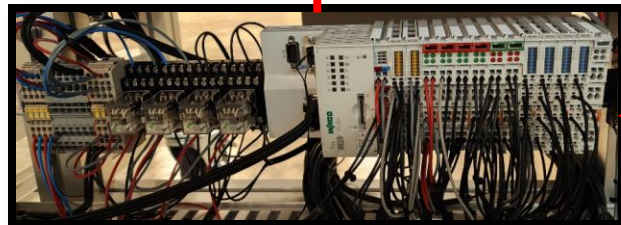
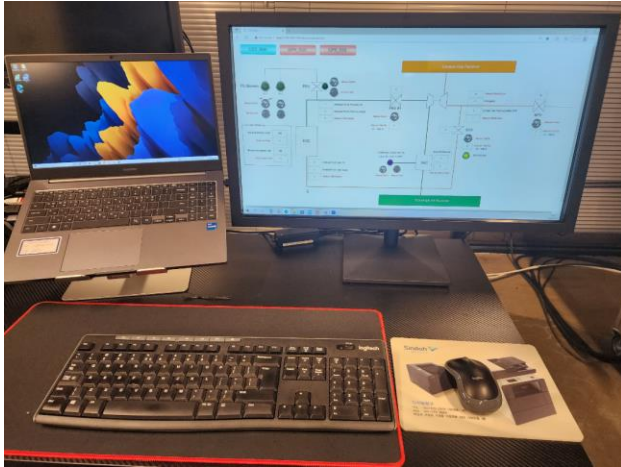


WinGD Korea WiCE Modular Simulator

XDF-2.0 with iCER & iGPR

WIN GD

Two WiCE module towers

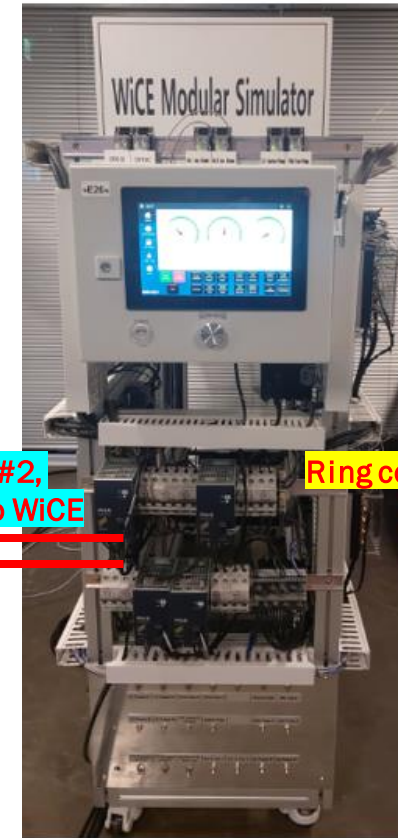


PLC Simulator including HMI

All feedback signals' input & Output controlled
EGC, WTS and Wetting system control and
feedback to i-CER CU (E74 box)



CAN Bus #1 & #2,
communication to WiCE



Ring communication

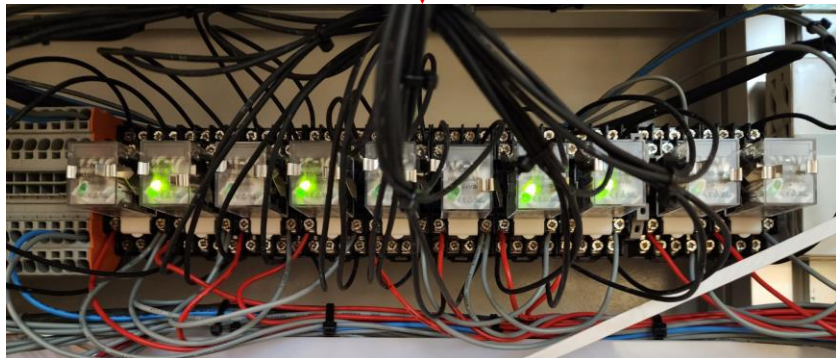


WinGD Korea WiCE Modular Simulator

iGPR Simulator lay-out

iGPR Simulator including HMI

- All iGPR Gas Valves' controlled by PLC together with relays.
- iGPR simulator HMI is available for fault simulation

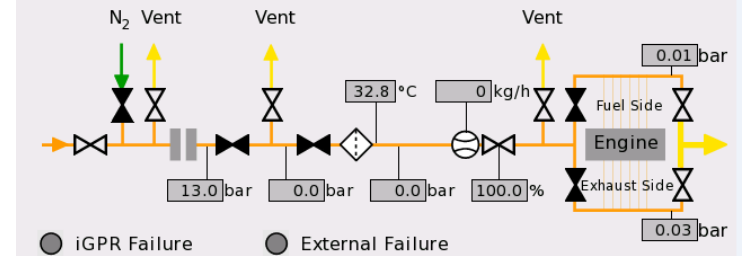


iGPR OVERVIEW

Enclosure Underpressure 131.0 mbar

Engine stopped

iGPR State - Degassing



Index Failure Ackn. Screenshot

16:30:22

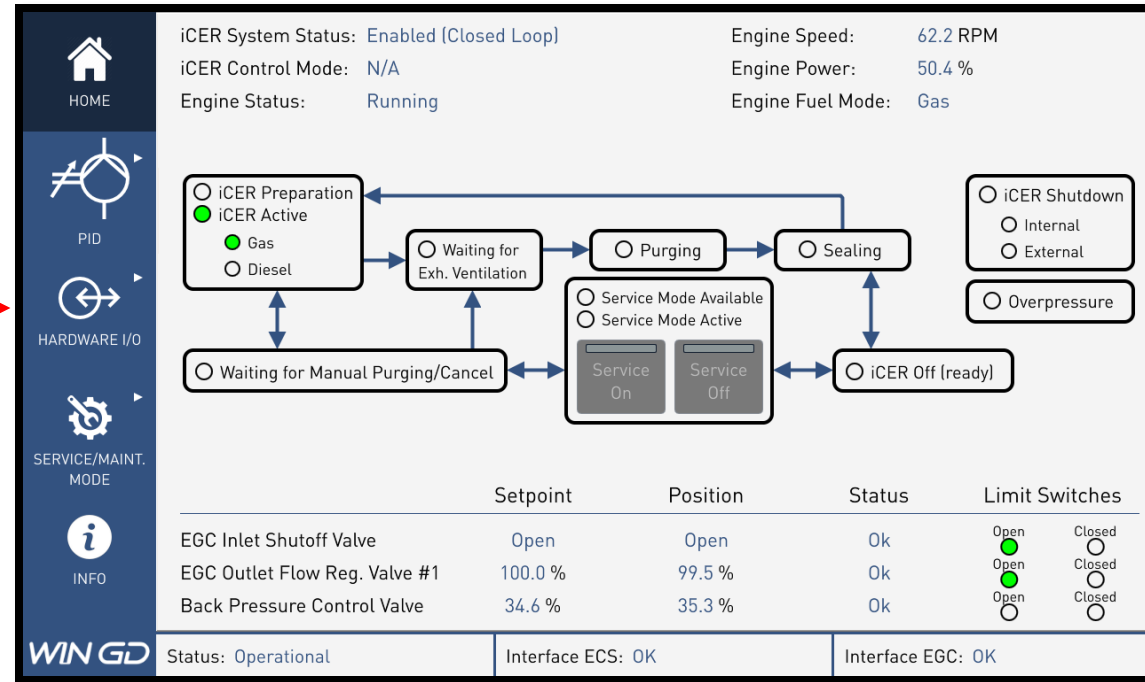
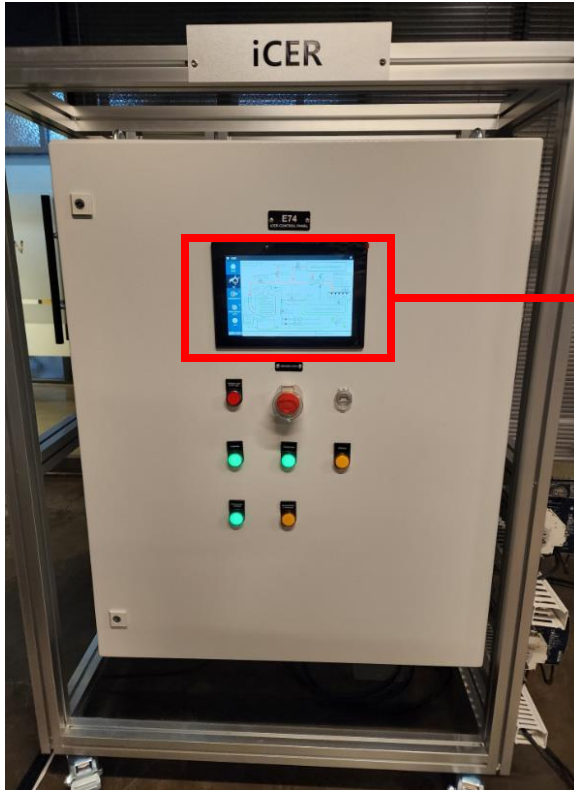
GAS MODE CONDITIONS

- iGPR in Operation Mode
- Manual Degassing Inactive
- Gas Trip from External System Inactive
- Emergency Degassing from ESS Inactive
- Engine Running
- Internal iGPR Gas Trip Inactive

Index Failure Ackn. Gas. Pr. Ctrl. Screenshot

WinGD Korea WiCE Modular Simulator

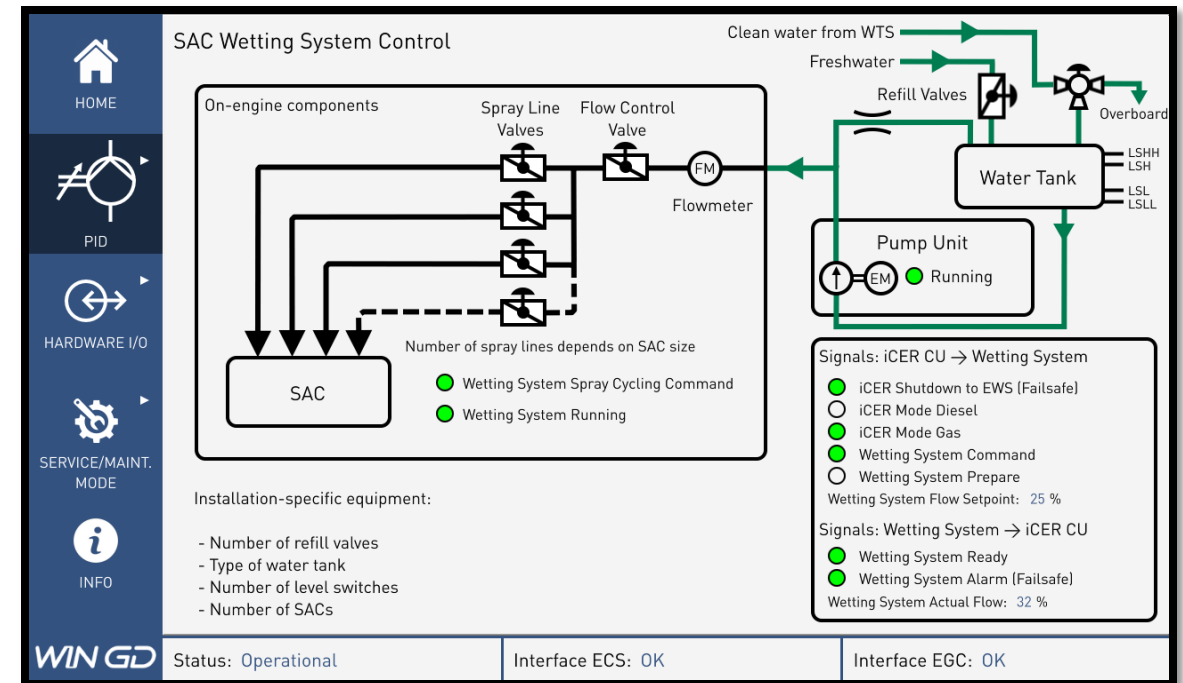
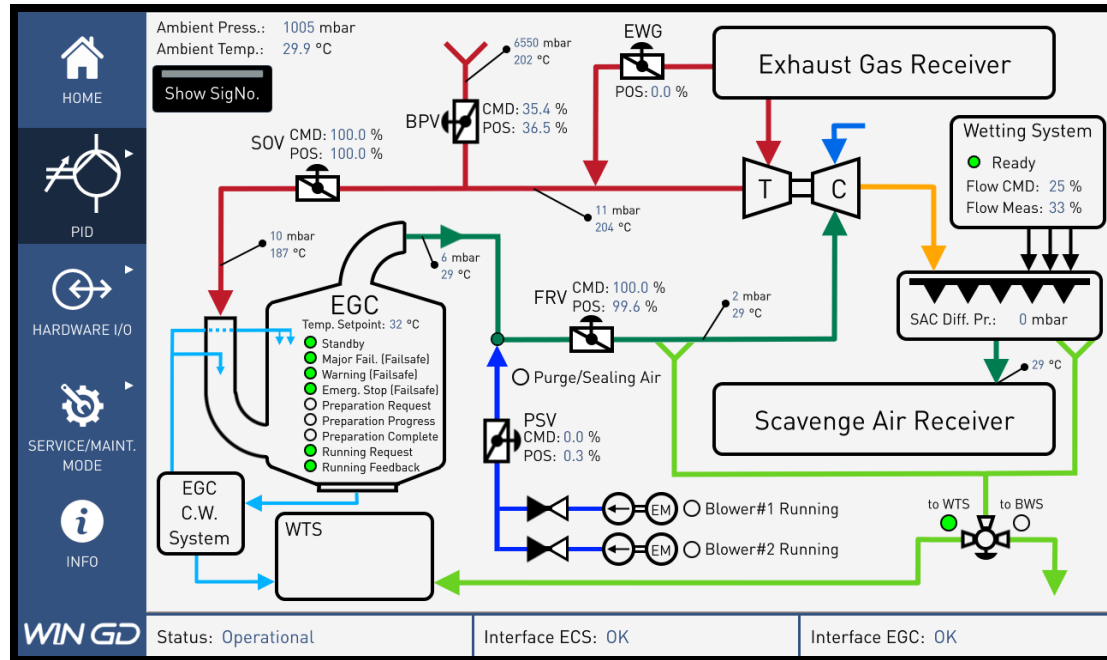
iCER MCP Display



By means of iCER modular simulator, operator or user can exercise or demonstrate the iCER operation on MCP. Furthermore, iCER running parameter or indication on MCP can help operator for the trouble shooting.

WinGD Korea WiCE Modular Simulator

iCER MCP Display



WinGD Korea WiCE Modular Simulator



iCER MCP Display

HOME

PID

HARDWARE I/O

SERVICE/MAINT. MODE

INFO

Service Mode: Not Active

	Setpoint	Position	Status	Limit Switches		
EGC Inlet Shutoff Valve	100.0 %	100.0 %	Ok	Open	Closed	SELECT
EGC Outlet Flow Regulating Valve #1	100.0 %	99.5 %	Ok	Open	Closed	SELECT
Back Pressure Control Valve	34.7 %	35.3 %	Ok	Open	Closed	SELECT
Purge/Sealing Air Control Valve	0.0 %	0.3 %	Ok	Open	Closed	SELECT

Status: Operational

Interface ECS: OK

Interface EGC: OK

HOME

PID

HARDWARE I/O

SERVICE/MAINT. MODE

INFO

Service Mode: Not Active

	Command	Feedback	Status	
Purging/Sealing Blower #1	Stop	Stopped	Ok	SELECT
Purging/Sealing Blower #2	Stop	Stopped	Ok	SELECT
Man. Purging/Sealing Status: Not Available				START STOP RESET

	Status	Limit Switches		
EGC Inlet Shutoff Valve	Ok	Open	Closed	OPEN CLOSE
Purge/Sealing Air Control Valve	Ok	Open	Closed	OPEN CLOSE

PT8740C	Exh. Gas Pressure before Shutoff Valve	8 mbar
PT8743C	Inlet Exh. Gas Pressure to Exh. Gas Cooler	5 mbar
PT8813C	Reduced Purge/Sealing Air Pressure	2 mbar

Status: Operational

Interface ECS: OK

Interface EGC: OK

WiCE Simulator

Interface

Ethernet

Simulator HMI



PLC modules



Two WiCE module towers



Flex view 2
Engine Monitoring



Shaft Simulator



WiCE Simulator

Hardware

WIN GD



2-GTU/3-MCU and 2-ACM



CCU modules
(Available up to 12 units)



ECR MCP



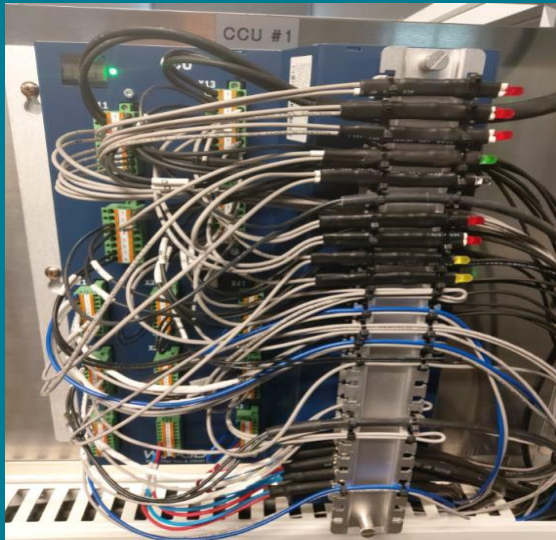
Local MCP



MCP

User's manual functions on MCP

- Aux. Blower Start/Stop by Relays
- S.O Service Pump, Pilot fuel pump Start/Stop by relay
- Main Starting Air Valve control valve by relays
- ICU venting
- Exhaust Valve manual testing
- Manual Cylinder Lubrication
- EWG manual testing
- GAV manual Testing(DF)
- Exhaust Venting (DF)



CCU

Cylinder Function by LED design

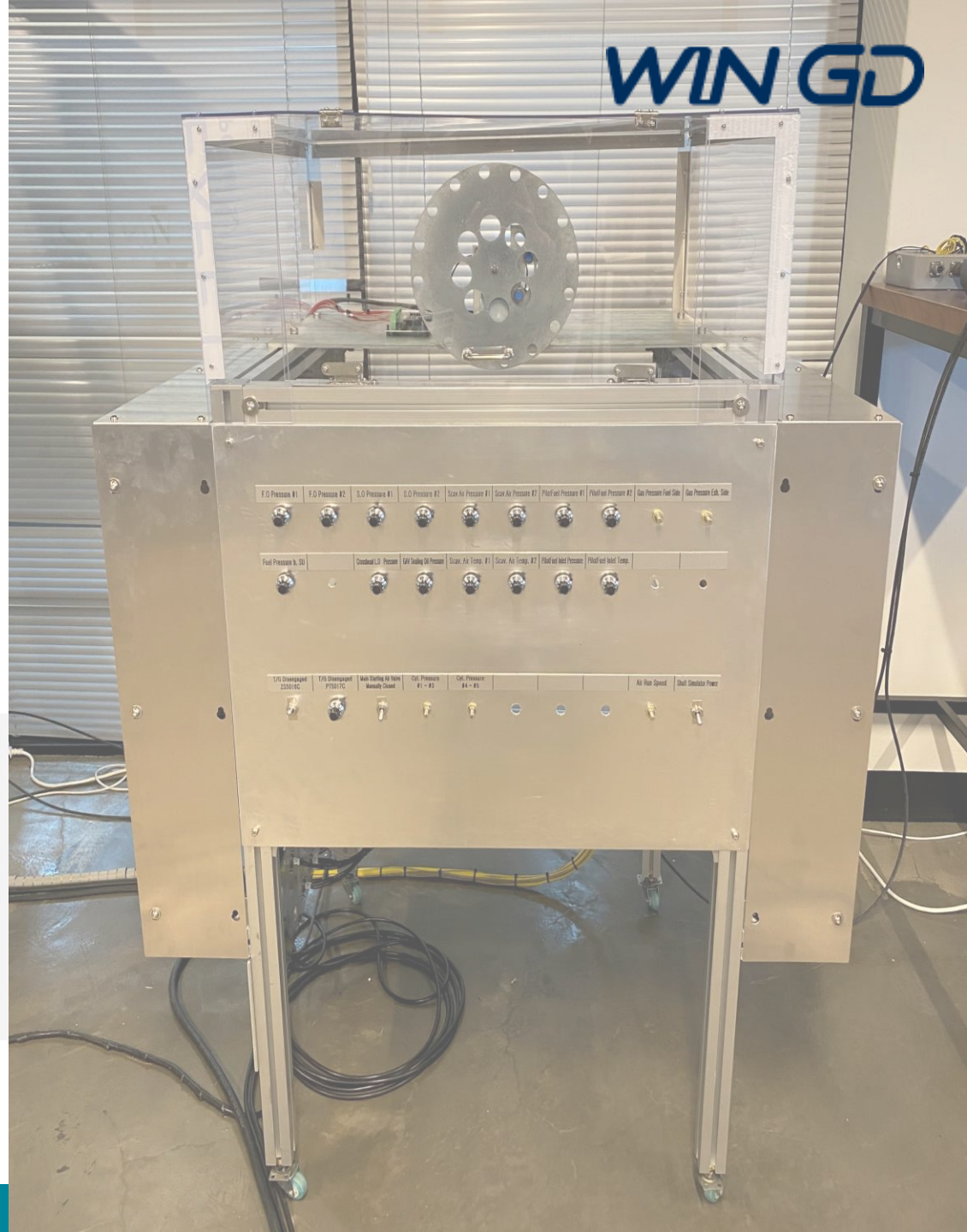
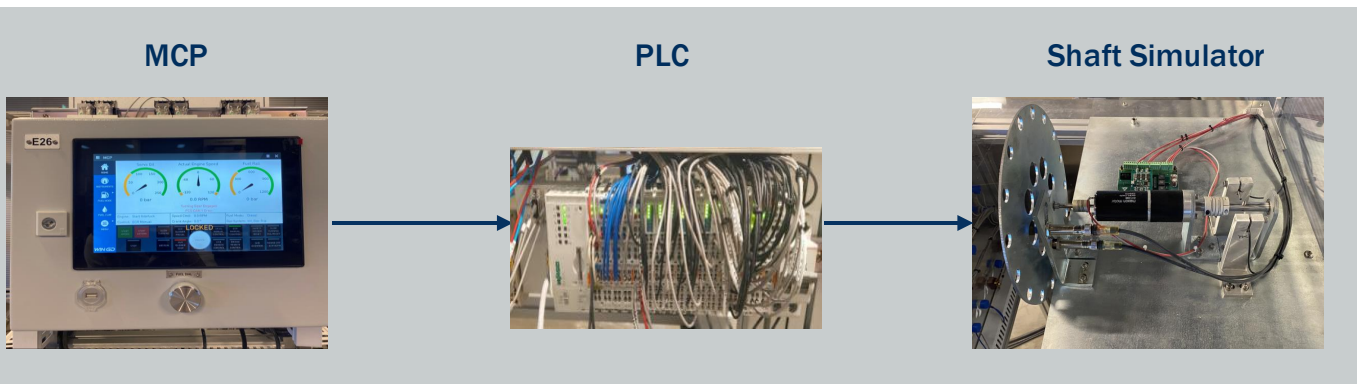
- 3 ICU rail valves(or L-orange injectors) by three Red LEDs
- One VCU rail valve by Green LEDs
- One flexLube pump CV by Blue LED
- 2 Pilot injector by Red LEDs
- 2 GAV rail valves by Yellow LEDs
- Some of cylinders with relay together in order to create some injection sound

WiCE Simulator

Shaft Simulator

Available functions on MCP via PLC

- Engine Start and Stop
- Speed Control
- Air Run
- Slow Turning
- Fuel Mode (Diesel mode and Gas mode)



Thank You

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