

## Vacuum Pump Training Program

### TYPICAL VACUUM TRAINING

Topic	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM
Overview of operations & safety					
Pump operation theory, structure, function					
Walk through of building facilities					
Introduction of Edwards pumps					
Introduction of Ebara Pumps					
Facilities Requirement					
Introduction to final test procedures					
Gas control setups (gas ballast)					
Basic setup procedures					
Installation & removal procedures					
Comparison: Q vs. IQ series pumps					
Introduction of M series					
Setup & introduction to PM procedures					
Leak checking procedures					
Pump volume testing procedures					
Advance set up (Q & IQ series)					
Setup for light, medium, & harsh process					
PM procedures for dry pump & blower					
Trouble shooting Q & IQ series					
Pump monitoring software overview					
Conclusion & review					

### SAMPLE PROGRAM MODULE

**1 Electronics Module**  
Provides the electrical supplies to the IQDP and QMB. Motor power and current sensors are located in the electronic module.

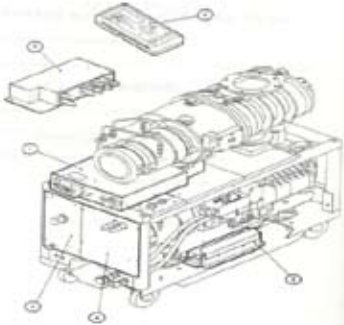
**2 Sensor Module**  
Receive and process signals from thermocouples and other sensors. Provides control logic and protection for entire system.

**3 Gas Module**  
IQ can be configured for three types of Gas module.  
• Shaft seal  
• Gas Ballast  
• Gas system module

**4 Front Panel**  
Provides interface connectors for PDM, Interface module and PC interface.

**5 Interface Module**  
Designed to interface with process tool. Configuration varies between OEM process tool sets.

**6 PDM (Pump Display Module)**  
Manual control the IQ system and displays its status. Also use for configuration setup and other service functions.



### TESTIMONIALS

“Picked up some new ideas to apply back on-site.”

“Plenty of hands on experience & exercises which is a much more effective tool for learning in this field...”

“I have been on several vendor training courses in the USA and Germany and this was far more beneficial.”

For semiconductor companies who want training to take full ownership of their vacuum pumps' maintenance, FMG provides the most comprehensive and practical training courses needed available in the industry.

Unlike vendor-specific training, FMG's courses cover all brands and all types of pumps and blowers. And the context is a focus on the realities of the FAB systems environment – especially during shutdowns and startups.

Explanation and training on the assembly and preventative maintenance helps your team understand the inner workings of the vacuum pumps. You get better acquainted with your systems to recognize early signs of trouble, prevent premature failures, and costly downtime.

A typical 3-5 day curriculum can run shorter or longer depending the number of pump models taught. The program can be tailored to any experience level – extensive for someone new to the field, or intensive for senior level technicians. The course can be based around the technician's prior pump experience and knowledge.

### FEATURES

- Overview of pump operation, theory, structure
- Facilities requirement
- Safety shutdown and start up procedures
- Leak testing procedures, how to and what to look for
- Preventative maintenance procedures
- Gas control setups
- Installation / removal of pumps and blowers
- Set up for light, medium, and harsh processes
- Test procedures (base pressure, speed curve, temperature)
- Cleaning and inspection of exhaust silencer (step-by-step procedures)
- Troubleshooting and error codes (what they mean and how to clear them)

### ADVANTAGES

- “Out of the box” approach to training & troubleshooting
- Systems level methodology
- All brands
- All types
- Beyond theory – practical real-world applications
- Tips from the pros
- What they don't tell you at vendor specific training