

“INTRODUCTION TO PNEUMATIC SYSTEMS & AUTOMATION”



BASIC PNEUMATICS CONTROL

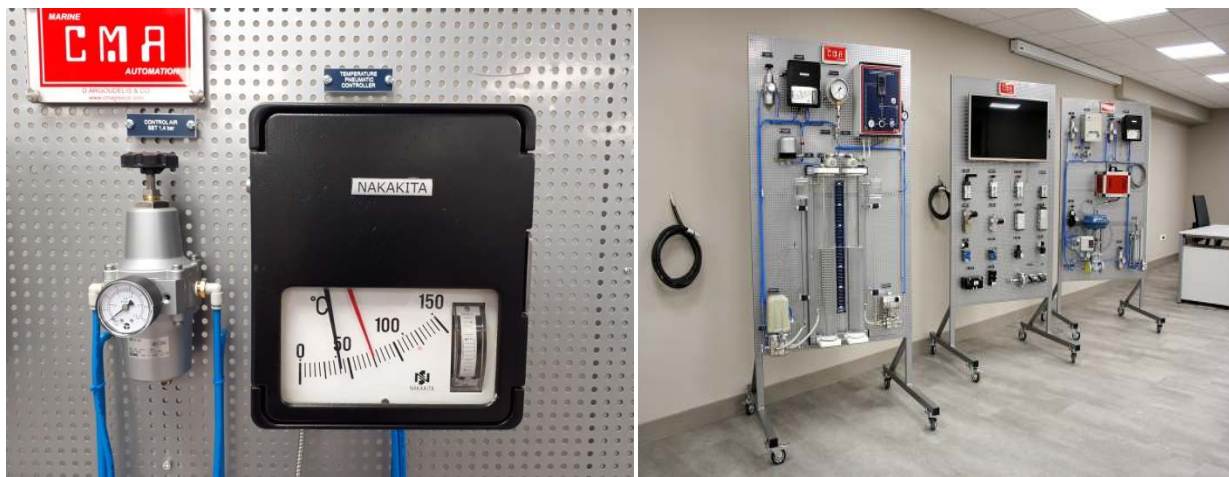
2 DAY - TRAINING COURSE

A. INTRODUCTION

From main engine starting air valves, pneumatic piston cylinders and countless other actuators and valves, pneumatic systems are used in many shipboard applications for decades.

The overall aim is to assist the Engineer Officers understand the basic principles of compressed air automation control systems, by providing theoretical and practical instructions.

Starting from the production and supply of compressed air on a vessel to produce mechanical work or for controlling purposes, the design of a pneumatic system and the various types of speed, flow, directional and force valves are presented. The course is then focused on the maneuvering system of a MAN B&W MC main engine and a number of well-known ship applications such as the Valve Remote Control System, Cargo AUS, etc.



B. LEARNING OBJECTIVES

The Trainees, on completing the course, will be able to:

- Compare the pneumatic, hydraulic and mechanical systems and describe the basic components of a pneumatic-based automation control system.
- Fully understand the operation of ships' pneumatic systems and automation control systems.
- Take the necessary safety measures when working with pneumatic systems.

C. FACILITIES

The Training Course will take place at the ATHINA Maritime Learning and Development Center. Practice will take place on a pneumatic simulator stand with various solenoid valves, pneumatic actuators, etc. The panels are for two-stroke engines, diesel generators and aux. boilers providing features such as pneumatic start and stop, control of engine RPM, start interlock pressure monitoring.

D. SCHEDULE

DAY 1	09:30 – 10:00	Aims & Learning Objectives
	10:00 – 11:00	Why Do We Have Pneumatics Systems? Pneumatics Historics
	11:00 – 11:15	Coffee Break
	11:15 – 12:30	Pneumatic Systems Design and Components
	12:30 – 13:00	Advantages, Limitations, Design of a Pneumatic System. Difference Between Pneumatic & Hydraulic Systems
	13:00 – 14:00	Lunch Break
	14:00 – 15:30	Types of Pneumatic Valves
	15:30 – 15.45	Coffee Break
	15:45 – 16:30	Steering Gear Automation, M/E MAN B&W FIVA Valve & M/E Starting System
	16:30 – 17:00	Fail Safe Automation & AUS

DAY 2	09:30 – 10:00	Explanation of Pneumatic Valves on the Simulator Panel
	10:00 – 11:00	Adjustment of Various Pneumatic Valves
	11:00 – 11:15	Coffee Break
	11:15 – 12:30	Adjustment of Various Pneumatic Valves <i>(continued)</i>
	12:30 – 13:00	Adjustment of Various Pneumatic Valves <i>(continued)</i>
	13:00 – 14:00	Lunch Break
	14:00 – 15:30	Explanation of Main Engine Air Starting System
	15:30 – 15:45	Coffee Break
	15:45 – 16:30	Adjustment of “Nakakita” Pneumatic Valve
	16:30 – 17:00	Adjustment of Aux Boiler Water Level Controller & “AUS” System