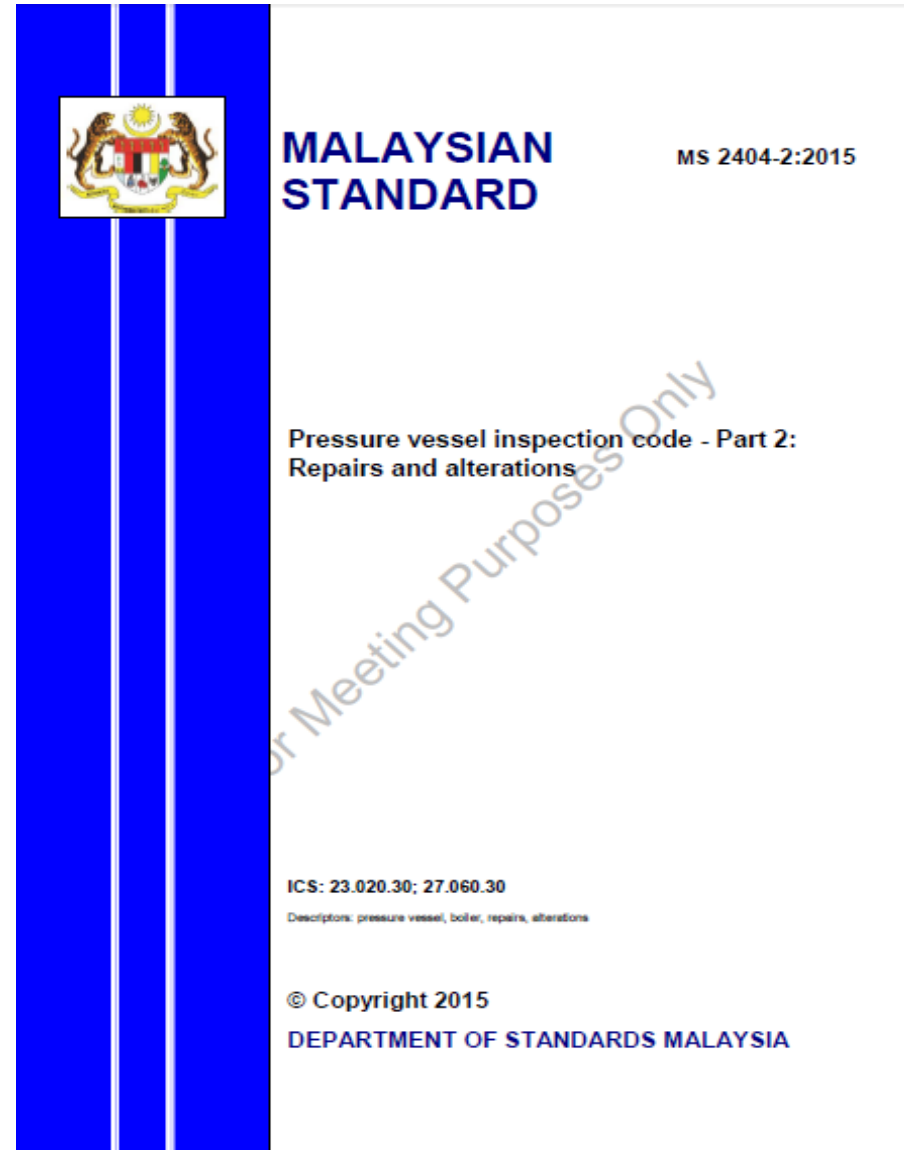
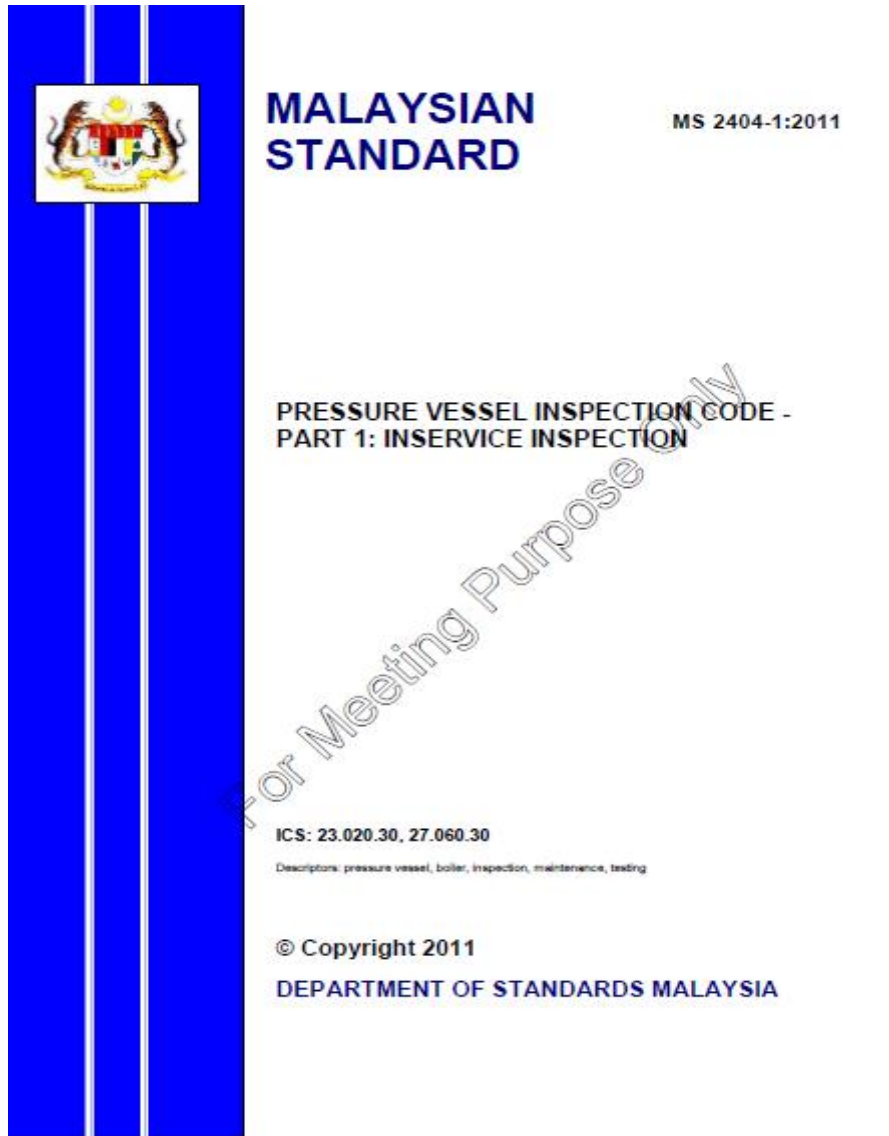


# Malaysia Presentation

# Malaysian Standard for in-service inspection and repair & alteration MS 2404



# The Inspection

- The primary purpose of inspection is to identify active deterioration mechanism and to specify the repair, replacement or future inspections for the affected boiler, vessel or pipings.
- This requires applying of
  - Understanding the failure mode
  - Appropriate inspection techniques,
  - Developing information about the physical condition
  - The root cause of deterioration and
  - Rate of deterioration
- To achieve
  - Safety can be maintained
  - Extended operation as it reduce rate of deterioration
  - Future repair and replacement requirements can be estimated

# Causes of deterioration and failure mechanism

**Deterioration**

**Corrosion**

**Erosion**

**Failure Mechanism**

**Crack**

**Fatigue**

**Creep**

PERKARA	SEKSYEN / PERATURAN	PEMASANGAN			KEADAAN		CATATAN
		ADA	TIADA	N/A	BAIK	T/BAIK	
<b>A. Water Side (Drum / Tubes / Header)</b>							
<b>1. Defects</b>							
a. Pittings							
b. Corrosion							
c. Erosion / Gouge							
d. Cracks							
e. Weldment							
f. Slack							
g. Pinhole							
h. Mechanical scratch							
<b>2. Deposits</b>							
a. Scale							
b. Sludge							
<b>3. Deterioration</b>							
a. Bulging							
b. Sagging							
c. Dented							
<b>B. Fire Side</b>							
<b>1. Tube side</b>							
a. Distortion							
b. Sagging							
c. Cracks							
d. Burst							

**Thank You**