# Requalification in Practice: What Happens to Your Cylinder & Why It Matters

Zen Cylinders Manufacturing Co. Ltd.

# Agenda

1. What is Requalification
2. Why Cylinders Need Requalification
3. The Six-Step Requalification Process
4. Why Requalification is Non-Negotiable

# What is Requalification?

Periodic inspection and rigorous testing of LPG cylinders to ensure continued safety and performance throughout their operational lifetime.

This mandatory process typically occurs every 5-10 years depending on local regulations and cylinder type. It's not just a formality—it's a critical safety checkpoint that identifies potential failures before they become catastrophic.

# Why Cylinders Need Requalification

### Pressure Cycles

Years of filling and emptying create stress on cylinder walls

### Corrosion

External and internal corrosion weakens structural integrity

### Mechanical Damage

Transport and handling cause dents, dings, and impact damage

### Regulatory Compliance

Legal requirements protect public safety and industry standards

# The Six-Step Requalification Process

Each cylinder undergoes a systematic journey through rigorous inspection, testing, and certification to ensure it meets safety standards.

### Collection & Identification

Serial number verification and traceability check

### External Visual Inspection

Corrosion, dents, cracks, and weld examination

### Internal Inspection

Valve removal and moisture testing

### Hydrostatic Test

Water pressure testing and expansion measurement

### Repainting & Marking

Surface preparation and certification stamping

### Valve Replacement

Certified valve installation and leak testing

# Step 1: Collection & Identification

## Serial Number Verification

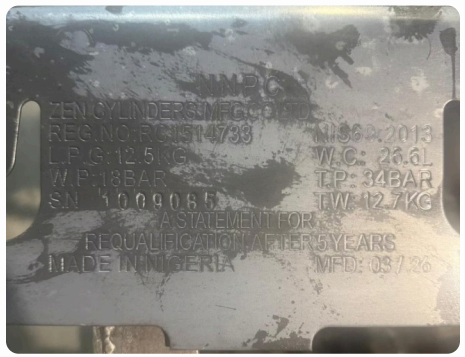
Each cylinder's unique identifier is recorded and traced to manufacturing records, ensuring complete ownership history.

## Manufacturing Date Confirmation

Verifying production date determines if requalification is due and establishes age-based inspection criteria.

## Traceability Documentation

Full documentation links current ownership to manufacturing origin, supporting regulatory audits and incident investigations.



# Step 2: External Visual Inspection

Trained inspectors examine every square inch of the cylinder exterior, looking for signs of damage that compromise structural integrity.

- Surface corrosion and pitting assessment
- Dent depth and bulge measurement
- Crack detection using specialized techniques
- Weld seam integrity verification
- Base ring and collar condition

# Step 3: Valve Removal & Internal Inspection

## Safe Valve Removal

Trained technicians carefully remove the valve using proper procedures

## Internal Corrosion Check

Visual and measurement tools identify internal wall degradation

## Moisture Testing

Detect and measure water contamination that accelerates corrosion

## Thread Verification

Neck threads inspected for damage that prevents proper valve sealing


# Step 4: Hydrostatic Pressure Test

## The Critical Test

Cylinders are completely filled with water and pressurized well at 30 bar well above normal working pressure. This test measures permanent expansion—the cylinder's ability to return to its original shape after stress.

## Pass Criteria

Expansion stays within allowable limits (typically less than 10% permanent expansion). The cylinder returns to near-original dimensions.

## Fail Criteria

Excessive expansion indicates wall thinning or material weakness. These cylinders are immediately condemned.

# Steps 5-6: Valve & Finishing

## Certification Marking

Stamp requalification date, next inspection due date, and testing facility identification. This marking is your proof of compliance.

## Surface Preparation

Remove rust, old paint, and contaminants. Apply corrosion-resistant coating in proper thickness to protect against future deterioration.

## Valve Replacement

Install new, certified valves. Each valve is torqued to specification and leak-tested before cylinder leaves the facility.

# Why Requalification is Non-Negotiable

## Lives Protected

Prevents gas leaks, fires, and explosions that injure or kill

## Compliance Secured

Meets national and international safety regulations (NIS 532:2006)

## Brand Protected

Maintains customer trust and company reputation

## Service Life Extended

Identifies issues early, allowing repair instead of replacement

**Zen Cylinders Manufacturing:** Committed to Nigeria's LPG safety standards, protecting communities through rigorous requalification programs that strengthen compliance, reduce liability, and build customer trust nationwide.

# Thank You

## Questions?

**Zen Cylinders Manufacturing Co. Ltd.**