

LPG TECHNICAL SPECIFICATIONS

Comprehensive Product Data Sheet

Baraka Gas Ltd

Version 2.0 | December 2025

1. Cylinder Specifications

Specification	6kg Cylinder	13kg Cylinder	50kg Cylinder
Gas Capacity (kg)	6 kg	13 kg	50 kg
Water Capacity (L)	14.2 L	30.6 L	118 L
Height (mm)	395	585	1,262
Diameter (mm)	310	310	368
Empty Weight (kg)	5.5	10.2	38
Full Weight (kg)	11.5	23.2	88
Material	Steel (cold rolled, welded)		
Design Pressure	2.1 MPa (21 bar / 304 psi)		
Test Pressure	3.15 MPa (31.5 bar / 456 psi)		
Wall Thickness (mm)	2.5	2.5	3.0
Valve Type	POL / Clip-on	POL / Clip-on	POL
Service Life	15 years from manufacture date		

2. LPG Gas Composition

Component	Percentage (%)	Properties
Propane (C_3H_8)	30-70%	Lower vapor pressure, better for cold weather
Butane (C_4H_{10})	30-70%	Higher energy content, better for warm weather
Odourant	0.004%	Ethyl mercaptan for leak detection

Note: The exact propane/butane ratio varies by season. Winter blend has higher propane for better vaporization in cold temperatures. Summer blend has higher butane for economy.

3. Physical Properties

Property	Value
Boiling Point (at 1 atm)	-42°C to 0°C
Vapor Pressure @ 50°C	15-17 bar
Density (liquid @ 15°C)	550 kg/m³
Density (gas @ 15°C, 1 atm)	2.01 kg/m³ (1.5x air)
Calorific Value	46 MJ/kg (12,800 kcal/kg)
Ignition Temperature	470-550°C
Flammability Limits in Air	2.1% to 9.6% by volume
Expansion Ratio (liquid to gas)	1:273

4. Regulator Specifications

Type	Inlet Pressure	Outlet Pressure	Flow Rate
High Pressure (6kg/13kg)	Up to 16 bar	2.8 kPa (28 mbar)	1.2 kg/hr
High Pressure (50kg Commercial)	Up to 16 bar	2.8 kPa (28 mbar)	4.0 kg/hr

Regulator Features:

- Automatic pressure regulation
- Built-in pressure relief valve
- Corrosion-resistant brass body
- NBR rubber diaphragm
- EN 16129 compliant

5. LPG Hose Specifications

Specification	Value
Material	Reinforced rubber (inner tube: NBR, outer: chloroprene)
Standard Length	1.5 meters
Inner Diameter	9 mm
Working Pressure	2.0 MPa (20 bar)
Burst Pressure	6.0 MPa (60 bar)
Temperature Range	-20°C to +60°C
Service Life	2 years (recommended replacement)
Standard	EN 16436-1

6. Accessory Compatibility

Accessory	Compatible Cylinders	Notes
High Pressure Regulator	All sizes (6kg, 13kg, 50kg)	Different flow rates for domestic/commercial
Standard LPG Hose (1.5m)	All sizes	Replace every 2 years
2-Burner Gas Stove	6kg, 13kg preferred	Thermal efficiency: 60-70%
Gas Cylinder Trolley	13kg, 50kg	Load capacity: 100kg
Cylinder Stand	6kg, 13kg	Anti-tip design
LPG Leak Detector	All installations	Audible/visual alarm at 10% LEL
Gas Lighter	All appliances	Piezo-electric ignition

7. Safety Devices Specifications

Industrial Gas Leak Detectors

Feature	Specification
Detection Range	0-100% LEL (Lower Explosive Limit)
Alarm Point	10% LEL (audible), 25% LEL (visual)
Response Time	Less than 10 seconds
Power Supply	220V AC or 9V battery
Sensor Life	3-5 years
Operating Temperature	-10°C to +50°C

Emergency Shut-off Switch (EX-rated)

- Explosion-proof rating: ATEX Zone 1
- IP Rating: IP66 (dust/water protected)
- Max voltage: 250V AC
- Max current: 10A
- Emergency break contacts

8. Standards and Certifications

Standard	Application
KS 1939	Code of practice for LPG bulk installations (Kenya)
EN 12245	LPG transportable refillable welded steel cylinders
EN 16129	LPG pressure regulators
EN 16436-1	LPG flexible hoses
ISO 9001:2015	Quality management system (Baraka Gas Ltd)
EPRA License	Energy & Petroleum Regulatory Authority (Kenya)
KEBS Certification	Kenya Bureau of Standards compliance

9. Environmental Specifications

Parameter	Value
CO ₂ Emissions per kg burned	2.98 kg CO ₂
Carbon Content	82% by weight
Greenhouse Warming Potential	Low (cleaner than coal/wood)
Ozone Depletion Potential	Zero
Sulfur Content	Negligible (< 0.001%)
Particulate Emissions	Very low

10. Storage and Transport Requirements

- Storage Temperature:** -20°C to +50°C
- Maximum Fill Ratio:** 80% (liquid volume)
- Ventilation:** Adequate air circulation required
- Fire Safety:** 3 meters from ignition sources
- Transport Class:** UN 1075 (Petroleum gases, liquefied)
- DOT Hazard Class:** 2.1 (Flammable gas)

Baraka Gas Ltd | P.O. Box 26806-00100, Nairobi, Kenya
Phone: +254 721 489 755 | Email: info@barakagas.com | Web: www.barakagas.com
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