

TECHNICAL NOTICE DOMESTIC GAS METER DIVERSITY

GAS DIVISION PURPOSE

To provide ATCO Gas Australia advice for domestic gas meter size and nominated pressure selection when connecting to the ATCO Gas Australia distribution network. This guideline may also be used for small commercial applications with consideration for actual commercial gas appliance load and diversity.

OVERVIEW

Appropriate gas appliance diversity factors **must** be applied when selecting a domestic gas meter.

Correct meter sizing based on available gas pressure will ensure accurate gas measurement and reduced installation costs for customers.

GAS METER SELECTION TABLE – NATURAL GAS

For domestic installations:

| Meter Type | Diversified Load Meter Capacity (NG) | | Always consider gas load diversity Typical Number of Domestic Gas Appliances | Application |
|------------|--|--|---|---|
| | 1.25 kPa Pressure Avail. | 2.75 kPa Pressure Avail. | | |
| AL8 | 8 m ³ /hr = 300 MJ/hr | 8 m ³ /hr = 300 MJ/hr | Up to 4 including 2 hot water systems | 99% of sites. All typical domestic installations. |
| AL10 | 10 m ³ /hr = 375 MJ/hr | 10 m ³ /hr = 375 MJ/hr | 5-6 including 3 hot water systems | 1% of sites. Large domestic and small commercial installations. |
| AL12 | 12 m ³ /hr = 450 MJ/hr | 25 m ³ /hr = 940 MJ/hr | 7+ | Not required for domestic. Special needs only. Consult with ATCO Gas Utilisation Inspectors or Engineering before requesting. |

Note: Meter capacities are based on **37.5MJ/m³** Natural Gas currently available within the ATCO Gas Australia gas distribution network.

CONSIDERATIONS

- Gas appliance diversity must be applied to all gas meter selections.
- Correct gas meter size and pressure must be clearly identified on a request for gas to a retailer. Always record all gas appliances and their diversified total gas load on the connection request form.
- Single residence homes shall normally be sized for a standard AL8 gas meter.
- Do not oversize a gas meter installation for potential future appliances which are not confirmed.

FURTHER INFORMATION – CONTACT: ATCO Australia, PH: 13 13 56

- This diversity guideline does not apply to domestic gas pipe sizing downstream of a gas meter which must be in accordance with AS/NZS 5601.1.

GAS METER DIVERSITY FACTORS

British Standard *BS6400-1 Domestic-Sized Meter Installations – Low Pressure Natural Gas* has been referenced for diversity factors that apply to various domestic gas appliances. The list of appliances and their diversity factors has been updated in this technical notice to reflect WA’s warmer ambient operating conditions, and different gas appliance technologies for new residential gas customers. Notably, many new larger homes are being constructed with multiple hot water systems where overall gas energy usage for water heating does not change.

ATCO Gas Australia inspectors selectively review domestic gas installations and where an oversized gas meter has been installed, the responsible gas fitter will be consulted.

| Domestic Gas Appliance Description | Diversity Factor |
|--|------------------|
| Gas pool / spa heater | 0.8 |
| Gas hot water system – continuous type (highest MJ rated unit) | 0.8 |
| Gas hot water system – continuous type (second and additional units if fitted) | 0.2 |
| Gas hot water system (storage type) | 0.6 |
| Gas room heater (portable, fireplace, ducted, or other) | 0.6 |
| Gas clothes dryer | 0.6 |
| Gas hotplate / oven/ BBQ (separate devices) | 0.6 |
| Gas cooker (combined hotplate with oven) | 0.4 |

To calculate the size of gas meter required:

1. Multiply the maximum MJ/hr rating for each appliance by its applicable diversity factor;
2. Add all individual appliance diversified gas loads together; and
3. Refer to gas meter selection table.

Additional notes:

- Installers **must** apply gas load diversity to all gas meter selections. Do not specify a gas meter larger than AL8 unless the gas load exceeds 300MJ/hr after diversity has been applied.
- AL10 gas meters shall be specified in domestic installations only where the current actual installed diversified gas load to be commissioned is non-typical and exceeds AL8 meter capacity.
- AL12 gas meters **must** not be specified for domestic locations except after consultation with an ATCO Gas Utilisation Inspector or Engineering team member.
- Small diaphragm gas meters have a 120% over capacity limit for short durations to allow for appliance start-ups.

FURTHER INFORMATION – CONTACT: ATCO Australia, PH: 13 13 56

GAS METER SIZING (NG) – SAMPLE CALCULATIONS

Example 1:

| Gas Appliance | Max. MJ/hr Rating | Diversity Factor | Diversified MJ/hr Rating |
|----------------------------|-------------------|---------------------|--------------------------|
| Gas continuous HWS#1 | 260 | 0.8 | 208 |
| Gas storage HWS#2 | 40 | 0.6 | 24 |
| Portable gas heater | 25 | 0.6 | 15 |
| Gas hotplate | 40 | 0.6 | 24 |
| TOTAL | 365 | | 271 |
| Gas Meter Selected: | AL10 | Recommended: | AL8 |

Example 2:

| Gas Appliance | Max. MJ/hr Rating | Diversity Factor | Diversified MJ/hr Rating |
|----------------------------|-------------------|---------------------|--------------------------|
| Gas continuous HWS#1 | 200 | 0.8 | 160 |
| Gas continuous HWS#2 | 200 | 0.2 | 40 |
| Gas log fire heater | 40 | 0.6 | 24 |
| Gas hotplate | 40 | 0.6 | 24 |
| Gas spa heater | 80 | 0.8 | 64 |
| Gas BBQ | 90 | 0.6 | 54 |
| TOTAL | 650 | | 366 |
| Gas Meter Selected: | AL12 | Recommended: | AL10 |

Example 3:

| Gas Appliance | Max. MJ/hr Rating | Diversity Factor | Diversified MJ/hr Rating |
|----------------------------|-------------------|---------------------|--------------------------|
| Gas continuous HWS#1 | 260 | 0.8 | 208 |
| Gas continuous HWS#2 | 200 | 0.2 | 40 |
| Gas continuous HWS#3 | 200 | 0.2 | 40 |
| Gas storage HWS#2 | 40 | 0.6 | 24 |
| Gas hotplate | 40 | 0.6 | 24 |
| Portable gas heater | 25 | 0.6 | 15 |
| Gas spa heater | 80 | 0.8 | 64 |
| Gas BBQ | 90 | 0.6 | 54 |
| TOTAL | 935 | | 469 |
| Gas Meter Selected: | AL12 | Recommended: | AL12 |

FURTHER INFORMATION – CONTACT: ATCO Australia, PH: 13 13 56

GAS METER SELECTION TABLE – ALBANY LPG NETWORK ONLY

For domestic installations:

| Meter Type | Diversified Load Meter Capacity (LPG) | Always consider gas load diversity | Application |
|------------|---|---|---|
| | 2.75 kPa Pressure Avail. | Typical Number of Domestic Gas Appliances | |
| AL8 | 4.8 m ³ /hr = 450 MJ/hr | Up to 6 including 3 hot water systems | All LPG domestic sites and small commercial installations. |
| AL10 | 6.5 m ³ /hr = 610 MJ/hr | 7+ | Small commercial installations. |
| AL12 | 15.2 m ³ /hr = 1430 MJ/hr | 15+ | Commercial only. Consult with ATCO Gas Utilisation Inspectors or Engineering before requesting. |

Note: Meter capacities in this table are based on **94MJ/m³** LP Gas currently available within the ATCO Gas Australia Albany gas distribution network.

FURTHER INFORMATION

Contact ATCO Gas Australia on 13 13 56 and ask for Gas Utilisation Inspectors or Engineering Services regarding specific gas meter sizing queries which are not covered within this Technical Notice.