

TN09: 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 Available	2.75 kPa Pressure Available		
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 **37.5 MJ/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
- 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.

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

Document No: AGA-ENG-TN09

Revision No: 3

Issue Date: 11/05/2022

Document Owner: D Solmundson

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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 which in total use the same amount of energy as a single hot water system when diversity factors are applied.

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 (highest MJ rated unit)	0.8
Gas hot water system (any additional units of same or lower MJ)	0.2
Gas room heater (portable, fireplace, ducted, or others)	0.6
Gas hotplate or oven or BBQ	0.6

To calculate the size of gas meter required:

1. Multiply the maximum megajoule/hr rating for each appliance by its applicable diversity factor.
2. Add all individual appliance diversified gas loads together.
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 300 MJ/hr after diversity has been applied. If in doubt, contact ATCO Gas
- 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	200	0.8	160
Gas spa heater	80	0.8	64
Portable gas heater	25	0.6	15
Gas hotplate	40	0.6	24
TOTAL	345		263
Gas Meter Selected:	AL10 (375 MJ/hr)	Recommended:	AL8 (300 MJ/hr)

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 (940 MJ/hr)	Recommended:	AL10 (375 MJ/hr)

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	160	0.2	32
Gas storage HWS#4	40	0.2	8
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	895		445
Gas Meter Selected:	AL12 (940 MJ/hr)	Recommended:	AL12 (940 MJ/hr)

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 Available	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 **94 MJ/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.

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