

CAC
GAS&INSTRUMENTATION

Leaders in Calibration Gas Solutions



Production & Quality

Laboratory and Analysis

- All products manufactured undergo full QC assessment.
- StG has a dedicated laboratory for:
 - High precision reception control of raw materials.
 - Analysis and stability testing of finished products.

Standards

StG conforms to European and ISO standards and is a member of the industry recognised associations:

- British Compressed Gases Association
- The Council of Gas Detection and Environmental Monitoring
- ISO 9001: 2008 by BSI

Traceability

- All our products are traceable to the National Physical Laboratory or UKAS calibrated weights and manufactured to ISO 6142. If analysis is required we calibrate against UKAS, NPL or NIST gas standards.

Cylinder Preparation

Our expertise includes:

- Selecting the correct cylinder material and valve type depending upon the customer's needs.
- A range of various comprehensive specialised internal cylinder treatments, selected to give excellent mixture stability.

Mixture Production

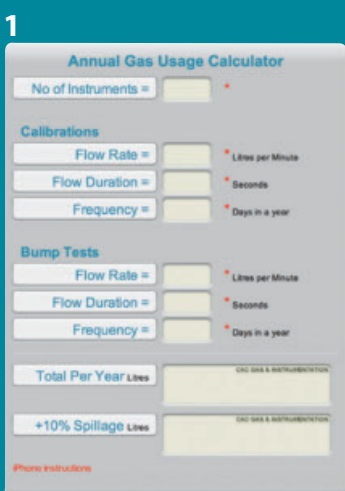
Mixtures are made gravimetrically using a series of high precision balances which undoubtedly give the highest production accuracy available. NPL, NIST and UKAS standards are used as required in the mixture production process.

Certification

All PRIMARY and CERTIFIED mixtures are issued with a CERTIFICATE OF COMPOSITION which shows:

- The mixture in terms of requested composition and actual certified composition. Mixture pressure, gas volume, mixture accuracy, shelf life, valve type, conditions of storage and use are all prescribed on the certificate.

CAC GAS' Unique Apps & Tools



1. CAC GAS Calculator:

Use our Gas Calculator to easily and reliably calculate your gas consumption. Download our iPhone app to use on the job.

Scan here to view Gas Calculator



2. CAC GAS Finder:

Use our Calibration Gas Finder to quickly and easily find the single and multi-gas calibration gas mixture you are looking for.

Scan here to view Gas Finder



3

Enter Value:							
psi	14.00	KPa	51.00	BAR	2.00	Atmosphere	1.00
EQUALS							
KPa	96.527	BAR	0.510	KPa	200.000K	Pa	101.325
BAR	0.965	psi	7.397	psi	29.008	BAR	0.981
Atmosphere	0.953	Atmosphere	0.503	Atmosphere	1.974	psi	14.696

3. CAC GAS Pressure Calculator:

Use our Pressure Calculator to easily convert psi, bar, kpa & atmospheres.

Scan here to view Gas Pressure Calculator



Non-Refillable Cylinders

Non-Refillable (disposable) cylinders are available for most gas mixtures. We produce simple binary mixtures through to complex multiple component mixes including multi-hydrocarbons.

Corrosive gases such as CL₂, H₂S, HCN, HCL, NH₃, NO, NO₂, SO₂ are available along with a full range non corrosive mixtures such as CO, CO₂, N₂, refrigerants, hydrocarbon mixtures and many others.

Mixtures are available in ppm, LEL or % volume units of measure.



Litres of gas	Weight(kg)	Height(mm)	Diameter(mm)	PSI	Bar
12(12DA)	0.32	250	78	175	12
34(34DA)	0.44	285	76	500	34
34(34DS)	0.68	279	74	500	34
60(60DA)	1.19	365	90	500	34
103(103DS)	1.40	356	83	1000	70
112(112DA)	1.19	365	90	1000	70
135(135DA)	1.19	365	90	1247	86

Regulators for Non-Refillable Cylinders

FF-100



FIXED FLOW REGULATOR for diffusion instruments

FF100-SM



SEPTUM REGULATORS for laboratory applications

FF-120



FIXED FLOW REGULATOR for 34 litre steel cylinders only

FF-20



FIXED FLOW REGULATOR for 12 Litre cylinder only

PRB-100



PBR-100: PUSH BUTTON REGULATOR for bump or function testing instruments.

ODFR-1001



ODFR-1001: ON DEMAND FLOW REGULATOR for sample draw instruments and docking stations

VAF-100



VARI FLOW REGULATOR: Multiple flow rates for different instrument requirements.

Best Practice Tips

- STAINLESS STEEL REGULATORS are a must for AMMONIA and are highly recommended for all other corrosive mixtures.
- TEFLON TUBING must be used for all corrosive gases (CL₂, HCN, HCL, NH₃, NO, NO₂.... and styrene! Did you know that ammonia, chlorine and styrene adsorb onto standard tygon tubing?)

Regulator Series	Type	Inlet	Available Outlets	Available Body Materials	Available Flow Rates (L/min)	Cylinder Type
FF-100	Fixed Flow	C10 (5/8" UNF M)	3/16" Hose Barb	Nickel Plated Brass	0.25, .3, .4, .5, 1, 2 or 10 litres/min	34, 58, 60, 103, 112
FF-100-SS	Fixed Flow	C10 (5/8" UNF M)	3/16" Hose Barb	Stainless Steel	0.5 or 1.0 litres / min	34, 58, 60, 103, 112
FF-100SM	Fixed Flow	C10 (5/8" UNF M)	Septum	Nickel Plated Brass	1.0 litres / min	34, 58, 60, 103, 112
FF-120	Fixed Flow	CGA600	3/16" Hose Barb	Nickel Plated Brass	0.5 or 1.0 litres / min	34 litre steel only
FF-20	Variable Flow	7/16" UNF	1/8" Hose Barb	Nickel Plated Brass	Variable 0.5 - 1 litre/min	12 litre only
FF-20SM	Variable Flow	7/16" UNF	Septum	Nickel Plated Brass	Variable 0.5 - 1 litre/min	12 litre only
PBR-100	Push Button	C10 (5/8" UNF M)	3/16" Hose Barb	Nickel Plated Brass	0.5, 1, 2 or 10 litres/min	34, 58, 60, 103, 112
ODFR-1001	On Demand Flow	C10 (5/8" UNF M)	3/16" Hose Barb	Nickel Plated Bras	0.3 - 3 litres/min	34, 58, 60, 103, 112
ODFR-1001-SS	On Demand Flow	C10 (5/8" UNF M)	3/16" Hose Barb	Stainless Steel	0.3 - 3 litres/min	34, 58, 60, 103, 112
VAF-100	Variflow	C10 (5/8" UNF M)	3/16" Hose Barb	Nickel Plated Brass	.5/.75/1/1.5/2/2.5/3/4/5 litres /min	34, 58, 60, 103, 112

High Pressure Cylinders

CAC GAS provides high pressure gas mixtures made gravimetrically to ISO 6142. All mixtures have international traceability via the U.K. National Physical Laboratory standards used in the manufacturing process. (ISO 17025 pending).

We produce simple binary mixtures through to complex multi-component gas mixtures in a range of cylinder sizes and valves. All gases can be supplied with a certificate of composition if required. Cylinders are labelled with the gas volume, pressure, our reference, date of manufacture and shelf life.

CAC GAS supplies specialised gases and gas mixtures to meet your specific requirements.

We work with you to understand your application and analyse your consumption patterns to select the correct cylinder size that maximises your efficiency while minimising costs.

High Purity Gases

We supply High Purity Carrier gases up to >99.999% pure. Our range includes Hydrocarbon gases, Chemical gases, Halocarbons, Rare gases and many other gases for research and industry. These gases can be supplied in a range of cylinders or lecture bottles up to 200bar in pressure.

See right for a partial list of products available.



Cylinder	Height(mm)	Diameter(mm)	Weight (kg)	Water Capacity (LT)	Material
50AL	1550	250	57	50 Litres	Aluminium
50ST	1520	230	70	50 Litres	Steel
20AL	990	200	25	20 Litres	Aluminium
20ST	835	200	28	20 Litres	Steel
10AL	700	175	14	10 Litres	Aluminium
10ST	690	160	16	10 Litres	Steel
5AL	504	150	8	5 Litres	Aluminium
5ST	480	140	9	5 Litres	Steel
LB	310	50	1.5	0.45 Litres	Steel

The above weights are cylinder and valve without contents



VALVE TYPES

- Australian (AU)
- British (BS)
- Europe (DIN)
- U.S.A. (CGA)

PRODUCT RANGE

- Acetylene
 - Air
 - Allene
 - Ammonia
 - Argon
 - Boron Trichloride
 - Butane
 - Butene 1
 - Butene Cis 2
 - Butene Trans 2
 - 1.3. Butadiene
 - Carbon Dioxide
 - Carbon Monoxide
 - Carbonyl Sulphide
 - Chlorine
 - Cyclopropane
 - Deuterium
 - Dimethylamine
 - Dimethyl Ether
 - Ethane
 - Ethyl Acetylene
 - Ethyl Chloride
 - Ethylene
 - Helium
 - Hydrogen
 - Hydrogen Bromide
 - Hydrogen Chloride
 - Hydrogen Sulphide
 - Iso-Butane
 - Iso Butylene
 - Krypton
 - Methane
 - Methyl Acetylene
 - Methyl Bromide
 - Methyl Chloride
 - Methyl Mercaptan
 - Mono Ethylamine
 - Mono Methylamine
 - Neon
 - Nitric Oxide
 - Nitrogen
 - Nitrogen Dioxide
 - Nitrous Oxide
 - Oxygen
 - Propane
 - Propylene
 - R-see Halocarbons
 - Sulphur Hexafluoride
 - Sulphur Dioxide
 - Trimethylamine
 - Vinyl Bromide
 - Vinyl Chloride
 - Xenon
- R - Numbers are under Halocarbons** Please specify name and formula.



High Pressure Regulators

Chem Master



Spec Master



Lab Master



Regulator Selection Chart

CM

Regulator Series

- CM** Chem-Master
Stainless Steel
Purity n6.0
- SM** Spec-Master
Nickel Plated Brass
Purity n6.0
- LM** Lab-Master
Nickel Plated Brass
Purity n5.0

1

Stages

- 1** Single Stage
- 2** Dual Stage

3.5

Outlet Pressure

- 1.5** 0-1.5BAR/1500kpa
- 3.5** 0-3.5BAR/3500kpa
- 10** 0-10BAR/10000kpa

BS15

Inlet Fitting

- BS3** BS341 No. 3
- BS4** BS341 No. 4
- BS13** BS341 No. 13
- BS14** BS341 No. 14
- BS15** BS341 No. 15
- T10** AS2473.2 Type 10
- T20** AS2473.2 Type 20
- T44** AS2473.2 Type 44
- CGA330** CGA-330
- CGA590** CGA-590
- CGA660** CGA-660
- DIN1** DIN 477 #1
- 0** 1/4" NPTF

400

Outlet Fitting

- 400** 1/4" Tube, Female
- 4TA** 1/4" Tube, Male
- 200** 1/8" Tube, Female
- 2TA** 1/8" Tube, Male
- 4VCR** 1/4" VCR Face Seal
- 0** 1/4" NPTF

Other connectors are available upon request

Select your choice from left to right

Best Practice Tips

- To use a non-refillable (disposable) gas cylinder with a high pressure regulator, connect using the C-C10 / 1/4" NPT adapter/connector. This allows use of smaller volume cylinders while still utilising your pressure regulator
- Do not exceed 3 litres/min flow rate when using the ODFR-1001-HP used with internal pump instruments
- Always use CHEM MASTER for the most demanding corrosive applications
- Use dual stage regulators for applications where constant outlet pressure is critical

High Pressure Regulator Family



VAF 100-HP



High Pressure Connector Family



ODFR-1001-HP



ODFR/VAF SERIES

Regulator Series	Type	Inlet Fitting	Outlet	Available Body Materials	Available Flow Rates (Lmin)
ODFR-1001-HP	Variable	1/4" NPT Female	3/16" Hose Barb	Nickel Plated Brass	0.3 - 3 litres / min
ODFR-1001-HPSS	Variable	1/4" NPT Female	3/16" Hose Barb	Stainless steel	0.3 - 3 litres / min
VAF-100-HP	Variflow	1/4" NPT Female	3/16" Hose Barb	Nickel Plated Brass	0.5/1.75/1/1.5/2/2.5/3/4/5 litres min

Gas Distribution Systems & Test Stations

BTS-HP PD



Bump Test Station - High Pressure Programmable Deluxe PLC based Bump Test Station capable of multiple gas inputs and outputs

- Fully programmable using PLC to control all aspects of station
- Accepts multiple gas inputs to one or more gas outputs
- Automatically controls gas flow duration & time of each gas
- Touch screen for selecting end user parameters
- Capable of logging key information and communicating information remotely

BTS-HP SERIES



Bump Test Station - High Pressure

Automated Test Station used with high pressure (large volume) cylinders

- Two, four or six channels
- Designed for one gas cylinder delivered to multiple outlets
- Push button operation
- Lockable powder coated steel cabinet

BTS SERIES



Bump Test Stations

Automated Test Station used with disposable cylinders

- One, Two or Three Channel Systems
- Each Channel Independent (Use same or different gas mixtures)
- Push button operation for ease of use
- Green status lights for gas flow
- Lockable Nema 4X Cabinet

GFS-SERIES



Gas Flow Selector

Manual gas testing or calibration using multiple gases being distributed to one outlet

- Two, four or six gas inputs to one gas output.
- Switch rotates to select gas required
- Housed in a 15cm x 15cm powder coated steel enclosure
- Compatible with all corrosive or non-corrosive gases
- Units for diffusion or sample draw instruments

MGS SERIES



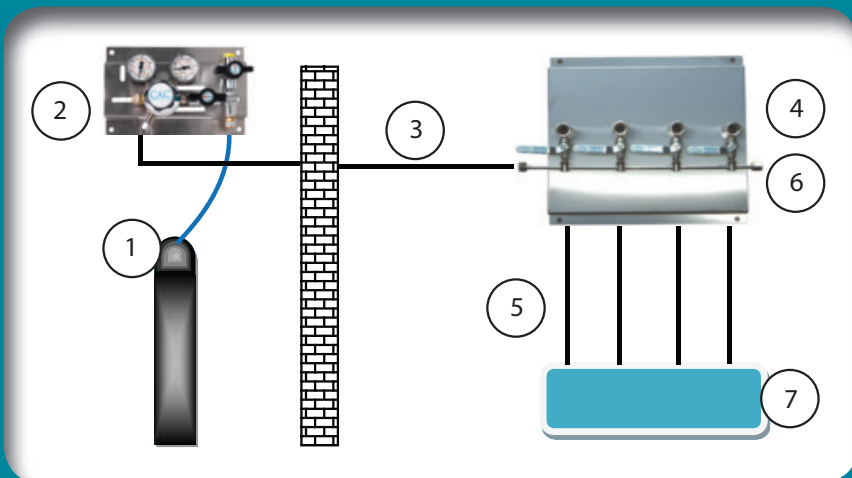
Manual Gas Stations

Manual Calibration /Test Station used with High Pressure (Large Volume) cylinders

- Two, four or eight channels
- Each channel is independent for specific gases
- Flow rate adjustable to your instrument requirements
- Stainless steel design
- Wall or bench mount capability

The GDS-100

Gas Distribution System for Docking Stations & Bump Test Applications



1. High Pressure Gas Cylinder
2. Panel Mounted Regulator (Cylinder Mounted Regulator available)
3. Interconnecting Pipeline (per metre)
4. Gas Distribution Panel with Manifold and Outlet Connections
5. Docking Station Connection Leads (as required)
6. Outlet Panel Connector
7. Docking Station or Bump Station



- Simplifies the delivery of calibration gas to multiple instruments
- Reduces the cost of calibration gas by maximising the efficiency of gas usage
- Flexible system which can develop as customer requirements change or increase
- Easily dismantled and moved to new locations reducing downtime
- Compatible with all manufactured docking stations
- CAC Gas designs and builds Gas Distribution Systems for all applications. The GDS-100 is an example of a system used for gas detection docking stations

Manifolds, Outlet Points & Control Panels

Autochange Cylinder Manifold



Specifications

Designed for use on systems using high or low cylinder pressure corrosive gases, toxic or high purity gases. Autochange Cylinder Manifolds are manufactured to operate in conjunction with cylinders filled up to 300 bar. These manifolds are designed to accommodate two equal sized banks of cylinders with one bank set as duty and the other bank set as reserve. The manifolds offer the user an uninterrupted gas supply with an alarm option to indicate when the reserve cylinder has taken over.

- Automatic changeover systems
- Manual changeover systems
- Stainless Steel, or Nickel Plated Brass
- Many options available

Outlet Point



Specifications

Designed for the secondary regulation of both high or low cylinder pressure corrosive gases, toxic or high purity gases to a stable outlet pressure. Ideally suited to gas pressure regulation at the point of use in laboratory, research and development, analytical facilities and many industries

Shutdown/Turnaround Equipment Hire

CAC GAS supplies hire equipment for shutdowns, turnarounds and other long term hire requirements. Minimum term is two weeks.

Bump Test, calibration stations and regulators are available for rent. Special design gas distribution systems are available to meet customer requirements.

Bump Test Stations

- Simple to use • One button operation • Wall mounted and lockable
- Ability to set flow rate and length of time calibration gas flows

BTS Series:

Used with internal disposable 60, 103 or 112 litre gas cylinders*



BTS 101-R Single Channel Bump Test Station



Regulators for Disposable cylinders:

Fixed Flow Regulators



FF-100-.5-R 0.5 litre/min
FF-100-1-R 1.0 litre/min

On Demand Regulator



ODFR-1001-R
0.3 – 3.0 litres/min

BTS-HP Series:

Uses external high pressure cylinders*

BTS-HP-112-R Dual Channel Bump Test System



Regulators for High Pressure cylinders:

Dual Stage Stainless Steel



YQF- DSSS-R
Inlet: 200bar Outlet: 16 bar

On Demand Flow Regulator



ODFR-1001-HP-R
.0.3-3tres/min

Hire/Rental Conditions:

1. All calibration gas is purchased separately. *
2. Tygon and Teflon Tubing is purchased separately*
3. Hire/rental agreement must be signed by authorized company personnel and included with purchase order.
4. Shipping cost both ways paid by customer
5. High Pressure Regulator Rental Required for BTS-HP-R
6. 2 metre stainless Steel hose assembly is included to connect BTS-HP -R
7. Minimum term is two weeks

Other Products & Services

Gas Cylinder Enclosure



- 100% Aluminium • Durable
- Lockable • Multiple designs

CC01 Carry Case



Carrying case for two cylinders, regulators and tubing

GCCB-300 Carry Bag



Canvas carry case for three cylinders & regulators. External pockets for documentation and tubing.

Gas Cylinder Restraints



High Pressure cylinder restraints for 1,2 or 3 cylinders. Belt strap for easy installation

Stainless Steel Hosing & Connections



- Teflon lined stainless steel
- Rigid stainless steel
- Connectors & splitters

Tygon Tubing



- Tygon Tubing
- Teflon lined Tygon



Australian Designed and Built:

CAC designs and builds all our high pressure Gas Distribution Systems GDS, BTS, GFS and MGS Series in Australia. We analyse customer applications from the instrument user point of view. From this information we can design calibration and gas testing systems to meet your specific requirements.



Whether a simple one gas station to a multiple input/output PLC based integrated systems, CAC designs calibration gas systems that are flexible and expandable.

Commissioning and Training:

Onsite commissioning services are available for start up of gas distribution systems and gas test stations. Once installation is complete (not final connection) CAC GAS can commission your system and provide onsite training for your users.

Technical Support:

Our technical support team has been trained to provide assistance on specialty gas applications, regulators, manifolds and gas distribution systems. We offer consultancy services to review your applications and properly evaluate your requirements to provide cost effective solutions. We offer guidance in the selection of gas mixtures and associated equipment. Our aim is to provide specialty gas solutions that meet your requirement today and in the future.

Disposal Tool



Easy to use Disposal Tool for puncturing empty cylinders that need to be recycled



Recycling

CAC GAS provides a recycling program for all non-refillable cylinders. Our high pressure cylinder return program eliminates cylinder rental and provides a method of returning large volume cylinders and reducing the cost of purchasing your next cylinder.

CAC
GAS&INSTRUMENTATION

