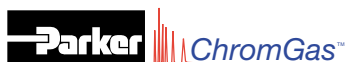




UHP Zero Air and Hydrogen Generators for Fuel Gas

Bulletin M1084A Distr.

**NOW AVAILABLE WITH
2-YEAR WARRANTY!**



The Parker Hannifin Filtration Group assures:

- Consistent quality
- Technical innovation
- Premier customer service

Parker's technical resources provide the right filtration technologies that conform to your requirements. That's why thousands of manufacturers and equipment users around the world rely on Parker Filtration products and people.

Worldwide Sales and Service

Parker operates sales and service centers in major industrial areas worldwide. Call 1-800-C-PARKER for more information and for a synopsis of our Filtration Technology Textbook.

Hydraulic, Lubrication & Coolant Filtration

High-performance filtration systems for production machinery in industrial, mobile and military/marine.



Compressed Air/Gas Filtration and Separation

Complete line of compressed air/gas filtration products and gas generators for many industrial and laboratory applications.



Process & Chemical Fluid Filtration

Liquid filtration systems for beverage, chemical and food processing; cosmetic, paint, water treatment; photo-processing; and micro-chip fabrication.



Fuel Conditioning & Filtration

Parker air, fuel and oil filtration systems provide quality protection for engines operating in any environment, anywhere in the world.



Legal Notifications



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the "Offer of Sale".

© Copyright 1995, Parker Hannifin Corporation, All Rights Reserved.

from 

The most complete line of research grade purity hydrogen generators:

Model 9090: 0 to 90 cc/minute

Model 9150: 0 to 160 cc/minute

Model 9200: 0 to 250 cc/minute

Model 9400: 0 to 500 cc/minute

Model 9800: 0 to 1200 cc/minute

Delivery pressure: selectable 0-100 psig

Hydrogen purity: 99.99999%



Hydrogen On Demand, Up to 1200 cc/minute

ChromGas ultra high purity (UHP) hydrogen generators from Parker are designed as hazard-free alternatives to high pressure gas cylinders. They can be used with any instrumentation requiring high purity hydrogen — anywhere a standard electrical supply is available.

Deionized water is all that is required to generate hydrogen for weeks of continuous operation.

With an output capacity of up to 1200 cc/minute, one generator can now supply 99.99999% pure carrier gas to several GC's, and fuel gas to 12 FID's. Based on cylinder gas savings alone, a ChromGas hydrogen generator pays for itself in less than a year.

Certified Safety

Parker's hydrogen generators use an exclusive **Proton Exchange Membrane** to produce UHP hydrogen on demand. Only 100 mL is stored in the system at any time and at low pressure. A built-in sensing circuit shuts the generator down if a hydrogen leak is detected.

That's why Parker hydrogen generators meet the strict, safety guidelines of the National Fire Protection Agency (NFPA) and the regulations of the Occupational Safety and Health Association

(OSHA - 1910.103). Most importantly, they are the only hydrogen generators certified for laboratory use by CSA, UL and IEC 1010.

99.99999% Pure

The exclusive proton exchange membrane has been complemented with a scrubber to generate 99.99999% pure hydrogen. That's why Parker hydrogen generators are recommended by GC and column manufacturers.

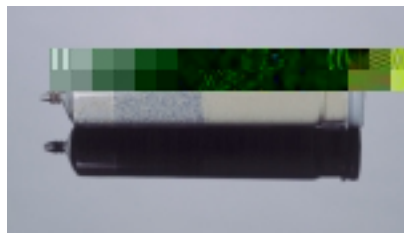
Parker's Chromgas proprietary replaceable desiccant cartridge provides fuel grade purity 99.9995% and ensures consistent reproducible results. The model 9800 comes standard with a palladium purifier module to reach levels of gas purity up to 99.99999%.

Proven Technology

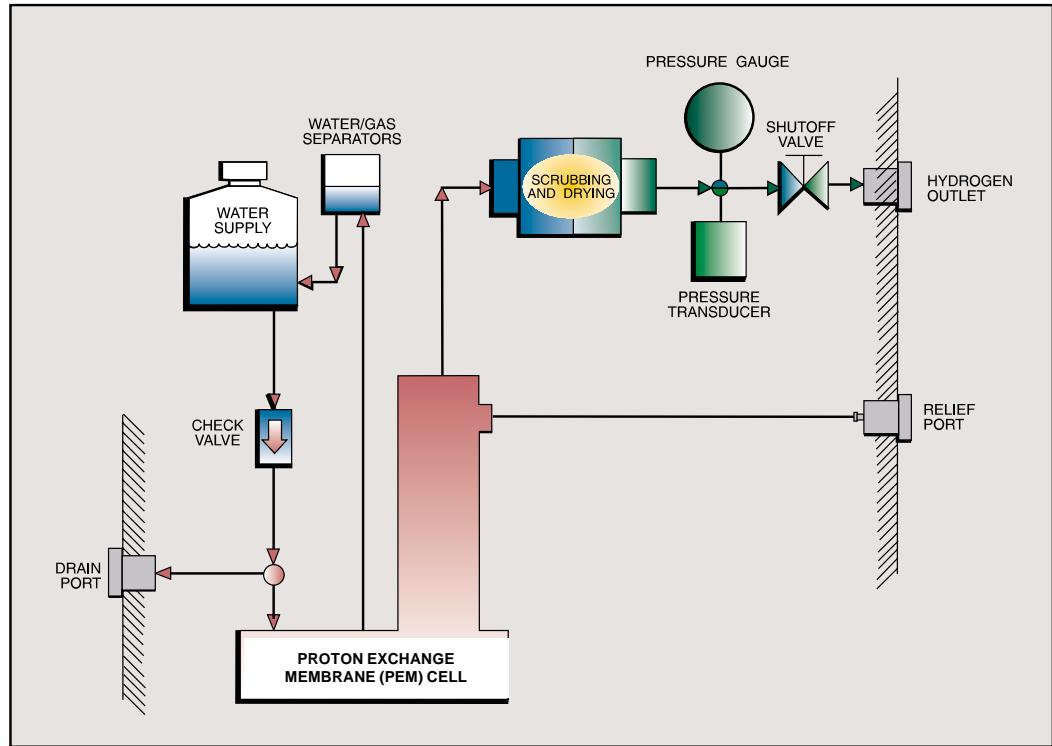
Parker's exclusive Proton Exchange electrolyte Electrolyzer eliminates the use of liquid electrolytes with hydrogen generators.

Proven in over 20,000 GC installations worldwide, Parker's generators are the most reliable hydrogen generators on the market. Maintenance requires only a few moments per year — no inconvenient, extended downtime. Simply change the deionizer bag every six months and the desiccant cartridge whenever it turns beige. And if contaminated water or low water level is detected, the system activates a warning light and shuts off the generator — avoiding damage to the electrolytic cell.

Proton Exchange Electrolyzers are also extensively used in Navy submarines and NASA supplemental fuel systems. This reliable, high quality hydrogen generation technology is also being considered to fuel the Ultra Low Emission and Zero Emission Vehicles (ULEV/ZEV) of the future.

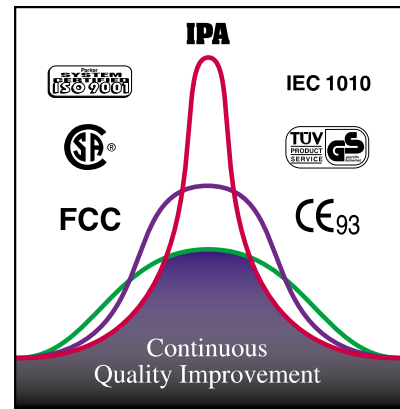


If You Want Safe Hydrogen, Get a Safe Generator



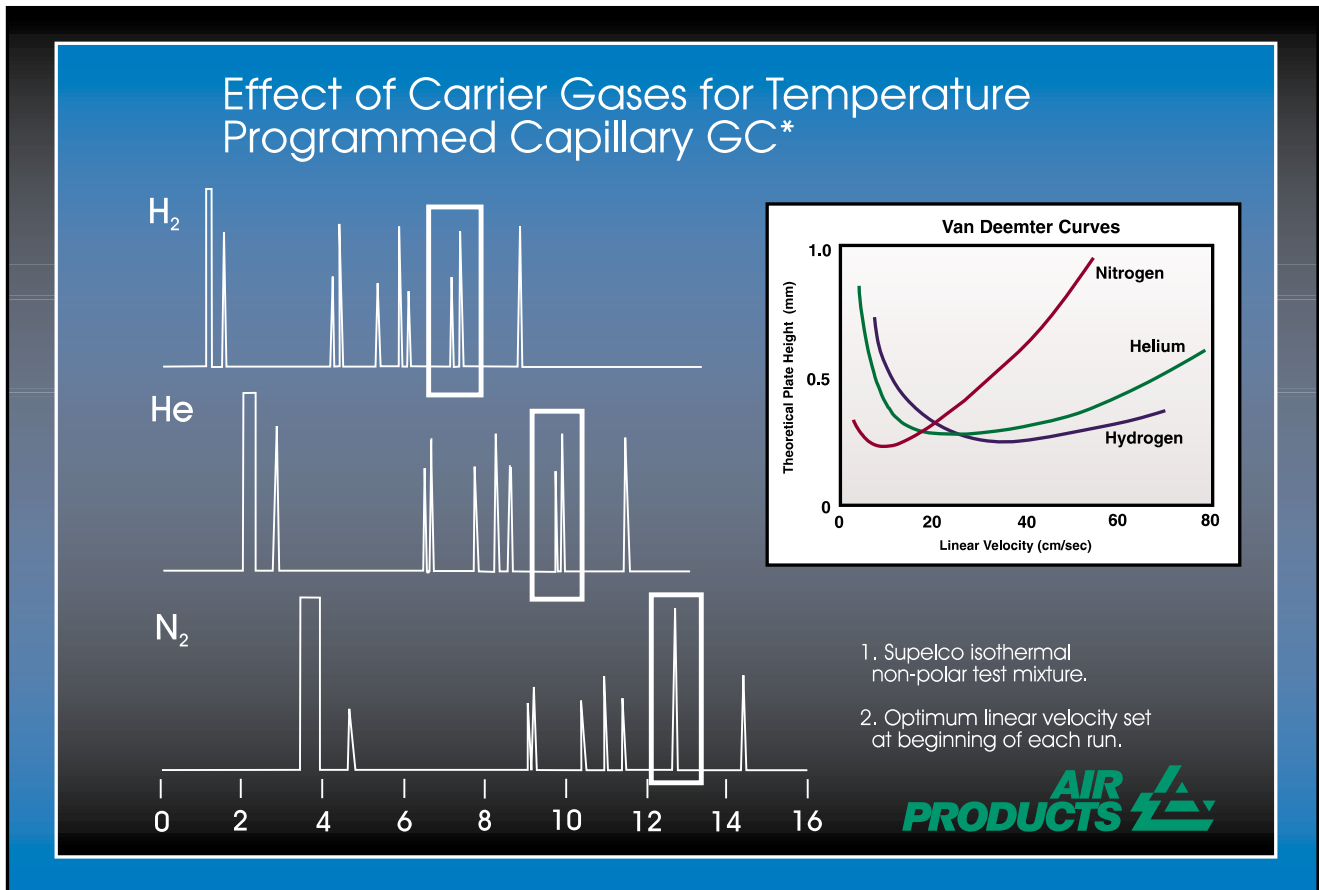
Built to International Standards

Produced and supported by an ISO 9001 registered organization, Parker's hydrogen generators are the first built to meet the toughest laboratory standards in the world: CSA, UL, and IEC 1010.



Meet OSHA and NFPA Requirements

All Parker hydrogen generators meet NFPA requirements and OSHA 1910.103 regulations governing the storage of hydrogen.



99.99999% Pure Hydrogen as Carrier Gas

Until now, running your gas chromatograph on hydrogen carrier gas was a trade-off: excellent results versus high pressure gas cylinders in the laboratory. Not any longer.

The availability of Parker's high capacity, 100 psi pressure, 99.99999% pure hydrogen means gas chromatographers can exploit the benefits of using hydrogen as carrier gas.

Parker has a system to fit your lab with four different models with flow capacities ranging from 90 to 1200 cc/minute. Each system provides research grade hydrogen to give you superior results for high speed, micro bore capillary GC applications.

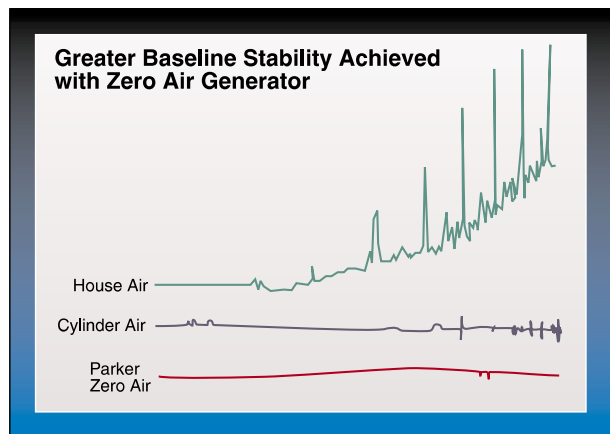
* Data provided courtesy of Air Products and Chemicals, Inc.

UHP Zero Air for GC-FID

Combine the hydrogen generator with Parker's UHP zero air generator and there is no longer a need to use cylinder gas in your GC laboratory.

A continuous, uninterrupted supply of pure gas also means predictable GC performance, less recalibrations and improved baseline stability. That's why major GC and gas suppliers are recommending Parker's ChromGas UHP gas generators. Typical payback periods are less than one year.

Now you can exploit the benefits of hydrogen carrier gas without using hazardous cylinders.



**Hydrocarbon-Free
 Air Generators**

Parker's zero air generators produce a continuous flow of ultra pure zero grade air from an existing compressed air supply. When used in conjunction with a Parker hydrogen generator, gas chromatographers can totally automate and control their gas supply for GC-FID's.

The UHP zero air generator reduces the total hydrocarbon content (THC) to less than 0.1 ppm measured as methane. The generator produces lower, more stable baselines than cylinders, thus significantly enhancing the sensitivity of GC-FID analysis.

Simple

Now you can convert house air or compressed air into UHP zero air in just three easy steps: 1) supply standard AC electrical power to the system; 2) wait just a few minutes to warm up the catalytic converter — an operating light indicates when the system is ready; and 3) supply air flow and begin using your instrument.

The zero air generator produces gas equivalent to UHP zero air cylinder gas at a fraction of the cost. An inlet 0.5 micron coalescing filter removes particles, oil and water from the air supply. Hydrocarbons are removed when the compressed air is passed over a convertor containing a heated catalyst. And, after the air is cooled, a 0.01 micron membrane filter is used to remove any residual particles.

Parker ChromGas Zero Air Generators (ZAG) are temperature compensated to maintain consistent low THC impurity levels. The graph illustrates the performance of the model 3500. THC levels are stable over time, shortly after powering up the system.

Cost Effective

Parker's zero air generators produce up to 3500 cc/minute of UHP zero air, at low pressures of 2 to 125 psig — on demand. They afford the advantage of on-site gas generation. In gas savings alone, a UHP zero air generator can pay for itself in as little as six months of operation.

In addition to cost savings, there are valuable time savings. Now you can eliminate changing gas cylinders and save the time required to recalibrate your instrument after each cylinder change.

Low, Stable Baselines

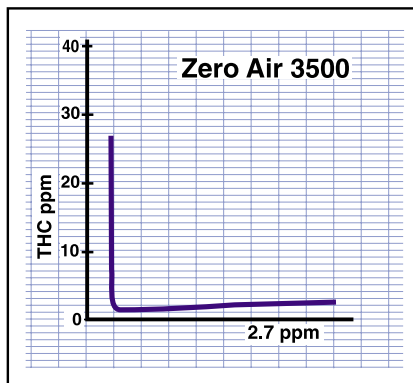
ChromGas generators provide years of stable and reliable UHP zero air supply and GC operation. Unlike other zero air generators, Parker's 3500 UHP zero air generators have a built-in electronic control to maintain the convertor and its optimum operating temperature. Line voltage and ambient temperature variations will not affect the absolute temperature of the heated catalyst. The quality of the produced hydrocarbon-free air is maintained for years.

System maintenance is minimal. We recommend changing the inlet and outlet filters every six months.



*Small, compact units:
 Model 1000: 0-1000 cc/minute
 Model 3500: 0-3500 cc/minute
 Delivery pressure: 2 to 125 psig*

This worry-free operation will also give you years of predictable GC performance. UHP zero air generators increase the accuracy of the analysis by producing a cleaner baseline readout. They also significantly reduce the cleaning requirement of the FID.



Quality products by Parker Hannifin are made in the U.S.A., and each gas generator incorporates superior workmanship and the best quality components available.

Today, with over 20,000 gas generators in routine use, we stand ready to handle any support situation a customer anywhere in the world may encounter.

Specifications

Hydrogen Generator 9000 Series

Electrical:

117 Vac/234 Vac

Dimensions:

Model 9090, 9150, 9200 and 9400:

Height: 14.75 inches (37.8 cm)

Width: 13 inches (33.3 cm)

Depth: 14 inches (35.9 cm)

Model 9800:

Height: 14.5 inches (37.2 cm)

Width: 13 inches (33.3 cm)

Depth: 17 inches (43.6 cm)

Weight:

40 lbs (18 kg) dry

Flow Rates:

Model 9090: 90 cc/minute

Model 9150: 160 cc/minute

Model 9200: 250 cc/minute

Model 9400: 500 cc/minute

Model 9800: 1200 cc/minute

Suggested Replacement Parts:

Model 1647727: Dessicant cartridge
(1 each)

Model 7601132: Deionizer bags
(2 each)

Purity:

99.99999% pure clean hydrogen gas.

Oxygen <1 ppm

Moisture <1 ppm

Hydrocarbons/halocarbons, 1 ppb

Delivery Pressure:

2 to 30 psig \pm 3%

30 to 100 psig \pm 2%

Pressure Control:

5 to 20 psig \pm 0.5%

20 to 100 psig \pm 0.2%

Zero Air Generator Series

Electrical:

60 Hz system:

Voltage (Vac) 100 to 125

Amperage (Amps) 1.0

Fuse (Amps) 1.5

Wattage (Watts) 100

50 Hz system:

Voltage (Vac) 200 to 250

Amperage (Amps) 0.5

Fuse (Amps) 0.8

Wattage (Watts) 100

Dimensions:

Model 3500:

Height: 12 inches (29.2 cm)

Width: 6.75 inches (17.8 cm)

Depth: 15 inches (39.4 cm)

Model 1000:

Height: 9.75 inches (25 cm)

Width: 5.75 inches (14.7 cm)

Depth: 12 inches (30.8 cm)

Weight:

Model 3500:

20 lbs (9.1 kg)

Model 1000:

11 lbs (5 kg)

Flow Rates:

Model 3500: 3500 cc/minute

Model 1000: 1000 cc/minute

Delivery Pressure:

Inlet air pressure: 2 to 125 psig.

Pressure drop at maximum flow rate:

5 psig

Flow rate pressure stabilization:

< 2 minute

Gas Characteristics:

Outlet THC as methane: <0.1 ppm

Maximum inlet THC: 100 ppm

Maximum inlet air temperature:

104 °F (40 °C)

Overheat shutdown: yes

Start-up time for maximum THC purity:

30 minutes without air flow;

45 minutes with air flow

An optional charcoal filter is needed if compounds that contain sulphur or halocarbons are present in the source air. This eliminates the possibility of contamination to the catalyst or reduction in the efficiency of the catalyst.

Free Literature

Performance documentation and application notes produced by GC experts illustrate how Parker's gas generators will enhance the performance and accuracy of your GC systems.

Filtration Group Technical Sales & Service Locations

Filtration and Separation Division

Distributed By Chrom Tech, Inc.
Apple Valley, MN 55124
Phone: 800-822-5242
Fax: 952-431-6345

Hydraulic Filter Division

16810 Fulton County Road #2
Metamora, OH 43540
Phone: (419) 644-4311
Fax: (419) 644-6205

1273 N. Church Road
Moorestown, NJ 08057
Phone: (856) 866-9002
Fax: (856) 866-9112

Process Filtration Division

1515 W. South Street
Lebanon, IN 46052
Phone: (765) 482-3900
Fax: (765) 482-8410

State Road 66
Tell City, IN 47856
Phone: (812) 547-2371
Fax: (812) 547-2380

Racor Division

3400 Finch Road
P.O. Box 3208
Modesto, CA 95353
Phone: (800) 344-3286
Phone: (209) 521-7860
Fax: (209) 529-3278

Route #3 Box 9
Henryetta, OK 74437
Phone: (800) 451-7299
Phone: (918) 652-4481
Fax: (918) 652-8882

302 Parker Dr.
Beaufort, SC 29902
Phone: (843) 846-3200
Fax: (843) 846-3231

Filter Division Europe

Churwell Vale
Shaw Cross Business Park
Dewsbury, England WF12 7RD
Phone: +44 1924 487000
Fax: +44 1924 487060

P.O. Box 3
Burrell Way
Thetford, Norfolk
IP24 3RT England
Phone: +44 1842 754251
Fax: +44 1842 753702

Fin-31700
Urjala As., Finland
Phone: +358 3 54 100
Fax: +358 3 54 10100

Teollisuustie 2
89400 Hyrynsalmi
Finland
Phone: +358 8 6532500
Fax: +358 8 6532520

Oude Kerkstraat 4
P.O. Box 258
4870 AG Etten-Leur
The Netherlands
Phone: +31 76 508 53 04
Fax: +31 76 508 53 12

P.O. Box 749
Maidstone
England ME16 0XY
Phone: +44 1622 686611
Fax: +44 1622 695322

Filtration Group Headquarters

6035 Parkland Blvd.
Cleveland, OH 44124-4141
Phone: (216) 896-3000
Fax: (216) 896-4021
<http://www.parker.com/filtration>

Parker Hannifin Ind. e Com.
Ltda. Filter Division
AV Getulio Vargas, 1331/1333
12300-000 Jacarei, SP

Brazil

Phone: +55 12 355 1000
Fax: +55 12 355 1010

Parker Hannifin Korea Limited
902 Dae Heung Bldg.
648-23 Yeoksam-dong
Kangnam-ku, Seoul,
Korea 135-080
Phone: +82 2 561 0414
Fax: +82 2 556 8187

Parker Worldwide Sales Offices

Contact Parker's worldwide service and distribution network by calling:

Argentina	+54 1 752 4129
Australia	+61 2 634 7777
Austria	+43 2622 23501 5
Belgium	+32 2 762 1800
Brazil	+55 11 847 1222
Canada	1-800-272-7537
Central & South America/Caribbean	1-305-470-8800
China	+86 21 6445 9339
Czech Republic	(420) (2) 830 85 22
Denmark	+45 43 541133
Finland	+358 3 54 100
France	+33 4 50 258025
Germany	+49 3727 90991
Hong Kong	+852 2428 8008
Hungary	+36 1 25 22 539
India	+91 22 577 1671
Italy	+39 2 451921
Japan	+81 45 861 3811
Jordan	(962) (6) 810679
Korea Choongnam	+82 417 583 1410
Korea Kyoungnam	+82 523 389 0100
Mexico	1-800-272-7537
Netherlands	+31 541 58500
New Zealand	+64 9 573 1523
Norway	+47 64 86 77 60
Poland	+48 22 8634942
Singapore	+65 261 5233
South Africa	+27 11 3927280
Spain	+34 1 6757300
Sweden	+46 8 760 2960
Switzerland	+41 (81) 2 526676
Taiwan	+886 2 8787 3780
Thailand	+662 693 3304
United Arab Emirates	+971 2 788587
United Kingdom	+44 1924 487000
USA	1-800-272-7537
Venezuela	+58 2 238 5422

Note: The (+) sign in front of the country code indicates that you may need to dial an additional prefix.



Member of



Parker Hannifin Corporation

Distributed By Chrom Tech, Inc.
P.O. Box 240248
Apple Valley, MN 55124
Phone: 800-822-5242 or 952/431-6000
Fax: 952-431-6345
www.chromtech.com • sales@chromtech.com

Bulletin M1084A Distr. USA
Reprinted July 2001