Hot-Shot™ Heated Enclosure Systems

Heated Gas Sampling System

Preserving Sample Integrity with API 14.1 Compliance

The Hot-Shot™ Heated Enclosure System will help prevent natural gas sampling distortion caused by condensation. This condition occurs when the temperature of the sampled gas drops below the hydrocarbon dew point of the flowing gas stream. The compact, versatile and cost-effective Heated Enclosure eliminates this problem by enclosing and heating the entire sampling system. To avoid errors of 10% or more, the Heated Enclosure keeps the sample collected as well as all sample system components at least 30°F above the hydrocarbon dew point of the gas being sampled.

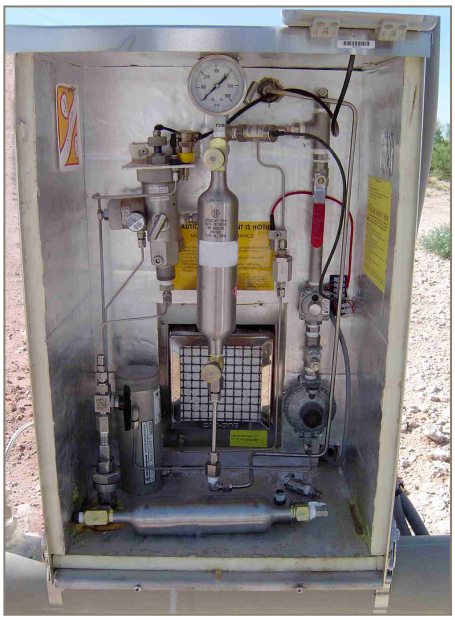
Product Features:

- Complies with API 14.1 recommendations for accurate sampling
- Sample probe, pump and cylinder are heated to between 100°F – 140°F using catalytic heater technology
- Certified Class I, Division 1 components
- Electric powered heater available
- Many mounting configurations available to fit all applications
- Field tested in hundreds of installations
- Gas BTU range of 900 – 1,250 BTU/cu. ft. natural gas (other ranges optional)

Heated Enclosures Overview

Product Features:

- Complies with API 14.1 recommendations for accurate sampling
- Sample probe, pump and cylinder are heated to between 100°F and 140°F
- Certified Class I, Division 1 components
- Can be retrofitted in the field for use with existing sample pump
- Heater supply gas taken from sample probe
- Electric powered heater available
- Enclosure has overheat protection
- Large capacity scrubber protects heater and sampler solenoid from moisture and H_2S
- Many mounting configurations available to fit all applications
- Field tested in hundreds of installations
- Gas BTU range of 900-1250 BTU/cu. ft. natural gas
  (See code BXX on Options list for gas supply outside this range)



Introduction to Hot-Shot™ Heated Enclosures

Over years of research and extensive testing to determine the best practices for collection and handling of natural gas samples for custody transfer, the American Petroleum Institute (API) continues to update Chapter 14.1 of the Manual of Petroleum Measurement Standards (MPMS). The API 14.1 standard recommends all natural gas sample system components be maintained at least 30° above the hydrocarbon dew point temperature of the gas being sampled. Tests indicate that if the temperature of any sampling system component drops below the hydrocarbon dew point, errors of more than 10% may occur.

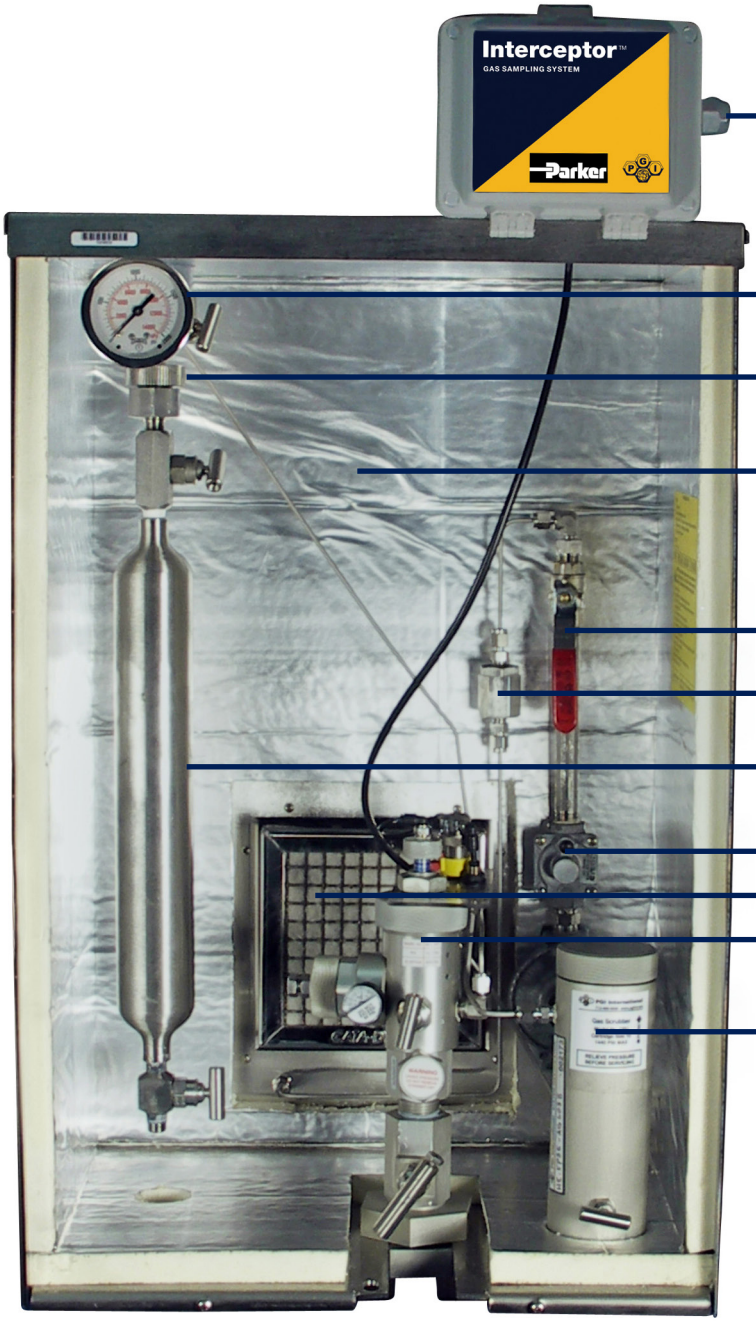
Parker's Hot-Shot™ Heated Enclosure Systems are engineered and designed to ensure natural gas samples and composite sampling system components are consistently maintained at a temperature above the hydrocarbon dew point of the flowing gas stream. In doing this the heated enclosure helps to assure that a true representative average sample is taken.

Parker's Hot-Shot™ Heated Enclosure Systems meet the requirements of API 14.1. All sampling components are heated and maintained between 100°F and 140°F (37°C and 60°C). Utilizing proven catalytic heater technology, the system runs off the natural gas sample source. If the enclosure temperature exceeds 200°F, a patented thermostat design ensures overheat protection with a safety shut-off feature.

Two compact Hot-Shot™ Heated Enclosure styles are now available and provide unique mounting capabilities. An array of additional options to customize your system is available to meet your specific sampling needs.

Heated Enclosures

Product Components:



Sample Pump Controller *

Cylinder Mount

"Q" Quick Connect

Polyisocyanurate Foam Insulation

Gas Supply Shutoff Valve

Thermostat

Sample Bottle *

Pressure Regulator

Catalytic Heater

Sample Pump *

Filter Canister

* *Sold separately*

HE-5 Ordering Information and Options

Ordering Information:

Building a Part Number: *Example:* **HE-5P1K-G2L02N3**					
Example Part Number:		**HE-5**	**P1K**	–	**G2L02N3**
Ordering Parameters/ Options:		Base Series	Pump Style		Options
Table Reference: (see below)			A		B

A - Pump Style	
P1E	PF1P
P1K	PF1K or T
P2E	PF2P
P2K	PF2K or T
P3E	PF3P
P3K	PF3K or T

B - Options	
B7	Catalytic Heater for 600 – 800 BTU/Cu. Ft. Natural Gas
B16	Catalytic Heater for 1500 – 1700 BTU/Cu. Ft. Natural Gas
B19	Catalytic Heater for 1800 – 2000 BTU/Cu. Ft. Natural Gas
C	120V Electric Heater
E	Electrical Start Up Leads Installed, 25' Length
GPA	Genie Filter Adapter
G	0 – 2000 PSI Liquid Filled Pressure Gauge
G2	0 – 100 PSI Liquid Filled Pressure Gauge
L01	Customer Probe Adapter (1/2" MNPT std.: N3= 3/4" MNPT, N4=1" MNPT)
L02	2" Insertion Length (1/2" MNPT std.: N3= 3/4" MNPT, N4=1" MNPT)
L03	3" Insertion Length (1/2" MNPT std.: N3= 3/4" MNPT, N4=1" MNPT)
L06	6" Insertion Length (1/2" MNPT std.: N3= 3/4" MNPT, N4=1" MNPT)
L10	10" Insertion Length (1/2" MNPT std.: N3= 3/4" MNPT, N4=1" MNPT)
MP1	300 Series SS Pipe Mount Stabilizer Kit
P	Pressure Transducer on Sample Cylinder 0 – 2000 PSI, 1 – 5 volt output
P1	Pressure Transducer on Sample Cylinder 0 – 1000 PSI, 1 – 5 volt output
T	4 Wire 100 Ohm RTD with cable for enclosure temperature monitoring

Cylinders and Pumps ordered separately.

See our Sample Cylinders & Accessories brochure for more product offerings.

HE-5 Standard Unit Includes:

- 300 Series SS enclosure, heater, and pressure regulator
- 140°F control thermostat with 200°F overheat protection
- Filter canister with CO_2, H_2S, and moisture scrubber element
- Lockable door added security
- Visual temperature gauge on door
- 1/4" MNPT Nipple for the bottle maintenance
- 316 SS tubing and fittings
- H_2S/ H_2O contamination desiccant indicators

Note: The standard heater is designed to operate with 900 – 1,250 BTU/Cu. Ft. natural gas.

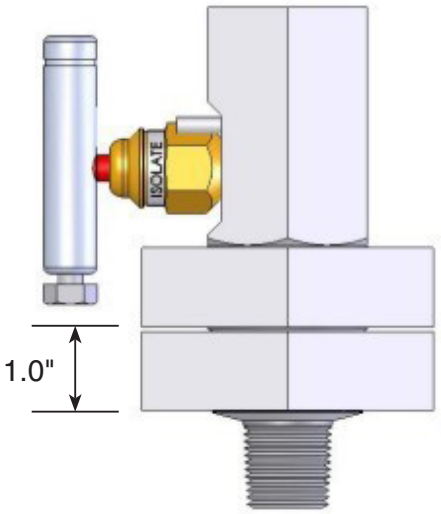
For operations outside of this range, see code "**BXX"** of options list. If you are between options, select lower heater BTU range option.

HE-5 Accessories

Customer Probe Adapters

Part Number: HE-PA-PA-(NX)
System Option: L01 (NX)
(Blank) = 1/2" MNPT Inlet (standard)
(N3) = 3/4" MNPT Inlet
(N4) = 1" MNPT Inlet

- To adapt existing sample probe for heated enclosure mounting
- Integral soft seat full port shut-off valve
- Functions as a 4” probe riser when mounted on existing probe
- Hard anodized aluminum construction for heat transfer and corrosion resistance
- Customer supplied insulation required
- 2,000 PSi maximum pressure @ 200ºF
- 1/2" MNPT inlet x 3/4" FNPT outlet (standard)

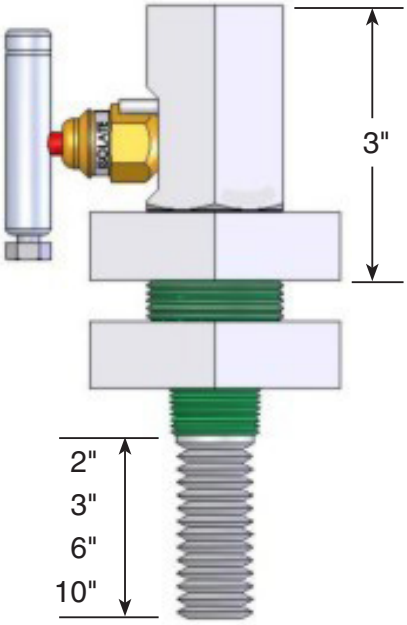


Finned Probe Assembly

Part Number: HE-P-STD-LXX (NX)
L02 = 2" Insertion Length
L03 = 3" Insertion Length
L06 = 6" Insertion Length
L10 = 10" Insertion Length

(Blank) = 1/2” MNPT Inlet (standard)
(N3) = 3/4” MNPT Inlet
(N4) = 1” MNPT Inlet

- Integral sample probe and enclosure mount
- Integral soft seat full port shut-off valve
- Hard anodized aluminum construction for heat transfer and corrosion resistance
- 2,000 PSi maximum pressure @ 200ºF



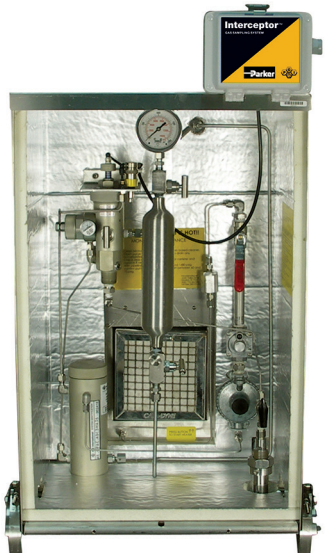
HE-6 Ordering Information and Options

Ordering Information:

Building a Part Number: *Example:* **HE-6P3K-EGJ4**					
Example Part Number:	**HE-6**		**P3K**	–	**EGJ4**
Ordering Parameters/ Options:	Base Series		Pump Style		Options
Table Reference: (see below)			A		B

A - Pump Style	
P1E	PF1P
P1K	PF1K or T
P2E	PF2P
P2K	PF2K or T
P3E	PF3P
P3K	PF3K or T

B - Options	
B7	Catalytic Heater for 600 – 800 BTU/Cu. Ft. Natural Gas
B16	Catalytic Heater for 1500 – 1700 BTU/Cu. Ft. Natural Gas
B19	Catalytic Heater for 1800 – 2000 BTU/Cu. Ft. Natural Gas
C	120V Electric Heater
E	Electrical Start Up Leads Installed, 25' Length
G	0 - 2000 PSI Liquid Filled Pressure Gauge
G2	0 - 100 PSI Liquid Filled Pressure Gauge
J2*	Saddle Mount Bracket for 2" Pipe Size
J3*	Saddle Mount Bracket for 3" Pipe Size
J4*	Saddle Mount Bracket for 4" Pipe Size
J6*	Saddle Mount Bracket for 6" Pipe Size
J8*	Saddle Mount Bracket for 8" Pipe Size
J10*	Saddle Mount Bracket for 10" Pipe Size
J12*	Saddle Mount Bracket for 12" Pipe Size
P	Pressure Transducer on Sample Cylinder 0 – 2000 PSI, 1 – 5 volt output
P1	Pressure Transducer on Sample Cylinder 0 – 1000 PSI, 1 – 5 volt output
T	4 Wire 100 Ohm RTD with cable for Enclosure Temperature Monitoring



Cylinders and Pumps ordered separately.

See our Sample Cylinders & Accessories brochure for more product offerings.

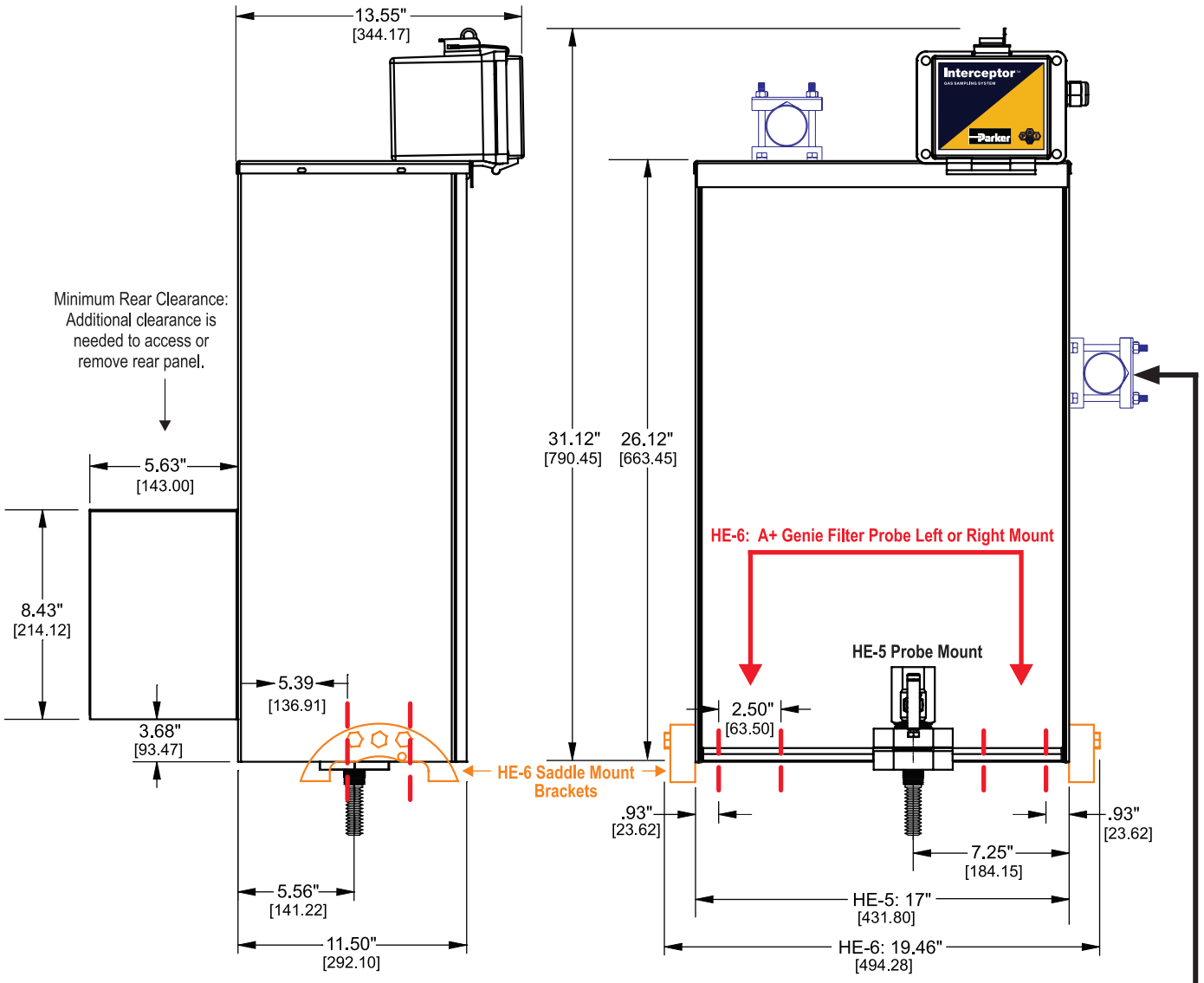
HE-6 Standard Unit Includes:

- 300 Series SS enclosure, heater, and pressure regulator
- 316 SS tubing and fittings
- 140°F control thermostat with 200°F overheat protection
- Filter canister with CO_2, H_2S, and moisture scrubber element
- Tubing and cut out to mount probe on right or left side
- 3 ft. pigtail with 1/32" orifice
- Lockable door for added security
- Visual temperature gauge on door
- 1/4" MNPT Nipple for the bottle maintenance
- H_2S/ H_2O contamination desiccant indicators
- Genie filter probe must be purchased as a separate line item (see page 8)

Note: The standard heater is designed to operate with 900 – 1,250 BTU/Cu. Ft. natural gas.

For operations outside of this range, see code "**BXX**" of options list. If you are between options, select lower heater BTU range option.

HE-5 and HE-6 Dimensions



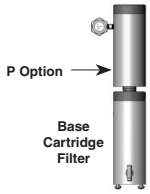
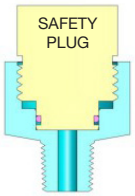
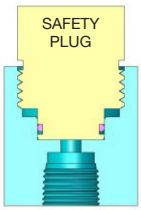
Pipe Mount Stabilizer Kits

To accommodate 2" pipe support in high wind or vibration conditions. (Installed on-site)

Includes Stabilizing Plate, (2) 2" (50.8mm) U-Bolt Brackets, (4) Split and Flat Washers, (2) O-Rings, and (6) Hex Head Bolts.

Part Number: HE-MP1 Stainless Steel

Spare Parts and Accessories

Part Number	Description
Sample Pump Quick Mount "Q" Adapter O-Ring	
P5-131-R1	Replacement O-Ring
H_2S / H_2O Filter Cartridge	
P7-147	Replacement Cartridge for CO_2, H_2S, and H_20 Filtration
Cartridge Filter Canister Assembly (HE-5 only)	
CFU	Drop-in replacement for unit in heated enclosure system
CFU-C	Drop-in replacement for unit in heated enclosure system (Canada only)
	
	Option **P** = Piggyback Canister
	Optional configurations for heated enclosure include: CFU-P (add "C" for Canadian version)
"Q" Bottle Mount Service Kit	
SK-HE-003	Bottle Mount, spacer, valve and seat plus mounting screws
Genie Filter Probe Adapter	
HE-PA-GPA	Mounts to the Genie membrane filter sample probe and provided for enclosure mounting; aluminum construction integral shut-off valve - **HE-5 ONLY**
HE-067	Genie Probe Length: 2-3" (includes shut-off valve)
HE-064	Genie Probe Length: 4" (includes shut-off valve)
HE-065	Genie Probe Length: 6-8" (includes shut-off valve)
HE-066	Genie Probe Length: 10-12" (includes shut-off valve)
Heated Enclosure Thermostat Assembly	
HE-T-1420-011	(Natural Gas) Replacement thermostat assembly set between 100°F - 140°F with 200°F maximum overheat protection
HE-T-1715	Replacement high altitude thermostat assembly set between 100°F - 140°F with 200°F maximum overheat protection
Sample Bottle Quick Mount "Q' Adapters: includes a safety plug for guaranteed sample retention in transit	
Adapts a sample bottle having a **Female** shut-off valve outlet for use with the heated enclosure system. Includes Safety Plug and O-ring, 1/4" Male NPT inlet x "Q" Adapter outlet.	
QA-M-14-S	(316 SS)
HE-037-C0	Adapter with NO Safety Plug - 316 SS
Adapts a sample bottle having a **Male** shut-off valve outlet for use with the heated enclosure system. Includes Safety Plug and O-ring, 1/4" Female NPT inlet x "Q" Adapter outlet.	
QA-F-14-S	(316 SS)
HE-080-C0	Adapter with NO Safety Plug - 316 SS

HE-5 and HE-6 Interceptor Samplers

Ordering Information:

Building a Part Number: *Example:* PF3PL-Z2

Example Part Number:	PF	3	P	L	–	Z2
Ordering Parameters/Options:	Base Series	Pump Style	System Configuration	Mounting Methods		Options
Table Reference: (see below)		A	B	C		D

A - Pump Style			
Code	Regulator	Outlet Control	Inlet Pressure
1	No	Spring Check	50 to 90 PSI (see S2 options for under 50 PSI)
2	No	Balance Valve	90 to 1480 PSI severe service with H2S and CO2 (requires alternative air or gas source to operate solenoid) (see Z3 options for 90 to 2200 PSI)
3	Yes	Balance Valve	90 to 1480 PSI (see Z2 options for 90 to 2200 PSI)

B - System Configuration					
Code	Controller	Solenoid	Electronics Enclosure	Bite Size Adjustment	Power
K	None	12 VDC	None	Adjustable from 0cc to .5cce	Customer Supplied
P	G 6000	6 VDC	On top of Heated Enclosure	Adjustable from 0cc to .5cce	PF-2500 (14 amp hour battery)
T	None	24 VDC	None	Adjustable from 0cc to .5cce	Customer Supplied

C - Mounting Methods		
Code	Heated Enclosure	Description
L	HE-5	No probe; 3/4" MNPT pump connection; requires addition of a probe adapter, probe or riser option (sold separately) (L01/L02/L03/L06/L10) in the HE-5 Heated Enclosure Part No. selection
L	HE-6	No probe; 3/8" FNPT with tubing pump connection (Genie probe sold separately and is selected under the Spare Parts and Accessories section on page 8)

D - Options: **Note:** First letter of an option is written once (i.e., "Z2", "Z4" and "Z5" write as "Z245")	
Code	Description
Heated Enclosed Mounting Option	
H6	Pump mounted inside Heated Enclosure (HE-6 only)
Solenoid and Low-Pressure Set Options	
S2	Low pressure solenoid, 12 VDC or 6 VDC, 50 PSI max. pipeline pressure (15 to 50 PSI factory-set spring check)
S2P1	Low Pressure Solenoid, 5-15 PSI factory set spring check (.5cc minimum bite) **PF1 Only**
S2P2	Low Pressure Solenoid, vacuum to 5 PSI factory set spring check (.5cc minimum bite) **PF1 Only***
Pump Options	
ZA	PF3 Low-Temperature O-Rings (-40°F)
Z2	316 SS Pump and Regulator for PF3 - rated to 2200 PSI maximum inlet pressure **
Z3	316 SS Pump for PF1 and PF2 - rating changes to 2200 PSI maximum inlet pressure for the PF2 only **
Z4	"E" Nickel/316 SS Fittings to Solenoid
Z5	CO_2 Service O-Rings

* Requires a minimum of 30 PSI alternative source to operate solenoid

** 140°F max. temperature to meet NACE MR0175/ISO 15156-3

NOTES:

Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further information call 1-800-C-Parker.

MARKET	KEY MARKETS		KEY PRODUCTS	
 **AEROSPACE**	Aircraft Engines Commercial Commerical Transports Military Aircraft Regional Transports	Business and General Aviation Land-Based Weapons Systems Missiles and Launch Vehicles Unmanned Aerial Vehicles	Flight Control Systems & Components Fluid Conveyance Systems Fluid Metering Delivery & Atomization Devices Fuel Systems & Components	Hydraulic Systems & Components Inert Nitrogen Generating Systems Pneumatic Systems & Components Wheels & Brakes
 **CLIMATE CONTROL**	Agriculture Food, Beverage and Dairy Precision Cooling Transportation	Air Conditioning Life Sciences & Medical Processing	Co2 Controls Electronic Controllers Filter Driers Hand Shut-Off Valves Hose & Fittings	Pressure Regulating Valves Refrigerant Distributors Safety Relief Valves Solenoid Valves Thermostatic Expansion Valves
 **ELECTRO-MECHANICAL**	Aerospace Life Science & Medical Packaging Machinery Plastics Machinery & Converting Semiconductor & Electronics Factory Automation	Machine Tools Paper Machinery Primary Metals Textile Wire & Cable	AC/DC Drives & Systems Electric Actuators, Gantry Robots & Slides Electrohydrostatic Actuation Systems Electromechanical Actuation Systems Human Machine Interface	Linear Motors Stepper Motors, Servo Motors Drives & Controls Structural Extrusions
 **FILTRATION**	Food & Beverage Life Sciences Mobile Equipment Power Generation Transportation	Industrial Machinery Marine Oil & Gas Process	Analytical Gas Generators Compressed Air & Gas Filters Condition Monitoring Engine Air, Fuel & Oil Filtration & Systems	Hydraulic, Lubrication & Coolant Filters Process, Chemical, Water Microfiltration Filters Nitrogen, Hydrogen & Zero Air Generators
 **FLUID and GAS HANDLING**	Aerospace Agriculture Bulk Chemical Handling Construction Machinery Food & Beverage Fuel & Gas Delivery	Industrial Machinery Mobile Oil & Gas Transportation Welding	Brass Fittings & Valves Diagnostic Equipment Fluid Conveyance Systems Industrial Hose	PTFE & PFA Hose, Tubing & Plastic Fittings Rubber & Thermoplastic Hose & Couplings Tube Fittings & Adapters Quick Disconnects
 **HYDRAULICS**	Aerospace Aerial lift Agriculture Construction Machinery Forestry	Industrial Machinery Mining Oil & Gas Power Generation & Energy Truck Hydraulics	Diagnostic Equipment Hydraulic Cylinders & Accumulators Hydraulic Motors & Pumps Hydraulic Systems Hydraulic Valves & Controls	Power Take-Offs Rubber & Thermoplastic Hose & Couplings Tube Fittings & Adapters Quick Disconnects
 **PNEUMATICS**	Aerospace Conveyor & Material Handling Factory Automation Life Science & Medical	Machine Tools Packaging Machinery Transportation & Automotive	Air Preparation Brass Fittings & Valves Manifolds Pneumatic Accessories Pneumatic Actuators & Grippers Pneumatic Valves & Controls	Quick Disconnects Rotary Actuators Rubber & Thermoplastic Hose & Couplings Structural Extrusions Thermoplastic Tubing & Fittings Vacuum Generators, Cups & Sensors
 **PROCESS CONTROL**	Chemical & Refining Food, Beverage & Dairy Medical & Dental	Microelectronics Oil & Gas Power Generation	Analytical Sample Conditioning Products & Systems Fluoropolymer Chemical Delivery Fittings, Valves & Pumps High Purity Gas Delivery Fittings, & Valves & Regulators	Instrumentation Fittings, Valves Regulators Medium Pressure Fittings & Valves Process Control Manifolds
 **SEALING and SHIELDING**	Aerospace Chemical Processing Consumer Energy, Oil & Gas Fluid Power General Industrial	Information Technology Life Sciences Military Semiconductor Transportation	Dynamic Seals Elastomeric O-Rings Emi Shielding Extruded & Precision-Cut, Fabricated Elastomeric Seals	Homogeneous & Inserted Elastomeric Shapes High Temperature Metal Seals Metal & Plastic Retained Composite Seals Thermal Management

Parker Worldwide

North America

USA – Corporate, Cleveland, OH
Tel: +1 256 896 3000

USA – IPD, Huntsville, AL
Tel: +1 256 881 2040
ipdcct@parker.com

USA – IPD, (PGI), Houston, TX
Tel: +1 713 466 0056
pgi_sales@parker.com

USA – IPD, (Autoclave), Erie, PA
Tel: +1 814 860 5700
ipdaecct@parker.com

CA – Canada, Grimsby, Ontario
Tel +1 905-945-2274
ipd_canada@parker.com

South America

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129
falecom@parker.com

BR – Brazil, Diadema, SP
Diadema, SP
Tel: +55 11 4360 6700
falecom@parker.com

CL – Chile, Santiago
Tel: +56 (0) 2 2303 9640
falecom@parker.com

MX – Mexico, Toluca
Tel: +52 722 275 4200
contacto@parker.com

Asia Pacific

AU – Australia, Dandenong
Tel: +61 (0)2 9842 5150
customer.service.au@parker.com

CN – China, Shanghai
Tel: +86 21 2899 5000
INGtechnical.china@parker.com

HK – Hong Kong
Tel: +852 2428 8008

IN – India, Mumbai
Tel: +91 22 6513 7081-85

ID – Indonesia, Tangerang
Tel: +62 2977 7900
parker.id@parker.com

JP – Japan, Tokyo
Tel: +(81) 3 6365 4020
infophj@parker.com

KR – South Korea, Seoul
Tel: +82 2 559 0400
parkerkr@parker.com

MY – Malaysia, Selangor
Tel: +603 784 90 800
parkermy@parker.com

SG – Singapore,
Tel: +65 6887 6300
parkersg@parker.com

TH – Thailand, Bangkok
Tel: +66 2 186 7000
phthailand@parker.com

TW – Taiwan, Taipei
Tel: +886 2 2298 8987
enquiry.taiwan@parker.com

VN – Vietnam, Hochi Minh City
Tel: +848 382 508 56
parker_viet@parker.com

Europe, Middle East, Africa

AE – UAE, Dubai
Tel: +971 4 812 7100
parker.me@parker.com

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BG – Bulgaria, Sofia
Tel: +359 2 980 1344
parker.bulgaria@parker.com

BY – Belarus, Minsk
Tel: +48 (0)22 573 24 00
parker.belarus@parker.com

CH – Switzerland, Etoy
Tel: +41 (0) 21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 33 00 01
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budapest
Tel: +36 223 885 470
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty
Tel: +7 7273 561 000
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Stavanger
Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev
Tel: +48 (0)22 573 24 00
parker.ukraine@parker.com

UK – United Kingdom, Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

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Parker Hannifin Corporation
Instrumentation Products Division
16101 Vallen Drive
Houston, TX 77041 USA
Phone:(713) 466-0056 • Fax: (713) 744-9892
pgi_sales@parker.com | www.parker.com/ipd