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ACT COMPLIANT



**Commercial
PCAir Units**

**Service and
Spare Parts**

**Ground Power
400 Hz, 270 & 28
VDC**

**Aircraft
Service Pits**

Hose Retrievers

**F35 & F16
PCAir**



14034 Clarendon Point Court
Huntersville, NC 28078 USA

Phone: 704-992-9522

sales@bgsegroup.com

bgsegroup.com

An Extraordinary Company

GSE Solutions for Commercial & Military Applications

B GSE Group's first focus is solving customers' problems. Second, we want to offer systems versus products. Third, we want to support our customer with top engineering expertise.

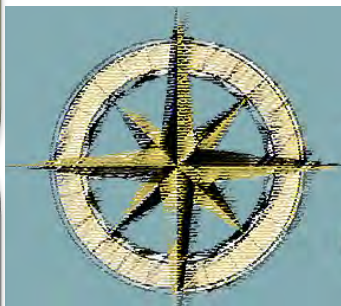
- ⊗ Passed the **\$US 60 Million** supply mark in the last five years
- ⊗ Provides the most **advanced Integrated ground services** systems (power, preconditioned air, wet services, etc.)
- ⊗ Introduced the **"Best"** PCAir Hose Retriever to the market
- ⊗ Established dominance in the supply of **Quality US Made Aircraft Service Pits**

- ⊗ Dominates **Military Programs** For PCAir and 400Hz (F-35 and F-16)

- ⊗ Point-of-Use and Central Systems that are fully supported with **engineering and application expertise**

An Extraordinary Company

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Get support

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B GSE GROUP	PROJECTS	PC Air POU	HOSE RETRIEVER	400HZ POU	270 & 28 VDC	CONTACT	MORE
SERVICE PITS	F-35 SPECIAL	PC AIR DIESEL	PC AIR ACCESSORIES	400HZ ACCESSORIES	DIESEL POWER	OTHER ACCESSORIES	MUST SEE

PCAir www.bgsegroup.com/pc-air-point-of-use

www.bgsegroup.com/pc-air-diesel

Central System and Point-of-Use (PoU)

30, 45, 60, 90, 120-ton

Mobile, PBB-mounted, Ground-mounted



PCAir Accessories www.bgsegroup.com/pc-air-accessories

Hoses, connectors and insulated ducting

Hose retrievers and reels

J-boxes and remote stations



Power www.bgsegroup.com/400hz-point-of-use

www.bgsegroup.com/270vdc-and-28vdc

400Hz, 270VDC, 28VDC; PoU and Central System

Mobile, PBB-mounted, Ground-mounted



Power Accessories www.bgsegroup.com/400hz-accessories

Cables, cable hoists, cable reels

J-boxes, Distribution panels, Line-drop compensators

Cable rack stands, pedestals Remote stations



Service Pits www.bgsegroup.com/service-pits

Electric pits with 400 Hz, 270 VDC & 28 VDC

PCAir pits with single and dual hoses

Wet services (lav, blue water, potable water)



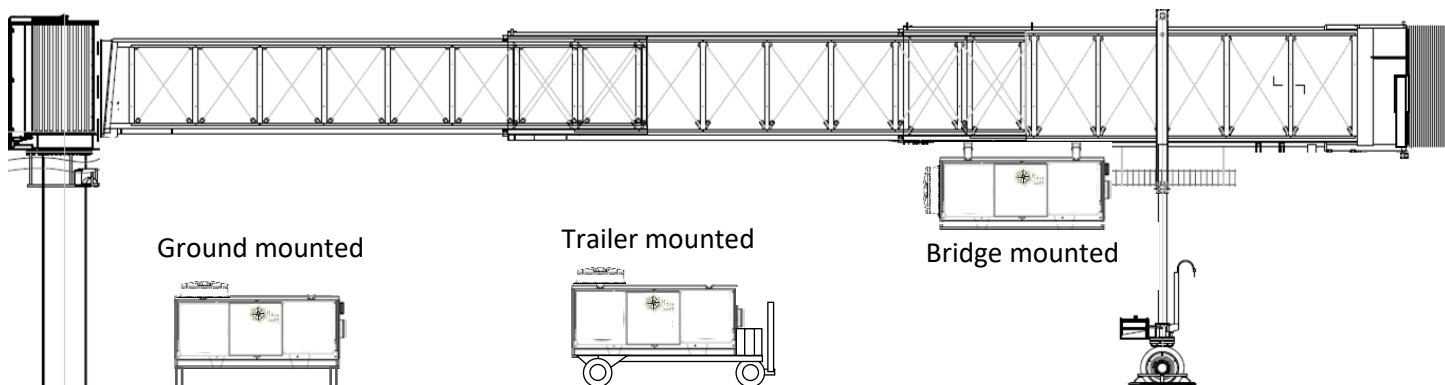
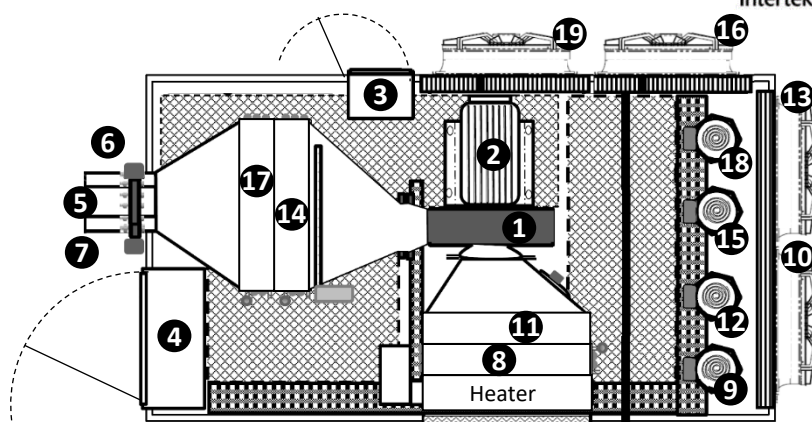
Other products: 270VDC & 28VDC converters, power pedestals, cable coilers, cables, hoses, reels, hoists, distribution panels, smart boxes, LDC units, mobile units.

PoU PCAir Air Cooled Direct Expansion

- ✦ Built with the quality to last decades
- ✦ Customer-pleasing performance on day 1
- ✦ Supported by an agile, engineering-minded company focused on service excellence



	BGAC030	BGAC045	BGAC060	BGAC090
1 Blower	20-hp	30-hp	50-hp	60-hp
2 TEFC blower motor	✓	✓	✓	✓
3 Blower motor VFD	✓	✓	✓	✓
4 Electrical Box	✓	✓	✓	✓
5 Main Air Outlet	✓	✓	✓	✓
6 Optional PBB Cool Outlet	✓	✓	✓	✓
7 Optional 2 nd Air Outlet			✓	✓
8 Stage 1 Cooling Coil	15-ton	15-ton	15-ton	15-ton
9 Stage 1 Compressor	15-ton	15-ton	15-ton	15-ton
10 Condenser Fan				
11 Stage 2 Cooling Coil				
12 Stage 2 Compressor				
13 Condenser Fan				
14 Stage 3 Cooling Coil		15-ton	15-ton	15-ton
15 Stage 3 Compressor		15-ton	15-ton	30-ton
16 Condenser Fan				
17 Stage 4 Cooling Coil			15-ton	30-ton
18 Stage 4 Compressor				
19 Condenser Fan				



Northern-Air
systems

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PoU PCAir Air Cooled Direct Expansion



Design Ambient:	95°F (35.0°C) dry bulb 78.0°F (25.6°C) wet bulb		Ambient limits:	-40°F to +125°F 0%-100% RH	
	BGAC030 30-ton	BGAC045 45-ton	BGAC060 60-ton	BGAC090 90-ton	
Electrical	per NEC 440.33				
Voltage / Frequency	480 V / 3P / 60 Hz	480 V / 3P / 60 Hz	480 V / 3P / 60 Hz	480 V / 3P / 60 Hz	
Cooling Amps MCA / MOP	89 A / 100 A	158 A / 175 A	176 A / 200 A	215 A / 250 A	
Heater Options	36 kW 54 kW	54 kW 100 kW	54 kW 100 kW	60 kW 120 kW	
Heat Amps MCA / MOP	90 / 100 118 / 125	132 / 150 208 / 225	162 / 200 234 / 300	186 / 250 280 / 350	
Blower	20 BHP, Centrifugal	30 BHP, Centrifugal	50 BHP, Centrifugal	60 BHP, Centrifugal	
Mass Airflow (Variable)	180 ppm @ 24 in WG	284 ppm @ 28 in WG	340 ppm @ 30 in WG	480 ppm @ 36 in WG	
Mass Airflow (Variable)	1.36 kg/s @ 6.1 kPa	2.15 kg/s @ 7.1 kPa	2.57 kg/s @ 7.6 kPa	3.63 kg/s @ 9.2 kPa	
Volumetric Airflow	2,430 CFM / 4,126 m³/h	3,830 CFM / 6,510 m³/h	4,590 CFM / 7,790 m³/h	6,480 CFM / 11,000 m³/h	
Discharge Air Temp	24 to 40°F (-7.2 to 4.4 °C)	24 to 40°F (-7.2 to 4.4 °C)	24 to 40°F (-7.2 to 4.4 °C)	24 to 40°F (-7.2 to 4.4 °C)	
Sound Level	85 dBA @ 15 Ft.	85 dBA @ 15 Ft.	85 dBA @ 15 Ft.	85 dBA @ 15 Ft.	
Evaporator Coils	4-row	4-row	4-row	4-row	
Tube / Fin Material	Cu / Al (enhanced)	Cu / Al (enhanced)	Cu / Al (enhanced)	Cu / Al (enhanced)	
Defrost interval	20-90 Min	20-90 Min	20-90 Min	20-90 Min	
Compressors	2 x 15 Tons Each	3 x 15 Tons Each	4 x 15 Tons Each	2 x 15, 2 x 30 Tons	
Refrigerant	410A	410A	410A	410A	
Condenser Coils	4-row	4-row	4-row	4-row	
Tube / Fin Material	Cu / Al (enhanced)	Cu / Al (enhanced)	Cu / Al (enhanced)	Cu / Al (enhanced)	
Condenser Fans	2 x 5 BHP	3 x 5 BHP	4 x 5 BHP	4 x 7.5 BHP	
Diameter	36 in (905 mm)	36 in (905 mm)	36 in (905 mm)	36 in (905 mm)	
Meets Airbus Compliance Document for Suppliers X21RP1146224_v7, Boeing Aircraft Maintenance Manuals (AMM) and Facility Planning Guides IATA AHM 974 and IATA AHM 997, AHRI-410. Labeling Process by ETL to UL-1995. Specifications subject to change without notice.					

Optional Features:

- Single or Dual Hose Outlets + Bridge Cool
- Apron Management System Interface (Ethernet or Modbus)
- Boarding Bridge Cooling / Heating and Controls
- Delivery Hose (style / length) and Connectors
- Hose Storage and Retrieval Systems
- Coil Phenolic Coating
- VFD Drives on Blower / Condenser Fan Motors
- Standard and High-Capacity Heating Coils
- Aircraft Cabin or Bridge Temperature Probes
- Optional PLC Manufacturers

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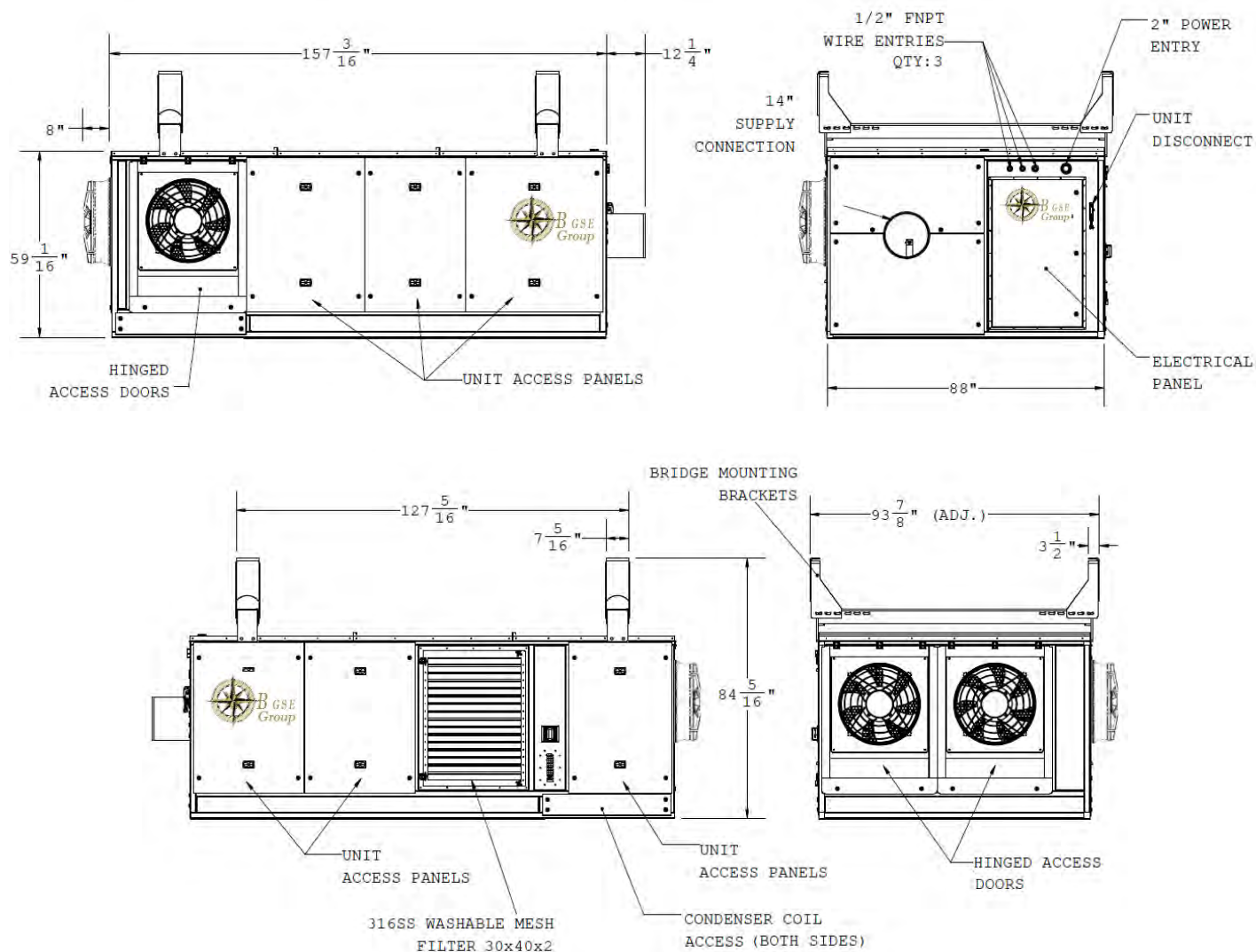
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PoU PCAir

Air Cooled Direct Expansion



Dimensions / Weight

Length	165 in (4191 mm)
Width	88 in (2235 mm)
Height	60 in (1549 mm)
Weight (30-ton)	3,735 lbs. (1,694 kg)
Weight (45-ton)	4,925 lbs. (2,234 kg)
Weight (60-ton)	5,285 lbs. (2,397 kg)
Weight (90-ton)	8,680 lbs. (3,937 kg)



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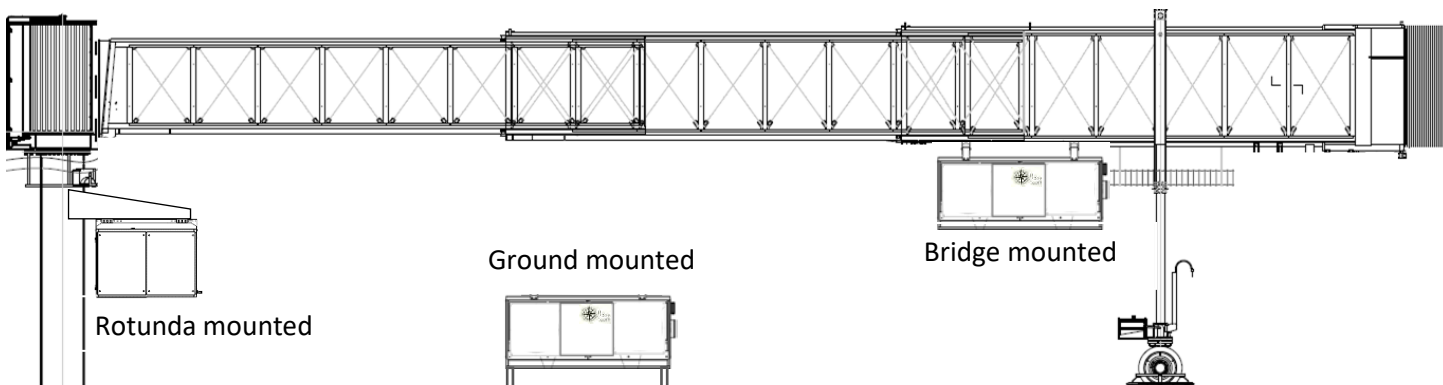
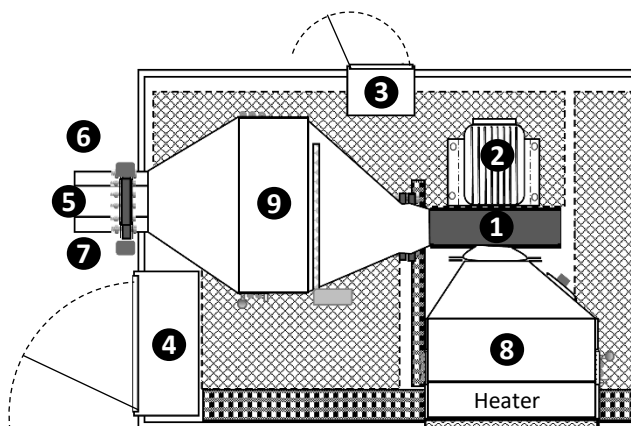
AHU PCAir Chilled Water / Glycol



- ✦ Built with the quality to last decades
- ✦ Customer-pleasing performance on day 1
- ✦ Supported by an agile, engineering-minded company focused on service excellence



	BGAC030A	BGAC045A	BGAC060A	BGAC090A	BGAC120A
1 Blower	20-hp	30-hp	50-hp	60-hp	80-hp
2 TEFC Blower Motor	✓	✓	✓	✓	✓
3 Blower Motor VFD	✓	✓	✓	✓	✓
4 Electrical Box	✓	✓	✓	✓	✓
5 Main Air Outlet	✓	✓	✓	✓	✓
6 Optional PBB Cool Outlet	✓	✓	✓	✓	✓
7 Optional 2 nd Air Outlet			✓	✓	✓
8 Stage 1 Cooling Coil	✓	✓	✓	✓	✓
9 Stage 2 Cooling Coil	✓	✓	✓	✓	✓



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AHU PCAir Chilled Water / Glycol

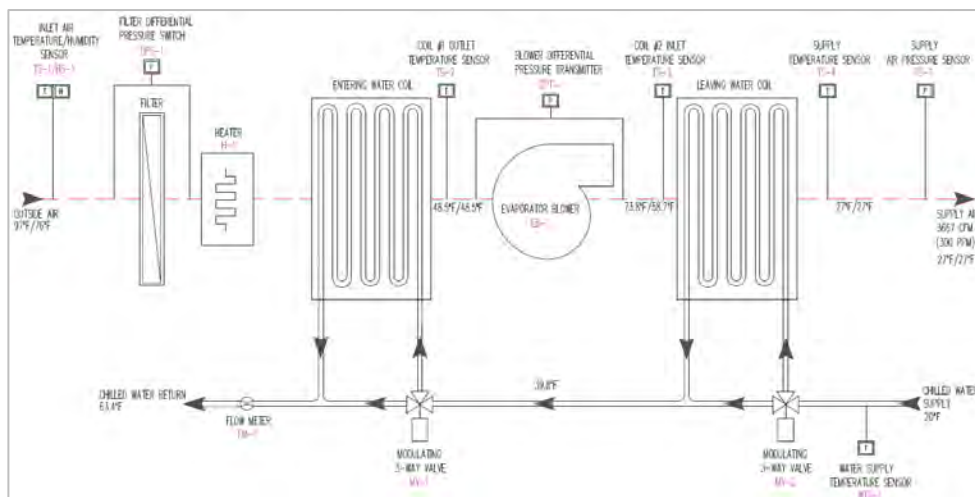


Design Ambient:	95°F (35.0°C) dry bulb 78.0°F (25.6°C) wet bulb		Ambient limits: -40°F to +125°F 0%-100% RH		
	BGAC030A 30-ton	BGAC045A 45-ton	BGAC060A 60-ton	BGAC090A 90-ton	BGAC120A 120-ton
Electrical per NEC 440.33					
Voltage / Frequency	480 V / 3P / 60 Hz	480 V / 3P / 60 Hz	480 V / 3P / 60 Hz	480 V / 3P / 60 Hz	480 V / 3P / 60 Hz
Cooling Amps MCA / MOP	37 A / 50 A	44 A / 60 A	77 A / 100 A	90 A / 125 A	135 A / 200 A
Heater Options	30 kW 36 kW	30 kW 36 kW	30 kW 36 kW	36 kW 56 kW	36 kW 56 kW
Heater Amps MCA / MOP	80 / 100 90 / 100	95 / 125 104 / 125	124 / 175 133 / 175	148 / 225 179 / 250	105 / 125 113 / 150
Blower	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
Motor Hp	20 BHP	30 BHP	50 BHP	60 BHP	80 BHP
Mass Airflow (Variable)	180 ppm @ 24 "wg	284 ppm @ 28 "wg	340 ppm @ 30 "wg	480 ppm @ 36 "wg	588 ppm @ 42 "wg
Mass Airflow (Variable)	1.36 kg/s @ 6.1 kPa	2.15 kg/s @ 7.1 kPa	2.57 kg/s @ 7.6 kPa	3.63 kg/s @ 9.2 kPa	4.45 kg/s @ 10.7 kPa
Volumetric Airflow	2,430 CFM 4,126 m³/h	3,830 CFM 6,510 m³/h	4,590 CFM 7,790 m³/h	6,480 CFM 11,000 m³/h	7,940 CFM 13,480 m³/h
Discharge Air Temp	24 to 40°F (-7.2 to 4.4 °C)	24 to 40°F (-7.2 to 4.4 °C)	24 to 40°F (-7.2 to 4.4 °C)	24 to 40°F (-7.2 to 4.4 °C)	24 to 40°F (-7.2 to 4.4 °C)
Sound Level	85 dBA @ 15 Ft.	85 dBA @ 15 Ft.	85 dBA @ 15 Ft.	85 dBA @ 15 Ft.	85 dBA @ 15 Ft.
Cooling Coils	8-row, tube/fin	8-row, tube/fin	8-row, tube/fin	8-row, tube/fin	8-row, tube/fin
EGW Ent. Temp / Flow	20°F / 18 gpm	20°F / 30 gpm	20°F / 65 gpm	20°F / 60 gpm	20°F / 80 gpm
Max. Pressure Drop	18 psig	30 psig	60 psig	54 psig	74 psig
Defrost interval	60-90 Min	60-90 Min	60-90 Min	60-90 Min	60-90 Min

Meets Airbus Compliance Document for Suppliers X21RP1146224_v7, Boeing Aircraft Maintenance Manuals (AMM) and Facility Planning Guides, IATA AHM 974 and IATA AHM 997, AHRI-410. Labeling Process by ETL to UL-1995. Specifications subject to change without notice.

Optional Features:

- Single or Dual Hose Outlets + Bridge Cool
- Apron Management System Interface (Ethernet or Modbus)
- Boarding Bridge Cooling / Heating and Controls
- Delivery Hose (style / length) and Connectors
- Hose Storage and Retrieval Systems
- VFD Drives on Blower / Condenser Fan Motors
- Standard and High-Capacity Heating Coils
- Aircraft Cabin or Bridge Temperature Probes
- Optional PLC Manufacturers



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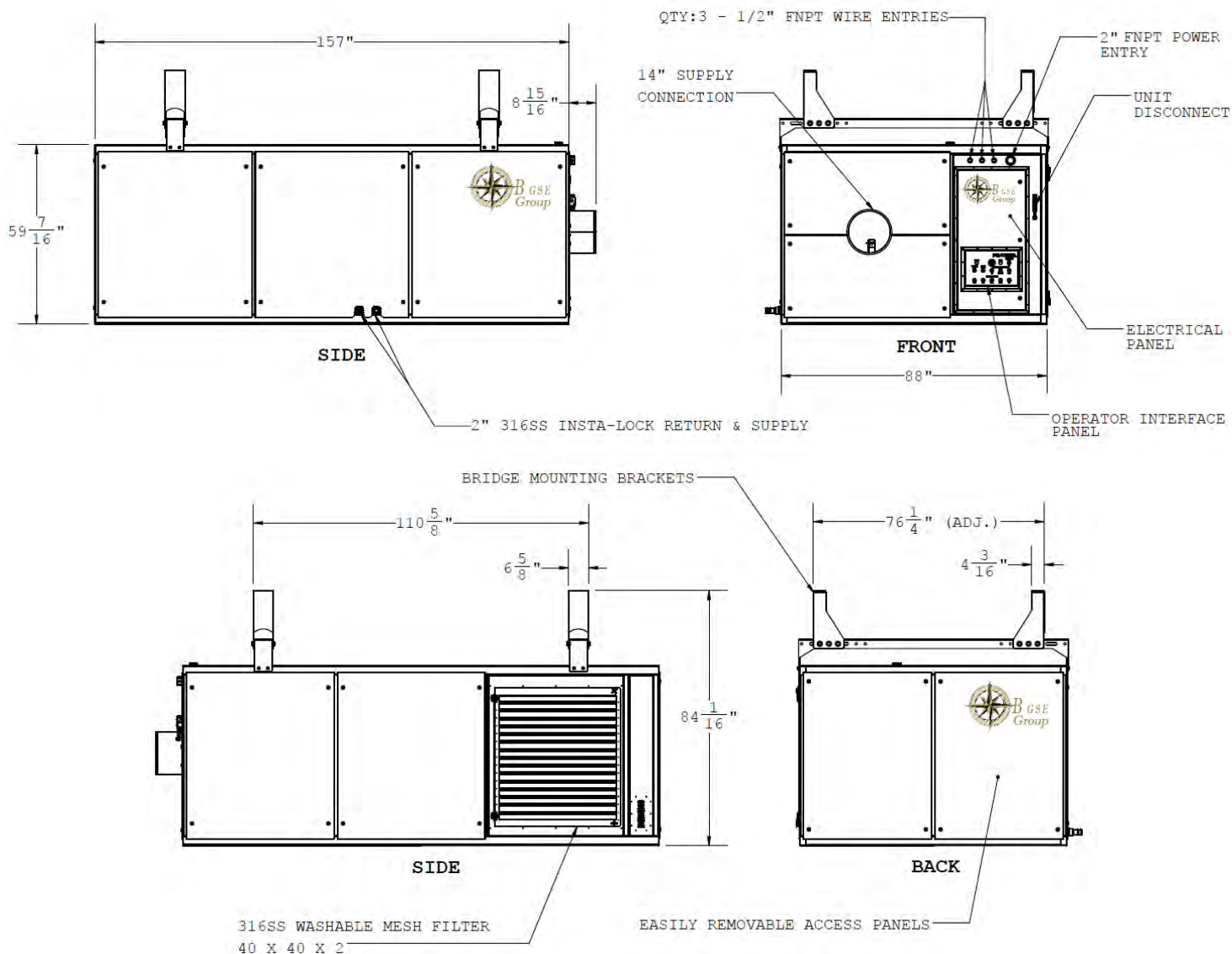
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AHU PCAir

Chilled Water / Glycol



Dimensions / Weight

Length	157 in (3988 mm)
Width	88 in (2235 mm)
Height	60 in (1524 mm)
Weight (30-ton)	2,700 lbs. (1,225 kg)
Weight (45-ton)	2,700 lbs. (1,225 kg)
Weight (60-ton)	2,900 lbs. (1,315 kg)
Weight (90-ton)	3,200 lbs. (1,451 kg)
Weight (120-ton)	4,600 lbs. (2,087 kg)



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PCAir Hose Retriever



The most advanced and innovative PCA hose retriever on the market. Design integrity and field experience has resulted in hundreds of units in service worldwide.



EXCLUSIVE FEATURES:

- ❑ Four inverter-driven motors/belts for smooth extraction and retraction without chains, gears, or rotating shafts. Strap pressure is adjustable to maximize performance in every operating set-up and environment.
- ❑ Anodized aluminum tube offers maximum corrosion resistance and an attractive aesthetic look.
- ❑ Control panel (stainless steel, protection degree IP 65), installed at ramp level, PLC maintenance display on the access door.
- ❑ Quick-release connectors to facilitate disconnection of the head or electrical panel.
- ❑ Horizontal sliding drive head to allow rapid replacement of the air delivery pipe.
- ❑ Long operating life of the air delivery hose - verified in the field to two years of operation minimum.

- ⊕ **Extract only the length needed**
- ⊕ **No mechanical transmission**
- ⊕ **Low air pressure losses**
- ⊕ **Compact size mounted close to aircraft connection**



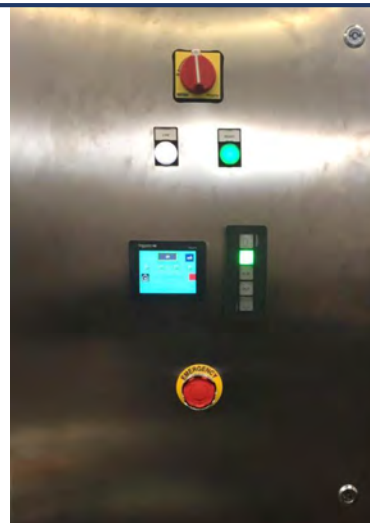
PCAir Hose Retriever



Features

Control Panel

The control panel is installed at the ramp level and contains the fixed control devices. The connections to the gearmotors and to the limit switches are made with quick-release connectors, which allow rapid disconnection of the electrical panel and the drive head. The inverter controls the gearmotor, the extension and retraction speed of the pipe, and the intervention of the overload protection. The functionality of the hose collector is managed by a Schneider Electric PLC.



Wireless control:

The radio control transmitter, located on the aircraft adapter, contains the extraction and retraction controls of the hose. The receiver is installed outside the electrical panel. The radio control system operates at a civil frequency of 870 MHz, and at start-up, a single communication channel is established between transmitter and receiver, preventing interference and allowing the simultaneous operation of PCAir Hose Retriever.

Limit switches

A proximity sensor stops the fully extended hose. A pair of photocell limit switches stop the totally retracted piping.

Air delivery Hose/ Aircraft adapter


The flexible hose is fabric, coated in yellow PVC, with an internal insulating layer. The hose sections are joined together at both ends by a zipper and a protective Velcro band. The BGSE COOL JET® hose retriever is equipped with 68 ft or 91 ft (21 m or 28 m) of hose, with final conical reduction to 8 inch (200mm) internal diameter. Different lengths are available on request. The first length of hose is fixed on a collar by means of a band clamp.

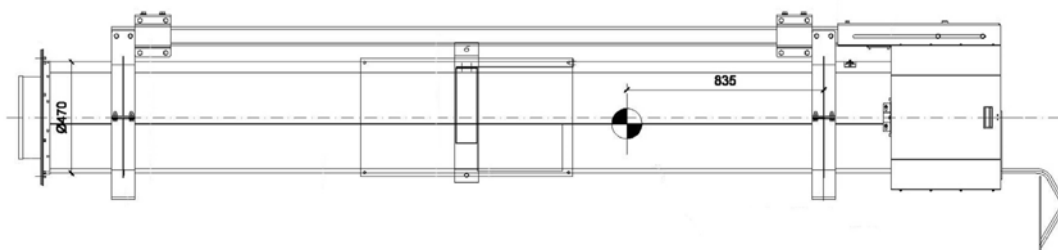


PCAir Hose Retriever



Technical Specifications

- Power supply: 3 x 480V + 60Hz 6A (other options available)
- Control panel: IP 65 in AISI 304 stainless steel
- PLC Schneider control with display on the front door of the panel
- Tension Motors powered by inverter
- Limit switch for "full extension" and "all re-section"
- Dock movement interlock
- PCA ON interlock
- Extension / retraction speed: Variable up to a maximum of 25 m / min
- Maximum pressure drop with flow rate 150 Kg / min: 1,200 Pa
- Temperature loss with full extension pipe: 2 ° C at 35 ° C 50% UR
- Safety interlock on the panel door
- Protection against overload (inverter)
- REM Device T3 radio control system with control panel on the aircraft adapter (other options available)
- Ion battery of lithium, minimum operating life 1000 h
- Sound and light movement alert (option)
- Operating temperature: from -20 to + 60 ° C
- Noise below 60 dBA Reference standard:
- Machinery Directive 2006/42 / EC Low Directive Voltage 2006/95 / EC Electromagnetic compatibility Electromagnetic Directive 2004/108 / EC Radio and Telecommunications Directive 99/5 / EC Air delivery hose:
- Intertek Field Labelling, Limited  Product Certifications
- Double layer of 1100 dtex polyester coated PVC, yellow color, 2 mm (5 mm optional)) of internal insulation plus air gap, reinforcement spiral in galvanized steel with a pitch of 5 mm
- Tensile strength: 2700 N / 5cm (ISO 142/1)
- Thermal conductivity: 0.06 W / m ° K (with 2 mm insulation)
- Fire retardant characteristics: M2 / B1 / BS / B-s2-d0 / NFPA 70
- Working pressure: 48 Inch WG 12,000 Pa
- Test pressure: 80 Inch WG (20,000 Pa)
- Aircraft adapter: 360 ° rotation system or equivalent
- Dimensions and weight: With 68 ft of hose
- H 39 ½ Inches (1016 mm)
- Width 35 ½ Inch (910 mm)
- Length 158 ½ Inch (4059 mm)
- 1,000 Lbs. (500 Kg) with 91 Ft (28 m) hose



B-Power

400Hz

Ground Power System

45 to 180KVA



*B GSE
Group*

For all 400Hz Military and Commercial Aircraft



TECHNICAL SPECIFICATIONS

DESIGN ELEMENTS

As one of the world's leading suppliers of Aviation Ground Support Equipment (GSE), BGSE Group, LLC offers a B-Power 400HZ ground power unit for all military and commercial applications. The BGSE Group B-Power series is the world's most advanced aircraft power technology. From the input contactor to the output contactor every stage of this converter/rectifier is monitored and controlled with high speed micro processors to ensure exceptional performance even with input power fluctuations and output load demand changes. This product exceeds MIL-STD-704F, and is UL listed. With a Power Factor (pF) of 1.0 it can power all modern aviation jets and is robust because it also meets military demand requirements.

CAPACITY

BG-030-400-V/H	30KVA/30kW
BG-045-400-V/H	45KVA/45kW
BG-090-400-V/H	90KVA/90kW
BG-120-400-V/H	120KVA/120kW
BG-140-400-V/H	140KVA/140kW
BG-180-400-V/H	180KVA/180kW
BG-200-400-V/H	200KVA/200kW

MAXIMUM INPUT CURRENT

INPUT VOLTS	CURRENT	INPUT VOLTS	CURRENT
90KVA/kW		180KVA/kW	
380 Volts	126 Amps	380 Volts	252 Amps
400 Volts	120 Amps	400 Volts	240 Amps
415 Volts	116 Amps	415 Volts	232 Amps
480 Volts	98 Amps	480 Volts	196 Amps

DIMENSIONS

30-90KVA/kW vertical

Width	24 Inches (605 mm)
Height	63 Inches (1601 mm)
Depth	27 Inches (670 mm)

120-180KVA/kW vertical

Width	65 Inches (1657 mm)
Height	44 Inches (1104 mm)
Depth	32 Inches (mm)

30-90KVA/kW horizontal

Width	62 Inches (1562 mm)
Height	26 Inches (670 mm)
Depth	28 Inches (715 mm)

120-180KVA/kW horizontal

Width	63 Inches (1600 mm)
Height	24 Inches (600 mm)
Depth	55 Inches (1398 mm)

WEIGHT

90kVA/kW	180kVA/kW
1190 LBS (540 kg)	2238 LBS (1015 kg)

HOUSING

NEMA 4 (IP54) RAL 7035 - phosphatized, primed and powder sprayed

ENVIRONMENTAL CONDITIONS

Capable of normal operations from -40°F to +131°F (-40°C to + 55°C)

NOISE

<68 dB(A)

MAINTENANCE

No Preventative maintenance required. Mean Time To Repair (MTTR) 30 minutes at module level.

BGSE Group, LLC

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INPUT

- AC Power: 380-480 Volt, 3 phase, 50/60Hertz, at -15% to + 10% of normal voltage rating. Unit is phase rotation independent.
- Starting current: Starting inrush current not to exceed 100% current required when operating at rated output.
- Power Factor: From 25% to 100% rated load, input factor is greater than 0.95.
- Input Current Distortion: 5% or less input current distortion.
- Efficiency: Greater than 92% at any load above 50% of rated load.

OUTPUT VOLTAGE

- Voltage Drift: Less than 1% at constant load
- Voltage Regulation: Less than 1%
- Output Voltage Transient per MIL-STD-704F

OVERLOAD LIMIT

- 460-490 ADC for 4 seconds (short circuit capability)
- 150% for 15 seconds
- 200% for 5 seconds
- 250% for 0.25 seconds
- 300% for 6 seconds (optional)

CONTROLS AND INDICATORS

- LIQUID CRYSTAL DISPLAY - 4 lines
- Plain Language Fault Display - display of current operating data, voltage, current frequency, power, voltage adjustment, DC Bus Voltage Adjustment, hour Meter, 28VDC interlock Output, Input Voltage Phase A, B and C, Output Voltage, Output Current, Output kW, Event and fault history and more.
- Buttons For: On/Off, Arrow Up/Down, Hand Key, Reset, Horn Off
- LEDs For: Input, Rectifier, Inverter, Output, Alarm/Reset, Horn

OPTIONS

- 28VDC 600AMP
- 270VDC 72kW, 269 amps
- Mobile Trailer
- Communication ready package
- remote station controls



Powered Coiler

Powered Cable Coiler, stand-alone or coupled with a 400Hz Converter and

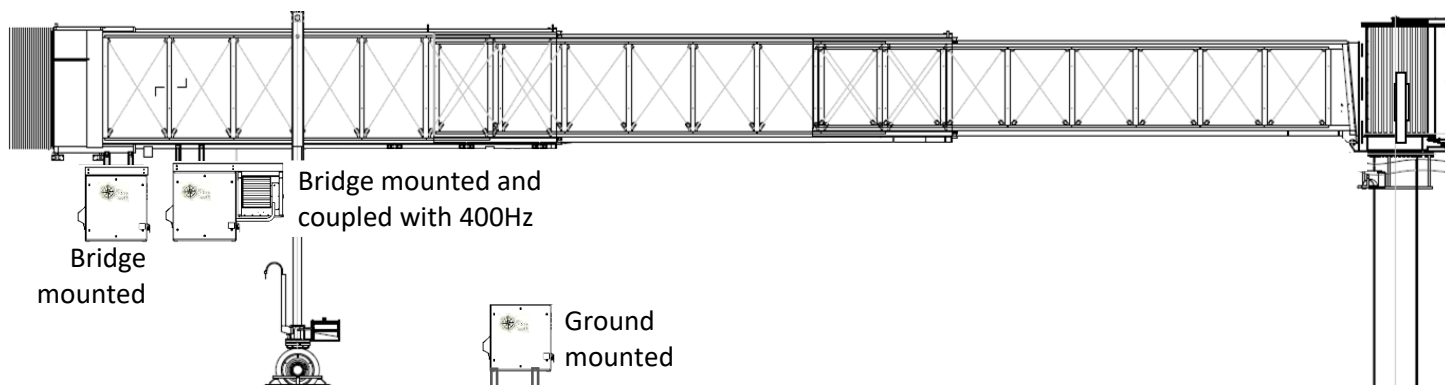
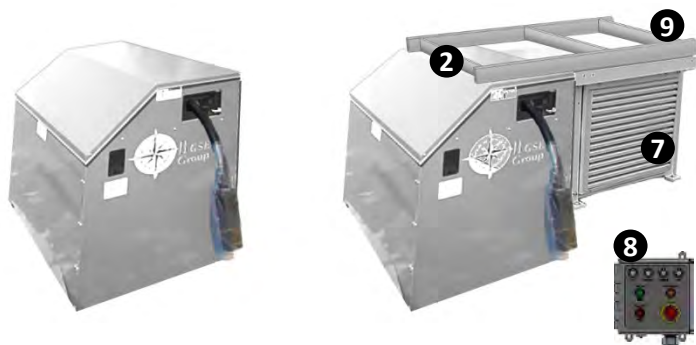
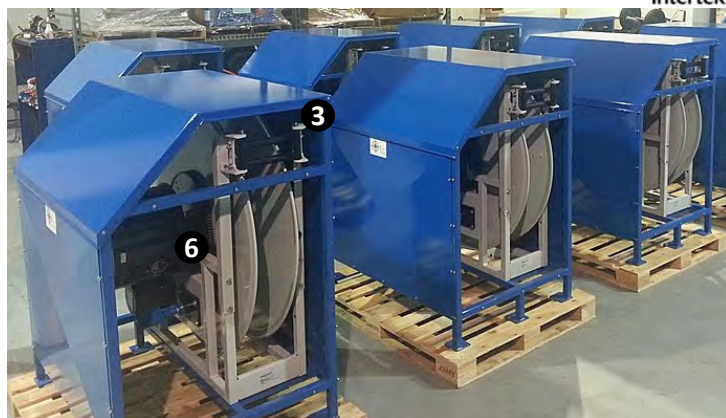
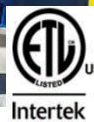
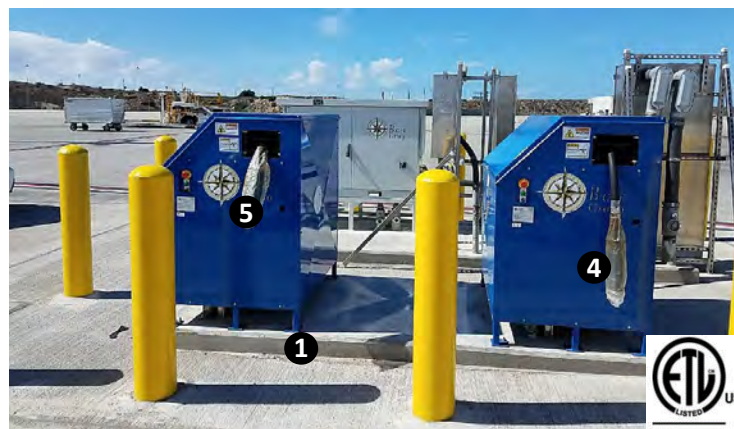


- ✦ Built with the quality to last decades
- ✦ Customer-pleasing performance on day 1
- ✦ Supported by an agile, engineering-minded company focused on service excellence

BGSE-PCC-125-400-115

BGSE-MCR-125-400-115

- | | | |
|----------------------------------|---|---|
| 1 Ground mounting with stands | ✓ | ✓ |
| 2 Bridge mounting with brackets | ✓ | ✓ |
| 3 Cable spool with roller guides | ✓ | ✓ |
| 4 400Hz Cable | ✓ | ✓ |
| 5 28VDC Cable | ✓ | ✓ |
| 6 Electric Slip Ring | ✓ | ✓ |
| 7 Optional 400Hz SSFC | | ✓ |
| 8 Combined control panel | | ✓ |
| 9 Coupling bridge bracket/frame | | ✓ |



Exclusive Worldwide Distributor

BGSE GROUP LLC
14034 Clarendon Point Court
Huntersville, NC 28078
United States of America
+1 (704) 488-0084
sales@bgsegroup.com



Powered Cable Coiler

The BGSE Group Motorized Cable Reel is designed specifically for the storage and protection of 400Hz aircraft cable. It can be configured for a variety of mounting positions and locations where 400Hz ground power is required for aircraft ground servicing.

Performance

Cable Travel:

- 90 feet (27 m) maximum with 2.38 in (60 mm) diameter cable
- 125 feet (38 m) maximum with 1.69 in (43 mm) diameter cable

Cable Speed:

- 100 feet per minute (30 meters per minute) maximum

Features

- Pushbutton Control Panel ①
- Access panels, front and side ②
- Main Electric Enclosure ③
- Limit Switch ④

Motor Assembly ⑤

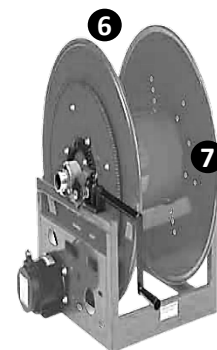
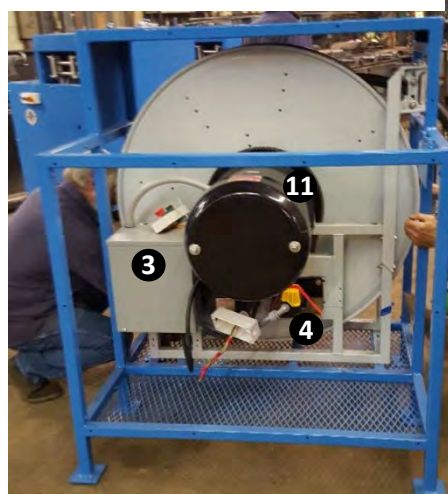
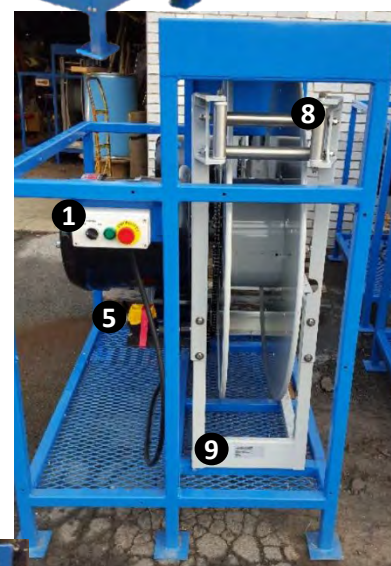
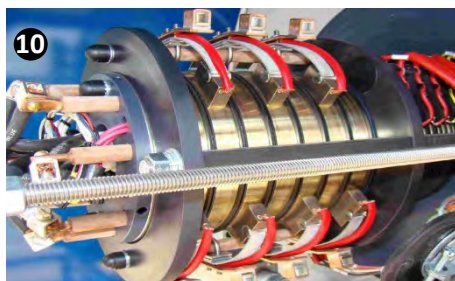
- Class B, 0.5 HP
- 650 RPM
- 115 Volts, 50/60 Hz, 1 Phase
- 5 Minute Duty Cycle
- 40° AMB

Spool Assembly ⑥

- Cable side guards ⑦
- Roller guide assembly ⑧
- Spool sub-frame ⑨

Slip Ring Assembly ⑩

- Slip Ring Cover ⑪
- Power Circuits
 - 600 Volts maximum
 - 260 Amps maximum
- Control Circuits
 - 250 Volts maximum
 - 2 Amps maximum



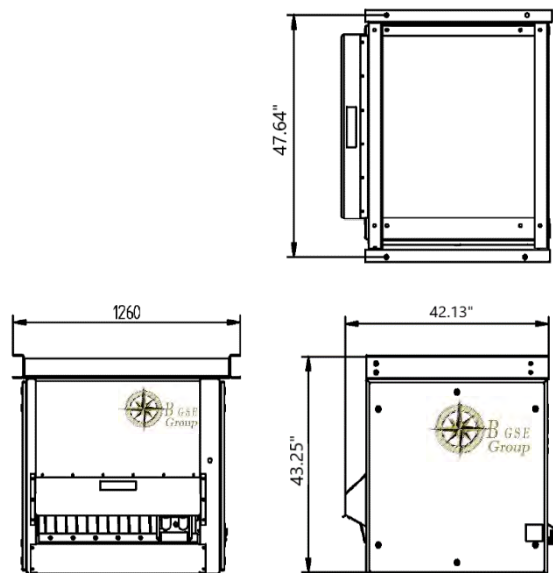
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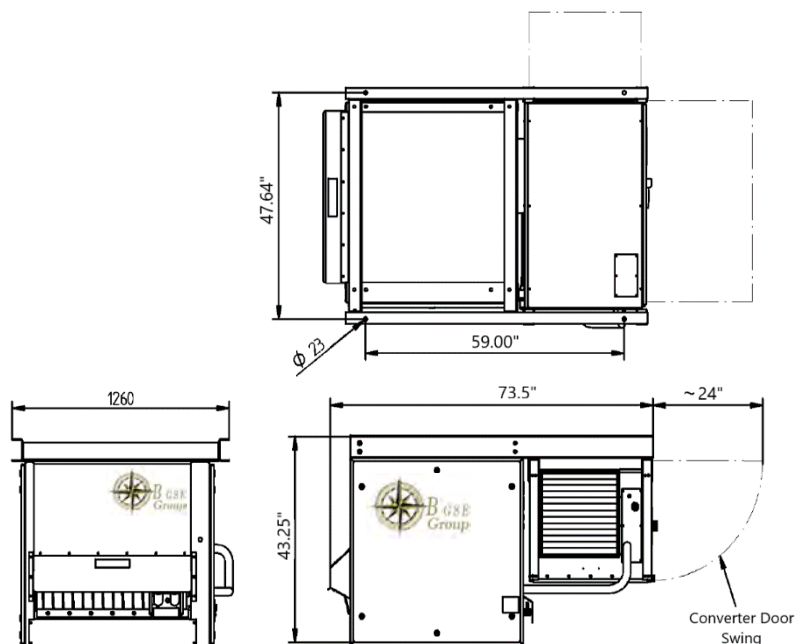


Powered Cable Coiler

Stand-Alone



Coupled with 400Hz Converter



Accessories:

- Ground mounting stand
- Bridge mounting brackets
- Remote control panel
- Cable head mounted control panel
- BAS I/O interface
- 60' aircraft cable
- 125' aircraft cable

Weight

Weight (motorized cable reel)	445 lbs. (202 kg)
Weight (motorized reel paired with 400Hz SSFC)	1.760 lbs. (798 kg)



Exclusive Worldwide Distributor

BGSE GROUP LLC
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Compass PITs



BGSE GROUP LLC
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BGSE GROUP's Linear actuator

powered Pop-Up PIT



**Most Reliable, Safest, Zero
Maintenance, Remotely
Actuated PIT in the world!**



COMPASS
Aviation Service Pits

A Comparison of Technologies



Compass PITs

The BGSE PIT tops are 100% aluminum machined

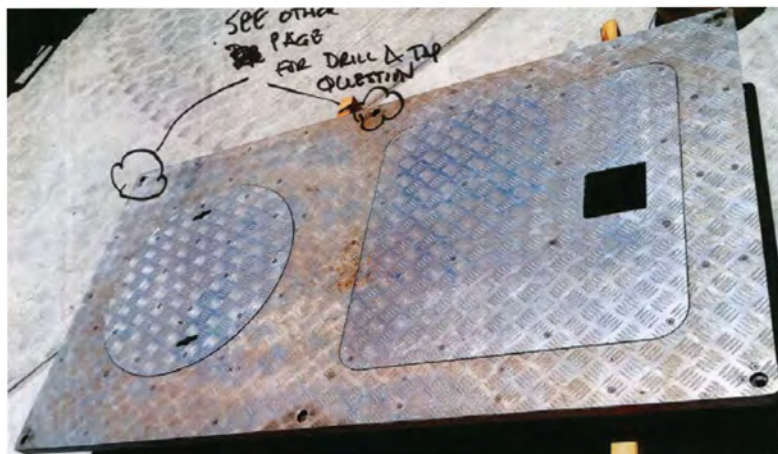
1. Won't rust
2. Superior finish
3. Lighter



Others

The competitor's Pits are made of steel that rusts and layered with Treadbright to mask the corrosion.

1. Rust shavings contact the Treadbright and cause rusting
2. Having two different metals in contact causes corrosion
3. The steel tops are very heavy



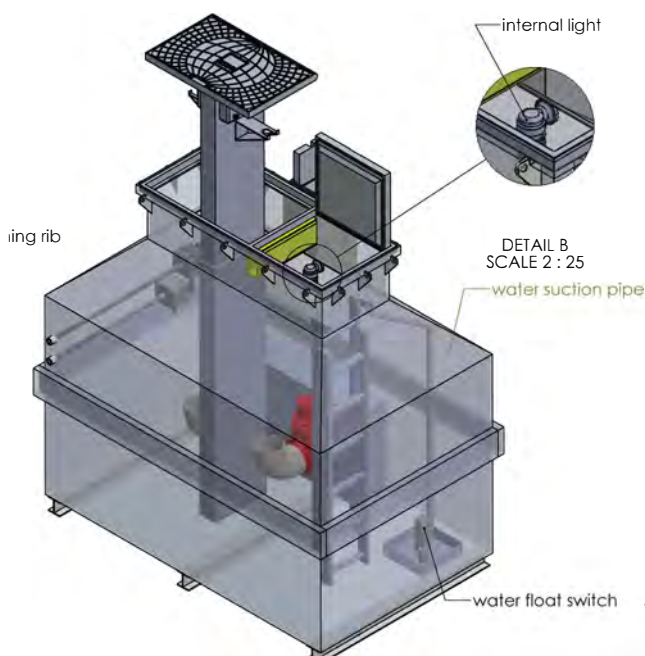
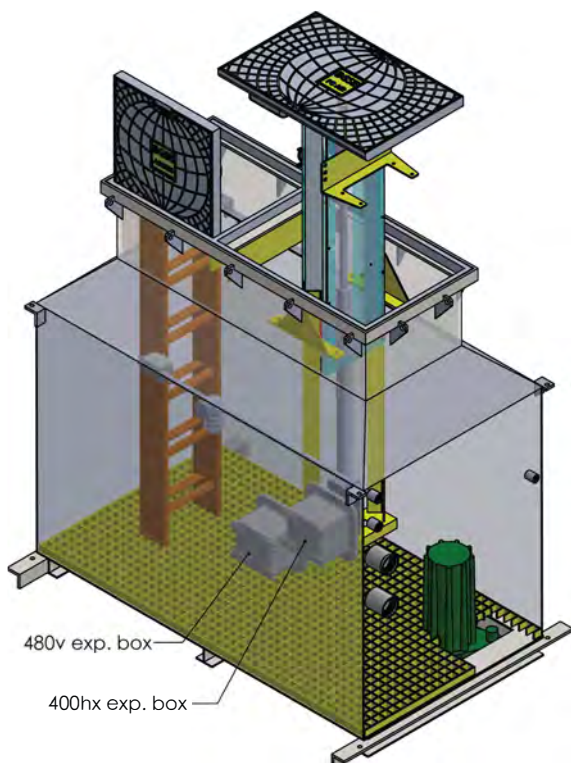
A Comparison of Technologies

Compass PITS

B GSE Group provides drawings to scale.

EZ Access PITS with powered pop-ups
Superior to manual actuation, let the pit do the work for you

***No lifting or pushing, no broken or smashed fingers and no back injuries with BGSE hydraulic or actuated designs



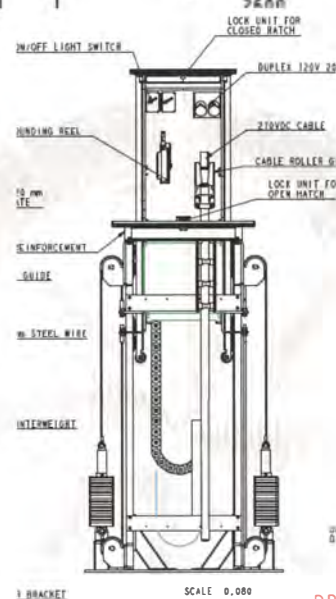
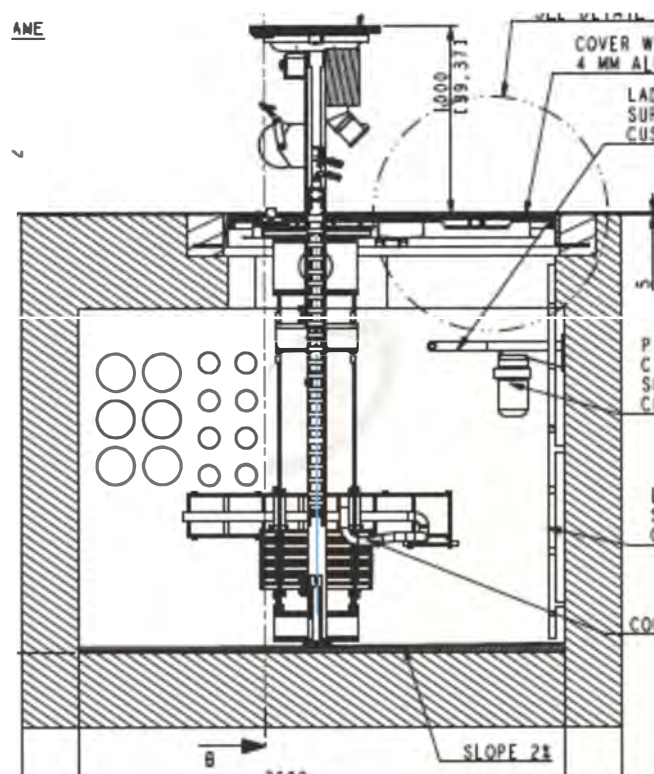
Others

Others do not provide drawings to scale.

Pop-up, well sometimes! Depends if you have enough counter weights and how strong you are to pull up on 30 pounds or more weight.

*** When closing, put your weight on it and be careful!

The heavy steel tops can break toes and fingers.



1 BRACKET

SCALE 0.000

PR

A Comparison of Technologies

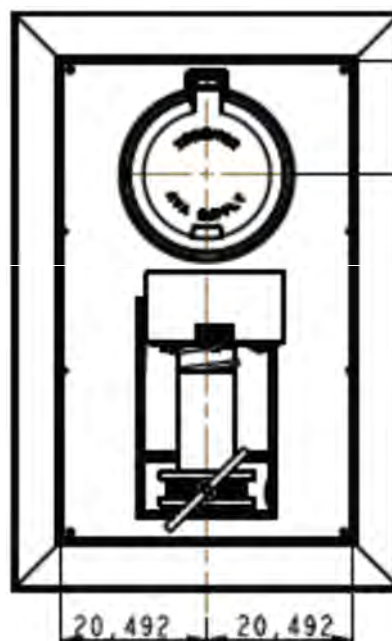
Compass PITS

F900 & EN124 load rated. What does this mean? It means that the PIT structure cannot bend or break under loads of 90-tons. BGSE rates all of their tops for this load, but it doesn't stop there. The rating must continue to the collar of the Pit since this is the point the load is transferred into the earth. BGSE PITS are the only correctly engineered Pits to be fully load rated at 90-tons.



Others

The others may or may not have hatches that are properly rated to F900, but even if they do that is where the load certification stops. In almost every design these hatches are suspended over to a square wall support. The structure that bridges the gap and suspends the hatches over the Pits ARE NOT certified for the loads of F900. Certified hatches are absolutely useless and unsafe if held up by a structure that can fail under the same load requirement.



American Airlines®

January 3, 2017

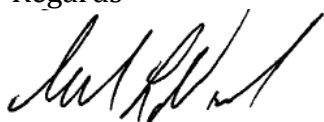
Re: Letter of reference; B GSE Group – Bryan Bullerdick

To whom it may concern,

As Senior Airport Planner for American Airlines, I have counted on Bryan Bullerdick as a single point of contact for all the American Airlines/American Eagle projects with B GSE Group. I highly recommend B GSE Group for 400HZ, PC Air, PITs and accessories, and I remain in contact with Bryan and B GSE Group. Bryan has always been sensitive to project completion dates as well as budgets for multi-million dollar projects. I would recommend Bryan and B GSE Group without hesitation.

If you have any further questions, please feel free to contact my office.

Regards



Michael Napoli
Senior Airport Planner, Corporate Real Estate
American Airlines
(817) 967-1097



CARTA DE RECOMENDAÇÃO

A quem possa interessar:

A American Airlines implantou em 2018 um hangar de grande porte e com padrão internacional no Aeroporto Internacional de Guarulhos.

A empresa norte-americana BGSE(www.bgse.com) foi a responsável por fornecer os equipamentos abaixo para aeronaves até classe E:

- unidades de ar pré-condicionado (PCA) do tipo DX BOOST, combinando água gelada e compressores, de grande porte
- inversores de 400 Hz

Os equipamentos foram entregues de acordo com as especificações e prazo de entrega acordados e vem funcionando a contento. O modelo de fornecimento foi porta-a-porta, com todos os impostos pagos, e a operação correu da forma acordada. O atendimento comercial e de pós-venda vem atendendo bem às nossas necessidades.

Recomendamos a BGSE como fornecedor qualificado para equipamentos desse tipo, para outros projetos no território brasileiro.

Guarulhos, 16 de outubro de 2019.

Wilson Roberto Nobre

Acft Maintenance Manager – GRU

AmericanAirlines®

Phone: +55-11-2445-4331

Cel +55-11-950204492

ENGLISH TRANSLATION

Letter of recommendation

To whom It May Concern

US company, BGSE, was responsible for supplying the following equipment for aircraft up to class "E"

- *DX Boost type preconditioning air units (PCA), combining chilled water and large compressors*
- *400 Hz inverters.*

The equipment has been delivered, according to the agreed specifications, and delivery time and has been working to its satisfaction. The supply model was door-to-door, with all taxes paid, and the operation went as agreed.

The commercial and after-sales service has been meeting our needs well. We recommend BSGE as a qualified supplier for equipment of this type for other projects in the Brazilian territory.

Guarulhos October 16, 2019.



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IHRE ZEICHEN

RWE Piller GmbH
Vertrieb BSV
Herrn Roland Henkel
Abgunst 24

37520 Osterode

Reference

We as the modern and developed Aviation manufacturer would like to state that RWE Piller has been listed as a recommended supplier for the 400 Hz ground power units.


Jutta Hoffmuth
Head of Procurement Enterprise Consumables and Services

AN EADS JOINT COMPANY
WITH BAE SYSTEMS

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KREISLAG 10
21129 HAMBURG
DEUTSCHLAND
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Letter of Reference: B GSE Group
United Airlines: Andrew Alexander
January 1, 2012

To whomever this may concern:

Over the past three years, United Airlines (UAL) has embarked on a system wide initiative to limit / reduce overall fuel costs attributed to ground handling aircraft at gate staging areas. With regards to this initiative, the requirement to specialize aircraft environmental support, Air Condition and Heating, has been and continues to be a challenge system wide due to current infrastructure limitations and reduced gate space.

The limitations described above were extremely evident in the IAD location, specifically for the Regional Jet operation. While the initial proposal for aircraft Air Conditioning and Heat support had been sent out to three vendors, Bryan Bullerdick, with the B GSE Group, corporation was the only vendor offering unique "Out of the Box" installation and equipment specifications related to the scope of work required to support the fuel savings initiative for UAL; the project has been completed and is fully operational as of this letter.

Mr. Bullerdick continues to offer UAL equipment specifications and fuel saving opportunities after completion of the IAD project. As B GSE Group was not a "Primary Vendor" for UAL, his innovative ideas and commitment to customer satisfaction has earned him and B GSE Group the consideration of project bids moving forward. As project manager for several large facility related installations ranging from battery charger to gate power and aircraft support functions, I would recommend Mr. Bullerdick's involvement, ideas and customer integration concepts to any planned facility support projects moving forward with UAL.

Regards,

Andrew Alexander
United Airlines / WHQGQ
GSE / Facilities Planning and Support



July 1, 2012

Re: Letter of reference; B GSE Group, LLC

To whom it may concern,

As Electrical Manager for Stronghold Engineering San Diego we hired B GSE Group to supply a multi-million dollar hanger and ramp project at North Island Naval Air Station. I wish that all of our subs were as professional, timely and supportive as B GSE Group. Everything was delivered on time and in good working order and with no unexpected additional costs to the project.

As a General Contracting company and an engineering company, we would strongly recommend hiring B GSE Group to supply your project.

In addition, B GSE Group continues to work at North Island. After B GSE Group filled our order they have continued to be awarded multi million dollar supply contracts here at North Island with other General Contractors.

Please feel free to call me with any additional questions

Paul Jobson
San Diego Area Electrical Manager
Stronghold Engineering, Inc.

9434 Chesapeake Dr., Suite 1211
San Diego, CA 92123
p 858-277-7350 ext. 206
C 951-525-9810
f 858-277-2905

www.strongholdengineering.com
Building Construction Excellence



US Army Corp of Engineers

Los Angeles District

Road Runner Division

ICO: BGSE Group Performance

This letter addresses the satisfactory performance of BGSE Group in the supply and integration of Support Equipment for the F-35A aircraft, at Luke AFB Hangars 431 and 913.

BGSE Group did satisfactorily supply and commission the Pre-conditioned air units, 270VDC power supplies, 480VAC systems and Pits for Hangars 431 and 913 at Luke Air Force Base, Arizona. All specification requirements were complied with. The equipment has satisfactorily performed its required function for the F-35A aircraft.

Hangar 431 Equipment supplied and commissioned: 12 December 2012 - 28 October 2013

Hangar 913 Equipment supplied and commissioned: 29 December 2014 – 28 October 2015

Equipment in Hangar 431 has satisfactorily maintained F-35A operations. Hangar 913 has not facilitated the F-35A to date.

Joel Rodriguez

Project Engineer

USACE L.A. District

Roadrunner Resident Office

623-282-9859



Bryan is the founder, President and CEO of BGSE Group located in Huntersville, NC USA. From the home office, he oversees factories in Morgantown, WV and Rochester NY, as well as a worldwide supplier base. Brian attended the University of Central Florida, earning a BE in Organizational Business Communication. Bryan joined USAir in 1997 piloting B-737s and MD-80s. He later joined FCX as its Vice President of Sales and Marketing, guiding a wide array of talent to manufacture, place and support specialized aerospace and defense equipment all. Bryan then joined JBT Aerotech / Jetway® as Sales Manager. JBT Aerotech is a World-Wide Supplier of top-quality Ground Support Equipment. Bryan was involved with 400 Hz, 270 VDC, Point-of-Use and Central PC Air and other new products. Today, Bryan leads the world's #1 integrator for ramp services, both Commercial and Military. B GSE Group is recognized for its talented staff and unmatched products, including Ground Power, PCAir and service pits.



Patrick Lester Vice President Sales & Product Development; Patrick has been with the BGSE Group for seven years. He initially started his career with BGSE Group as executive sales. He was with a competitor in the aviation business for six years prior to joining BGSE Group. As the company expanded and took on new avenues of equipment, and customer solutions, he was promoted to VP-Sales and Product development. Patrick has been given rave reviews from customers appreciating his efforts when project managing complex Projects. His communication and management skills are a big asset for not only BGSE Group customers, but with production teams needing to meet stringent deadlines and to deliver quality equipment.



Scott Dils Executive Vice President

Scott has been in aviation his entire adult life. Serving twenty (20) Years in the US Navy, six. (6) years with a previous 400Hz and PCAir manufacturer, and Eight and one half (8 ½) years with BGSE Group since its formation. Scott specializes in sales for 400Hz systems, 270vdc, PCAir systems, and pit systems. Scott possesses a very strong background in military sales. Having served in the military with a specialization in aviation electronics, he possesses a strong technical background, and hold a Bachelor of Science in Business Administration from the University of Phoenix.

BGSE Group 14034 Clarendon Point Court, Huntersville, NC 28078 USA

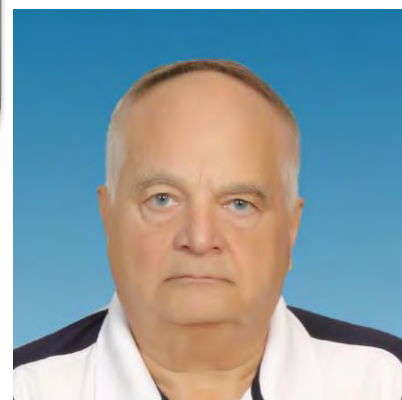
Phone: 704-992-9522 | sales@bgsegroupp.com | www.bgsegroupp.com



Steve joined with B GSE GROUP this year assuming the position of Vice President of Sales and Engineering Steve has a BS degree in Mechanical Engineering from the University of Tennessee. He worked initially for Trane in Lacrosse, Wisconsin, then was relocating by Trane to Tampa Florida. He joined the ITW Trilectron Division as a Sales Rep and then Manager. Trilectron manufactured PCAir, SSFC, Air Starters and diesel-powered GPUs and ACUs. When ITW acquired the company, Steve was promoted to Manager of Engineering and Project Management for ITW's military Division and subsequently was promoted to Operations Manager. Thereafter he became the VP of ITW's US Division for a total of 13 years with ITW. Steve moved back to Trane for 5 years and worked in Tampa in the role of Director of Intelligent Services. His developments include fully integrated monitoring and control of large, integrated, climate control and power systems. Steve moved back into the GSE industry working for the Cavotec Airports Division as Sales Director for PCAir, SSFC, Utility Pits and fueling Pits for three years before joining B GSE Group.



Steve is the Managing Director of Premier Air Solutions, LLC. Steve, with his structural and engineering staff support the special needs of the BGSE Groups products and projects. Steve holds a BS degree in Mechanical Engineering from Weber State University as well as an Executive MBA from The University of Utah, David Eccles School of Business. Steve is recognized by the State of Texas as a Professional Engineer As PCA Engineering Manager at FMC Jetway® from May 2005 – Jun 2011- Steve was responsible for the management of the JBT AeroTech, Jetway PC Air Engineering group which consisted of 10 individuals including three mechanical engineers, two electrical engineers, four mechanical designers, and an engineering specialist. Steve managed this group through multiple projects for five years. Coordinated with other engineering departments to utilize resources for projects. Today,



Thomas E. Shepherd is the Senior PCAir and Gate Services Consultant Tom has a Bachelor of Science in Business Administration and International Business from Ithaca College. Tom brings 50 years of experience in the design, manufacture, installation, test, commissioning and staff training for aircraft PCAir and Ground Controlled Dual Outlet Aircraft DXBoost PCAir Unit, Combined passenger loading bridge and utilities conduit between airport terminal and parked aircraft, PCAir Pipe coupling / adapter and Conduit on passenger loading bridge. Tom has served as technical consultant to both airlines and GSE suppliers, he possesses the unique experience and training to managing the approval and certification process for connection to commercial and military aircraft. Tom provides guidance and organization for the critical "hand over" process. He has a command of French and Spanish, as well as his native English.

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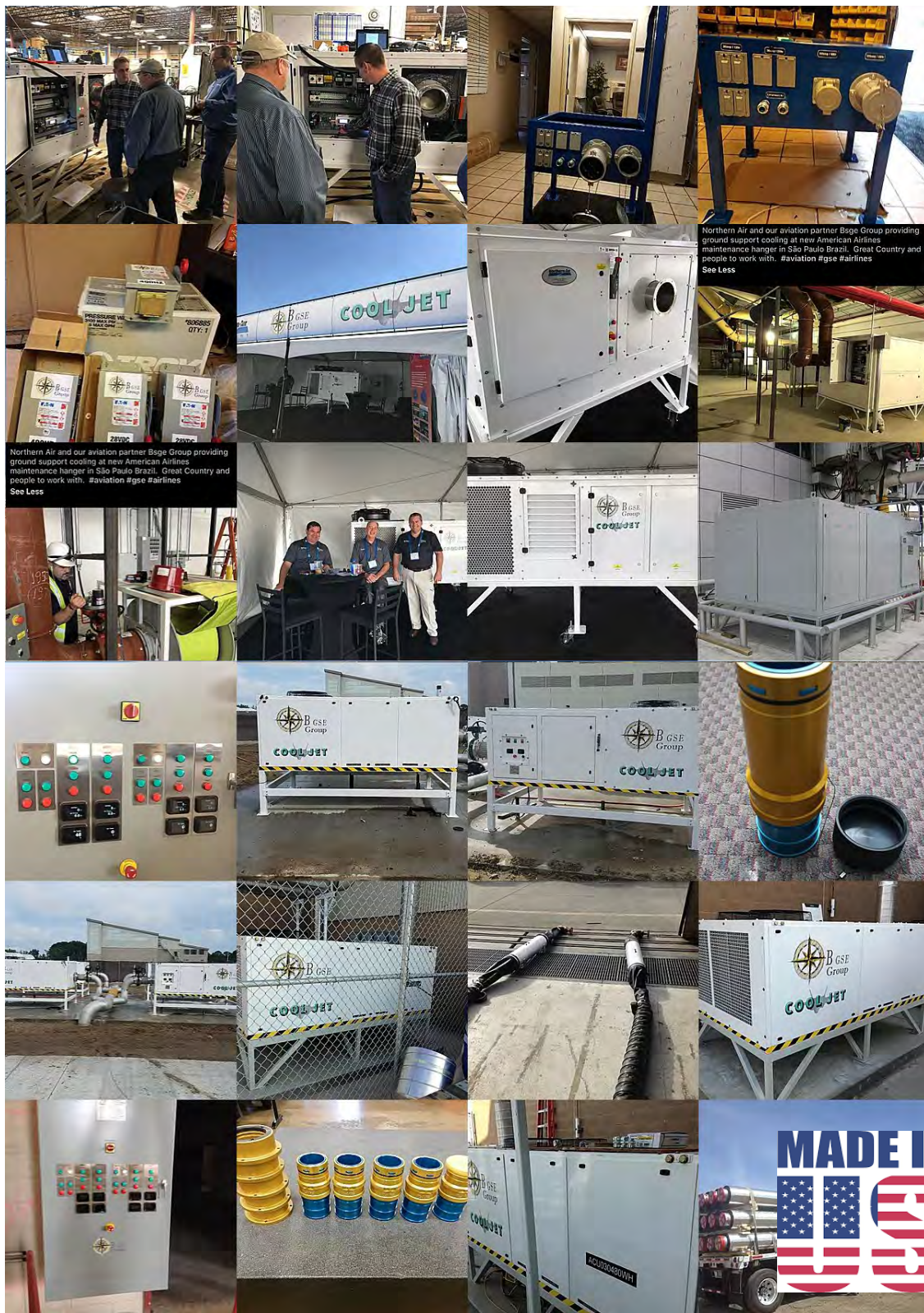
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Products and Projects

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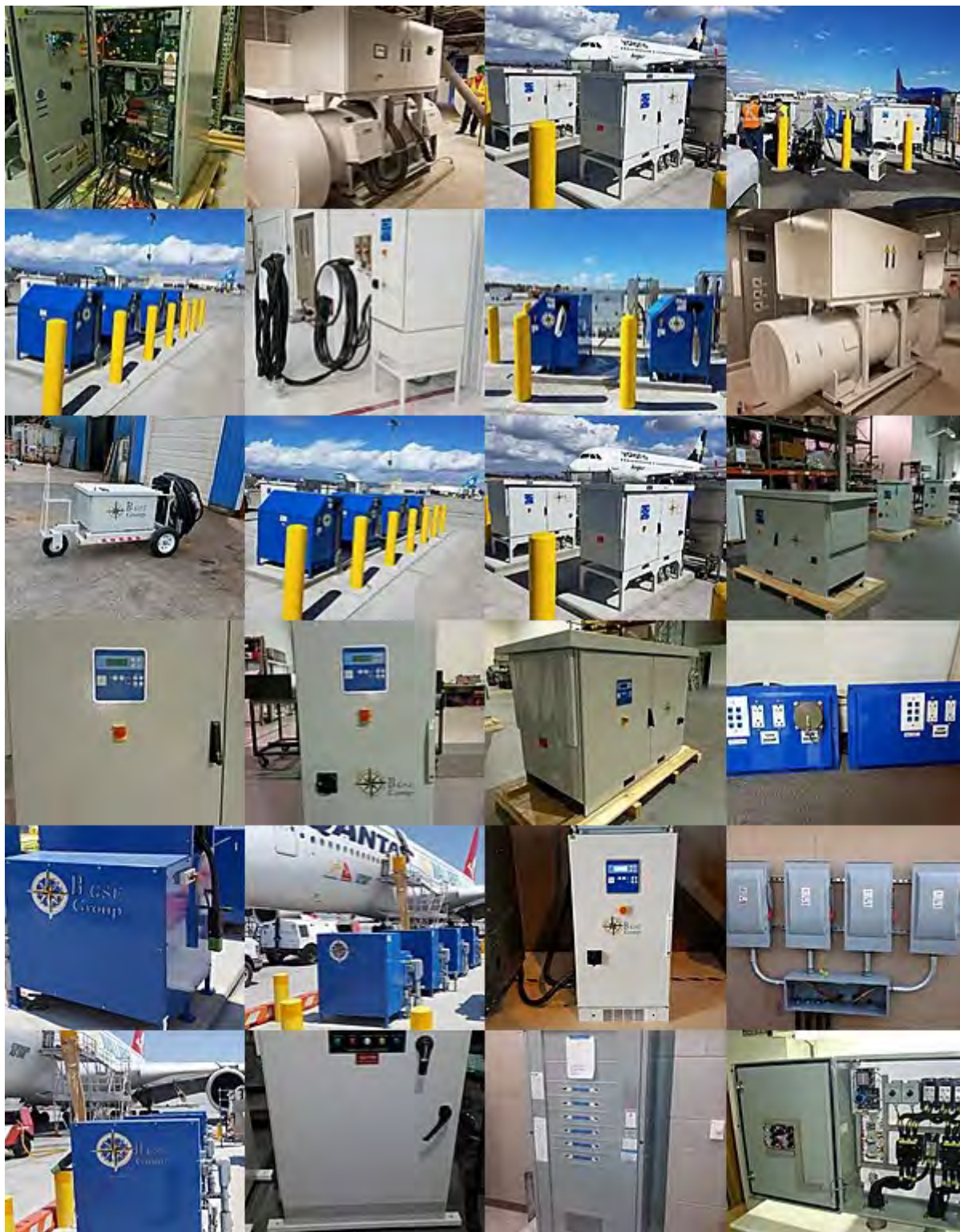
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Pits



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