MC MULTISTAGE CENTRIFUGAL BLOWER PROPOSAL

ATTN:	City of Joplin MO		
DATE:	April 6, 2018	OFFER NO.:	PK0251
OWNER:	City of Joplin	EQUIPMENT:	(3) MC12-7 (VFD control)

SUPPLIER: LONE STAR BLOWER

SPECIFICATION: Email Specifications

LONE STAR BLOWER
By: Parker Korenek

1100 Louisiana St
South Houston, TX 77587

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Blue text refers to Functional Hyperlinks throughout the document.

SECTION 1 DESIGN BASIS

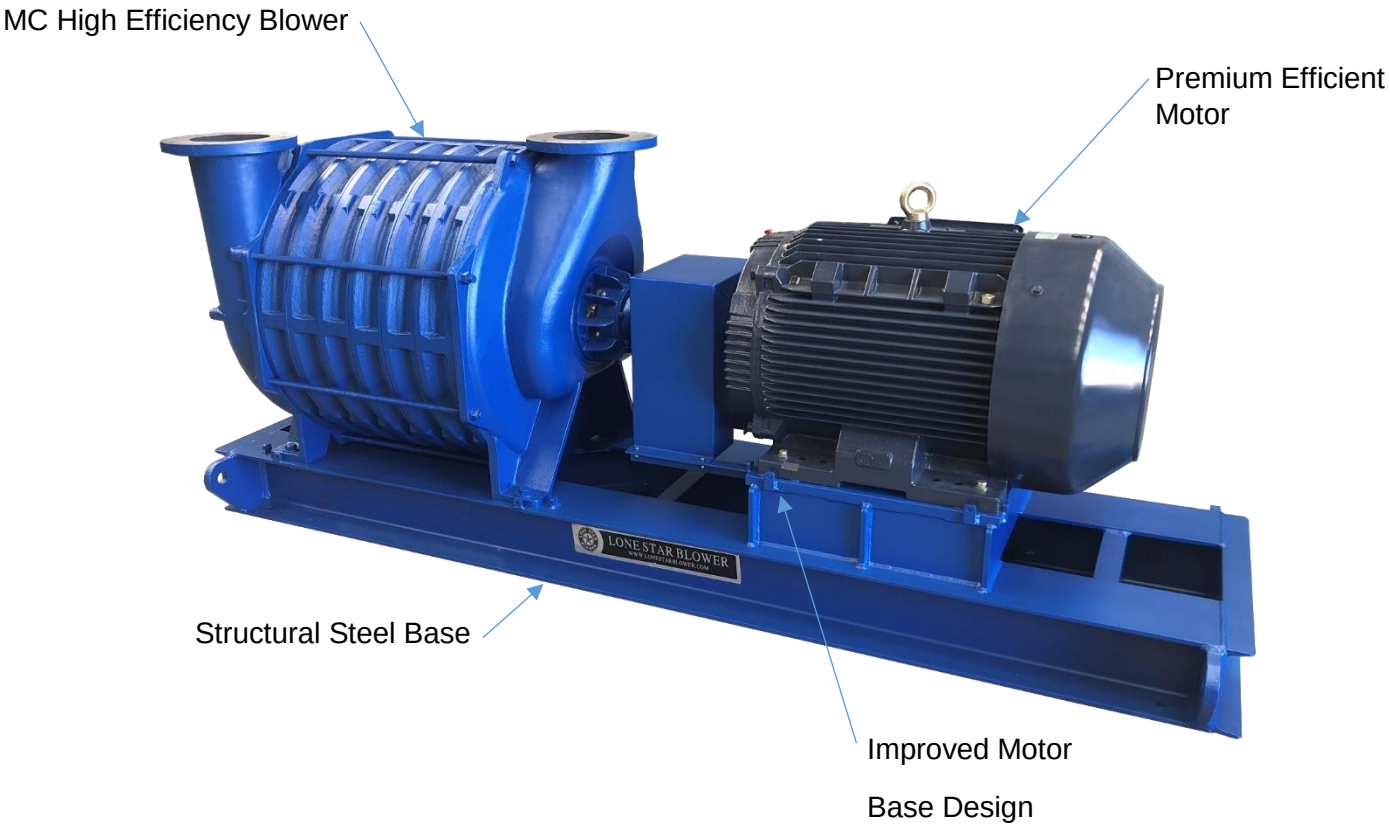
1.1 APPLICATION

APPLICATION	Air Blower
DESIGN FLOW	3000 SCFM
DESIGN PRESSURE	9.0 psig
DESIGN TEMPERATURE	100 DegF
DESIGN RH%	85%
BLOWER HP	150 HP

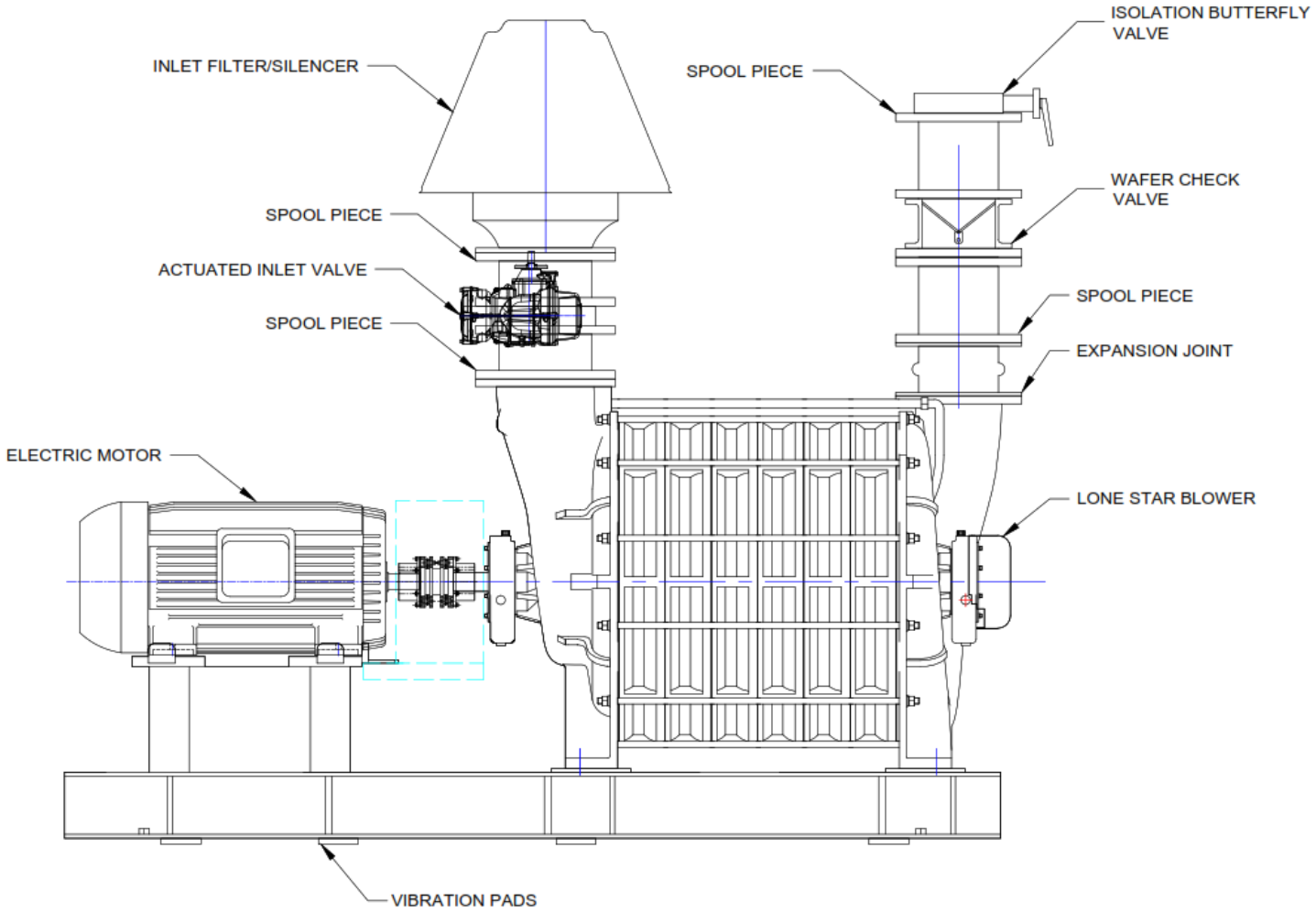
1.2 BLOWER DESIGN

The Multistage Centrifugal Blower design has been around for over 120 years. This proven & reliable technology has been the industry workhorse for compressed air & gas applications throughout all industries. Lone Star Blower has enhanced its design to operate more efficiently, reliable and cooler than other competitor's products. Lone Star's product line includes units from 5HP to 3,500HP with flows up to 45,000 CFM and pressure reaching up to 25 PSIG. The MC series blower offers:

- 5-10% more pressure range
- 5-7% more efficiency
- Longer Bearing Life
- Oil Free Compression
- Low Maintenance
- High Reliability



1.3 TYPICAL LAYOUT*



* Above layout drawing is reference only and do not depict the actual layout for this proposed project. Detailed submittal drawings will be issued upon an order being placed.

SECTION 2 SCOPE OF SUPPLY

2.1 PROPOSED SCOPE OF SUPPLY

Lone Star Multistage Centrifugal Blower, accessories and controls for efficiency optimization and minimized power consumption. This proposal is offered in accordance with Lone Star Blower's standard design specifications.

Standard Major Skid Components:
(3) Lone Star MC12-7 Series Blower with cast iron inlet/outlet heads, cast iron intermediate sections, 410 series stainless steel shaft and heavy steel tie rods. Impellers are fabricated type, shrouded design. Bearings will be grease lubricated.
150HP Premium efficiency electric motor: 480V/3PH/60HZ TEFC enclosure, 1.15 SF, 3600RPM, inverter duty, with grounding rings and insulated bearings
Coupling – Flexible type
Coupling Guard
Structural steel base for blower/motor

Standard Blower Instrumentation:
Blower Bearing Temperature Sensors
Blower Bearing Vibration Sensors

Shipped Loose Components (for each blower, for installation by Contractor):
Inlet filter/silencer
Inlet Expansion Joint
Discharge Expansion Joint
Set of skid vibration pads
Discharge Check Valve, Wafer
Discharge Isolation Valve (manual)

Local Control Panel with integrated VFD Drive (Skid mounted and pre-wired):
Local control panel for blower/motor protection to include: Blower Surge, Motor Overload, Blower Bearing Temperature and Vibration; integrated with variable frequency drive for blower throttling based on operator input. LCP built in NEMA 4 enclosure with Allen Bradley PLC, 6" Color touchscreen (HMI) including all required components for a working system. Includes 150 HP rated variable frequency drive built in Nema 3R enclosure, with through the door disconnect, surge protection, and ethernet communication.

<u>Not Included in the Scope of Supply:</u>

Piping, Fittings, Piping Hardware, Elbows, Equipment Installation, Equipment Wiring and anything not listed in the above scope of supply and shall be provided by others.

2.2 BLOWER PAINT

Manufacturer's standard finish. 2-part epoxy paint, RAL-5005 Dark Blue.

2.3 STARTUP/COMMISSIONING SERVICES

Startup commissioning and Operator training is included. Startup is predicated on all blower and controls being well and truly installed, full wired and ready to run. Minimum 21-day notice is required. Startup is included with (2) days of technician's services on site.

2.4 TESTING

Blower(s) will be fully mechanically tested under load for temperature & vibration checks. Factory testing is based on ASME PTC-10. Each unit will be performance tested, unwitnessed. If Witnessed testing is required, please contact Lone Star Blower.

SECTION 3 PROPOSAL DETAILS

3.1 WARRANTY

A 36-month warranty will begin upon successful completion of startup and certification for full-scale operation by Lone Star Blower, or 42 months from shipment, whichever occurs first. Under no circumstances will the warranty begin upon “beneficial use”, completion of the project, or acceptance of the equipment as determined by the engineer or end user. Any and all warranty terms and conditions detailed in the proposal herein shall supersede and/or supplement the warranty language denoted in the Lone Star Blower terms and conditions.

3.2 SUBMITTALS

Submittal/Shop drawings will be submitted for approval within 2-4 weeks after acceptance of the order by Lone Star Blower. Pricing includes one (1) hard copy and (1) digital download. If multiple hard copies are required, there will be an additional cost added to the proposal depending on total number of pages in the drawing set.

3.3 DELIVERY

Shipment of the proposed equipment will be 10-12 weeks from signed approval of the Lone Star Blower submittal drawing package.

3.4 FREIGHT

Standard Freight of proposed equipment to the jobsite is included.

3.5 TERMS OF PAYMENT OF GOODS

25%	Upon approval of the submittals
70%	Upon delivery or announcement readiness for shipping
5%	Upon successful startup or latest 8 weeks after delivery

3.6 PROPOSAL PRICING

Pricing on the scope of supply per Section 2.1	Included
Pricing on Painting per Section 2.2	Included
Pricing on Testing per Section 2.4	Included
Pricing on Freight per Section 3.4	Included
Total Pricing	**$222,360.00**

SECTION 4

APPENDIX A – PERFORMANCE CURVES

Compressor Performance Datasheet

Customer	: Joplin	Quote number	:
Customer reference	:	Size	: MC12
Item number	: Joplin - 3000 SCFM	Stages	: 7 (1 / 6)
Service	:	Based on curve number	: MC12-I221-7
Quantity	: 1	Date last saved	: 06 Apr 2018 2:08 PM
		Impeller	: 221 / 222

Operating Conditions

Standard conditions : (14.70 psi.a , 68.00 deg F , 36.00 %)

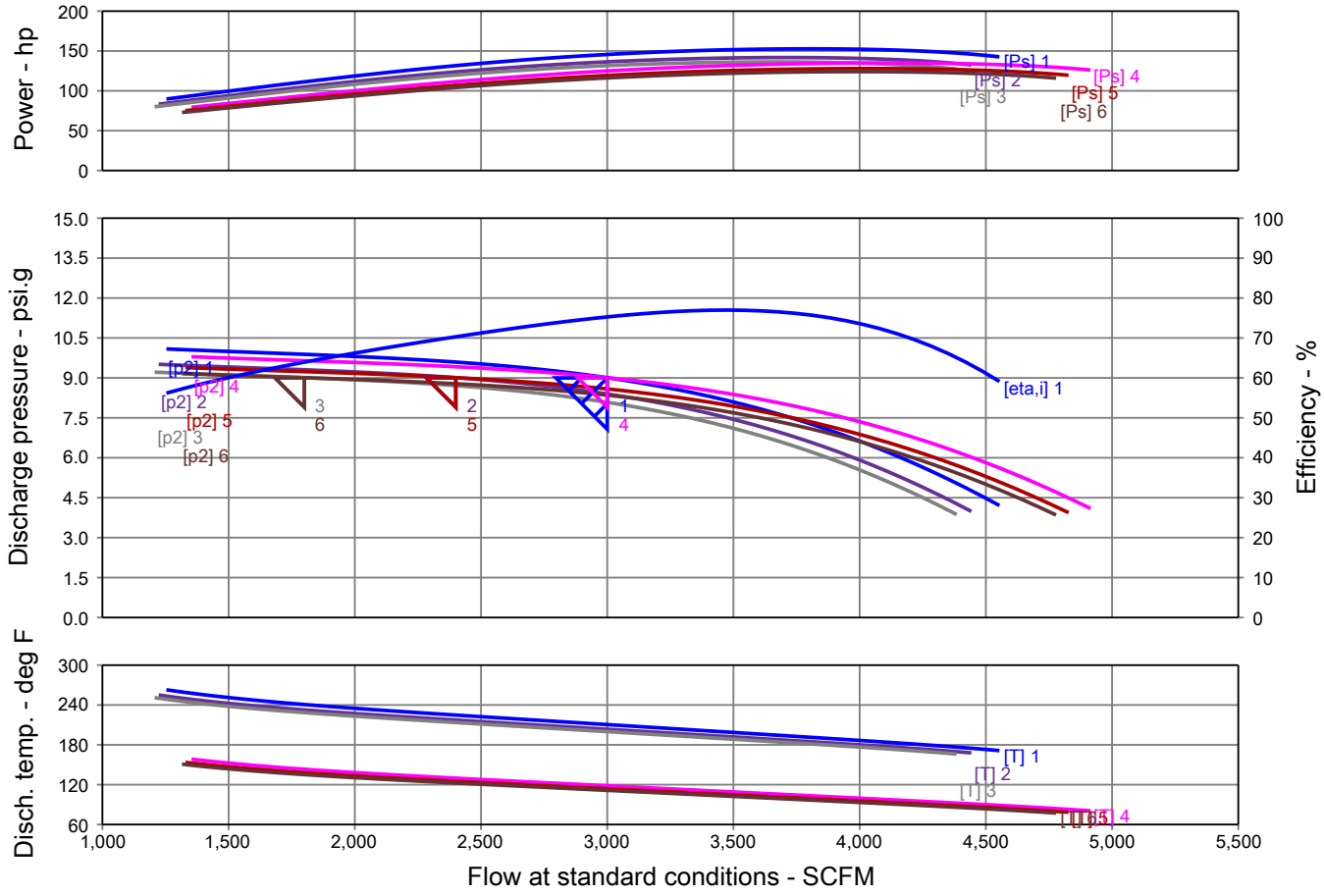
Condition		1	2	3	4	5	6
System inlet volume flow	CFM	3,361.5	2,689.2	2,016.9	2,819.3	2,255.5	1,691.6
Flow at standard conditions	SCFM	3,000.0	2,400.0	1,800.0	3,000.0	2,400.0	1,800.0
Mass flow	lbm/s	3.75	3.00	2.25	3.75	3.00	2.25
Mass flow, dry	lbm/s	3.61	2.89	2.17	3.75	3.00	2.25
System inlet temperature	deg F	100.0	100.0	100.0	20.00	20.00	20.00
System inlet pressure	psi.g	0.00	0.00	0.00	0.00	0.00	0.00
Inlet pressure loss	psi						
Discharge pressure loss	psi						
System discharge pressure [p2]	psi.g	9.00	9.00	9.00	9.00	9.00	9.00
System differential pressure [dp]	psi	9.00	9.00	9.00	9.00	9.00	9.00
Atmospheric pressure	psi.a	14.17	14.17	14.17	14.17	14.17	14.17
Elevation above sea level	ft	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Frequency	Hz	60	60	60	60	60	60
Type of gas		Air	Air	Air	Air	Air	Air
Relative humidity	%	85.00	85.00	85.00	10.00	10.00	10.00
Molecular weight (MW)		28.34	28.34	28.34	28.96	28.96	28.96
Specific heat (Cp)	Btu/(lb.deg F)	0.2487	0.2487	0.2487	0.2397	0.2397	0.2397
Ratio of specific heat (k)		1.39	1.39	1.39	1.40	1.40	1.40

Performance

Quantity of units operating		1	1	1	1	1	1
Speed	rpm	3674	3585	3537	3326	3267	3233
System discharge pressure (actual) [p2]	psi.g	9.01	9.01	9.01	9.01	9.01	9.01
Inlet throttling applied		No	No	No	No	No	No
Efficiency, polytropic [eta,p]	%	76.94	72.80	67.08	75.46	71.05	65.40
Efficiency, total	%	-	-	-	-	-	-
Power, shaft [Ps]	hp	146	124	102	125	107	87.82
Temperature rise	deg F	110.5	117.4	128.5	98.37	105.1	115.2
Discharge temperature	deg F	210.5	217.4	228.5	118.4	125.1	135.2
Rise to surge	psi	1.09	0.51	0.22	0.80	0.39	0.17
Turndown	%	58.21	49.04	32.95	54.90	44.63	26.93
Surge pressure	psi.g	10.10	9.52	9.23	9.81	9.40	9.17
Surge flow	CFM	1,404.6	1,370.4	1,352.4	1,271.4	1,248.9	1,236.1

Compressor Performance Datasheet

Customer	: Joplin	Quote number	:
Customer reference	:	Size	: MC12
Item number	: Joplin - 3000 SCFM	Stages	: 7 (1 / 6)
Service	:	Based on curve number	: MC12-I221-7
Quantity	: 1	Date last saved	: 06 Apr 2018 2:08 PM
		Impeller	: 221 / 222



SECTION 4

APPENDIX B – BLOWER CUTSHEET/DRAWING

Lone Star Blower

MC12 **Multistage Turbo**

Standard Specifications

Number of Stages	1 to 8
Inlet Connection	12" Flange, ASA 125# /150# Drilling
Outlet Connection	12" Flange, ASA 125# /150# Drilling
Operating Speed	Design 3,600 RPM - 60 Hz / 3,000 RPM - 50 Hz
Case Pressure	25 PSIG / 1.7 Bar
Seals (Air)	Labyrinth Type
Seals (Gas)	Carbon Ring with Purge, Custom Available
Bearings	Anti-friction type, AFBMA L10 100,000 hour rating
Lubrication	Splash Lubricated Oil or Grease
Impeller Diameter	25.00 in (635 mm)
Impeller Tip Speed	387 ft/s (118 m/s) @ 3550 RPM
First Critical	4424 RPM (7 Stage- 60 Hz)
Drive Type	Direct Coupled
Shaft End	2.375 in (60.32 mm) Diameter at Coupling
Vibration Tollerance	0.25 in/s (6.4 mm/s) Maximum

Materials of Construction

Casing	ASTM A48 Class 25 Cast Iron
Bearing Housings	ASTM A48 Class 25 Cast Iron
Oil Reservior	ASTM A48 Class 25 Cast Iron
Shaft	AISI 4140
Impellers	ASTM A356-T6 Cast Aluminum ANSI AA6061 Fabricated
Seals (Air)	ASTM B86 Z35631 Zinc Alloy Aluminum
Seals (Gas)	ASTM C695 Molded Graphite
Interstage Vanes	ASTM A240 304 Stainless Steel
Joint Sealing	RTV Silicone Compound
Tie Rods	ASTM A108
Blower Base	ASTM A36 Structural Steel
Motor Pedestal	ASTM A36 Structural Steel
Isolation Pads	Neoprene Rubber
Finish	2 Part Epoxy - Lone Star Gray

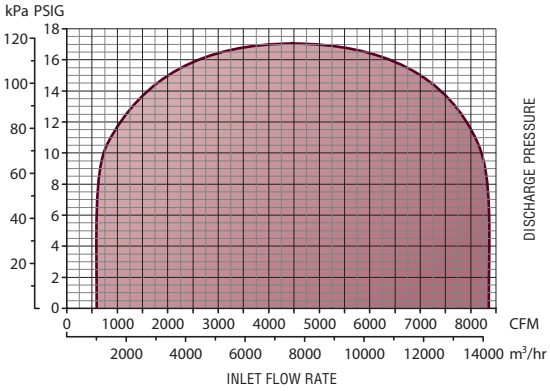
Testing

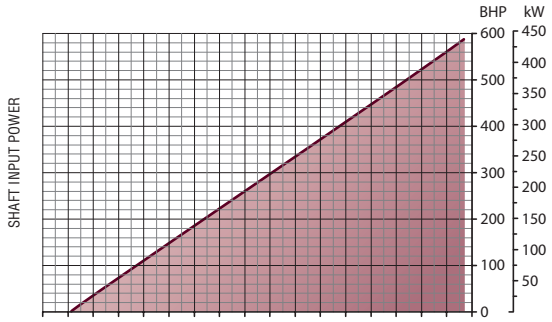
Balancing	Military Standard 167-1 or ISO 1940
Noise Level	OSHA 1910.95, ISO 2151:2004
Performance	ASME PTC-10, PTC-13, ISO 5389
Hydrotesting	API 612 @ 1.5 Times MAWP

Compatibility

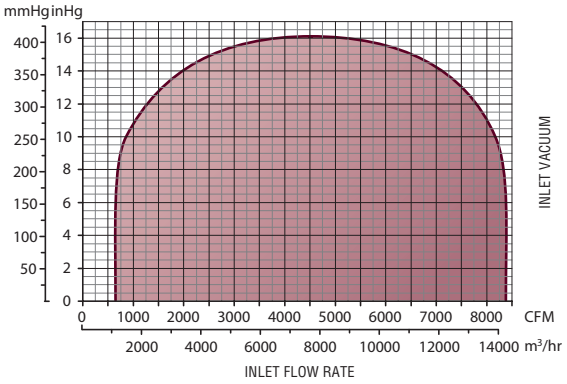
Dimentional and Performance Equal and
Parts Interchangable for Competitor Models:
Hoffman 751, HSI 126, Atlas Copco ZM126

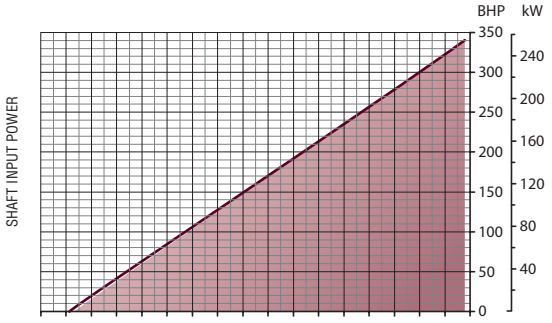
PRESSURE PERFORMANCE





EXAUSTER PERFORMANCE





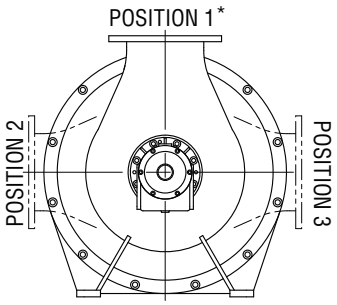
** Information is approximate and can change without notice / * Performance Based on 1 Atm, 68F/20C, 36% RH and 3550 rpm*

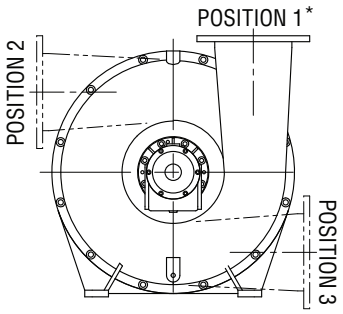
Lone Star Blower

MC12 Multistage Turbo

INLET & OUTLET ORIENTATION OPTIONS

The orientation of the inlet and outlet is selectable from any of the three different positions, as viewed when facing the exterior of the part:



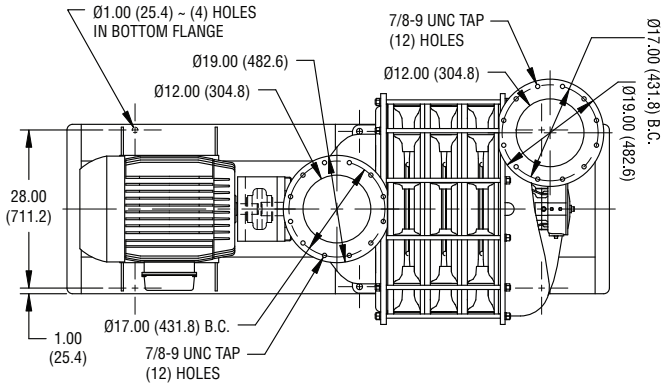


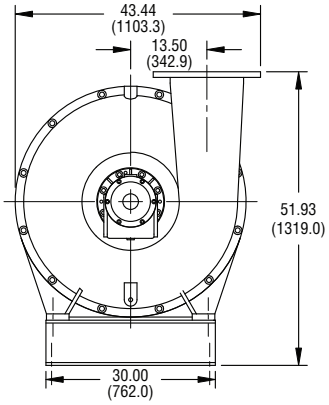
* STANDARD CONFIGURATION

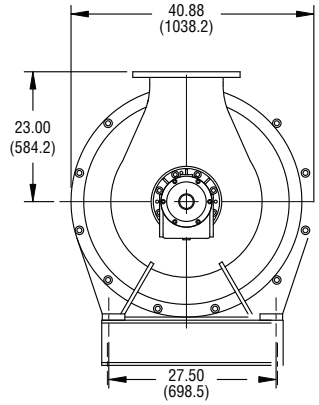
	Weight*		Wk²	
Model	LB	Kg	LB-ft²	Kg-m²
MC121-1	2150	975	7	0.29
MC121-2	2700	1225	13	0.55
MC121-3	3350	1520	19	0.80
MC121-4	3900	1769	25	1.05
MC121-5	4450	2018	31	1.31
MC121-6	5100	2313	37	1.56
MC121-7	5500	2495	43	1.81
MC121-8	5950	2699	49	2.06

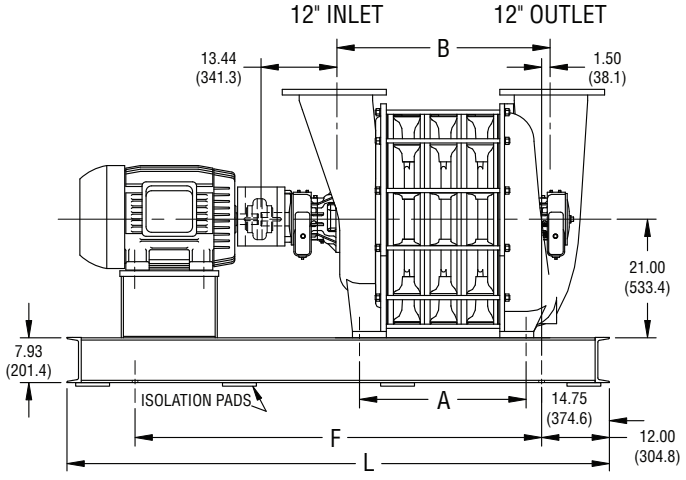
*Approximate weight for blower only.
†Inertia based on cast impellers.

GENERAL ARRANGEMENT









Packaged Dimensions

Model	A*	B*	D*	F†	L†	*
MC121-1	10.00	18.25		48	86	
MC121-2	16.50	24.75		60	99	
MC121-3	23.00	31.25		72	96	
MC121-4	29.50	37.75		84	115	
MC121-5	36.00	44.25		96	130	
MC121-6	42.50	50.75		96	130	
MC121-7	49.00	57.25		108	144	
MC121-8	55.50	63.75		108	144	

*Dimensions are shown in inches (and millimeters) are approximate. Do not use for constructions purposes.
†Dimensions vary depending on coupling & motor frame size.

LONE STAR BLOWER

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SECTION 4

APPENDIX C – TERMS & CONDITIONS

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Lone Star Blower, Inc

TERMS & CONDITIONS OF SALE
(EQUIPMENT AND/OR SERVICE)

1. GENERAL: As used herein, "Seller" means Lone Star Blower "Purchaser" means the entity to which Seller's offer is made, or the entity purchasing Equipment and/or service from Seller. The term "Equipment" as used herein includes any and all products, equipment, parts, and accessories furnished by Seller to Purchaser. All offers and sales by Seller are expressly conditional upon these Terms and Conditions of Sale. Any terms or conditions in Purchaser's purchase order (or in any other Purchaser communication) which are different from or in addition to the terms and conditions contained in these Terms and Conditions of Sale are hereby objected to. All orders submitted to Seller are subject to approval by Seller's headquarters.

2. DELIVERY: The shipment/delivery period is an estimate only and commences after Seller's receipt of all necessary information, approvals, and signed submittals with release for manufacturing. In no event shall delivery be construed as falling within the meaning of "time is of the essence". Seller reserves the right to deliver in installments. Unless otherwise specified in Seller's quotation, delivery is F.O.B. Seller's manufacturing facility.

3. TITLE and RISK OF LOSS: Unless otherwise specified in Seller's written quotation, title and risk of loss or damage to the Equipment shall pass to Purchaser upon tender of delivery F.O.B. manufacturing facility. Notwithstanding the foregoing, a security interest in the Equipment or any replacement shall remain in Seller, regardless of mode of attachment to realty or other property, until full payment has been received by Seller. Purchaser agrees upon request to do all things and acts necessary to perfect and maintain said security interest and shall protect Seller's interest by adequately insuring the Equipment against loss or damage from any cause.

4. TAXES: Purchaser shall be responsible for applicable local, state and federal taxes which may be now or hereafter be applicable to, measured by, or imposed upon, or with respect to this transaction, the Equipment, its sale, its value or its use, or any services performed in connection therewith (except any taxes on Seller's income). If sales, use or other State or Municipal taxes in addition to any listed specifically as part of the stated purchase price, are imposed upon Seller, Purchaser agrees to pay the same or reimburse Seller upon demand. Seller will accept a valid exemption certificate from Purchaser, if applicable. If an exemption certificate previously accepted by Seller is not recognized by the governmental taxing authority involved, Purchaser agrees to promptly reimburse Seller for any taxes covered by such exemption certificate which Seller is required to pay.

5. PAYMENT: Unless specifically agreed otherwise in writing, payment is due in full within 30 days of the invoice date. Seller reserves the right to charge late fees on overdue amounts at a monthly rate of 1.5% (one and a half percent) or the rate permitted by law, whichever is lower. Purchaser shall have no right to set-off against any amounts which may become payable to Seller under this contract or otherwise, for amounts which Seller may allegedly or in fact owe Purchaser or any affiliate of Purchaser or assignee whether arising under this contract or otherwise. Any waiver by Seller of any lien or lien right shall be conditioned upon Purchaser's timely payment to Seller of all amounts due.

6. INSTALLATION: Unless Seller's written quotation specifies that Seller will perform installation of the Equipment, it is understood and agreed that Seller will not perform any installation of the Equipment.

7. START-UP, OTHER SERVICE: Any service (for example, Equipment start-up, if applicable) to be performed by Seller is specified in Seller's written quotation. Dates/time for the service is subject to scheduling and confirmation by Seller's service department. Seller's performance of service is subject to Seller's normal working hours (8:30 am to 5:00 pm, Monday through Friday excluding public holidays), unless expressly agreed otherwise. If any forklift, crane, and/or other lifting or rigging equipment or lighting equipment is necessary (as reasonably determined by Seller's service technician) for Seller to perform the service, Purchaser shall supply such equipment at its own expense together with sufficiently skilled and qualified labor in connection therewith, unless expressly agreed otherwise. If Purchaser requests Seller to comply with Purchaser's safety programs/procedures in connection with performing service at Purchaser's premises, Seller shall comply with such safety programs/procedures that have been provided in advance to Seller in writing with reasonable opportunity to review/implement, to the extent they are reasonable and applicable to the scope of Seller's activities at the premises.

8. INSURANCE: During the term of the Contract, Seller agrees to have the following insurance coverage:

a) Commercial General Liability insurance in an amount of $1,000,000 each occurrence for bodily injury and physical damage to tangible property, subject to an annual aggregate not to exceed $2,000,000;
b) Automobile Liability insurance in an amount of $1,000,000 combined single limit each occurrence;
c) Worker's Compensation insurance in accordance with applicable statutory law; and
d) Employer's Liability insurance in an amount of $1,000,000 for bodily injury each accident or disease.

If Seller will physically enter onto Purchaser's premises (or a third party's premises) in connection with the sale of the Equipment/ service, Seller agrees to, at Purchaser's reasonable request, provide an ACORD form of certificate confirming the above-stated insurance coverage.

Seller shall have no other insurance-related requirement, unless specifically agreed to in writing by an authorized manager of Seller in connection with the order.

9. RETURN POLICY: Shipping and handling charges are not refundable. Purchaser is responsible for the return shipping fee. All returned items are subject to a 30% restocking fee. Returned items must be in brand new condition with all packaging enclosed in the exact condition in which you received them. Special order or non-stock items will not be accepted for return/refund.

10. CANCELLATION: Each party has the right to cancel the order/contract in whole or in part in writing with immediate effect if the other party becomes insolvent, makes a general assignment for the benefit of creditors, suffers or permits the appointment of a receiver for its business or assets, becomes subject to any proceeding under any bankruptcy or insolvency law, or has wound up or liquidated (voluntarily or otherwise). In addition, each party has the right to cancel the order/contract or any part thereof if the other party fails, within 30 days after receipt of written notice from the non-breaching party specifying the material breach and intent to terminate, to commence and diligently pursue cure of the breach. Unless an order is cancelled by Purchaser in accordance with this paragraph, Purchaser shall pay Seller's cancellation charges if Purchaser cancels the order (including if Purchaser cancels the order for Purchaser's convenience). The cancellation charges shall be reasonable and may include (among other things) all costs and expenses incurred, and commitments made by Seller and a reasonable profit thereon. Notwithstanding anything set forth to the contrary, Seller may suspend Seller's performance or cancel the order/contract (or any part thereof) immediately if Purchaser fails to provide payment security (if applicable) or if Purchaser fails to make any payments when due.

11. WARRANTY: Seller hereby warrants to Purchaser that the Equipment manufactured or distributed by it and delivered hereunder will be free from defects in material and workmanship under proper use and service; this warranty shall expire one (1) year from start-up or 18 months from the original shipment date from Seller's manufacturing facility whichever comes first. This warranty applies only to Equipment manufactured by Seller and does not cover motors, starters, electrical equipment or other components or accessories manufactured by others. Seller will repair or replace, F.O.B. its factory, any defective part or parts, at no charge, if promptly returned to it within the above-noted warranty period. This warranty extends only to the original purchaser of Equipment furnished hereunder and shall be void if the Equipment is repaired or tampered with in any manner other than by Seller's authorized service personnel. If Seller's inspection does not disclose a defect covered by the warranty, the Equipment will be returned to Purchaser at its expense or, if Purchaser elects, Seller will repair or replace the equipment and charge for such service at the regular rate.

Seller hereby warrants to Purchaser that all other Equipment manufactured by Seller and delivered hereunder will be free from defects in material and workmanship under proper use and service; this warranty shall expire one year from the original shipment date from Seller's manufacturing facility. This warranty applies only to Equipment manufactured by Seller and does not cover components or accessories outside of standard packaged equipment offered. Seller will repair or replace, F.O.B. its factory, any defective part or parts, at no charge, if promptly returned to it within the warranty period. This warranty extends only to the original purchaser of Equipment furnished hereunder and shall be void if the product is repaired or tampered with in any manner other than by Seller's authorized service personnel. If Seller's inspection does not disclose a defect covered by the warranty, the Equipment will be returned to Purchaser at its expense or, if Purchaser elects, Seller will repair or replace the Equipment and charge for such service at the regular rate.

Seller warrants to Purchaser that Equipment or parts thereof repaired or replaced pursuant to the above warranty under proper use and service against defects in workmanship and material; this warranty shall expire 60 days from date of start-up of such repaired or replaced Equipment or parts thereof or on the expiration of the original Equipment warranty, whichever is later.

If the nature of the defect is such that it is appropriate in the judgment of Seller to do so, repairs shall be made at the site of the Equipment. Seller warrants to Purchaser that any services performed by Seller in connection with startup or other servicing of Equipment shall be performed in a workmanlike manner; this warranty shall expire 60 days after the service date visit. If any nonconformity with this warranty appears, Seller shall re-perform the non-conforming portion of the services in a conforming manner.

Any warranties granted beyond those stated above must be specifically identified as a warranty in Seller's specific quotation. Correction by Seller of nonconformities (i.e. repair or replacement of Equipment that is defective in material or workmanship, and re-performance of service which was not performed in a workmanlike manner) in the manner and warranty period provided above shall be Purchaser's exclusive remedy (and Seller's exclusive obligation) with respect to nonconforming Equipment and/or services.

In the event Purchaser and Seller agree that Seller will sell any used Equipment to Purchaser, such used Equipment is sold AS-IS, WITH ALL FAULTS, AND WITHOUT WARRANTY OF ANY KIND.

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THE ABOVE-STATED WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, IMPLIED, OR OTHERWISE. SELLER HEREBY EXPRESSLY DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE.

12. CONFIDENTIALITY: In connection with the order and/or performance under this contract, Seller and Buyer (as to information disclosed, the "Disclosing Party") may each disclose Confidential Information to the other party hereto (the "Receiving Party"). " Confidential Information" shall mean all information related to the business or products (including but not limited to the Equipment) or services of the Disclosing Party that is not generally known to the public, and all pricing and terms of this contract, provided that the obligations of this paragraph shall not apply as to any portion of the Confidential Information which: (i) is or becomes generally available to the public other than as a result of disclosure by the Receiving Party, its representatives or its affiliates, or (ii) has been or is subsequently independently developed by the Receiving Party, its representatives or affiliates, without reference to the Confidential Information, or (iii) is required to be disclosed by law or valid legal process provided that the Receiving Party who intends to make such disclosure shall promptly notify the Disclosing Party in advance of such disclosure and reasonably cooperate in attempts to maintain the confidentiality of the Confidential Information. The Receiving Party agrees, except as otherwise required by law: (i) to use the Confidential Information only as the Disclosing Party intended it to be used by the Receiving Party in connection with providing or receiving the Equipment/service under this contract, and (ii) to take reasonable measures to prevent disclosure of the Confidential Information, except disclosure to its employees to the extent necessary to facilitate providing or receiving Equipment/services as contemplated under this contract. Upon the Disclosing Party's request, the Receiving Party shall destroy or return to Disclosing Party all copies of Confidential Information. If either party or any of their respective affiliates or representatives is required or requested by subpoena, interrogatories, or similar legal process
to disclose any Confidential Information, such party agrees to provide the Disclosing Party with prompt written notice of such request, so that the Disclosing Party may seek an appropriate protective order or waive compliance by the Receiving Party with the provisions herein. It is understood and agreed that this paragraph survives any expiration/termination of this contract.

13. INTELLECTUAL PROPERTY: No patents, copyrights, trademarks, trade secrets, or other intellectual property rights are being sold, granted, transferred, or assigned to Purchaser. Without limiting the generality of the foregoing, Seller retains all right, title and interest in and to all inventions, discoveries, ideas, works of authorship (including but not limited to all drawings), processes, methods, know-how, and techniques developed, discovered or conceived by Seller or its employees, including without limitation those developed and/or used in connection with the manufacture of Equipment or performing services hereunder. Such rights include, but are not limited to, patent rights, copyrights, trade secret rights, trademark rights, mask work rights and other proprietary rights throughout the world. Purchaser acknowledges and understands that no drawings, designs, specifications, or anything else provided by Seller shall be deemed to be "work made for hire."

14. PATENT INDEMNITY: Seller shall defend any suit or proceeding brought against Purchaser and shall pay any adverse judgment entered therein so far as such suit or proceeding is based upon a claim that the use of the Equipment or any part thereof manufactured by Seller, and furnished under this contract constitutes infringement of any patent of the United States of America, provided Seller is promptly notified in writing and given authority, information and assistance for defense of same, and Seller shall, at its option, procure for Purchaser the right to continue to use said Equipment, or modify it so that it becomes non-infringing, or replace the same with non-infringing equipment, or remove said Equipment and to refund the purchase price (less a reasonable amount for the time the Equipment was used). The foregoing shall not be construed to include any agreement by Seller to accept any liability whatsoever in respect to patents for inventions including more that the Equipment furnished hereunder, or in respect of patents for methods and processes to be carried out with the aid of said Equipment, except those which are inherent in the Equipment as furnished. The foregoing states the entire liability of Seller with regard to patent infringement. If any Equipment shall be sold by Seller to meet Purchaser's specifications or requirements and is not a part of Seller's standard line offered by it to the trade generally in the usual course of Seller's business, Purchaser agrees to defend, protect, and indemnify and save harmless Seller from any loss, damage, or injury arising out of a claim, suit or action at law or equity for actual or alleged infringement of any patent of the United States or foreign country because of the sale of such Equipment, and to defend any suits or actions which may be brought against Seller.

15. SOFTWARE: In the event any Equipment includes software in any form, such software is not sold to Purchaser but is only licensed on a limited, non-exclusive basis. Subject to Purchaser's compliance with these terms and conditions of sale, Seller grants to Purchaser for the useful life of such Equipment a royalty-free, non-exclusive, non-transferable license to use the software as intended by Seller solely for normal use of the Equipment. Purchaser shall not create derivative works based on the software, or reverse engineer, or disassemble or decompile the software, or transfer, copy, modify, or otherwise change the software.

16. EXPORT CONTROL: Equipment, technical data, technology, software, and services furnished by Seller to Purchaser shall at all times be subject to any and all applicable export control laws and regulations, including but not limited to applicable U.S. Export Administration Regulations, United Nations resolutions and European Union directives relating to trade embargoes and restrictions. Purchaser agrees and warrants that no Product, services, technical data, technology, software or other technical information or assistance or other item furnished by Seller, or any good or product resulting therefrom, shall be exported or re-exported by Purchaser or its authorized transferees, if any, directly or indirectly, in violation of any law or regulation.

Any export and/or re-export must be in strict accordance with applicable U.S. export laws and regulations, as well as United Nations resolutions and European Union directives relating to trade embargoes and restrictions. Violation of this paragraph constitutes a material and non-curable breach and entitles Seller to terminate the order immediately (even after shipment of the Equipment).

17. FORCE MAJEURE: If either party is delayed at any time by any Force Majeure, such party shall have such additional time within which to perform its obligations as may reasonably be necessary under the circumstances. "Force Majeure" means circumstances beyond the delayed party's reasonable control, including but not limited to, acts of God, acts of public enemies, wars, delays by Seller's suppliers, blockades, insurrections, riots, epidemics, quarantine restrictions, floods, lightning, fire, storms, earthquakes, and civil disturbances.

18. LIMITATION OF LIABILITY:
IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS OR REVENUE, LOSS OF TOTAL OR PARTIAL USE OF THE EQUIPMENT OR SERVICES, DOWNTIME COSTS, AND DELAY COST) HOWSOEVER ARISING, WHETHER ON ACCOUNT OF EQUIPMENT OR SERVICES FURNISHED HEREUNDER, DELAYS OR OTHERWISE (WHETHER A CLAIM IS BASED ON WARRANTY, STRICT LIABILITY, CONTRACT, TORT, NEGLIGENCE OR OTHERWISE).

SELLER'S TOTAL LIABILITY FOR ALL CLAIMS OF ANY KIND (WHETHER BASED ON WARRANTY, STRICT LIABILITY, CONTRACT, TORT, NEGLIGENCE OR OTHERWISE) FOR ANY LOSS OR DAMAGE ARISING OUT OF, CONNECTED WITH, OR RESULTING FROM THIS CONTRACT OR THE PERFORMANCE OR BREACH THEREOF, OR FROM THE DESIGN, MANUFACTURE, SALE, DELIVERY, RESALE, REPAIR, REPLACEMENT, INSTALLATION, TECHNICAL DIRECTION OF INSTALLATION, INSPECTION, SERVICING, OPERATION OR USE OF ANY EQUIPMENT COVERED BY OR FURNISHED UNDER THIS CONTRACT SHALL BE LIMITED TO 100% OF THE PURCHASE PRICE AMOUNT PAID BY PURCHASER TO SELLER UNDER THIS CONTRACT FOR THE SPECIFIC EQUIPMENT OR SERVICE WHICH GIVES RISE TO THE CLAIM. ALL CAUSES OF ACTION AGAINST SELLER ARISING OUT OF OR RELATING TO THIS CONTRACT OR THE PERFORMANCE HEREOF SHALL EXPIRE UNLESS BROUGHT WITHIN ON YEAR OF TIME OF ACCRUAL THEREOF.

19. MISCELLANEOUS:
19.1 If for any reason, Seller's quotation (or any other document or act by Seller) is deemed an acceptance of an offer from Purchaser, such acceptance is expressly conditional upon Purchaser's assent to any additional or different terms or conditions set forth in these Terms and Conditions of Sa**19.2** No modification or additional term or condition shall be applicable to this contract by virtue of Seller's receipt, acknowledgment or acceptance of Purchaser's purchase order, shipping instruction forms, or other Purchaser documentation containing terms or conditions which are different from or in addition to those set forth in these Terms and Conditions of Sale. Any such modifications or additional terms or conditions are specifically rejected and deemed a material alteration hereof. Purchaser's issuance of a purchase order or Purchaser's acceptance of any drawings, Equipment, or services from Seller shall (without prejudice to any other manner in which acceptance of these Terms and Conditions of Sale may be evidenced) constitute full acceptance of these Terms and Conditions of Sale.

19.3. Neither party shall assign or transfer this contract without the prior written consent of the other party (which consent shall not be unreasonably withheld); any purported assignment in violation of this sentence shall be void. Irrespective of the foregoing, Seller may without consent assign this contract (or any of rights or obligations hereunder) to any of its affiliates and use sub-contractors.

19.4. If any part of this document is held by a court of competent jurisdiction to be invalid or unenforceable for any reason, such invalidity or enforceability does not affect any other provision, and this document shall be construed as if the invalid or unenforceable provision had never been set forth.

19.5. Neither party's failure to enforce, or its waiver of a breach of, any provision contained in this document shall constitute a waiver of any other breach or of such provision.

19.6. The validity, performance, and all other matters relating to the interpretation and effect of this contract shall be governed by the laws of the State of Texas, USA, without regard to its conflict of laws principles, and the exclusive forum shall be the State of Texas. The United Nations Convention on the International Sale of Goods shall not apply.

19.7 These Terms and Conditions of Sale cannot be superseded, amended, or modified except by a written document signed in handwriting by
Seller's duly authorized officer and Buyer's duly authorized representative.

19.8. All headings, captions and numbering in these Terms and Conditions of Sale are for convenience of reference only and shall notbe used to interpret any meaning of any terms or condition.

19.9. Seller and Purchaser are independent contractors; neither party shall act as the agent for the other. This contract is between Seller and
Purchaser alone, and there are no intended rights or benefits provided hereunder to any third party.