

- DATUMS:
- A- MOUNTING FACE OF FLYWHEEL
  - B- ENGINE CRANKSHAFT HORIZONTAL CENTERLINE
  - C- ENGINE CRANKSHAFT VERTICAL CENTERLINE
  - D- PUMP INPUT SHAFT OR RIGHT ANGLE GEAR INPUT SHAFT HORIZONTAL CENTERLINE
  - E- PUMP INPUT SHAFT OR RIGHT ANGLE GEAR INPUT SHAFT VERTICAL FACE

**CAUTION:**  
ALL PLUMBING MUST BE SUPPORTED AND/OR ISOLATED SO THAT NO WEIGHT OR STRESS IS APPLIED TO ANY ENGINE COMPONENT.

**INSTALLATION NOTES:**

- 1) CAUTION: SPREADER BARS REQUIRED TO MOVE PACKAGE DAMAGE DUE TO IMPROPER HANDLING IS NOT WARRANTABLE
- 2) FUEL SUPPLY PIPING FROM TANK TO ENGINE SHOULD BE 3/4" MINIMUM PIPE DIAMETER
- 3) FUEL RETURN PIPING FROM TANK TO ENGINE SHOULD BE 1/2" MINIMUM PIPE DIAMETER
- 4) PIPING & CABLING CONNECTIONS BETWEEN THE DIESEL ENGINE CONTROLLER & FUEL TANK TO BE DONE BY CUSTOMER. FUEL TANK & CONTROLLER TO BE INSTALLED ACCORDING TO NFPA-20 AND ENGINE MANUFACTURER RECOMMENDATIONS.
- 5) ENGINE SILENCER, MOUNTING BRACKETS, MOUNTING BANDS, FLAPPER, RAIN CAP, AND HARDWARE TO BE SHIPPED SEPARATELY ON A SKID AND INSTALLED ON SITE.
- 6) ENGINE, FRAME, AND ENCLOSURE TO BE THE COLOR: RAL 3001 SIGNAL RED.
- 7) ENCLOSURE FINISH TO BE TEXTURED POWDER COAT.
- 8) ENCLOSURE MATERIAL: 0.10" THICK 5052 H32 ALUMINUM
- 9) FOR PROPER LIFTING, ESTIMATED TOTAL WEIGHT AND SHIPPING DIMENSIONS SEE DRAWING C137470.
- 10) OFFSET "G" CAN BE ABOVE OR BELOW DATUM B. THIS OFFSET IS REQUIRED AND IS THE RESPONSIBILITY OF THE CUSTOMER TO SET THE PROPER HEIGHT FOR THE PUMP. SEE PAGE 2 FOR OFFSET FOR PUMP SHAFT WITH OR WITHOUT A TORSIONAL COUPLING

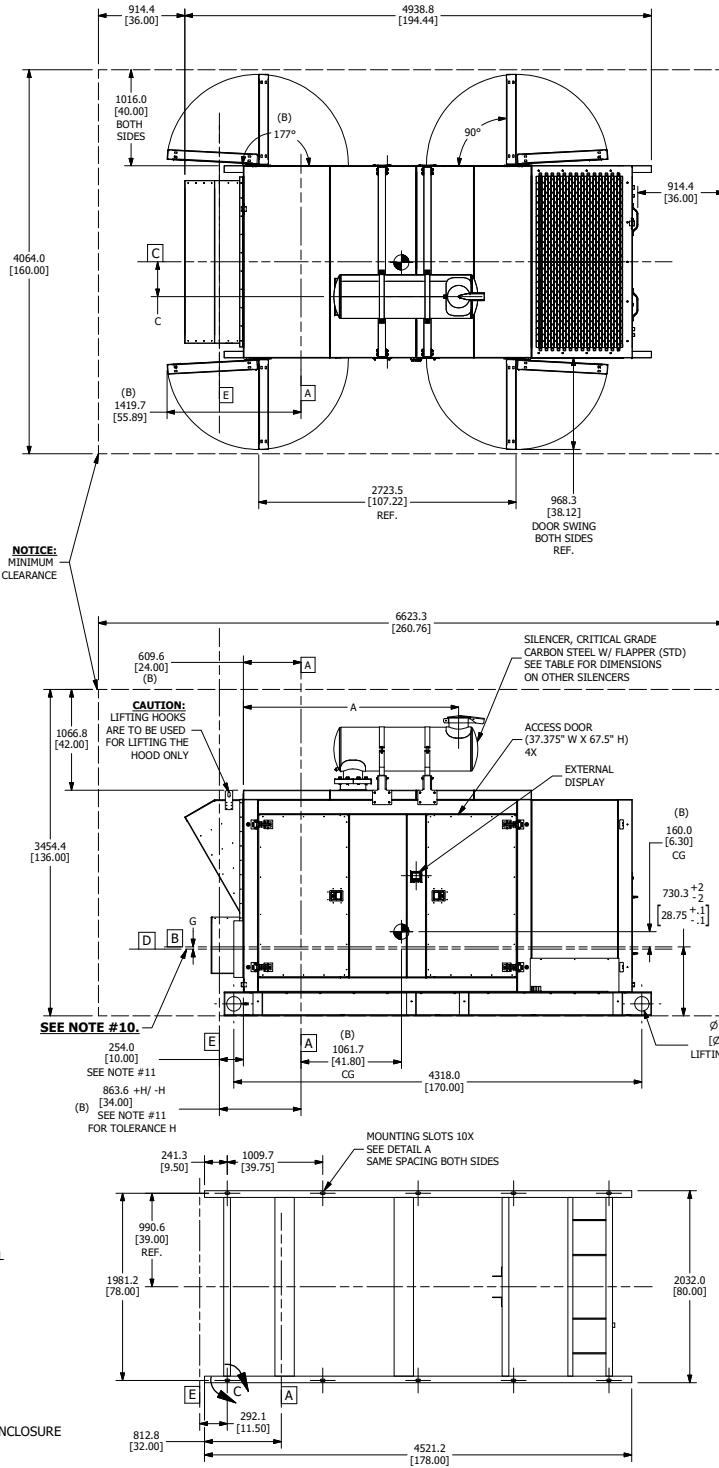
**NOTICE:**  
MINIMUM CLEARANCE

**SEE NOTE #10.**  
SEE NOTE #11  
SEE NOTE #11  
SEE NOTE #11 FOR TOLERANCE H

MOUNTING SLOTS 10X  
SEE DETAIL A  
SAME SPACING BOTH SIDES

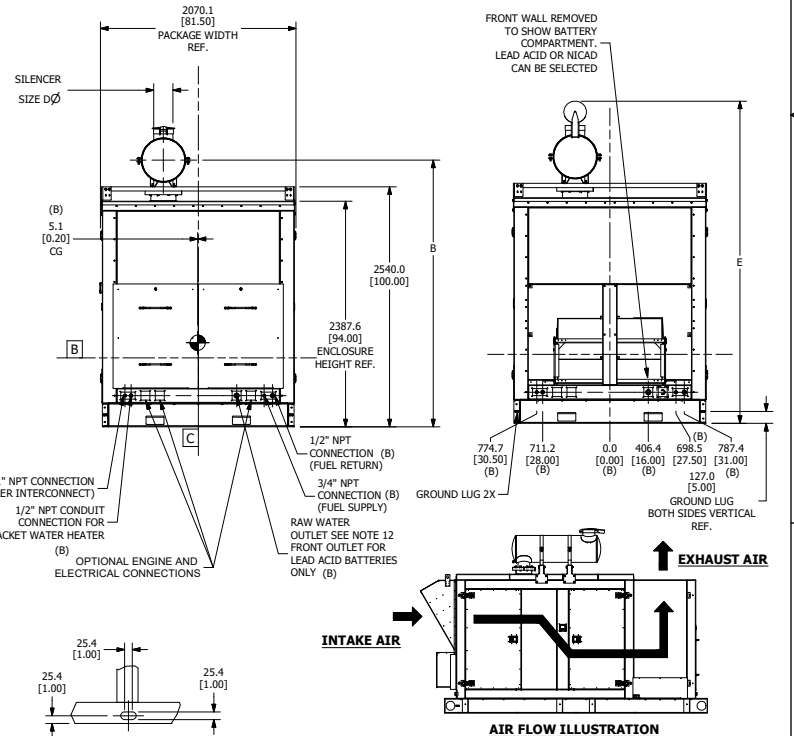
- NOTES CONTINUED**
- 11) LOCATION OF THE PUMP INPUT SHAFT OR RIGHT ANGLE GEAR INPUT SHAFT IS HELD BY CONTROLLING THE COMBINATION OF DRIVE PLATE OR TORSIONAL COUPLING AND THE DRIVESHAFT. SEE PAGE 2 FOR TOLERANCE BETWEEN DATUMS A AND E.
  - 12) PER NFPA 20 11.2.8.7.1 AN OUTLET SHALL BE PROVIDED FOR THE WASTEWATER LINE FROM THE HEAT EXCHANGER, AND THE DISCHARGE SHALL NOT BE LESS THAN ONE SIZE LARGER THAN THE INLET LINE. ALSO PER NFPA 20 11.2.8.7.4 WHEN THE WASTE OUTLET PIPING IS LONGER THAN 15' (4.6 m) OR ITS OUTLET DISCHARGES ARE MORE THAN 4' (1.2m) HIGHER THAN THE HEAT EXCHANGER, OR BOTH, THE PIPE SIZE SHALL BE INCREASED BY AT LEAST ONE SIZE.
  - 13) ALL PIPING CONNECTIONS FOR COOLING WATER FROM THE PUMP TO THE CUSTOMER CONNECTIONS ON THE ENCLOSURE ARE TO BE INSTALLED BY THE CUSTOMER PER NFPA 20.
  - 14) THIS PACKAGE WILL REQUIRE A HIGH-CUBE CONTAINER FOR SEA FREIGHT
  - 15) THE LOOP SHOWN IS BASED ON STANDARD LOOP CONSTRUCTION AND FM SIZING CONDITIONS. FOR ALTERNATE LOOP CONSTRUCTION (STAINLESS STEEL, SEA WATER, AND HIGH PRESSURE) SIZES MAY VARY.

BOUNDARY BOX SHOWS MINIMUM CLEARANCE AROUND ENCLOSURE



REV	DESCRIPTION	ECN#	DWN	APVD	DATE
C	ADDED FMAD ENGINE MODELS	5076	CRD	ACH	02DEC20
D	REMOVED OLD MODELS, AND CORRECTED CURRENT ONES	5076	ACH	ACH	12DEC20
E	SWAPPED OPTIONAL CONNECTION POINT ON REAR	5076	CRD	ACH	08DEC21
F	CORRECTED RAW WATER CONNECTIONS FROM 1.5" SUPPLY AND 2" RETURN	5076	ACH	ACH	07FEB22

ENGINE MODELS	DIMENSION S	CARBON STEEL	316 STAINLESS STEEL	CARBON STEEL SPARK ARRESTING	STAINLESS STEEL SPARK ARRESTING	COOLING WATER		FUEL LINE SIZE	
						SUPPLY	RETURN	SUPPLY	RETURN
C18H0-UFAD10, 12, 12-D, 22, 22-D, 18, 20, 28, 30, 32, 32-D, 38, 40, 42, UFAD48, 50, 58, 68, 70, 78, C18H0-UFAA78, C18H0-UFAC10, 18, 20, 28 FMAD12-S, 12-DS, 22-S, 22-DS, 32-S, 32-DS, 42-D, 42-S, 42-DS	A	89.6	89.6	105.6	103.6	1.25"	1.5"	.75" MINIMUM	0.5" MINIMUM
	B	111.125	111.125	111.125	111.125				
	C	14.4							
	D	8							
E	134	134	134	134					



**DETAIL C**  
SCALE 0.08 : 1

**DRAWING SUBJECT TO CHANGE WITHOUT NOTICE DO NOT SCALE**

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THE USER NOTED OTHERWISE, THE DRAWING DIMENSIONS WILL BE IN INCHES UNLESS OTHERWISE SPECIFIED.

ALL DIMENSIONS CAN VARY ± 0.03 (0.76)

CONTROLLED DRAWING

CDYER  
10/15/2018  
AHIGGINS

DATE: 10/15/2018  
DRAWN BY: AHIGGINS  
CHECKED BY: AHIGGINS

PROJECT NO: C137764

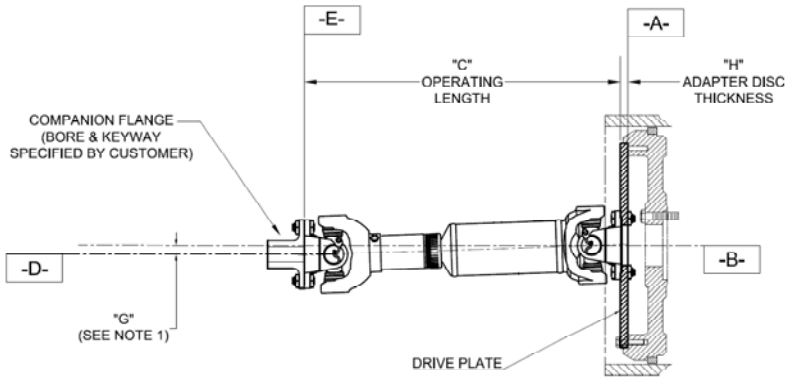
SCALE: NTS  
UNIT: MM (INCH)

SUBMITTAL C18H SOUND ATTENUATED MODULAR SIZE 3 ENCLOSURE WITH CRITICAL GRADE SILENCER

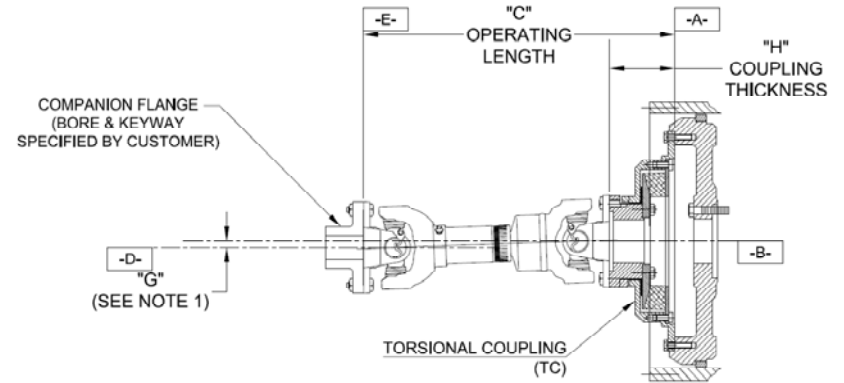
PAGE 1 OF 2

DATUMS

- A- MOUNTING FACE OF FLYWHEEL
- B- ENGINE CRANKSHAFT CENTERLINE
- D- PUMP OR RIGHT ANGLE GEAR SHAFT HORIZONTAL CENTERLINE
- E- END OF PUMP OR RIGHT ANGLE GEAR SHAFT



**FIGURE A**



**FIGURE B**

Driveshaft Only (See Figure A)						Driveshaft and TC (See Figure B)							
Clarke Engines, UL/FM approved Heat Exchanger and Radiator Cooled Models	UL Listed Driveshaft Model	Non-Listed Driveshaft Model	Drive Disc	Companion Flange	Driveshaft Model Without Torsional Coupling (See Note 3)	"H" Horizontal Tolerance (+)	"H" Horizontal Tolerance (-)	"G" Vertical Parallel Offsets of Shafts	Torsional Coupling Model	Driveshaft Model With Torsional Coupling (See Note 3)	"H" Horizontal Tolerance (+)	"H" Horizontal Tolerance (-)	"G" Vertical Parallel Offsets of Shafts
C18H0-UFAD12, UFAD18, UFAD22, UFAD10, UFAD32, UFAD28, UFAD20, UFAD38, UFAD30, UFAD48, UFAD40, UFAD70 <sup>7</sup> , FMAD12-S, FMAD12-DS, FMAD22-S, FMAD22-DS, FMAD32-S, FMAD32-DS, UFAD12-D, UFAD22-D, UFAD32-D, UFAD68	N/A	VA2365	C084930	180-10	VA2365-33	51.8 [2.04]	57.9 [2.28]	21.3 ±10.7 [0.84] ±[0.42]	TC55-14-180.10-FS	VA2365-29	57.9 [2.28]	51.8 [2.04]	17.6±8.8 [0.69] ±[0.35]
C18H0-UFAD58, UFAD78, UFAD70 <sup>7</sup> , UFAC18, UFAC10, UFAC28, UFAC20, UFAA78, UFAD42, UFAD42-D, FMAD42-S, FMAD42-DS, UFAD50	N/A	VA2390	C084930	180-10	VA2390-33			21.7 ±10.8 [0.85] ±[0.42]	TC55-14-180.10-FS	VA2390-29			17.9± 9.0 [0.71] ±[0.35]

- 1 -1760 RPM ONLY
- 2 -2100 RPM ONLY
- 3 -2350 RPM ONLY
- 4 -1470 RPM ONLY
- 5 -1800 RPM ONLY
- 6 -2650 RPM ONLY
- 7 -1900 RPM ONLY
- 8 -2800 RPM ONLY
- 9 -3000 RPM ONLY

**NOTES:**

1. CAUTION: THE DRIVESHAFT IS DESIGNED TO OPERATE AT A 2° ANGLE WITH THE INPUT AND THE OUTPUT SHAFTS IN PARALLEL OFFSET OF "G" INCH VERTICALLY ABOVE OR BELOW THE ENGINE CRANKSHAFT CENTERLINE (DATUM B). THE OFFSET SHOULD BE 0.00" PARALLEL OFFSET HORIZONTALLY RIGHT OR LEFT OF DATUM B. REFER TO THE CERTIFIED DRIVESHAFT INSTALLATION MANUAL FOR ALIGNMENT INSTRUCTIONS.
2. BASED ON THE TORSIONAL VIBRATION ANALYSIS (TVA) THE SIZE OF THE TORSIONAL COUPLING COULD CHANGE TO A SMALLER **TC15-11.5-55-FS**. **NOTE: THIS WILL AFFECT THE FINAL INSTALLATION (DIMENSIONS "C" SHOWN IN THE DIAGRAM AT THE TOP OF THE PAGE). THE PUMP INSTALLER MUST BE MADE AWARE OF THIS CHANGE.**
3. LENGTHS SHOWN USE THE VALUE FOR THE LISTED DRIVESHAFT WHERE AVAILABLE.

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<small>ALL DIMENSIONS CAN VARY ±0.005 (0.127)</small>	DATE: 10/15/2018 ENGINEER: AHIGGINS MATERIAL: ASSEMBLY: DRAWN TO:	DESIGN: CDYER DATE: 10/15/2018 CHECKER: PART NO.: SCALE: NTS	NUMBER: SUBMITTAL C18H SOUND ATTENUATED MODULAR SIZE 3 ENCLOSURE WITH CRITICAL GRADE SILENCER C137764 PAGE 2 OF 2

REV	DESCRIPTION	ECN#	DWN	APVD	DATE
A	INITIAL ENGINEERING DRAWING	5076	ACH	ACH	28MAY20
B	ADDED C18 MODELS	5076	ACH	ACH	10DEC20

**DATUMS:**

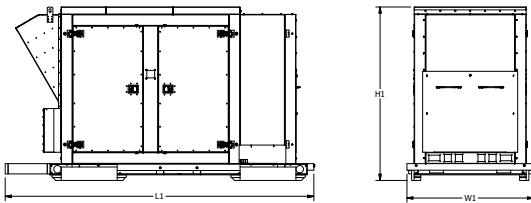
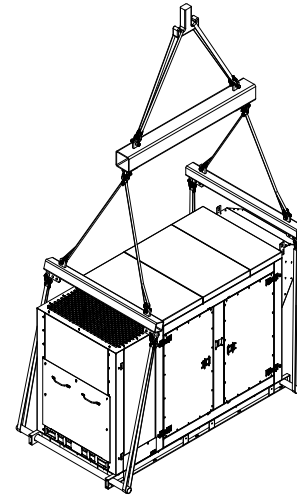
- A- MOUNTING FACE OF FLYWHEEL
- B- ENGINE CRANKSHAFT HORIZONTAL CENTERLINE
- C- ENGINE CRANKSHAFT VERTICAL CENTERLINE
- ◆ -CENTER OF GRAVITY

LIFTING HOOK TO BE CENTERED OVER UNIT CENTER OF GRAVITY

SPREADER BARS

LIFTING HOLES IN BASE (SEE NOTE 3)

LIFTING EXAMPLE



**AS SHIPPED**

- NOTES:**
- THE RIGGING SETUP SHOWN ON THIS DRAWING IS FOR REFERENCE ONLY. THIS IS NOT THE EXACT SETUP THAT SHOULD BE USED, AND THE REQUIRED SETUP FOR EACH UNIT WILL BE DIFFERENT.
  - THE RIGGING SETUP SHOULD BE DONE SUCH THAT IT COMPLIES WITH LOCAL REQUIREMENTS. THIS SHOULD ALSO BE DONE BY A REPUTABLE VENDOR. IT IS THE RESPONSIBILITY OF THE CUSTOMER TO UTILIZE PROPER RIGGING AND LIFTING PROCEDURES.
  - THE LIFTING HOLES IN THE BASE ARE SIZED SO THAT STRUCTURAL PIPE CAN BE SLID THROUGH THE OPENING TO ALLOW FOR EASIER ROUTING OF LIFTING STRAPS, CHAINS, OR CABLES.
  - THE WEIGHTS SHOWN IN THE TABLE ARE APPROXIMATE AND INCLUDE THE COMPLETE ENCLOSED UNIT MINUS THE SILENCER WEIGHT.

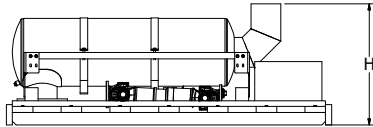
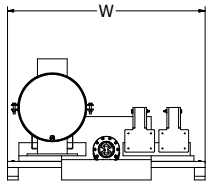
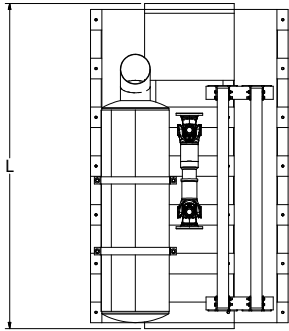
Engine Models	Weight as Shipped <sup>4</sup> kg [lbs]	Overall Length		Overall Width		Overall Height	
		Enclosure Only (L)	Enclosure with Shipping Block (L1)	Enclosure Only (W)	Enclosure with Shipping Block (W1)	Enclosure Only (H)	Enclosure with Shipping Block (H1)
JU4R-UF40, UF49, UF51, UF53, UF09, UF11, UF13, UF19, UF21, UF23, UF4EA9, UF4EE7, UF4EF1	1879 [4134]						
JU4H-UF34, UF40, UF42, UF50, UF54, UF40, UF42, UF10, UF12, UF14, UF20, UF52, UF22, UF24, UFADJ2, UFADJ8, UF4EA0, UF4EE8, UF4EF2	1981 [4359]						
JU4H-UFAD5G, UFADJG, UFADP0, UFADR0, UFADW8, UFADY8, UFADX8	2259 [4969]						
JU6H-UF30, UF32, UF34, UF50, UF52, UF54, UF58, UF60, UF62, UFM0, UFM2, UFM8, UFAA08, UFAA8G, UFAAPG, UFAA50, UF50, UF52, UF54, UF94, UFAA00, UFAA12, UFAA18, UFAA88, UFAADK0, UFADNG, UFADP8, UFADND, UFADMG, UFAD98, UFADP0, UFADQ0, UFADR0, UFADR8, -UFAD88, UFADT0, UFADW8, -UFADX8	2343 [5154]	3975.4 [156.51]	4203.7 [165.50]	1562.1 [61.50]	1727.2 [68.00]		
JU8R-UFAAD9, D1, 29, 31, 33, -UFAAM7, M9, M1, 57, 49, 51, 53, 59, 61, 63, UFAA9F, Q7, R7, S9	2310 [5081]					2286.0 [90.00]	2362.2 [93.00]
JW6H-UFAA60, UFAA80, UFAD70, UFAD80, UFADF0, UFADJ0	3140 [6908]						
JX6H-UFADF0, AD60, ADK0, ADND, ADPO, AD88	3751 [8252]	4329.2 [170.44]	4610.1 [181.50]				
DQ6H-UFAA50, AA60, AA88, AA98	3343 [7355]						
DS6H-UFAA40, AA55, AA62, AA68	3443 [7575]						
DS0H-UFAAM0, AAN0, AA60, AA68, -UFAA92, AA98	3574 [8523]						
DS0R-UFAA67, AA59	4539 [9980]			2070.1 [81.50]	2235.2 [88.00]		
DT2H-UFAA20, AA50, AA58, AA88	4531 [9968]						
DT2R-UFAA19, 49	5183 [11403]	4938.8 [194.44]	5219.7 [205.50]				
DT2H-UFAA60, AA92, AA98	4535 [9978]						
C18H-UFAAD10, 12, 12-D, 22, 22-D, 18, 20, 28, 30, 32, 32-D, 38, 40, 42, UFAD48, 50, 58, 60, 70, 78							
C18H-UFAA78, C18H-UFAC10, 18, 20, 28 FMAD12-S, 12-DS, 22-S, 22-DS, 32-S, 32-DS, 42-D, 42-S, 42-DS	4334 [9535]						

**CLARKE**

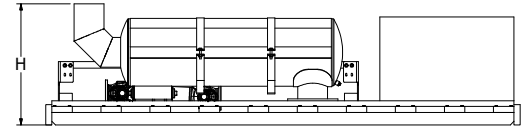
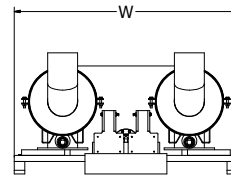
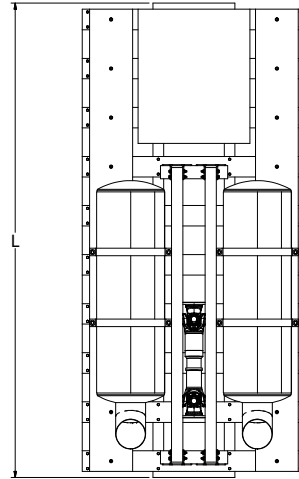
PROPER LIFTING, SHIPPING WEIGHTS, AND DIMENSIONS FOR MODULAR ENCLOSED UNITS

C137470

1 2



**SINGLE SILENCER SHIPPING SKID DIMENSIONS**



**DUAL SILENCER SHIPPING SKID DIMENSIONS**

ENGINE MODELS	DESCRIPTION	OVERALL HEIGHT (H)	OVERALL WIDTH (L)	OVERALL LENGTH (L)	TOTAL WT KG [LBS]
JU4H, JU4R	SIZE 1 SHIPPING SKID SINGLE SILENCER 4 IN	723.9 (28.50)	1143 (45)	2041.5 (80.38)	211 [465]
JU6H, JU6R	SIZE 1 SHIPPING SKID SINGLE SILENCER 5 IN	723.9 (28.50)	1143 (45)	2041.5 (80.38)	228 [501]
DR8H, DS0H, DS0R	SIZE 2-3 SHIPPING SKID DUAL 5 INCH SILENCER	723.9 (28.50)	1524 (60)	3232.2 (127.25)	391 [859]
DT2H DRY, DT2R	SIZE 2-3 SHIPPING SKID DUAL 6 INCH SILENCER	774.7 (30.50)	1524 (60)	3232.2 (127.25)	433 [952]
DT2H WET	SIZE 2-3 SHIPPING SKID DUAL 8 INCH SILENCER	825.5 (32.50)	1524 (60)	3232.2 (127.25)	451 [991]
DQ6H, JW6H	SIZE 2 SHIPPING SKID SINGLE 6 INCH SILENCER	774.7 (30.50)	1346.2 (53)	2216.2 (87.25)	289 [636]
JX6H, C18H0	SIZE 2 SHIPPING SKID SINGLE 8 INCH SILENCER	825.5 (32.50)	1346.2 (53)	2216.2 (87.25)	296 [650]

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<small>APPROVED FOR RELEASE</small> <small>DATE</small>	<small>REV</small> <small>DESCRIPTION</small>	<small>DATE</small> <small>BY</small>	
<small>APPROVED FOR RELEASE</small> <small>DATE</small>	<small>REV</small> <small>DESCRIPTION</small>	<small>DATE</small> <small>BY</small>	
<small>APPROVED FOR RELEASE</small> <small>DATE</small>	<small>REV</small> <small>DESCRIPTION</small>	<small>DATE</small> <small>BY</small>	