



RESPA CF2 QUALITY CABIN ENVIRONMENTAL AIR SYSTEM DIY KIT



The following design concept is for a basic RESPA CF2 External Air Filtration and Cab Pressuriser Kit (12 or 24VDC, with Standard or Brushless Motor and MERV+16 or HEPA>H13 Filter Element - please specify when ordering)

The System arrangement consists of:

- External Air- RESPA CF2 Unit: for Precleaning, Filtration and Pressurisation of the Cabin. This unit Precleans the External Air (>96% of debris is returned to the external environment), provides Filtered "Fresh Air" and Air Flow to pressurise the Cabin.
- The following drawings provide for general components for mounting and ducting of the kit and is in two configurations being Option A - solid ducting components and Option B - flexible ducting components.
- Optional RESPA® Advisor is to monitor the Cabin Pressure and Carbon Dioxide (CO₂) and Alarm if the Cabin Pressure drops below the set- point threshold or the CO₂ exceeds the set limit. Audible and visual alarms are provided to indicate that the Cabin sealing has been compromised but primarily to indicate that the External Filter Element of the RESPA CF2 has become loaded, air flow has diminished and so the Filter Element requires replacement.

IMPORTANT NOTES

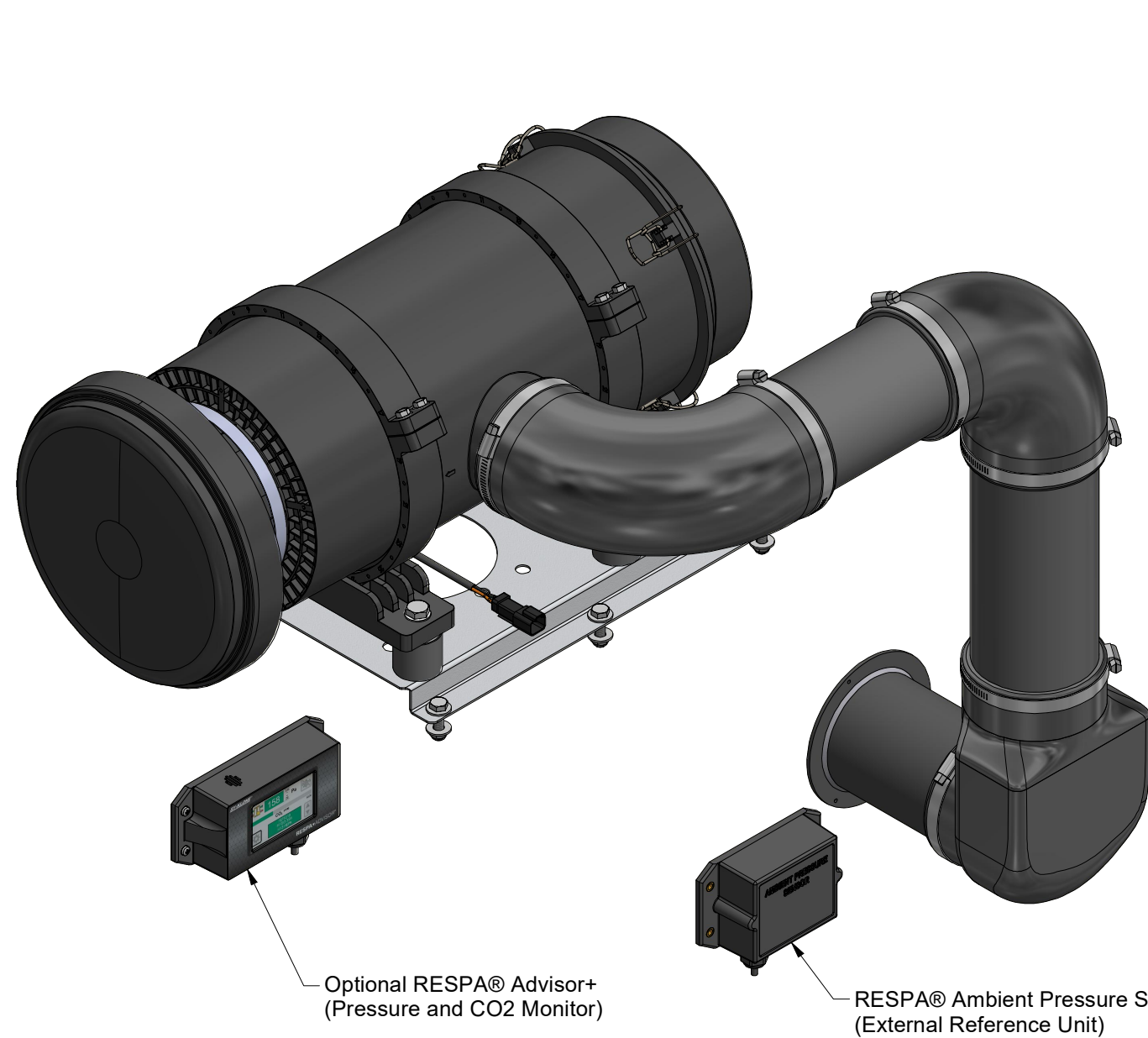
1. It is recommended that the Respa Air outlet spigot is attached either directly to the machine cabin or the HVAC external air supply inlet plenum.
2. Ensure HVAC external filter panel is removed so as Respa provides unrestricted clean filtered external air supply.
3. If Respa is connected to machine cab and not via the HVAC external filter plenum then the HVAC external filter plenum must be sealed so as the only external air supply is via the Respa unit. This will in turn ensure that the HVAC is operated in recirculation mode only.

The Objectives of the technology is to provide:

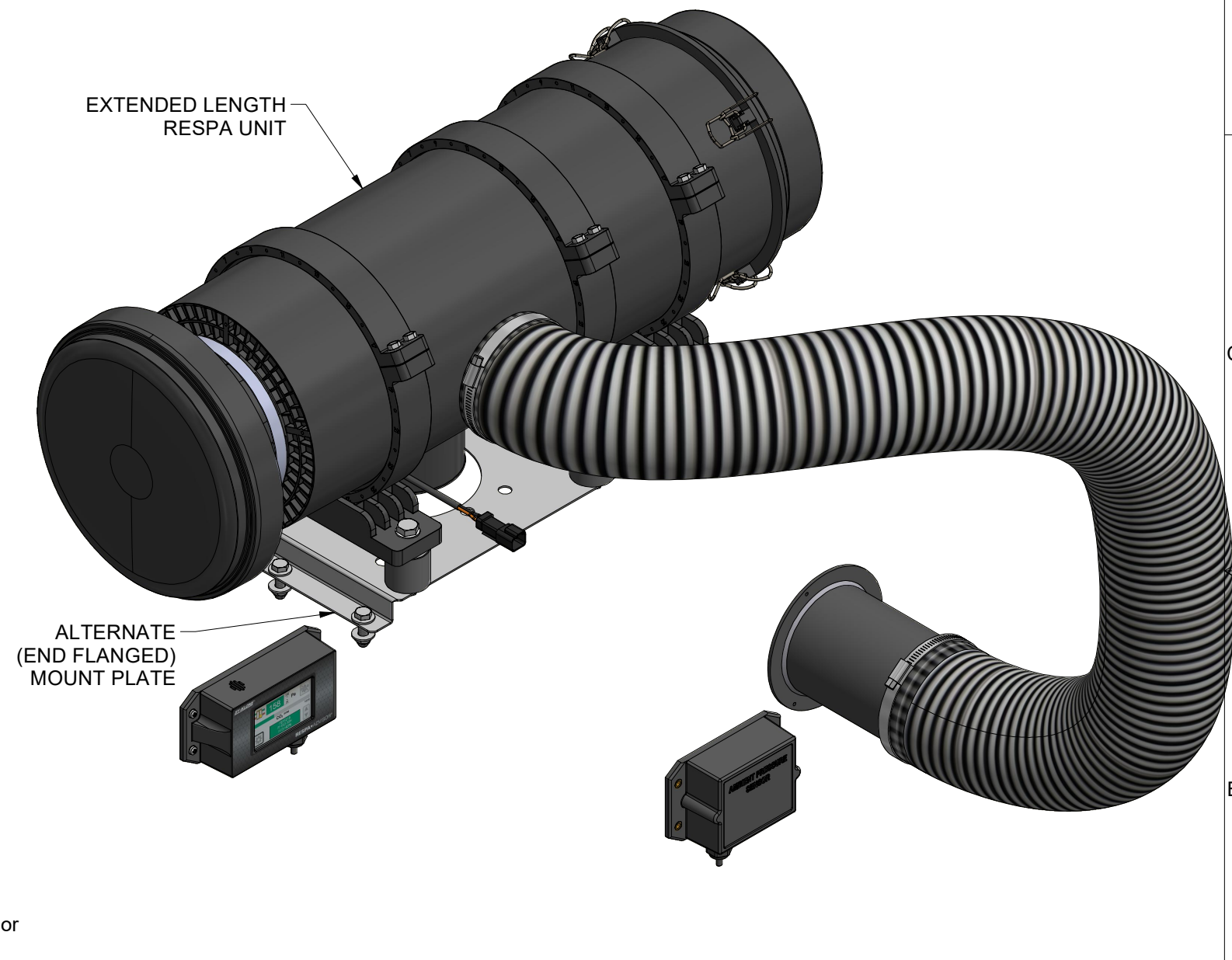
- **Highest protection of Operators Health to OEL Legislation Compliance for Airborne Particulate / Fibre Exposure.**
- **Increase Safety- avoids CO₂ concentration in the Cabin that can cause fatigue risk, micro- sleeps, drowsiness and acidosis.**
- **Extension of Filter Element up to 1,000 hours.**
- **Protection and extension of HVAC Service Life and functionality.**
- **Increased Productivity.**

Rev	Date	Changes	ECR	By	Client/Description:	Designed by	Checked by	Approved by	Date	Date	Scale
A	26/10/18	Issued	0135	JAL	This drawing is copyright protected. No part of this drawing in any form or means is to be replaced, stored by retrieval system, transmitted or used by third parties without the written permission of LSM Technologies Pty Ltd	JAL	P.W.	Peter Woodford	29/06/21	22/10/18	N.T.S.
B	23/10/20	AV Mount Number Change	0228	ACF		<div>LSM TECHNOLOGIES</div> <div>Ph: 07 3725 8100 Fax: 07 3725 8199 16 Bluestone Circuit Seventeen Mile Rocks QLD 4073 http://www.lsmtechnologies.com.au/</div>		SINGLE RESPA DIY KIT			
C	9/07/21	ICPS Updated to Advisor + and APS	0284	JAL				Title Page			
						Drawing Number			Revision	Sheet	
						03-03-0447			C	1 / 6	

SOLID AND FLEXIBLE DUCTING KIT OPTIONS

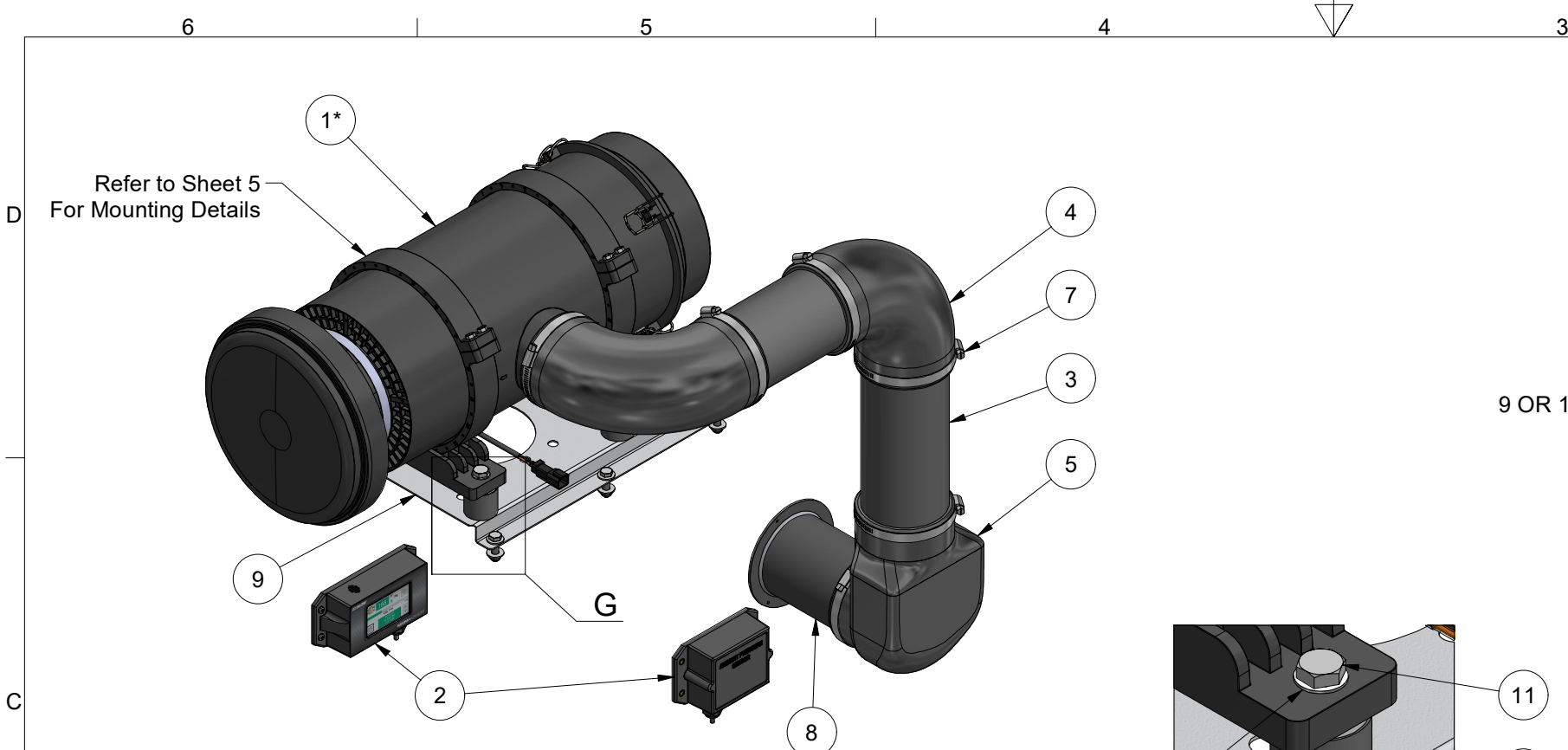


SINGLE RESPA ASSEMBLY -
4" (102mm) SOLID DUCT AND RUBBER ELBOWS

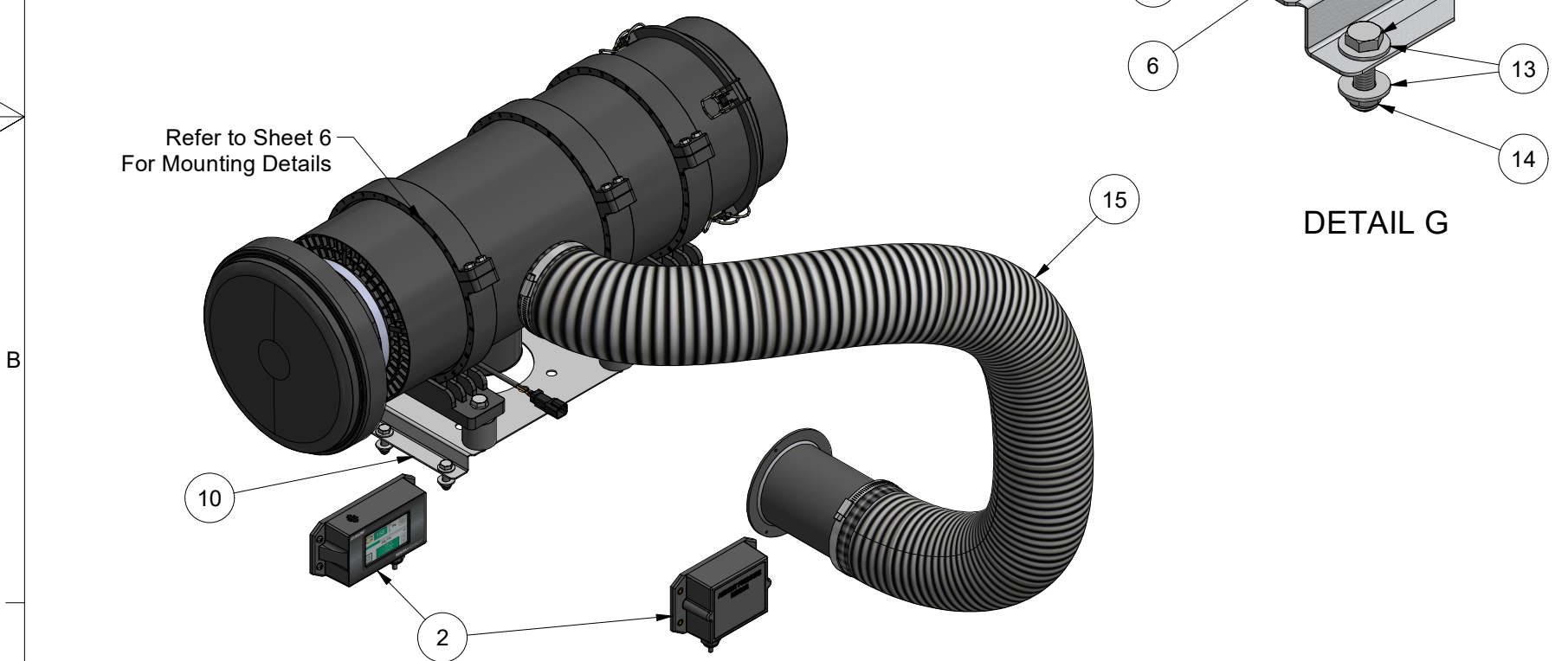


SINGLE RESPA ASSEMBLY -
4" (102mm) FLEXIBLE DUCTING OPTION

Rev	Date	Changes	ECR	By	Client/Description:	Designed by	Checked by	Approved by	Date	Date	Scale	
A	26/10/18	Issued	0135	JAL	<div>DESIGN REGISTRATION PENDING</div> <div>This drawing is copyright protected. No part of this drawing in any form or means is to be replaced, stored by retrieval system, transmitted or used by third parties without the written permission of LSM Technologies Pty Ltd</div>	JAL	P.W.	Peter Woodford	29/06/21	22/10/18	N.T.S.	
B	23/10/20	AV Mount Number Change	0228	ACF		<div><div>LSM TECHNOLOGIES</div><div>Ph: 07 3725 8100 Fax: 07 3725 8199 16 Bluestone Circuit Seventeen Mile Rocks QLD 4073 http://www.lsmtechnologies.com.au/</div></div>	SINGLE RESPA DIY KIT Ducting Options					
C	9/07/21	ICPS Updated to Advisor + and APS	0284	JAL			Drawing Number 03-03-0447			Revision C	Sheet 2 / 6	



**SINGLE RESPA ASSEMBLY -
4" SOLID DUCTING AND RUBBER ELBOWS**




**SINGLE RESPA ASSEMBLY -
EXTENDED RESPA CF2 OPTION WITH
4" FLEXIBLE DUCTING OPTION AND
END FLANGED MOUNT OPTION**

PARTS LIST				
ITEM	DESCRIPTION		QTY	PART NUMBER
1*	RESPA CF2- 4" Out+12VDC+Merv16 Filter SLength		1	LSM-RCF20##-SYK
2	RESPA Advisor Plus Monitor Unit (Press + CO2)		2	LSM-RASK5701-SYK
3	4 Inch Aluminium Tube PC		2	LSM-BYN999-SYK
4	90deg Rubber Elbow 102mm		2	LSM-3316568S-SYK
5	4 Inch 90degree Cobra		1	BIR-P600326-OTH
6	M10 Female to Female Rubber Mount		6	LSM-RMT-003-SYK
7	Clamp - Worm drive 91mm-114mm		6	LSM-ADP-004-CLP-SYK
8	General Spigot 4" x 150mm long- Blank Flange		1	03-03-0316
9	RESPA Mount Bracket CF/CF2/XLR		1	03-03-0429
10	RESPA Mount Bracket CF/CF2/XLR - End Flanged		1	03-03-0446
11	M10 x 30 Hex Head Set Screw 304SS		6	LSM-2327-OTH
12	Hex-Head Bolt		12	DIN933-M8X30-8.8-VOG
13	M8 Flat Washer ZP		24	LSM-41848-OTH
14	M8 Nut- Hex Nylon Insert Lock Nut 304SS		12	LSM-10727-OTH
15	Flexible Ducting BLK 4" (102mm)		1	LSM-ADP-004-HSE-SYK
16	M10x21x1.2 Washer 304 SS		6	LSM-49994-OTH
17	M10x16 Set Screw - Metric - Hex HD 304 SS		6	LSM-3496-OTH
18	M10 Spring Washer 304SS		6	LSM-11056-OTH

* Select 12 or 24VDC, HEPA>H13 or MERV 16+ Filter, Standard or Extended Length unit as required.									
Outlet	Voltage		Motor Type		Filter Type		Length		PART NUMBER
4"	12V	24V	Brushed	BLess	M16+	>H13	STD	EXT.	LSM-RCF####-SYK
*	*	*	*	*	*	*	*	*	2009
*	*	*	*	*	*	*	*	*	2010
*	*	*	*	*	*	*	*	*	2011
*	*	*	*	*	*	*	*	*	2012
*	*	*	*	*	*	*	*	*	2025
*	*	*	*	*	*	*	*	*	2026
*	*	*	*	*	*	*	*	*	2027
*	*	*	*	*	*	*	*	*	2028

A

Rev	Date	Changes	ECR	By	Client/Description:	Designed by	Checked by	Approved by	Date	Date	Scale	
A	26/10/18	Issued	0135	JAL	<div> <div> This drawing is copyright protected. No part of this drawing in any form or means is to be replaced, stored by retrieval system, transmitted or used by third parties without the written permission of LSM Technologies Pty Ltd </div> <div>  <div> Ph: 07 3725 8100 Fax: 07 3725 8199 16 Bluestone Circuit Seventeen Mile Rocks QLD 4073 http://www.lsmtechnologies.com.au/ </div> </div> </div>	JAL	P.W.	Peter Woodford	29/06/21	22/10/18	N.T.S.	
B	23/10/20	AV Mount Number Change	0228	ACF		SINGLE RESPA DIY KIT General Assembly Options						
C	9/07/21	ICPS Updated to Advisor + and APS	0284	JAL		<div> <div>Drawing Number</div> <div>03-03-0447</div> </div> <div> <div>Revision</div> <div>C</div> </div> <div> <div>Sheet</div> <div>3 / 6</div> </div>						

6

5

4

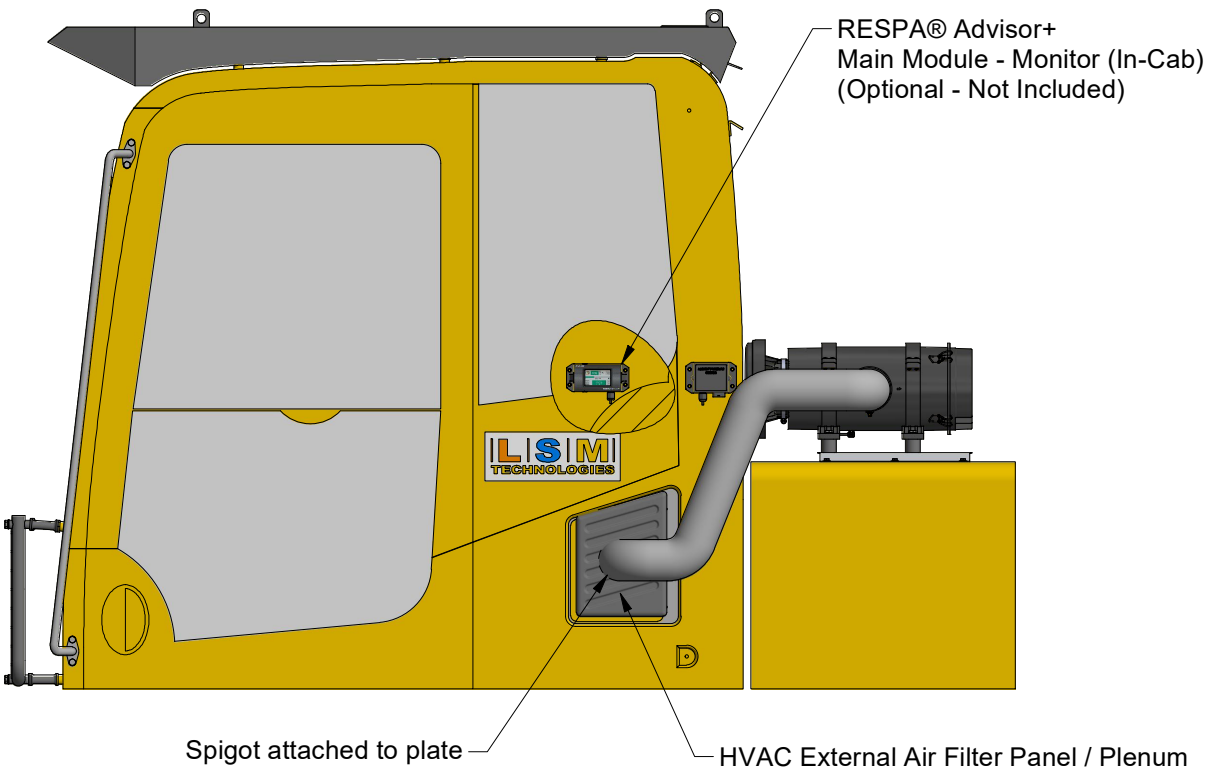
3

2

1

A

D



INSTRUCTIONS

- Mount Respa CF2 unit (max 1.5m to spigot).
- Remove external panel filter from HVAC plenum.
- Fix flat sealing plate (not supplied) to HVAC external air panel / plenum and seal / connect spigot.
- Route ducting from Respa CF2 to spigot.
- Connect after ignition power to Respa CF2 (for correct performance / fan rotation ensure correct electrical connection).
- HVAC must be modified to provide 100% recirculation air mode only to obtain positive cabin pressure.
- Install Optional RESPA® Advisor+ Main Module inside cabin and APS outside cabin (refer to installation and connection manual)

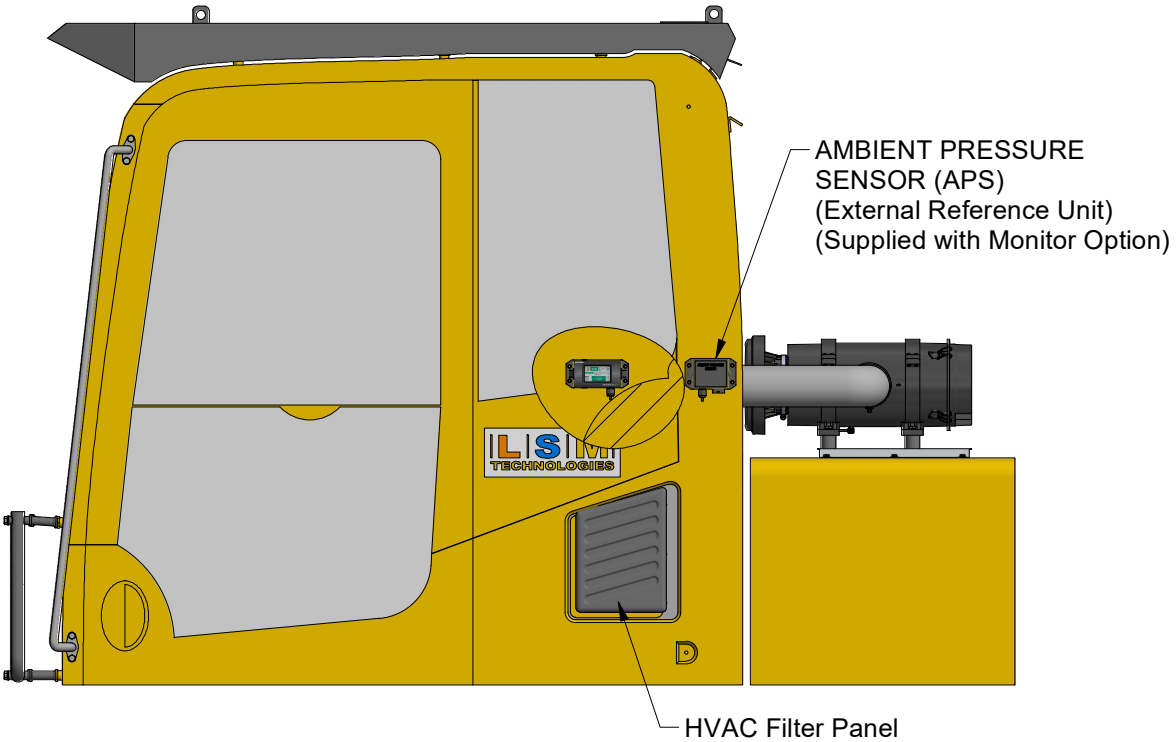
NOTES

- To obtain positive cabin pressure (>30pascal) correct cabin sealing needs to be assured (windows, doors, etc).
- Always have HVAC fan set to speed number 1 at all times so as to provide positive cab pressure.
- HVAC must be modified to provide 100% recirculation air mode only to obtain positive cabin pressure.
- Ensure Respa CF2 outlet spigot / air flow is not obstructed / restricted.
- When mounting Respa CF2 unit allow a minimum 160mm clearance at filter end of Respa to allow for filter element replacement (311mm for Extended Units)

C

DUCTING RESPA CF2 OUTLET TO HVAC EXTERNAL AIR PANEL

B



INSTRUCTIONS


- Mount Respa CF2 unit (max 1.5m to spigot).
- Remove external filter panel from HVAC plenum and seal plenum to ensure external air supply is provided to HVAC / cabin from Respa CF2 only.
- Cut hole in skin and fix / seal spigot directly to cabin.
- Route ducting from Respa CF2 to spigot.
- Connect after ignition power to Respa CF2 (for correct performance / fan rotation ensure correct electrical connection).
- HVAC must be modified to provide 100% recirculation air mode only to obtain positive cabin pressure.
- Install Optional RESPA® Main Module inside cabin and APS outside cabin (refer to installation and connection manual)

NOTES

- To obtain positive cabin pressure (>30pascal) correct cabin sealing needs to be assured (windows, doors, etc).
- Always have HVAC fan set to speed number 1 at all times so as to provide positive cab pressure.
- HVAC must be modified to provide 100% recirculation air mode only to obtain positive cabin pressure.
- Ensure Respa CF2 outlet spigot / air flow is not obstructed / restricted.
- When mounting Respa CF2 unit allow a minimum 160mm clearance at filter end of Respa to allow for filter element replacement (311mm for Extended Unit)

DUCTING RESPA CF2 OUTLET TO DIRECTLY TO CABIN

A

Rev	Date	Changes	ECR	By	Client/Description:	Designed by	Checked by	Approved by	Date	Date	Scale
A	26/10/18	Issued	0135	JAL		JAL	P.W.	Peter Woodford	29/06/21	22/10/18	N.T.S.
B	23/10/20	AV Mount Number Change	0228	ACF		'DESIGN REGISTRATION PENDING'	 <div>Ph: 07 3725 8100 Fax: 07 3725 8199 16 Bluestone Circuit Seventeen Mile Rocks QLD 4073 http://www.lsmtechnologies.com.au/</div>	SINGLE RESPA DIY KIT Installation Options and Instructions			
C	9/07/21	ICPS Updated to Advisor + and APS	0284	JAL		This drawing is copyright protected. No part of this drawing in any form or means is to be replaced, stored by retrieval system, transmitted or used by third parties without the written permission of LSM Technologies Pty Ltd		Drawing Number 03-03-0447		Revision C	Sheet 4 / 6

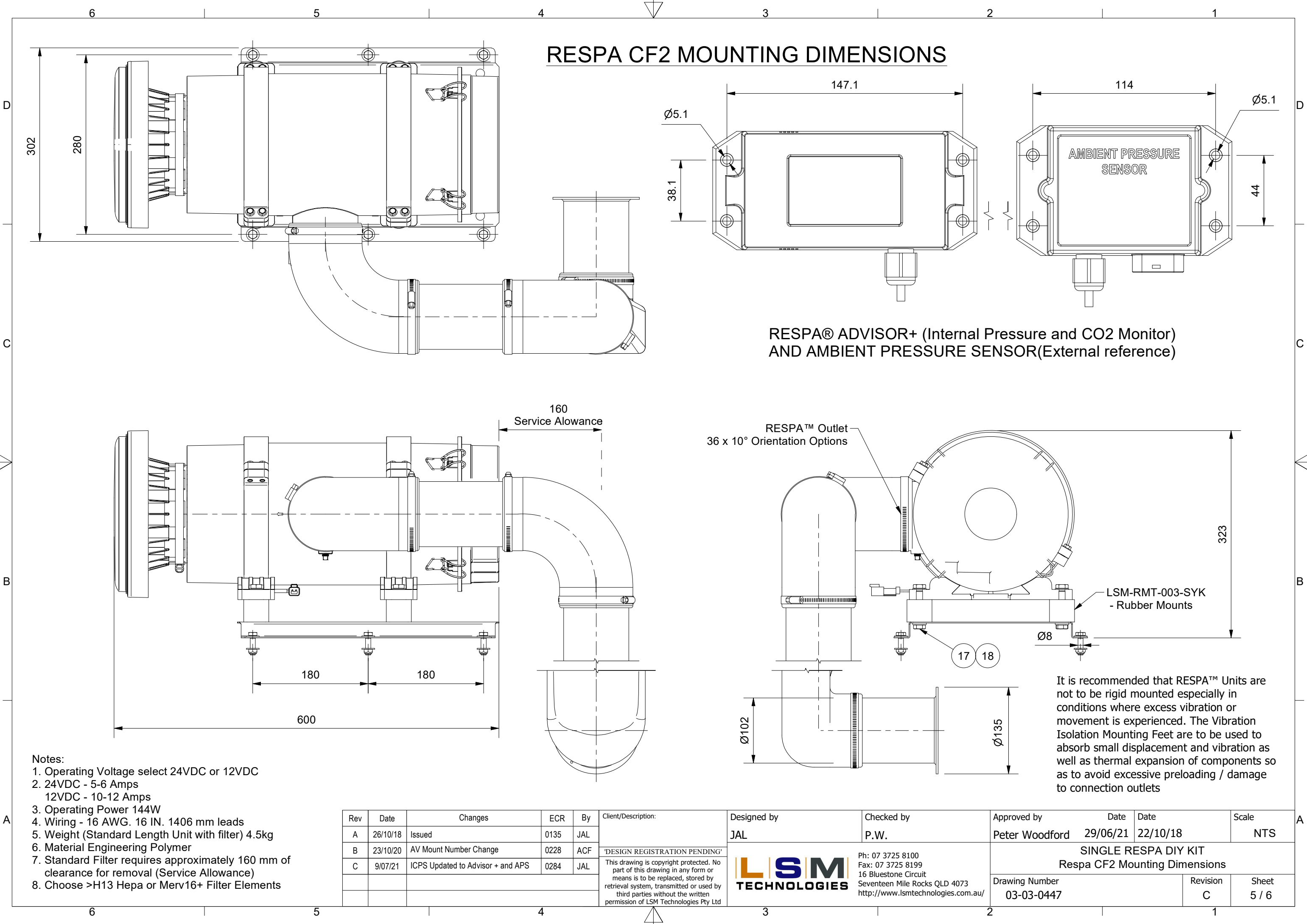
4

3

2

1

A



RESPA CF2 MOUNTING DIMENSIONS

RESPA® ADVISOR+ (Internal Pressure and CO2 Monitor)
AND AMBIENT PRESSURE SENSOR(External reference)

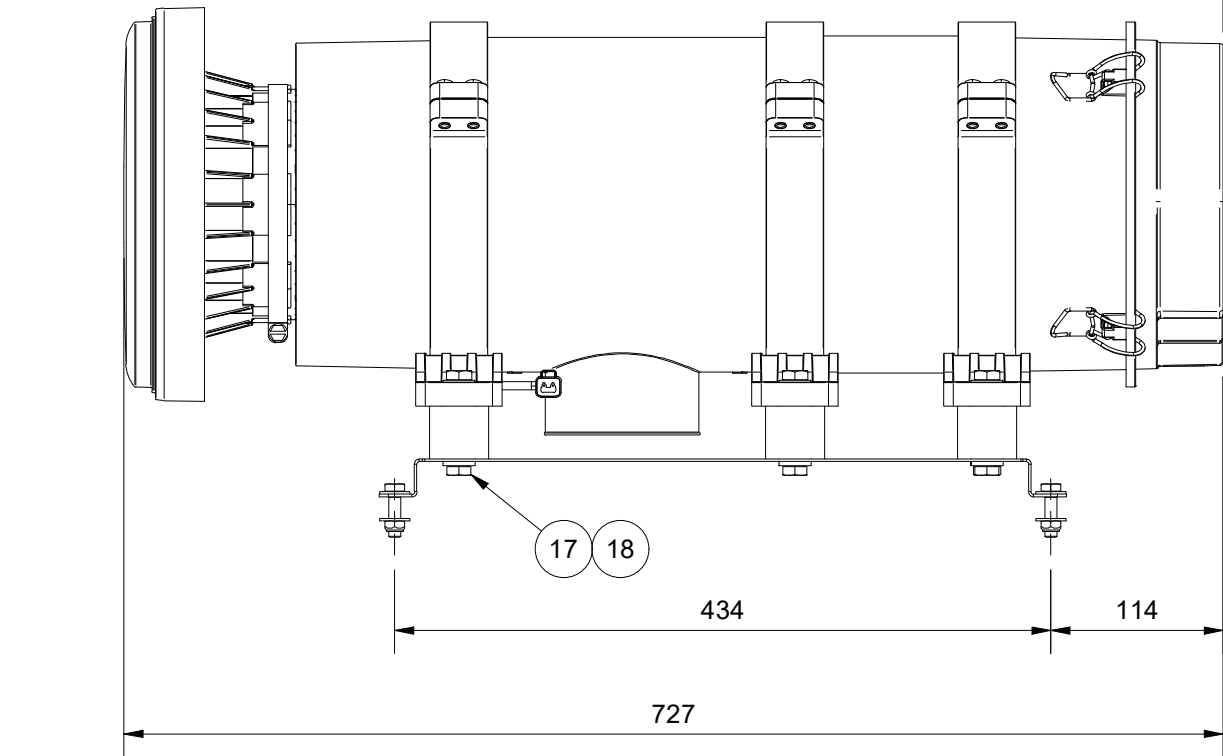
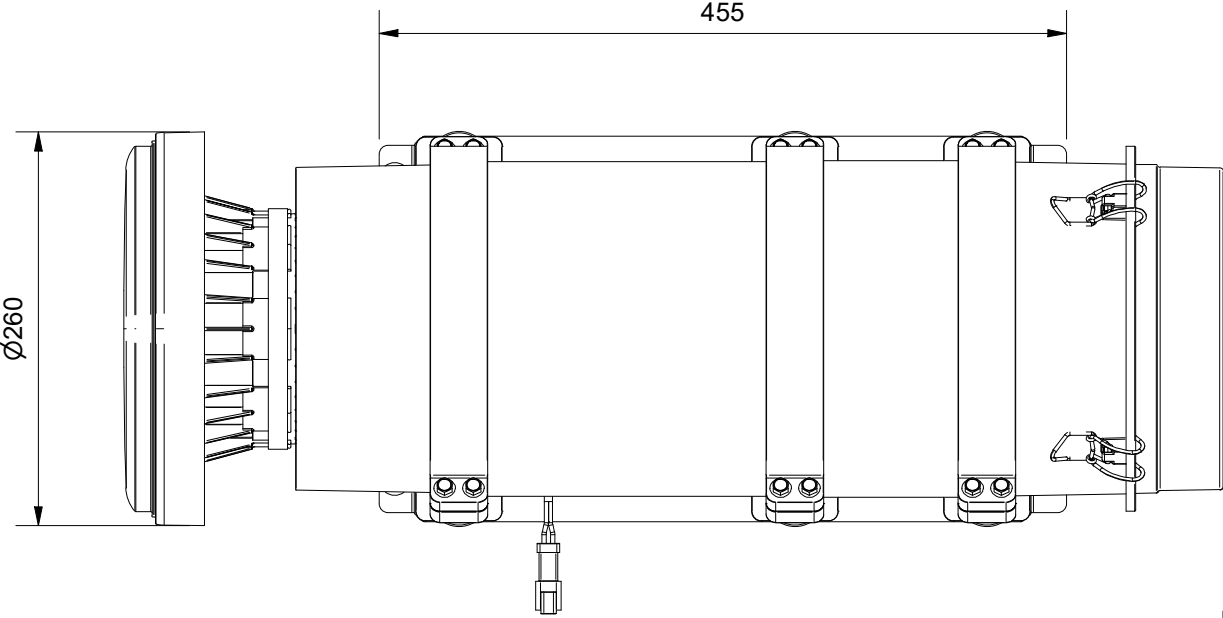
- Notes:
- Operating Voltage select 24VDC or 12VDC
 - 24VDC - 5-6 Amps
12VDC - 10-12 Amps
 - Operating Power 144W
 - Wiring - 16 AWG. 16 IN. 1406 mm leads
 - Weight (Standard Length Unit with filter) 4.5kg
 - Material Engineering Polymer
 - Standard Filter requires approximately 160 mm of clearance for removal (Service Allowance)
 - Choose >H13 Hepa or Merv16+ Filter Elements

Rev	Date	Changes	ECR	By	Client/Description:
A	26/10/18	Issued	0135	JAL	
B	23/10/20	AV Mount Number Change	0228	ACF	
C	9/07/21	ICPS Updated to Advisor + and APS	0284	JAL	
					'DESIGN REGISTRATION PENDING'
					This drawing is copyright protected. No part of this drawing in any form or means is to be replaced, stored by retrieval system, transmitted or used by third parties without the written permission of LSM Technologies Pty Ltd

Designed by JAL	Checked by P.W.
LSM TECHNOLOGIES	
Ph: 07 3725 8100 Fax: 07 3725 8199 16 Bluestone Circuit Seventeen Mile Rocks QLD 4073 http://www.lsmtechnologies.com.au/	

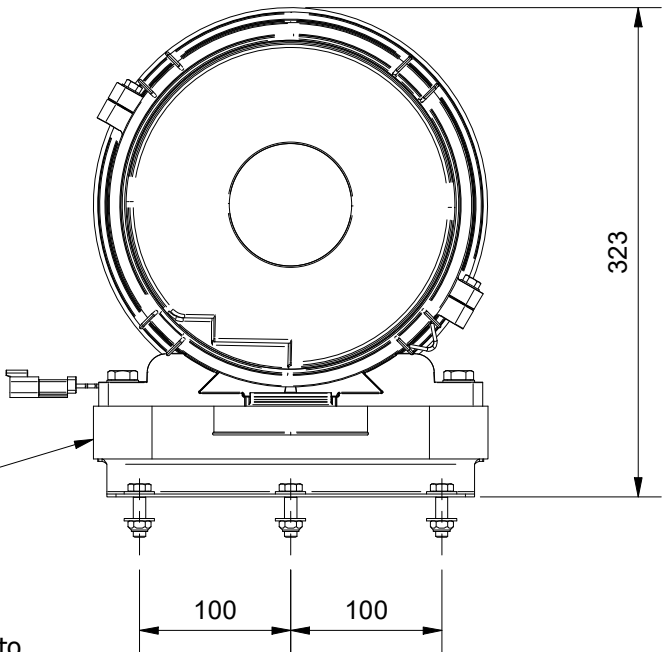
Approved by Peter Woodford	Date 29/06/21	Date 22/10/18	Scale NTS
SINGLE RESPA DIY KIT Respa CF2 Mounting Dimensions			
Drawing Number 03-03-0447	Revision C	Sheet 5 / 6	

ALTERNATE RESPA CF2 MOUNTING DIMENSIONS



EXTENDED RESPA CF2 WITH
END-FLANGED MOUNT PLATE

311
Service Allowance



LSM-RMT-003-SYK
- Rubber Mounts

It is recommended that RESPA™ Units are not to be rigid mounted especially in conditions where excess vibration or movement is experienced. The Vibration Isolation Mounting Feet are to be used to absorb small displacement and vibration as well as thermal expansion of components so as to avoid excessive preloading / damage to connection outlets

- Notes:
- 1. Operating Voltage select 24VDC or 12VDC
 - 2. 24VDC - 5-6 Amps
12VDC - 10-12 Amps
 - 3. Operating Power 144W
 - 4. Wiring - 16 AWG. 16 "(1406 mm) leads
 - 5. Weight (Extended Length Unit with filter) 6.5kg
 - 6. Material Engineering Polymer
 - 7. Extended Filter requires approximately 311 mm of clearance for removal (Service Allowance)
 - 8. Choose >H13 Hepa or Merv16+ Filter Elements

Rev	Date	Changes	ECR	By	Client/Description:	Designed by	Checked by	Approved by	Date	Date	Scale
A	26/10/18	Issued	0135	JAL	This drawing is copyright protected. No part of this drawing in any form or means is to be replaced, stored by retrieval system, transmitted or used by third parties without the written permission of LSM Technologies Pty Ltd	JAL	P.W.	Peter Woodford	29/06/21	22/10/18	
B	23/10/20	AV Mount Number Change	0228	ACF		 Ph: 07 3725 8100 Fax: 07 3725 8199 16 Bluestone Circuit Seventeen Mile Rocks QLD 4073 http://www.lsmtechnologies.com.au/		SINGLE RESPA DIY KIT Alternate Mounting Dimensions			
C	9/07/21	ICPS Updated to Advisor + and APS	0284	JAL				Drawing Number	Revision	Sheet	
								03-03-0447	C	6 / 6	