



M&S ATMOSPHERE 2016

Natural Refrigerant Journey – From Pumped
CO₂ to DX

Paul Alway April 2016

WHAT HAVE WE DONE SO FAR.....



Pumped CO₂ Systems: (R404a / CO₂), (R290 / CO₂), (R134a / CO₂) We have also tried HFO blends R449a and R513a as drop ins.

CASES, COLD ROOMS AND PIPES



We stayed with RDM control

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BUILD A SYSTEM AND TEST IT – TO DEATH!



We bought all of these components together in our Test Centre so we could learn everything we needed to know before it went to stores.

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MOVE IT TO STORE TRIALS

Three Store Trials.....

Hartlepool



Mid Value Solution!
1 x Dual Temp Pack
Condensing Units
No Housing

Cowes



Value Engineered Solution!
2 x Dual Temp Pack
Internal Plant Room

Longwater



Rolls Royce Solution!
2 x Dual Temp Packs
Walk in Housing
All Bells and Whistles!

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RELIABILITY?

These show the amount of engineer attended work orders per month.

	Transcritical			Pumped			
	Hartlepool	Cowes	Longwater	Aylesford	Bedford	Nottingham	St Andrews
Oct-15	10	1	5	7	14	4	8
Sep-15	8	6	7	4		3	
Aug-15	4			5		9	
Jul-15	1			10		12	
Jun-15				10		4	
May-15				9		6	
Apr-15				4		5	
Mar-15						6	
Feb-15						4	
Average:	5.75	3.50	6.00	7.00	14.00	5.89	8.00

CONCLUSIONS...

- **Cheaper**
- **More efficient**
- **More reliable**
- **Future Proof**

WHEN CAN IT ALL START?

April 2016

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