

M&S ATMOSPHERE 2016

Natural Refrigerant Journey – From Pumped CO₂ to DX

Paul Alway April 2016

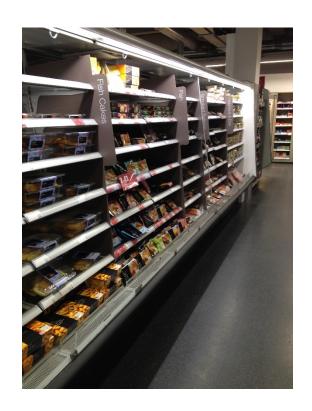
WHAT HAVE WE DONE SO FAR.....





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

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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!

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



Worth noting that Hartlepool was a victim of Vandalism.

CONCLUSIONS...

- Cheaper
- More efficient
- More reliable
- Future Proof

WHEN CAN IT ALL START?

April 2016