

NO: 01-08
DATE: April 11th, 2008
TO: All Customers
FROM: Emerson Climate Technologies Europe – Refrigeration Marketing
SUBJECT: Discus[®] Compressors Envelope Extension for R404A Applications

Emerson Climate Technologies announces significant enhancements to its Discus[®] compressor line. The R404A operating range of the Discus[®] semi-hermetic reciprocating compressors has been extended and harmonized across the product range.

Lower condensing limits provide for substantial system energy savings. The wider evaporating range increases application flexibility helping to reduce system first cost depending on the application. Emerson Climate Technologies has conducted extensive testing to ensure the reliability and performance in the extended areas.

New envelope extension for wider evaporating range and lower condensing

Evaporating Range Extension

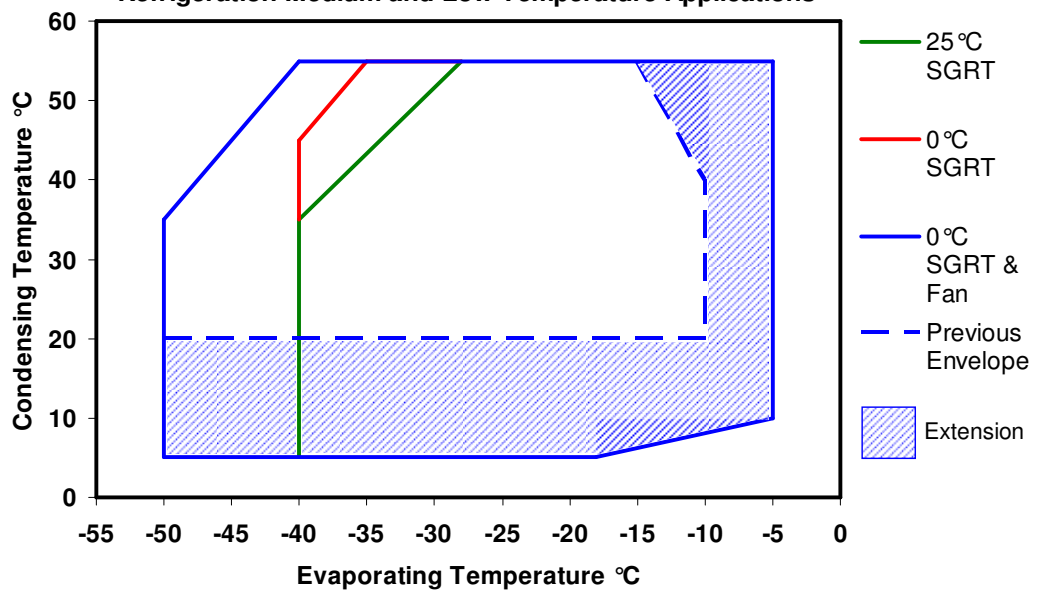
Discus[®] compressors are now capable to cover all refrigeration applications – low evaporating temperature of -35°C and medium evaporating temperature of -10°C – with one single model with the smaller motor. The new evaporating temperature range goes from -50°C to -5°C. Another model with a bigger motor covers low, medium and high temperature applications with evaporating temperature ranging from -43°C to +7°C. Previously, the small motor model was selected for low temperature refrigeration applications and the bigger motor model for medium temperature and air-conditioning applications. The new envelopes are shown below.

Low Condensing Capabilities

In order to reduce energy consumption and indirect CO₂ emissions the low/medium temperature models are capable to condense down to 5°C and the low/medium temperature/high temperature models to condense down to 10°C. Previously minimum condensing temperatures were defined at 20°C.

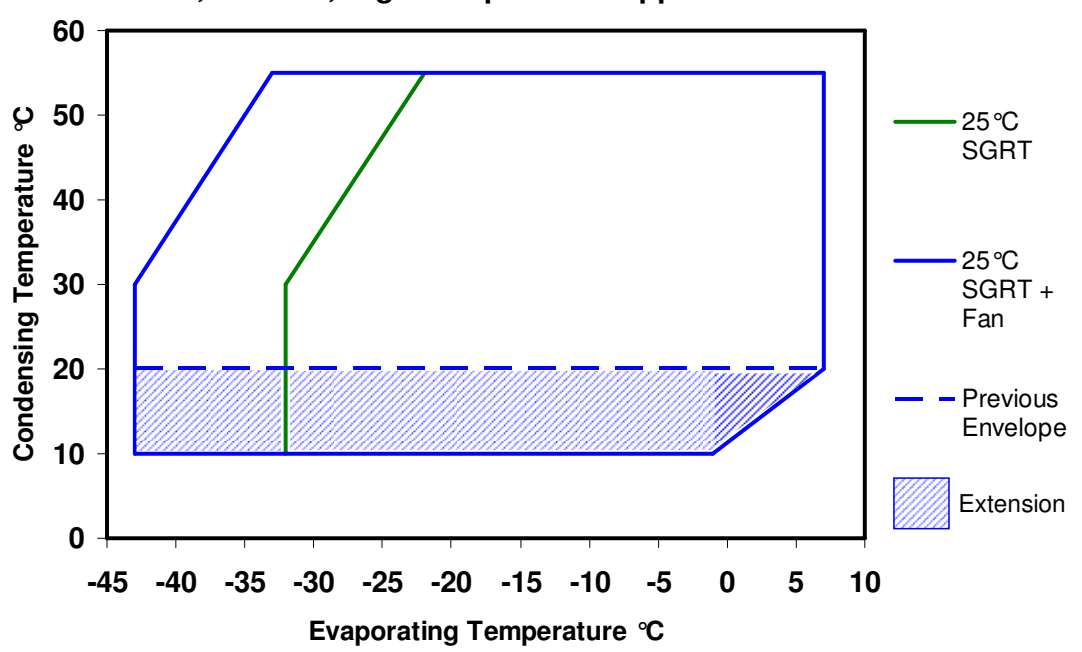
Discus R404A Envelope
Refrigeration Medium and Low Temperature Applications

Models
D2DL-40X
D2DB-50X
D3DA-50X
D3DC-75X
D3DS-100X
DADF-100X
D4DL-150X
D4DT-220X
D6DL-270X
D6DT-320X
D8DL-370X
D8DT-450X



Discus R404A Envelope
Low, Medium, High Temperature Applications

Models
D2DC-50X
D2DD-50X
D2DL-75X
D2DB-75X
D3DA-75X
D3DC-100X
D3DS-150X
D4DA-200X
D4DH-250X
D4DJ-300X
D6DH-350X
D6DJ-400X
D8DJ-600X
D8DH-500X



Select implementation and Performance change

The new enlarged envelopes will be published in the next version of Select 6.6 on **Friday April 11th 2008**.

Due to the envelope change all compressors have been re-rated and compressor performance has slightly changed and also improved in most cases but not all. In addition MOC values have increased due to the envelope extension.

Performance change summary

The details about performance changes are outlined in the table in Appendix A by models for Refrigeration Medium Temperature and Low Temperature EN12900 Design Points.

MOC Value Changes

The old and new Maximum Operating Current values (MOC) are given in the table in Appendix B for AWM 50 Hz models. In most cases the new values are higher as a result of the envelope enlargement. The column labeled "Delta" represents the percentage difference in amps between the old and new envelope. This Delta value is the same for all motor voltage versions.

The new MOC values will be printed on the name plates of the compressors starting **Monday April 21st** in Berlin, Welkenraedt and Mikulov. The first serial number will then be communicated.

Asercom Certification

Due to the new larger envelopes, all Discus compressors need to be re-submitted to Asercom. Current Asercom certifications are lost until compressors have been resubmitted and recertified.

All models and their new envelopes and performance ratings should be certified by December 2008.

For any question regarding this product improvement please contact Refrigeration Marketing.

Appendix A – Summary of the performance changes at Medium/ Low Temperature Design Points
 EN12900 Design Points are defined as follows:

MT -10°C/45°C/20°SGRT / 0K Sub-cooling LT -35°C/40°C/20° SGRT / 0K Sub-cooling

Envelope	Model	Data	Medium Temperature			Low Temperature		
			Old	New	Delta	Old	New	Delta
LT / MT / HT	D2DC-50X	Capacity (kW)	8,05	7,87	-2,2%	2,09	2,14	2,2%
		COP	2,33	2,27	-2,5%	1,21	1,23	2,0%
LT / MT / HT	D2DD-50X	Capacity (kW)	9,68	9,69	0,1%	2,75	2,78	1,0%
		COP	2,37	2,37	0,1%	1,30	1,29	-0,7%
LT / MT	D2DL-40X	Capacity (kW)	11,99	11,97	-0,2%	3,78	3,78	0,1%
		COP	2,32	2,31	-0,5%	1,39	1,40	0,8%
LT / MT / HT	D2DL-75X	Capacity (kW)	12,51	12,14	-3,0%	3,63	3,63	-0,1%
		COP	2,49	2,40	-3,6%	1,45	1,35	-7,1%
LT / MT	D2DB-50X	Capacity (kW)	14,28	14,56	2,0%	4,56	4,63	1,5%
		COP	2,24	2,32	3,7%	1,36	1,44	6,1%
LT / MT / HT	D2DB-75X	Capacity (kW)	14,82	14,88	0,4%	4,69	5,00	6,4%
		COP	2,45	2,39	-2,2%	1,47	1,49	1,6%
LT / MT	D3DA-50X	Capacity (kW)		16,28		5,55	5,66	1,9%
		COP		2,22		1,39	1,41	2,0%
LT / MT / HT	D3DA-75X	Capacity (kW)	16,63	17,19	3,4%	5,18	5,21	0,7%
		COP	2,41	2,36	-1,9%	1,37	1,34	-1,9%
LT / MT	D3DC-75X	Capacity (kW)		19,75		6,41	6,99	9,1%
		COP		2,27		1,41	1,44	1,7%
LT / MT / HT	D3DC-100X	Capacity (kW)	19,88	20,64	3,8%	6,59	6,53	-0,8%
		COP	2,41	2,46	1,9%	1,43	1,44	0,5%
LT / MT	D3DS-100X	Capacity (kW)		27,07		9,49	9,59	1,0%
		COP		2,31		1,47	1,47	-0,2%
LT / MT / HT	D3DS-150X	Capacity (kW)	26,50	27,52	3,8%	9,44	9,06	-4,0%
		COP	2,34	2,35	0,2%	1,47	1,44	-2,0%
LT / MT	D4DF-100X	Capacity (kW)		29,08	0,0%	9,65	9,67	0,2%
		COP		2,28		1,47	1,43	-2,8%
LT / MT / HT	D4DA-200X	Capacity (kW)	29,73	30,21	1,6%		9,16	
		COP	2,43	2,41	-0,8%		1,42	
LT / MT	D4DL-150X	Capacity (kW)		38,35		13,16	13,08	-0,6%
		COP		2,31		1,45	1,44	-0,6%
LT / MT / HT	D4DH-250X	Capacity (kW)	37,63	38,58	2,5%		12,17	
		COP	2,31	2,37	2,5%		1,39	
LT / MT	D4DT-220X	Capacity (kW)		46,50		15,45	16,24	5,1%
		COP		2,30		1,46	1,45	-0,8%
LT / MT / HT	D4DJ-300X	Capacity (kW)	45,51	46,60	2,4%		15,38	
		COP	2,31	2,34	1,6%		1,45	
LT / MT	D6DL-270X	Capacity (kW)		54,42		18,98	19,03	0,2%
		COP		2,19		1,44	1,40	-2,2%
LT / MT / HT	D6DH-350X	Capacity (kW)	57,30	56,56	-1,3%		18,73	
		COP	2,37	2,34	-1,2%		1,44	
LT / MT	D6DT-320X	Capacity (kW)		66,19		20,90	23,60	12,9%
		COP		2,24		1,36	1,44	5,9%
LT / MT / HT	D6DJ-400X	Capacity (kW)	67,19	68,07	1,3%		22,32	
		COP	2,30	2,30	0,2%		1,41	
LT / MT	D8DL-370X	Capacity (kW)		81,41		28,10	28,00	-0,4%
		COP		2,35		1,48	1,44	-2,6%
LT / MT / HT	D8DH-500X	Capacity (kW)	77,41	81,69	5,5%	25,98	26,30	1,2%
		COP	2,33	2,36	1,1%	1,42	1,38	-3,1%
LT / MT	D8DT-450X	Capacity (kW)		96,01		32,61	34,71	6,4%
		COP		2,26		1,46	1,46	0,1%
LT / MT / HT	D8DJ-600X	Capacity (kW)	90,48	97,97	8,3%	29,91	32,75	9,5%
		COP	2,16	2,34	8,2%	1,32	1,42	7,6%

Appendix B – Maximum Operating Current Changes by Model:

Model	Motor	Envelope	Old MOC Value	New MOC Value	Delta
D2DC-50X	-AWM	LT / MT / HT	9,0	9,0	0%
D2DD-50X	-AWM	LT / MT / HT	10,3	10,3	0%
D2DL-40X	-AWM	LT / MT	10,0	11,1	11%
D2DL-75X	-AWM	LT / MT / HT	13,0	13,8	6%
D2DB-50X	-AWM	LT / MT	11,5	13,4	17%
D2DB-75X	-AWM	LT / MT / HT	15,4	16,1	5%
D3DA-50X	-AWM	LT / MT	12,0	15,9	33%
D3DA-75X	-AWM	LT / MT / HT	17,5	17,5	0%
D3DC-75X	-AWM	LT / MT	14,0	18,3	31%
D3DC-100X	-AWM	LT / MT / HT	20,5	20,5	0%
D3DS-100X	-AWM	LT / MT	19,5	24,4	25%
D3DS-150X	-AWM	LT / MT / HT	29,0	29,0	0%
D4DF-100X	-AWM	LT / MT	21,0	26,8	28%
D4DA-200X	-AWM	LT / MT / HT	32,5	32,5	0%
D4DL-150X	-AWM	LT / MT	28,5	35,3	24%
D4DH-250X	-AWM	LT / MT / HT	41,5	41,5	0%
D4DT-220X	-AWM	LT / MT	33,0	42,8	30%
D4DJ-300X	-AWM	LT / MT / HT	52,5	52,5	0%
D6DL-270X	-AWM	LT / MT	43,0	53,7	25%
D6DH-350X	-AWM	LT / MT / HT	63,5	63,5	0%
D6DT-320X	-AWM	LT / MT	53,1	62,2	17%
D6DJ-400X	-AWM	LT / MT / HT	83,0	83,0	0%
D8DL-370X	-AWM	LT / MT	58,5	74,3	27%
D8DH-500X	-AWM	LT / MT / HT	88,2	88,2	0%
D8DT-450X	-AWM	LT / MT	69,0	90,7	31%
D8DJ-600X	-AWM	LT / MT / HT	108,0	108,0	0%