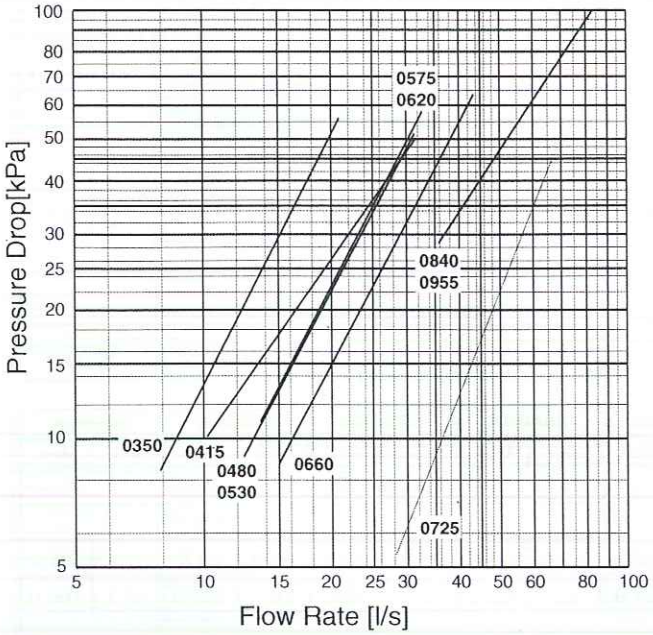
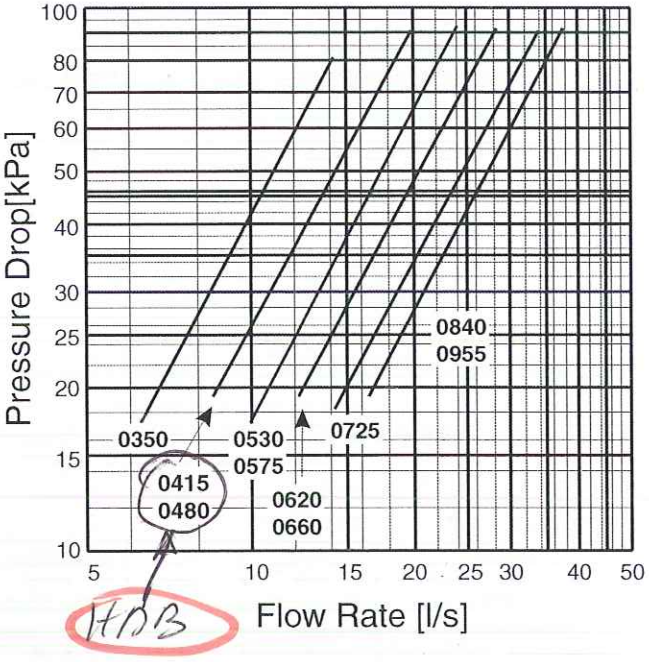
9 TECHNICAL DATA

9.1 Flow Rate and Pressure Drop Graphs

Cooler Water Pressure Drop



Condenser Water Pressure Drop



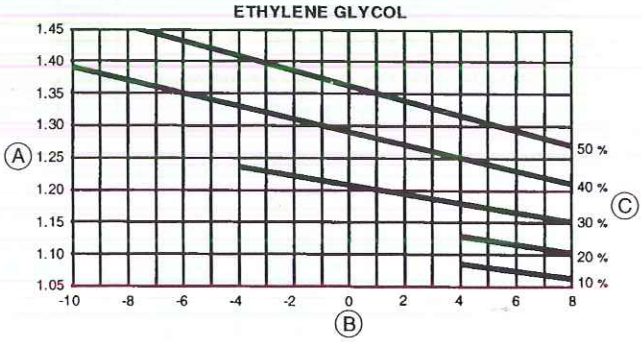
NOTE

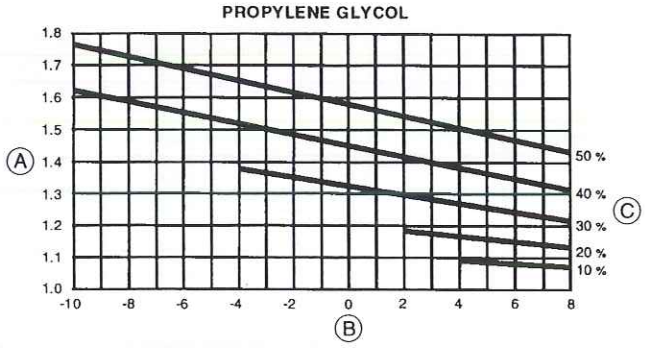
The cooler and condenser design allows for an increase in pressure drop of up to 15% above the design value given. Debris in the water may also cause additional pressure drop.

CAUTION

When using glycol solutions, pressure drops are higher than with water. Special care must be taken not to exceed the maximum allowed.

Glycol Pressure Drop Correction Factors





A = Correction Factor
C = Concentration %
B = Mean Temperature through Cooler

Recommended Glycol Solution Strengths

LCHLT °C	Ethylene Glycol Concentration % w/w	Propylene Glycol Concentration % w/w
6	5	5
4	12	13
2	18	20
0	23	25
-2	28	30
-4	32	34
-6	35	38

9.2 Operating Limitations

Model YLCS			0350SA		0415SA		0480SA		0530SA		0575SA	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Chilled Liquid	Liquid outlet temperature	°C	4.5 to 15									
	Liquid outlet temperature range	°C	5									
	Flow rate	l/s	7.9	20.9	10.2	31.5	12.4	31.4	12.4	31.4	13.6	32.8
	Pressure drop	kPa	8.4	55.9	10.1	50.0	9.1	51.5	9.1	51.5	11.0	57.9
	Maximum working pressure	barg	10									
Cooling Liquid	Liquid outlet temperature	°C	30 to 60									
	Liquid outlet temperature range	°C	5									
	Flow rate	l/s	6.1	13.9	8.3	19.4	8.3	19.4	9.7	23.6	9.7	23.6
	Pressure drop	kPa	17.0	81.0	19.0	91.0	19.0	91.0	17.0	93.0	17.0	93.0
	Maximum working pressure	barg	10									
Refrigerant System High pressure side		barg	20.7									
Power supply voltage 400 V, 3 Ø, 50 Hz (nominal)		V	360 to 440									
Recommended system water volume(1)		l	1400		1700		1900		2000		2200	

Model YLCS			0620SA		0660SA		0725SA		0840SA		0955SA	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Chilled Liquid	Liquid outlet temperature	°C	4.5 to 15									
	Liquid outlet temperature range	°C	5									
	Flow rate	l/s	13.6	32.8	15.0	43.4	28.1	66.7	35.8	83.3	35.8	83.3
	Pressure drop	kPa	11.0	57.9	8.7	63.6	5.3	45.0	28.7	100.0	28.7	100.0
	Maximum working pressure	barg	10									
Cooling Liquid	Liquid outlet temperature	°C	30 to 60									
	Liquid outlet temperature range	°C	5									
	Flow rate	l/s	23.9	55.6	23.9	55.6	27.8	66.7	32.2	73.9	32.2	73.9
	Pressure drop	kPa	19.0	92.0	19.0	92.0	18.0	91.0	19.0	92.0	19.0	92.0
	Maximum working pressure	barg	10									
Refrigerant System High pressure side		barg	20.7									
Power supply voltage 400 V, 3 Ø, 50 Hz (nominal)		V	360 to 440									
Recommended system water volume(1)		l	2400		2600		2900		3400		3800	

(1) Table shows minimum water volume of system

9.3 Physical Data

Model			0350SA	0415SA	0480SA	0530SA	0575SA
Refrigerant circuits			2	2	2	2	2
Refrigerant Charge	Circuit 1	kg	38	57	57	62	68
	Circuit 2	kg	38	57	57	62	68
Oil Charge (L)	Circuit 1	l	16	15	15	18	18
	Circuit 2	l	16	16	15	15	18
Compressor	Number		2	2	2	2	2
	Type (circuit 1)		YTS15 AD	YTS16AE	YTS16AE	YTS17AF	YTS17AF
	Type (circuit 2)		YTS15 AD	YTS15 AD	YTS16AE	YTS16AE	YTS17AF
	Capacity Control	%	12.5, 25, 37.5, 50, 62.5, 75, 87.5, 100				
Evaporator	Number		1	1	1	1	1
	Type		DED330	DED 430	DED 520	DED 520	DED 570
	Water volume	l	114	162	184	184	222
	Victaulic connection sizes (inches)		5"	6"	6"	6"	6"
Condenser	Number		2	2	2	2	2
	Type		CDEW 240	CDEW 300	CDEW 300	CDEW 300	CDEW 360
	Water volume	l	17	27.7	27.7	27.7	31.2
	BSPPint / Victaulic connection sizes (inches)		2.1/2"	3"	3"	3"	3"
Weight	Operating	kg	3420	4030	4170	4270	4370
	Shipping	kg	3100	3420	3800	3900	4000
Dimensions	Length	mm	3400	3450	3500	3550	3600
	Width (including Control Panel) (1)	mm	900	900	900	900	900
	Height (2)	mm	2100	2100	2100	2100	2100
Reference sound level to EN 292 1991 (3)		dBA	83	85	86	87	88

Model			0620SA	0660SA	0725SA	0840SA	0955SA
Refrigerant circuits			2	2	2	2	2
Refrigerant Charge	Circuit 1	kg	60	66	73	82	89
	Circuit 2	kg	60	66	73	82	89
Oil Charge (L)	Circuit 1	l	23	23	23	28	28
	Circuit 2	l	18	23	23	23	28
Compressor	Number		2	2	2	2	2
	Type (circuit 1)		YTS18AG	YTS18AG	YTS19AH	YTS20AI	YTS20AI
	Type (circuit 2)		YTS17AF	YTS18AG	YTS19AH	YTS19AH	YTS20AI
	Capacity Control	%	12.5, 25, 37.5, 50, 62.5, 75, 87.5, 100				
Evaporator	Number		1	1	1	1	1
	Type		DED570	DED630	DCE1180	DCE1500	DCE1500
	Water volume	l	222	252	403	348	348
	Victaulic connection sizes (inches)		6"	8"	8"	8"	8"
Condenser	Number		2	2	2	2	2
	Type		CDEW 450	CDEW 450	CDEW 520	CDEW 550	CDEW 550
	Water volume	l	35.7	35.7.	44.1	47.5	47.5
	Victaulic connection sizes (inches)		3"	3"	4"	4"	4"
Weight	Operating	kg	4540	4640	5300	5700	5950
	Shipping	kg	4150	4250	4700	5100	5350
Dimensions	Length	mm	3600	3600	4200	4200	4200
	Width (including Control Panel) (1)	mm	900	900	1150	1150	1150
	Height (2)	mm	2100	2100	2300	2300	2300
Reference sound level to EN 292 1991 (3)		dBA	89	89	90	91	91

(1) Width does not include switch disconnect or circuit breaker handles.
(2) Add 152 mm to unit height when shipping skids are attached.
(3) Sound Pressure levels are 1000 mm from the Control Panel, at a height of 1.600 mm from the unit base. Levels may vary at different positions around the unit.

9.4 Electrical Data

Unit Data

Model YLSC	Nominal Running AMPS @ 380 V	Nominal Running AMPS @ 400 V	Maximum Running AMPS @360V	Maximum Running AMPS @ 380 V	Maximum Running AMPS @ 400 V
	Without Power Factor Correction				
	With Optional Power Factor Correction fitted				
0350		133	166	158	150
0415		158	198	188	179
0480		182	230	218	208
0530		200	252	239	227
0575		218	274	260	246
0620		232	299	283	268
0660		246	324	306	290
0725		280	354	336	318
0840		325	406	385	365
0955		370	458	434	412

Notes:

Nominal: @ 7°C leaving liquid temperature and 35°C leaving condenser liquid temperature

Maximum: @ 15°C leaving liquid temperature and 40°C leaving condenser liquid temperature .

System Data

Model YLCS	SYS No.	Comp's Motor	Compressor Running Conditions: Nominal Power kW	Nominal Current Amps @ 380V	Nominal Current Amps @ 400V	Maximum Power kW	Maximum Current Amps @360	Maximum Current Amps @ 380V	Maximum Current Amps @ 400V	Locked Rotor Conditions Star for Star/Delta Current Amps @ 380V	Locked Rotor Conditions Star for Star/Delta Current Amps @ 400V
			Without Power Factor Correction								
			With Optional Power Factor Correction fitted								
0350	1 & 2	YTS 15-A-D	41		66.5	46.2	83	79	75	157	167
0415	1	YTS 16-A-E	56.5		91	63.9	115	109	104	175	187
	2	YTS 15-A-D	41		66.5	46.2	83	79	75	157	167
0480	1 & 2	YTS 16-A-E	56.5		91	63.9	115	109	104	175	187
0530	1	YTS 17-A-F	67.4		109	76.1	137	130	123	215	228
	2	YTS 16-A-E	56.5		91	63.9	115	109	104	175	187
0575	1 & 2	YTS 17-A-F	67.4		109	76.1	137	130	123	215	228
0620	1	YTS 18-A-G	79.2		123	89.6	162	153	145	233	248
	2	YTS 17-A-F	67.4		109	76.1	137	130	123	215	228
0660	1 & 2	YTS 18-A-G	79.2		123	89.6	162	153	145	233	248
0725	1 & 2	YTS 19-A-H	86.3		140	98.3	177	168	159	340	365
0840	1	YTS 20-A-I	114		185	127.2	229	217	206	457	487
	2	YTS 19-A-H	86.3		140	98.3	177	168	159	340	365
0955	1 & 2	YTS 20-A-I	114		185	127.2	229	217	206	457	487

Standard Single Point Power Connection

Common Input Section Non-fused Switch Disconnect with Power section System Fuses

Model YLCS	Common Input Section: Standard Non-fused Switch Disconnect Rating Ie	Common Input Section: Input Lug Size	Power Section(s): System Fuses Max IEC 269-2-1 gG fuse Size: System	Rating (A)	Din NH Size	Max. 5 S Interrupt (A)
0350	500	M10	1 & 2	125	1	610
0415	500	M10	1	160	1	810
			2	125	1	610
0480	500	M10	1 & 2	160	1	810
0530	500	M10	1	160	1	810
			2	160	1	810
0575	500	M10	1 & 2	160	1	810
0620	500	M10	1	200	1	1000
			2	160	1	810
0660	500	M10	1 & 2	200	1	1000
0725	500	M10	1 & 2	200	1	1000
0840	500	M10	1	355	2	2200
			2	200	1	1000
0955	500	M10	1 & 2	355	2	2200

Optional Single Point Power Connection

Common input Non-Fused Switched Disconnect with System Power Sections Switch Disconnect Fuse or Common input terminal Block with System Power Section Circuit Breakers

		Common Input		Power Section(s)				Common Input		Power Section(s)		
		Standard Non-fused Switch Disconnect		Fused Disconnect Switch Option				Terminal Block		Circuit Breaker Option		
					Max IEC 269-2-1 gG fuse Size							
Model YLCS	System	Rating Ie	Input Lug Size	Rating Ie	Rating (A)	Din NH Size	Max. 5 S Interrupt (A)	Rating Ie	Input Lug Size	Rating In	Setting (I1)	Effective Setting
0350	1 & 2	500	M10	160	160,	0	610	400	M10	160	0.5	80
0415	1	500	M10	160	125	0	810	400	M10	160	0.7	112
	2			160	160,	0	610			160	0.5	80
0480	1 & 2	500	M10	250	160	0	810	400	M10	160	0.7	112
0530	1	500	M10	250	160	1	810	400	M10	160	0.9	144
	2			250	160	1	810			160	0.7	112
0575	1 & 2	500	M10	250	200	1	810	400	M10	250	0.9	144
0620	1	500	M10	250	160	1	1000	400	M10	160	0.6	150
	2			250	200	1	810			250	1.4	224
0660	1 & 2	500	M10	250	200	1	1000	400	M10	250	0.6	150
0725	1 & 2	500	M10	400	355	1	1000	400	M10	250	0.7	175
0840	1	500	M10	250	200	2	2200	630	M12	250	0.9	225
	2			400	355	1	1000			250	0.7	175
0955	1 & 2	500	M10	400	355	2	2200	630	M12	250	0.9	225

Optional Multi Point Power Connection

Common Input Terminal Block with Power Section System Circuit Breakers

		Common Input Section		Power Section(s)		
		Terminal Blocks		Circuit Breaker Option		
Model YLCS	System No	Rating Ie	Lug Size	Rating In	Setting (I1)	Effective Setting
0350	1 & 2	400	M10	160	0.6	96
0415	1	400	M10	160	0.8	128
	2	400	M10	160	0.6	96
0480	1 & 2	400	M10	160	0.8	128
0530	1	400	M10	160	0.9	144
	2	400	M10	160	0.8	128
0575	1 & 2	400	M10	250	0.9	144
0620	1	400	M10	160	0.7	175
	2	400	M10	250	0.9	144
0660	1 & 2	400	M10	250	0.7	175
0725	1 & 2	400	M10	250	0.8	200
0840	1	400	M10	250	1	250
	2	400	M10	250	0.8	200
0955	1 & 2	400	M10	0	1	250

Multi Point Power Supply

Control Supply Load at 400 V (A)	3
Internal Fuse Rating Class aM	10
Maximum Customer Fuse Rating	16
Maxinum customer wire size	4 mm^2

Ref. : 20046355
Blad : 6
Datum : 2004-12-15

TECHNISCHE SPECIFICATIE

MODEL	YLCS	415-SA
koelvermogen	kW	477
opgenomen vermogen	kW	96
aantal compressoren	n	2
capaciteitsbereik	%	12,5 - 100
aantal gescheiden circuits	n	2
koudemiddel		R-134a
koudemiddel inhoud	kg	2 x 59

KOELER		
vloeistofsoort		water
vloeistoftraject	°C	16,5-12
vloeistofdebiet	$dm^3.s^{-1}$	25,4
drukval	kPa	37
vervuilingsfactor	$m^2K.kW^{-1}$	0,044

CONDENSOR		
vloeistofsoort		water
vloeistoftraject	°C	27-32
vloeistofdebiet	$dm^3.s^{-1}$	13,6 x 2
drukval	kPa	47
vervuilingsfactor	$m^2K.kW^{-1}$	0,088

ELEKTRISCHE GEGEVENS		
nominaalstroom	A	153
max. vollaststroom	A	176
max. aanloopstroom *	A	167 / 167
aansluitspanning	V-Ph-Hz	400 - 3 - 50

AFMETINGEN EN GEWICHT		
lengte	mm	3.450
breedte	mm	900
hoogte	mm	2100
bedrijfsgewicht	kg	4030
geluiddrukniveau op 10 m, conform EN 292	dB(A)	62
aanbevolen min. actieve systeeminhoud	dm^3	1700

* Eerste compressor draaiend, tweede compressor startend.