TWICKENHAM LIVE

Twickenham Alive Ice Rink
Strawberry Hill House

Noise Statement

All music played at the event is low level amplified music. It is kept at a low level and used to help create the Christmas feel of the event. The music played through the event will be seasonal. All speakers are focussed inwards towards the event.

The chillers and generators will be housed within an acoustic enclosure to further reduce noise and an acoustic survey and report has been undertaken.

The noise condition stipulated by the LBRuT is sourced from; Policy NO09 "Mechanical Services Noise Control" which states that the cumulative noise from all external plant when operating simultaneously, shall not exceed a Rating Level (as defined in British Standard BS4142:1999) which is equal to the existing background noise level, when measured at a position which is 1 m in front of the nearest noise-sensitive receiver.

We will aim to mitigate the environmental impact from the cumulative noise generated by both the mechanical services equipment and PA system, when measured 1 metre in front of the facade of the nearest noise-sensitive receiver, during the operational periods of the Ice Rink. To do this, we will seek to achieve the limiting noise level stipulated by the Environmental Health Directorate of the LBRuT as assessed by our Acoustic Consultant.

Should the cumulative noise impact of both the mechanical services equipment and PA system be assessed to exceed the limiting noise level stipulated by LBRuT, then we will put into place a scheme of noise mitigation which shall comprise a suitably constructed Acoustic Enclosure. The acoustic specification shall be produced by our Acoustic Consultant and the noise break-out performance of which shall be suitable to minimise the cumulative noise generated to within the agreed limiting noise level when measured at the nearest noise-sensitive receiver.

Equipment Schedule

Aggreko intend to supply the following noise-generating equipment schedule for the Twickenham Alive Ice Rink, including their respective sound pressure levels, as follows:

- 1 no. Diesel Generator Set – sound pressure level Lp = 73 dBA (at 1 metre) Load: 100% Prime, Enclosed unit (ie. acoustic enclosure) (typical unit supplied: GHP/Cummins QSB7G5 200 kVA (50 Hz))
- 2. no. Air-Cooled Chillers – sound pressure level Lp = 60 dBA (at 10 metres) (typical units supplied: C-Range WCC100 Mk3)
- 2. no 400 LPM Pumpsets – sound pressure level Lp = 78 dBA (at 1 metre) (typical units supplied: WP400)

Appendix A presents the technical specifications for these units as supplied by Aggreko. The Diesel Generator set shall be supplied fully enclosed in a bespoke Acoustic Enclosure providing at least 26 dBA of noise reduction and fitted with an Engine Exhaust Silencer (eg. Discom-manufactured).

Appendix A Aggreko Noise Data

Diesel Generator Set

aggreko	EQUIPMENT DATA SHEET		No.	G080363
Manufactt..Wing Tecl!Oc.al Dept Birch Road. D on. G82 2RF Tel: 0044 1011389 7.W1,4 Fax: 0044 (0)1389 742554	Diesel Generat ng Set		Rev.	C
	50 Hz	kVA	Date	31101/2011
	60 Hz	kW	Page	1 of 3

1	Model		Ref	GHP QSB7G5200kVA EIJ2010F&B STAGE 3A	
2	Pat Nunbef"		Ref	001278A	
3	r = O		Ref		
4	Installation Drawirg		Ref	A000!24B	
5	MBx nun Ant:lient		'C('E')	35	40
6	Bed:Jical Ouqlut		Hz	50	(i0)
	ISO 8528-1				
		- Coot:i!iJaE. Power (<Xlf')	kW (t;VA)	128 (160)	140 {175)
		- Prime Ptttlel' (PRP)	kW (t;VA)	156 (195)	181 {226)
		- Permssil:lle avaage at PRP	%		
	150304611				
		- Fuel Stop Paweri'Stanclly	kW (t;VA)	184 (230)	211 (2M)
		- Sing"e Steploacl awlic.Dln	%	50	50
7	A'tanator				
	aass f Temp. Rise (1050C)				
		- Wee phase	kW (t;VA}	169 (210)	200 {200)
		-Sifltte phase	kW (t;VA)	101 (t26)	108 {135)
		- Ends Out		12	
		- Make& Type		OOD27J13	
		- AVR		MX341	
		- Regulatir:o	%	±1.0	
B	Cirait Breaker				
		- Make& Type		Merlin Gerin 1:0'4	
		- N!JTber at poles		4	
		- Rating	Alrps	-IDI)	
		- Trip Unit Type		32420	
		- Ot.oer1oad Pratec6on Ra-lge	hrps	100400	
		- Shat arc:ut Protedir:oR;mge	hrps		

Author	A.J_Stewart		
Approved by	W_Telfer	Approved by	C_Shrive
Date	09102/2011	Date	09/,()212011

Q	Load Termin				
		– T	M 2 E!Usbar		
10	Fuet				
		- StD!byFUEl Strp	libtv{US ga'l.llT)	51 (13..4)	(15.5)
		– 100<% f?'f.me Power	" "	45 (11 9)	&1 (13.3)
		-75%	" "	38 (Q..5)	40 (10.13)
		- EO%	" "	26 (6.9)	JO (HI)
11	Rlnling HOU!i				
		– 100% Plime Power	Hol.5	21	19
		-75%	"	26	23
		- EO%	"	38	31
12	Exhausli Brnssians				
		– Po.leasuement Method	8U Stage I I A	EUNRMM	BJ NRMM
		- Specific load			
		- NOx - 000es a Nt:l1:lgs"l	!}ik\'oh		
		– PM - Particulate Matter	"	0.2	02
		– CO –C<rlxn MtnJ<xide	"	3.5	l.5
		– NOx+ HC	"	4.0	4.0
		- 02 – 0xygen	%		
13	SIEflcer				
		- Make& Type		DBxm	
		- Certifica:		CNV M11624	
		– Pemis:s:ble bad ssure	rnms) Hg	25 (1)	25 (1)
14	NOise				
		– Sound PoYa – BEC	dBA (1w}	91	
		-Certifi		20165	
		– Sound F'ressln! at 1 metre	dBA	7 3	713
		– Sound Prat 7 metre	dBA	135	136

Chillers

Aggreko

The Power and Temperatur" R"ntaJ Leader

INFORMATION BULLETIN

: J. J. van der Waal van Dilt | 0\l:e : 09. 06. 98 | Rev. nr. A		PaQe 1 014
llbdpOne : *Fluid Chr71ers*		<locln!entnr.
SE«oo : **AIR COOLED- C- RANGE WCC100 MK3**		**9.4.2.2**

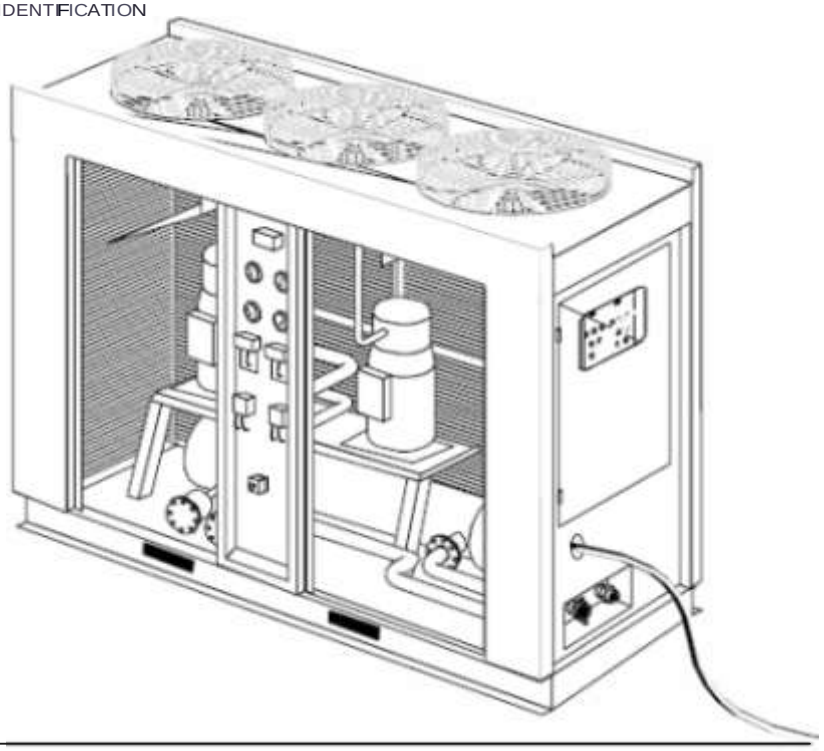
1. INTRODUCTION

The Aggreko -C- range air codled fluid chalers are designl>d for wa er or water•Glycol cooling. All units are designed for to bellocated outsjde. Th.e units are comp.l.,tely a.ssembted wiih anterconnection refrigerant pipjng and internal wiring. ready for instamation.

2. KEY-DATA

Cooling Capacity		100 kW at 6 degree.s leaving water temperature
Absorbl>d Power		36kW
Ternperature Range		+15 octo -12 •C
Maximum ambient temp.		45 •C
Dimensions	length	3.0 metres
	width	1.2 metres
	h.eight	2.1 metres
Weight		1780 kg

3. IDENTIFICATION



Notes :

4. TECHNICAL SPECIFICATIONS

ITEM	UNITS	VALUE
Performance Data		
Design Capacny	kW	100
Desgn Operation Fbd TE!fT1)E'rattn IN / OOT	'C / "C	12 / 7
Mmn.m / Maxirrun Outlet Auid TE!fT1)E'ratt.we	-Ct•C	-12 / +15
1.1J1 / MaxiiiVJm ChiDed Liquid TEfl1li'l'llure Difference	-Ct•C	3 18
Desgn Ambient TE!fT1)E'rature	-C	35
Mnilun / Maxirrun Ambient Tempaaiure	-Ct•C	-20 / +45
Compressor		
Compresscr i)pe		Saoll
l'bnber O1COl'l'p'eSsors		3
N!mber Of l..o<dng Stages	":4	100-63-25-0
Evaporator Data		
EvapJ<ala" Type		Shel & TIiles
EvapJ<awr Milterial		Steel & Copper
Desgn Flow	Vs Vs /	.C.8
Mimun / MaXimum Aow	Vs	15 / 8.0
8.arrel Capaocity	Etres	51
a.e.- Balrel MaxiiTUil Worling Pressure	kPa	1000
Desgn Oliiler Ba-rel Pressure	kPa	:!0
Barrel Pressure Drop Factor	p.u.	130
Re<:oovnended System Wa1er Volume	litres	600
Condenser Data		
l'bnber Of Condenser Fans		3
Instilled kW per Fan	kW	1.74
Total Air Volume	m'lh	49.100
MaxiiiVJm External Slatic PressurE	Pa	0
Refrigerant Data		R407C R22
RefrigE!all Type l'bnber d		R407C R 22
Ciram Refrigeran1Charge		2 2
circuit 1 / 2	kg / kg	15 / B 15 / 8
Type O1Compressor Oil	Tr.me	Oi1E20E Oii005E
O l Charge circuit 1 / 2	ltr f ltr	6 6 / 10.1 6.6 / 10.4
EJe.ctrical Data		
Desgn Becaical Sup Voltage	Volts kVA	50 Hz
Design Elearic:al Ramg	fkW	50H2.5
Nominal Current /JJ Design Concl6ons	Ampefe	72.5
MaxiiiVJm urrent	Ampefe	1!2
Starting Curent	Ampefe	237
Re<:oovnended Generator Set	kVA	100
Required Cable Size per Phase	mm'	25
Electrical Comection	ITVII	bu>bar 10
Noise Data		
Sound Pressure level at 10metres - Lp(A)	dB{A)	60
Sound P:ower lew! - Lw(A)	dB{A)	1!2
Physical Data		
0¥erall length	metres	3.0
Over.d Width	metres	12
Owrall Heigh!	metres	2 1
\'/eq\1	llg	1780
Fbd Coup&lg Size	mm Ilinch	50.12

Notes :

Pumpsets

Aggreko
The Power and Temperature Rental eader

FLUID PUMPS WP400 **1 11.2.2**

4. TECHNICAL SPECIFICATIONS

INFORMATION BULLETIN

ITEM		I.IN TS	VALUE
Pertormance Data			
Pump Type		Stork	FRE 40-170
Motor Type		eroy-Somer	IEC112M
Design Row "		1/s m	6.5
Design Head Pressure "		m/m	22
Maximum Head Pressure	50 Hz / 60Hz	1/s / 1/s	39 / 56
Maximum Flow	50 Hz / 60Hz		7.5 / 3.8
Self SUction		kPA	Yes
Maximum Worl<ing Pressure		• C	600
M nimum / Maximum Fluid Temperature		• C	-15 /95 -15 /40
Pump Material			
Casing			Cast Iron
Impeller			Cast Iron
Pump Shalt			Chr_steel
ElectricalData			
Absorbed Power At Duty Point " "		kW kW/kW	38 4 /4.8
Installed Power	50Hz/60Hz	rpm/ rpm	2900
Pump RPM	50Hz/60 Hz	V / V	400/400
S Voltage 3phase	50 Hz / 60Hz	A	6.6
Maximum Current		A	57
Starting Current		Gee-form	32A / 3P + E
Noi se Data			
Sola'ld Pressure Level a!1.Metre Lp(A)		dB(A)	78
Sola'ld power level Lw(A)		dB(A)	85
PhysicalData			
Overall Length		mm	850
Overall Width		mm	450
Overall Height		mm	844
Wei ght		kg	150
Fluid Connections		mm/ nch	50/2"

NOTE: Contact Technical Depar1mem l1Appication Condi!ions Differs From Desjgn Coocitions
Desxm Cond":rtions a.l 29IJO RPM 50 Hz suoolv