

Energy-efficiency solutions for Heating & Cooling in commercial buildings

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Federation Tower, Moscow







Ros Neft, Siberia







Burj Khalifa, United Arab Emirates



Igora Ski Resort Cottages,

Leningrad obl.











USGBC has four levels of LEED:

Alfa Laval products and applications cover all conditions and climates

CERTIFY-ALL













OAO Alfa Laval Potok

Russia biggest heat exchangers (HEX) producer

Made over 80 000 plated HEX in Russia.

Started manufacturing of Air HEX

Modern & efficient factory

Certificates ISO 9001:2008 & ISO 14001:2004

Skilled staff

Internal corporate parts exchange - Europe, Japan, US

Production, not only assembling - still alone



Saving Energy in HVAC

Reducing cost, energy consumption and the environmental impact

Community Heating & District Heating



House level substation



16 bar 120-150 °C

- Individual invoices creates a driving force to lower the consumption
- The customer is getting a cost efficient heating
- The system enables a profitable DH-company and happy customers
- Increased safety regarding pressure and temperatures in pipes
- No gas in the house and no need for an exhaust system

House level substation – How to save energy?



AHRI Standard 400 and the LLHE certification program

• AHRI Standard 400 is a global standard on how to rate thermal performance in liquid-to-liquid heat exchangers.

• Independent, third-party verification of thermal performance in the "AHRI Liquid To Liquid Heat Exchangers(LLHE) Certification Program".

•The LLHE certification standard is normally a prerequisite to receive LEED certification of a GREEN building.









World-leading heat exchanger manufacturer Alfa Laval has received the Asia Pacific District Cooling Equipment Manufacturer Award 2014.





The award was presented on 26th August

during the 3rd Annual Asia Pacific District Cooling Conference 2014.

The panel judges concluded that Alfa Laval emerged convincing as the strongest candidate for being a strong promoter of the Air Conditioning, Heating and Refrigeration Institute (AHRI) Liquid-to-liquid Heat Exchanger (LLHE) Certification Program to the HVAC/District Energy Industry.

IQHeat – Alfa Laval Smart HES







- Modbus IP and RTU communication in the basic package
- WEB-server Optional, no extra fees or programs needed for contact, only IP-connection.
- Most communication protocols supported. Also afterwards possible to add.
- Easy and simple to install Saves time at installation and lower the total installation cost.
- Communication and remote control in combination with built in capacity limitation and return temperature limitation makes it possible to save 15-20% in energy cost.
- Best price/performance compared to other similar solutions, energy cost savings makes an interesting payback time.

Overview IQHeat, WEB200





Remote Access & Control



Quick overview



d Område Varmesentral	Webb-länkar Total	? Antal			Fje	rnvarn	ne Va	Varme1				Tappevan		
Max Medel Min	Datum na	Larm Ute 162 20,1 16,2 -1.0	PP401 9 15.6 6.2 4.0	41,6 3,6	78.1 58,3	Retur De 76,8 4 44,6 13	Ita Tur 9.1 77.1 1.7 43.6	Retur 9 70,1 5 35,1	Delta 38.0 8.5	Ventil 200,0	77,8	70,0	58.0	Vente 100,
Ao 130 Likestam Ao 130 Public Og Ingun Ao 131 Likestam Ao 133 Public Og Ingun Ao 131 Likestam Ao 133 Public Parken 1 Ao 133 Likestam Ao 138 Public Ao 133 Likestam Ao 138 Public Ao 134 Likestam Ao 138 Public Ao 136 Likestam Ao 136 Public Ao 136 Likestam Ao 136 Public Ao 136 Likestam Ao 156 KRAMO KIKe of Ao 156 Likestam Ao 156 KRAMO KIKe of Ao 156 Likestam Ao 156 KRAMO KIKe of Ao 156 Likestam Ao 157 Karsaker Stor Ao 157 Likestam Ao 157 Karsaker Stor Ao 157 Likestam Ao 137 Karsaker Stor Ao 214 Likestam Ao 211 FV Korsaka 0 Ao 214 Likestam Ao 214 FE kotspoyso Ao 214 Likestam Ao 224 FV Senterspoy Ao 214 Likestam Ao 224 FV Senterspoy Ao 214 Likestam Ao 224 FF V Senterspoy Ao 216 Likestam Ao 226 FV Senterspoy Ao 217 Likestam Ao 226 FV Senterspoy Ao 218 Likestam Ao 226 FV Senterspoy Ao 219 Likestam Ao 226 FV Senterspoy Ao 210 Likestam Ao 227 FV FFI IN Dyog Ao 210 Likestam Ao 226 FV Senterspoy Ao 210 Likestam Ao 227 FV FFI IN Dyog Ao 210 Likestam Ao 226 FV Senterspoy Ao 21	0 0	0 17.9 1 17.2 1 16.4 1 18.2 3 16.5 4 18 2 17.5 10 17.3 17.7 19 7.3 10 17.3 17.7 19 7.3 10.9 7.2 15.5 5.5 5.5 5.5 7.1 5.1 5.5 5.5 7.1 5.1 5.5 5.5 7.1 5.1 5.5 5.5 7.1 5.1 5.5 5.5 7.1 5.1 5.5 5.5 7.1 5.1 5.5 5.5 7.1 5.5 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 5.5 7.1 7.1 7.1 7.1 7.1 7.1 7.1 7.1	7.3 7 6.9 7.3 7.3 7.3 7.4 3.7 4 4 4 3.6 4 4 4 4 2.3 2.2 2.2 4 3.8 6 3.1 8 1 1 8 8 1 1 8 8 1 1 8 9 1 9 1 9 1 9	4 3.5 4 4 4 4 4 4 4 9 9 63.6 69 9 63.6 63.2 63.6 65.2 63.7 67.6 55.5 4 0 0 55.5 13 4 4 10	3,0 66,9 692 571,4 695,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 667,5 7,4 37,18,17 10,6,7 41,7 10,7 41,7 10,7 41,7 10,7 36,3 35,5 35,5 35,5 35,5 10,5 10,5 10,5 10,5 10,5 10,5 10,5 10,5 10,6 10,6 10,6 10,7	0.0 -56 30.6 27.3 31.3 17.9 8.1 3.3 2.4 27.1 25 5.5 6 17 7 18.3 25.2 22 2 2 30.7 8.4 11.5 30.7 3.4 11.5 40.1 15.5 40.1 35.3 5 5.2.3 6 52.3.2 9 7.2 11.1 11.1 11.1 11.1	3 0.0 50.2 49,7 58.2 40,7 58.2 40,7 62.3 59,1 45.4 62.3 62.3 22,1 22.1 22 22.1 22 22.1 22 33.6 32,4 0 0 63 39,4 43 40,1 12 27,6 5 26,7 4 32,9 4 32,9 48,9 9,5 14,5 50, %	0,0 45.5 40 42 31.5 32.1 7.7 0 2.5 0 3.1 4 7.7 0 0 2.5 0 0 2.5 0 0 2.5 0 0 2.5 0 0 2.5 0 1.5 6 8.8 1.1 9 7.3 6 2.9 1.5 6 8.8 1.5 1.5 9 7.3 8 1.5 9 7.3 1.5 9 7.3 1.5 9 7.2 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	-3.4 4.7 1.2 16.2 8.7 27 1.2 1 9 1 9 1 9 1 9 1 9 4 5 20,1 100 0 0,1 26,8 12,4 12,7 17 12,4 12,7 17 14 6,7 6 3,6 7 12,7 1,7 1,7 1,7 1,7 1,7 1,7 1,7 1,7 1,7 1	0.0 0 3.8 0 4.7 4.7 4.7 4.7 2.29.5 0 5.17.7 41.2 27.7 37.5 50 8.7 13.3 8.1 13.3 8.1 13.3 8.1 13.3 8.1 13.3 13.5 15.5 1	0.0 49 49.2 67.8 12.3 8.1 7.2 67 7 63 67 64 59 64 59 64 65,1 65,1 61,3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0 52.8 59.4 0 59.4 0 59.4 0 51.1 1.3 25.1 0 5 12.5 0 0 5 12.5 0 0 3.4 3.5 52.8 59.4 0 0 0 0 0 0 0 0 0 0 0 0 0	50 50,5 55,5 49,2 47,5 0 44,5 5 44,5 1 13,1 16,1 6	8.00 11,9 3.4 100 15,7 17,1 0 12,4 7,1 0 0 0 0 0 0 0 0 0 0 0 0 0

Failure reports



"Pro-Act" instead of Re-Act via Weather Forecast



Remote Reporting

usual Excel file with Links for connection to HES via usual WEB browser

IQHeat Excel Online <u>Web-связи</u>							Тепло	сеть		Отопление1								
Объект	Город	Адрес	Договорн мошность	Yta	Дата	Время	Число аварий	Наруж	Внутр темп1	Внутр темп2	Прямая	Обратн	Дельта	Подача	Обратн	Дельта	Ventil	т/с обрат
Максиму	///	лдроо	and Lincold		Hara	-point	0	13.5	25.0	24.7	89.4	43.2	60.2	39.0	34.7	6.6	115.1	38.2
								11.3	22.0	22.2	74.0	31.6	42.4	27.9	26.2	1.7	21.0	27.9
								9.3	16.0	20.4	65.0	16.9	28.8	20.0	20.0	-0.3	0.0	21.7
#08-01	Stockholm	Fabamo	286	2500	04.май	16:00	0	12.6	20.2	23.4	71.2	38.9	32.3	20.4	20.4	0	3.3	25.7
#08-02	Stockholm	Smyrna	0	0	04.май	16:00	0	12.2	22.5	22.1	69.9	34.7	35.2	24.6	23.9	0.7	14.2	30.8
#08-03	Stockholm	Ormkärrsv.	463	4000	04.май	16:00	0	13.5	21.7	23.1	89.4	30.4	59	20	20	0	0.1	38
#08-04	Stockholm	Drabanten	0	2500	04.май	15:50	0	10.4	23.1	22.3	69.5	30.1	39.4	25.6	23.4	2.2	20.4	23.5
#08-06	Sollentuna	Träklotsen 2	526	4200	04.май	16:00	0	12.7	22.3	22.3	75.1	24.5	50.6	27.5	26	1.5	4.7	26
#08-07	Stockholm	Karlsvik	657	6200	04.май	16:00	0	10.8	20.5	23	68.9	24.4	44.5	32	30.3	1.7	19.8	30.4
#08-08	Stockholm	Päronträdet	262	2000	04.май	16:10	0	11.7	21.9	23.2	70.8	40.3	30.5	27.5	27.4	0.1	3.9	27.4
#08-09	Stockholm	Sabbatsberg 22	1310	13300	04.май	16:00	0	11.5	22.5	22.6	74	26.2	47.8	20.8	21	-0.2	0	38.2
#08-10	Stockholm	Båtsmannen M13	392	3500	04.май	16:00	0	11.8	24.5	22.1	72.7	40.3	32.4	26	25.7	0.3	4.2	30.2

ГВС			Теплосч	Отоп	ление	2			Отопление3						
Подача	Цирку ляция	Ventil	Мощность (кВт)	Расход (л/с)	Подача	Обратн	Дельта	Ventil	т∕с обрат	Подача	Обратн	Дельта	Ventil	т∕с обрат	
61.2	55.0	66.1	386.4	2.2	41.4	32.8	20.6	100.0	36.7						
55.0	48.9	19.6	69.0	0.3	13.7	11.3	2.3	14.5	10.5	25.4	24.8	0.6	100.0	#DIV/0!	
51.3	43.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
54.5	51.4	4.8	7.2	0.1	28.6	26.3	2.3	4	26.4	_	_	-	-	-	
55	46.8	7.9	85.7	0.6	41.4	32.8	8.6	74.9	36.7		-	-	-	-	
56.2	55	0	14.2	0.1	29.1	27.9	1.2	9.8	27.7		-	-	-	-	
61.2	52.6	0	37.4	0.3	25.5	25	0.5	100	0	25.4	24.8	0.6	100	-	
54.2	50.2	25.3	26.6	0.2	0	0	0	0	0	-	-	-	-	-	
54.4	45.9	25.5	182.9	0.2	0	0	0	0	0	-	-	-	-	-	
55.3	46.8	18.5	230.5	0.6	0	0	0	0	0	-	-	-	-	-	
53.3	43.4	24.8	103.9	0.5	35.9	26.2	9.7	57.3	27.2		-	-	-	-	
53.3	44.7	4.1	14.9	0.1	0	0	0	0	0	-	-	-	-	-	

Each 10-15 min up-dated page with all data and alarms

Alfa Laval HES – any size is available



Block HES



House HES



Apartment HES

Skolkovo Technopark – Cooling





Skolkovo Technopark - 12 HES DHW / Heat / Vent

Технопарк (корпуса 3 a,b,c)











Trade Centre KomsoMall, Irkutsk



8 systems served

Total over 7 MW HES dimensions

19.6 х 3.7 м

ExpoForum in SPb – over 10 HES









Neva Town Hall - SPb

Local roof DHW arrangement from roof boiler



Efes Pilsner Brewery in Novosibirsk

Using STEAM

For Heating 12 MW

For DHW 1.7 MW







Paris, France

District cooling

- World's largest district-cooling system
- 52 km network cools 500+ buildings (including Le Louvre)
- River Seine supplies the water needed by three huge central chillers
- Alfa Laval plate heat exchangers in every building serve as substations connected to individual A/C systems



Jumbo, Helsinki, Finland

Local cooling



Apartment level HES - Iset Tower in Ekaterinburg



- 52 floors
- Height 209 m
- 228 apartments
- 228 Maxi Sampo HES



http://www.iset-tower.com/en/

Apartment level HES – new Micro family



* Direct versions

New Micro family – new features



- 1. Very thin (like IPhone Length)
- 2. «Smart Insulation»
- 3. New Design
- 4. CB IS direct control for DHW





Alfa Laval HES References for ComBuild



Kremlin

Mytishi City



Eurasia Logistics Terminal Domodedovo

Mytishi Arena





Alfa Laval HES References for ComBuild





Wrigley Factory over 10 Steam Maxi **Nokian Tyres** up to 10 Maxi

Alexandr Nevskiy Laurel in SPb up to 10 Maxi



Park-Inn Pulkovskaja in SPb several Maxi



10 tallest building in the world*/**



Burj Khalifa UAE 828m/162 floors Ready: 2009 AL equipment: 30xMX25B



Abraj Al Bait Towers Saudi Arabia 595m/76 floors Ready: ~ 2010 AL equipment: yes



1 World Trade Center USA 541m/108 floors Ready: ~ 2011 AL equipment: 8xAQ10

Petronas Tower

452m/88 floors

AL equipment:

4xMX25B/6xM15B

Ready: 1998

Malaysia



Taipei 101 Taiwan 509m/101 floors Ready: 2004 AL equipment: 35xMX25B



Nanjing Greenland Financial Center China 450m/89 floors Ready: 2009 AL equipment: 6xT20B/4xM15B



Federation Tower Russia 506m/93 floors Ready: ~ 2011 AL equipment: 6xM30/3xMX25B/9xT20B



Willis Tower USA 442m/108 floors Ready: 1973 Shell & Tube



Shanghai World **Financial Center** China 492m/101 floors Ready: 2008 AL equipment: 21XMX25B/5xTS20M

* Measured to pinnacle height

International **Commerce Centre** Hong Kong 484m/118 floors Ready: 2008 AL equipment: 14xMX25B

** Building ready or under construction with heat exchanger supplier selected

