Heat Recovery Solutions

In stainless steel

fabdec

Recovering heat from the refrigeration process…

Recovering heat from the refrigeration process can be very cost-effective. All you need is the right choice of system and a reliable product.

Every refrigeration process is effectively a heat pump. It pumps heat from one media into another. The process usually cools air or liquid while the heat is wasted in the atmosphere.

Our heat recovery systems collect and use this waste heat to produce hot water.

What is important to remember in heat recovery?

- The primary process of producing refrigeration should remain unaffected or even be improved.

The choice of heat recovery system depends on many factors:

- The number of cooling circuits to recover the heat from
- The performance and the run-time of the compressors
- The existing storage facility
- The location of the different cooling units and of the water user
- The pattern of the hot water usage

All our water storage cylinders are made from stainless steel for durability and longevity. Please talk to us and we will help you choose the right system.

THE DIFFERENT SYSTEMS

SPAR-HEAT	For a single cooling circuit with relatively low run-time. Can be used with immersion heaters.
SMART-HEAT	For use with several cooling circuits to heat one vessel.
DUAL-HEAT	Combines heat recovery from several cooling circuits with use of immersion heaters.
EXO-HEAT	Offers flexibility in terms of proximity to compressors and water and in terms of water storage.
UNI-HEAT	A hot water cylinder with immersion heaters.

SPAR-HEAT ☛ with coil heat exchange

Description

- Storage water heater with internal double walled coil heat exchanger
- Suitable for use with 2 immersion heaters
- Polyurethane CFC-free insulation
- Scratch-resistant Plastisol coating
- Factory fitted with 7bar/90ºC pressure & temperature relief valve
- Maximum operating pressure: 6 bar
- Maximum operating pressure on refrigeration circuit: 35 bar
- Maximum operating temperature: 85°C
- Indirect heat exchange meeting DIN standard EN12897 and PD5500

Model	Volume (l)	Number of indirect heat exchangers (pictured below)	1) Max. refrigeration duty (KW)	Heat exchanger coil size (m^2)	Refrigeration Inlet/Outlet pipe size (mm)	Height (mm)	Diameter (mm)
HSPD-0150-C1	150	1	25	1.82	14.3	1085	576
HSPD-0215-C1	215	1	25	1.82	14.3	1484	576
HSPD-0305-C1	305	1	25	1.82	14.3	2028	576
HSPD-0400-C1	400	1	22.5	2.32	14.3	1380	756
HSPD-0500-C1	500	1	22.5	2.32	14.3	1665	756

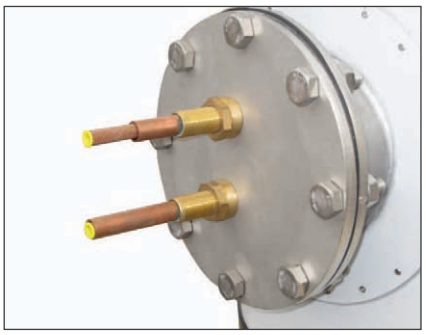
[1] The maximum refrigeration duty connection is not identical with the heat transfer rate.

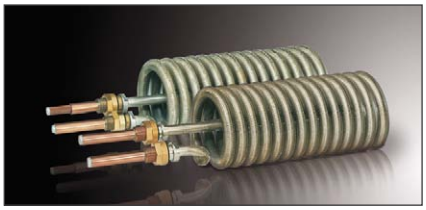
The heat exchanger

The heat exchanger consists of two tubes: an outer (water side) tin-plated tube with a medium-high finned tube and an inner (refrigerant side) copper tube with a pyramid-shaped structure on the outside. The double-walled structure prevents drinking water from mixing with refrigerant and the refrigerant pipes are connected outside the heat exchange area.

Where this system is used

This type of system is used with a single cooling circuit where the run-time is relatively low. Immersion heaters boost the temperature as required. The concept is to provide hot water to the customer at up to 85°C at around a third of the traditional water heating costs associated with a standard boiler.





SMART-HEAT ☛ with thermoplate

Description

- Storage water heater with integrated wrap-around thermoplate(s)
- Suitable for use with 1 immersion heater to boost water temperature
- Up to 6 condensing units can be connected to each SMART-HEAT
- Polyurethane CFC-free insulation
- Scratch-resistant Plastisol coating (stainless steel on request)
- Factory fitted with 7bar/90ºC pressure & temperature relief valve
- Maximum operating pressure: 6 bar
- Maximum operating pressure on refrigeration circuit: 30 bar
- Maximum operating temperature: 85°C
- Indirect heat exchange meeting DIN standard EN12897 and PD5500

Model	Volume (l)	Number of thermoplates	1) Max. refrigeration duty per circuit (KW)	1) Max. refrigeration duty combined (KW)	Refrigeration Inlet/Outlet pipe size (mm)	Height (mm)	Diameter (mm)
SR-220U	220	1	12	12	18	1675	580
SR-220D		2	8.5	17	15		
SR-325U	325	1	14	14	18	1335	750
SR-325D		2	10	20	18		
SR-325Q		4	7.5	30	15		
SR-415U	415	1	18	18	18	1580	750
SR-415D		2	11	22	18		
SR-415Q		4	7	28	15		
SR-415S		6	6	36	15		
SR-520D	520	2	11	22	18	1830	750
SR-520Q		4	7	28	15		
SR-520S		6	6	36	15		
SR-650D	650	2	12	24	18	1450	1000
SR-650Q		4	9	36	15		
SR-840D	840	2	17	34	18	1705	1000
SR-840Q		4	14	56	18		
SR-1000D	1000	2	20	40	22	1950	1000
SR-1000Q		4	16	64	18		
SR-1350D	1350	2	14	28	18	1650	1300
SR-1350Q		4	9	36	15		
SR-1500D	1500	2	17	34	18	1800	1300
SR-1500Q		4	10	40	15		
SR-2000D	2000	2	20	40	22	1950	1300
SR-2000Q		4	16	64	18		
SR-3000S	3000	6	12	72	22	3000	1300

[1] The max. refrigeration duty is not identical with the heat transfer rate. For higher volumes a parallel connection of several plates is advised.

The heat exchanger on SMART-HEAT and DUAL-HEAT

The integrated wrap-around thermoplates cover the inner vessel wall and is comprised of a double sheet stainless steel thermoplate, made using Fabdec's unique dimple plate technology, through which refrigerant hot gas flows.

With DUAL-HEAT the heat exchanger covers the lower two thirds of the vessel with 2 immersion bosses at the top to boost the pre-heated water to the required temperature.

DUAL-HEAT combining thermoplate & immersion heater

Description

- Storage water heater with integrated wrap-around thermoplate(s) covering two-thirds of vessel
- Suitable for use with 2 immersion heaters to boost water temperature
- Up to 4 condensing units can be connected to each DUAL-HEAT
- Polyurethane CFC-free insulation
- Scratch-resistant Plastisol coating (stainless steel on request)
- Factory fitted with 7bar/90ºC pressure & temperature relief valve
- Maximum operating pressure: 6 bar
- Maximum operating pressure on refrigeration circuit: 30 bar
- Maximum operating temperature: 85°C
- Indirect heat exchange meeting DIN standard EN12897 and PD5500

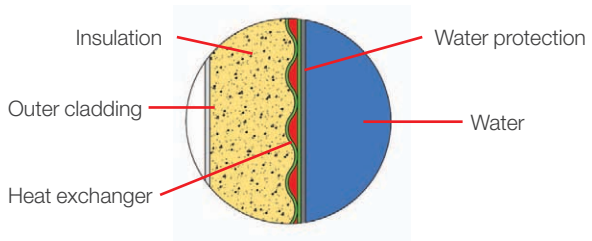
Model	Volume (l)	Number of thermoplates	1) Max. refrigeration duty per circuit (KW)	1) Max. refrigeration duty combined (KW)	Refrigeration Inlet/Outlet pipe size (mm)	Height (mm)	Diameter (mm)
SRD-325D-D2	325	2	7	14	15	1335	750
SRD-325Q-D2		4	5	20	15		
SRD-415D-D2	415	2	8.5	17	15	1580	750
SRD-415Q-D2		4	7	28	15		
SRD-520D-D2	520	2	9.5	19	15	1830	750
SRD-520Q-D2		4	7	28	15		
SRD-650D-D2	650	2	9	18	15	1450	1000
SRD-650Q-D2		4	7.5	30	15		
SRD-840D-D2	840	2	12	24	18	1705	1000
SRD-840Q-D2		4	9	36	15		
SRD-1000D-D2	1000	2	14	28	18	1950	1000
SRD-1000Q-D2		4	12	48	18		

1) The maximum refrigeration duty connection is not identical with the heat transfer rate.

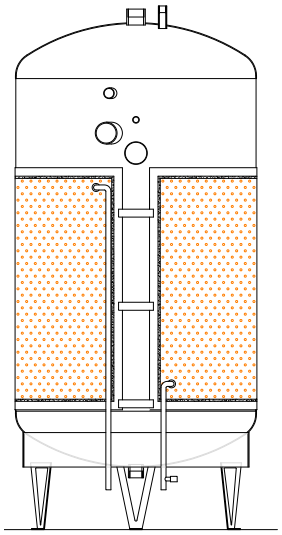
Where these systems are used

SMART-HEAT is widely used on dairy farms. It recovers the heat that is generated and otherwise lost in the milk cooling process to produce hot water. It can however be used in just about any application with a refrigeration unit.

DUAL-HEAT, with the 2 immersion heaters, is more widely used in pubs, restaurants, bakeries and butchers where there is a greater need to have hot water immediately available.



View of the vessel



EXO-HEAT ☛ with external plate heat exchanger

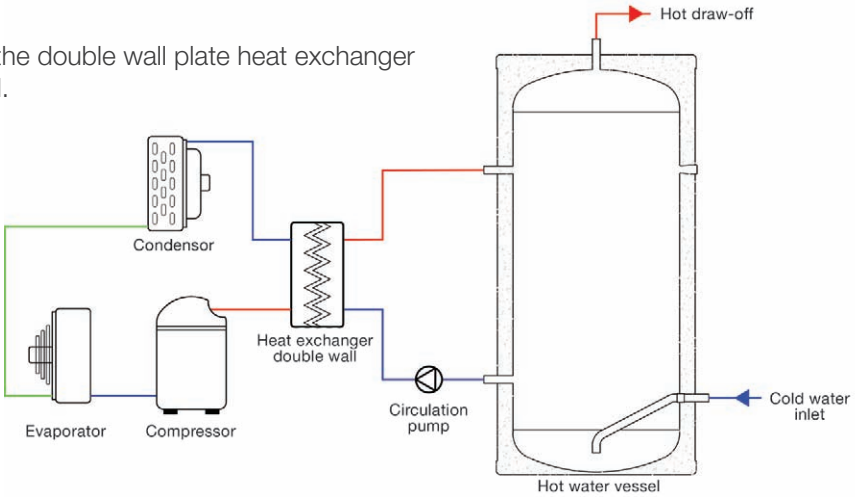
Description

- Unvented vessel with external plate heat exchanger and pump
- Vessels with Polyurethane CFC-free insulation and scratch-resistant Plastisol coating
- Factory fitted with 7bar/90ºC pressure & temperature relief valve
- Maximum operating pressure: 6 bar
- Maximum operating pressure on refrigeration circuit: 31 bar
- Maximum operating temperature: 85°C

Option 1 - EXO-HEAT Direct

The vessel acts as a buffer vessel and the double wall plate heat exchanger provides all the heat exchange required.

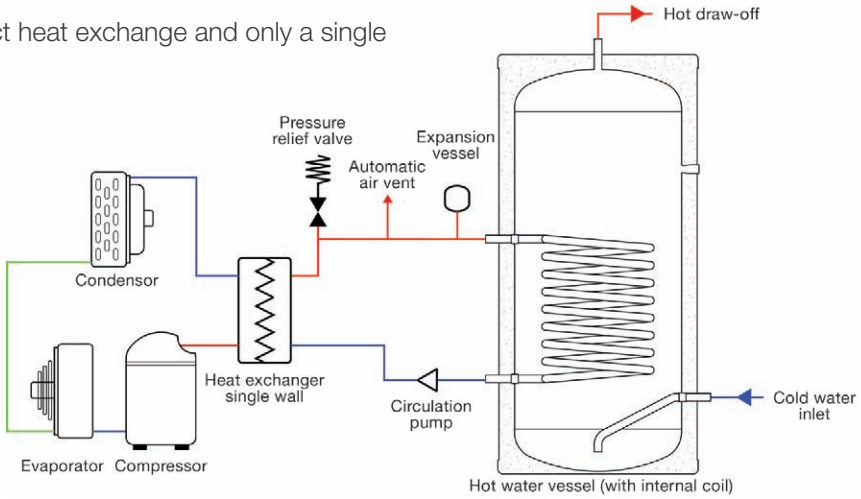
Number of plates	Max. refrigeration duty (KW)	Inlet/Outlet pipe size (")
8	5.3	1
14	11.3	1
22	20.4	1
32	30.6	1



Option 2 - EXO-HEAT Indirect

The vessel is fitted with a coil for indirect heat exchange and only a single wall plate heat exchanger is required.

Number of plates	Max. refrigeration duty (KW)	Inlet/Outlet pipe size (")
8	5.3	1¼
14	11.3	1¼
22	20.4	1¼
32	30.6	1¼



Please note: Buffer vessel size selection will depend on your hot water requirements and water usage pattern.

EXO-HEAT ☛ with external plate heat exchanger

Buffer vessels

Volume (l)	Inlet/Outlet pipe size	Height (mm)	Diameter (mm)
80	28mm	645	575
130	28mm	958	575
175	28mm	1242	575
215	28mm	1484	575
255	28mm	1753	575
305	28mm	2029	575
400	2" BSP	1430	750
500	2" BSP	1715	750

Please note: Above is only a selection. We offer buffer vessels up to 3000l.

UNI-HEAT ☛ stainless steel water heater

Description

- Water heater for use with 1 or 2 immersion heaters depending on size
- Complements any heat recovery system by boosting the final water temperature as required
- Polyurethane CFC-free insulation
- Scratch-resistant Plastisol coating
- Factory fitted with 7bar/90ºC pressure & temperature relief valve
- Butt-welded joints in the inner tank for superior corrosion resistance
- Maximum operating pressure: 6 bar
- Maximum operating temperature: 85°C

Model	Volume (l)	Number of immersion bosses 1¾" BSP	Inlet/Outlet pipe size (" BSP female)	Height (mm)	Diameter (mm)
WUH-0150-D1-UK	150	1	¾	1085	576
WUH-0175-D1-UK	175	1	¾	1242	576
WUH-0215-D1-UK	215	1	¾	1484	576
WUH-0255-D1-UK	255	1	¾	1752	576
WUH-0305-D2-UK	305	2	1	2028	576
WUH-0400-D2-UK	400	2	1	1405	756
WUH-0500-D2-UK	500	2	1	1690	756

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