



state
WATER HEATERS

Product Catalogue

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Solar

Condensing

Atmospheric

Sealed

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SSC
100-175
110-250

SSG
60-120
100-150
100-199
100-250
120-300
120-400
120-500

SUF
60-120
100-150
100-199
100-250
120-300
120-400
120-500

SXP
34-130
50-155

SCE/SCT
80-115
80-140
80-180
95-199
95-260
70-360
65-400
65-500

SCE/SCT
75-75
100-95

SDV
80-100
80-160
70-260
70-390
70-440

Oil

Residential

Storage / Indirect

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SOF
85-220
85-260
85-300
75-390
75-470
70-700

PRV
30 NORS
40 NORS
50 NRRS

SIT
80
100
125
170
190
270
410
500
670
740

SID
80
100
125
170
190
270

SVT
80
110
130
180
200
280
410
500
660
745

Solar thermal applications



DRAINBACK SYSTEM

State Water Heaters supplies a complete package of solar components, one of which is an ingenious drainback system. This drainback system boosts the lifetime of the system by preventing stagnation temperatures from arising in the installation. Ideal for schools and colleges, and commercial buildings that are closed during weekends.



INTELLIGENT CONTROLLER

The intelligent State Water Heaters computer-controlled operating system ensures maximum efficiency and maximum solar contribution. In addition, this system is particularly user-friendly: all essential information can be programmed and viewed via a single display unit.



INSTALLATION POSSIBILITIES

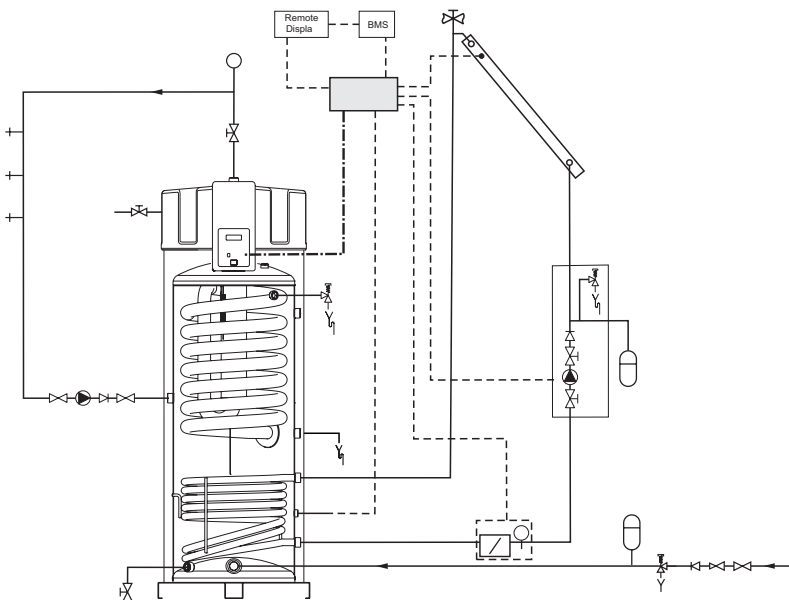
State Water Heaters solar systems are available for use as "built on roof", "built into roof" or on 'A' frames for flat roofs. Delivery as a complete package makes installation of the system extremely simple.

OPTIMUM SOLAR CONTRIBUTION

The SSC is a compact installation with integrated solar heat exchanger. Apart from its excellent suitable size for restricted spaces, the SSC is also a very efficient appliance. The collectors are connected to the lower heat exchanger, and the heat is transferred from the collectors to the water. The upper heat exchanger afterheats, if necessary, to the setpoint.

The SSG is installed in combination with an SIT storage tank with integrated heat exchanger. The collectors are connected to the heat exchanger and the available heat is transferred to the preheat tank. If the temperature of the water in the SSG differs more than 5 degrees from the water in the SIT, the heat transfer from the SIT to the SSG starts up. If necessary, the SSG heats the water to draw-off temperature.

In both installations the solar contribution is fully utilised. If a higher draw-off temperature is required than can be provided by solar contribution, only then additional gas heating is needed. This functionality delivers the optimum use of solar energy and a minimum use of gas.

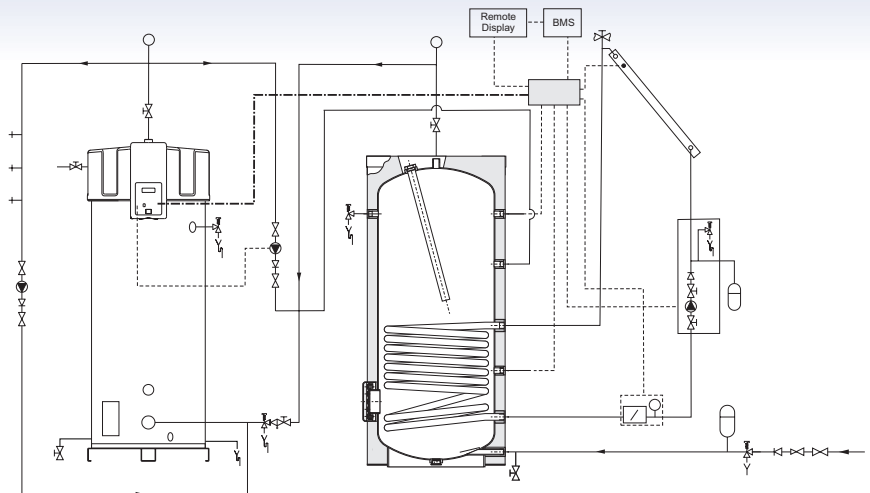


SSC

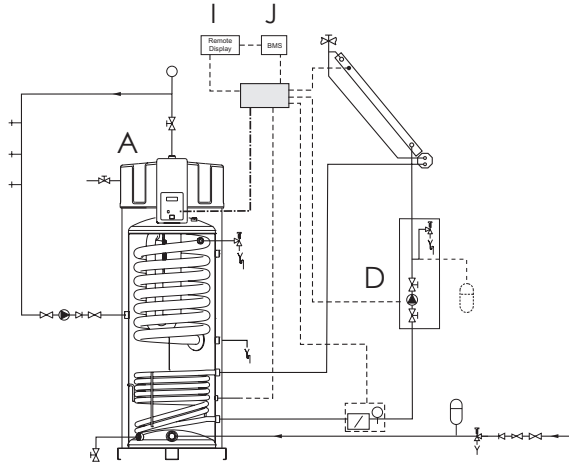
The solar hot water system solution in a compact format, suitable for connecting up to 15 collectors. The condensing technology used in the 40 kW and 60 kW water heaters guarantees high user comfort and maximum solar contribution (one controller for the complete installation). The SSC can be installed in vented and unvented systems.

SSG+SIT

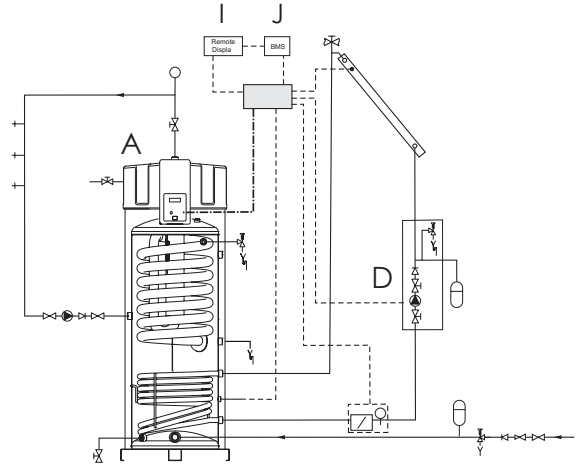
The solar heating system solution for larger applications for solar installations, suitable for connecting up to 15 collectors. Comfort and maximum solar contribution are guaranteed by adding condensing support from 28 kW to 120 kW in combination with storage tanks from 300 to 3000 litres. The SSG can be installed in vented and unvented systems.



Solar systems



Also applicable as vented installation



Also applicable as vented installation

SSC SOLAR SYSTEM WITH DRAINBACK

- SSC HE condensing gas solar water heater with integrated heat exchanger
- SSC available in 42 and 60 kW version with a capacity of 370 litre
- Compact installation
- Combined with the correct pump station several numbers of collectors possible
- Drain back system prevents the installation from reaching stagnation temperatures

* If you use a large pump station, always install an expansion vessel.

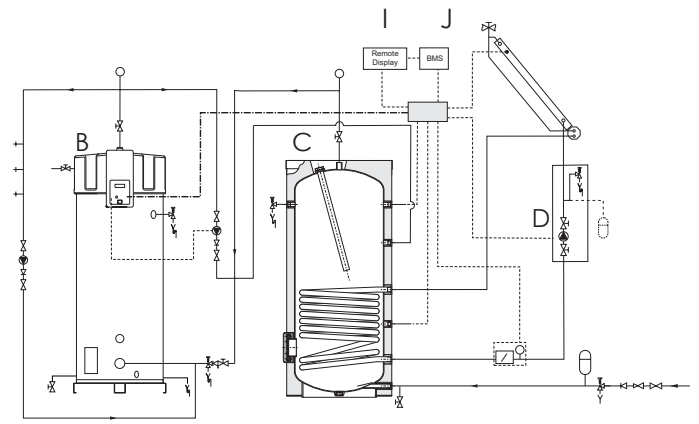
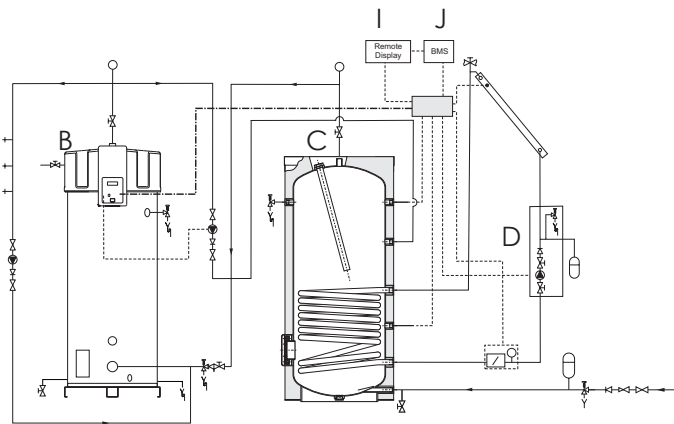
SSC SOLAR SYSTEM WITHOUT DRAINBACK

- SSC HE condensing gas solar water heater with integrated heat exchanger
- SSC available in 42 and 60 kW version with a capacity of 370 litre
- Compact installation
- Combined with the correct pump station several numbers of collectors possible
- Always use an expansion vessel in an installation without drain back system

	A	B	C	D	E	F	I	J	L
SSC WITH DRAINBACK	✓			✓		✓	✓	✓	✓

	A	B	C	D	E	F	I	J	L
SSC WITHOUT DRAINBACK	✓			✓	✓	✓	✓	✓	✓

System components (A to L) can be found on the following pages.



Also applicable as vented installation

Also applicable as vented installation

SSG + SIT SOLAR SYSTEM WITH DRAINBACK

- SSG HE condensing gas solar water heater combined with an SIT with integrated heat exchanger
- SSG is available from 28 to 120 kW versions and with capacities from 217 to 480 litre
- Always used in combination with an SIT indirect tank available in capacities from 300 to 3000 litre (or large IT tanks up to 3000 litres)
- Combined with the correct pump station several numbers of collectors possible
- Drain back system prevents the installation from reaching stagnation temperatures
- Up to 40% extra solar contribution possible, compared to standard systems

* If you use a large pump station, always install an expansion vessel.

SSG + SIT SOLAR SYSTEM WITHOUT DRAINBACK

- SSG HE condensing gas solar water heater combined with an SIT with integrated heat exchanger
- SSG is available from 28 to 120 kW versions and with capacities from 217 to 480 litre
- Always used in combination with an SIT indirect tank available in capacities from 300 to 3000 litre
- Combined with the correct pump station several numbers of collectors possible
- Always use an expansion vessel in an installation without drain back system
- Up to 40% extra solar contribution possible, compared to standard systems

	A	B	C	D	E	F	I	J	L
SSG WITH DRAINBACK		✓	✓	✓		✓	✓	✓	✓

	A	B	C	D	E	F	I	J	L
SSG WITHOUT DRAINBACK		✓	✓	✓	✓	✓	✓	✓	✓

System components (A to L) can be found on the following pages.



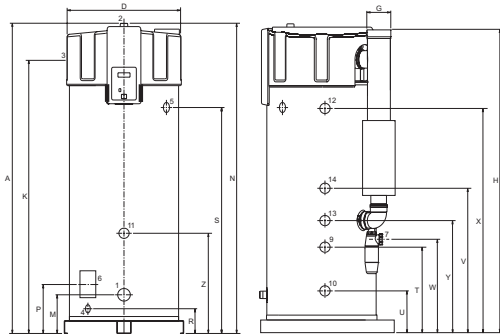
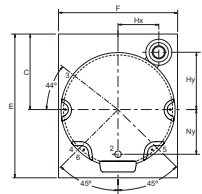
SSC



Condensing gas-solar water heater

The SSC range gas-solar water heaters provides hot water in a very efficient way. This water heater is equipped with an automatic gas/air premix burning system. The integrated intelligent solar controller guarantees maximum solar contribution. Thanks to the integrated heat exchanger, the SSC has a very small footprint.

- Fully room-sealed condensing high efficiency gas-solar water heater with integrated solar heat exchanger
- Max. solar contribution through integrated intelligent solar controller
- Automatic gas/air premix burning system including burner modulation
- Low-maintenance inert anodes
- Efficiency 96% (gross)
- NOx emission ≤ 30 ppm (dry – air free) – NOx class 5
- Quiet operation < 45 dB(A)
- 1 control and display unit for the complete installation
- Programmable for legionella purge cycle
- Very small footprint because of integrated solar heat exchanger
- Temperature setting from 40°C to 80°C with use of week timer



TECHNICAL DETAILS			
Model		SSC 100-175	SSC 110-250
Nominal load (gross)*	kW	44.4	63.3
Nominal output	kW	40.0	57.0
Gas consumption**	m ³ /h	4.2	6.0
Heating time ΔT = 45°C	min	15	11
Recovery time ΔT = 44 °C	min	15	10
Draw off capacity 1st hour ΔT = 28 °C	ltr	1500	2000
Draw off capacity 1st hour ΔT = 44 °C	ltr	890	1300
Draw off capacity 1st hour ΔT = 50 °C	ltr	760	1100
Draw off capacity continu ΔT = 28 °C	ltr/h	1400	1900
Draw off capacity continu ΔT = 44 °C	ltr/h	840	1200
Draw off capacity continu ΔT = 50 °C	ltr/h	740	1100
Capacity	ltr	370	370
Empty weight	kg	245	245
Supply pressure	mbar	20	20
Maximum working pressure	kPa (bar)	800 (8)	
Number of anodes	-	2	2
Power consumption	Watts	60	100
Electric supplies		230 V -15% + 10% VAC / 50 Hz +/- 1 Hz	
DIMENSIONS			
A		2055	2055
C		490	490
D		705	705
E		925	925
F		850	850
G		100/150	100/150
H		1995	1995
Hx		260	260
Hy		370	370
K		1960	1960
M		185	185
N		2055	2055
Ny		205	205
P		365	365
R		180	180
S		1555	1555
T		630	630
U		305	305
V		1035	1035
W		765	765
X		1465	1465
Y		855	855
Z		755	755
1	Cold water supply connection (external)	R 1½	R 1½
2	Hot water outlet connection (external)	R 1½	R 1½
3	Gas control connection ((external)	R ¾"	R ¾"
4	Drain valve connection (external)	¾"	¾"
5	T&P valve connection (internal)	1" - 11.5 NPT	1" - 11.5 NPT
6	Cleaning and inspection opening	95 x 70	95 x 70
7	Condensation drainage connection (int.)	Ø40	Ø40
9	Coil entrance connection	Rp 1	Rp 1
10	Coil exit connection	Rp 1	Rp 1
11	Electric element connection	Rp 1½	Rp 1½
12	Plate heat exchanger supply connection	Rp 1	Rp 1
13	Plate heat exchanger outlet connection	Rp 1	Rp 1
14	Recirculation connection	Rp 1	Rp 1
ENERGY LABELING (ERP)			
Load Profil		XXL	XXL
Energy labeling		A	A
Efficiency	%	90	90

Dimensions in mm.

* Based on natural gas: G20, gross value

** Gas consumption at 15°C and a 1013.25 mbar

For flue options, see page 57



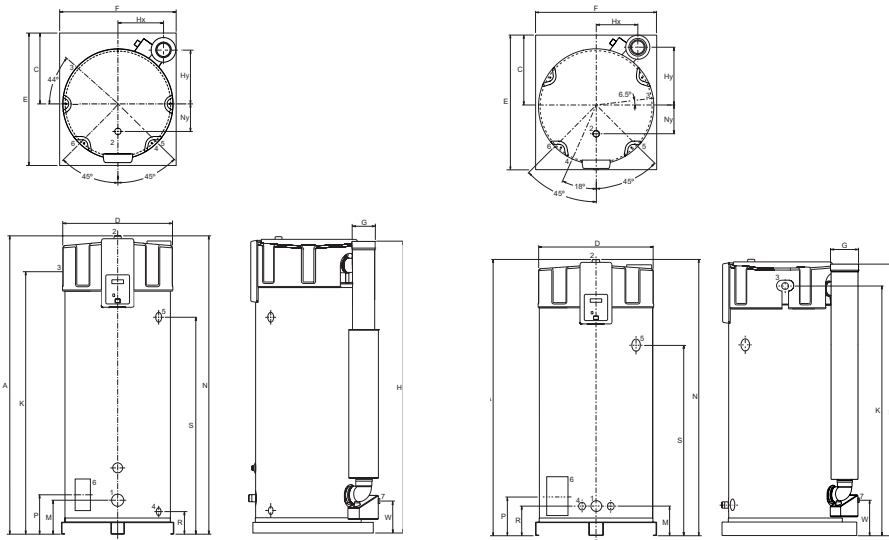
SSG



Condensing high efficiency gas-solar water heater

The SSG range of gas-solar water heaters consists of 7 appliances from 31.0 to 121.8 kW nominal output. A SSG should always be installed with an SIT indirect tank with heat exchanger. These appliances combined can deliver an installation suitable for large industrial applications. The entire installation is controlled through the intelligent solar control.

- Always installed in combination with an indirect tank with integrated heat exchanger
- Max. solar contribution through integrated intelligent solar controller
- Automatic gas/air premix burning system including burner modulation
- Low-maintenance inert anodes
- Efficiency 97% (gross)
- NOx emission ≤ 30 ppm (dry – air free) – NOx class 5
- Quiet operation <45 dB(A)
- 1 control and display unit for the entire installation
- Programmable for legionella purge cycle
- Temperature setting from 40°C to 80°C with use of week timer



TECHNICAL DETAILS

Model		SSG 60-120	SSG 100-150	SSG 100-199	SSG 100-250	SSG 120-300	SSG 120-400	SSG 120-500
Nominal load (gross)*	kW	32.2	33.3	52.2	63.3	86.6	105.5	128.8
Nominal output	kW	31.0	32.7	50.3	60.4	84.2	100.7	121.8
Gas consumption**	m ³ /h	3.1	3.2	5.0	6.0	8.3	10.1	12.3
Heating time ΔT = 45 °C	min	22	35	23	19	18	15	12
Recovery time ΔT = 44 °C	min	21	35	22	19	17	15	12
Draw off capacity 1st hour ΔT = 28 °C	ltr	1200	1400	1900	2200	3000	3500	4100
Draw off capacity 1st hour ΔT = 44 °C	ltr	670	760	1200	1400	1800	2100	2500
Draw off capacity 1st hour ΔT = 50 °C	ltr	570	640	950	1200	1600	1800	2200
Draw off capacity continu ΔT = 28 °C	ltr/h	960	1100	1600	1900	2600	3100	3800
Draw off capacity continu ΔT = 44 °C	ltr/h	610	640	990	1200	1700	2000	2400
Draw off capacity continu ΔT = 50 °C	ltr/h	540	570	870	1100	1500	1800	2100
Capacity	ltr	217	368	368	368	480	480	480
Empty weight	kg	177	214	214	214	480	480	480
Supply pressure	mbar	20	20	20	20	20	20	20
Maximum working pressure	kPa (bar)	800 (8)						
Number of anodes	-	1	2	2	2	2	2	2
Power consumption	Watts	45	45	75	115	95	145	240
Electric supplies		230 V -15 % + 10 % VAC / 50 Hz +/- 1 Hz						

DIMENSIONS

A	1485	2005	2005	2005	2060	2060	2060
C	490	490	490	490	530	530	530
D	705	705	705	705	850	850	850
E	925	925	925	925	1000	1000	1000
F	850	850	850	850	900	900	900
G	100/150	100/150	100/150	100/150	130/200	130/200	130/200
H	1460	2000	2000	2000	2015	2015	2015
Hx	265	265	265	265	310	310	310
Hy	375	375	375	375	440	440	440
K	1380	1910	1910	1910	1855	1855	1855
M	265	255	255	255	225	225	225
N	1485	2005	2005	2005	2060	2060	2060
Ny	205	205	205	205	205	205	205
P	265	270	270	270	290	290	290
R	180	170	170	170	225	225	225
S	995	1505	1505	1505	1425	1425	1425
W	220	240	240	240	240	240	240
1 Cold water supply connection (external)	R 1½	R 1½	R 1½	R 1½	R 1½	R 1½	R 1½
2 Hot water outlet connection (external)	R 1½	R 1½	R 1½	R 1½	R 1½	R 1½	R 1½
3 Gas control connection (external)	R ¾"	R ¾"	R ¾"	R ¾"	R ¾"	R ¾"	R ¾"
4 Drain valve connection (external)	1"	1"	1"	1"	¾"	¾"	¾"
5 T&P valve connection (internal)	1" - 11.5 NPT	1" - 11.5 NPT	1" - 11.5 NPT	1" - 11.5 NPT	1" - 11.5 NPT	1" - 11.5 NPT	1" - 11.5 NPT
6 Cleaning and inspection opening	95 x 70	95 x 70	95 x 70	95 x 70	95 x 70	95 x 70	95 x 70
7 Condensation drainage connection (int.)	Rp 1	Rp 1	Rp 1	Rp 1	Rp 1	Rp 1	Rp 1

ENERGY LABELING (ERP)

Load Profile		XXL	XXL	XXL	XXL	3XL	3XL	3XL
Energy labeling		A	A	A	A	-	-	-
Efficiency	%	91	91	91	90	93	93	92

Dimensions in mm.

* Based on natural gas: G20, gross value

** Gas consumption at 15°C and a 1013.25 mbar



SIT

Commercial indirect tanks

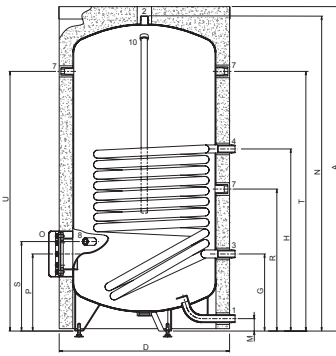


SIT range of commercial indirect storage tanks are suitable for installations with a variety of heat sources. The units are manufactured with heavy gauge steel and protected from corrosion by an advanced glass lining process. Storage capacities range from up to 2800 litres with heating outputs from 46 - 142 kW.

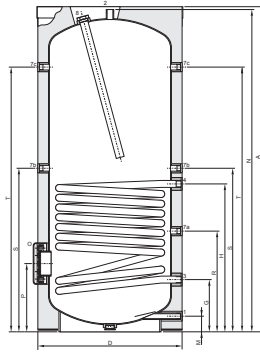
- Glass lined steel tank
- Coil surface area (1.5 - 4.8 m²)
- Electrolytic protection - magnesium anode
- Removable polyurethane soft foam insulation jacket
- Clean out inspection port
- Maximum tank working pressure 10 Bar
- Tank operation temperatures up to 95°C
- Coil operation temperature up to 110°C
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

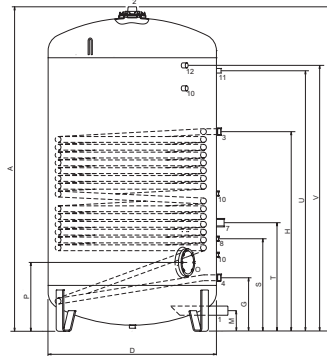
- Temperature meter
- Unvented system kit
- Temperature & pressure relief valve
- Electric heating elements up to 7.5 kW
- Flexible magnesium anode
- Powered anodes



SIT 80



SIT 100-270



SIT 410-740

TECHNICAL DATA

Model		SIT 80	SIT 100	SIT 125	SIT 170	SIT 190	SIT 270	SIT 410	SIT 500	SIT 670	SIT 740
Storage capacity	ltr	296	385	473	643	725	1007	1550	1800	2550	2800
Heat output	kW	46	78	100	104	112	145	147	147	156	156
Surface area coil	m ²	1.5	2.5	3.1	3.5	3.7	4.8	5.2	5.2	6.0	6.0
Pressure drop coil	mbar	56	244	489	104	128	259	830	830	695	695
Water contents coil	ltr	8.9	14.8	18.8	29.3	31.6	40.9	40.0	40.0	45.0	45.0
Flow rate (80° / 60°) coil	ltr/h	1978	3354	4300	4472	4816	6235	6485	6485	6871	6871
Recovery time, ΔT = 44 °C	min.	20	16	15	19	20	22	36	41	55	61
Draw off capacity 1st hour, ΔT = 28 °C	ltr	1934	3046	3864	4321	4718	6245	7010	7510	9243	9743
Draw off capacity 1st hour, ΔT = 44 °C	ltr	1231	1938	2459	2749	3002	3974	4461	4779	5882	6200
Draw off capacity 1st hour, ΔT = 50 °C	ltr	1083	1706	2164	2420	2642	3497	3926	4206	5176	5456
Draw off capacity continu, ΔT = 28 °C	ltr/h	1413	2396	3071	3194	3440	4454	4116	4116	4361	4361
Draw off capacity continu, ΔT = 44 °C	ltr/h	899	1525	1955	2033	2189	2834	2619	2619	2775	2775
Draw off capacity continu, ΔT = 50 °C	ltr/h	791	1342	1720	1789	1926	2494	2305	2305	2442	2442
Stand by loss	kWh/24h	1.3	1.6	1.9	1.9	2.0	2.2	7.2	8.5	9.6	11.0
Maximum operating temperature	°C	95	95	95	95	95	95	85	85	85	85
Maximum coil operating temperature	°C	110	110	110	110	110	110	90	90	90	90
Maximum working pressure	kPa(bar)	1000(10)	1000(10)	1000(10)	1000(10)	1000(10)	1000(10)	800(8)	800(8)	800(8)	800(8)
Anodes	no.	1	1	1	1	1	1	3	3	3	3
Weight empty	kg	117	139	180	241	254	336	398	426	576	600

DIMENSIONS & CONNECTIONS

A		1370	1705	2040	1835	2030	2000	1930	2118	1989	2118
D		720	720	720	910	910	1060	1200	1200	1500	1500
E		600	600	600	750	750	900	-	-	-	-
F		-	500	500	620	620	740	-	-	-	-
G		325	255	255	305	305	345	350	350	430	430
H		765	1010	1205	1145	1205	1305	1305	1305	1283	1283
L		80	30	30	30	30	30	-	-	-	-
M		75	70	70	85	85	95	135	135	183	183
N		1310	1650	1990	1795	1990	1960	1930	2118	1989	2118
O		115	115	115	180	180	180	110	110	110	110
P		325	330	330	415	415	445	425	425	510	510
R		595	500	500	650	650	700	-	-	-	-
S		375	1095	1290	1235	1295	1395	605	605	685	685
T		-	1360	1700	1475	1670	1600	710	710	790	790
U		1115	-	-	-	-	-	1515	1703	1530	1624
V		-	-	-	-	-	-	1550	1738	1530	1659
1	Cold water inlet	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	R 2	R 2	R 2	R 2
2	Hot water outlet	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	R 2	R 2	R 2	R 2
3	Central heating transport	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
4	Central heating supply	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
7	Connection	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
8	Connection Magnesium Anode	-	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
8 A+B	Connection	1/2"	-	-	-	-	-	-	-	-	-
10	Connection Magnesium Anode	1"	-	-	-	-	-	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
11	T&P connection	-	-	-	-	-	-	Rp 1	Rp 1	Rp 1	Rp 1
12	T&P temperature sensor connection	-	-	-	-	-	-	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4

ENERGY LABELING (ERP)

Load Profile		D	D	D	-	-	-	-	-	-	-
Standby loss (hard jacket)	W	119	124	130	142	147	167	300	354	400	458
Standby loss (soft jacket)	W	-	-	-	-	-	-	383	454	513	583

All measures are rounded off to 5mm.

Components



D

LARGE PUMP STATION WITH DRAINBACK

- Always install with an expansion vessel

Art. No	0309977	0309981	0309985	0309989	0309993
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D

LARGE PUMP STATION WITHOUT DRAINBACK

- Always install with an expansion vessel

Art. No	0309978	0309982	0309986	0309990	0309994
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D

PUMP STATION

- Pump station module with integrated pump
- Suitable for installations up to 15 solar collectors
- Integrated flow meter and overpressure protection
- Larger pumps available for bigger installations

Art. No	0311590	0311591	0311588	0311589
Collectors	1-7	8-15	1-7	8-15
Drainback	yes	yes	no	no



E

EXPANSION VESSEL

- Expansion vessel suitable for high temperatures, specifically for solar systems
 - Capacity of 25 to 80 litres, depending on the number of solar collectors used
 - * The expansion vessel is based on the number of collectors.
- For more information please contact the Technical Support Group.

Art. No	0308875	0308876	0308877	0308878
Litre	25	35	50	80
Collectors	1-4	5-6	7-11	12-15



F

GLYCOL

- Corrosion inhibiting and anti-frost agent Tyfocor L[®]
- Suitable for use in systems with and without drainback system
- Packaging of 10 litres, in 40% mixed solution

Art. No	0308803
Litre	10



I

REMOTE DISPLAY

Art. No	0309999(S)
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J

BMS INTERFACE

- Programmed for ModBus protocol

Art. No	0310013(S)
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REDUCING NIPPLES

Description	SIT 80	SIT 100	SIT 125	SIT 170	SIT 190	SIT 270	SIT 410	SIT 500	SIT 670	SIT 740
Reducing Nipple Set 2" BSp F x R 1" M	-	0309754(S)	-	-	-	-	-	0309754(S)	-	-
Reducing Nipple Set 2" BSp F x R 1 1/2" M	-	0309755(S)	-	-	-	-	-	0309755(S)	-	-
Reducing Nipple Set 2 1/2" BSp F x R 1" M	-	-	-	-	0309756(S)	-	-	-	-	-
Reducing Nipple Set 2 1/2" BSp F x R 1" M	-	-	-	-	0309757(S)	-	-	-	-	-
Reducing Nipple Set 2 1/2" BSp F x R 1 1/2" M	-	-	-	-	0309758(S)	-	-	-	-	-



DRAW-OFF PUMP

- Without valves and check valve

Art. No	0305515(S)
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INSULATION MATERIAL

- Bird proof, suitable for outside use

Art. No	0309933(S)	0309934(S)
Dimensions	Ø 22mm x 2m	Ø 28mm x 2m



QT SENSOR

- Measures the solar contribution and displays this information on the screen of the control unit.

Art. No	0309285(S)
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FILLING PUMP

- To simplify filling the system with Glycol

Art. No	0308804
---------	---------

GLYCOL FOR SSC	AMOUNT (LITRES)	
	SSC 100-175	SSC 110-175
1-2 Collectors	50	80
3-5 Collectors	60	80
6-11 Collectors	70	90
12-15 Collectors	80	100

- These quantities are based on the contents of the appliance excluding piping
- These quantities are averages. For the exact quantities please contact our Technical Support Group

GLYCOL FOR SSG	AMOUNT (LITRES)									
	SIT 80	SIT 100	SIT 125	SIT 170	SIT 190	SIT 270	SIT 410	SIT 500	SIT 670	SIT 740
1-2 Collectors	40	50	50	60	70	80	80	80	80	80
3-5 Collectors	50	60	60	70	70	80	80	80	80	80
6-11 Collectors	60	70	70	80	80	90	100	100	100	90
12-15 Collectors	70	80	80	90	90	100	100	110	110	100

- These quantities are based on the contents of the appliance excluding piping
- These quantities are averages. For the exact quantities please contact our Technical Support Group

Solar thermal energy



DRAINBACK SYSTEM

State Water Heaters supplies a complete package of solar components, one of which is an ingenious drainback system. This drainback system boosts the lifetime of the system by preventing stagnation temperatures from arising in the installation. Ideal for schools and colleges, and commercial buildings that are closed during weekends.



CONTROL

The control unit has a modulating pump control. And it gives the possibility to measure the solar contribution and display this information.



SMART DISPLAY

The temperature in the collector, the temperature of the stored water and the solar contribution can be read on the display which is available as an accessory.

Solar thermal energy

Indirect solar water heating

These solar water heating systems consist of an indirect tank which is connected to a boiler (electric, gas or oil) or water heater. The optimum installation can be constructed by using different accessories. The SIT as well as the SID can be part of a solar water heating system. Both can be installed with or without a drain back system.

Heat exchanger

The SIT and SID heat exchangers provide the heat exchange of the collected solar heat to the hot water volume. The SID has two heat exchangers, allowing the connected boiler or water heater to deliver its heat to the SID. This leads to a maximum comfort.

Controller

The pump station module controls of the indirect solar water heating system are done by the pump station module. This is a standard control. The pump is activated as a result of the temperature in the collector and the storage vessel. All essential information can be viewed on the control display.

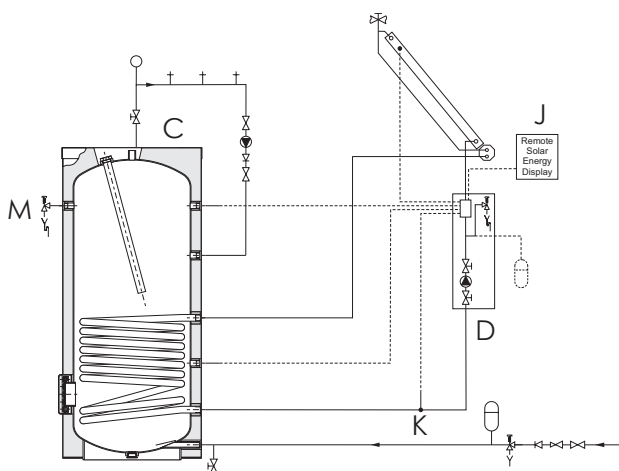
Composing systems

Selecting a pump station is determined by the number of collectors and the length of piping. State Water Heaters offers regular and extra large pump stations. Depending on the system, the pump stations are delivered with or without check valves depending on whether the system has drain back.

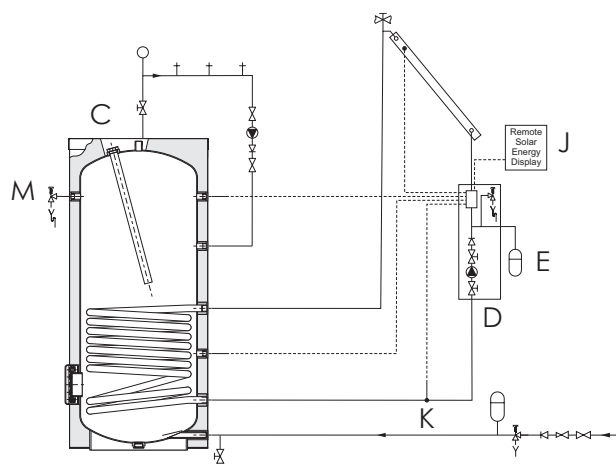
To help you select the perfect indirect solar installation - either with or without drain back system - you will find a summary on the next pages. The drain back system enhances the lifetime of the system by preventing stagnation temperatures from arising in the installation. The installation drawings show a table with the required components. Each component corresponds to a letter which is explained on the following pages. Accessories - without referral - are explained as well.



Solar systems



Also applicable as vented installation



Also applicable as vented installation

SIT INDIRECT SOLAR SYSTEM WITH DRAINBACK

- Solar system connected to existing central heating system or boiler
- SIT indirect tank with 1 heat exchanger available in capacities from 300 to 3000 litre
- Combined with the correct pump station several numbers of collectors possible
- Drain back system prevents stagnation temperatures in the installation

* If you use a large pump station, always install an expansion vessel.

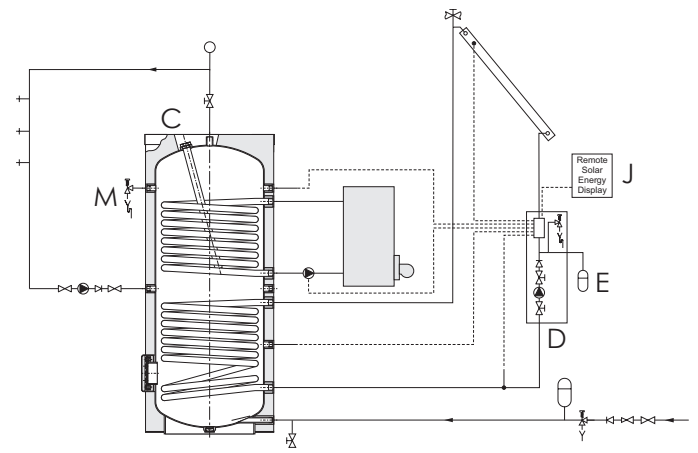
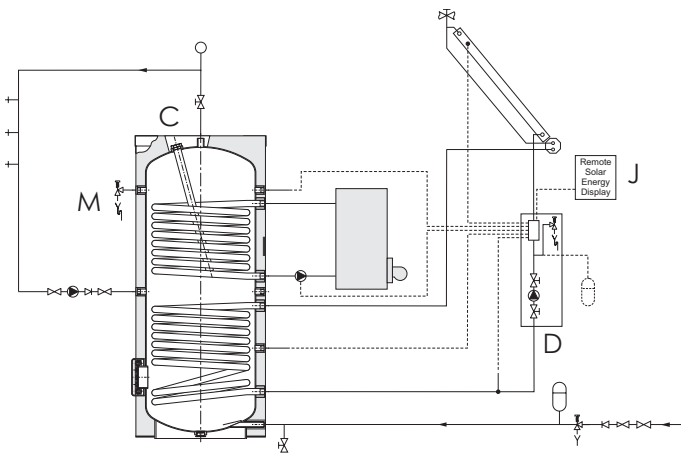
SIT INDIRECT SOLAR SYSTEM WITHOUT DRAINBACK

- Solar system connected to existing central heating system or boiler
- SIT indirect tank with 1 heat exchanger available in capacities from 300 to 3000 litre
- Combined with the correct pump station several numbers of collectors possible
- Always use an expansion vessel in an installation without drain back system

	A	B	C	D	E	F	J	K	L
SIT WITH DRAINBACK			✓	✓		✓	✓	✓	✓

	A	B	C	D	E	F	J	K	L
SIT WITHOUT DRAINBACK			✓	✓	✓	✓	✓	✓	✓

System components (A to L) can be found on the following pages.



Also applicable as vented installation

Also applicable as vented installation

SID INDIRECT SOLAR SYSTEM WITH DRAINBACK

- Solar system connected to existing central heating system or boiler
- SID indirect tank with 2 heat exchangers available in capacities from 289 to 1007 litre
- Combined with the correct pump station several numbers of collectors possible
- Drain back system prevents stagnation temperatures in the installation
- In an SID installation both the collector and boiler or water heater transfer their heat into one tank. This leads to a more comfortable installation compared to the SIT installation

* If you use a large pump station, always install an expansion vessel.

SID INDIRECT SOLAR SYSTEM WITHOUT DRAINBACK

- Solar system connected to existing central heating system or boiler
- SID indirect tank with 2 heat exchangers available in capacities from 289 to 1007 litre
- Combined with the correct pump station several numbers of collectors possible
- Always use an expansion vessel in an installation without drain back system
- In an SID installation both the collector and boiler or water heater transfer their heat into one tank. This leads to a more comfortable installation compared to the SIT installation

	A	B	C	D	E	F	J	K	L
SID WITH DRAINBACK			✓	✓		✓	✓	✓	✓

	A	B	C	D	E	F	J	K	L
SID WITHOUT DRAINBACK			✓	✓	✓	✓	✓	✓	✓

System components (A to L) can be found on the following pages.



SIT

Commercial indirect tanks

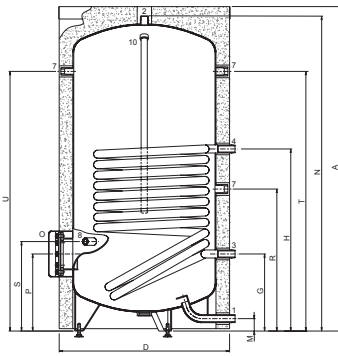


SIT range of commercial indirect storage tanks are suitable for installations with a variety of heat sources. The units are manufactured with heavy gauge steel and protected from corrosion by an advanced glass lining process. Storage capacities range from up to 2800 litres with heating outputs from 46 - 142 kW.

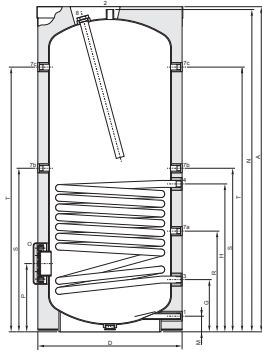
- Glass lined steel tank
- Coil surface area (1.5 - 4.8 m²)
- Electrolytic protection - magnesium anode
- Removable polyurethane soft foam insulation jacket
- Clean out inspection port
- Maximum tank working pressure 10 Bar
- Tank operation temperatures up to 95°C
- Coil operation temperature up to 110°C
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

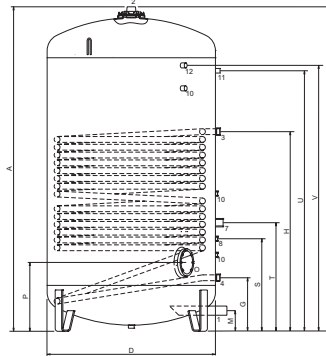
- Temperature meter
- Unvented system kit
- Temperature & pressure relief valve
- Electric heating elements up to 7.5 kW
- Flexible magnesium anode
- Powered anodes



SIT 80



SIT 100-270



SIT 410-740

TECHNICAL DATA

Model		SIT 80	SIT 100	SIT 125	SIT 170	SIT 190	SIT 270	SIT 410	SIT 500	SIT 670	SIT 740
Storage capacity	ltr	296	385	473	643	725	1007	1550	1800	2550	2800
Heat output	kW	46	78	100	104	112	145	147	147	156	156
Surface area coil	m ²	1.5	2.5	3.1	3.5	3.7	4.8	5.2	5.2	6.0	6.0
Pressure drop coil	mbar	56	244	489	104	128	259	830	830	695	695
Water contents coil	ltr	8.9	14.8	18.8	29.3	31.6	40.9	40.0	40.0	45.0	45.0
Flow rate (80° / 60°) coil	ltr/h	1978	3354	4300	4472	4816	6235	6485	6485	6871	6871
Recovery time, ΔT = 44 °C	min.	20	16	15	19	20	22	36	41	55	61
Draw off capacity 1st hour, ΔT = 28 °C	ltr	1934	3046	3864	4321	4718	6245	7010	7510	9243	9743
Draw off capacity 1st hour, ΔT = 44 °C	ltr	1231	1938	2459	2749	3002	3974	4461	4779	5882	6200
Draw off capacity 1st hour, ΔT = 50 °C	ltr	1083	1706	2164	2420	2642	3497	3926	4206	5176	5456
Draw off capacity continu, ΔT = 28 °C	ltr/h	1413	2396	3071	3194	3440	4454	4116	4116	4361	4361
Draw off capacity continu, ΔT = 44 °C	ltr/h	899	1525	1955	2033	2189	2834	2619	2619	2775	2775
Draw off capacity continu, ΔT = 50 °C	ltr/h	791	1342	1720	1789	1926	2494	2305	2305	2442	2442
Stand by loss	kWh/24h	1.3	1.6	1.9	1.9	2.0	2.2	7.2	8.5	9.6	11.0
Maximum operating temperature	°C	95	95	95	95	95	95	85	85	85	85
Maximum coil operating temperature	°C	110	110	110	110	110	110	90	90	90	90
Maximum working pressure	kPa(bar)	1000(10)	1000(10)	1000(10)	1000(10)	1000(10)	1000(10)	800(8)	800(8)	800(8)	800(8)
Anodes	no.	1	1	1	1	1	1	3	3	3	3
Weight empty	kg	117	139	180	241	254	336	398	426	576	600

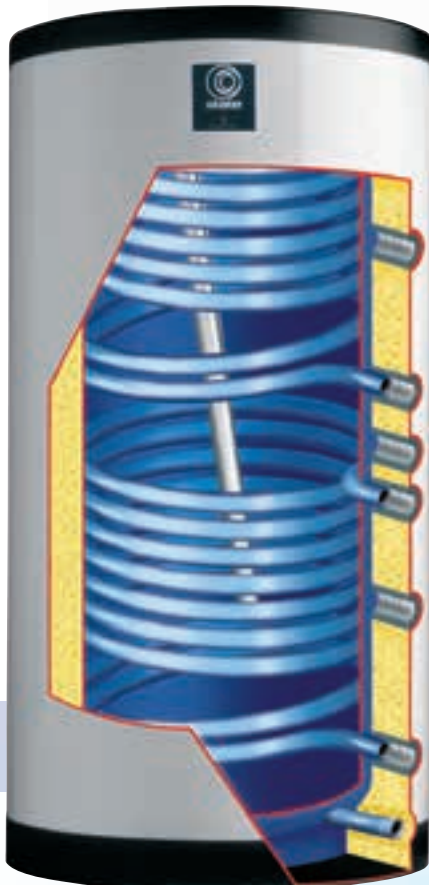
DIMENSIONS & CONNECTIONS

		SIT 80	SIT 100	SIT 125	SIT 170	SIT 190	SIT 270	SIT 410	SIT 500	SIT 670	SIT 740
A		1370	1705	2040	1835	2030	2000	1930	2118	1989	2118
D		720	720	720	910	910	1060	1200	1200	1500	1500
E		600	600	600	750	750	900	-	-	-	-
F		-	500	500	620	620	740	-	-	-	-
G		325	255	255	305	305	345	350	350	430	430
H		765	1010	1205	1145	1205	1305	1305	1305	1283	1283
L		80	30	30	30	30	30	-	-	-	-
M		75	70	70	85	85	95	135	135	183	183
N		1310	1650	1990	1795	1990	1960	1930	2118	1989	2118
O		115	115	115	180	180	180	110	110	110	110
P		325	330	330	415	415	445	425	425	510	510
R		595	500	500	650	650	700	-	-	-	-
S		375	1095	1290	1235	1295	1395	605	605	685	685
T		-	1360	1700	1475	1670	1600	710	710	790	790
U		1115	-	-	-	-	-	1515	1703	1530	1624
V		-	-	-	-	-	-	1550	1738	1530	1659
1	Cold water inlet	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	R 2	R 2	R 2	R 2
2	Hot water outlet	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	R 2	R 2	R 2	R 2
3	Central heating transport	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
4	Central heating supply	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
7	Connection	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
8	Connection Magnesium Anode	-	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
8 A+B	Connection	1/2"	-	-	-	-	-	-	-	-	-
10	Connection Magnesium Anode	1"	-	-	-	-	-	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
11	T&P connection	-	-	-	-	-	-	Rp 1	Rp 1	Rp 1	Rp 1
12	T&P temperature sensor connection	-	-	-	-	-	-	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4

ENERGY LABELING (ERP)

Load Profile		D	D	D	-	-	-	-	-	-	-
Standby loss (hard jacket)	W	119	124	130	142	147	167	300	354	400	458
Standby loss (soft jacket)	W	-	-	-	-	-	-	383	454	513	583

All measures are rounded off to 5mm.



SID

Commercial dual coil indirect tanks

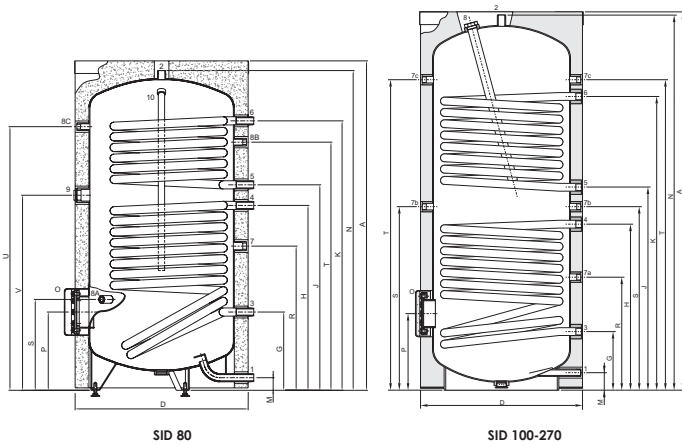


SID range of dual coil indirect storage tanks are suitable for installations with solar and other heat recovery systems. The units are manufactured with heavy gauge steel and protected from corrosion by an advanced glass lining process. The range includes a selection of 6 models with capacities from 289 to 1007 litres.

- Glass lined steel tank with two coils
- Output primary coil 27 - 58 kW
- Output secondary coil 46 - 87 kW
- Electrolytic protection - magnesium anode
- Removable polyurethane soft foam insulation jacket
- Clean out inspection port
- Maximum tank working pressure 10 Bar
- Tank operation temperatures up to 95°C
- Coil operation temperature up to 110°C
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

- Temperature meter
- Unvented system kit
- Temperature & pressure relief valve
- Electric heating elements up to 7.5 kW



TECHNICAL DATA													
Model		SID 80		SID 100		SID 125		SID 170		SID 190		SID 270	
Storage capacity	ltr	289		382		470		641		718		1007	
		Solar	Primary	Solar	Primary	Solar	Primary	Solar	Primary	Solar	Primary	Solar	Primary
Heat output	kW	46	27	52	37	68	42	72	40	80	56	87	58
Surface area coil	m ²	1.5	0.9	1.6	1.2	2.1	1.3	2.4	1.3	2.7	1.9	2.9	1.9
Pressure drop coil	mbar	54	9	73	26	163	38	35	6	48	16	62	18
Water contents coil	ltr	9.5	5.7	9.9	6.9	12.8	7.9	20.3	11.3	22.6	15.8	24.6	16.4
Flow rate (80° / 60°) coil	ltr/h	2014	1114	1586	2229	1800	2914	1714	3086	2400	3429	2486	3729
Recovery time, ΔT = 44 °C	min.	20	34	23	32	22	35	28	50	28	40	36	54
Draw off capacity 1st hour, ΔT = 28 °C	ltr	1705	1150	1997	1599	2575	1815	2905	1970	3235	2534	3801	2954
Draw off capacity 1st hour, ΔT = 44 °C	ltr	1085	732	1271	992	1638	1155	1849	1254	2059	1612	2419	1880
Draw off capacity 1st hour, ΔT = 50 °C	ltr	955	644	1118	873	1442	1016	1627	1103	1812	1419	2129	1654
Draw off capacity continu, ΔT = 28 °C	ltr/h	1415	830	1599	1138	2092	1292	2215	1230	2461	1722	2676	1784
Draw off capacity continu, ΔT = 44 °C	ltr/h	900	528	1018	724	1331	822	1409	783	1566	1096	1703	1135
Draw off capacity continu, ΔT = 50 °C	ltr/h	792	465	896	637	1171	723	1240	689	1378	965	1499	999
Stand by loss	kWh/24h	1.3		1.6		1.9		1.9		2.0		2.2	
		Tank	Coil	Tank	Coil	Tank	Coil	Tank	Coil	Tank	Coil	Tank	Coil
Maximum operating temperature	°C	95	110	95	110	95	110	95	110	95	110	95	110
Maximum working pressure	bar	10	16	10	16	10	16	10	16	10	16	10	16
Anodes	no.	1		1		1		1		1		1	
Weight empty	kg	133		145		196		246		262		340	
DIMENSIONS & CONNECTIONS													
A		1370		1705		2040		1835		2030		2000	
D		720		720		720		910		910		1060	
E		600		600		600		750		750		900	
F		-		500		500		620		620		740	
G		325		255		255		305		305		345	
H		765		770		915		905		965		945	
J		850		940		1085		1085		1145		1125	
K		1110		1275		1470		1385		1565		1485	
L		80		30		30		30		30		30	
M		75		70		70		85		85		95	
N		1310		1650		1990		1795		1990		1960	
O		115		115		115		180		180		180	
P		325		330		330		415		415		445	
R		595		500		500		650		650		700	
S		375		856		1000		995		1055		1035	
T		-		1360		1700		1475		1670		1600	
U		1115		-		-		-		-		-	
1	Cold water inlet	1"		1"		1"		1 1/2"		1 1/2"		1 1/2"	
2	Hot water outlet	1"		1"		1"		1 1/2"		1 1/2"		1 1/2"	
3	Central heating transport	1"		1"		1"		1 1/4"		1 1/4"		1 1/4"	
4	Central heating supply	1"		1"		1"		1 1/4"		1 1/4"		1 1/4"	
7	Connection	3/4"		3/4"		3/4"		3/4"		3/4"		3/4"	
8	Connection Magnesium Anode (SID 100-270)	-		1 1/4"		1 1/4"		1 1/4"		1 1/4"		1 1/4"	
8 a+b	Connection (SID 80)	1/2"		-		-		-		-		-	
10	Connection Magnesium Anode (SID 80)	1"		-		-		-		-		-	
ENERGY LABELING (ERP)													
Load Profil		E		E		E		-		-		-	
Standby loss (hard jacket)	W	141		148		154		166		171		192	

All measures are rounded off to 5mm.

Components



D



D

LARGE PUMP STATION WITH DRAINBACK

- Always install with an expansion vessel
- Control included

LARGE PUMP STATION WITHOUT DRAINBACKSYSTEM

- Always install with an expansion vessel
- Control included

Art. No	0309975	0309979	0309983	0309987	0309991
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Art. No	0309976	0309980	0309984	0309988	0309992
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D

PUMP STATION

- Pump station module with integrated pump
- Suitable for installations up to 15 solar collectors
- Integrated flow meter and overpressure protection



E

EXPANSION VESSEL

- Expansion vessel suitable for high temperatures, specifically for solar systems
- Capacity of 25 to 80 litres, depending on the number of solar collectors used
- * The expansion vessel is based on the number of collectors.
For more information please contact the Technical Support Group.

Art. No	0311594	0311595	0311592	0311593
Collectors	1-7	8-15	1-7	8-15
Drainback	yes	yes	no	no

Art. No	0308875	0308876	0308877	0308878
litre	25	35	50	80
Collectors	1-4	5-6	7-11	12-15



F

GLYCOL

- Corrosion inhibiting and anti-frost agent Tyfocor L®
- Suitable for use in systems with and without drainback system
- Packaging of 10 litres, in 40% mixed solution

Art. No	0308803
litre	10



J

SMART DISPLAY

- Displays the temperature in the collector and storage vessel
- Displays, if combined with an output sensor, the solar contribution

Art. No	0309701(S)
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K

OUTPUT SENSOR

- Measures the temperature in the system incl. piping and visualizes the solar contribution through the smart display

Art. No	0309691(S)	0309701(S)
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L

REDUCING NIPPLES

Description	SIT/SID 80	SIT/SID 100	SIT/SID 125	SIT/SID 170	SIT/SID 190	SIT/SID 270	SIT 410	SIT 500	SIT 670	SIT 740
Reducing Nipple Set 2" BSp F x R 1" M	-	0309754(S)	-	-	-	-	-	0309754(S)	-	-
Reducing Nipple Set 2" BSp F x R 1 1/2" M	-	0309755(S)	-	-	-	-	-	0309755(S)	-	-
Reducing Nipple Set 2 1/2" BSp F x R 1" M	-	-	-	-	0309756(S)	-	-	-	-	-
Reducing Nipple Set 2 1/2" BSp F x R 1" M	-	-	-	-	0309757(S)	-	-	-	-	-
Reducing Nipple Set 2 1/2" BSp F x R 1 1/2" M	-	-	-	-	0309758(S)	-	-	-	-	-



FILLING PUMP

- To simplify filling the system with Glycol

Art. No	0308804
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INSULATION MATERIAL

- Bird proof, suitable for outside use

Art. No	0309933(S)	0309934(S)
Dimensions	Ø 22mm x 2m	Ø 28mm x 2m

GLYCOL FOR SIT AMOUNT (LITRES)

- These quantities are based on the contents of the appliance excluding piping
- These quantities are averages. For the exact quantities please contact our Technical Support Group

	SIT 80	SIT 100	SIT 125	SIT 170	SIT 190	SIT 270	SIT 410	SIT 500	SIT 670	SIT 740
1-2 Collectors	40	50	50	60	70	80	80	80	80	80
3-5 Collectors	50	60	60	70	70	80	80	80	80	90
6-11 Collectors	60	70	70	80	80	90	100	100	100	100
12-15 Collectors	70	80	80	90	90	100	100	110	110	110

GLYCOL FOR SID AMOUNT (LITRES)

- These quantities are based on the contents of the appliance excluding piping
- These quantities are averages. For the exact quantities please contact our Technical Support Group

	SID 80	SID 100	SID 125	SID 170	SID 190	SID 270
1-2 Collectors	40	50	50	60	70	80
3-5 Collectors	50	60	60	70	70	80
6-11 Collectors	60	70	70	80	80	90
12-15 Collectors	70	80	80	90	90	100

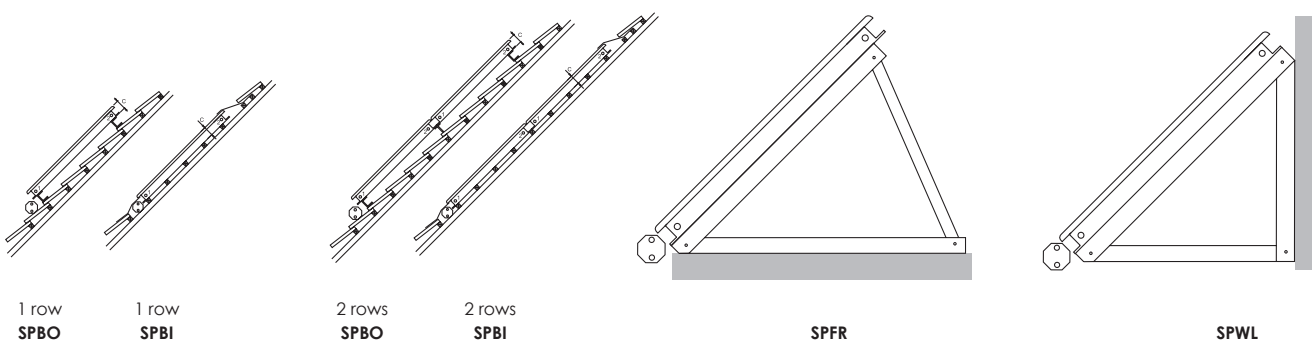
Collectors



COLLECTOR + DRAINBACK

- Patented drainback system available as an accessory to prevent stagnation temperatures
- Approved by EN12975-2-2006, CE and Solar Keymark certified
- Temperature resistant up to 200°C
- Installation options: roof built on, roof built in, flat roof consoles mounting and wall consoles mounting
- Simple installation system for multiple panels
- The SPBO, SPBI and SPFR are available in horizontal or vertical
- Complete installation is delivered in 1 package including the assembly materials
- 10 years warranty

Collectors **with** drainback



1 row
SPBO

1 row
SPBI

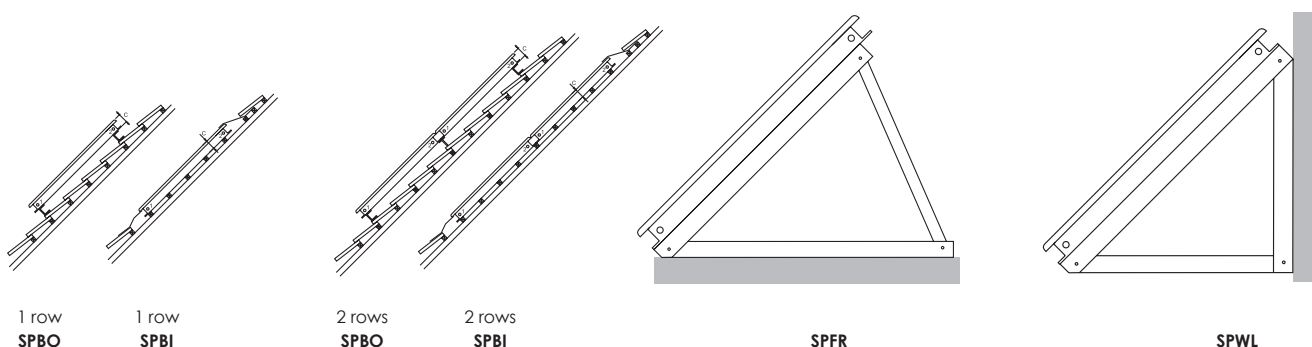
2 rows
SPBO

2 rows
SPBI

SPFR

SPWL

Collectors **without** drainback



1 row
SPBO

1 row
SPBI

2 rows
SPBO

2 rows
SPBI

SPFR

SPWL

SPECIFICATIONS

Collector type	Width	Height	Thickness	Weight	Capacity of liquid
Vertical collector	116.7 cm	206.7 cm	11 cm	44 kg	2.2 L
Horizontal collector	206.7 cm	116.7 cm	11 cm	44 kg	2.2 L

Thermal solar energy Collectors

Sustainability, efficiency and environmental-friendliness are the main focus of State Water Heaters's renewable product range, and especially our solar collectors. The hub of an State Water Heaters solar collector is a full-plate copper absorber with an eco-friendly vacuum coating. The guaranteed quality of the coating ensures an exceptionally long life of the collector, together with a glass seal, set in the frame to prevent the ingress of moisture and dirt into these high-performance collectors. Aluminium casing makes the solar collectors suitable for use in any environment.

Drain back system

To increase the life of the collectors and to prevent extremely high temperatures, an optional drain back module is available. By mounting the drain back module directly below the collectors, the required pump capacity is reduced and thus the power consumption of the fully modulating solar pump is reduced to an absolute minimum.

Mounting options

Our collectors are available in 4 variants: roof built-in, roof built-on, flat roof construction and wall mounting frames. The flat roof frame sets and the wall mounting frame sets are based on the angle of positioning. Depending on the roof and the relevant mounting technique, the flat roof frames are available with or without concrete blocks. All sets can be supplied with a drain back system.

State Water Heaters delivers the perfect solution for every location. State Water Heaters solar collectors are supplied in sets that include all necessary tools and parts. Our solar collectors meet the highest standards and are Solar Keymark certified, in full compliance with all major incentive and Tax credit schemes such as the Renewable Heat Incentive.

Custom solutions

State Water Heaters has an extensive range of collector sets. Yet we are also aware of each unique situation that arises when placing a solar system and collectors. Our goal is to optimise the benefits to the user from the solar system. This means we try to create an installation which meets all hot water requirements and at the same time is the best suited choice for the building.

In practice we try to arrange the best possible configuration for our products. Our Sales Engineers can help you create an optimal installation. Also, we can provide you with building special applications.

We can provide drawings for the positioning of the collectors on the roof, or provide you with a principle scheme of the application of the installation. We can even help you create the best possible frame construction for the collectors on the roof. State Water Heaters is your partner in creating the optimum solar installation for every application.

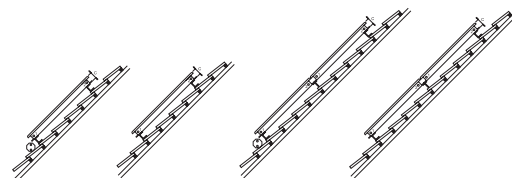
Collector sets

ROOF BUILT ON SETS

Roof built on sets are called SPBO. These sets are used for pitched roofs and are mounted on the tiles. The collector is placed in position by using file clips.

There are several installation options. The number of collectors; when sets are placed in a single row there is a maximum of 15 collectors, for a double row this is 14. All sets can be equipped with a drain back system, DB. Finally, there is the option of placing the collectors horizontally or vertically.

Selecting a collector set depends on the situation of the roof or walls and the necessary hot water capacity.



ROOF BUILT ON COLLECTORS

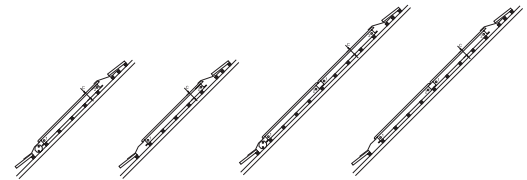
Type	Number of collectors	Number of rows	With drainback	Horizontal	Vertical
SPBO	1	1	DB	H	V
SPBO	2	1	DB	H	V
SPBO	3	1	DB	H	V
SPBO	4	1	DB	H	V
SPBO	5	1	DB	H	V
SPBO	6	1	DB	H	V
SPBO	7	1	DB	H	V
SPBO	8	1	DB	H	V
SPBO	9	1	DB	H	V
SPBO	10	1	DB	H	V
SPBO	11	1	DB	H	V
SPBO	12	1	DB	H	V
SPBO	13	1	DB	H	V
SPBO	14	1	DB	H	V
SPBO	15	1	DB	H	V
SPBO	4	2			
SPBO	6	2	DB	H	V
SPBO	8	2	DB	H	V
SPBO	10	2	DB	H	V
SPBO	12	2	DB	H	V
SPBO	14	2	DB	H	V

ROOF BUILT IN SETS

Roof built in sets are called SPBI. These sets are used for pitched roofs and are mounted in between the tiles.

There are several installation options. The number of collectors; when sets are placed in a single row there is a maximum of 15 collectors, for a double row this is 14. All sets can be equipped with a drain back system, DB. Finally, there is the option of placing the collectors horizontally or vertically.

Selecting a collector set depends on the situation of the roof or walls and the necessary hot water capacity.



ROOF BUILT IN COLLECTORS

Type	Number of collectors	Number of rows	With drainback	Horizontal	Vertical
SPBI	1	1	DB	H	V
SPBI	2	1	DB	H	V
SPBI	3	1	DB	H	V
SPBI	4	1	DB	H	V
SPBI	5	1	DB	H	V
SPBI	6	1	DB	H	V
SPBI	7	1	DB	H	V
SPBI	8	1	DB	H	V
SPBI	9	1	DB	H	V
SPBI	10	1	DB	H	V
SPBI	11	1	DB	H	V
SPBI	12	1	DB	H	V
SPBI	13	1	DB	H	V
SPBI	14	1	DB	H	V
SPBI	15	1	DB	H	V
SPBI	4	2			
SPBI	6	2	DB	H	V
SPBI	8	2	DB	H	V
SPBI	10	2	DB	H	V
SPBI	12	2	DB	H	V
SPBI	14	2	DB	H	V

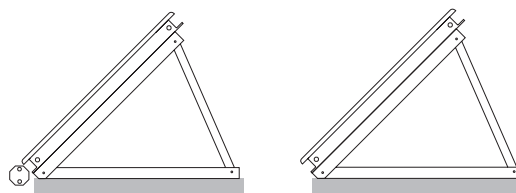
Collector sets

FLAT ROOF FRAME SETS

Flat roof frame sets are called SPFR. These sets are used for flat roofs and mounted using a frame.

There are several options for selecting a set. The number of sets may vary; the maximum per set is 15. There are two options for the angle of the frame: 20°/30° or 45°/60°. Both options indicate the range for placing the frame set. All sets can be equipped with a drain back system, DB. There is the option of placing the collectors horizontally or vertically. Finally, depending on the roof, the set is available with or without concrete blocks.

Selecting a collector set depends on the situation of the roof or walls and the necessary hot water capacity.



FLAT ROOF FRAME COLLECTORS

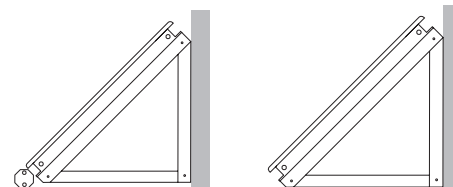
Type	Number of collectors	Angle	With drainback	Horizontal	Vertical	With concrete blocks
SPFR	1	20/30	DB	H	V	B
SPFR	2	20/30	DB	H	V	B
SPFR	3	20/30	DB	H	V	B
SPFR	4	20/30	DB	H	V	B
SPFR	5	20/30	DB	H	V	B
SPFR	6	20/30	DB	H	V	B
SPFR	7	20/30	DB	H	V	B
SPFR	8	20/30	DB	H	V	B
SPFR	9	20/30	DB	H	V	B
SPFR	10	20/30	DB	H	V	B
SPFR	11	20/30	DB	H	V	B
SPFR	12	20/30	DB	H	V	B
SPFR	13	20/30	DB	H	V	B
SPFR	14	20/30	DB	H	V	B
SPFR	15	20/30	DB	H	V	B
SPFR	1	45/60	DB	H	V	B
SPFR	2	45/60	DB	H	V	B
SPFR	3	45/60	DB	H	V	B
SPFR	4	45/60	DB	H	V	B
SPFR	5	45/60	DB	H	V	B
SPFR	6	45/60	DB	H	V	B
SPFR	7	45/60	DB	H	V	B
SPFR	8	45/60	DB	H	V	B
SPFR	9	45/60	DB	H	V	B
SPFR	10	45/60	DB	H	V	B
SPFR	11	45/60	DB	H	V	B
SPFR	12	45/60	DB	H	V	B
SPFR	13	45/60	DB	H	V	B
SPFR	14	45/60	DB	H	V	B
SPFR	15	45/60	DB	H	V	B

WALL HUNG CONSTRUCTION SETS

Wall hung construction sets are called SPWL. These sets are used for installing collectors on the outside wall of a building. The sets are mounted using a frame.

There are several options for selecting a set. The number of sets may vary; the maximum per set is 15. There are three options for the angle of the frame: 45°, 60° or 70°. All sets can be equipped with a drain back system, DB. These collectors can only be placed horizontally.

Selecting a collector set depends on the situation on the roof or walls and the necessary hot water capacity.



WALL HUNG CONSTRUCTION COLLECTORS

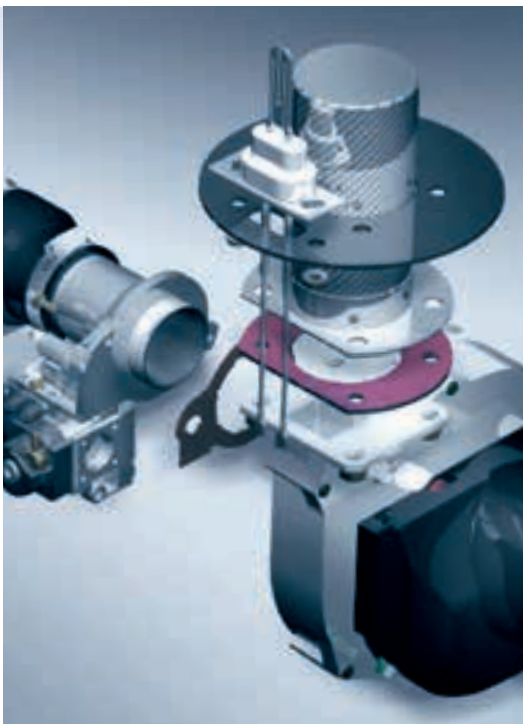
Type	Number of collectors	Angle	With drainback	Horizontal
SPWL	1	45	DB	H
SPWL	2	45	DB	H
SPWL	3	45	DB	H
SPWL	4	45	DB	H
SPWL	5	45	DB	H
SPWL	6	45	DB	H
SPWL	7	45	DB	H
SPWL	8	45	DB	H
SPWL	9	45	DB	H
SPWL	10	45	DB	H
SPWL	11	45	DB	H
SPWL	12	45	DB	H
SPWL	13	45	DB	H
SPWL	14	45	DB	H
SPWL	15	45	DB	H
SPWL	1	60	DB	H
SPWL	2	60	DB	H
SPWL	3	60	DB	H
SPWL	4	60	DB	H
SPWL	5	60	DB	H
SPWL	6	60	DB	H
SPWL	7	60	DB	H
SPWL	8	60	DB	H
SPWL	9	60	DB	H
SPWL	10	60	DB	H
SPWL	11	60	DB	H
SPWL	12	60	DB	H
SPWL	13	60	DB	H
SPWL	14	60	DB	H
SPWL	15	60	DB	H
SPWL	1	70	DB	H
SPWL	2	70	DB	H
SPWL	3	70	DB	H
SPWL	4	70	DB	H
SPWL	5	70	DB	H
SPWL	6	70	DB	H
SPWL	7	70	DB	H
SPWL	8	70	DB	H
SPWL	9	70	DB	H
SPWL	10	70	DB	H
SPWL	11	70	DB	H
SPWL	12	70	DB	H
SPWL	13	70	DB	H
SPWL	14	70	DB	H
SPWL	15	70	DB	H

Gas-fired applications



SUF HEAT EXCHANGER

The unique design of the SUF heat exchanger ensures optimum condensing performance at almost all flow rates.



SXP FAN-BURNER

The gas/air mixture ratio is controlled to perfection by the compact SXP fan burner design. This raises the appliance's efficiency considerably.

ENERGY SAVINGS

When designing sanitary hot water installations, it is essential to achieve maximum energy savings. Indirect fired systems require high primary temperatures (as high as 90°C). The heat is then transferred to the sanitary water via a heat exchanger. These systems are characterised by a considerably higher gas consumption than the direct fired State Water Heaters systems.

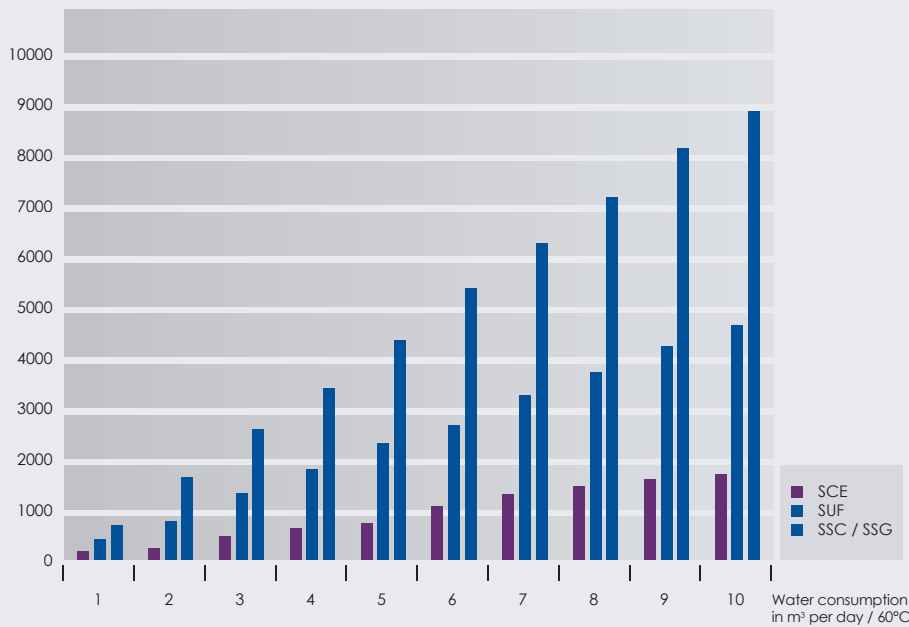
In State Water Heaters direct fired systems the heat is transferred directly through the bottom of the water tank of the water heater or via an integrated heat exchanger.

The graph below shows that gas savings can be as much as 50%. Thanks to the unique design of our heat exchangers and intelligent control modules, maximum efficiency is accomplished with minimum energy consumption.

State Water Heaters systems already fulfill the strictest requirements in the area of upcoming ErP Ecodesign regulations, and will be found in the categories with the highest possible energy labelling.

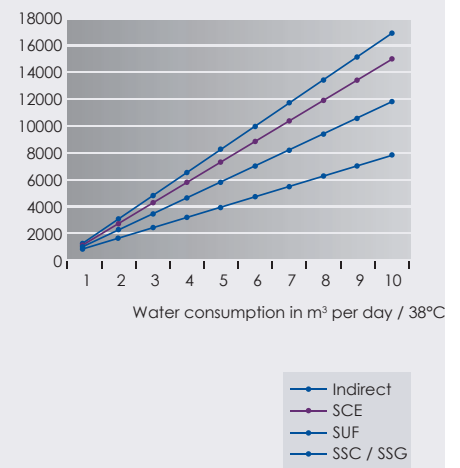
GAS SAVINGS DIRECT VERSUS INDIRECT FIRED SYSTEMS

Gas savings in m³ per year c.f. indirect fired system at a water temperature of 60°C



GAS CONSUMPTION IN M³ PER YEAR AT A WATER TEMPERATURE OF 38°C

Gas consumption in m³ per year





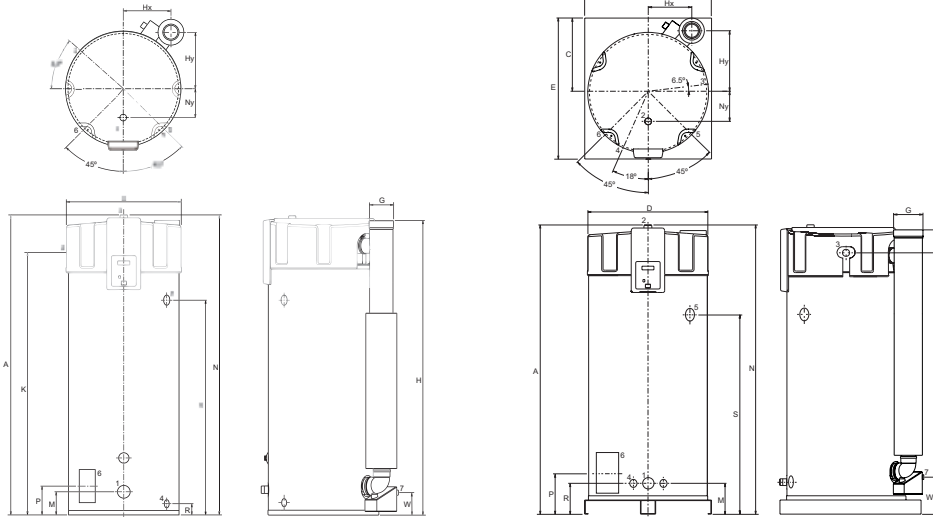
SUF



Commercial condensing high efficiency range

The SUF range direct-fired gas water heaters provide a new level of economy and efficiency in hot water production. All models are fully condensing and incorporate a burner modulation giving up to 97% thermal efficiency and are designed to operate as a room sealed system in both vented and unvented commercial / industrial applications. With vertical or horizontal concentric or parallel flue kits, up to 100 meter in length, the range is particularly useful where extensive conventional flues are either not possible or practical.

- Fully room-sealed condensing high-efficiency water heater 97% (gross)
- Automatic gas/air premix burning system including burner modulation
- Delivered with low-maintenance inert anodes
- NOx emission ≤ 30 ppm (dry – air free) – NOx class 5
- Quiet operation <45 dB(A)
- Temperature setting from 40°C to 80°C with use of week timer
- Flexible flue options, up to a 100 meters
- Easy fault diagnosis and computer controlled digital week timer
- Programmable for legionella purge cycle



TECHNICAL DETAILS

Model		SUF 60-120	SUF 100-150	SUF 100-199	SUF 100-250	SUF 120-300	SUF 120-400	SUF 120-500
Nominal load (gross)	kW	32.2	33.3	52.2	63.3	86.6	105.5	128.8
Nominal output*	kW	31.0	32.7	50.3	60.4	84.2	100.7	121.8
Gas consumption**	m ³ /h	3.1	3.2	5.0	6.0	8.3	10.1	12.3
Heating time ΔT = 45°C	min	22	35	23	19	18	15	12
Recovery time ΔT = 44 °C	min	21	35	22	19	17	15	12
Draw off capacity 1st hour ΔT = 28 °C	ltr	1300	1500	2100	2400	3100	3600	4300
Draw off capacity 1st hour ΔT = 44 °C	ltr	730	870	1300	1500	1900	2300	2600
Draw off capacity 1st hour ΔT = 50 °C	ltr	630	730	1100	1300	1700	2000	2300
Draw off capacity continu ΔT = 28 °C	ltr/h	960	1100	1600	1900	2600	3100	3800
Draw off capacity continu ΔT = 44 °C	ltr/h	610	640	990	1200	1700	2000	2400
Draw off capacity continu ΔT = 50 °C	ltr/h	540	570	870	1100	1500	1800	2100
Capacity	ltr	217	368	368	368	480	480	480
Empty weight	kg	177	214	214	214	480	480	480
Supply pressure	mbar	20	20	20	20	20	20	20
Maximum working pressure	kPa (bar)	800 (8)	800 (8)	800 (8)	800 (8)	800 (8)	800 (8)	800 (8)
Number of anodes	-	1	2	2	2	2	2	2
Power consumption	Watts	45	45	75	115	95	145	240
Electric supplies		230 V -15 % + 10 % VAC / 50 Hz +/- 1 Hz						

DIMENSIONS

A		1390	1910	1910	1910	2060	2060	2060
C		-	-	-	-	530	530	530
D		705	705	705	705	850	850	850
E		-	-	-	-	1000	1000	1000
F		-	-	-	-	900	900	900
G		100/150	100/150	100/150	100/150	130/200	130/200	130/200
H		1365	1905	1905	1905	1995	1995	1995
Hx		265	265	265	265	310	310	310
Hy		375	375	375	375	440	440	440
K		1285	1815	1815	1815	1855	1855	1855
M		170	160	160	160	225	225	225
N		1390	1910	1910	1910	2060	2060	2060
Ny		205	205	205	205	205	205	205
P		170	175	175	175	290	290	290
R		85	75	75	75	225	225	225
S		900	1410	1410	1410	1425	1425	1425
W		125	145	145	145	240	240	240
1	Cold water supply connection (external)	R 1½	R 1½	R 1½	R 1½	R 1½	R 1½	R 1½
2	Hot water outlet connection (external)	R 1½	R 1½	R 1½	R 1½	R 1½	R 1½	R 1½
3	Gas control connection (external)	R ¾"	R ¾"	R ¾"	R ¾"	R ¾"	R ¾"	R ¾"
4	Drain valve connection (external)	1"	1"	1"	1"	¾"	¾"	¾"
5	T&P valve connection (internal)	1 - 11.5 NPT	1 - 11.5 NPT	1 - 11.5 NPT	1 - 11.5 NPT	1 - 11.5 NPT	1 - 11.5 NPT	1 - 11.5 NPT
6	Cleaning and inspection opening	95 x 70	95 x 70	95 x 70	95 x 70	95 x 70	95 x 70	95 x 70
7	Condensation drainage connection (int.)	Rp 1	Rp 1	Rp 1	Rp 1	Rp 1	Rp 1	Rp 1

ENERGY LABELING (ERP)

Load Profile		XXL	XXL	XXL	XXL	3XL	3XL	3XL
Energy labeling		A	A	A	A	-	-	-
Efficiency	%	91	91	91	90	93	93	92

Dimensions in mm.

* Based on natural gas: G20, gross value

** Gas consumption at 15°C and a 1013.25 mbar



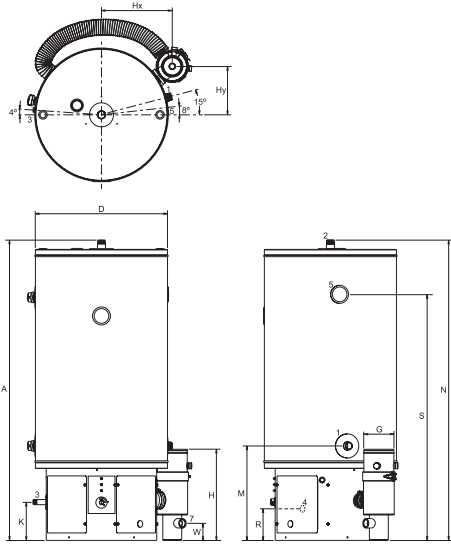
SXP



Commercial condensing high efficiency range

The SXP range direct-fired gas water heaters provide a new level of economy and efficiency in hot water production. All models are fully condensing and incorporate a burner modulation giving up to 97% thermal efficiency and are designed to operate as a room sealed system in both vented and unvented commercial / industrial applications. With vertical or horizontal concentric or parallel flue kits of up to 100 meter in length, the range is particularly useful where extensive conventional flues are either not possible or practical.

- Fully room-sealed condensing high-efficiency water heater (95% gross)
- Stainless steel tank
- No anodes simplify maintenance
- Premix Low-NOx burner is environmentally friendly
- Quiet operation: specially designed blower and burner
- Plug-and-Play technology; connect air inlet, exhaust outlet, water, electricity, and gas, set the temperature and the system functions properly
- Easy to install because of the relatively low weight of the appliance (70/82 kg)
- Suitable for natural gas or propane
- Very suitable for agricultural applications
- Maximum temperature setting of 85°C



TECHNICAL DETAILS			
Model		SXP 34-130	SXP 50-155
Storage capacity	ltr	129	189
Heat input (u.v.)*	kW	37.8	50.0
Heat output	kW	36.0	47.7
Gas consumption**	m ³ /h	3.6	4.8
Recovery time, ΔT = 44 °C	min.	11	12
Draw off capacity 1st hour, ΔT = 28 °C	ltr	1300	1800
Draw off capacity 1st hour, ΔT = 44 °C	ltr	790	1200
Draw off capacity 1st hour, ΔT = 50 °C	ltr	680	970
Draw off capacity continu, ΔT = 28 °C	ltr/h	1200	1500
Draw off capacity continu, ΔT = 44 °C	ltr/h	710	940
Draw off capacity continu, ΔT = 50 °C	ltr/h	620	830
Inlet pressure	mbar	20.0	20.0
Maximum working pressure	kPa(bar)	800(8)	
Weight empty	kg	70	82
Power consumption	Watts	200	300
Electric supplies		230 V - 15% + 10% VAC / 50 Hz +/- 1 Hz	
DIMENSIONS & CONNECTIONS			
A		1270	1655
D		560	560
G		80 / 125	80 / 125
H		385	385
Hx		300	300
Hy		205	205
K		160	160
M		400	400
N		1270	1620
R		155	155
S		1040	1395
1 Cold water inlet		100	100
2 Hot water outlet		1 - 11.5 NPT	1 - 11.5 NPT
3 Gas control		1 - 11.5 NPT	1 - 11.5 NPT
4 Drain valve		½ - 14 NPT	¾ - 14 NPT
5 T&P valve		¾ - 14 NPT	¾ - 14 NPT
6 Condensation drainage		1 - 11.5 NPT	1 - 11.5 NPT
ENERGY LABELING (ERP)			
Load Profil		XXL	XXL
Energy labeling		A	A
Efficiency	%	88	87

Dimensions in mm.

* Gas data based on natural gas G20, data based on gross value

** Gas consumption at 15 °C and 1013.25 mbar



Multiflue SCE/SCT

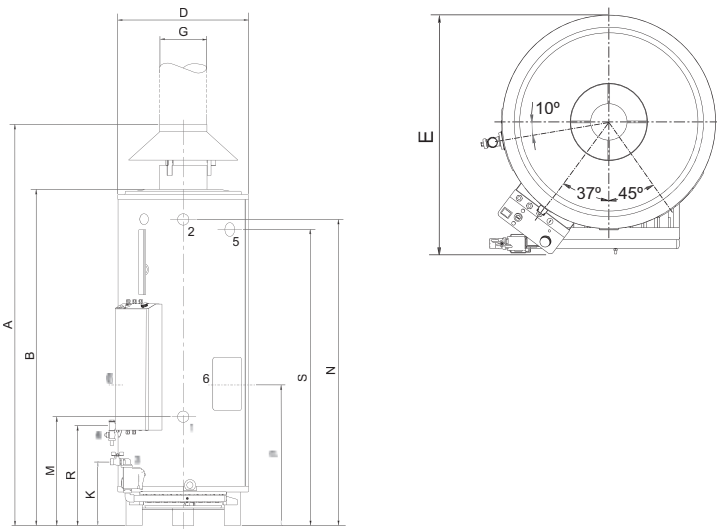
Commercial Sandblaster® range

Sandblaster® commercial direct fired water heaters offer a broad range of high output products for large volume applications. All models feature the new and improved Hydro Cannon self-cleaning technology that reduces sediment build-up inside the tank. The range includes 15 different models with inputs from 33.9 to 142.4 kW

- "Hydro Cannon™" self-cleaning device
- Stainless steel burners
- Automatic (SCE) or piezo ignition (SCT)
- Thermal reflux safety flue system (TRS)
- Multiple thermostat system - control, high limit & ECO
- Easy access to control panel
- Electrolytic protection - magnesium anodes
- Dual clean out inspection ports
- Voltage free contact (SCE models)
- Frost protection (SCE models)
- LPG conversion kit (SCE 65-500 purchased separately)
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

- Time clock control
- Powered anodes
- Unvented system kit
- External ON / OFF
- Universal draft diverter
- Temperature & pressure relief valve



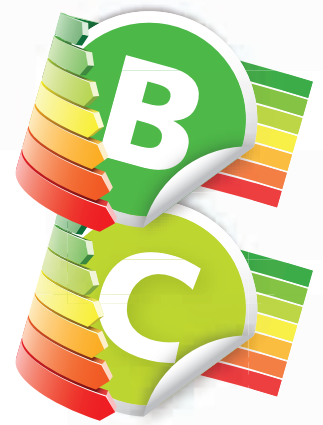
TECHNICAL DATA									
Model		SCE/SCT 80-115	SCE/SCT 80-140	SCE/SCT 80-180	SCE/SCT 95-199	SCE/SCT 95-260	SCE/SCT 70-360	SCE/SCT 65-400	SCE 65-500
Storage capacity	ltr	309	309	298	357	335	278	253	252
Heat input (u.v.)*	kW	33.9	42.1	53.5	59.9	83.2	102.6	128.8	142.4
Heat output	kW	25.7	31.9	40.4	45.3	63.0	77.6	97.4	109.0
Gas consumption**	m ³ /h	3.2	4.0	5.1	5.7	7.9	9.8	12.3	13.6
Recovery time, ΔT = 44 °C	min.	37	30	23	24	16	11	8	7
Draw off capacity 1st hour, ΔT = 28 °C	ltr	1304	1486	1715	1965	2440	2764	3289	3597
Draw off capacity 1st hour, ΔT = 44 °C	ltr	830	945	1092	1251	1553	1759	2093	2289
Draw off capacity 1st hour, ΔT = 50 °C	ltr	731	832	961	1101	1366	1548	1842	2014
Draw off capacity continu, ΔT = 28 °C	ltr/h	789	980	1243	1394	1936	2386	2997	3353
Draw off capacity continu, ΔT = 44 °C	ltr/h	502	623	791	887	1232	1518	1907	2133
Draw off capacity continu, ΔT = 50 °C	ltr/h	442	549	696	781	1084	1336	1678	1877
Inlet pressure	mbar	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Maximum working pressure	kPa(bar)	800(8)							
Anodes	no.	2	2	2	2	3	3	4	4
Weight empty	kg	198	198	212	224	241	247	273	332
Number of anodes	l	2	2	2	2	2			
Power consumption	W	45	45	75	115	95	145	240	
Electric supplies		230 V - 15% + 10% VAC / 50 Hz +/- 1 Hz							
DIMENSIONS & CONNECTIONS									
A		1910	1910	1890	2155	2155	1950	2145	2145
B		1700	1700	1700	1900	1900	1735	1810	1810
D		710	710	710	710	710	710	710	710
E		800	800	800	800	800	800	800	800
G		130***	130***	150***	180***	180***	200***	250***	250***
K		340	340	340	340	340	340	340	145
M		505	505	505	505	505	515	590	590
N		1545	1545	1545	1750	1750	1580	1655	1655
P		670	670	670	670	670	680	765	795
R		440	440	440	455	455	465	540	535
S		1490	1490	1490	1700	1700	1535	1600	1600
1	Cold water inlet	R 1 ½							
2	Hot water outlet	Rp 1 ½							
3	Gas control	Rp ¾	Rp ¾	Rp ¾	Rp ¾	Rp ¾	Rp ¾	Rp ¾	Rp 1
4	Drain valve	Rp 1 ½							
5	T&P valve	Rp 1-11.5 NPT							
6	Cleaning opening	Ø100							
ENERGY LABELING (ERP)									
Load Profil		XXL	XXL	XXL	XXL	XXL	3XL	3XL	3XL
Energy labeling		C	C	C	C	C	-	-	-
Efficiency	%	49	49	51	40	40	46	44	46

* Based on natural gas: G20, gross value

** Gas consumption at 15°C and a 1013.25 mbar

*** After installing Flue Reducer

All measures are rounded off to 5 mm.



Single flue SCE/SCT

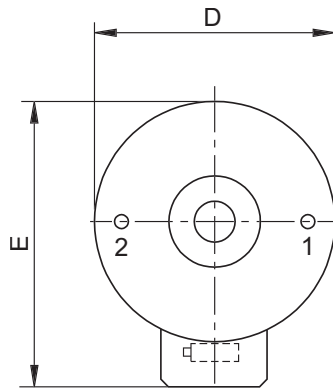
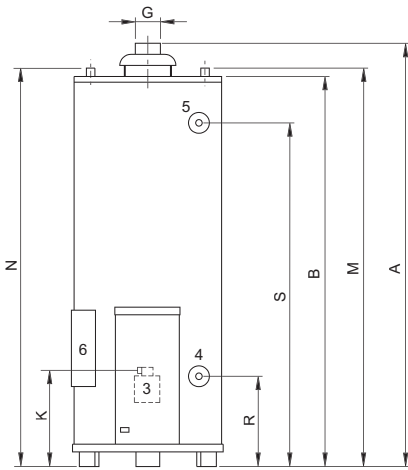
Light commercial range

SCE/SCT industrial gas fired storage water heaters are designed to provide large volumes of hot water for light commercial applications. The units are equipped with a high efficient burner and baffle design that insures fast recovery times and economical hot water production. The different models offer storage capacities from 265 to 355 litres with heat inputs up to 26.7 kW

- Multi port stainless steel burner
- Electronic spark (SCE) or piezo ignition (SCT)
- Control & high limit thermostats
- Thermal reflux safety flue system (TRS)
- Electrolytic protection – magnesium anode
- Clean out inspection port
- LPG conversion kit
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

- Unvented system kit
- Temperature & pressure relief valve
- Solenoid control kit (SCT)
- Powered anodes



TECHNICAL DATA					
Model		SCE/SCT 75-75	SCE/SCT 100-95		
Storage capacity	ltr	265	355		
Heat input (u.v.)*	kW	23.1	27.4		
Heat output	kW	16.0	19.2		
Gas consumption**	m ³ /h	2.2	2.6		
Recovery time, ΔT = 44 °C	min.	51	57		
Draw off capacity 1st hour, ΔT = 28 °C	ltr	1024	1216		
Draw off capacity 1st hour, ΔT = 44 °C	ltr	652	774		
Draw off capacity 1st hour, ΔT = 50 °C	ltr	574	681		
Draw off capacity continu, ΔT = 28 °C	ltr/h	492	589		
Draw off capacity continu, ΔT = 44 °C	ltr/h	313	375		
Draw off capacity continu, ΔT = 50 °C	ltr/h	275	330		
Inlet pressure	mbar	20.0	20.0		
Maximum working pressure	kPa(bar)	800(8)			
Anodes	no.	1	1		
Weight empty	kg	117 (SCT) / 122 (SCE)	144 (SCT) / 149 (SCE)		
DIMENSIONS & CONNECTIONS					
Model		SCE 75-75	SCT 75-75	SCE 100-95	SCT 100-95
A		1585	1585	1780	1780
B		1450	1450	1640	1640
D		645	645	675	675
E		770	735	775	765
G		130	130	130	130
K		340	375	340	375
M & N		1505	1505	1685	1685
R		285	285	285	285
S		1280	1280	1460	1460
1	Hot water outlet	1-11.5 NPT	1-11.5 NPT	1½-11.5 NPT	1½-11.5 NPT
2	Hot water outlet	1-11.5 NPT	1-11.5 NPT	1½-11.5 NPT	1½-11.5 NPT
3	Gas control	Rp ½	Rp ½	Rp ½	Rp ½
4	Drain valve	¾-14 NPT	¾-14 NPT	¾-14 NPT	¾-14 NPT
5	T&P valve	¾-14 NPT	¾-14 NPT	¾-14 NPT	¾-14 NPT
ENERGY LABELING (ERP)					
Load Profil		XXL	XXL	XXL	XXL
Energy labeling		B	C	B	C
Efficiency	%	61	55	60	51

* Based on natural gas: G20, gross value

** Gas consumption at 15°C and a 1013.25 mbar

All measures are rounded off to 5mm.



SDV



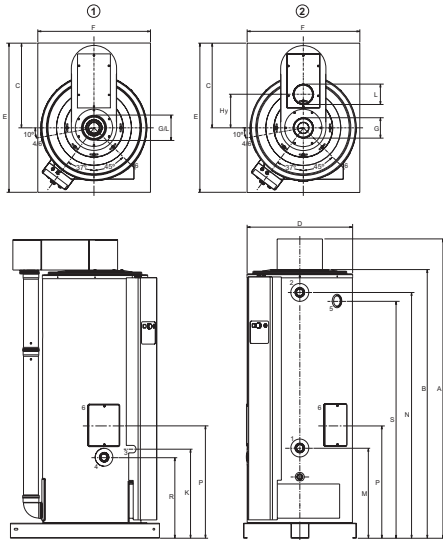
Commercial balanced fanned flue

SDV commercial water heaters are sealed combustion units that draw all primary air and secondary air from outside the building. They are a cost effective solution for applications where conventional flue systems are not possible or practical. Storage capacities range from 253 to 309 litres with heating inputs from 32.2 - 127.7 kW.

- Vertical or horizontal flue kit included
- Stainless steel burners
- Fully automatic spark ignition
- Multiple thermostat system - control, high limit & ECO
- Frost protection control
- Voltage free contact
- Electrolytic protection - magnesium anodes
- Dual clean out inspection ports
- Fixed steel base for easy installation
- LPG conversion kit
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

- Flue extension material
- Time clock control
- External ON/OFF
- Unvented system kit
- Powered anodes
- Temperature & pressure relief valve



TECHNICAL DATA (NATURAL GAS G20)						
Model		SDV 80-100	SDV 80-160	SDV 70-260	SDV 70-390	SDV 70-440
Storage capacity	ltr	309	298	253	253	253
Heat input (u.v.)*	kW	32.2	52.2	83.3	113.3	127.7
Heat output	kW	26.4	42.3	67.5	90.8	102.4
Gas consumption**	m ³ /h	3.1	5.0	7.9	10.6	12.0
Recovery time, ΔT = 44 °C	min.	36	22	12	9	8
Draw off capacity 1st hour, ΔT = 28 °C	ltr	1326	1771	2425	3104	3442
Draw off capacity 1st hour, ΔT = 44 °C	ltr	844	1127	1543	1975	2190
Draw off capacity 1st hour, ΔT = 50 °C	ltr	743	992	1358	1738	1927
Draw off capacity continu, ΔT = 28 °C	ltr/h	812	1301	2076	2799	3137
Draw off capacity continu, ΔT = 44 °C	ltr/h	517	828	1321	1781	1997
Draw off capacity continu, ΔT = 50 °C	ltr/h	455	729	1163	1567	1757
Inlet pressure	mbar	20.0	20.0	20.0	20.0	20.0
Maximum working pressure	kPa(bar)	800(8)				
Anodes	no.	2	2	4	4	4
Weight empty	kg	230	245	275	320	320
DIMENSIONS & CONNECTIONS						
A		2000	2000	2020	2020	2020
B		1800	1800	1820	1820	1820
C		580	580	580	580	580
D		710	710	710	710	710
E		1000	1000	1000	1000	1000
F		755	755	755	755	755
G		80	100	130	130	130
Hy		-	-	-	235	235
K		600	600	600	600	760
L		125	150	200	130	130
M		600	600	590	590	590
N		1640	1640	1655	1655	1655
P		770	770	760	760	760
R		550	550	540	540	540
S		1600	1600	1600	1600	1600
1	Cold water inlet	R1½	R1½	R1½	R1½	R1½
2	Hot water outlet	Rp1½	Rp1½	Rp1½	Rp1½	Rp1½
3	Gas control	Rp¾	Rp¾	Rp¾	Rp¾	Rp1
4	Drain valve	Rp1½	Rp1½	Rp1½	Rp1½	Rp1½
5	T&P valve	1-11.5 NPT	1-11.5 NPT	1-11.5 NPT	1-11.5 NPT	1-11.5 NPT
6	Cleaning opening	Ø100	Ø100	Ø100	Ø100	Ø100
ENERGY LABELING (ERP)						
Load Profil		XXL	XXL	XXL	3XL	3XL
Energy labeling		B	B	B	-	-
Efficiency	%	60	62	60	67	67

* Based on natural gas: G20, gross value
 ** Gas consumption at 15°C and a 1013.25 mbar
 All measures are rounded off to 5mm.



SOF

Commercial oil fired + gas fired

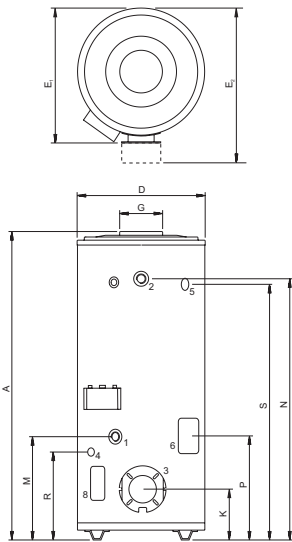


SOF oil fired water heater range combines high input and low storage to economically meet large hot water demands. All units are equipped with a precision designed Riello burner, which assures a high rate of combustion efficiency and minimal operating noise levels. The Riello burners are also suitable for 28 and 35-second light fuel oil. The range includes a selection of 6 models with heat inputs up to 201 kW.

- High efficient Riello burner
- Simply & easily accessible controls
- Ceramic fiber combustion chamber
- Independent safety controls
- Flame observation port
- Electrolytic protection - magnesium anodes
- Clean out inspection port
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

- Unvented system kit
- Temperature & pressure relief valve



TECHNICAL DATA (OIL HBO 1)							
Model		SOF 85-220	SOF 85-260	SOF 85-300	SOF 75-390	SOF 75-470	SOF 70-700
Storage capacity	ltr	322	322	318	282	282	259
Heat input	kW	62.8	75.4	87.9	113.1	138.0	201.0
Oil consumption	kg/h	5.3	6.3	7.4	9.5	11.6	16.9
Recovery time, ΔT = 44 °C	min.	20	16	13	9	8	5
Draw off capacity 1st hour, ΔT = 28 °C	ltr	2115	2482	2842	3383	3873	4807
Draw off capacity 1st hour, ΔT = 44 °C	ltr	1346	1580	1808	2153	2465	3059
Draw off capacity 1st hour, ΔT = 50 °C	ltr	1184	1390	1591	1894	2169	2692
Draw off capacity continu, ΔT = 28 °C	ltr/h	1623	1947	2272	2921	3566	5193
Draw off capacity continu, ΔT = 44 °C	ltr/h	1033	1239	1446	1859	2269	3305
Draw off capacity continu, ΔT = 50 °C	ltr/h	909	1090	1272	1636	1997	2908
Maximum working pressure	kPa(bar)	800(8)					
Anodes	no.	2	2	2	3	3	4
Weight empty	kg	230	230	240	265	265	305
TECHNICAL DATA (NATURAL GAS G20)							
Model		SOF 85-220	SOF 85-260	SOF 85-300	SOF 75-390	SOF 75-470	SOF 70-700
Storage capacity	ltr	322	322	318	282	282	259
Heat input	kW	60	75	90	115	135	175
Gas consumption	m ³ /h	6.3	7.9	9.5	12.2	14.3	18.5
Power consumption	W	180	180	385	385	385	390
Electric supplies		230 V - 15% + 10% VAC / 50 Hz +/- 1 Hz					
DIMENSIONS & CONNECTIONS							
A		1900	1900	1900	1900	1900	1990
B		685	685	685	640	640	765
C		585	585	585	605	605	745
D		705	705	705	705	705	705
E		150*	200	200	200	200	250*
F		1700	1700	1700	1630	1630	1770
G		1720	1720	1720	1650	1650	1785
H		1007	1007	1033	1033	1033	1033
1	Hot water outlet	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"
2	Cold water inlet	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"
4	Drain valve	¾"	¾"	¾"	¾"	¾"	¾"
5	T&P valve	1"	1"	1"	1"	1"	1"
ENERGY LABELING (ERP)							
Load Profil		XXL	XXL	3XL	3XL	3XL	3XL
Energy labeling		B	B	-	-	-	-
Efficiency	%	66	66	69	65	65	63

* After installing Flue Reducer
All measures are rounded off to 5mm.



PRV



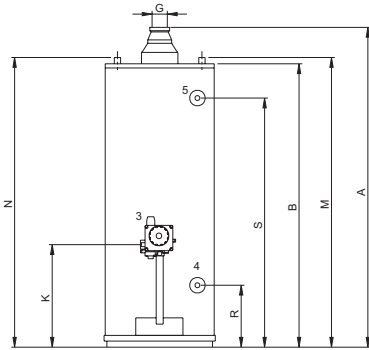
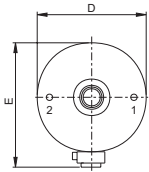
Residential conventional flue

PRV direct-fired water heaters are a cost effective solution for residential hot water demands. The units are equipped with a high efficient burner and baffle design that insures fast recovery times and economical hot water production. The range includes 3 models with storage capacities from 109 to 181 litres and heat inputs up to 18 kW.

- Multi port stainless steel burner
- Piezo igniter
- Control & ECO thermostats
- Thermal reflux safety flue system (TRS)
- Electrolytic protection - magnesium anode
- Draft diverter
- LPG conversion kit
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

- Unvented system kit
- Solenoid control kit
- Temperature & pressure relief valve



TECHNICAL DATA (NATURAL GAS G20)				
Model		PRV 30 NORS	PRV 40 NORS	PRV 50 NRRS
Storage capacity	ltr	109	144	181
Heat input (u.v.)	kW	9.3	11.3	18.3
Heat output	kW	7.4	9.0	14.0
Gas consumption	m ³ /h	0.9	1.1	1.7
Recovery time, ΔT = 44 °C	min.	46	50	40
Draw off capacity 1st hour, ΔT = 28 °C	ltr	382	482	684
Draw off capacity 1st hour, ΔT = 44 °C	ltr	243	306	435
Draw off capacity 1st hour, ΔT = 50 °C	ltr	214	270	383
Draw off capacity continu, ΔT = 28 °C	ltr/h	227	276	430
Draw off capacity continu, ΔT = 44 °C	ltr/h	145	176	273
Draw off capacity continu, ΔT = 50 °C	ltr/h	127	155	241
Inlet pressure	mbar	20	20	20
Maximum working pressure	kPa(bar)		800(8)	
Anodes	no.	1	1	1
Weight empty	kg	47	52	75
DIMENSIONS & CONNECTIONS				
A		1280	1370	1670
B		1120	1210	1540
D		465	515	515
F		545	595	605
G		80	80	100
K		325	325	380
M & N		1160	1250	1590
R		230	230	255
S		945	1030	1380
1	Cold water inlet	¾-14 NPT	¾-14 NPT	¾-14 NPT
2	Hot water outlet	¾-14 NPT	¾-14 NPT	¾-14 NPT
3	Gas control	Rp ½	Rp ½	Rp ½
4	Drain valve	¾-14 NPT	¾-14 NPT	¾-14 NPT
5	T&P valve	¾-14 NPT	¾-14 NPT	¾-14 NPT
ENERGY LABELING (ERP)				
Load Profil		L	XL	XXL
Energy labeling		B	B	B
Efficiency	%	61	68	61

* Based on natural gas: G20, gross value

** Gas consumption at 15°C and a 1013.25 mbar

All measures are rounded off to 5mm.

Indirect applications



HEAT EXCHANGERS

Our heat exchangers ensure optimal heat transfer and maximum energy-efficiency from the installation. Depending on the intended use, storage tanks are available with either one or two internally mounted heat exchangers.



PLATE HEAT EXCHANGERS

Single and double-separated soldered copper plate heat exchangers in a power range from 50 - 275 kW are available for applications in combination with SVT storage tanks. Matching insulation jackets are obtainable for the entire range of plate heat exchangers.

On special request, custom tanks are available with a larger capacity (up to 30.000 litres).

APPLICATIONS

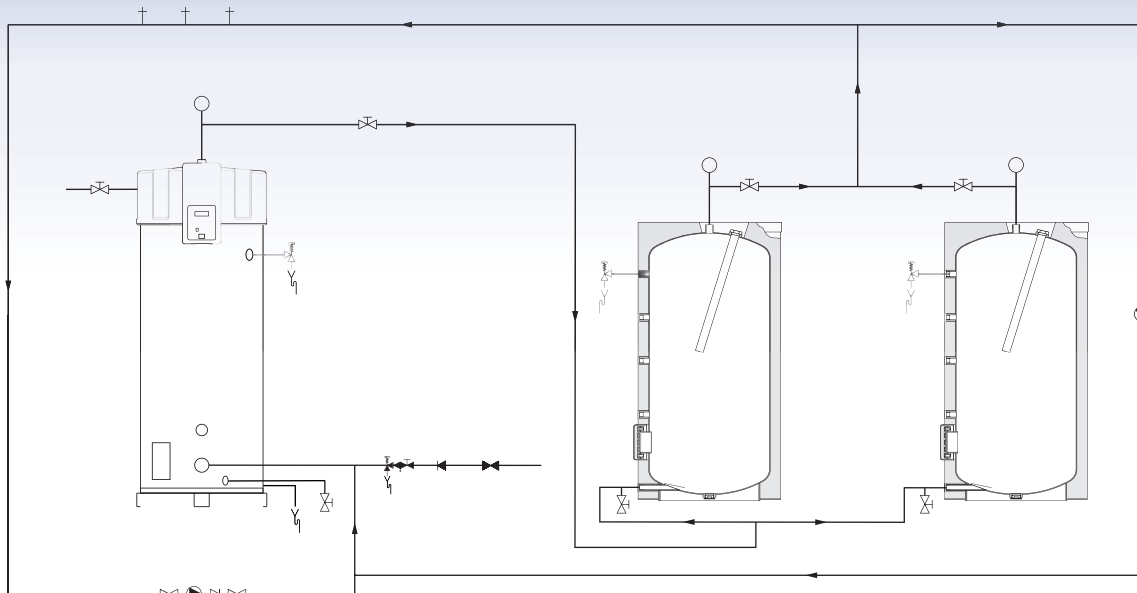
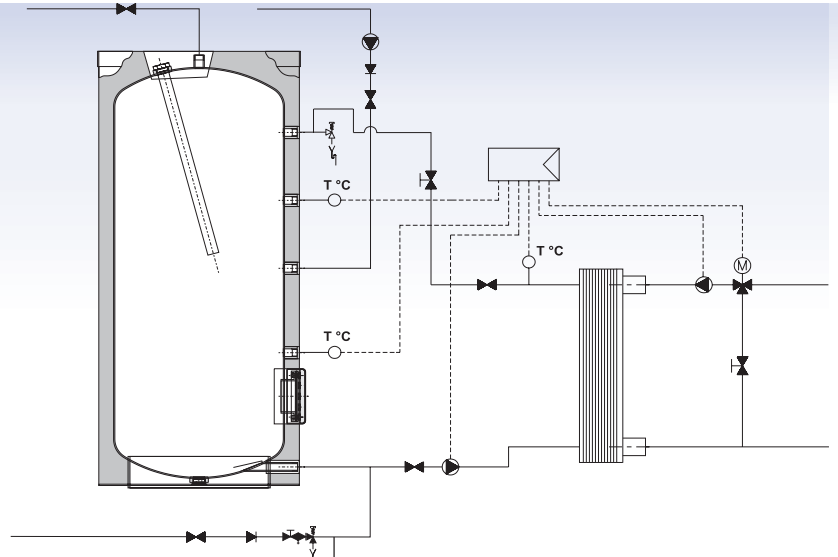
The product range of indirect appliances consists of a storage tank, a storage tank with 1 heat exchanger, a storage tank with 2 heat exchangers and a plate heat exchanger. All our products are available in various output ranges and capacities. This makes each one suited to several configurations and installations.

As shown in the chapter Thermal solar energy, the SIT and SID are well-suited for use in combination with gas/solar water heaters. In the case of an existing installation, the SIT and the SID can also be used to add solar energy to the installation.

To convert a CH system into a system that provides heat & hot water, a plate heat exchanger combined with a SVT storage tank can be helpful. Connected to the CH installation, the copper plate heat exchanger and SVT can contribute to the hot water requirements.

This allows for an optimal use of the CH capacity and with a simple adjustment, all water heating needs can be fulfilled.

Gas-fired appliances can also be combined with storage tanks. With these tanks, hot water can be buffered and stored for an expected peak. With one or more SVT's the selected water heater can be installed to match the draw-off demand.





SIT

Commercial indirect tanks

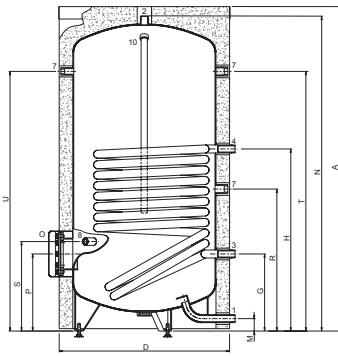


SIT range of commercial indirect storage tanks are suitable for installations with a variety of heat sources. The units are manufactured with heavy gauge steel and protected from corrosion by an advanced glass lining process. Storage capacities range from up to 2800 litres with heating outputs from 46 - 142 kW.

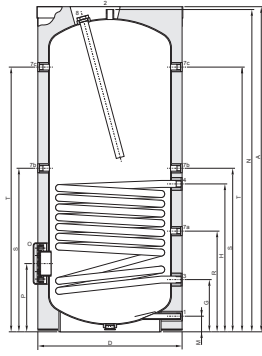
- Glass lined steel tank
- Coil surface area (1.5 - 4.8 m²)
- Electrolytic protection - magnesium anode
- Removable polyurethane soft foam insulation jacket
- Clean out inspection port
- Maximum tank working pressure 10 Bar
- Tank operation temperatures up to 95°C
- Coil operation temperature up to 110°C
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

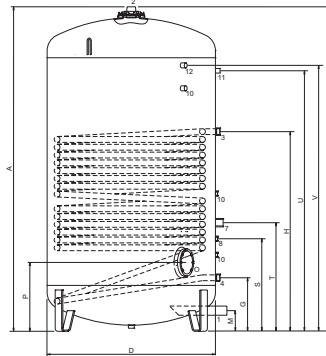
- Temperature meter
- Unvented system kit
- Temperature & pressure relief valve
- Electric heating elements up to 7.5 kW
- Flexible magnesium anode
- Powered anodes



SIT 80



SIT 100-270



SIT 410-740

TECHNICAL DATA

Model		SIT 80	SIT 100	SIT 125	SIT 170	SIT 190	SIT 270	SIT 410	SIT 500	SIT 670	SIT 740
Storage capacity	ltr	296	385	473	643	725	1007	1550	1800	2550	2800
Heat output	kW	46	78	100	104	112	145	147	147	156	156
Surface area coil	m ²	1.5	2.5	3.1	3.5	3.7	4.8	5.2	5.2	6.0	6.0
Pressure drop coil	mbar	56	244	489	104	128	259	830	830	695	695
Water contents coil	ltr	8.9	14.8	18.8	29.3	31.6	40.9	40.0	40.0	45.0	45.0
Flow rate (80° / 60°) coil	ltr/h	1978	3354	4300	4472	4816	6235	6485	6485	6871	6871
Recovery time, ΔT = 44 °C	min.	20	16	15	19	20	22	36	41	55	61
Draw off capacity 1st hour, ΔT = 28 °C	ltr	1934	3046	3864	4321	4718	6245	7010	7510	9243	9743
Draw off capacity 1st hour, ΔT = 44 °C	ltr	1231	1938	2459	2749	3002	3974	4461	4779	5882	6200
Draw off capacity 1st hour, ΔT = 50 °C	ltr	1083	1706	2164	2420	2642	3497	3926	4206	5176	5456
Draw off capacity continu, ΔT = 28 °C	ltr/h	1413	2396	3071	3194	3440	4454	4116	4116	4361	4361
Draw off capacity continu, ΔT = 44 °C	ltr/h	899	1525	1955	2033	2189	2834	2619	2619	2775	2775
Draw off capacity continu, ΔT = 50 °C	ltr/h	791	1342	1720	1789	1926	2494	2305	2305	2442	2442
Stand by loss	kWh/24h	1.3	1.6	1.9	1.9	2.0	2.2	7.2	8.5	9.6	11.0
Maximum operating temperature	°C	95	95	95	95	95	95	85	85	85	85
Maximum coil operating temperature	°C	110	110	110	110	110	110	90	90	90	90
Maximum working pressure	kPa(bar)	1000(10)	1000(10)	1000(10)	1000(10)	1000(10)	1000(10)	800(8)	800(8)	800(8)	800(8)
Anodes	no.	1	1	1	1	1	1	3	3	3	3
Weight empty	kg	117	139	180	241	254	336	398	426	576	600

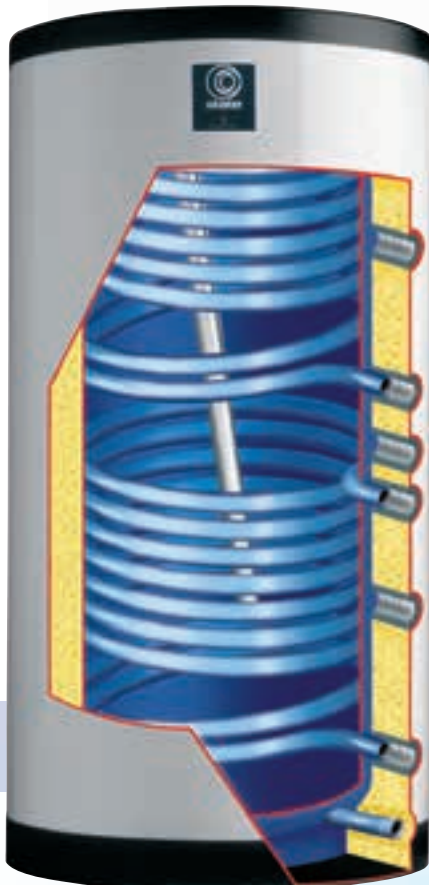
DIMENSIONS & CONNECTIONS

		SIT 80	SIT 100	SIT 125	SIT 170	SIT 190	SIT 270	SIT 410	SIT 500	SIT 670	SIT 740
A		1370	1705	2040	1835	2030	2000	1930	2118	1989	2118
D		720	720	720	910	910	1060	1200	1200	1500	1500
E		600	600	600	750	750	900	-	-	-	-
F		-	500	500	620	620	740	-	-	-	-
G		325	255	255	305	305	345	350	350	430	430
H		765	1010	1205	1145	1205	1305	1305	1305	1283	1283
L		80	30	30	30	30	30	-	-	-	-
M		75	70	70	85	85	95	135	135	183	183
N		1310	1650	1990	1795	1990	1960	1930	2118	1989	2118
O		115	115	115	180	180	180	110	110	110	110
P		325	330	330	415	415	445	425	425	510	510
R		595	500	500	650	650	700	-	-	-	-
S		375	1095	1290	1235	1295	1395	605	605	685	685
T		-	1360	1700	1475	1670	1600	710	710	790	790
U		1115	-	-	-	-	-	1515	1703	1530	1624
V		-	-	-	-	-	-	1550	1738	1530	1659
1	Cold water inlet	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	R 2	R 2	R 2	R 2
2	Hot water outlet	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	R 2	R 2	R 2	R 2
3	Central heating transport	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
4	Central heating supply	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
7	Connection	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
8	Connection Magnesium Anode	-	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
8 A+B	Connection	1/2"	-	-	-	-	-	-	-	-	-
10	Connection Magnesium Anode	1"	-	-	-	-	-	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
11	T&P connection	-	-	-	-	-	-	Rp 1	Rp 1	Rp 1	Rp 1
12	T&P temperature sensor connection	-	-	-	-	-	-	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4

ENERGY LABELING (ERP)

Load Profile		D	D	D	-	-	-	-	-	-	-
Standby loss (hard jacket)	W	119	124	130	142	147	167	300	354	400	458
Standby loss (soft jacket)	W	-	-	-	-	-	-	383	454	513	583

All measures are rounded off to 5mm.



SID

Commercial dual coil indirect tanks

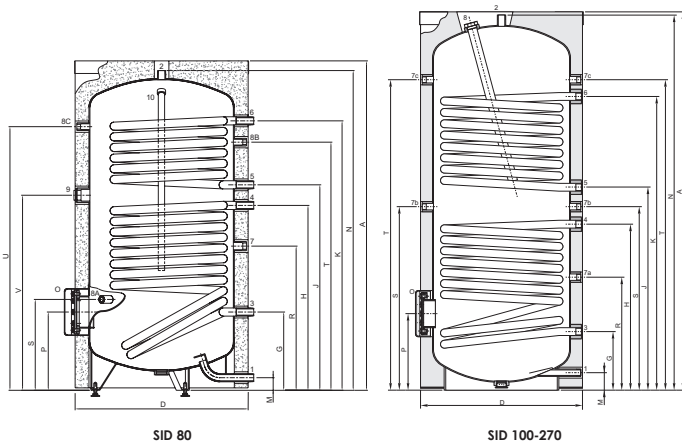


SID range of dual coil indirect storage tanks are suitable for installations with solar and other heat recovery systems. The units are manufactured with heavy gauge steel and protected from corrosion by an advanced glass lining process. The range includes a selection of 6 models with capacities from 289 to 1007 litres.

- Glass lined steel tank with two coils
- Output primary coil 27 - 58 kW
- Output secondary coil 46 - 87 kW
- Electrolytic protection - magnesium anode
- Removable polyurethane soft foam insulation jacket
- Clean out inspection port
- Maximum tank working pressure 10 Bar
- Tank operation temperatures up to 95°C
- Coil operation temperature up to 110°C
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

- Temperature meter
- Unvented system kit
- Temperature & pressure relief valve
- Electric heating elements up to 7.5 kW

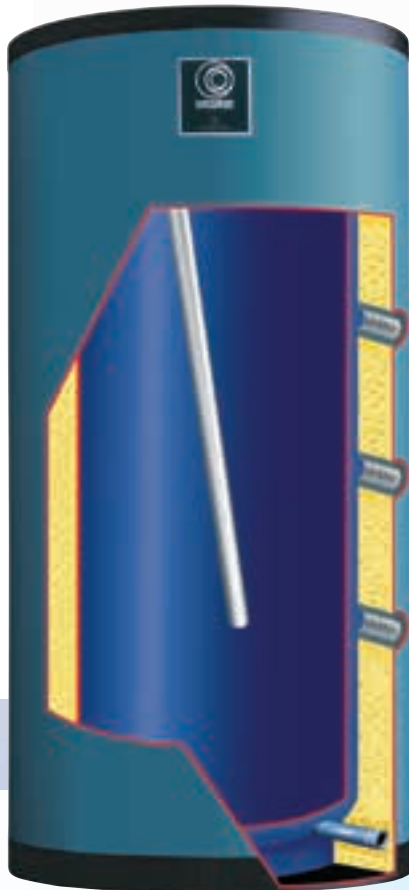


SID 80

SID 100-270

TECHNICAL DATA													
Model		SID 80		SID 100		SID 125		SID 170		SID 190		SID 270	
Storage capacity	ltr	289		382		470		641		718		1007	
		Solar	Primary	Solar	Primary	Solar	Primary	Solar	Primary	Solar	Primary	Solar	Primary
Heat output	kW	46	27	52	37	68	42	72	40	80	56	87	58
Surface area coil	m ²	1.5	0.9	1.6	1.2	2.1	1.3	2.4	1.3	2.7	1.9	2.9	1.9
Pressure drop coil	mbar	54	9	73	26	163	38	35	6	48	16	62	18
Water contents coil	ltr	9.5	5.7	9.9	6.9	12.8	7.9	20.3	11.3	22.6	15.8	24.6	16.4
Flow rate (80° / 60°) coil	ltr/h	2014	1114	1586	2229	1800	2914	1714	3086	2400	3429	2486	3729
Recovery time, ΔT = 44 °C	min.	20	34	23	32	22	35	28	50	28	40	36	54
Draw off capacity 1st hour, ΔT = 28 °C	ltr	1705	1150	1997	1599	2575	1815	2905	1970	3235	2534	3801	2954
Draw off capacity 1st hour, ΔT = 44 °C	ltr	1085	732	1271	992	1638	1155	1849	1254	2059	1612	2419	1880
Draw off capacity 1st hour, ΔT = 50 °C	ltr	955	644	1118	873	1442	1016	1627	1103	1812	1419	2129	1654
Draw off capacity continu, ΔT = 28 °C	ltr/h	1415	830	1599	1138	2092	1292	2215	1230	2461	1722	2676	1784
Draw off capacity continu, ΔT = 44 °C	ltr/h	900	528	1018	724	1331	822	1409	783	1566	1096	1703	1135
Draw off capacity continu, ΔT = 50 °C	ltr/h	792	465	896	637	1171	723	1240	689	1378	965	1499	999
Stand by loss	kWh/24h	1.3		1.6		1.9		1.9		2.0		2.2	
		Tank	Coil	Tank	Coil	Tank	Coil	Tank	Coil	Tank	Coil	Tank	Coil
Maximum operating temperature	°C	95	110	95	110	95	110	95	110	95	110	95	110
Maximum working pressure	bar	10	16	10	16	10	16	10	16	10	16	10	16
Anodes	no.	1		1		1		1		1		1	
Weight empty	kg	133		145		196		246		262		340	
DIMENSIONS & CONNECTIONS													
A		1370		1705		2040		1835		2030		2000	
D		720		720		720		910		910		1060	
E		600		600		600		750		750		900	
F		-		500		500		620		620		740	
G		325		255		255		305		305		345	
H		765		770		915		905		965		945	
J		850		940		1085		1085		1145		1125	
K		1110		1275		1470		1385		1565		1485	
L		80		30		30		30		30		30	
M		75		70		70		85		85		95	
N		1310		1650		1990		1795		1990		1960	
O		115		115		115		180		180		180	
P		325		330		330		415		415		445	
R		595		500		500		650		650		700	
S		375		856		1000		995		1055		1035	
T		-		1360		1700		1475		1670		1600	
U		1115		-		-		-		-		-	
1	Cold water inlet	1"		1"		1"		1 1/2"		1 1/2"		1 1/2"	
2	Hot water outlet	1"		1"		1"		1 1/2"		1 1/2"		1 1/2"	
3	Central heating transport	1"		1"		1"		1 1/4"		1 1/4"		1 1/4"	
4	Central heating supply	1"		1"		1"		1 1/4"		1 1/4"		1 1/4"	
7	Connection	3/4"		3/4"		3/4"		3/4"		3/4"		3/4"	
8	Connection Magnesium Anode (SID 100-270)	-		1 1/4"		1 1/4"		1 1/4"		1 1/4"		1 1/4"	
8 a+b	Connection (SID 80)	1/2"		-		-		-		-		-	
10	Connection Magnesium Anode (SID 80)	1"		-		-		-		-		-	
ENERGY LABELING (ERP)													
Load Profil		E		E		E		-		-		-	
Standby loss (hard jacket)	W	141		148		154		166		171		192	

All measures are rounded off to 5mm.



SVT

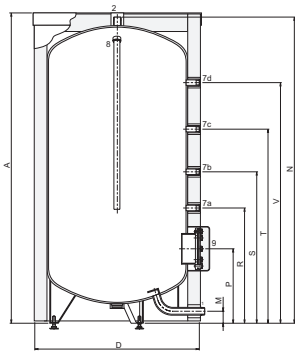
Commercial storage tanks

SVT storage tanks are ideal for use with direct-fired water heaters when extra storage is required to meet high peak demands. The units are manufactured with heavy gauge steel and coated with an exclusive corrosion resistant glass lining, which is fused to the steel by firing at a temperature of 860°C. The range includes 10 different models with storage capacities up to 1055 litres.

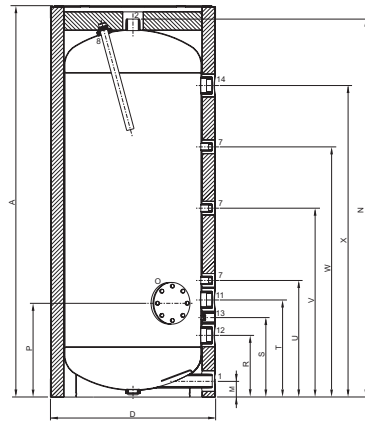
- Glass lined steel tank
- Electrolytic protection - magnesium anode
- Removable polyurethane soft foam insulation jacket
- Clean out inspection port
- Maximum working pressure 10 Bar
- Operation temperatures up to 95°C
- Suitable for vented (open) or unvented (sealed) systems

Optional accessories

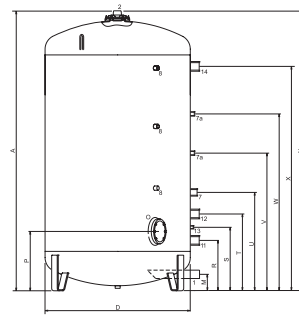
- Temperature meter
- Unvented system kit
- Temperature & pressure relief valve



SVT 80



SVT 110-280



SVT 400-735

TECHNICAL DATA

Model		SVT 80	SVT 110	SVT 130	SVT 180	SVT 200	SVT 280	SVT 400	SVT 490	SVT 650	SVT 735
Storage capacity	ltr	308	405	499	678	763	1055	1550	1880	2500	2820
Stand by loss	kWh/24h	1.3	1.6	1.9	1.9	2.0	2.2	7.2	8.5	9.6	11.0
Maximum working pressure tank	kPa(bar)	1000(10)	1000(10)	1000(10)	1000(10)	1000(10)	1000(10)	800(8)	800(8)	800(8)	800(8)
Maximum operating temperature tank	mbar	95	95	95	95	95	95	95	95	95	95
Anodes	no.	1	1	1	1	1	1	3	3	3	3
Weight empty	kg	93	99	131	179	201	262	325	350	485	520

DIMENSIONS & CONNECTIONS

		SVT 80	SVT 110	SVT 130	SVT 180	SVT 200	SVT 280	SVT 400	SVT 490	SVT 650	SVT 735
A		1370	1705	2040	1835	2030	2000	1930	2118	2000	2128
D		720	720	720	910	910	1060	1200	1200	1500	1500
E		600	600	600	750	750	900				
F		-	500	500	620	620	740				
L		80	30	30	30	30	30				
M		75	70	70	85	85	95	135	135	183	183
N		1310	1650	1990	1795	1990	1960	1930	2118	2000	2128
O		115	115	115	180	180	180	110	110	110	110
P		330	410	410	493	493	530	450	450	530	530
R		500	270	270	315	315	360	385	385	465	465
S		655	348	348	400	400	445	485	485	565	565
T		840	425	425	485	485	530	585	585	665	665
U		-	-	-	-	-	-	710	747	790	790
V		1045	826	995	1040	1080	1100	950	1044	980	1044
W		-	-	-	-	-	-	1190	1341	1220	1270
X		-	-	-	-	-	-	1515	1703	1495	1623
1	Cold water inlet	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	R 2	R 2	R 2	R 2
2	Hot water outlet	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	R 2	R 2	R 2	R 2
7	Connection	3/2"	3/4"	3/4"	3/4"	3/4"	3/4"	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4
8	Connection Magnesium Anode	3/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
11	Connection	-	-	-	-	-	-	Rp 2	Rp 2	Rp 2	Rp 2
12	Connection	-	-	-	-	-	-	Rp 2	Rp 2	Rp 2	Rp 2
13	Connection temperature sensor	-	-	-	-	-	-	Rp 1/4	Rp 1/4	Rp 1/4	Rp 1/4
14	Connection	-	-	-	-	-	-	Rp 2	Rp 2	Rp 2	Rp 2

ENERGY LABELING (ERP)

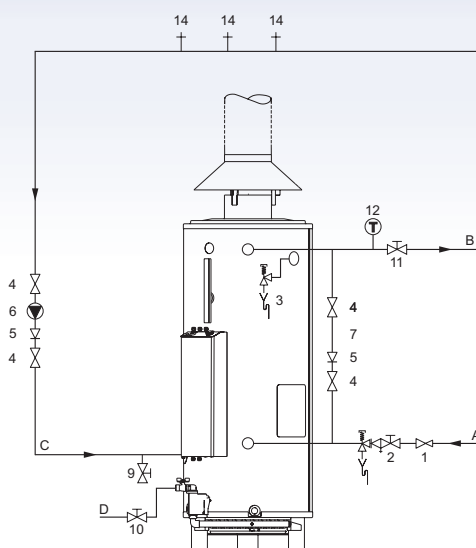
		E	D	D	-	-	-	-	-	-	-
Load Profil		E	D	D	-	-	-	-	-	-	-
Standby loss (hard jacket)	W	124	130	137	149	155	175	300	354	400	458
Standby loss (soft jacket)	W	-	-	-	-	-	-	383	454	513	583

All measures are rounded off to 5mm.

Commercial installation diagrams

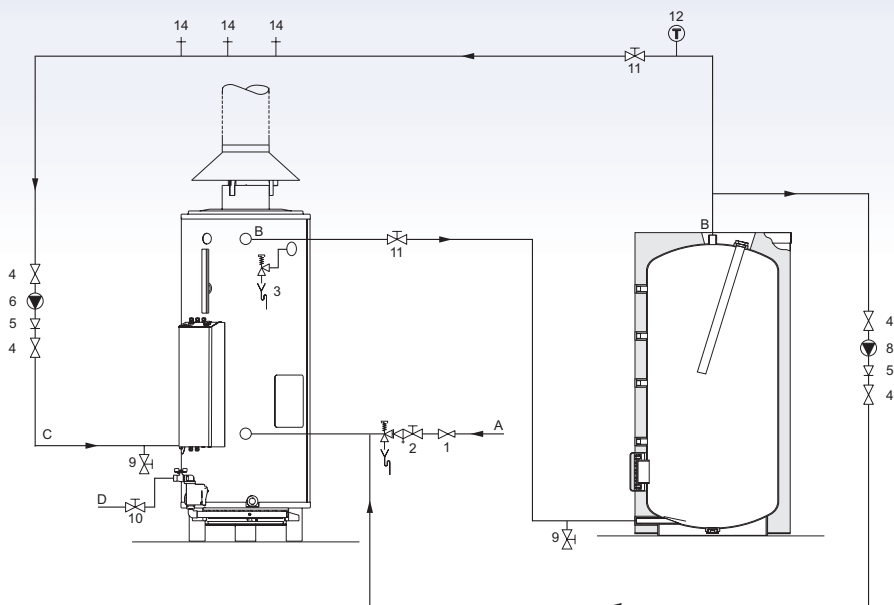
STANDARD INDICATION PIPES INSTALLATION DIAGRAMS PAGE 30 AND 31	
	Description
A	Cold water
B	Hot water
C	Return circulation
D	Gas supply
E	Overflow
F	Primary flow
G	Primary return

Atmospheric Heater

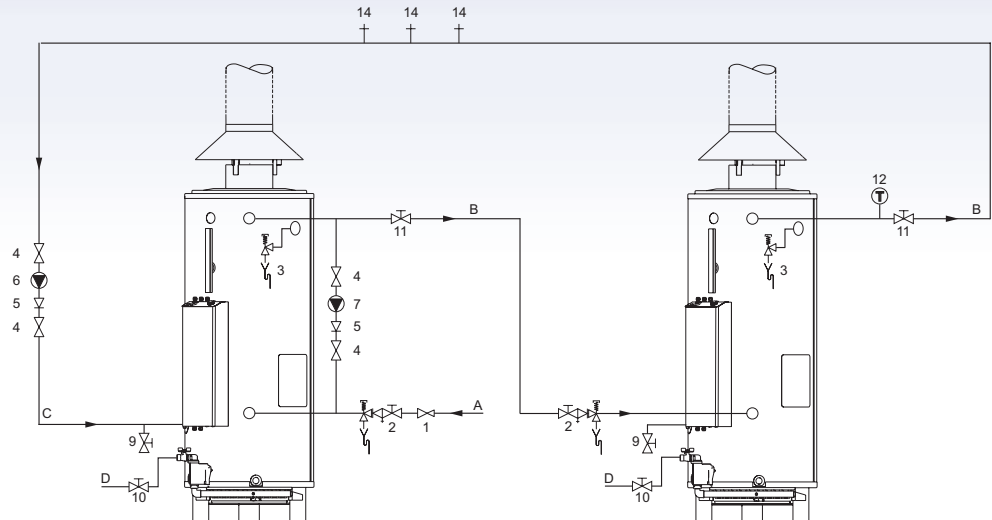


STANDARD SYMBOLS INSTALLATION DIAGRAMS PAGE 30 AND 31		
Nr.	Symbol	Description
1		Pressure reducing valve
2		Inlet security group
3		T & P valve
4		Stop valve
5		Non-return valve
6		Circulation pump
7		Shunt pump
8		Charge pump
9		Drain valve
10		Gas cock
11		Service valve
12		Temperature meter
13		Condensate drain heat exchanger
14		Hot water tap
15		Expansion valve
16		Expansion vessel
17		Three way vent valve

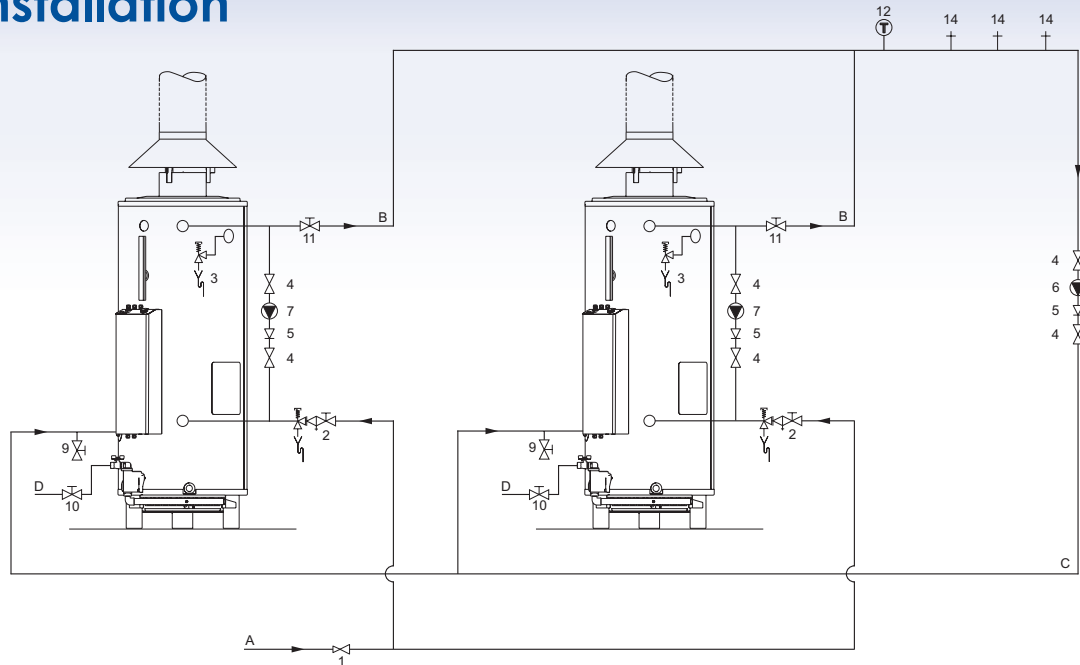
Heater with Storage Tank



Series Installation

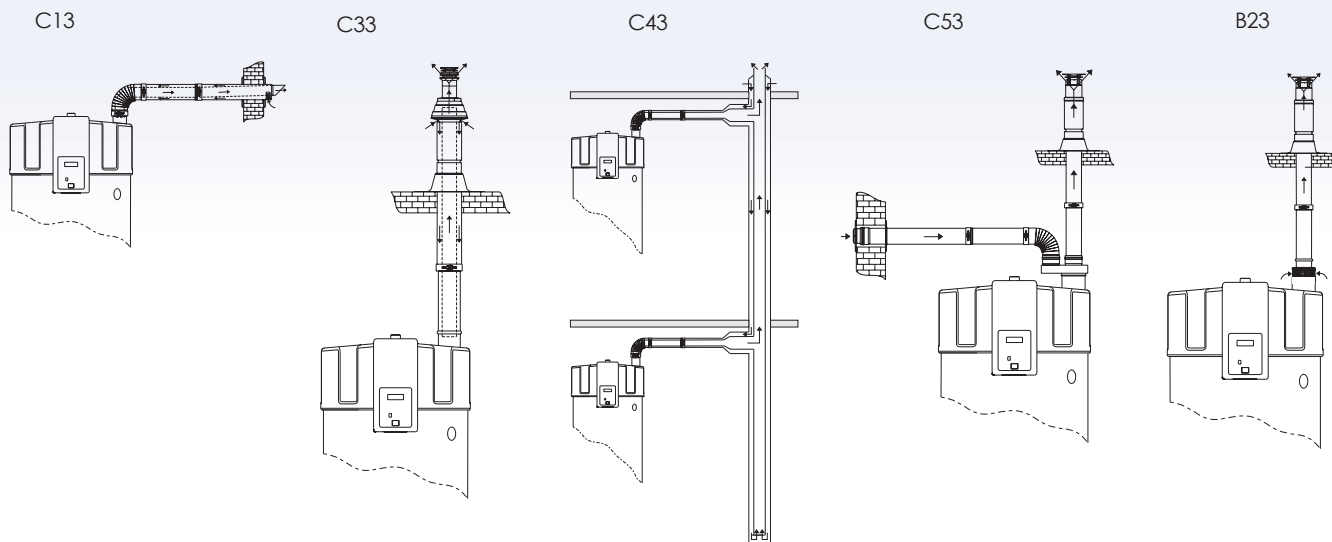


Parallel Installation



Flue options

Flue options SSC, SSG and SUF



INSTALLATION OPTIONS SSC

Model	100-175	110-250
Concentric		
Diameter (mm)	100/150	100/150
Max. length (m)	40 m	40 m
Max. 45/90° bends	7	7
Parallel (standard diameter)		
Diameter (mm)	100	100
Max. length (m)	55	55
Lequivalent/bend 90°	4,6 m	4,6 m
Lequivalent/bend 45°	1,2 m	1,2 m
Parallel (larger diameter for more length)		
Diameter (mm)	130	130
Max. length (m)	100	100
Lequivalent/bend 90°	2,4 m	2,4 m
Lequivalent/bend 45°	1,4 m	1,4 m

INSTALLATION OPTIONS SUF/SSG							
Model	60-120	100-150	100-199	100-250	120-300	120-400	120-500
Concentric							
Diameter (mm)	100/150	100/150	100/150	100/150	130/200	130/200	130/200
Max. length (m)	40 m	40 m	40 m	40 m	15 m	15 m	15 m
Max. 45/90° bends	7	7	7	7	4	4	4
Parallel (standard diameter)							
Diameter (mm)	100	100	100	100	130	130	130
Max. length (m)	55	55	55	55	65	65	65
Lequivalent/bend 90°	4,6 m	4,6 m	4,6 m	4,6 m	2,4 m	2,4 m	2,4 m
Lequivalent/bend 45°	1,2 m	1,2 m	1,2 m	1,2 m	1,4 m	1,4 m	1,4 m
Parallel (larger diameter for more length)							
Diameter (mm)	130	130	130	130	150	150	150
Max. length (m)	100	100	100	100	100	100	100
Lequivalent/bend 90°	2,4 m	2,4 m	2,4 m	2,4 m	2,6 m	2,6 m	2,6 m
Lequivalent/bend 45°	1,4 m	1,4 m	1,4 m	1,4 m	1,6 m	1,6 m	1,6 m

Concentric flues

It is **not** permitted to use more than the specified number of bends, even when the duct is shorter than the maximum length. A 45° bend is equivalent to a 90° bend.

Parallel flues

- The maximum permissible length should be reduced by the equivalent length of each bend. (Note: for a parallel installation this means that 3 changes in direction amount to 6 bends (3 in the supply duct and 3 in the flue).
- The maximum length also applies if a parallel installation has different supply and flue duct lengths (B23, C53).
- Combined flues(C43) shall be fitted with a condensate drain.

Note: horizontal flue runs must be installed with a fall of at least 5 mm per metre.

* All SUF are also approved for installations where the unit is supplied without venting materials (C63).

Flue options SDV

A SDV water heater should be installed according category C13 or C33.

INSTALLATION OPTIONS SDV					
Model	80-100	80-160	70-260	70-390	70-440
Concentric	x	x	x	-	-
Parallel	-	-	-	x	x
Diameter (mm)	80/125	100/150	130/200	2 x 130	2 x 130
Max. length (m)	7	7	7	7	7
Max. 45/90° bends	2	2	2	2	2

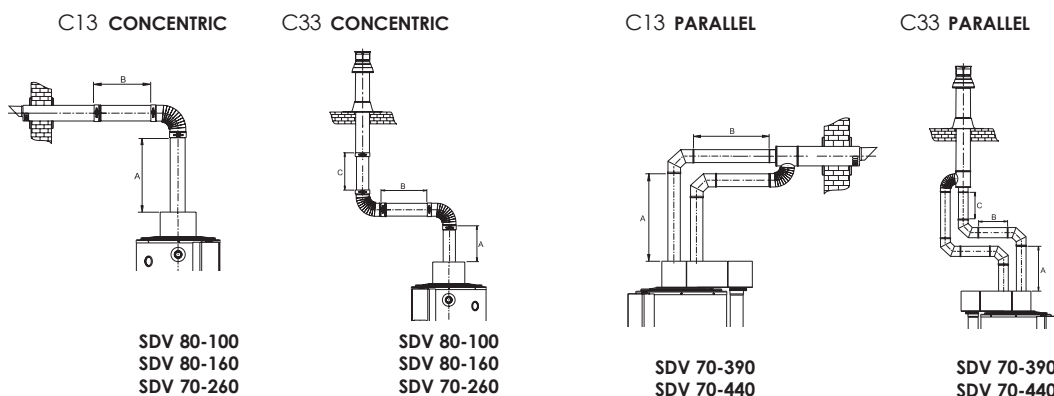
Concentric flues

It is **not** permitted to use more than the specified number of bends, even when the duct is shorter than the maximum length. A 45° bend is equivalent to a 90° bend.

Parallel flues

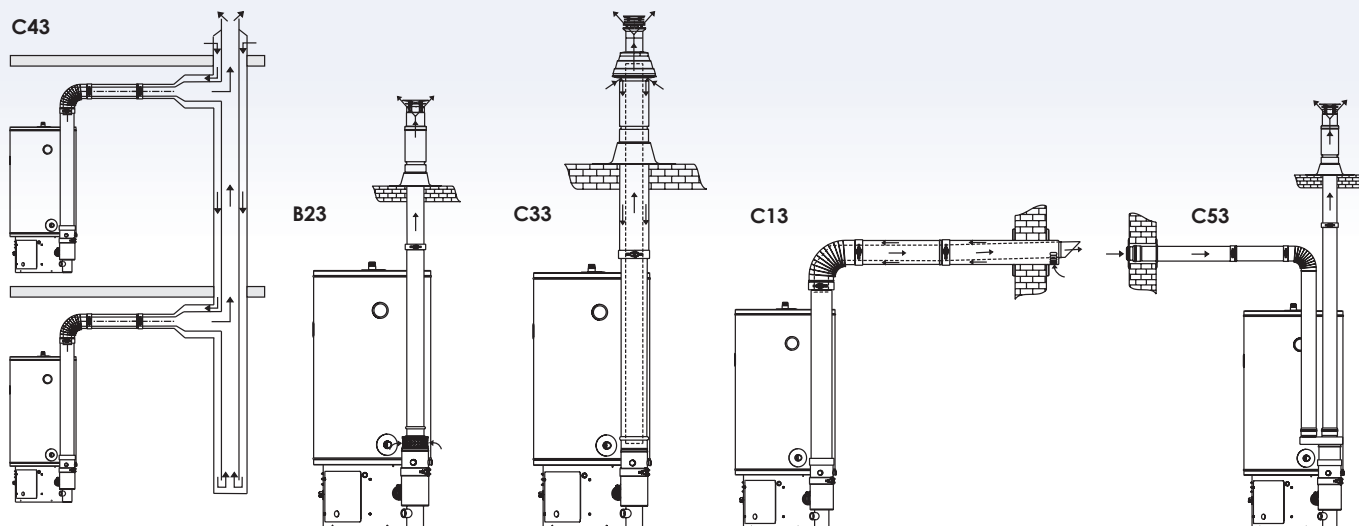
The parallel flue of a SDV 70-390 or 70-440 unit should always be connected to the wall or roof duct using the standard transition piece (0306801). The two ducts shall **not** terminate in different pressure zones.

Note: horizontal flue runs must be installed with a fall of at least 5 mm per metre.



Flue options

Flue options SXP



A SXP water heater should be installed according category B23, C13, C33, C43 or C53*.

TECHNICAL DATA		
Model	SXP 34-130	SXP 50-155
Concentric		
Diameter (mm)	80/125	80/125
Max. length (m)	20	20
Max. 45/90° bend	5	5
Parallel (standard diameter)		
Diameter (mm)	80	80
Max. length (m)	30	20
Lequivalent/bend 90° (m)	3.9	3.9
Lequivalent/bend 45° (m)	1.1	1.1
Parallel (larger diameter for more length)		
Diameter (mm)	100	100
Max. length (m)	100	75
Lequivalent/bend 90° (m)	4.6	4.6
Lequivalent/bend 45° (m)	1.2	1.2

*All SXP are also approved for installations where the unit is supplied without venting materials (C63).

Concentric flues

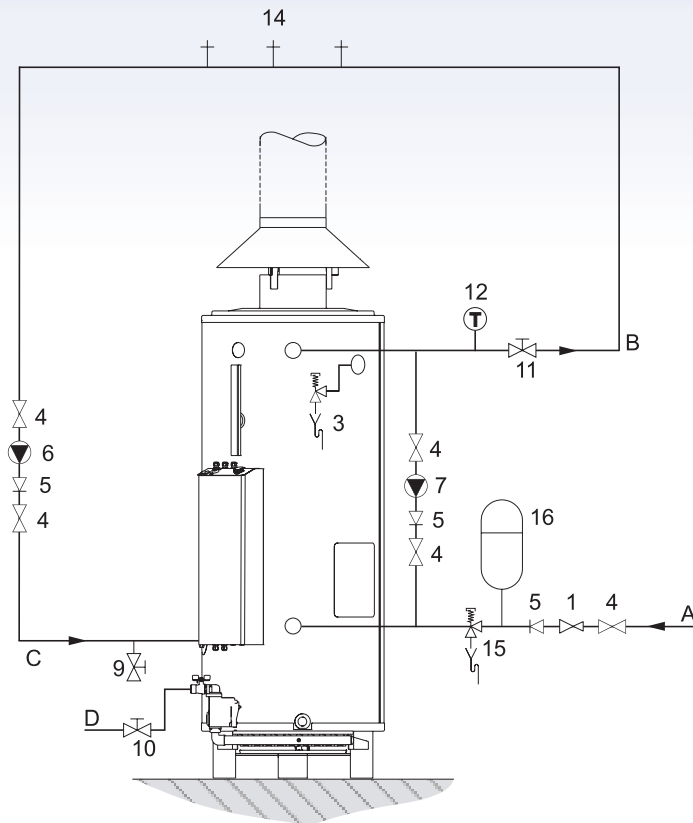
It is not permitted to use more than the specified number of bends, even when the duct is shorter than the maximum length. A 45° bend is equivalent to a 90° bend.

Parallel flues

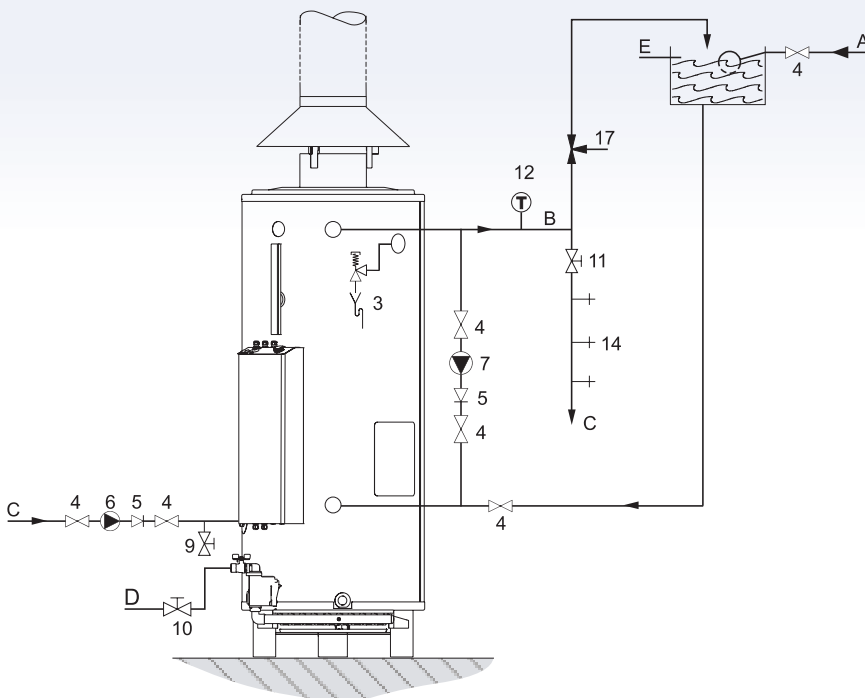
- The maximum permissible length should be reduced by the equivalent length of each bend.
(Note: for a parallel installation this means that 3 changes in direction amount to 6 bends (3 in the supply duct and 3 in the flue).
- The maximum length also applies if a parallel installation has different supply and flue duct lengths (B23, C53).
- Combined flues (C43) shall be fitted with a condensate drain.

Note: horizontal flue runs must be installed with a fall of at least 5 mm per metre towards the heater.

Unvented (Sealed)



Vented (Open)



STANDARD INDICATION PIPES INSTALLATION DIAGRAMS

	Description
A	Cold water
B	Hot water
C	Return circulation
D	Gas supply
E	Overflow
F	Primary flow
G	Primary return

STANDARD SYMBOLS INSTALLATION DIAGRAMS PAGE 30 AND 31

Nr.	Symbol	Description
1		Pressure reducing valve
2		Inlet security group
3		T & P valve
4		Stop valve
5		Non-return valve
6		Circulation pump
7		Shunt pump
8		Charge pump
9		Drain valve
10		Gas cock
11		Service valve
12		Temperature meter
13		Condensate drain heat exchanger
14		Hot water tap
15		Expansion valve
16		Expansion vessel
17		Three way vent valve

Notes

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Draw off table solar

ΔT 28°C

Temperature at the tap 38°C

Storage temperature 70°C

Temperature cold water inlet 10°C

Model	Storage capacity	Heat output	Draw off capacity direct	Draw off capacity 1st hour	5 min.	10 min.	15 min.	20 min.	30 min.	45 min.	60 min.	90 min.	120 min.	180 min.	Continu	Continu	Heating-up-time
	Ltr	kW	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr/h	Ltr/min	Min.
SSC 110-175	370	42.8	220	1500	270	370	480	590	810	1200	1500	2200	2800	4100	1400	23.3	9
SSC 110-250	370	60.4	220	2000	280	440	590	750	1100	1600	2000	3000	3900	5700	1900	31.7	7
SSG 60-120	217	31.0	230	1200	260	340	420	500	650	890	1200	1700	2100	3100	960	16.0	14
SSG 100-150	368	32.7	370	1400	400	490	570	660	820	1100	1400	1900	2400	3400	1100	18.3	22
SSG 100-199	368	50.3	410	1900	460	590	720	850	1200	1500	1900	2700	3500	5000	1600	26.7	14
SSG 100-250	368	60.4	440	2200	500	650	810	960	1300	1800	2200	3200	4100	6000	1900	31.7	12
SSG 120-300	480	84.2	480	3000	560	780	990	1300	1700	2300	3000	4300	5600	8200	2600	43.3	11
SSG 120-400	480	100.7	480	3500	590	840	1100	1400	1900	2700	3500	5000	6600	9700	3100	51.7	9
SSG 120-500	480	121.8	490	4100	610	930	1300	1600	2200	3200	4100	6000	7800	11600	3800	63.3	8

ΔT 44°C

Temperature at the tap 54°C

Storage temperature 70°C

Temperature cold water inlet 10°C

Model	Storage capacity	Heat output	Draw off capacity direct	Draw off capacity 1st hour	5 min.	10 min.	15 min.	20 min.	30 min.	45 min.	60 min.	90 min.	120 min.	180 min.	Continu	Continu	Heating-up-time
	Ltr	kW	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr/h	Ltr/min	Min.
SSC 110-175	370	42.8	100	890	120	190	260	330	470	680	890	1400	1800	2600	840	14.0	15
SSC 110-250	370	60.4	100	1300	140	230	330	430	630	920	1300	1900	2400	3600	1200	20.0	10
SSG 60-120	217	31.0	100	670	120	170	220	270	370	520	670	980	1300	1900	610	10.2	21
SSG 100-150	368	32.7	160	760	180	230	280	340	440	600	760	1100	1400	2100	640	10.7	35
SSG 100-199	368	50.3	180	1200	220	300	380	460	630	870	1200	1700	2100	3100	990	16.5	22
SSG 100-250	368	60.4	200	1400	240	340	440	540	730	1100	1400	2000	2500	3700	1200	20.0	19
SSG 120-300	480	84.2	200	1800	250	390	530	660	940	1400	1800	2600	3500	5100	1700	28.3	17
SSG 120-400	480	100.7	200	2100	270	430	600	760	1100	1600	2100	3100	4100	6100	2000	33.3	15
SSG 120-500	480	121.8	210	2500	290	490	690	880	1300	1900	2500	3700	4900	7300	2400	40.0	12

ΔT 50°C

Temperature at the tap 60°C

Storage temperature 70°C

Temperature cold water inlet 10°C

Model	Storage capacity	Heat output	Draw off capacity direct	Draw off capacity 1st hour	5 min.	10 min.	15 min.	20 min.	30 min.	45 min.	60 min.	90 min.	120 min.	180 min.	Continu	Continu	Heating-up-time
	Ltr	kW	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr/h	Ltr/min	Min.
SSC 110-175	370	42.8	70	760	90	150	210	270	400	580	760	1200	1500	2300	740	12.3	17
SSC 110-250	370	60.4	70	1100	100	190	270	360	530	790	1100	1600	2100	3200	1100	18.3	12
SSG 60-120	217	31.0	70	570	80	130	170	220	310	440	570	840	1200	1700	540	9.0	24
SSG 100-150	368	32.7	100	640	120	170	210	260	350	500	640	920	1200	1800	570	9.5	39
SSG 100-199	368	50.3	130	950	160	230	300	370	520	730	950	1400	1900	2700	870	14.5	26
SSG 100-250	368	60.4	150	1200	180	270	350	440	610	870	1200	1700	2200	3300	1100	18.3	21
SSG 120-300	480	84.2	130	1600	180	300	420	540	780	1200	1600	2300	3000	4400	1500	25.0	20
SSG 120-400	480	100.7	130	1800	190	340	480	620	910	1400	1800	2700	3600	5300	1800	30.0	17
SSG 120-500	480	121.8	140	2200	210	380	560	730	1100	1700	2200	3200	4300	6400	2100	35.0	14

Temperature at the tap 38°C

Storage temperature 70°C

Temperature cold water inlet 10°C

Model	Storage capacity Ltr	Heat output kW	Draw off capacity direct Ltr	Draw off capacity 1st hour Ltr	5 min. Ltr	10 min. Ltr	15 min. Ltr	20 min. Ltr	30 min. Ltr	45 min. Ltr	60 min. Ltr	90 min. Ltr	120 min. Ltr	180 min. Ltr	Continu Ltr/h	Continu Ltr/min	Heating-up-time Min.
PRV 30 NORS	109	7.4	164	379	171	190	209	228	266	322	379	493	606	833	227	3.8	29
PRV 40 NORS	144	9.0	216	478	225	248	271	294	340	409	478	616	754	1029	276	4.6	31
PRV 50 NNRS	181	14.0	272	680	286	322	357	393	465	572	680	895	1100	1539	430	72	25
SUF 60-120	217	31.0	250	1200	280	360	440	520	680	920	1200	1700	2200	3100	960	16.0	14
SUF 100-150	368	32.7	420	1400	450	530	620	700	870	1200	1400	1900	2400	3400	1100	18.3	22
SUF 100-199	368	50.3	460	2000	510	640	770	900	1200	1600	2000	2700	3500	5100	1600	26.7	14
SUF 100-250	368	60.4	480	2300	550	700	860	1100	1400	1800	2300	3200	4100	6000	1900	31.7	12
SUF 120-300	480	84.2	530	3000	620	840	1100	1300	1700	2400	3000	4300	5600	8200	2600	43.3	11
SUF 120-400	480	100.7	540	3500	640	900	1200	1500	2000	2800	3500	5100	6600	9700	3100	51.7	9
SUF 120-500	480	121.8	550	4100	670	990	1300	1700	2300	3200	4100	6000	7900	11600	3800	63.3	8
SCT/SCE 75-75	265	19.2	398	958	417	466	516	565	663	811	958	1253	1548	2138	590	9.8	27
SCT/SCE 100-95	355	20.4	533	1128	553	606	658	710	814	971	1128	1441	1754	2381	627	10.5	34
SCT/SCE 80-115	309	25.6	530	1278	556	622	687	753	884	1081	1278	1672	2066	2853	788	13.1	24
SCT/SCE 80-140	309	31.9	530	1459	562	644	725	807	970	1215	1459	1948	2437	3416	978	16.3	19
SCT/SCE 80-180	298	40.4	511	1690	552	656	759	862	1069	1380	1690	2310	2931	4172	1241	20.7	14
SCT/SCE 95-199	357	45.3	612	1935	658	774	890	1007	1239	1587	1935	2631	3327	4720	1392	23.2	15
SCT/SCE 95-260	335	62.9	574	2411	639	800	961	1122	1444	1928	2411	3378	4345	6278	1933	32.2	10
SCT/SCE 70-360	278	77.6	477	2740	556	755	953	1152	1549	2144	2740	3931	5122	7505	2382	39.7	7
SCT/SCE 65-400	253	97.4	434	3267	533	782	1030	1279	1776	2521	3267	4758	6250	9232	2983	49.7	5
SCT/SCE 65-500	252	107.7	432	3575	542	818	1094	1369	1921	2748	3575	5229	6883	10192	3308	55.1	5
SDV 80-100	309	26.4	530	1300	557	624	692	759	894	1097	1300	1705	2110	2921	811	13.5	23
SDV 80-160	298	42.3	511	1745	554	662	771	879	1096	1420	1745	2395	3044	4344	1299	21.7	14
SDV 70-260	253	67.5	434	2403	503	676	848	1021	1367	1885	2403	3440	4477	6550	073	34.6	7
SDV 70-390	253	90.8	434	3083	527	759	991	1224	1688	2386	3083	4477	5871	8659	2788	46.5	5
SDV 70-440	253	102	434	3420	539	800	1062	1324	1848	2634	3420	4992	6564	9707	3144	52.4	5
SOF 85-220	322	50.4	552	2023	604	733	862	991	1249	1636	2023	2797	3571	5119	1548	25.8	12
SOF 85-260	322	63	552	2390	617	778	939	1100	1423	1907	2390	3358	4325	6260	1935	32.3	10
SOF 85-300	318	75.6	545	2751	623	816	1010	1203	1590	2171	2751	3912	5073	7395	2322	38.7	8
SOF 75-390	282	96.6	483	3302	582	830	1077	1324	1819	2560	3302	4786	6269	9236	2967	49.5	6
SOF 75-470	282	113.4	483	3792	600	890	1180	1470	2051	2922	3792	5534	7275	10750	3483	58.1	5
SOF 75-700	259	147	444	4733	595	971	1347	1723	2476	3605	4733	6991	9248	13763	4515	75.3	3
SID 80	289	73	495	2625	570	757	944	1131	1504	2065	2625	3747	4868	7110	2242	37.4	8
SID 100	382	89	655	3252	746	974	1202	1429	1885	2568	3252	4619	5985	8719	2734	45.6	8
SID 125	470	110	806	4015	918	1200	1481	1763	2326	3171	4015	5705	7394	10773	3379	56.3	8
SID 170	641	112	1099	4367	1214	1500	1787	2074	2647	3507	4367	6087	7807	11247	3440	57.3	11
SID 190	718	136	1231	5199	1370	1718	2066	2414	3111	4155	5199	7288	9376	13554	4177	69.6	10
SID 270	1007	145	1726	5957	1875	2246	2617	2988	3730	4844	5957	8184	10411	14864	4454	74.2	14
SIT 80	296	46	507	1850	555	672	790	908	1143	1496	1850	2556	3263	4675	1413	23.5	13
SIT 100	385	78	660	2936	740	940	1139	1339	1738	2337	2936	4134	5332	7727	2396	39.9	10
SIT 125	473	100	811	3729	913	1169	1425	1681	2193	2961	3729	5264	6800	9872	3071	51.2	9
SIT 170	643	104	1102	4137	1209	1475	1741	2007	2540	3338	4137	5734	7331	10526	3194	53.2	12
SIT 190	725	112	1243	4511	1358	1644	1931	2218	2791	3651	4511	6231	7951	11391	3440	57.3	13
SIT 270	1007	145	1726	5957	1875	2246	2617	2988	3730	4844	5957	8184	10411	14864	4454	74.2	14
SIT 410	1550	134	2657	6567	2794	3137	3480	3823	4509	5538	6567	8625	10683	14799	4116	68.6	23
SIT 500	1800	134	3086	6996	3223	3566	3909	4252	4938	5967	6996	9054	11111	15227	4116	68.6	26
SIT 670	2550	142	4371	8515	4517	4880	5244	5607	6334	7424	8515	10696	12876	17238	4361	72.7	35
SIT 740	2800	142	4800	8943	4945	5309	5672	6036	6763	7853	8943	11124	13305	17666	4361	72.7	39
SXP 34-130	129	36.0	180	1300	220	310	410	500	680	960	1300	1800	2400	3500	1200	20.0	7
SXP 50-155	198	47.7	360	1800	410	530	650	770	1100	1400	1800	2500	3300	4700	1500	25.0	8

Draw off table ΔT 44°C

Temperature at the tap 54°C																	
Storage temperature 70°C																	
Temperature cold water inlet 10°C																	
Model	Storage capacity	Heat output	Draw off capacity direct	Draw off capacity 1st hour	5 min.	10 min.	15 min.	20 min.	30 min.	45 min.	60 min.	90 min.	120 min.	180 min.	Continu	Continu	Heating-up-time
	Ltr	kW	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr/h	Ltr/min	Min.
PRV 30 NORRS	109	7.4	104	241	109	121	133	145	169	205	241	314	386	531	144	2.4	45
PRV 40 NORRS	144	9.0	137	304	143	158	173	187	217	260	304	392	480	655	175	3.9	49
PRV 50 NRRS	181	14.0	173	433	182	205	227	250	296	364	433	569	706	980	273	4.6	40
SUF 60-120	217	31.0	120	700	140	190	240	290	390	540	700	1000	1300	2000	610	10.2	21
SUF 100-150	368	32.7	190	800	210	270	320	370	480	640	800	1200	1500	2100	640	10.7	35
SUF 100-199	368	50.3	220	1200	250	340	420	500	660	910	1200	1700	2200	3200	990	16.5	22
SUF 100-250	368	60.4	240	1400	280	380	480	570	770	1100	1400	2000	2600	3800	1200	20.0	19
SUF 120-300	480	84.2	240	1900	300	440	570	710	990	1400	1900	2700	3500	5100	1700	28.3	17
SUF 120-400	480	100.7	250	2200	320	480	640	810	1200	1700	2200	3100	4100	6100	2000	33.3	15
SUF 120-500	480	121.8	260	2600	340	530	730	930	1400	2000	2600	3800	4900	7300	2400	40.0	12
SCT/SCE 75-75	265	19.2	253	610	265	297	328	359	422	516	610	797	985	1361	375	6.3	42
SCT/SCE 100-95	355	20.4	339	718	532	385	419	542	518	618	718	917	1116	1515	399	6.7	53
SCT/SCE 80-115	309	25.6	337	813	354	396	437	479	563	688	813	1064	1315	1816	501	8.4	37
SCT/SCE 80-140	309	31.9	337	929	358	410	462	513	617	773	929	1240	1551	2174	623	10.4	30
SCT/SCE 80-180	298	40.4	325	1075	351	417	483	549	680	878	1075	1470	1865	2655	790	13.2	23
SCT/SCE 95-199	357	45.3	389	1231	419	493	567	641	788	1010	1231	1674	2117	3003	886	14.8	24
SCT/SCE 95-260	335	62.9	365	1534	406	509	612	714	919	1227	1534	2150	2765	3995	1230	20.5	16
SCT/SCE 70-360	278	77.6	303	1744	354	480	606	733	986	1365	1744	2502	3260	4776	1516	25.3	11
SCT/SCE 65-400	253	97.4	276	2085	339	498	657	816	1133	1609	2085	3038	3990	5894	1905	31.8	8
SCT/SCE 65-500	252	107.7	275	2275	345	521	696	871	1222	1749	2275	3328	4380	6486	2105	35.1	7
SDV 80-100	309	26.4	337	827	354	397	440	483	569	698	827	1085	1343	1859	516	8.6	36
SDV 80-160	298	42.3	325	1111	353	422	490	559	697	904	1111	1524	1937	2764	827	13.8	22
SDV 70-260	253	67.5	276	1529	320	430	540	650	870	1200	1529	2189	2849	4168	1319	22.0	12
SDV 70-390	253	90.8	276	1962	335	483	631	779	1074	1518	1962	2849	3736	5510	1774	29.6	9
SDV 70-440	253	102.0	276	2176	343	509	676	843	1176	1676	2176	3177	4177	6177	2000	33.3	8
SOF 85-220	322	50.4	351	1287	384	466	548	630	795	1041	1287	1780	2272	3257	985	16.4	20
SOF 85-260	322	63.0	351	1521	392	495	598	700	905	1213	1521	2137	2752	3984	1231	20.5	16
SOF 85-300	318	75.6	347	1751	396	519	642	766	1012	1381	1751	2490	3228	4706	1478	24.6	13
SOF 75-390	282	96.6	308	2101	371	528	685	843	1157	1629	2101	3045	3989	5878	1888	31.5	9
SOF 75-470	282	113.4	308	2413	382	566	751	936	1305	1859	2413	3522	4630	6846	2216	36.9	8
SOF 75-700	259	147.0	283	3012	378	618	857	1097	1575	2294	3012	4449	5885	8759	2873	47.9	5
SID 80	289	73	315	1671	363	482	601	720	957	1314	1671	2384	3098	4524	1427	23.8	12
SID 100	382	89	417	2069	475	620	765	910	1200	1634	2069	2939	3809	5548	1740	29.0	13
SID 125	470	110	513	2555	584	764	943	1122	1480	2018	2555	3630	4705	6855	2150	35.8	13
SID 170	641	112	699	2779	772	955	1137	1320	1684	2232	2779	3873	4968	7157	2189	36.5	18
SID 190	718	136	783	3309	872	1093	1315	1536	1979	2644	3309	4638	5967	8625	2658	44.3	16
SID 270	1007	145	1099	3791	1193	1429	1665	1902	2374	3082	3791	5208	6625	9459	2834	47.2	21
SIT 80	296	46	323	1177	353	428	503	578	728	952	1177	1627	2076	2975	899	15.0	20
SIT 100	385	78	420	1868	471	598	725	852	1106	1487	1868	2631	3393	4917	1525	25.4	15
SIT 125	473	100	516	2373	581	744	907	1070	1396	1884	2373	3350	4327	6282	1955	32.6	15
SIT 170	643	104	701	2633	769	939	1108	1277	1616	2124	2633	3649	4665	6698	2033	33.9	19
SIT 190	725	112	791	2871	864	1046	1229	1411	1776	2323	2871	3965	5060	7249	2189	36.5	20
SIT 270	1007	145	1099	3791	1193	1429	1665	1902	2374	3082	3791	5208	6625	9459	2834	47.2	21
SIT 410	1550	134	1691	4179	1778	1996	2215	2433	2870	3524	4179	5489	6798	9417	2619	43.7	36
SIT 500	1800	134	1964	4452	2051	2269	2487	2706	3142	3797	4452	5761	7071	9690	2619	43.7	41
SIT 670	2550	142	2782	5419	2874	3106	3337	3568	4031	4725	5419	6806	8194	10970	2775	46.3	55
SIT 740	2800	142	3055	5691	3147	3378	3610	3841	4304	4997	5691	7079	8467	11242	2775	46.3	61
SXP 34-130	129	36.0	90	760	110	170	230	290	410	580	760	1200	1500	2200	710	11.8	11
SXP 50-155	189	47.7	190	1100	220	300	380	450	610	840	1100	1600	2100	3000	940	15.7	12

Draw off table $\Delta T 50^\circ\text{C}$



Temperature at the tap 60°C
Storage temperature 70°C

Temperature cold water inlet 10°C

Model	Storage capacity	Heat output	Draw off capacity	Draw off capacity	5 min.	10 min.	15 min.	20 min.	30 min.	45 min.	60 min.	90 min.	120 min.	180 min.	Continu	Continu	Heating-up-time
	Ltr	kW	Ltr	1st hour Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr	Ltr/h	Ltr/min	Min.
PRV 30 NORRS	109	7.4	92	212	96	106	117	128	149	181	212	276	339	467	127	2.1	51
PRV 40 NORRS	144	9.0	121	268	126	139	152	165	190	229	268	345	422	576	154	2.6	56
PRV 50 NNRS	181	14.0	152	381	160	180	200	220	260	321	381	501	621	862	241	4.0	45
SUF 60-120	217	31.0	90	590	100	150	190	240	330	460	590	860	1200	1700	540	9.0	24
SUF 100-150	368	32.7	140	670	160	200	250	300	390	530	670	950	1300	1800	570	9.5	39
SUF 100-199	368	50.3	170	990	190	270	340	410	550	770	990	1500	1900	2800	870	14.5	26
SUF 100-250	368	60.4	180	1200	220	300	390	480	650	910	1200	1700	2300	3300	1100	18.3	21
SUF 120-300	480	84.2	170	1600	220	340	460	580	830	1200	1600	2300	3000	4500	1500	25.0	20
SUF 120-400	480	100.7	180	1900	240	380	530	670	960	1400	1900	2700	3600	5300	1800	30.0	17
SUF 120-500	480	121.8	180	2200	250	430	600	780	1200	1700	2200	3300	4300	6400	2100	35.0	14
SCT/SCE 75-75	265	19.2	223	536	234	261	279	316	371	454	536	702	867	1197	330	5.5	48
SCT/SCE 100-95	355	20.4	298	632	310	339	368	398	456	544	632	807	982	1333	351	5.9	61
SCT/SCE 80-115	309	25.6	297	716	311	348	385	422	495	605	716	936	1157	1598	441	7.4	42
SCT/SCE 80-140	309	31.9	297	817	315	361	406	452	543	680	817	1091	1365	1913	548	9.1	34
SCT/SCE 80-180	298	40.4	286	946	309	367	425	483	599	773	946	1294	1641	2336	695	11.6	26
SCT/SCE 95-199	357	45.3	343	1083	369	434	499	564	694	889	1083	1473	1863	2643	780	13.0	27
SCT/SCE 95-260	335	62.9	322	1350	358	448	538	628	809	1000	1350	1892	2433	3516	1083	18.1	19
SCT/SCE 70-360	278	77.6	267	1534	311	423	334	645	867	1201	1534	2201	2868	4203	1334	22.2	13
SCT/SCE 65-400	253	97.4	243	1830	299	438	577	716	994	1412	1830	2665	3500	5170	1670	27.8	9
SCT/SCE 65-500	252	107.7	242	2002	304	458	612	767	1076	1539	2002	2928	3855	5707	1853	30.9	8
SDV 80-100	309	26.4	297	728	312	350	387	425	501	614	728	955	1182	1636	454	7.6	41
SDV 80-160	298	42.3	286	977	310	371	432	492	613	795	977	1341	1705	2432	728	12.1	25
SDV 70-260	253	67.5	243	1346	282	378	475	572	765	1056	1346	1926	2507	3668	1161	19.4	13
SDV 70-390	253	9.8	243	1726	295	425	555	685	946	1336	1726	2507	3288	4849	1561	26.0	10
SDV 70-440	253	102.0	243	1915	302	448	595	742	1035	1475	1915	2796	3676	5436	1760	29.3	9
SOF 85-220	322	50.4	309	1133	338	410	482	565	699	916	1133	1566	2000	2866	867	14.5	22
SOF 85-260	322	63.0	309	1339	345	436	526	616	797	1086	1339	1880	2422	3506	1084	18.1	18
SOF 85-300	318	75.6	305	1541	349	457	565	674	890	1216	1541	2191	2841	4141	1300	21.7	15
SOF 75-390	282	96.6	272	1849	326	465	603	741	1018	1434	1849	2680	3511	5172	1662	27.7	10
SOF 75-470	282	113.4	271	2124	336	498	661	813	1148	1636	2124	3099	4074	6025	1951	32.5	9
SOF 75-700	259	147.0	249	2651	333	544	754	965	1386	2019	2651	3915	5179	7708	2528	42.1	6
SID 80	289	73	277	1470	319	424	529	633	842	1156	1470	2098	2726	3982	1256	20.9	14
SID 100	382	89	367	1821	418	545	673	800	1056	1438	1821	2586	3352	4883	1531	25.5	15
SID 125	470	110	451	2249	514	672	830	987	1303	1776	2249	3195	4141	6033	1892	31.5	15
SID 170	641	112	615	2445	680	840	1001	1161	1482	1964	2445	3409	4372	6298	1926	32.1	20
SID 190	718	136	689	2912	767	962	1157	1352	1742	2327	2912	4081	5251	7590	2339	39.0	18
SID 270	1007	145	967	3336	1050	1258	1466	1673	2089	2713	3336	4583	5830	8324	2494	41.6	24
SIT 80	296	46	284	1036	311	376	442	508	640	838	1036	1431	1827	2618	791	13.2	22
SIT 100	385	78	370	1644	414	526	638	750	973	1309	1644	2315	2986	4327	1342	22.4	17
SIT 125	473	100	454	2088	511	655	798	941	1228	1658	2088	2948	3808	5528	1720	28.7	16
SIT 170	643	104	617	2317	677	826	975	1124	1422	1869	2317	3211	4105	5894	1789	29.8	22
SIT 190	725	112	696	2526	760	921	1081	1242	1563	2044	2526	3489	4453	6379	1926	32.1	23
SIT 270	1007	145	967	3336	1050	1258	1466	1673	2089	2713	3336	4583	5830	8324	2494	41.6	24
SIT 410	1550	134	1488	3678	1565	1757	1949	2141	2525	3101	3678	4830	5982	8287	2305	38.4	40
SIT 500	1800	134	1728	3918	1805	1997	2189	2381	2765	3341	3918	5070	6222	8527	2305	38.4	47
SIT 670	2550	142	2448	4768	2529	2733	2936	3140	3547	4158	4768	5990	7211	9653	2442	40.7	63
SIT 740	2800	142	2688	5008	2769	2973	3176	3380	3787	4398	5008	6230	7451	9893	2442	40.7	69
SXP 34-130	129	36.0	70	660	90	140	190	240	350	500	660	970	1300	1900	620	10.3	12
SXP 50-155	198	47.7	150	930	180	250	310	380	520	720	930	1400	1800	2600	830	13.8	14

Your State distributor is:



Hevac Limited

Muirfield Drive,
Naas Road,
Dublin 12,
Ireland

Tel: +353 1 419 1919
Email: info@hevac.ie
Web: www.hevac.ie

Hevac Limited

Furry Park Industrial Estate,
Santry,
Dublin 9,
Ireland

Tel: +353 1 842 7037
Email: info@hevac.ie
Web: www.hevac.ie

Hevac Limited

South Ring West Business Park,
Tramore Road,
Cork,
Ireland

Tel: +353 21 432 1066
Email: info@hevac.ie
Web: www.hevac.ie