

# GP 9000HX

T1in = 60 °C		T2in [°C]							
		20		30		40		50	
Δpc [mbar]	G1 [m³/h]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]
0	3.35	28.2	47.0	35.9	50.6	43.8	53.9	51.8	57.0
50	3.25	27.8	46.6	35.6	50.2	43.6	53.6	51.7	56.9
100	3.15	27.4	46.1	35.3	49.8	43.4	53.4	51.6	56.7
150	3.05	27.0	45.5	35.0	49.4	43.2	53.1	51.5	56.6
200	2.95	26.6	45.0	34.7	49.0	43.0	52.8	51.4	56.5
250	2.84	26.2	44.4	34.4	48.5	42.8	52.5	51.3	56.3
300	2.74	25.7	43.8	34.0	48.1	42.5	52.2	51.2	56.2

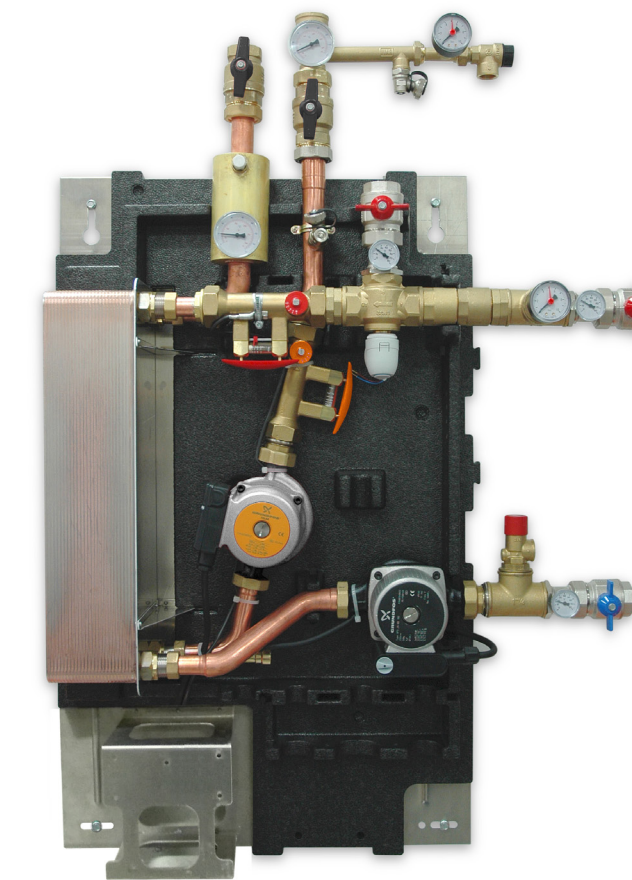
T1in = 70 °C		T2in [°C]							
		20		30		40		50	
Δpc [mbar]	G1 [m³/h]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]
0	3.35	29.9	54.3	37.6	57.7	45.5	61.0	53.6	64.1
50	3.25	29.4	53.6	37.2	57.2	45.2	60.6	53.4	63.9
100	3.15	28.9	53.0	36.8	56.7	44.9	60.2	53.2	63.6
150	3.05	28.3	52.3	36.4	56.2	44.6	59.8	52.9	63.3
200	2.95	27.8	51.6	36.0	55.6	44.3	59.4	52.7	63.0
250	2.84	27.3	50.9	35.6	55.0	44.0	58.9	52.5	62.7
300	2.74	26.8	50.1	35.2	54.4	43.7	58.5	52.3	62.4

T1in = 80 °C		T2in [°C]							
		20		30		40		50	
Δpc [mbar]	G1 [m³/h]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]
0	3.35	31.5	61.6	39.2	65.0	47.2	68.3	55.2	71.4
50	3.25	30.9	60.9	38.7	64.4	46.8	67.8	54.9	71.0
100	3.15	30.3	60.1	38.2	63.7	46.4	67.2	54.6	70.6
150	3.05	29.6	59.2	37.7	63.0	45.9	66.7	54.3	70.2
200	2.95	29.0	58.4	37.2	62.3	45.5	66.1	54.0	69.7
250	2.84	28.4	57.5	36.7	61.6	45.1	65.5	53.7	69.3
300	2.74	27.8	56.5	36.2	60.7	44.7	64.8	53.4	68.8

T1in = 90 °C		T2in [°C]							
		20		30		40		50	
Δpc [mbar]	G1 [m³/h]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]
0	3.35	33.0	69.1	40.8	72.4	48.8	75.7	56.9	78.7
50	3.25	32.3	68.2	40.2	71.7	48.3	75.0	56.4	78.2
100	3.15	31.6	67.2	39.6	70.9	47.7	74.3	56.0	77.7
150	3.05	30.9	66.3	39.0	70.0	47.2	73.6	55.6	77.1
200	2.95	30.2	65.2	38.4	69.1	46.7	72.9	55.2	76.5
250	2.84	29.5	64.2	37.8	68.2	46.2	72.1	54.8	75.9
300	2.74	28.8	63.0	37.2	67.2	45.7	71.3	54.4	75.2

T1in = 100 °C		T2in [°C]							
		20		30		40		50	
Δpc [mbar]	G1 [m³/h]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]
0	3.35	34.5	76.6	42.4	79.9	50.3	83.1	58.4	86.2
50	3.25	33.7	75.6	41.6	79.0	49.7	82.3	57.9	85.5
100	3.15	32.9	74.5	40.9	78.1	49.1	81.5	57.4	84.9
150	3.05	32.1	73.4	40.2	77.1	48.5	80.7	56.8	84.1
200	2.95	31.3	72.2	39.5	76.1	47.8	79.8	56.3	83.4
250	2.84	30.5	70.9	38.8	75.0	47.2	78.8	55.8	82.6
300	2.74	29.7	69.6	38.1	73.8	46.6	77.8	55.3	81.7

T1in = 110 °C		T2in [°C]							
		20		30		40		50	
Δpc [mbar]	G1 [m³/h]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]
0	3.35	36.0	84.2	43.8	87.5	51.8	90.7	59.9	93.7
50	3.25	35.0	83.1	43.0	86.5	51.1	89.8	59.3	92.9
100	3.15	34.1	81.8	42.2	85.4	50.4	88.8	58.7	92.1
150	3.05	33.2	80.6	41.4	84.2	49.7	87.8	58.1	91.2
200	2.95	32.3	79.2	40.6	83.0	48.9	86.7	57.4	90.3
250	2.84	31.4	77.8	39.8	81.8	48.2	85.6	56.8	89.4
300	2.74	30.5	76.3	38.9	80.4	47.5	84.4	56.2	88.3



Stazione solare per stratificazione con scambiatore esterno  
*Solar station for stratification with external heat exchanger*



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## Stazione solare per stratificazione con scambiatore esterno Solar station for stratification with external heat exchanger

Gruppo di circolazione con linea di mandata e ritorno solare, scambiatore saldobrasato 50 piastre per il riscaldamento dell'acqua di un accumulatore inerziale. Lato primario (solare) completo di valvola di sicurezza 6 bar, pompa solare interasse 180 mm, rubinetto di carico-scarico. Lato secondario (acqua tecnica) completo di valvola deviatrice a tre vie per favorire la stratificazione termica, valvola di sicurezza 3 bar, pompa interasse 180 mm. Su ciascun circuito sono presenti misuratore e regolatore di flusso range 20-70 l/min, termometri, valvola di ritegno e valvole di intercettazione.

Circulation unit with flow and solar return line, 50-plate braze-welded heat exchanger to heat the water in an inertial storage tank. Primary side (solar) comes complete with 6 bar safety valve, solar pump with centre distance of 180 mm, loading-draining tap. Secondary side (technical water) comes complete with three-way deviation valve to promote thermal stratification, 3 bar safety valve, pump with centre distance of 180 mm. There are a 20-70 l/min-range flow measuring and regulating device, thermometers, check valves and shut-off valves on each circuit.

### CARATTERISTICHE TECNICHE

- Max. temperatura operativa in continuo: 110 °C
- Range limitatori di flusso: 20-70 l/min
- Range termometri: 0-160 °C
- Pressione taratura valvola di sicurezza:

  - primario: 6 bar
  - secondario: 3 bar

- Fluido di lavoro:

  - primario: acqua/glicole max 50%
  - secondario: acqua riscaldamento

- Attacchi: 1 ½" F
- Ingombri: 1200 x 850 x 275 mm

### TECHNICAL FEATURES

- Max operating temperature in continuous: 110 °C
- Flow limiters range: 20-70 l/min
- Thermometer range: 0-160 °C
- Safety valve pressure calibration:

  - primary: 6 bar
  - secondary: 3 bar

- Work fluid:

  - primary: water/glycol max 50%
  - secondary: heating water

- Connections: 1 ½" F
- Clearances: 1200 x 850 x 275 mm

### MATERIALI

- Flussimetri, v. di sicurezza e altre parti in ottone: CW617N
- Tubazioni: rame semicrudo
- Piastre scambiatore: acciaio inox (materiale d'apporto rame puro)
- O-ring: terpolimero TFE HFP VDF
- Guscio di isolamento: polipropilene

### MATERIALS

- Flow meters, safety valve and other brass parts: CW617N
- Piping: semi-untreated copper
- Heat exchanger plates: stainless steel (pure copper weld material)
- O-ring: terpolymer TFE HFP VDF
- Insulating shell: polypropylene

### CIRCOLATORE SOLARE

- Hmax: 12 m
- Connessioni: 1 ½" M tenuta piatta
- Interasse: 180 mm

### SOLAR CIRCULATOR

- Hmax: 12 m
- Connections: 1 ½" M flat seal
- Centre distance: 180 mm

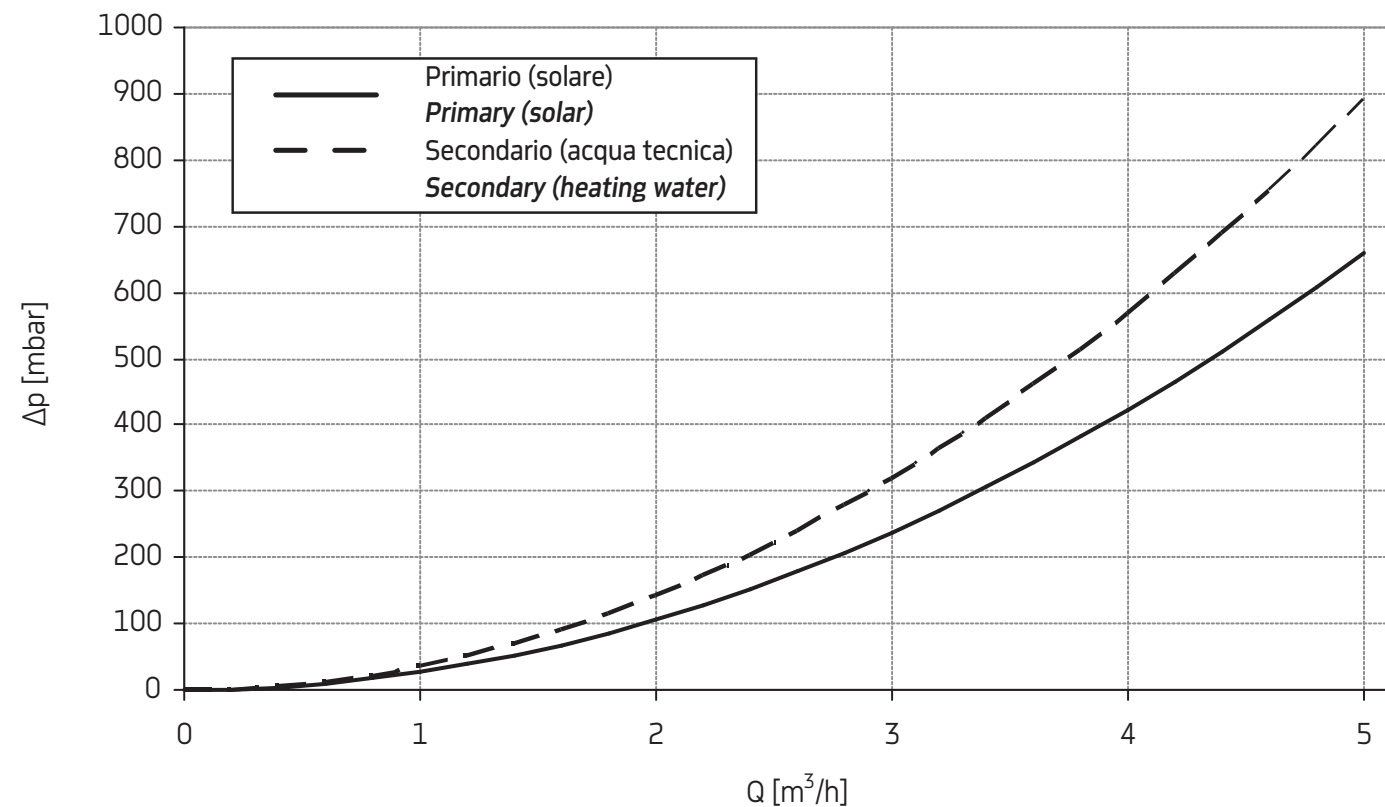
### CIRCOLATORE SECONDARIO

- Hmax: 8 m
- Connessioni: 1 ½" M tenuta piatta
- Interasse: 180 mm

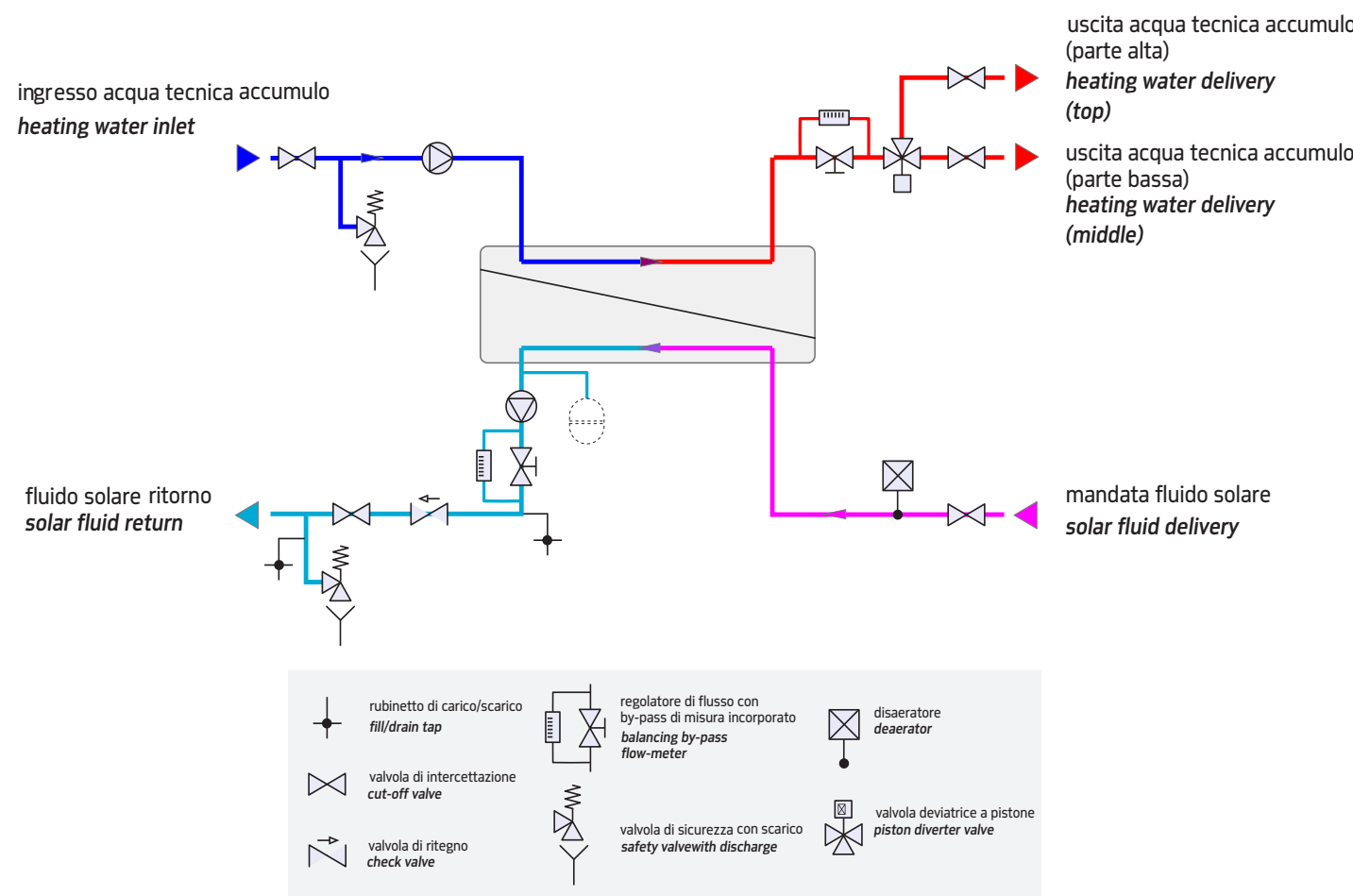
### SECONDARY CIRCULATOR

- Hmax: 8 m
- Connections: 1 ½" M flat seal
- Centre distance: 180 mm

### Caratteristiche idrauliche - Hydraulic features



### Schema funzionale - Functional diagram

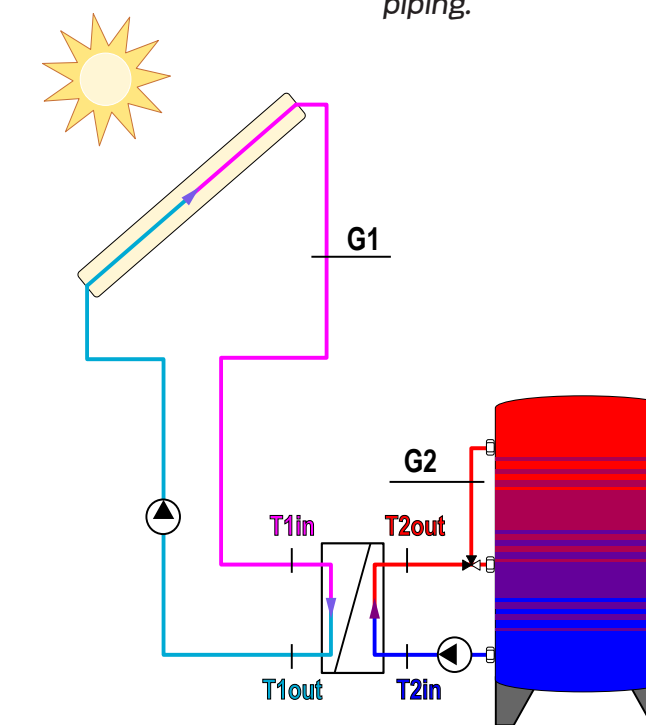


### PRESTAZIONI DELLO SCAMBIATORE

Per la valutazione delle prestazioni del sistema è necessario conoscere le portate elaborate dal circuito primario (solare) e secondario (acqua tecnica) e le temperature di ingresso e uscita dei due lati dello scambiatore a piastre. Nell'ipotesi che GP9000HX sia installato accanto all'accumulo, la portata massima sul secondario, G2, è fissa e pari a circa 3800 l/h. Sul primario solare, la portata massima raggiungibile G1 è pari a 3350 l/h, ma la presenza di un campo di pannelli e di un circuito fa sì che sia sempre inferiore a tale limite massimo: la diminuzione di portata effettiva è quindi determinata dalle perdite di carico del resto del circuito solare, Δpc, relativa a campo di pannelli e tubazione.

### HEAT EXCHANGER PERFORMANCE

To evaluate the performance of the system it is necessary to know the flows processed by the primary (solar) and secondary (technical water) circuit and the input and output temperatures on the two sides of the plate heat exchanger. Assuming that GP9000HX is installed next to the storage, the maximum flow on the secondary, G2, is steady at approximately 3800 l/h. On the solar primary, G1, the maximum flow that can be achieved is 3350 l/h, but the presence of an array of panels and a circuit will always keep it below this maximum limit: the decrease in effective flow is therefore caused by load losses in the rest of the solar circuit, Δpc, relative to the array of panels and piping.



Le tabelle nella pagina seguente forniscono le temperature di ritorno solare, T1out, e di immissione nell'accumulo, T2out, per diversi valori di temperature di mandata solare, T1in, e di prelievo „freddo“ dall'accumulo, T2in.

The tables in the following page provide the solar return temperatures, T1out, and emission into storage, T2out, for various solar flow temperature values, T1in, and „cold“ withdrawal from storage, T2in.

Temperatura uscita campo solare - Solar field outlet temperature		Temperatura di prelievo dall'accumulo - Storage tank extraction temperature							
Δpc [mbar]	G1 [m³/h]	T2in [°C]							
		20		30		40		50	
		T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]	T1out [°C]	T2out [°C]
0	3.35	31.5	61.6	39.2	65.0	47.2	68.3	55.2	71.4
50	3.25	30.9	60.9	38.7	64.4	46.8	67.8	54.9	71.0
100	3.15	30.3	60.1	38.2	63.7	46.4	67.2	54.6	70.6
150	3.05	29.6	59.2	37.7	63.0	45.9	66.7	54.3	70.2
200	2.95	29.0	58.4	37.2	62.3	45.5	66.1	54.0	69.7
250	2.84	28.4	57.5	36.7	61.6	45.1	65.5	53.7	69.3
300	2.74	27.8	56.5	36.2	60.7	44.7	64.8	53.4	68.8

Perdita di carico ulteriore su circuito solare (pannelli + tubazione) - Additional pressure loss along solar circuit (panels + pipes)