

# DIETRISOL

## SOLAR COLLECTORS, TANKS AND SYSTEMS for domestic installations

- DIETRISOL PRO or POWER solar collectors or collector fields, surface area from 2 to 20 m<sup>2</sup>
- Solar tanks for the production of domestic hot water (CESI): DIETRISOL TRIO DT..., DUO BSC... E or DUO BESC... E

- Solar tanks for the production of domestic hot water and auxiliary heating (SSC): PS, DC, DIETRISOL QUADRO DU/DUC/DUP, CL
- DIETRISOL solar systems: complete solutions combining solar collectors, solar tanks and other accessories such as solar stations and control systems, etc.



Solar collector  
DIETRISOL PRO



Solar collector  
DIETRISOL POWER



Solar tank  
DIETRISOL TRIO DT...



Solar tank  
DIETRISOL QUADRO  
DU...



Solar systems  
DIETRISOL DUO/2  
or DUO/1



Domestic hot water  
+ auxiliary heating



Renewable  
energy



Solar energy



All of the equipment shown in this document can be used to construct complete domestic solar installations, from the simplest to the most complex. We thus offer solar systems in the form:

- Of "**complete**" packs for CESI on one pallet that constitute predefined offers covering up to 80% of solar installation needs,
- Of "**roof**" packs comprising complete collector fields of 4 to 10 m<sup>2</sup>, available for mounting:
  - In roof-integrated assembly;
  - Or on a roof or terrace;
 To be completed with the "**cellar**" pack (solar hot water tank) appropriate to the desired CESI or SSC installation configuration.
- Of "**individual**" offers that can be adapted to any installation configuration to be constructed.

as well as various essential accessories for the implementation of an efficient solar installation.

In this document, we also present an annotated standard installation diagram for each solar system offered and in view of the solar tank selected.



ADVANCE

De Dietrich 

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# GENERAL

Our planet receives a significant input of solar energy each and every day. The power of this radiation in a given place is dependent on the surface temperature of the sun, the distance from Earth to the sun, weather conditions and atmospheric diffusion (dispersal, reflection and absorption phenomena). Summer and winter alike, the power of the solar radiation reaching a surface perpendicular to this radiation is approximately  $1000 \text{ W/m}^2$ . This figure will vary depending on the angle of incidence on the receiver, the intensity and the duration of exposure to sunlight. In France for example, the average quantity of solar energy received over one year is in the order of  $1115 \text{ kWh/m}^2\cdot\text{a}$ . [ $1050 \text{ kWh/m}^2\cdot\text{a}$  for Lille

(where the annual average exposure to sunlight is approximately 1600 h) to  $1550 \text{ kWh/m}^2\cdot\text{a}$  for Nice (where the annual average exposure to sunlight is 2800 h)].

It is therefore very advantageous to exploit this free, non-pollutant energy to produce hot water. The exploitation of solar energy by De Dietrich solar systems is achieved by thermal conversion thanks to glazed flat collectors. A suitable heat-carrying fluid stores up and transfers this energy to the exchanger in the solar tank where it is stored to be used whenever needed for DHW production and/or auxiliary heating.

## A FEW GOOD REASONS FOR CHOOSING A SOLAR SYSTEM FOR DOMESTIC HOT WATER PRODUCTION

**The most profitable domestic hot water production technology.** Compared with the acquisition of a traditional water heater, which means an investment plus energy costs for its operation, buying a solar domestic hot water production system means an investment and **energy savings, therefore more money in your pocket.**

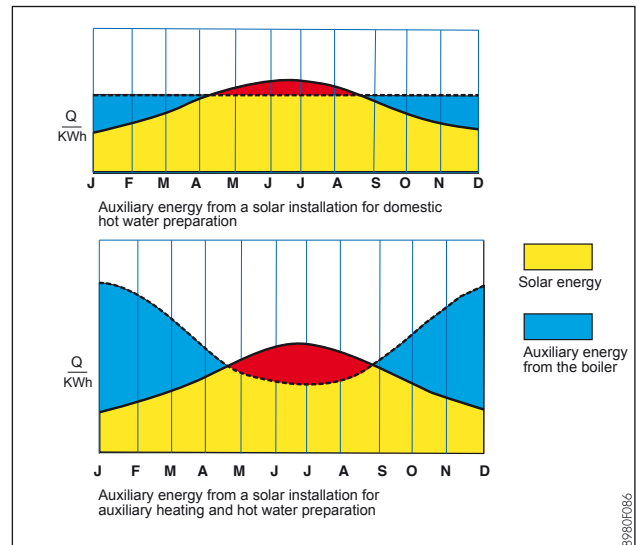
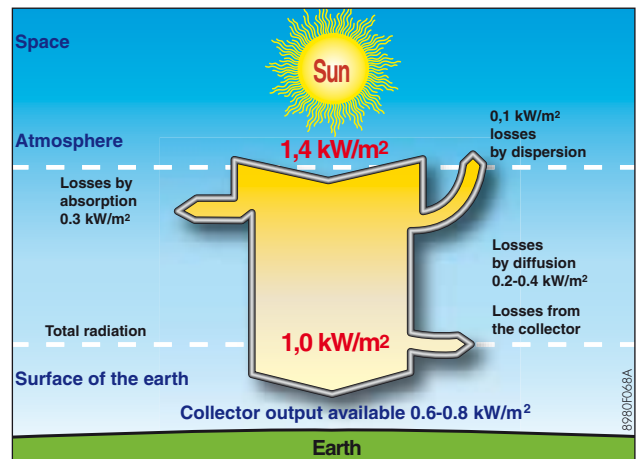
Current technology makes it possible not only to guarantee DHW production but also, by installing larger surface areas of collectors, the preheating of the water used to heat our homes, or even heating them completely at the change of season by means of underfloor heating or low temperature radiators, as well as heating a swimming pool in summer.

**Using solar energy means protecting the environment.**

This technology, which results in 1 to 1.5 tonnes less  $\text{CO}_2$  per year per family, is the only one that allows us to take effective action to **reduce greenhouse gas emissions.**

**Choosing solar energy means liberating oneself from the inevitable rise in the cost of traditional energies.**

Finally, with De Dietrich solar domestic hot water production systems, you have **the guarantee of a mature, innovative and perfectly reliable solution.**



## PERFORMANCE OF SOLAR COLLECTORS

Owing to their design, the De Dietrich solar collectors available are capable (depending on orientation and incline - see p. 7) of recovering 70 to 80% of the energy received by radiation in order to use it, via a suitable solar tank, for domestic hot water production and/or auxiliary heating.

## SOLAR SYSTEMS FOR THE PRODUCTION OF DOMESTIC HOT WATER (CESI)

CESI (individual solar water heater) is a system for producing hot water using solar collectors. Its principle: the heat-carrying fluid coming from the collector heats up the tank by means of an exchanger (coil) integrated into the bottom of the this

tank. This system can cover up to 60% of your annual DHW requirements. In winter, an auxiliary heating system must be used to make up for the lack of sunlight.

## SOLAR SYSTEMS FOR THE PRODUCTION OF DOMESTIC HOT WATER AND AUXILIARY HEATING (SSC)

The SSC (combined solar system) is a system that can be used both for the production of domestic hot water and for the provision of home heating. Its principle: the heat-carrying fluid heated up in the collectors is dispatched either to a plate exchanger (DIETRISOL QUADRO/QUADRODENS) or directly to a mixed tank with integrated exchanger and thus heats up the heating water stored in this tank.

DHW is produced either by means of a water bath system or instantaneously (stainless steel coil) in this storage volume. A heat generator (boiler, heat pump, etc.) connected to this same storage volume provides the additional energy needed either for DHW production or for heating.

# THE “DIETRISOL PRO” FLAT SOLAR COLLECTORS



## TECHNICAL DATA

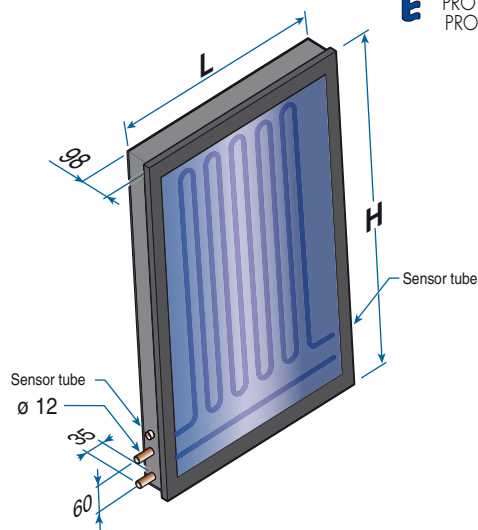
### General

These high performance flat collectors are the result of a new development for which all significant recent intelligence on solar techniques has been taken into account.

### The principal plus points of the DIETRISOL PRO collector are:

- High efficiency thanks to the use of selected components such as the flat absorber with “Sunselect” selective coating with single pipe coil exchanger, ensuring complete and continuous irrigation of the collector.
- Lower energy losses thanks to improved insulation (recyclable).
- Casing in anthracite grey enamelled aluminium profiles with rear closing plate for increased longevity and good optical specifications (no reflective elements on the roof).
- Covering in highly transparent safety glass 4 mm thick with 92% transmission.
- Simplified assembly thanks to the return pipe included in the collector, enabling its connection to a single side of the collector field, as well as to specific assembly systems, hydraulic collector connection kits and connection kits between 2 collectors.
- Can be installed equally on the roof or terrace or roof-integrated, in a horizontal or vertical position; thanks to the tray-shaped roof integration assembly system, the roofing and the installation of the collectors can be done separately at different times.
- Collector handling grip: available as optional equipment (see p. 50).

### Dimensions (mm)



KEY MARK n°  
PRO 2.3: 011-7S184 F  
PRO 2.5: 011-7S563F

8980C070D

	H	L
PRO 2.5	2152	1252
PRO 2.3	2040	1140

**Note:** The use of these collectors in mountain climates at a height above sea level of less than or equal to 900 m is limited for reasons of mechanical behaviour.

### Table of characteristics (in accordance with the EN 12975-2 standard)

Collector DIETRISOL	Type	PRO 2.5	PRO 2.3
Gross surface area (AG)	m <sup>2</sup>	2.70	2.32
Absorber area (AA)	m <sup>2</sup>	2.52	2.14
Input area (Aa)	m <sup>2</sup>	2.50	2.13
Net weight	kg	54.5	44.5
Absorption factor (α)		95 +/- 1 %	95 +/- 1 %
Emissivity (ξ)		5 +/- 1 %	5 +/- 1 %
Recommended flow rate with 4 interlinked panels	l/h.m <sup>2</sup>	55 (2.5 l/min)	55 (2.5 l/min)
Fluid resistance in “low flow” with 4 interlinked collectors	mbar	260	230
Fluid resistance in “high flow” with 4 interlinked collectors	mbar	600	520
Fluid capacity (coil + return pipe)	l	2.14	1.55
Values according to EN12975	Optical efficiency η <sub>0</sub>	0.800	0.802
	Transmission loss coeff. a <sub>1</sub>	3.980	4.181
	Transmission loss coeff. a <sub>2</sub>	0.0144	0.0100
Optical factor B		0.79	0.81
Heat transmission coefficient K	W/m <sup>2</sup> .K	4.72	4.98
Hydraulic connections	Cu... mm	12	12
Operating pressure	bar	3	3
Max. operating pressure	bar	6	6
Test pressure	bar	20	20
Recommended heat carrying fluid		Tyfoacor L or LS	Tyfoacor L or LS
Stagnation temperature t <sub>stg</sub>	°C	202	187
Maximum operating temperature	°C	120 (max. return)	120 (max. return)

# THE “DIETRISOL PRO” FLAT SOLAR COLLECTORS




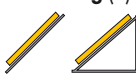

## PACKAGING

The CESI DIETRISOL PRO solar collector can be delivered in various forms of packaging:

- in “complete solar packs” corresponding to a complete installation

- in “roof packs” corresponding to complete fields of collectors
- individually

Below is a summary of the various solutions available:

Description		Roof integration mounting IT 	Package no.	Roof ST or terrace mounting (1) 	Package no.
Delivery in 1 complete pack  CESI packs with 2 PRO 2.3 collectors 8980Q233	DIETRISOL TRIO 250-4	IT	EC 504	ST	EC 500
	DIETRISOL TRIO 350-4	IT	EC 506	ST	EC 502
	DIETRISOL DUO/2 300-4	IT	EC 512	ST	EC 508
	DIETRISOL DUO/1 3004	IT	EC 514	ST	EC 510

**COMPLETE CESI SOLAR PACKS:** including collectors, the hydraulic connection accessories, the roof integration system (IT) or on-roof (ST) (including aluminium anchorage fittings for mechanical tiles), the CESI solar DHW tank chosen, 1 can of heat-carrying fluid and the collector sensor



### “ROOF” PACKS: complete solar collector fields

⇨ Roof integration **mounting (vertical mounting): IT**

These packs include the PRO collectors, the hydraulic connection accessories, the roof integration system and the collector sensor

⇨ On-roof or terrace **mounting: ST**

These packs include the PRO collectors, the hydraulic connection accessories, the on-roof or terrace mounting grooves and the collector sensor. **The anchorage fittings, or the tilting supports for terraces should be ordered separately** (see page 9)

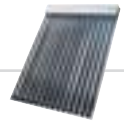
In vertical delivery  8980Q237	Pack 4 m <sup>2</sup> of collectors, i.e. 2 x PRO 2.3	IT	EC 528	ST	EC 518
	Pack 5 m <sup>2</sup> of collectors, i.e. 2 x PRO 2.5	IT	EC 531	ST	EC 521
	Pack 6 m <sup>2</sup> of collectors, i.e. 3 x PRO 2.3	IT	EC 529	ST	EC 519
	Pack 8 m <sup>2</sup> of collectors, i.e. 3 x PRO 2.5	IT	EC 532	ST	EC 522
	Pack 9 m <sup>2</sup> of collectors, i.e. 4 x PRO 2.3	-	-	ST	EC 520
	Pack 10 m <sup>2</sup> of collectors, i.e. 4 x PRO 2.5	IT	EC 533	ST	EC 523
In horizontal delivery  8980Q235	Pack 4 m <sup>2</sup> of collectors, i.e. 2 x PRO 2.3	IT	EC 589	ST	EC 583
	Pack 5 m <sup>2</sup> of collectors, i.e. 2 x PRO 2.5	IT	EC 586	ST	EC 580
	Pack 6 m <sup>2</sup> of collectors, i.e. 3 x PRO 2.3	-	-	ST	EC 584
	Pack 8 m <sup>2</sup> of collectors, i.e. 3 x PRO 2.5	IT	EC 587	ST	EC 581
	Pack 9 m <sup>2</sup> of collectors, i.e. 4 x PRO 2.3	-	-	ST	EC 585
	Pack 10 m <sup>2</sup> of collectors, i.e. 4 x PRO 2.5	IT	EC 588	ST	EC 582

**COLLECTORS PER UNIT** deliverable on pallets of several units (optimisation of the pallet according to the number of components ordered)

Individual delivery  8980Q274	1 collector DIETRISOL PRO 2.3	EG 446
	1 collector DIETRISOL PRO 2.5	EG 445

(1) The complete CESI ST solar packs include the aluminium anchorage fittings for mechanical tiles and are therefore unsuitable for terrace mounting.

# “DIETRISOL POWER” TUBULAR SOLAR COLLECTORS



## TECHNICAL DATA

### General

High efficiency tubular solar collectors, composed of 7, 10 or 15 concentric glass pipes under vacuum, for roof or terrace mounting juxtaposed vertically only. Possible to connect up to 10 collectors in series for DIETRISOL POWER 15; 14 for POWER 10 and 16 for POWER 7. They are used for all DHW production or heating water applications.

### The advantages of the POWER collector are:

High performance absorber designed for a glass-lined pipe with an outside coating of 9 selective aluminium/nitrite based layers.

The glass tubes are hard-wearing and entirely separate from the solar circuit made of copper pipe, thus making it possible to replace them without draining the installation.

The vacuum between the outside and inside pipes guarantees perfect insulation throughout the year.

The parabolic reflector guarantees optimum use of solar energy regardless of the angle of the sun's rays. A minimum angle of incline of 3° should nonetheless be observed to ensure adequate circulation of the fluid. The base frame is in aluminium and the integrated return pipes allow the POWER to be connected on a single side (right or left) whence the necessity to construct only one feed under the roof.

- POWER 7 collectors with dimensions designed especially to be able to pass through a skylight.

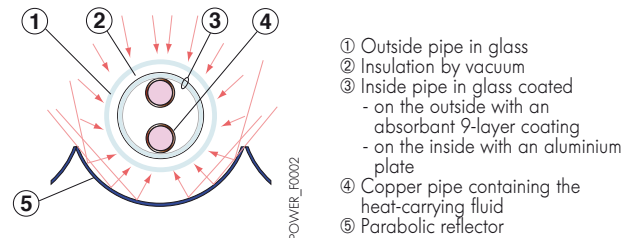
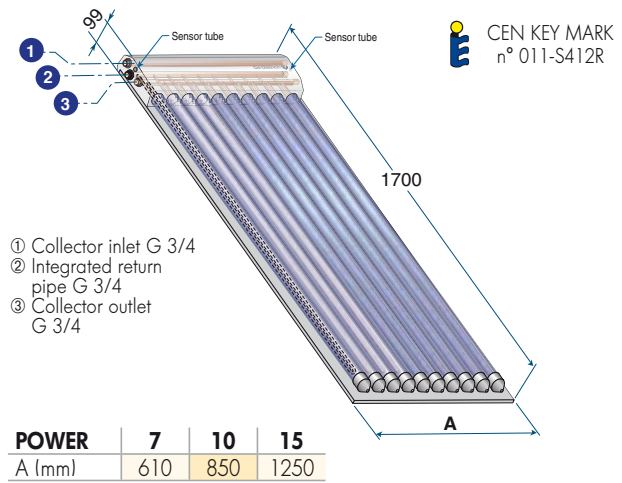


Table of characteristics (in accordance with the EN 12975-2 standard)

Collector DIETRISOL		Type	POWER 7	POWER 10	POWER 15
Gross surface area (AG)		m <sup>2</sup>	1.04	1.45	2.13
Absorber area (AA)		m <sup>2</sup>	1.16	1.65	2.48
Input area (Aa)		m <sup>2</sup>	0.801	1.14	1.72
Net weight		kg	25	33	47
Water resistance for 1 collector (for the recommended flow rate)		mbar	7	10	15
Fluid capacity		l	1.1	1.4	2.0
Recommended heat carrying fluid			Tyfocor LS	Tyfocor LS	Tyfocor LS
Recommended flow rate (per collector)		l/h	33	48	66
Max operating temperature		°C	120	120	120
Stagnation temperature tstg		°C	323	323	323
Operating pressure		bar	3	3	3
Max. operating pressure		bar	10	10	10
Test pressure		bar	15	15	15
Values according to EN12975	Optical efficiency $\eta_0$		0.745	0.756	0.764
	Transmission loss coeff. $\alpha_1$	W/m <sup>2</sup> .K	1.53	1.41	1.02
	Transmission loss coeff. $\alpha_2$	W/m <sup>2</sup> .K <sup>2</sup>	0.0003	0.0029	0.053

## PACKAGING

1 tubular collector POWER 7 : package EG 442  
POWER 10: package EG 390  
POWER 15: package EG 391

**Note:** Several collectors can be delivered upright on 1 pallet

# INSTALLING “DIETRISOL PRO” AND “POWER” SOLAR COLLECTORS

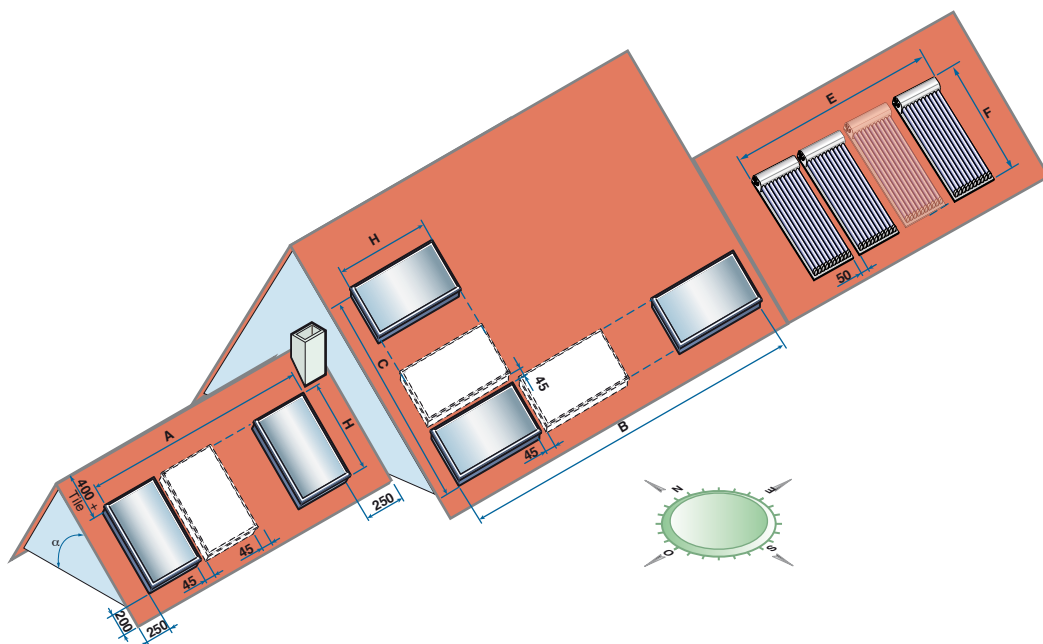
## INSTALLATING AND DIMENSIONS OF THE COLLECTOR FIELD

- DIETRISOL PRO collectors are designed to be installed in batteries of up to a maximum of 4 units juxtaposed in vertical or horizontal mounting.
- DIETRISOL POWER collectors can be installed in batteries of up to 10 units maximum for POWER 15, 14 for POWER 10 and 16 for POWER 7.
- South-East/South/South-West orientation, not shaded in winter as the sun sets.
- A roof gradient (angle  $\alpha$ ) of between  $25^\circ$  and  $60^\circ$  (i.e. between 46 and 173%), a gradient of  $45^\circ$  (100%) being optimal for a CESI installation. For an SSC installation, the incline must be  $> 40^\circ$  (gradient  $> 84\%$ ) to optimise the solar contribution to heating in winter.
- In particular conditions of abundant snowfall or high winds (at altitude or for very high buildings), please consult us.

### Note:

- the installation of collectors on facades is possible ; in this case, we recommend using a slight incline insofar as this is possible (a difference of approximately 10 cm from the wall to the bottom of the collector).
- for POWER collectors, flat mounting is possible but must nonetheless have a minimum incline of  $3^\circ$ .

Mounting	DIETRISOL PRO	DIETRISOL POWER
<b>on a sloping roof:</b>		
- superposed vertically	x	
- juxtaposed or superposed horizontally	x	
- juxtaposed vertically	x	x
<b>on a terrace:</b>		
- juxtaposed vertically (min. incline of $30^\circ$ )	x	x
- juxtaposed horizontally (min. incline of $20^\circ$ )	x	
<b>on roof integration mounting:</b>		
- juxtaposed vertically	x	



8996P315B

Number of collectors	DIETRISOL PRO 2.5			DIETRISOL PRO 2.3			
	2	3	4	2	3	4	
1 row of captors	Input area Aa (m <sup>2</sup> )	5.0	7.5	10.0	4.3	6.4	8.5
	Gross surf. area Ag (m <sup>2</sup> )	5.4	8.1	10.8	4.64	6.96	9.28
	H (m)	2.2	2.2	2.2	2.1	2.1	2.1
2 rows of captors	Input area Aa (m <sup>2</sup> )	10.0	15.1	20.1	8.5	12.8	17.0
	Gross surf. area Ag (m <sup>2</sup> )	10.8	16.2	21.6	9.28	13.92	18.56
	H (m)	4.4	4.4	4.4	4.2	4.2	4.2
3 rows of captors	Input area Aa (m <sup>2</sup> )	15.1	22.6	30.1	12.8	19.2	25.6
	Gross surf. area Ag (m <sup>2</sup> )	16.2	24.3	32.4	13.92	20.88	27.84
	H (m)	6.6	6.6	6.6	6.3	6.3	6.3
A (m)	2.6	3.9	5.2	2.4	3.6	4.7	
B (m)	4.4	6.6	8.8	4.2	6.3	8.3	
C (m)	2.6	3.9	5.2	2.4	3.6	4.7	

	DIETRISOL POWER											
	1.7	2.3	2.9	3.4	4.0	5.2	6.4	8.0	10.3	12.0	13.8	
Input area of collectors Aa (m <sup>2</sup> )	1.7	2.3	2.9	3.4	4.0	5.2	6.4	8.0	10.3	12.0	13.8	
Number of collectors	POWER 10	-	2	1	-	2	-	1	1	-	-	
	POWER 15	1	-	1	2	1	3	3	4	6	7	
Gross surf. area of collectors Ag (m <sup>2</sup> )	2.1	2.9	3.6	4.3	5.0	6.4	7.8	10.0	12.8	14.9	17.4	
E (m)	1.3	1.8	2.2	2.6	3.1	3.9	4.8	6.1	7.8	9.1	10.4	
F (m)	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	

**Note:** for DIETRISOL POWER 7 collectors, the total width on the roof will be:  
 $E (m) = \frac{(610+50) \times \text{number of collectors}}{1000}$

# INSTALLING “DIETRISOL PRO” SOLAR COLLECTORS



## MOUNTING SOLAR COLLECTOR DIETRISOL PRO... IN ROOF INTEGRATION

**Important:** the integration kit is only used for a roof gradient of between 40 and 210% (i.e. between 20° and 65°). Below 60% (31°) and for “canal” type tiles, we recommend calling in a roofing specialist.

The integration kit is mounted on the base battening instead and in the place of tiles: up to 4 PRO collectors can thus be integrated into the roof in series.

The **basic integration kit** includes all the equipment required to integrate 2 DIETRISOL PRO collectors into the roof. It is delivered in 2 packages:

- 1 package containing the profiles and the parts needed to attach the collectors to these profiles;
- 1 package including the tray and the cladding kit.

The **extension kit** includes all the equipment needed to integrate an additional collector. This is also delivered in 2 packages: 1 “Profiles” package + 1 “Tray + Cladding” package.

Once the profiles have been screwed into place, the collectors are attached following the same principle as for on-roof mounting (see next page).

The following precautions should be taken when putting the kit in place:

- The battening must be in good condition to be capable of bearing the weight of the collectors;
- A water proof film must be laid under the battening;
- If possible, the entire system must be installed by a roofing specialist who will check that it is watertight.

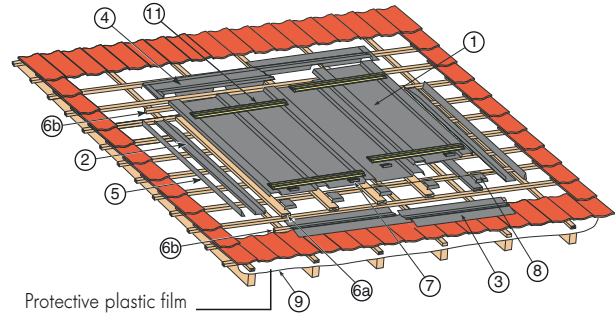


2 vertical collectors mounted in roof integration on mechanical tiles

8980C249

### Principle

- Mounting the tray and the profiles



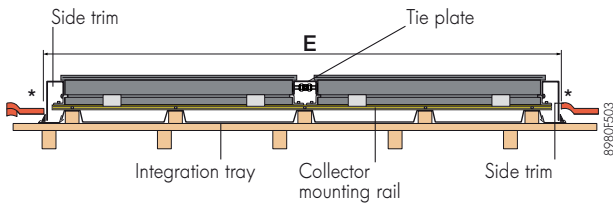
Protective plastic film

8980F301

- Mounting the cladding (trim)

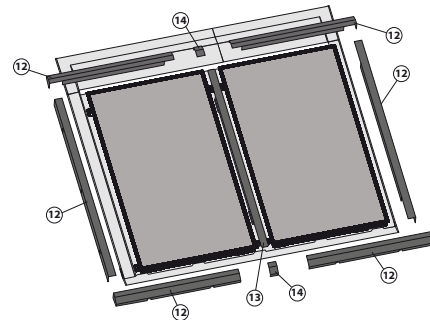
**⚠ Can only be installed after hydraulic connection**

### Area taken up by a battery of roof-integrated juxtaposed DIETRISOL PRO collectors



8980F503

Number of collectors		2	3	4
Gross surf. area	PRO 2.3	4.6	7.0	9.3
A <sub>G</sub> (m <sup>2</sup> )	PRO 2.5	5.4	8.9	10.8
Input area	PRO 2.3	4.3	6.4	8.5
A <sub>a</sub> (m <sup>2</sup> )	PRO 2.5	5.0	7.5	10.0
E (m <sup>2</sup> )	PRO 2.3	2.64	3.83	5.01
	PRO 2.5	2.87	4.17	5.47



8980F504

- ① Tray (4 items)
- ② Side covering plates (2 items)
- ③ Bottom covering plates (2 items)
- ④ Top covering plates (2 items)
- ⑤ Sealing blocks
- ⑥ Mounting plate (5 items)
- ⑥a Mounting batten (2 items)
- ⑦ Collector hooks (4 items)
- ⑧ Closing plug (5 items)
- ⑩ Profiles (4 items)
- ⑫ Trim
- ⑬ Tie plate
- ⑭ Part for covering the tie plate

Unitary components	Reference no.		Number of collectors in vertical juxtaposed mounting					
	for DIETRISOL PRO 2.5	for DIETRISOL PRO 2.3	2	3	4	2 x 3	3 x 2	2 x 4

### Roof integration kits

**Note:** the IT “roof” packs - package EC 528 to 533 and EC 586 to 589, like the complete IT solar packs - package EC 504, 506, 512 and 514 include the appropriate complete roof integration system.

For individually delivered collectors:

	Ref	100006821	100006823						
Complete basic integration kit for 2 collectors in vertical montage on mechanical tiles	Package	EG 412 + EG 471	EG 416 + EG 473	1	1	1	2	3	2
Extension integration kit for 1 additional collector	Ref	100006820	100006822						
	Package	EG 410 + EG 470	EG 414 + EG 472		1	2	2	-	4
Flashings kit for roofs with flat tiles or slates		EG 425	EG 425	1	1	1	1	1	1

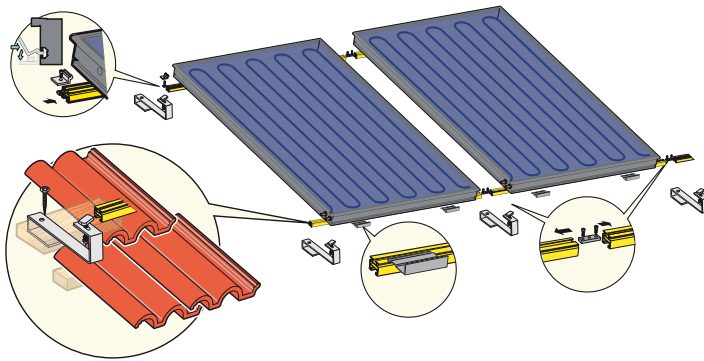


# INSTALLING “DIETRISOL PRO” SOLAR COLLECTORS



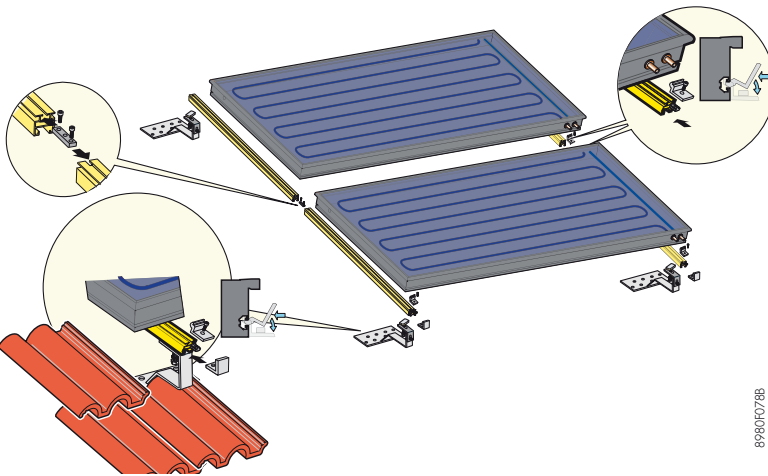
## MOUNTING SOLAR COLLECTORS DIETRISOL PRO ON THE ROOF

Collectors juxtaposed vertically or horizontally



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Collectors superposed horizontally



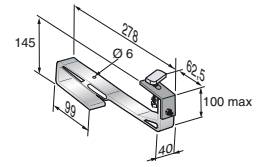
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**Note:** The groove kits also include the fittings needed to secure the collectors to these grooves.

### Various anchorage fittings available

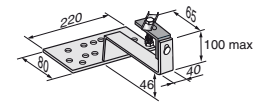
#### • Fitting off hooks

Aluminum roof anchorage fittings, for mechanical tiles

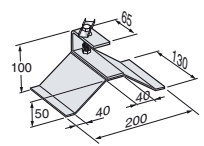


#### • Fitting on hooks

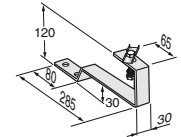
Stainless steel anchorage fittings, for mechanical tiles



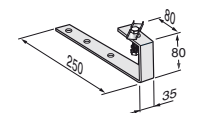
Stainless steel anchorage fittings, on sheet roof



Stainless steel anchorage fittings, for flat tiles



Stainless steel anchorage fittings, on slate roof



**Note:** coach bolt kits for DIETRISOL PRO 2.3 are also available.



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### Table of packages needed according to the number of collectors

Unitary components	Package no.		Number of collectors in							vert. or hor.
	for PRO 2.5	for PRO 2.3	vertical juxtaposed mounting or horizontal superposed			horizontal juxtaposed mounting				
			2	3	4	2	3	4	1	
Profile kit for 1 vertically mounted collector	EG 448	EG 449	2	3	4				1	
Profile kit for 1 horizontally mounted collector	EG 310	EG 310				2	3	4		
Profile coupling kit	EG 307	EG 307	included in EG 448 to 449			1	2	3		
<b>+ depending on the roof type</b> , in addition to the “roof” packs or with individually delivered collectors:										
Aluminum roof anchorage fittings, for mechanical tiles	4 pces	EG 311	EG 311		2	1	2	3	4	1
or	6 pces	EG 312	EG 312	1		1				
Stainless steel anchorage fittings, for mechanical tiles	4 pces	EG 313	EG 313		2	1	2	3	4	1
or	6 pces	EG 314	EG 314	1		1				
Stainless steel anchorage fittings, on sheet roof	4 pces	EG 315	EG 315		2	1	2	3	4	1
or	6 pces	EG 316	EG 316	1		1				
Stainless steel anchorage fittings, for flat tiles	4 pces	EG 317	EG 317		2	1	2	3	4	1
or	6 pces	EG 318	EG 318	1		1				
Stainless steel anchorage fittings, on slate roof	4 pces	EG 319	EG 319		2	1	2	3	4	1
or	6 pces	EG 320	EG 320	1		1				
Coach bolt kits	6 pces	-	EG 94	1		2		2		1
	8 pces	-	EG 95		1		1		2	

# INSTALLING “DIETRISOL PRO” SOLAR COLLECTORS



## MOUNTING SOLAR COLLECTORS DIETRISOL PRO ON A TERRACE

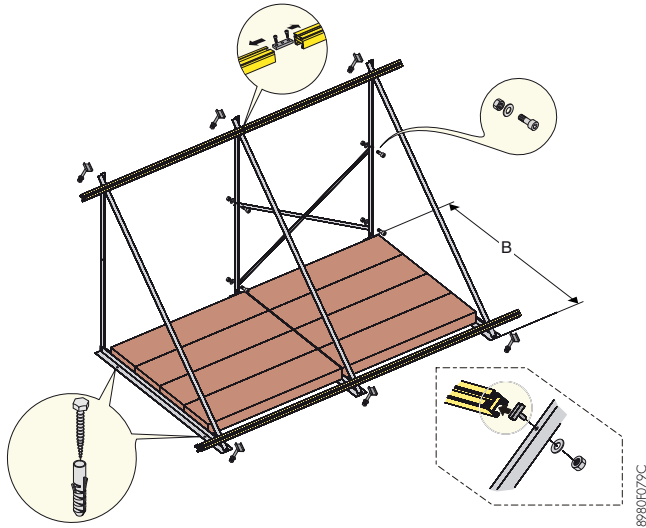




The principle of mounting flat collectors on tiltable supports for terrace installation is the same as for roof mounting (see previous page) but the roof anchorage fittings are replaced by the tiltable supports with stabilising crosses. In order to ensure the stability of the whole, the support must be firmly attached to its base. If the stability of the support is not

guaranteed by screw fittings, it should be given sufficient ballast to be able to deal with exposure to the wind and the ensuing stresses: edging stones (not provided) may, for example, be used for this purpose. A ballast in accordance with the codes of practice of the profession and the prevailing regulations is required.

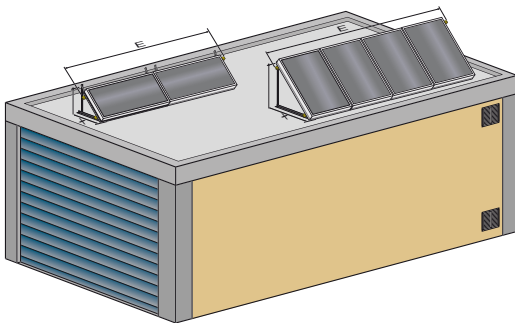
For more details, you can refer to the installation instructions for collectors, particularly for use on flat roofs and compliance with the relevant standards.

The admissible load on the terrace must in no event be exceeded. If necessary, a specialist in statics must be consulted beforehand.



B: 1320 mm for vertically mounted collectors  ...  
 B: 680 mm for horizontal mounted collectors  ...

## Area taken up by a battery of n DIETRISOL PRO collectors (juxtaposed) mounted on a terrace



Number of collectors	Vertical mounting				Horizontal mounting				
	1	2	3	4	1	2	3	4	
Input area (m <sup>2</sup> )	PRO 2.3	2.1	4.3	6.4	8.5	2.1	4.3	6.4	8.5
	PRO 2.5	2.5	5.0	7.5	10	2.5	5.0	7.5	10
E (m)	PRO 2.3	1.2	2.4	3.6	4.7	2.1	4.2	6.3	8.3
	PRO 2.5	1.3	2.6	3.9	5.2	2.2	4.4	6.6	8.8
X (m) for an incline of the support	30°	PRO 2.3: 1.77		PRO 2.5: 1.86		PRO 2.3: 0.99		PRO 2.5: 1.08	
	45°	PRO 2.3: 1.44		PRO 2.5: 1.52		PRO 2.3: 0.81		PRO 2.5: 0.89	
	60°	PRO 2.3: 1.02		PRO 2.5: 1.08		PRO 2.3: 0.57		PRO 2.5: 0.63	

If several rows of collectors are to be mounted one behind the other and in order to prevent any of them being in the shade, the following spacing must be observed:  
 vertical mounting: min. spacing between 2 rows . 5 m  
 horiz. mounting: min. spacing between 2 rows . 3 m.

# INSTALLING “DIETRISOL PRO” SOLAR COLLECTORS



Table of packages needed according to the number of collectors and their layout

Unitary components	Reference no.		Number of collectors in						
	for PRO 2.5	for PRO 2.3	vertical juxtaposed mounting or horizontal superposed			horizontal juxtaposed mounting			vert. or hor.
			2	3	4	2	3	4	
<b>Terrace mounting kits</b>									
<b>NB:</b> the ST “roof” packs – packages EC 518 to 523 and EC 580 to 585 – already include the profiles; the tiltable supports must be ordered separately. For individually delivered collectors:									
Profile kit for 1 vertically mounted collector	EG 448	EG 449	2	3	4				1
Profile kit for 1 horizontally mounted collector	EG 310	EG 310				2	3	4	
Profile coupling kit	EG 307	EG 307	included in EG 448 to 449			1	2	3	
+ in addition to the “roof” kits or with individually delivered collectors:									
3 tiltable supports with crosses for 2 vertically mounted collectors	EG 358	EG 358	1	1	1				
3 tiltable supports without crosses for 2 vertically mounted collectors	EG 359	EG 359		1	1				
2 tiltable supports with crosses for 1 horiz. mounted collector	EG 325	EG 325				2	3	4	1

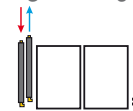
## HYDRAULIC CONNECTION ACCESSORIES



### Basic hydraulic connection kit for 2 collectors

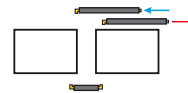
For juxtaposed vertical or superposed horizontal mounting - Package EG 305

Comprises 2 insulated flow and return hoses with clamping ring screw connections for pipe Ø 15, 16 or 18 mm, 1 insulated return connection pipe (bridge).



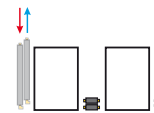
### For juxtaposed horizontal mounting - Package EG 308

Comprises 2 insulated flow and return hoses with clamping ring screw connections for pipe Ø 15, 16 or 18 mm, 1 insulated short connection.



### Hydraulic connection kit between 2 collectors (for juxtaposed vertical mounting or superposed horizontal mounting) - Package EG 306

Comprises 2 clamping ring screw connections Ø 12 mm.



### Extension kit for an additional juxtaposed horizontally mounted collector - Package EG 309

Comprises 1 long insulated connection pipe and 1 insulated return connection pipe (bridge).

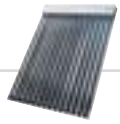


Table of packages needed according to the number of collectors and their layout

Unitary components	Reference no.	Number of collectors in						
		vertical juxtaposed mounting or horizontal superposed			horizontal juxtaposed mounting			vert. or hor.
		2	3	4	2	3	4	
<b>Hydraulic accessories</b>								
<b>Note:</b> the hydraulic kits are included in all “roof” packs - package EC 518 to 533 and EC 580 to 589 - and in all complete solar packs - package EC 500 to 514								
For individually delivered collectors:								
Basic hydraul. connection kit for 2 collectors	EG 305	1	1	1				1
Hydraul. connection kit between 2 collectors	EG 306	1	2	3				
Basic hydraul. conn. kit for 2 collectors for juxtaposed horiz. mounting	EG 308				1	1	1	
Extension kit for 1 additional collector for juxtaposed horiz. mounting	EG 309				1	2		

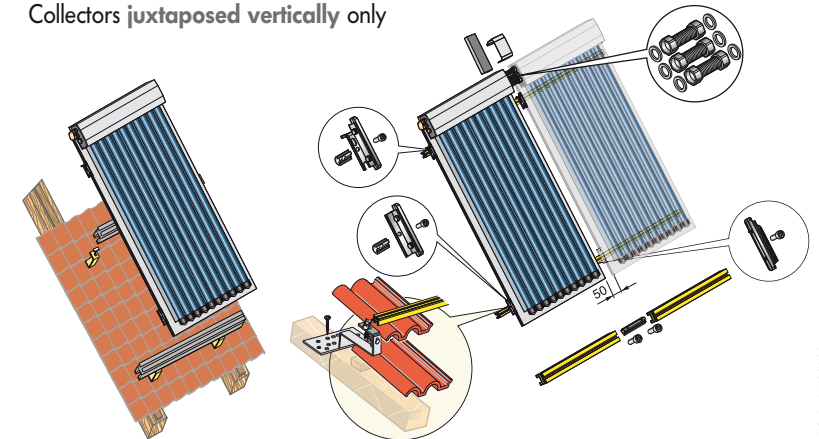
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# INSTALLATION OF TUBULAR SOLAR COLLECTORS “DIETRISOL POWER”



## MOUNTING SOLAR COLLECTORS DIETRISOL PRO ON THE ROOF

Collectors juxtaposed vertically only

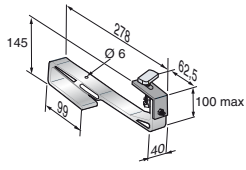


**ER 30, 31, 32**  
**Profile kit for mounting 1 collector POWER 7**  
 Package ER 30  
**Profile kit for mounting 1 collector POWER 10**  
 Package ER 31  
**Profile kit for mounting 1 collector POWER 15**  
 Package ER 32  
 (allow 1 kit per collector).  
 This kit includes 2 profiles and the screw fittings needed for mounting these profiles on the roof.

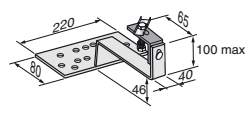
**EG 392**  
**Kit for fastening collectors to profiles - Package EG 392**  
 This kit includes the 4 items needed for fastening the collectors to the profiles with their screw fittings. Allow 1 kit per collector

### Various anchorage fittings available

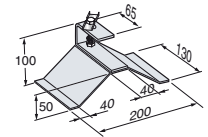
• **Fitting off hooks**  
 Aluminum roof anchorage fittings, for mechanical tiles



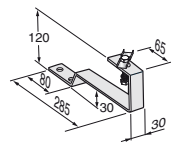
• **Fitting on hooks**  
 Stainless steel anchorage fittings, for mechanical tiles



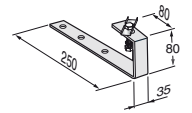
Stainless steel anchorage fittings, on sheet roof



Stainless steel anchorage fittings, for flat tiles



Stainless steel anchorage fittings, on slate roof



### Packaging dependent on the input area of collectors to be installed on the roof

I.e.:	DIETRISOL POWER 10 DIETRISOL POWER 15	Package no.	Input area of the collectors in m <sup>2</sup>											
			1.7	2.3	2.9	3.4	4.0	5.2	6.4	8.0	10.3	12.0	13.8	
			-	2	1	-	2	-	1	1	-	-	-	
			1	-	1	2	1	3	3	4	5	6	7	8
<b>On-roof mounting system (juxtaposed vertical mounting)</b>														
- Profile kit for	DIETRISOL POWER 10	ER 31	-	2	1	-	2	-	1	1	-	-	-	-
	DIETRISOL POWER 15	ER 32	1	-	1	2	1	3	3	4	6	7	8	
- Kit for fastening collector to profiles		EG 392	1	2	2	2	3	3	4	5	6	7	8	
<b>Anchorage fittings for tiled roof installation:</b>														
Mechanical (aluminum)	Mechanical (stainless steel)	Flat (stainless steel)	Sheeting (stainless steel)	Slates (stainless steel)										
EG 311	EG 313	EG 315	EG 317	EG 319	4 pces	(1)	1	-	-	-	2	2	1	-
EG 312	EG 314	EG 316	EG 318	EG 320	6 pces	(1)	-	1	1	1	-	-	1	2

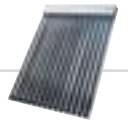
**Note:** If mounting DIETRISOL POWER 7 collectors (specially designed to be capable of passing through a skylight), the definition of

the packages needed will be done according to the table below.

I.e.:	DIETRISOL POWER 7	Package no.	Input area of the collectors in m <sup>2</sup>															
			1.6	2.4	3.2	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	10.4	11.2	12.1	12.9	
			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
<b>On-roof mounting system (juxtaposed vertical mounting)</b>																		
- Profile kit for	DIETRISOL POWER 7	ER 30	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
- Kit for fastening collector to profiles		EG 392	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
<b>Anchorage fittings for tiled roof installation:</b>																		
Mechanical (aluminum)	Mechanical (stainless steel)	Flat (stainless steel)	Sheeting (stainless steel)	Slates (stainless steel)														
EG 311	EG 313	EG 315	EG 317	EG 319	4 pces	(1)	-	2	1	-	2	1	-	2	1	-	2	
EG 312	EG 314	EG 316	EG 318	EG 320	6 pces	(1)	1	-	1	2	1	2	3	2	3	4	3	

(1) to be selected according to roof type.

# DIETRISOL POWER INSTALLATION OF TUBULAR SOLAR COLLECTORS



## MOUNTING SOLAR COLLECTORS DIETRISOL POWER ON A TERRACE

(DIETRISOL POWER 10 and POWER 15 collectors only)

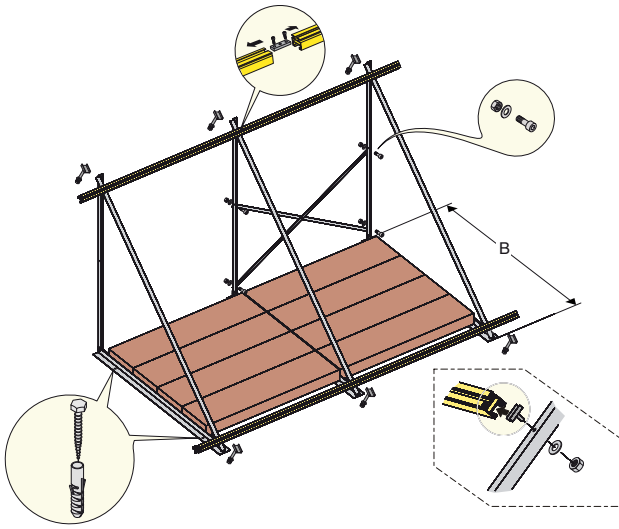
The principle of mounting flat collectors on tiltable supports for terrace installation is the same as for roof mounting (see previous page) but the roof anchorage fittings are replaced by the tiltable supports with stabilising crosses.


In order to ensure the stability of the whole, the support must be firmly attached to its base. If the stability of the support is not

guaranteed by screw fittings, it should be given sufficient ballast to be able to deal with exposure to the wind and the ensuing stresses: edging stones (not provided) may, for example, be used for this purpose. A ballast in accordance with the codes of practice of the profession and the prevailing regulations is required.

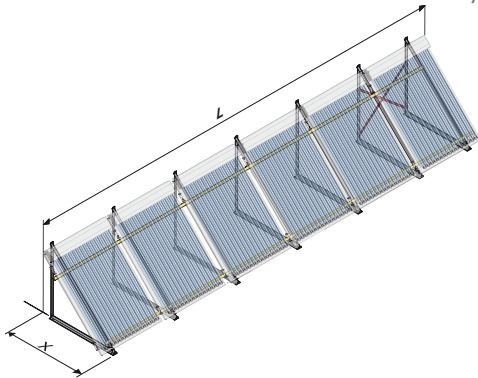
For more details, you can refer to the installation instructions for collectors, particularly for use on flat roofs and compliance with the relevant standards.

The admissible load on the terrace must in no event be exceeded. If necessary, a specialist in statics must be consulted beforehand.



B: 1320 mm for vertically mounted collectors  ...

### Area taken up by a battery of n vertically juxtaposed and terrace mounted DIETRISOL POWER collectors (DIETRISOL POWER 10 and POWER 15 collectors only)



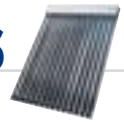
Input area (m <sup>2</sup> )	1.7	2.3	2.9	3.4	4.0	5.2	6.4	8.0	10.3	12.0	13.8
i.e.: DIETRISOL POWER 10	-	2	1	-	2	-	1	1	-	-	-
DIETRISOL POWER 15	1	-	1	2	1	3	3	4	6	7	8
L (m)	1.3	1.75	2.15	2.6	3.1	3.9	4.8	6.1	7.8	9.1	10.4
X (m) 30°	1.5										
for an incline of 45°	1.2										
the support 60°	0.9										

If several rows of collectors are to be mounted one behind the other and in order to prevent any of them being in the shade, the following spacing must be observed: vertical mounting: min. spacing between 2 rows . 5 m

### Packaging dependent on the input area of collectors to be installed on the roof

With Power 10 and Power 15 collectors	Package no.	Input area of the collectors in m <sup>2</sup>										
		1.7	2.3	2.9	3.4	4.0	5.2	6.4	8.0	10.3	12.0	13.8
i.e.: DIETRISOL POWER 10		-	2	1	-	2	-	1	1	-	-	-
DIETRISOL POWER 15		1	-	1	2	1	3	3	4	6	7	8
<b>Terrace mounting system (juxtaposed vertical mounting)</b>												
- Profile kit for DIETRISOL POWER 10	ER 31	-	2	1	-	2	-	1	1	-	-	-
DIETRISOL POWER 15	ER 32	1	-	1	2	1	3	3	4	6	7	8
- Kit for fastening collector to profiles	EG 392	1	2	2	2	3	3	4	5	6	7	8
<b>Tiltable supports with stabilising crosses (for terrace mounting)</b>												
- 3 supports with stabilising crosses	EG 358	1	1	1	1	1	1	1	1	1	1	1
- 3 supports without stabilising crosses	EG 359	-	-	-	-	1	1	1	2	2	2	2

# DIETRISOL POWER INSTALLATION OF TUBULAR SOLAR COLLECTORS

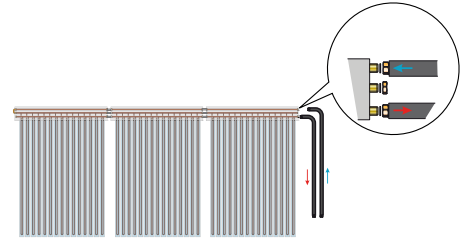


## HYDRAULIC CONNECTION ACCESORIES FOR DIETRISOL POWER COLLECTORS



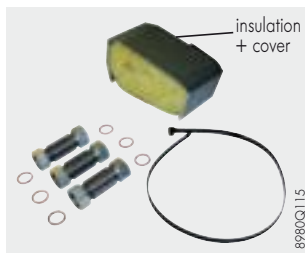
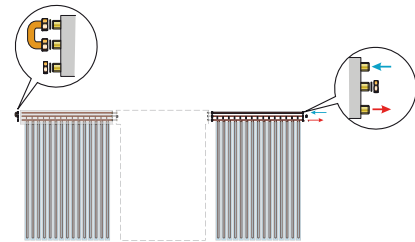
**Set of 2 hoses + collector sensor - Package EG 355**

Used to connect a battery of collectors to the collector pipe.



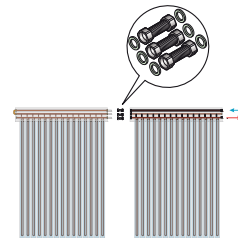
**Connection kit: endpiece + plug - Package EG 394**

Used for the hydraulic connection of the collector on a single side (right or left) by means of the integrated return pipes.



**Hydraulic connection kit between 2 collectors - Package EG 393**

Used for the hydraulic connection between 2 collectors. Delivery includes insulation + cover for the connection.



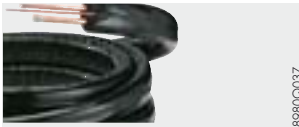
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### Packaging dependent on the number of collectors to be installed on the roof

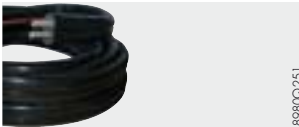
With Power 10 and Power 15 collectors		Package no.	Input area of the collectors in m <sup>2</sup>										
			1.7	2.3	2.9	3.4	4.0	5.2	6.4	8.0	10.3	12.0	13.8
I.e.:	<b>DIETRISOL POWER 10</b>		-	2	1	-	2	-	1	1	-	-	-
	<b>DIETRISOL POWER 15</b>		1	-	1	2	1	3	3	4	6	7	8
<b>Hydraulic connection accessories</b>													
- Set of 2 hoses + collector sensor		EG 394	1	1	1	1	1	1	1	1	1	1	1
- Connection kit: endpiece + plug		EG 355	1	1	1	1	1	1	1	1	1	1	1
- Hydraulic connection kit between 2 collectors		EG 393	-	1	1	1	2	2	3	4	5	6	7

With Power 7 collectors		Package no.	Input area of the collectors in m <sup>2</sup>															
			1.6	2.4	3.2	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	10.4	11.2	12.1	12.9	
I.e.:	<b>DIETRISOL POWER 7</b>		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	<b>Hydraulic connection accessories</b>																	
- Set of 2 hoses + collector sensor		EG 394	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
- Connection kit: endpiece + plug		EG 355	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
- Hydraulic connection kit between 2 collectors		EG 393	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

# HYDRAULIC ACCESSORIES FOR SOLAR INSTALLATIONS



**Double pre-insulated "Duo-Tube" pipes with UV protection and cable for collector sensor**  
 Duo-Tube Cu Ø 15 x 10 m - Package EG 106  
 Duo-Tube Cu Ø 15 x 15 m - Package EG 107  
 Duo-Tube Cu Ø 18 x 15 m - Package EG 108



**Double pre-insulated "Duo-Flex" pipes with UV protection and cable for collector sensor**  
 Duo-Flex in ribbed stainless steel Ø 16 x 15 m - Package EG 455  
 Duo-Flex in ribbed stainless steel Ø 20 x 15 m - Package EG 456



**Set of "Duo-Tube" or "Duo-Flex" clamps**  
 for "Duo-Tube Cu" 15 and "Duo-Flex" Ø 16 mm,  
 4 parts - Package EG 109

for "Duo-Tube" Cu 18 and "Duo-Flex" Ø 20 mm,  
 4 parts - Package EG 110



**Set of clamping ring screw connections for connecting tanks to "Duo-Tubes" without brazing**

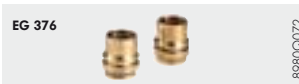
**Set of 2 clamping ring screw connections**  
 Ø 15 mm - Package EG 374

These connections are used to commission the solar circuit without brazing and for the connection between two pipes Ø 15 or 18 mm.

for assembling 2 "Duo-Tubes" Ø 15 mm

**Set of 2 clamping ring screw connections**  
 Ø 18 mm - Package EG 375

for assembling 2 "Duo-Tubes" or 2 pipes Ø 18 mm



**Set of 2 clamping ring screw reductions Ø 18/15 mm** - Package EG 376

for use with package EG 375



**Set of 2 connections for "DUO-Flex" Ø16 mm, with clamping ring screw Ø18 mm** - Package EG 457

for assembling 2 "DUO-Flex" Ø16 mm

**Set of 2 connections for "DUO-Flex" Ø20 mm, with clamping ring screw Ø18 mm** - Package EG 458

for assembling 2 "DUO-Flex" Ø20 mm



**Solar circuit expansion vessel (6 bar - 120 °C)**  
 18 litres - Package EG 14  
 25 litres - Package EG 82

40 litres - Package EG 83

60 litres - Package EG 84

## Sizing an expansion vessel

The size of the expansion vessel depends mainly on the volume that may evaporate if the installation shuts down. Therefore, the size of the expansion vessel will be determined according to the number of collectors.

### Note:

The pre-load pressure in the vessel and the pressure in the installation will have to be adapted according to its specificities.

Input surface area of the collectors	Lengths for conduits < 30 m
until 5 m <sup>2</sup>	18 litres
from 5 to 10 m <sup>2</sup>	25 litres
from 10 to 15 m <sup>2</sup>	35 litres
from 15 to 20 m <sup>2</sup>	50 litres
+ than 20 m <sup>2</sup>	80 litres



**Wall mounting kit for expansion vessels up to 25 litres** - Package EC 118



## Heat-carrying fluid solar circuit

- **Premixture type LS "high performances", 20 litres**  
 - Package EG 100

- **Concentrated type L, 10 litres (glycol to be mixed with water)** - Package EG 11

The heat-carrying fluid extracts the usable heat from the absorber and transfers it to the solar

tank. The premixtures are composed of water and propylene glycol in the proportions of 60/40 to 45/55. Their freezing point is at -21 °C or -26 °C). If necessary (outside temp. < -26 °C, for example.) the fluid will be mixed from the concentrate (package EG 11) according to the table below.

Characteristics of the concentrate:

Boiling point: in excess of 150 °C  
 Solidification point: lower than -50 °C  
 pH conc.: 6.5 - 8.0  
 Flash point: > 130 °C

Characteristics: concentrate / water mixture

% vol. WT. P	Density à 20 °C (g/cm <sup>3</sup> )	Antifreeze protection (°C)	Spec. heat at 20 °C (J/g.K)	Viscosity at 20 °C (mm <sup>2</sup> /s)
25	1.023	-10	3.39	2.55
30	1.029	-13	3.85	3.09
35	1.033	-17	3.77	3.64
40	1.037	-21	3.76	2.18
45 (Premixture LS)	1.042	-26	3.58	5.12
50	1.045	-32	3.48	6.08
55	1.048	-40	3.38	7.17

## Volume of fluid required by the installation

To determine the quantity of heat-carrying fluid, it is necessary to calculate the gross volume of the installation. This is the result of the sum of the volumes of the collectors, the solar exchanger, the solar station and the corresponding pipes. Pre-loading of the expansion vessel should also be taken into consideration.

pH 1:2 with distilled water: 7.5-8.5

# HYDRAULIC CONNECTION OF THE COLLECTORS


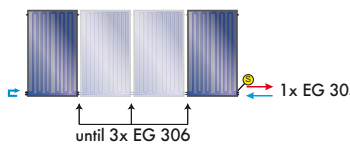
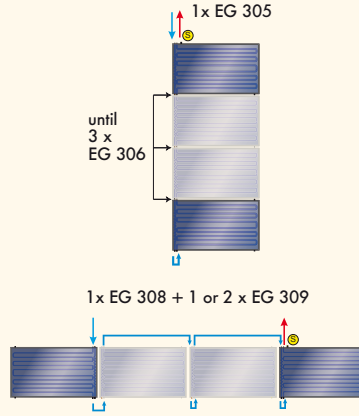
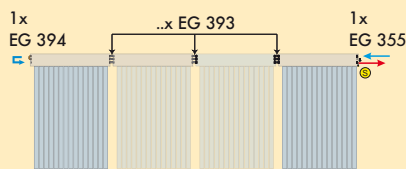

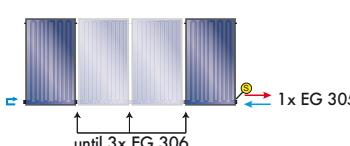
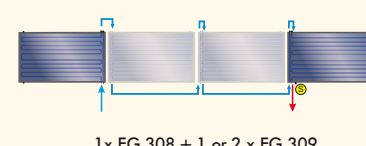
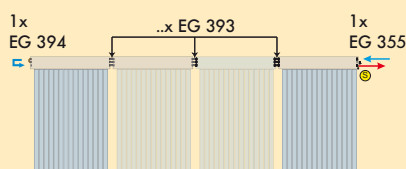

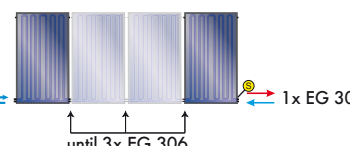
## MOUNTING OPTIONS AND HYDRAULIC CONNECTION PRINCIPLE FOR DIETRISOL PRO OR POWER COLLECTORS

Various hydraulic collector connections are possible, depending on whether they are mounted:

- On-roof "ST"
- On terrace "ET"
- Roof-integrated "IT"

**Important:** It is possible to hydraulically connect only:

- 4 DIETRISOL PRO... collectors maximum in series
- 10 DIETRISOL POWER 15 collectors maximum in series
- 14 DIETRISOL POWER 10 collectors maximum in series
- 16 DIETRISOL POWER 7 collectors maximum in series

DIETRISOL COLLECTORS PRO 2.3 or PRO 2.5 In VERTICAL mounting	In HORIZONTAL mounting	DIETRISOL COLLECTORS POWER 15/10/7 In VERTICAL mounting only
<b>ON-ROOF (ST)</b> 		
 <ul style="list-style-type: none"> <li>- Connection at the top or bottom, to the right or left, depending on needs</li> <li>- To mount &gt; 4 collectors, allow 2 rows of superposed or juxtaposed collectors connected separately; central connection of 2 fields possible with Tichelmann loop</li> </ul>	 <ul style="list-style-type: none"> <li>- Connection at the top or bottom, to the right or left, depending on needs</li> <li>- To mount &gt; 4 collectors, allow 2 rows of superposed or juxtaposed collectors connected separately; central connection of 2 fields possible with Tichelmann loop</li> </ul>	 <ul style="list-style-type: none"> <li>- connection to the right or left, depending on needs</li> </ul>
<b>ON TERRACE (ET)</b> 		
 <ul style="list-style-type: none"> <li>- Connection at the top or bottom, to the right or left, depending on needs</li> <li>- To mount &gt; 4 collectors, allow 2 rows of superposed or juxtaposed collectors connected separately; central connection of 2 fields possible with Tichelmann loop</li> </ul>	 <ul style="list-style-type: none"> <li>- Connection at the top or bottom, to the right or left, depending on needs</li> <li>- To mount &gt; 4 collectors, allow 2 rows of superposed or juxtaposed collectors connected separately; central connection of 2 fields possible with Tichelmann loop</li> </ul>	 <ul style="list-style-type: none"> <li>- connection to the right or left, depending on needs</li> </ul>
<b>ROOF-INTEGRATED (IT)</b> 		
 <ul style="list-style-type: none"> <li>- Connection at the top or bottom, to the right or left, depending on needs</li> <li>- To mount &gt; 4 collectors, allow 2 rows of superposed or juxtaposed collectors connected separately; central connection of 2 fields possible with Tichelmann loop</li> </ul>	No	No

POWER\_F0007A

POWER\_F0009A



# HYDRAULIC CONNECTION OF THE COLLECTORS

## SPECIFICATIONS AND DIMENSIONS OF THE CONNECTION CONDUITS

The connection pipes between the collector field and the lower exchanger in the solar tank, routed with a constant downward slope as direct as possible, must be:

- tubular copper pipes preferably (synthetic materials should be avoided because of the high temperatures) ( $\varnothing$  in accordance with the table below)

- welded with strong brazing filler metal without flux (L-Ag2P or L-CuP6),
- union connectors that can only be used if they are resistant to Glycol, pressure (6 bar) and temperature (-30 °C to +180 °C)
- watertightness using hemp,
- a manual air vent is recommended at the high point.

### Sizing the connection pipes

To enable the solar installation to operate optimally, a few essential rules should be observed. To obviate the installation of air vents, the speed of the fluid in the pipe must always be

higher than 0,4 m/s. The following table gives information on the various pipe diameters possible.

#### ⇨ With PRO collectors

Collector type	Number of collectors PRO...	Ø in mm and max. length of pipes in m for installation with pump:							
		manometric height: 6 or 7 m (1)			manometric height: 8 or 9 m (2)			manometric height: 11 m (3)	
		Ø 15	Ø 18	Ø 22	Ø 15	Ø 18	Ø 22	Ø 18	Ø 22
PRO 2.3	1 x 2	25	50						
	1 x 3	15	30	50					
	1 x 4				20	40	50		
	2 x 2	10	25	50	20	40	50		
	2 x 3				15	35	50		
	2 x 4					20	50		
	3 x 2					25	35	50	
	3 x 3					20	30	40	50
PRO 2.5	1 x 2	20	50		50				
	1 x 3	15	30	50	30	50			
	1 x 4				15	30	50		
	2 x 2				15	30	50		
	2 x 3					25	40	50	
	2 x 4					15	30	40	50
	3 x 2					25	35	50	
	3 x 3					20	30	40	50

#### ⇨ With POWER collectors

Input area of the collectors POWER	Ø in mm and max. length of pipes in m for installation with pump:					
	manometric height: 6 or 7 m (1)			manometric height: 8 or 9 m (2)		
	Ø 15	Ø 18	Ø 22	Ø 15	Ø 18	Ø 22
< 5 m <sup>2</sup>	50	-	-	50	-	-
from 5 to 10 m <sup>2</sup>	25	50	-	50	-	-
from 10 to 15 m <sup>2</sup>	-	25	50	25	50	-
from 15 to 20 m <sup>2</sup>	-	-	25	-	25	22

(1) 6 m pump fitted as standard to the DKP 6-8 station and TRIO DT..., DUO BSC... E and BESC... E domestic hot water tanks, or 7 m pump fitted to QUADRO 500s.

(2) 9 m pump fitted as standard to DKS/DKP 9-20 stations or 8 m pump for QUADRO 750 and 750 CL domestic hot water tanks available as options for stations and domestic hot water tanks fitted as standard with a 6 m or 7 m pump.

(3) 11 m pump available as an option for stations fitted as standard with a 9 m pump.

**Note:** If using pipes in dimensions greater than those that we recommend, it is necessary to fit an air separator with manual vent at the highest point of the installation. Indeed, if the pipe

dimensions are too large, the minimum speed of the fluid of 0.4 m/s is not achieved.

### Pipe insulation

- resistant to temperature variations of between -30 and +150 °C in the collector zone
- resistant to UV and bad weather conditions on the roof
- uninterrupted and at least as thick as the pipes (with  $K = 0.04 \text{ W/m.K}$ )
- outdoors, it must be protected against mechanical deterioration, UV rays and birds by an additional reinforcement made of a sheath in aluminium sheeting sealed with silicone.

- recommended materials:  
Armaflex, Aeroflex SSH, glasswool

Ø of the pipes	Ø or min. thickness depending on the type of insulation		
	Armaflex ht	Aeroflex ssh	Glasswool
16 mm	16 x 24 mm	18 x 26 mm	35 mm
18 mm	18 x 24 mm	18 x 26 mm	35 mm
22 mm	22 x 28 mm	22 x 26 mm	40 mm

### Connecting the collectors

For this, use parts from the hydraulic connection assembly provided. If the pipe from the collector outlet to the roof crossing is on an upward incline for size reasons or construction

constraints, it is essential that a venting point and a manual air vent be fitted under the roof.

# THE SOLAR STATIONS “DIETRISOL DKP... AND DKS...”

## GENERAL

Complete solar stations specific to DIETRISOL solar installations for auxiliary heating and/or domestic hot water preparation,

for mounting on a solar (DKP) or wall-hung (DKS) tank.

## THE VARIOUS MODELS AVAILABLE

### DKP

(shown with DIEMASOL control system, which can be integrated as optional equipment)



8980CQ200

⇨ for mounting on a solar tank

**DKP 6-8** - Package EC 156  
for a maximum of 8 m<sup>2</sup> of collector surface area (manometric height of the solar pump 6 m).

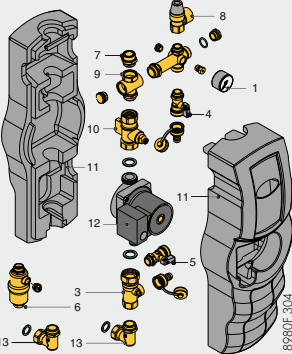
⇨ for wall mounting

**DKS 9-20** - Package EC 89  
for a maximum of 20 m<sup>2</sup> of collector surface area (manometric height of the solar pump 9 m).

These stations are suitable for installations with DIETRISOL PRO or POWER collectors combined with:

- a monovalent tank used as a DHW tank for preheating or a bivalent tank for the DKP 6-8.
- monovalent, bivalent or mixed tanks or tanks used to heat a swimming pool, with a surface area of up to 20 m<sup>2</sup> and up 30 m of pipe length (flow and return).

They are fitted with all the components required to enable optimum operation of the solar installation. They are made of a recyclable insulating shell, a bracket to attach them to the solar tank or the wall, and all of the hydraulic fittings to connect DIETRISOL collectors at 3/4". All of the valves, pumps, etc. have been sized in relation to operating requirements according to the "matched flow" principle of De Dietrich solar systems. DIETRISOL DKP and DKS solar stations also incorporate anti-thermosiphon valves, clamping ring screw connections (15-18 mm), the safety valve, the pressure gauge, the degassing chamber + manual air vent (Airstop), the filling and draining system, and the thermometers and also offer the option of integrating a DIEMASOL A or B control system. Thanks to DIEMASOL control systems,

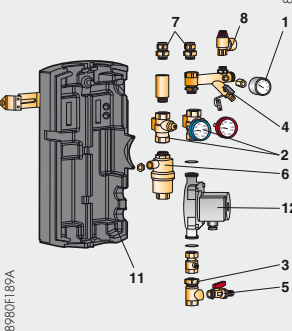


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### DKS



8980F075



8980F189A

### DMCDB transfer station - Package EC 169

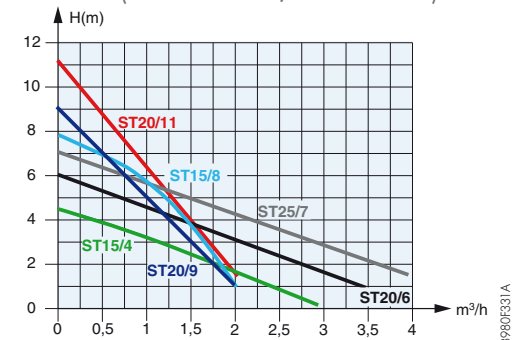
This station operates with the MCDB or DIEMASOL C control system (see page 20). It is a transfer station from one storage tank to another and vice versa. It is fitted with 2 WILO RS 15/4 pumps

### DKP 9-20 - Package EC 157

for a maximum of 20 m<sup>2</sup> of collector surface area (manometric height of the solar pump 9 m).

"DIETRISOL DKP and DKS..." solar stations do not require a volume meter.

- Characteristics of the WILO solar pumps**
- ST 20/6 (DKP 6-8 station) and TRIO, DUO BSC... (E), BESC... (E) tanks
  - ST 25 /7 (QUADRO 500 tank)
  - ST 20/9 (DKS 9-20 and DKP 9-20 tanks)
  - ST 20/8 (QUADRO 750, 750 CL tanks)



Note: the ST 20/9 pump (ref. 97930832) can be delivered as optional equipment for the DKP 6-8 and the tanks with pump 6 m or 7 m. The ST 20/11 pump (ref. 97930860) can be delivered as optional equipment for the DKP... and DKS 9-20 with pump 9 m.

- |                                      |  |
|--------------------------------------|--|
| 1. Pressure gauge                    | 8. Safety control unit                       |
| 3. Ball valve                        | 9. Connection cross                          |
| 4. Filling valve                     | 10. Return valve with antithermosiphon valve |
| 5. Drainage valve                    | 11. Insulation                               |
| 6. Manual vent degasser              | 12. Solar pump                               |
| 7. Clamping ring fitting 15 or 18 mm | 13. Connection elbow                         |



8980Q193A

and a 3-way valve ; its design enables it to be connected directly to the 2 tanks. The loading and unloading module allows the heat transfer between 2 tanks.

# “DIEMASOL” SOLAR CONTROL SYSTEMS

## GENERAL

DIEMASOL control systems are intelligent, autonomous control systems that, as a function of the collector and tank temperatures measured, can be used to define an optimal control concept (matched flow) for the solar installation concerned. Once the installation has been rinsed and filled, it requires no further calibration.

DIEMASOL control systems are characterised by their clear and simple use: the multi-functional display allows 2 temperatures to be read simultaneously; evocative pictograms provide the user with a particularly simple display of the modes and status of current operation. Various sensors are

connected to it. Central control is done using 3 keys located under the display. DIEMASOL control systems are factory fitted with the control programme for INISOL/DIETRISOL solar systems and, depending on the model, the energy meter.

## Technical specifications

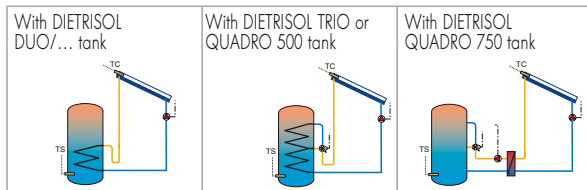
Box: plastic PC-ABS and PMMA  
Protection class: IP 40  
Room temp.: 0 - 40 °C  
Dim. DIEMASOL A and B: 172 x 110 x 46 mm  
Dimensions DIEMASOL C:  
260 x 216 x 64 mm

Display:  
LCD display with 8 pictograms  
Control: using 3 keys  
Overall intensity: max. 4 A  
Pow.: 210-250 V ~, 50-60 Hz  
Absorbed power: 2-3 VA

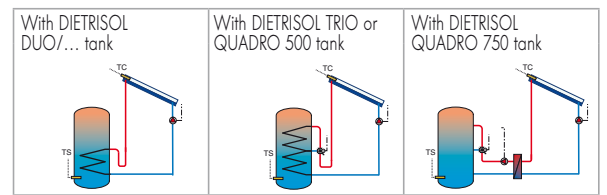
## DESCRIPTION OF THE CONTROL PRINCIPLE

In automatic mode, DIEMASOL control systems operate according to the following principles:

- Sunlight heats up the heat-carrying fluid in the collector. To begin the control process, the collector must reach a minimum temperature of 30 °C and the temperature difference between collector and tank must be at least 10 K.
- During the start-up phase, the solar pump is activated at a rate of 100%.
- Subsequently, the solar pump modulates between 50 and 100% and continues loading the tank as long as the temperature difference between collector and tank continues to be significant (factory setting 20 K).



- When, for tanks fitted with 2 solar exchangers (TRIO DT .../3 or QUADRO DU or even QUADRODENS), the zone reversal temperature in the collectors is reached, the reversal valve switches to the top zone in order that the user can access hot water immediately.



- The tank will continue to load according to the available heat until it reaches its maximum storage temperature (factory setting 60 °C). The solar pump will then be shut down.
- When the sun continues to provide heat and the collector reaches its maximum temperature (parameter CX - factory setting 100 °C), the solar pump will be started up again in order to cool the system by 5 K less than the set point CX. If the tank temperature exceeds 80 °C, the solar pump will be stopped; the installation will be overheating. The cooling mode will then be started up at night to cool the tank down until it reaches a temperature of less than 80 °C.
- The quantity of heat transferred from the collectors to the solar tank under normal operating conditions is recorded under the parameter AH. To obtain an accurate measurement, the installation's various parameters must be saved in the control system (see assembly instructions).



8980F191



## THE VARIOUS MODELS AVAILABLE AND THEIR USE



DIEMASOL A

### DIEMASOL A - Package EC 190

Designed to control solar installations with a single tank, DIEMASOL A control systems meet all the requirements of DIETRISOL DUO/... solar systems. The DIEMASOL A control system can be integrated into the DKP/DKS... solar station. It is delivered with 2 sensors (TC and TS).

8980G035A



DIEMASOL B

### DIEMASOL B - Package EC 160

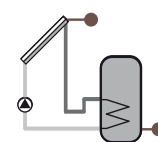
DIEMASOL B control systems are designed to control solar installations with optimized tank loading by heating zone reversal (optimisation of temperature stratification).

This control system is fitted as standard to "DIETRISOL TRIO" tanks and their design can be extended to DUO.../2 type tanks with auxiliary heating outside the solar tank.

They can also manage a simple solar system with a coil exchanger integrated in the tank + a 3-way valve in the heating return (SSC): for DIETRISOL DC, PS.

8980G102A

### DIEMASOL A skeleton diagram

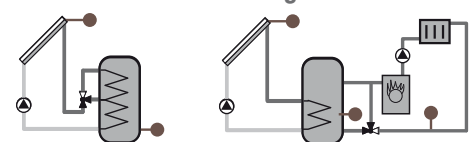


8980F392B

The DIEMASOL B control system can be integrated in DKP/DKS... solar stations. It is delivered with 3 sensors (TC, TS and TR).

**Note:** DIEMASOL Bi is the control system model integrated in "DIETRISOL TRIO" tanks, which corresponds to the standard DIEMASOL B control system.

### DIEMASOL B skeleton diagram



8980F392B

# “DIEMASOL” SOLAR CONTROL SYSTEMS



## DIEMASOL C - Package EC 161

The DIEMASOL C control system is designed to control solar installations with 2 tanks with integrated exchanger or 1 tank + 1 consumer with plate exchanger with loading optimisation. DIEMASOL C clearly displays the various hydraulic schematics possible (see p. 21).

It is able to meet the most diverse of needs:

- With 2 tanks with integrated exchanger:
  - Controls the set point temperature of each tank
  - Priority to one tank or the other
  - Option of interlinking the 2 tanks
- With 1 tank with integrated exchanger + 1 swimming pool (or with 1 “DIETRISOL QUADRO” tank)

### Notice: DIEMASOL Ci

These are the models of control system integrated in the products:

- DIEMASOL Ci: control system specific to “DIETRISOL QUADRO” tanks.

8980Q103A



## MCDB control system - Package EC 162

In installations with DIEMASOL B, can be used to manage the energy transfer from one storage tank to another and vice versa.

8980Q275



## SLA 2

## SLA 2 Differential control system - Package EC 320

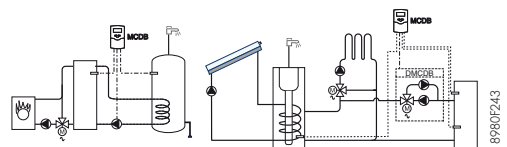
It is delivered with 2 sensors and is used:  
 - To control the temperature of an independent tank combined with a boiler without control system,  
 a storage tank with boiler without control system,  
 a storage tank with wood-fired boiler, or a solar storage tank,

8980Q107A

- Controls the set point temperature of each consumer
  - Priority to one consumer or the other
  - Option of interlinking the 2 consumers
  - Controls the secondary pump on the plate exchanger for the swimming pool
  - Optimisation of the temperature stratification for “DIETRISOL QUADRO” tanks (by zone reversal)
- It is delivered with 4 sensors (TC, TS, TP and TE).

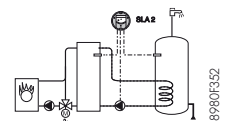
## DIEMASOL C/Ci skeleton diagram:

See next page.



8980F243

- To monitor the heating return and bypass the solar tank if the return temperature is higher than the temperature in the solar tank.



8980F352

## DIEMASOL CONTROL SYSTEM OPTIONS



## 3-way valve 3/4" with reversal motor - Package EC 164

For solar circuit with 2 tanks and DIEMASOL control system.

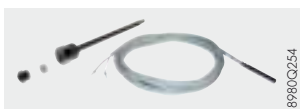
8980Q240



## Kit with 2 valves + sensor - Package EC 432

For controlling an installation with 2 EAST/WEST collector fields with DIEMASOL C.

8980Q260



## PT 1000 dip sensor - Package EC 173

8980Q254



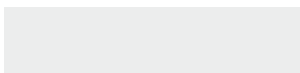
## PT 1000 contact sensor - Package EC 171

8980Q255



## Collector sensor - Package EC 155

8980Q253



## Lightning conductor box for DIEMASOL control system - Package EC 176

To be mounted on the solar circuit on the collector.



## Energy metering kit - Package EC 174

Comprises a flow rate meter (1.5 m<sup>3</sup>/h max. flow rate) and 2 sensors. Used to meter energy accurately in solar installations (DIEMASOL C).

8980Q263

# SOLAR CONTROL SYSTEMS

The various hydraulic diagrams that can be managed by DIEMASOL C/Ci (where applicable, order the additional package indicated):

Diagram	Basic installation	Installation with boiler without control system (e.g. wood-fired boiler)	Installation with a 2 <sup>nd</sup> tank and DMDCB solar station	Installation with swimming pool	Installation with boiler without control system + a 2 <sup>nd</sup> tank and DMDCB station	Installation with boiler without control system + swimming pool
type 1	1.0 as standard	1.1 + 2 x EC 173	1.2 + 3 x EC 173, + 1 x EC 169	1.3 + 2 x EC 173	1.4 + 4 x EC 173, + 1 x EC 169	1.5 + 3 x EC 173
type 2	2.0 as standard	2.1 + 1 x EC 173	2.2 + 2 x EC 173, + 1 x EC 169	2.3 + 1 x EC 173	2.4 + 3 x EC 173, + 1 x EC 169	2.5 + 2 x EC 173
type 3	3.0 + 1 x EC 432	3.1 + 2 x EC 173, 1 x EC 432	3.2 + 3 x EC 173, + 1 x EC 432, + 1 x EC 169	3.3 + 2 x EC 173, 1 x EC 432	3.4 + 4 x EC 173, + 1 x EC 432, + 1 x EC 169	3.5 + 3 x EC 173, 1 x EC 432
type 4	4.0 as standard	4.2	4.3 + 2 x EC 173, + 1 x EC 169	4.1 as standard	no	no
type 5	5.0 + 1 x EC 432	5.2 + 1 x EC 173, 1 x EC 432	5.3 + 2 x EC 173, + 1 x EC 432, + 1 x EC 169	5.1 + 1 x EC 432	no	no

# THE SOLAR SYSTEMS DIETRISOL FOR CESI











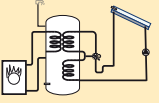

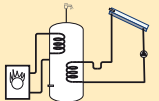


## SYSTEMS FOR THE PRODUCTION OF DOMESTIC HOT WATER

These are solar systems used to produce domestic hot water with solar collectors. The sun can provide between 60 and 80% of energy needs; for the rest, it is therefore necessary to have an auxiliary heating facility if there is too little sun.

This auxiliary heating can come from:

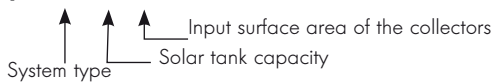
- The boiler if such a generator is present in the installation in the house
- An existing electric water heater
- Integrated in the solar tank as is the case for our TRIO DT..., DUO/2 BSC/BSP... E or DUO/1 BESC... E tanks.

### The various tank/collector combinations possible and their operating principle

Solar systems DIETRISOL possible	Solar calorifier type/capacity	Input surface area of the collectors or collector field										
		 2.51 m <sup>2</sup> 1 x PRO 2.5	 1.7 m <sup>2</sup> 1 x POWER 15	 2.3 m <sup>2</sup> 2 x POWER 10	 4.26 m <sup>2</sup> 2 x PRO 2.3	 2.9 m <sup>2</sup> 1 x POWER 10	 3.4 m <sup>2</sup> 2 x POWER 15	 5.02 m <sup>2</sup> 2 x PRO 2.5	 4 m <sup>2</sup> 2 x POWER 10	 6.39 m <sup>2</sup> 3 x PRO 2.3	 5.2 m <sup>2</sup> 3 x POWER 15	
<b>"TRIO"</b> type with hydraulic and electrical auxiliary heating 	TRIO	TRIO	TRIO	TRIO	TRIO	TRIO	TRIO	TRIO	TRIO	TRIO	TRIO	TRIO
	250 350  page 24	250-3 -	250-2P -	250-2.5P -	<b>250-4</b> <b>350-4</b>	250-3P 350-3P	250-3.5P 350-3.5P	250-5 350-5	250-4P 350-4P	- 350-6	- 350-5 P	
<b>"DUO/2"</b> type with hydraulic auxiliary heating 	BSC/BSP... E			DUO/2	DUO/2	DUO/2	DUO/2	DUO/2	DUO/2	DUO/2	DUO/2	DUO/2
	300 400 500  page 26	- - -	- - -	300-2.5P -	<b>300-4</b> 400-4 500-4	300-3P 400-3P -	300-3.5P 400-3.5P -	300-5 400-5 500-5	300-4P 400-4P 500-4P	300-6 400-6 500-6	- 400-5P 500-5P	
	BESC... E			DUO/1	DUO/1	DUO/1	DUO/1	DUO/1	DUO/1	DUO/1	DUO/1	DUO/1
300 400 500  page 28	- - -	- - -	300-2.5P -	<b>300-4</b> 400-4 -	300-3P 400-3P -	300-3.5P 400-3.5P -	300-5 400-5 500-5	300-4P 400-4P 500-4P	300-6 400-6 500-6	- 400-5P 500-5P		

**Important: the systems shown in red are available in complete packs delivered on 1 pallet, see page 5. The other systems are available in "roof" and "cellar" packs.**

Key: TRIO 350-4



**Notice:** Other solar tanks like INISOL UNO/1 or UNO/2 not equipped and more especially suitable for other systems (heating a swimming pool, for example) are also available: see INISOL technical manual.

# THE SOLAR SYSTEMS DIETRISOL FOR CESI

CESI solar systems with DIETRISOL PRO collectors can be delivered:

⇒ In 1 "Complete Pack" (system reference in red) comprising:

- The 2 DIETRISOL PRO 2.3 collectors
- The hydraulic connection accessories
- The solar sensor
- The mounting system
  - Roof-integrated: IT
  - Or on-roof: ST, including the anchorage fittings for mechanical tiles
- The fully equipped solar tank: TRIO, DUO/2 BSC/BSP...E or DUO/1 BESC...E
- 1 drum of LS type heat-carrying fluid



**NB:** All solar systems with DIETRISOL POWER collectors should be put together by the installer by placing an order for the various individual components.

⇒ In 2 "Packs", to be completed by various single packages

- "Roof Pack" ST or IT with 2 or 3 collectors DIETRISOL PRO 2.3 or even PRO 2.5, the solar sensor, the hydraulic connection accessories, the mounting system for roof integration or the profiles for on-roof or terrace mounting (horizontal or vertical delivery)



➔ To be completed for on-roof ST mounting by the anchorage fittings to be chosen according to the roof type or for terrace mounting ET by the terrace supports with stabilising crosses

- "Cellar Pack": Fully equipped TRIO, DUO/2 BSC/BSP... E or DUO/1 BESC...E solar tank.



➔ To be completed by 1 or 2 drums of LS type heat-carrying fluid.

**How to order 1 CESI solar system with DIETRISOL PRO... collectors and:**

⇒ TRIO solar tank (with optional integrated electrical and hydraulic auxiliary heating)

Name of the DIETRISOL system	Solar collector mounting	Complete pack	Roof pack + anchorage fittings or terrace supports for ST/ET	Cellar pack + heat-carrying fluid
TRIO 250-3	IT	-	components to be ordered individually	EC 340
	ST	-		+
	ET	-		1 x EG 100
TRIO 250-4	IT	<b>EC 504</b>	EC 589 or EC 528 <sup>(1)</sup>	EC 340
	ST	<b>EC 500</b>	EC 583 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 518 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
TRIO 350-4	IT	<b>EC 506</b>	EC 589 or EC 528 <sup>(1)</sup>	EC 339
	ST	<b>EC 502</b>	EC 583 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 518 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
TRIO 250-5	IT	-	EC 586 or 531 <sup>(1)</sup>	EC 340
	ST	-	EC 580 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 521 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
TRIO 350-5	IT	-	EC 586 or 531 <sup>(1)</sup>	EC 339
	ST	-	EC 580 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 521 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
TRIO 350-6	IT	-	EC 529	EC 339
	ST	-	EC 584 } + 2 x 4 fittings <sup>(2)</sup>	+
	ET	-	or 519 <sup>(1)</sup> } + 2 x EG 358	2 x EG 100

⇒ DUO/1 solar tank (with integrated electrical auxiliary heating)

Name of the DIETRISOL system	Solar collector mounting	Complete pack	Roof pack + anchorage fittings or terrace supports for ST/ET	Cellar pack + heat-carrying fluid
DUO/1 300-4	IT	<b>EC 514</b>	EC 589 or EC 528 <sup>(1)</sup>	EC 332
	ST	<b>EC 510</b>	EC 583 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 518 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/1 400-4	IT	-	EC 589 or EC 528 <sup>(1)</sup>	EC 335
	ST	-	EC 583 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 518 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/1 300-5	IT	-	EC 586 or 531 <sup>(1)</sup>	EC 332
	ST	-	EC 580 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 521 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/1 400-5	IT	-	EC 586 or 531 <sup>(1)</sup>	EC 335
	ST	-	EC 580 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 521 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/1 500-5	IT	-	EC 586 or EC 531 <sup>(1)</sup>	EC 337
	ST	-	EC 580 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 521 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/1 300-6	IT	-	EC 529	EC 332
	ST	-	EC 584 } + 2 x 4 fittings <sup>(2)</sup>	+
	ET	-	or 519 <sup>(1)</sup> } + 2 x EG 358	2 x EG 100
DUO/1 400-6	IT	-	EC 529	EC 335
	ST	-	EC 584 } + 2 x 4 fittings <sup>(2)</sup>	+
	ET	-	or 519 <sup>(1)</sup> } + 2 x EG 358	2 x EG 100
DUO/1 500-6	IT	-	EC 529	EC 337
	ST	-	EC 584 } + 2 x 4 fittings <sup>(2)</sup>	+
	ET	-	or 519 <sup>(1)</sup> } + 2 x EG 358	2 x EG 100

⇒ DUO/2 solar tank (with optional hydraulic auxiliary heating)

Name of the DIETRISOL system	Solar collector mounting	Complete pack	Roof pack + anchorage fittings or terrace supports for ST/ET	Cellar pack + heat-carrying fluid
DUO/2 300-4	IT	<b>EC 512</b>	EC 589 or EC 528 <sup>(1)</sup>	EC 333
	ST	<b>EC 508</b>	EC 583 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 518 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/2 400-4	IT	-	EC 589 or EC 528 <sup>(1)</sup>	EC 336
	ST	-	EC 583 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 518 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/2 500-4	IT	-	EC 589 or EC 528 <sup>(1)</sup>	EC 338
	ST	-	EC 583 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 518 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/2 300-5	IT	-	EC 586 or 531 <sup>(1)</sup>	EC 333
	ST	-	EC 580 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 521 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/2 400-5	IT	-	EC 586 or 531 <sup>(1)</sup>	EC 336
	ST	-	EC 580 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 521 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/2 500-5	IT	-	EC 586 or EC 531 <sup>(1)</sup>	EC 338
	ST	-	EC 580 } + 6 fittings <sup>(2)</sup>	+
	ET	-	or 521 <sup>(1)</sup> } + 1 x EG 358	1 x EG 100
DUO/2 300-6	IT	-	EC 529	EC 333
	ST	-	EC 584 } + 2 x 4 fittings <sup>(2)</sup>	+
	ET	-	or 519 <sup>(1)</sup> } + 2 x EG 358	2 x EG 100
DUO/2 400-6	IT	-	EC 529	EC 336
	ST	-	EC 584 } + 2 x 4 fittings <sup>(2)</sup>	+
	ET	-	or 519 <sup>(1)</sup> } + 2 x EG 358	2 x EG 100
DUO/2 500-6	IT	-	EC 529	EC 338
	ST	-	EC 584 } + 2 x 4 fittings <sup>(2)</sup>	+
	ET	-	or 519 <sup>(1)</sup> } + 2 x EG 358	2 x EG 100

(1) Depending on delivery of the "roof packs" horizontally or vertically: see page 5.

(2) To be chosen according to the roof type, see page 9.

# FULLY-EQUIPPED “DIETRISOL TRIO DT...” SOLAR TANKS



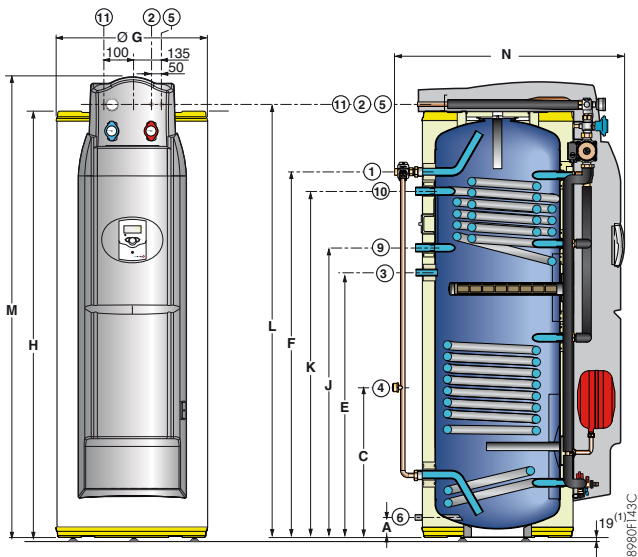
## TECHNICAL DATA

### Strong points

- An entirely new solar tank design for the preparation of domestic hot water which can be used in solar installations with a collector surface area of up to 6.5 m<sup>2</sup> for DT 350 or 4.5 m<sup>2</sup> for DT 250, equipped with a dedicated boiler exchanger and 2 solar exchangers. Used in conjunction with the DIETRISOL collector and the DIEMASOL control system and thanks to the autonomous solar station integrated in the tank, the solar installation will always operate in the most favourable tank zone. The 3rd exchanger in the upper part of the tank is used to obtain hot water immediately and reduce the provision of auxiliary energy from the boiler.
- The DIETRISOL TRIO DT... tank is pre-fitted in the factory with all the components required to connect and control a solar installation, i.e.: stop valves with non-return valve, pump unit, degasser with manual air vent, expansion tank, safety unit, pressure gauge, filling and draining system.

- All the hydraulic connections are brought together at the back and are made by the “Plug and Heat-System”, rendering installation particularly quick and easy
- DIEMASOL Bi control system with integrated “matched flow” design, including reversal control for 2 solar exchangers;
- Tank lining in enamelled steel;
- Exchangers in smooth 3/4” piping, enamelled on the outside;
- CFC-free injected polyurethane foam insulation, thickness 50 mm;
- Top and side covers in ABS
- Their refined design and complete equipment mean that they can be installed inside the room to be heated;
- Thermostatic mixing valve and steatite auxiliary electrical resistance fitted as standard.

### Main dimensions (mm and inches)



Type	A	C	E	F	Ø G	H	J	K	L	M	N
DT 250	81	601	892	1264	601	1510	971	1196	1535	1620	910
DT 350	93	655	1109	1487	650	1739	1195	1420	1770	1840	960

- ① DHW outlet G 3/4
  - ② Exchanger inlet solar circuit Ø 18 mm
  - ③ Circulation G 3/4
  - ④ Cold water inlet G1
  - ⑤ Exchanger outlet solar circuit Ø 18 mm
  - ⑥ Drainage G1
  - ⑨ Primary exchanger inlet (boiler) G1
  - ⑩ Primary exchanger outlet (boiler) G1
  - ⑪ Safety valve discharge pipe Ø 20 mm (primary solar circuit)
- (1) Feet adjustable from 19 to 29 mm  
 R: Threading  
 G: External cylindrical threading (watertightness by flat gasket)

### Table of specifications

Maximum operation pressure:  
 primary (heat. exchang.): 10 bar,  
 secondary (tank): 10 bar,  
 solar (solar exchang.): 10 bar

Maximum operation temp:  
 primary: 95 °C,  
 secondary: 90 °C,  
 solar: 120 °C

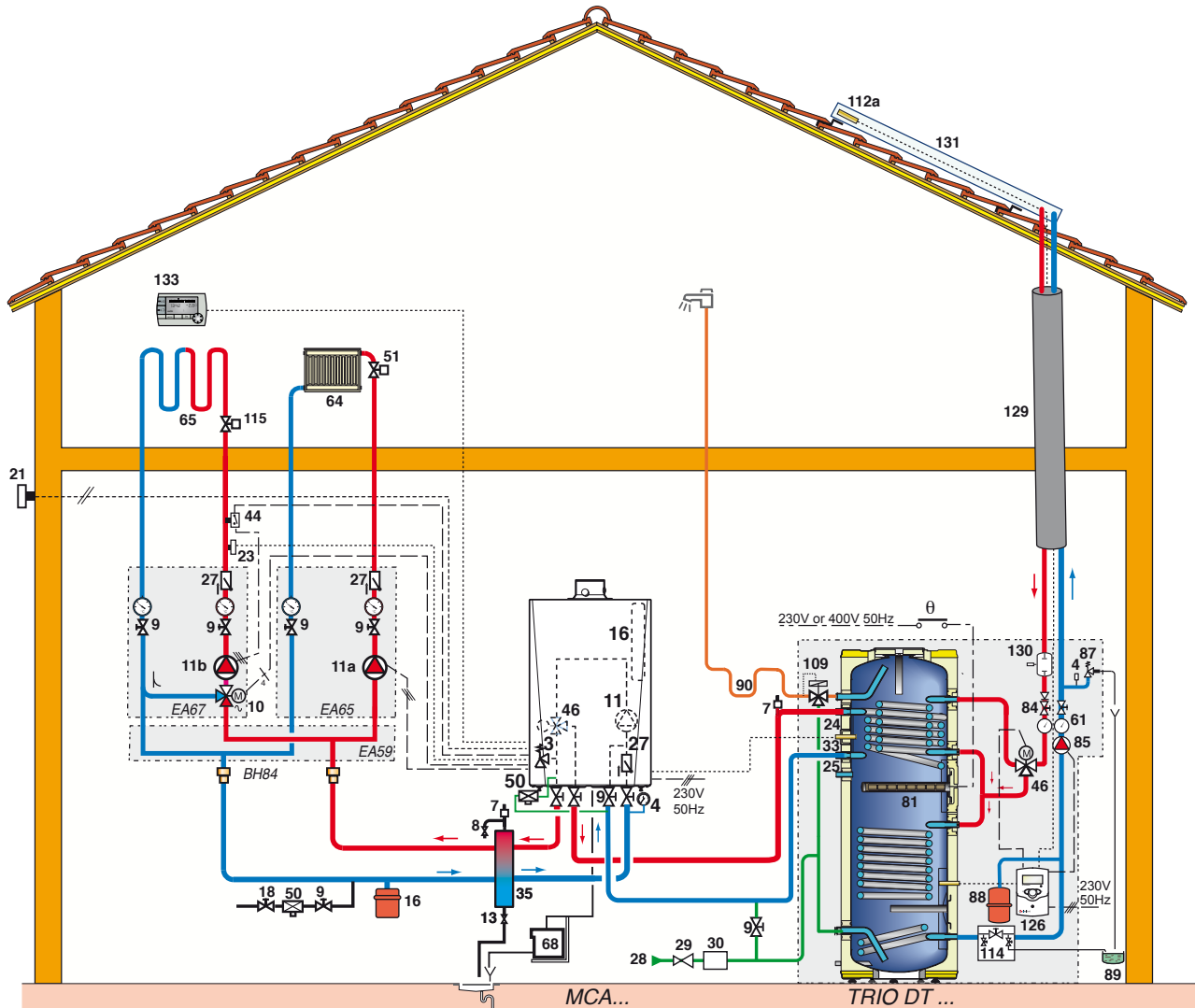
Model	TRIO DT 250		TRIO DT 350	
	Boiler side	Solar side	Boiler side	Solar side
Storage volume	l	105	-	127
Solar volume	l	-	145	223
Exchanger capacity	l	4.3	2.3 (up. exch.)/5.7 (low. exch.)	4.9
Total solar exchanger capacity (with solar station)	l	-	9.0	8.1
Exchanger surface	m <sup>2</sup>	0.64	0.48 (up. exch.)/0.86 (low. exch.)	0.72
Flow per hour at Δt = 35 K (1) (2)	l/h	515	-	565
Flow over 10 min at Δt = 30 K (on back-up vol.) (1) (2)	l/10 Min.	190	-	230
Maintenance consumption at Δt = 45 K	kWh/24 h	1.67	-	1.95
Electric back-up resistor:				
Back-up volume	l		130	160
Solar volume	l		120	190
Electrical back-up power	kW		2.4	3
Water volume available at 40°C on nighttime (3)	l		230	280
Water volume available at 40°C on nighttime heating + 2 h daytime (3)	l		380	480
Electrical heating time from 15 to 60°C	h		2h50	2h50
Net weight	kg		170	193

(1) Cold water temp.: 10 °C, primary inlet at 80 °C, primary flow 2 m<sup>3</sup>/h. (2) Value measured on back-up volume (3) cold water 15 °C, storage temp. 60 °C



# SYSTEMS WITH “DIETRISOL TRIO DT...” SOLAR TANKS

## EXAMPLE OF A “DIETRISOL TRIO” SYSTEM with auxiliary boiler heating (configuration possible with all types of boiler)



Keys: see page 51

### Operating principle

The integrated DIEMASOL A control system is used to control the solar system. Any auxiliary energy needed to obtain the desired domestic hot water draw-off temperature will be provided by the electrical resistance (or by a boiler) if the provision of solar energy is insufficient.

Technically, in terms of control, the top exchanger in the TRIO, dedicated to the boiler, is considered to be an independent DHW tank kept at temperature by the “DHW priority function” on the boiler control panel.

### PACKAGING

TRIO solar tanks are included in the “complete solar packs” – packages EC 500, 502, 504 and 506 – see page 5.

They are also available in the form of “Cellar packs”:

- TRIO DT 250 - Package EC 340
- TRIO DT 350 - Package EC 339

### OPTIONS: LIST AND DESCRIPTION ON PAGE 46

# FULLY-EQUIPPED “DIETRISOL DUO BSC/BSP... E” SOLAR TANKS



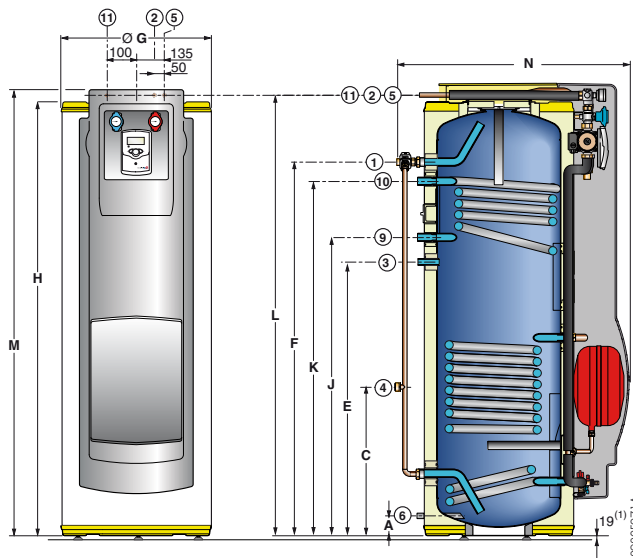
## TECHNICAL DATA

### Strong points

- High performance independent domestic hot water tanks fitted with 2 exchangers; one dedicated to the boiler, the other to the solar circuit. They are pre-fitted as standard with all the components required to connect and control a solar installation, i.e.: stop valves with non-return valve, pump unit, degasser with manual air vent, expansion tank, safety unit, pressure gauge, filling and draining system, thermostatic mixing valve.
- All hydraulic connections are made at the back and are done by the “Plug and Heat-System”
- DIEMASOL A control system with integrated “matched flow” design

- Tank lining in enamelled steel
- Two adequately sized exchangers in the form of coils welded into the tank, also enamelled
- Cladding in white sheet steel with covers in ABS and adjustable feet
- Insulation in injected polyurethane foam (CFC-free) 50 mm thick, helping to protect the environment and reducing heat losses to the minimum
- 2 magnesium anodes to complete the protection against corrosion

### Main dimensions (mm and inches)



Type	A	C	E	F	Ø G	H	J	K	L	M	N
BSC 300 E	80	601	1101	1503	601	1744	1201	1426	1767	1815	932
BSP 400 E	91	679	1119	1521	651	1779	1214	1439	1815	1870	1003
BSP 500 E	95	678	1083	1492	751	1753	1188	1413	1781	1818	1117

- ① DHW outlet:  
- BSC 300 E: G 3/4  
- BSP 400 E - 500 E: G 1
- ② Exchanger inlet solar circuit  
Ø 18 mm
- ③ Circulation pipe G 3/4
- ④ Cold water inlet:  
- BSC 300 E: G 1  
- BSP 400 E - 500 E: G 1 1/4
- ⑤ Exchanger outlet solar circuit  
Ø 18 mm
- ⑥ Drainage G 1

- ⑨ Primary exchanger inlet (boiler)  
G 1
- ⑩ Primary exchanger outlet (boiler)  
G 1
- ⑪ Safety valve discharge pipe  
Ø 20 mm (primary solar circuit)
- (1) 3 feet adjustable from 19 to  
29 mm
- R: Threading  
G: External cylindrical threading  
(watertightness by flat gasket)

### Table of specifications

Max. operation pressure:  
primary (boiler exchang.): 10 bar,  
secondary (tank): 10 bar

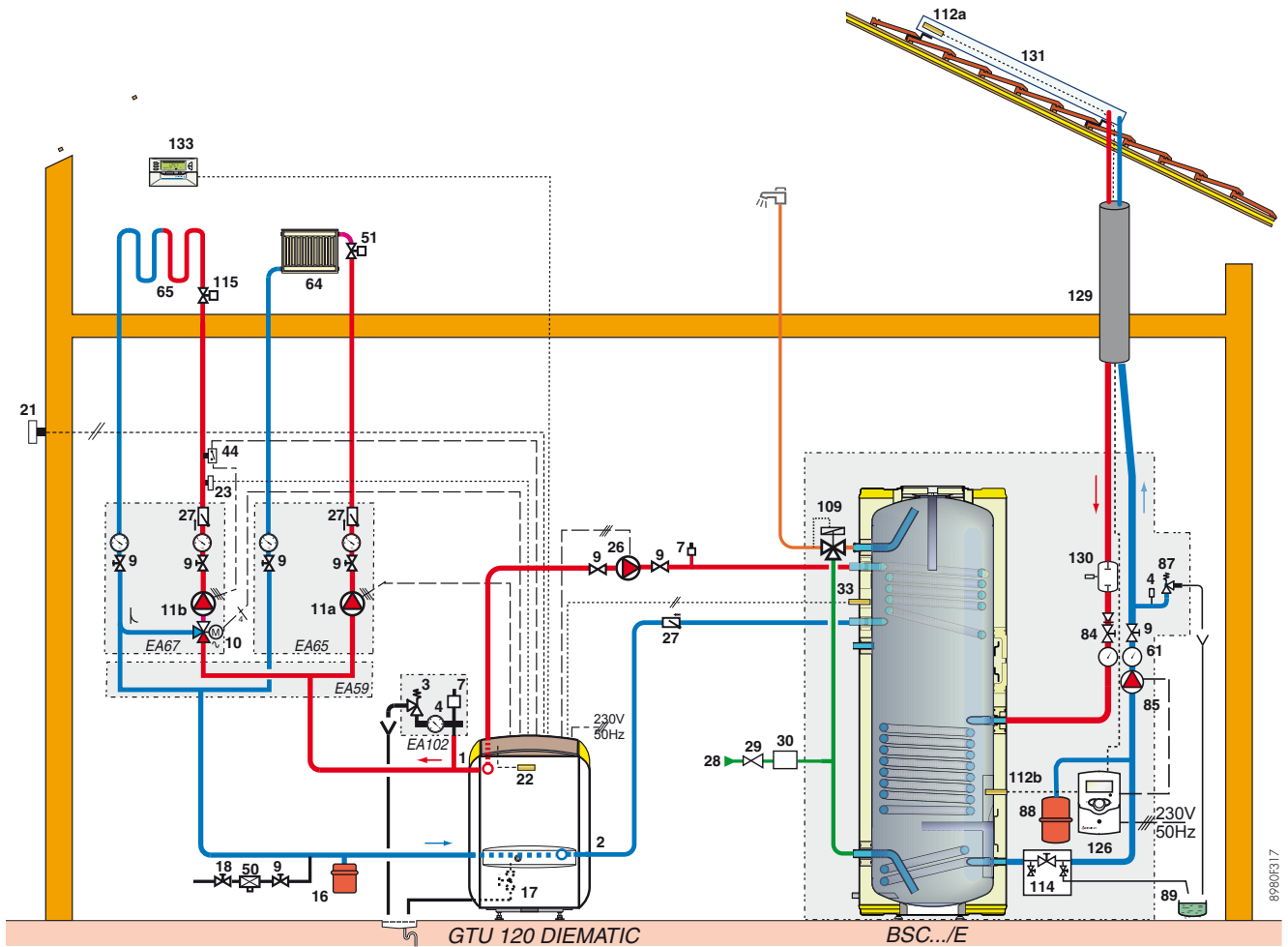
Max. operation temp.:  
primary (exchanger): 95 °C,  
secondary (tank): 90 °C

Model		BSC 300 E		BSP 400 E		BSP 500 E	
		lower (solar)	upper (boiler)	lower (solar)	upper (boiler)	lower (solar)	upper (boiler)
Tank capacity	l	300		370		500	
Storage volume	l	104		132		183	
Solar volume	l	196		238		317	
Exchanger		lower (solar)	upper (boiler)	lower (solar)	upper (boiler)	lower (solar)	upper (boiler)
Exchanger capacity	l	8.9	4.3	8.9	4.9	11.1	4.9
Primary flow	m <sup>3</sup> /h	2		2		2	
Primary temperature	°C	80		80		80	
Exchanged power (1)(2)	kW	21		23		23	
Flow per hour at Δt 35 K (1)(2)	l/h	515		565		565	
Flow over 10 min at Δt = 30 K (1)(3)	l/10 min	190		240		335	
Cooling constant	Wh/j.°C.l	0.20		0.19		0.15	
Net weight	kg	205		310		345	

(1) Cold water temp.: 10°C, (2) DHW temp.: 45°C, Primary temp.: 80°C, primary flow: 2 m<sup>3</sup>/h.  
(3) DHW temp.: 40°C, storage temp.: 65°C, values measured only on the back-up volume.

# DUO/2 SYSTEMS WITH “DIETRISOL DUO BSC... E” SOLAR TANKS

**EXAMPLE OF A “DIETRISOL DUO/2” SYSTEM**  
**with auxiliary boiler heating**  
 (configuration possible with all types of boiler)



Keys: see page 51

## Operating principle

Technically, from the control point of view, the boiler considers the solar tank to be an independent tank which is kept at temperature by the “DHW priority” function on the boiler control panel through the top exchanger.

The integrated DIEMASOL A control system is used to control the solar system. Any auxiliary energy needed to obtain the desired domestic hot water draw-off temperature will be provided by the boiler if the auxiliary solar energy provision is insufficient.

## PACKAGING

DUO BSC/BSP... E solar tanks are included in the “complete solar packs” – packages EC 508 and 512 – see page 5.

They are also available in the form of “Cellar packs”:

- DUO BSC 300 E - Package EC 333
- DUO BSP 400 E - Package EC 336
- DUO BSP 500 E - Package EC 338

## OPTIONS: LIST AND DESCRIPTION ON PAGE 46

# FULLY-EQUIPPED “DIETRISOL DUO BESC... E” SOLAR TANKS



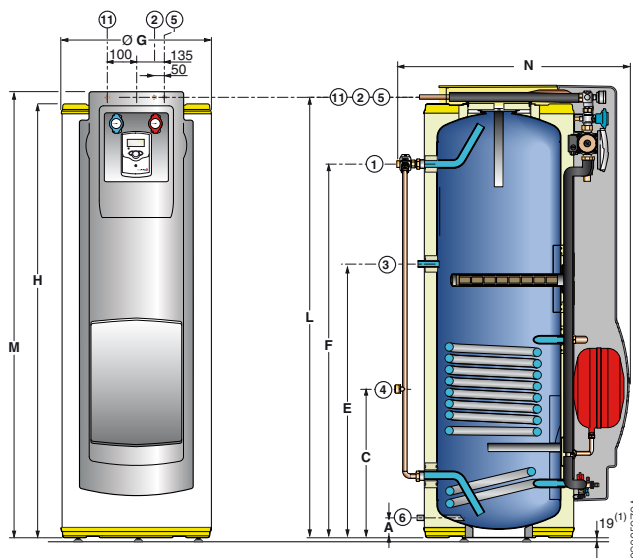
## TECHNICAL DATA

### Strong points

- High performance independent domestic hot water tanks fitted with an exchanger intended for connection to the solar installation
- Fitted as standard with an electrical resistance for additional domestic hot water heating.
- Pre-fitted as standard with all the components required to connect and control a solar installation, i.e.: stop valves with non-return valve, pump unit, degasser with manual air vent, expansion tank, safety unit, pressure gauge, filling and draining system, thermostatic mixing valve.
- All hydraulic connections are made at the back and are done by the “Plug and Heat-System”

- DIEMASOL A control system with integrated “matched flow” design
- Tank in very thick sheet steel with enamel lining
- Exchanger in the form of coils welded into the tank, also enamelled
- Cladding in white sheet steel with covers in ABS.
- Insulation in injected polyurethane foam (CFC-free) 50 mm thick, helping to protect the environment and reducing heat losses to the minimum
- Magnesium anode

### Main dimensions (mm and inches)



Type	A	C	E	F	Ø G	H	L	M	N
BESC 300 E	80	601	1101	1503	601	1774	1767	1815	932
BESC 400 E	91	679	1119	1521	651	1779	1815	1870	1003
BESC 500 E	95	678	1083	1492	751	1753	1781	1818	1117

- ① DHW outlet:  
- BSC 300 E: G 3/4  
- BSP 400 E - 500 E: G 1
- ② Exchanger inlet solar circuit  
Ø 18 mm
- ③ Circulation pipe G 3/4
- ④ Cold water inlet:  
- BSC 300 E: G 1  
- BSP 400 E - 500 E: G 1 1/4
- ⑤ Exchanger outlet solar circuit  
Ø 18 mm

- ⑥ Drainage G 1
- Ⓜ Safety valve discharge pipe  
Ø 20 mm (primary solar circuit)

(1) Feet adjustable from 19 to 29 mm  
G: External cylindrical threading  
(watertightness by flat gasket)

### Table of specifications

Max. operation pressure:  
primary (boiler exchang.): 10 bar,  
secondary (tank): 10 bar

Max. operating temp.:  
primary (exchanger): 95 °C,  
secondary (tank): 90 °C

Model		BESC 300 E	BESC 400 E	BESC 500 E
Tank capacity	l	300	370	500
Storage volume	l	130	160	210
Solar volume	l	170	210	290
Exchanger capacity	l	8.9	8.9	11.1
Electrical back-up power	kW	2.4	3	3.5
Water volume available at 40°C on nighttime (3)	l	230	380	370
Water volume available at 40°C on nighttime heating + 2 h daytime (3)	l	380	480	600
Electrical heating time from 15 to 60 °C	h	2h50	2h50	3h10
Cooling constant	Wh/j.°C.l	0.20	0.19	0.15
Net weight	kg	175	280	315

(1) Cold water temp.: 10°C, (2) DHW temp.: 45°C, (3) Cold water temp.: 15°C, DHW storage temp.: 60°C, values measured only on the back-up volume.

## PACKAGING

DUO BESC... E solar tanks are included in the “complete solar packs” - package EC 510, 511, 514, 515 and 517 - see page 5.

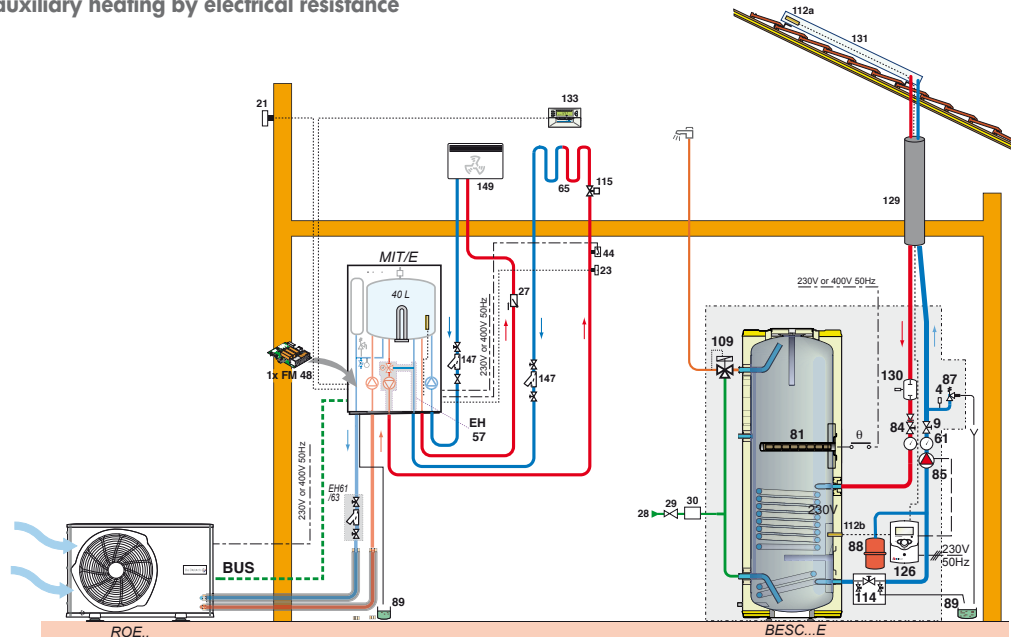
They are also available in the form of “Cellar packs”:

- DUO BESC 300 E - Package EC 332
- DUO BESC 400 E - Package EC 335
- DUO BESC 500 E - Package EC 337

## OPTIONS: LIST AND DESCRIPTION ON PAGE 46

# DUO/1 SYSTEMS WITH “DIETRISOL DUO BESC... E” SOLAR TANKS

## EXAMPLE OF A “DIETRISOL DUO/1” SYSTEM with auxiliary heating by electrical resistance



Keys: see page 51

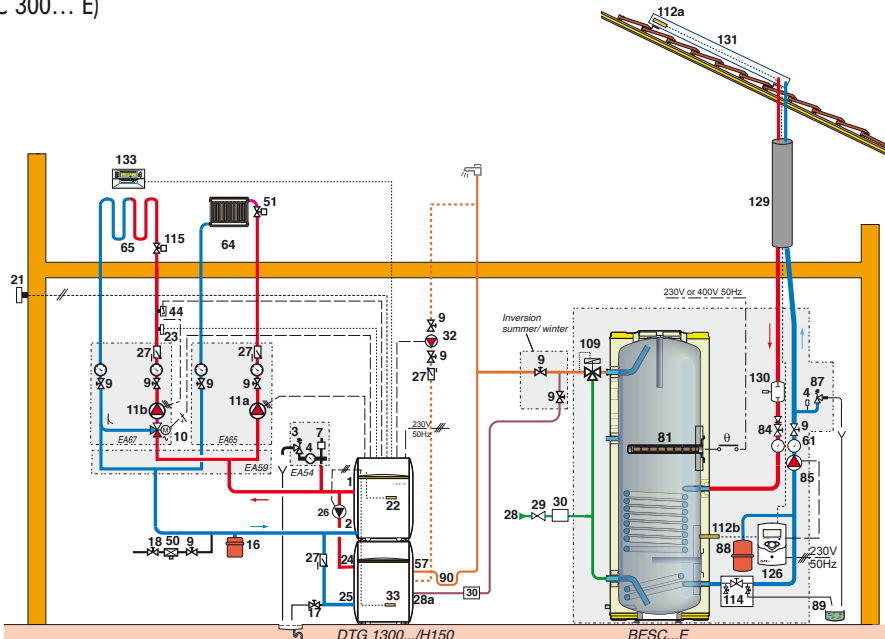
### Operating principle

The domestic hot water preparation system is totally independent of the home's heating system. Additional heating is handled by the electrical resistance, itself served by a clock or a day/night contactor to be installed by the electrician who connects this equipment.

**Caution:** If there is no sunshine, the system functions like an electric tank, but only on the auxiliary heating volume (. 1/3 of the tank volume); factor this in when sizing the tank. It must be possible to force auxiliary heating to guarantee the user hot water at all times.

## EXAMPLE OF A “DIETRISOL DUO/1” SYSTEM WITH PREHEATING TANK

(configuration possible with all existing heating installation + DHW preparation, the preheating tank can be an MPL 150/200, a BC/BL 300 or a BSC/BESC 300... E)



Keys: see page 51

### Operating principle

This solar installation can be combined with an existing central heating installation (option of adding equipment at a later date).

The solar tank is interlinked with the existing boiler tank. Hot water preheated in the solar tank will be injected into the boiler tank.

- If this is a BSC/BSP... E tank fitted upstream, reheating of the domestic hot water to the desired temperature will be

completed by the boiler if the hot water provided by the solar installation is insufficient.

- It is a BESC... E (or even an MPL ...or BP/BL + electrical resistance) tank, the electrical resistance can be used as auxiliary heating in summer and the boiler can be shut down completely outside periods when heating is needed; the DHW circuit must be adapted using a by-pass located between the DHW outlets on the 2 tanks.





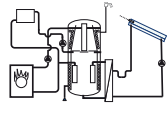

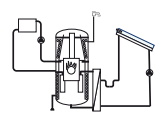

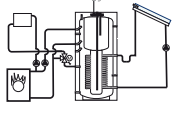

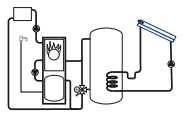

# THE SOLAR SYSTEMS “DIETRISOL...” FOR SSC

## SYSTEMS FOR THE PRODUCTION OF DOMESTIC HOT WATER AND ADDITIONAL HEATING (SSC)

These are solar systems used both to produce domestic hot water and to assist in heating the house and/or swimming pool, with solar panels.

As the surface areas of the solar panels to be installed are considerable (7 m<sup>2</sup> minimum), it is necessary in the first instance to check whether the space needed for these collectors is available on the roof (or terrace).

The various tank/sensor combinations available, with their operating principle and their application, depending on the surface area heated

System	Solar type hot water tank	Input surface area/ solar collector type				
		 7.5 m <sup>2</sup>	 6.5 m <sup>2</sup>	 8.5m <sup>2</sup>	 10 m <sup>2</sup>	
<b>Multizone heating and DHW storage tank</b> Auxiliary heating • External hydraulic • Electrical possible for DU 500 • Not possible for DU 750 	 p. 34	<b>QUADRO</b>	<b>QUADRO</b>	<b>QUADRO</b>	<b>QUADRO</b>	<b>QUADRO</b>
		DU 500-10	DU 500-8	DU 500-6 P	DU 500-9	DU 500-10
		DU 750-10	DU 750-8	DU 750-6 P	DU 750-9	DU 750-10
		DU 750-20 (1)	-	-	-	-
<b>Multizone heating and DHW storage tank</b> Auxiliary heating • hydraulic by integrated condensing boiler • Electrical not possible 	 p. 38	<b>QUADRODENS</b>	<b>QUADRODENS</b>	<b>QUADRODENS</b>	<b>QUADRODENS</b>	<b>QUADRODENS</b>
		DUC 25-500-10	DUC 500-8	DUC 500-6 P	DUC 500-9	DUC 500-10
		DUC 25-750-10	DUC 750-8	DUC 750-6 P	DUC 750-9	DUC 750-10
		DUC 25-750-20	-	-	-	-
<b>Heating and DHW storage tank</b> DHW by 200 l tank un water bank Auxiliary heating • External hydraulic • Electrical possible 	 p. 40	DC 750	DC 750-8	-	DC 750-9	DC 750-10
		DC 1000	DC 1000-8	-	DC 1000-9	DC 1000-10
		PS 500	PS 500-8	-	-	-
		PS 800-2	PS 800-8	-	PS 800-9	PS 800-10
<b>Heating and DHW storage tank</b> DHW by existing tank Auxiliary heating • External hydraulic • Electrical not possible 	 p. 42	PS 1000-2	PS 1000-8	-	PS 1000-9	PS 1000-10
		PS 1500-2	PS 1500-8	-	PS 1500-9	PS 1500-10

(1) If a higher DHW performance is required, order 1 QUADRO 750 CL tank to replace the QUADRO DU 750.

SSC solar systems with DIETRISOL PRO collectors can be delivered in 2 types of “Pack” to be completed with various single packages:

- “Roof Packs”, ST or IT, with PRO... solar collectors, the solar sensor, the hydraulic connection accessories, the roof-integrated or mounting system or the profiles for on-roof or terrace mounting
  - ➔ To be completed, for ST on-roof mounting, with the anchorage fittings chosen according to roof type, or for ET terrace mounting, with the terrace supports with stabilising crosses.






- “Cellar Packs”: DIETRISOL QUADRO, QUADRODENS, DC or PS solar tank

- ➔ To be completed by
  - The heat-carrying fluid and, where necessary, the 40- or even 60-litre expansion vessel
  - + for DIETRISOL DC and PS systems, by the DKS 9-20 solar station, the DIEMASOL B control system, the 3-way valve and the 40- or even 60-litre solar expansion vessel

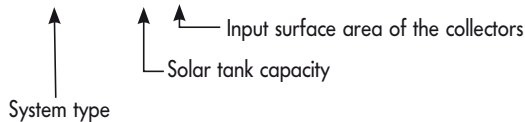
**NB:** For all solar systems with DIETRISOL POWER collectors, the various components should be ordered individually.

# THE SOLAR SYSTEMS “DIETRISOL...” FOR SSC

Input surface area/ solar collector type

	 8 m <sup>2</sup> 4 x POWER 15 + 1 x POWER 10	 13 m <sup>2</sup> (1)	 15 m <sup>2</sup> (1)	 10.3 m <sup>2</sup> (1)	 12 m <sup>2</sup> (1)	 17 m <sup>2</sup> (1)	 20 m <sup>2</sup> (1)	 13.8 m <sup>2</sup> (1)
	<b>QUADRO</b> DU 500-8 P DU 750-8 P -	<b>QUADRO</b> DU 500-13 DU 750-13 -	<b>QUADRO</b> - - DU 750-15	<b>QUADRO</b> - - DU 750-10 P	<b>QUADRO</b> - - DU 750-12 P	<b>QUADRO</b> - - DU 750-17	<b>QUADRO</b> - - DU 750-20	<b>QUADRO</b> - - DU 750-14 P
	<b>QUADRODENS</b> DUC 500-8 P DUC 750-8 P -	<b>QUADRODENS</b> DUC 500-13 DUC 750-13 -	<b>QUADRODENS</b> - - DUC 750-15	<b>QUADRODENS</b> - - DUC 750-10 P	<b>QUADRODENS</b> - - DUC 750-12 P	<b>QUADRODENS</b> - - DUC 750-17	<b>QUADRODENS</b> - - DUC 750-20	<b>QUADRODENS</b> - - DUC 750-14 P
	- -	- DC 1000-13	- DC 1000-15	- -	- -	- -	- -	- -
	- - - -	- - PS 1000-13 PS 1500-13	- - PS 1000-15 PS 1500-15	- - - -	- - - -	- - - PS 1500-17	- - - PS 1500-20	- - - -

Key: QUADRO 750-10



**(1) Important**

In all cases, our services must calculate the dimensions of the system. For surface areas of more than 10 m<sup>2</sup> of flat collectors or 8 m<sup>2</sup> of tubular collectors, the heating of a swimming pool in summer is recommended to prevent overheating or the installation of a second storage tank loaded and unloaded by the DIEMASOL Ci (QUADRO) control system or the MCDB (DC/PS) control system.

# THE SOLAR SYSTEMS “DIETRISOL...” FOR SSC

How to order an SSC solar system with PRO... collectors and:

⇒ QUADRO DU multizone solar tank with external auxiliary hydraulic heating possible (and optional electrical auxiliary heating for DU 500)

Name of the DIETRISOL system	Solar collector mounting	Roof pack + anchorage fittings or terrace supports for ST/ET	Cellar pack + heat-carrying fluid
QUADRO DU 500-8	IT	1 x EC 587 or 532 <sup>(1)</sup>	Ref. 100006015 + 2 x EG 100
	ST	1 x EC 585 + 2 x 4 fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 2 x EG 358	
QUADRO DU 500-9	IT	2 x EC 589 or 528 <sup>(1)</sup>	Ref. 100006015 + 2 x EG 100
	ST	1 x EC 581 + (1 x 4) + (1 x 6) fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
QUADRO DU 500-10	IT	1 x EC 588 or 533 <sup>(1)</sup>	Ref. 100006015 + 2 x EG 100
	ST	1 x EC 582 + 2 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 2 x EG 358	
QUADRO DU 500-13	IT	3 x EC 589 or 2 x EC 529 <sup>(1)</sup>	Ref. 100006015 + 2 x EG 100
	ST	2 x EC 584 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 519 <sup>(1)</sup> + 3 x EG 358	
QUADRO DU 750-8	IT	1 x EC 587 or 532 <sup>(1)</sup>	Ref. 100007908 + 2 x EG 100 + 1 x EG 83
	ST	1 x EC 581 + 2 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
QUADRO DU 750-9	IT	2 x EC 589 or 528 <sup>(1)</sup>	Ref. 100007908 + 2 x EG 100 + 1 x EG 83
	ST	1 x EC 585 + (1 x 4) + (1 x 6) fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 2 x EG 358	
QUADRO DU 750-10	IT	1 x EC 588 or 533 <sup>(1)</sup>	Ref. 100007908 + 2 x EG 100 + 1 x EG 83
	ST	1 x EC 582 + 2 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 2 x EG 358	
QUADRO DU 750-13	IT	3 x EC 589 or 2 x EC 529 <sup>(1)</sup>	Ref. 100007908 + 2 x EG 100 + 1 x EG 83
	ST	2 x EC 584 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 519 <sup>(1)</sup> + 3 x EG 358	
QUADRO DU 750-15	IT	2 x EC 587 or 532 <sup>(1)</sup>	Ref. 100007909 + 2 x EG 100 + 1 x EG 84
	ST	2 x EC 581 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 3 x EG 358	
QUADRO DU 750-17	IT	(4 x EC 589) or (2 x EC 529 <sup>(1)</sup> + 1 x EC 531 <sup>(1)</sup> )	Ref. 100007909 + 2 x EG 100 + 1 x EG 84
	ST	2 x EC 585 + 4 x 6 fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 4 x EG 358	
QUADRO DU 750-20	IT	2 x EC 588 or 533 <sup>(1)</sup>	Ref. 100007909 + 2 x EG 100 + 1 x EG 84
	ST	2 x EC 582 + 4 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 4 x EG 358	

⇒ QUADRODENS DUC multizone solar tank with auxiliary hydraulic heating by integrated boiler

Name of the DIETRISOL system	Solar collector mounting	Roof pack + anchorage fittings or terrace supports for ST/ET	Cellar pack + heat-carrying fluid
QUADRODENS DUC 500-8	IT	1 x EC 587 or 532 <sup>(1)</sup>	Ref. 100006016 + 2 x EG 100
	ST	1 x EC 581 + 2 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
QUADRODENS DUC 500-9	IT	2 x EC 589 or 528 <sup>(1)</sup>	Ref. 100006016 + 2 x EG 100
	ST	1 x EC 585 + (1x4) + (1x6) fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 2 x EG 358	
QUADRODENS DUC 500-10	IT	1 x EC 588 or 533 <sup>(1)</sup>	Ref. 100006016 + 2 x EG 100
	ST	1 x EC 582 + 2 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 2 x EG 358	
QUADRODENS DUC 500-13	IT	3 x EC 589 or 2 x EC 529 <sup>(1)</sup>	Ref. 100006016 + 2 x EG 100
	ST	2 x EC 584 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 519 <sup>(1)</sup> + 3 x EG 358	
QUADRODENS DUC 750-8	IT	1 x EC 587 or 532 <sup>(1)</sup>	Ref. 100007971 + 2 x EG 100 + 1 x EG 83
	ST	1 x EC 581 + 2 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
QUADRODENS DUC 750-9	IT	2 x EC 589 or 528 <sup>(1)</sup>	Ref. 100007971 + 2 x EG 100 + 1 x EG 83
	ST	1 x EC 585 + (1x4) + (1x6) fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 2 x EG 358	
QUADRODENS DUC 750-10	IT	1 x EC 588 or 533 <sup>(1)</sup>	Ref. 100007971 + 2 x EG 100 + 1 x EG 83
	ST	1 x EC 582 + 2 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 2 x EG 358	
QUADRODENS DUC 750-13	IT	3 x EC 589 or 2 x EC 529 <sup>(1)</sup>	Ref. 100007971 + 2 x EG 100 + 1 x EG 83
	ST	1 x EC 584 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 519 <sup>(1)</sup> + 3 x EG 358	
QUADRODENS DUC 750-15	IT	2 x EC 587 or 532 <sup>(1)</sup>	Ref. 100007972 + 2 x EG 100 + 1 x EG 84
	ST	2 x EC 581 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 3 x EG 358	
QUADRODENS DUC 750-17	IT	(4 x EC 589) or (2 x EC 529 <sup>(1)</sup> + 1 x EC 531 <sup>(1)</sup> )	Ref. 100007972 + 2 x EG 100 + 1 x EG 84
	ST	2 x EC 585 + 4 x 6 fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 4 x EG 358	
QUADRODENS DUC 750-20	IT	2 x EC 588 or 533 <sup>(1)</sup>	Ref. 100007972 + 2 x EG 100 + 1 x EG 84
	ST	2 x EC 582 + 4 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 4 x EG 358	

(1) Depending on delivery of the “roof packs” horizontally or vertically: see page 5.

(2) To be chosen according to the roof type, see page 9.



# THE SOLAR SYSTEMS “DIETRISOL...” FOR SSC

⇒ DC storage tank for heating and DHW in water bath  
(hydraulic or electrical auxiliary heating possible)

Name of the DIETRISOL system	Solar collector mounting	Roof pack + anchorage fittings or terrace supports for ST/ET	Cellar pack + station, contr. system, solar exp. vessel, 3-way valve, heat-carrying fluid
DC 750-8	IT	1 x EC 587 or 532 <sup>(1)</sup>	EC 140 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 581 + 2 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
DC 750-9	IT	2 x EC 589 or 528 <sup>(1)</sup>	EC 140 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 585 + (1 x 4) + (1 x 6) fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 2 x EG 358	
DC 750-10	IT	1 x EC 588 or 533 <sup>(1)</sup>	EC 140 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 582 + 2 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 2 x EG 358	
DC 1000-9	IT	2 x EC 589 or 528 <sup>(1)</sup>	Réf. 89809071 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 585 + (1 x 4) + (1 x 6) fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 2 x EG 358	
DC 1000-10	IT	1 x EC 588 or 533 <sup>(1)</sup>	Réf. 89809071 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 582 + 2 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 2 x EG 358	
DC 1000-13	IT	3 x EC 589 or 2 x EC 529 <sup>(1)</sup>	Réf. 89809071 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	2 x EC 584 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 519 <sup>(1)</sup> + 3 x EG 358	
DC 1000-15	IT	2 x EC 587 or 532 <sup>(1)</sup>	Réf. 89809071 + EC 89, EC 160, EG 84, EC 164 + 3 x EG 100
	ST	2 x EC 581 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 3 x EG 358	

(1) Depending on delivery of the “roof packs” horizontally or vertically:  
see page 5.

(2) To be chosen according to the roof type, see page 9.

⇒ PS storage tank for heating and DHW using an existing  
tank (hydraulic auxiliary heating possible)

Name of the DIETRISOL system	Solar collector mounting	Roof pack + anchorage fittings or terrace supports for ST/ET	Cellar pack + station, contr. system, solar exp. vessel, 3-way valve, heat-carrying fluid
PS 500-8	IT	1 x EC 587 or 532 <sup>(1)</sup>	Réf. 89809080 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 581 + 2 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
PS 800-8	IT	1 x EC 587 or 532 <sup>(1)</sup>	Réf. 89809081 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 581 + 2 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
PS 800-9	IT	2 x EC 589 or 528 <sup>(1)</sup>	Réf. 89809081 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 585 + (1 x 4) + (1 x 6) fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 2 x EG 358	
PS 800-10	IT	1 x EC 588 or 533 <sup>(1)</sup>	Réf. 89809081 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 582 + 2 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 2 x EG 358	
PS 1000-8	IT	1 x EC 587 or 532 <sup>(1)</sup>	Réf. 89809082 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 581 + 2 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
PS 1000-9	IT	2 x EC 589 or 528 <sup>(1)</sup>	Réf. 89809082 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 585 + (1 x 4) + (1 x 6) fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 2 x EG 358	
PS 1000-10	IT	1 x EC 588 or 533 <sup>(1)</sup>	Réf. 89809082 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 582 + 2 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 2 x EG 358	
PS 1000-13	IT	3 x EC 589 or 2 x EC 529 <sup>(1)</sup>	Réf. 89809082 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	2 x EC 584 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 519 <sup>(1)</sup> + 3 x EG 358	
PS 1000-15	IT	2 x EC 587 or 532 <sup>(1)</sup>	Réf. 89809082 + EC 89, EC 160, EG 83, EC 164 + 3 x EG 100
	ST	2 x EC 581 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
PS 1500-8	IT	1 x EC 587 or 532 <sup>(1)</sup>	Réf. 89809083 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 581 + 2 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 2 x EG 358	
PS 1500-9	IT	2 x EC 589 or 528 <sup>(1)</sup>	Réf. 89809083 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 585 + (1 x 4) + (1 x 6) fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 2 x EG 358	
PS 1500-10	IT	1 x EC 588 or 533 <sup>(1)</sup>	Réf. 89809083 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	1 x EC 582 + 2 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 2 x EG 358	
PS 1500-13	IT	3 x EC 589 or 2 x EC 529 <sup>(1)</sup>	Réf. 89809083 + EC 89, EC 160, EG 83, EC 164 + 2 x EG 100
	ST	2 x EC 584 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 519 <sup>(1)</sup> + 3 x EG 358	
PS 1500-15	IT	2 x EC 587 or 532 <sup>(1)</sup>	Réf. 89809083 + EC 89, EC 160, EG 83, EC 164 + 3 x EG 100
	ST	2 x EC 581 + 4 x 4 fittings <sup>(2)</sup>	
	ET	or 522 <sup>(1)</sup> + 3 x EG 358	
PS 1500-17	IT	(4 x EC 589) or (2 x EC 529 + 1 x EC 531) <sup>(1)</sup>	Réf. 89809083 + EC 89, EC 160, EG 83, EC 164 + 3 x EG 100
	ST	2 x EC 585 + 4 x 6 fittings <sup>(2)</sup>	
	ET	or 520 <sup>(1)</sup> + 4 x EG 358	
PS 1500-20	IT	2 x EC 588 or 533 <sup>(1)</sup>	Réf. 89809083 + EC 89, EC 160, EG 83, EC 164 + 3 x EG 100
	ST	2 x EC 582 + 4 x 6 fittings <sup>(2)</sup>	
	ET	or 523 <sup>(1)</sup> + 4 x EG 358	

# “DIETRISOL QUADRO DU... AND 750 CL” SOLAR TANKS



## TECHNICAL DATA

### Strong points

- Mixed multizone solar tanks of modular construction for producing domestic hot water and auxiliary heating, to which all types of boiler can be connected.
- They comprise the following functional modules: temperature stratification storage tank fitted with injection rods and an exchanger in the form of a high performance stainless steel coil for the production of domestic hot water (up to 50 l/min for QUADRO 750 CL). Its construction principle is based on dividing the hot water tank into 4 zones

An intelligent load technique, based on the non-return principle, is used to control the various functional zones selectively and thereby optimise the use of solar energy. It is always the water in the tank at the coldest temperature that will be presented to the solar installation for reheating.

DU 500: as the tank is fitted with 2 solar exchangers, the solar installation will always operate in the most favourable tank zone depending on the exchange received. During draw-off phases, the “DHW reheating zone” handles maximum cooling of the lower zone in the tank (cold water zone).

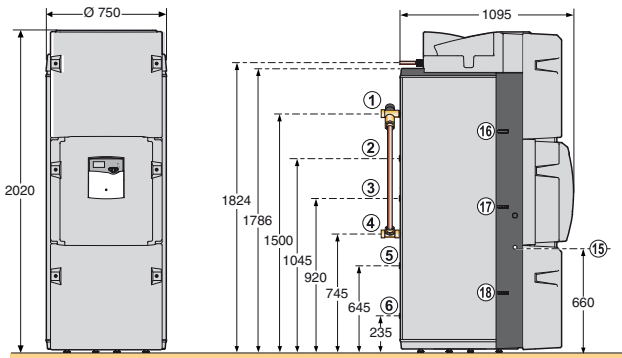
DU 750: depending on the temperature level, the hot water from the solar installation will be injected into the “storage zone” or into the “hot water zone”. During draw-off phases, the “DHW reheating zone”, operating in reverse flow,

handles maximum cooling of the lower zone in the tank (cold water zone).

- DU 500: tank in very thick steel, internal hydraulic connection pipes with solar station and solar expansion vessel: all hydraulic connections are made at the back, integrated DIEMASOL BCi control system and thermostatic mixing valve.
- DU 750: tank fitted with a metal structure with insulating shells and pipes to which the DUS 1 solar station is fitted (up to 10 m<sup>2</sup> of DU 750-10 collectors) or DUS 2 (up to 20 m<sup>2</sup> of DU 750-20, 750 CL collectors), as well as the DIEMASOL Ci control system.
- Cladding in painted sheet steel and 4 insulated covers for DU 500, or 125 mm thick polyester fibres with external skin in polystyrol and 3 insulated cladding covers for DU 750, used to cover all functional components.
- Various optional hydraulic modules can be incorporated: hydraulic module for 1 direct circuit, for 1 circuit with mixing valve or at a fixed temperature.
- **Must be fitted with a thermostatic mixing valve**

### Main dimensions (mm and inches)

#### DU 500



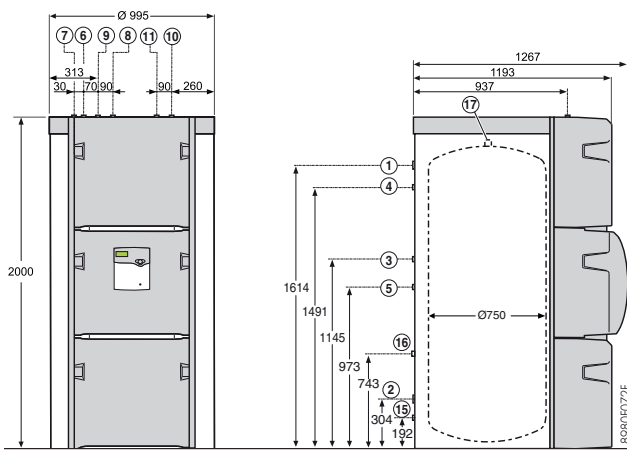
- ① Domestic hot water outlet Rp 1 3/4" thermostatic mixing valve fitted as standard
- ② Outlet R 3/4
- ③ Outlet/Inlet R 3/4
- ④ Domestic cold water inlet Rp 1
- ⑤ Outlet/Inlet R 3/4
- ⑥ Drainage Rp 1/2
- ⑦ Inlet/Outlet Rp 1
- ⑧ Air vent Rp 3/8
- ⑨ Solar circuit flow Ø 18 mm
- ⑩ Solar circuit return Ø 18 mm
- ⑮ Solar safety unit outlet
- ⑯ Sensor tube (DHW)
- ⑰ Sensor tube (Storage)
- ⑱ Sensor tube (Solar)

#### + If fitting hydraulic modules (optional)

- ⑪ Heating circuit returns Clamping ring screw connection Ø 18 mm
- ⑫ Heating circuit outlets Clamping ring screw connection Ø 18 mm

Foam-covered tank:  
diameter: Ø 750 mm  
height: 1786 mm

#### DU 750, 750 CL (new execution)



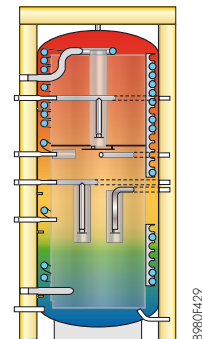
- ① Domestic hot water outlet Rp 1
- ② Cold water inlet Rp 1
- ③ Heating flow R1
- ④ Heating return R1
- ⑤ Boiler or heating return R1
- ⑥ Solar circuit flow Ø18 mm
- ⑦ Solar circuit return Ø18 mm
- ⑮ Return from the swimming pool exchanger/DMCDB connection/ Drainage R1
- ⑯ Flow to the swimming pool exchanger/DMCDB connection R1
- ⑰ For manual air vent (delivered non-mounted) Rp 1/2

#### + if fitting hydraulic modules (optional)

- ⑧ Heating flows (clamping ring screw connection Ø 22 mm)
- ⑨ Heating returns (clamping ring screw connection Ø 22 mm)

Tank dimensions: Ø 750 mm  
height 1952 mm, switch dimension: 2100 mm

### Principle: (DU 750)



- Zone 1: Hot water availability zone
- Zone 2: DHW reheating zone
- Zone 3: Storage zone reserved for heating
- Zone 4: Return and cold water zone

# “DIETRISOL QUADRO DU... AND 750 CL” SOLAR TANKS

## Table of specifications

Max. operation pressure:  
 primary circuit: 6 bar  
 secondary circuit (tank): 3 bar  
 DHW circuit: 7 bar

Max. operating temp.:  
 primary circuit: 120 °C  
 secondary circuit: 90 °C  
 DHW circuit: 90 °C

DIETRISOL QUADRO		DU 500-10			DU 750-10			DU 750-20			DU 750-20 CL								
Collector surface area that can be connected	m <sup>2</sup>	13			10			20 (only if drawing on auxiliary energy in summer, e.g. swimming pool)			< 20								
Storage tank content	l	470			715			715			704								
DHW coil content	l	27			27			27			38.5								
Solar exchanger content	l	1.4			1.2			2.2			2.2								
DHW coil exchange area	m <sup>2</sup>	5			5.0			5.0			7.1								
Primary inlet temperature	°C	65	70	75	65	70	75	65	70	75	65	70	75	70					
<b>Maximum DHW characteristics with exchanged power for DHW preparation (in summer) (1)*</b>	kW	56	70	80	62	73	85	62	73	85	120								
Hourly flow rate at $\Delta t = 35$ K (in summer) (1)*	l/h	1375	1720	1965	1520	1800	2090	1520	1800	2090	3000								
DHW storage temperature	°C	55	60	65	55	60	65	55	60	65	60								
Flow rate in 10 min at $\Delta t = 30$ K (1)*	l/10 min	170	225	250	205	275	340	205	275	340	640								
<b>DHW characteristics with 1 boiler of</b>	kW	25			25			25			25		60						
Hourly flow rate at $\Delta t = 35$ K (in summer) (1)*	l/h	615			615			615			615		1470						
DHW storage temperature	°C	55	60	65	55	60	65	55	60	65	55	60	65	55	60	65			
Flow rate in 10 min at $\Delta t = 30$ K (1)*	l/10 min	155	210	240	185	250	315	185	250	300	220	280	350	390	460	540			
<b>DHW characteristics with electrical option</b>																			
Flow rate in 10 min at $\Delta t = 30$ K with electrical option*	l/10 min	140	175	200	-	-	-	-	-	-	-								
Cooling constant	kW/;K.l	0.15			0.14			0.14			0.14								
Weight empty	kg	308			280			284			285								

(1) cold water temp.: 10°C, flow rate 2 m<sup>3</sup>/h., the primary set point will be set to DHW set point + 10 K. \* without solar contribution (solar zone at 10°C) with connection in ⑤

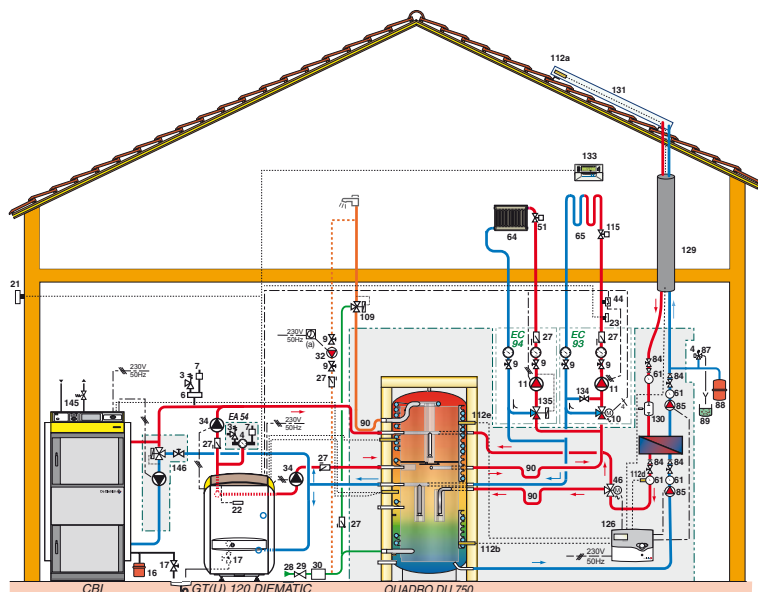
## PACKAGING

QUADRO DU 500-10 - Package EC 290 + EC 500  
 QUADRO DU 750-10 - Package EC 530 + EC 531

QUADRO DU 750-20 - Package EC 530 + EC 532  
 QUADRO 750-20 CL - Package EC 545 + EC 552

# SYSTEMS WITH “DIETRISOL QUADRO DU..., 750 CL” SOLAR TANKS

**EXAMPLE OF A “DIETRISOL QUADRO DU...” SYSTEM connected to a GT(U) 120 oil/gas boiler + CBI wood-fired boiler.**  
The same schematics are possible with the GT(U) 120 boiler alone



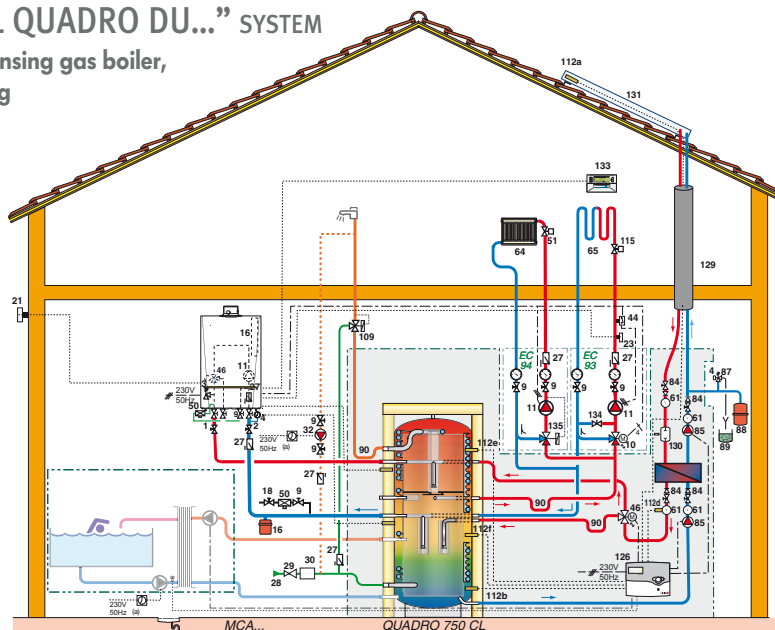
Keys: see page 51

## Operating principle

The solar installation supplies the QUADRO solar tank both for DHW preparation and room heating. If the required hot water temperature is not reached by the solar installation alone, the boiler takes over to complete reheating of the water. The solar installation transfers the energy to the plate exchanger in the tank's solar station. The integrated DIEMASOL Ci control system decides whether this solar energy should be injected into the upper or lower level of the tank.

When domestic hot water is drawn off, cold water enters the stainless steel coil at the bottom and cools the lower zone of the storage tank. The solar installation can then start to operate very quickly. The return water from the heating circuit is fed into the storage tank and directed to the corresponding zone according to its temperature level. As this solar system also handles auxiliary heating, it is necessary to pay close attention to the calibration of the thermostatic valves on the radiators. To prevent losses through circulation in the hot water pipe, a thermostatic mixing valve (delivered with DU 500) and an antithermosiphon loop will be fitted.

**EXAMPLE OF A “DIETRISOL QUADRO DU...” SYSTEM connected to a wall-hung condensing gas boiler, including swimming pool heating**



Keys: see page 51

## Operating principle

A third circuit for heating a swimming pool is connected to the rear of the QUADRO solar tank in the locations provided for this purpose. The circulating pump for the third circuit will be connected to the swimming pool control system; this draws heat from the QUADRO tank when the swimming pool temperature falls below the set point value. The filtration times must be adapted to the “day” operating periods of the condensing boiler.

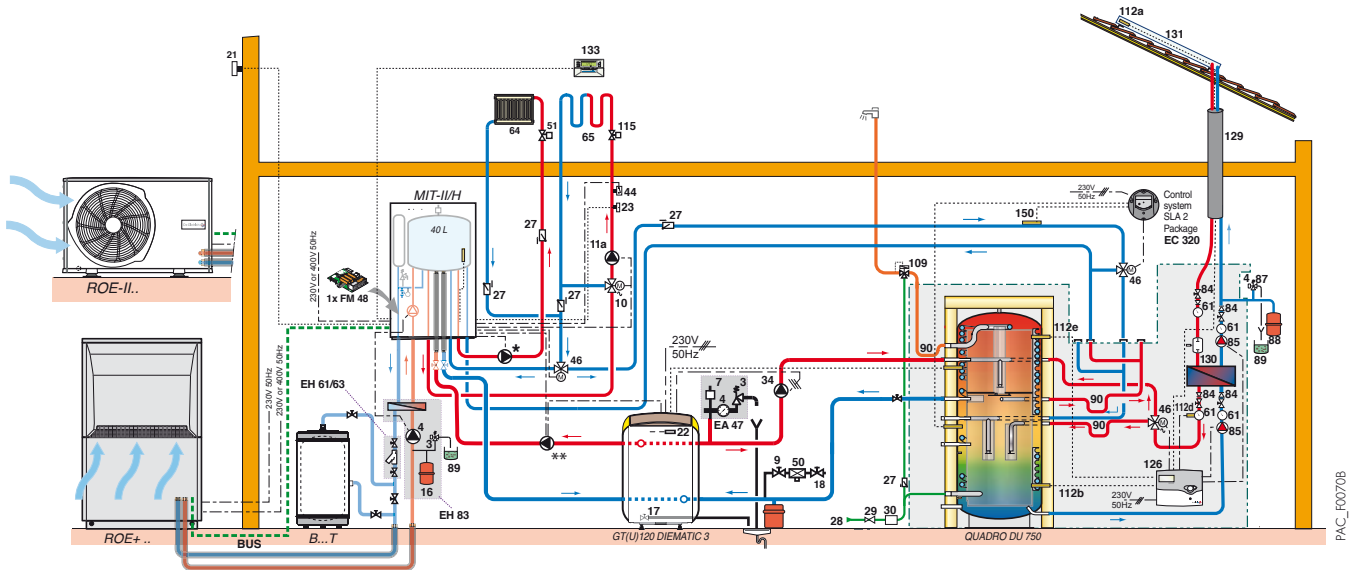
**Auxiliary heating:** The solar installation transfers the energy to the plate exchanger in the solar station integrated in the tank. The control system decides whether this solar energy should be injected into the upper or lower level of the tank. The heating circuits and the swimming pool circuit are connected to the storage

zone in the tank. If the tank is loaded by solar energy, the various circuits will be supplied by this energy. In summer, for example, the swimming pool will be heated exclusively by the solar installation. Conversely, when the season changes or in winter, if the available solar energy is insufficient, the storage zone in the tank will be kept at temperature by the boiler so that the swimming pool can be heated.

70% of domestic hot water preparation is also handled by the solar installation. If the solar energy is not sufficient to reach the desired DHW temperature level, the boiler will reheat the “hot water” zone in the QUADRO up to the desired value.

# SOLAR SYSTEMS WITH “DIETRISOL QUADRO DU..., 750 CL” SOLAR TANKS

## EXAMPLE OF A “DIETRISOL QUADRO DU...” SYSTEM + oil boiler, connected to an ROE + heat pump



\* relocate the pump on circuit A integrated in the MIT-II to the flow pipe

\*\* the pump is powered by the boiler. However, the AL2 contact on standby in the MIT should be inserted in series

Keys: see page 51

### Operating principle

The QUADRO DU is connected in series (return relay principle) to the heat pump heating circuit(s) managed by the MIT. All flows are done on the MIT and all returns pass through the heating zone on the QUADRO before going back to the MIT returns. The returns can therefore be reheated or even heated by the solar installation before being sent back to the heating circuits. The HP will provide auxiliary heating if the solar provisions is unable to satisfy the demand.

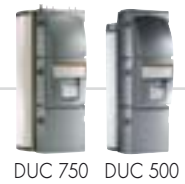
The SLA 2 differential control system (integrated in the DIEMASOL since 10/2007) short circuits the DIETRISOL QUADRO DU if the temperature in it is lower than that in the return circuit. To enable the cooling mode, the heating circuits must be taken out of the MIT/H and connected through a 3-way valve to isolate the QUADRO DU from the MIT/H.

Auxiliary DHW heating is handled by a boiler or the resistance kit, which can be integrated in DU 500 versions, or an electrical water heater in series on DU 750 versions.

**NB:** the diagram above shows the new execution of the DIETRISOL QUADRO DU tank.

## OPTIONS: LIST AND DESCRIPTION ON PAGE 46

# "DIETRISOL QUADRODENS DUC..." MIXED CONDENSING SOLAR TANKS



## TECHNICAL DATA

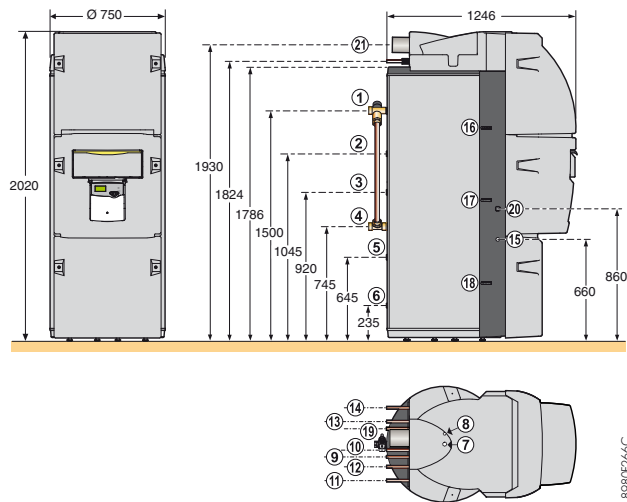
### Strong points

- New concept in solar hot water tanks for DHW production and auxiliary heating which uses a minimum surface area to combine all the elements required by a high performance heating system.
- Apart from the QUADRO DU mixed multizone solar tank with all of its functionalities as described on page 34, it incorporates a 25 kW condensing boiler from the INNOVENS range with its DIEMATIC 3 control system, pre-fitted as standard with a PCB for mixing valve (to control an EC 93 hydraulic module, for example)

- Just like the QUADRO DU tank on which it is based, it can accommodate 1 or 2 optional hydraulic modules
- The various options available for INNOVENS MC 15/25 boilers, particularly the DIEMATIC 3 control panel, the condensates neutralisation systems, the propane conversion kits, the air/flue gas connection systems... are also available

### Main dimensions (mm and inches)

#### DUC ... 500-10



- ① Domestic hot water outlet Rp 1 3/4" thermostatic mixing valve fitted as standard
- ② Outlet - Rp 1
- ③ Outlet/Inlet - Rp 1
- ④ Domestic cold water inlet - Rp 1
- ⑤ Outlet/Inlet - Rp 1
- ⑥ Drainage - Rp 1
- ⑦ Inlet/Flow -R1
- ⑧ Air vent Rp 3/8
- ⑨ Solar circuit flow - Ø 18 mm
- ⑩ Solar circuit return Ø 18 mm
- ⑮ Solar safety unit outlet
- ⑯ Sensor tube (DHW)
- ⑰ Sensor tube (Storage)
- ⑱ Sensor tube (Solar)
- ⑲ Gas inlet Cu Ø 18 mm
- ⑳ Condensates discharge
- ㉑ Concentric connection 60/100 mm

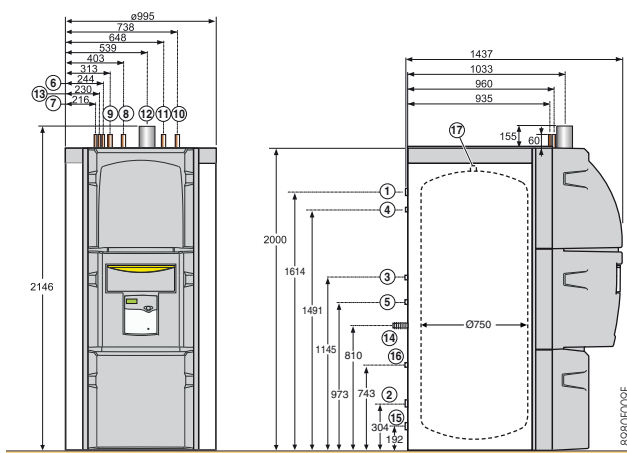
#### + if fitting hydraulic modules (optional)

- ⑪ ⑬ Heating circuit returns  
Clamping screw connection - Ø 18 mm
- ⑫ ⑭ Heating circuit outlets  
Clamping screw connection - Ø 18 mm

Bare tank:  
Ø 750 mm  
height: 1786 mm

R: Conical threading  
Rp: Tapped connection

#### DUC 750



- ① Domestic hot water outlet Rp 1
- ② Domestic cold water inlet Rp 1
- ③ Heating circuit flow R1
- ④ External boiler flow\* R1
- ⑤ External boiler return\*/heating circuit R1
- ⑥ Solar circuit flow Cu Ø 18 mm
- ⑦ Solar circuit return Cu Ø 18 mm
- ⑫ Concentric connection Ø 60/100 mm
- ⑬ Gas inlet Cu Ø 18 mm
- ⑭ Condensates discharge
- ⑮ Return from the swimming pool exchanger/DMCDB connection/drainage R1
- ⑯ Flow to the swimming pool exchanger/DMCDB connection R1
- ⑰ For manual air vent (delivered non-mounted) Rp 1/2

#### + if fitting hydraulic modules (optional)

- ⑧ j Heating circuit flows  
Clamping screw connection - Ø 22 mm
- ⑨ ⑪ Heating circuit returns  
Clamping ring screw connection - Ø 22 mm

\* if required

Bare tank:  
Ø 750 mm  
height: 1952 mm  
Switch dimension: 2100 mm

# SOLAR SYSTEMS WITH “DIETRISOL QUADRODENS DUC...” SOLAR TANKS

## Table of specifications

Max. operation pressure:

primary circuit: 6 bar  
secondary circuit (tank): 3 bar  
DHW circuit: 7 bar

Max. operating temp.:

primary circuit: 110 °C  
secondary circuit: 90 °C  
DHW circuit: 90 °C

Boiler:

Max. operation pressure: 3 bar  
Max. operating temp.: 95 °C  
Homologation: B<sub>23P</sub>, C<sub>13x</sub>, C<sub>33x</sub>, C<sub>53</sub>  
Gaz Category: II<sub>2E5i3+</sub>

DIETRISOL QUADRODENS	DUC	25-500-10	25-750-10	25-750-20
For solar collector surface area	m <sup>2</sup>	≤ 13	≤ 10	≤ 20
⇒ Boiler data:				
Min./max. useful output at 80/60°C	kW	4.0-23.6		4.0-23.6
Min./max. useful output at 40/30 °C	kW	4.5-24.9		4.5-24.9
Gas flow natural gas H (L)	m <sup>3</sup> /h	2.54 (2.96)		2.54 (2.96)
(15 °C-1013 mbar) propane	kg/h	1.84		1.84
Efficiency as a % PCI 100 % P <sub>n</sub> - 75/60 °C	%	96.5		96.5
at loading... % and 100 % P <sub>n</sub> - 40/30 °C	%	101.3		101.3
water temperature 30 % P <sub>n</sub> - 40/30 °C	%	107.5		107.5
Boiler outlet fume pressure	P <sub>a</sub>	200		200
Flue gas temperature 75/60 °C (40/30 °C)	°C	67 (39)		67 (39)
Min./max. flue gas mass flow rate	kg/s	0.0020-0.0115		0.0020-0.0115
Water content	l	4.3		4.3
Nominal water flow at P <sub>n</sub> at Δt 20 K	m <sup>3</sup> /h	1.071		1.071
Minimum water flow required	l/h	none		none
⇒ DHW data:				
Back-up tank water volume	l	470	715	715
DHW volume	l	27	27	27
Exchanged power (l)	kW	24	24	24
Hourly flow rate at Δt 35 K (l)	l/h	590	590	590
Flow over 10 min at Δt 30 K (l) (3)	l/10 mn	(155) 210	185 (250)	185 (250)
Cooling constant	Wh/j.k.l.	0.15	0.14	0.14
Net weight	kg	365	332	336

(1) - DUC 750: temperatures: cold water inlet 10°C, primary 60°C, load 60°C. Primary flow: 2 m<sup>3</sup>/h; values measured with boiler without solar back-up

- DUC 500: temperature cold water 10 °C, primary modulable flow, primary inlet temperature: DHW set point +10 K.

(3) Storage temperature (55°C -) 60°C with electrical resistance in summer.

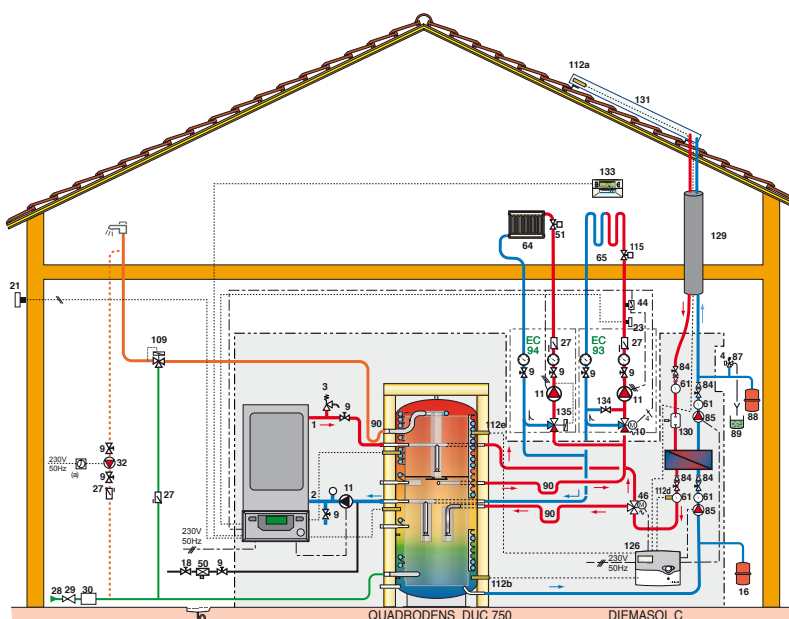
## PACKAGING

DUC 25-500-10 - Package EC 290 + EC 316

DUC 25-750-10 - Package EC 550 + EC 555

DUC 25-750-20 - Package EC 550 + EC 556

## EXAMPLE OF A “DIETRISOL QUADRO DUC...” SYSTEM with Quadrodens solar tank incorporating the boiler



## Operating principle

The solar installation supplies the QUADRODENS solar tank both for DHW preparation and room heating. If the required hot water temperature is not reached by the solar installation alone, the boiler integrated in the tank takes over to complete reheating of the water. The solar installation transfers the energy to the plate exchanger in the tank's solar station. The integrated DIEMASOL Ci control system decides whether this solar energy should be injected into the upper or lower level of the tank. When domestic hot water is drawn off, cold water enters the stainless steel coil at the bottom and cools the lower zone of the storage tank. The solar installation can then start to operate very quickly. The return water from the heating circuit is fed into the storage tank and directed to the corresponding zone according to its temperature level. As this solar system also handles auxiliary heating, it is necessary to pay close attention to the calibration of the thermostatic valves on the radiators. To prevent losses through circulation in the hot water pipe, a thermostatic mixing valve and an antithermosiphon loop will be fitted.

Keys: see page 51

## OPTIONS: LIST AND DESCRIPTION ON PAGE 46

# MIXED SOLAR TANKS DC 750-2 AND DC 1000



## TECHNICAL DATA

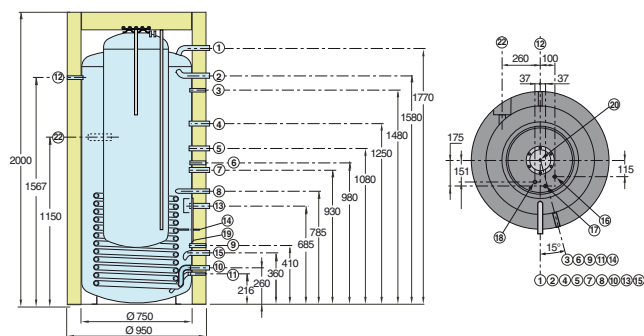
### Strong points

- DC... mixed solar tanks comprise a domestic hot water preparation tank integrated in the upper section of a storage tank fitted with a solar exchanger. These tanks can store a whole day's solar energy in order to use it as needed for heating, domestic hot water preparation or both
- Storage tank in very thick sheet steel with black anti-rust coating fitted with a smooth pipe exchanger in the lower section welded into the tank dedicated to the solar installation
- Domestic hot water tank in sheet steel protected by food quality standard high quartz content vitrified enamel. Reheating using the double boiler is optimised by a dip tube

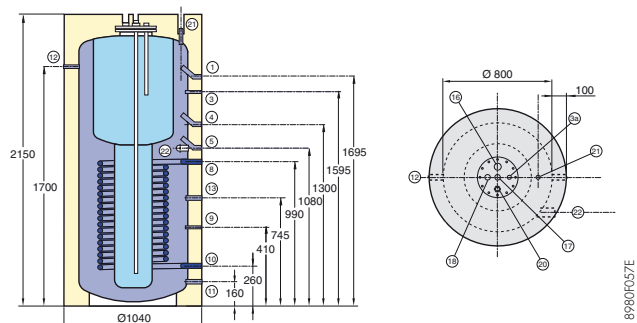
- linked to the solar exchanger in the bottom of the auxiliary tank
- Insulation in polyester fibres 120 mm thick with external skin in recyclable polystyrol in white.
- Top inspection hatch
- Magnesium anode
- Non-return connection
- Options: impressed current anode, electrical resistance, thermostatic mixing valve

### Main dimensions (mm and inches)

#### DC 750-2



#### DC 1000



- ① Boiler flow/Domestic water heating zone (and air vent for DC 750-2)
- DC 750-2: R 1
- DC 1000: Rp 1
- ② Boiler outlet R 1
- ③ Sensor tube Rp 1/2 (boiler sensor)
- ④ Boiler return/Domestic water heating zone
- DC 750-2: R 1
- DC 1000: Rp 1

- ⑤ Boiler return/Storage heating zone
- DC 750-2: R 1
- DC 1000: Rp 1
- ⑥ Sensor tube Rp 1/2
- ⑦ Heating circuit flow R 1
- ⑧ Solar exchanger inlet
- DC 750-2: G 1
- DC 1000: Rp 1
- ⑨ Sensor tube Rp 1/2 (solar sensor)

- ⑩ Solar exchanger outlet
- DC 750-2: G 1
- DC 1000: Rp 1
- ⑪ Drainage (for swimming pool return)
- DC 750-2: Rp 1/2
- DC 1000: Rp 1
- ⑫ Sensor tube for thermometer
- Rp 1/2
- ⑬ Heating circuit return (radiators)

- DC 750-2: R 1
- DC 1000: Rp 1
- ⑭ Sensor tube Rp 1/2
- ⑮ Heating return (underfloor heating) R 1
- ⑯ Circulating pump
- DC 750-2: R 1/2
- DC 1000: R 3/4
- ⑰ Cold water inlet: R 3/4
- ⑱ Domestic hot water outlet
- R 3/4
- ⑲ Sleeve for sensor, Ø 6 mm

- ⑳ Anode
- ㉑ Air vent
- ㉒ Emplacement for electrical resistance:
- DC 750-2: G 1 1/2
- DC 1000: Rp 1 1/2

### Table of specifications

Max. operation pressure:  
 Buffer tank:: 3 bar  
 DHW tank: 10 bar  
 Solar exchanger: 12 bar

Max. operating temp.:  
 Buffer tank:: 95 °C  
 DHW tank: 95 °C  
 Solar exchanger: 95 °C

Solar tank		DC 750-2		DC 1000	
Storage reservoir capacity	l	525		780	
Exchanger capacity	l	12.4		14.7	
Solar exchanger exchange surface (max. collectors surface)	m <sup>2</sup>	2.3 (up to 10 m <sup>2</sup> )		2.8 (up to 15 m <sup>2</sup> )	
DHW tank capacity	l	225		220	
DHW tank exchange surface	m <sup>2</sup>	1.7		2.0	
Primary temperature	°C	55	80	55	80
Exchanged power (1)	kW	8.0	21	9.4	24.8
Flow per hour at Δt = 35 K (1)	l/h	190	520	230	610
Flow over 10 min at Δt = 30 K (1) (2)	l/10 min	220		280	
Maintenance consumption at Δt 45 K	kWh/24 h	3.2		3.7	
Shipping weight	kg	272		315	

(1) Cold water temp.: 10°C, storage temp.: 65°C, primary flow: 2 m<sup>3</sup>/h. (2) Nominal flow in summer with boiler, without solar back-up.

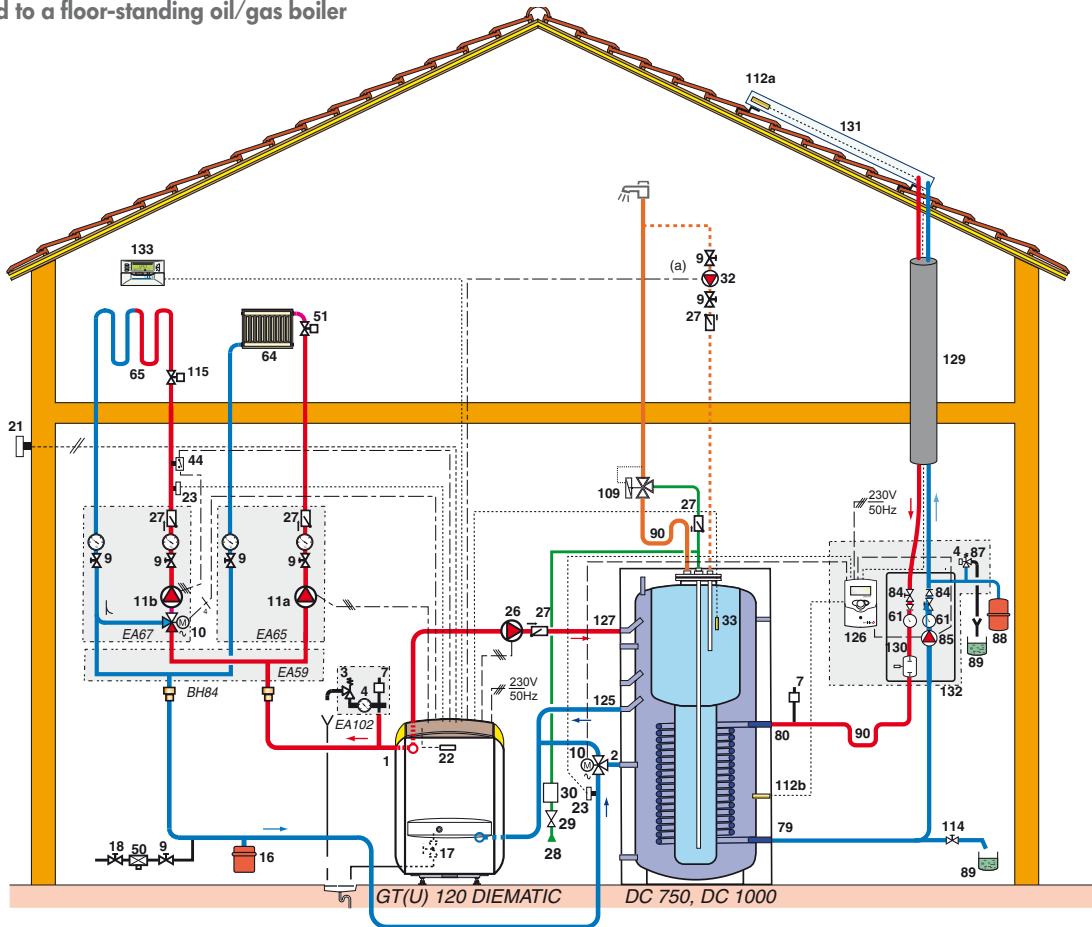
## PACKAGING

DC 750-2 - Package EC 140  
 DC 1000 - Package EC 106 + EC 107



# SYSTEMS WITH MIXED SOLAR TANKS “DC...”

## EXAMPLE OF A “DIETRISOL DC...” SYSTEM connected to a floor-standing oil/gas boiler



Keys: see page 51

### Operating principle

The DC ... mixed solar tank comprises a domestic hot water tank and a storage tank.

Domestic hot water preparation: the solar installation supplies the mixed tank with solar energy both for the DHW tank and for room heating. If the desired DHW temperature is not reached, the boiler takes over to reheat the domestic water to the desired level thanks to its “DHW priority” function.

NB: for installations with a DC... tank in hard water regions, the installation of a water softener is compulsory.

Auxiliary heating: the solar installation transfers its energy to the exchanger located in the lower section of the mixed tank. The storage tank and the boiler are hydraulically connected in series. The heating circuit return is taken directly to the lower section of the tank. If solar energy has been stored in

the storage tank, the temperature of this return will be noted before it is taken into the boiler for reheating if necessary. If the temperature of the water in the boiler is then sufficient to supply the heating circuits, the boiler will stay off. The boiler is controlled as a function of the outside temperature. The solar installation can therefore sustain heating requirements very early on.

For optimum operation of the solar installation, we recommend the installation of a DIEMASOL B control system and a DKS 9-20 solar station.

## OPTIONS: LIST AND DESCRIPTION ON PAGE 46

# BUFFER TANKS “PS...”

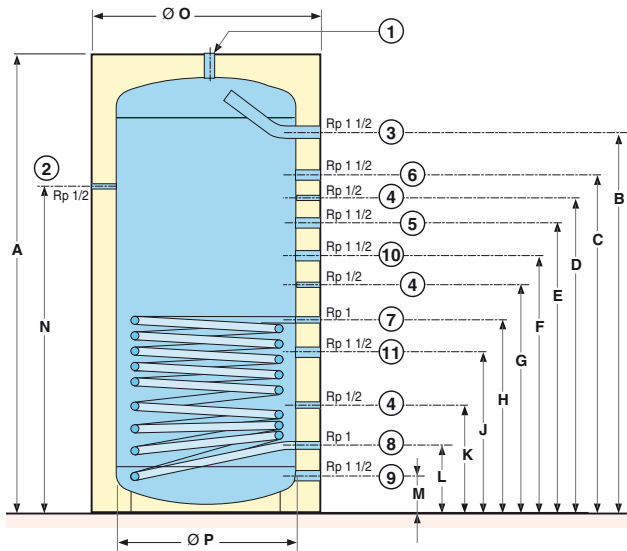


## TECHNICAL DATA

### Strong points

- High performance storage tank
- Tank in very thick sheet steel lined with black anti-rust paint
- Exchanger in smooth piping welded into the tank
- Insulation of polyester fibres 100 mm thick with external skin in polystyrol
- Optional electrical resistance

### Main dimensions (mm and inches)



- ① Air vent spot emplacement for bleed
- ② Thermometer spot
- ③ Heating outlet and/or DHW outlet
- ④ Sensor
- ⑤ Heating flow
- ⑥ Primary outlet
- ⑦ Solar exchanger inlet
- ⑧ Solar exchanger outlet
- ⑨ Primary return
- ⑩ Heating outlet and/or DHW return
- ⑪ Heating return circuit

	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
PS 500	1780	1460	1360	1260	-	785	-	645	505	355	220	135	1305	850	790
PS 800-2	1910	1570	1390	1290	-	980	-	820	670	465	310	170	1290	1050	790
PS 1000-2	2110	1745	1550	1455	-	1060	-	880	730	495	310	170	1500	1050	790
PS 1500-2	2220	1808	1635	1525	1305	1085	975	875	765	520	370	240	1500	1250	1200

### Table of specifications

Max. operation pressure  
 primary circuit (exchanger): 12 bar  
 secondary circuit (tank): 6 bar

Max. operating temp  
 primary circuit (exchanger): 95 °C  
 secondary circuit (tank): 95 °C

Buffer tanks		PS 500	PS 800-2	PS 1000-2	PS 1500-2
Capacity	l	500	800	1000	1500
Exchanger capacity	l	6.8	14.7	15.8	22.1
Exchange surface exchanger/max. collector surface	m <sup>2</sup>	1.3 (7.5 m <sup>2</sup> )	2.8 (10 m <sup>2</sup> )	3.0 (15 m <sup>2</sup> )	4.2 (20 m <sup>2</sup> )
Maintenance consumption at Δt 45 K	kWh/24 h	3.1	3.3	3.7	4.7
Shipping weight	kg	141	202	215	223

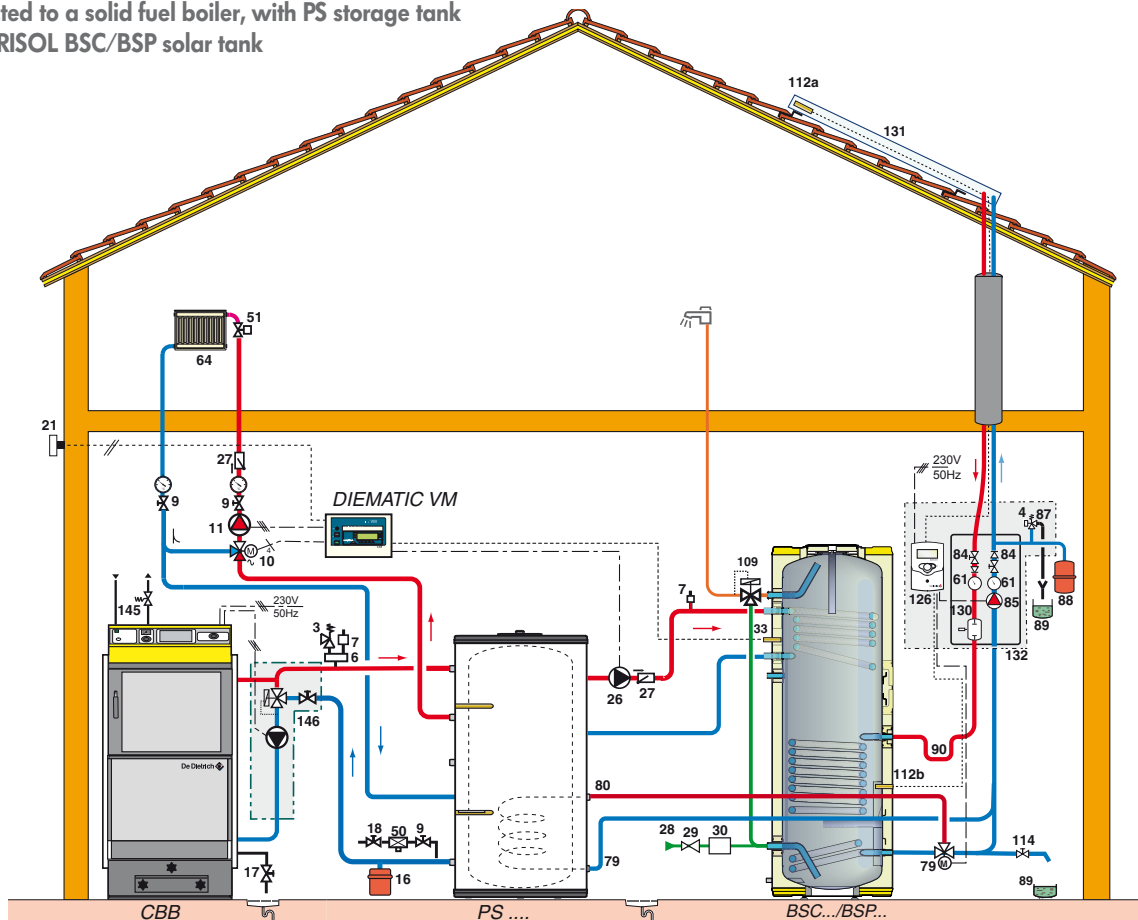
## PACKAGING

PS 500 - Package EC 98 + EC 99  
 PS 800-2 - Package EC 108 + EC 109

PS 1000-2 - Package EC 110 + EC 111  
 PS 1500-2 - Package EC 112 + EC 113

# SYSTEMS WITH BUFFER TANKS “PS...”

EXAMPLE OF A “DIETRISOL PS” SYSTEM  
connected to a solid fuel boiler, with PS storage tank  
+ DIETRISOL BSC/BSP solar tank



Keys: see page 51

## Operating principle

The solar system serves 2 tanks, 1 storage tank and 1 domestic hot water tank. This solution is used when the capacity of the storage tank in QUADRO or DC mixed tanks is too small and the user wishes to combine a solar system with a solid fuel boiler.

The DKS... solar station, in conjunction with the DIEMASOL B control system, controls start-up of the solar installation when the temperature in the solar tank is lower than the temperature measured on the collector. During this phase, the solar fluid is returned to the collector when it leaves the solar tank.

When the temperature in the solar collector reaches 55°C, the DIEMASOL B control system switches the 3-way valve behind it in such a way that the solar fluid is directed to the exchanger in the storage tank through which it transfers the solar energy to the heating circuit. The temperature stratification of the

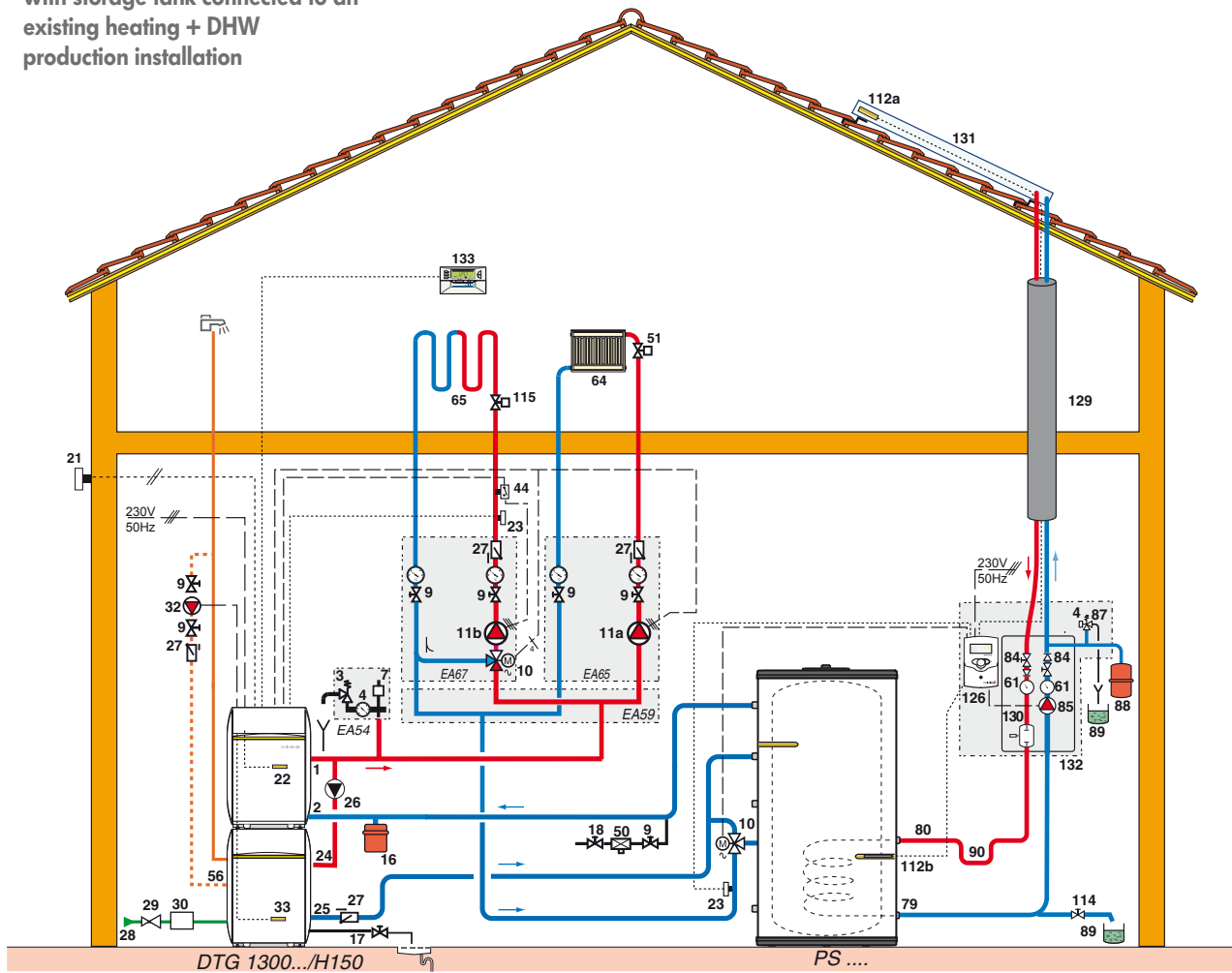
storage tank is then done when the available solar energy is high and because the exchangers in the storage tank and the solar tank are connected in series. At this particular moment, the exchange surface is sufficient to transfer the solar energy with a very advantageous temperature range for the heating water.

The solar tank is given priority. The extra energy needed for the heating circuit and the DHW circuit is managed by a DIEMATIC VM control system. The solid fuel boiler is placed beside the storage tank. As this system also handles auxiliary heating, it is necessary to pay close attention to the calibration of the thermostatic valves on the radiators.

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# SYSTEMS WITH BUFFER TANKS TAMPONS “PS...”

**EXAMPLE OF A “DIETRISOL PS” SYSTEM**  
with storage tank connected to an existing heating + DHW production installation



Keys: see page 51

## Operating principle

This solar installation can be added at any time to an existing heating installation with or without domestic hot water production, whenever the boiler can handle high return temperatures ( not recommended for condensing boilers). The returns from all heating circuits (including the swimming pool, if applicable) and the return from the DHW circuit are taken from the storage tank at levels corresponding to their temperature to respect the stratification in the storage tank. If all of the return circuits are shared, connection to the PS is done at connection point 11 (see dimensional diagram p. 42).

Otherwise, they should be connected to the storage tank according to their respective temperature as follows:

- Swimming pool to connection point i (see dimensional diagram p. 42)
- Underfloor heating to connection point k
- Radiator circuit to connection point j
- DHW circuit to connection point f

The boiler return will be connected to c

For optimum operation of the solar installation, we recommend the installation of a DIEMASOL control system and a DKS 9-20 solar station.

**OPTIONS: LIST AND DESCRIPTION ON PAGE 46**

# BUFFER TANK "PSB 750"



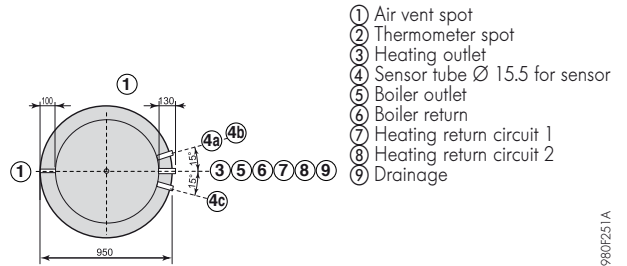
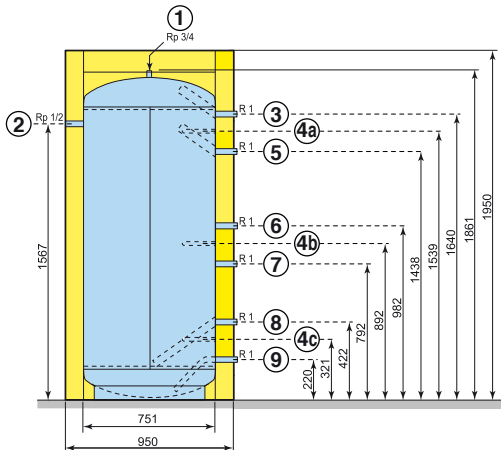
## TECHNICAL DATA

### Strong points

Storage tank with tank in very thick sheet steel lined with black anti-rust paint.  
Layout of the hydraulic connections for optimum temperature stratification.

Insulation in polyurethane foam 100 mm thick with external skin in polystyrol.

### Main dimensions (mm and inches)



### Table of specifications

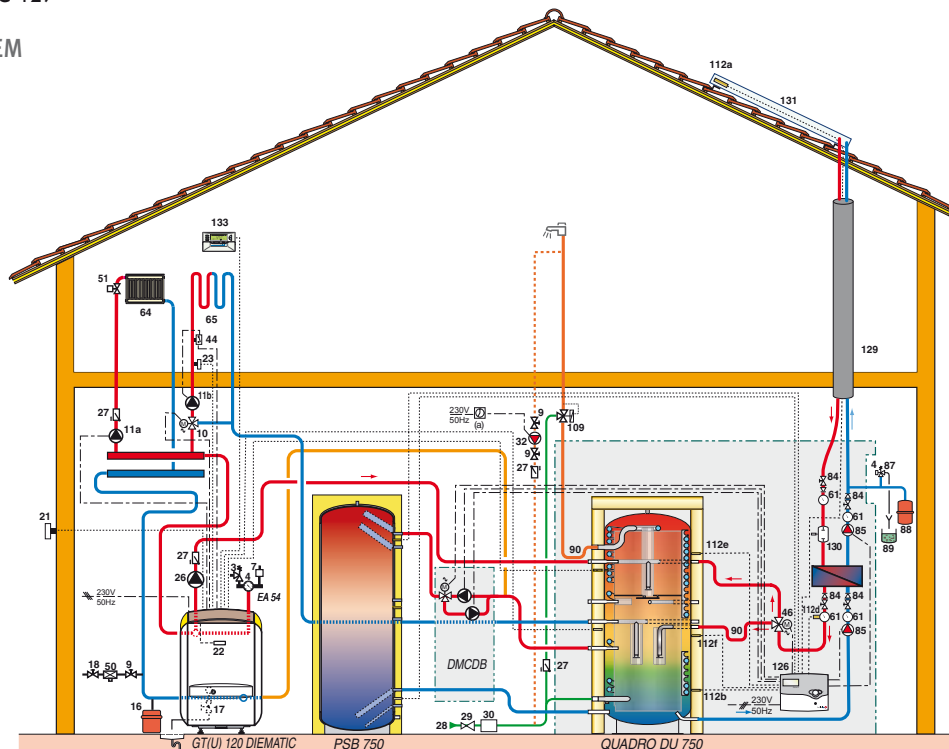
Max. working pressure: 6 bar  
Max. operating temp.: 90 °C

Buffer tanks		PSB 750
Capacity	l	750
Maintenance consumption at $\Delta t$ 45 K	kWh/24 h	3.3
Shipping weight	kg	180

## PACKAGING

PSB 750 - Package EC 129

## EXAMPLE OF SYSTEM



Keys: see page 51

### Operating principle

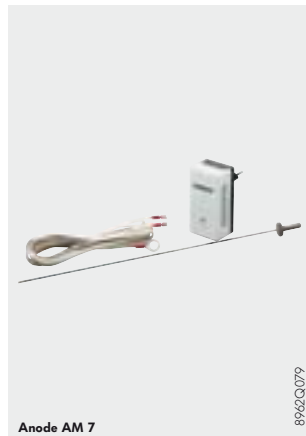
Connection of an additional storage tank to a QUADRO increases the storage volume and therefore: - Either compensates for overheating in summer if there is no swimming pool and the solar surface area exceeds 10 m<sup>2</sup>, - Or enables the further addition of a log-burning boiler of more than 15 kW (DU 500) or 25 kW (DU 750).

The PSB 750 storage tank must be connected to the QUADRO through a DMCDB solar station and managed by the MCDB

control system so that the transfer of energy is done correctly. If the QUADRO reaches the set point temperature, the surplus energy provided will be transferred to the additional storage tank and vice versa, if the tank temperature is higher than the temperature in the QUADRO the PSB is connected only to the QUADRO which itself is connected to all heating circuits and all generators. It is possible to install several PSBs in series to increase the storage volume if necessary.

# OPTIONS FOR SOLAR TANKS

## OPTIONS COMMON TO THE VARIOUS SOLAR TANKS



Anode AM 7

8962Q079

### Inert electrical anode "with self-adapting current"

Package AJ 39: for TRIO DT, BSC/BESC 300 E, DC  
Package AM 7: for BSP/BESC 400 and 500 E

### "Titan Active System" kit (for DHW tank combined with a boiler fitted with the DIEMATIC 3 control panel)

- Package EC 431  
The self-adapting current anode consists essentially of a titanium, platinum-coated rod powered at low voltage. As there is no consumption of materials, it does not need monitoring as its lifespan is practically unlimited. The self-adapting current anode is mounted in the lateral flange, in the place and instead of the magnesium anode; for tanks with 2 anodes, the 2<sup>nd</sup> anode should also be removed and

the orifice plugged (kit delivered with the anode). It is delivered with a cable 3.5 m long and a transformer that can be plugged into a 230 V socket.

**Important:** The self-adapting current anode is not compatible with the installation of an electrical resistance **which is shielded**.



8980Q069A

### Thermostatic mixer valve - Package EG 78 (for DU/DUC 750 and DC...)

This is used to keep the draw-off temperature in the solar tank constant between 30 and 65 °C. In this way, the danger of being scalded by domestic

hot water is lessened, which is an absolute necessity in solar DHW preparation installations.

## OPTIONS FOR DC AND PS TANKS



DD946

### Thermometer - Package AJ 32

DC... solar tanks and PS... storage tanks can be fitted with an optional thermometer. This is delivered with a sensor tube to be inserted into the

opening provided for this purpose on the front of the tank after first taking out the plug.



8980Q070

### Electrical resistance 6 kW/400 V for DC 750 and DC 1000 - Package AJ 36

The tanks can be fitted with an optional 6 kW electrical resistance. This resistance is composed

of an Incoloy heating element and is fitted with a regulating thermostat and a safety thermostat.

## OPTIONS FOR DU/DUC... TANKS



EC 93

8980Q068

### Hydraulic modules

- For 1 direct circuit - Package EC 92
- For 1 circuit with mixing valve - Package EC 93
- For 1 fixed temperature circuit (up to 8 kW) - Package EC 94

### Hydraulic module pipe kit for connection to the heating circuit for DU/DUC/500 - Package EC 296



EC 94

8980Q067

The hydraulic modules come fully assembled, insulated and tested and can be fitted to solar tanks in the QUADRO and QUADRODENS ranges. All three are fitted with an electronic pump, thermometers integrated in the gate valves and a non-return valve integrated in the flow valve. Package EC 93 also comprises a motorised 3-way mixing valve.

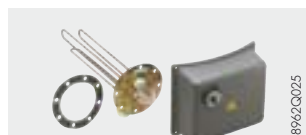
While package EC 94 also comprises a thermostatic mixing valve limiting the temperature in the circuit to a set point provided by the thermostat.

**Attention:** Only 1 circuit with motorised mixing valve is possible with an Innovens 25 boiler.



EC 296

8980Q042



8962Q025

### Electrical resistance with thermostat that can be set with an external button

- 2.4 kW mono - Package EC 310
- 6 kW tri - Package EC 311

for QUADRO/QUADRODENS 500 only.

# OPTIONAL EQUIPMENT FOR THE BOILER FITTED TO THE QUADRODENS



8575Q026

**CDI 2 interactive remote control** - Package FM 51

**CDR 2 interactive "radio" remote control (with radio transmitter)** - Package FM 161

**CDR 2 "radio" remote control (with no transmitter)** - Package FM 162

These are used to override all instructions from the DIEMATIC 3 control panel from the room in which they are installed. In addition, they enable the self-adaptability of the heating regime for the circuit concerned (one CDI 2 or CDR 2 per circuit).

In the case of the CDR 2, the data are transmitted by radio waves from the place where the CDR 2 is installed to the transmitter/receiver box placed close to the boiler.



8575Q037

**Simplified remote control with room sensor** - Package FM 52

The connection of a simplified remote control is used to override certain instructions from the DIEMATIC 3 control panel from the room in which it is installed: programme override (permanent comfort or reduced) and room temperature set

point override ( $\pm 3.5^{\circ}\text{C}$ ). It is also used to enable the self-adaptability of the heating curve for the circuit concerned (1 remote control per circuit).

**Condensates neutralisation**

**Propane conversion kits**

**Air/flue gas connection devices**

} see INNOVENS MC 15/25 technical manual

## SIZING A SOLAR INSTALLATION

### BASIC RULES FOR SIZING A SOLAR INSTALLATION (up to 20 m<sup>2</sup> of collector surface area)

#### Choosing the solar installation - General

The most appropriate solar installation is chosen mainly as a function of its use, the energy requirements, the orientation and incline of the solar collectors and its place of installation. Therefore, it is important to define and allow for the space needed on the roof and in the boiler room and the orientation of the building and the gradient of the roof at the planning stage:

#### - Use:

The most common uses are the preparation of domestic hot water, auxiliary heating and heating a swimming pool. The surface area of the collectors needed is directly dependent on their intended use.

#### - Energy requirements:

To be able to size a solar installation optimally, you need to know the domestic hot water and heating needs of the installation as accurately as possible

#### - Orientation and incline of the collectors:

The optimal orientation of solar collectors on the roof is "due south". The optimum angle of incline is between 40 and 60° depending on the type of mounting. Be as sure as you can be that the collector field is never in the shade.

#### - Place of installation:

To take the exposure to sunlight into account as regards the place of installation of the system, refer to the map opposite. This gives the average annual quantity of solar energy received on a south-facing surface inclined at an angle equal to the latitude in kWh/m<sup>2</sup>.day.

#### Sizing an solar installation using a simulation diagram

The diagrams and information on the next page give indicative values for the simple sizing of a solar installation with a normal rate of solar energy cover, a southern orientation and a roof gradient of 45/60°.

These values can be used to size small installations up to 20 m<sup>2</sup> of collector surface area. For more accurate sizing, contact us on the (+ 33) 3 88 73 62 26.

# QUICK SIZING OF A SOLAR INSTALLATION

## Solar installation for DHW production (CESI) – Simulation diagram

To make things easier, we suggest using the diagram below. It has been drawn up based on 75 l solar tank capacity and 1 m<sup>2</sup> of flat collectors per person.

**Attention:** For tubular collectors, the input surface area must be reduced by approximately 25% compared with flat collectors.

## Sizing the solar domestic hot water tank

In theory, the volume of the solar tank (with auxiliary boiler or electrical heating) must be capable of covering 1.5x to 2x (according to the region) the daily needs to account for days when the weather is bad.

Without auxiliary heating, these values should be doubled (installations not recommended in mainland France).

### Note:

For solar tanks with integrated electrical auxiliary heating (DUO/1 with electrical resistance option), it is important to factor in the volume heated by the resistance alone; if there is no sunlight, the system will operate like an electrical water heater but only on its auxiliary volume (approx. 1/3 of the tank volume).

## Defining the collector surface area

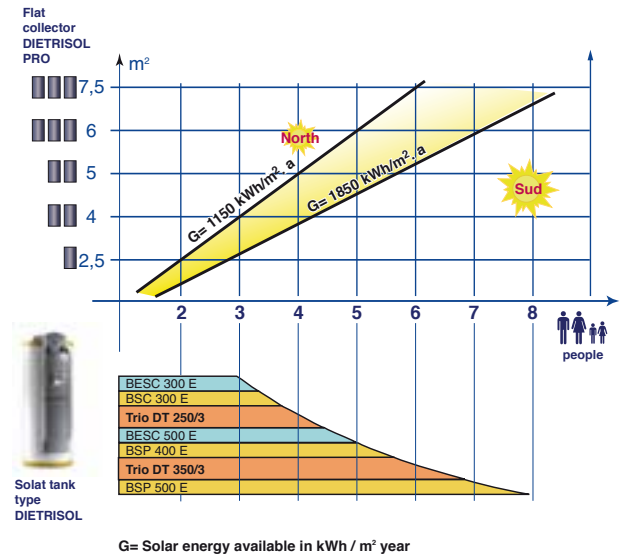
As a basic rule, we accept that:

- 1 m<sup>2</sup> of collectors produces between 45 l and 70 l of DHW/day at 60 °C according to the region which corresponds on average to the hot water needs of 1 person

⇒ the value to use will therefore be 1 m<sup>2</sup> of collectors

**DIETRISOL PRO/people**

## Example in France



## Solar installation for DHW production and auxiliary heating (SSC) – Simulation diagram

The sizing of an SSC is the same as the sizing of a CESI to which is added the collector surface area necessary for auxiliary heating.

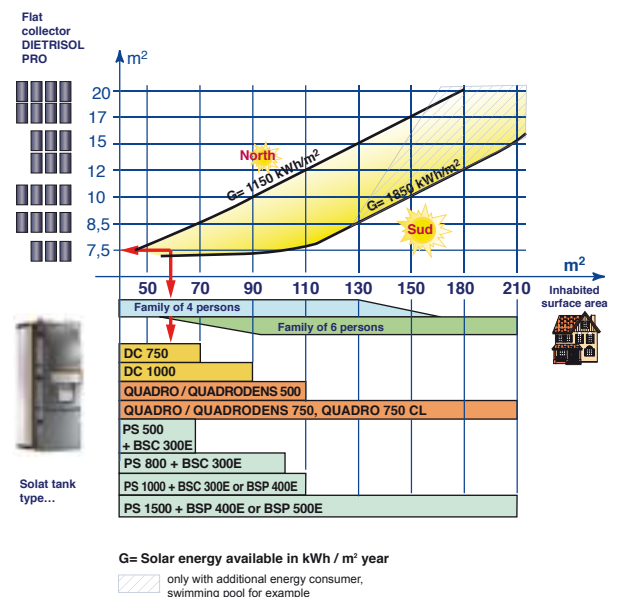
As energy needs for heating may vary enormously from one home to another, they are very difficult to assess; therefore, in the diagram opposite, we base our calculation on ratios generally accepted for this type of solar installation.

⇒ The surface areas of flat solar collectors necessary for SSCs correspond, as a general rule, to ≈ 10% of the net floor area.

**Attention:** for tubular collectors, the input surface area must be reduced by approximately 25% compared with flat collectors.

⇒ As for the heating water storage volumes, there are between 40 and 80 l per m<sup>2</sup> of solar collectors depending on consumption in summer.

**NB:** If you do not have a swimming pool, an additional PSB 750 storage tank can be installed to deal with the surplus energy generated in summer.





# SIZING A SOLAR INSTALLATION

## Particular case: heating a swimming pool

The energy required to heat a swimming pool depends on several influencing factors. First of all, a distinction must be made between an open air swimming pool and a covered

indoor swimming pool. It is then necessary to consider whether or not the pool is covered.

The simulation table below has been drawn up according to the following criteria:

- Temperature pool:  
22 C for an open air swimming pool (from May to September)  
24 C for a covered indoor swimming pool (room temp. 28 C)
- Average depth of the pool: 1.4 m
- Potential energy saving by covering the pool:  
30% for an open air swimming pool, 15% for an indoor swimming pool
- Hot water requirements: 200 l/day
- Rate of cover: swimming pool: 50 - 60 % ;  
domestic hot water: 60 - 70 %

- Orientation of the collectors: South, Incline: 40°

An increase in the temperature of the pool compared with the values given opposite means a considerable increase in the collector surface area necessary.

Indicative value for 1 indoor swimming pool with a pool surface area of 32 m<sup>2</sup>: 1 C extra in the pool temperature is the equivalent of increasing the collector surface area by 8 to 10%, either 1 DIETRISOL PRO collector.

Type of swimming pool		Collector surface area for heating a swimming pool							
		open air swimming pool (May to September)				covered indoor swimming pool (all year round)			
		covered pool		non-covered pool		covered pool		non-covered pool	
Size of the pool		20 m <sup>2</sup>	32 m <sup>2</sup>	20 m <sup>2</sup>	32 m <sup>2</sup>	20 m <sup>2</sup>	32 m <sup>2</sup>	20 m <sup>2</sup>	32 m <sup>2</sup>
Average annual value of solar energy received	< 1300 kWh/m <sup>2</sup> .a	10	12.5	12.5	15	7.5	12.5	10	12.5
	≥ 1300 kWh/m <sup>2</sup> .a	5	7.5	7.5	10	7.5	10	10	12.5

This collector surface area should be added to the one defined for auxiliary heating and DWH preparation.

## Determining the reduction factors in the case of non-ideal location

The "Solar energy available" values given for a region correspond generally to an optimum collector orientation: southern orientation, incline 45°. If the location of the collector

field differs from these data, the average daily exposure to sunlight will be reduced according to the following correction coefficients:

### Correction factor $f_i$

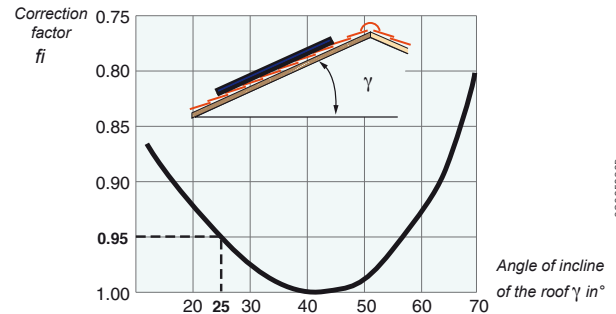
Depending on the incline of the collectors in relation to the optimum angle, this diagram gives the correction factor  $f_i$  to be applied.

**Example:** For a roof gradient of 25°, the correction factor will be 0.95.

The efficiency of the solar installation will be reduced by 5% compared with an ideal location.

**NB:** - no installation of collectors with an angle of incline < 25°, unless the installation is only used in summer.

- for SSC installations, an incline close to 60° (gradient 175%) favours the provision of energy in winter and makes it possible to prevent overheating in summer if there is no swimming pool or discharge.

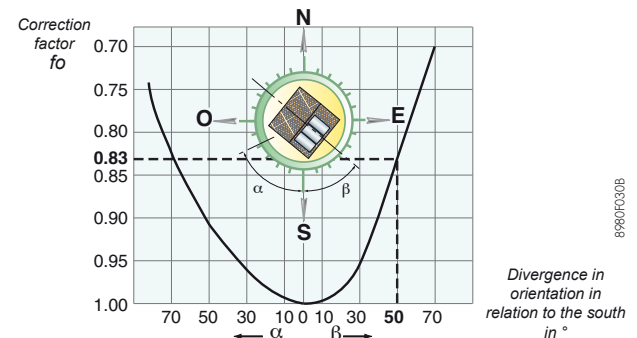


### Correction factor $f_o$

Depending on the orientation of the solar collectors in relation to the south, this diagram gives the correction factor  $f_o$  to be applied.

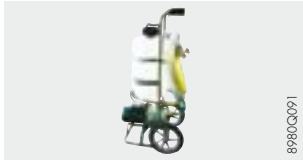
**Example:** For a collector installation facing 50° South-East, the correction factor is 0.83.

**Caution:** For SSC installations, we recommend spreading the collectors over both slopes of the roof in extreme cases.



Reductions in efficiency owing to divergences in relation to the ideal orientation or incline cannot be compensated for in small installations with up to 20 m<sup>2</sup> of collector surface area except by adding an additional collector.

# OTHER ACCESSORIES FOR SOLAR INSTALLATIONS



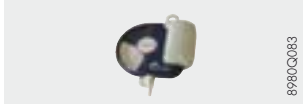
8980Q091

**Filling station with pump and can** - Package EG 81



8980Q033

**Hand pump for topping up with fluid** - Package EG 80



8980Q083

**Antifreeze protection tester** - Package EG 102  
for glycol/water premixture



8980Q084

**Test box with aerometer** - Package EG 103  
for type L and LS fluids



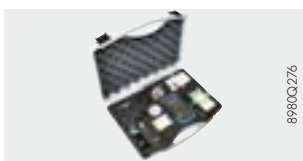
8980Q085

**Measuring box with refractometer** - Package EG 104  
for type L or LS fluids



8980Q243

**Set of 4 handling grips** - Package EG 349



8980Q276

**Check box for solar installation** - Package ER 50

This case contains: 1 multimeter, 1 refractometer, 1 compass, 1 pressure gauge, 1 voltage testing screwdriver, 1 small screwdriver, 1 vent key, 1 measurement recipient, 1 pipette, distilled water,

pH measurement strips, identification plates glycol water and maintenance check packs.

# KEY FOR THE INSTALLATION DIAGRAMS ON PAGES 25 TO 47

- 1 Heating flow
- 2 Heating return
- 3 Safety valve 3 bar
- 4 Pressure gauge
- 6 Air separator
- 7 Automatic air vent
- 8 Manual air vent
- 9 Isolation valve
- 10 3-way mixing valve
- 11 Heating pump
- 11a Electronic heating pump for direct circuit
- 11b heating pump for circuit with mixing valve
- 13 Flush valve
- 16 Expansion vessel
- 17 Drainage valve
- 18 System for filling the heating circuit
- 21 Outside sensor
- 22 Boiler sensor
- 23 Flow sensor downstream of the mixing valve
- 24 Primary exchanger inlet
- 25 Primary exchanger outlet
- 26 Load pump
- 27 Non-return valve
- 28 Domestic cold water inlet
- 28a Preheated domestic cold water inlet
- 29 Pressure reducer (if supply pressure > 80% of the calibration of the safety valve)
- 30 Sealed sanitary safety device calibrated to 7 bar
- 32 DHW loop back pump
- 33 DHW sensor
- 34 Primary pump
- 35 Disconnecting cylinder
- 37 Balancing valve
- 44 65 °C manual reset safety thermostat for underfloor heating
- 46 3-way 2-position directional safety valve
- 50 Disconnecter
- 51 Thermostatic valve
- 56 DHW circulation loop return
- 57 Domestic hot water outlet
- 61 Thermometer
- 64 Direct heating circuit (radiators, for example)
- 65 Heating circuit with mixing valve (underfloor heating, for example)
- 67 Manual valve
- 75 Domestic water pump
- 79 Primary solar exchanger outlet
- 80 Primary solar exchanger inlet
- 81 Electrical resistance
- 84 Stop valve with unlockable non-return valve
- 85 Primary solar circuit pump (to be connected to DIEMASOL)
- 87 Safety valve calibrated to 6 bar
- 88 Solar circuit expansion vessel
- 89 Container for solar fluid
- 90 Antithermosiphon loop (= 10 x Ø pipe)
- 109 Thermostatic mixer valve
- 112a Solar collector sensor
- 112b Solar DHW tank sensor
- 112d Plate exchanger flow sensor
- 114 System for filling and draining primary solar circuit
- 115 Thermostatic distribution valve per zone
- 118 Boiler flow
- 119 Boiler return
- 120 DIEMATIC 3 connector for load pump or reversal valve
- 123 Cascade flow sensor (to be connected to secondary boiler)
- 125 Storage/boiler return zone
- 126 Solar control system
- 127 Boiler flow/DHW reheating zone
- 128 DHW reheating return zone/boiler
- 129 DUO-TUBES
- 130 Degasser with manual vent (Airstop)
- 131 Collector field
- 132 Complete solar station with DIEMASOL control system
- 133 Interactive remote control
- 134 Adjustable bypass
- 135 3-way thermostatic mixing valve with fixed set point
- 136 3-way Esbe distribution valve to raise the return temp. in solid fuel boilers
- 145 Control valve for the safety battery
- 146 Thermostatic temperature adjustment module for the return circuit
- 147 Filter + gate valves
- 149 Fan coil
- 150 Contact sensor
- (a) External clock

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