Application:

Owing to the laser welded aluminium absorber and high quality materials, such as mineral wool of the thermal conductivity group 040, the flat-plate collector “OKF-MQ25” achieves a high efficiency. The flat-plate collector can be used for heating of potable water and swimming pools as well as solar support of the heating system. Because of its special serpentine patterned absorber, the flat-plate collector is only suitable for horizontal rooftop or freestanding installation (flat roof installation). The absorber geometry of the “OKF-MQ25” allows for the interconnection of a maximum of 10 collectors.

Installation:

Depending on the type of installation, a basic set for the installation of one collector and an extension set for each additional collector are available. The pre-assembled rail systems for rooftop or flat rooftop installation allow for a quick installation on site. Oventrop offers special carrying handles for an easy transport of the collectors on site (to be ordered separately). The carrying handles are connected to the collector frame laterally. All fixing elements are easily accessible and allow for a time-saving installation.

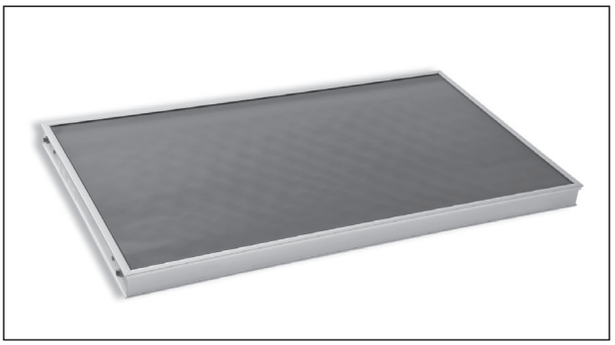
The serpentine patterned absorber made of aluminium heat conducting steel sheet and copper pipes is connected to the supply and return of the solar circuit via two collector connections with Ø 22 mm gripper clamps with O-ring seal.

The flat-plate collectors are connected with one another using the flexible field compensators supplied with the collector. They also serve to compensate any thermal conditional expansions.
Longer field collectors are required for collector fields with more than 6 collectors (to be ordered separately).

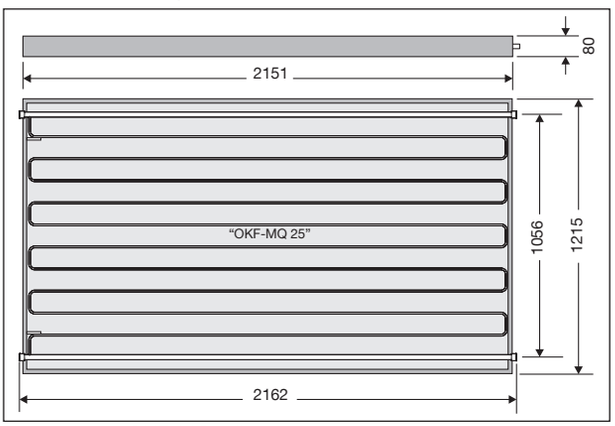
Advantages:

- collector cover with 4 mm solar safety glass for 91% light transmission
- laser welded aluminium surface absorber for an optimum heat return and a low pressure loss
- rear wall insulation made of mineral wool (with low binding agent content) of the thermal conductivity group 040
- peripheral frame insulation made of mineral wool (low binding agent content) of the thermal conductivity group 040
- UV-resistant EPDM glass sealing
- permanent mechanical fastening of the glass pane
- low pressure loss, realization of large collector fields
- pre-assembled rail system (“plug and play”)

	Item no.:
“OKF-MQ25” Flat-pate collector	1361440
Rooftop installation	
Basic set for the installation of one collector	1361480
Extension set for each additional collector	1361481
Freestanding installation	
Basic set for the installation of one collector	1361486
Extension set for each additional collector	1361487



“OKF-MQ25” Flat-plate collector

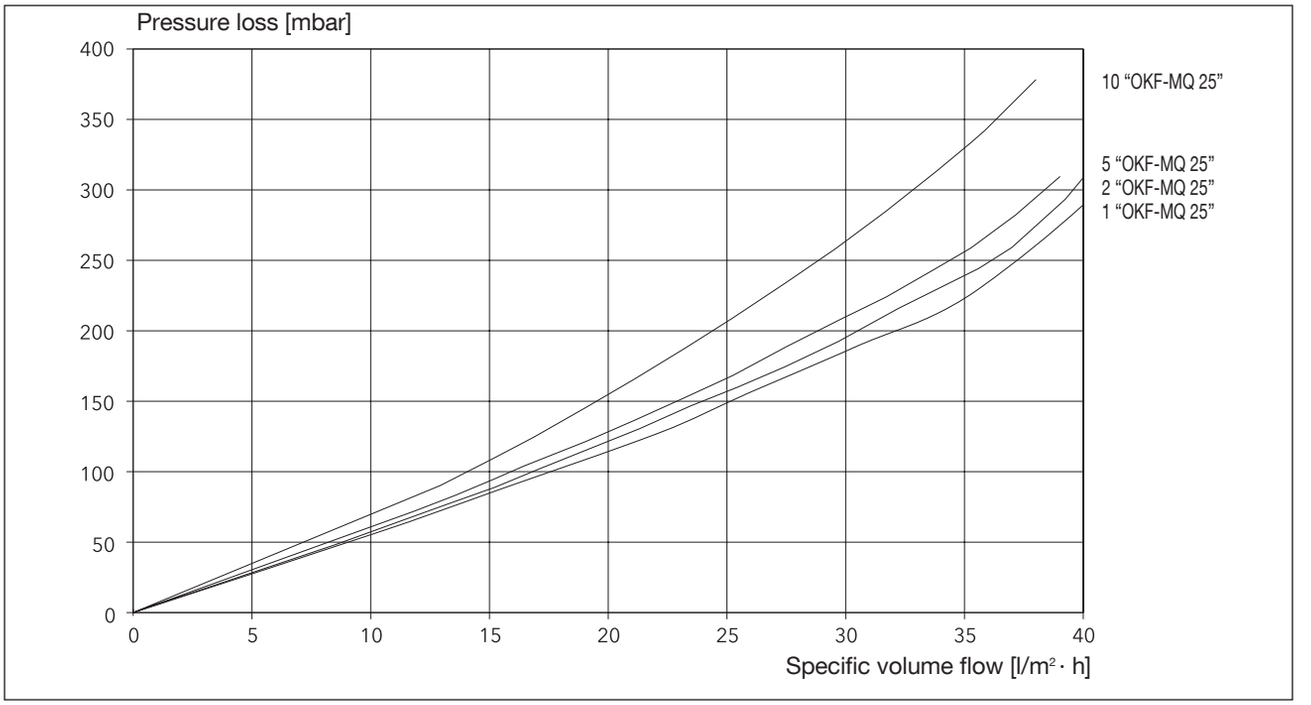


Dimensions “OKF-MQ25”

Flat-plate collector	Unit	“OKF-MQ 25”
Item no.		1361440
Gross surface area	m^2	2.61
Outer dimensions (L x W x H)	mm	2151 x 1215 x 80
Aperture surface area	m^2	2.37
Collector connection	–	Ø 22 mm connecting nipple
Weight	kg	44
Absorption coefficient	%	$\alpha = 95$
Emission coefficient	%	$\epsilon = 5$
Transmission	%	$\tau = 91$
Collector tilt gradient freestanding installation	Degree	15-75
Collector tilt gradient rooftop installation	Degree	15-75
Stagnation temperature according to EN 12975	°C	184
Max. permissible operating pressure	bar	10
Annual collector heat return (ITW 5 m^2)	kWh/m^2	475 kWh/m^2 K
Heat transfer liquid content	l	2.3
Glass cover	–	4 mm solar safety glass
Solar sensor (inner diameter)	mm	6 (plug-in sleeve)
Permissible pressure / suction load of the collector glass	kN/m^2	3.2
Collector efficiency η_0 a_1 a_2	 % W/m^2 K W/m^2 K^2	 79.6 3.05 0.021
Angle correction factor	%	k_θ (50 °C) = 90 $k_{diff.}$ = 82
Specific heat capacity	KJ/m^2 K	6.6
Absorber	–	Serpentine patterned absorber made of aluminium heat conducting steel sheet and copper pipe, laser welded

Technical data

Pressure loss chart flat-plate collector “OKF-MQ 25”



Pressure loss for one and several collectors connected in series with corrugated connection hoses, depending on the specific volume flow; heat transfer liquid: 40 % glycol and 60 % water at 40 °C.

Design advice

1. Snow and wind load

In Germany, parts 3 and 4 of the DIN EN 1991-1 standard are valid for the snow and wind load. Please find below some design examples.

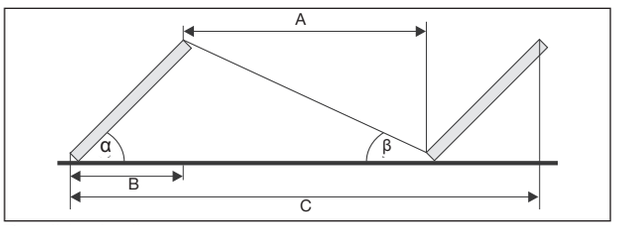
Height of building [m]	Height above sea level [m]	Rooftop installation (number of roof anchors per collector[1]	Freestanding installation loads (kg/m² collector surface)[2]
10	400	4	130
10	800	6	130
20	400	4	175
20	800	6	175

1) Indication valid for roof anchor type Stv KF Top with a distance < 1 m below the ridge and above the snow guard, distribute roof anchors evenly for 45° inclination of the collectors - without taking the installation in the edge and corner regions into account
Design example for snow/wind load zone 2 - mixed profile inland

2. Shading with freestanding installation [horizontal MQ]

The table is valid for a shading angle of 25° (ß) which is recommended for a location on the 50th line of latitude. Other shading angles and shading distances have to be chosen for deviating latitudes! In winter, the lower part of the collector may be shadowed. The table is valid for horizontal collector installation.

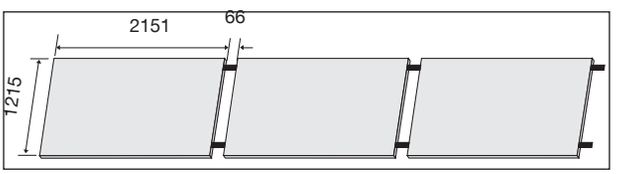
Distances [m] for below illustration	Collector mounting angle α	
	35°	55°
A	1.49	2.13
B	1	0.7
C	3.49	3.53



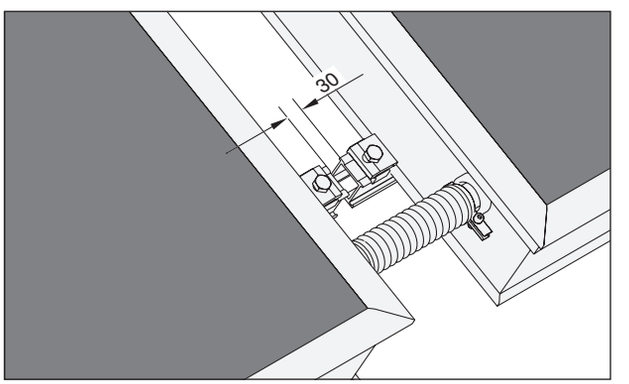
Possible shadings

3. Interconnection options

The collector field consists of a maximum of 10 collectors installed in parallel.
Pipework and pump design must be object-specific.



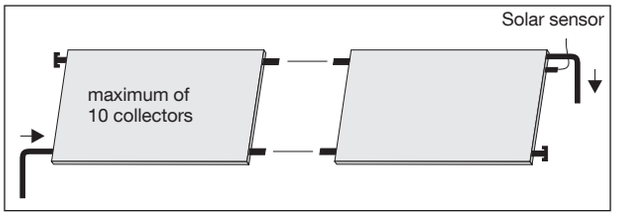
Collector dimensions [mm] and distance between the collectors for the determination of the field dimensions.



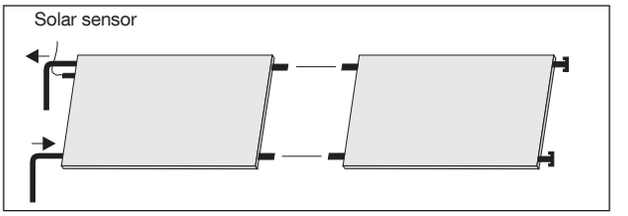
After the 6th collector, keep an expansion distance of about 30 mm towards the next collector. This requires a longer field compensator (item no. 1361448).

1 collector	2 151	6 collectors[1)]	13 236
2 collectors	4 363	7 collectors[1)]	15 483
3 collectors	6 585	8 collectors[1)]	17 700
4 collectors	8 802	9 collectors[1)]	19 917
5 collectors	11 019	10 collectors[1)]	22 134
[1)] including 30 mm expansion distance (see above)			

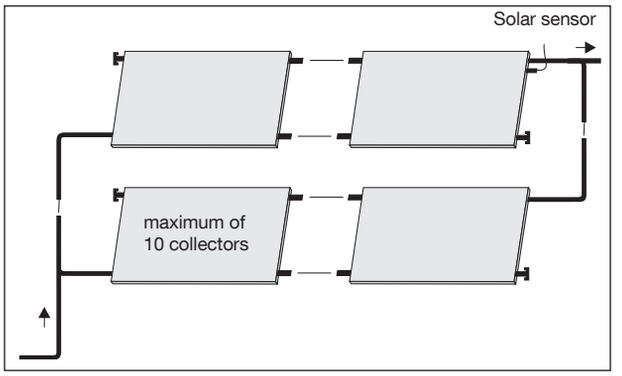
Field dimensions, width [mm], without outer connection nipple



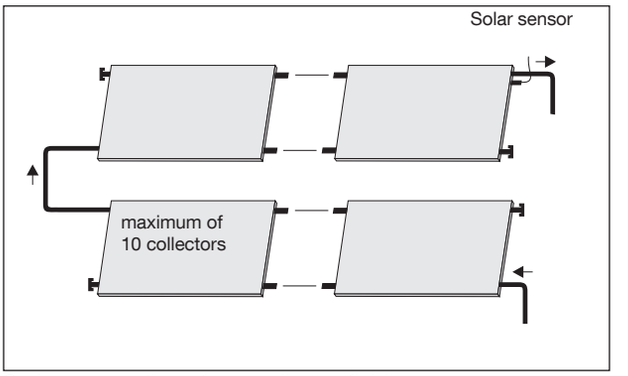
Collector field with two-way alternate connection
at V = 35 l/m²h (specific volume flow)



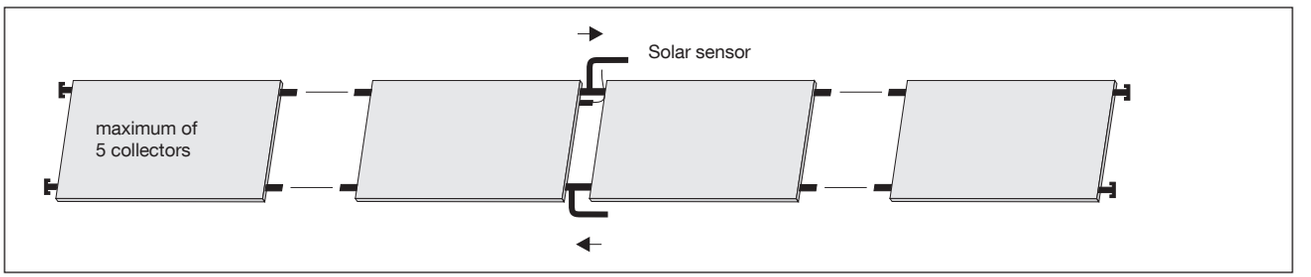
Collector field with one-way connection
at V = 35 l/m²h



Parallel connection of collector fields
at V = 35 l/m²h



Series connection of two collector fields
at V = 15 l/m²h (low flow)



Parallel connection of two collector fields with one-way connection at V = 35 l/m²h

Subject to technical modifications without notice.

Product range 9
ti 322-EN/10/MW
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