

100% MADE IN PLEION

X-RAY 

SOLAR VACUUM COLLECTORS
- **NEW RANGE** -

TOP PERFORMANCES IN WINTER TIME

Perfectly functioning
even when the temperature
drops drastically.

We combine creativity and strategy, ideas and technology, innovation and design to produce X-RAY solar collectors guaranteed by the value of the real MADE IN ITALY and the endorsement of the most prestigious international certification bodies.

From the concept to design, through technologically advanced production cycles: we got a outstanding, reliable and performant quality product.

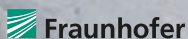


PERFORMANCE VERSION
3RD TUBE INCORPORATED

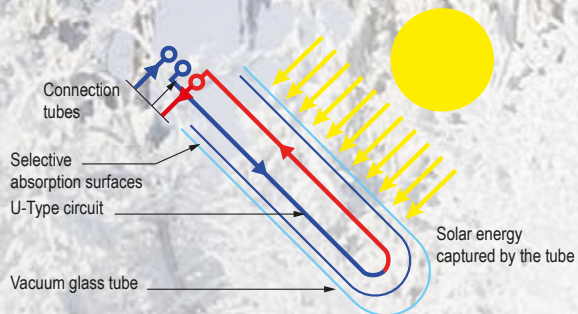


BASIC VERSION
2 TUBES IN THE HEAD

CERTIFICATION

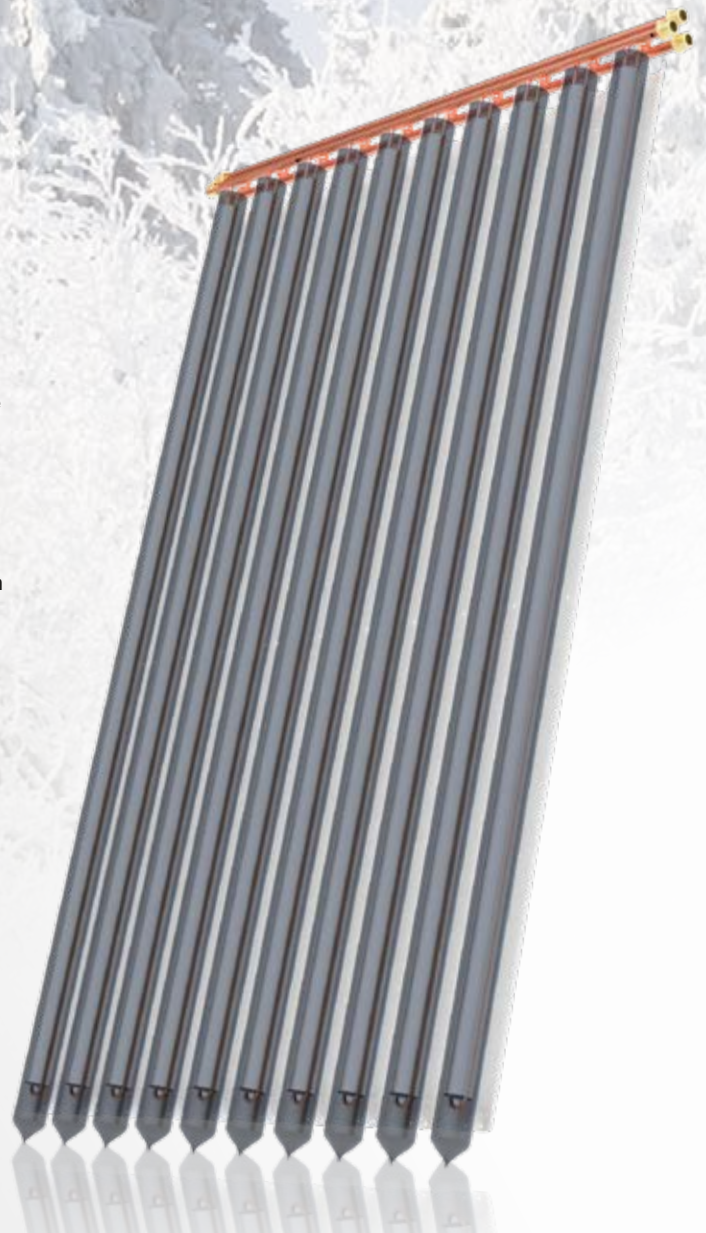
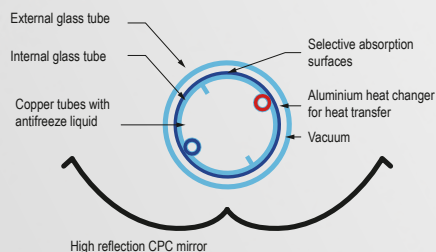
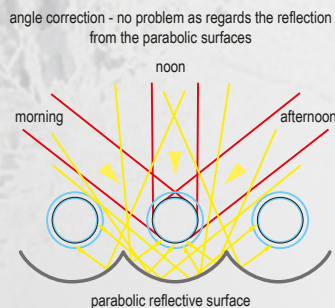


CPC TECHNOLOGY Compound Parabolic Concentrator



PLEION INNOVATION CPC - The collector has five main pre-assembled components: CPC parabolic reflectors, vacuum tubes, absorbers, hydraulic circuit including input and return pipes and a third pipe for inverse hydraulic balancing.

The **CPC (Compound Parabolic Concentrator)** reflector, which is highly reflective due to its particular geometry, can increase the energy absorbed by the collector since it can reflect diffused and direct sunlight at any moment of the day, correcting the angles of the sun's rays (morning – afternoon).



INSTALLATION



BASIC AND PERFORMA X-RAY

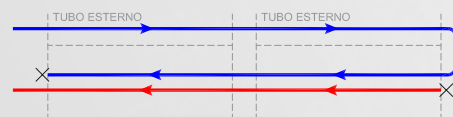
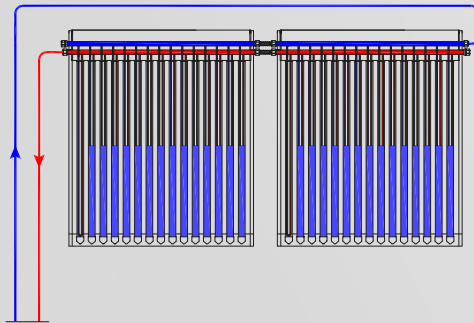
Two hydraulic connection solutions possible.

PLEION's new X-RAY range comes in two hydraulic connection versions, each suited to specific needs.

With PLEION's new range of X-RAY PERFORMA solar vacuum collectors, it is now possible to connect panels in series and in parallel without any external line visible on the roof thanks to the use of the THIRD TUBE INCORPORATED in the collector head.

X-RAY *BASIC*

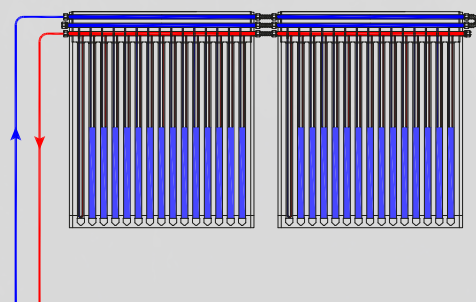
CONNECTION IN PARALLEL WITH TWO TUBES IN THE HEAD



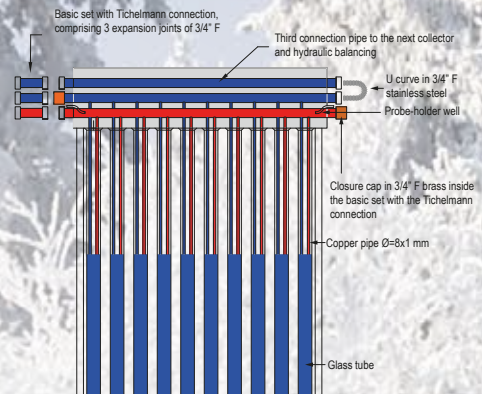
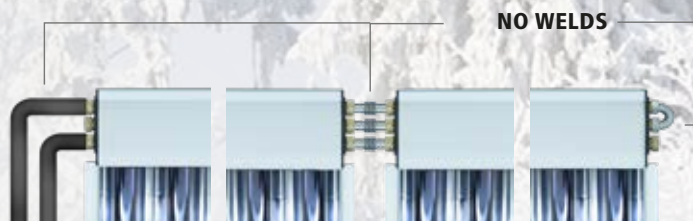
X-RAY *PERFORMA*

Third integrated pipe.
More efficiency (+15%)* and harmonious
architectonic integration.

CONNECTION IN PARALLEL WITH A THIRD TUBE INCORPORATED



CONNECTION IN PARALLEL THIRD TUBE INCORPORATED X-RAY PERFORMANCE



PLEION INNOVATION 3rd INTEGRATED PIPE - OPTIONAL

All the X-RAY vacuum collectors can be fitted with integrated hydraulics in the collector:

- **NO EXTERNAL PIPES**

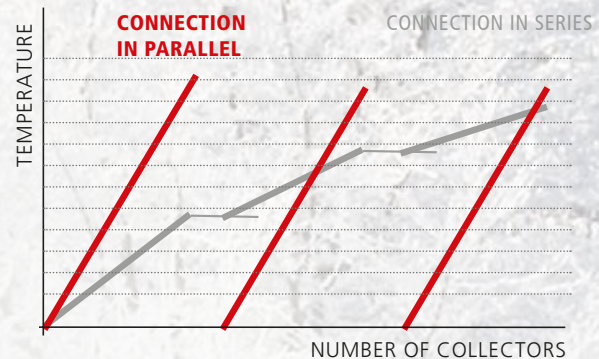
The hydraulics are not exposed externally, guaranteeing the best insulation possible with less heat loss and no wear over time.

- **PLUG&PLAY COLLECTORS**

This technology drastically reduces the time required for roof installation and guarantees a clean, elegant aesthetic result.

- **HIGH PERFORMANCE**

Heating is faster, more efficient and more even, especially in winter, compared to all rival systems with 2-pipe hydraulics.



HYDRAULIC CONNECTIONS WITH PLEION VACUUM COLLECTORS ARE POSSIBLE.

Depending on the collector model, strings from 6 to 12 collectors can be installed, thus decreasing system installation costs due to a lack of materials such as external connection pipes, various valves and labour costs.



X-RAY 10R

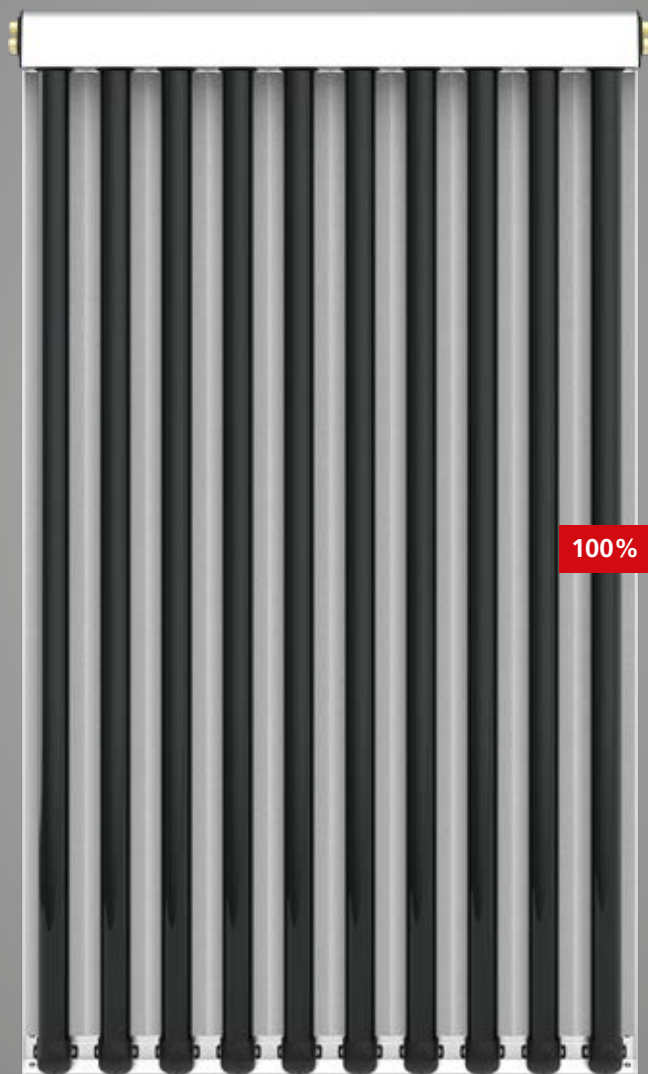
VACUUM SOLAR COLLECTORS **X-RAY 10R**



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 10R

VACUUM SOLAR COLLECTORS X-RAY 10R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	10
Base [mm]	1106
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	2,12
Area Apertura [m2]	1,91
Area assorbimento 360°	2,57
Contenuto liquido	1,78

X-RAY 10R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

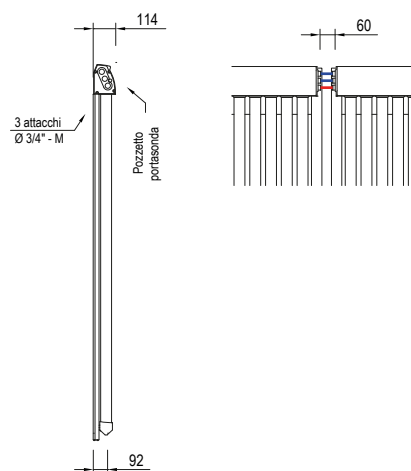
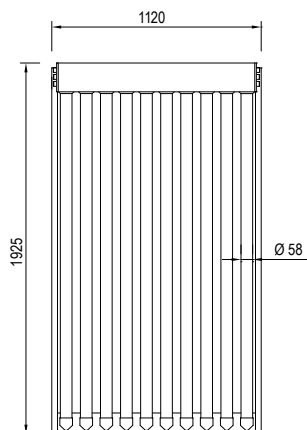
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 10R solar vacuum collectors - BASIC
-	X-RAY 10R solar vacuum collectors - PERFORMA

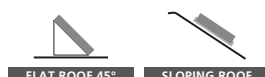
APPLICATION



USES



Fraunhofer

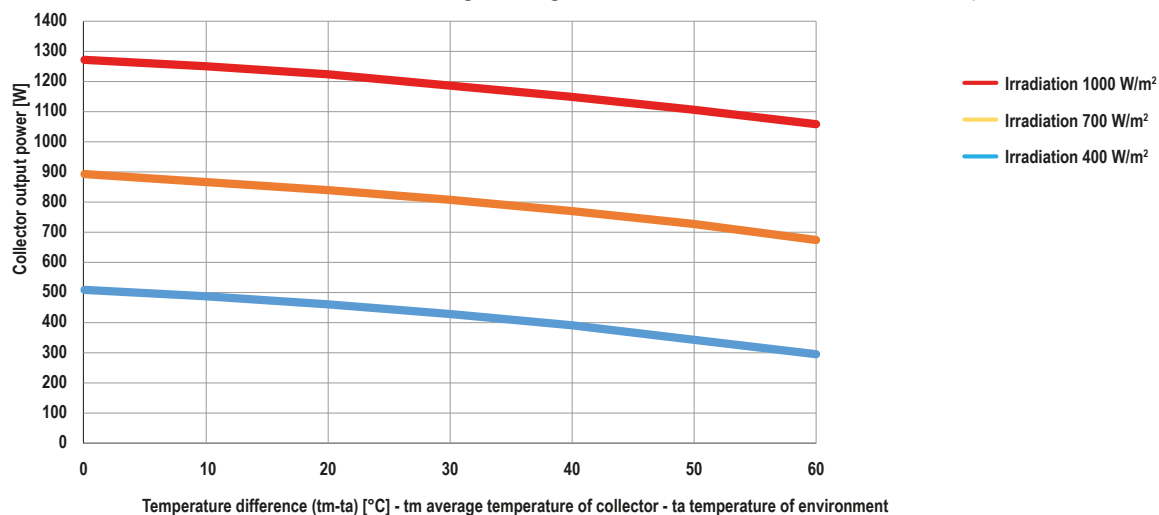


X-RAY 10R

TECH SPECS

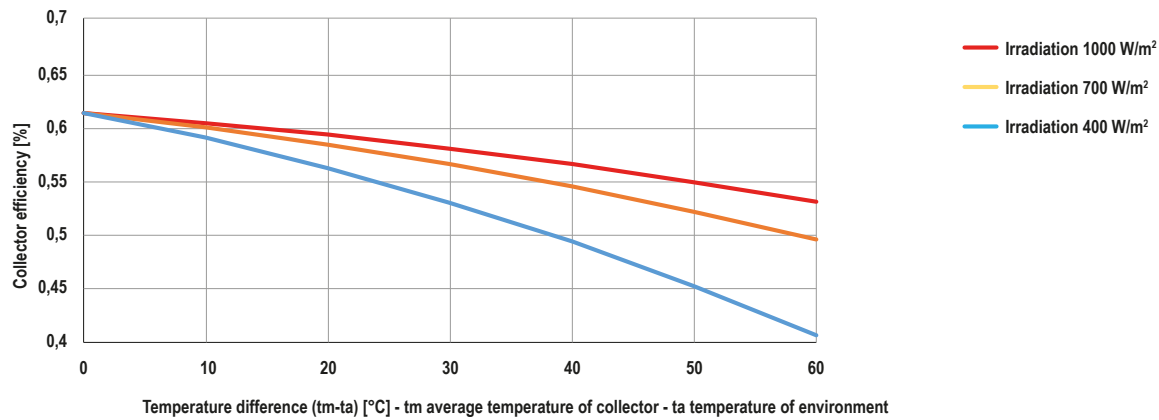
TECH SPECS		
Vacuum tubes	N°	10
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	2,12
Absorption surface	m²	2,57
Gross surface	m²	1,91
Dimensions (LxHxD)	mm	1106 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	40,0
Content of heat-transfer fluid	liters	1,78
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	60,0
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,910
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,013
Nominal power	W	1272
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	1231
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202a.1
DIN CERTCO registration number	-	16084 Rev.0 KIWA
Recommended capacity per collector	l/h	1,50
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 10R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

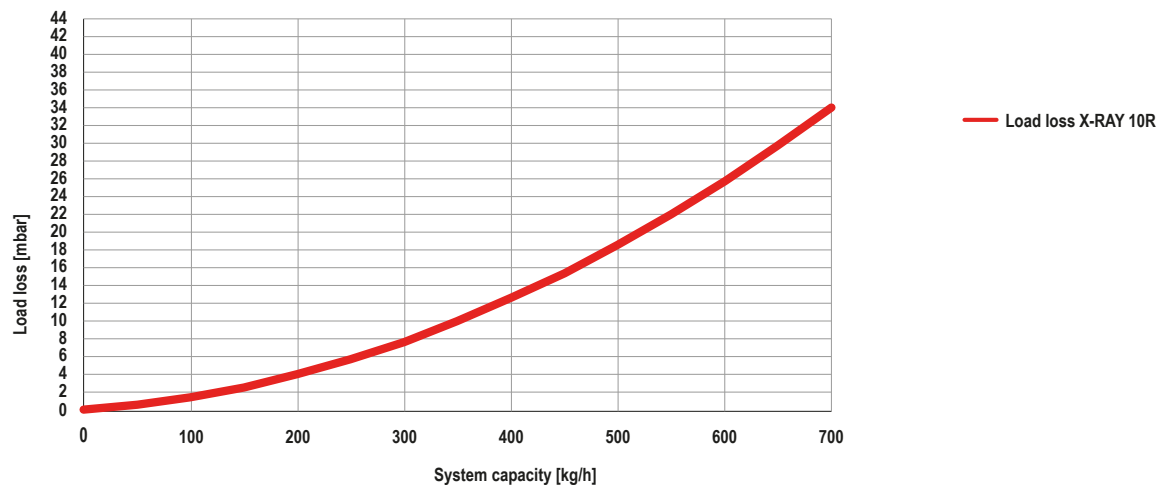


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	509	890	1272
10	487	868	1250
20	459	841	1222
30	426	808	1189
40	388	769	1151
50	343	725	1107
60	294	675	1057

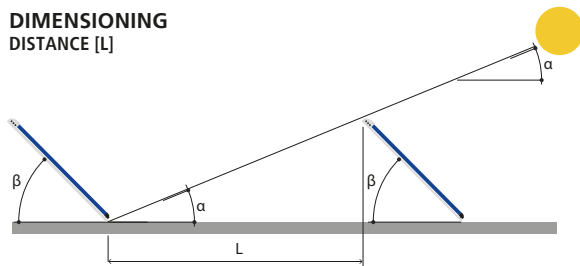
POWER CURVES of X-RAY 10R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 10R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α [°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu Øe/Øi [mm]
1	90	18/16
2	180	18/16
3	270	18/16
4	360	22/20
5	450	22/20
6	540	22/20

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	1195	-
2	2390	-
3	3585	-
4	4780	-
5	5975	-
6	7170	-

X-RAY 11R

VACUUM SOLAR COLLECTORS X-RAY 11R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 11R

VACUUM SOLAR COLLECTORS X-RAY 11R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	11
Base [mm]	1216
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	2,34
Area Apertura [m2]	2,11
Area assorbimento 360°	2,82
Contenuto liquido	1,96

X-RAY 11R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

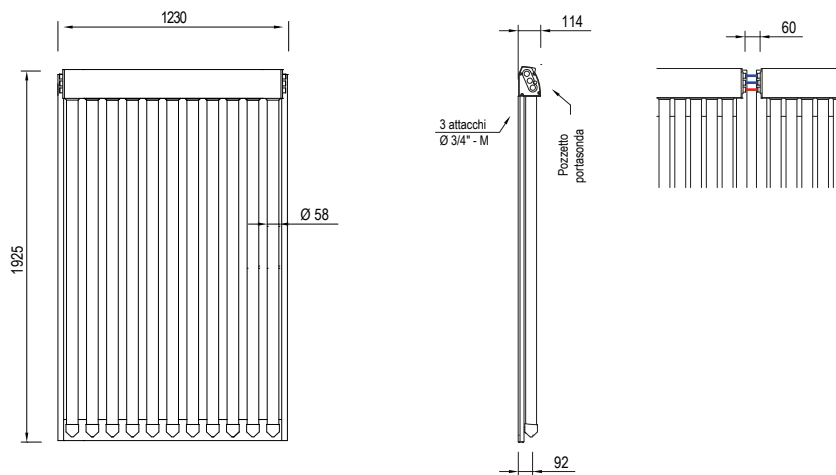
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 11R solar vacuum collectors - BASIC
-	X-RAY 11R solar vacuum collectors - PERFORMA

APPLICATION



USES



Fraunhofer

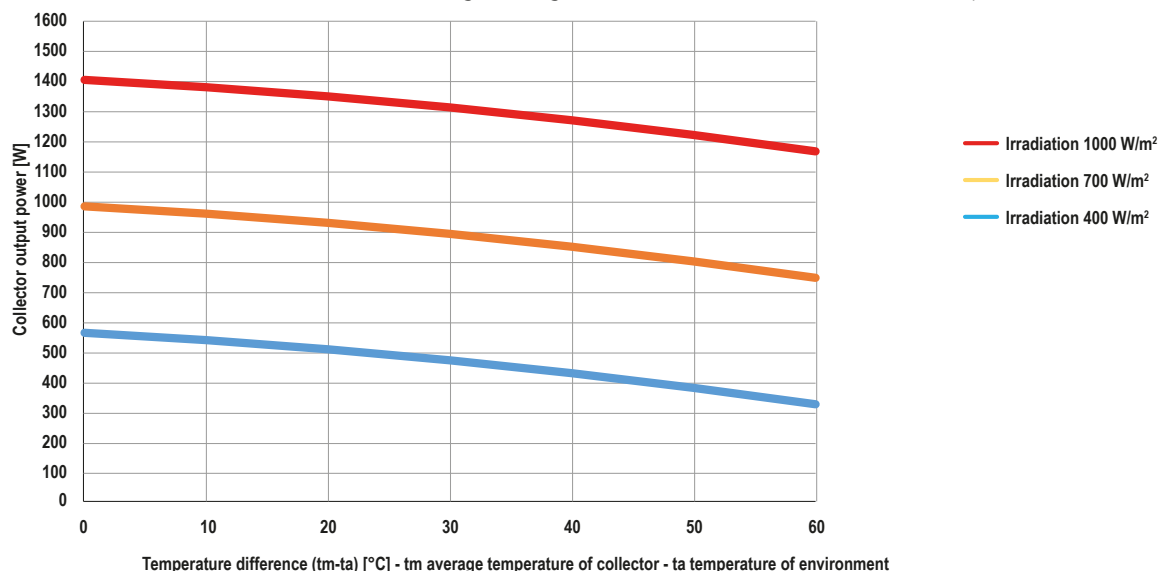


X-RAY 11R

TECH SPECS

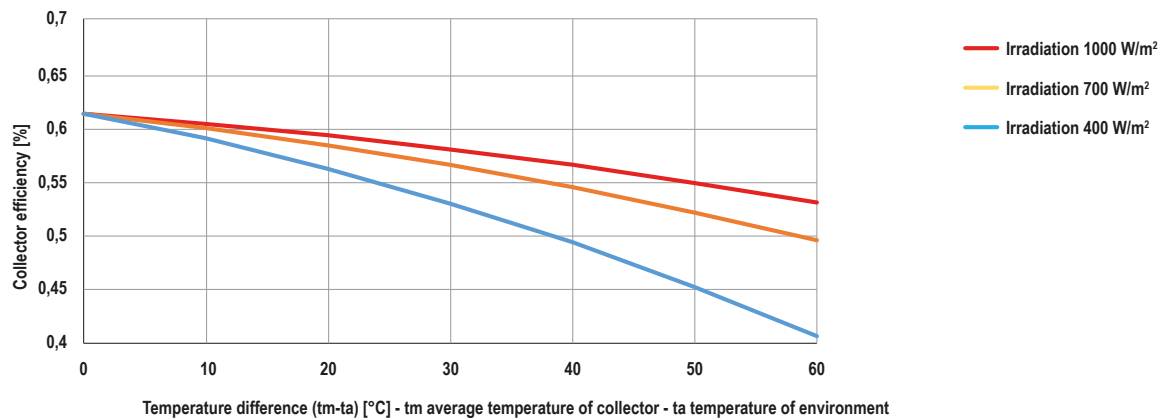
TECH SPECS		
Vacuum tubes	N°	11
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	2,34
Absorption surface	m²	2,82
Gross surface	m²	2,11
Dimensions (LxHxD)	mm	1216 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	43,6
Content of heat-transfer fluid	litri	1,96
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	60,0
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,910
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,013
Nominal power	W	1404
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	1359
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202a.1
DIN CERTCO registration number	-	16084 Rev.0 KIWA
Recommended capacity per collector	l/h	1,65
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 11R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

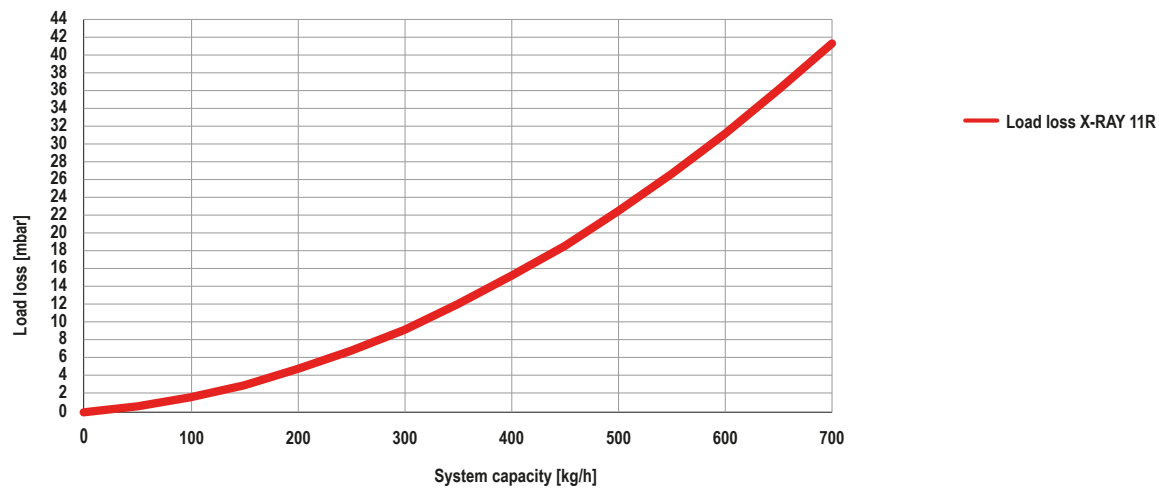


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	562	983	1404
10	537	958	1380
20	507	928	1349
30	470	892	1313
40	428	849	1270
50	379	800	1221
60	324	746	1167

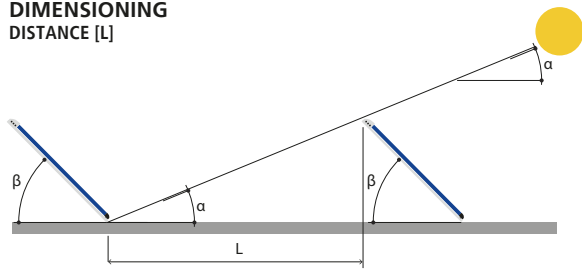
POWER CURVES of X-RAY 11R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 11R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α[°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu Øe/Øi [mm]
1	100	18/16
2	200	18/16
3	300	18/16
4	400	22/20
5	500	22/20
6	600	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	1216	-
2	2495	-
3	3770	-
4	5045	-
5	6320	-
6	7600	-

X-RAY 12R

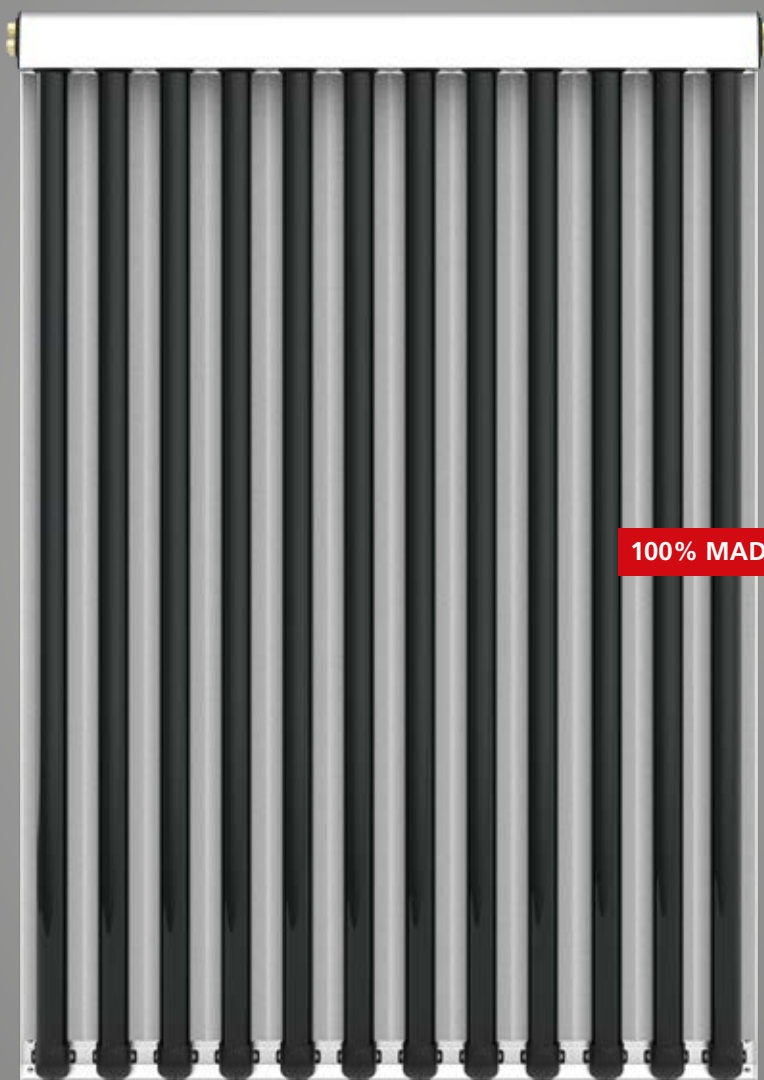
VACUUM SOLAR COLLECTORS X-RAY 12R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 12R

VACUUM SOLAR COLLECTORS X-RAY 12R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	12
Base [mm]	1326
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	2,55
Area Apertura [m2]	2,29
Area assorbimento 360°	3,09
Contenuto liquido	2,15

X-RAY 12R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

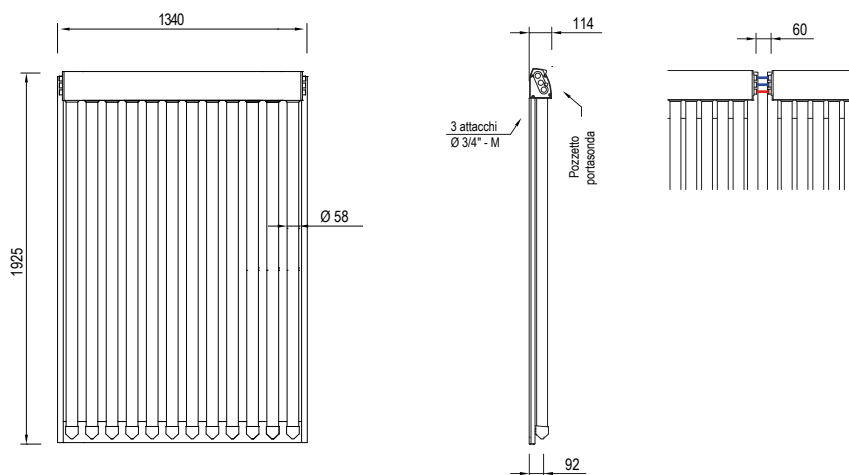
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
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3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 12R solar vacuum collectors - BASIC
-	X-RAY 12R solar vacuum collectors - PERFORMA

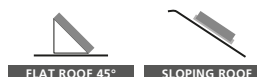
APPLICATION



USES



Fraunhofer

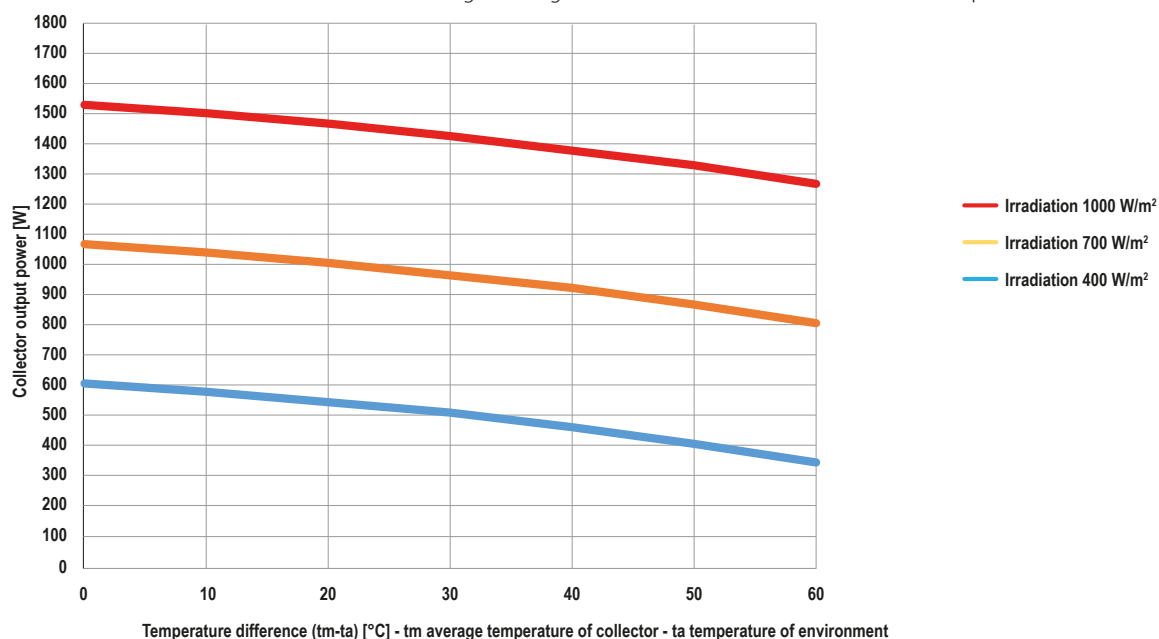


X-RAY 12R

TECH SPECS

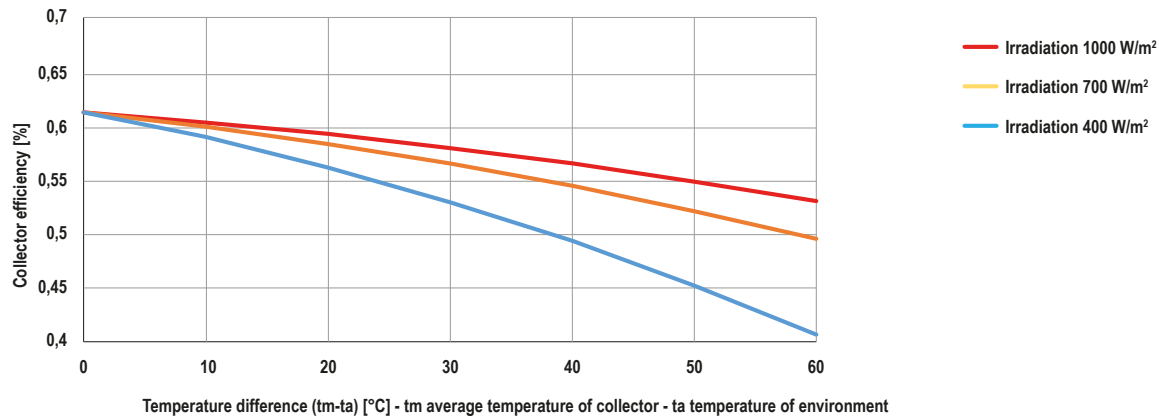
TECH SPECS		
Vacuum tubes	N°	12
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	2,55
Absorption surface	m²	3,09
Gross surface	m²	2,29
Dimensions (LxHxD)	mm	1326 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	48,2
Content of heat-transfer fluid	litri	2,15
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	60,0
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,910
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,013
Nominal power	W	1530
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	1481
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202a.1
DIN CERTCO registration number	-	16084 Rev.0 KIWA
Recommended capacity per collector	l/h	1,80
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 12R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

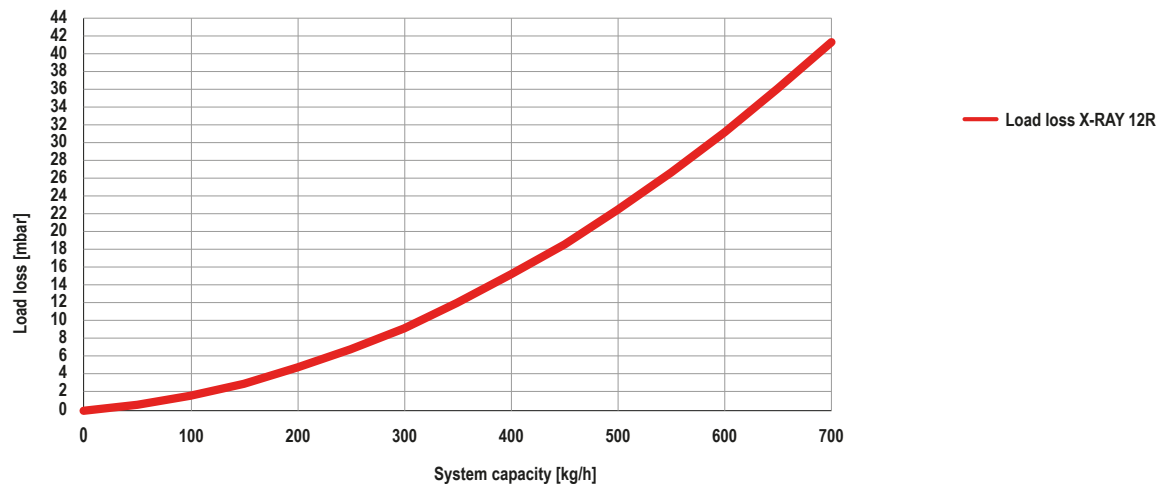


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	612	1071	1530
10	585	1044	1503
20	552	1011	1470
30	513	972	1431
40	466	925	1384
50	413	872	1331
60	353	812	1271

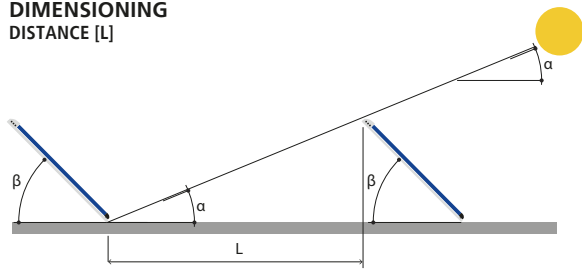
POWER CURVES of X-RAY 12R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 12R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α [°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu $\varnothing_e/\varnothing_i$ [mm]
1	110	18/16
2	220	18/16
3	330	22/20
4	440	22/20
5	550	22/20
6	660	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	1	1326
2	2	2715
3	3	4100
4	4	5485
5	5	6870
6	6	8260

X-RAY 13R

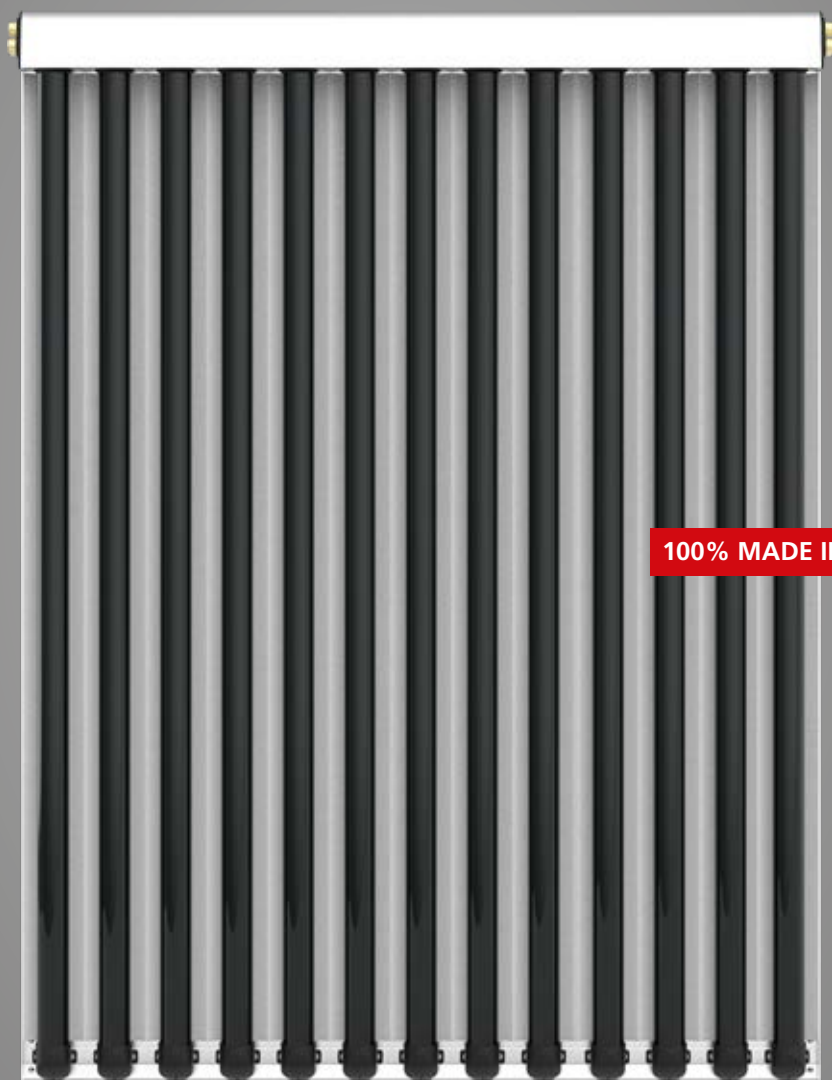
VACUUM SOLAR COLLECTORS X-RAY 13R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 13R

VACUUM SOLAR COLLECTORS X-RAY 13R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	13
Base [mm]	1436
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	2,76
Area Apertura [m2]	2,48
Area assorbimento 360°	3,34
Contenuto liquido	2,35

X-RAY 13R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

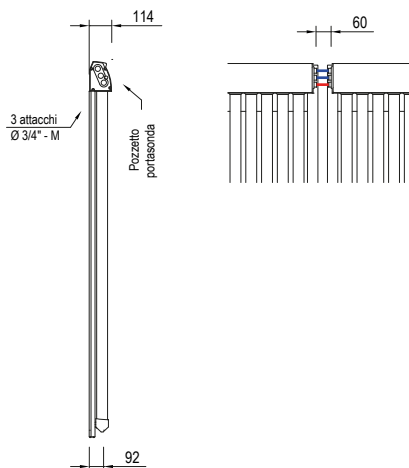
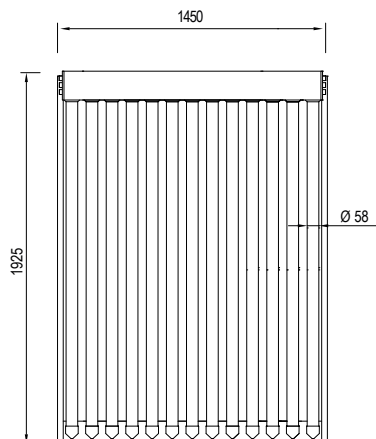
TOP PERFORMANCES IN WINTER TIME

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3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.

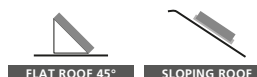


COD	DESCRIPTION
-	X-RAY 13R solar vacuum collectors - BASIC
-	X-RAY 13R solar vacuum collectors - PERFORMA

APPLICATION



USES

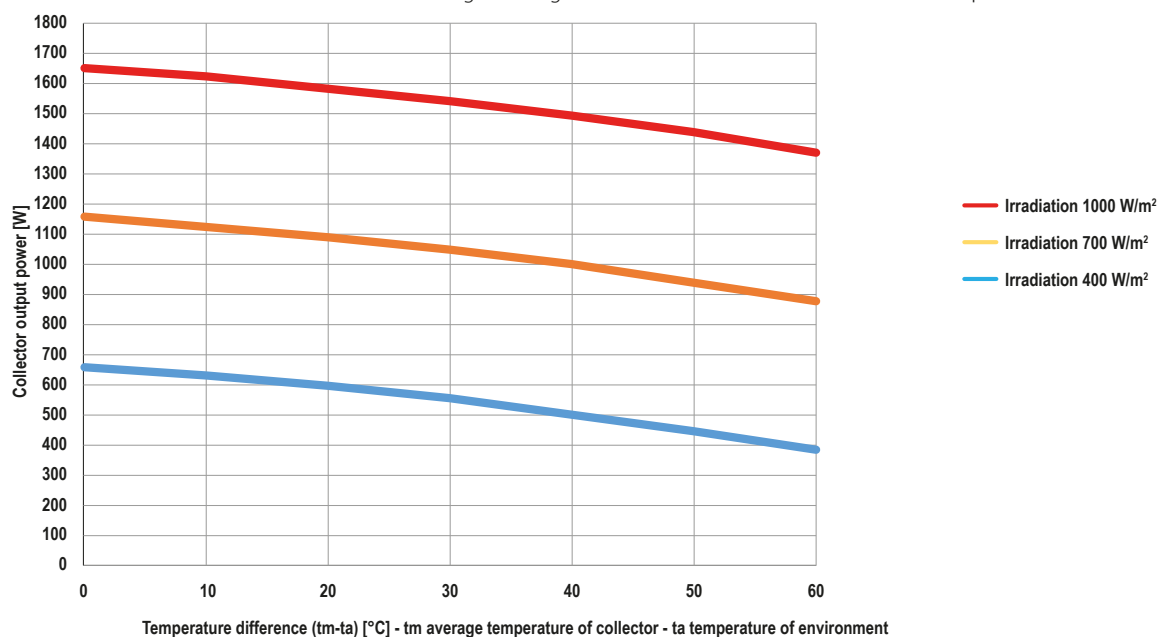


X-RAY 13R

TECH SPECS

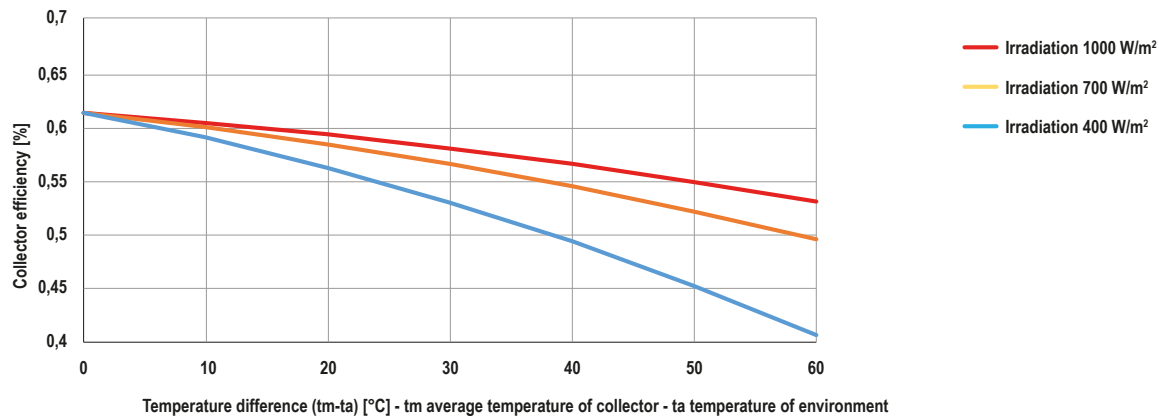
TECH SPECS		
Vacuum tubes	N°	13
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	2,76
Absorption surface	m²	3,34
Gross surface	m²	2,48
Dimensions (LxHxD)	mm	1436 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	52,8
Content of heat-transfer fluid	litri	2,35
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	60,0
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,910
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,013
Nominal power	W	1656
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	1603
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202a.1
DIN CERTCO registration number	-	16084 Rev.0 KIWA
Recommended capacity per collector	l/h	1,95
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 13R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

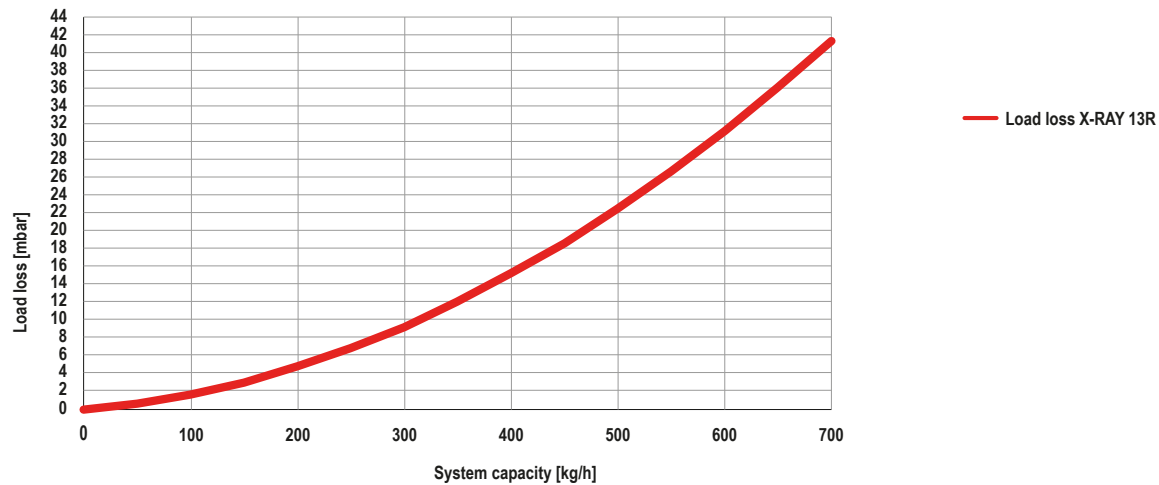


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	662	1159	1656
10	634	1130	1627
20	598	1095	1591
30	555	1052	1548
40	505	1001	1498
50	447	944	1441
60	383	879	1376

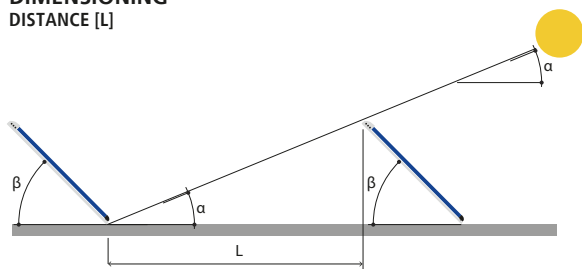
POWER CURVES of X-RAY 13R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 13R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α[°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu Øe/Øi [mm]
1	120	18/16
2	240	18/16
3	360	22/20
4	480	22/20
5	600	22/20
6	720	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	1436	-
2	2935	-
3	4430	-
4	5925	-
5	7420	-
6	8920	-

X-RAY 14R

VACUUM SOLAR COLLECTORS X-RAY 14R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 14R

VACUUM SOLAR COLLECTORS X-RAY 14R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	14
Base [mm]	1546
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	2,97
Area Apertura [m2]	2,65
Area assorbimento 360°	3,59
Contenuto liquido	2,5

X-RAY 14 R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

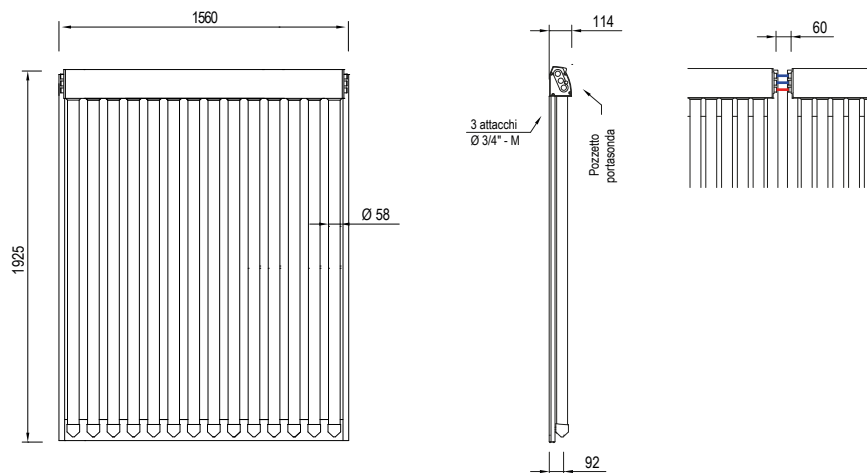
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 14R solar vacuum collectors - BASIC
-	X-RAY 14R solar vacuum collectors - PERFORMA

APPLICATION



USES



Fraunhofer

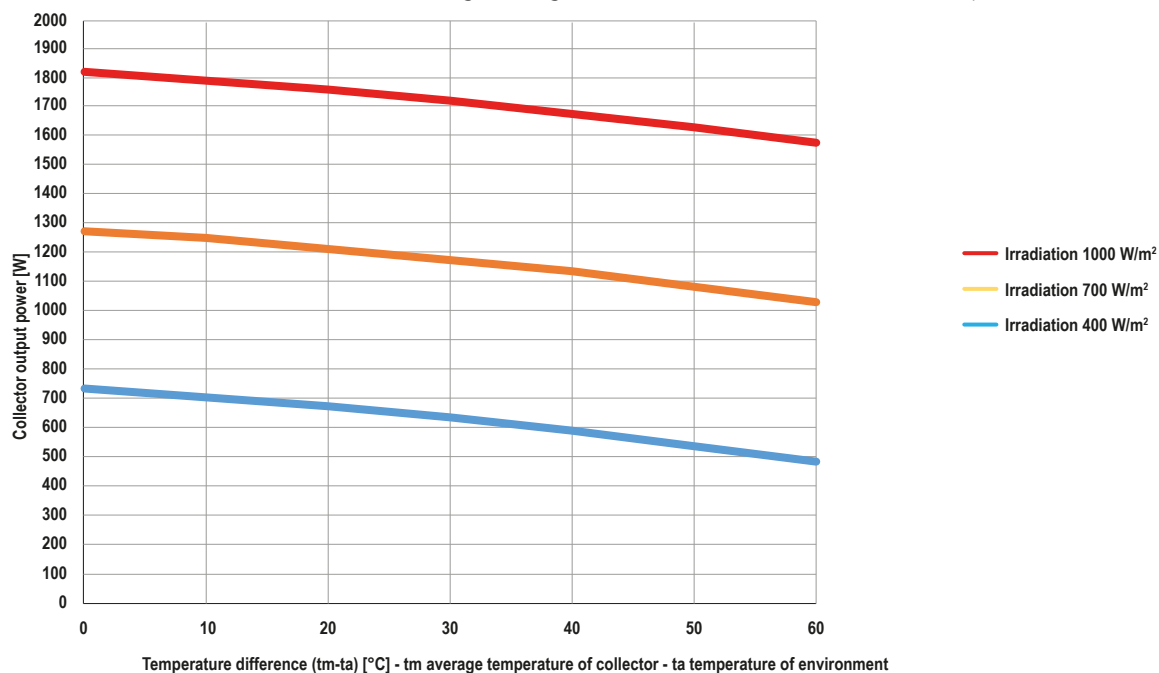


X-RAY 14R

TECH SPECS

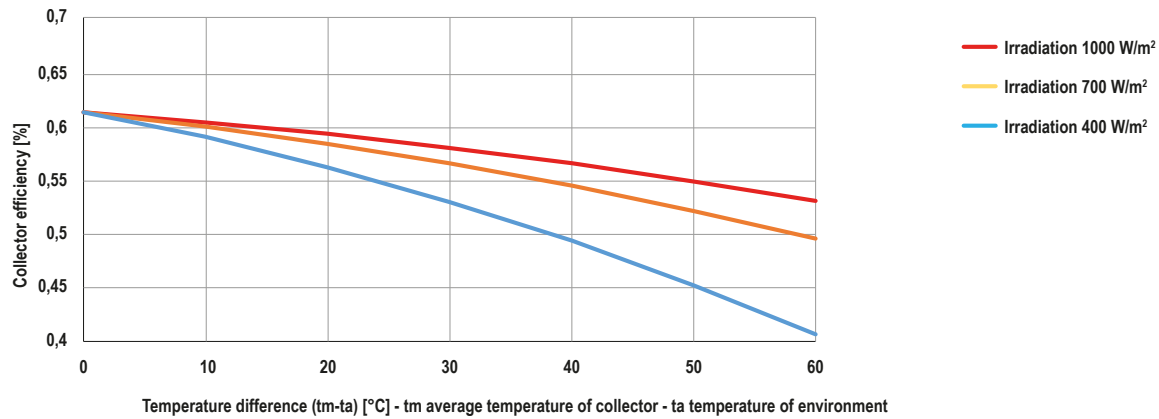
TECH SPECS		
Vacuum tubes	N°	14
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	2,97
Absorption surface	m²	3,59
Gross surface	m²	2,65
Dimensions (LxHxD)	mm	1546 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	54,5
Content of heat-transfer fluid	litri	2,5
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	61,5
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,850
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,009
Nominal power	W	1826
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	1844
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202b.1
DIN CERTCO registration number	-	16083 Rev.0 KIWA
Recommended capacity per collector	l/h	2,10
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 14R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

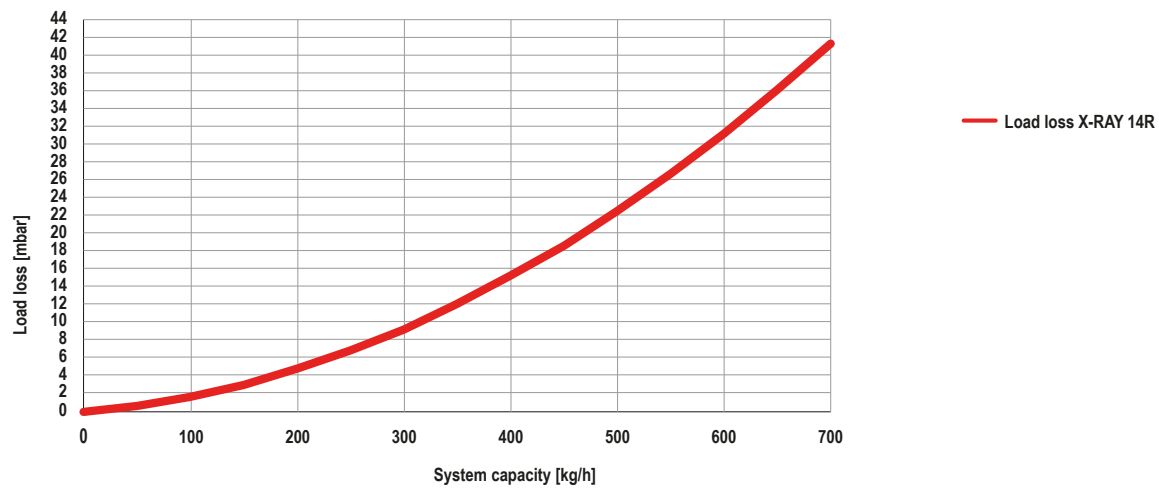


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	731	1279	1827
10	703	1251	1799
20	669	1217	1765
30	631	1179	1727
40	587	1135	1683
50	538	1086	1634
60	483	1031	1579

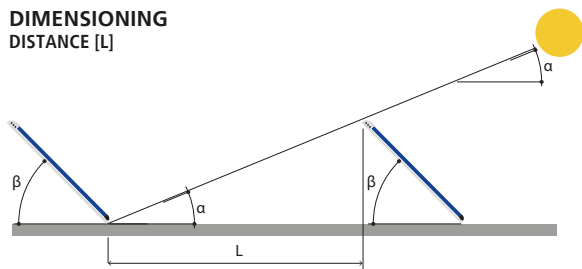
POWER CURVES of X-RAY 14R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 14R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α [°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu Øe/Øi [mm]
1	130	18/16
2	260	18/16
3	390	22/20
4	520	22/20
5	650	28/25
6	780	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	1546	-
2	3155	-
3	4760	-
4	6365	-
5	7970	-
6	9580	-

X-RAY 15R

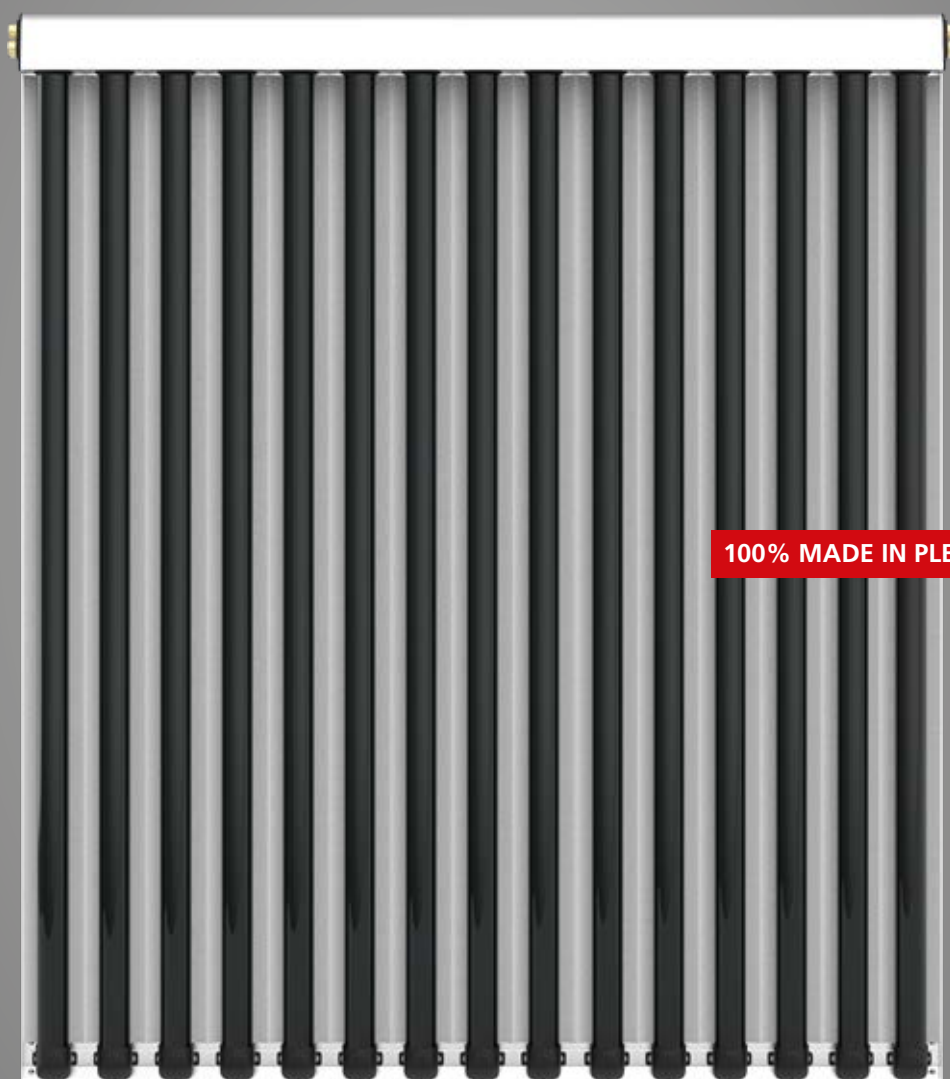
VACUUM SOLAR COLLECTORS X-RAY 15R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 15R

VACUUM SOLAR COLLECTORS X-RAY 15R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	15
Base [mm]	1656
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	3,18
Area Apertura [m2]	2,87
Area assorbimento 360°	3,85
Contenuto liquido	2,68

X-RAY 15R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

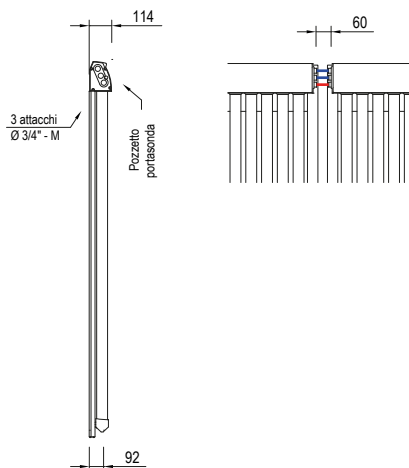
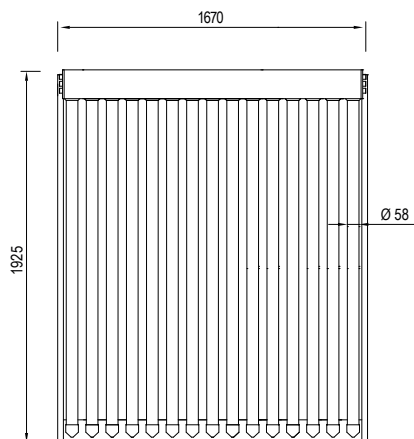
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 15R solar vacuum collectors - BASIC
-	X-RAY 15R solar vacuum collectors - PERFORMA

APPLICATION



USES



Fraunhofer

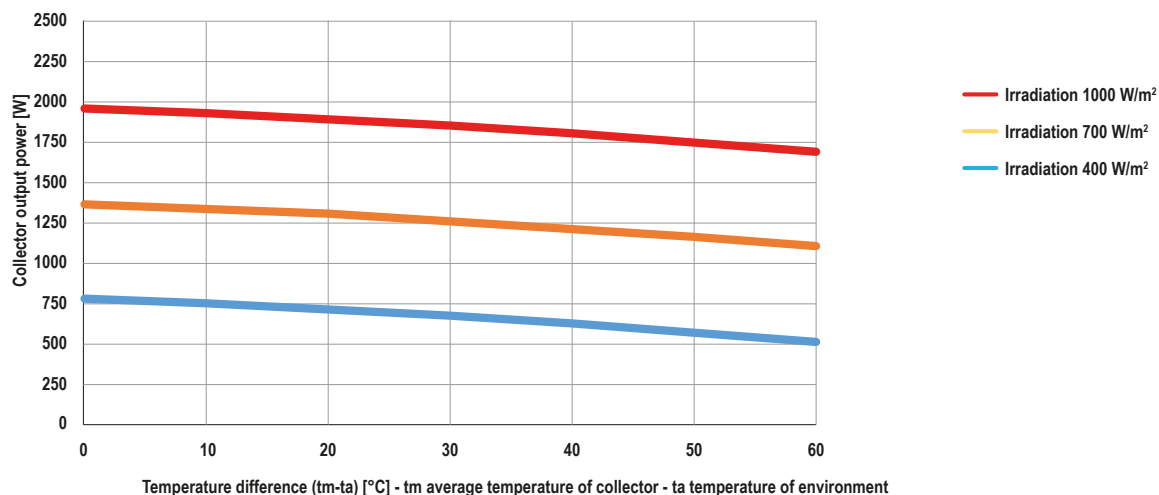


X-RAY 15R

TECH SPECS

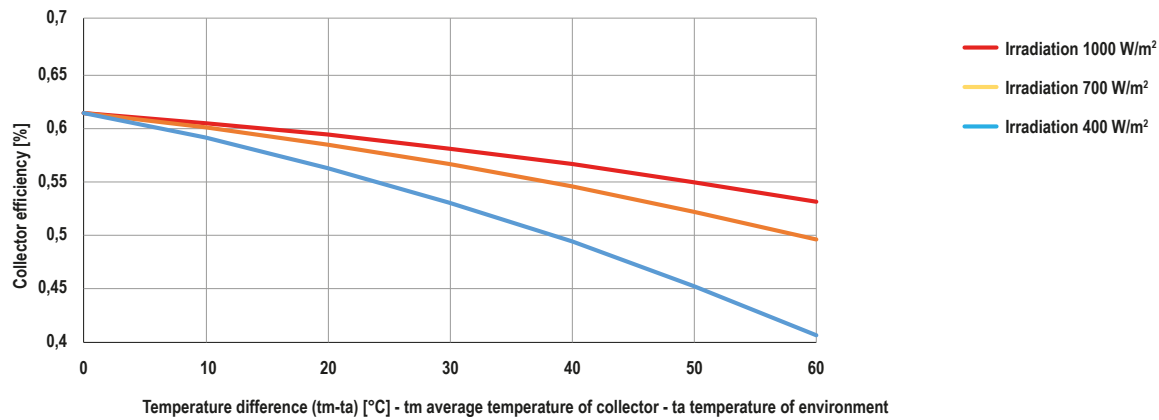
TECH SPECS		
Vacuum tubes	N°	15
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	3,18
Absorption surface	m²	3,85
Gross surface	m²	2,87
Dimensions (LxHxD)	mm	1656 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	58,2
Content of heat-transfer fluid	litri	2,68
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	61,5
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,850
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,009
Nominal power	W	1955
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	1974
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202b.1
DIN CERTCO registration number	-	16083 Rev.0 KIWA
Recommended capacity per collector	l/h	2,25
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 15 collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

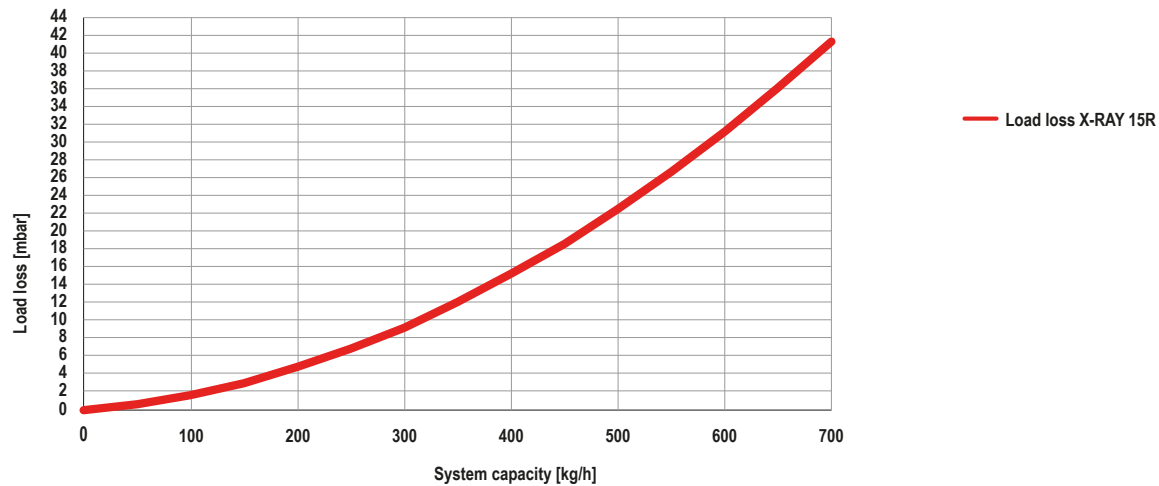


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	782	1369	1956
10	752	1339	1926
20	717	1303	1890
30	675	1262	1849
40	628	1215	1802
50	576	1162	1749
60	517	1104	1690

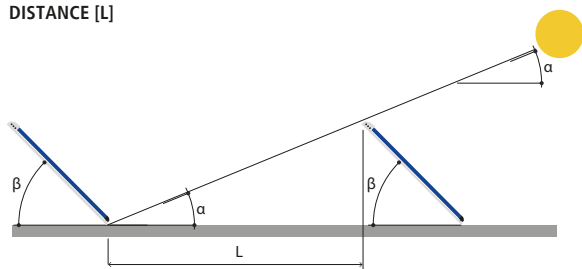
POWER CURVES of X-RAY 15R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 15R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α [°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu $\varnothing_e/\varnothing_i$ [mm]
1	135	18/16
2	270	18/16
3	405	22/20
4	540	22/20
5	675	28/25
6	810	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	1656	-
2	3375	-
3	5090	-
4	6805	-
5	8520	-
6	10240	-

X-RAY 16R

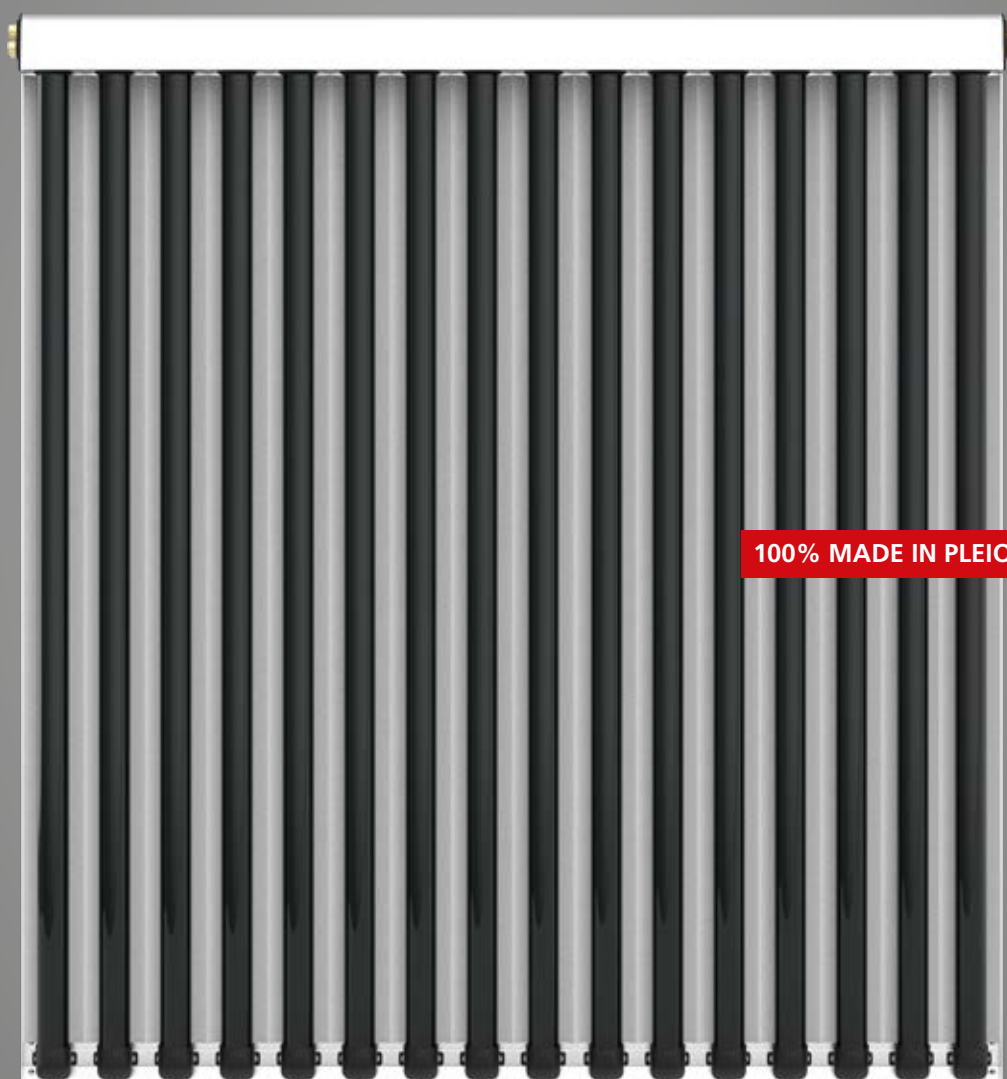
VACUUM SOLAR COLLECTORS X-RAY 16R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 16R

VACUUM SOLAR COLLECTORS X-RAY 16R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	16
Base [mm]	1766
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	3,39
Area Apertura [m2]	3,06
Area assorbimento 360°	4,10
Contenuto liquido	2,85

X-RAY 16R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

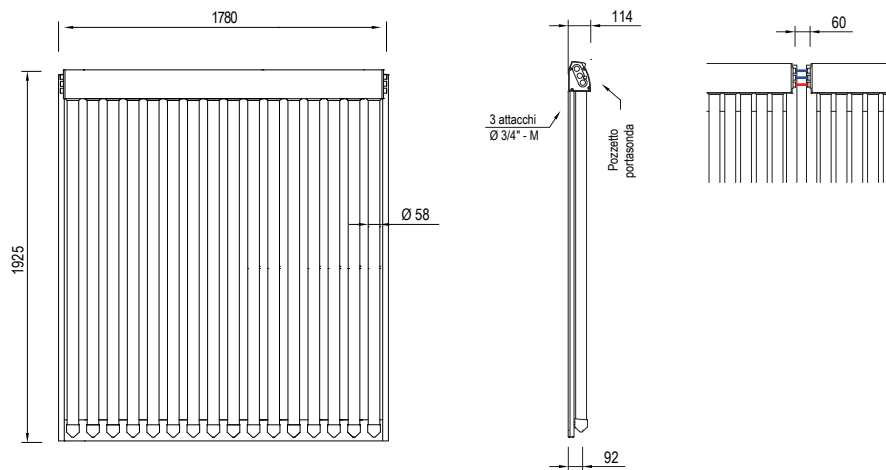
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 16R solar vacuum collectors - BASIC
-	X-RAY 16R solar vacuum collectors - PERFORMA

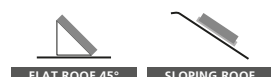
APPLICATION



USES



Fraunhofer

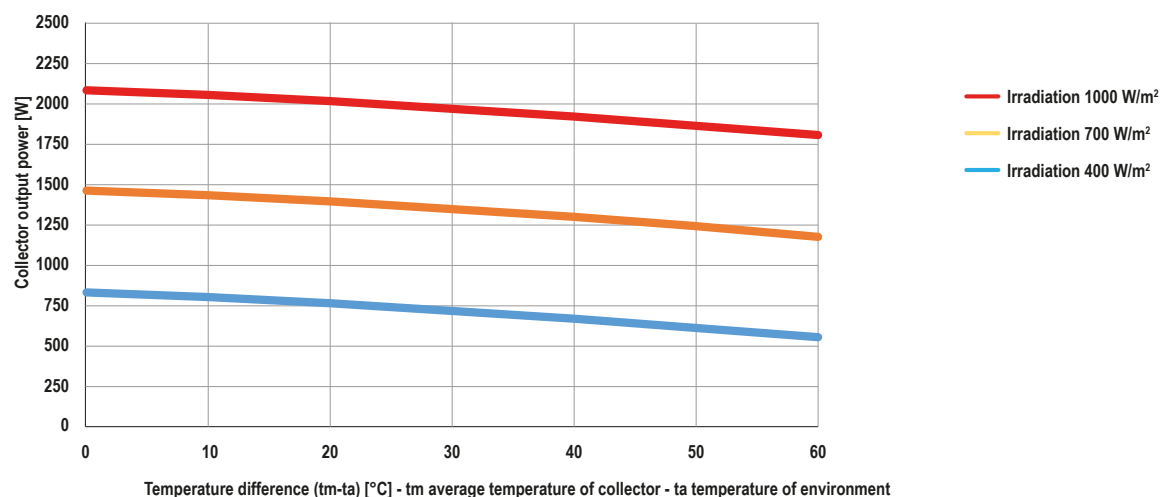


X-RAY 16R

TECH SPECS

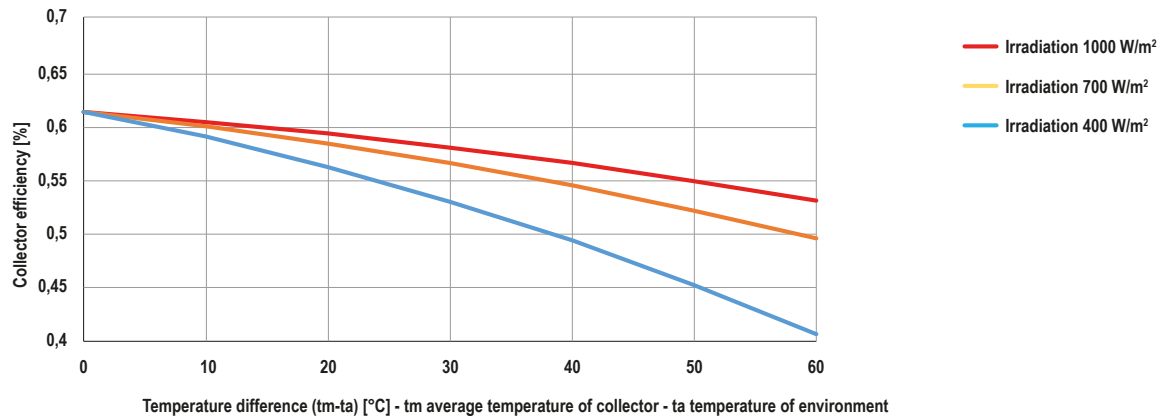
TECH SPECS		
Vacuum tubes	N°	16
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	3,39
Absorption surface	m²	4,10
Gross surface	m²	3,06
Dimensions (LxHxD)	mm	1766 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	63,6
Content of heat-transfer fluid	litri	2,85
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	61,5
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,850
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,009
Nominal power	W	2085
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	2104
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202b.1
DIN CERTCO registration number	-	16083 Rev.0 KIWA
Recommended capacity per collector	l/h	2,40
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 16R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

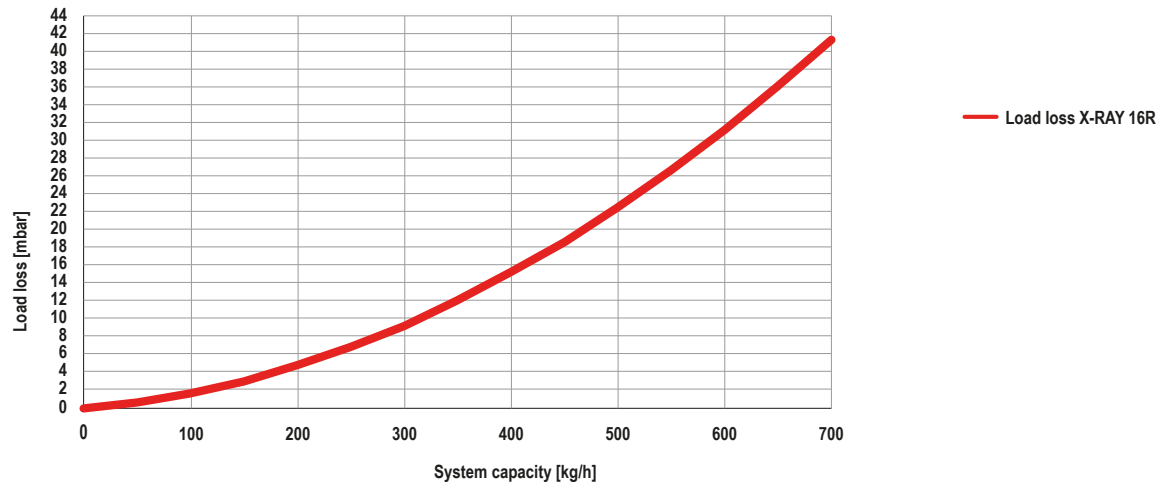


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	834	1459	2085
10	802	1428	2053
20	764	1390	2015
30	720	1345	1971
40	670	1295	1921
50	614	1239	1865
60	551	1177	1802

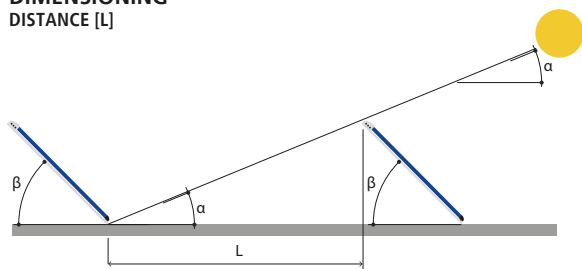
POWER CURVES of X-RAY 16R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 16R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α [°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu $\varnothing_e/\varnothing_i$ [mm]
1	145	18/16
2	290	18/16
3	435	22/20
4	580	22/20
5	725	28/25
6	870	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	1766	-
2	3595	-
3	5420	-
4	7245	-
5	9070	-
6	10900	-

X-RAY 17R

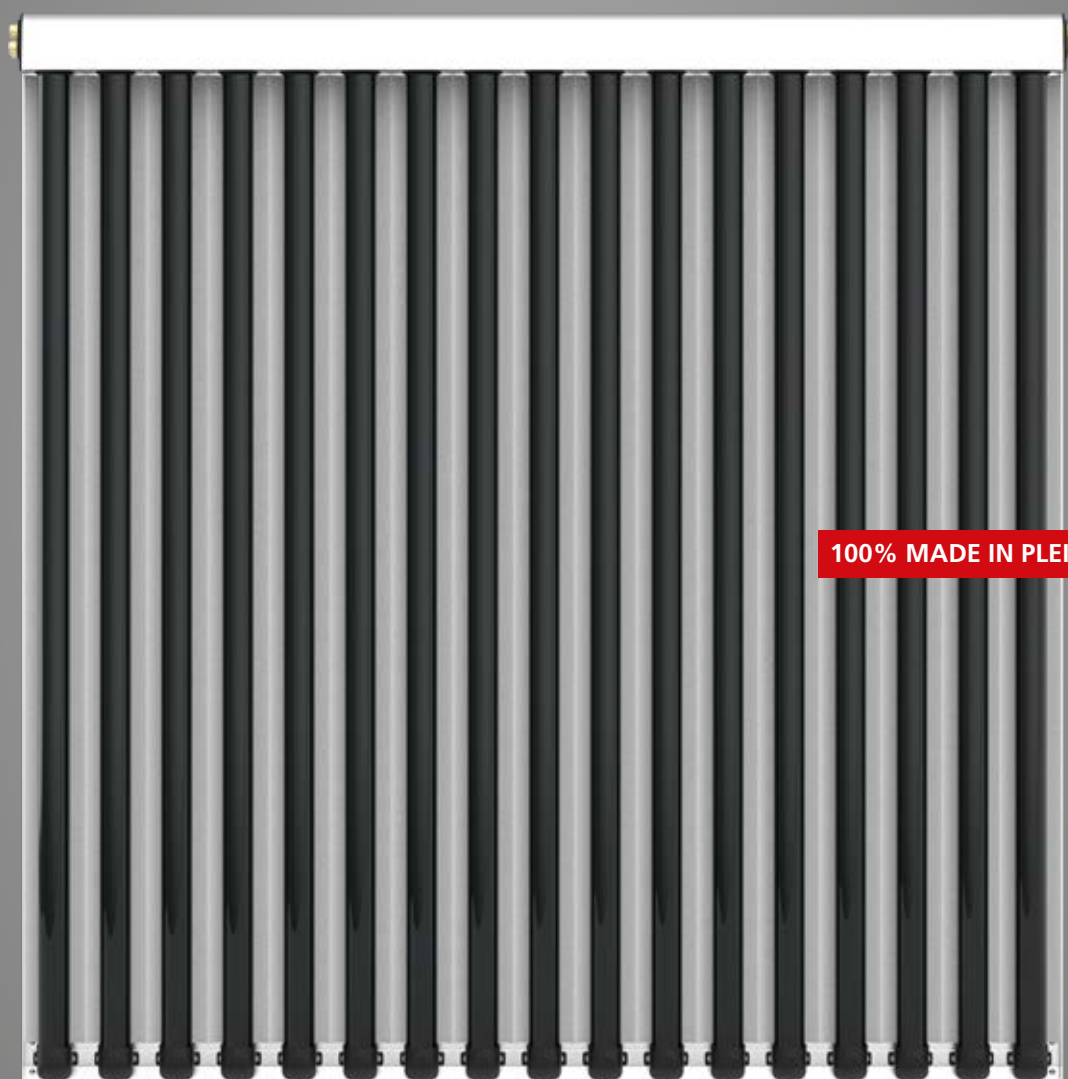
VACUUM SOLAR COLLECTORS X-RAY 17R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 17R

VACUUM SOLAR COLLECTORS X-RAY 17R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	17
Base [mm]	1876
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	3,60
Area Apertura [m2]	3,25
Area assorbimento 360°	4,36
Contenuto liquido	3,03

X-RAY 17R- PERFORMA

**PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT**

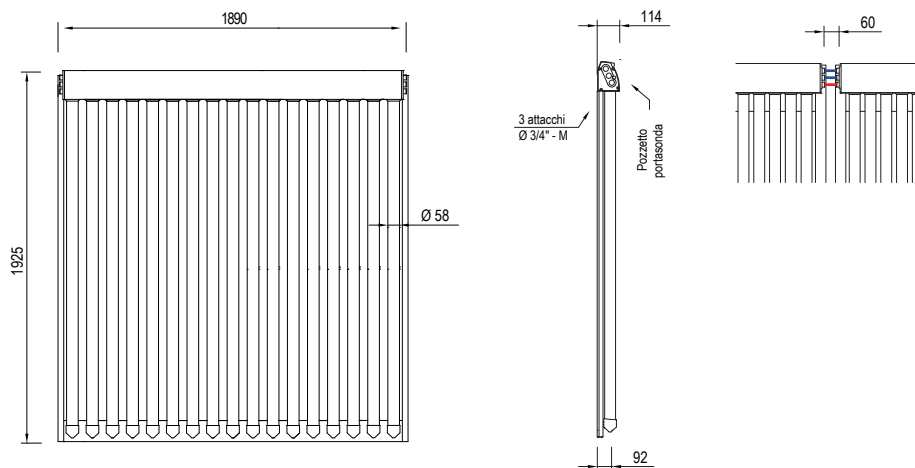
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

**INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.**

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 17R solar vacuum collectors - BASIC
-	X-RAY 17R solar vacuum collectors - PERFORMA

APPLICATION



USES



Fraunhofer

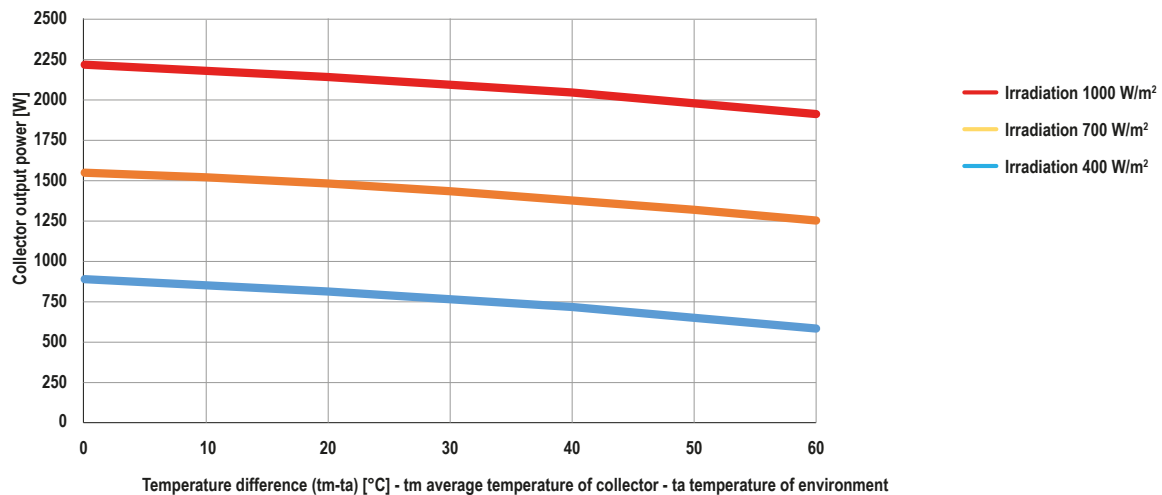


X-RAY 17R

TECH SPECS

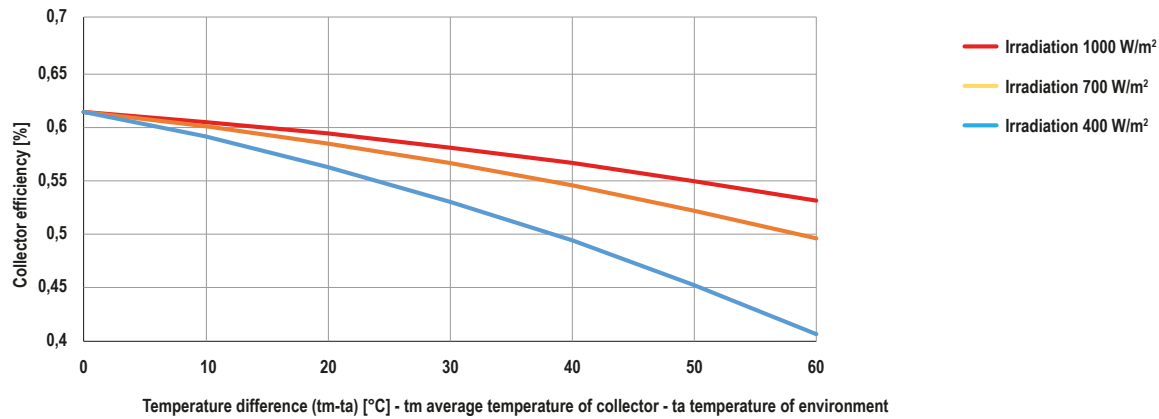
TECH SPECS		
Vacuum tubes	N°	17
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	3,60
Absorption surface	m²	4,36
Gross surface	m²	3,25
Dimensions (LxHxD)	mm	1876 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	65,5
Content of heat-transfer fluid	litri	3,03
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	61,5
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,850
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,009
Nominal power	W	2214
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	2235
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202b.1
DIN CERTCO registration number	-	16083 Rev.0 KIWA
Recommended capacity per collector	l/h	2,55
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 17R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

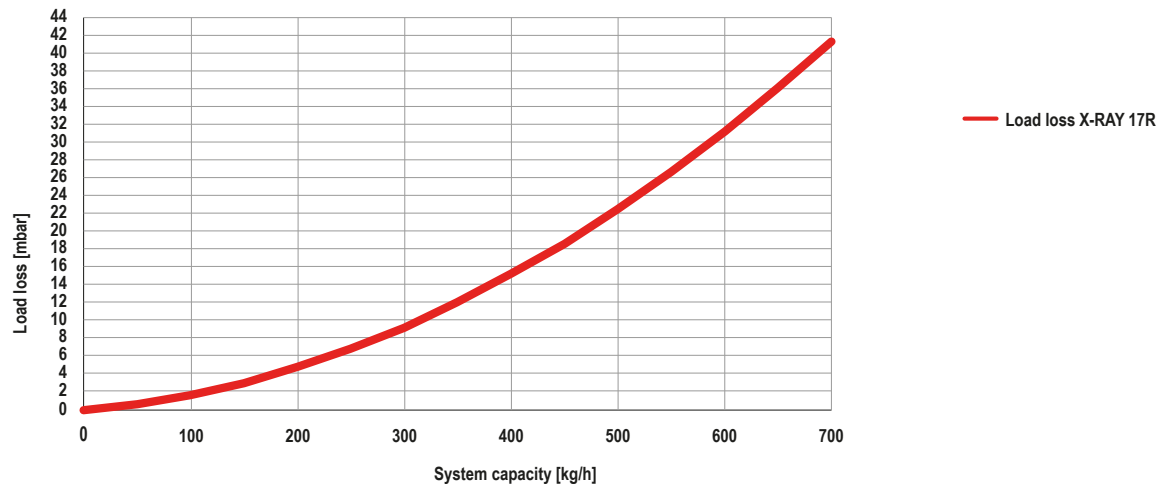


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	886	1550	2214
10	852	1516	2180
20	811	1476	2140
30	765	1429	2093
40	711	1376	2040
50	652	1316	1980
60	585	1250	1914

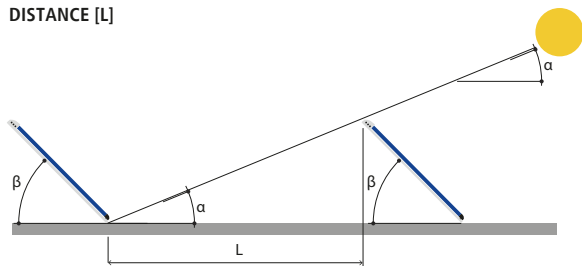
POWER CURVES of X-RAY 17R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 17R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α [°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu $\varnothing_e/\varnothing_i$ [mm]
1	155	18/16
2	310	22/20
3	465	22/20
4	620	28/25
5	775	28/25
6	930	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	1876	-
2	3815	-
3	5750	-
4	7685	-
5	9620	-
6	11560	-

X-RAY 18R

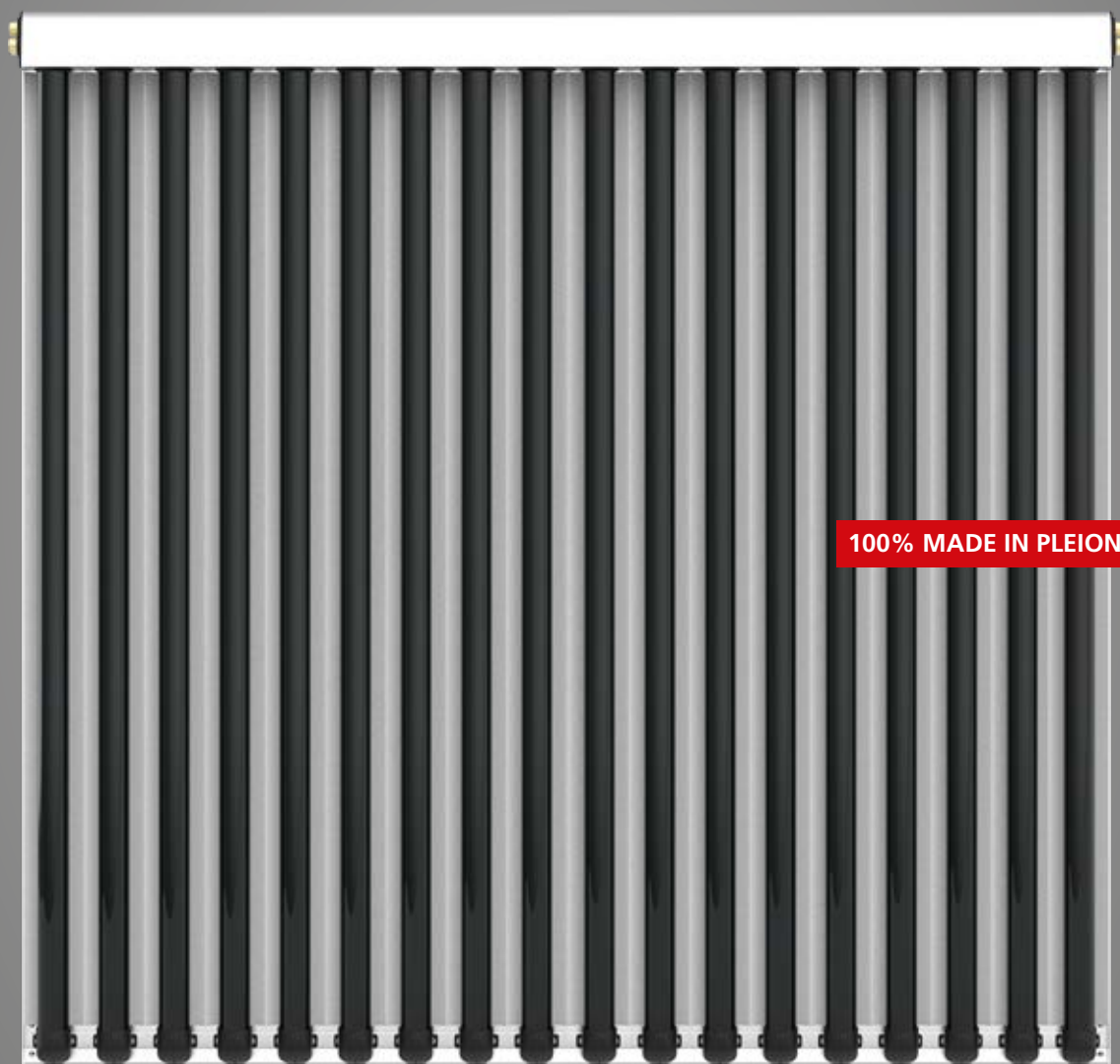
VACUUM SOLAR COLLECTORS X-RAY 18R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 18R

VACUUM SOLAR COLLECTORS X-RAY 18R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	18
Base [mm]	1986
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	3,82
Area Apertura [m2]	3,45
Area assorbimento 360°	4,62
Contenuto liquido	3,21

X-RAY 18R - PERFORMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

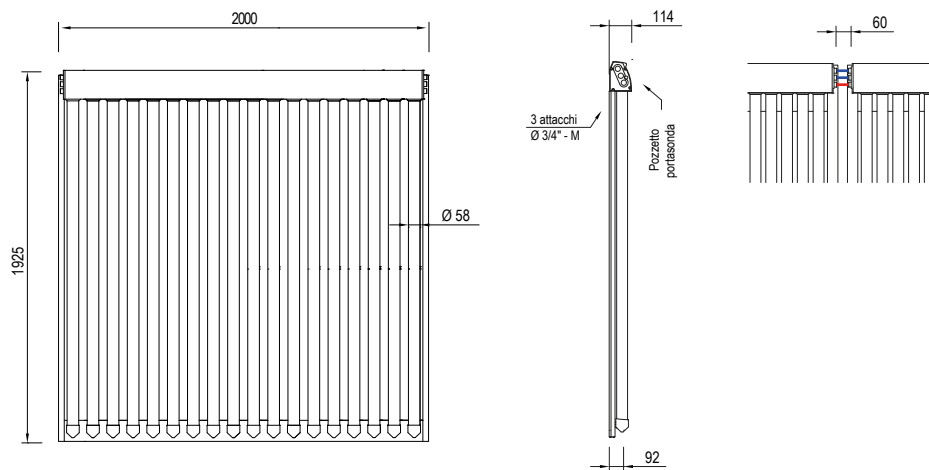
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 18R solar vacuum collectors - BASIC
-	X-RAY 18R solar vacuum collectors - PERFORMA

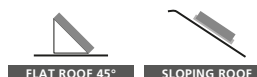
APPLICATION



USES



Fraunhofer

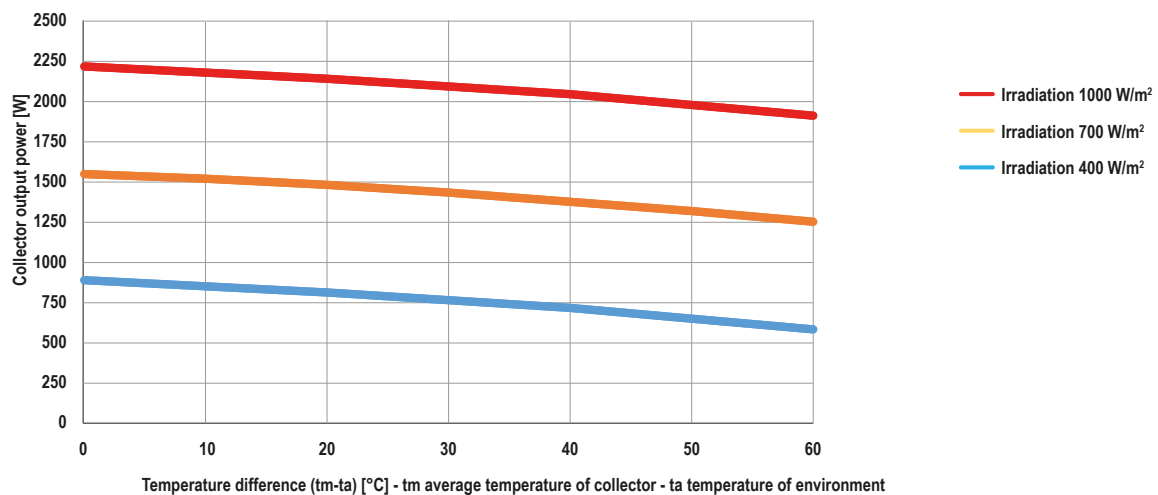


X-RAY 18R

TECH SPECS

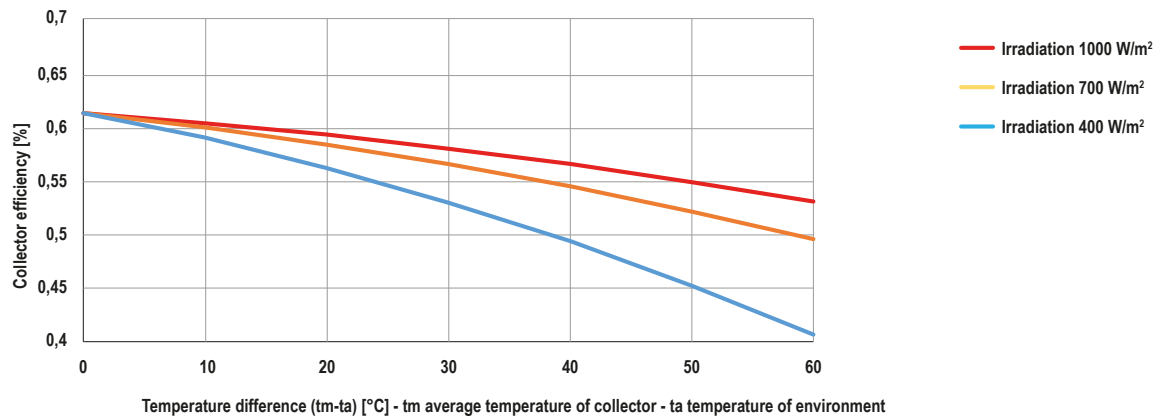
TECH SPECS		
Vacuum tubes	N°	18
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	3,82
Absorption surface	m²	4,62
Gross surface	m²	3,45
Dimensions (LxHxD)	mm	1986 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	69,2
Content of heat-transfer fluid	litri	3,21
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	61,5
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,850
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,009
Nominal power	W	2349
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	2371
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202b.1
DIN CERTCO registration number	-	16083 Rev.0 KIWA
Recommended capacity per collector	l/h	2,70
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 18R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

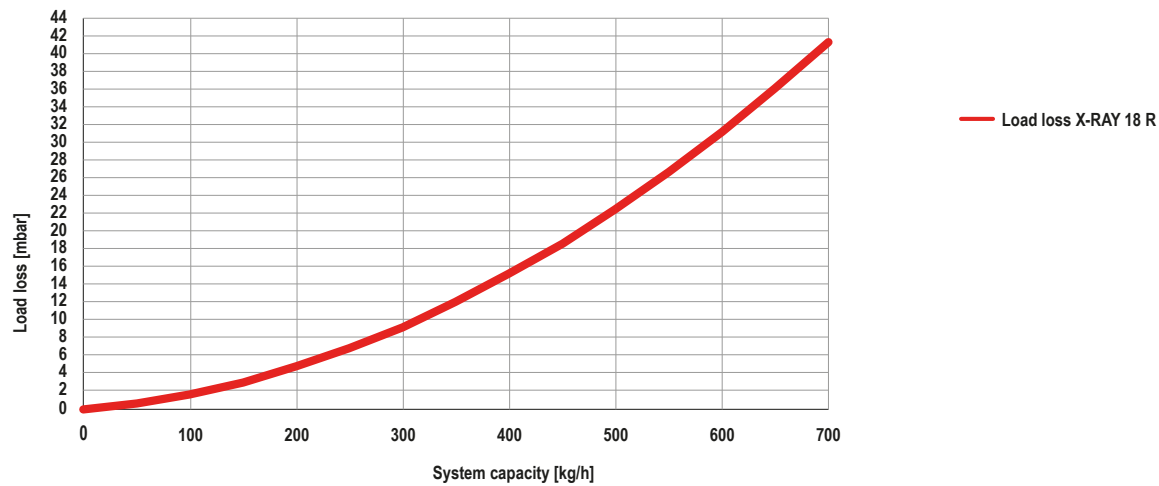


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	940	1645	2349
10	904	1609	2313
20	861	1566	2271
30	811	1516	2221
40	755	1460	2164
50	691	1396	2101
60	621	1326	2031

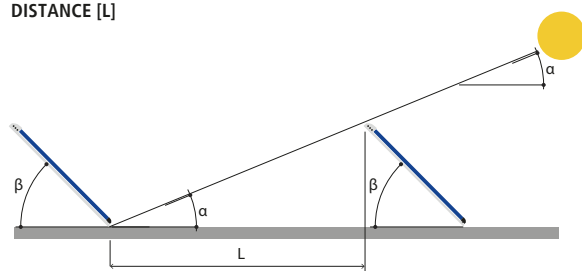
POWER CURVES of X-RAY 18R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 18R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α [°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu $\varnothing_e/\varnothing_i$ [mm]
1	165	18/16
2	330	22/20
3	495	22/20
4	660	28/25
5	825	28/25
6	990	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	1986	-
2	4035	-
3	6080	-
4	8125	-
5	10170	-
6	12220	-

X-RAY 19R

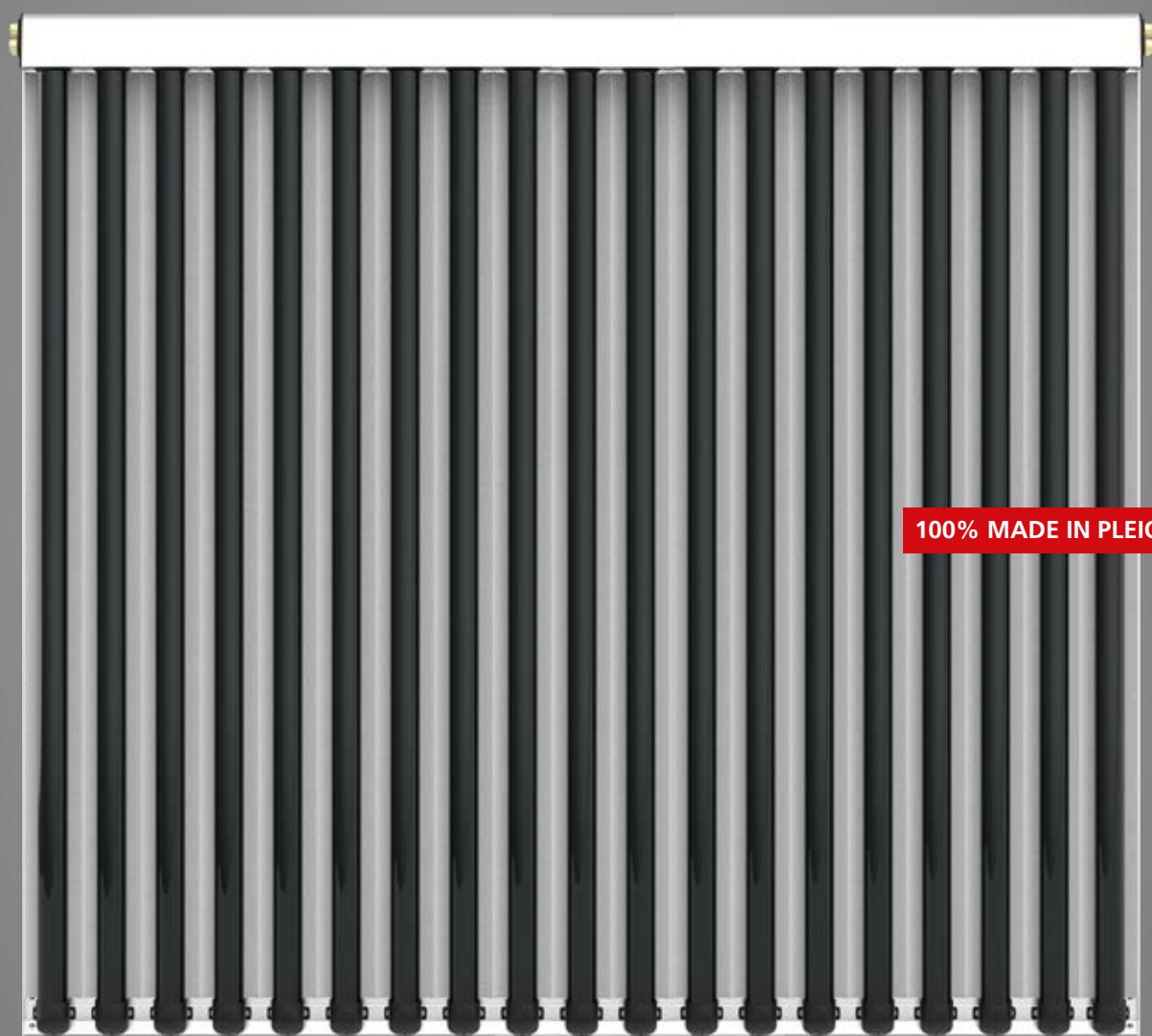
VACUUM SOLAR COLLECTORS X-RAY 19R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 19R

VACUUM SOLAR COLLECTORS X-RAY 19R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	19
Base [mm]	2096
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	4,03
Area Apertura [m2]	3,63
Area assorbimento 360°	4,87
Contenuto liquido	3,40

X-RAY 19R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

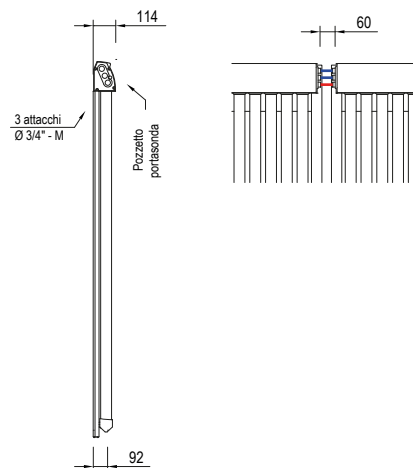
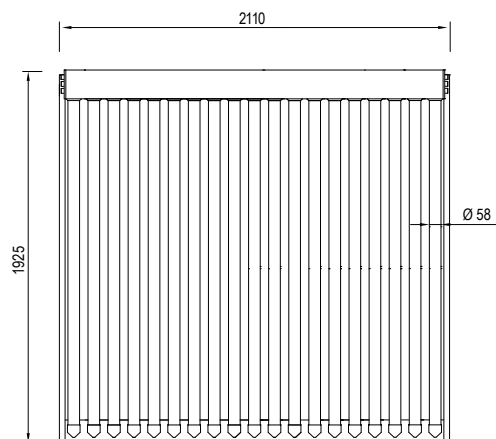
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 19R solar vacuum collectors - BASIC
-	X-RAY 19 R solar vacuum collectors - PERFORMA

APPLICATION



USES



Fraunhofer

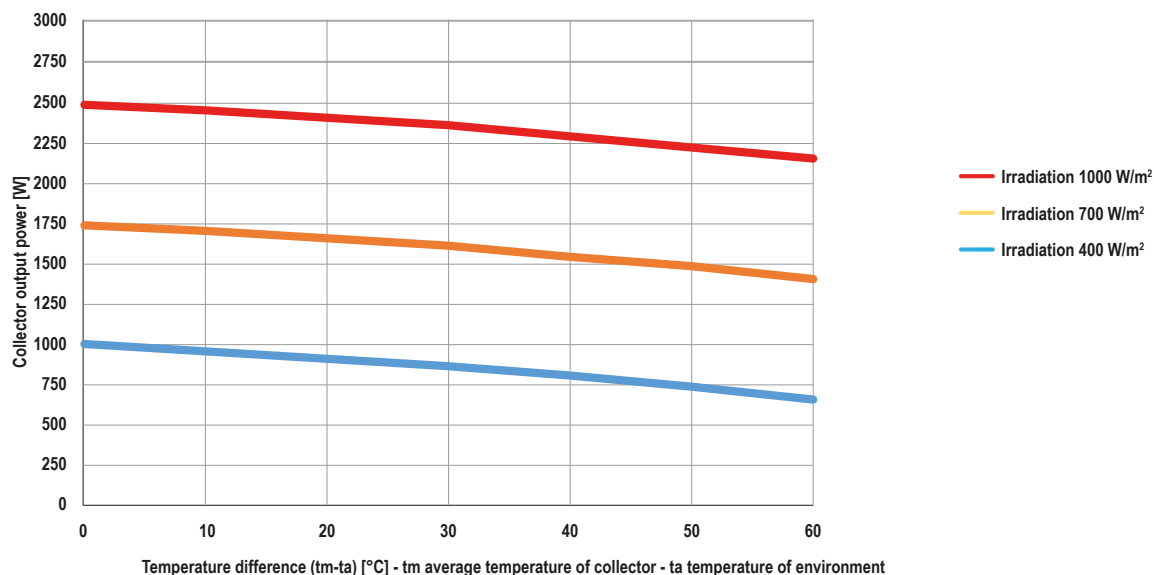


X-RAY 19R

TECH SPECS

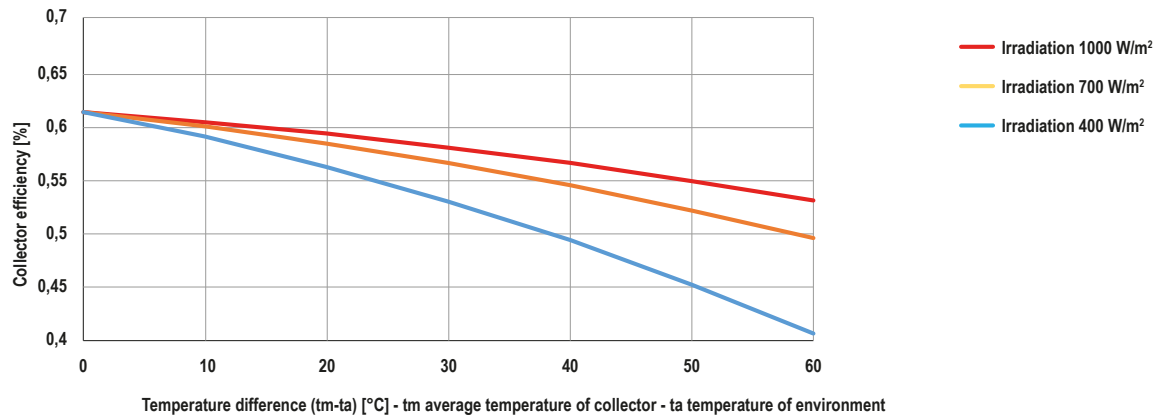
TECH SPECS		
Vacuum tubes	N°	19
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	4,03
Absorption surface	m²	4,87
Gross surface	m²	3,63
Dimensions (LxHxD)	mm	2096 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	73,5
Content of heat-transfer fluid	litri	3,40
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	61,5
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,850
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,009
Nominal power	W	2478
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	2502
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202b.1
DIN CERTCO registration number	-	16083 Rev.0 KIWA
Recommended capacity per collector	l/h	2,85
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 19R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

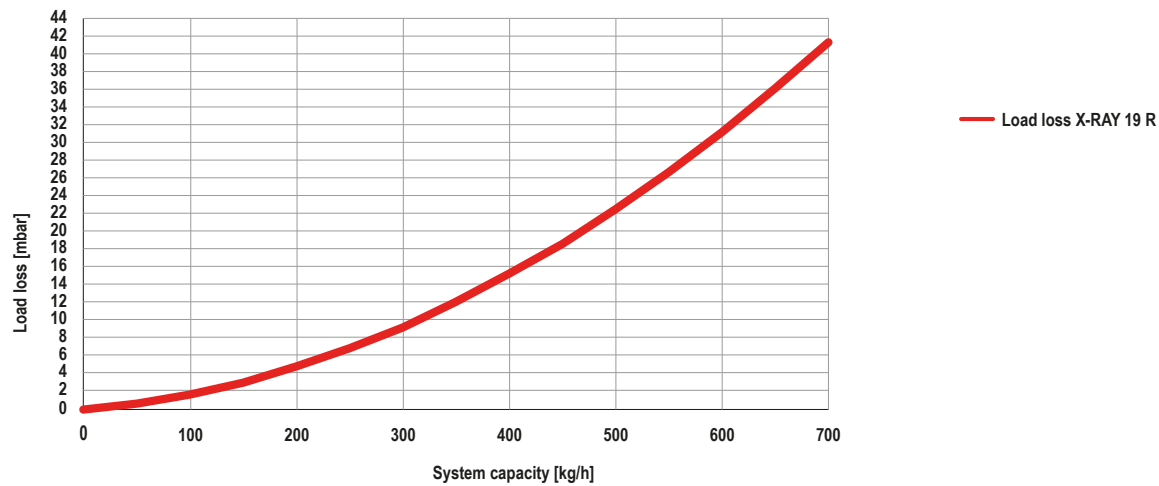


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	991	1735	2478
10	953	1697	2441
20	908	1652	2395
30	856	1600	2343
40	796	1540	2283
50	729	1473	2217
60	655	1399	2142

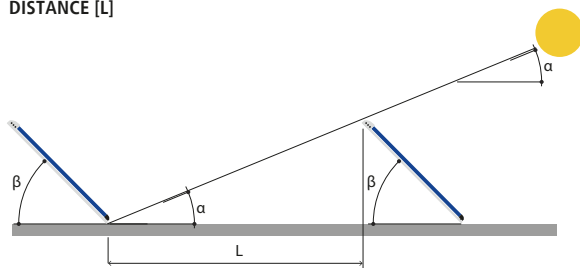
POWER CURVES of X-RAY 19R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 19R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α [°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu ϕ_e/ϕ_i [mm]
1	175	18/16
2	350	22/20
3	525	22/20
4	700	28/25
5	875	28/25
6	1050	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	2096	-
2	4255	-
3	6410	-
4	8565	-
5	10720	-
6	12880	-

X-RAY 20R

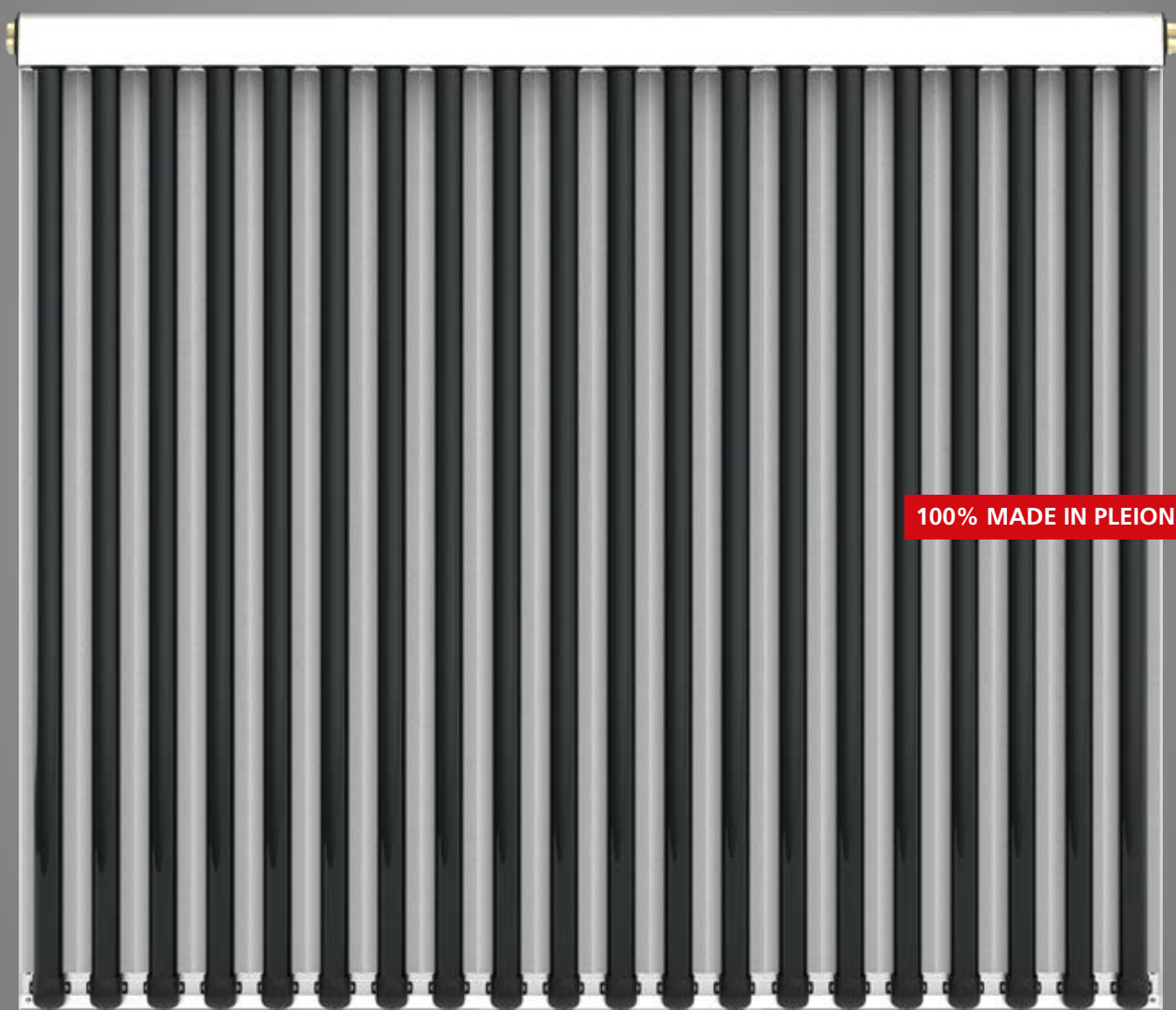
VACUUM SOLAR COLLECTORS X-RAY 20R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 20R

VACUUM SOLAR COLLECTORS X-RAY 20R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	20
Base [mm]	2206
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	4,24
Area Apertura [m2]	3,82
Area assorbimento 360°	5,13
Contenuto liquido	3,59

X-RAY 20R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

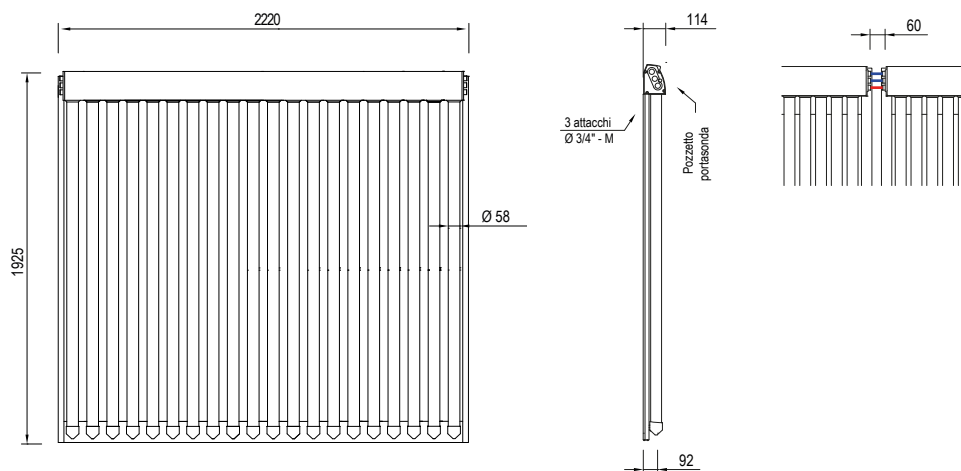
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 20R solar vacuum collectors - BASIC
-	X-RAY 20R solar vacuum collectors - PERFORMA

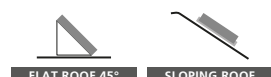
APPLICATION



USES



Fraunhofer

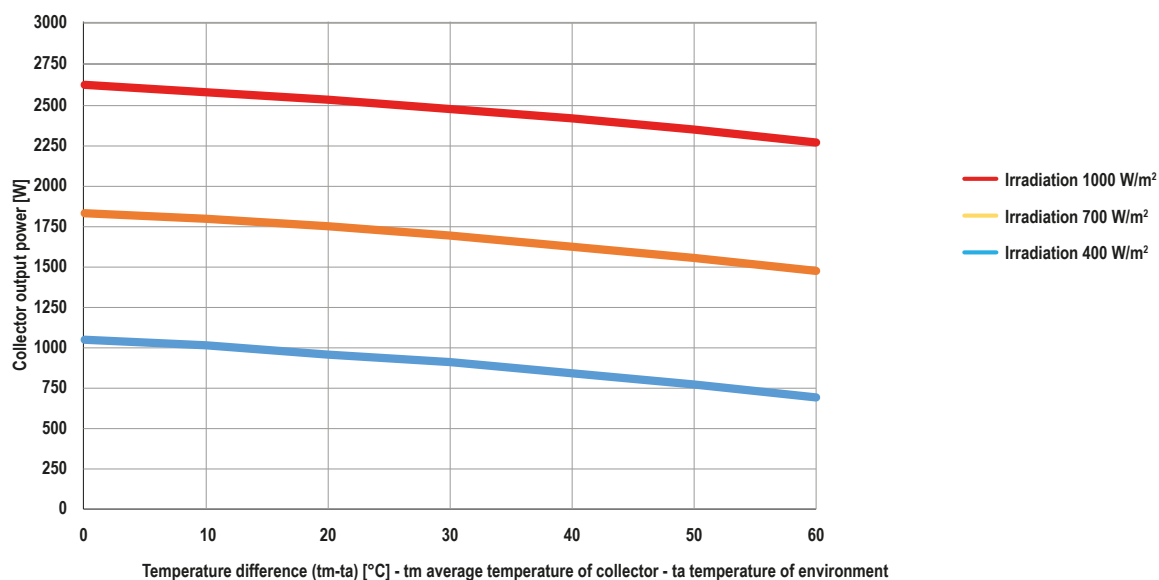


X-RAY 20R

TECH SPECS

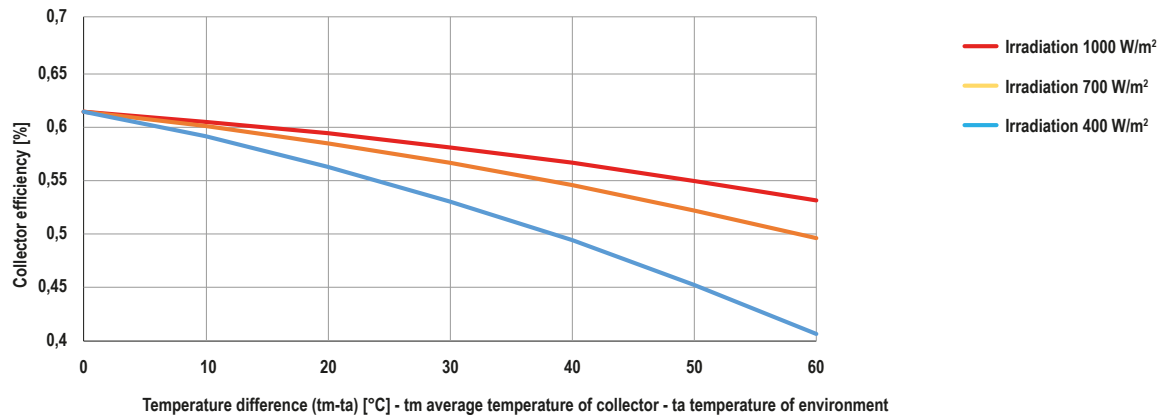
TECH SPECS		
Vacuum tubes	N°	20
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	4,24
Absorption surface	m²	5,13
Gross surface	m²	3,82
Dimensions (LxHxD)	mm	2206 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	85,3
Content of heat-transfer fluid	litri	3,59
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	61,5
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,850
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,009
Nominal power	W	2607
Factor of angle correction incidence	K50°	1,05
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	2632
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	-
EN 12975-2 test Report	-	RP.2018.COL.202b.1
DIN CERTCO registration number	-	16083 Rev.0 KIWA
Recommended capacity per collector	l/h	3,00
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 20R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

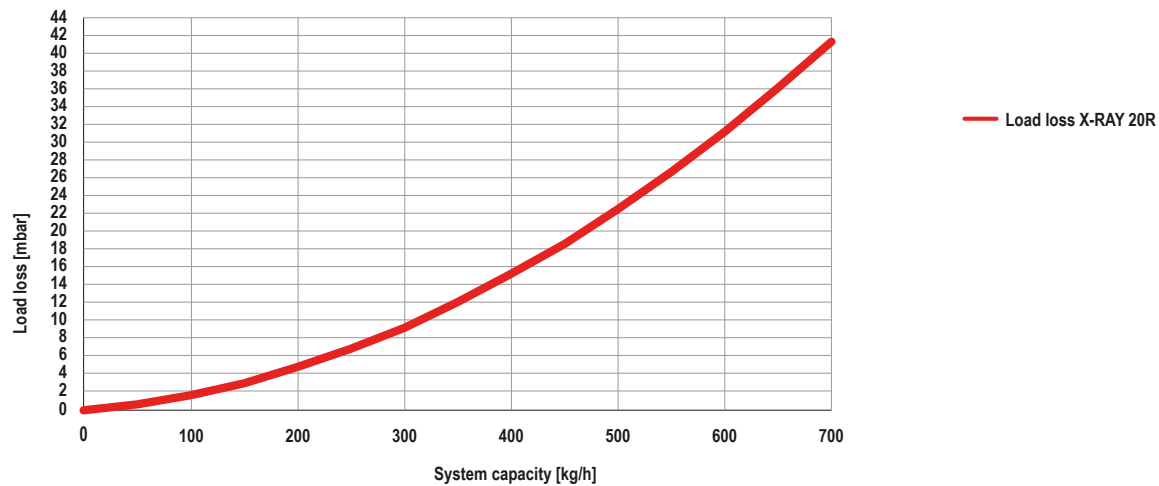


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	1043	1825	2608
10	1003	1785	2568
20	956	1738	2520
30	901	1683	2465
40	838	1620	2402
50	767	1550	2332
60	689	1472	2254

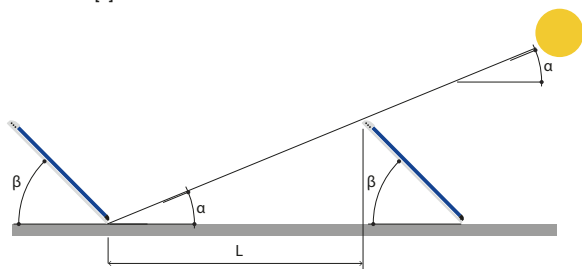
POWER CURVES of X-RAY 20R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 20R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α [°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu $\varnothing_e/\varnothing_i$ [mm]
1	180	18/16
2	360	22/20
3	540	22/20
4	720	28/25
5	900	28/25
6	1080	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	2206	-
2	4475	-
3	6740	-
4	9005	-
5	11270	-
6	13540	-

X-RAY 21R

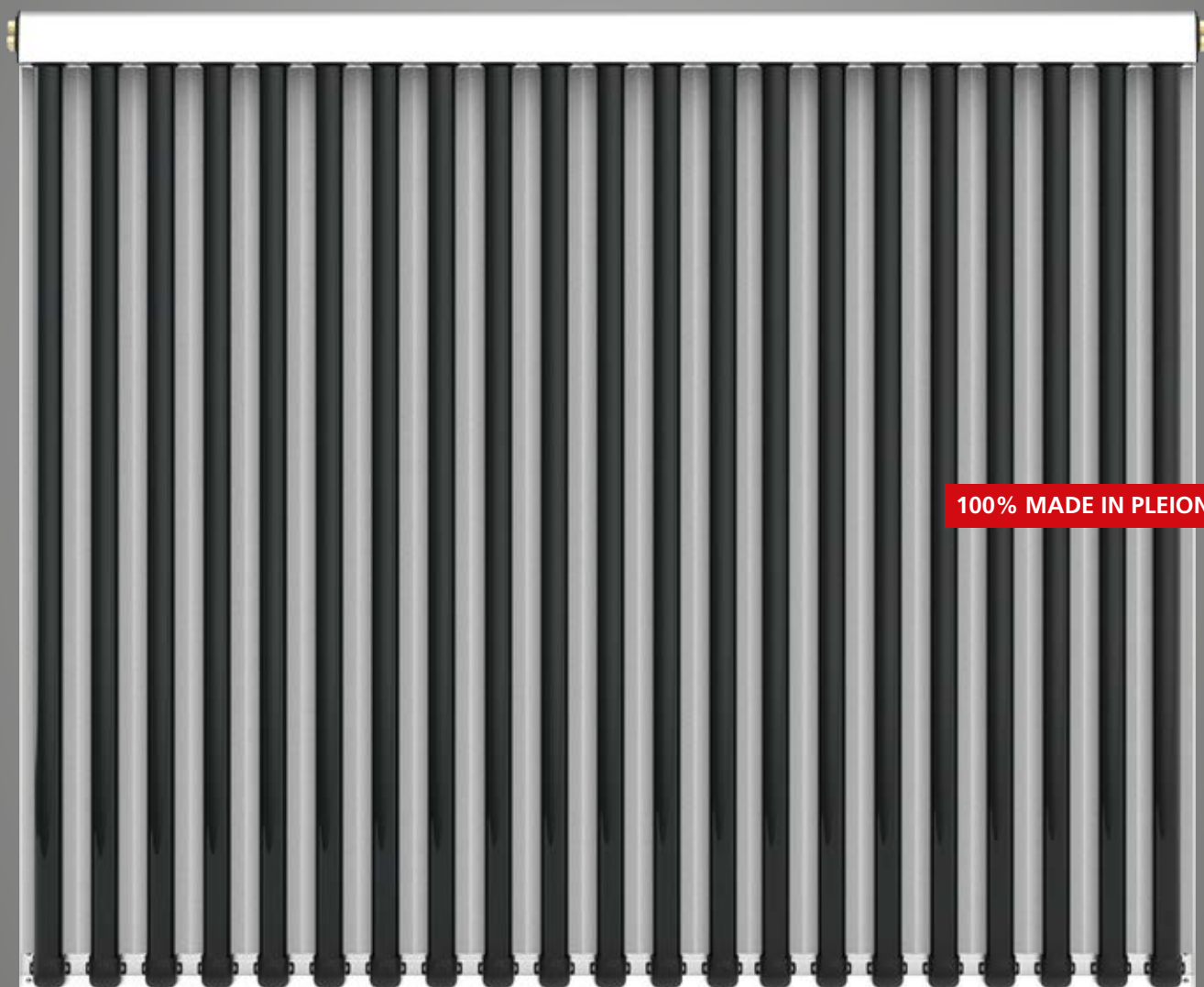
VACUUM SOLAR COLLECTORS X-RAY 21R



III°
INTEGRATED TUBE



II
TUBES



100% MADE IN PLEION



*EXTENDABLE



ANTI-HAIL

X-RAY 21R

VACUUM SOLAR COLLECTORS X-RAY 21R

MODERN DESIGN AND ABSOLUTELY EASY INSTALLATION

Assembly time reduced to the minimum.

CPC TECHNOLOGY

TUBI	21
Base [mm]	2316
Altezza (misura in direzione dei tubi) [mm]	1921
Spessore [mm]	114
Area Lorda [m2]	4,45
Area Apertura [m2]	4,02
Area assorbimento 360°	5,39
Contenuto liquido	3,75

X-RAY 21R - PERFOMA

PARALLEL CONNECTIONS
UP TO 15% GREATER
ENERGY OUTPUT

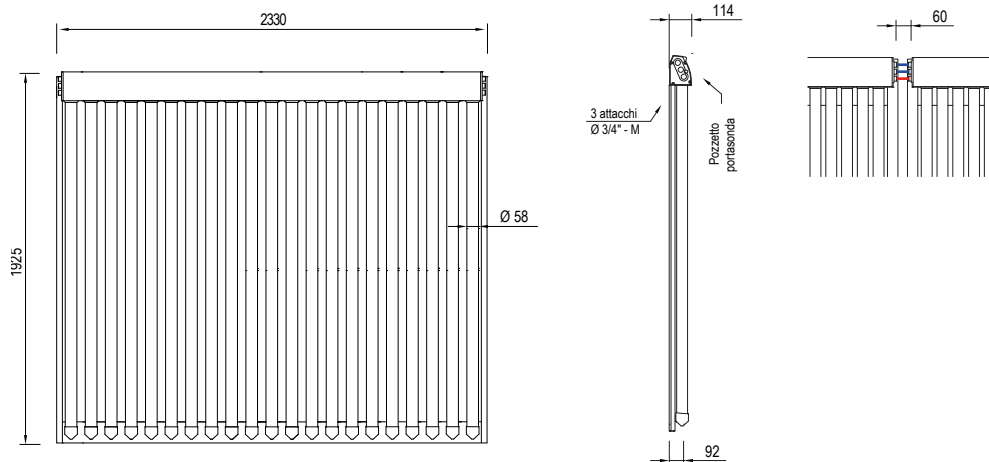
TOP PERFORMANCES IN WINTER TIME

Perfectly functioning even when
the temperature drops drastically

3RD INTEGRATED TUBE

INTEGRATED PLUMBING CONNECTIONS:
THE TUBE VANISHES, AND PROGRESS TAKES OVER.

No tubes are displayed on the roof: an integrated return
line is installed in the collector-header.



COD	DESCRIPTION
-	X-RAY 21R solar vacuum collectors - BASIC
-	X-RAY 21R solar vacuum collectors - PERFORMA

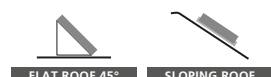
APPLICATION



USES



Fraunhofer

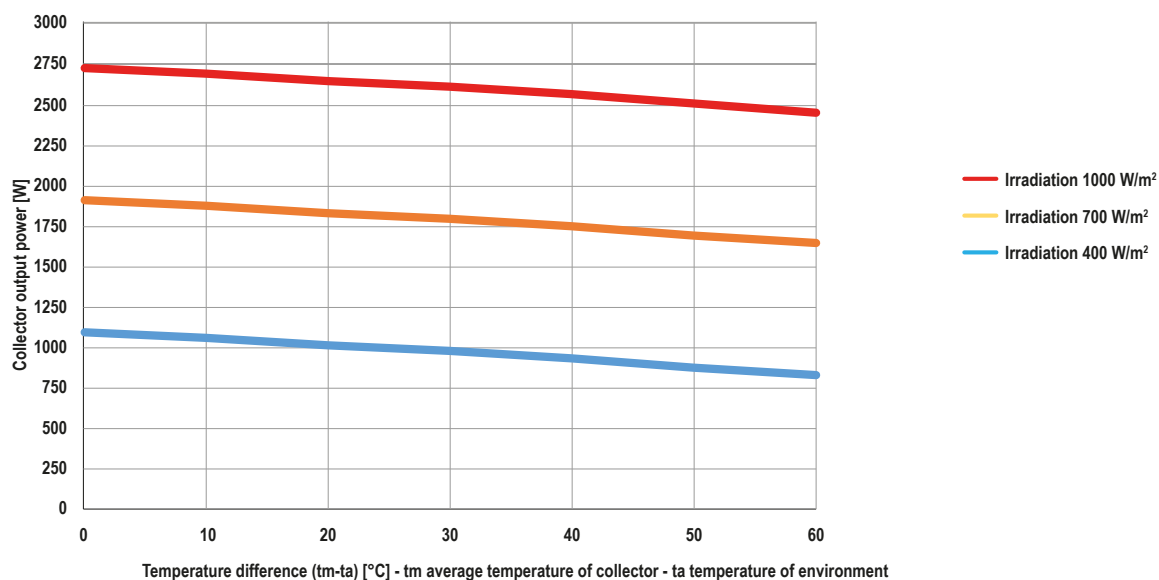


X-RAY 21R

TECH SPECS

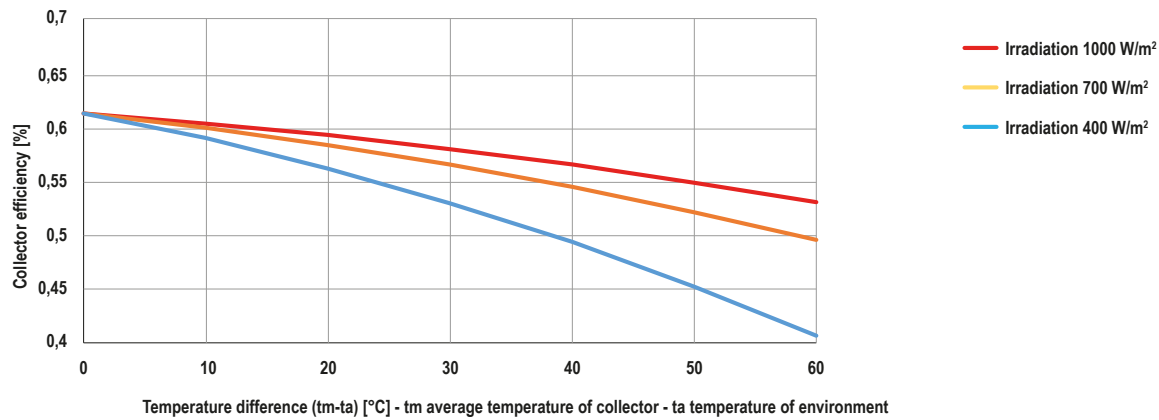
TECH SPECS		
Vacuum tubes	N°	21
Maximum number of collectors in battery	N°	6
Anchorage devices	N°	4 o 6
Dimensions of anchorage devices	Ø inch	3/4 " M
Open surface	m²	4,45
Absorption surface	m²	5,39
Gross surface	m²	4,02
Dimensions (LxHxD)	mm	2316 x 1921 x 114
Thickness of tested insulation, curved insulation in aluminised fibre glass.	mm	30
Diameter-length of vacuum tubes	mm	58/47 - 1800
Recommended inclination	°	15 - 75
Weight	kg	104,5
Content of heat-transfer fluid	litri	3,75
PERFORMANCES		
η_0 Optical yield (ref. light absorption surface)	%	60,9
k1 transmission coefficient (ref. light absorption surface)	W/m²K	0,690
k2 transmission coefficient (ref. light absorption surface)	W/m²K²	0,005
Nominal power	W	2710
Factor of angle correction incidence	K50°	1,14
Thermal capacity (ref. light absorption surface)	kJ/m²K	34
Energy produced annually EN 12975 – Würzburg – Temperature 50°C	kWh	2884
Energy produced annually EN 12975 – Würzburg – Temperature 75°C	kWh	2499
EN 12975-2 test Report	-	RP.2018.COL.202.1
DIN CERTCO registration number	-	16082 Rev.0 KIWA
Recommended capacity per collector	l/h	3,15
Stagnation temperature	°C	176
Maximum pressure	bar	10

POWER CURVES of X-RAY 21R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.

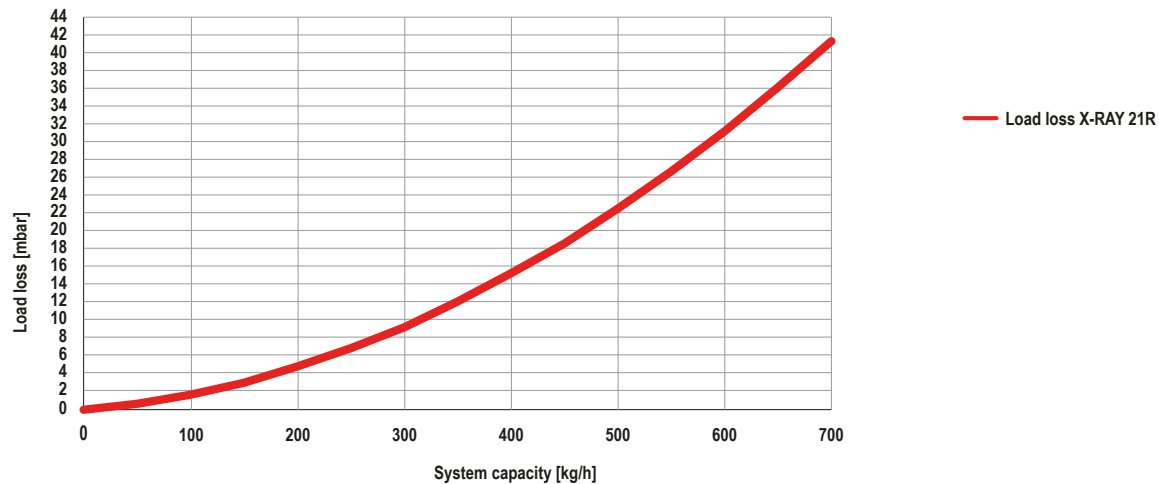


POWER P[W]			
tm-ta [°C]	I=400 [W/m²]	I=700 [W/m²]	I=1000 [W/m²]
0	1084	1897	2710
10	1051	1864	2677
20	1014	1827	2640
30	972	1785	2598
40	926	1739	2552
50	875	1688	2501
60	820	1633	2446

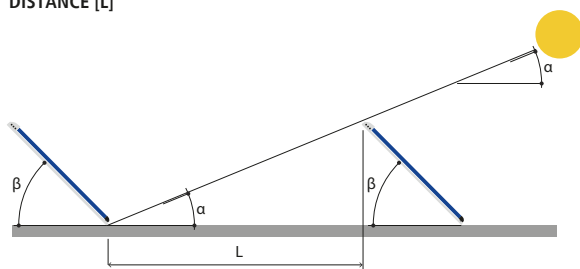
POWER CURVES of X-RAY 21R collector according to change in irradiation 400-700-1000 W/m² and temperature difference.



YIELD CURVES of X-RAY 21R according to change in irradiation 400-700-1000 W/m² and temperature difference.



DIMENSIONING DISTANCE [L]



Inclination of sun's rays α[°]	Inclination of solar connector β [°]		
	35°	45°	50°
15	4,1	5,1	5,5
25	2,3	2,8	3
35	1,5	2	2,2

DIMENSIONING OF PIPE FOR CONNECTING COLLECTORS TO THE STORAGE TANK

Number of collectors	Recommended capacity [l/h]	Pipes Cu Øe/Øi [mm]
1	180	18/16
2	360	22/20
3	540	22/20
4	720	28/25
5	900	28/25
6	1080	28/25

DIMENSIONS AND MAX AREA REQUIRED*

Number of collectors	Width on sloping roof [mm]	Width on flat roof [mm]
1	2316	-
2	4695	-
3	7070	-
4	9445	-
5	11820	-
6	14200	-

ROOF FITTINGS X-RAY R

X-RAY R ROOF FITTINGS (10-14 TUBES)

ATTENTION

BASIC SET: just for the first collector of the row

PLUS SET: one for each collector after the first of the row

ROOF	COVERING		SET		COD.
SLOPING ROOF	TILE-HOOK		BASIC	X-RAY 10R	-
				X-RAY 11R / 12R	-
				X-RAY 13R	-
				X-RAY 14R / 15R	-
			PLUS	X-RAY 10R	-
				X-RAY 11R / 12R	-
				X-RAY 13R	-
				X-RAY 14R / 15R	-
	IMBREX-HOOK		BASIC	X-RAY 10R	-
				X-RAY 11R / 12R	-
				X-RAY 13R	-
				X-RAY 14R / 15R	-
			PLUS	X-RAY 10R	-
				X-RAY 11R / 12R	-
				X-RAY 13R	-
				X-RAY 14R / 15R	-
	SCREWS		BASIC	X-RAY 10R	-
				X-RAY 11R / 12R	-
				X-RAY 13R	-
				X-RAY 14R / 15R	-
			PLUS	X-RAY 10R	-
				X-RAY 11R / 12R	-
				X-RAY 13R	-
				X-RAY 14R / 15R	-
FLAT ROOF	TRIANGLE SYSTEM		BASIC	X-RAY 10R	-
				X-RAY 11R / 12R	-
				X-RAY 13R	-
				X-RAY 14R / 15R	-
			PLUS	X-RAY 10R	-
				X-RAY 11R / 12R	-
				X-RAY 13R	-
				X-RAY 14R / 15R	-

X-RAY R ROOF FITTINGS (15-21 TUBES)

ATTENTION

BASIC SET: one for each collector in the row

ROOF	COVERING		SET		COD.
SLOPING ROOF	TILE-HOOK		BASIC	X-RAY 14R / 15R	-
				X-RAY 16R	-
				X-RAY 17R / 18R	-
				X-RAY 19R	-
				X-RAY 20R / 21R	-
	IMBEX-HOOK		BASIC	X-RAY 14R / 15R	-
				X-RAY 16R	-
				X-RAY 17R / 18R	-
				X-RAY 19R	-
				X-RAY 20R / 21R	-
	SCREWS		BASIC	X-RAY 14R / 15R	-
				X-RAY 16R	-
				X-RAY 17R / 18R	-
				X-RAY 19R	-
				X-RAY 20R / 21R	-
FLAT ROOF	TRIANGLE SYSTEM		BASIC	X-RAY 14R / 15R	-
				X-RAY 16R	-
				X-RAY 17R / 18R	-
				X-RAY 19R	-
				X-RAY 20R / 21R	-

X-RAY R IDRAULIC CONNECTIONS

SET	DESCRIPTION	COD.
BASIC	X-RAY R - BASIC	-
	X-RAY R - PERFORMA	-
PLUS	X-RAY R - BASIC	-
	X-RAY R - PERFORMA	-

X-RAY R SPARE PARTS AND ACCESSORIES

DESCRIPTION	COD.
CONNECTION KIT	-
COPPER MALE JUNCTION 3/4" - 18MM	-
COPPER MALE JUNCTION 3/4" - 22MM	-
COPPER MALE JUNCTION 3/4" - 28MM	-
NIPPLE MR 3/4-MG 3/4	-
NIPPLE FR 3/4-MG 3/4	-
NIPPLE 3/4-1"	-



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