



*Putting the
Sun to Work*

Engineered for
Commercial and
Industrial Roofs

Roof Mounted Parabolic Trough Concentrator – RMT



RMT: Ft. Sam Houston, San Antonio, TX

Industrial Solar Technology has value engineered its highly successful PT1 ground-mounted parabolic trough into a more compact module suitable for roof mounting. No compromises were made, and the RMT employs IST's unique patented space frame design to make a very lightweight, yet exceedingly strong solar concentrator. All aluminum construction minimizes solar array maintenance.

Sixty plus cumulative years of operating commercial solar trough installations and application of sophisticated destructive and wind tests have given IST an unequaled technological experience base, and the RMT meets IST's high standards for innovative and highly reliable concentrator designs.

RMT System Applications

- Water heating
- Industrial process heating
- Building heating and cooling
- Boiler makeup water heating or steam generation

RMT concentrators are an ideal energy source for hot water powered single or two-stage absorption chillers from 10 to 200+ tons of capacity.



PT1: FCI, Phoenix, AZ



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Specifications – IST Roof Mounted Trough (RMT) Concentrator

Reflective Module Size	120.75 in. x 45.2 in. (3067 mm x 1148 mm)
Gross Aperture Area	37.9 ft ² (3.52 m ²) per module
Net Aperture Area	35.0 ft ² (3.25 m ²) per module
Concentrator Weight	56.0 lb (25 kg) per module
Frame Material	Aluminum
Reflective Surface	Coated polished aluminum

Receiver

Solar energy concentrated on a liquid-filled receiver dramatically reduces convection and conduction thermal losses. The receiver/absorber is steel coated with a selective blackened nickel surface and surrounded by tough Pyrex[®] glass. IST treats the glass annulus with a sol-gel anti-reflective coating that increases light transmission to the absorber.

Steel Absorber Tube	1.0 inch (25.4 mm) outside diameter (OD)
Selective Black Nickel Surface	(Proprietary)
Absorptance	0.96-0.98
Emittance (80 °C)	0.15-0.25
Envelope Material	Borosilicate glass, 51 mm OD
Envelope Transmittance	0.95-0.965 %
Maximum Operating Temperature	400 °F (204 °C)

Drive and Controls

Controlled by a Honeywell Fluxline Control System, the collectors track the sun continuously during the day. A single drive motor in IST's unique multi-row design can operate four rows of eight RMT modules, which eliminates many moving parts and increases reliability. The microprocessor monitors safety devices that measure sun, wind, fluid flow, and system temperatures. System operating data can also be recorded for local or remote computer access. The system stows the concentrators upside down in high winds and at night to protect the reflective surface and receivers.

Flexible Hoses

Fully insulated flexible hoses deliver and receive thermal heat transfer fluid from the receiver and connect to the fixed field piping. The proven flex design accommodates the tracking motion of the receiver and has a life expectancy greater than 15 years.

Industrial Solar concentrators fill a market need in the commercial and industrial sectors for lower cost, high-temperature solar thermal energy technology.

Performance documentation of IST systems is available from Sandia National Laboratories.



Concentrating Collector Benefits:

350 °F (175 °C)
Output Temperatures

Over 55%
Thermal Efficiency

Low Cost Due to Light
Weight

Easily Roof Mounted

Long-life Aluminum
Construction Eliminates
Corrosion

RMT projects should
have at least 1120 ft²
of array area with a
peak output of
180,000 Btu/hr
(52 kW_{th})

32 modules in four
rows totals 1120 ft² of
net aperture area
and requires ~ 3000
square feet of roof