APT INDUSTRIAL CHILLER

INDUSTRIAL COOLING
REFERENCE DOCUMENT

https://applied-chiller.com/

Solar-Assisted Industrial Chiller for Remote Equipment Cooling

Industrial Cooling Reference for Limited-Grid and Remote Site Applications

SOLAR-ASSISTED | REMOTE SITE | HYBRID POWER | PROCESS COOLING

CASE REFERENCE

Project Snapshot

Solar-assisted industrial chiller direction for a remote equipment cooling project.

APPLICATION

Remote Equipment Cooling

INDUSTRY

Remote Site / Outdoor Process Equipment

COOLING TARGET

Process cooling support where grid power is limited or unstable

CHILLER DIRECTION

Solar-Assisted / Hybrid Power Industrial Chiller

REVIEW FOCUS

Cooling load, runtime, solar radiation, inverter sizing, battery autonomy, backup power, ambient temperature

SOLAR-ASSISTED CHILLER REFERENCE

ENGINEERING REVIEW

Engineering Matrix

ENGINEERING ITEM	WHY IT MATTERS	DATA TO CONFIRM
Cooling Load	Total process cooling demand determines practical hybrid power sizing direction.	Continuous and peak equipment cooling duty.
Runtime Profile	Operating hours influence battery autonomy and solar support requirement.	Daily runtime, peak window, and overnight operation review.
Solar Radiation	Available solar resource affects practical solar-assisted contribution.	Site radiation data and seasonal variation.
Inverter Sizing	Electrical conversion system must match chiller startup and running load.	Required inverter capacity and starting current review.
Battery Autonomy	Storage capacity affects off-sun operation and backup duration.	Required backup hours and allowable discharge strategy.
Backup Power	Process continuity may require generator or grid-assisted fallback.	Available backup source and switching logic.
Ambient Temperature	Remote outdoor conditions affect condenser margin and enclosure direction.	Maximum ambient and installation exposure condition.

Reference direction only. Final engineering review should be completed before quotation and final model confirmation.

COOLING CHALLENGE

Process Review

- Remote equipment may require cooling support where grid power is weak, unstable, or limited.
- Solar radiation and runtime profile directly affect hybrid power feasibility review.
- Battery autonomy and inverter sizing must be reviewed against real cooling demand.
- Backup power logic is needed when solar input cannot fully support process operation.

RECOMMENDED DIRECTION

A solar-assisted or hybrid power industrial chiller was considered as the preliminary direction for this remote equipment cooling project. Final configuration depends on cooling load, solar radiation, runtime, inverter size, battery autonomy, backup power, ambient temperature, and control logic.

CHILLER DETAIL

Solar-Assisted Chiller Configuration

Main configuration points for a remote equipment cooling reference project.

SOLAR-ASSISTED CHILLER CONFIGURATION VIEW

01 **Solar-Assisted Direction**

Hybrid power direction is reviewed according to remote-site operating condition.

02 **Hybrid Power Review**

Cooling load and runtime profile influence power strategy selection.

03 **Battery and Inverter**

Electrical storage and conversion are reviewed for practical autonomy.

04 **Backup Cooling Logic**

Fallback source and control logic are needed for stable operation review.

TECHNICAL REFERENCE

COOLING METHOD Solar-assisted / hybrid power cooling review	**CAPACITY DIRECTION** Project-reviewed hybrid direction	**TYPICAL APPLICATION** Remote equipment / outdoor process support / limited-grid cooling	**COOLING CIRCUIT** Closed-loop process water
OUTLET TEMP. Project-defined by process target	**PUMP SELECTION** By required flow and head	**POWER SUPPLY** Solar + inverter + battery + reviewed backup source	**FINAL REVIEW** Load / solar input / autonomy / backup / ambient

Review Note

Final configuration depends on cooling load, solar radiation, runtime, inverter size, battery autonomy, backup power, ambient temperature, and control logic. A 100 percent solar operation claim should not be assumed without final engineering review.

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