SYENG

SAMYOUNG ENG Co., Ltd. · HVAC maintenance

HVAC & Refrigeration Inspection Report

Sample · fictional data

Report No. SY-MR-2026-0000 · Issued 2026.10.15

Customer	Sample Customer A (fictional)	**Inspection type**	Service contract, periodic (bimonthly)
Site	○○ Plant, Bldg 2 rooftop machine room	**Inspection time**	2026.10.14 (Wed) 09:30 – 15:10
Equipment	Air-cooled chillers CH-01, CH-02 (R-410A) · AHU-03	**Outdoor air**	Dry bulb 18.4°C / RH 52%
Inspector	Service technician ○○○	**Reviewer**	SAMYOUNG ENG team ○○○

Summary

34	29	3	2
Items inspected	Normal	Watch	Action (1 fixed on site)

Unit	Verdict	Key findings
CH-01	Normal	All operating and electrical values within range
CH-02	Action	High superheat → flare-joint leak → re-tightened, re-checked, refrigerant topped up
CH-02 panel	Action	Local heating at MC (contactor) phase R → replace MC at next periodic visit
AHU-03	Watch	Pre-filter ΔP up (replaced); fan-motor insulation trending down

Verdicts: Normal within range · Watch trend to watch · Action service needed (maker and SAMYOUNG ENG criteria)

1. Operating measurements (digital)

Item	Unit	CH-01		CH-02 (before → after)		Range
		Value	Verdict	Value	Verdict	
Suction pressure	bar(g)	8.4	Normal	7.6 → 8.3	Normal	7.5 – 9.5
Discharge pressure	bar(g)	24.9	Normal	23.8 → 24.6	Normal	22 – 30
Evap. sat. temp.	°C	4.6	Normal	2.1 → 4.3	Normal	2 – 8
Superheat (SH)	K	6.8	Normal	12.6 → 7.2	Action	5 – 10
Subcooling (SC)	K	5.2	Normal	2.4 → 5.0	Action	4 – 8
Discharge temp.	°C	71.5	Normal	84.3 → 73.0	Watch	≤ 90
Chilled water in / out	°C	12.1 / 7.0	Normal	12.4 / 7.3	Normal	ΔT 4 – 6

* Measured with a digital manifold gauge and temperature probes; raw data (CSV) on request.

2. Electrical measurements

Item	Unit	CH-01	CH-02	AHU-03 supply fan	Range
Running current R / S / T	A	18.2 / 18.5 / 18.0	19.1 / 18.6 / 18.8	9.4 / 9.3 / 9.5	Within rating
Current imbalance	%	1.4 Normal	1.4 Normal	1.1 Normal	≤ 5
Supply voltage (line)	V	381 / 379 / 382	380 / 378 / 381	381 / 380 / 382	380 ± 5%
Insulation (DC 500V)	MΩ	≥ 200 Normal	180 Normal	6.5 Watch	≥ 1 (trend)

* AHU-03 fan insulation: 18 MΩ last visit → 6.5 MΩ now; above the limit but falling fast, re-measured next visit.

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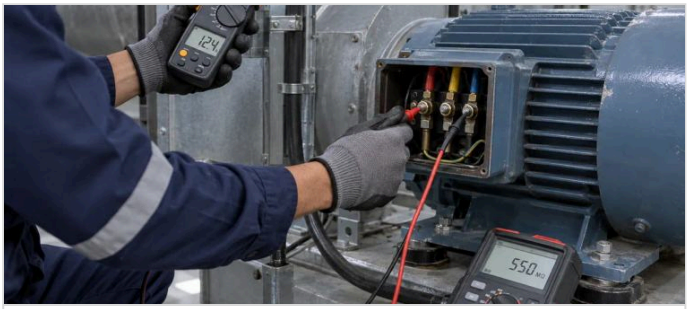
This report records equipment inspection and servicing results; it does not replace certification or conformity assessment.

3. Leak and thermal-imaging check

Unit · point	Method	Result	Verdict
CH-01 refrigerant piping	PPM detector	No leak detected	Normal
CH-02 liquid-line flare joint	PPM detector · ultrasonic	Small leak → re-tightened, no leak on re-check	Action
CH-02 panel MC phase R	Thermal imaging	Local heating (photo 1-2)	Action
AHU-03 fan-motor terminals	Thermal imaging	No abnormal heating	Normal



1-1 · Panel thermal imaging



1-2 · MC phase R contact · current

4. Cleaning and filters

Unit	Work	Before	After	Note
AHU-03	Pre-filter replacement (4 pcs)	ΔP 165 Pa	ΔP 82 Pa	Replaced
AHU-03	HEPA filter ΔP check	ΔP 240 Pa	—	Below replacement point, watch
CH-01 · CH-02	Condenser fin cleaning (coil cleaner · pressure wash)	Fouled	Cleaned	Heat exchange recovered

5. Work done

Unit	Work	Parts · refrigerant	Status
CH-02	Liquid-line flare joint re-tightened, leak re-checked	R-410A 0.6 kg added	Done
AHU-03	Pre-filter replacement	Pre-filter × 4	Done
CH-01 · CH-02	Condenser fin cleaning	—	Done
CH-02 panel	MC (contactor) replacement	MC × 1 (quotation to follow)	Recommended

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6. Site photos (before · after)



2-1 · CH-02 liquid-line flare joint leak found



2-2 · Operating condition re-measured after repair



3-1 · AHU-03 pre-filter replacement



3-2 · CH-01 condenser fin cleaning

* Photos are illustrative examples.

7. SAMYOUNG ENG review and recommendations

1. CH-02 superheat and subcooling returned to range after the leak repair and top-up; the joint is re-checked next visit.
2. Heating at the CH-02 panel MC phase R contact indicates wear; we recommend replacing the MC next visit, quotation first.
3. AHU-03 fan insulation is above the limit but falling fast; re-measure next visit, motor servicing if it keeps falling.
4. HEPA filter ΔP is below the replacement point; trend checked next visit.

8. Sign-off

Role	Organization · name	Signature	Date
Inspector	Service technician OOO	(signature)	2026.10.14
Reviewer	SAMYOUNG ENG maintenance team OOO	(signature)	2026.10.15
Customer	Sample Customer A, OOO	(signature)	2026.10.15

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