

MHM · ACS SERIES · INSTALLATION & O&M

MHM Air Cooled Scroll Chiller

This guide covers receiving, siting, installation, commissioning and routine care of the MHM Air Cooled Scroll Chiller (ACS Series) — models MHM-ACS-030, MHM-ACS-060, MHM-ACS-090, MHM-ACS-120, MHM-ACS-180, MHM-ACS-260. It is written for the site engineer and the MHM commissioning team; keep a copy with the equipment log. Values quoted are for the standard models listed in the data sheet; confirm site-specific figures on the approved drawings.

Read before installation. Isolate and lock out the 415 V / 3 ph / 50 Hz supply before opening any panel; verify zero voltage with a meter. Keep this guide with the equipment log; MHM commissioning is required for the warranty to apply.

1. Receiving and handling

- Check the packing list against the delivery: the chiller, loose-supplied parts, documents and the factory test certificate.
- Inspect for transit damage before signing; photograph and report any dent, bent fin or broken gauge within 24 hours.
- Unit weights across the range: 1,180–8,600 kg. Use a crane or forklift rated with a 25% margin and spreader bars on the marked lifting points.
- Store indoors or under cover, off the ground, with panel doors closed; do not stack.

2. Siting and clearances

- Rooftop or ground pad in free air. Keep 1.5 m clear on all condenser sides and 3 m above the fans; never install under a canopy that can recirculate hot discharge air.
- Where two units face each other, allow 3 m between condenser coils.
- Prevailing hot exhaust from boilers, generators or kitchen hoods must not reach the coil.
- Provide a level RCC plinth 150 mm high with neoprene pads or spring isolators under each mounting point.

3. Water piping

- Design flow across the range: 18–157 m³/h. Size headers for $\approx$ 2 m/s and fit a strainer (20 mesh) on the evaporator inlet.
- Flow switch (supplied) in a straight run of 5 pipe diameters, wired to the controller interlock.
- Isolation valves, thermometer wells and pressure gauges on inlet and outlet; air vent at the high point and drain at the low point.
- Flexible connectors at the unit; insulate all chilled-water pipework with closed-cell insulation and vapour barrier.
- Flush the system and pressure-test at 1.5 × working pressure before connecting the evaporator.
- Treat the water: keep pH 7–8.5, hardness < 200 ppm as CaCO₃ and use an inhibitor in closed loops.

4. Electrical

- Supply 415 V / 3 ph / 50 Hz from a dedicated feeder with an MCCB sized to the maximum operating current on the nameplate; voltage imbalance must stay below 2%.
- Earth the unit to the plant earth bar with a conductor of at least half the phase conductor size.
- Run control wiring (flow switch, remote on/off, BMS RS-485) in separate conduit from power cables.
- Energise the crankcase heaters at least 12 hours before the first compressor start.

5. Commissioning checklist (MHM engineer present)

- Verify phase sequence, supply voltage and insulation resistance of each compressor motor (> 2 M Ω).
- Confirm water flow at design $\pm$ 10% using the pressure drop across the evaporator and the flow switch action.
- Check refrigerant charge by sub-cooling and superheat against the factory test sheet.
- Set leaving-water temperature, restart delays and staging; record all setpoints in the log.
- Run at full load for two hours; log suction/discharge pressures, currents and approach temperatures.
- Hand over: alarm history cleared, BMS points verified, operator trained, warranty card signed.

6. Maintenance schedule

Interval	Tasks
Daily	Log leaving/entering water temperatures, pressures, compressor currents and alarms.
Weekly	Check oil level/sight glass, listen for abnormal noise, inspect for water and refrigerant leaks.
Monthly	Clean condenser coils with low-pressure water (never a pressure washer against the fins); clean strainer.
Quarterly	Tighten electrical terminals, test safety interlocks (flow, high/low pressure, anti-freeze), calibrate sensors.
Yearly	Full inspection under the MHM AMC: leak test, oil analysis, contactor and capacitor check, controller backup.

7. Troubleshooting

Symptom	Likely cause	Action
High discharge pressure	Dirty coil, recirculating hot air, fan failure, overcharge	Clean coil/tubes, restore airflow or water flow, check charge
Low suction pressure / anti-freeze trip	Low water flow, dirty strainer, low charge, sensor drift	Restore flow, clean strainer, leak test, recalibrate
Compressor will not start	Interlock open (flow switch), restart timer active, phase loss, tripped overload	Check interlock chain and controller alarm list before resetting
Leaving water above setpoint	Load above capacity, staging fault, fouled evaporator	Verify load, check capacity steps and approach temperature

8. Safety

- Isolate and lock out the 415 V / 3 ph / 50 Hz supply before opening any panel; verify zero voltage with a meter.
- Only MHM-trained or licensed technicians may open refrigerant, gas, fuel or pressure circuits.
- Lifting: use the lifting points shown on the unit; never lift by pipes, fans or panels.
- Keep the equipment log: every start-up, alarm, service and part replacement dated and signed.
- Warranty (18 months) requires MHM commissioning and adherence to the maintenance schedule in this guide.

Appendix — model data

Model	Capacity (TR)	Capacity (kW)	Input power (kW)	Compressors	Chilled water flow (m ³ /h)	L × W × H (mm)	Weight (kg)
MHM-ACS-030	30	105	36.2	2 × scroll	18.1	2250 × 1100 × 2050	1180
MHM-ACS-060	60	211	71.8	4 × scroll	36.3	3400 × 2200 × 2250	2350
MHM-ACS-090	90	316	106.4	6 × scroll	54.4	4600 × 2200 × 2250	3320
MHM-ACS-120	120	422	142.1	8 × scroll	72.6	5800 × 2200 × 2300	4210
MHM-ACS-180	180	633	214.6	12 × scroll	108.9	8300 × 2200 × 2300	6150
MHM-ACS-260	260	914	311.0	16 × scroll	157.3	11400 × 2250 × 2350	8600

Service and spares — MHM Engineering

24-hour breakdown line +880 1321-206755 · sales@mhmmachineries.com. Annual maintenance contracts include the schedule above, genuine spares from Dhaka stock and a commissioning-grade report after every visit.