



Client:	Project Name:	Project No:	
Area:	Drawing No's:	Date:	Sheet: 1 of 2
Check Conducted By:	Signature:	Check Approved By:	Signature:

## INTRODUCTION

The test procedure guideline has been prepared to explain the minimum standard or pressure testing refrigeration pipework system prior to making available for further commissioning processes.

Pressure test the pipe work system in sections as they become available.

### Procedure recommended: factory assembled packaged units

1. In this type of unit the pressure and leakage testing, evacuation, hydration and charging would occur at the factory
2. Observe pressure reading and where readings are lower than those specified by the manufacturer's data and ambient temperature, leakage testing of the system will need to be repeated
3. Where pressures are consistent with the manufacturer's data for the system and the ambient temperature, then further pressure testing is not required
4. Where the system has a holding charge only, additional charging will be necessary

### Procedure recommended: assemble on-site systems

1. In this type of unit the pressure and leakage testing, evacuation, hydration and charging would occur in situ
2. Before putting into service any refrigeration system all components of the system need to undergo strength pressure test, leakage test, functional test of safety devices and testing of the complete installation before putting into operation
3. Strength test procedure shall be an inert gas in pipe work with vulnerable components isolated and tested to 1.3 times the allowable pressure of the system and be verified by gauges mounted in the test pipe work for >30 minutes
4. Leak testing procedure shall be a fluorescing agent injected into pressurizing gas so that any leakage is visible under fluorescent light with the leak test being carried out at the maximum allowable pressure with vulnerable components isolated during the test. Check the compressor and vulnerable components for leaks using soap bubbles.
5. Evacuation and dehydration use a 2 stage vacuum pump and for hydrocarbon refrigerants >20kg a vacuum of 2.7mbar absolute for 30 minutes then broken with oxygen free nitrogen. The system should be evacuated again to <270Pa absolute for >6 hours and then broken with final refrigerant.
6. Refrigerant charging must be done by certified people and should only add the correct charge that has been calculated for the refrigeration system.
7. System setting to work should include setting the refrigerant pressure controls in accordance with the manufacturer's recommendations, adjust the low pressure switch cutout pressure and high pressure cutout switches to the appropriate setting for the type of system, adjust the lubricant pressure switch to the manufacturer's specification and check all system interlocks.
8. Startup start in AUTO mode and verify the sequence of operation
9. Running procedure run in AUTO mode for >24 hours and check TX valve operation, system pressures, refrigerant charge via the sight glass, check motor current and check for refrigerant leaks

## REFERENCE STANDARDS

CIBSE Commissioning Code R – Refrigerating Systems

Australian and New Zealand Refrigerant handling code of practice



**CHECKLIST**

Area/Level/Zone					
System Reference					
Drawing Number					
	ITEM	VERIFICATION METHOD	RESULT	RESULT	RESULT
1	Pipework portion to be tested identified	Site Inspection			
2	Pipework to be strength tested has all vulnerable components isolated from the test portion of pipework system	Site Inspection			
3	Add inert test gas to pipework to be tested and pressure test for >30 minutes	Site Inspection			
4	Leak test pipework by adding fluorescent agent and check under maximum operating pressure using fluorescent light	Site Inspection			
5	Evacuate and dehydration using vacuum pump	Site Inspection			
6	Charge refrigerant using correct quantity	Site Inspection			
7	Set all safeties and interlocks and check operation	Site Inspection			
8	Start system and observe operation	Site Inspection			
Certified By Sub Contractor (initial):					
Date:					
Confirmed By (Head Contractor / Client) (initial):					
Date:					