

ISO 13253:2017-07 (E)

Ducted air-conditioners and air-to-air heat pumps - Testing and rating for performance

Contents		Page
Foreword		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Symbols	4
5	Airflow setting	7
5.1	General	7
5.2	Indoor airflow setting	7
5.3	ESP for rating	7
5.4	Outdoor airflow	9
5.5	Unit supplied without indoor fan	9
6	Cooling tests	9
6.1	Cooling capacity tests	9
6.1.1	General conditions	9
6.1.2	Temperature conditions	10
6.1.3	Test conditions	11
6.2	Maximum cooling performance test	11
6.2.1	General conditions	11
6.2.2	Temperature conditions	11
6.2.3	Airflow conditions	12
6.2.4	Test conditions	12
6.2.5	Performance requirements	12
6.3	Minimum cooling performance test	13
6.3.1	General conditions	13
6.3.2	Temperature conditions	13
6.3.3	Airflow conditions	13
6.3.4	Test conditions	14
6.3.5	Performance requirements	14
6.4	Condensate control and enclosure sweat performance test	15
6.4.1	General conditions	15
6.4.2	Temperature conditions	15
6.4.3	Airflow conditions	15
6.4.4	Test conditions	15
6.4.5	Performance requirements	15
7	Heating tests	16
7.1	Heating capacity tests	16
7.1.1	General conditions	16
7.1.2	Temperature conditions	17
7.1.3	Airflow conditions	17
7.1.4	Defrost operation	18
7.1.5	Test procedure -- General	18
7.1.6	Preconditioning period	19
7.1.7	Equilibrium period	19
7.1.8	Data collection period	19

7.1.9	Test procedure when a defrost cycle (whether automatically or manually initiated) ends the preconditioning period	20
7.1.10	Test procedure when a defrost cycle does not end the preconditioning period	20
7.1.11	Test procedure for transient tests	20
7.1.12	Heating capacity test results	22
7.2	Maximum heating performance test	22
7.2.1	General conditions	22
7.2.2	Temperature conditions	22
7.2.3	Airflow conditions	22
7.2.4	Test conditions	23
7.2.5	Performance requirements	23
7.3	Minimum heating performance test	23
7.3.1	General conditions	23
7.3.2	Temperature conditions	23
7.3.3	Airflow conditions	23
7.3.4	Test conditions	23
7.3.5	Performance requirements	24
7.4	Automatic defrost performance test	24
7.4.1	General conditions	24
7.4.2	Temperature conditions	24
7.4.3	Airflow conditions	24
7.4.4	Test conditions	24
7.4.5	Performance requirements	25
8	Test methods and uncertainties of measurement	25
8.1	Test methods	25
8.1.1	General	25
8.1.2	Calorimeter test method	25
8.1.3	Indoor air enthalpy method	25
8.1.4	Capacity tests	26
8.2	Uncertainty of measurement	26
8.3	Test tolerances for steady-state cooling and heating capacity tests	27
8.4	Test tolerances for performance tests	28
9	Test results	28
9.1	Capacity results	28
9.1.1	General	28
9.1.2	Adjustments	29
9.1.3	Cooling capacity calculations	29
9.1.4	Heating capacity calculations	29
9.2	Data to be recorded	30
9.3	Test report	33
9.3.1	General information	33
9.3.2	Capacity test results	33
9.3.3	Performance tests	33
10	Marking provisions	34
10.1	Nameplate requirements	34
10.2	Nameplate information	34
10.3	Split systems	34
11	Publication of ratings	34
11.1	Standard ratings	34
11.2	Other ratings	35
Annex A (normative)	Airflow settings for ducted units	36
Annex B (normative)	Test requirements	41
Annex C (informative)	Airflow measurement	48

Annex D (normative) Calorimeter test method	54
Annex E (normative) Indoor air enthalpy test method	62
Annex F (informative) Refrigerant enthalpy test method	68
Annex G (informative) Outdoor air enthalpy test method	70
Annex H (informative)Indoorcalorimeterconfirmativetestmethod	73
Annex I (informative)Outdoorcalorimeterconfirmativetestmethod	75
Annex J (informative)Balanced-typecalorimeterconfirmativetestmethod	77
Annex K (informative) Cooling condensate measurements	78
Annex L (normative) Supplemental requirements when rating fan-less (coil-only) type units	79
Annex M (informative) Pictorial examples of the heating capacity test procedures given in 7.1	82
Bibliography	89