

ISO 16890

Camfil welcome the publication of a new ISO standard for the testing and classification of air filters used in general ventilation systems. Importantly, ISO16890 has global applicability and will ultimately be applied in all our markets. After a period of coexistence, ISO16890 will replace EN779:2012 and the

European norm will be withdrawn, probably sometime in 2018. It is obvious that it would be beneficial if ISO16890 also replaced ASHRAE 52.2. Whilst this could happen in the future, the time scale is not yet clearly defined..

Benefits of ISO16890

For specifiers, purchasers and users of air filters	For the filter industry
The standard recognises that air filters positively influence indoor air quality and human health.	It will be easier to compare products. This will drive innovation and customer value. Very poor performing products may be eliminated.
The test method and filter classification system are better aligned with real-world pollution.	Easier to explain product value in terms of function and customer application.
The global applicability will eliminate confusion that occurred when attempts were made to compare results of EN779 and ASHRAE 52.2 tests.	This standard will remove an obstacle to global trade.

How ISO16890 compares to EN779:2012 and ASHRAE 52.2.

	EN779:2012	ASHRAE 52.2	ISO16890
Filter test method	Efficiency measurement made using 0,4µm particles	Efficiency measurements made using 0,3- 10 µm particles. Classifications relate to results for E1, E2 & E3 efficiency classes - MERV rating	Efficiency measurements made using 0,3- 10 µm particles. Classifications relate to result for PM1, PM2,5 & PM10
Discharging method	Discharge only filter media, using IPA soak. A tough discharging method.	Discharge entire filter using KCL salt. A soft discharging method. Discharge is not mandatory - may be applied as Appendix J procedure.	Discharge entire filter using IPA vapor. A tough discharging method
Filter loading method	Dust loading with ASHRAE dust. Coarse dust.	Dust loading with ASHRAE dust. Coarse dust.	Dust loading with ISO fine dust. Fine dust (more like real-world).
Classification system	9 Classes	16 Classes	49 Classes In 4 different groups

ISO16890: Overview of Classification System

Group Designation	Requirement			Class reporting value
	ePM _{1, min}	ePM _{2.5, min}	ePM _{10, min}	
ISO Coarse	-	-	<50%	Initial gravimetric arrestance
ISO ePM ₁₀	-	-	>/=50%	ePM10
ISO ePM _{2.5}	-	>/=50%	-	ePM2.5
ISO ePM ₁	>/=50%	-	-	ePM1

ISO16890: Classification Table

PM 1 Classification	PM 2.5 Classification	PM 10 Classification	Coarse
ePM1[95] ePM1[90] ePM1[85] ePM1[80] ePM1[75] ePM1[70] ePM1[65] ePM1[60] ePM1[55] ePM1[50]	ePM2.5[95] ePM2.5[90] ePM2.5[85] ePM2.5[80] ePM2.5[75] ePM2.5[70] ePM2.5[65] ePM2.5[60] ePM2.5[55] ePM2.5[50]	ePM10[95] ePM10[90] ePM10[85] ePM10[80] ePM10[75] ePM10[70] ePM10[65] ePM10[60] ePM10[55] ePM10[50]	Arrestance reported in 5% increments starting at 5%
Requirement: >50% initial efficiency >50% discharged efficiency	Requirement: >50% initial efficiency >50% discharged efficiency	Requirement: >50% initial efficiency No discharge requirement	No discharge requirement

Note: ISO16890 demands a minimum (discharged efficiency) of 50% for ePM1 and ePM2.5 rated filters. This will ensure that those filters always provide a decent standard of long-term filtration in real-world customer applications.