

HORIBA

PARTICULATE FILTER MANAGEMENT

PFS-ONE SERIES



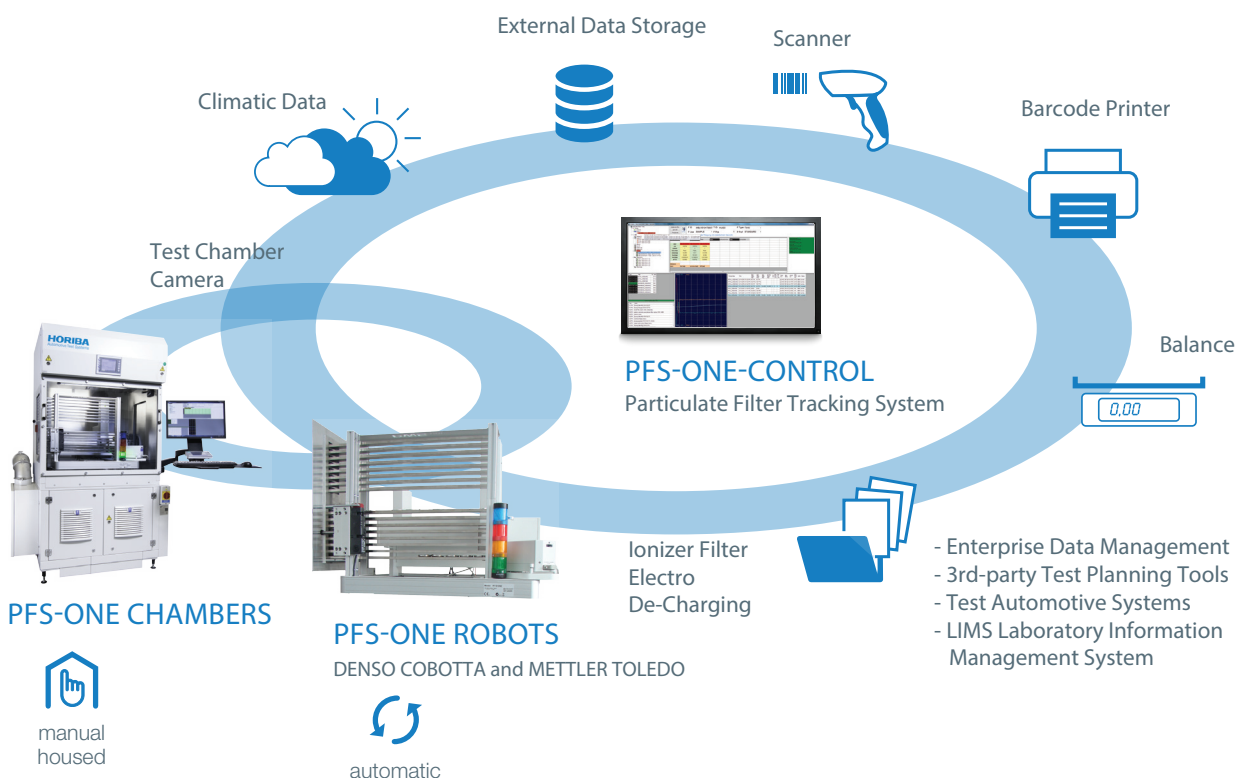
PFS-ONE

Particulate Filter Management System

Several new legislative regulations as well as the demand for more flexibility and accuracy have led to the development of HORIBA's Particulate Weighing Solution - PFS-ONE. The system comprises weighing processes and the entire filter handling complying with up-to-date regulations and standards such as UN GTR No. 24 and DIN EN 12341:202310. The PFS-ONE is available in two versions, the Generation 3 and the GMC-ONE. Both solutions include a HORIBA application software running on a standard PC and a clean work bench by Pure Engineering. The Generation 3 versions includes a DENSO COBOTTA robot the GMC-ONE a METTLER Toledo robot.

PFS-ONE COMPONENTS, ADDITIONAL HARDWARE AND INTERFACES

The definitions of the device interfaces are stored in separate software modules. Other devices can be integrated without touching the main application. The particulate filter weighing process can be individually adjusted thanks to the robots wide application scope, ranging from a stand-alone manual filter balance to a fully automated filter weighing solution.



DEFINE YOUR SOLUTION

PFS-ONE series offers flexible solutions that can be tailored to your needs.

PFS-ONE-CONTROL UNIT

The basic PFS-ONE Control Unit can be combined in different ways and also be adapted in a running hardware environment for example with an existing balance or clean work bench. The system provides dynamic, flexible, and customizable process profiles while being seamlessly integratable into existing setups.

PFS-ONE CLIENT

PFS-ONE-client as flexible embedded software solution integrates your complete filter workflow inside bigger laboratories and documents the process steps at the test cell.

OPTIONS



manual



manual housed



manual integrated



automatic



automatic housed



automatic integrated

COMPONENTS

PFS-ONE
CONTROL UNIT
(software core)

PFS-ONE
CLIENT
(software station)

PFS-ONE
ROBOTS
(hardware robots)

PFS-ONE
CHAMBERS
(hardware chambers)

PARTICULATE FILTER
MANAGEMENT SYSTEM

PFS-ONE

GET THE HIGHEST ACCURACY

With the combination of PFS-ONE robots and PFS-ONE chambers the repeatability of the particle filter weighing reaches a maximum of quality. This guarantees reliable weighings of filters with very low loads.

FEATURES

- » Handling of sample, reference filters and check masses
- » Documentation of filter lifecycle, progress, time control and limit violations
- » Upload of results to external storage systems in various file formats
- » Applicable as stand-alone installation or as integrated laboratory module
- » Compatible with STARS Enterprise and LIMS

ADDITIONAL BENEFITS GENERATION 3

- » Can integrate existing hardware
- » Extended filter rack size
- » Maintenance free automation
- » More filter sizes
- » Smaller footprint and flexibility in installation area

PFS-ONE-CHAMBERS PARTICULATE FILTER MANAGEMENT SYSTEM

Technical Data Weighing Chambers

HORIBA PFS ONE Brake Dust - 5.0.1.3 - One - USER

Neuer Filter: F-ID F027 T-ID T2527107-C F-Typ TX40
 Testlaufnr: F-AUF SMPL_PM10 F-Zyk 1 P-Prof BRAKEDUST
 Barcode drucken
 Neuen Messen
 next weighing with metal reference mass

Process	BRAKEDUST	Test-ID	T2527107-C	Identif.	SD7916036	Datum:	07.03.2025
Identif	F002	F007	F002	F002	F002	F010	
Verwendung	SMPL_PM2.5	SMPL_PM10	SMPL_PM2.5	SMPL_PM10	SMPL_PM2.5	SMPL_PM10	
Zyklus	1	1	2	2	3	3	
Letzte Aktion	Ref2 weigh all.f	Ref2 weigh all.f	Ref2 weigh all.f	Ref2 weigh all.f	Ref2 weigh all.f	Ref2 weigh all.f	
Leerer [mg]	100.1933	87.5855	88.8874	88.1803	88.8026	85.4075	
Belastung [mg]	100.2733	87.6293	88.8840	88.3083	88.9047	85.5372	
Belastung [mg]	0.0797	0.1471	0.0769	0.1480	0.0722	0.1297	
eff (%)	99.9205	99.9453	99.9938	99.8824	99.9809	99.8952	
Referenz:							
Identif:	4 [mg]	2 [mg]	Diff: [mg]				
F002	99.2499	99.2498	-0.19				
F007	85.6387	85.6388	0.16				
diff	89.4503	89.4503	0.00				
F002	99.2499	99.2627	-0.15				
F010	85.6387	85.6389	0.20				
diff	89.4503	89.4503	0.00				
F002	99.2499	99.2499	0.02				
F010	85.6387	85.6401	0.47				
diff	89.4503	89.4505	0.20				
F002	99.2499	99.2499	-0.04				
F010	85.6387	85.6421	0.48				
diff	89.4503	89.4505	0.20				

Aktuelle Wiegedaten, F098

Process-Schritt	Zeit	Roh-Gew. [mg]	Gewicht [mg]	Nett-Gew. [mg]	Nett-Gew. [mg]	Nett-Gew. [mg]	Abw. zu Vorher [mg]	Abw. zu Nachf. [mg]	Temp. [°C]
INITIAL_WEIGHING	07.03.2025 10:02:25	100.2959	100.2959	87.6238	87.6238	0.0000	NaN	0.00	22.0
INITIAL_WEIGHING	07.03.2025 10:02:06	100.2966	100.2966						22.0
INITIAL_WEIGHING	07.03.2025 10:02:51	87.7675	87.7675						22.0
INITIAL_WEIGHING	07.03.2025 10:03:36	87.7674	87.7674						22.0
INITIAL_WEIGHING	07.03.2025 10:04:11	100.2956	100.2956	87.6240	87.6240	0.0000	0.21	0.00	22.0
FINAL_WEIGHING	13.03.2025 00:03:34	100.2021	100.2021						22.0
FINAL_WEIGHING	13.03.2025 00:04:19	87.8815	87.8815						22.0
FINAL_WEIGHING	13.03.2025 00:04:55	87.8816	87.8816						22.0
FINAL_WEIGHING	13.03.2025 00:05:43	100.2021	100.2021	87.8211	87.8211	0.0000	NaN	0.80	22.0



TECHNICAL SPECIFICATION

The PFS-ONE particulate weighing management system sets a new benchmark for automated filter weighing solutions. The solution is completed with additional components - beside state of the art and selctable robot weighing technologies, it also offers a climate controlled cleanroom work bench from pureengineering for high-sensitive weighing processes.

PFS-ONE CONTROL UNIT

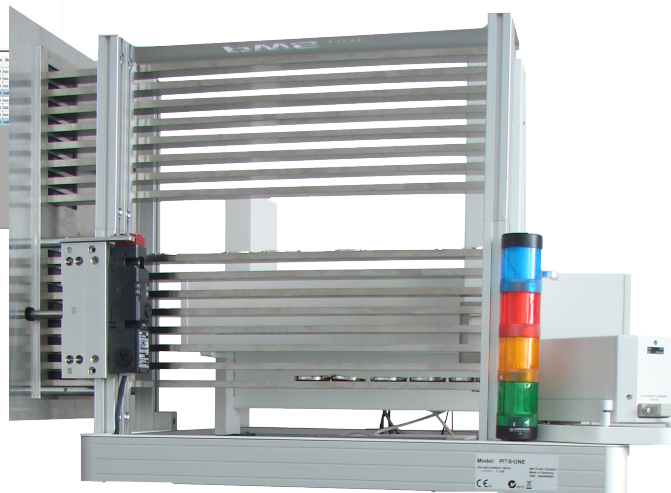
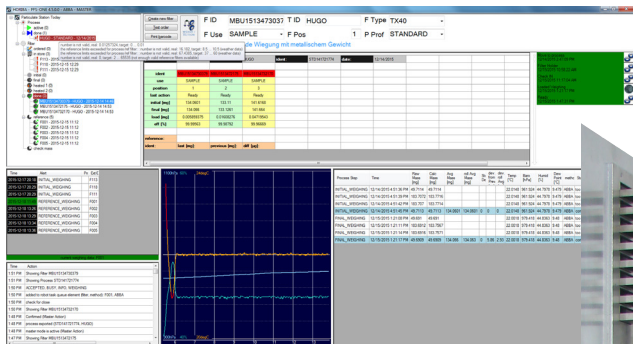
	GMC-ONE	GENERATION 3
HARDWARE	Standard desktop PC - 2 network cards - Min. 8 GB memory - Quad core CPU or more (Intel i7 or comparable)	Standard desktop PC - 2 network cards - Min. 16 GB memory - Quad core CPU or more (Intel i7 or comparable)
	TFT monitor 22"	TFT monitor 22"
	Barcode reader and printer (optional)	Barcode reader and printer (optional)
SOFTWARE	Application software PFS-ONE-control unit Windows 10 .NET Framework 4.6	Application software PFS-ONE-control unit Windows 10 or Windows 11 .NET Framework 4.6

PFS-ONE ROBOT

	GMC-ONE	GENERATION 3
FILTER DIAMETER STANDARD	25mm, 37mm, 47 mm	25 mm, 37 mm
REFERENCE FILTER POSITION	User-defined	User-defined
FOOTPRINT	W 780 x H 680 x D 650 (mm)	Arm length 342.5 mm (TCP 385 mm)
THROUGHPUT	Up to 900 weighings a day	Up to 1000 weighings a day
FILTER HOLDER INCLUDED	153 pieces	224 pieces
EXTERNAL CALIBRATION WEIGHT	50, 100 , 200 mg or 400mg	50,100,200 or 400mg
TECHNOLOGY	METTLER TOLEDO rack with stepper motor	DENSO COBOTTA six-axis robot
POWER	100-230 V / 50-60 Hz	100-230 V / 50-60 Hz

PFS-ONE-ROBOTS PARTICULATE FILTER MANAGEMENT SYSTEM

Technical Data Robots



TECHNICAL SPECIFICATION

The PFS-ONE particulate weighing system sets a new benchmark for automated filter solutions. Based on world-renowned METTLER TOLEDO and DENSO COBOTTA robotic technologies and HORIBA's vast knowledge of emission measurement, the system stands for high precision and compliance of particulate emission standards.

BALANCE

	GMC-ONE	GENERATION 3
BALANCE READABILITY	0.1 µg	0.1 µg
REPEATABILITY WITH FILTER (SD)*	0.25 µg	0.25 µg
REPEATABILITY WITH FILTER TYPICAL (SD)*	0.15 µg	0.15 µg
REPEATABILITY STAINLESS STEEL TEST WEIGHT	≤ 0.2 µg	≤ 0.2 µg
BUILT-IN BALANCE ADJUSTMENT	Automatic	Automatic
MAXIMUM LOAD	2.1 g	2.1 g
ELECTRICAL WEIGHING RANGE	0 - 2.1 g	0 - 2.1 g
LINEARITY	1 µg	1 µg
MISCELLANEOUS	Ultra-micro filter balance anti-static kit	Ultra-micro filter balance anti-static kit camera

PFS-ONE CHAMBERS

Additionally the solution provides a highly accurate temperature and humidity controlled system with integrated chiller unit and HEPA filter as well as a PLC / HMI controller with touch panel and network interface for communication and data exchange. It is optionally available with Dew-Point mirror and reverse-osmosis kit for tap water.

	GMC-ONE	GENERATION 3
VERSION	Manual pass-through or automated prepared for PFS-ONE-robot Upgradable from manual to automatic	Manual pass-through or automated prepared for PFS-ONE robots Upgradable from manual to automatic
LEGISLATION COMPLIANCE	ECE-R83, ECE-R49, EPA1065, CARB, WLTP	ECE-R83, ECE-R49, EPA1065, CARB, WLTP,
REGULATION COMPLIANCE	UN GTR No. 24	UN GTR No. 24
STANDARD COMPLIANCE	DIN EN 12341:2023-10	DIN EN 12341:2023-10
CLEANROOM CLASSIFICATION	ISO 4 (ISO 14644-1), equiv. class 10 (FED STD 209E)	ISO 4 (ISO 14644-1), equiv. class 10 (FED STD 209E)
TEMPERATURE	22 °C +/- 1 °C / IPE 20 °C +/- 1 °C	22 °C +/- 1 °C / IPE 20 °C +/- 1 °C
HUMIDITY CONTROL	Mobility applications 45 +/- 3% / environmental applications 45 +/- 3%	Mobility applications 45 +/- 8% / environmental applications 45 +/- 3%
DEWPOINT MIRROR	9.5 °C +/- 1 °C	9.5 °C +/- 1 °C
INTERFACE	TCP/IP network protocol (climatic data from integrated weather station and health status), USB (for data storage)	TCP/IP network protocol (climatic data from integrated weather station and health status), USB (for data storage)
BALANCE ISOLATION	Integrated vibration isolated granite table	Integrated vibration isolated marble table
MAX. FOOT-PRINT	W 1370 x H 1995 x D 960 (mm)	W 500 x H 1900 x D 800 (mm)
WORKING DIMENSIONS	W 930 x H 660 x 650 (mm)	W 1000x H 690 x 700 (mm)
POWER SUPPLY	200-240 VAC (L1/N/PE), 50 - 60 Hz max. power consumption 5,5 kW	200-240 VAC (L1/N/PE), 50 - 60 Hz max. power consumption 5,5 kW
WEIGHT	approx 500 kg	approx 400 kg

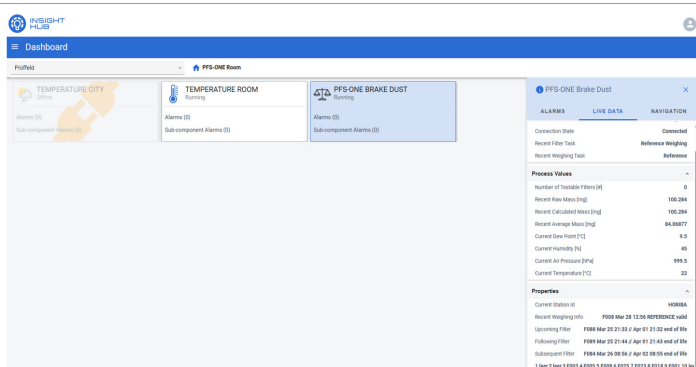
PFS-ONE

Software Capabilities

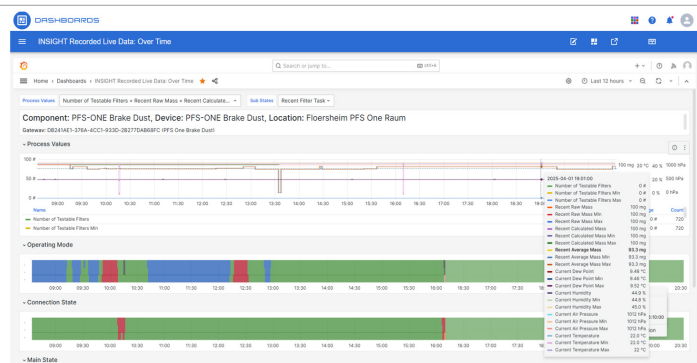
Today's test facilities face unprecedented challenges as modern regulations introduce complex testing procedures that require additional time and resources. At the same time, lab managers must enhance productivity and reduce costs. Maximizing efficiency is the key to meeting this intricate set of requirements. To achieve this, lab managers need precise awareness of their facility's status, and their equipment must be consistently serviced and maintained.

PFS-ONE utilizes HORIBA's Insight Facility & Asset Management software, specifically designed to help lab managers optimize the performance of their test cells. Insight provides peace of mind and confidence by ensuring the validity of test results and minimizing the need for test reruns. In combination with STARS Enterprise, the solution integrates web and mobile applications on a cloud-based platform. Each app addresses a specific need within the testing environment and can function independently or as part of a fully integrated system. The solutions are scalable and can grow alongside evolving and expanding requirements.

PFS-ONE INSIGHT Dashboard



PFS-ONE INSIGHT Dashboard



HORIBA provides advanced mobility leadership and comprehensive engineering and measurement expertise to support the gradual shift from traditional propulsion, to fully electrified solutions.

horiba.com

THE HORIBA GLOBAL NETWORK

ASIA

HORIBA Ltd.
2 Miyano Higashi
Kisshoin Minami-ku
Kyoto, Japan
info@horiba.co.jp

EUROPE

HORIBA Europe GmbH
Hans-Mess-Straße 6
61440 Oberursel
Germany
info.he@horiba.com

THE AMERICAS

HORIBA Instruments Inc.
5900 Hines Drive
Ann Arbor, MI 48108
USA
sales-ats.us@horiba.com

