S TECHNOLOGY K I GROUP F

ASPIRATION TECHNOLOGIES. ENGINEERING APPROACH.

SYSTEMS THAT REDUCE OPEX, COMPLY WITH ATEX, AND PASS EU AUDITS.

SKIF Technology Group is an engineering company that designs dust control systems for grain-handling and industrial facilities in accordance with EU standards.

Dust at an industrial facility means:

- product losses,
- equipment wear,
- explosion risk,
- process instability.

Most systems only move dust.
SKIF controls the point of dust generation and the technological process itself.

1

OPEX
Less air —
lower energy consumption.

2

ATEX
Industrial safety
in accordance with ATEX and IED.

3

ENGINEERING
Individual calculations.
Process control.
Full engineering.

SKIF TECHNOLOGY GROUP

UNCONTROLLED DUST MEANS DAILY, MEASURABLE BUSINESS LOSSES.

The impact of industrial dust affects production, equipment, safety, and compliance with EU requirements.

WHAT UNCONTROLLED DUST REALLY COSTS

1 **PRODUCT LOSSES**
Dust is grain leaving your facility.
It may not appear in the report — but it is always reflected in the balance sheet.

2 **EQUIPMENT WEAR**
Abrasive dust accelerates the wear of:

- bearings,
- drives,
- conveying equipment.

3 **EXCESS ENERGY CONSUMPTION**
The system operates with an excessive air volume regardless of the actual load.

4 **EXPLOSION RISK**
Inside the filter — ATEX Zone 20.
This is the physics of the process, whether it has been calculated or not.

5 **PRODUCTION DOWNTIME**
A filter failure means:

- unplanned downtime,
- loss of productivity,
- repair costs.

6 **EU REQUIREMENTS**
IED 2.0 and ATEX are directives with financial and legal consequences for the enterprise.

Each of these losses is measurable. Each can be eliminated through an engineering solution.

SKIF CONTROLS THE CAUSE OF DUST GENERATION

Industrial aspiration is about controlling the source of dust generation,
not cleaning the air after the fact.

FOUR PRINCIPLES OF OUR APPROACH

1 DUST LOCALIZATION

Dust is captured directly at the point of generation — at transfer points, loading units, and conveyors.

✓ **The system eliminates the cause rather than fighting the consequences.**

2 SEALING OF PROCESS UNITS

A controlled air circuit eliminates uncontrolled air intake.

✓ **Every point of the system is calculated, not simply selected.**

3 MINIMIZATION OF AIR FLOWS

Proper dust localization reduces the total volume of aspirated air.

- Smaller fan.
- Less energy.
- Smaller filter.

✓ **Energy consumption reduced by 20–40%.**

4 FILTRATION AND PRODUCT RETURN

The captured product is returned to the technological process.
The system does not waste raw material — it preserves it.

✓ **Zero product losses through aspiration.**

DUST CONTROL DOES NOT START WITH FILTRATION.
IT STARTS WITH PROCESS CONTROL.

That is why SKIF systems consume less energy,
require less maintenance,
and pass any EU compliance audit.

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INDUSTRIAL PROCESS ENGINEERING

Dust is generated at every stage of the technological process.
SKIF designs systems that control all critical points of the facility as a single integrated engineering system.

✓ **ENGINEERING**
Individual calculations.
Process control.

✓ **FULL RESPONSIBILITY**
One contractor.
One responsibility.

✓ **PRODUCTION**
Certified EU components.

✓ **EU COMPLIANCE**
ATEX · IED 2.0 · CE

1 **RECEIVING**
Truck and rail unloading

2 **CONVEYING**
Conveyors · Bucket elevators · Transfer points

3 **CLEANING**
Separation · Pre-cleaning

4 **DRYING**
Technological zones of dryers

5 **STORAGE**
Silos · Galleries · Hoppers

6 **LOADING**
Truck · Rail · Vessels

7 **PROCESSING**
Feed production · Biomass · Seeds

Dust is generated at each of these points. SKIF controls each one.

SKIF TECHNOLOGY GROUP

FROM AUDIT TO COMMISSIONING. ONE CONTRACTOR. FULL RESPONSIBILITY.

Every SKIF project is a complete engineering cycle:
from facility audit
to result verification after commissioning.

1

FACILITY AUDIT

- Diagnosis of the technological process
- Airflow measurements
- Analysis of ATEX zones
- Report with a list of critical points

2

ENGINEERING DESIGN

- Aerodynamic calculations
- Dust load modeling
- Equipment selection
- Engineering documentation

3

PRODUCTION

- Manufacturing according to the project
- Certified EU components
- Production quality control

4

INSTALLATION

- Integration into the existing process
- Designer supervision
- ATEX compliance control

5

COMMISSIONING

- Parameter measurements
- Verification of design performance indicators
- IED 2.0 emissions control

6

SERVICE

- Scheduled maintenance
- System monitoring
- Performance optimization

SKIF does not simply supply equipment and disappear after installation.
We take engineering responsibility for the result — and confirm it through measurements.

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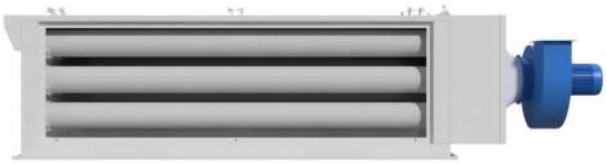
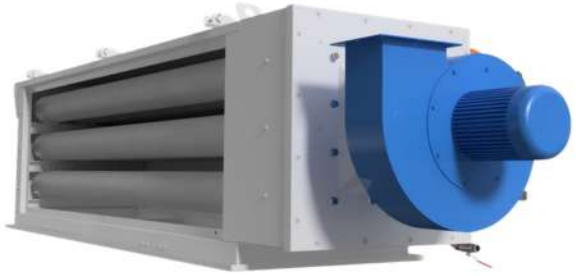
Uni-f™





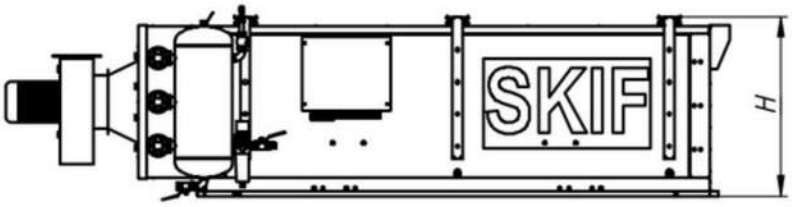
- SKIF Uni-f™ is an industrial bag filtration system designed for localized aspiration systems operating at the point of dust generation under high dust loads and continuous industrial processes.
- The dust-laden air is directed into the filtration chamber, where solid particles are separated through high-efficiency filter sleeves. The captured dust is collected and fully returned to the technological process without product loss.
- The system ensures stable filtration performance at high dust concentrations, maintaining consistent airflow parameters and reducing residual dust emissions in accordance with IED 2.0 requirements.
- Optimized filtration velocity and balanced regeneration provide reduced pressure losses and stable long-term operation under continuous industrial load.
- The purified gas flow reduces environmental impact and protects downstream equipment, minimizing wear and extending overall system service life.
- The system is fully compliant with current EU directives on machinery safety, explosion protection and industrial emissions, including IED 2.0.

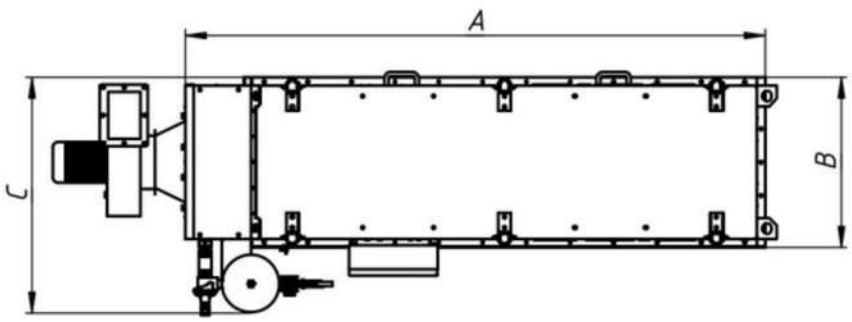
Typical configuration and dimensional layout of SKIF Uni-f™ localized filtration systems.

Compliance with EU directives:

- 2006/42/EC – Machinery Directive
- 2014/35/EU – Low Voltage Directive
- EN ISO 13849 – Functional Safety
- 2014/34/EU (ATEX) – Explosion Protection
- Active and passive explosion suppression systems
- IED 2.0 – Directive (EU) 2024/1785

Parameter	Standard value	Optional / On request	Notes
Airflow capacity	1,000–10,000 m³/h	up to 15,000 m³/h	Model dependent, optimized for localized aspiration
Residual dust level at outlet	≤ 5 mg/m³	10 / 15 / 20 mg/m³	Depending on dust characteristics
Dust type / material	Grain, wood, mineral dusts	Aggressive / food-grade	Specified per project
Execution	Standard	ATEX Category	Directive 2014/34/EU





Engineering notes:

- Designed for localized industrial operation
- Suitable for high dust concentrations
- Optimized filtration velocity and stable pressure drop
- Configurable for ATEX classified zones

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Unload-f™

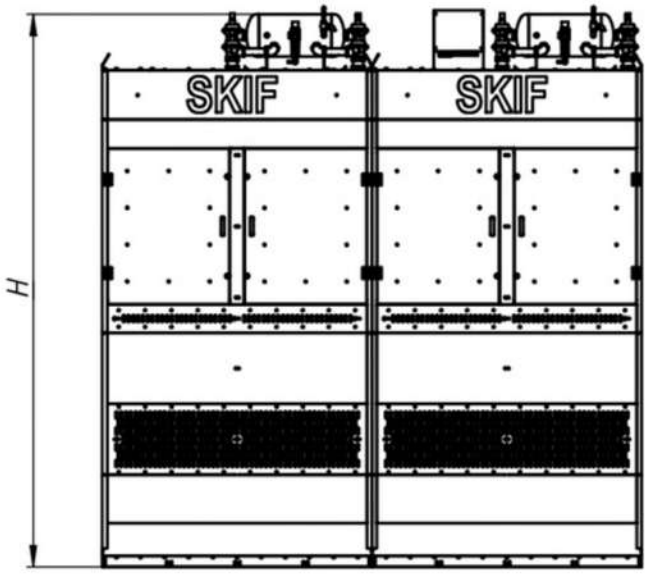
- SKIF Unload-f™ is a localized aspiration filter designed for unloading, receiving and transfer points with intensive dust generation.
- The system captures dust directly at the discharge zone, preventing its spread into the working environment and minimizing emissions to the atmosphere.
- SKIF Unload-f™ is engineered for operation under variable and peak air loads typical for grain intake, mineral and chemical bulk material handling.
- The filtration process ensures full return of captured dust back into the technological flow, eliminating product losses and maintaining material balance.
- Optimized aerodynamics and filtration parameters provide stable performance, low pressure losses and reduced energy consumption even under fluctuating operational conditions.
- The system is fully compliant with current EU directives on machinery safety, explosion protection and industrial emissions, including IED 2.0 – Directive (EU) 2024/1785.

Typical configuration and dimensional layout of SKIF Unload-f™ for unloading and receiving zones.

Compliance with EU directives:

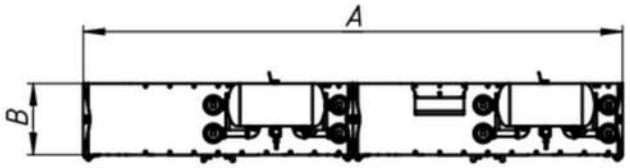
- 2006/42/EC – Machinery Directive
- 2014/35/EU – Low Voltage Directive
- EN ISO 13849 – Functional Safety
- 2014/34/EU (ATEX) – Explosion Protection
- Active and passive explosion suppression systems

Parameter	Standard value	Optional / On request	Notes
Airflow capacity	5,000–10,000 m³/h	up to 15,000 m³/h	Depending on unloading point geometry, dust load, and operating conditions
Residual dust level at outlet	≤ 5 mg/m³	10 / 15 / 20 mg/m³	Depending on dust characteristics
Dust type / material	Grain, wood, mineral dusts	Aggressive / food-grade	Specified per project
Execution	Standard	ATEX Category	Directive 2014/34/EU



Engineering notes:

- Designed for localized dust extraction at receiving hoppers
- Suitable for high-intensity unloading operations
- Integrated regeneration system ensures continuous filtration and product recovery
- Optimized for stable pressure drop and energy-efficient operation



SKIF TECHNOLOGY GROUP

Cyclo-f™

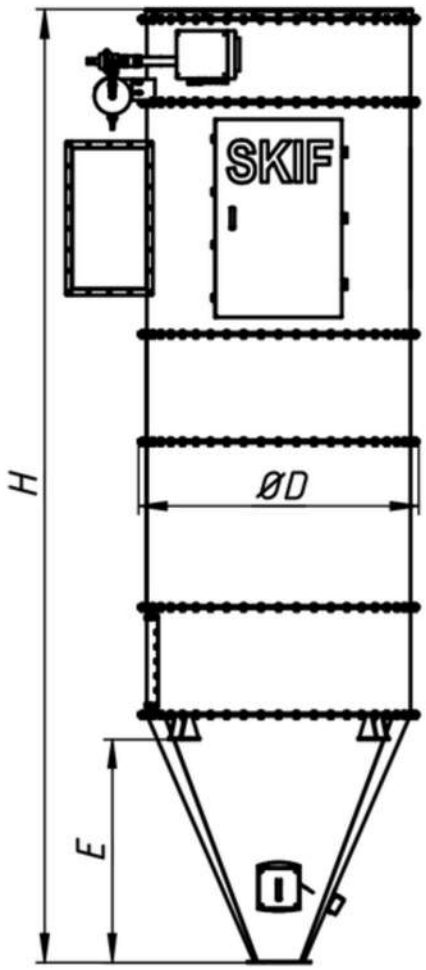
- SKIF Cyclo-f™ is a cyclone filter designed for centralized aspiration systems operating under high dust loads and continuous industrial processes.
- The inlet airflow is set into a controlled swirl, enabling efficient pre-separation of solid particles by centrifugal force. Coarse particles are separated in the cyclone section, while the remaining fine dust is directed to the filtration stage.
- The design ensures stable operation at high air volumes and extreme dust concentrations, significantly reducing the dust load on downstream filtration equipment.
- Optimized cyclone aerodynamics provide low pressure losses and reduced energy consumption, especially in extended duct networks.
- The purified gas flow minimizes wear on downstream equipment, extending service life and reducing overall maintenance costs.
- The system is fully compliant with current EU directives on machinery safety, explosion protection and industrial emissions, including IED 2.0.

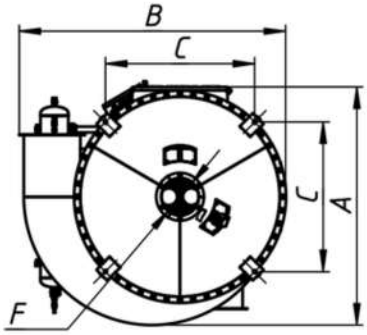
Typical configuration and dimensional layout of SKIF Cyclo-f™ for centralized aspiration systems.

Compliance with EU directives:

- 2006/42/EC – Machinery Directive
- 2014/35/EU – Low Voltage Directive
- EN ISO 13849 – Functional Safety
- 2014/34/EU (ATEX) – Explosion Protection
- Active and passive explosion suppression systems
- IED 2.0 – Directive (EU) 2024/1785

Parameter	Standard value	Optional / on request	Notes
Airflow capacity	1,000–300,000 m³/h	up to 500,000 m³/h	Depending on cyclone geometry, dust concentration, and system resistance
Residual dust level at outlet	≤ 5 mg/m³	10 / 15 / 20 mg/m³	Depending on dust characteristics
Dust type / material	Grain, wood, mineral dusts	—	Specified per project
Execution	Standard	ATEX Category	Directive 2014/34/EU





Engineering notes:

- Designed for continuous industrial operation
- Suitable for high dust concentrations
- Reduced load on downstream filtration stages
- Optimized for integration into centralized duct networks

TECHNOLOGY GROUP

Cas-f™

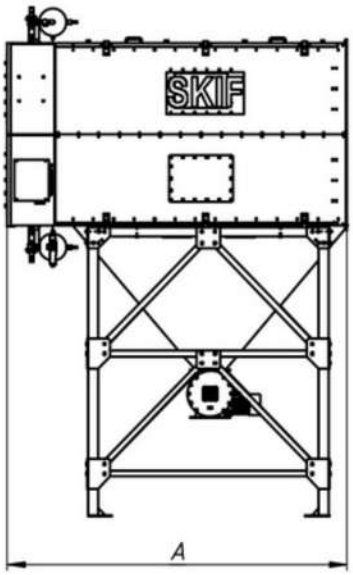
- SKIF Cas-f™ is a modular filtration system designed for efficient air cleaning in installations with limited installation space and high airflow demand.
- The system ensures stable operation under high dust loads and continuous industrial processes, providing reliable filtration performance and easy integration into existing technological lines.
- Modular filter elements enable flexible configuration depending on required capacity and installation layout.
- Optimized aerodynamic design reduces pressure losses and minimizes fan load, contributing to improved energy efficiency of the overall aspiration system.
- The system is fully compliant with current EU directives on machinery safety, explosion protection and industrial emissions, including IED 2.0.

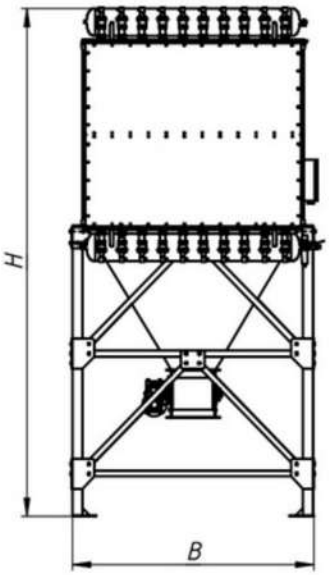
Typical configuration and dimensional layout of SKIF Cas-f™ for compact industrial aspiration systems.

Compliance with EU directives:

- 2006/42/EC – Machinery Directive
- 2014/35/EU – Low Voltage Directive
- EN ISO 13849 – Functional Safety
- 2014/34/EU (ATEX) – Explosion Protection
- Active and passive explosion suppression systems
- IED 2.0 – Directive (EU) 2024/1785

Parameter	Standard value	Optional / On request	Notes
Airflow capacity	5,000–300,000 m³/h	up to 350,000 m³/h	Depending on filtration area, module quantity, and operating filtration velocity
Residual dust level at outlet	≤ 5 mg/m³	10 / 15 / 20 mg/m³	Depending on dust characteristics
Dust type / material	Grain, wood, mineral dusts	Aggressive / food-grade	Specified per project
Execution	Standard	ATEX Category	Directive 2014/34/EU





Engineering notes:

- Designed for localized industrial operation
- Suitable for high dust concentrations
- Stable pressure drop due to optimized filtration velocity
- Configurable for ATEX classified zones

TECHNOLOGY GROUP

Hdi-f™

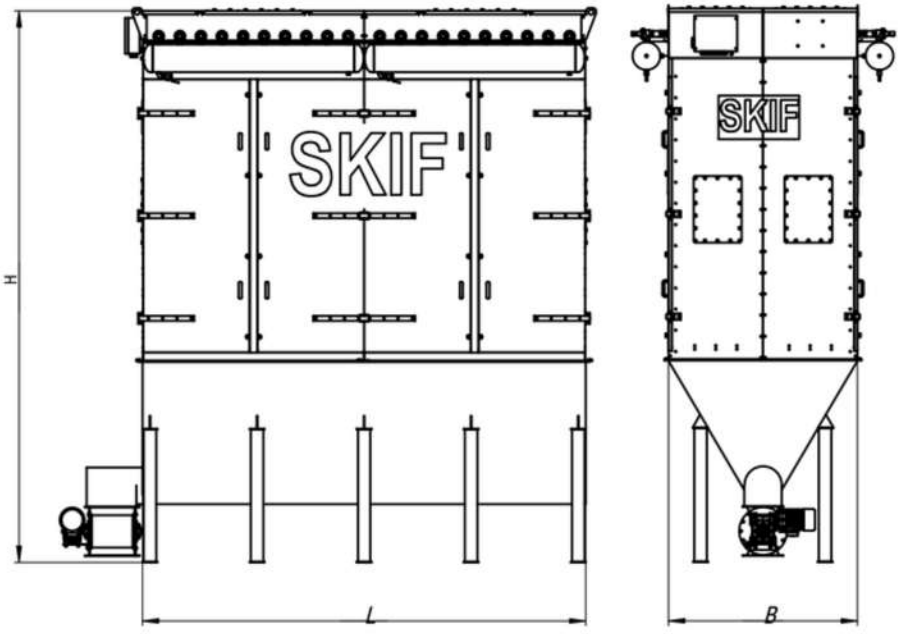
- SKIF Hdi-f™ is an industrial bag filtration system designed for dry dust removal in centralized aspiration and technological dedusting systems operating under high dust loads and demanding industrial conditions.
- Dust-laden air enters the filter housing, where solid particles are captured on the surface of high-efficiency filter sleeves. The purified air is discharged from the system, while the collected dust is periodically removed by a pulse-jet compressed air regeneration system and discharged into the hopper.
- The filter is designed for continuous operation in heavy industrial environments, ensuring stable performance at high dust concentrations and under abrasive dust conditions.
- Optimized filtration parameters and controlled pulse regeneration maintain stable pressure drop, reliable airflow performance, and long-term operational efficiency.
- The robust carbon steel housing, integrated dust collection hopper, and maintenance access doors provide durability, ease of servicing, and extended service life of the filtration elements.
- The system is engineered in accordance with applicable industrial safety and environmental requirements and can be configured according to required airflow capacity, dust characteristics, temperature conditions, and site-specific operating parameters.

Typical configuration and dimensional layout of SKIF Hdi-f™ centralized industrial filtration systems

Compliance with EU directives:

- 2006/42/EC – Machinery Directive
- 2014/35/EU – Low Voltage Directive
- EN ISO 13849 – Functional Safety
- 2014/34/EU (ATEX) – Explosion Protection
- Active and passive explosion suppression systems
- IED 2.0 – Directive (EU) 2024/1785

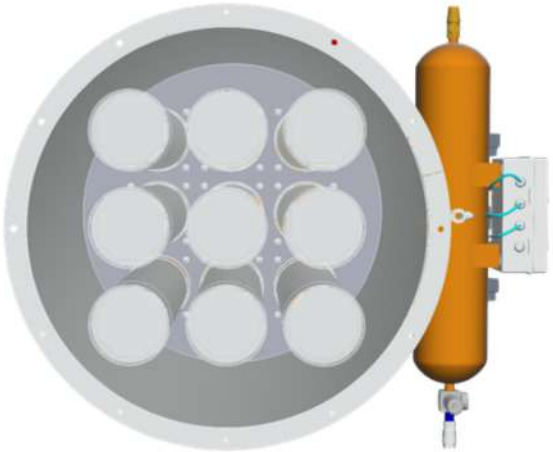
Parameter	Standard value	Optional / On request	Notes
Airflow capacity	5,000–300,000 m³/h	up to 400,000 m³/h	Depending on filtration area, dust load, and operating filtration velocity
Residual dust level at outlet	≤ 5 mg/m³	10 / 15 / 20 mg/m³	Depending on dust characteristics
Dust type / material	Industrial dry dust (abrasive, mineral, grain, wood)	Aggressive / food-grade	Specified per project
Execution	Standard	ATEX Category	Directive 2014/34/EU



Engineering notes:

- Designed for centralized industrial operation
- Suitable for high dust concentrations
- Optimized filtration velocity and stable pressure drop
- Configurable for ATEX classified zones

Silo-f™



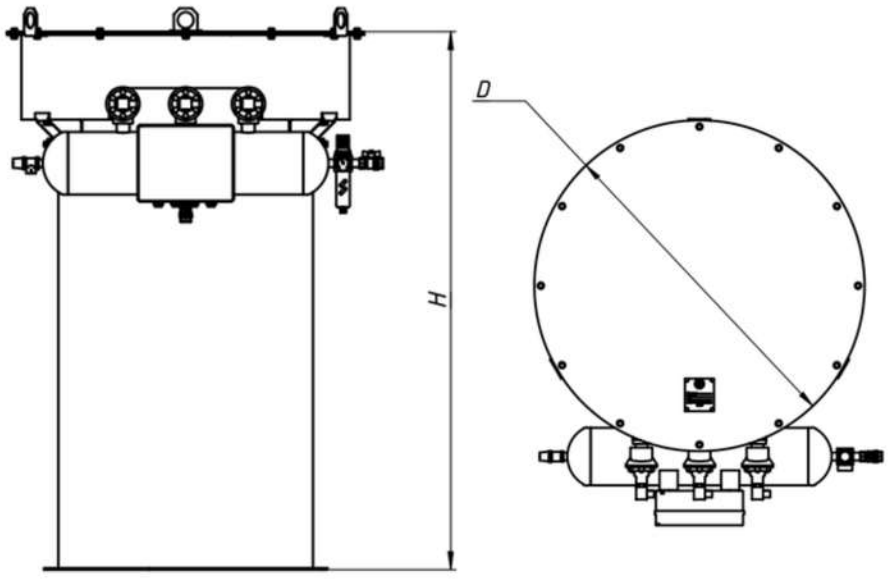
- SKIF Silo-f™ is a pulse-jet silo top filtration system designed for dust control during pneumatic and mechanical filling of silos, bins, and storage vessels operating under variable loading conditions.
- Dust-laden air generated during silo filling enters the filtration chamber, where solid particles are captured on high-efficiency filter sleeves. The separated dust is returned directly into the silo, ensuring product recovery without material loss.
- The system maintains stable internal pressure within the storage vessel, preventing uncontrolled dust emissions and ensuring compliance with environmental requirements, including IED 2.0 standards.
- Optimized filtration velocity and automatic pulse-jet regeneration provide stable pressure drop, reduced energy consumption, and reliable long-term operation during repeated loading cycles.
- The compact vertical design enables installation directly on the silo roof, minimizing footprint while ensuring easy maintenance access and operational safety.
- The purified air is discharged into the atmosphere with minimal residual dust content, reducing environmental impact and maintaining clean operating conditions.
- The system is engineered in accordance with current EU directives on machinery safety, explosion protection and industrial emissions, including ATEX and IED 2.0 requirements.

Typical configuration and dimensional layout of SKIF Silo-f™ silo top filtration systems

Compliance with EU directives:

- 2006/42/EC – Machinery Directive
- 2014/35/EU – Low Voltage Directive
- EN ISO 13849 – Functional Safety
- 2014/34/EU (ATEX) – Explosion Protection
- Active and passive explosion suppression systems
- IED 2.0 – Directive (EU) 2024/1785

Parameter	Standard value	Optional / On request	Notes
Airflow capacity	360–3,000 m³/h	up to 5,000 m³/h	Depending on filling rate and silo operating conditions
Residual dust level at outlet	≤ 5 mg/m³	10 / 15 / 20 mg/m³	Depending on dust characteristics
Dust type / material	Dry bulk materials (grain, flour, feed, cement, mineral powders)	Food-grade execution	Specified per project
Execution	Standard	ATEX Category	Directive 2014/34/EU



Engineering notes:

- Designed for silo pressure stabilization during filling
- Suitable for pneumatic and mechanical loading
- Automatic pulse-jet regeneration
- Compact roof-mounted configuration
- Configurable for ATEX classified zones

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FROM FILTRATION TO INTELLIGENT ASPIRATION CONTROL

Real-time dust concentration monitoring and adaptive control of the aspiration system.

Traditional filtration systems operate “blindly”

- No actual monitoring of dust concentration
- Delayed detection of damaged filter bags
- Continuous fan operation regardless of the actual dust load
- Excessive and uncontrolled energy consumption
- No continuous monitoring of industrial emissions

SKIF Smart Filter Control™

- Real-time dust concentration monitoring before and after filtration
- Immediate detection of damaged filter bags
- Adaptive airflow regulation according to the dust load
- Optimized system energy consumption
- Continuous monitoring of industrial emissions

THE SYSTEM CONTROLS THE ENTIRE ASPIRATION PROCESS, NOT ONLY THE CONDITION OF THE FILTER.

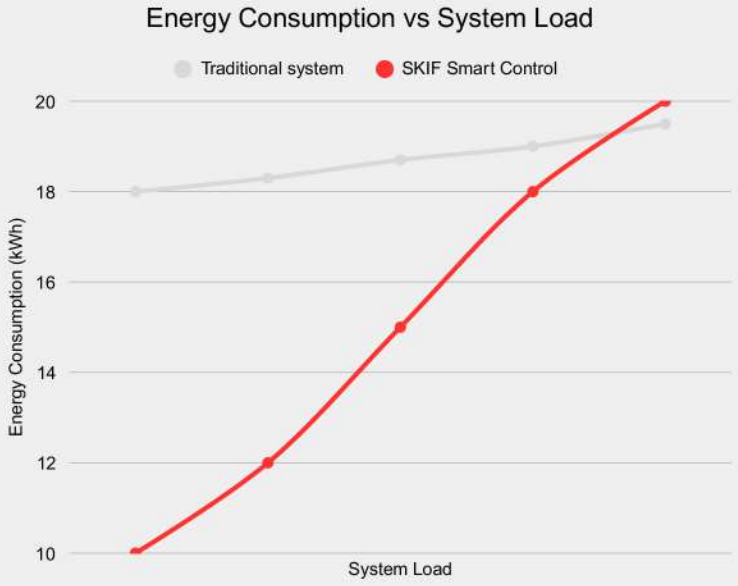
Dust (inlet) → Sensor 1 → Cyclone → Sensor 2 → Controller → Fan

1 **REAL-TIME CONTROL**
Real-time monitoring of dust concentration before and after the filter.

2 **ADAPTIVE AIRFLOW CONTROL**
Automatic fan regulation according to the actual dust load.

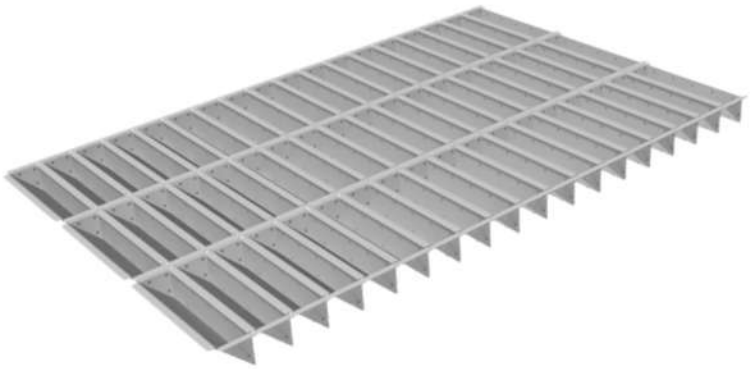
3 **ENERGY CONSUMPTION OPTIMIZATION**
Reduced energy consumption under partial and variable load conditions.

4 **CONTINUOUS SYSTEM MONITORING**
Continuous control of aspiration system efficiency and filtration stability.



THE FAN IS SELECTED FOR THE SYSTEM.
THE SYSTEM IS DESIGNED FOR THE PROCESS.

An incorrectly selected fan means constant system overload, excessive energy consumption, and unstable filter operation.
SKIF selects the fan based on engineering calculations: for the specific air volume, dust type, and system pressure class. Not from a catalogue — but for the project.



CENTRIFUGAL FAN

- Selection based on the actual aerodynamic resistance of the system.
- Execution: Standard / ATEX in accordance with 2014/34/EU.
- Application: grain dust, wood dust, mineral dust.
- Integrated or remote execution.

FLEX-FLAP — SEALING OF PROCESS UNITS

- Seals transfer and loading points.
- Reduces uncontrolled air intake by up to 40%.
- Less air in the system = lower fan load = lower energy consumption.

Fan + Flex-Flap = a stable system
with minimal energy costs for air movement.
ATEX execution · CE · 2014/34/EU

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REAL CONDITION OF INDUSTRIAL FILTRATION SYSTEMS

Systems that appear operational often do not meet emission requirements

In real industrial operation, filtration systems often perform outside their design parameters.
Worn filter elements, dust leakage and unstable airflow lead to inconsistent filtration performance and increased emissions.
Such conditions make it difficult to maintain stable emission levels required by EU environmental regulations.
Most deviations remain unnoticed until they result in non-compliance, operational instability or production downtime.

REAL CASES FROM OPERATING FACILITIES

Not isolated incidents — but common conditions affecting system performance and compliance

WHY SYSTEMS BECOME NON-COMPLIANT

Filtration systems are often operated without proper engineering control.

Maintenance is performed only after failures occur.

System parameters are ignored, and equipment operates outside its design limits.

IMPACT ON PERFORMANCE AND COMPLIANCE

- Airflow instability and pressure fluctuations
- Dust leakage into production areas
- Overloaded compressed air systems
- Reduced filtration efficiency
- Continuous energy losses
- Increased risk of non-compliance

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WE RESTORE SYSTEM PERFORMANCE

Audit. Engineering. Reconstruction. Control.

We work with real data, not assumptions.
The result is stable and predictable system operation.

ENGINEERING APPROACH

AUDIT
Full technical assessment, airflow analysis and ATEX risk evaluation.

RECONSTRUCTION
Replacement of critical components, automation and ATEX integration.

ENGINEERING
System recalculation, component selection and airflow optimization.

SERVICE
Continuous monitoring and system performance support.

RESULT FOR YOUR BUSINESS

- ✓ **2–5 times lower cost compared to new equipment**
- ✓ payback period: 6–18 months
- ✓ reduction of unplanned downtime
- ✓ stable production performance

ECONOMIC EFFECT

- **Up to 40% reduction in energy consumption**
- Up to 50% reduction in compressed air usage
- Stable and predictable filtration performance
- Elimination of dust leakage and system instability
- Full compliance with EU and ATEX requirements

SKIF TECHNOLOGY GROUP

INTEGRATED EXPLOSION PROTECTION FOR INDUSTRIAL SYSTEMS

Dust-hazardous processes require an integrated system for explosion detection, localization, and suppression in accordance with ATEX requirements and EU industrial safety standards.

PASSIVE PROTECTION

STIF / VIGILEX

- Explosion vent panels
- Flameless venting
- Explosion isolation
- Shut-off valves

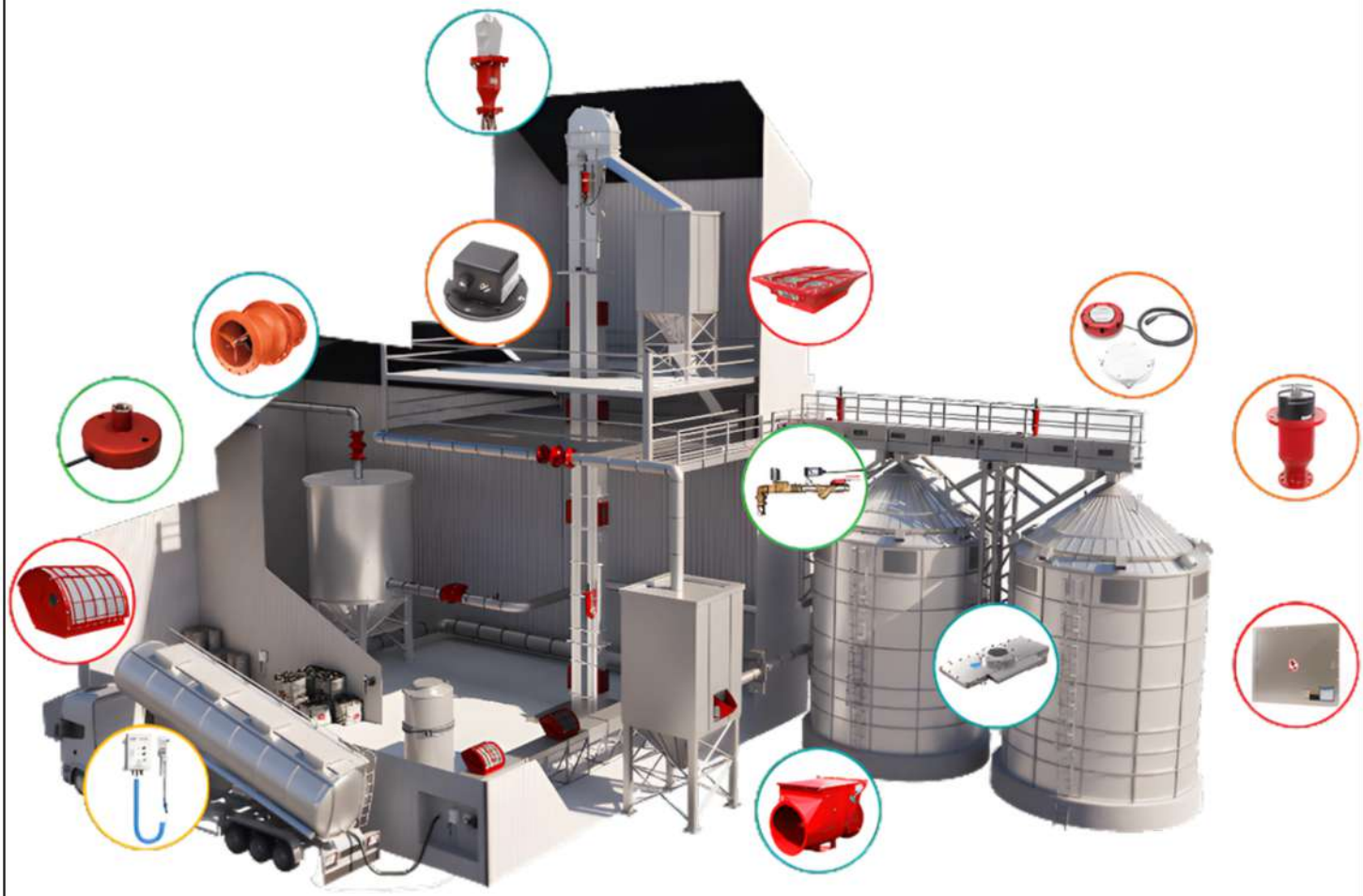
Control of explosion pressure and localization of the explosion within the system.

ACTIVE PROTECTION

STUVEX

- Spark detection systems
- Explosion suppression systems
- Flame detection systems
- Active explosion isolation
- ESD protection against static discharge

Detection and suppression of an explosion before it propagates through the system.



We also cooperate with an expert center:

ISMA — Expert Center, EU
Confirmation of engineering solutions and ATEX compliance.

ISMA EXPLOSION SAFETY CONSULTANCY

SKIF TECHNOLOGY GROUP

EXPLOSION PROTECTION IS AN ENGINEERING SYSTEM. CALCULATED ACCORDING TO DUST CHARACTERISTICS AND THE FACILITY.

Explosion protection for an industrial system is a set of interconnected solutions for detecting, localizing, and controlling an explosion within the technological line.

The effectiveness of protection depends on the correct combination of detection, pressure relief, isolation, and suppression — in accordance with the dust characteristics and equipment configuration.

SYSTEM OPERATING LOGIC

1

HAZARD DETECTION

- Spark detection systems
- Flame detection systems
- Pressure and process parameter monitoring

2

EXPLOSION LOCALIZATION

- Explosion isolation of air ducts
- Fast-acting shut-off valves
- Chemical barrier systems

3

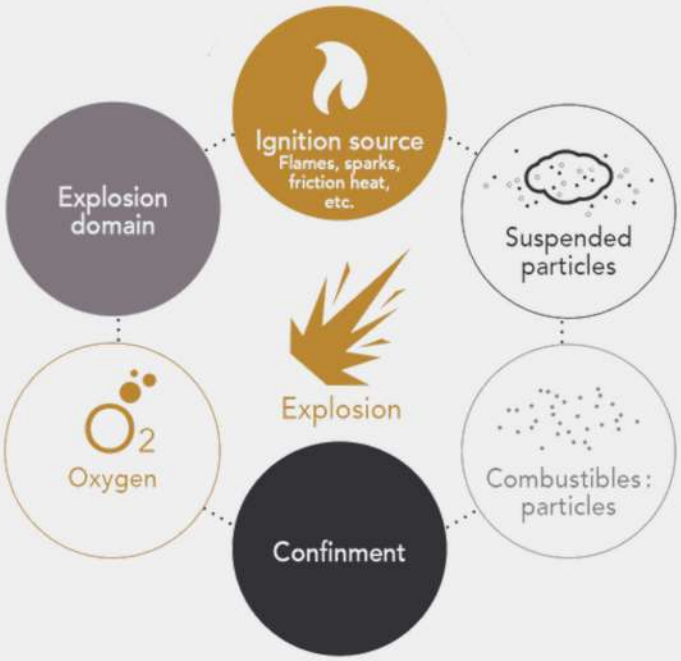
EXPLOSION PRESSURE CONTROL

- Explosion vent panels
- Flameless venting
- Safe pressure relief systems

4

PREVENTION OF EXPLOSION PROPAGATION

- Protection of adjacent equipment
- Localization of flame and shock wave
- Minimization of secondary explosion risk



The solutions comply with:

- 2006/42/EC — Machinery Directive
- 2014/35/EU — Low Voltage Directive, LVD
- 2014/34/EU — ATEX Directive, explosion protection
- EN ISO 13849 — Functional safety
- EU 2024/1785 — Industrial Emissions Directive, IED 2.0

RESULT FOR THE CLIENT

- ✓ Control of explosion risk within the technological line
- ✓ Protection of personnel and critical equipment
- ✓ Reduction of secondary explosion propagation risk
- ✓ Compliance with ATEX requirements and EU industrial safety standards
- ✓ An engineered safety system, not a set of separate components