

# CWIC<sup>®</sup> System Type CWIC EC

Technical Concept



## Product Description

The CWIC® System is a versatile system: Individual Filter Fan Units (CWIC® modules) can be connected to form different size cleanroom ceilings, e.g. for machine enclosures, clean benches or clean work cabins. The modular design enables fast and low-cost cleanroom construction that can be suspended from the ceiling or supported from the floor by pedestals. Depending on the load of additional components, a range of 4800 mm without support pedestals or suspensions is possible.

The following cleanliness classes can be achieved: ISO 1 to ISO 8 according to DIN EN ISO 14644-1, as well as class: A, B, C or D according to EC Guide (GMP).

This product is protected by patent.

## Unit Construction and Function

A CWIC® module consists of an outer, torsion-free housing 1, the installed HEPA/ULPA filter 2 and fan motor unit 3 with a common inner housing 4. The units are accurately screwed together on the sides 1a as shown. The filter cells can be exchanged from below. A gel seal 2b between the filter frame 2a and the inner housing 4 is used.

The CWIC® housing is made of powder-coated steel or stainless steel in order to meet the high hygienic requirements and corrosion-resistance. PVC curtains 6 or acrylic panels can be used to enclose the clean work-area.

The CWIC® module with the integrated fan takes in the ambient air and presses the air through the HEPA/ULPA filter into the clean work area 7, flushing the area with clean supply air as a vertical, uni-directional airflow. Contaminations in the work area are moved out downwards (Fig. 2).

Depending on the requirements, filter class H13 to U17 can be applied.

The CWIC® AC and CWIC® AC Hygiene are driven by a specially developed single-phase external rotor AC motor with internally wired thermal contacts for overload protection.

The CWIC® EC and CWIC® Hygiene EC are driven by an electronically commutated external rotor motor.



Fig. 1 CWIC® module with prefilter

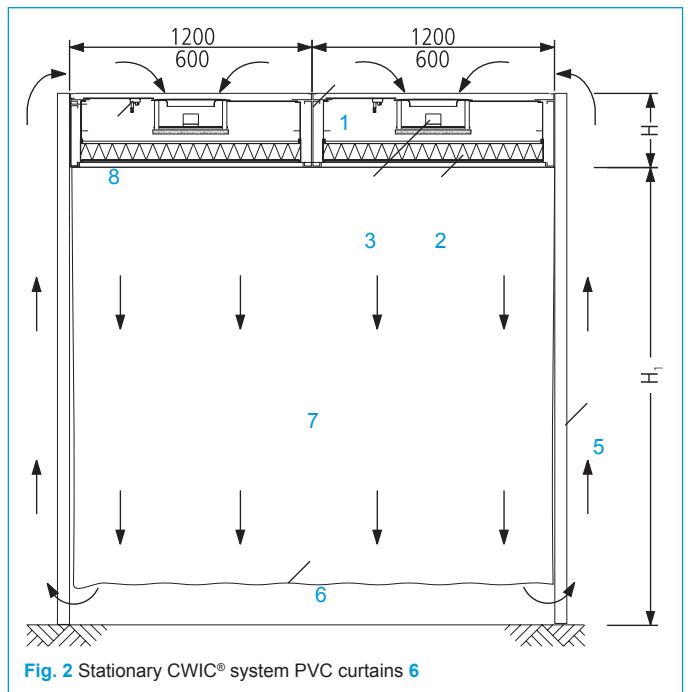


Fig. 2 Stationary CWIC® system PVC curtains 6

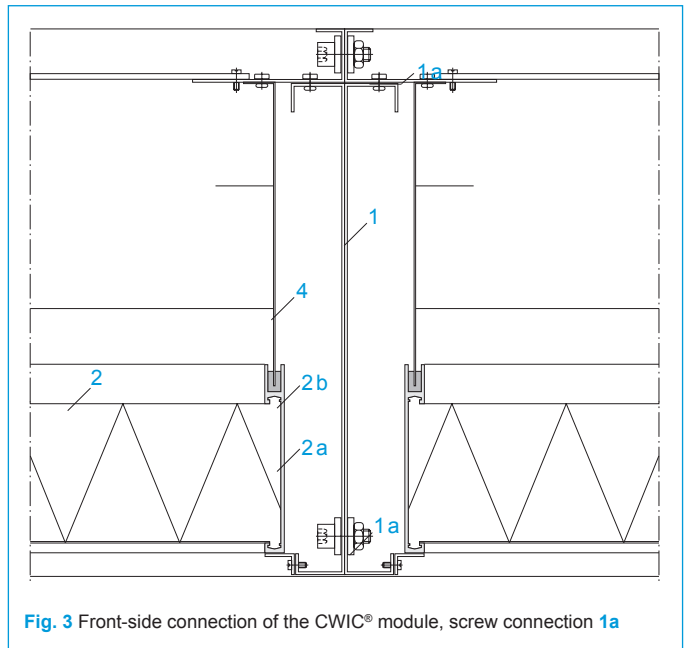


Fig. 3 Front-side connection of the CWIC® module, screw connection 1a

## Technical Data

Type		EC	
Housing Length x Width	mm	1200 × 600	
Height H H <sub>1</sub> (max.)	mm mm	434 variable (3000)	
Housing material (according to type)		Stainless steel Steel with powder-coating	
Weight (Steel/Stainless steel)	kg	64/67	
Motor		EC-Motor	
Type of protection		IP10	
Voltage/Phase	V/ph	208–277/1	
Frequency	Hz	50/60	
Nominal current	A	1,8-1,4	
Operation temp. min./max.	°C	0/+40	
Air-flow velocity	m/s	0,30	0,45
Air-flow volume	m <sup>3</sup> /h	780	1 166
Power consumption <sup>1)</sup>	W	55	110
Sound power level pressure side <sup>1)</sup>	dB (A)	49	56
Sound pressure level <sup>1)</sup>	dB (A)		
– 25% coverage	dB (A)	52	59
– 50% coverage	dB (A)	55	62
– 100% coverage	dB (A)	58	65
External differential press. max <sup>2)</sup>	Pa	390	350
1) with H14 filter cell without external differential pressure 2) without installed HEPA/ULPA filter 3) measured with transformer			

Sound power level measurement according to ISO 3741, tolerances according to DIN 24166

## Control

### CWIC® units EC and Hygiene EC

Based on LON (Local Operating Network), the CWIC® are merged to one network through a special Bus-System → Control System DC. The system allows for a simple and individual speed control and monitoring of each unit as well as for complex systems with a multitude of units.

## Power Supply

A plug & play cable system is provided for the power supply. Each unit is connected through the existing terminal box **8**, minimizing installation costs.

## Legend

<b>1</b> Outer housing	<b>2a</b> Filter frame	<b>4</b> Inner housing	<b>7</b> Clean workspace
<b>1a</b> Screw connection	<b>2b</b> Gel seal	<b>5</b> Pedestal	<b>8</b> Terminal box
<b>2</b> HEPA/ULPA filter	<b>3</b> Fan motor unit	<b>6</b> PVC curtain	

## Key Features

- CWIC® units are screwed together to form a self-supporting structure that can be either suspended from the ceiling or supported from the floor
- A range of up to 4 800 mm can be accomplished without additional support
- Flexible, low-cost clean workspace with simple initiation through plug and play cabling
- Airflow and acoustic design optimization provides for a low energy consumption and sound levels
- Low-cost system technology due to the utilization of standard components, short planning time, fast delivery and quick operational availability.
- Mobile design with wheel elevation
- Simple installation with suspension.



- Installed radial fan, balancing grade G= 2,5 according to DIN ISO 1940-1, motor with internal wired thermal contacts
- For CWIC® EC and Hygiene EC with electronically commutated external rotor motor, volume flow controlled with → Control System DC
- HEPA/ULPA filter classes H13 to U17 <sup>1)</sup>
- Pedestals made of powder-coated steel or stainless steel, available in lengths of up to 3000 mm a (castors optional) or suspension device with height adjustment.
- Cleanroom partition as PVC curtains, strip curtains or acrylic panels
- Illumination: different lighting fixtures
- Additional components: prefilter, AMC filter and air-cooler for the device arrangement on the air intake side

## Type Designation

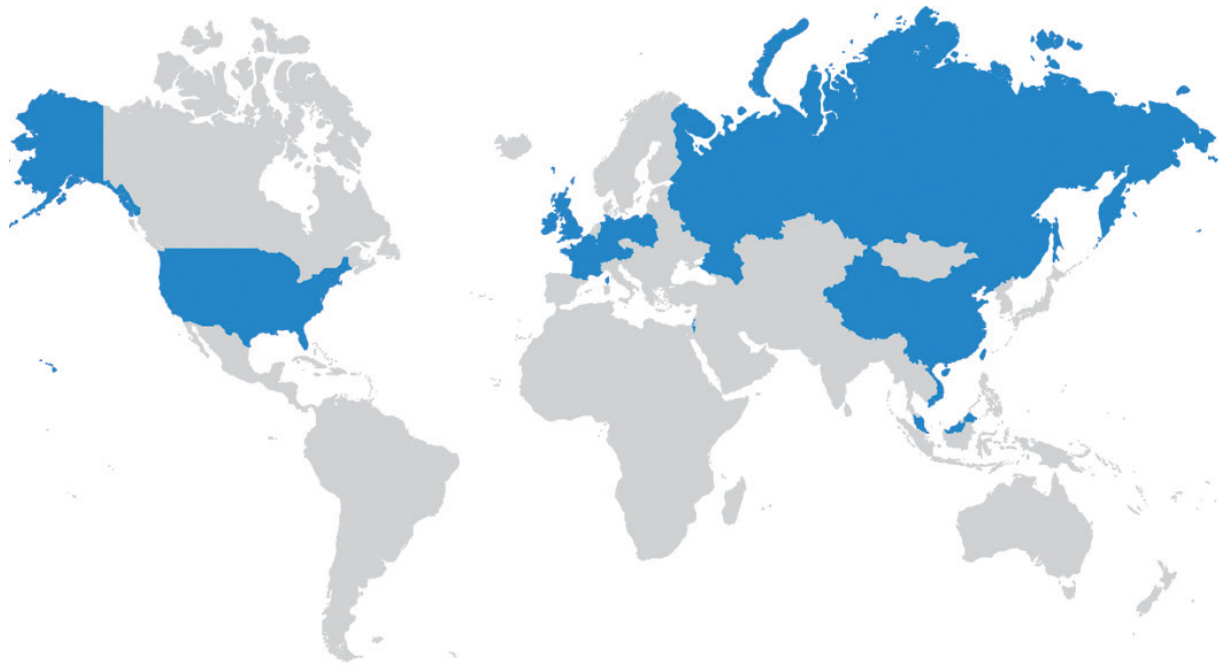
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CWIC® System	Type	Number of Modules	Design	HEPA/ULPA Filter	Prefilter	Cooling/Heating coil	Lighting	Enclosure	Control

<b>Type</b>	
<b>1030</b>	EC (Steel powder coated)
<b>1040</b>	EC Hygiene (Stainless steel)
<b>Number of Modules</b>	
1 to 32 pc.	
<b>Design</b>	
<b>1</b>	stationary (with brackets screwed to the floor)
<b>2</b>	mobile (with castors)
<b>3</b>	suspended (with suspending brackets up to 1000 mm)
<b>HEPA /ULPA Filter</b>	
<b>0</b>	without
<b>H14</b>	standard filter class
<b>Optional</b>	
—	filter classes H13, U15, U16, U17
<b>Prefilter</b>	
<b>O</b>	without
<b>Optional</b>	
<b>G4</b>	filter class
—	special design
<b>Cooling/Heating Coil</b>	
<b>O</b>	without
<b>Optional</b>	
<b>LK</b>	with cooling coil
<b>LE</b>	with heating coil
<b>Lighting</b>	
<b>O</b>	without
<b>Optional</b>	
<b>L</b>	with batten luminaires
<b>P</b>	with pharmaceutical luminaires
<b>T</b>	with teardrop luminaires
<b>So</b>	special design
<b>Enclosure</b>	
<b>O</b>	without
<b>Optional</b>	
<b>V</b>	with PVC curtain/strip curtain
<b>K</b>	with acrylic panels
<b>W</b>	with cleanroom wall

<b>Control</b>	
<b>O</b>	without
<b>S1</b>	Standard version (power cable fan only)
<b>Optional</b>	
<b>S2</b>	Standard version 1 (power cable and lighting)
<b>S3</b>	Standard version 2 (power cable and alarm indicator)
<b>S4</b>	Standard version 3 (power cable, lighting and alarm indicator)
<b>S5</b>	Standard version 4 (power cable and speed controller)
<b>S6</b>	Standard version 5 (power cable, lighting and speed controller)
<b>S7</b>	Standard version 6 (power cable, alarm indicator and speed controller)
<b>S8</b>	Standard version 7 (power cable, lighting, alarm indicator and speed controller)
<b>H1</b>	EC version 1 with Control Terminal
<b>H2</b>	EC version 2 with PC



# Local Support Wherever You Need Us



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