

SILC • Square Inline Centrifugal Fans



Specification

The SILC range of direct drive in-line fans are designed to withstand high temperatures.
Motors located out of the air stream.
Centrifugal impellers offer high pressure development.
A truly flexible solution to ducted air systems.

Features

- Motor out of air stream - **cleaner operation in greasy environments**
- Cleaner motor operation - **long life, low maintenance**
- **Standard motors reduce cost and lead time**
- High pressure development - **ideal for ducted systems with high resistance**
- Galvanised construction - **can be used internally or externally**
- Mounted vertically or horizontally - **flexible on site**
- Speed controllable - **allows for flexibility in system design**
- Ideal for day-to-day extract

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Product Installation & Maintenance Instructions

SILC Fans

The backward curved in-line centrifugal range of fans consists of 17 duty sizes with a maximum air flow of 16m³/s and static pressures in excess of 2000 pa.

The impellers are of high efficiency powder coated steel construction. Driven by Tefc. IP55. class F motors as standard. The motors are outside the ventilation airflow path. The units are capable of high temperature operation.

Handling

Always handle the units carefully to avoid damage and distortion. Care must be taken to ensure that any slings used for hoisting do not damage the casing.

Fan Installation

Installation must be completed by competent persons in accordance with good industry practice and should conform to all governing and statutory bodies, ie. IEE,CIBSE, COHSE etc.

The units can be installed both horizontally or vertically and are suitable for internal or external applications. The unit is flanged at both ends and can be bolted directly to the system duct or mounted on optionally available feet and anti-vibration mounts. The method chosen is the responsibility of the installer.

Electrical

Check that the fan details on the rating plate correspond with the supply voltage and frequency.

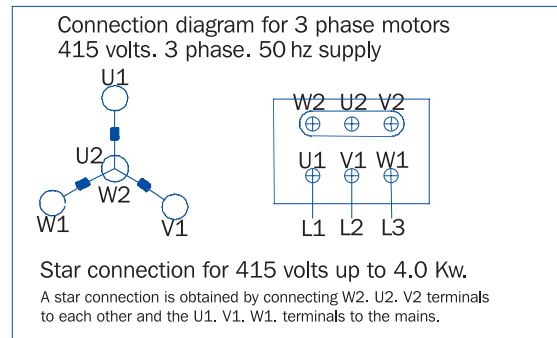
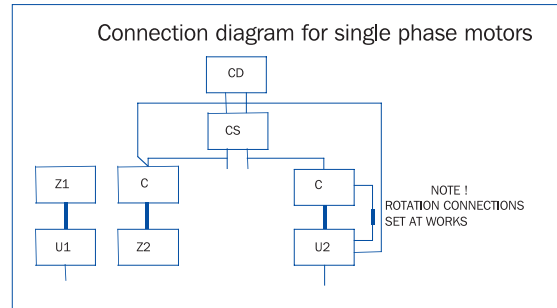
Motor overloads should be set to the full load current on the rating label.

Supply fuses should be H.R.C type.

Start Up Procedure

Note! The single phase rotational direction is set at works and should not be altered. For 3 phase units, check that the rotation is correct; if not, interchange any two phases.

The equipment should be run for approximately 30 minutes to ensure correct operation. If a fault occurs, switch off. DO NOT restart until fault has been rectified.



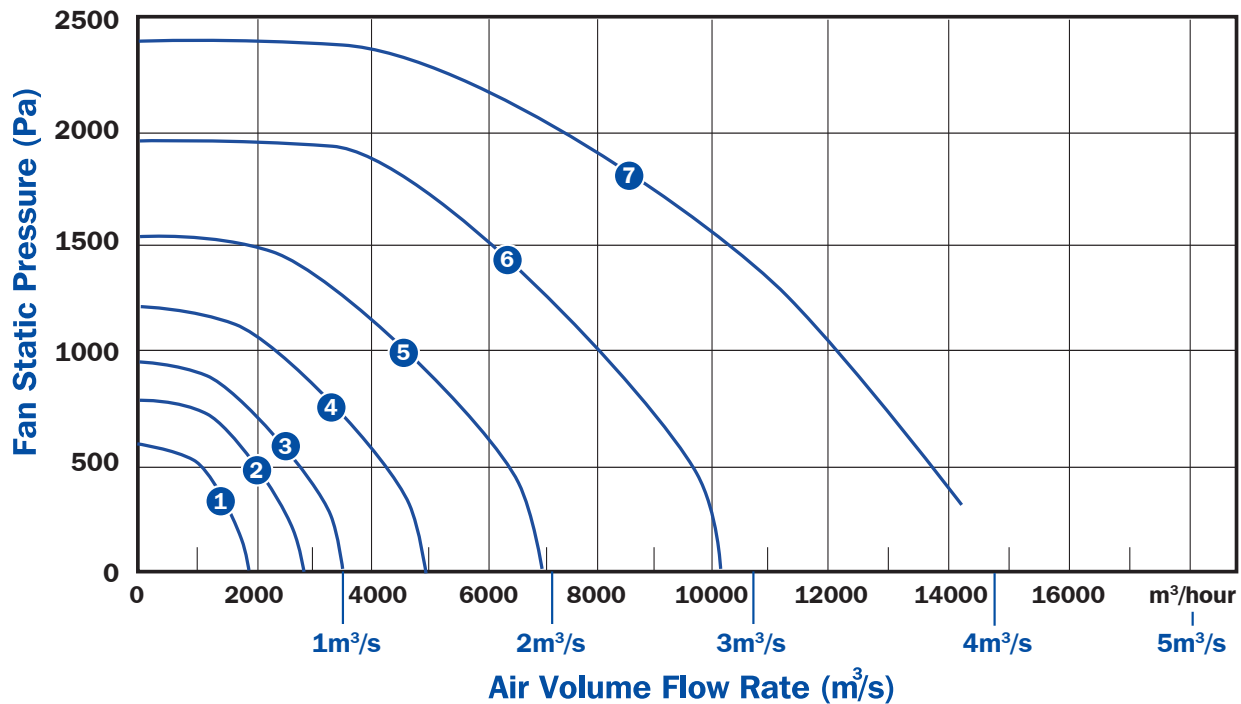
2 Pole Information

Square Inline Centrifugal Fans Technical Data

Curve	Fan Code	Phase	RPM	kW	flc	sc	125	250	500	1k	2k	4k	8k	dba @m
1	SILC 220-32	3	2800	0.37	1.04	5.2								
1	SILC 220-12	1	2800	0.37	2.87	9.78								
2	SILC 250-32	3	2800	0.37	1.04	5.2								
2	SILC 250-12	1	2800	0.37	2.87	9.78								
3	SILC 280-32	3	2800	0.75	1.88	10.23								
3	SILC 280-12	1	2800	0.75	5.17	17.58								
4	SILC 315-32	3	2800	1.1	2.67	14.69								
4	SILC 315-12	1	2800	1.1	6.6	19.14								
5	SILC 350-32	3	2800	2.2	4.48	29.12								
5	SILC 350-12	1	2800	2.2	13.9	45.87								
6	SILC 400-32	3	2800	4.0	7.59	49.34								
7	SILC 450-32	1	2800	7.5	14.8	103.60								

The equipment listed above is capable of handling air at temperatures up to 85°C

Performance



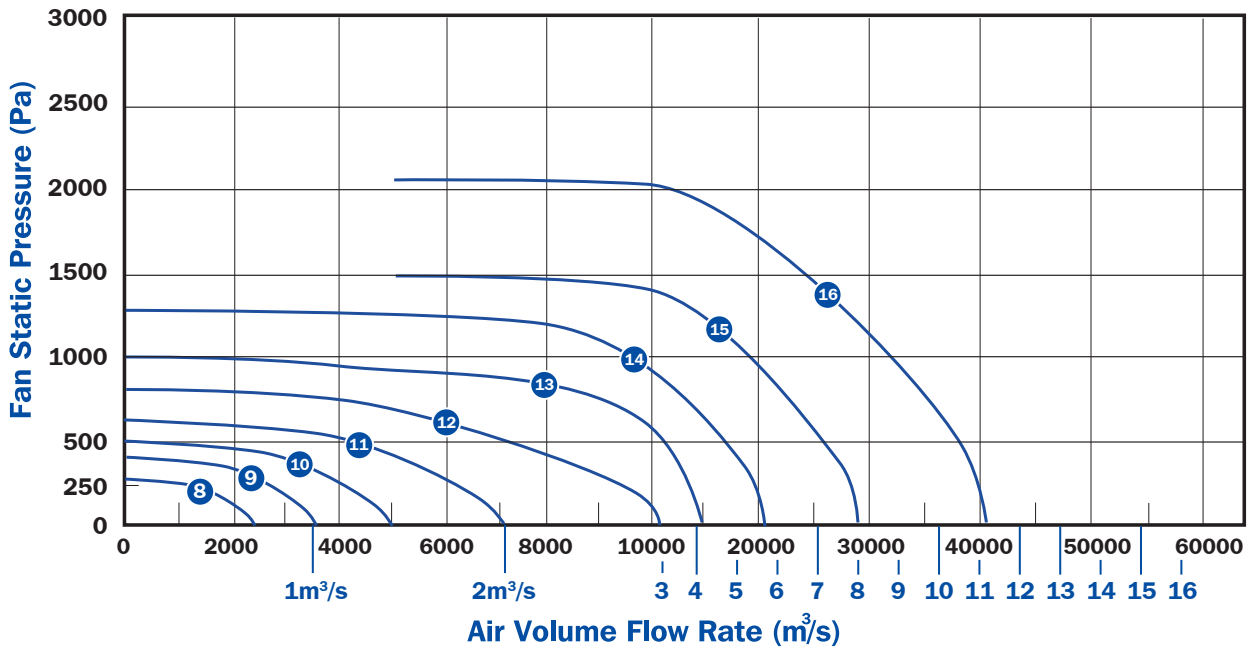
4 Pole Information

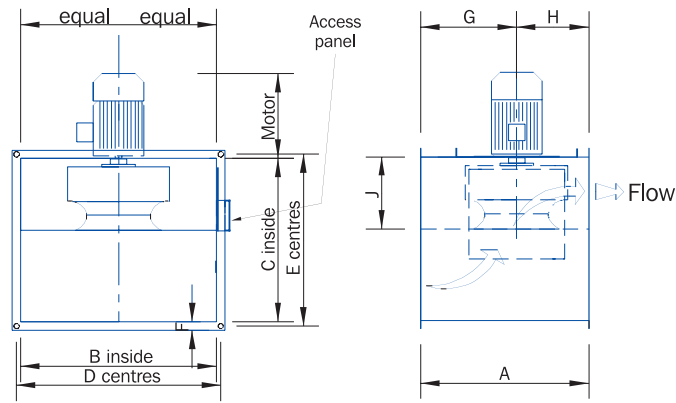
Square Inline Centrifugal Fans Technical Data

Curve	Fan Code	Phase	RPM	kW	f/c	sc	125	250	500	1k	2k	4k	8k	dba @m
8	SILC 310-34	3	1440	0.25	9.2	3.22								
8	SILC 310-14	1	1440	0.25	2.30	5.75								
9	SILC 350-34	3	1440	0.37	1.21	4.24	71	76	67	62	54	45	42	52
9	SILC 350-14	1	1440	0.37	3.06	7.35	71	76	67	62	54	45	42	52
10	SILC 400-34	3	1440	0.55	1.57	7.85	75	80	71	66	58	49	46	56
10	SILC 400-14	1	1440	0.55	4.21	14.74	75	80	71	66	58	49	46	56
11	SILC 450-34	3	1440	1.1	2.76	15.18	79	84	75	70	62	53	50	60
11	SILC 450-14	1	1440	1.1	7.27	21.08	79	84	75	70	62	53	50	60
12	SILC 500-34	3	1440	1.5	3.76	20.68	83	83	79	74	66	57	54	64
12	SILC 500-14	1	1440	1.5	9.9	26.73	83	83	79	74	66	57	54	64
13	SILC 560-34	3	1440	3.0	6.43	35.37	86	91	82	77	69	60	57	67
14	SILC 630-34	3	1440	5.5	11.40	74.1								
15	SILC 710-34	3	1440	11.0	19.9	143.28								
16	SILC 800-34	3	1440	15.0	26.6	218.12								

The equipment listed above is capable of handling air at temperatures up to 85°C

Performance





Dimensions and Weights

2 Pole

Curve	Unit size	A	B	C	D	E	F	G	H	J	kg
1	SILC 220-32	350	300	300	332	332	32	200	150	130	30
1	SILC 220-12										
2	SILC 250-32	400	350	350	382	382	32	150	150	155	35
2	SILC 250-12										
3	SILC 280-32	450	400	400	432	432	32	200	200	180	40
3	SILC 280-12										
4	SILC 315-32	500	450	400	482	482	32	200	200	200	44
4	SILC 315-12										
5	SILC 350-32	550	500	500	532	532	32	200	200	232	52
5	SILC 350-12										
6	SILC 400-32	650	700	600	730	630	32	350	250	238	60
6	SILC 400-12										
7	SILC 450-32	700	750	650	780	680	32	375	275	289	70
7	SILC 450-12										

4 Pole

Curve	Unit size	A	B	C	D	E	F	G	H	J	kg
8	SILC 310-34	450	450	400	482	382	32	300	200	200	44
8	SILC 310-14										
9	SILC 350-34	550	500	500	532	532	32	300	200	232	52
9	SILC 350-14										
10	SILC 400-34	650	700	600	730	630	32	350	250	258	60
10	SILC 400-14										
11	SILC 450-34	700	750	650	780	680	32	375	275	289	70
11	SILC 450-14										
12	SILC 500-34	750	800	700	830	730	32	400	300	322	90
12	SILC 500-14										
13	SILC 560-34	850	850	750	880	780	32	450	350	354	100
14	SILC 630-34	950	900	800	930	830	32	500	400	402	150
15	SILC 710-34	1000	1100	1000	1130	1030	32	550	450	450	180
16	SILC 800-34	1100	1200	1000	1230	1030	32	600	500	500	200

EC DECLARATION OF INCORPORATION FOR PARTY COMPLETED MACHINERY. (MACHINERY DIRECTIVE 2006/42/EC, ANNEX III.B)

Manufacturer: Moduflow Fan Systems Ltd.
Scarth Road
Sowerby Woods Industrial Estate
Barrow-in-Furness
Cumbria LA14 4RF

Type of Machinery: Fan used for moving air or other gases.

Model: SQUARE INLINE CENTRIFUGAL FANS

Manufacturer's Ref / Serial No:

I hereby declare that the Essential Health and Safety Requirements of Directive 2006/42/EC that are listed in Annex 1 of this Declaration are applied and fulfilled and that the relevant technical documentation is compiled in accordance with part B of Annex VII of the Directive.

Relevant information on the party completed machinery will be supplied electronically or by post, without prejudice to the intellectual property rights of the manufacturer, in response to a reasoned request by the national authorities.

I furthermore declare that fans manufactured by Moduflow Fan Systems Ltd. are driven by AC induction motors and are inherently compliant with the requirements of the Electromagnetic Compatibility Directive (2004/108/EEC) if supplied with a truly sinusoidal AC supply. Where the fan motor is supplied via a frequency converter or other electronic control, verification of compatibility together with cabling should be sought from the control supplier.

This partly completed machinery must not be put into service until the final machinery or installation into which it is to be incorporated has been declared in conformity with the provisions of Directive 2006/42/EC, where appropriate.

Manufacturer's Representative: R P Whitworth. Position: Director

Signature: Date:

ANNEX I (EC DECLARATION OF INCORPORATION FOR PARTY COMPLETED MACHINERY)

Essential health and safety requirements relating to the design and construction of the Party Completed Machinery.

The following Essential Health and Safety Requirements of Directive 2006/42/EC Annex 1.1, are applied and fulfilled as appropriate:

- 1.1.3 Materials and products
- 1.1.5 Design of machinery to facilitate its handling
- 1.3.1 Risk of loss of stability
- 1.3.2 Risk of break-up during operation
- 1.3.4 Risk due to surfaces, edges or angles
- 1.3.6 Risk related to variations in operating conditions
- 1.5.1 Risk related to electricity supply
- 1.5.4 Errors of fitting
- 1.5.6 Fire
- 1.5.7 Explosion
- 1.5.9 Vibrations
- 1.5.10 Radiation
- 1.5.11 External radiation
- 1.5.13 Emissions of hazardous materials and substances
- 1.6.4 Operator intervention
- 1.7.1 Information and warnings on the machinery
- 1.7.3 Marking of machinery (as appropriate without CE mark)
- 1.7.4 Instructions
 - 1.7.4.1 General principles for the drafting of instructions
 - 1.7.4.2 Contents of the instructions
 - 1.7.4.3 Sales literature

Presumption of conformity with the above listed EHSRs is by application of relevant parts of the following standards:

Applied harmonized standards in particular:
EN ISO 12100-1:2003+A1:2009, EN ISO 12100-2:2003+A1:2009, EN 60204-1:2006+A1:2009, EN ISO 5801:2008 (BS 848-1:2007).

Applied national standards in particular:
BS 848-2.1:2004 (BS ISO 13347-1:2004), BS 848-6:2003 (BS ISO 14695:2003), BS 848-7:2003 (ISO 14694:2003).

INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE OF MODUFLOW LTD VENTILATION EQUIPMENT

To comply with EC Council Directives 2006/42/EC Machinery Directive.
To be read in conjunction with the relevant Product Documentation [see 2.1]

1.0 GENERAL

1.1 The equipment referred to in this Declaration of Incorporation is supplied by Moduflow Ltd to be assembled into a ventilation system which may or may not include additional components.

The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all the equipment is installed in compliance with the manufacturers recommendations and with due regard to current legislation and codes of practice.

2.0 INFORMATION SUPPLIED WITH THE EQUIPMENT

2.1 Each item of equipment is supplied with a set of documents which provides the information required for safe installation and maintenance of the equipment. This may be in the form of a Data sheet and/or Installation and Maintenance instruction.

2.2 Each unit has a rating plate attached to its outer casing. The rating plate contains essential data relating to the equipment such as serial number, unit code and electrical data. Any further data that may be required will be found in the documentation. If any item is unclear or more information is required, contact Saverfan.

2.3 Where warning labels or notices are attached to the unit, the instructions given must be adhered to.

3.0 TRANSPORTATION, HANDLING AND STORAGE.

3.1 Care must be taken at all times to prevent damage to the equipment. Note that shock to the unit may result in the balance of the impeller being affected.

3.2 When handling the equipment, care should be taken with corners and edges and that the weight distribution within the unit is considered. Lifting gear such as slings or ropes must be arranged so as not to bear on the casing or impeller/motor.

3.3 Equipment stored on site prior to installation should be protected from the weather and steps taken to prevent the ingress of contaminants.

4.0 OPERATIONAL LIMITS

4.1 It is important that the specified operation limits for the equipment are adhered to e.g. operation air temperatures, air borne contaminants and unit operation.

4.2 Where installation accessories are supplied with the specified equipment e.g. wall mounting brackets or anti-vibration mounts, they are to be used to support the equipment only. Other system components must have separate provision for support.

4.3 Flanges and connection spigots are provided for the purpose of joining to ductwork systems. They must not be used to support the ductwork.

5.0 INSTALLATION REQUIREMENTS

In addition to the particular requirements given for the individual product, the following general requirements should be noted.

5.1 Where access to any part of equipment which moves, or can become electrically live are not prevented by the equipment panels or by fixed installation detail [e.g ducting], then guarding to the appropriate standard must be fitted.

5.2 The electrical installation of the equipment must comply with the requirements of the relevant local electrical standards.

6.0 COMMISSIONING REQUIREMENTS

6.1 General pre-commissioning checks relevant to safe operation consist of the following:

Ensure that no foreign bodies are present within the fan or casing.

Check electrical safety, eg. Insulation and earthing.

Check guarding of system.

Check operation of Isolators/controls.

Check fastenings for security.

6.2 Other commissioning requirements are given in the relevant product documentation.

7.0 OPERATIONAL REQUIREMENTS

7.1 Equipment access panels must be in place at all times during operation of the unit and must be secured with the original fastenings.

7.2 If failure of equipment occurs or is suspected then it should be taken out of service until a competent person can effect repair or examination. [Note that certain ranges of equipment are designed to detect and compensate for fan failure].

8.0 MAINTENANCE REQUIREMENTS

8.1 Specific maintenance requirements are given in the relevant documentation.

8.2 It is important that the correct tools are used for the various tasks required.

8.3 If the access panels are to be removed for any reason the electrical supply to the unit must be isolated.

8.4 A minimum period of 2 minutes should be allowed after electrical disconnection before access panels are removed. This will allow the impeller to come to rest.

NB: Care should still be taken however since airflow generated at some other point in the system can cause the impeller to 'windmill'.

8.5 Care should be taken when removing and storing access panels in windy conditions.