

NSC Safe Change Housings Contamination-Free and Gas Tight Filter Change



CLEAN
AIR



POWER
GENERATION



CLEAN
ROOM



INDUSTRIAL

NSC Safe Change Housings are gas tight, rigid casings for HEPA and activated carbon filters. They allow the contamination-free replacement of the filter using a change bag.

NSC Safe Change Housings are designed to be installed wherever high levels of filtration and safety are required, protecting the operator and the plant room environment from contamination during the filter change process. They are ideally suited for the extraction of radioactive, toxic or pathogenic dust particles and gases from ventilation systems, such as those found in:

- Nuclear installations
- Pharmaceutical and biotechnical facilities
- Hospital installations in nuclear medicine
- Radioactive isotope laboratories
- Epidemic and isolation units

KEY FACTS

- Rigid, gas tight, shock and vibration resistant: Robust and strong construction
- Operating pressure guaranteed to $\pm 8,000$ Pa: Suitable for even the most demanding of environments
- Functional design, user-friendly operation: Simplifies installation and maintenance
- Self-adjusting filter sealing mechanism: To ensure an even and consistent sealing pressure
- Practical, versatile modular system: Customisable for seamless integration
- Comprehensive range, with various accessories: Flexible to meet the demands of a wide range of applications



NSC Safe Change Housings

DESIGN

NSC Safe Change Housings are manufactured from steel plate of 2 mm minimum thickness. The individual weld seams—and the whole housing unit if requested—are works-tested for gas tightness. The built-in test groove is a standard feature but a model with a smooth sealing face can also be supplied.

Filters slide into the housing from the side and are pressed against the sealing face with an easy to operate cam system. In order to ensure an equally distributed, consistent sealing pressure, the eccentric shafts of the final filter stage are mounted on a self-adjusting spring system. The filter insertion aperture has a steel collar with two circumferential grooves into which rubber gaskets engage to hold the change bag tightly against the housing. The housing is sealed by a removable door which also accommodates the rolled change bag. This cover is fitted with a handle and circumferential seal and is sealed to the housing by four, easy to operate star grip handles on swivelling screws.

For safety reasons the door can only be locked into place when the filter has been secured in position. All housing models are supplied with a pressure drop measuring connection before and after each filter stage (Serto joint).

MATERIALS/SURFACES

NSC Safe Change Housing and KS Ducts Connections can be supplied in:

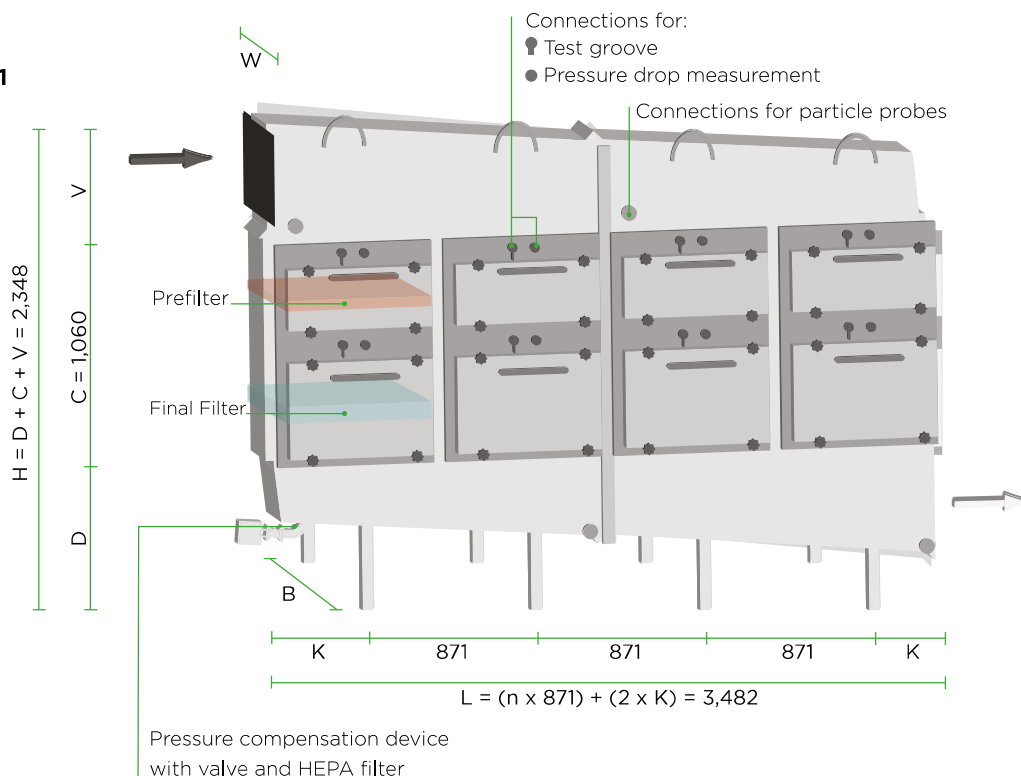
- Mild steel (BI St 1203) with a high quality, acid-resistant and easily cleanable epoxy resin coating with a minimum thickness of 50 µm, colour white (RAL 9010) or
- Stainless steel (AISI 304 and DIN material no. 1.4301, respectively).

With the stainless steel version there is no risk of damage to the surface protection during transport or installation. Depending on the model selected, the cam bar mechanism is made of:

- Steel, galvanised-passivated (lacquered housings) or
- Steel, stainless, DIN material no. 1.4301 (stainless steel housings)

The seals for the doors are made from EPDM, heat resistant up to 120 °C, continuous operation. The seals for housing combinations are of Neoprene, heat-resistant up to 120 °C, continuous operation. The change bags are of synthetic film, heat-resistant to 70 °C, continuous operation.

FIGURE 1



NSC Safe Change Housings Combination Options

The NSC range is made up of modules which can be combined in a number of ways (see example, figure 1) to give either cost or space efficient solutions. All housing units are supplied with drilled flanges. Housings of the same cross section may therefore be vertically combined at will to create several filter stages. For large air volumes it is possible to link up to 8 rows of housing units in parallel to form a single filter bank.

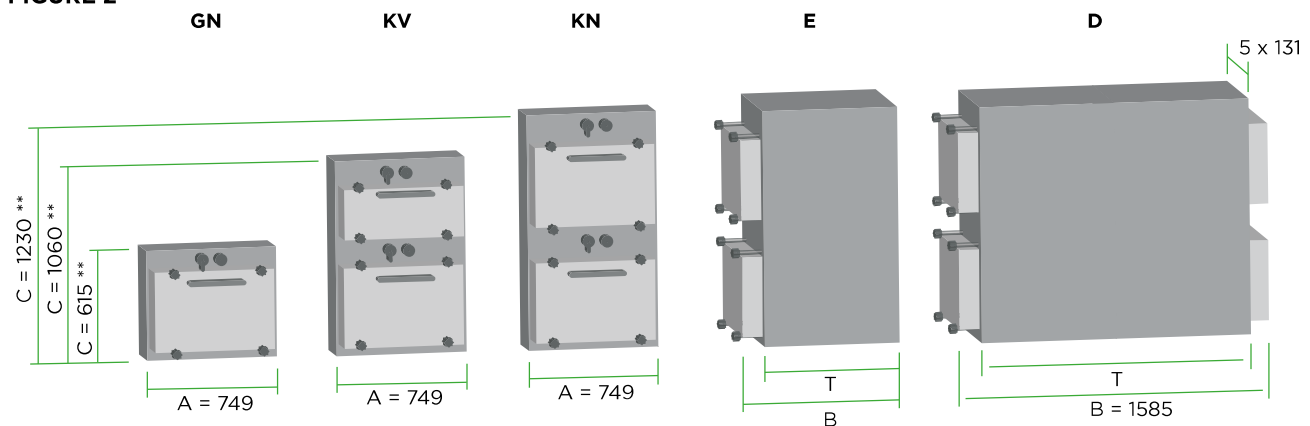
The basic housings (NSC...-GN) and the combined housings (NSC...-KV/N) can be supplied to take any of the three filter widths. The basic housing takes one 292 mm high filter. The combined housings contain a prefilter and a final filter section. The NSC...-KV model is used for prefilters of between 50 and 100 mm in height and the NSC-KN for those of 292 mm (see figures 1 and 2). The twin housing (NSC-D...) is only available for the standard filter width of 610 mm but can be supplied as basic (NSC-D...-GN) or as combined housings (NSC-D...-KV/N), allowing filter access from both sides (see figures 1 and 2).

Models/Dimensions/Weights

Housing Type		NSC-E*-305-			NSC-E*-610-			NSC-E*-762-			NSC-E*-610-		
		GN	KV	KN	GN	KV	KN	GN	KV	KN	GN	KV	KN
Filter Size ⁰⁾	mm	305 x 610			610 x 610			762 x 610			610 x 610 (2 units)		
Filter height ⁰⁾	mm	292	75+292	292+292	292	75+292	292+292	292	75+292	292+292	292	75+292	292+292
Filter Types ⁰⁾	-	N	CR + N	N + N	N	CR + N	N + N	N	CR + N	N + N	N	CR + N	N + N
Withdrawal		Single-Sided			Single-Sided			Single-Sided			Double-Sided		
Weight	kg	46	75	82	55	92	100	60	100	110	100	166	175
Dimension B	mm	515			820			970			1,585		
Dimension T	mm	3 x 117 = 351			5 x 131 = 655			6 x 134.5 = 807			10 x 131 = 1,310		

0) Available filter types | * Place for housing material, see 'Order Code', page 5.

FIGURE 2



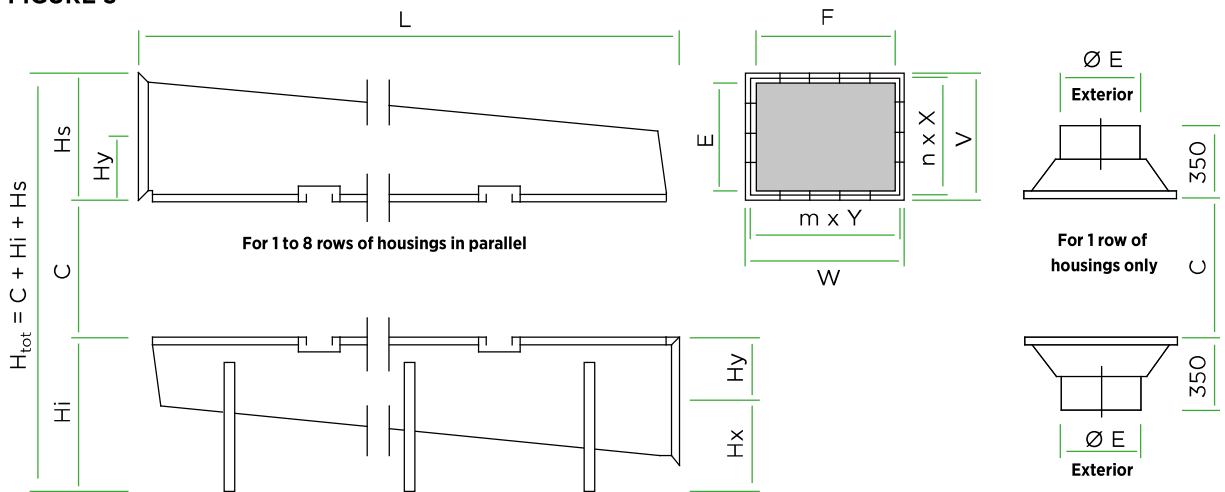
** Without dimension of gasket (+ approx. 2 mm)

NSC Safe Change - Technical Data

Type KS-	Filter Size	No. Rows	E	F	Hx	Hy	Hi	Hs	L	V	n x X	W	m x Y	Weight
E.-305-	305 x 610	∅	248	-	-	-	-	-	-	-	-	-	-	22
		1	105	316	548.5	151.5	700	291.5	869	280	2 x 122	402	4 x 122	46
E.-610-	610 x 610	∅	353	-	-	-	-	-	-	-	-	-	-	28
		1	195		548.5	151.5		291.5	869	280	2 x 122			60
		2	353		469.5	230.5	700	449.5	1,740	438	3 x 134			116
		3			402.5	297.5		583.5	2,611	572	4 x 134			180
		4	487	621	402.5	297.5		583.5	3,482	572	4 x 134	706	5 x 134	256
		5	621		435.5	364.5	800	717.5	4,353	706	5 x 134			340
		6	755		518.5	431.5	950	851.5	5,224	840	6 x 134			423
		7			601.5	498.5	1,100	985.5	6,095	974	7 x 134			531
		8	889		601.5	498.5	1,100	985.5	6,966	974	7 x 134			623
E.-3762-	762 x 610	∅	398	-	-	-	-	-	-	-	-	-	-	32
		1	195		548.5	151.5		291.5	869	280	2 x 122			67
		2	353		469.5	230.5	700	449.5	1,740	438	3 x 134			129
		3			402.5	297.5		583.5	2,611	572	4 x 134			200
		4	487	773	402.5	297.5		583.5	3,482	572	4 x 134	858	6 x 137	283
		5	621		435.5	364.5	800	717.5	4,353	706	5 x 134			373
		6	755		518.5	431.5	950	851.5	5,224	840	6 x 134			462
		7			601.5	498.5	1,100	985.5	6,095	974	7 x 134			580
		8	889		601.5	498.5	1,100	985.5	6,966	974	7 x 134			676
D.-610-	610 x 610 (2 units)	2	353		469.5	230.5	700	449.5	1,740	438	3 x 134			173
		3			402.5	297.5		583.5	2,611	572	4 x 134			262
		4	487		402.5	297.5		583.5	3,482	572	4 x 134			375
		5	621	1,276	435.5	364.5	800	717.5	4,353	706	5 x 134	1,361	10 x 132.5	483
		6	755		518.5	431.5	950	851.5	5,224	840	6 x 134			591
		7			601.5	498.5	1,100	985.5	6,095	974	7 x 134			737
		8	889		601.5	498.5	1,100	985.5	6,966	974	7 x 134			852

All dimensions in mm | All weights refer to a pair of duct connections | ∅ represents a circular duct connection with one row

FIGURE 3



NSC Safe Change Housings Filter Change and Order Code

FILTER CHANGE

Toxic or radioactive dust particles are a potential source of danger for service staff in a conventional filter change. The usability of the room in which the housing is situated can also be put in question as a result of housing leakage. The NSC safe change housing is therefore ideal, facilitating the contamination-free replacement of filters with the safe "bag-in bag-out method".

NSC housings are fitted with a collar to which the change bag is sealed using rubber rings. Once the filter cam bar mechanism has been released the dirty filter is withdrawn into the change bag and out of the housing.

Using the pressure compensation device (see "Accessories") will significantly facilitate this and reduce the contamination risk.

The service bag is then double welded between the housing and the filter and cut between the two seams, so the dirty filter can then be removed and disposed of without risk.

A fresh change bag is then fitted over the new filter and fixed to the housing collar. The rest of the dirty bag on the housing is then drawn into the end of the new bag behind the filter cell, the bag is double welded, cut between the seams and the contaminated bag and ring are removed, sealed within the end of the new bag.

The sealed remains of the new bag is rolled up into position, the housing cover locked into place, the pressure compensation device is closed and the system is ready for operation again.

ORDER CODE AND EXAMPLE

NSC	-	ER	-	610	-	KV
Housing or duct connection type NSC: Safe change housing KS: Duct connection		Filter withdrawal E: Single-sided (1 service side) D: Double-sided (2 service sides) Casing material L: Mild steel, epoxy resin coated R: Stainless steel		Filter size ...: 1st digit of the filter's cross section 305 x 610, 610 x 610 or 762 x 610 mm		Type of housing G: Basic housing (1 Filter) K: Combined housings (2 filters in Serie) Overall filter height(s) N: 292 mm (Filter type[s] N) V: 50-100 mm (filter type CR aspre-filter) + 292 mm (filter type N as final-filter)
KS	-	DL	-	610	-	5
						Number of rows (= filter in parallel) 1-8: Rectangular connection Ø: Round connection

NSC Safe Change Housings Accessories

ACCESSORIES

- Gas tight welded KS duct connections, round or rectangular
- Probes for aerosol injection and particle measurement, with gas tight valve
- Pressure compensation and purge device, with gas tight valve and cylindrical JG HEPA filter
- Change bags with two matching rings, for all filter sizes
- Pre-filters and final filters, types Hepatex CR and N
- Activated carbon filters, type N-A
- Housing versions for temperatures of up to 200 °C, however only without change bag
- Factory assembly of housing units (NSC) and duct connections (KS) to form complete systems (see figure 1)
- Final factory tightness test of assembled systems
- Shock resistant version

