

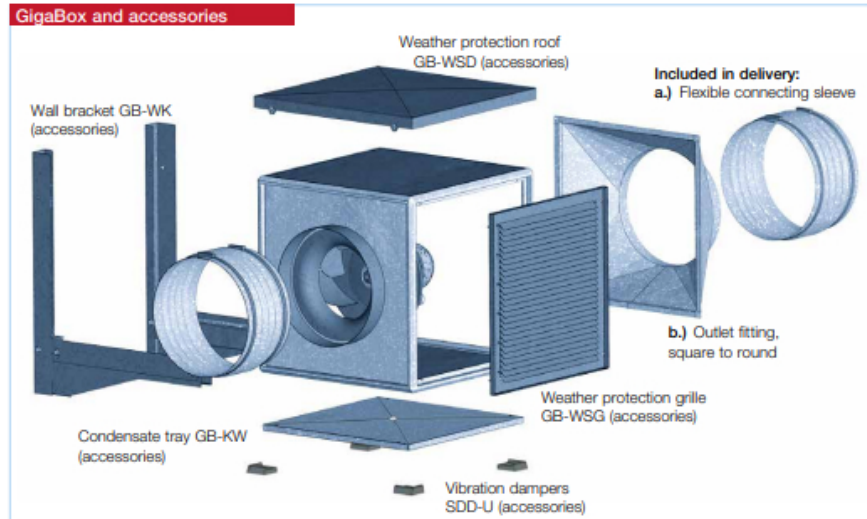


Giga Box T120

GigaBox centrifugal fans
Product-specific information



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Application

Multifunctional fan box for the transportation of medium to large volume flows against high resistances in ventilation systems of all kinds. The compact frame design and easy-to-install accessories allow variable and thus optimal adaptation to structural conditions by simply repositioning the casing panels.

GB T120 and GB EC T120

The GigaBox T120 types are designed for the delivery of contaminated, humid and hot air up to max. 120 °C, e.g. as extract air fans in commercial kitchens and many process technology applications. GigaBox T120 types with EC drive technology are optionally available for energy-saving applications and the lowest operating costs.

GB EC

GigaBox types with EC drive technology are optionally available for energy-saving applications and the lowest operating costs.

Casing

Self-supporting frame construction made of aluminium hollow profiles. Double-walled, 20 mm thick side panels made of galvanised steel sheet, sound and heat insulated by non-flammable mineral wool lining. Nozzle on inlet side for optimal inflow as well as connectors and flexible connecting sleeve for duct connection. Moulded part (square to round) on outlet side for low-loss outflow and flexible connecting sleeve to prevent structure-borne noise transmission. The flexible connecting sleeves included in the scope of delivery correspond to a max. permissible air flow temperature of +70 °C or +120 °C for types

GB T120 and GB EC T120. Simple positioning with crane hook as standard.

- The drive motor is located outside of the air flow for GB T120 and GB EC T120. The thermally insulated partition is also the support plate for the motor-impeller unit and it can be completely removed for inspection without dismantling the system components.

Power control

GB and GB T120

All types (excluding GBD 630/4 T120, GBD 710/4 and GBD 710/4 T120) are speed-controllable using 5-step transformer or electronic controllers. The 3-GB types can also be inexpensively operated at two speeds using a Y/Δ switch (accessory DS 2 or motor protection circuit breaker M4). Performance levels are shown in the performance diagram. Control by means of frequency converter with integrated sine filter (FU-BS, accessories) is possible for 3- types; GBD 630/4 T120, GBD 710/4 and GBD 710/4 T120 can only be controlled by frequency converter FU-BS.

GB EC and GB EC T120

All EC types have continuously variable speed control via speed potentiometer. Control is also possible via three level switch or continuously variable via universal control system or electronic differential pressure/temperature controller. Performance levels are shown on the characteristic curve as examples.

Positioning, installation

GB and GB EC

Any installation position and flexible installation due to five possi-

ble outlet directions of the outlet fitting. Removable side panels allow inspection access from all sides.

GB T120 and GB EC T120

Installation position with condensate drain below. Flexible installation due to three possible centrifugal outlet directions of the outlet fitting. Inspection cover with handle, easily removable for cleaning and maintenance. Simple positioning with crane hook as standard. The transmission of structure-borne noise to buildings is minimised by vibration dampers (type SDD-U, accessories). The transmission of vibrations to the duct system is prevented by the standard flexible connecting sleeves.

Impeller

Free-running high performance centrifugal impeller with backward curved plastic blades (nominal size 250 made of steel) on galvanised steel plate, directly driven. Series GB EC, GB from nominal size 500 and GB T120 and GB EC T120 with aluminium impellers. Energy-efficient with low noise emission. Dynamically balanced together with the motor in accordance with DIN ISO 21940-11 – quality grade 6.3 or 2.5.

Drive

GB and GB T120

IEC standard motor or maintenance-free external rotor motor in protection category IP 54 or 44. Thermal overload protection through thermal contacts in the winding. Suitable for continuous operation S1. Insulation class F. The ball bearings have a sufficient lubricant supply for their service life).

GB EC

Energy-saving, speed-controllable EC external rotor motor in protection category IP 54 with the highest level of efficiency. Maintenance-free and radio interference-free, ball bearing mounted.

Electrical connection

GB and GB T120

Standard terminal box, protection category IP 54.

GB EC

Standard terminal box (IP 54) mounted to external cable.

GB EC T120

Standard terminal box (IP 54) directly to the commutation electronics.

Air flow direction

The air flow direction cannot be changed for centrifugal fans, but it can be set by the corresponding positioning. The throughflow can also be individually adapted to structural conditions by converting the outlet fitting and panels. The correct motor rotation direction and air flow direction is marked by arrows on the fan and must be checked during commissioning.

Incorrect direction of rotation

Operation in the incorrect direction of rotation overloads the AC motor and causes the thermal contacts to respond. Typical concomitant features include: Low flow rate, vibration and abnormal noise.

Air flow temperature

The maximum permissible air flow temperature is shown in the type table.

Ambient temperature

From -40 °C to +40 °C.



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Requirements for extract air systems in commercial kitchens

VDI 2052 "Ventilation equipment for kitchens – Planning, design, inspection" is applied for the planning of extract air systems in commercial kitchens. The following applies for extract air fans:

□ Fans in extraction systems must be designed and installed so that they can be easily accessed, easily controlled and cleaned. It must be possible to deactivate them from the kitchen. The drive motors must be located outside of the extract air volume flow. Connected extraction hoods must separate solid and liquid components as far as possible. Flame propagation to downstream components must be prevented.

These specific requirements are remarkably fulfilled by the GigaBoxes GB T120 and GB EC T120. The freely accessible casing and double-walled side panels allow problem-free cleaning with degreasing agents and steam.

The guideline on fire protection requirements pertaining to ventilation systems (LÜAR ventilation system guideline) of September 2006 has been largely introduced nationwide by law.

This resulted in additional requirements for extract air systems in commercial and comparable kitchens:

- Extract air ducts must also be made of non-combustible materials (building material class A1 or A2 pursuant to DIN 4102). From the point of exit from the kitchen, they must have fire resistance class L90 at least or be equipped with a damper with proof of use for this purpose.
- Kitchen extract air ducts must not be interconnected or connected to other ventilation ducts. The combination of room air with the cooking zone extraction within the kitchen as well as the connection of multiple kitchen extraction hoods to one shared extract air duct is permitted.
- Suitable grease filters or separating elements made of non-combustible materials must be connected to or directly behind the extraction systems (hoods or ventilation ceilings). It must be possible to easily install and remove these for cleaning.

□ The extract air ducts must have smooth inner surfaces which are easy to clean. Profiled walls such as e.g. flexible ducts and porous or absorbent building materials are not permitted. Grease and condensate must not leak through the walls.

□ The extract air ducts must have inspection openings at distances of max. 3 m after each change of direction and in horizontal, straight sections. Their dimensions must correspond to the duct cross-section or at least 3600 cm². Devices for catching and draining condensate and cleaning agents must be provided at suitable points in the pipeline.

■ **Fire protection for neighbouring buildings**

If a ventilation system is located on the building envelope (wall), the ventilation system parts must have a fire-resistant lining L90. This also applies to fans and their extract air ducts which lead outside (up to the roof).

■ **Fire protection in the attic**

Ventilation system (fan) parts in the attic must have a fire-resistant lining L90. Ducts which lead outside must be lined up to the roofing. Ventilation ducts (in the building and attic) must have a fire-resistant lining.



■ With regard to the GigaBox T120 series, the motor is located outside of the air flow and it is separated from the impeller by a thermally insulated wall. The motor-impeller unit can be removed without dismantling the duct system.

■ Installation of outlet-side fitting for GB T120 and GB EC T120 radially upwards or laterally.

■ GB T120 and GB EC T120 with easily removable inspection cover.



Giga Box T120

GigaBox EC centrifugal fans Selection table

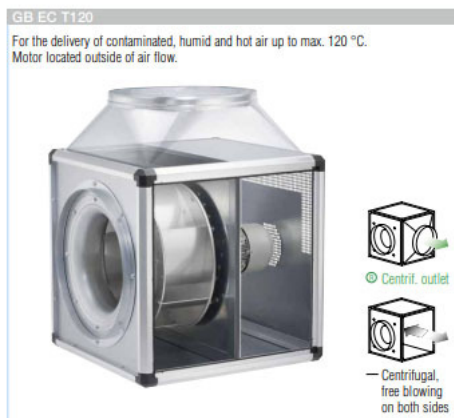


By combining the parameters of static pressure increase ΔP_{ts} , case-radiated noise and inlet side air noise as sound pressure at

4 m (free field conditions), the following table facilitates the selection of GigaBox EC centrifugal fans.

Type GB EC	Sound press. Radiation	Sound press. inlet side	Flow rate \dot{V} m ³ /h depending on static pressure												
	L_{PA} dB(A)	L_{PA} dB(A)	(ΔP_{ts}) in Pa												
	at 4 m dist.	at 4 m dist.	0	50	100	150	200	250	300	350	400	500	600	700	800
GBW EC 250	31	43	2010	1880	1750	1600	1360	1010							
GBW EC 315	32	44	2620	2460	2310	2130	1830	1500							
GBW EC 355	30	49	3440	3270	3120	2950	2740	2500	2135	1630					
GBW EC 400 A	36	48	4050	3860	3600	3350	3050	2670	1880						
GBW EC 400 B	37	52	5160	4970	4730	4550	4210	4100	3800	3410	2900				
GBW EC 450	38	55	6460	6280	6100	5890	5660	5450	5190	4870	4600	3810			
GBW EC 450	39	56	7300	7120	6870	6650	6390	6110	5800	5500	5180	4420	3070		
GBD EC 500 A	43	55	8280	7980	7700	7380	7000	6620	6170	5680	5070	1800			
GBD EC 500 B	46	59	10500	10260	9980	9730	9410	9100	8850	8600	8320	7600	6650	5300	
GBD EC 560	49	59	13370	13110	12800	12510	12190	11930	11610	11280	10920	10310	9580	8320	6700
GBD EC 630	44	60	15000	14680	14200	13870	13450	12930	12380	11900	11310	10180	7850		
GBD EC 710 A	42	53	15890	15020	14250	13500	12510	11670	10680	9500	6730				
GBD EC 710 B	48	61	19630	19060	18400	16760	17130	16460	15720	15050	14060	11910	6960		

Type GB EC T120	Sound press. Radiation	Sound press. inlet side	Flow rate \dot{V} m ³ /h depending on static pressure												
	L_{PA} dB(A)	L_{PA} dB(A)	(ΔP_{ts}) in Pa												
	at 4 m dist.	at 4 m dist.	0	100	200	300	400	500	600	700	800	900	1000	1100	1200
GBW EC 250 T120	40	52	2340	2140	1890	1630	1320	800							
GBW EC 315A T120	39	52	3030	2750	2390	1920	800								
GBW EC 355 T120	40	53	3830	3470	3020	2420	1210								
GBD EC 355 T120	40	53	3840	3470	3030	2420	1210								
GBW EC 400 T120	43	56	4730	4280	3730	2870	1490								
GBD EC 400 T120	46	59	4740	4290	3670	2880	1500								
GBW EC 450 T120	45	57	6200	5720	5070	4130	2610								
GBD EC 450 T120	48	60	6210	5690	5080	4140	2610								
GBD EC 500 T120	51	63	9610	9110	8550	7960	7170	6180	4920	2530					
GBD EC 560 T120	53	65	11650	11140	10630	10090	9510	8870	8060	7140	5520				
GBD EC 630 T120	54	68	14540	14060	13600	13150	12660	12050	11330	10540	9530	8060	4590		
GBD EC 710 T120	51	65	18360	17910	17440	16930	16370	15730	15030	14250	13330	12210	10920	9300	6760





Giga Box T120



GigaBox AC centrifugal fans Selection table

By combining the parameters of static pressure increase ΔP_{st} , case-radiated noise and inlet side air noise as sound pressure at

4 m (free field conditions), the following table facilitates the selection of GigaBox AC centrifugal fans.

Type GB	Sound press. Radiation	Sound press. inlet side	Flow rate V m ³ /h depending on static pressure													
	L _{PA} dB(A)	L _{PA} dB(A)	(ΔP _{st}) in Pa													
	at 4 m dist.	at 4 m dist.	0	50	100	150	200	250	300	350	400	500	600	700	800	
GBW 250/4	27	39	1420	1160	890	500										
GBW 315/4	29	41	1760	1500	1260	970	560									
GBW 355/4	38	48	3060	2850	2640	2420	2180	1900	1510	560						
GBD 355/4/4	34	46	3090	2910	2720	2520	2290	2030	1680	1000						
GBW 400/4	38	50	4120	3920	3720	3500	3270	3000	2690	2260	1440					
GBD 400/4/4	38	50	4120	3910	3710	3500	3290	3050	2780	2430	1870					
GBW 450/4	40	49	4610	4400	4200	3990	3770	3530	3270	2970	2610					
GBD 450/4/4	40	52	5500	5220	4930	4640	4330	4000	3640	3210	2670					
GBW 500/4	47	59	8320	8020	7740	7460	7180	6910	6630	6340	6030	5330	4340	370		
GBD 500/4/4	45	57	8860	8540	8220	7880	7530	7160	6770	6350	5900	4800	2940	140		
GBW 560/4	45	57	9150	8910	8670	8420	8160	7890	7620	7330	7030	6360	5570	4500	2270	
GBD 560/4/4	44	57	12610	12260	11910	11560	11200	10830	10450	10050	9630	8690	7540	5950	2940	
GBD 560/6/6	35	48	8670	8160	7600	6990	6280	5410	4210	2190						
GBD 630/4/4	51	62	14430	14070	13710	13370	13040	12720	12390	12050	11710	11000	10200	9280	8110	
GBD 630/6/6	42	53	9990	9430	8870	8290	7670	6980	6160	5070	3020					
GBD 710/4	46	59	20280	20020	19760	19490	19210	18930	18640	18340	18040	17400	16730	15990	15190	
GBD 710/6/6	51	62	18740	17980	17190	16360	15490	14560	13550	12440	11170	7730	970			

Type GB T120	Sound press. Radiation	Sound press. inlet side	Flow rate V m ³ /h depending on static pressure													
	L _{PA} dB(A)	L _{PA} dB(A)	(ΔP _{st}) in Pa													
	at 4 m dist.	at 4 m dist.	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	
GBW 355/4 T120	36	49	3460	2990	2460	1505										
GBD 355/4/4 T120	36	49	3470	3045	2510	1690										
GBW 400/4 T120	40	53	4930	4380	3790	2900	1580									
GBD 400/4/4 T120	40	53	4870	4295	3650	2740	1370									
GBW 450/4 T120	45	57	7110	6480	5850	5135	4350	3300	1900							
GBD 450/4/4 T120	45	57	7180	6600	5950	5220	4340	3230	1340							
GBW 500/4 T120	45	59	8345	7770	7160	6480	5670	4680	3510	1840						
GBD 500/4/4 T120	45	59	8350	7765	7180	6600	5910	4970	3820	1920						
GBD 560/4/4 T120	48	62	12300	11690	11080	10475	9800	9120	8410	7430	6000					
GBD 630/4 T120	53	67	14140	13690	13200	12720	12230	11670	11150	10470	8830	7850	6820	5150		
GBD 710/4 T120	55	66	18200	17650	17200	16650	16000	15300	14500	13750	12800	11850	10850	9800	8500	

GB T120

For the delivery of contaminated, humid and hot air up to max. 120 °C.
Motor located outside of air flow.



Centrif. outlet



Centrifugal, free blowing on both sides