



**GENERAL
EUROPE
VACUUM S.r.l.**
Tecnologie Del Vuoto

**OPERATING MANUAL
AND
SPARE PARTS LIST**

***OILLESS VACUUM PUMPS
GS TYPE***



**SISTEMA QUALITÀ
AZIENDALE**

certificato in accordo alla norma
ISO 9001:2000 e sottoposto a
verifiche volontarie e periodiche



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**DICHIARAZIONE DI CONFORMITA'
DECLARACION DE CONFORMIDAD
DECLARATION DE CONFORMITÉ**

**COMPLIANCE DECLARATION
KONFORMITAETSERKLAERUNG**



BOMBA DE VACÍO POMPA VUOTO POMPE A VIDE	VACUUM PUMP VAKUUMPUMPE
Modelo Modello Model	GS 3-6-10-16-25-40-100
Matricola Matricola Serial n°. Maschinen n°. N°. De machine	Desde/ Da/ From: 0801001 Hasta/ A/ To: 0812500
Año de Construcción – Anno di costruzione – Baujahr Year of manufacture – Anèe de construction	2008

LA FIRMA – LA SOTTOSCRITTA – THE UNDERSIGNED – LA SOUSSIGNEE –
DIE UNTERZEICHNENDE
GENERAL EUROPE VACUUM, S.r.l.
Via Del Commercio 9 * I-20090 BUCCINASCO (Milano) ITALY

Dichiara sotto la propria responsabilità che il suddetto macchinario denominato : pompa rotativa a palette, accoppiata direttamente ad un motore elettrico trifase o monofase con raffreddamento realizzato da ventola motore; ventola calettata sul giunto di trasmissione o serpentina/radiatore è conforme alle seguenti direttive: 98/37CEE, 73/23CEE, 89/336CEE e loro successivi emendamenti.

Declares under its own liability that the new machine herebelow described as : Rotary vanes vacuum pump directly coupled to electric threephase/monophase motor with air cooling carried out by means of motor fan, fan directly coupled to the transmission joint or by coil/radiator, fully complies the following directives no. 98/37CEE, 73/23CEE, 89/336CEE and the following amendments.

Declare sous sa propre responsabilité que la machine neuve dont la description est la suivante: pompe couplée directement à un moteur électrique triphase ou 1phase. Le refroidissement realise directment par ventilateur du moteur, par une ventilateur couplée sur le manchon de transmis-sion ou par le radiateur /serpentin de refroidissement, est conforme aux disposition: 98/37CEE, 73/23CEE, 89/336CEE et aux modification successiv

Erklaert unter eigener Verantwortung, dass die neue Maschine nachstehend beschrieben als: Vakuumpumpe direkt gekoppelt mit elektrischen Motor, dreifasig oder einfasig. Die kuehlung erfolgt direkt durch den Ventilator des Motors, Ventilator direkt an Transmissionskupplunggeko ppelt oder Radiator kuehlschlange. Entspricht den gesetzlichen Bestimmungen unter folgenden Vorschriften 98/37CEE, 73/23CEE, 89/336CEE und allen nachtraeglichen Abaenderungen.

Declara bajo su propia responsabilidad, que la maquina indicada arriba denominada: bomba rotativa de paletas, acoplada directamente a un motor eléctrico, trifasico ó monofasico, con el enfriamiento de la misma producido por el ventilador del motor; el ventilador instalado directamente en la unión de transmisión motor/bomba ó serpentin/radiador, es conforme a las directiva 98/37CEE, 73/23CEE, 89/336CEE y sus sucesivas actualizaciones.

Nome/ Name :
Carica/ Position :

PASIN CLAUDIO
PRESIDENTE



Descriptions and pictures shown in this handbook are not binding; **G.E.V.** S.r.l. therefore reserves the right, firmly keeping the essential features of the types herein described, to modify, at any time, without this handbook, any structure, details or spares, that it may consider valuable for improving its production or for satisfying commercial requirements

G.E.V. S.r.L.



COMPILANCE DECLARATION

G.E.V. pumps types GS have been designed and produced according to the Italian safety standards included in the CE machines directive 98/392 and further additions. The compliance declaration, with the CE marking printed on it, is supplied with the pump.

RECOMMENDED OPERATING CONDITION

- G.E.V. pumps type GS have been manufactured under the Italian standards.
- All component in the pumps comply with Italian standards.
- It is strictly forbidden to carry out repairs and/or maintenance operations to the pumps while electric power is on and/or safety devices are switched off
- It is strictly forbidden to remove the protection covers which are fitted to protect the end user
- The G.E.V. vacuum pumps types GS have been manufactured using technologically advanced components, providing that all the maintenance instructions supplied by our technicians to end user are carefully followed, G.E.V. guarantees apply.

ENVIRONMENTAL OPERATING LIMITS

- It is advisable to avoid environmental temperatures below 10 °c as in these conditions condensation will occur thus negating the warrantee
- Humidity from 20% to 95%

LIABILITIES LIMITS

GS vacuum pumps are equipped with safety devices fitted to ensure safe operation in normal conditions, G.E.V. liabilities the vacuum pumps only

WARRANTY

All new G.E.V. pumps carry a 6 months warranty on parts and labor, as protection against manufacturing defects, under normal and proper operating conditions. Warranty does not cover problems or breakage caused by improper handling, incorrect connections, or by lack of maintenance or other misuse.



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1.0 DESCRIPTION



1.01 Design and function

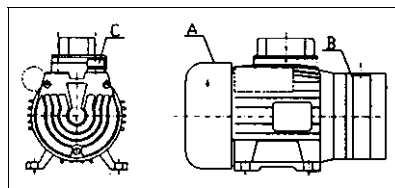
The G.E.V. GS series pumps are single stage, rotary vane vacuum pumps. Both models are equipped with standard CE motors coupler directly to the pump by means of a flexible coupling. These vacuum pumps are mainly utilized in the fields of handling, packing, packaging, woodworking and cardboard industries. If the pump is particulate it is advisable to include a proper inlet filter with a replaceable cartridge (see start-up point a). In case of gas steams saturation it is advisable to equip vacuum pumps with a condensate collecting tank.

1.02 Vacuum pump construction

Pump construction varies depending on model. Types 16-25-and 40 GS are equipped with an impeller (see drawing D) for help cooling

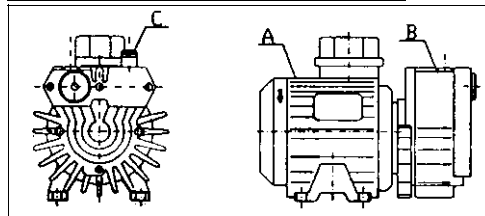
Mod. GS 3

- A - Motor
- B - Stator
- C – Silence valve



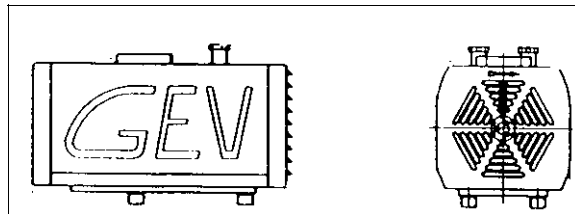
Mod. GS 6-10

- A - Motor
- B - Stator
- C – Silence valve



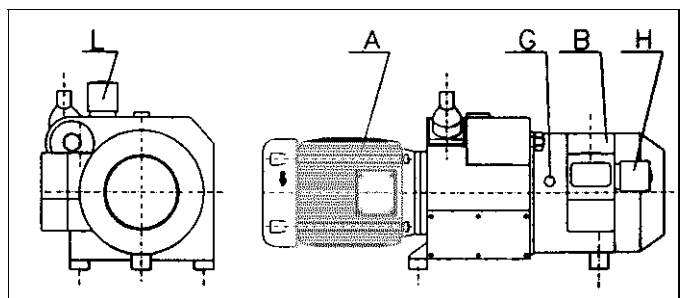
Mod. GS 16-25-40

- C – Silence valve
- D - Three pcs fitting
- E – Protection casing
- F – Air cooling fan



Mod. GS 100

- A - Motor
- B - Stator
- G – Bearing lubrifier
- H – Vacuum regulation valve
- L – Safety valve

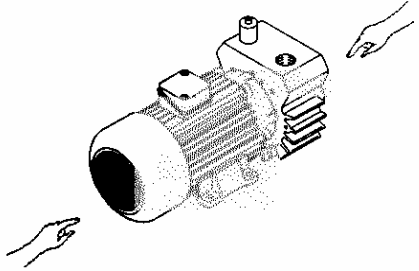


2.00 LIFTING AND TRANSPORT

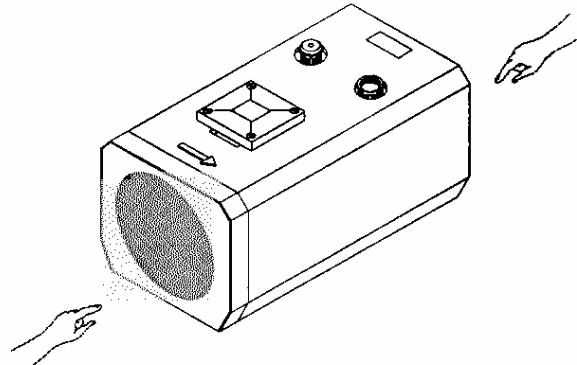
2.01 Lifting and transport



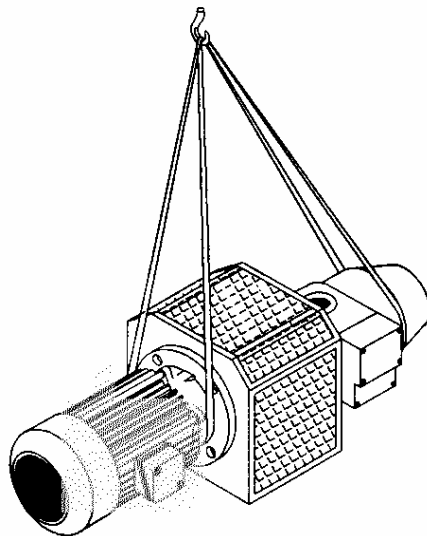
The models 3-6-10 and 16 GS can be easily lifted. G.E.V. anyway reminds to final users to carefully follow the given lifting instructions and to take all precautions, like gloves and forklift when carrying out such operation



GS 3 kgs 7
GS 6 kgs 14
GS 10 kgs 15



GS 16 kgs 31
GS 25 kgs 35
GS 40 kgs 40



GS 100 kgs 102

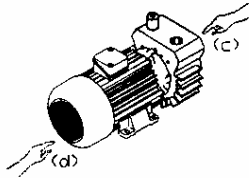
3.00 OPERATION

3.01 Installation

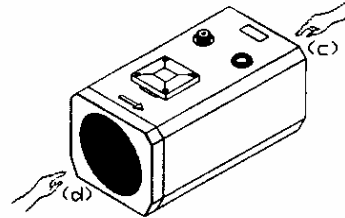
The pump must be installed on a level horizontal surface. It should also be installed in a n easily accessible area for occasional maintenance or filter replacement. Insure that the area has sufficient air flow for the air cooling circulation of the pump: this is very important to prevent the pump from overheating. Proper inlet



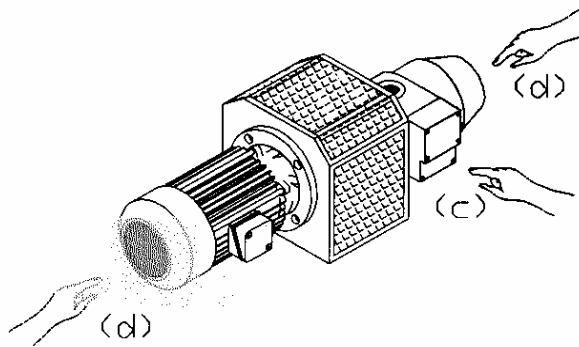
connections should be used to prevent leaks. Leaks will reduce the performance of the pump. Never restrict the pump exhaust.



GS 3 – 6 – 10



GS 16- 25 - 40

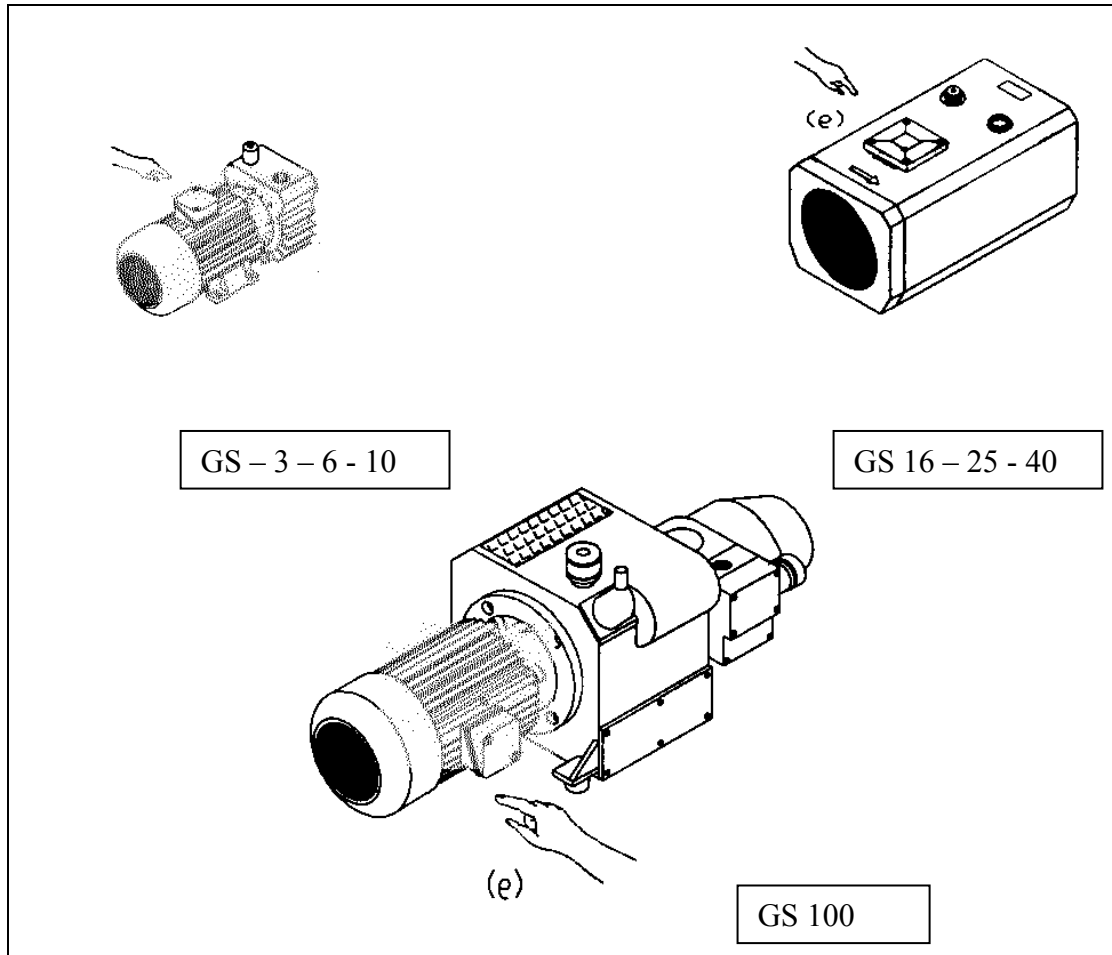


GS 100

3.02 Electrical connections



Connect the motor's cable to the winding box (e) being careful to protect the motor with a suitable safety device calibrating to the nominal current shown on the motor lab (pumps are not equipped with an own electric switch as they are usually installed on a centralized plant)



4.00 RISKS LIST

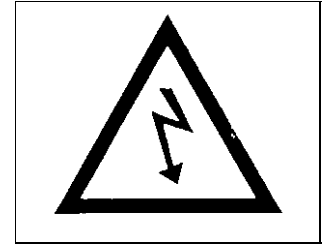
4.01 Mechanical risk



The presence inside the vacuum pump of detachable parts leads to the evaluation of the possible mechanical risks due to the parts same. For this reason, G.E.V. has equipped all their machines with protective casing firmly screwed on pumps and fit for protecting the personnel dealing with the pumps. It is recommended to provide for skilled personnel.

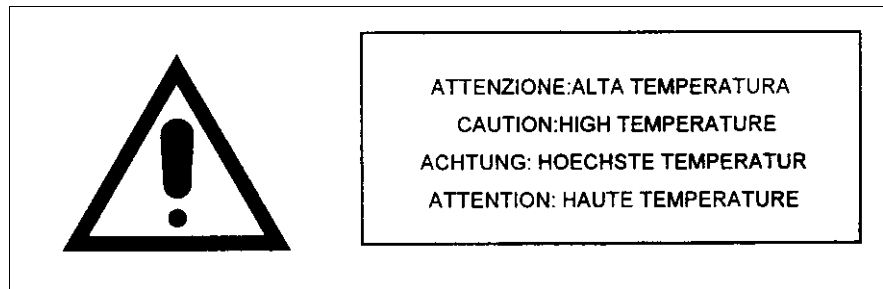
4.02 Electrical risks

G.E.V. vacuum pumps are supplied without electric cable. G.E.V. recommends to get this cable assembled by a skilled technician as no liability for consequent malfunction can be taken



4.03 Temperature risks

In those model where the ABS protective casing are missing, a label is usually stickered on to prevent high temperature risks



4.04 Acoustic risks

G.E.V. vacuum pumps have been designed and manufactured taking into consideration the acoustic risks' standards presently in force in all CE countries.

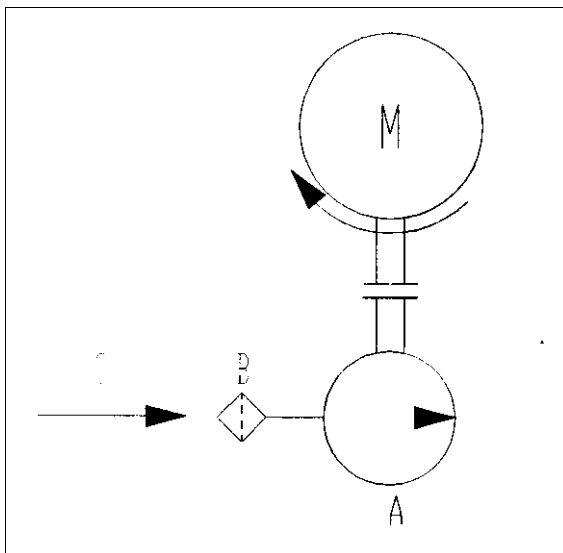
5.00 START – UP



5.01 Check - up

Check that the motor is rotating in the correct direction; if the pump is installed in a dusty environment, it is necessary to fit one or more additional filters. For some applications, it is advisable to equip vacuum pump with an oil bath filter (GFOP) in line with a cartridge filter (GFMV or GFCV) as follows:

- A – Vacuum pump
- B – Cartridge filter (GFCV)
- C - Suction



6.0 MAINTENANCE



6.01 Ordinary maintenance

- Check if filter cartridges inside the pumps are full up and ,if necessary, clean it/them by means of compressed air blown inside the cartridge. The same operations should have to be done in case of additional filtering elements mounted in suction. Refer to the assembling scheme for removing cartridge (Enc. A)

G.E.V. is not liable for operational failure due to mistakes during the assembling operation or the utilization of non G.E.V. spare parts

6.02 Periodical maintenance

- 300 hours Bearings can be lubricated through the greasers, housed in the 100 GS vacuum pump
only, by means of a proper greaser
All the vacuum pumps have been greased with a special silicon grease fit for high temperature and distributed by TecnoLube Seal
- 3000 hours Change filter cartridge. Refer to assembling scheme for removing the cartridge

(Enc. A)

Change blades in case their widths get reduced as follows:

GS 3	: 16,5 mm
GS 6	: 25.5 mm
GS 10	: 25.5 mm
GS 16	: 26 mm
GS 25	: 26 mm
GS 40	: 33 mm
GS 100	: 36 mm

This operation must be carried out by a skilled technician

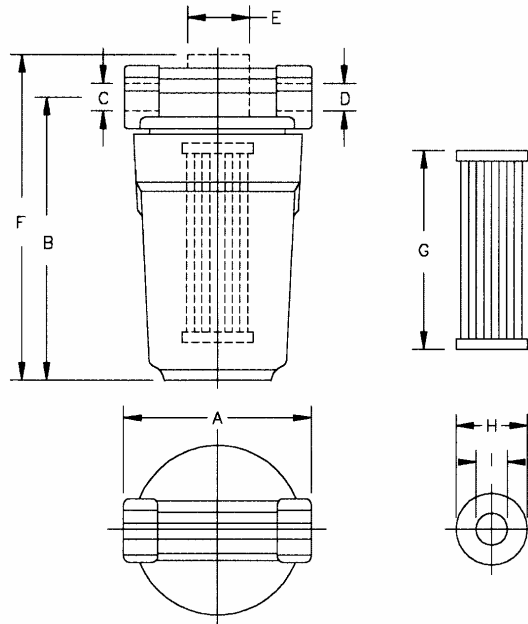
G.E.V. is not liable for operational failure due to mistakes during the assembling operation or the utilization of non G.E.V. spare parts

6.03 Trouble shooting

- See Enc. "D"

INLET FILTERS

A comprehensive range of inlet filters is available to ensure efficient protection of all pumps from the entry solid particles which cause internal pump damage resulting in performance degradation and premature breakdown. There are two different types of filter :GFC (with paper cartridge) and GFM (with metal cartridge)



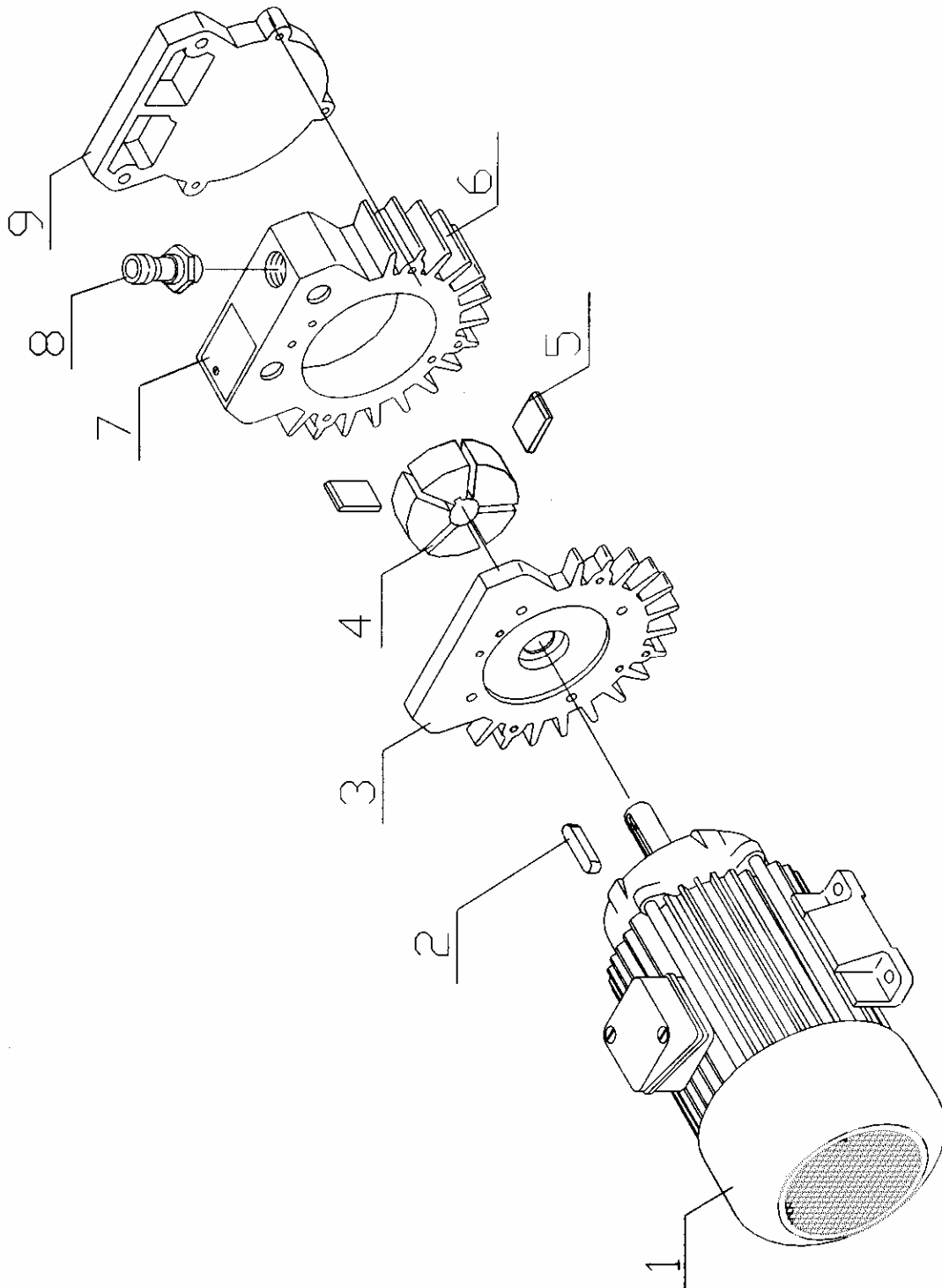
Type	20	60	100	200	300
Capacity (m³/h)	20	65	110	200	300
Weight (kg)	0,5	0,7	0,9	2	2,5
A	90	145	145	185	185
B	-	145	225	230	340
C Ø	½"G	1"G	1"G	2"G	2"G
D Ø	½"G	1"G	1"G	2"G	2"G
E Ø	-	-	-	-	-
F	-	-	-	-	-
G	123	82	170	140	260
H Ø	46	71	71	95	95
I Ø	22	26	26	65	65



ENCLOSURE “A”

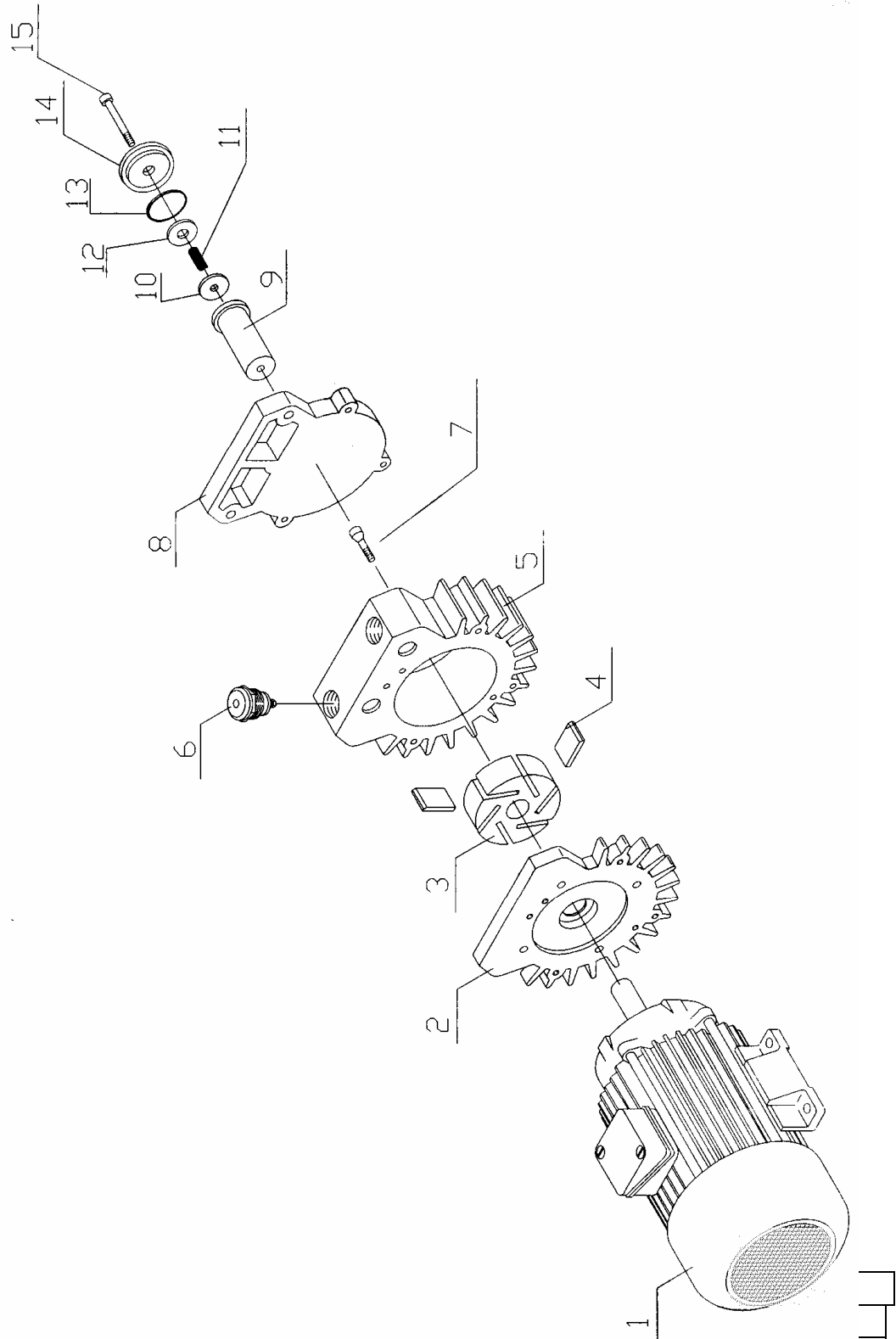
SPARE PARTS LIST

Please refer to our office or Area dealers for any request about spares

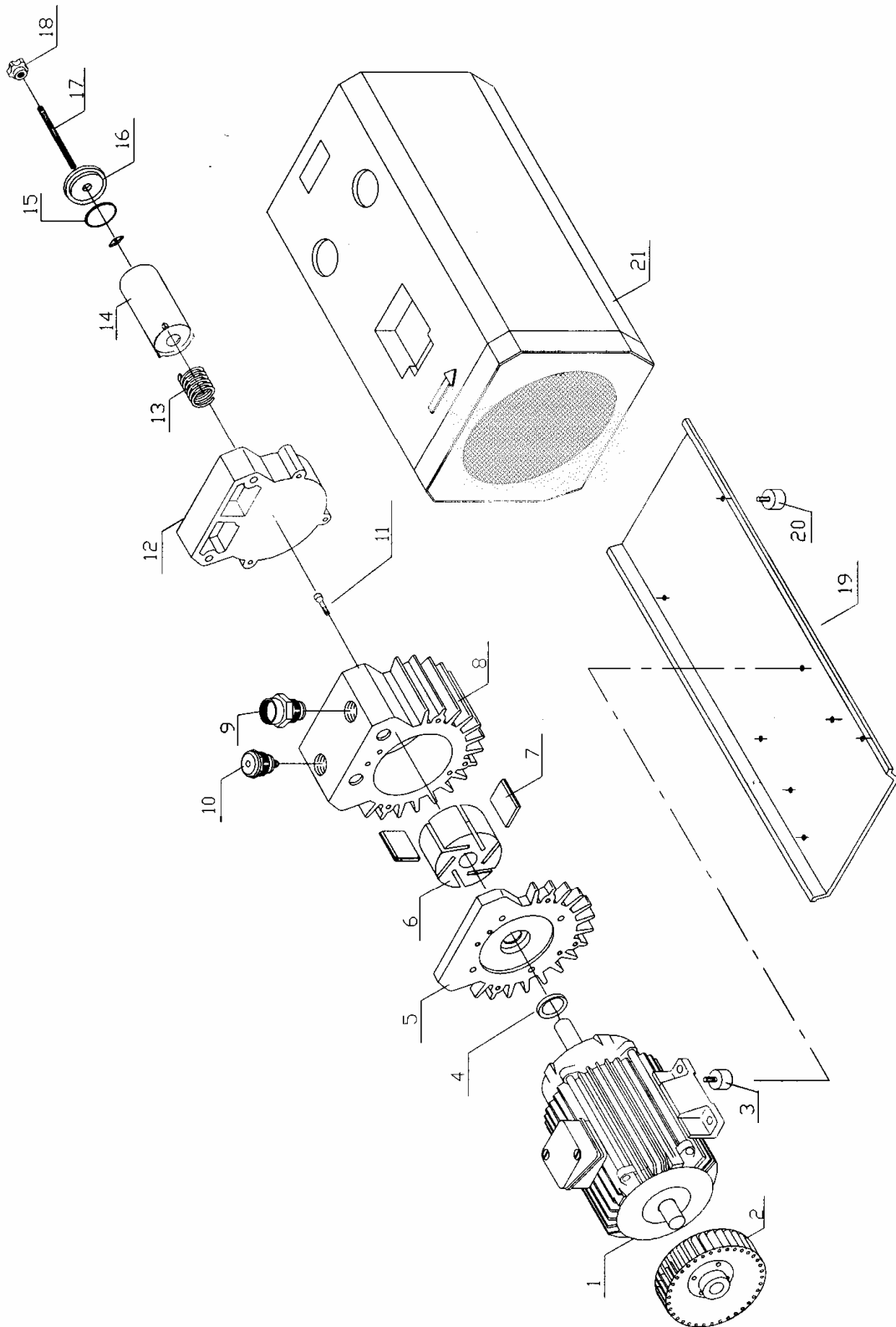




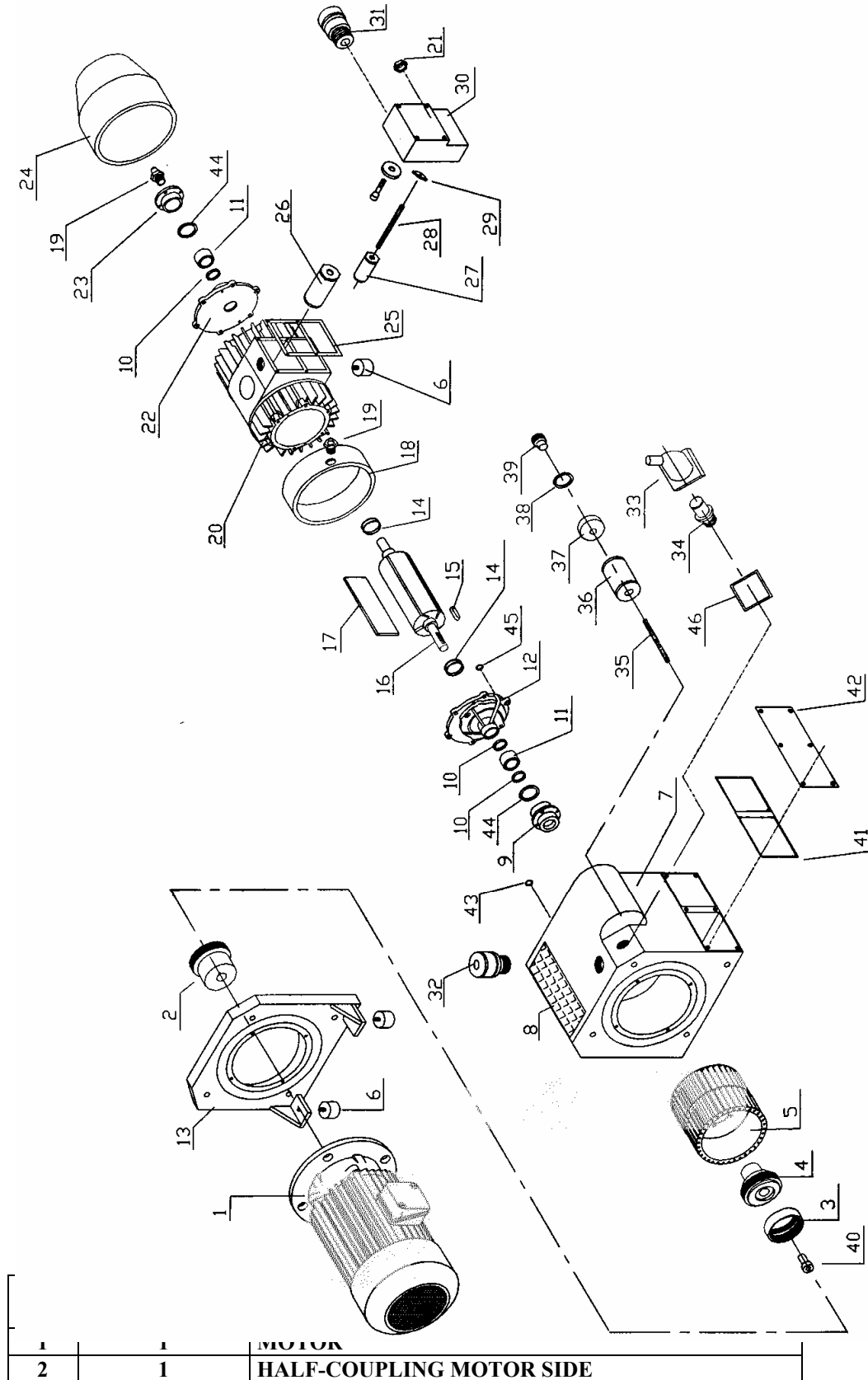
POS	QUANTITY	DESCRIPTION
	GS 3	
1	1	MOTOR
2	1	KEY



POS	C		
	6	10	
1	1	1	MOTOR



POS	QUANTITY	DESCRIPTION
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1	1	MOTOR
2	1	HALF-COUPLING MOTOR SIDE



3	1	SPIDER
4	1	HALF-COUPLING PUMP SIDE
5	2	FAN
6	3	ANTIVIBRATION FEET
7	1	TURRET
8	1	FAN CASING
9	1	SIDE MOTOR COVER
10	3	TIGHT RING
11	2	BEARING
12	1	SIDE MOTOR HEADER
13	1	MOTOR FLANGE
14	4	TEFLON PIPE
15	1	KEY
16	1	ROTOR
17	4	BLADE
18	1	COVER
19	2	SCREW LUBRICATOR
20	1	STATOR
21	1	SILENCER
22	1	HEADER
23	1	HEADER COVER
24	1	CONICAL COVER
25	1	SUCTION GASKET
26	1	AIR FILTER
27	1	AIR FILTER
28	1	THREADED BAR
29	1	THROITLE NUT
30	1	SUCTION COVER
31	1	VACUUM ADJUSTAMENT VALVE
32	1	SAFETY VALVE
33	1	EXHAUST VALVE
34	1	DISCHARGE VALVE
35	1	THREADED BAR
36	1	AIR FILTER
37	1	EXHAUST FILTER TIGHT COVER
38	1	OR GASKET
39	1	KNOB
40	1	SCREW
41	1	TURRET GASKET COVER
42	1	TURRET COVER
43	1	OR GASKET
44	2	OR GASKET
45	1	OR GASKET
46	1	EXHAUST COVER GASKET



ENCLOSURE “B”

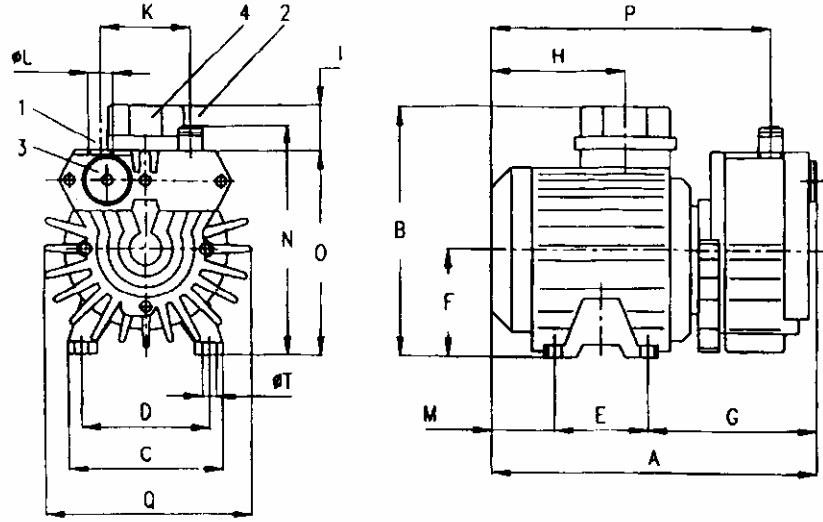
TECHNICAL FEATURES

AND

DIMENSIONS



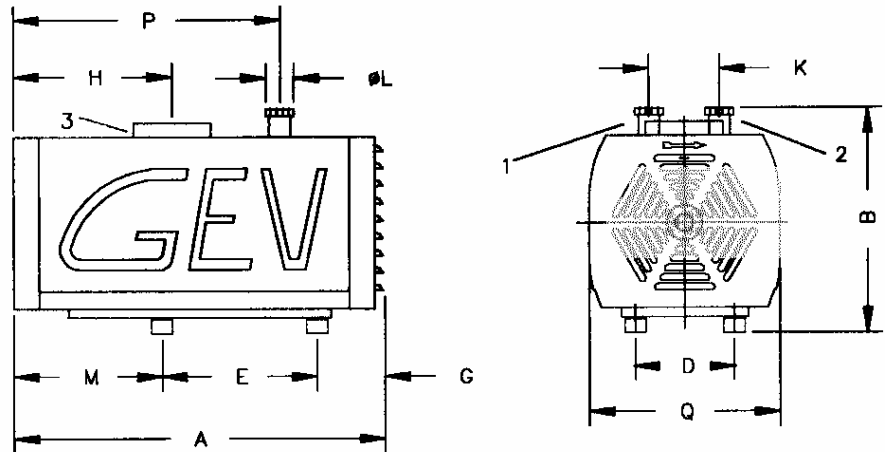
- 1 VACUUM INLET
- 2 OUTLET TO ATMOSPHERE
- 3 INLET FILTER
- 4 ELECTRICAL BOX



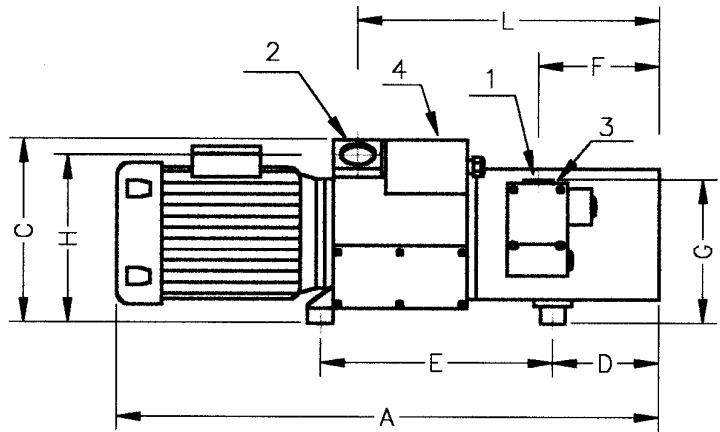
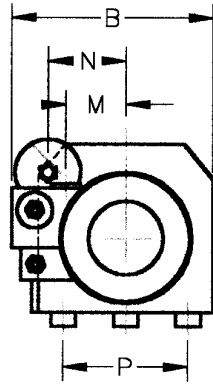
	GS	3	6	10
Displacement (m ³ /h)		3,5	7,4	11
Ultimate Vacuum (abs.) (mbar)		150	150	150
Ultimate vacuum with gas ballast				
Motor	3~	220/380V (50Hz)		
	1~	220V (50Hz)		
Motor power (kW)	3~	0,24	0,37	0,37
	1~	0,24	0,37	0,37
Nominal current (A)	380/V 3~	0,9	1,1	1,1
	220/V 1~	2,2	2,8	2,8
R.P.M. (min ⁻¹)		2810	1450	1450
Noise level (db(A))		60	60	63
Weight (kgs)	3~	7	15	17
	1~	7	15	17
Dimensions (mm)	A	230	320	330
	B	155	230	230
	C	120	155	155
	D	100	125	125
	E	80	100	100
	F	63	80	80
	G	85	133	143
	H	113	160	160
	I	4	80	80
	K	40	85	85
	L	1/4" GAS	1/2 GAS	1/2 GAS
	M	65	87	87
	N	125	175	175
	O	112	150	150
	P	210	265	275
	Q	150	157	157
	R	-	-	-
	S	-	-	-
	T	7	9,5	9,5
	V	-	-	-



- 1 DELIVERY SIDE
- 2 SUCTION SIDE
- 3 WIRING BOX



	GS	16	25	40
Displacement (m ³ /h)		17,1	26,1	45
Ultimate Vacuum (abs.) (mbar)		150	150	100
Ultimate vacuum with gas ballast				
Motor voltage (50Hz)	3~	220/380V (50Hz)		
	1~	220V (50Hz)		
Motor power (kW)	3~	1,1	1,1	1,3
	1~	1,1	1,1	1,5
Current (A)	380/V 3~	2,8	2,8	3,2
	220/V 1~	8	8	10
R.P.M.	(min ⁻¹)	1450		
Nominal noise (db(A))		63	65	70
Weight (kgs)	3~	30	35	50
	1~	30	35	52
Dimensions (mm)	A	524		
	B	275		
	C	-	-	-
	D	140		
	E	220		
	F	-	-	-
	G	93		
	H	226		
	I	-	-	-
	K	-	-	-
	L	3/4" GAS	3/4" GAS	1" GAS
	M	211		
	N	-	-	-
	O	-	-	-
	P	379		
	Q	270		
	R	-	-	-
	S	-	-	-
	T	M8		
	V	-	-	-



- 1 SUCTION
- 2 DISCHARGE
- 3 INLET FILTER
- 4 OUTLET FILTER

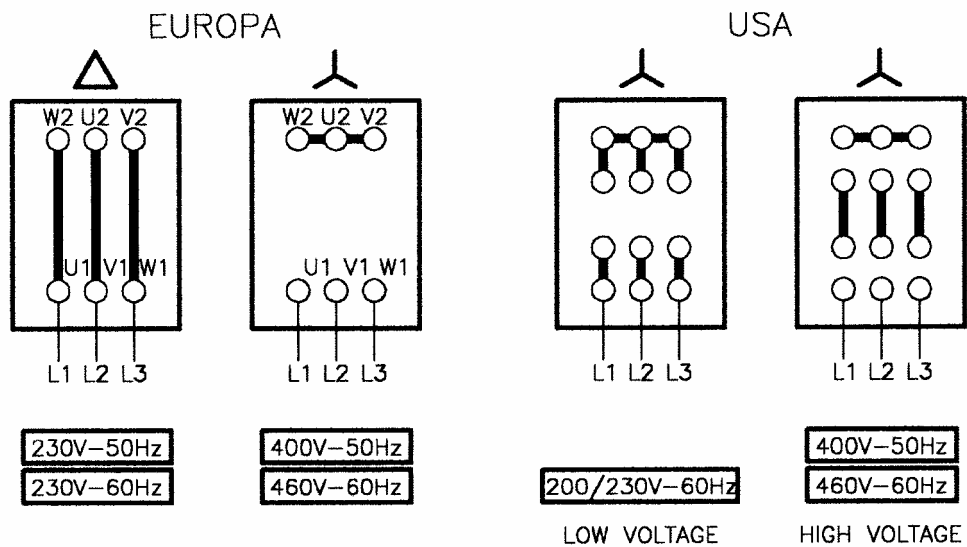
PUMP TYPE	GS 100		
	50Hz	60Hz	
Displacement	m3/h	100	120
Ultimate working Vacuum (abs) mbar		150	150
Standard voltage *	V	230/400	460
Motor power	kW	4	4
R.P.M.	g/1'	1450	1750
Noise level	db(A)	75	76
Weight	kg	97	97

Dimensioni (mm)		
A		900
B		340
C		350
D		175
E		390
F		200
G		240
H		300
L		500
M		100
N		130
P		208
Ø INLET.		1 1/4" GAS
Ø DISCHARGE		2" GAS



ENCLOSURE “C”

MOTOR CONNECTION SCHEME





ENCLOSURE “D”

TROUBLE SHOOTING

TROUBLE	CAUSE	REMEDY
Higt noise level	Blades have worm out	Replace blades
	Motor bearing gets broken	Replace bearing
Insufficient vacuum	Blades have worm out	Replace blades
	Suction filter is dirty	Clean or replace Suction filter