

VERTICAL CENTRIFUGAL PUMPS

in **GRAPHILOR**[®] (impregnated graphite)

GENERALITIES

V SERIES

Realization

Design

V series pumps with vertical shaft comprise two main parts:

- The first one consisting of an assembly in impregnated graphite (GRAPHILOR[®]) building the hydraulic part.
- The second one consisting of a metallic assembly comprising the rotating shaft (H), a bearing frame (G) and a coupling (J).

The "GRAPHILOR" assembly is supported by tie rods equipped with spring washers which ensure a constant compression between assembly plates (L) and (K).

The front clearance (between the body and the vanes of the impeller) can be adjusted by adding or removing the shims (AA).

In opposition to other types of pumps, these **do not include any tightness seal** on the shaft. Leakages, the flow rate of which is reduced by countervanes, travel up the shaft, then are collected in the bleedbox (D), pushed back by a deflector (E) and finally driven back to the tank by an adequate piping.

The **bearing frame** (G) holds two opposite conical ball bearings. This design allows absorption of important axial pressures (for example with liquid with a high specific weight). Oil lubrication of the bearing is made by two Tecalemit lubricators. The time between two lubrication operations should be moderate e.g. approx. 5000 hours.

The **coupling** (J) is supplied bored and grooved, provided that you accept our standard motor (see chapter "information required to order a pump").

Two plates (T) enable the assembly of the pumps on an adequate frame.

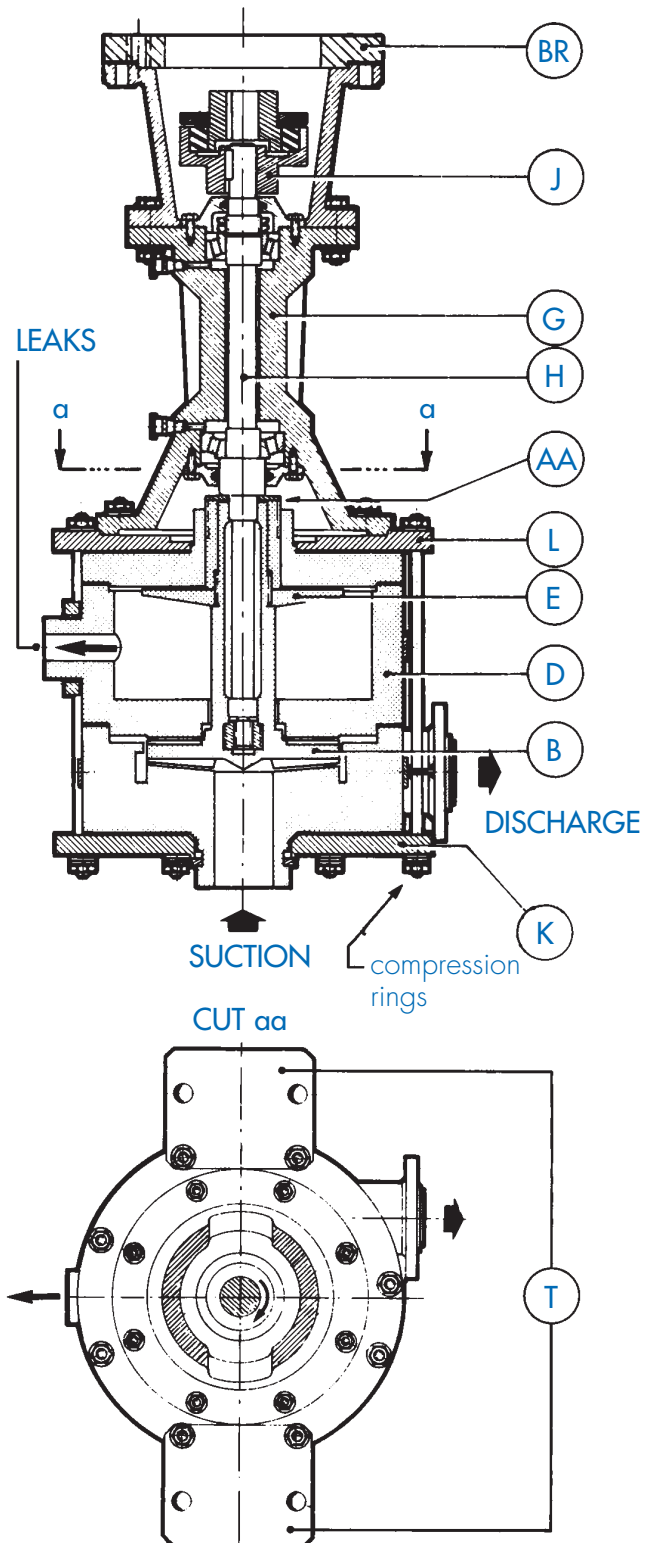
Materials

All the pieces in contact with the pumped fluid are made in GRAPHILOR (impregnated graphite resisting to most corrosive fluids).

The bearing frame is in cast iron and the other metallic parts are in steel.

All metallic parts are protected outside by an anti-corrosion paint.

The joints are in IT (CAF: rubberised asbestos) anti-acid quality or in ethylene-propylene.

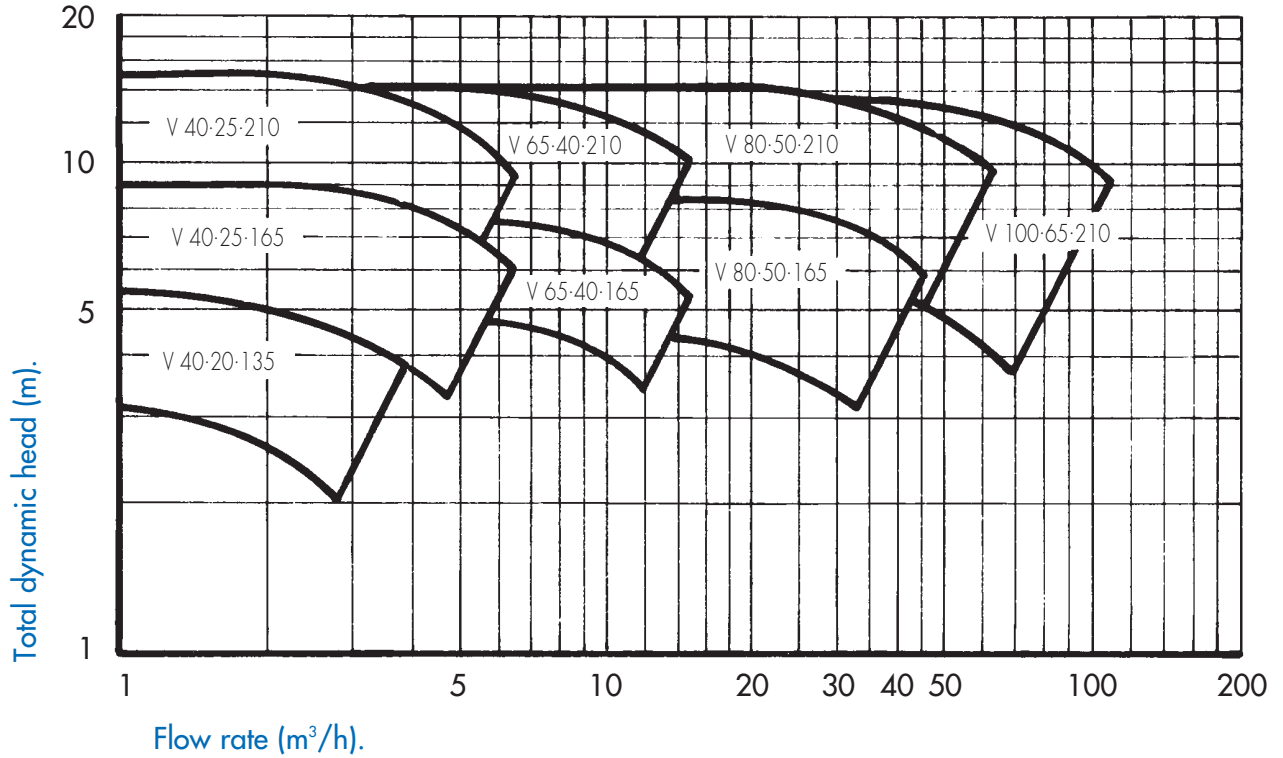


Range

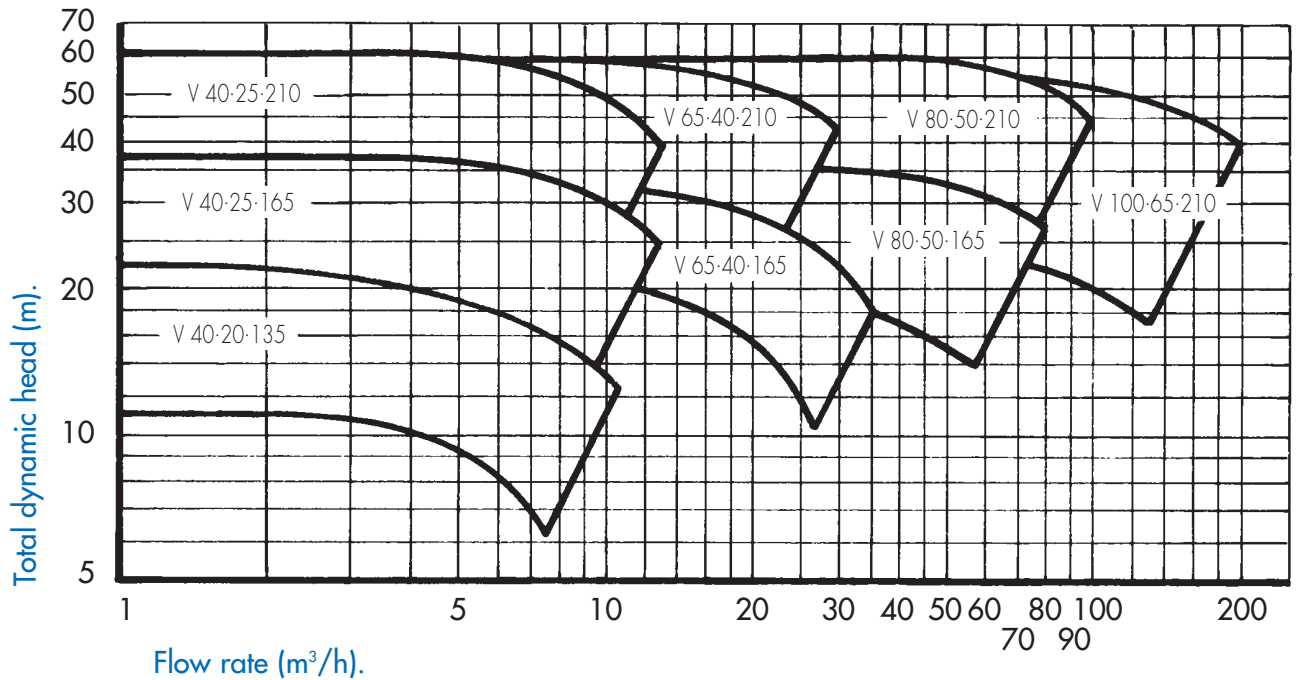
The range of GRAPHILOR vertical centrifugal pumps consists of 8 types, each accepting several impeller diameters. This enables coverage of flow rates up to 200 m³/hr and a total dynamic

head which can exceed 60 meters, depending upon flow and rotational speed considered (1 450 or 2 900 rpm).

1 450 rpm



2 900 rpm



Note: To select and size pumps, use curves represented on specifications mentioned page 4.

Operating conditions

- Maximum temperature: 165° C.
- Maximum pressure (test pressure): 8 bar gauge.


Identification

The pump types are defined as the following example: V 65-40-210

Type with vertical axe → V
DN of suction orifice → 65
DN of discharge orifice → 40
Maximum diameter of impeller → 210

A name plate opposite is fixed to all our pump models.

- Corrosion resistance: see corrosion chart for GRAPHILOR reference GC 5.

		GROUPE CARBONE LORRAINE	
TYPE		[]	
Graphilor	[]	Année Year	[]
N° Constructeur Constructor N°	[]		
Rep. Utilisateur User equip. N°	[]		
Diamètre de roue Impeller diameter	[]	mm	
MADE IN FRANCE - 54530 PAGNY-SUR-MOSELLE			

Tests and inspections

- Hydraulic test for pump body: 12 bar gauge.
- Operation control, when pump is assembled.

Documents and certificates

- Installation and maintenance (ref. GCA 112).

This is sent to client when the equipment leaves our factory of PAGNY-sur-MOSELLE.

It gives information on:

- Sizes and weights,
- installation,
- Flange connections,
- Commissioning,
- Dismantling,

- Re-assembling,
- Maintenance,
- Component part list,
- Recommended spares list to be kept in stock.
- On request, when placing the order, the following documents can be supplied:
 - Assembly drawing,
 - Hydraulic test certificate (for pump body).

Motor-pump set

The vertical centrifugal pumps in GRAPHILOR are supplied with:

- Coupling: FU type M.

When the pump, on request, is supplied without motor the motor side of the coupling is not bored and not grooved.

- Motor: with vertical axe and flask flange in conformity with standards NF C51111, 51105 et 51120.

Insulation class F. Protection IPW 55 (sealed against dust and water jets). Voltage 220/380 V, three-phase 50 Hz.

If you wish to mount another type of motor than standard, please indicate its type clearly, so that we can supply with the pump a connection flange with the drilling corresponding to your motor.

Inspection

All of our equipment is checked by our QUALITY-CONTROL DEPARTMENT. All other check-

ing will, after exact definition, be charged as an extra.

Maintenance

Brochure GCA 112 enclosing all the details indicated above in the paragraph "Documents and

Certificates" is supplied with the equipment.

Options

- ARMYLOR® (PTFE) bellows for the suction and discharge connections (remove pipework stresses and vibrations).
- Soft connection joints (core in corrugated stainless steel + IT (CAF) + PTFE jacket).
- Filter: in the case of liquids with solids present, it is necessary to consider a filter at the suction. We can supply GRAPHILOR filters (mesh approx. 4 mm)

which have the advantage of being easily dismantled and cleaned (as drawing 50076).

- Motor: other motor type than standard described on page 3, § motor-pump set.

Information required to order a pump

- Type of pump (ex.: V 65-40-210).
- Impeller diameter required (ex.: 210 mm).
- Options:
- other motor type than standard,

- GRAPHILOR filter (ex.: F 125-65),
- ARMYLOR connection bellows,
- soft connection joints.

Information required to size the pump

- Pumped fluid:
- composition,
- temperature,
- density,
- viscosity.
- Performances required:
- flow rate,
- total manometric head.

- Installation:
- schematic plant layout,
- if other motor type than standard, drawing of flask flange so that we can eventually supply a connection flange (BR).

Only general information common to all V pumps are contained here.

For specific information for each type, see the following specifications:

Pump type	Specification
V 40-20-135	SV 441 040
V 40-25-165	SV 442 040
V 40-25-210	SV 443 040
V 65-40-165	SV 444 065
V 65-40-210	SV 445 065
V 80-50-165	SV 446 080
V 80-50-210	SV 447 080
V 100-65-210	SV 448 100

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