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GRUNDFOS WASTEWATER



WASTEWATER LIFTING STATIONS FOR BUILDING SERVICES

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GRUNDFOS 

Liftaway C 40-1

Cuves pour eaux usées domestiques

POMPES ET STATIONS
DE RELEVAGE

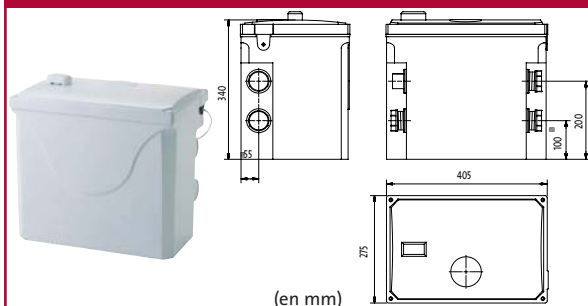


APPLICATIONS

La Liftaway C40-1 est une cuve de relevage conçue pour la collecte et le pompage d'eaux usées provenant des lavabos, machines à laver, éviers ou bac à douche.

- Livrée avec tous les accessoires de raccordement nécessaires pour l'installation d'une pompe Unilift KP 150 A1, 250 A1 ou 350 A1 (à commander séparément).
- Refoulement possible à droite ou à gauche (DN40, livrée avec tube de raccordement et 2 colliers).
- 4 positions d'arrivées possibles : 3 sur le côté (DN40) ou 1 sur le couvercle (DN40/50).
- Filtre à charbon actif et clapet anti-retour en acier inoxydable.
- Volume utile : 13 litres (total 28 litres).

ENCOMBREMENTS - INSTALLATION



CARACTÉRISTIQUES TECHNIQUES

Types	Code article	Diamètre (mm)	
		arrivée	refoulement
LIFTAWAY C 40-1	96003985	3 x 40	1X40 / 50 40

Microlift KP

Stations de relevage

POMPES ET STATIONS
DE RELEVAGE



APPLICATIONS

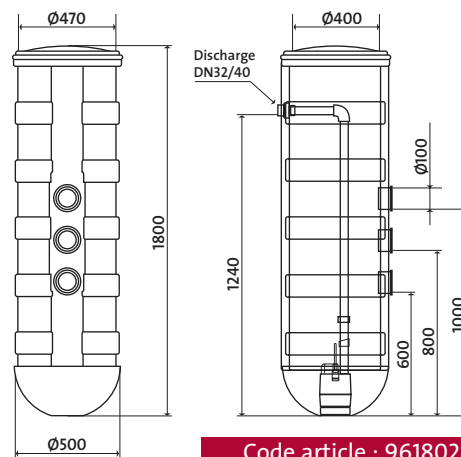
- La station Microlift est conçue pour le relevage des effluents préalablement traités qui ne peuvent pas être évacués par gravité. Le recours à un assainissement autonome peut être confronté à l'utilisation d'un filtre à sable rapporté ou à une pente défavorable pour l'accès au champ d'épandage souterrain, dans ce cas la station Grundfos Microlift facilitera la remontée des eaux traitées.
- La station Microlift peut être également utilisée pour le relevage des eaux de pluie ou de récupération contenant une quantité modérée de particules solides ou abrasives.



CONSTRUCTION/INSTALLATION

- Cuve en polyéthylène HD à fonds sphérique.
- Capacité : 150 l.
- Couvercle fileté étanche.
- Orifice de sortie DN 32/40 – 3 entrées pré-perçées diamètre 100.
- Conçue pour une installation extérieure souterraine (exempt de charge roulante) où seul le couvercle démontable sera visible.
- Peut être installée sur un lit de sable ou un radier en béton.
- A équiper d'une pompe KP (à commander séparément).
- Livrée avec tuyauterie interne de refoulement.

ENCOMBREMENTS / INSTALLATION



Code article : 96180258

UNOLIFT / DUOLIFT

Stations de relevage

NOUVEAU



APPLICATIONS

Les stations de relevage Unolift (1 pompe) et Duolift (2 pompes) sont conçues pour la collecte et l'évacuation des eaux usées et eaux vannes.

Elles permettent le relevage des eaux usées et chargées en provenance d'installations sanitaires (baignoire, douche, machine à laver) et WC situés en dessous du niveau de l'égout (sous-sol, garage...).

Les stations équipées de pompe Unilift AP35, AP50, AP35B ou AP50B, selon les modèles, sont utilisables en application domestique ou petit collectif.

CARACTÉRISTIQUES

- Se référer aux caractéristiques des pompes (pages 30 et 32).
- Stations livrées câblées, prêtes à l'emploi.
- Pompe de secours sur les modèles Duolift.
- Possibilité d'enterrer les stations / réhausse à visser disponible en accessoire.

⚠ Une réhausse maximum par couvercle, la cuve ne supporte pas les charges «roulantes».

ENCOMBREMENTS / INSTALLATION

NOUVEAU



CONSTRUCTION

Cuves de relevage en polyéthylène gris de capacité 270 litres (Unolift) ou 540 litres (Duolift).

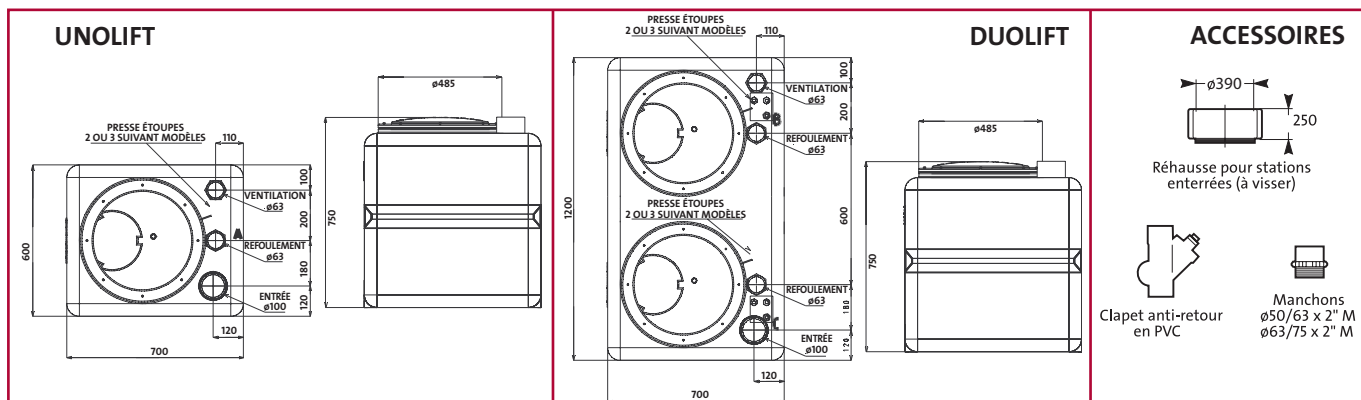
Cuves conformes à la norme Européenne EN 12050-1 ou EN 12050-2 (suivant le modèle de pompe).

Les stations avec pompe(s) monophasée(s) sont équipées de :

- Une alarme sonore type APA (+ câble 5m) et un contacteur à flotteur signalant un dépassement du niveau normal de remplissage de la cuve.
- Pompe(s) avec flotteur et câble d'alimentation moteur avec fiche mâle.

Les stations avec pompe(s) triphasée(s) sont équipées de :

- Une alarme sonore type CAN (+ câble 5m) + voyant signalant un dépassement du niveau normal de remplissage de la cuve.
- Un coffret type CS102 (ou équivalent) de commande de marche automatique et de protection raccordé pour les modèles Unolift.
- Un coffret type CS203 (ou équivalent) de commande de marche automatique, de protection et de permutation en cas de défaut raccordé pour les modèles Duolift
- Pompe(s) avec câble d'alimentation moteur.



CARACTÉRISTIQUES TECHNIQUES

type	type de pompe	P1 (kW)	1 ph In (A)	3 ph In (A)	max temp.	diam. passage (mm)	câble (m)	m ³ /h	0	4	8	12	16	20	24
Unolift 35.06.A1	1 x AP35.40.06.A1	0.9	4	-	55°C	35	9	mCE	8	6	4	2	-	-	-
Unolift 50.08.A1	1 x AP50.50.08.A1	1.3	6	-	55°C	50	9		8	7	6	5	3	2	1
Duolift 35.06.A1	2 x AP35.40.06.A1	0.9	4	-	55°C	35	9		8	6	4	2	-	-	-
Duolift 50.08.A1	2 x AP50.50.08.A1	1.3	6	-	55°C	50	9		8	7	6	5	3	2	1
Unolift 35B.06.A1	1 x AP35B.50.06.A1	1	4	-	40°C	35	4		8	7	5	3	-	-	-
Unolift 50B.08.A1	1 x AP50B.50.08.A1	1.2	5	-	40°C	50	4		9	8	7	5	4	3	-
Unolift 50B.11.A1	1 x AP50B.50.11.A1	1.8	8	-	40°C	50	4		13	11	10	9	7	5	4
Unolift 50.08.3	1 x AP50.50.08.3	1.2	-	2	55°C	50	9		8	7	6	5	3	2	1
Duolift 50.08.3	2 x AP50.50.08.3	1.2	-	2	55°C	50	9		8	7	6	5	3	2	1

Multilifts M and MD

Grundfos Multilift M and MD are designed for the removal of large volumes of wastewater and sewage for instance in blocks of flats, small hotels, restaurants or other building complexes.

The Multilift stations are designed specially for the collection and pumping of wastewater and raw sewage from wastewater pipes and water closets situated below the sewer level. The Multilift stations lift the wastewater and sewage and carry it forward to the sewer line.

Ready to install

The Grundfos Multilift M and MD stations are supplied as complete units ready for installation. The units consist of one or two vortex impeller pumps fully integrated with the collecting tank. Solutions for single or three-phase power supply are available.



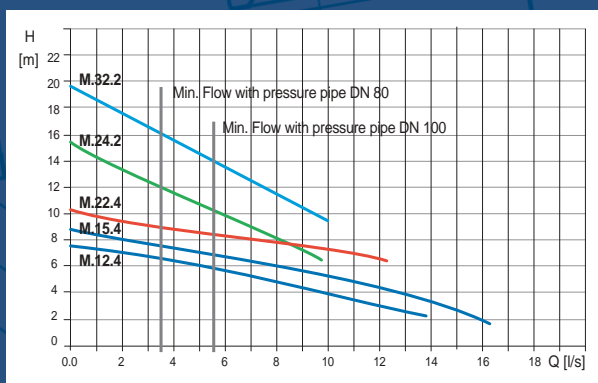
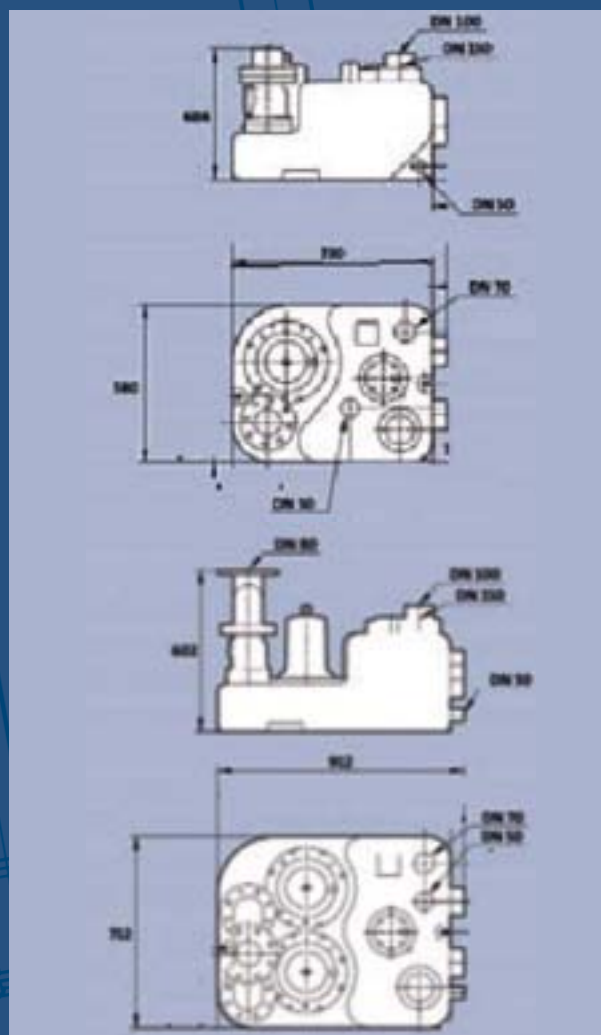
- 1 Motor/pump
- 2 Non return valve
- 3 Level sensor
- 4 Collecting tank

The Multilift M and MD stations are supplied complete with all necessary flexible connections for inlet, discharge and ventilation pipes. The Multilift M and MD have polypropylene level sensor unit with built-in pressure switches.

The collecting tank is made of non-breakable, non-corrosive, airtight polyethylene. It is completely watertight as well as gas and odour proof.

	M		MD	
Inlet level (mm)	180	250	180	250
Tank capacity (l)	100	100	120	120
Effective volume (l)	54	74	72	92

The LC 109 and LCD 109 controllers are designed for the control of Multilift M and MD stations. The controllers incorporate all necessary components such as contactors, control board with lights for indication of operating condition and alarms.



Pumping station PUST

Pressurized systems for sparsely populated area

The PE Lifstation SEG are ideal for use in sparsely populated area where gravity systems are not available: small village, farms, industry and rocky area and any other area where pressurized systems offer advantages. Grundfos lifting station is suitable for pumping untreated sewage with high discharge pressure. Those Grundfos prefabricated pumping stations, equipped with other sewage pumps are designed for removing and collecting drain water, surface water, domestic and industrial wastewater.

PUST pumping station is designed for outdoor installation below the ground and does not require long and expansive works. The low weight and ease of handling on site together with the benefits of pre-assembly at the factory offer installers and users considerable advantages. Site work is minimized during installation and after the tank is put into position the system only requires the connections of inlet and discharge pipelines and connection to the power supply.

Complete range of pumping stations

standard depth (mm)	standard diameter (mm)
2000 and 2500	600
1500, 2000, 2500	1000, 1 pump
2000, 2500	1000, 2 pumps

Available in four different standard diameters, the pump pits can be supplied in a number of different standard depth

The pumping stations are made from durable polyethylene (PE HD). All pre-installed piping is either PE or high-grade stainless steel, depending on pump model. As standard, the pumping stations are supplied with a class A PE top cover. Covers capable of withstanding heavy loads can be supplied on request.



Note: Pumps are ordered separately, according to the required duty point. Pumps, pit, control and accessories are delivered in the same package.



Complete range of controllers

Control panel are ordered separately according to the selected pump



MacroLift ML/MLD

Lifting station for wastewater network

The MacroLift ML/MLD is a "tailor made" lifting station allowing to create the most efficient pumping systems for sewage, waste water and industrial effluents in building services.

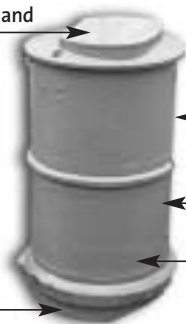
The Macro Lift lifting stations are provided with the suitable effluent and sewage pumps and all necessary equipments for the installation.

MacroLift ML/MLD for one or two SE, SE1, SEV pumps

The MacroLift ML/MLD is designed for outdoor installation below the ground, key characteristic does not require long and expansive works.

- Monolithic and water tight pumping station,
- Corrosion resistant tank in resin and fiber glass, filament wound
- Sump floor controlling the liquid flow while pumping in order to eliminate the dead zones,
- Prefabricated complete system to simplify the construction of the pump station,
- Easy selection of the tank size, variants and accessories,
- Separate valve and non return valve chamber (option),
- Automatic operation,
- Inlet port drilled at the installation site.

Resin and fiber glass lid and tank, thickness 6 mm



Discharge connection: lapped flange

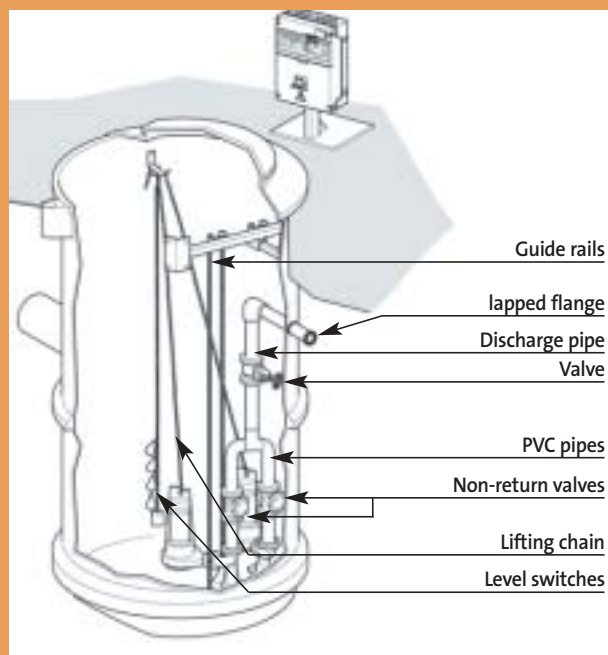
Inlet connection drilled at the installation site
One or two pumps in standard version

Inclined bottom

Description:

Lifting station for one or two pumps with semi open impeller or vortex impeller.

- Pit assembly with inclined bottom and cylindrical wall, diameter **1000 mm**,
- Height from **2m to 3,5 m**,
- Internal pipes,
- One or two non return valves,
- One discharge valve,
- Auto coupling with guide rails,
- Float switches (2 units for one pump, 3 units for two pumps),
- Discharge port with lapped flange DN 65/DN 80 for one pump DN65/DN 80/DN100 for two pumps depending on the size of the pumps,
- Polyester kit for drilling of the inlet port at the installation site.



Guide rails

lapped flange

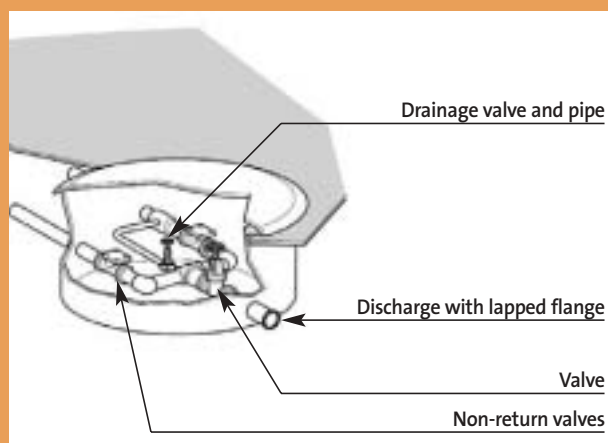
Discharge pipe
Valve

PVC pipes

Non-return valves

Lifting chain

Level switches



Drainage valve and pipe

Discharge with lapped flange

Valve

Non-return valves

Optional equipment

- Valve and non-return valve in a separate chamber
- Control panel for 3 phase version
- Strainer on guide rail at the inlet port
- Additional float switch for alarm
- Sound and /or visual alarm

MacroLift ML/MLD

MacroLift ML/MLD
Effluent and
sewage pumps



- Power from 1,2 kW to 4,8 kW
- Version Ex on request
- Single phase and 3 phase version
- Single channel impeller
- Vortex impeller

Control panels offer the following functions:

- Automatic control cascade of two pumps
- Automatic pump change at any start stop cycle
- Mains switch
- Motor protection to prevent the motors from short circuit and overload
- Over temperature of the motor
- Time control
- Manual reset
- Alarm indication

Number of pumps	pumps type	Impeller type	free passage (mm)	DN pump outlet	DN Pit outlet	DN Valve chamber
1	DP.10.62.26	Semi-open	10	65	65	-
1	SE1.50.65.09 to SE1.50.65.15	Single channel	50	65	65	-
1	SE1.50.65.22 to SE1.50.65.40	Single channel	50	65	65	-
1	SE1.50.80.22 to SE1.50.80.40	Single channel	50	80	80	-
1	SEV 65.65.09 to SEV 65.65.15	Vortex	65	65	65	-
1	SEV 65.65.22 to SEV 65.65.40	Vortex	65	65	65	-
1	SEV 65.80.22 to SEV 65.80.40	Vortex	65	80	80	-
2	DP.10.65.26	Semi-open	10	65	65	-
2	DP.10.65.26	Semi-open	10	65	65	65
1	SE1.50.65 09 to SE1.50.65.15	Single channel	50	65	80	-
1	SE1.50.65 09 to SE1.50.65.15	Single channel	50	65	65	80
1	SE1.50.65 22 to SE1.50.65.40	Single channel	50	65	80	-
1	SE1.50.65 22 to SE1.50.65.40	Single channel	50	65	65	80
1	SE1.50.80 22 to SE1.50.80.40	Single channel	50	80	100	-
1	SE1.50.80 22 to SE1.50.80.40	Single channel	50	80	80	100
1	SEV 65.65.09 to SEV.65.65.15	Vortex	65	65	80	-
1	SEV 65.65.09 to SEV.65.65.15	Vortex	65	65	65	80
1	SEV 65.65.22 to SEV.65.65.40	Vortex	65	65	80	-
1	SEV 65.80.22 to SEV.65.80.40	Vortex	65	65	65	80

Lifting station sizing

Sizing of a lifting station in 8 steps

Example: a lifting station is to be sized for the collection and pumping of domestic wastewater for a block of 20 flats. The lifting station is to be installed with two pumps providing 100 % spare capacity.

Step 1

The total Discharge Units (DU) must be determined according to the number of appliances:

Example: for 20 flats: $\Sigma DU = 150$.

Appliance	Number	Discharge unit [DU]	Sum
Complete kitchen installation	20	1	20
Wash basin/bidet	20	0,5	10
WC	20	2,5	50
Bath tub	20	1	20
Shower/bath	20	1	20
Washing machine	20	1,5	30
Industrial dishwasher	0	2	0
Urinal	0	0,5	0
Floor gully DN 50	0	1	0
Floor gully DN 70	0	1,5	0
Floor gully DN 100	0	2	0
Sum of discharge units: ΣDU			150

Step 2

Evaluate the flow rate Q_{ww} : (fig 1)

The expected wastewater flow rate is found in the diagram below. Use the line with frequency factor $K = 0,5$ for dwellings.

Example: Q_{ww} : (wastewater flow rate) = **6 l/s on the diagram.** (see fig 1 below).

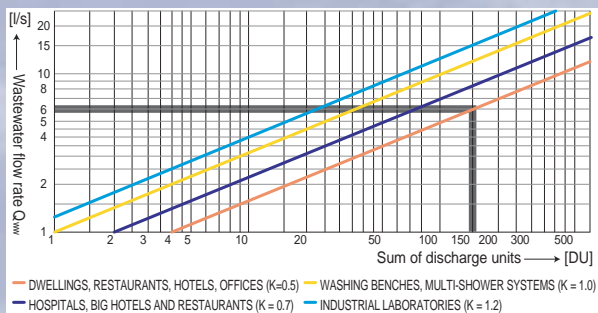


Fig. 1

Step 3

The distance A between the ground and the inlet port (Fig 2) is given by the customer:

For Example: **A = 1500 mm.**

Step 4

Use the table below to find the minimum distance between the bottom and the inlet pipe:

Example: Distance $H_{min} = 800$ mm for 6 l/s.

Flow rate [l/s]	2	4	6	8	10	12	14	16
Distance H_{min} [mm]	600	700	800	910	1010	1110	1210	1315

This calculation method does not commit Grundfos in case of wrong sizing.

Step 5

Calculate the total length among the available tank sizes:

2000, 2500, 3000 or 3500 mm

Distance A	1500 mm
+ Distance H_{min}	800 mm
= Total length	2300 mm
Selected length	2500 mm

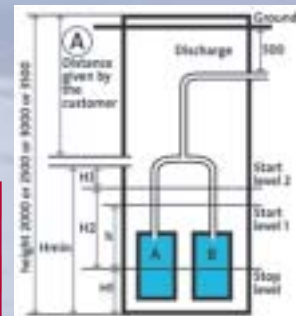


Fig 2: Dimensions h, H1, H2, H3 are pre-calculated

Step 6

Calculate the total head

The total head is the sum of the geodetic head H_{geo} and the pipeline loss H_j . The total head must be calculated for the highest geodetic head (from stop level) and the highest friction loss. (fig3)

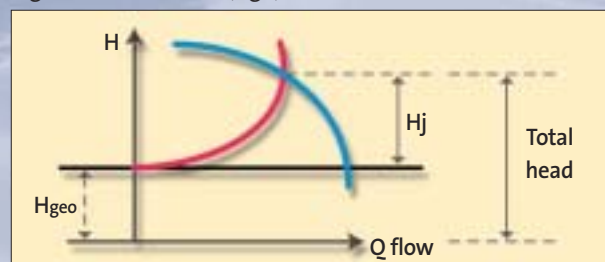


Fig. 3

The pressure loss (H_j) due to the friction in the raiser main can be determined using the table.

Flow rate [l/s]	2	4	6	8	10	12	14	16
Pressure loss [mm]	10	20	40	90	120	310	420	720

EX: 6 l/s → **40 mm pressure loss.**

Step 7

Determine the diameter of the discharge pipe.

A cone can be used to reduce or to enlarge the discharge pipe according to the recommended velocity (1m/s) of the two pumps working in parallel and the relevant friction losses.

Flow rate [l/s]	2	4	6	8	10	12	14	16
V [ms] DN 65	1,2	2,5						
V [ms] DN 80		0,8	1,2	1,6	2	2,4		
V [ms] DN 100			0,8	1	1,3	1,5	1,8	2

EX: 6 l/s → **DN 80 → 1,2 m/s.**

Step 8

Select the thickness of the concrete foundation slab in case of groundwater (slab diameter 1,3m).

Total tank height (m)	2	2,5	3	3,5
Slab thickness (cm)	25	15	10	10

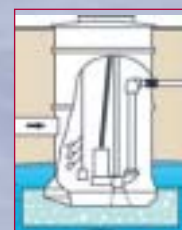


Fig. 4