

Installation and Operation Manual

FV 50



HOMA
PUMPEN MIT SYSTEM

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1.2. Preface

Dear Customer,

Thank you for choosing one of our company's products. You have purchased a product which has been manufactured to the latest technical standards. Read this operating and maintenance manual carefully before you first use it. This is the only way to ensure that the product is safely and economically used.

The documentation contains all the necessary specifications for the product, allowing you to use it properly. In addition, you will also find information on how to recognize potential dangers, reduce repair costs and downtime, and increase the reliability and working life of the product.

All safety requirements and specific manufacturer's requirements must be fulfilled before the product is put into operation. This operating and maintenance manual supplements any existing national regulations on industrial safety and accident prevention. This manual must also be accessible to personnel at all times and also be made available where the product is used.

1.3. Proper use

The HOMA products comply with the valid safety regulations and meet the demands of state-of-the-art technology. In the event of improper use, there is a danger to life for the user as well as for third parties. Moreover, the product and/or attachments may be damaged or destroyed.

It is important to ensure that the product is only operated in technically perfect condition and as intended. To do so, follow the operating instructions.

1.4. Copyright

This operation and maintenance manual has been copyrighted by the manufacturer. This operation and maintenance handbook is intended for the use by assembly, operating and maintenance personnel. It contains technical specifications and diagrams which may not be reproduced or distributed, either completely or in part, or used for any other purpose without the expressed consent of the manufacturer.

1.5. Warranty

Costs for removal and installation of the complained product at the installation place, costs for the ride of the mechanics to the location and from the installation place as well as costs for transport are not components of our warranty. Hereby arose costs, especially costs for checking and transport are bearing by the sender or operator of the pump. This is also valid for an asserted warranty claim if a check results that the unit works faultless and is free of defects. All products have a high quality standard. Each product is defeated by a strict technical end control before delivery. A warranty repair achieved by us does not extend the warranty period. Replaced spare parts give no reasons for a new warranty period. Extensive claims are excluded, especially such as diminution, change or compensation also for any kind of follow up damages.

In order to ensure that your guarantee claim is processed as efficiently as possible, please contact us or the appropriate sales representative.

Once your claim for a return has been agreed, you will receive a return certificate. Please then send the rejected product, carriage prepaid, to the factory together with the return certificate, proof of purchase and an indication of the damage. Claims made on grounds of damage caused in transit must be established and confirmed on delivery of the product by the express company, the railway company or the postal service.

1.5.1. General information

This chapter contains the general information on the warranty. Contractual agreements have the highest priority and are not superseded by the information in this chapter!

The manufacturer is obliged to correct any defects found in the products it sells, provided that the following requirements have been fulfilled:

- The defects are caused by the materials used or the way the product was manufactured or designed.
- The defects were reported in writing to the manufacturer within the agreed warranty period.
- The product was used only as prescribed.
- All safety and control devices were connected and inspected by authorized personnel.

If no other provisions have been made, the warranty period applies to the first 12 months after initial start-up or to a max. of 24 months after the delivery date. Other agreements must be made in writing in the order confirmation. These agreements will remain valid at least until the agreed warranty period of the product has expired.

1.5.2. Spare parts, add-ons and conversions

Only original spare parts as supplied by the manufacturer may be used for repairs, replacements, add-ons and conversions. Only these parts guarantee a long working life and the highest level of safety. These parts have been specially designed for our products. Self-made add-ons and conversions or the use of non-original spare parts can seriously damage the product and/or injure personnel.

1.5.3. Maintenance

The prescribed maintenance and inspection work should be carried out regularly. This work may only be carried out by qualified, trained and authorized personnel. The maintenance and inspection log supplied must be properly updated. This enables you to monitor the status of inspections and maintenance work. Quick repairs not listed in this operation and maintenance manual and all types of repair work may only be performed by the manufacturer and its authorized service centres.

1.5.4. Damage to the product

Damage as well as malfunctions that endanger safety must be eliminated immediately by authorized personnel. The product should only be operated if it is in proper working order. During the agreed warranty period, the product may only be repaired by the manufacturer or an authorized service workshop! The manufacturer reserves the right to recall the damaged product to the factory for inspection!

1.5.5. Exclusion from liability

No liability will be assumed for product damage if one or more of the following points apply:

- Incorrect design and on our part due to faulty and/or incorrect information provided by the operator or customer
- Non-compliance with the safety instructions, the regulations and the requirements set forth by German law and
- this operating and maintenance manual
- Incorrect storage and transport
- Improper assembly/dismantling
- Improper maintenance
- Unqualified repairs
- Faulty construction site and/or construction work
- Chemical, electrochemical and electrical influences
- Wear

In case of a power failure or another technical failure, by which a proper operation of the pump is no longer guaranteed, it is essential to take care that damages by an overflow of the pump sump are prevented securely, for example, by installing a mains-independent alarm or other appropriate protective measures.

This means the manufacturer's liability excludes all liability for personal, material or financial injury.

1.5.6. Manufacturer's address

HOMA Pumpenfabrik GmbH
Industriestrasse 1
D-53819 Neunkirchen-Seelscheid
Phone: +49 2247 / 7020
Fax: +49 2247 / 70244
Email: info@homa-pumpen.de
Homepage: www.homapumpen.de

2. Safety Information



Please read the operating manual from the pump being used for the safety notes.

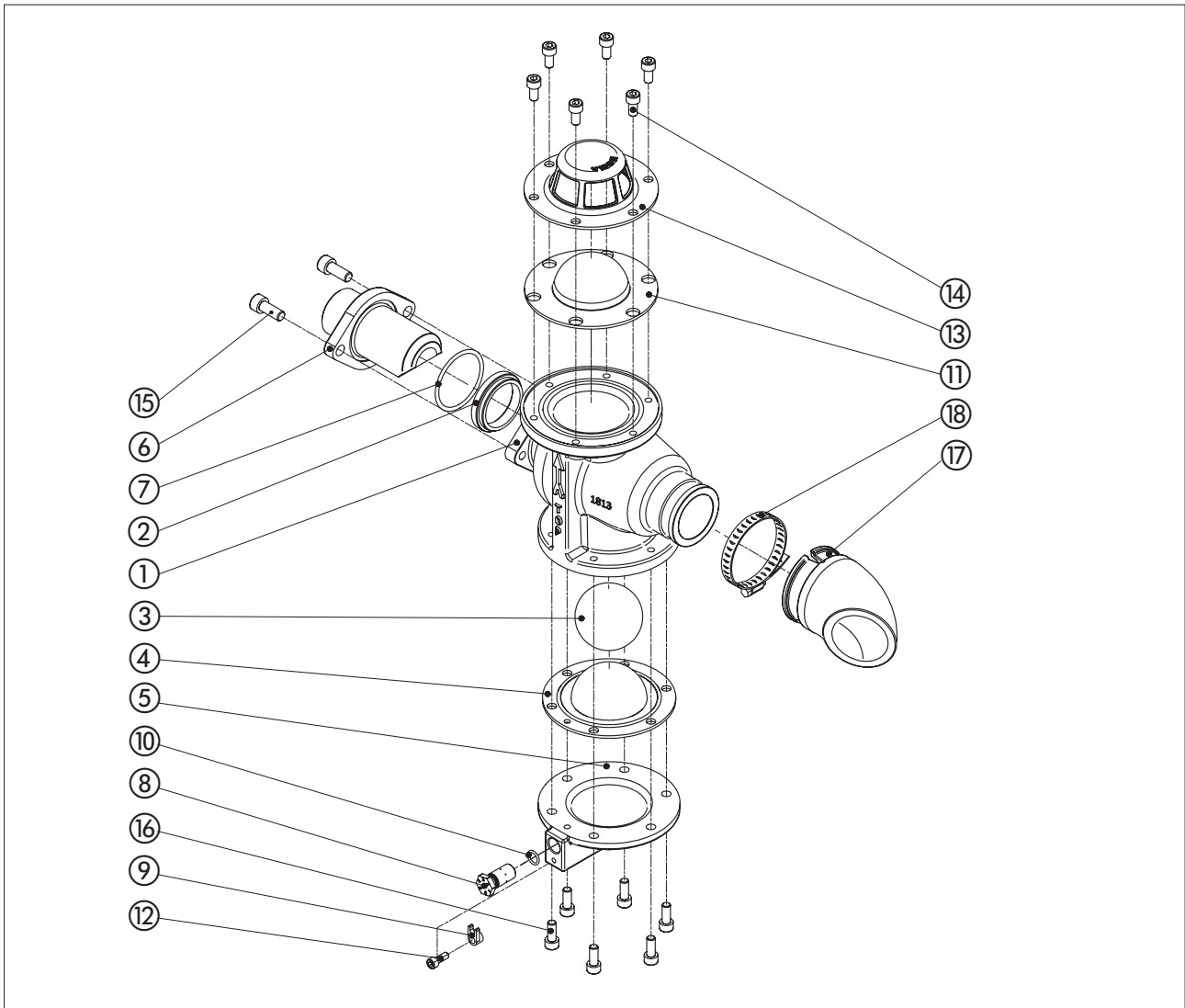
3. General Description

3.1. Application

A flush valve is used in order to flush out sewage and sludge from the pump pit. This occurs by opening the flush valve at the beginning of the pump process and thus, the sewage is guided through the flush valve back into the pump it. Through this, the sludge is agitated and loosened and can therefore be transported by the pump.

The flush valve is directly installed on the pump casing and does not require additional components or cables. It is automatically controlled through the pump pressure and the pump current. No other components are required. The flush valve is ideal for pumps from DN80.

3.2. Construction



No.	Description
1	Casing
2	Connector
3	Ball
4	Internal membrane
5	Membrane casing
6	Inlet flange
7	O-ring
8	Current restrictor
9	Restrictor holder

No.	Description
10	O-ring
11	External membrane
12	Allen head screw
13	Membrane protective casing
14	Allen head screw
15	Allen head screw
16	Allen head screw
17	Outlet jet
18	Hose clamp

3.3. Functionality

Rest period

The ball (pos. 3) is on the internal membrane (pos. 4) in the membrane casing (pos. 5). Here the external membrane (pos. 11) is bent facing outwards and forms an oil chamber with the membrane casing.

Pump is working

The sewage is led through the valve casing (pos. 1) outwards into the pump it and the flushing begins. Through the current into the valve, low pressure is created. Through this low pressure, the oil moves from the external membrane to the internal membrane.

After a set amount of time – through the current restrictor (pos. 8) – there will be enough oil under the internal membrane in order to lift this. Here the ball will be transported into the current channel. The ball then closes the exit of the valve and the pump transports the sewage with the normal power from the pump pit.

At the same time, high pressure is created in the valve, which presses the oil back to the external membrane. If the pump is turned off, the ball will fall back to the internal membrane

3.4. Technical Data

Power	For pump stations up to 1.2m / 3.9ft diameter
Medium temperature	max. 40°C / 104°F
pH-value	5 – 13
Weight	9 kg / 19.8 lb
Flush time	Recommended 30-50 seconds
Minimal geodetical discharge head	8,5m
Material	Stainless steel / NBR

4. Package, Transport, Storage

4.1. Delivery

On arrival, the delivered items must be inspected for damage and a check made that all parts are present. If any parts are damaged or missing, the transport company or the manufacturer must be informed on the day of delivery. Any claim made at a later date will be deemed invalid. Damage to parts must be noted on the delivery or freight documentation.

4.2. Transport

The product is delivered by the manufacturer/shipping agency in suitable packaging. This normally precludes the possibility of damage occurring during transport and storage. The packaging should be stored in a safe place if the location used is changed frequently.

4.3. Storage

Newly supplied products are prepared that they can be stored for at 1 year. The product should be cleaned thoroughly before interim storage.

The following should be taken into consideration for storage:

- Place the product on a firm surface and secure it against falling over.
- We recommend a dry, frost-protected room with a temperature of between 5 °C and 25 °C for storage.
- The machine must be protected from direct sunlight, heat, dust, and frost.
- If the product has been stored for a long period of time it should be cleaned of impurities such as dust and oil deposits before start-up

If these rules are observed, your product can be stored for a longer period. Please remember that elastomer parts and coatings become brittle naturally. If the product is to be stored for longer than 6 months, we recommend checking these parts and replacing them as necessary. Please consult the manufacturer.

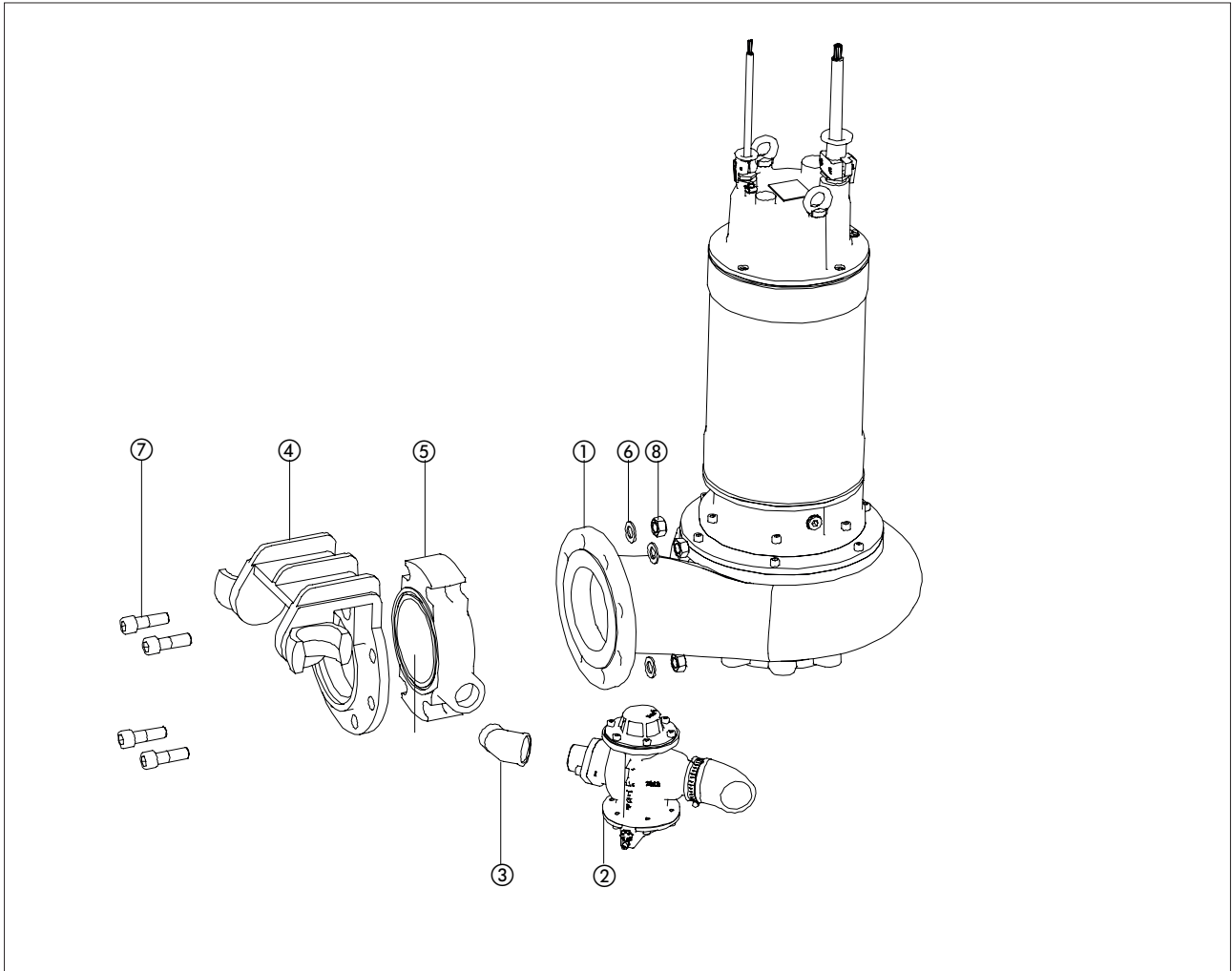
4.4. Returning to the supplier

Products which are delivered to the plant must be clean and correctly packaged. In this context, clean means that impurities have been removed and decontaminated if it has been used with materials which are hazardous to health. The packaging must protect the product against damage. Please contact the manufacturer before returning!

5. Assembly and Commissioning

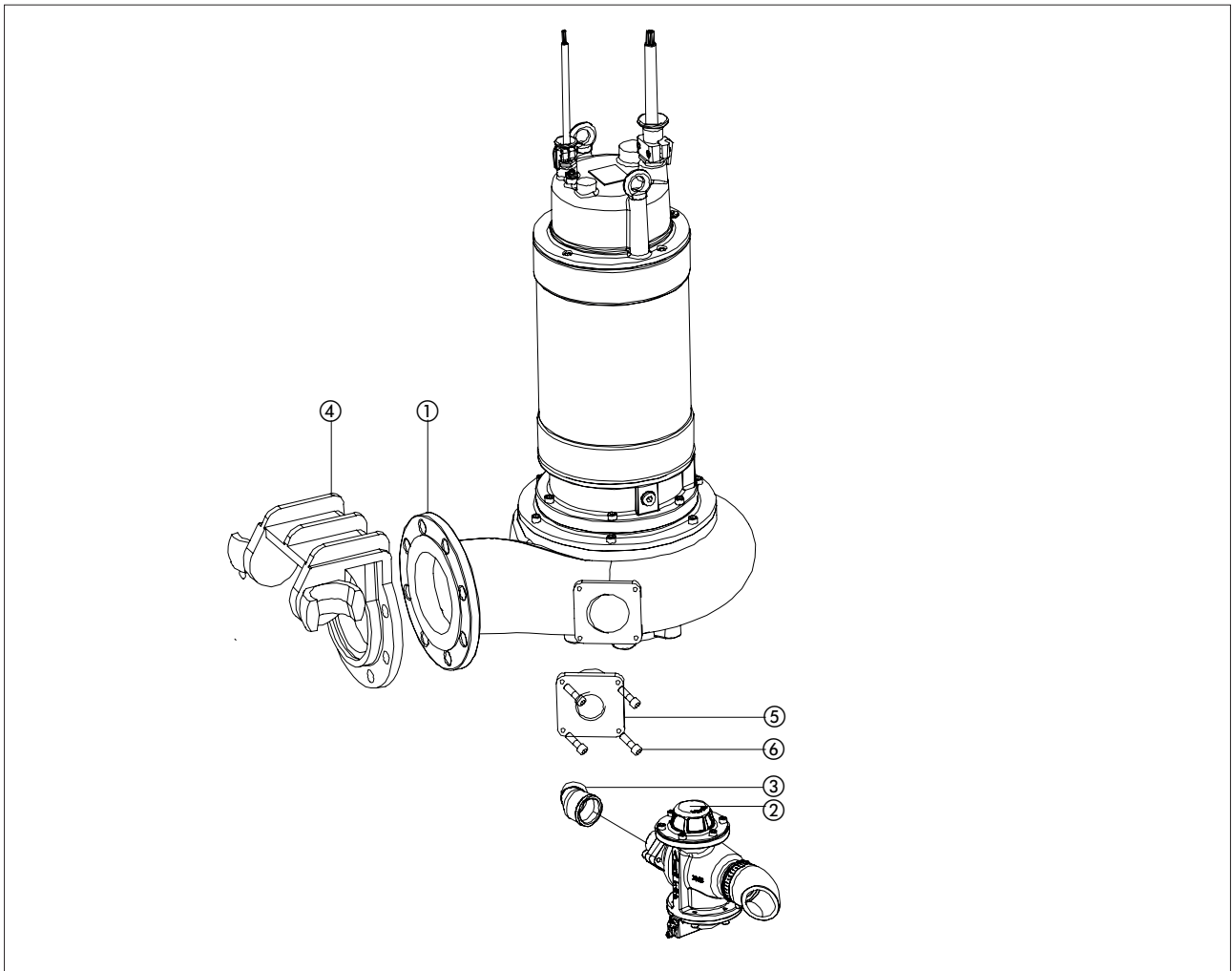
5.1. Assembly of the flush valve

The flush valve is either fitted by means of adapter between the pressure socket and the coupling system or on the cleaning aperture of the pump casing:



By means of adapter (DN80 - DN 150)

First align the adapter (5) in front of the pressure socket (1), as shown. Position the flanged pump coupling (4) in front of the adapter (5). Subsequently fix the adapter (5) between the pressure socket (1) and the flanged pump coupling (4) with the screws (7). Screw tight by means of the nuts (8) and the washers (6). Now screw the arch (3) onto the adapter (5) and align it horizontally. Screw in the flush valve (2) subsequently and align it vertically.



On the cleaning aperture (from DN200)

Loosen first the screws (6) on the pump casing (1) and remove the lid of the cleaning aperture. Subsequently fix the new lid of the cleaning aperture (5) on the pump casing (1) with the screws (6). Now screw the arch (3) onto the lid of the cleaning aperture (5) and align it horizontally. Subsequently screw in the flush valve (2) and align it vertically.

5.2. Start-Up



For the commissioning, please also read the operating manual from the respective pump being used.



The initial commissioning, it is recommended to clean the pump pit in advance. It is possible that old deposits may be agitated and they can be placed in the flush valve.



The outlet jets always have to be installed on the flush valve.

In order to reach the recommended flush time of approximately 30 seconds, the flush valve can be set on the current restrictor. For the commissioning, we recommend that the current restrictor be set to '1' and the effective flush time during operation be noted. If you would like to reach a longer flush time thereafter, the current restrictor must be set to a higher level.

6. Maintenance

6.1. General

It is recommended to send the flush valve to an authorized service center for repair and maintenance work.

6.2. Maintenance Schedules and Work

The flush valve is inspected with the maintenance intervals of the pump.

Furthermore, the flush valve should be subject to a general recovery by the customer service every four years.

Operating Equipment Change

The oil being used in the flush valve is an authorized drive oil with a viscosity ISO VG 220 and a freezing point of -24°C / -11°F.

If an oil with a lower viscosity is used, the flush time is shortened. The flush time is longer with a higher viscosity.

Starting Torque

for A2/A4 screws (friction factor = 0,2)

	Firmness 70	Firmness 80
M6	7 Nm	11,8 Nm
M8	17 Nm	28,7 Nm
M10	33 Nm	58 Nm

7. Troubleshooting

The most frequent cause of error is when the flush valve is clogged. It is caused by particles that are larger than the valve outlet. Through such particles, it is possible that the flush valve does not close within the designated time or remains completely open.

With such a current, control the following point:

- No particles may be in the flush valve
- The external membrane is normally filled with oil and through this, it is bent outwards. If the external membrane has caved in, it can be damaged or the internal membrane may be damaged. In both cases, exchange the damaged membrane and clean the oil chamber and current restrictor. The oil chamber has a fill quantity of 0.08l.
- If the external membrane is filled with oil, check the quality of the oil and clean the current restrictor.

Further steps for troubleshooting

If the items listed here do not help you rectify the fault, contact our customer service. They can help you as follows:

- Telephone or written help from customer service
- On-site support from customer service
- Checking and repairing the machine at the factory

Note that you may be charged for some services provided by our customer support. Customer service will provide you with details on this.



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