



JP4710, 4715, 4720

Flygt Hydro-ejector

Table of Contents

1 Introduction and Safety.....	2
1.1 Preface.....	2
1.2 Safety.....	2
2 Product Description.....	4
2.1 Introduction.....	4
2.2 Transportation and Storage.....	4
2.3 Applications.....	4
2.4 Data plate interpretation.....	4
2.5 Installation alternatives.....	4
2.6 Limitations.....	4
2.7 Performance.....	5
3 Installation.....	6
3.1 Handling equipment.....	6
3.2 General recommendations.....	6
3.3 Mechanical Installation.....	6
3.4 Electrical Installation.....	7
4 Startup and Maintenance.....	8
4.1 Startup.....	8
4.2 Inspection and troubleshooting.....	8
4.3 Accessories and tools.....	8
4.4 Dimensional drawings.....	8
4.5 View of parts.....	8

1 Introduction and Safety

1.1 Preface

This information is mainly intended for personnel installing the product the first time. This manual contains basic information on the installation, operation and maintenance and should be followed carefully. It is essential that these instructions are carefully read before installation or commissioning by both the installation crew as well as those responsible for operation or maintenance. The operating instructions should always be readily available at the location of the unit.

1.2 Safety

Safety symbols



DANGER:

Is used when there will be a risk to cause severe injury to people, death or considerable damage to property.



WARNING:

Is used when there can be a risk to cause severe injury to people, death or considerable damage to property.



CAUTION:

Is used when there will be, or is a risk to cause smaller injury to people, or smaller damage to property.

NOTICE:

Is used to pay attention to installation, use, operation or service information that is important but not involved with any risk.

Precautionary measures

In order to minimize the risk of accidents in connection with service and installation work, the following rules should be followed:

1. Never work alone. Use a lifting harness, a safety line and a respirator, as required. Do not ignore the risk of drowning!
2. Make sure there is sufficient amount of oxygen and that there are no dangerous gases within the work area.
3. Check the explosion risk before welding or using electric hand tools.
4. Observe strict cleanliness. Do not ignore health hazards.
5. Bear in mind the risk of electrical accidents.
6. Make sure that the lifting equipment is in good condition, and comply to local ordinances.
7. Provide a suitable barrier around the work area, for example a guard rail.
8. Make sure that you have a clear path of retreat.
9. Use safety helmet, safety goggles and protective shoes.
10. All personnel who work with sewage systems should be vaccinated against diseases they may be exposed to.
11. A first-aid kit must close at hand.
12. Note that special rules apply to installation in explosive atmosphere.

Follow all other health and safety rules and local codes and practices.

See the *Installation, Operation and Maintenance manual* for the appropriate pump.

Unilateral modification and spare parts manufacturing

Modifications or changes to the unit/installation should only be carried out after consulting with Xylem.

Original spare parts and accessories authorized by the manufacturer are essential for compliance. The use of other parts can invalidate any claims for warranty or compensation.

Safety regulations for the owner/operator

All government regulations, local health and safety codes shall be complied with.

All dangers due to electricity must be avoided (for details consult the regulations of your local electricity supply company).

Qualifications of personnel

An authorized (certified) electrician and mechanic shall carry out all work.

Dismantling and re-assembly

If the product has been used to pump hazardous media, care must be taken that, when draining the leakage, personnel and environment are not endangered.

All government regulations shall be observed.

Recycling

Local and/or private laws and regulations regarding recycling must be followed. If there are no laws or regulations, or the product is not accepted by an authorized recycling company, the product or its parts can be returned to the nearest Xylem representative or service workshop.

Product warranty

Xylem undertakes to remedy faults in products sold by Xylem provided that:

- the fault is due to defects in design, materials or workmanship;
- the fault is reported to Xylem or Xylem's representative during the guarantee period;
- the product is used only under conditions described in the care and maintenance instructions and in applications for which it is intended;
- the monitoring equipment incorporated in the product is correctly connected;
- all service and repair work is done by a workshop authorized by Xylem;
- genuine Xylem parts are used.

Hence, the guarantee does not cover faults caused by deficient maintenance, improper installation, incorrectly executed repair work or normal wear and tear.

Xylem assumes no liability for bodily injuries, material damages or economic losses beyond what is stated above.

Xylem guarantees that spare parts will be kept for 15 years after the manufacture of this product has been discontinued.

The manufacturer reserves the right to alter performance, specification or design without notice.

2 Product Description

2.1 Introduction

In this Installation, Operation and Maintenance manual you will find general information on how to handle, install and service the product to give it a long and reliable life.

The *Parts List* and *Installation, Operation and Maintenance* manual of the Flygt N-pump that forms part of the product give full technical data of your particular pump.

2.2 Transportation and Storage

See the *Transportation and Storage* instructions for the appropriate pump.

2.3 Applications

Flygt hydro-ejector

Storm water and sewage are collected in retention basins during periods of heavy rainfall to avoid the spillage of untreated water into the recipient.

To avoid the build-up of solids at the bottom of the basin, a hydro-ejector is used to create bulk flow and then a flushing action while the basin is being emptied, ensuring that pollutants are discharged with the outgoing water.

2.4 Data plate interpretation

These products are not provided with any special data plate.

For plate data please refer to the *Installation, Operation and Maintenance manual* of the Flygt pump that forms part of the product.

2.5 Installation alternatives

The ejector system is mounted on a standard or explosion-proof pump.

Pump	Ejector	Part number
N3102LT	4710	726 81 00
N3127LT	4715	726 83 00
N3153LT	4720	726 85 00

NOTICE:

The pictures in this manual may differ somewhat from the delivered product depending on the size and configuration.

2.6 Limitations

General limitations

For general limitations refer to the Flygt N-pump used.

Flygt hydro-ejector

The limitations of the Flygt Hydro ejector for flushing in retention basins are dependant on the shape of the retention basin (see table). The basin outlet is located at the lower, short end. The slope of the basin floor, S is $< 1\%$.

Hydro-ejector	Pump type	Width (m)		Length (m)	
		Min.	Max.	Min.	Max.
JP4710	NP3102LT 50Hz	0.5 L*	6	6	14

Hydro-ejector	Pump type	Width (m)		Length (m)	
		Min.	Max.	Min.	Max.
	NP3102LT 60Hz	0.5 L*	7	6	16
JP4715	NP3127LT 50Hz	0.5 L*	10	10	19
	NP3127LT 60Hz	0.5 L*	9	10	18
JP4720	NP3153LT 50Hz	0.5 L*	13	13	25
	NP3153LT 60Hz	0.5 L*	13	13	24

* L=length of basin

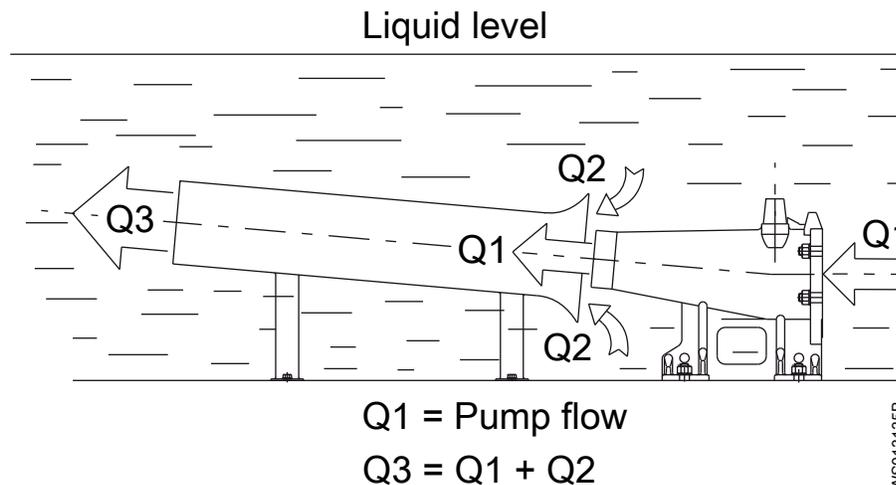
If the slope is >1%, or other pumps are specified for the specific application, the required Flygt hydro-ejector must be determined by calculation.

For further information on installation limitations, please contact your Xylem representative.

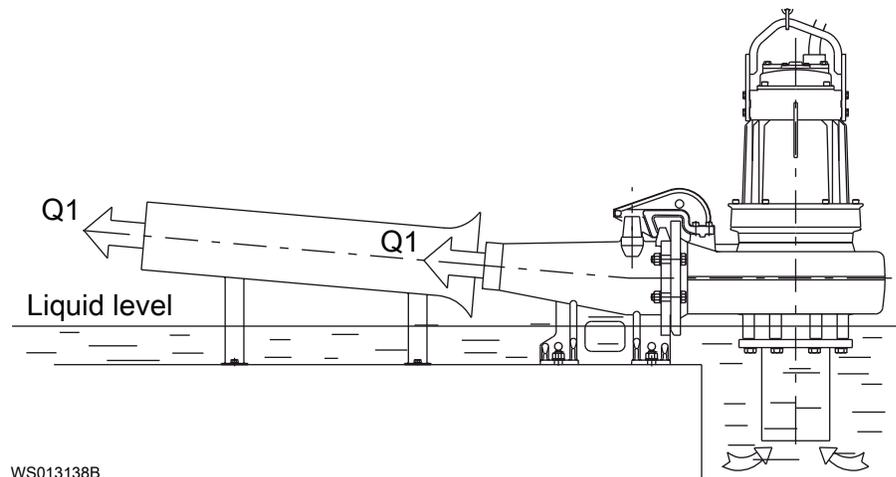
2.7 Performance

When the pump is operating the flow (Q1) through the nozzle induces a secondary flow (Q2) at the ejector pipe inlet.

The resultant bulk flow (Q3) resuspends solids and sludge, and keeps them in suspension.



When the water has dropped to the level at which the ejector system is no longer totally submerged, the flow from the pump flushes the basin floor.



3 Installation

3.1 Handling equipment

NOTICE:

Always pay extra attention to safety aspects when working with lifting equipment.

Lifting equipment is required for handling the pump and ejector system. The lifting chain and the shackle should be in stainless steel and inspected every year.

The minimum height between the lifting hook and the ground must be sufficient to be able to lift the pump.

The lifting equipment shall be able to hoist the pump straight up and down, preferably without necessitating resetting the lifting hook.

Oversized lifting equipment could cause damage if the pump should stick when being lifted.

Make sure that the handling equipment is securely attached.

Check that the lifting handle and chain are in good condition.


WARNING:

Stay clear of suspended loads.

For further information on installation, please contact your Xylem representative.

3.2 General recommendations

To ensure proper installation, see dimensions on the dimensional drawings.

Check the positioning of the product according to the dimensional drawings.

The ejector system should be installed in such a way that the jet propagates freely in the fluid without meeting obstacles or side walls and the direction of flow created does not conflict with flows of other ejector systems installed.

Installation should be in such a way that the pump inflow is not disturbed.

For more detailed information, please contact your Xylem representative.

3.3 Mechanical Installation

Introduction

In this application the nozzle can be mounted on the pump using a conventional -P arrangement with guide bars as shown in the figure below (Alt 1) or with bolts as specified in the table (Alt 2). The Flygt N-pump operates completely or partially submerged in the pumped liquid (see figure below).

A sliding bracket should be used in both cases.

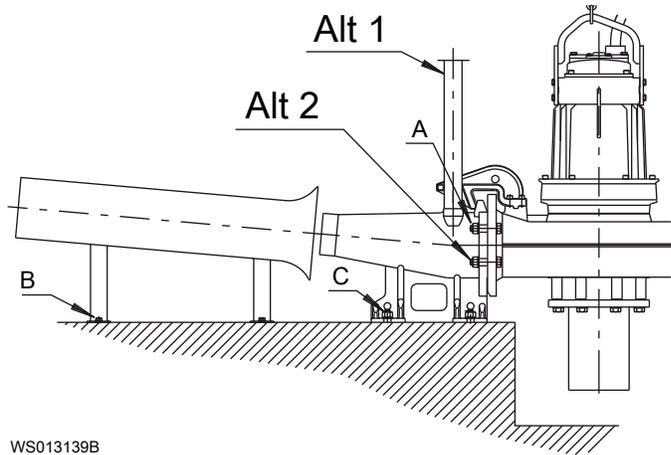
For mounting of the suction pipe on the pump, please refer to the dimensional drawings.

Please visit www.xylem.com for information on fasteners, anchor bolts and other Flygt mechanical installation equipment.

Mounting of the ejector system

Hydro ejector	A*	B	C
4710	M16x4	M12x4	M20x4
4715	M20x4	M12x4	M20x4
4720	M20x4	M12x4	M20x4

* Applies only to installation alternative 2.



3.4 Electrical Installation

Carefully follow the instructions in the *Installation, Operation and Maintenance* manual of the Flygt N-pump associated.

4 Startup and Maintenance

4.1 Startup

For start up of the pump see the Installation, Operation and Maintenance manual of the appropriate pump.

4.2 Inspection and troubleshooting

All components should be checked when the pump is inspected. Ensure that the bolts are tight, and that the bell mouth, ejector pipe, nozzle and adapter unit are not fouled.

4.3 Accessories and tools

General

Flygt mechanical accessories such as guide holder bracket, straight pipes and anchor bolts. See www.xylem.com for further information.

Flygt monitoring and control system can be used to adjust the Flygt N-pump starting and stopping settings. For more information, please contact your Xylem representative.

Options

Explosion-proof Flygt N-pump versions.
Hard-Iron™ hydraulic.

Tools

No special tools are required other than the normal ones of specialized workshops and those needed for the pump.

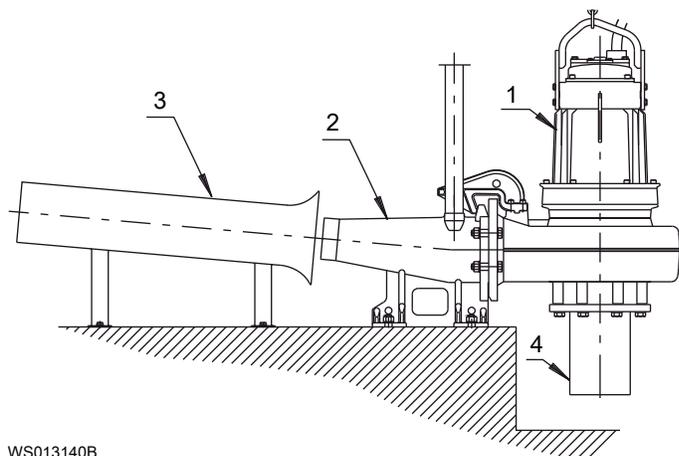
4.4 Dimensional drawings

Model	Drawing number
4710	669 68 00
4715	669 69 00
4720	669 70 00

4.5 View of parts

Pos. no.	Denomination
1	Flygt N-pump
2	Nozzle
3	Ejector pipe
4*	Suction pipe

* Must be supplied locally.



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- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com



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The original instruction is in English. All non-English instructions are translations of the original instruction.

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