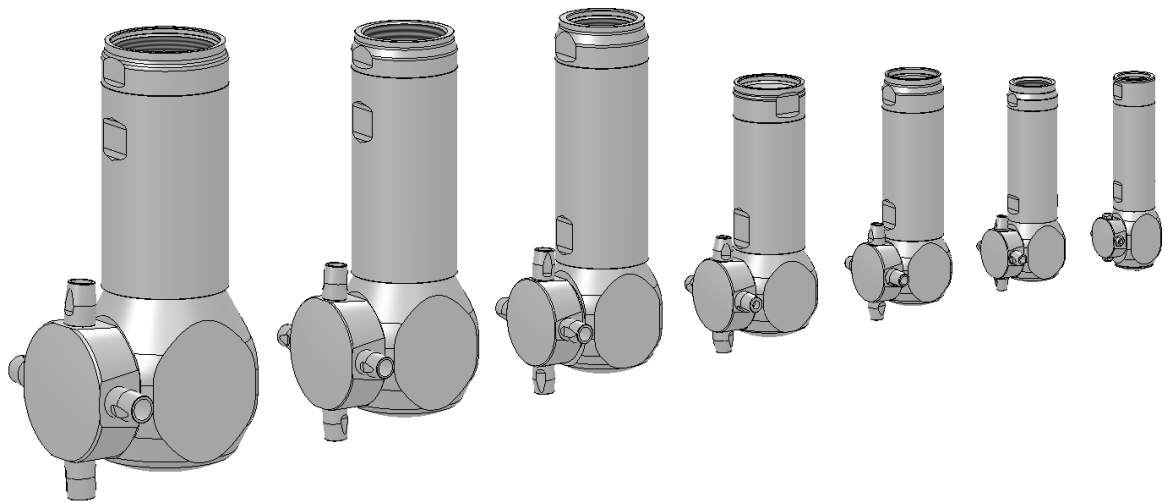


Original  
**Assembly Instructions**

Jet cleaner  
**DO-S F**



**AquaDuna**

FLUID PROCESS GROUP

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# 1 Introduction

These operating instructions are part of the jet cleaner and provide all the information required for using the jet cleaner.

The operating instructions must be read and understood by all persons who work with the jet cleaner in connection with:

- Transport,
- Assembly / disassembly,
- Commissioning, operation,
- Maintenance and inspection,
- Occurrence of a fault

The operating instructions must always be kept at the place of use of the jet cleaner. If ownership of the jet cleaner changes, the operating instructions must also be transferred.

In addition to these operating instructions, generally relevant rules, laws and regulations for accident prevention and health protection must be observed.

## 1.1 Legal Disclaimer

Dunos O-S

As of June 2022

Revision 00

AquaDuna GmbH & Co.KG

Ferdinand-von-Steinbeis-Ring 31

D-75447 Sternenfels




Telephone: +49 (0) 7045 / 204980

Fax: +49 (0) 7045 / 2049890

[www.aquaduna.com](http://www.aquaduna.com)

## 1.2 Warning Notices

### 1.2.1 Declaring the Signal Word

Signal word		Meaning
	<b>DANGER</b>	Danger with high degree of risk. Non-observance leads to severe to fatal injuries.
	<b>WARNING</b>	Danger with medium degree of risk. Non-observance may lead to serious or fatal injuries.
	<b>CAUTION</b>	Danger with low degree of risk. Non-observance may lead to minor/moderate injuries.
	<b>PLEASE NOTE</b>	Danger with very low degree of risk. Non-observance may lead to property damage.

### 1.2.2 Chapter-Related Warnings



#### **DANGER**

*Warning of danger with high degree of risk. Non-observance leads to severe to fatal injuries.*

- Measures to avoid the danger.



#### **WARNING**

*Warning of danger with medium degree of risk. Non-observance may lead to serious or fatal injuries.*

- Measures to avoid the danger.



#### **CAUTION**

*Warning of danger with low degree of risk. Non-observance may lead to minor/moderate injuries.*

- Measures to avoid the danger.

#### **PLEASE NOTE**

*Warning of danger with very low degree of risk. Non-observance may lead to property damage.*

- Measures to avoid the danger.

### **1.3 Limitation of Liability**

Statutory liability conditions apply. The following are excluded from liability:

- Non-compliance with these instructions
- Improper use
- Use of untrained personnel
- Use of unapproved spare parts
- Unauthorised modifications by the operator that have not been agreed and approved with the manufacturer.

Furthermore, the General Terms and Conditions apply.

### **1.4 Copyright Protection**

Copyright protection applies to these instructions.

© **Copyright by AquaDuna GmbH & Co. KG (2022)**

The transfer of these instructions to third parties, duplication of any kind and form - even in part - as well as the utilisation and/or communication of the content are not permitted without written permission.

In individual cases, for internal use by the operator or for training purposes, it is permissible to pass on the instructions to third parties or to duplicate them.

### **1.5 Applicable Documents**

Technical data, dimensions, flow rates and pressures can be found in the data sheets for the individual models. Inspection certificates 3.1 and certificates on the FDA conformity of the plastics are supplied on request. Subsequent delivery of the test certificates and FDA certificates is not possible.

## 2 Safety

### 2.1 Intended Use

The rotating jet cleaners may only be operated in closed containers.

Operation outside of a container can lead to very serious injuries due to the high impact forces of the escaping liquid jets.

The cleaning medium would also be widely distributed in the environment.

Hand-guided operation is strictly prohibited.

The jet cleaner must be firmly attached to the closed container; operation hanging from a hose is prohibited.

No one is allowed to stay inside the closed container in which the cleaner is operated.



**DANGER**

---

***Danger when operating beyond intended use!***

*Non-observance leads to severe to fatal injuries.*

- Operation only in closed containers.
- Under no circumstances should people be in containers in which the cleaners are operated.
- Operation only after the cleaner has been firmly installed.
- Operation may never be handheld.
- Never operate beyond the limits specified in the “Technical Data”.
- The chapters “Assembly” and “Commissioning” must be observed.
- Only trained personnel are to be employed.

## 3 Delivery, Transport, Storage

### 3.1 Scope of Delivery

The scope of delivery includes the jet cleaner, these assembly instructions and the relevant data sheet.

### 3.2 Transport

Our products are manufactured, assembled and tested with great care. Should there still be reason for complaint, we will of course satisfy you within the scope of our warranty. Even after the warranty, we are there for you. For all deliveries, the delivery note must always be compared with the scope of delivery. After determining the completeness, the goods are to be checked for damage.

If there is any damage, a note on the delivery papers is essential. The damage must be countersigned by the carrier. For returns, either the packaging is to be kept or packaging is to be chosen in which the devices cannot be damaged.



#### CAUTION

---

***Danger when unpacking!***

*Non-observance may lead to minor/moderate injuries.*

- By being careful when unpacking the jet cleaner, you can avoid crushing your fingers between the nozzle disc and the nozzles.

### 3.3 Storage

We recommend that you regularly check the product and the storage conditions in the event of longer storage. No objects may be stored on the products and the jet cleaners must be protected from moisture, dust and dirt.

The products should be stored in a dry, well-ventilated room at a constant temperature (optimal room temperature 25°C ±5° and humidity 70% ±5%). Sealing elements, plain bearings and plastic parts must be protected from UV light and ozone.

#### PLEASE NOTE

---

***Danger due to improper storage***

*Non-observance may lead to property damage.*

- Damage to the jet cleaner can be avoided by observing the storage recommendations.

## 4 Function

Rotating jet cleaners, also known as orbital cleaners, are used to clean dirty containers, for example in the food, pharmaceutical, plastics or paint industries.

The cleaners are introduced into the containers to be cleaned in a stationary or mobile manner.

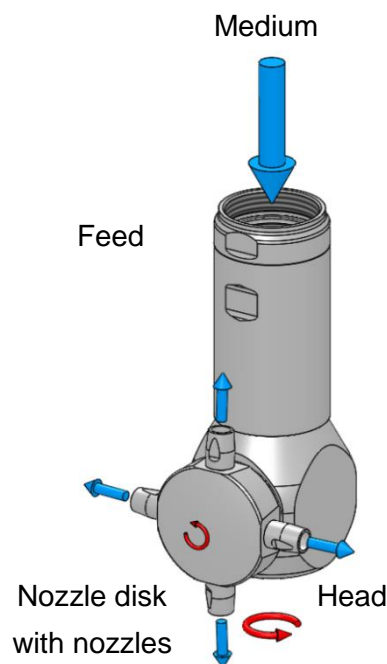
The jet cleaner is driven by the cleaning medium. The medium is directed via a turbine drive, which drives the head and thus the nozzle disc via a planetary gear.

The cleaning medium is directed through the nozzles and applied to the container wall at high speed.

The rotating head and the nozzle disc rotating orbitally on the head create a jet pattern which, after a certain number of revolutions, has hit every point of the container.

The tank is effectively cleaned by high impact forces and the rinsing effect of the medium constantly flowing down the tank wall.

The operator is responsible for selecting the cleaning medium and the duration of the cleaning.



### WARNING

#### ***Danger from the cleaning medium!***

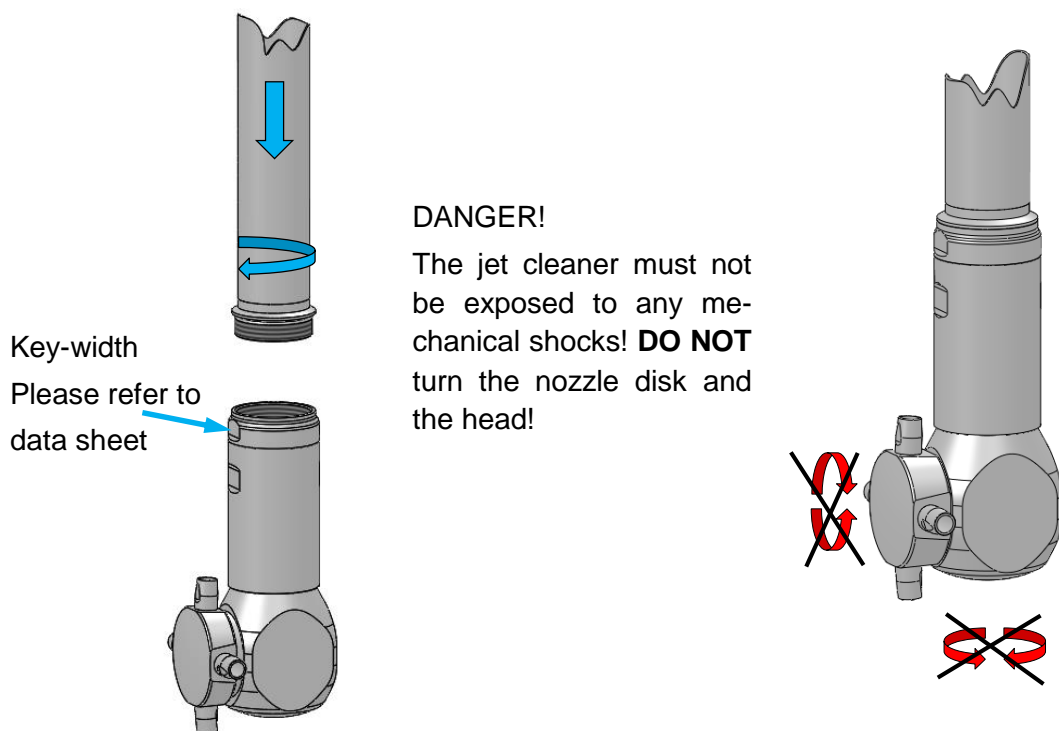
*Non-observance may lead to serious or fatal injuries.*

- The operator is responsible for the type and handling of the cleaning media. Safety data sheets must be observed.
- The operator is responsible for observing the materials used in the jet cleaner and their resistance to the medium.

## 5 Assembly

Compliance with the operating conditions must be observed. If the operator mounts the jet cleaner on a support tube (lance), the interface between the customer support pipe and the jet cleaner must be securely fixed. The cleaner may only be tightened on the upper spanner flat marked by the arrow! The width across flats can be found on the data sheet.

When installing in a container or tank, it must be ensured that the distance between the jet cleaner and the container wall or internals is sufficient so that contact can be ruled out.



### CAUTION

#### ***Danger due to improper assembly!***

*Non-observance may lead to minor/moderate injuries.*

- Careful assembly prevents the cleaner from detaching from the support tube and possibly falling into the container.
- Collisions are avoided by observing the distances between the jet cleaner and the tank wall or tank installations.
- Assembly of the jet cleaner should only be entrusted to trained and adequately instructed persons.

## 6 Installation

Before commissioning, the professional installation of the jet cleaner, the container and media connections must be checked.

The filter must be checked with the fineness specified in the technical data, the media lines must be free of contamination. Residues from perspiration can, if they get into the cleaner, lead to its destruction.

The media line must be vented to ensure that the cleaner is not operated with gas or steam. The points in the "Operating Conditions" chapter must be observed!

Manually operated valves must be opened slowly to avoid water hammer.

When operating in automated systems, the operators must familiarise themselves with the shutdown process or the emergency stop situation of the system.

Local regulations, rules and laws must be observed.



### DANGER

---

***Danger due to violations of the operating conditions and intended use!***

*Non-ob-*

*servance leads to severe to fatal injuries.*

- Compliance with all points of the conditions described is the responsibility of the operator.
- Commissioning is only to be entrusted to trained and adequately trained persons.



### CAUTION

---

***Danger during operation!***

*Non-observance may lead to minor/moderate injuries. Depending on the type and design of the system or the container, the legally prescribed noise level can be exceeded.*

- The operator ensures that noise-reducing measures are taken.

## 7 Integration Within a System, Operation

### 7.1 Control Automatically

If the jet cleaner is integrated into an automatic system, it must be ensured that the function of the cleaner can be monitored. This must be done by visual control. The functional check must be documented.

### 7.2 Manual Control

If the jet cleaner is controlled via manual controls, care must be taken to avoid pressure shocks. So the controls are slow to open and close. If the cleaner is exposed to steam on its exterior, care must be taken to ensure that the temperature does not exceed the specified limits.

### 7.3 Emergency Shutdown of the System

In order to be able to force an emergency shutdown of the jet cleaner, the operators of the system must become familiar with the system concept.

It is essential that an emergency shutdown is trained and that the necessary elements for an emergency shutdown are made known. The training of the persons entrusted with the cleaning must be documented.

The liability of the manufacturer for the consequences of incorrect system operation is excluded.



#### **DANGER**

---

***Danger due to violations of the operating conditions and intended use!***

*Non-observance leads to severe to fatal injuries.*

- Compliance with all points of the conditions described is the responsibility of the operator.
- The operation of the jet cleaner is only to be assigned to trained and adequately trained persons.

## 8 Defects

If defects occur, e.g. cleaner doesn't rotate, medium is not released, then please contact AquaDuna GmbH & Co.KG Ferdinand-von-Steinbeis-Ring 31

D-75447 Sternenfels

Telephone: +49 (0) 7045 / 204980, Fax: +49 (0) 7045 / 2049890

[www.aquaduna.com](http://www.aquaduna.com)

## 9 Technical Data

### 9.1 General

Technical Data Standard Properties	
Ambient temperature	Maximum 135°C
Average temperature	Maximum 97°C
Filter size	500 µm
Materials	Stainless steel 1.4404; PEEK; PEEK TF10; PTFE; EPDM, zirconium oxide.  Special seals upon request.

Maximum pressures Standard Properties	
Type	P <sub>max.</sub> [bar]
DO-S 050	12
DO-S 065	12
DO-S 080	12
DO-S 100	15
DO-S 125	15
DO-S 150	15
DO-S 200	15

Other sizes and connections are available that differ from the standard thread sizes of the media connections listed in the data sheets. Special versions in various stainless steels on request.

#### PLEASE NOTE

***Danger due to use of unsuitable cleaning media!***

*Non-observance may lead to property damage.*

- The devices may only be operated with media to which the materials listed are chemically resistant within the specified temperature and pressure ranges!

## 10 Maintenance

Depending on the operating conditions, the jet cleaner must be checked regularly for external damage, the rotation function and the spray pattern.

Servicing the jet cleaner is recommended after a **maximum of 200 hours of operation**. Depending on the prevailing operating conditions, such as operating pressure, temperature, properties of the medium or influences on the operator's system, it may be necessary to carry out maintenance at an earlier point in time.

## 11 Disposal

All materials used for the production of the jet cleaner are not harmful to the environment. It is stainless steel 1.4404, PEEK, PEEK TF10, TFM 1600 (PTFE), EPDM, possibly zirconium oxide.

These materials can be disposed of in the designated ways.

**DANGER!**

It must be ensured that there is no longer any contamination with substances from the company. To do this, use the appropriate substance for rinsing the parts to be disposed of.

## 12 Declaration of Incorporation

Original Declaration of Incorporation

Manufacturer / Authorised Agent

AquaDuna GmbH & Co. KG  
Ferdinand-von-Steinbeis-Ring 31  
D-75447 Sternenfels

Person authorised  
to compile  
technical documentation

Sebastian Vogel  
AquaDuna GmbH & Co. KG  
Ferdinand-von-Steinbeis-Ring 31  
D-75447 Sternenfels

### Product Description

DO - Jet Cleaner

The manufacturer declares that the above product is an incomplete machine in terms of the Machinery Directive 2006/42/EC. The above product is only intended for installation in a machine or system. For this reason, the product does not yet meet all the requirements of the Machinery Directive.

The special technical documents in compliance with Appendix VII Part B have been created. The person authorised to compile the technical documentation can submit the documents for inspection within a reasonable period of time upon receiving a justified request.

The incomplete machine may only be put into operation when it has been determined that the system, in which this incomplete machine is to be installed, complies with the provisions of the Machinery Directive.

The above product meets the requirements of the following directives and harmonised standards:

- Machinery Directive 2006/42/EC
- DIN EN ISO 12100:2011-03

AquaDuna GmbH & Co. KG, Sternenfels, June 2022.



Sebastian Vogel,

Managing Director