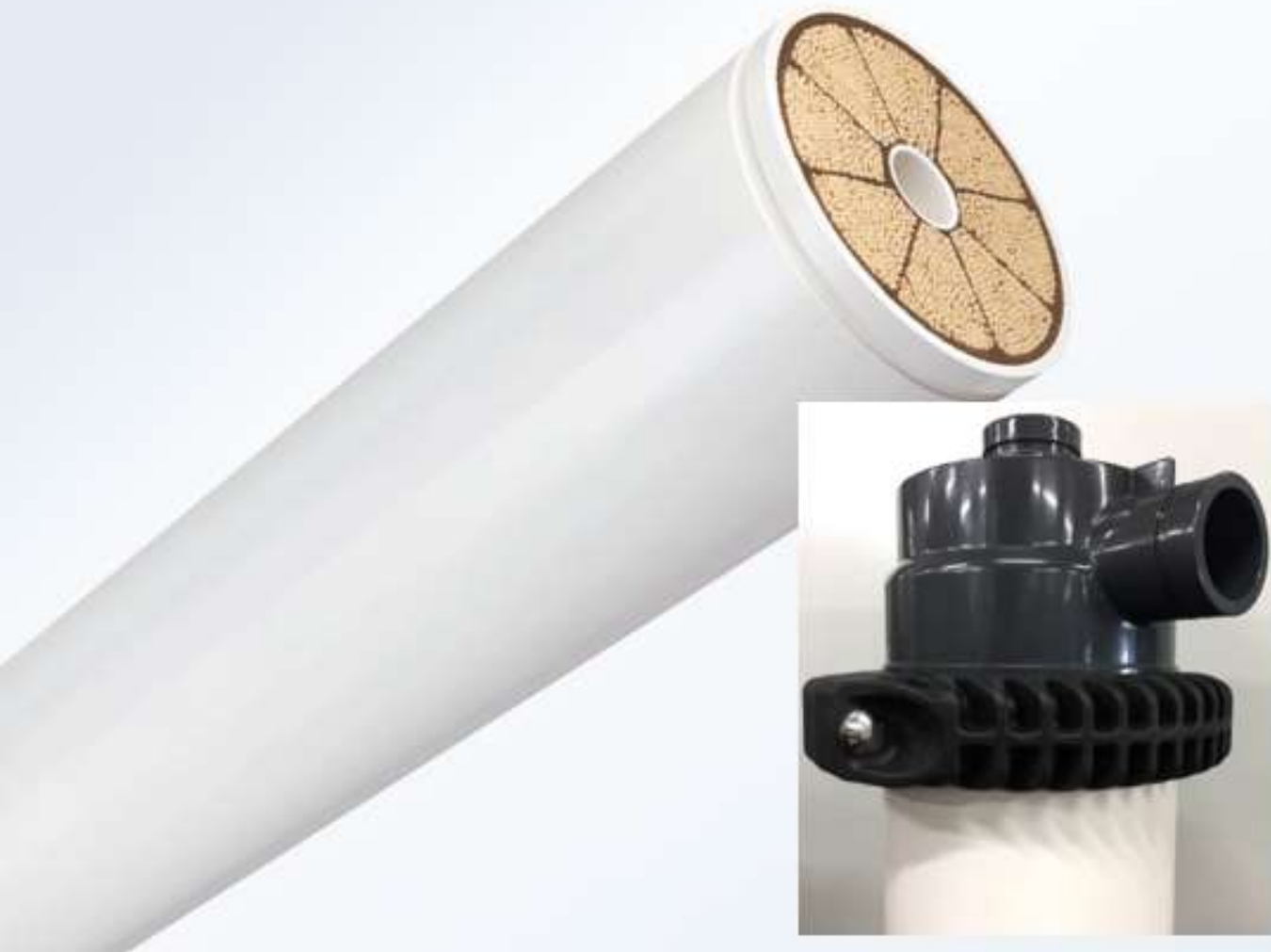


dizzer[®] L 55
UF Modules for Vertical Systems

Assembly Instructions



Legal Notice

Product

dizzer® L 55 vertical modules, parts and components for installation, assembly and disassembly

Manufacturer

inge GmbH
Flurstraße 27
86926 Greifenberg
Germany

Duplication and archiving in any form whatsoever – including of excerpts – is only permitted with the written consent of the manufacturer.

All brand and company names in these assembly instructions are registered trademarks of the corresponding companies.

Change Policy

The manufacturer reserves the right to change this assembly manual or any part thereof at any time in the interest of continuous product improvement.

The company/party responsible for the assembly of the system described in this manual should obtain the current inge® assembly instructions:

- Download at: <https://www.dupont.com/brands/inge.html>
- By e-mail to inge@dupont.com
- By telephone under +49 8192 997-700

Change History


Version	Version date	Author	History
V 0	11/2019	MH/GS	Initial creation
V 1.0	01/2020	GS	Layout adjustment
V 1.1	07/2020	GS	Layout adjustment
V 2	03/2021	GS	Layout adjustment

Table of Contents

1	About these Instructions.....	5
1.1	Objective of these Instructions	5
1.2	Target Groups.....	6
1.2.1	Qualified Persons	6
1.2.2	Skilled Persons with a Supervisory Capacity	6
1.2.3	Involvement of Other Persons	6
1.2.4	Involvement of Multiple Persons.....	6
1.3	Symbols in this Manual.....	7
1.3.1	Instructions.....	7
1.3.2	Symbols	7
1.4	Storage and Transfer to Another Party.....	7
2	Safety	8
2.1	Follow the Instructions!	8
2.2	Intended Use	8
2.2.1	Residual Risks	9
2.2.2	Conversions and Modifications.....	9
2.2.3	Repairs.....	9
2.3	Standards and Laws	10
2.4	Obligations of the System Integrator	10
2.5	Obligations of the Operator	10
2.6	General Information on Safety and Warning Instructions.....	11
2.6.1	Categories and Structure.....	11
2.6.2	Warning Symbols.....	12
2.6.3	Signs Giving Instructions	13
2.6.4	Safety Instructions	14
2.6.5	Position of Warnings	16
3	Device Description.....	17
3.1	Components	17
3.1.1	Overview Graphic	17
3.1.2	<i>Parts List for dizzer® L 55 vertical module</i>	17
3.2	Functional Description	18
3.3	Technical Data.....	18
3.3.1	dizzer® L 55 vertical module Data sheet.....	18
3.3.2	Connecting Kit.....	18
4	Loading, Transport and Storage	19
4.1	General Instructions.....	19
4.2	Warnings.....	20
4.3	Loading	22

4.4	Transport	23
4.4.1	Transport Conditions	23
4.4.2	Checking the Freight.....	23
4.5	Storage	23
4.5.1	Suitability of the Location.....	23
4.5.2	Stackability	23
4.5.3	Checking the Available Space.....	23
5	Installation / Assembly	24
5.1	Warnings.....	24
5.2	General Specifications.....	26
5.2.1	Calculation of Personnel Requirements	26
5.2.2	Tools and Consumables	27
5.2.3	Preparation of gaskets and O-rings	27
5.3	Preparing for Assembly	28
5.3.1	Checking the Available Space.....	28
5.3.2	Protecting the Work Area.....	29
5.4	Checking the Delivery.....	30
5.4.1	Moving the Packages to the Work Area	30
5.4.2	Checking for Damage	30
5.4.3	Checking the Delivery for Completeness	31
5.4.4	Unpacking the Parts	31
5.5	Installation of dizzer [®] L 55 vertical modules in Conventional Racks.....	32
5.5.1	Mounting dizzer [®] L 55 vertical modules with a Crane	37
6	Service and Maintenance	38
6.1	Warnings.....	38
6.2	Checks during Operation	40
6.2.1	Eliminating Leaks.....	40
6.2.2	Exchanging Parts.....	40
6.3	Returning Modules.....	40
7	Disassembly and Disposal	41
7.1	Warnings.....	41
7.2	Disassembly	42
7.3	Disposal	42
8	Customer Service	43
8.1	Service Hotline.....	43
8.2	Ordering Spare Parts.....	43
9	Technical Documentation	44
9.1	Other Applicable Documents	44


1 About these Instructions

NOTE	
	<p>READ THE INSTRUCTIONS!</p> <p>Read these instructions completely before assembling and disassembling the equipment. The information contained herein will help you perform the work properly.</p> <p>It is important to follow the safety instructions to prevent injury and property damage.</p> <p>Keep these instructions in a readily accessible place close to the dizzer[®] L 55 vertical modules. If you transfer dizzer[®] L 55 vertical modules to third parties, be sure to include all of these instructions.</p>

1.1 Objective of these Instructions

- The instructions enable you to install and disassemble dizzer[®] L 55 vertical modules perfectly, safely and quickly.
- The instructions also contain important information about maintenance of the dizzer[®] L 55 vertical modules.
- The order in which these instructions are presented is designed for optimal learning, enabling you to work your way into the subject matter step by step.

Warranty Policy

NOTE	
	<p>ADHERENCE TO ALL INSTRUCTIONS!</p> <p>Full and proper compliance with the Assembly Instructions is a prerequisite for making a claim under the warranty.</p> <p>Only the English-language version of the assembly instructions for dizzer[®] L 55 vertical modules are legally valid. In the event of making a warranty claim, the customer agrees to automatically provide inge GmbH with a complete set of documentation.</p> <p>Please contact inge GmbH if you wish to deviate from any of the guidelines or specifications provided in this document and request written approval in advance. Otherwise you risk invalidating any warranty claims that you may make in the future.</p>

The aim of this manual is to help our customers to enjoy the full benefits of our products. If you should notice any mistake or have other suggestions for improvements, please send an email to

→ inge_manuals@dupont.com

1.2 Target Groups

1.2.1 Qualified Persons

These instructions are intended for skilled persons with the following qualifications:

- **Technical education**
The skilled person must have technical education as a mechanic or mechatronics technician, for example.
- **Several years of experience with the installation of industrial systems**
The skilled person must also have several years of experience with the installation of industrial systems.
- **Good language skills**
The skilled person must know the language of these instructions well enough to be able to apply the contents of these instructions and to impart these to other persons under his/her supervision.

1.2.2 Skilled Persons with a Supervisory Capacity

Skilled persons that meet all requirements in section 1.2.1 are considered to be "skilled persons with a supervisory capacity".

1.2.3 Involvement of Other Persons

Other persons may only participate in the assembly or disassembly if continuously supervised and instructed by the skilled persons with a supervisory capacity.

1.2.4 Involvement of Multiple Persons

Some tasks need to be performed by two or more persons for worker protection and safety reasons.

In these cases, the number of persons required is specified in the first step of the procedure.

1.3 Symbols in this Manual

1.3.1 Instructions

Activities are described as numbered steps that are presented in a table.




The headings of the activity descriptions are primarily intended for personnel with extensive experience in the application of these instructions. They make it possible for the personnel to assemble or disassemble the equipment primarily by reading these headings and observing the graphics.

Notwithstanding this, the detailed description is always binding.

Always read the entire description of a step before beginning with the work it describes.

1.3.2 Symbols

The following symbols are used in this manual:

SYMBOL	DESCRIPTION (EXAMPLES)
	IMPORTANT NOTE! Failure to follow the instructions in this note may lead to problems with the product.
	INFORMATION! Following this information will make it easier to assemble the dizzer [®] L 55 vertical modules.
	CROSS REFERENCE! Detailed information on this topic can be found in other documentation.

1.4 Storage and Transfer to Another Party

Keep these instructions in a readily accessible place close to the dizzer[®] L 55 vertical modules. If you transfer the dizzer[®] L 55 vertical modules to third parties, be sure to include all of these instructions.

2 Safety

2.1 Follow the Instructions!

The dizzer® L 55 vertical modules can only be installed or disassembled safely if you first read the instructions, understand these and follow them when assembling and disassembling the equipment.

The manufacturer has designed and built the product according to the latest engineering knowledge, thereby ensuring the best possible safety and preventing injury, property damage and/or environmental damage.

A certain residual risk remains, which can only be avoided by following the correct procedures. The correct procedures and all points that need to be followed are described in these instructions.

2.2 Intended Use

These instructions describe the requirements and procedures for:

- Installation/assembly of the dizzer® L 55 vertical modules
- Disassembly of the dizzer® L 55 vertical modules

The completely installed dizzer® L 55 vertical modules are intended only for the commercial ultrafiltration of water.


The intended installation and disassembly includes adherence to all specifications in these instructions.

Any other method of installation or disassembly is considered to be unintended use. inge GmbH cannot be held liable for damage that results from unintended use.

2.2.1 Residual Risks

Despite the inherently safe design the following residual risks remain:

- Danger of crushing from falling raised loads
- Danger of crushing by industrial trucks and other equipment at the construction site
- Danger of injury from faulty and incomplete assembly
- Danger of falling when using ladders, scaffolding and other climbing aids
- Danger of crushing and shearing from work in the danger zone
- Cutting and impact injuries from sharp corners and edges
- Danger of tripping and impact from pallets, packages and assembled parts at the construction site
- Danger of injury due to physical strain
- Danger of injury due to constricted space
- Danger of injury due to inadequate room height
- Danger of injury and system damage due to exceeding the maximum permissible floor load
- Danger of injury to bystanders, machines and devices in the work area
- Danger of injury during operation due to the installation and use of damaged parts

NOTE	
	In these instructions, these residual risks are indicated by appropriate safety and warning instructions.

2.2.2 Conversions and Modifications

Conversion or modification is only permissible with the written approval from the manufacturer.

2.2.3 Repairs

Repairs may only be performed by qualified personnel following consultation with the manufacturer.

2.3 Standards and Laws



- The dizzer[®] L 55 vertical modules of inge GmbH are subject to the EC pressure equipment directive 2014/68/EU, Article 4, Sector 3.
- The locally applicable normative and/or statutory requirements for the installation and disassembly of the dizzer[®] L 55 vertical modules must be complied with.
- For tools, equipment, machines and facilities that are not included in the delivery, the conditions and instructions of the respective manufacturer apply.

2.4 Obligations of the System Integrator

- Ensure that every skilled person with a supervisory capacity (= target group) has a printed copy of these instructions available for the entire duration of the installation and disassembly.
- The current instructions can be downloaded here
<https://www.dupont.com/brands/inge.html>
- On request, we can send you the desired number of printed instructions free of charge.
- You can reach inge GmbH under info@inge.ag or by telephone +49 8192 997-700.
- Make the necessary personal protective equipment available to all people involved for the duration of the work.
- In case of deficiencies or loss, immediately replace the personal protective equipment.

2.5 Obligations of the Operator

- Ensure that all persons working on the dizzer[®] L 55 vertical modules use the personal protective equipment (safety shoes and helmet) made available to them for the duration of the work.
- Ensure that you are immediately informed in case of deficiencies or loss of personal protective equipment. Provide a replacement immediately and do not allow work to be performed without complete personal protective equipment.
- Ensure that all persons working on the dizzer[®] L 55 vertical modules have read the assembly instructions and follow the safety instructions and procedures described herein.

 WARNING	
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>If you begin work without having read the information on the respective procedural step (including any potential warning instructions), this may lead to accidents.</p> <ul style="list-style-type: none"> ■ Ensure that the operating personnel has the necessary qualification and is sufficiently trained. ■ Read the description of a procedural step completely and do not begin implementing the step before having done so.

2.6 General Information on Safety and Warning Instructions










2.6.1 Categories and Structure

Depending on the severity of the impending or potential danger, the following types of safety and warning instructions are differentiated:

 DANGER	
	<p>DANGER TO LIFE!</p> <p>Personal injury due to an imminently hazardous situation. If this situation is not avoided, it will lead to serious injury or death.</p> <ul style="list-style-type: none"> ▪ Actions to avert danger
 WARNING	
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Personal injury due to a potentially hazardous situation. If this situation is not avoided, it may lead to serious injury or death.</p> <ul style="list-style-type: none"> ▪ Actions to avert danger
 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Personal injury due to a potentially hazardous situation. If this situation is not avoided, it may lead to minor or moderate injury.</p> <ul style="list-style-type: none"> ▪ Actions to avert danger
NOTE	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Property damage due to an improper procedure.</p> <ul style="list-style-type: none"> ▪ Actions to avert danger






2.6.2 Warning Symbols

The following warning symbols are used in this manual:

WARNING SYMBOL	DESCRIPTION
	GENERAL DANGER SIGN If the necessary safety instructions are not followed, this may lead to death, serious injury and serious property damage.
	SUSPENDED LOADS If the necessary safety instructions are not followed, this may lead to death, serious injury and property damage due to falling loads.
	HEAVY WEIGHTS If the necessary safety instructions are not followed, this may lead to serious back injury due to lifting of heavy loads.
	DANGER OF CRUSHING (BODY) If the necessary safety instructions are not followed, this may lead to death or serious injury due to pinching/crushing of the body.
	DANGER OF CRUSHING (BODY) If the necessary safety instructions are not followed, this may lead to death or serious injury due to pinching/crushing of the body.
	DANGER OF CRUSHING AND SHEARING (HAND) If the necessary safety instructions are not followed, this may lead to serious injury and property damage due to crushing and shearing of the hands and other parts of the body.
	DANGER OF FALLING If the necessary safety instructions are not followed, this may lead to death or serious injury from falling.
	DANGER OF SLIPPING If the necessary safety instructions are not followed, this may lead to serious injury from slipping.
	DANGER OF TRIPPING If the necessary safety instructions are not followed, this may lead to serious injury from tripping.
	DANGER OF CUTTING If the necessary safety instructions are not followed, this may lead to serious injury from cutting on sharp edges.

2.6.3 Signs Giving Instructions




The following signs giving instructions are used in this manual for the required personal protective equipment (PPE):




SIGNS GIVING INSTRUCTIONS	DESCRIPTION
	<p>WORKING WITH A HELMET</p> <p>Failure to wear a helmet may result in head injuries.</p> <ul style="list-style-type: none"> ▪ Wear a helmet!
	<p>WORKING WITH SAFETY SHOES</p> <p>Failure to wear safety shoes may result in foot injuries.</p> <ul style="list-style-type: none"> ▪ Wear safety shoes!
	<p>WORKING WITH SAFETY GLOVES</p> <p>Failure to wear safety gloves may result in hand injuries.</p> <ul style="list-style-type: none"> ▪ Wear safety gloves!
	<p>WORKING WITH EYE PROTECTION</p> <p>Failure to wear safety goggles may result in eye injuries.</p> <ul style="list-style-type: none"> ▪ Wear safety goggles!
	<p>WORKING WITH A SAFETY HARNESS</p> <p>Failure to wear a safety harness may result in injuries due to a fall.</p> <ul style="list-style-type: none"> ▪ When working at great heights, wear a safety harness




2.6.4 Safety Instructions


The following safety instructions are used in this manual:









 DANGER		
	<p>DANGER TO LIFE!</p> <p>Danger of crushing from falling raised loads.</p> <ul style="list-style-type: none"> ▪ Never stand under raised loads! ▪ Keep a sufficient distance when transporting and lifting loads! ▪ Wear a safety helmet! ▪ Wear safety shoes! 	 
 DANGER		
 	<p>DANGER TO LIFE!</p> <p>Danger of crushing by industrial trucks and other equipment at the construction site.</p> <ul style="list-style-type: none"> ▪ Keep a sufficient distance when transporting and lifting loads! ▪ Wear a safety helmet! ▪ Wear safety shoes! 	 
 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of injury from faulty and incomplete assembly.</p> <ul style="list-style-type: none"> ▪ Do not take the modules of the dizzer® L 55 in operation before they have been fully assembled! ▪ Wear a safety helmet! ▪ Wear safety shoes! ▪ Wear safety goggles! 	  

⚠ WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of falling when using ladders, scaffolding and other climbing aids.</p> <ul style="list-style-type: none"> ▪ Only use flawless and approved ladders, scaffoldings and other climbing aids! ▪ Use a secured safety cage or safety harness when you are being raised by a fork lift truck! ▪ Wear a safety helmet! ▪ Use a safety harness if necessary! 	 

⚠ WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of crushing and shearing from work in the danger zone.</p> <ul style="list-style-type: none"> ▪ Note the specified number of persons required! ▪ Wear safety gloves! ▪ Wear safety shoes! 	 

⚠ WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Cutting and impact injuries from sharp corners and edges.</p> <ul style="list-style-type: none"> ▪ Wear safety gloves! ▪ Wear safety shoes! 	 

⚠ WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of tripping and impact from pallets, packages and assembled parts at the construction site.</p> <ul style="list-style-type: none"> ▪ Wear a safety helmet! ▪ Wear safety shoes! 	 

 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to physical strain.</p> <ul style="list-style-type: none"> ▪ Determine the weight of the module in use! ▪ Always note the locally applicable maximum permissible load for personnel! ▪ Note the specified number of persons required!
 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to constricted space.</p> <ul style="list-style-type: none"> ▪ Provide for sufficient space!
 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury to bystanders, machines and devices in the work area.</p> <ul style="list-style-type: none"> ▪ Protect the work area against unauthorized access and against machines and devices that are not involved!
 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury during operation due to the installation and use of damaged parts.</p> <ul style="list-style-type: none"> ▪ Only use undamaged parts or parts approved by inge GmbH!

2.6.5 Position of Warnings

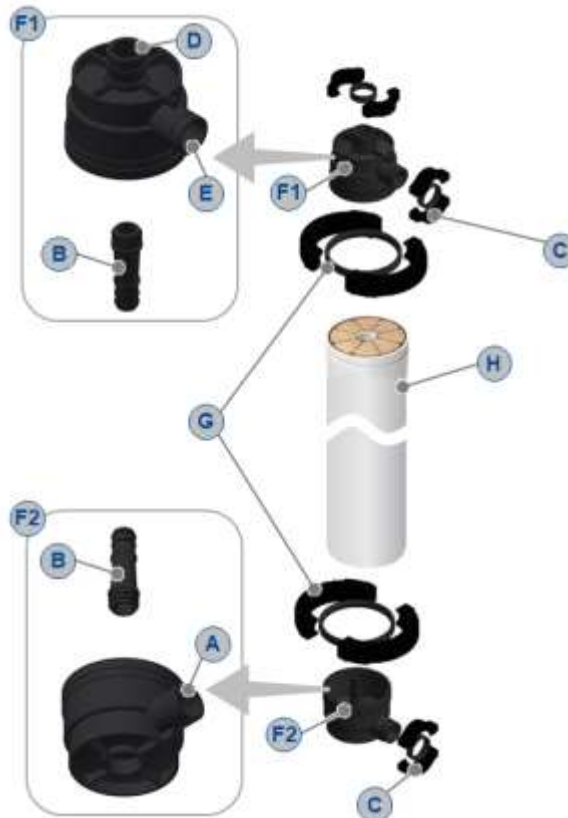
- General warnings on activities are found at the beginning of each main section.
- Special warnings on the individual steps are located with the corresponding step.

3 Device Description

3.1 Components

3.1.1 Overview Graphic

Components of the dizzer® L 55 vertical module



3.1.2 Parts List for dizzer® L 55 vertical module

Part	Quantity	Single part
A	1	Feed port (bottom)
B	2	Central connector
C	3	Composite coupling set (2.5")
D	1	Filtrate / Backwash port
E	1	Feed port (top)
F1	1	End cap (top) with open filtrate port
F2	1	End cap (bottom), closed
G	2	Composite coupling set (8")
H	1	dizzer® L 55 module

3.2 Functional Description

Part	Description
Feed port (bottom)	Connector for bottom feed inlet and BW waste outlet
Central connector	Internal connection for filtrate and BW (only top connection is functional)
Composite coupling set (2.5")	Coupling to connect the module to collecting pipes for filtrate outlet and backwash inlet.
Filtrate/BW port	Connector for filtrate and BW inlet
Feed port (top)	Connector for top feed inlet and BW waste outlet
dizzer [®] L 55 module	A module consists of a large quantity of Multibore [®] membranes installed in a cylindrical shell
End cap	Connection cap for the module
Composite coupling set (8")	Coupling to connect the module to collecting pipes for feed inlet and backwash outlet

3.3 Technical Data

The dizzer[®] L 55 vertical modules and corresponding Connecting Kit are designed to enable one-to-one replacements of existing vertical UF systems with Multibore[®] membranes.

→ For details, see the datasheet 'Multibore[®] Membrane'



3.3.1 dizzer[®] L 55 vertical module Data sheet

- dizzer[®] L 0.9 MB 55

→ Please see the datasheet 'dizzer[®] L 0.9 MB 55'



3.3.2 Connecting Kit

- Connecting Kit for dizzer[®] L 55 vertical

→ Please see the datasheet 'Connecting Kit for dizzer L 55 module vertical installed'





4 Loading, Transport and Storage

4.1 General Instructions

Warranty Claim for Transport Damage and Improper Storage

- Modules and components that are irreparably destroyed due to improper loading, transport or storage shall not be covered by inge GmbH's warranty provisions. Therefore, it is important to always follow the loading, transport and storage instructions provided in these Assembly Instructions.
- Modules that are still contained within their original, sealed packaging may be stored for 12 months from the date they are shipped from the factory. Storing the modules for longer than 12 months shall render the warranty void unless otherwise agreed by inge GmbH in writing.

NOTE	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Property damage caused by mechanical impact.</p> <ul style="list-style-type: none"> ■ Ensure that the modules are not jarred.



NOTE	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Property damage caused by impermissible exposure to weather conditions.</p> <ul style="list-style-type: none"> ■ Adhere to the storage and transport temperatures in a range from -20°C to 40°C. ■ Ensure that the equipment is transported and stored in an enclosed area to keep the components from getting wet and to protect them against excessive heat. ■ Store all parts and modules under dry, moderately ventilated conditions.



A detailed description of the inge® packaging can be found in the packaging description and in the corresponding packaging datasheet 'DS Packaging dL55Vertical' for dizzer® L 55 vertical modules. Condition of shipment and box type are subject to modification by inge GmbH without notice.










4.2 Warnings

! DANGER		
	<p>DANGER TO LIFE!</p> <p>Danger of crushing from falling raised loads.</p> <ul style="list-style-type: none"> ▪ Never stand under raised loads! ▪ Keep a sufficient distance when transporting and lifting loads! ▪ Wear a safety helmet! ▪ Wear safety shoes! 	

! DANGER		
	<p>DANGER TO LIFE!</p> <p>Danger of crushing by industrial trucks and other equipment at the construction site.</p> <ul style="list-style-type: none"> ▪ Keep a sufficient distance when transporting and lifting loads! ▪ Wear a safety helmet! ▪ Wear safety shoes! 	

! WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of falling when using ladders, scaffolding and other climbing aids.</p> <ul style="list-style-type: none"> ▪ Only use flawless and approved ladders, scaffoldings and other climbing aids! ▪ Use a secured safety cage or safety harness when you are being raised by a fork lift truck! ▪ Wear a safety helmet! ▪ Use a safety harness if necessary! 	

! WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of crushing and shearing from work in the danger zone.</p> <ul style="list-style-type: none"> ▪ Note the specified number of persons required! ▪ Wear safety gloves! ▪ Wear safety shoes! 	

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Cutting and impact injuries from sharp corners and edges.</p> <ul style="list-style-type: none"> ▪ Wear safety gloves! ▪ Wear safety shoes! 	 
 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of tripping and impact from pallets, packages and assembled parts at the construction site.</p> <ul style="list-style-type: none"> ▪ Wear a safety helmet! ▪ Wear safety shoes! 	 
 CAUTION		
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to physical strain.</p> <ul style="list-style-type: none"> ▪ Determine the weight of the module in use! ▪ Always note the locally applicable maximum permissible load of persons! ▪ Note the specified number of persons required! 	

4.3 Loading

Fork-Lift Truck Requirements

- To lift and transport pallets in a longitudinal direction, only use fork-lift trucks or lift trucks with a fork length of 120 cm or more.
- The use of removable fork extensions or telescope extensions is permissible as long as a fork length of at least 120 cm is ensured when transporting the pallet in the longitudinal direction.

Stackability

The following maximum stacking heights must be observed:

Module type	Single Unit Packaging (1 UF element per cardboard box)		Multi Unit Packaging (max. 20 per plywood box)	
	Positioning	Stacking Height	Positioning	Stacking Height
dizzer® L 0.9 MB 55	horizontal	4	horizontal	3x

The corresponding Connecting Kits are packed into separate cardboard boxes. Pending the quantity of modules, the Connecting Kit boxes will either be placed on top or put inside the wooden module palette.

Weight load

- On the basis of the delivery scope, check the total weight with respect to the permissible weight load of the truck.

Transport Protection

- Ensure that the equipment is transported safely by securing it properly in the truck.

Load Distribution

- When loading, fill the loading surface without gaps to prevent the transported equipment from tipping, slipping, etc.
- Low packages over which other, higher packages could tip in case of emergency braking must not be positioned at the bulkhead.

4.4 Transport

4.4.1 Transport Conditions

- During transport, adhere to a temperature range of -20°C to 40°C.
- Ensure that the equipment is transported and stored in an enclosed area to keep the components from getting wet and to protect them against excessive heat and direct sunlight.

4.4.2 Checking the Freight

Check on IPPC Pallets

- Check that the freight has been mounted on heat-treated IPPC pallets only.
- Freight that is not positioned on IPPC pallets must be remounted on IPPC pallets.

4.5 Storage

4.5.1 Suitability of the Location

- Adhere to the storage and transport temperatures in a range from -20°C to 40°C.
- Ensure that the equipment is transported and stored in an enclosed area to keep the components from getting wet and to protect them against excessive heat and direct sunlight.
- Store all parts and modules under dry, moderately ventilated conditions.

4.5.2 Stackability

→ [See section 4.3 Loading](#)













4.5.3 Checking the Available Space




Check the maximum floor load of the planned warehouse storage area.

The details on the weights can be found in the delivery papers.

5 Installation / Assembly

5.1 Warnings

 DANGER		
	<p>DANGER TO LIFE!</p> <p>Danger of crushing from falling raised loads.</p> <ul style="list-style-type: none"> ▪ Never stand under raised loads! ▪ Keep a sufficient distance when transporting and lifting loads! ▪ Wear a safety helmet! ▪ Wear safety shoes! 	 
 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of falling when using ladders, scaffolding and other climbing aids.</p> <ul style="list-style-type: none"> ▪ Only use flawless and approved ladders, scaffoldings and other climbing aids! ▪ Use a secured safety cage or safety harness when you are being raised by a fork lift truck! ▪ Wear a safety helmet! ▪ Use a safety harness if necessary! 	 
 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of crushing and shearing from work in the danger zone.</p> <ul style="list-style-type: none"> ▪ Note the specified number of persons required! ▪ Wear safety gloves! ▪ Wear safety shoes! 	 



⚠ WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Cutting and impact injuries from sharp corners and edges.</p> <ul style="list-style-type: none"> ▪ Wear safety gloves! ▪ Wear safety shoes! 	 

⚠ WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of tripping and impact from pallets, packages and assembled parts at the construction site.</p> <ul style="list-style-type: none"> ▪ Wear a safety helmet! ▪ Wear safety shoes! 	 

5.2 General Specifications

5.2.1 Calculation of Personnel Requirements

Personnel Requirements for mounting a module without a Crane

 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to physical strain.</p> <ul style="list-style-type: none"> ▪ Determine the weight of the module in use! ▪ Always note the locally applicable maximum permissible load of persons! ▪ Note the specified number of persons required!

To mount the module without a crane, calculate the number of persons required as follows.

1. Determine the transport weight of a module you are using from the
→ [3.3 Technical Data](#)
2. Determine the maximum permissible load on a person from the locally applicable laws and safety regulations.
3. Calculate the required number of persons required to lift a module by dividing the module transport weight by the maximum permissible load per person.


Always use the calculated number of persons when a module needs to be lifted.


For proper installation of the dizzer[®] L 55 vertical modules at least 2 people are required.

Personnel Requirements for Other Tasks

Unless otherwise specified, all other tasks require one person.

5.2.2 Tools and Consumables

NOTE	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>If the tightening torques specified in these instructions are exceeded, the system parts may become damaged and leaks may occur during operation.</p> <ul style="list-style-type: none"> ▪ Always adhere to the specified tightening torques!


NOTE	
	<p>The composite couplings (2.5" and 8") should be tightened until the contact surfaces of both coupling halves are flush and resting against each other without a gap. These types of couplings do not require a specific torque. The usual value of torque for the 2.5" coupling is 7.5 Nm and for the 8" coupling it is 10 Nm.</p>

Only the following tools and devices are approved for the installation of dizzer[®] L 55 vertical modules:

- Open-end or box wrench (size 17)
- Torque wrench for hexagon socket (size 8)
- Spirit level 2000 mm
- Spirit level 600 mm

5.2.3 Preparation of gaskets and O-rings

Do not use silicone or any lubricants or sealants that contain silicone during assembly. Only glycerin may be used as a lubricant for gaskets, O-rings, couplings etc. (with a purity of > 99.7%).

NOTE	
	<p>USE DISPOSABLE GLOVES!</p> <p>Use disposable gloves to apply lubricant to the couplings and gaskets.</p>

5.3 Preparing for Assembly

5.3.1 Checking the Available Space

NOTE	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Potential damage due to exposure to the weather or impermissible temperatures.</p>

Weather and Temperature Protection

At the location where you are planning to assembly the dizzer[®] L 55 vertical modules, ensure the following:

- Permanent protection against the weather is provided
- The temperatures are always within the permissible temperature range from 1°C to + 40°C.

Space Conditions

- Check the space conditions around the assembly area.
- Ensure that there is enough space to allow the modules of the dizzer[®] L 55 vertical modules to be installed, disassembled and operated safely.

 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to constricted space.</p> <ul style="list-style-type: none"> ■ Provide for sufficient space!

5.3.2 Protecting the Work Area

Structure of the Work Area

The work area consists of the following areas:



- The single parts of the dizzer[®] L 55 vertical modules that are in storage, have been unpacked, are being tested and/or are being processed.
- The currently processed dizzer[®] L 55 vertical modules
- The final location of the dizzer[®] L 55 vertical modules

and additionally on all routes:

- All required access routes to the areas specified above.
- All required walking and driving distance between the areas specified above.
- All escape routes from one of the area or routes specified above.

Protecting the Work Area

- Protect the defined work area against access by persons who are not involved in the procedures for installing the dizzer[®] L 55 vertical modules.
- Protect the defined work area against all machines or devices that are not required for the procedures for installing the dizzer[®] L 55 vertical modules.

 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury to bystanders, machines and devices in the work area.</p> <ul style="list-style-type: none"> ■ Protect the work area against unauthorized access and against machines and devices that are not involved!

5.4 Checking the Delivery

5.4.1 Moving the Packages to the Work Area

Move all packages of the components being mounted to the vicinity of the work area using suitable transport equipment.

5.4.2 Checking for Damage



Step	Activity
1	<p>Checking Packages and Parts</p> <ul style="list-style-type: none"> a) Check all packages of the delivery for damage. b) Open all damaged packages. c) Check all models and/or parts it contains for damage.
2	<p>Procedure for Damaged Modules or Parts</p> <ul style="list-style-type: none"> a) Photograph the damage and the associated package label. b) Document all damage and the respective associated package numbers in writing. c) Inform your contact at inge GmbH promptly about the damage. Damaged parts of a delivery are not permitted to be installed until a decision has been made by inge GmbH. d) The decision regarding whether the damaged module or part must be returned or if it can be used is made by your contact at inge GmbH. → Please see 6.3 Returning Modules

Further Use of Parts

You are only permitted to continue to use and install the following modules and parts:

- All modules and parts without damage
- Damaged modules and parts with written approval from inge GmbH with a specific reference to the damaged module or part


inge GmbH decides on the procedure (approval or block) for all damaged modules or parts that have not been approved.

 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury during operation due to the installation and use of damaged parts.</p> <ul style="list-style-type: none"> ■ Only use undamaged parts or parts approved by inge GmbH!

5.4.3 Checking the Delivery for Completeness


Step	Activity
1	Check the completeness of the delivery against the packing list. All packages on the packing list must be present.
2	Promptly inform your contact at inge GmbH if the number of pieces differs between the packing list and the existing packages.


5.4.4 Unpacking the Parts



NOTE	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Damages could be caused by abrupt temperature changes.</p> <ul style="list-style-type: none"> ▪ Store the modules for at least two days at temperatures above freezing before opening the packaging carton.







Remove the packaging and labeling.


5.5 Installation of dizzer® L 55 vertical modules in Conventional Racks

NOTE	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Sufficient stability and building-side attachment of the dizzer® L 55 vertical modules must be guaranteed. The brackets must connect the module to the module rack tightly, tension-free and vibration-free.</p>



NOTE	
	<p>For proper installation of the dizzer® L 55 vertical modules in conventional racks, heed correct orientation of the module connections.</p>

Step	Activity	Figure
1	<p>Prepare the end cap</p> <p>a) Check the individual parts of the end caps. The scope of delivery of the Connecting kit includes two end caps with central connector (O-Rings preassembled) and composite coupling (3 x 2.5" / 2 x 8").</p> <p>b) Carefully remove the tape and the yellow protecting cap from the top module end. Avoid the use of any sharp instrument that might cause damage to the module.</p>	 

Step	Activity	Figure
2	<p>Lubricate the gaskets with glycerin</p> <p>a) Lubricate the O-rings of the two central connectors with glycerine on the side with the larger diameter.</p>	
	<p>b) Place a lubricated central connector with the side with the larger diameter into the end caps.</p>	
		
3	<p>Placing the 8" gasket on the module</p> <p>a) Lubricate the gaskets with glycerin on the inside and outside.</p>	
	<p>b) Place the lubricated gaskets on the module.</p>	
4	<p>Lubricate the O-rings with glycerin</p> <p>Lubricate the O-rings of the two protruding central connectors with glycerine.</p>	



Step	Activity	Figure
5	<p data-bbox="288 338 544 371">Placing the end cap</p> <p data-bbox="288 387 1018 450">a) Mount the prepared end cap with central connector onto the module body.</p> <p data-bbox="288 607 639 640">b) Press it in until it's flush.</p>	

Step	Activity	Figure
	c) Pull the O-ring over the module and the end cap so that both connections are covered.	

Step	Activity	Figure
	<p>d) Place a flexible coupling 8" half-shell around the gasket.</p> <ul style="list-style-type: none"> ▪ Ensure that the contact surfaces of the coupling half-shells are resting in the provided grooves. 	
	<p>e) Place the second flexible coupling 8" half-shell on the first and insert the bolts in the openings.</p>	
	<p>f) Tighten the flexible coupling 8" with two nuts M12 and washers using an open-end or box wrench (size 22) until the contact surfaces of both coupling halves are flush and resting against each other without a gap.</p> <ul style="list-style-type: none"> ▪ Ensure that the nuts are tightened evenly and alternately. 	
	<p>g) Repeat steps a) to f) for the second side of the module.</p>	
<p>6</p>	<p>Placing the module</p>	
	<p>a) Place the module vertically on the appropriate connection point on the module rack.</p> <ul style="list-style-type: none"> ▪ Make sure that the connections on the module are flush with the connections on the module rack. <p>b) Connect the feed ports (bottom and top) and the filtrate / backwash port to the module rack with the 2.5" composite couplings.</p> <p>c) Make sure that the connection is tight, stress-free and vibration-free.</p>	

5.5.1 Mounting dizzer[®] L 55 vertical modules with a Crane





Mounting with a Crane





Step	Activity	Figure
1	Attach the module using a mounting strap (min. load capacity of 60 kg) directly under the filtrate port and place the loop into the crane hook.	
2	Carefully lift the module using the crane.	
3	Hold the module at the top connection and stabilize it throughout the transport procedure.	
4	Move the module to the installation position with a crane.	
5	Lower the module so that the module connections are arranged across from the connections on the module rack.	
6	Keep the mounting strap taut so that the module cannot tip.	
7	Mount the module using the procedure described in section: → 5.5 Installation of dizzer [®] L 55 vertical modules in Conventional Racks – Step 6 'Placing the module'	
8	Slacken the mounting strap with the crane and release it from the crane hook and the module.	





6 Service and Maintenance



6.1 Warnings



 DANGER		
	<p>DANGER TO LIFE!</p> <p>Danger of crushing from falling raised loads.</p> <ul style="list-style-type: none"> ▪ Never stand under raised loads! ▪ Keep a sufficient distance when transporting and lifting loads! ▪ Wear a safety helmet! ▪ Wear safety shoes! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of falling when using ladders, scaffolding and other climbing aids.</p> <ul style="list-style-type: none"> ▪ Only use flawless and approved ladders, scaffoldings and other climbing aids! ▪ Use a secured safety cage or safety harness when you are being raised by a fork lift truck! ▪ Wear a safety helmet! ▪ Use a safety harness if necessary! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of crushing and shearing from work in the danger zone.</p> <ul style="list-style-type: none"> ▪ Note the specified number of people required! ▪ Wear safety gloves! ▪ Wear safety shoes! 	 


 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Cutting and impact injuries from sharp corners and edges.</p> <ul style="list-style-type: none"> ▪ Wear safety gloves! ▪ Wear safety shoes! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of tripping and impact from pallets, packages and assembled parts at the construction site.</p> <ul style="list-style-type: none"> ▪ Wear safety helmet! ▪ Wear safety shoes! 	 

 CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to physical strain.</p> <ul style="list-style-type: none"> ▪ Determine the weight of the module in use! ▪ Always note the locally applicable maximum permissible load of persons! ▪ Note the specified number of persons required!

6.2 Checks during Operation

Checking for Leak Tightness

NOTE	
	<p>CAUTION, PROPERTY DAMAGE!</p> <p>Fluid leakage – especially where corrosive agents are involved – may cause corrosion to appear on the components concerned. Effective measures should be taken to avoid corrosion before it occurs.</p> <ul style="list-style-type: none"> ■ In the event of fluid escaping due to a leak, the affected area should be properly rinsed down with salt-free or low-salt water and rubbed dry.

6.2.1 Eliminating Leaks

Eliminate leaks by exchanging the corresponding O-rings or other components.

When doing so, note the warnings and instructions provided in section 5 'Installation / Assembly', as applicable.


6.2.2 Exchanging Parts

When exchanging parts, only genuine parts from inge GmbH are permitted to be used.

6.3 Returning Modules

Returns shall only be accepted if this has been agreed in advance with inge GmbH and authorized in writing. Returns that have been previously agreed and approved by inge GmbH are subject to the following mandatory requirements:





- All components must be rinsed and cleaned before being returned.
- Modules must be preserved during storage and transport.





NOTE	
	<p>FAILURE TO COMPLY WITH THE ABOVE INSTRUCTIONS!</p> <p>Failure to comply with any of the requirements stated above will result in inge GmbH refusing to accept the return of the modules; inge GmbH reserves the right to invoice the sender for any transportation or removal costs that may be incurred in this case.</p>





7 Disassembly and Disposal

7.1 Warnings


 DANGER		
	<p>DANGER TO LIFE!</p> <p>Danger of crushing from falling raised loads.</p> <ul style="list-style-type: none"> ▪ Never stand under raised loads! ▪ Keep a sufficient distance when transporting and lifting loads! ▪ Wear a safety helmet! ▪ Wear safety shoes! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of falling when using ladders, scaffolding and other climbing aids.</p> <ul style="list-style-type: none"> ▪ Only use flawless and approved ladders, scaffoldings and other climbing aids! ▪ Use a secured safety cage or safety harness when you are being raised by a fork lift truck! ▪ Wear a safety helmet! ▪ Use a safety harness if necessary! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of crushing and shearing from work in the danger zone.</p> <ul style="list-style-type: none"> ▪ Note the specified number of persons required! ▪ Wear safety gloves! ▪ Wear safety shoes! 	 

 WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Cutting and impact injuries from sharp corners and edges.</p> <ul style="list-style-type: none"> ▪ Wear safety gloves! ▪ Wear safety shoes! 	 

⚠ WARNING		
	<p>CONSIDERABLE DANGER OF INJURY!</p> <p>Danger of tripping and impact from pallets, packages and assembled parts at the construction site.</p> <ul style="list-style-type: none"> ▪ Wear a safety helmet! ▪ Wear safety shoes! 	

⚠ CAUTION	
	<p>DANGER OF INJURY!</p> <p>Danger of injury due to physical strain.</p> <ul style="list-style-type: none"> ▪ Determine the weight of the module in use! ▪ Always note the locally applicable maximum permissible load of persons! ▪ Note the specified number of persons required!

7.2 Disassembly

Disassembly work may only be performed by trained and qualified personnel or by a suitable specialist company.

Adequate clear space for movement must be provided to perform the work. The danger area should, if necessary, be marked for third parties and/or cordoned off.

The disassembly is performed in reverse order to the assembly. A special tool could be useful for the removal of the modules. If any information on the procedure is required please contact inge®.

→ [For details, see section 5 Installation / Assembly](#)

7.3 Disposal

During disposal of the modules of the dizzer® L 55 vertical modules, note the following specifications:

- Adhere to the applicable local disposal regulations.
- Adhere to the legal regulations regarding environmental protection.

8 Customer Service

8.1 Service Hotline

Contact the following address if you have problems with modules of the dizzer® L 55 vertical modules and to order spare parts:

inge GmbH

Flurstraße 27
86926 Greifenberg
Germany

Tel: +49 8192 997-700

Fax: +49 8192 997 999

E-Mail: inge@dupont.com


<https://www.dupont.com/brands/inge.html>

8.2 Ordering Spare Parts

Order Details

The following details are required to place an order:

- Parts designation
- Article number

NOTE	
	<p>A detailed list of the individual components can be found in the spare parts lists.</p> <p>The spare parts lists will be made available to you by inge GmbH on request.</p>

9 Technical Documentation

9.1 Other Applicable Documents

The following other applicable documents are available:

- Process Guidelines
- Spare parts lists

As a component supplier, inge® refers to the system supplier for further documents (for example ‚System Operating Instructions‘).

inge GmbH
Flurstrasse 27
86926 Greifenberg
Germany
Phone: +49 8192 997-700
Fax: +49 8192 997-999
Email: inge@dupont.com

<https://www.dupont.com/brands/inge.html>

Note

The descriptions, designs, data and product information contained herein are presented in good faith and are based on inge GmbH's current knowledge and experience. inge GmbH cannot accept any liability for the accuracy of this product information, which is provided at no charge and for guidance only.

inge® products are designed to be operated in accordance with the corresponding inge® product documentation. The product information and products are protected by copyright and/or other intellectual property laws worldwide. However, inge GmbH cannot guarantee that the product information and products can be used without infringing third party intellectual property rights. The products and product information may only be used, distributed and marketed with the express prior permission of inge GmbH.

No warranties of any kind regarding the products, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose or no third party rights are made, other than as expressly set out in the contractual agreement with the customer. Mechanical stability and full functionality of inge® products can only be provided by genuine inge® parts.

inge GmbH reserves the right to modify products and product information at any time without prior information. Current product information can be obtained from the website <https://www.dupont.com/brands/inge.html>.

DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, SM or © are owned by affiliates of DuPont de Nemours, Inc. unless otherwise noted. © 2021 DuPont



a DuPont brand