D	Dokumentation
GB	Documentation
F	Documentation
I	Documentazione
E	Documentación

D	Rührwerk Typ	
GB	Agitator type	VJ500.070Rd
F	Type d'agitateur	
I	Modello miscelatore	
E	Mezclador tipo	
D	Endkunde	
GB	End customer	Nestle Anderson, IN
F	Client final	4301 W 73rd Street
I	Cliente	IN 46013 Anderson
E	Cliente	USA
D	Wiederverkäufer	
GB	Reseller	PROCESSTEC Inc.
F	Revendeur	
I	Rivenditore	
E	Revendedor	
D	Wiederverkäufer Bestellnummer	
GB	Reseller purchase order no	PO-65.1-EC-33-682
F	Revendeur Numéro de commande	
I	N° ordinazione rivenditore	
E	Nº de pedido de revendedor	
D	Auftrags-Position	
GB	Order item	15
F	Position de commande	
I	Posizione ordine	
E	Posición de pedido	
D	VISCO JET Auftrag Nr.	
GB	VISCO JET order no.	VA00003311
F	N° de commande VISCO JET	
I	N° ordine VISCO JET	
E	Nº de pedido de VISCO JET	
D	VISCO JET Artikel Nr.	
GB	VISCO JET article no.	VJ500
F	Réf. d'article VISCO JET	
I	N° articolo VISCO JET	
E	Nº de artículo de VISCO JET	
D	VISCO JET Serien Nr.	
GB	VISCO JET serial no.	13012 + 13013
F	N° de série VISCO JET	
I	N° serie VISCO JET	
E	Nº de serie de VISCO JET	

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Operating manual

Agitators VISCO JET® VJ 500, VJ 510 and VJ 520

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VISCO JET Rührsysteme GmbH
D-79761 Waldshut-Tiengen

Disclaimer
We have reviewed the contents of this publication for consistency with the VJ 500, VJ 510 and VJ 520 agitators described. Nevertheless, variations cannot be excluded, and we therefore cannot accept any liability for complete consistency. The information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.
We welcome any suggestions for improvement.

CONTENT

-

SAFETY INFORMATION

This operating and safety manual contains instructions which you should follow to ensure your personal safety and to prevent damage to property. These instructions are highlighted by a warning triangle and are marked according to degree of hazard as follows:

HAZARD

Indicates that death, severe personal injury or substantial damage to property **will** occur if the appropriate precautions are not taken.

WARNING

Indicates that death, severe personal injury or substantial damage to property **may** occur if the appropriate precautions are not taken.

CAUTION

Indicates that minor personal injury or damage to property may occur if the appropriate precautions are not taken.

NOTE

Important information about the product, the handling of the product or a section of the documentation to which particular attention should be paid.

READ THE OPERATING MANUAL

Commissioning and operation of the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 may only be performed by qualified personnel. Qualified personnel in terms of the safety instructions in this operating and safety manual are persons trained in the use of and familiar with this system.

NOTE

The manufacturer cannot be held responsible for any accidents or damage caused by failure to follow the safety instructions, or due to improper procedures or improper use.

WARNING

The Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 may be used only for the applications described in the specifications and in the technical description, and only in connection with use of the spare parts recommended by VISCO JET Rührsysteme GmbH.

Proper and safe operation of the product requires proper transport, proper storage, installation and assembly, as well as careful operation and maintenance.

INTRODUCTION / IMPORTANT NOTES

Purpose of this operating manual	This manual is intended to support qualified personnel in becoming familiar with and operating the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520.
Readership	This manual is aimed at the assembly personnel and the users of the agitator.
	The operating manual, work instructions and other applicable provisions relevant to safe installation, start-up and operation must be kept at a location accessible to affected personnel at all times.
	**NOTE** In addition to this operating manual, general and other regulations applicable to accident prevention must be made available and observed.
Scope of this operating manual	This operating manual is valid for the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520.
	**NOTE** Functional changes or alterations to the agitators in the VISCO JET® VJ 500, VJ 510 und VJ 520 series will void liability and warranty claims.
Responsibilities of the operator	The operator undertakes to operate the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 only in perfect working condition. Hazards areas between the agitator and on-site customer equipment must be secured by the operator. This operating and safety manual must be read carefully to the end. If there are any ambiguities, please get in touch with us without delay. Do not start operation until all uncertainties have been clarified. By starting the system for the first time, you confirm that you have read and understood the operating and safety manual.
	**WARNING** Operating the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 improperly or when not in good condition can lead to accidents

1 Introduction

Thank you for your confidence. VISCO JET ® agitators from VISCO JET Rührsysteme GmbH are high quality products. VISCO JET Rührsysteme GmbH maintains a certified quality management system to ISO 9001: 2008 standards. We also meet the requirements for quality management systems defined in the ATEX Directive RL 94/9/EC.

This guarantees that our machines leave the factory in perfect condition. With your VISCO JET ® agitator from VISCO JET Rührsysteme GmbH, you have chosen an advanced, technically superior device.

The VISCO jet ® agitator system is a low-speed hollow container agitator system with a conical displacer. This principle allows efficient mixing of nearly all media, from aqueous to highly viscous, even at low circumferential speeds.

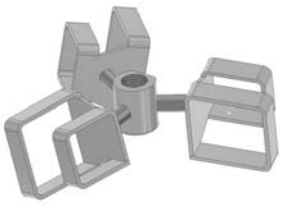
The specific benefits are:

- Product-friendly mixing using the cone principle
- Low rotation speeds
- No air intake
- No frothing

The VISCO JET ® agitator system is available in a range of variants:

Spiral cone

Cup-shaped cone



Crack

The mixing elements differ not only externally, but also in their capacity to mix high or low viscosity materials.

The cup-shaped cone comes into its own for low to medium viscosity mixtures (gentle, product-friendly mixing).

The spiral cone on the other hand produces ideal mixing results in high viscosity mixtures containing solids, in which shear effects and axial forces are present.

The Crack version is best used for dispersion jobs. This version is particularly suitable for breaking up agglomerates.

In the shaft feedthrough area, the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 are equipped with either a 3-way lip seal or a mechanical seal.

2 Intended use

2.1 Agitators VISCO JET® VJ 500, VJ 510 and VJ 520

The Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 are designed for stirring and mixing inhomogeneous media. In most cases, the mixtures are water-based. Under no circumstances should be stirred or homogenized products when the risk of occurrence of an explosive atmosphere exists.

The agitator may only be operated with the intended containers. If you have any doubts with regard to safe operation, please get in touch with the manufacturer. See 7.9 "Service and information address", 31.

WARNING!

The Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 should not be used for products where the occurrence of a hazardous explosive atmosphere can not be excluded.

WARNING

The manufacturer disclaims any liability with regard to operational safety and personal injury caused by failure to follow the safety instructions, or due to improper procedures or improper use.

We would like to expressly state that the following are forbidden:

- Climbing onto the agitator
- Operating the machine after errors have been identified
- Altering the machine, without the express written consent of the manufacturer, or
- to bypass or deactivate safety equipment

NOTE

Intended use of the VISCO JET® agitator also includes compliance with the manufacturer's instructions for operation, maintenance and repair.

2.2 Sealing systems

The Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 can be equipped with three different shaft sealing systems.

2.2.1 Special shaft seal RdRd

Please note the operating limits

The special shaft seal is a 3-way lip seal for use with a maximum overpressure of up to 0.7 bar (relative).

Maximum permitted operating temperature: 100 °C

Material: AWC 400 (PTFE) carbon and graphite

2.2.2 Single mechanical seal EG

The standard seal used is the type 32 single mechanical seal from the manufacturer JOHN CRANE.

2.2.3 Double mechanical seal DG

The standard seal used is the type CK 726 double mechanical seal from the manufacturer JOHN CRANE.
The type CK 726 double mechanical seal always requires a thermosiphon system. This system is made up of:

- *Pressure tank*
- *Visual fill level display*
- *Electric level switch*
- *Visual temperature and pressure display*
- *Temperature sensor (installed in the DG)*

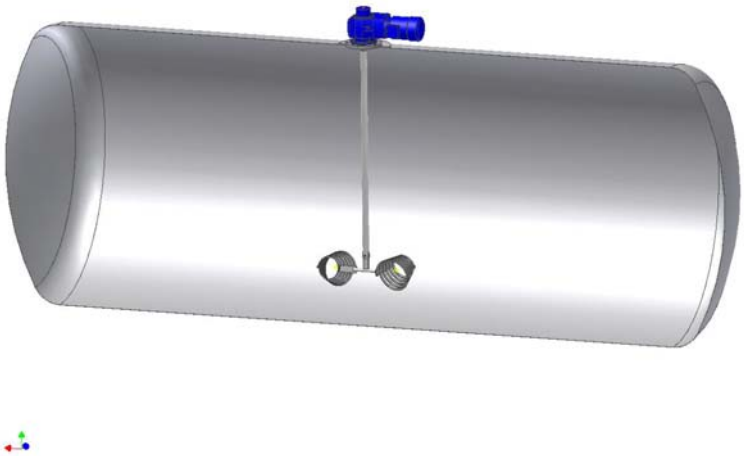
2.3 The different versions

2.3.1 The VISCO JET® VJ 500 agitator

The VISCO JET VJ 500 is a special assembly agitator for on-site customer mixing containers. The capacity of the container can be from 30 litres up to for example 1,500 litres.

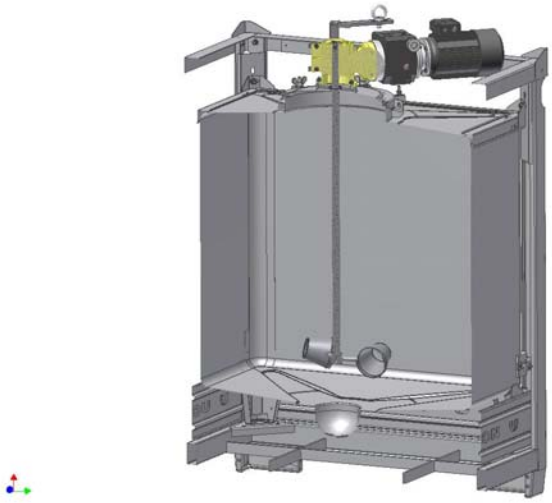
2.3.2 The VISCO JET® VJ 510 agitator

The VISCO JET® VJ 510 is a tank agitator specially designed for reclining containers or tanks.



2.3.3 The VISCO JET® VJ 520 agitator

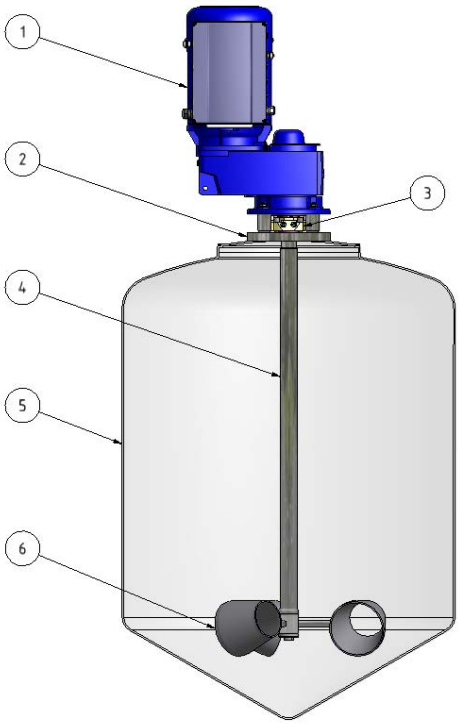
The VISCO JET® VJ 520 is a specially designed assembly agitator for mounting on standard manholes for stainless steel containers.



3 Description of the system components

3.1 Agitators VISCO JET® VJ 500, VJ 510 and VJ 520

The following illustrations give you an overview of the system components:



Tab. 1 Components of the VJ 500 agitator

1	Drive Electrical or pneumatic	4	Agitator shaft
2	Ventilation valve yoke or flange	5	Mixing container ◆ Reclining tank ◆ Upright tank ◆ Container
3	Sealing system ◆ Mechanical seal ◆ Radial shaft seal ◆ None	6	Mixing element ◆ Cup-shaped cone ◆ Spiral cone ◆ Crack version ◆ Special versions

3.2 Type plate

NOTE

- The information on the type plate should not be overwritten under any circumstances.

The type plate contains the following information:

Tab. 2 Explanations for the type plate

1	Manufacturer's logo	4	Maximum permitted rotation speed
2	Agitator type	5	Critical speed of the agitator
3	Serial number and year of manufacture		

4 Delivery

4.1 Scope of delivery

Before installing and starting up the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520, please ensure that your delivery is complete and matches the information on the delivery note.

- *Agitator type description, additional type description*

The delivery also includes:

- *Operating and maintenance instructions with an EC Declaration of Incorporation in accordance with the requirements of the Machinery Directive RL2006/42/EC Annex II Part 1Section B.*
- *Drawing/BOM, agitator specifications for not fully assembled agitator (see section 7.6 "Other applicable documents", 30).*
- *Documentation from third party suppliers, including operating manuals, datasheets, wiring diagrams (see section 7.6 "Other applicable documents", 30).*

If there are any deviations from the delivery note, please contact VISCO JET Rührsysteme GmbH without delay.

Not included in delivery are

- *Mounting hardware, gasket, hoist*

4.2 Report damage

NOTE

- On receipt of the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520, any damage caused by poor packaging or transportation must be reported immediately to the shipping agent, the insurance company and VISCO JET Rührsysteme GmbH. See section 7.9 "Service and information address", 31 for the contact address.

4.3 Condition on delivery and transport

Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 up to a weight of approximately 50 kg are packed in a cardboard box. All other agitators are packed in a wooden crate for shipping.

Note the label for the load pick-up point (red square) and the weight information on the crate.

CAUTION

- Heavy load Improper removal from the packaging carries a risk of muscle or bone injury.
- Use a suitable lifting device to remove the agitator.

5 Installation and operation

5.1 Setup and installation

When transporting assembled Agitators VISCO JET® VJ 500, VJ 510 and VJ 520, lift them with the drive only, not with both the shaft extension and drive.
This can bend the shaft. Connect the lifting aids securely to the drive.

WARNING

- Use a suitable lifting device to remove the individual components from the crate and transport them to the installation site. There is a risk of muscle and bone injury.

WARNING

- Never stand or work under a suspended load. The parts can slip, fall or tip over.

WARNING

- There is a risk of crush injury during assembly of the individual components of the agitator.

WARNING

- No changes, additions or conversions may be made which may affect the safety or function of the machine. Doing so will void CE conformity.
- Failing to properly inspect machine and mounted components, safety equipment, etc. can seriously impact their function and lead to serious injury to personnel and damage to the machine.

The Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 may only be installed by suitable, trained personnel using the drawing (see section 7.6 "Other applicable documents", 🗎 30) provided for the agitator.

Installation

1. The order of assembly depends on the on-site conditions. To assemble the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520, please refer to the drawing and bill of materials provided (see section 7.6 "Other applicable documents", 🗎 30).
2. When seal elements are deployed, please refer to the instructions in section (see section 7.6 "Other applicable documents", 🗎 30)
3. Fix the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 securely to the attachment provided on the mixing container, as shown in the accompanying drawing (see section 7.6 "Other applicable documents", 🗎 30).
4. Tighten all screw connections as described in section 7.4 "Torques", 🗎 29 and use screw locks to secure them against loosening.
5. Install the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 so that the larger displacer diameter is facing in the direction of rotation. See drawing in section 7.6 "Other applicable documents", 🗎 30).
6. If a guard plate is used, mount it against the stop surfaces.

7. Check that the mixing element is fitted securely.
8. For larger shafts, use a suitable eyebolt when fastening to the lifting gear.
9. Fasten the agitator securely by screwing the mounting flange to a stable surface.
10. Check the screw connections again before starting up the machine.
11. Install the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 so that the larger displacer diameter is facing in a clockwise direction as seen from above.
12. The dimensions between mixing element and container must meet he specifications in the drawing (see section 7.6 "Other applicable documents", 🗎 30). In the event of deviations, please contact VISCO JET Rührsysteme GmbH. See section 7.9 "Service and information address", 🗎 31 for the contact address.

5.2 Electrical connection

Check the type plate

Check the voltage specified on the type plate for the drive against the supply voltage.

The electrical connection may only be performed by a licensed electrician. Appropriate safety equipment for the monitoring of short circuits and overloads must be installed by the operator.

WARNING

- Defective electrical components can be live and can therefore be life-threatening.
- Do not drive over, crush or tear cables.
- Before working on electrical equipment, the device must be disconnected from the mains. To do this, turn off the main switch or the safety switch. Secure against unintentional switch-on. Any defects detected in electrical components/modules must be corrected immediately. If there is an acute danger, the equipment must never be used in a defective condition.

5.3 Start-up

NOTE

- The agitator should not be run at full speed in air or during flow-through.
- The agitator must be brought up to operating speed with a start-up ramp.

Test run

Please note the following points during first start-up or during the first test run of theAgitators VISCO JET® VJ 500, VJ 510 and VJ 520. You must ensure that

Operators

- The operators are familiar with with the operating manual, the system and system control
- The safety and monitoring equipment has been checked
- The safety officer has checked for the presence of safety equipment
- The local mains voltage matches the voltage specified on the type plate for each of the electrical components.

NOTE

- If you experience unexpected difficulties during a test run, contact VISCO JET Rührsysteme GmbH without delay. See section 7.9 "Service and information address", 🗎 31 for the contact address.

Start-up

WARNING

- Before turning on the agitator, make sure that there are no people or objects in the vicinity of the rotating parts.

Switching on

1. Remove the padlock from the safety switch.

Direction of rotation

2. When making the electrical connections, note the direction of rotation of the agitator. Direction of rotation of the agitator shaft seen from the drive to the mixing element: clockwise, or as shown by the direction arrow on the drive.

Damage to the agitator

3. In order to avoid damage to the agitator, ensure that no objects can enter the container.
4. When working with the agitator, for example during cleaning or inspection work, always lock or secure the drive against accidental activation.

Maximum output speed n_{max} and critical speed n_{crit}

5. The maximum output speed n_{max} is limited because of the potential for motor overload or stress to the shaft. It is noted in the agitator specifications.
6. The critical speed n_{crit} is usually above the maximum speed. If not, this area must always be passed quickly. The critical speed can be found in the agitator specifications.

NOTE

- The on-site controller must be set to the values described in the agitator specifications.

CAUTION

- Do not operate the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 when idle at nominal rotation speed.

WARNING

- No changes, additions or conversions may be made which may affect the safety or function of the machine. Doing so will void CE conformity.
- Failing to properly inspect machine and mounted components, safety equipment, etc. can seriously impact their function and lead to serious injury to personnel and damage to the machine.

NOTE

- Start-up and operation of the machine may only be performed by qualified personnel.
- Qualified personnel in terms of the safety instructions in this operating manual are persons trained in the use of and familiar with this system.
- Before staring work, all personnel must have read and understood the operating manual and applicable regulations with regard to safety measures.

5.4 Storage

To keep an agitator that is not in use over a longer period of time in working order, a number of points must be observed:

- The storage room must be clean and dry.
- The machine must not be exposed to extreme cold (below 5 °C) or heat (above 40 °C).
- The entire machine must be kept clean.

NOTE

- VISCO JET Rührsysteme GmbH provides no warranty for corrosion damage caused by improper storage, such as for example storage in a damp room.

5.5 Shutdown

If a relocation or removal is required, take the machine out of operation as follows:

Shutdown

1. Disconnect the machine from the mains
2. Clean the machine as described in section 7.1 "Cleaning", 🗎 25
3. Dismantle accessories purchased and connected by the operator
4. Prepare machine for transport if required. See section 4.3 "Condition on delivery and transport", 🗎 16

5.6 Restarting

All mechanical components are subject to an inspection: Check for corrosion damage (and deterioration during storage). Contact VISCO JET Rührsysteme GmbH for assistance with the assessment.

When restarting the machine after a period of non-use, follow the instructions in section 5.3 "Start-up", 🗎 19.

6 Operation

6.1 Switching on the agitator

Please note the following instructions during and after switching on the agitator:

WARNING

- In order to avoid damage to the agitator, ensure that no objects can enter the container.
- During the mixing process, ensure that there is nobody in the immediate vicinity of the mixing element.
- Safety equipment which has been removed for assembly must be replaced and in good working order.

NOTE

- The agitator should not be run at full speed in air or during flow-through.
- The agitator must brought up to operating speed with a start-up ramp.

CAUTION

- When operating the Agitators VISCO JET® VJ 500, VJ 510 and VJ 520, there is always a risk that the mixture will be ejected from the container. It is essential to wear appropriates personal protective equipment.

WARNING

- Do not keep tools in the mixing container.
- Never touch the rotating agitator shaft.

6.2 Switching off the agitator

Please note the following when switching off the agitator:

CAUTION

- Gradually reduce the speed of the mixing element before you switch it off.

WARNING

- The requirements of the international installation standard EN IEC 60079-14 must be followed strictly for the electrical installation in potentially explosive atmospheres.

6.3 Operating limits for the sealing systems

6.3.1 Special shaft seal Rd

The special shaft seal allows a maximum process temperature of 100 °C, and therefore meets the requirements for temperature class T4.

6.3.2 Single mechanical seal EG

The operating limits for the single mechanical seal can be found in the table below:

Tab. 3 Operating limits for the single mechanical seal EG

Shaft Ø mm	Max pressure rel. [bar]	Max product temperature [°C]	Temperature class	Maximum permitted rotation speed [min.-1]
40	0.5	90	T4	376
40	0.5	110	T4	175
40	0.5	170	T3	420
60	0.5	90	T4	268
60	0.5	110	T4	125
60	0.5	170	T3	300
80	0.5	90	T4	215
80	0.5	110	T4	100
80	0.5	170	T3	240
100	0.5	90	T4	174
100	0.5	110	T4	81
100	0.5	170	T3	195
125	0.5	90	T4	147
125	0.5	110	T4	68
125	0.5	170	T3	165
140	0.5	90	T4	134
140	0.5	110	T4	62
140	0.5	170	T3	150
40	6.0	90	T4	125
40	6.0	90	T3	300
40	6.0	150	T3	175

Tab. 3 Operating limits for the single mechanical seal EG

Shaft Ø mm	Max pressure rel. [bar]	Max product temperature [°C]	Temperature class	Maximum permitted rotation speed [min.-1]
60	6.0	90	T4	100
60	6.0	90	T3	240
60	6.0	150	T3	140
80	6.0	90	T4	75
80	6.0	90	T3	180
80	6.0	150	T3	105
100	6.0	90	T4	62
100	6.0	90	T3	150
100	6.0	150	T3	87
125	6.0	90	T4	50
125	6.0	90	T3	120
125	6.0	150	T3	70
140	6.0	90	T4	45
140	6.0	90	T3	108
140	6.0	150	T3	63

6.3.3 Double mechanical seal DG

The operating limits for the double mechanical seal can be found in the table below:

Tab. 4 Calculated maximum permitted rotation speeds for the DG version under specified operating conditions

Shaft Ø mm	**Max pressure rel. [bar]**	**Max product temperature [°C]**	**Temperature class**	**Maximum permitted rotation speed [min.-1]**
40	6.0	200	T4	285
50	6.0	200	T4	250
60	6.0	200	T4	205
80	6.0	200	T4	165
100	6.0	200	T4	135
125	6.0	200	T4	115
140	6.0	200	T4	100

7 System care

7.1 Cleaning

If there is a risk of the product sticking to the mixing element, it must be cleaned as necessary.

CAUTION

- If product remains stuck to the mixing element after the agitator is shut down, the mixing element can be damaged when the agitator is restarted.

7.2 Maintenance

7.2.1 Maintenance schedule

CAUTION

- If product remains stuck to the mixing element after the agitator is shut down, the mixing element can be damaged when the agitator is restarted.

Tab. 5 Maintenance table for Agitators VISCO JET® VJ 500, VJ 510 and VJ 520

Maintenance		**Interval**
Replacement of parts		
Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 with special shaft seal		
	Special shaft seal (see BOM for item no.)	y / 2000 h
	Agitator drive (see drive manufacturer's documentation)	y / 2000 h
	O-ring (if present, see BOM for item no.)	y / 2000 h
Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 with special shaft seal and support bearing.		
	Special shaft seal (see BOM for item number)	y / 2000 h
	Agitator drive (see drive manufacturer's documentation)	y / 2000 h
	Support bearing (see BOM for item no.)	y / 2000 h
	O-ring (if present, see BOM for item no.)	y / 2000 h

Tab. 5 Maintenance table for Agitators VISCO JET® VJ 500, VJ 510 and VJ 520

Maintenance		Interval
Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 with special shaft seal and bottom bearing.		
	Special shaft seal (see BOM for item number)	y / 2000 h
	Agitator drive (see drive manufacturer's documentation)	y / 2000 h
	Bottom bearing (wear bushing and wear sleeve)	y / 2000 h
	O-ring (if present, see BOM for item no.)	y / 2000 h
Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 with mechanical seal		
	Mechanical seal (see drive manufacturer's documentation)	y / 2000 h
	Agitator drive (see drive manufacturer's documentation)	y / 2000 h
	O-ring (if present, see BOM for item no.)	y / 2000 h

Key

1/4-y = quarterly (y = yearly) / h = operating hours

The operating hours or the specified intervals are applied, whichever occurs first.

The drawings, bills of materials and other applicable documents can be found in section 7.6 "Other applicable documents", 🗎 30.

7.3 Inspection

Screw connections

Check all screw connections during preventative maintenance work for tightness and tighten if necessary. Tighten all screw connections and use «screw locks» to secure them against loosening.
When doing so, please refer to the tightening torque table 7.4 "Torques", 29.

Tightening the stop washer

In the hollow drive shaft version, the agitator shaft is fixed with a stop washer and screw. Check the screw connection for tightness when carrying out maintenance work, about once every three months.

Tab. 6 Inspection, general review

Inspection, general review		Interval Time
Visual inspection and check for unusual noises		
Agitators VISCO JET® VJ 500, VJ 510 and VJ 520With special shaft seal		
	Special shaft seal (see BOM for item number)	¼-y / 500
	Agitator drive (see drive manufacturer's documentation)	¼-y / 500
	O-ring (if present, see BOM for item no.)	¼-y / 500
	Agitator shaft and mixing element (check for wear)	y / 2000
Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 with special shaft seal and support bearing.		
	Special shaft seal (see BOM for item number)	¼-y / 500
	Agitator drive (see drive manufacturer's documentation)	¼-y / 500
	Support bearing (check for unusual noises)	¼-y / 500
	O-ring (if present, see BOM for item no.)	¼-y / 500
	Agitator shaft and mixing element (check for wear)	y / 2000
Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 with special shaft seal and bottom bearing.		
	Special shaft seal (see BOM for item number)	¼-y / 500
	Agitator drive (see drive manufacturer's documentation)	¼-y / 500

Tab. 6 Inspection, general review

Inspection, general review		Interval Time
	Bottom bearing (see BOM for wear bushing and wear sleeve)	¼-y / 500
	O-ring (if present, see BOM for item no.)	¼-y / 500
	Agitator shaft and mixing element (check for wear)	y / 2000
Agitators VISCO JET® VJ 500, VJ 510 and VJ 520 with mechanical seal		
	Mechanical seal (see drive manufacturer's documentation)	¼-y / 500
	Agitator drive (see drive manufacturer's documentation)	¼-y / 500
	O-ring (if present, see BOM for item no.)	¼-y / 500
	Agitator shaft and mixing element (check for wear)	y / 2000

Key

1/4-y = quarterly (y = yearly) / h = operating hours

The operating hours or the specified intervals are applied, whichever occurs first.

The drawings, bills of materials and other applicable documents can be found in section 7.6 "Other applicable documents", 🗎 30.

Screw connections

Check all screw connections during preventative maintenance work for tightness and tighten if necessary. Tighten all screw connections and use «screw locks» to secure them against loosening.

When doing so, please refer to the tightening torque table 7.4 "Torques", 🗎 29.

Tightening the stop washer

In the hollow drive shaft version, the agitator shaft is fixed with a stop washer and screw. Check the screw connection for tightness when carrying out maintenance work, about once every three months.

7.4 Torques

Tab. 7 Torques

		D GB F I E	Schraubenanzugsmomente Tightening torques Couples de serrage des vis Momenti di serraggio di viti Pares de apriete de tornillos				
D Gewinde geschmiert / GB Thread with lubrication / F Filet lubrifié / I Filetatura lubrificata / E Rosca lubricada						18.11.2004/HS	

D Werkstoff-Typ GB Material type F Type matériau I Tipo materiale E Tipo de material	D Schraubengröße GB Screw size F Dimensions de vis I Dimensioni viti E Tamaño de tornillo	D Temperatur / GB Temperature / F Température / I Temperatura / E Temperatura (°C)						
		-40	-10	+20	+100	+200	+250	+300
5.6	M8	13	13	13	12	10	9.4	9
	M 10	25	25	25	23	20	18	16
	M 12	44	44	44	40	34	32	29
	M 16	108	108	108	97	83	78	70
	M 20	212	212	212	191	163	152	138
	M 24	365	365	365	330	280	263	236
	M 30	730	730	730	656	555	522	475
8.8	M 8	23	23	23	21	20	19	17
	M 10	49	49	49	45	41	37	35
	M 12	77	77	77	73	68	64	59
	M 16	193	193	193	180	163	154	145
	M 20	378	378	378	350	318	302	284
	M 24	652	652	652	601	552	520	490
10.9	M 12		-	89	89	-	-	-
	M 16	-	-	218	218	-	-	-
	M 20	-	-	395	395	-	-	-
	M 24	-	-	720	720	-	-	-
	M 30	-	-	1412	1412	-	-	-
	M 36	-	-	2460	2460	-	-	-
A2-70	M 8		16	16	14	13	13	12
A4-70	M 12		50	50	42	40	39	37
D Edelstahl GB Stainless steel F Acier fin I Acciaio legato E Acero inoxidable	M 16	122	122	122	103	97	94	91
	M 20	207	207	207	176	165	161	155
A4-50	M24	254	254	216	204	197		

7.5 Maintenance and repair

When removing and installing the agitator shaft, secure it against falling.

NOTE

- For instructions on assembly and disassembly in the area of the hollow drive shaft, please refer to the operating manual for the gearbox.

7.6 Other applicable documents

Tab. 8 These documents can be found in the appendix to this manual

Document	Origin	Sections in the appendix
Agitator specifications	VISCO JET Rührsysteme GmbH	1
Declaration of Incorporation in accordance with the Machinery Directive RL 2006/42/EC	VISCO JET Rührsysteme GmbH	1
Drawing and bill of materials	VISCO JET Rührsysteme GmbH	2
Optional: Calculation of forces	VISCO JET Rührsysteme GmbH	3
Electrical circuit diagrams, schematic and control documentation	VISCO JET Rührsysteme GmbH	4
Drive documentation	Drive manufacturer	5
Optional: Seal documentation	Seal manufacturer	6
Material certificates	Certificate issuer	7

7.7 Spare parts

See bill of materials under 7.6 "Other applicable documents", 30!

7.8 Operating log

We recommend keeping an operating log for the agitator, which may include the following records:

- *Inspections carried out in accordance with section 7.3 "Inspection", 27.*
- *Maintenance work carried out in accordance with 7.2 "Maintenance", 25.*
- *etc.*

7.9 Service and information address

In the event of problems or questions which are not described here or cannot be resolved, please contact the VISCO JET Rührsysteme GmbH Service department:

Address: VISCO JET Rührsysteme GmbH
Daimlerstrasse 1
D-79761 Waldshut-Tiengen Phone +49 7741 96567 0
Email: info@viscojet.com Fax +49 7741 96567 15
Internet: www.viscojet.com

8 Errors and corrections

Tab. 9 Correcting errors

Error	Possible cause	Correction
Agitator not running	Power supply not available	Have agitator checked by qualified electrician
Drive is moving, producing vibrations	Screw connection is loose	Tighten the connection
Abnormal noise in the drive	Bearings, motor or gear-box defective	Please contact VISCO JET Rührsysteme GmbH
Abnormal heating of the drive	Motor or gearbox defective	Please contact the motor or gearbox manufacturer
Agitator vibrating	Shaft is knocking	Please contact VISCO JET Rührsysteme GmbH
	Quick-release coupling (if present) knocked out.	Replace quick-release cou-pling
Knocking noises in the mixing container	Foreign body in container	Check the container, remove any foreign bodies.

9 Declaration of Incorporation

In accordance with Machinery Directive 2006/42/EC Annex II, Part 1, Section B

VISCO JET Rührsysteme GmbH
Daimlerstraße 1
D-79761 Waldshut-Tiengen

+49 7741 96567 0
+49 7741 96567 15
info@viscojet.com

EC Declaration of Incorporation

in accordance with Machinery Directive 2006/42/EC Annex II, Part 1, Section B

The manufacturer: **VISCO JET Rührsysteme GmbH**
Daimlerstr. 1
D-79761 Waldshut-Tiengen

Herewith we declare, that the partly completed machinery described below:

Product denomination: Agitator
Model / Typ: **VJ 500.xxx, VJ 510.xxx and VJ 520.xxx**
Serial number: see agitator specs
Year of manufacture: see agitator specs

meets the following essential requirements of the **Machinery Directive (2006/42/EC)**:

Annex I, Articles 1.1.2, 1.1.3, 1.1.5, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.5.1, 1.5.2, 1.5.3, 1.5.4, 1.5.7, 1.5.8, 1.5.9, 1.6.1, 1.6.3, 1.7.1, 1.7.3 and 1.7.4.

The «partly completed machinery» is also in conformity with all provisions of the **Electrical Equipment (2006/95/EC)** and **Electromagnetic Compatibility (89/336/EEC)** directives.

The «partly completed machinery» must not be put into operation until it has been established that the machine into which the «partly completed machinery» is to be installed is in compliance with Machinery Directive (2006/42/EC).

Additional we declare that the relevant technical documentation is compiled in accordance with part B of Annex VII.

The manufacturer undertakes to provide by electronic transfer the documentation specific to the "partly completed machinery" required by national authorities upon request.

The person authorised to compile the relevant technical documentation:

Ms Gabriela Ziel-Gantert Phone +49 7741 96567 65

Waldshut-Tiengen

06th August 2013 — *Date*

Timo Weber (Managing Partner) — *Signatory and signatory details*

Signature

10 Index

VISCO JET

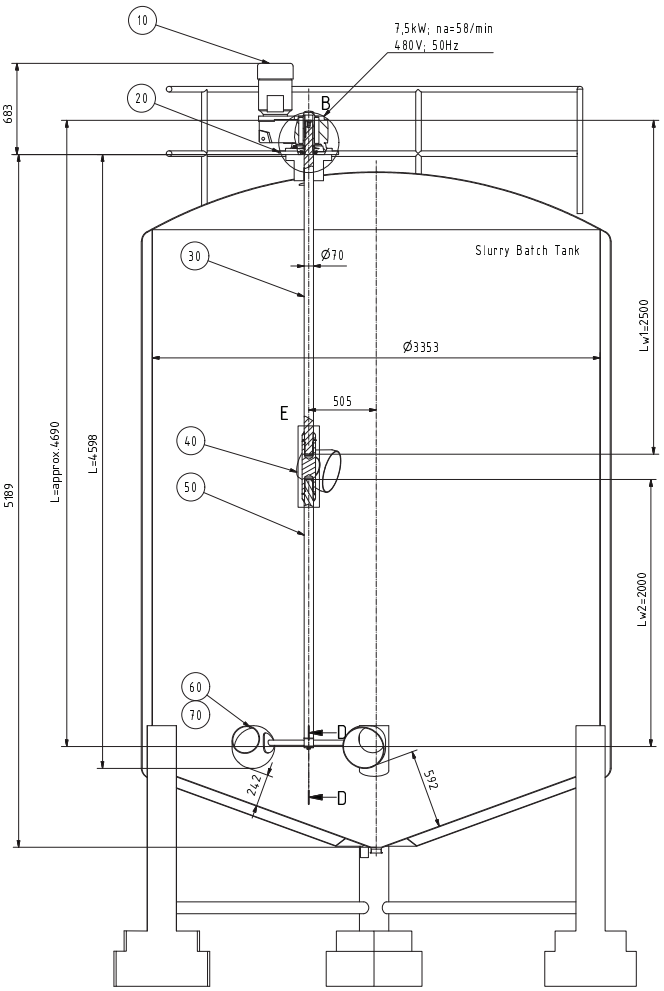
Final specification

Specification
Sales order no. 100-VA00003311-15

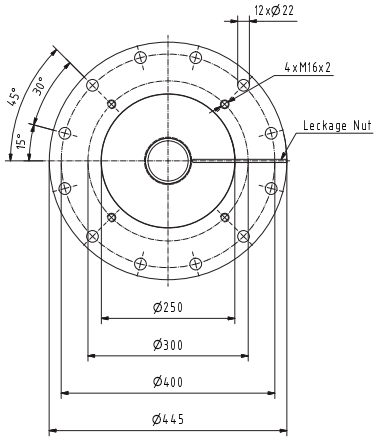
Date 25.10.2013
Contact person Lioba Stammer

VISCO JET® tank-agitator VJ 500

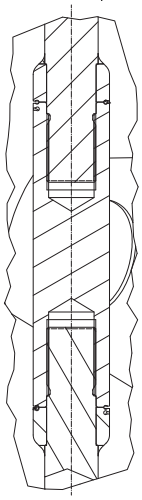
General	
Year	2013
Description	VJ500.070 Rd
Mixing task	Homogenization
Serial no.	13012, 13013
Drawing number	50001209
Produktdaten	
Density max. in kg/m³	1100 kg/m³
Medium	Slurry
Viscosity max. in mPas	650 mPas
Vessel data	
Height = h1 (Height vessel bottom to vessel top)	5189mm
Operation compression max. in bar	1 bar abs.
Operating temperature max. °C	25 degC
Vessel diameter (d1) in mm	3353mm
Nominal volume	35000 Liter (9247 Gallons)
Drive	
Design	M4
Speed rpm	58 U/min
Allowable max output speed (nmax)	58 U/min
Critical speed nkrit.	93,9 U/min
Frequency	60 Hz
Prepared for frequency converter operation	yes
Type of gearbox	Parallel shaft helical geared motor
Gearbox flange size in mm	350mm
Gearbox Oil	Food grade
Painting	RAL 9010
Power	7,50 kW
Protection class/Thermal classification	IP55/F
Voltage	265/460
Additional information	Unsere Rührwerksantriebe sind vorbereitet für Frequenzumformerbetrieb. Die individuel optimale Rührwerksdrehzahl für Ihre Rührprodukte ist über einen Frequenzumformer einstellbar.
Ambient temperature max. °C	40 degC
Seal	
Beschreibung Flansch	Flansch d=445, L=26, LK=300/400, Z=250, RWDR, Ln, Korn 320, 1.4404
Material	1.4404
Zusatzinformation	Flansch geschliffen Korn 320
Shaft	
Additional information	Rührwelle und Lagerwelle geschliffen Korn 320
Shaft diameter	70,00 mm
Shaft lenght	2.000,00 mm
Shaft material	1.4404
VISCO JET® Impeller	
Quantity Impeller	2
Quantity of impeller cups	2
Diameter in mm	1200
Additional information	Rührorgan geschliffen Korn 320, Ra<0,8
Version	Cup classic version
Additional informations	
Fastening	Gearbox on mounting / sealing flange for customer installation on vessel flange
Installation	Ex centric from above
Agitator operation	The agitator is designed for an operation through the surface into the liquid. The liquid level should cover the impeller level during the filling and emptying rapidly.5



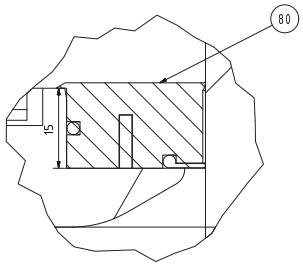
Sealflange (1 : 5)
DN300



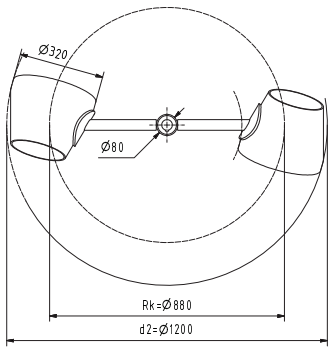
E (1 : 3,5)



F (2 : 1)



Impeller (1 : 10)



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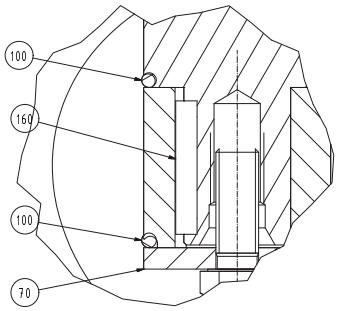
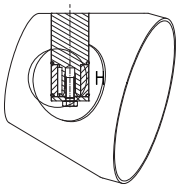
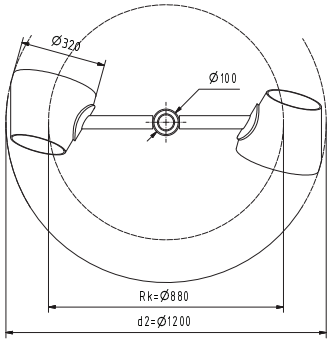


D-D (1 : 5)

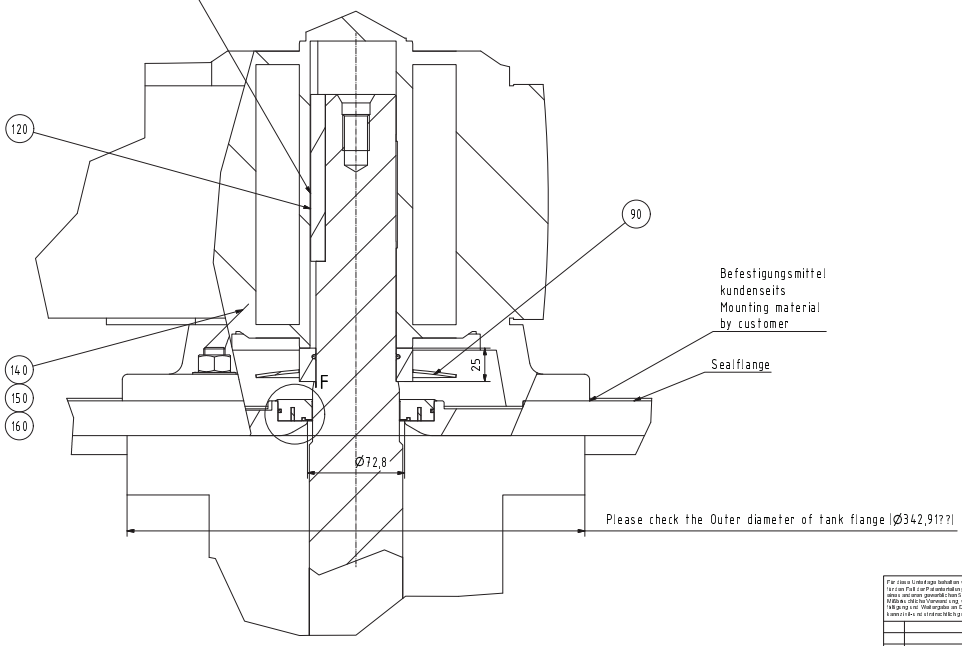


Impeller (1 : 10)



Passfeder NACH
Einstecken der
Welle in den
Motor einsetzen
Insert feather after
pluging in the shaft.

B (1 : 2)



-Alle Schraubverbindungen mit Schraubensicherung montiert
-All bolted connections assembled with thread lock
-Toutes les liaisons vissées montées avec freinfilet

REVISIONSVERLAUF			
Rev	Änderung	Datum	Genehmigt
01	Zur Freigabe	23.07.2013	
02	RWDR versetzt, SR raus, Rundung/Schräge Flansch	29.07.2013	
03	Zur Freigabe	29.07.2013	Freigabe erhalten per Email am 27.08.2013 von K.Noser
04	Wellen statt IG neu AG VJ120045 statt AG neu IG, neu mit OL	24.09.2013	

Kunde:	Nestlé Anderson	Maßstab:	1 : 20
Auftr.-Nr.:	VA00003311-10	Gewicht:	401,335 kg
	Datum / Name	Werkstoff:	
gezeichnet:	11.07.2013 S.Kaschal	Farbe:	RAL 9010, white
geprüft:		Artikel Nr.:	
Norm:			

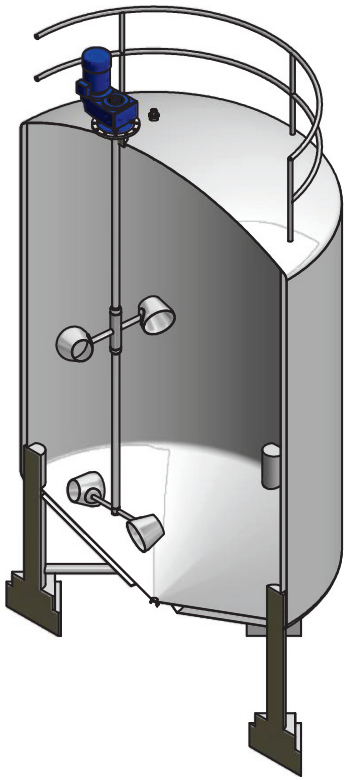
Aufbau-Rührwerk
VJ500.070 Rd

50001209

Blatt1 /3
A1

VISCO JET Rührsysteme GmbH

Pos.	Quantity	Art.-Nr.	Description
-	1	-	Vessel
10	1	10042160	Parallel shaft geared motor
20	1	10042231	Flange d=445
30	1	10042232	Shaft d=70
40	1	10042557	VISCO JET® double, d2=1200/320
50	1	10042216	Shaft d=70
60	1	10042230	VISCO JET® double d2=1200/320
70	1	10034826	End screw
80	1	10042495	Special rotary shaft seal d=65, EHEDG
90	1	10011653	Slinger disk
100	2	10037219	O-Ring
120	1	-	DIN 6885 - A 18 x 11 x 125
130	4	10005278	DIN 939, M16x40
140	4	-	DIN 934 - M16
150	4	-	Detent-edge-disc M16
160	1	-	DIN 6885 - A 12 x 8 x 50
170	2	10042561	Lipposeal
180	1	10021041	Sticker "critical rotation speed"
190	1	10020990	Sticker "VISCO JET® VJ 500" medium
200	1	10021176	Sticker "rotation arrow"
210	1	10020920	Sticker "Warning the agitator has to be earthed"
220	1	-	Impeller grinded corn 320, Ra<0,8



Kunde:
Nestlé Anderson
AB- Nr.:
VA00003311-10

	Datum	Name
Gezeichnet	11.07.2013	S.Kaschel
Kontrolliert		
Norm		

VISCO JET Rührsysteme GmbH
Tel.: 07741 96567-0
Fax: 07741 96567-15
info@viscojet.com
www.viscojet.com

Status	Änderungen	Datum	Name

Maßstab: 1 : 50
Gewicht: 401,335 kg
Werkstoff:
Farbe:
Artikel Nr.:

Aufbau-Rührwerk

VJ500.070 Rd

50001209

Blatt2 /3
A3

50001209.idw
Änd.-Index

Kräfte an der Rührwerksauflage
Dynamic loads on agitator support
Des forces à l'édition d'agitateur
Krachten op deklaag roerwerk flens

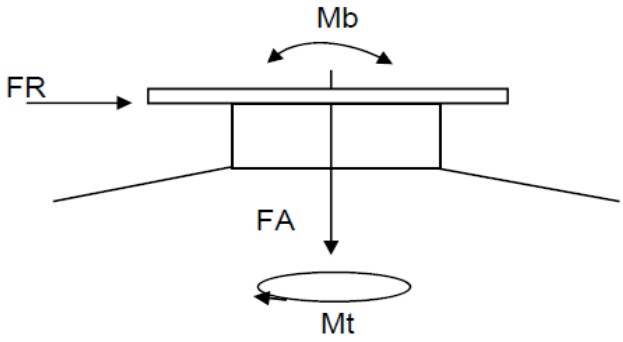
VISCO JET

Kunde / *customer* / client / klant: Processtec - Nestlé Anderson

Projekt / *project* / projet / project: VA00003311_10_Slurry Batch Tank

Rührwerk / agitator type/
agitateur type / roerwerk type: VJ500.070 Rd

Datum / Kz : 23.07.13/Sk
Index : 01



	mit FU-Regelbetrieb with Frequency inverter avec convertisseur de fréquence met frequentieregelaar		
	Betrieb / operation / service / bedrijf 50 Hz	Betrieb / operation / service / bedrijf max.	
n_2 =	48	58	min^{-1}
FA $_{min.}$	4.010	4.010	N
FA $_{max.}$	5.202	5.137	N
FR	154	170	N
Mb $_{min.}$	1.092	1.207	Nm
Mb $_{max.}$	1.574	1.689	Nm
Mt $_{max.}$	1.483	1.235	Nm

Angst+Pfister Group
Group Engineering
Thurgauerstrasse 66
Postfach
CH-8052 Zürich
Email: ch@angst-pfister.com
Internet: www.angst-pfister.com

DECLARATION OF CONFORMITY

in accordance with
DIN EN ISO/IEC 17050

Date: 13 September 2013
Phone: +41 44 306 6257
Issuer: MRI

Declaration subject:

Material description:

EPDM 75.5/KW75F (EPDM 70.10-02)

The material described above meets the requirements stipulated in the following guidelines/standards:

Homologations: (Update acc. 27/08/2013)

WRAS (BS 6920) for drinking water, cold and warm up to 85°C; it will expire on: October 2017
In compliance with **FDA** (177.2600-21) requisites for food. RP N° 588/98 of CERISIE lab
KTW (1.3.13 D1-D2) for drinking water, cold and warm up to 85°C; it will expire on 20/09/2016
DVGW-W270 E (11/2007) for drinking water; it will expire on 26/04/2016
DVGW W534 for warm drinking water Type WA-WB N° DW-5253BQ0461. It will expire on 26/09/2018
NSF (Standard 61) for drinking water, cold and warm up to 82°C; (Standard 51) for food till 100°C
ACS (DGS/VS4 n° 99/217 dated 12/04/1999 and DGS/VS4 n° 2000/232 dated 27/04/2002. Annexe C) for drinking water; it will expire on 28/11/2013
ÖNORM B 5014-1 for drinking water, cold and warm up to 85°C. It will expire on 24/06/2018
USP CLASS VI. **KIWA** (BRL 17504) for warm drinking water. **EN 681-1** Type WA-WB-WC-WD
In compliance with the requirements of: D.M. 06/04/04 n° 17. **BfR XXI** – Category 4
3-A Sanitary Standard N° 18-03 Class II, **AS/NZS 4020**

EC-Regulation **1935/2004 article 3** and EC-Regulation **2023/2006,**
free of Animal Derived Ingredients **(ADI)**
2011/65/EU (RoHS)

Additional information:

Expiration date of this declaration of conformity is 28.11.2013.

Angst + Pfister Group Engineering

Zurich, 13 September 2013

G. Valente
Senior Engineer

R. Mosimann
Engineering Data Administrator

(Place and date of issuance)

(Name and signature or equivalent authentication of authorized persons)

VISCO JET

Instructions for installing and removing seals
Agitator without dismounting device

Switch off the agitator and secure it against being switched on unintentionally. Comply with the regulations for the prevention of accidents.

During dismounting and mounting: The gear manufacturer's operating instructions must be observed unconditionally.

1. Dismounting:

1.1 Support and secure the stirring shaft in the tank.

1.2 Remove the protective hood over the shrink disk. Remove the screws of the shrink disk on the gearbox.

1.3 Loosen the screw securing the shaft. Remove the screw and the locking disk.

1.4 Unscrew and remove the attachment screw of the drive flange.

1.5 Carefully lift off the drive.

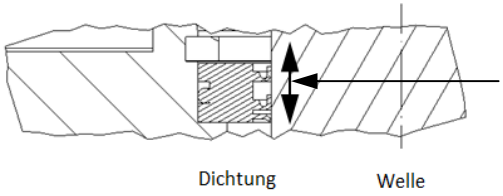
1.6 Remove the locking ring over the seal upwards.

1.7 Lift off the seal(s) upwards. **Attention:** Protect the shaft seating. The surface has been ground and must not be scratched by tools.

2. Mounting:

2.1 Clean the shaft and prepare it for installation according to the instructions of the gearbox manufacturer.

2.2 The seal lip must always be tapered expanded before mounting according to the installation drawing.



2.3 Carefully insert new seal(s) from above, making sure that the sealing lip is not damaged or deformed. Pay close attention to the orientation of the sealing lip as given in the installation drawing (Operating instructions, registry 2).

2.4 Mount the locking ring over the seal(s). Check it is firmly seated.

2.5 Carefully lower the drive onto the shaft seating. Position the gear centring seating in the flange centring unit. Retighten the flange screws.

2.6 Remove residual Loctite from the screw and threaded borehole of the shaft.

2.7 Fit the shaft locking disk with screw. Use fresh Loctite to secure the screw.

2.8 Pull up the stirring shaft plus screw to the lower edge of the locking disk.

2.9 **Reattach the shrink disk according to the gearbox's operating instructions**

2.10 To attach the components (except for the shrink disk), refer to the screw tightening torques given in the VISCO JET table.

2.11 Remove all parts supporting the shaft from the tank.

VISCO JET

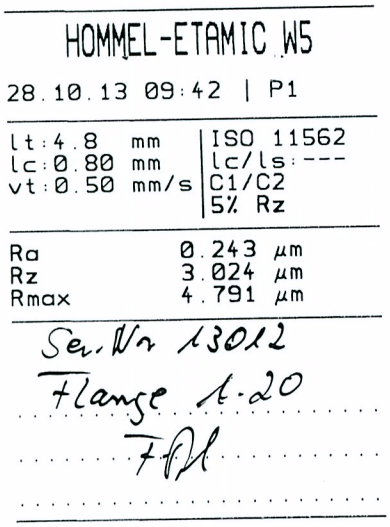
Measurement of surface finish

Sales order no. VA00003311

Agitator type VJ500.070Rd (Serial no. 13012 + 13013)

Serial no. 13012

Flange


HOMMEL-ETAMIC W5

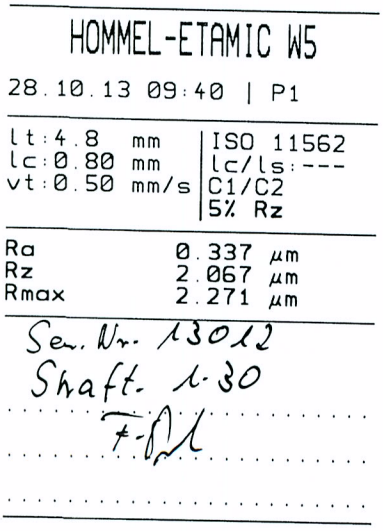
28.10.13 09:42 | P1

lt:4.8 mm	ISO 11562
lc:0.80 mm	lc/ls:---
vt:0.50 mm/s	C1/C2
	5% Rz

Ra	0.243 µm
Rz	3.024 µm
Rmax	4.791 µm

Ser. Nr 13012
Flange 1.20
F.Pl

Shaft


HOMMEL-ETAMIC W5

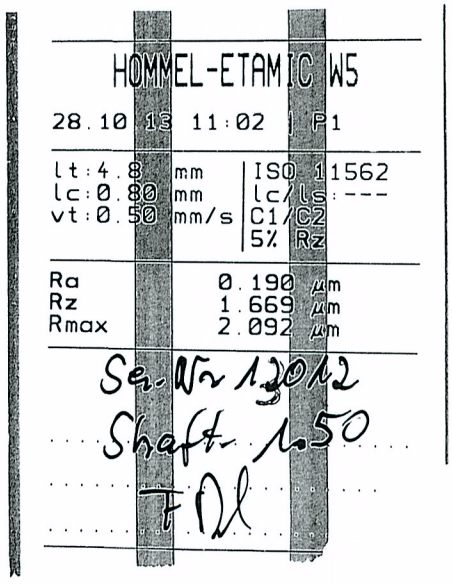
28.10.13 09:40 | P1

lt:4.8 mm	ISO 11562
lc:0.80 mm	lc/ls:---
vt:0.50 mm/s	C1/C2
	5% Rz

Ra	0.337 µm
Rz	2.067 µm
Rmax	2.271 µm

Ser. Nr. 13012
Shaft. 1.30
F.Pl

Shaft


HOMMEL-ETAMIC W5

28.10.13 11:02 | P1

lt:4.8 mm	ISO 11562
lc:0.80 mm	lc/ls:---
vt:0.50 mm/s	C1/C2
	5% Rz

Ra	0.190 µm
Rz	1.669 µm
Rmax	2.092 µm

Ser. Nr 13012
Shaft. 1.50
F.Pl

Shaft

HOMMEL-ETAMIC W5

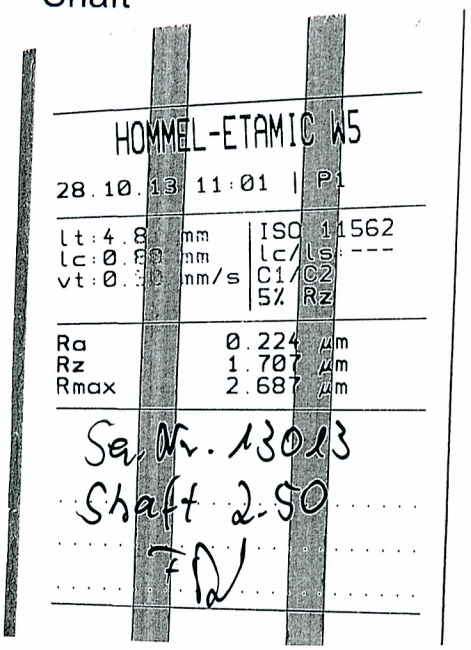
28.10.13 09:41 | P1

lt:4.8 mm	ISO 11562
lc:0.80 mm	lc/ls:---
vt:0.50 mm/s	C1/C2
	5% Rz

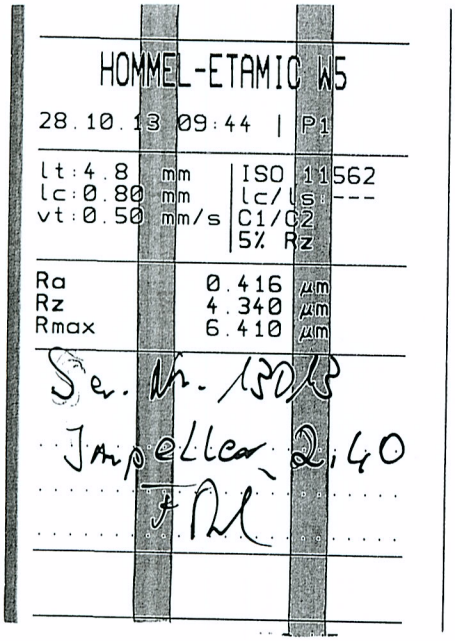
Ra	0.202 µm
Rz	2.302 µm
Rmax	3.692 µm

Ser.Nr. 13013
Shaft 2.30
F.P.

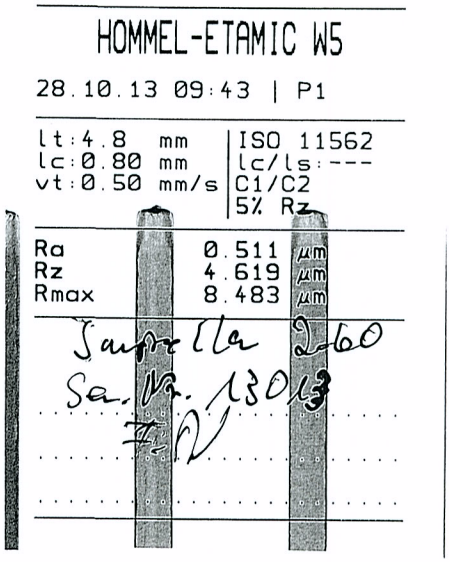
Shaft



Impeller



Impeller



Impeller

HOMMEL-ETAMIC W5

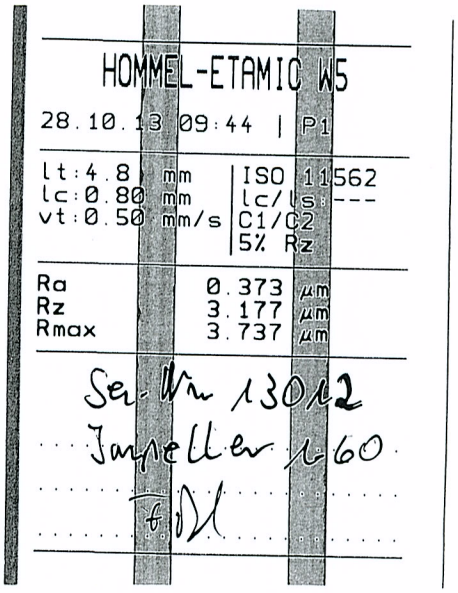
28.10.13 09:43 | P1

lt:4.8 mm	ISO 11562
lc:0.80 mm	lc/ls:---
vt:0.50 mm/s	C1/C2
	5% Rz

Ra	0.400 µm
Rz	3.489 µm
Rmax	4.015 µm

Ser. Nr. 13012
Impeller 1.40
FM

Impeller



Serial no. 13013

Flange

HOMMEL-ETAMIC W5

28.10.13 09:42 | P1

lt:4.8 mm	ISO 11562
lc:0.80 mm	lc/ls:---
vt:0.50 mm/s	C1/C2
	5% Rz

Ra	0.275 µm
Rz	1.381 µm
Rmax	1.875 µm

Ser Nr. 13013
Flange 2.20

Angst+Pfister Group
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DECLARATION OF CONFORMITY

in accordance with
DIN EN ISO/IEC 17050

Date: 13 September 2013
Phone: +41 44 306 6257
Issuer: MRI

Declaration subject:

Material description:

EPDM 75.5/KW75F (EPDM 70.10-02)

The material described above meets the requirements stipulated in the following guidelines/standards:

Homologations: (Update acc. 27/08/2013)

WRAS (BS 6920) for drinking water, cold and warm up to 85°C; it will expire on: October 2017
In compliance with **FDA** (177.2600-21) requisites for food. RP N° 588/98 of CERISIE lab
KTW (1.3.13 D1-D2) for drinking water, cold and warm up to 85°C; it will expire on 20/09/2016
DVGW-W270 E (11/2007) for drinking water; it will expire on 26/04/2016
DVGW W534 for warm drinking water Type WA-WB N° DW-5253BQ0461. It will expire on 26/09/2018
NSF (Standard 61) for drinking water, cold and warm up to 82°C; (Standard 51) for food till 100°C
ACS (DGS/VS4 n° 99/217 dated 12/04/1999 and DGS/VS4 n° 2000/232 dated 27/04/2002. Annexe C) for drinking water; it will expire on 28/11/2013
ÖNORM B 5014-1 for drinking water, cold and warm up to 85°C. It will expire on 24/06/2018
USP CLASS VI. **KIWA** (BRL 17504) for warm drinking water. **EN 681-1** Type WA-WB-WC-WD
In compliance with the requirements of: D.M. 06/04/04 n° 17. **BfR XXI** – Category 4
3-A Sanitary Standard N° 18-03 Class II, **AS/NZS 4020**

EC-Regulation **1935/2004 article 3** and EC-Regulation **2023/2006,**
free of Animal Derived Ingredients **(ADI)**
2011/65/EU (RoHS)

Additional information:

Expiration date of this declaration of conformity is 28.11.2013.

Angst + Pfister Group Engineering

Zurich, 13 September 2013

G. Valente
Senior Engineer

R. Mosimann
Engineering Data Administrator

(Place and date of issuance)

(Name and signature or equivalent authentication of authorized persons)

860 Salem Street
Building. C
Groveland, MA 01834

Tel: 978-469-6482
Fax: 978-469-6774
E-mail: canistd@chesterton.com

March 13, 2012

Dear Customer,

A.W. Chesterton's AWC 510 (mineral filled PTFE) material, used for sealing applications, is in compliance with the U.S. Food and Drug Administration (FDA) 21 CFR 177.1550 for articles intended for direct and indirect food contact usage.

Please feel free to contact the EPS Customer Service Team with any questions.

Sincerely,

Dave Canistro
EPS Application Engineer