

**Instruction Manual**  
**Manuale di istruzioni**  
**Manuel d'instructions**  
**Manual de instrucciones**  
**Bedienungsanleitung**  
**指导手册**



## JLT4 - JLT6 Flocculators

F105A0108, F105A0109

### General Information / Informazioni Generali / Informations Générales / Información General / Allgemeine Hinweise / 一般信息



Before using the unit, please read the following instruction manual carefully.

Prima dell'utilizzo dello strumento si raccomanda di leggere attentamente il seguente manuale operativo.

Avant d'utiliser l'instrument, il est recommandé de lire attentivement le présent manuel d'instructions.

Antes de utilizar el instrumento, le recomendamos que lea con atención el siguiente manual de funcionamiento.

Bitte lesen Sie vor Inbetriebnahme des Geräts diese Bedienungsanleitung sorgfältig durch

在使用本装置之前，请仔细阅读以下使用说明书。



Do not dispose of this equipment as urban waste, in accordance with EEC directive 2002/96/CE.

Non smaltire l'apparecchiatura come rifiuto urbano, secondo quanto previsto dalla Direttiva 2002/96/CE.

Ne pas recycler l'appareil comme déchet solide urbain, conformément à la Directive 2002/96/CE.

No tirar el aparato en los desechos urbanos, como exige la Directiva 2002/96/CE.

Dieses Gerät unterliegt der Richtlinie 2002/96/EG und darf nicht mit dem normalen Hausmüll entsorgt werden.

根据 EEC 指令 2002/96/CE，请不要将本设备作为城市垃圾处理。

#### **This unit must be used for laboratory applications only.**

The manufacturer declines all responsibility for any use of the unit that does not comply with these instructions.

#### **Questo strumento deve essere utilizzato solo per applicazioni di laboratorio.**

La società produttrice declina ogni responsabilità sull'impiego non conforme alle istruzioni degli strumenti.

#### **Cet instrument ne peut être utilisé que pour des applications de laboratoire.**

Le fabricant décline toute responsabilité en cas d'utilisation non conforme aux instructions concernant ces instruments.

#### **Este dispositivo sólo debe utilizarse para aplicaciones de laboratorio.**

El fabricante declina toda responsabilidad por el uso no conforme a las instrucciones de los dispositivos.

#### **Dieses Gerät darf nur für Laboranwendungen verwendet werden.**

Der Hersteller lehnt jede Haftung für unsachgemäße Verwendung oder Nichtbeachtung dieser Bedienungsanleitung ab.

本装置必须仅用于实验室应用。

制造商对任何不符合这些说明的使用不承担任何责任。

**This unit has been designed and manufactured in compliance with the following standards:**

**Lo strumento è stato progettato e costruito in accordo con le seguenti norme:**

**L'instrument a été conçu et fabriqué conformément aux normes suivantes:**

**El dispositivo se ha sido diseñado y fabricado de acuerdo con las siguientes normas:**

**Das Gerät wurde in Übereinstimmung mit folgenden Normen entwickelt und gebaut:**

**本装置的设计和制造符合以下标准。**

Safety requirements for electrical equipment for measurement, control and for laboratory use

Prescrizioni di sicurezza per apparecchi elettrici di misura, controllo e per l'utilizzo in laboratorio

Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire

Prescripciones de seguridad para equipos eléctricos de medición, control y su uso en laboratorio

Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte

测量、控制和实验室用电气设备的安全要求

**IEC/EN 61010-1**

Electrical equipment for laboratory use

**UL 61010-1**

General requirement - Canadian electrical code

**CAN/CSA-C22.2 No.61010-1**

VELP reserves the right to modify the characteristics of its products with the aim to constantly improving their quality.

Nell'impegno di migliorare costantemente la qualità dei prodotti, VELP si riserva la facoltà di variarne le caratteristiche.

Dans le but d'améliorer constamment la qualité de ses produits, VELP se réserve le droit d'apporter des modifications aux caractéristiques de ceux-ci.

VELP se reserva el derecho de modificar las características de sus productos con el objetivo de mejorar constantemente su calidad.

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### Coagulation and flocculation of wastewaters

Chemical coagulants are added to wastewaters for the primary purpose of removing suspended solids and also phosphorus. The addition of chemicals reduces also heavy metal concentrations and improves disinfection efficiency. Chemical coagulation can be obtained by adding to wastewaters defined amounts of lime (calcium hydroxide), alum (aluminium sulphate) or iron salts (ferric or ferrous). The coagulation-sedimentation process typically involves:

- injection and mixing of the coagulant that neutralize the electric charge, prevalently negative, on suspended particles. Good and rapid mixing of the coagulant and wastewater is important to ensure efficient use of the chemical. Typical detention times in plant basins for turbulent mixing are 15 to 120 seconds.
- agglomeration of the coagulated particles into large settable flocs. This agglomeration is accomplished by stirring the water slowly so to allow the solids formed by the addition of chemicals to grow in size so that they can be removed by gravity settling. The stirring is usually performed by slowly rotating paddles during 10 to 30 minutes.
- sedimentation of the flocculated material by gravity separation. The solids are allowed to settle by gravity from the chemically treated standing wastewater. The effluent from the chemical settling tank is very clear and does not usually require further filtration.

The quantity of chemical coagulant required to achieve the test varies with time and from wastewater to wastewater. Typical coagulant doses are: 75 to 250 g/m<sup>3</sup> for alum, 45 to 90 g/m<sup>3</sup> for ferric chloride, 200 to 400 g/m<sup>3</sup> for lime.

### Reagents

The choice and dosing of the chemical coagulant to be adopted for the removal of suspended solids from wastewaters derive from the results of laboratory evaluations by the so-called Jar test. Multiple stirrers with reproducible stirring speeds allow to adopt standard conditions for the test, that are the basic requirement for reproducible results.

The standard conditions are related to:

- dimensions and shape of vessel and stirring paddle
- time and speed of stirring during turbulent mixing
- evaluation criteria for the obtained results.
- volume of wastewater
- time and speed of stirring during flocculation

The most diffused adopted conditions are:

- 1000 ml glass beakers (jars), tall form, Ø 105 mm
- stirring paddles 25 mm high, 75 mm wide, 1 mm thickness
- turbulent stirring after chemical addition: 120 rpm, 120 seconds
- first evaluation of results after 5 minutes of sedimentation
- 600 ml wastewater samples
- stirring height of paddles, middle height of sample
- slow speed flocculation: 30 rpm, 25 minutes

The results can be evaluated on the basis of different criteria:

- floc dimension evaluation with numerical degree (0=no flocs, 2=very small, 4=small, 6=medium, 8=large, 10=very large).
- time from the addition of chemicals to first appearing of flocs.
- evaluation of residual turbidity of supernatant, after a determined sedimentation time, by turbidimeter.
- measurement of electro-kinetic potential of suspended particles on a sample taken immediately after the addition and mixing of chemicals. Coagulations should be easier when zeta potential of particles is very low.
- evaluation of filterability of clarified water by standardized membrane filters under pressure. The reduction of water flow with time is related to the degree of clogging of filters due to residual unsettled suspended matter.

Other measurements are related to the pH of water after chemical treatment (lime raises the value while iron and aluminium salts lower it) and the temperature of water at which the experiments are performed.

**References:** American Society for Testing Materials Norm ASTM D-2035-G4 T; Passino R. and M.Beccari (1970) "Standardization of jar test in coagulation-flocculation processes for the removal of inorganic turbidities (in Italian). *Acqua e Aria*, Milano, 1-10, October 1970"; Degremont (1978) "Etude de la coagulation et de la flocculation des eaux. Methode n.703, 948-950. Memento technique de l'eau. 1200 pages, Paris"; U.S. Association of Environmental Engineering Professors (1972) "Environmental Engineering Unit Operations and Unit Processes Laboratory Manual. J.T. O'Connor Ed. 350 ppg".

### Leaching test

Leaching tests are used to simulate the behaviour of a waste in a dump that is submitted to the leaching activity of rain water. There are two different methods that use leaching solutions of different type:

- acetic acid, proposed for dumps receiving both organic and inorganic wastes;
- carbon dioxide saturated water, for dumps receiving only inorganic wastes.

**Waste sample to be examined:** if a liquid phase is present, it must be removed by filtration or centrifugation and preserved in a refrigerator at 2-4 °C. The granulometry of the solid phase, must be lower than 9.5 mm (standard sieve).

**Waste extraction:** 20-25 g of the solid phase are weighed with a precision of ± 0.1 g.

**Method a)** A volume of distilled water corresponding to 16 times the weight of the sample is added.

The pH of the mixture is kept to 5±0.2 using 0.5 N acetic acid. The stirring is performed for 24 hours, controlling the pH every 15 minutes during the first hour and then every hour. The pH is corrected to 5±2 using again 0.5 N acetic acid. If after 24 hours of stirring the pH is higher than 5.2, a new correction is made and the stirring prolonged for other 4 hours.

**Method b)** The leaching solution is given by a volume corresponding to 20 times the sample weight of distilled water saturated by carbon dioxide for not less than 15 minutes. The stirring is performed during 6 hours without any pH correction.

**Stirring speed:** must be able to maintain continuously mixed the solid phase with the leaching solution.

**Analysis of extract:** the leaching solution and the liquid phase if present in the original sample are filtered by a membrane filter of 0.45 µm porosity and submitted to analysis for the single metals by the methods commonly used for waters.

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## 1. Introduction

During chemical-physical treatments of waters aimed to coagulate and precipitate pollutants, chemical coagulants are evaluated and their dosing optimized by jar tests. In relation to the variable composition of wastewaters the chemical dosing and the test frequency are to be adapted to local conditions. JLT Series is characterized by a settable speed of rotation, from 10 to 300 rpm, with the real speed showed on the relative display. The steel structure epoxy painted is studied and tested in order to give the instrument an excellent resistance against the attack of chemical agents and corrosion in general. The stainless-steel stirring rods are adjustable in height by a self-blocking chuck. The examined samples can be lighted by a back fluorescent lamp controlled by a switch located on front panel.

## 2. Assembly and installation

Upon receipt and after having removed the packaging, please check the integrity of the instrument. The box includes:

- Flocculator
- Plug for power supply
- Switching VELP 100-240V/12V without plug
- Instruction manual

### 2.1 Electrical connection

Before connecting the instrument to the power supply, make sure that the values on the rating plate correspond to those of the power supply. Connect the unit to the power supply using the transformer supplied.

Ensure that the socket and the relative cut-off device conform to current safety norms and easy to reach.

### 2.2 Start-up

Place the beakers containing the sample and then, set the speed and time using + or -.

## 3. Operating controls

The start-up is empowered by the keys + and -. It's possible to select the speed from 10 to 300 rpm. The progression speed is increased by keeping one of the two keys pushed, in order to reach the desired value faster.

It's possible to select two different type of running by the SET key on the "Electronic Timer Windows":

- Continuous (. . .); - With timer (minute/hour base);

In order to change the timer modality (minutes/hour base), maintain the set key pushed for a few seconds:

- With timer (minutes): "000" - with timer (hours): "h00"

If the time of running is not selected, the stirring is not active.

The display shows the count down and simultaneously the third decimal point turns on to indicate that the count is operative.

At the end, the instrument stops the stirring, the acoustic signal warns the end of the time and the display shows "End".

## 4. Maintenance

No routine or extraordinary maintenance is necessary apart from periodically cleaning the unit as described in this manual. In compliance with the product guarantee law, repairs to our units must be carried out in our factory, unless previously agreed otherwise with local distributors. The instrument must be transported in its original packaging and any indications present on the original packaging must be followed (e.g., palletized). It is the responsibility of the user, to properly decontaminate the unit in case of hazardous substances remaining on the surface or interior of the device. If in doubt about the compatibility of a cleaning or decontamination product, contact the manufacturer or distributor.

### 4.1 Cleaning

Disconnect the unit from the power supply and use a cloth dampened with an non-inflammable non-aggressive detergent.

## 5. Technical data

Power supply	100-240 V / 50-60 Hz
Power	19 W
Dimensions (WxHxD)	655x404x296 mm (JLT4)      935x404x296 mm (JLT6)
Weight (with plug)	13.0 Kg (JLT4)      17.0 Kg (JLT6)
Speed range	10 ÷ 300 rpm, 1 rpm step
Time range	0 ÷ 999 minutes / 0 ÷ 99 hours or continuous
Construction material	Epoxy painted metal structure
Environmental ambient temperature	5 - 40 °C (41 - 104°F)
Storage temperature range	-10... + 60 °C (14 - 140°F)
Max humidity	80%
Pollution degree	2

## 6. Accessories / Spare parts

A00001000	Plastic Becher 1000 ml	A00001001	Glass Becher 1000 ml
A00001002	Transparent plastic Imhoff cone	A00001003	Glass graduated Imhoff cone
A00001004	Stand for 2 Imhoff cones	10000235	Foot

Nei trattamenti chimico-fisici delle acque idonei alla coagulazione e precipitazione degli inquinanti, le sostanze chimiche per precipitazione vengono confrontate per la loro efficacia ed i loro dosaggi ottimizzati per mezzo di prove Jar Test. Date le caratteristiche variabili dei liquami, i dosaggi chimici e la frequenza del test devono essere adattati alle condizioni locali. VELP ha realizzato questo apparecchio per l'esecuzione di Jar Test caratterizzato dalla velocità di rotazione impostabile, in un range da 10 a 300 rpm, con visualizzazione della velocità reale a display.

## 2. Montaggio ed installazione

Verificare l'integrità dello strumento al ricevimento. Gli elementi contenuti nell'imballo sono i seguenti:

- Flocculatore
- Manuale di istruzioni
- Cavo di alimentazione 100-240V/12V
- Spina UE

### 2.1 Collegamento alla rete elettrica

Prima di collegare l'unità alla rete di alimentazione elettrica, assicurarsi che i dati di targa dell'unità corrispondano a quelli disponibili. Assicurarsi che sia la presa di corrente che il relativo dispositivo di sezionamento siano conformi alle norme di sicurezza e di facile accessibilità.

### 2.2 Avvio

Collocare il contenitore con il liquido e regolare la velocità di agitazione ed il tempo desiderato con i tasti + o -.

## 3. Controlli di funzionamento

Tramite i tasti + o - della finestra "Speed rpm" si può selezionare la velocità di agitazione da 10 a 300 rpm. Mantenendo premuto uno dei due tasti, la velocità di progressione aumenta al fine di ottenere più rapidamente la velocità desiderata. Si possono selezionare 2 tipi diversi di funzionamento tramite il tasto Set della finestra "Time":

- Continuo (...)
- Temporizzato (minuti/ore).

Per cambiare la base tempo mantenere premuto il tasto Set per qualche secondo.:

- funzionamento temporizzato (minuti): "000"
- funzionamento temporizzato (ore): "h00"

L'impostazione del tempo desiderato si effettua mediante i pulsanti + e -. L'agitazione non è attiva se è stato programmato un funzionamento temporizzato ed il tempo residuo è 0. Il display visualizza costantemente il tempo residuo a scalare e contemporaneamente il terzo punto decimale si accende in modalità intermittente stando ad indicare che il conteggio è operativo. Allo scadere del tempo programmato l'agitazione si ferma automaticamente, una segnalazione acustica si attiva e il display visualizza in modo intermittente "end".

## 4. Manutenzione

La manutenzione ordinaria e straordinaria non è prevista salvo la pulizia periodica dello strumento come descritto in questo manuale. In conformità alla legge sulla garanzia dei prodotti, le riparazioni dei nostri strumenti devono essere eseguite presso la nostra sede, salvo accordi diversi con i distributori locali. Il trasporto dello strumento tramite spedizionieri, corrieri o altro, deve essere effettuato utilizzando l'imballo originale antiurto di cui lo strumento è dotato quando spedito da nuovo. Seguire le istruzioni eventualmente riportate sullo stesso (es. palletizzare). È responsabilità dell'utente procedere alla decontaminazione dell'unità nel caso in cui sostanze pericolose rimangano sulla superficie o all'interno del dispositivo. In caso di dubbi sulla compatibilità di un prodotto per la pulizia o la decontaminazione, contattare il produttore o il distributore.

### 4.1 Pulizia

La pulizia dello strumento deve essere eseguita, dopo aver staccato l'alimentazione, con un panno inumidito con detergenti non infiammabili e non aggressivi.

## 5. Caratteristiche tecniche

Alimentatore esterno	100-240 V / 50-60 Hz
Potenza	19 W
Dimensioni (lxhxp)	655x404x296 mm (JLT4)      935x404x296 mm (JLT6)
Peso (con alimentatore)	13.0 Kg (JLT4)      17.0 Kg (JLT6)
Velocità impostabile	10 ÷ 300 rpm, step da 1 rpm
Tempo di lavoro selezionabile	0 ÷ 999 minuti / 0 ÷ 99 ore o in continuo
Struttura	Metallica con verniciatura epossidica
Temperatura ambiente ammessa	5 - 40 °C (41 - 104°F)
Temperatura di stoccaggio ammessa	-10... + 60 °C (14 - 140°F)
Umidità ammessa	80%
Grado di inquinamento	2

## 6. Accessori / Parti di ricambio

A00001000	Becher 1000 ml in plastica	A00001001	Becher 1000 ml in vetro
A00001002	Cono Imhoff in plastica	A00001003	Cono Imhoff in vetro
A00001004	Supporto per coni Imhoff a due posti	10000235	Piedino

## 1. Introduction

Floculateurs pour exécuter Jar Test caractérisé donne un contrôle électronique de la vitesse commun pour toutes les positions. La vitesse de rotation programmable de 10 à 300 t/min (par pas de 1 t/min) et est affiché sur l'écran.

## 2. Montage et installation

Lors de la réception et après avoir enlevé l'emballage, contrôler que l'instrument est intègre La fourniture comprend:

- Floculateur
- Câble d'alimentation 100-240V/12V
- Fiche UE pour alimentateur
- Manuel d'instructions

### 2.1 Raccordement au réseau électrique

Avant de brancher l'instrument au réseau d'alimentation électrique, vérifier que les données de la plaque de l'instrument correspondent aux données disponibles à la prise d'alimentation.

### 2.2 Mise en marche

Disposez le réservoir avec le liquide et régler la vitesse d'agitation et la durée d'utilisation avec + et -.

## 3. Contrôles des opérations

La vitesse d'agitation de 10 à 300 t/min, par pas de 1 t/min, est sélectionnée en appuyant sur les touches + et - de l'écran de "Vitesse Il est possible de sélectionner deux types de fonctionnement différents à l'aide de la touche SET sur les "Fenêtres de la minuterie électronique" :

- Continu (. . .) ; - Avec minuterie (base minutes/heures) ;

Pour changer la modalité du timer (base minutes/heures), maintenez la touche SET enfoncée pendant quelques secondes :

- Avec minuterie (minutes) : "000" - avec minuterie (heures) : "h00"

Si le temps de fonctionnement n'est pas sélectionné, l'agitation n'est pas active.

L'écran affiche en continu le temps restant et le troisième point décimal scintille en même temps pour indiquer que le décompte est en cours. A la fin du temps programmé, l'agitation s'arrête automatiquement et un signal sonore avertit l'utilisateur que la procédure est terminée. L'écran affiche "end" (fin).

## 4. Entretien

Aucun entretien ordinaire ou extraordinaire n'est prévu excepté le nettoyage périodique de l'instrument comme décrit dans le présent manuel. Conformément à la loi sur la garantie des produits, les réparations de nos instruments doivent être effectuées dans nos ateliers, sauf accords différents avec les distributeurs locaux. L'instrument doit être transporté dans son emballage d'origine et les indications présentes sur l'emballage d'origine doivent être suivies (par exemple palettisé).

Il est de la responsabilité de l'utilisateur de décontaminer correctement l'unité en cas de substances dangereuses restant sur la surface ou à l'intérieur de l'appareil. En cas de doute sur la compatibilité d'un produit de nettoyage ou de décontamination, contactez le fabricant ou le distributeur.

### 4.1 Nettoyage

Le nettoyage de l'instrument doit être effectué après avoir débranché l'appareil, à l'aide un chiffon légèrement imbibé de détergent non inflammable et non agressif.

## 5. Caractéristiques techniques

Prise d'alimentation	100-240 V / 50-60 Hz
Puissance	19 W
Dimensions (LxHxP)	655x404x296 mm (JLT4)      935x404x296 mm (JLT6)
Poids	13.0 Kg (JLT4)      17.0 Kg (JLT6)
Ecart de réglage vitesse	10 ÷ 300 rpm, 1 rpm étape
Temps de travail	0 à 999 minutes / 0 à 99 heures ou en continu
Châssis	Epoxy métal
Température admise - Milieu environnant	5 - 40 °C (41 - 104°F)
Température admise - Stockage	-10... + 60 °C (14 - 140°F)
Humidité admise	80%
Degré de pollution	2

## 6. Accessoires / Pièces de rechange

A00001000	Bécher en plastique 1000 ml	A00001001	Bécher en verre, 1000 ml
A00001002	Imhoff Cône plastique	A00001003	Imhoff Cône verre
A00001004	Soutien aux cônes Imhoff en deux endroits	10000235	Pied



## 1. Introducción

Floculadores para la ejecución de Jar Test caracterizado da el control electrónico de velocidad con ajuste común para todas las posiciones. La serie JLT se caracteriza por una velocidad de rotación ajustable, de 10 a 300 rpm, con la velocidad real mostrada en la pantalla.

## 2. Montaje e instalación

Al recibir el producto, quitar el embalaje y comprobar la integridad del aparato. El suministro incluye:

- Floculador
- Alimentador 100-240V/12V sin clavija
- Clavija UE para alimentador
- Manual de instrucciones

### 2.1 Conexión a red eléctrica

Asegúrase que las características de la placa corresponden y que la toma de corriente cumpla con las normas de seguridad y accesibilidad.

### 2.2 Encendido

Colocar un recipiente para contener la muestra y ajustar la velocidad y el tiempo de funcionamiento con + y -.

## 3. Controles de funcionamiento

El inicio de la agitación se lleva a cabo mediante + y - ("Speed rpm"). Se puede seleccionar la velocidad deseada de 10 a 300 rpm. Es posible seleccionar dos tipos diferentes de funcionamiento mediante la tecla SET en las "Ventanas del Temporizador Electrónico":

- Continua (. . .); - Con temporizador (base de minutos/hora);

Para cambiar la modalidad del temporizador (base minutos/hora), mantenga pulsada la tecla set durante unos segundos:

- Con temporizador (minutos): "000" - Con temporizador (horas): "h00"

Si no se selecciona el tiempo de funcionamiento, la agitación no está activa. La agitación no está activa si se ha programado una operación programada y el tiempo restante es 0. La pantalla muestra constantemente el tiempo, y al mismo tiempo el tercer punto decimal se ilumina de forma intermitente indicando que la cuenta del tiempo está activa. A la fin del tiempo programado, la agitación se detiene automáticamente, una señal acústica se activa y la pantalla muestra "end".

## 4. Mantenimiento

El mantenimiento ordinario y extraordinario no está previsto excepto para la limpieza periódica del aparato como se describe en este manual. De acuerdo con la ley de garantía del producto, las reparaciones de nuestros aparatos se deben llevar a cabo en nuestras instalaciones, a menos que se acuerde otra cosa con los distribuidores locales.

El equipo debe transportarse sólo en su embalaje original y todas las indicaciones presentes en el embalaje original debe seguirse (por ejemplo, paletizado). Es responsabilidad del usuario descontaminar la unidad en el caso de que haya restos de sustancias peligrosas tanto en la superficie como en el interior del equipo. En caso de duda sobre la compatibilidad de los productos a usar para limpieza y/o descontaminación, contacte con su distribuidor o con fabricante.

### 4.1 Limpieza

La limpieza del aparato debe llevarse a cabo, después de desconectar la alimentación, con un paño húmedo con detergentes no inflamables y no agresivos.

## 5. Características técnicas

Fuente de alimentación externa	100-240 V / 50-60 Hz
Potencia	19 W
Dimensiones (LxHxP)	655x404x296 mm (JLT4)      935x404x296 mm (JLT6)
Peso	13.0 Kg (JLT4)      17.0 Kg (JLT6)
Ámbito de ajuste velocidad	10 ÷ 300 rpm, 1 rpm
Tiempo de trabajo	0 a 999 minutos / 0 a 99 horas o en continuo
Estructura	Metálica recubierta con pintura epoxi
Temperatura admitida - Almacenamiento	5 - 40 °C (41 - 104°F)
Temperatura admitida - Ambiente	-10... + 60 °C (14 - 140°F)
Humedad admitida	80%
Grado de contaminación	2

## 6. Accesorios / Refacciones

A00001000	Vaso de plástica de 1000 ml	A00001001	Vaso de vidrio de 1000 ml
A00001002	Cono Imhoff plástico	A00001003	Cono Imhoff vidrio
A00001004	Soporte para conos Imhoff en dos lugares	10000235	Pie

JLT Serie bietet elektronische Drehzahlregelung und Einstellung der Drehzahl gemeinsam für alle Positionen . JLT wird durch eine einstellbare Drehzahl gekennzeichnet, von 10 bis 300 rpm, mit der realen Geschwindigkeit zeigte auf der relativen Darstellung.

## 2. Montage und Installation

Bitte überprüfen Sie nach dem Auspacken den einwandfreien Zustand des Gerätes. Im Lieferumfang sind enthalten:

- Flockulator
- EU-Stecker für Netzteil
- Netzteil 100-240V/12V ohne Stecker
- Bedienungsanleitung

### 2.1 Anschluss an das Stromnetz

Prüfen Sie bitte vor dem Anschluß an das Stromnetz, dass der Netzschalter ausgeschaltet ist und der Drehknopf auf Linksanschlag steht. Dann können Sie das Gerät mit der Anschlußleitung an das Stromnetz anschließen.

### 2.2 Inbetriebnahme

Für Start und Steuerung der Schüttelbewegung bedienen Sie sich der Pfeilen + und -.

## 3. Bedienungselemente

Um die Bewegung zu starten, drücken Sie die Tasten + und - auf dem Bedienfeld "Speed rpm". Es ist möglich, die gewünschte Geschwindigkeit von 10 bis 300 rpm wählen. Es ist möglich, mit der SET-Taste im "Elektronischen Zeitschaltuhr-Fenster" zwei verschiedene Lauftypen auszuwählen:

- Kontinuierlich (. . .); - Mit Timer (Minuten-/Stundenbasis);

Um die Timer-Modalität (Minuten-/Stundenbasis) zu ändern, halten Sie die Set-Taste für einige Sekunden gedrückt:

- Mit Timer (Minuten): "000" - mit Timer (Stunden): "h00"

Wenn die Laufzeit nicht ausgewählt ist, ist das Rühren nicht aktiv.

Das Rühren ist nicht aktiv, wenn Sie einen zeitgesteuerten Betrieb programmiert haben und die verbleibende Zeit 0 ist.

Das Display zeigt ständig die verbleibende Zeit, während die dritte Dezimalstelle leuchtet in der intermittierende Form.

Am Ende der programmierten Zeit stoppt das Rühren automatisch, ein akustisches Signal aktiviert ist und auf dem Display erscheint intermittierend "End".

## 4. Wartung

Abgesehen von einer regelmäßigen Reinigung gemäß der nachfolgenden Hinweise benötigt das Gerät keine gewöhnliche oder außergewöhnliche Wartung. In Übereinstimmung mit dem Produkthaftungsgesetz müssen Reparatureingriffe an den Geräten in unserem Hause durchgeführt werden, soweit keine anderweitigen Vereinbarungen mit den örtlichen Händlern getroffen werden. Das Gerät muss in der Originalverpackung transportiert werden. Es liegt in der Verantwortung des Benutzers, das Gerät ordnungsgemäß zu dekontaminieren, falls gefährliche Substanzen auf der Oberfläche oder im Inneren des Geräts verbleiben. Wenn Sie Zweifel an der Verträglichkeit eines Reinigungs- oder Dekontaminationsprodukts haben, wenden Sie sich an den Hersteller oder Händler.

### 4.1 Reinigung

Trennen Sie das Gerät zur Reinigung vom Stromnetz und verwenden Sie ein weiches Tuch mit einem sanften, nicht entzündlichen Reiniger.

## 5. Technische merkmale

Externes Netzteil	100-240 V / 50-60 Hz
Leistung	19 W
Außenmaße (BxHxT)	655x404x296 mm (JLT4)      935x404x296 mm (JLT6)
Gewicht	13.0 Kg (JLT4)      17.0 Kg (JLT6)
Geschwindigkeitsbereich	10 ÷ 300 rpm, 1 rpm étape
Betriebsarten	von 0 bis 999 Minuten / von 0 bis 99 Stunden oder Dauerbetrieb
Gehäuse	Epoxy lackiertem Metall
Zulässige Temperatur - Betrieb	5 - 40 °C (41 - 104°F)
Zulässige Temperatur - Aufbewahrung	-10... + 60 °C (14 - 140°F)
Zulässige Feuchtigkeit	80%
Verschmutzungsgrad	2

## 6. Zubehör / Ersatzteile

A00001000	Kunststoffbecher, 1000 ml	A00001001	Glasbecher, 1000 ml
A00001002	Imhoff Cone Kunststoff	A00001003	Imhoff Cone Glas
A00001004	Unterstützung für Imhoff Kegel mit zwei Orten	10000235	Fuß

## 1. 简介

在对凝固和沉淀污染物的水域进行化学物理处理期间，对化学凝结剂进行评估，并通过罐体测试优化其剂型。关于废水的可变成分，化学剂和测试频率应因地制宜。JLT系列的特点是可设定的旋转速度，从10到300rpm，相关显示屏上显示真实速度。对涂漆的钢结构环氧树脂进行研究和测试，使仪器具有极好的抗化学制剂和腐蚀能力。不锈钢搅拌棒的高度可通过自挡夹头调节。被检查的样品可以通过前面板上的开关控制的后荧光灯照亮。

## 2. 装配和安装

收到包装后和拆下包装后，请检查仪器的完整性。包括：

- 絮凝器
- 电源插头
- 开关 VELP 100-240V/12V，无插头
- 使用说明书

### 2.1 电路连接

在将仪表连接到电源之前，请确保额定板上的值与电源值相对应。使用所提供的变压器将设备连接到电源。确保插座和相对切断装置符合当前安全规范，且易于触及。

### 2.2 开机

放置包含样品的烧杯，然后使用+或-设置速度和时间。

## 3. 操作控制

启动是由键+和-开启的。可以选择转速从 10 到 300 转。可以通过按压两个按键中的一个来提高设置速度，以便更快地达到预期值。

通过“电子计时器窗口”上的 SET 键，可以选择两种不同类型的运行方式：

—连续的(...);                      —计时器模式(分钟/小时基数);

为了改变计时器模式(分钟/小时基数)，保持按下设置键几秒钟：

—计时(分): " 000 "                —计时(小时): " h00 "

如果不选择运行时间，则搅拌不激活。

显示屏显示倒计时，同时第三个小数点打开，表明计数是有效的。搅拌结束时，仪器停止搅拌，声音信号提示时间结束，显示器显示“结束”。

## 4. 维护

除了定期清洁本手册中描述的装置外，无需进行常规或特殊维护。

根据产品保证法，除非事先与当地经销商达成其他协议，否则我们工厂必须进行维修。

仪器必须以原始包装运输，并且必须遵循原始包装上的任何指示（例如托盘化）。

用户有责任在设备表面或内部残留有害物质的情况下，对装置进行适当净化。如对清洁或净化产品的兼容性有疑问，请联系制造商或分销商。

### 4.1 清洗

将装置与电源断开，并使用不可燃非腐蚀性的布。

## 5. 技术数据

电源	100-240 V / 50-60 Hz
电源	19 W
尺寸(宽 x 高 x 深)	655x404x296 毫米 (JLT4)      935x404x296 毫米 (JLT6)
重量(含插头)	13.0 Kg (JLT4)                17.0 Kg (JLT6)
速度范围	10 - 300 转/分, 1 转/分步长
时间范围	0-999 分钟/0-99 小时或连续工作
结构材料	环氧漆金属结构
环境温度	5 - 40 °C (41 - 104°F)
储存温度范围	-10... + 60 °C (14 - 140°F)

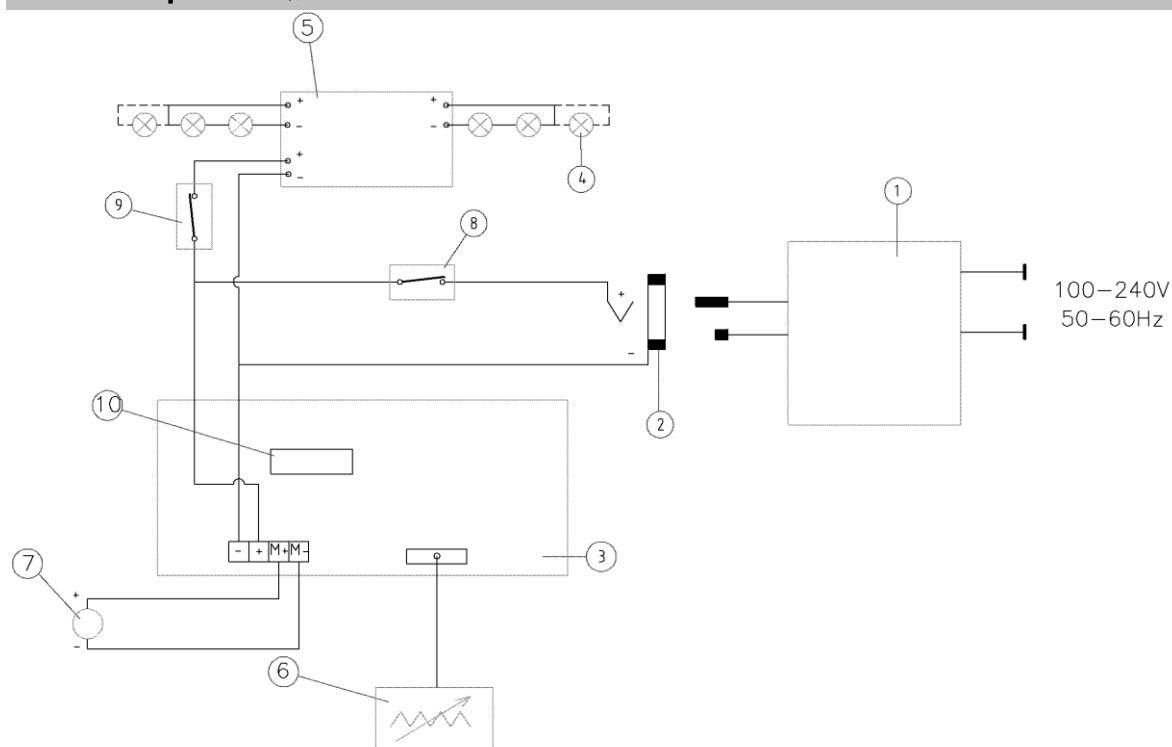
最大湿度	80%
最大湿度	2

## 6. 附件 / 备件


A00001000	塑料烧杯 1000 毫升	A00001001	玻璃烧杯 1000 毫升
A00001002	透明塑料 Imhoff cone 椎体	A00001003	玻璃 Imhoff cone 椎体
A00001004	Imhoff cone 椎体 2 位支架	10000235	脚垫

## 7. Wiring diagram / Schema elettrico / Schéma électrique / Esquema eléctrico / Schaltplan/电路

MULTI



1. External power supply / Alimentatore di rete / Alimentateur de réseau / Alimentador de red / Netzteil / 外部电源
2. Socket / Presa / Prise de courant / Enchufe / Buchse / 插座
3. Electronic board / Scheda elettronica / Fiche électronique / Tarjeta electrónica / Steckkarte / 电子板
4. Led column / Led colonna / Colonne Led / Columna Led / Spalte-Led / LED 灯带
5. Led electronic board with selector / Scheda elettronica led / Fiche électronique du led / Tarjeta electrónica de led / Led-Steckkarte / 带选择器的 LED 电子板
6. Counter / Lettore ottico velocità motore / Lecteur optique du vitesse / Unidad óptica de velocidad / Optisches Laufwerk der Drehzahl / 计数器
7. Motor / Motore / Moteur / Motor / Motor / 电机
8. ON-OFF switch / Interruttore generale / Interrupteur général / Interruptor general / Netzschalter / ON-OFF 开关
9. Switch lighting / Interruttore led colonna / Commutateur de colonne LED / Interruptor de la columna Led / Spalte-Led Schalter / 开关照明
10. Fuse / Fusibile / Fusibles / Fusible / Sicherung / 保险丝

**8. Declaration of conformity / Dichiarazione di conformità / Déclaration de conformité /  
Declaración de conformidad / Konformitätserklärung / 符合性声明 **

We, the manufacturer VELP Scientifica, under our responsibility declare that the product is manufactured in conformity with the following standards:

Noi, casa costruttrice VELP SCIENTIFICA, dichiariamo sotto la ns. responsabilità che il prodotto è conforme alle seguenti norme:

Nous, VELP Scientifica, déclarons sous notre responsabilité que le produit est conforme aux normes suivantes:

Nosotros casa fabricante, VELP Scientifica, declaramos bajo nuestra responsabilidad que el producto es conforme con las siguientes normas:

Der Hersteller, VELP Scientifica, erklärt unter eigener Verantwortung, dass das Gerät mit folgenden Normen übereinstimmt:

我们·制造商 VELP Scientifica, 根据我们的责任声明·该产品的生产符合以下标准。

EN 61010-1

EN 61010-2-051

EN 61326-1

and satisfies the essential requirements of the following directives:

e soddisfa i requisiti essenziali delle direttive:

et qu'il satisfait les exigences essentielles des directives:

y cumple con los requisitos esenciales de las directivas:

und den Anforderungen folgender Richtlinien entspricht:

并满足以下指令的基本要求。

2006/42/EC

2014/30/EU

2015/863/EU (RoHS III)

2012/19/EU (WEEE)

plus modifications / più modifiche / plus modifications / más sucesivas modificaciones / in der jeweils gültigen Fassung / 加上修改

## 9. Declaration of conformity <sup>UK</sup>CA

We, the manufacturer VELP Scientifica, under our responsibility declare that the product is manufactured in conformity with the following regulations:

S.I. 2016/1101 Electrical Equipment (Safety) Regulations 2016

S.I. 2016/1091 Electromagnetic Compatibility Regulations 2016

according to the relevant designated standards:

EN 61010-1 Safety requirements for electrical equipment for measurement, control, and laboratory use  
Part 1: General requirements

EN 61010-2-051 Particular requirements for laboratory equipment for mixing and stirring

EN 61326-1 Electrical equipment for measurement, control and laboratory use - EMC requirements -  
Part 1: General requirements

and satisfies the essential requirements of regulations:

S.I. 2008/1597 Supply of Machinery (Safety) Regulations 2008

S.I. 2012/3032 Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic  
Equipment Regulations 2012

S.I. 2013/3113 Waste Electrical and Electronic Equipment Regulations 2013

plus modifications.

## Thank you for having chosen VELP!

Established in 1983, VELP is today one of the world's leading manufacturer of analytical instruments and laboratory equipment that has made an impact on the world-wide market with Italian products renowned for innovation, design and premium connectivity. VELP works according to **ISO 9001**, **ISO14001** and **OHSAS 18001** Quality System Certification.

Our instruments are manufactured in Italy according to the IEC 1010-1 and CE regulation.

Our product lines:

### Analytical instruments

Elemental Analyzers  
Digestion Units  
Distillation Units  
Solvent Extractors  
Fiber Analyzers  
Dietary Fiber Analyzers  
Oxidation Stability Reactor  
Consumables

### Laboratory Equipment

Magnetic Stirrers  
Heating Magnetic Stirrers  
Heating Plates  
Overhead stirrers  
Vortex mixers  
Homogenizers  
COD Thermoreactors  
BOD and Respirometers  
Cooled Incubators  
Flocculators  
Overhead Shakers  
Turbidimeter  
Radiation Detector  
Open Circulating Baths  
Pumps

## Grazie per aver scelto VELP!

Fondata nel 1983, VELP è oggi tra i leader mondiali nella produzione di strumenti analitici e apparecchiature da laboratorio grazie ai suoi prodotti italiani rinomati per innovazione, design e connettività.

VELP opera secondo le norme della Certificazione del Sistema Qualità **ISO 9001**, **ISO14001** e **OHSAS 18001**.

Tutti i nostri strumenti vengono costruiti in Italia in conformità alle norme internazionali IEC 1010-1 e alle regole della marcatura CE.

Le nostre Linee di prodotti:

### Analytical Instruments

Analizzatori Elementari  
Digestori e Mineralizzatori  
Distillatori  
Estrattori a Solventi  
Estrattori di Fibra  
Estrattori di Fibra Dietetica  
Reattore di Ossidazione  
Consumabili

### Laboratory Equipment

Agitatori Magnetici  
Agitatori Magnetici Riscaldanti  
Piastre Riscaldanti  
Agitatori ad Asta  
Agitatori Vortex  
Omogeneizzatori  
Termoreattori COD  
BOD e Analizzatori Respirometrici  
Frigotermostati e Incubatori  
Flocculatori  
Mescolatore Rotativo  
Turbidimetro  
Rilevatore di Radiazioni  
Bagni Termostatici  
Pompe



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