DESIGN AWARD 2016

Powerful
Stirring

Leading Safety Standards | Superior Ease of Use | Reduced Cost of Ownership

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DOMINIQUE DUTSCHER SAS

Looking for an all-purpose stirrer with smart technology and highest performance to reduce your workload?

Powerful Stirring

The powerful Hei-TORQUE stirrers accomplish the most demanding tasks while providing the highest safety in combination with a unique user interface

Leading **Safety Standards**

- The electronic stirrers feature individual setting of the start operation, which **prevents spills and splashing media**. The speed ramps up slowly until your set rpm has been reached
- An optional shaft guard **prevents accidents**
- **Non-sparking motors** for additional safety
- Important for continuous operation: the motor will be switched off if a high thermal load situation occurs to increase safety in your lab and to **prevent accidents**
- **Safe start and stop** of operation via slide touch panel to avoid accidental start-up
- To protect your stirrer against corrosion and short-circuits, all models comply with the **protection class IP 54**
- Setting a rotation speed limitation **prevents splashing media**

- **Unique Quick-Chuck** for immediate and convenient "one-hand" impeller changing - **without tools**
- Opening the safety ring **blocks accidental operation**
- An audible signal **confirms a tight fit** of the impeller

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Superior **Ease of Use**

- **No more misplacing and searching** for the chuck key! Immediate and convenient "one-hand" impeller changing with the Quick-Chuck - **without any tools**
- **RRS 232 and USB interfaces** allow precise documentation of process cycles
- **Free Hei-Control software** for all Hei-TORQUE Precision models aids you with **automating** your **process, and saves all data** in electronic files
- Newest motor generation for maximum power at **minimum noise level below 50 db**
- All stirrers maintain **exact speed under changing loads**
- A through-shaft design allows for adjusting the impeller position to make **height adjustments more convenient** for you
- **Reduce your work time** and achieve excellent mixing results in challenging high-viscosity media
- **A single grip** allows you to re-adjust the height of your stirrer on the optional telescopic stand
- The outstanding product design with **intuitive touch-panel** made of glass has been honored with the prestigious **iF DESIGN AWARD in 2016**

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Reduced Cost of Ownership

- Reduce your maintenance costs: the sealed housing protects your stirrer from aggressive fumes, liquids and vapors to prevent internal corrosion. This results in an **increased lifespan of 10 years** on average while **reducing maintenance and repair cost**
- The high torque level accounts for better mixing results in less time to **reduce your process time** and working hours significantly
- Maintenance-free motors **reduce repairs and down times** significantly to ensure years of continuous operation
- The unique impeller technology for demanding applications that mixes gels and other similar media in shorter times which **reduces process cost and working hours**
- The sealed panel made of glass **increases the tightness** of the entire housing
- **Free software** for all Hei-TORQUE Precision models avoids the need for additional investments

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Powerful stirring

YOUR ADVANTAGES

- An overtemperature sensor preventively shuts off the unit in dangerous heat-up situations – particularly valuable for you in case of unattended continuous operation
- All units are designed for continuous 24-hour operation – including challenging high viscosity applications in polymer research
- The durable design of the Hei-TORQUE series promotes longevity in an aggressive environment: The sealed housing protects against corrosion, ensures years of maintenance-free operation and complies with the high protection class IP 54

Impellers

YOUR ADVANTAGES

- Stirrer guides for applications under vacuum or pressure, flex couplings and flex shafts increase your available options
- Through thick and thin: large selection of impellers for every flow and viscosity
- Choose from high-quality stainless steel, plastics or PTFE-coated impellers – we have the right one for your specific needs
- Reduce your process times by utilizing unique technology which creates turbulent flows and a new dynamic motion that stirs gels with ease

Powerful
Stirring

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MADE IN GERMANY

Leading Safety Standards | Superior Ease of Use | Reduced Cost of Ownership

The average operational lifespan of 10 years is backed by a 3 year warranty and makes your purchase a worthwhile investment.

Newest motor generation for maximum power at **minimum noise level - below 50 db**

The **intuitive touch-panel** made of glass for easy operation

Sealed housing, which complies with the high protection class IP 54, guarantees longevity and maintenance-free **24-hour operation** in an aggressive environment

Unique Quick-Chuck for immediate and convenient "one-hand" impeller changing - **without tools**

Free Hei-Control software for all Hei-TORQUE Precision models to **automate and to save** all process parameters

An overtemperature sensor **prevents heat-up situations** particularly valuable in unattended continuous operation

Increased safety with individual performance control:
Set the **intensity of the starting operation**, the maximum **rotational speed,** and the maximum **torque limit** according to your application

The sealed panel made of glass **increases the tightness** of the entire housing

Safe start and stop of operation via slide touch panel to avoid unintended stirring

USB and standard RS 232 interface for documentation and reproducibility

Reduce process times by utilizing unique VISCO JET® impellers for **mixing gels** and other challenging media **with ease**

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Hei-TORQUE Value

These stirrers are ideal for standard stirring tasks. They are designed to mix and disperse media that require non-reproducible results in high-viscosity applications

Indication of torque tendencies to monitor viscosity changes

Digital 2.4" display for ease of operation

Constant speed even under changing loads

Safe start and stop of operation via slide touch panel to avoid unintended stirring

Newest motor generation for maximum power at minimum noise level

Hei-TORQUE Value 400
P/N 501-64010-00

Hei-TORQUE Precision

These stirrers are ideal for demanding tasks which have to be reproducible and documentable. The huge number of additional features and operation modes allow for perfect adjustment to your individual application

Accurate torque indication shows any viscosity changes

Constant speed even under changing loads

Digital 3.2" display for ease of operation:
- Allows for preprogrammed profiles
- Saves these profiles in memory
- Interval operation
- Watch rpm and torque graph life
- Timer / Countdown / Real time settings

All **performance-related parameters** can be set **individually**:
- **Intensity of the start** operation - from slow to fast
- The **rotational speed can be limited** to avoid **splashing media**
- The torque limit **prevents damage to the impeller,** e.g. when using fragile impellers in high viscous media

Safe start and stop of operation via slide touch panel to avoid unintended stirring

Newest motor generation provides maximum power at minimum noise level

RS 232 and USB interface to save all process data in a digital file

USB cable included in scope of delivery, RS 232 available as accessory

RS 232 cable
(9-pole)
for Hei-TORQUE Precision models
P/N 14-007-040-72

Including **free Hei-Control software** for **dependable automation** of all processes. Control up to four devices simultaneously. Also compatible with magnetic stirrers MR Hei-Connect and MR Hei-End of the Hei-PLATE series

Hei-TORQUE Precision 400
P/N 501-64020-00

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Overview

The differentiation between performance and features enables you to easily configure the right stirrer for your specific application

Hei-TORQUE Value

Basic models
The reliable solution for all standard applications that do not need documentation

Hei-TORQUE Precision

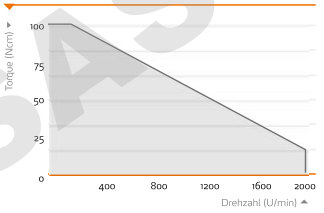
High-end models
The professional stirrer for demanding tasks: several options for individual settings as ramps and interval operation. USB and RS 232 interfaces allow for documentation and reproducibility, e.g. with the free Hei-Control software (for up to four devices)

	100 Ncm	200 Ncm	400 Ncm
High-end models	Hei-TORQUE Precision 100 P/N 501-61020-00	Hei-TORQUE Precision 200 P/N 501-62020-00	Hei-TORQUE Precision 400 P/N 501-64020-00
Basic models	Hei-TORQUE Value 100 P/N 501-61010-00	Hei-TORQUE Value 200 P/N 501-62010-00	Hei-TORQUE Value 400 P/N 501-64010-00

Range of Performance

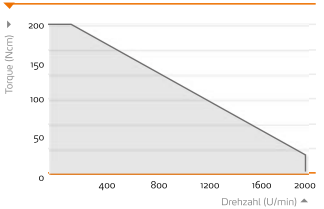
100 Ncm
Performance graph of:

Hei-TORQUE Value 100
Hei-TORQUE Precision 100



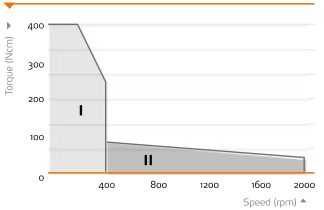
200 Ncm
Performance graph of:

Hei-TORQUE Value 200
Hei-TORQUE Precision 200



400 Ncm
Performance graph of:

Hei-TORQUE Value 400
Hei-TORQUE Precision 400



A two-gear stage design enables different torque ranges for flexible applications with high and low viscous media

Noise Level

Newest motor generation and the complete removal of ventilation slots significantly increase the life-span and ensure stable stirring at clearly reduced noise compared to conventional overhead stirrers

Hei-TORQUE stirrers below 50 db

Other brands above 60 db

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Impellers

Selection parameters

Precise working with an overhead stirrer depends on the right choice of the stirrer tool. When choosing a stirrer tool you have to consider its different characteristics and their effects. For example, the flow which the tool causes in the medium, the tool´s adequate field of application depending on the speed range, and the execution of the tool according to the viscosity it is destined for

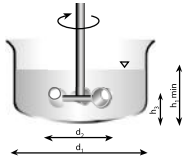
Application examples:
- Gassing of liquids < 500 mPa s: Radial Flow Impeller
- Homogenizing and suspending in liquids < 500 mPa s: Propeller-Type or Blade Impeller
- Medium with a viscosity > 500 mPa s: Anchor-Type Impeller, Blade Impeller BR 13, VISCO JET®
- Stirring of gel: VISCO JET®

Please ensure that for radial flow, blade, half-moon and VISCO JET® impellers the beaker size and position of your impeller complies with the shown guideline to achieve superior mixing results

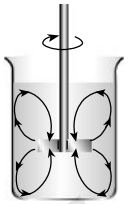
Operational guidelines

Position of the stirring tool
- In center
- Distance to the bottom (h_3/d_2): 0.3
- Diameter vessel (h_1/d_1)=1
- VISCO JET® diameter ratio (d_2/d_1): 0.4 - 0.6

Circumferential speed
- 3 - 15 m/sec: Radial Flow Impeller
- 2 - 5 m/sec: VISCO JET®, Blade and Anchor-Type Impeller



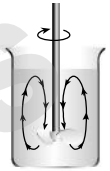
Blade and Half-Moon Impeller



- These impellers are recommended for applications which require average speed
- For mixing tasks with little or average viscosity
- Models BR 12, BR 14 and HR 18 come with collapsible blade for narrow neck vessels

	Type	Blade size [mm]	Material	Length [mm]	Shaft dia. [mm]	Max. rpm	P/N
	BR 10 Cross-Blade Impeller	50 x 12	stainless steel AISI 316Ti	400	8	2,000	509-10000-00
	BR 11 Straight-Blade Impeller	50 x 12	stainless steel AISI 316Ti	400	8	2,000	509-11000-00
	BR 12 Pivoting-Blade Impeller	60 x 15	stainless steel AISI 316Ti	400	8	2,000	509-12000-00
	BR 13 Square-Blade Impeller	70 x 70	stainless steel AISI 316Ti	450	8	800	509-13000-00
	BR 14 Collapsible-Blade Impeller	90 x 10	stainless steel AISI 316Ti	400	8	800	509-14000-00
	HR 18 Half-Moon Impeller	65 x 18 x 3	PTFE	350	8	800	509-18000-00

Propeller-Type Impeller



- These impellers are recommended for applications which require average or high speed
- For mixing tasks with medium or high viscosity
- Excellent mixing properties for homogenization and suspensions
- These models create an axial flow

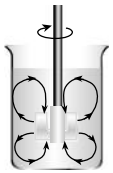
	Type	Prop. dia. [mm]	Material	Length [mm]	Shaft dia. [mm]	Max. rpm	P/N
	PR 39 Pitched-Blade Impeller	75	PTFE	350	8	800	509-39000-00
	PR 30 Pitched-Blade Impeller	58	stainless steel AISI 316Ti	400	8	2,000	509-30000-00
	PR 31 Ringed Propeller PR 32 Ringed Propeller PR 33 Ringed Propeller	33 45 66	stainless steel AISI 316Ti	400 400 400	8 8 8	2,000 2,000 800	509-31000-00 509-32000-00 509-33000-00

Radial-Flow Impeller

- These impellers are recommended for applications which require average speed
- For mixing tasks with little or average viscosity up to < 500 mPa s
- Ideal for gassing of liquids
- These impellers create a radial flow

	Type	Ø Turbine size [mm]	Material	Length [mm]	Shaft dia. [mm]	Max. rpm	P/N
	TR 20 Radial-Flow Impeller	28	stainless steel AISI 316Ti	400	8	2,000	509-20000-00
	TR 21 Radial-Flow Impeller	50	stainless steel AISI 316Ti	400	8	2,000	509-21000-00

Anchor-Type Impeller



- These impellers are recommended for applications which require a low speed
- For mixing tasks with medium or high viscosity

	Type	Blade size [mm]	Material	Length [mm]	Shaft dia. [mm]	Max. rpm	P/N
	AR 19 Anchor-Type Impeller	60 x 40 x 5	PTFE	350	8	800	509-19000-00

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VISCO JET® Impellers

The all-rounder for thick and thin

- **Reduce your process times** significantly while performing the best mixing results ever
- **One system for literally all mixing tasks** for low to high-viscosity media
- **The turbulent flow** which is created by a special cone principle even at low speeds is **unique to the VISCO JET®**
- Even with high-viscosity media and gels which naturally do not mix when common impellers are used you will observe an immediate flow through the entire beaker
- This technology allows for **de-gassing of gels** while preventing air intake and foaming

Type	Ø [mm]	Material	Length [mm]	Shaft dia. [mm]	Speed range [rpm]	For vessel dia. [mm]	P/N
VISCO JET® - 60*	60	stainless steel AISI 316Ti	500	10	200 – 800	80 – 150	509-16060-00
VISCO JET® - 80*	80	stainless steel AISI 316Ti	500	10	200 – 700	115 – 200	509-16080-00
VISCO JET® - 80*	80	impeller: plastic (POM) hub: brass shaft: polyamide-coated	500	10	200 – 700	115 – 200	509-16081-00
VISCO JET® - 120*	120	stainless steel AISI 316Ti	500	10	120 – 500	170 – 300	509-16120-00
VISCO JET® - 120*	120	impeller: plastic (POM) hub: brass shaft: polyamide-coated	500	10	120 – 500	170 – 300	509-16121-00
VISCO JET® CRACK - 80*	80	stainless steel AISI 316Ti	500	10	200 – 700	115 – 200	509-17080-00
VISCO JET® CRACK - 120*	120	stainless steel AISI 316Ti	500	10	120 – 500	170 – 300	509-17120-00

* A shaft is included as a standard

VISCO JET® - CRACK - 120 mm
stainless steel

VISCO JET® - 60 mm
stainless steel

VISCO JET® - 80 mm
plastic (POM)

VISCO JET® - 120 mm
stainless steel

Application examples

The only impeller world wide capable of completely mixing larger quantities of high-viscosity liquids and gels

Fields of use:
Beverage production, dairy products, food, sugar & candy production, chemistry/petro chemistry, ceramics, water treatment, cosmetics, colorant/paint production and paper manufacture, etc.

Principle of functionality

The VISCO JET® Mixing System from VISCO JET Rührsysteme GmbH is the result of the so-called cone principle.

Turbulent flows are created at the taper end by acceleration, displacement and retardation. These flows advance through the stirred medium and result in the new dynamic mixing motion

Accessories

Universal stand S2
P/N 570-12000-00

- Stand tube Ø: 25 mm
- Length: 700 mm
- Weight: 5.8 kg

Stand S2 XXL
P/N 570-12200-00

- Stand tube Ø: 25 mm
- Length: 1,000 mm
- Weight: 6.0 kg

Telescope stand
P/N 570-12100-00

- Stand tube Ø: 32 mm
- Adjustable length: 725 - 1,025 mm
- Weight: 7.7 kg

Clamp
P/N 570-22000-00

- For stand S2, S2 XXL and telescope stand
- Ø 13-32 mm

Flex coupling
P/N 509-03000-00

- Includes clamping stud for stirrer shaft
- Accepts Ø 10 mm shafts

Flexible shaft
P/N 509-07000-00

- Supplied with chuck

Stirrer guide (NS 29/32)
P/N 509-09000-00

- PTFE with adjustable seal
- Accepts Ø 8 mm shafts

Shaft guard
P/N 509-08100-00

- Material: PMMA
- Incl. adapter set
- Adjusts between 187 mm and 312 mm

Shaft guard adapter set
P/N 11-002-501-02

- For attaching an existing shaft guard to a Hei-TORQUE stirrer

RS 232 cable (9-pole)
For Hei-TORQUE Precision models
P/N 14-007-040-72

RZR 1

RZR 1
P/N 501-11000-00

For simple mixing tasks
For media up to 40,000 mPa s and volumes up to 20 liters

The RZR 1 is suitable for torque up to 100 Ncm at a power of 18 W

Slim design fits nicely into your research environment

A manual scale for speed adjustments from 35 - 2,200 rpm

A two-gear stage design allows for high torque at various speeds and provides excellent mixing in short times

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Technical Specifications - Overhead Stirrers

Model	RZR 1	Hei-TORQUE Value 100	Hei-TORQUE Value 200	Hei-TORQUE Value 400	Hei-TORQUE Precision 100	Hei-TORQUE Precision 200	Hei-TORQUE Precision 400
P/N (230 V)	501-11000-00	501-61010-00	501-62010-00	501-64010-00	501-61020-00	501-62020-00	501-64020-00
Power rating, motor input/output (W)	77/18	90/50	120/80	150/90	90/50	120/80	150/90
Number of speed gears	2	1	1	2	1	1	2
Speed range (rpm)	35 – 250 280 – 2,200	10 – 2,000	10 – 2,000	10 - 400 20 – 2,000	10 – 2,000	10 – 2,000	10 - 400 20 - 2,000
Speed indicator	scale	digital monochrom 2.4"	digital monochrom 2.4"	digital monochrom 2.4"	digital color 3.2"	digital color 3.2"	digital color 3.2"
Speed control	mechanic	electronic	electronic	electronic	electronic	electronic	electronic
Torque, maximum (Ncm)	100	100	200	400	100	200	400
Torque indicator	–	symbol	symbol	symbol	precise value	precise value	precise value
Overheat protection	automatic cut-out	automatic cut-out	automatic cut-out	automatic cut-out	automatic cut-out	automatic cut-out	automatic cut-out
Motor protection	temperature control software	temperature control software	temperature control software	temperature control software	temperature control software	temperature control software	temperature control software
Viscosity, max. (mPa s)	40,000	60,000	100,000	250,000	60,000	100,000	250,000
Stirring cap. (H_2O), max. (l)	20	50	50	100	50	50	100
Analog / digital interface	–	–	–	–	USB and RS 232	USB and RS 232	USB and RS 232
Admissible session	continuous operation	continuous operation	continuous operation	continuous operation	continuous operation	continuous operation	continuous operation
Counter/Timer	–	–	–	–	yes	yes	yes
Shaft diameter, max. (mm)	8	10.5	10.5	10.5	10.5	10.5	10.5
Permissible ambient conditions	5 – 31 °C at 80 % rel. humidity 32 – 40 °C decreasing linearly up to max. 50 % rel. humidity	5 – 31 °C at 80 % rel. humidity 32 – 40 °C decreasing linearly up to max. 50 % rel. humidity	5 – 31 °C at 80 % rel. humidity 32 – 40 °C decreasing linearly up to max. 50 % rel. humidity	5 – 31 °C at 80 % rel. humidity 32 – 40 °C decreasing linearly up to max. 50 % rel. humidity	5 – 31 °C at 80 % rel. humidity 32 – 40 °C decreasing linearly up to max. 50 % rel. humidity	5 – 31 °C at 80 % rel. humidity 32 – 40 °C decreasing linearly up to max. 50 % rel. humidity	5 – 31 °C at 80 % rel. humidity 32 – 40 °C decreasing linearly up to max. 50 % rel. humidity
Dimensions (wxhxd) (mm)	71 x 250 x 172	86 X 350 X 247	86 X 350 X 247	93 X 350 X 247	86 X 350 X 247	86 X 350 X 247	93 X 350 X 247
Stay bar size (dia. x l) (mm)	13 x 300	13 x 160	13 x 160	13 x 160	13 x 160	13 x 160	13 x 160
Weight (kg)	2.7	4.4	5.1	5.3	4.4	5.1	5.3
Protection class (DIN EN 60529)	IP 20	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54

Standard supply voltage: 230 V - other voltages upon request, please specify for order

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Certificate

To confirm the ability for

continuous operation

of the Hei-TORQUE series Overhead Stirrers

The Hei-TORQUE series Overhead Stirrers feature overtemperature safety circuits according to DIN EN 61010-1:2001 and DIN EN 61010-2-051:2015 and therefore is designed for continuous operation.

This statement is made under the precondition that all units are operated in accordance with the operation manual and in accordance with good practice standards for safety in laboratories, rules for accident preventions, and compliance with directions on hazardous materials.

Schwabach, January 2017

Stefan Peters
Research and Development Manager

Marcell Sarré
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