

Solutions for Fluid Technology



FLOW MEASUREMENT TECHNOLOGY
HIGH PRECISION FLOW METERS AND ACCESSORIES



PRODUCT OVERVIEW

4

**HELICAL SCREW
FLOW METER RS**

5

**GEAR FLOW METER
VS**

6

**PREAMPLIFIER
VSI**

7

**GEAR FLOW METER
VHM**

8

**GEAR FLOW METER
VSE EF ECOFLOW**

9

**TURBINE FLOW METER
VTR**

10

SPECIAL OPTIONS

11

ACCESSORIES

FLOW MEASUREMENT TECHNOLOGY



PRECISE FLOW MEASUREMENT TECHNOLOGY

VSE stands for high precision flow measurement technology. We develop and produce flow meters for virtually all pumpable media and the corresponding evaluation electronics. Since 1989 we have been part of the Echterhage Group.

CLIENT REQUIREMENTS OPTIMALLY IMPLEMENTED

Whether for water or highly viscous adhesive media with filler material, our in-house development and design department produces technically sophisticated flow meters. The majority of our output is tailored to customer requirements, thereby putting handcraft back into industry. We can utilise modular systems that are adjusted in line with the technical specifications for each individual order. This means that the product is carefully optimised for the needs of the customer.

SYSTEM SOLUTIONS WITHIN THE GROUP

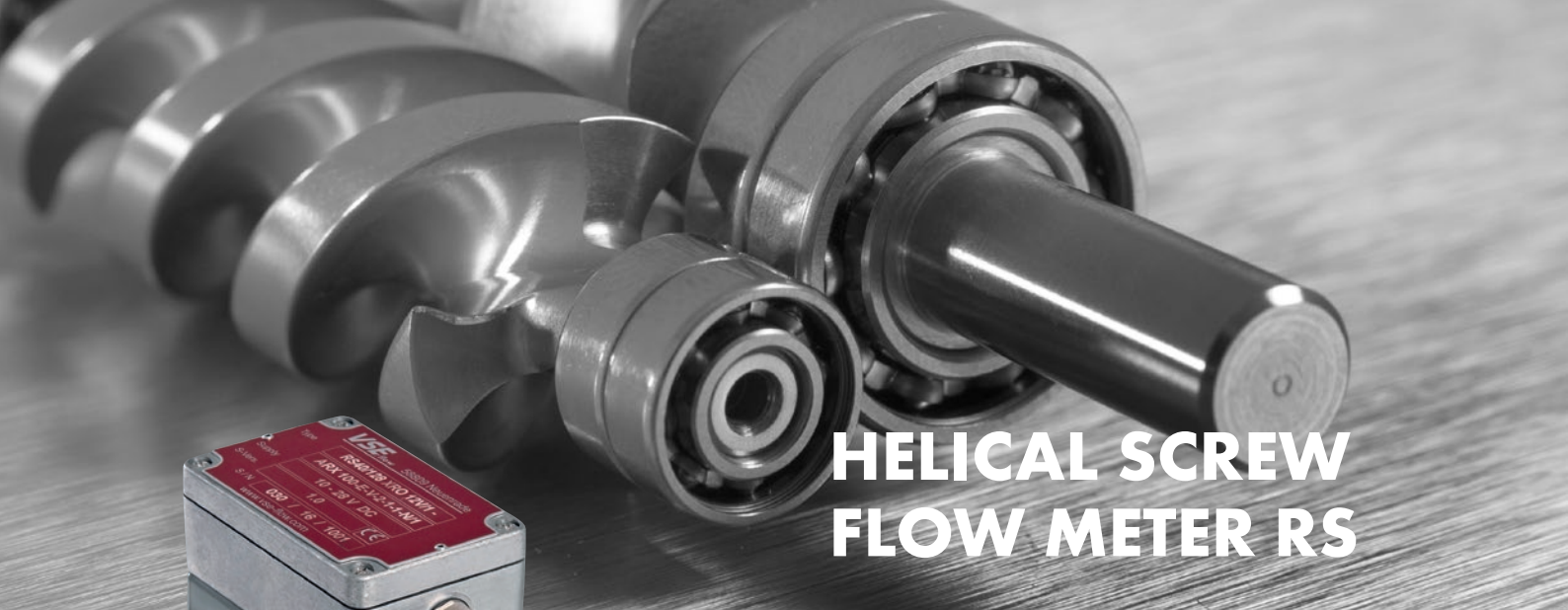
Within the Echterhage group, we work closely with our affiliated companies DST Dauermagnet-System Technik GmbH, HBE GmbH, Beinlich Pumpen GmbH and Oleotec S.r.l. This leads to synergies, with which we can realise complex solutions more efficiently, allowing us to provide customers with complete systems from a single source.

DIVERSE APPLICATION AREAS

VSE flow meters are used primarily where it is critical to have the most accurate measurements possible. Our flow measurement technology is used worldwide in high-tech processing plants in the plastics, polyurethane, chemical, pharmaceutical, paint and varnish, hydraulic and automobile industries, as well as in 2-component technology.

WORLDWIDE SERVICE

In order to provide a complete service, we have our own sales offices in Italy, France, Great Britain, USA, China and India. Other service partners worldwide also provide customers in all key industrial countries with the necessary know-how and specific applications expertise. Our employees and partners are continuously trained to maintain our high-quality standards.



HELICAL SCREW FLOW METER RS



The RS helical screw flow meters measure the flow rate based on the screw pump principle. The measurement of the volume flow with the RS innovative rotor profiles offers significant benefits such as a low-resistance, highly precise and pulsation-free measurement with minimal shear, lowest pressure losses as well as highest functionality based on intelligent sensor technology. Whether with low viscosity oil or with thick resin, the RS flow meters are the ultimate solution for precision flow measurement. With countless of possible options for size bearings, tolerances, materials, coatings, electronics and resolution, there is an option to suit even the most demanding applications.

OPERATING CONDITIONS

FLOW RANGE

0 up to 3,000 l/min

TEMPERATURE

-30°C up to +120°C
-40°C up to +210°C with HT sensor system

VISCOSITY

1 up to 1,000,000 cSt

PRESSURE

up to 450 bar

FREQUENCY

up to 100 kHz

ACCURACY

± 0.5 % of measured value at viscosity > 21 cSt

Size	Measurement range (Q _{max.}) l/min.	RV ccm/rev	K-factor* Imp./l	Pressure max. bar
RS 40	0.04 - 40 (50)		8.37 3,226 - 413,000	450
RS 100	0.50 - 100 (120)		15.7 1,720 - 220,000	450
RS 400	1.00 - 400 (525)		56.6 318 - 40,800	450
RS 800	4.00 - 800 (1,000)		180.0 100 - 12,800	450
RS 2500	10.00 - 2,500 (3,000)		666.0 27 - 3,459	40

* adjustable



GEAR FLOW METER VS



The VS flow meters measure the volume flow of liquids according to the meshing gear principle. Two matched gear wheels are precisely fitted in the housing. The rotation of the measuring unit is detected tooth-by-tooth by a non-contact signal pick-up system and is converted into digital pulses. The precise VS gear flow meters offer unrivaled performance, linearity and resolution for most accurate measurement of clean viscous liquids. They are ATEX certified and FM approved and available in cast iron or stainless steel.

OPERATING CONDITIONS

FLOW RANGE

0.002 up to 525 l/min

TEMPERATURE

-40°C up to +210°C

VISCOSITY

1 up to 1,000,000 cSt

PRESSURE

up to 450 bar

FREQUENCY

up to 1,666.7 Hz

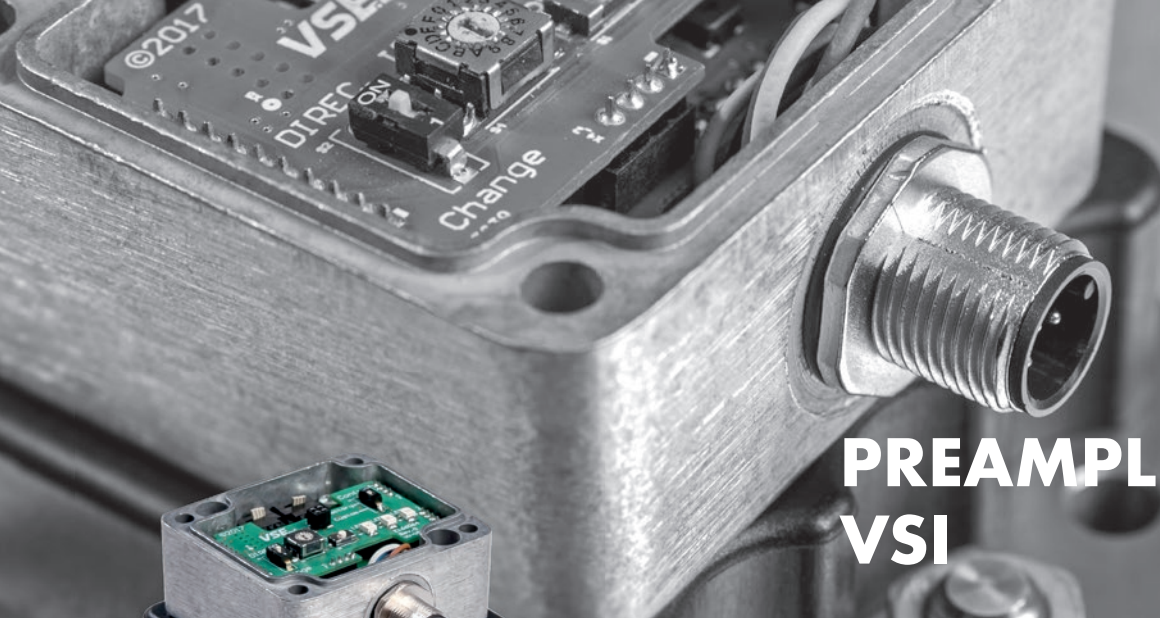
ACCURACY

± 0.3% of measured value
at viscosity > 20 cSt

Size	Flow range* l/min.	K-factor** Imp./l	Pressure max. bar
VS 0.02	0.002 - 2	50,000 - 800,000	450
VS 0.04	0.004 - 4	25,000 - 400,000	450
VS 0.1	0.01 - 10	10,000 - 160,000	450
VS 0.2	0.02 - 18	5,000 - 80,000	450
VS 0.4	0.03 - 40	2,500 - 40,000	450
VS 1	0.05 - 80	1,000 - 16,000	450
VS 2	0.1 - 120	500 - 8,000	450
VS 4	1 - 250	250 - 4,000	450
VS 10	1.5 - 525	300 - 4,800	450

*at 21 cSt

**adjustable



PREAMPLIFIER VSI



For precise and accurate flow and volume measurements with a resolution as high as possible, VSE has developed the optional VSI preamplifier. The integrated electronics of the VSI produces greatly improved signal quality with harmonic pulse widths. This means that more consistent and vibration-free measurements can be achieved. In addition, the interpolation factor has been increased by two IPF factors (24 and 32). The replaceable system means that existing systems can be easily upgraded or expanded and standardised. An integrated embedded system permits greater flexibility, meaning that individual custom solutions can also be realised.

OPERATING CONDITIONS

FLOW RANGE

0.002 up to 525 l/min

TEMPERATURE

-40°C up to +120°C

VISCOSITY

1 up to 1,000,000 cSt

PRESSURE

up to 450 bar

FREQUENCY

up to 50 kHz

ACCURACY

± 0.3% of measured value
at viscosity > 21 cSt

Size	Flow range* l/min.	K-factor** Imp./l	Pressure max. bar
VSI 0.02	0.002 - 2	50,000 - 1,600,000	450
VSI 0.04	0.004 - 4	25,000 - 800,000	450
VSI 0.1	0.01 - 10	10,000 - 320,000	450
VSI 0.2	0.02 - 18	5,000 - 160,000	450
VSI 0.4	0.03 - 40	2,500 - 80,000	450
VSI 1	0.05 - 80	1,000 - 32,000	450
VSI 2	0.1 - 120	500 - 16,000	450
VSI 4	1 - 250	250 - 8,000	450
VSI 10	1.5 - 525	300 - 9,600	450

*at 21 cSt

** adjustable



GEAR FLOW METER VHM



The VHM positive displacement gear flow meters are based on the meshing gear principle and are suitable for a wide variety of liquids, especially liquids with high abrasiveness and poor lubricity. Each tooth generates an impulse by recognition of the gear rotation by a non-contact detection system according to the carrier frequency principle. The VHM flow meters are available with single, double or quadruple resolution and signal-output with NPN- or PNP-switching mode. They are dead spaced optimised for (easy flushing) use in the paint industry and for paint spraying systems. Additionally, the flow meters are ATEX certified and FM approved.

OPERATING CONDITIONS

FLOW RANGE

0.01 up to 20 l/min

TEMPERATURE

-20°C up to +120°C

VISCOSITY

1 up to 20,000 cSt

PRESSURE

up to 250 bar

FREQUENCY

up to 1,000 Hz

ACCURACY

± 0.5% of measured value
at viscosity >10 cSt
± 1% of measured value
at viscosity <10 cSt

Size	Flow range l/min.	K-factor Imp./l	Pressure max. bar
VHM 01-2	0.01 - 1		250
VHM 02-1	0.05 - 2	8,800	250
VHM 02-2	0.10 - 4	4,400	250
VHM 02-3	0.40 - 8	2,200	250
VHM 03-2	0.50 - 20	1,000	250



GEAR FLOW METER VSE EF ECOFLOW



The VSE EF ecoflow has been developed as a cost-effective and lightweight alternative to the VS volume sensor. The VSE EF ecoflow aluminium flow meter uses the same gearwheel pairs as in the VS. The flow meters work in accordance with the same displacement principle as the VS, and measure viscous media as an inline device. The flow meters are ideal for low pressure hydraulics, lubrication systems, spray coatings, and with the high temperature option, also for hotmelt.

OPERATING CONDITIONS

FLOW RANGE

0.05 up to 150 l/min

TEMPERATURE

-0°C up to +80°C

VISCOSITY

1 up to 10,000 cSt

PRESSURE

up to 200 bar

FREQUENCY

up to 1,666.7 Hz

ACCURACY

± 2% of measured value
at viscosity 21 cSt

Size	Flow range l/min.	K-factor Imp./l	Pressure max. bar
EF 0.04	0.05 - 4	25,000	200
EF 0.1	0.1 - 10	10,000	200
EF 0.4	0.2 - 30	2,500	200
EF 2	0.5 - 70	500	200
EF 4	3.0 - 150	250	200

TURBINE FLOW METER VTR



The VTR turbine flow meters are precise and reliable measuring equipment, designed for varied applications. The basic system in the VTR series comprises a rotor, the housing body and a measurement pick-up. Thanks to the specific internal diameter, the speed of the turbines is directly proportional to the flow. VTR flow meters can be installed even under the harshest application conditions including oil, petrochemical and chemical industries as well as other industrial sectors. All VTR flow meters are individually calibrated.

OPERATING CONDITIONS

FLOW RANGE

110 l/h up to 4,500 m³/h

TEMPERATURE

-40°C up to +120°C

VISCOSITY

1 up to 5 cSt

PRESSURE

up to 250 bar

FREQUENCY

up to 1,300 Hz

ACCURACY

± 0.5%

Size	Flow range l/min.	K-factor Imp./l	Pressure max. bar
VTR 1010	1.8 - 18	3,000	250
VTR 1015-S	3.6 - 36	1,700	250
VTR 1015	6.7 - 67	1,100	250
VTR 1020	13 - 130	400	250
VTR 1025	27 - 270	190	250
VTR 1040	57 - 570	60	250
VTR 1050	113 - 1,130	24	250

*threaded connections

Further sizes are available on request

SPECIAL OPTIONS



2-component measurement

Within the shortest development times, VSE designs customer-specific flow meters with high-precision results. We develop solutions with all common materials like steel, stainless steel, titanium, aluminium and bronze. During all stages of planning and production, we work closely with the customer.

In close cooperation with our affiliated companies DST and Beinlich we can offer complete systems with pump and permanent magnetic coupling according to the customer's individual requirements and thus achieve optimal performance for our clients.



Hotmelt monitoring



Foaming agent control



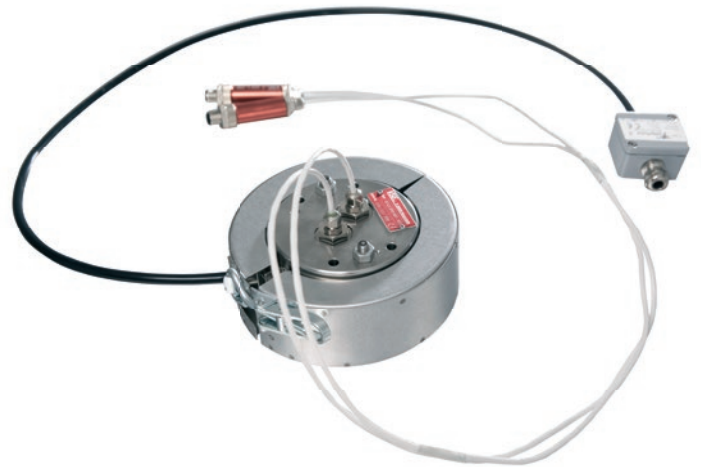
Additive dosing

ACCESSORIES



Powershift ball valve

VSE offers a comprehensive programme of accessories. This includes product-specific fastening elements, heating and insulating materials, as well as connection blocks, also with integrated shut-off devices. VSE additionally offers test points and hoses for pressure check in hydraulic systems. Corresponding transport systems for storage or dispatch of flow meters for repair and calibration are also available.



Heating and insulating materials



Transportation cases



Test points



VSE.flow®

VSE Volumentechnik GmbH
Hönnestraße 49
58809 Neuenrade / Germany

Phone +49 (0) 23 94 / 616-30

Fax +49 (0) 23 94 / 616-33

info@vse-flow.com

www.vse-flow.com



e.holding
FLUID TECHNOLOGY GROUP

www.e-holding.de