

Ritmo[®] 30

The robustness and intelligence of metering with flexible mounting options, extremely wide setting range and intelligent pressure sensor

Ritmo[®] - 030 metering pumps are specialized, high-precision metering pumps for laboratory and process optimization, for drinking and waste water treatment and for all possible tasks of industrial applications.

Available in **9 sizes** of 40 µl /min to 500 ml /min, back pressures up to 16 bar and an extremely wide setting range up to 1:3000.

Versatile capabilities and highest chemical resistance by **application-specific material equipment** with PP, PVC, PVDF, PTFE and stainless steel pump heads.

In the full PTFE design suitable for almost all **aggressive fluids**, acids, alkalis or solvents, for high purity processes and metal-free applications.

For dosing in the pharmaceutical, food and beverage industry used in absolute product purity and with **FDA / BGVO compliance**.

Easy handling by adjustment-/click wheel, intuitive user interface and direct entry and display of dosing rate in µl / min or ml / min.

Colourful display of dosing status and error conditions via large LC-display.

With **versatile functions** available for continuous dosing, batch dosing, pulse-controlled dosing and timer functions, quick exhaust and pressure sensors.

Intelligent stepper motor technology with full suction stroke and control the ejection velocity for constant, **low-pulsation metering**.

Maximum installation flexibility with **universal mounting plate** with click function for quick installation or exchange of the pump.

Rotating the control cube for different installation situations in production, metering or pilot plants..

Process and **automation-capable interface configurations** for versatile processes (analogue interface 4-20 mA, readable analog interface, impulse control, level control, Profibus-connection)



Metering pumps – exactly matching your needs

- Metering pumps in full-PTFE-design
- Metering pumps in PP, PVDF, PVC, stainless steel
- Metering pumps with pressure monitoring
- Metering pumps with dosing errors compensation
- Metering pumps with heated and cooled pump head
- Batch- and filling pumps
- Process diaphragm pumps up to 940 l/h
- Piston diaphragm pumps up to 200 bar
- Double-piston diaphragm pump with 2 pump heads
- Motor pumps in Ex-Design
- pH-controlled pumps
- wide range of accessories

Ritmo[®] 30
Metering pumps from
40 µl/min - 500 ml/min



Optional Equipment...

... with heatable pump heads, pressure and diaphragm monitoring, integrated flow measurement and pump internal adjustment of the volume flow to the operating conditions.

Ritmo® 30 - EK with thermally decoupled pump head

In **version EK** the pump head will be thermally decoupled from the pump housing.

For dosing of hot, non-crystallizing liquids up to 150° C.

up to 150° C

Version
R033 - EK

Ritmo® 30 - EH with electrical heated pump head

In **version EH** a thermally decoupled pump head is equipped with an electric heating mantle.

The pressure maintenance valve can be integrated with another heating mantle in the heating.

For dosing crystallization endangered fluids and viscous fluids up to 150° C.

up to 150° C

Version
R030 - EH

Ritmo® 30 - TH with temperature controllable pump head

In **version TH** the pump head is equipped with a heating / cooling element for heat transfer oil or coolant and an insulation cover.

For dosing of melts or fluids with low boiling point.

-10 to 150° C

Version
R030 - TH

Ritmo® 30 - DM with diaphragm monitoring

In **version DM** the working space between pump head and pump housing is monitored by using pressure sensors in a large-volume intermediate chamber.

The lock diaphragm in chemically resistance full-PTFE design prevents the penetration of the chemical into the pump housing when working diaphragm is breaking.

For dosing liquids with high vapor pressure and with maximum safety relevance.

Version
R030 - DM

Ritmo® 30 - DHV with integrated pressure retention valve

In **version DHV** the functionality of the metering pump is supported by a pressure retention valve in full-PTFE and with adaptation to the pump head.

For dosing at fluctuating back pressures, with unpressurized application or hydrostatic differences between suction and pressure side.

Version
R030 - DHV





Version R033 - FC

Ritmo® 33 - FC

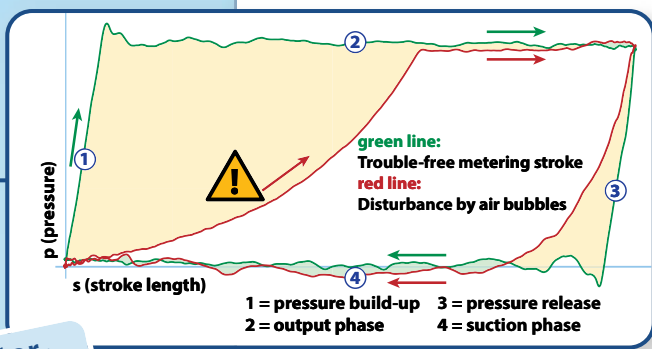
with integrated pressure sensor in the pump head for maximum process reliability

Integrated in the pump head a **pressure sensor** detects the current pressure in the pump chamber and turns off the pump if it is above / or below a predetermined limit.
In danger of pressure build-up in the reaction tank or dosing line or closed valve or pressure drop / leakage in the pressure line.

Ritmo® 33 - FCM

with integrated flow measurement in pump electronic

The integrated flow control function is based on a stored indicator diagram in the controller. From pressure stroke and associated stroke rate the current volume flow is calculated and displayed on the LC-Display. Disturbances in a metering process (e.g. air bubbles) can be recognised without additional external flow measurement



Indicator-diagram

Integrated Intelligent Flow Control Adjustment

The **Flow Control Adjustment FCM** automatically responds to changing operating conditions and adjusts the detected metering rate to the target metering rate.
 The FCM equipment replaces an additional, external flow measurement and -control and saves investment and installation costs.

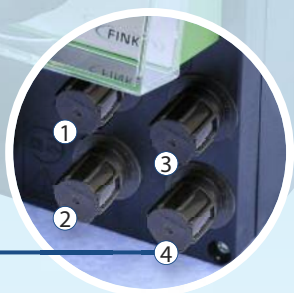
Ritmo® 33 - E-Box

with upgradable network communication



Ritmo 033 E-Box

Profibus communication box for the integration of the pump series R033 in complex Profibus-DP networks. Easy installation by plug & play between pump and sub plate and retrofitted at any time.
 For remote control of all setting parameters and remote monitoring of all set values and recorded fault causes.



- interfaces:**
- ① Analogue 0/4-20 mA/Ext. Star /Stop
 - ② level monitoring
 - ③ Relay output
 - ④ Analogue output/connection E-Box

Specifications:

pump type	R 031/...		R032/...			R033/...			
	6-10	15-4	6-10	9-7	15-4	7-16	12-10	17-7	30-4
max. metering capacity (l/h)	6,0	15,0	6,0	9,0	15	7,5	12,0	17,0	30,0
max. metering capacity (l/h) *			3,0	4,5	7,5	3,75	6,0	8,5	15,0
min. metering capacity (ml/h)	6,0	15,0	6,0	9,0	15,0	2,5	12,0	17,0	30,0
max. pressure outlet (bar)	10,0	4,0	10,0	7,0	4,0	16,0 **	10,0	7,0	4,0
max. pressure inlet (bar)	2	2	2	2	2	2	2	2	2
min. pressure difference (bar)	1	1	1	1	1	1	1	1	1
max. stroke freq. (stroke/min)	140	180	140	200	180	190	155	205	180
stroke volume (ml)	0,81	1,58	0,81	0,84	1,58	0,74	1,45	1,55	3,10
min. stroke duration (sec.)	0,428	0,333	0,428	0,300	0,333	0,316	0,400	0,293	0,333
max. stroke duration (sec.)	486,03	379,19	486,03	336,13	379,19	1065,72	434,99	328,23	372,02
max. suction lift, filled (m)	6	6	6	6	6	6	6	6	6
max. viscosity (mPas) ·	50	50	50	50	50	50	300	300	150
max. viscosity (mPas) **	600	500	600	500	500	600	500	500	200
min. inner- Ø pipe (mm) ***	4	6	4	6	6	4	6	6	9
max. medium temperature	80°C / 150°C (176°F/302°F)								
heating pump head	150°C (302°F)								
ambient temperature	45°C (113°F)								
material pump head	PP, PVC, PVDF, PTFE, VA 1.4401								
material diaphragm	PTFE								
material valves	ceramics, VA 1.4401, PTFE								
input voltage	100-240 V								
power input	12 W	12 W	14 W	14 W	14 W	18 W	18 W	18 W	18 W
safety class	IP 65								
max. dimensions (LxWxH)	280 x 120 x 196 mm								

The above rated values have been carefully determined with reference fluid.
If other fluids are metered, the above values may differ minimally.

* Max. metering capacity * = with anti cavitation mode 50%
(Suction lift based on measurements made with water)

** Max. operating pressure - in PTFE design max. 10 bar

· Max. viscosity * with reduced max. metering capacity (approx. 30%),
(without a spring-loaded valves in suction 1m)

** Max. viscosity with reduced max. metering capacity (approx. 30%),
(with spring-loaded valves in suction 1m)

*** Min. inside diameter hose / tube, based on water
(Length suction hose 1.5 m, length discharge hose 10 m)



pulsation damper
for smoothing the
dosing rate

Fluid connecting options:

- ① coupling body with adaptation for pressure retention valve
- ② RGLK PTFE connection with clamping and sealing cone
- ③ RRVA stainless steel pipe nipple
- ④ connections with inside thread ¼"G or ¼"NPT
- ⑤ RVA stainless steel screwing
- ⑥ conical hose nozzle with screw cap

