

**Solutions for Fluid Technology**



**PUMP SYSTEMS**  
DOSING + TRANSFER



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External gear pump

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Custom solutions



## SIX DECADES OF PUMP SYSTEMS

Beinlich Pumpen GmbH is an international supplier of dosing and transfer pumps for industrial applications in process plants. Beinlich offers a large selection of high capacity external and internal gear pumps, high pressure radial piston pumps and progressive cavity pumps. Beinlich has technical knowledge from more than 60 years in pump system technology. Both the optimal evaluation of individual customer requirements as well as the close monitoring of markets leads to a continuous development of our products. Beinlich, headquartered in the German city of Gevelsberg, was founded in 1951 and is part of the Echterhage Group.

## CUSTOMER-SPECIFIC DESIGN

In addition to standard pump series, Beinlich also designs innovative and efficient individual system solutions which are realised according to customer requirements for various demanding applications. Beinlich collaborates closely with its customers throughout all stages of planning and production: from the initial enquiry right up to assembly and commissioning. In-house construction, development and production enable short development times and ensure a high level of quality. Working closely with our clients from the initial project development helps us streamline the design, assembly and commissioning processes to follow.

## APPLICATIONS FOR VARIOUS INDUSTRIES

With its high-precision gear pumps, Beinlich is one of the leading suppliers worldwide in adhesive bonding and dosing technology. Complete pump units or individual components manufactured by Beinlich are applied in the chemical, dyes and paints, coatings, oil hydraulics, plastics, food and pharmaceutical industries among others, in two- and multi-component machines as well as in the shipbuilding, aircraft and aerospace construction.

## COMPETENT GLOBAL PARTNERS

We provide personal and competent consultations in all important industrial countries around the world. Long-standing cooperation partners as well as our own distribution and service companies in Italy, France, United Kingdom, USA, India and China, guarantee perfect on-site service, quality support and application expertise. Our employees and partners are constantly trained to ensure the quality standards of Beinlich. Our worldwide clients benefit from our technical know-how and short development and delivery intervals.

## INTEGRATED SYSTEM SOLUTIONS

By cooperating with our partner companies VSE and DST, Beinlich develops integrated system solutions with flow meter and magnetic coupling according to customer request. By offering complete systems at a single source, we are able to achieve optimal performance for our clients.



beinlich pump  
systems

# ZPD

## EXTERNAL GEAR DOSING PUMP



Our most flexible line of external gear pumps, the ZPD has been used in countless applications the world over. The basis of its success stems from a platform of customization that rivals even the most competent competitors. Available in cast iron and stainless steel bodies, the ZPD flaunts 43 displacement sizes, 5 shaft seal options and multiple bearing and wear plate choices. ZPD gear pumps are specifically used for wide flow range metering applications and transfer applications. Volumetric efficiency values of over 90 % are typically achieved.

## OPERATING CONDITIONS

### SPEED

10 - 1,750 rpm  
(Depending on the respective operating conditions)

### PUMP PRINCIPLE

External spur gears

### ROTATION

Clockwise (cw), right  
Counterclockwise (ccw), left

### VISCOSITY

0.8 - 1,000,000 mPa·s  
(Depending on the respective operating conditions)

### DISPLACEMENTS CC/REV

See chart on page 5.

### TEMPERATURE

-20°C up to +150°C (standard version)  
Special designs are available up to 350°C

### PRESSURE

Operating pressure max. 200 bar  
Varies with size and material specification.  
See chart on page 5 for details.

### MATERIALS

316 stainless steel body with 440B wear parts, or cast iron body with hardened steel wear parts.

### COMMON APPLICATIONS

Metering of polyurethanes, isocyanate, polyol, catalyst, additives, silicones, adhesives, oils and diesel fuel

### HIGHLIGHTS

- Low-pulsation and precise dosing of the medium being transferred
- High pressures
- Large flow range
- Multiple construction material options
- Multiple sealing options

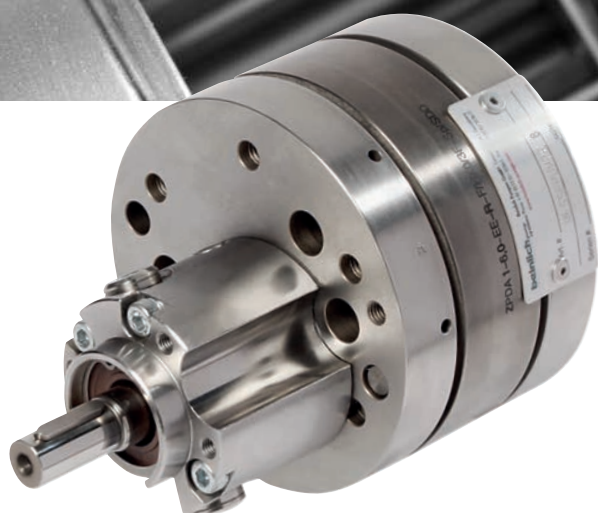
# DISPLACEMENT SIZES & SPECIFICATION

Size	Displacements cc/rev	Operating pressure bar		Flowrate [l/min] at		
		KIS	KIN	1,750 rpm < 200 mPa·s	600 rpm < 2,000 mPa·s	300 rpm < 10,000 mPa·s
1	0.30	180	40	0.53	0.18	0.09
1	0.50			0.88	0.30	0.15
1	0.87			1.52	0.52	0.26
1	1.17			2.05	0.70	0.35
1	1.46			2.56	0.88	0.44
1	1.90			3.33	1.14	0.57
1	2.50			4.38	1.50	0.75
1	3.20			5.60	1.92	0.96
1	3.80			6.65	2.28	1.14
1	5.10			8.93	3.06	1.53
1	7.30	180	40	12.78	4.38	2.19
2	3.90			6.83	2.34	1.17
2	7.80			13.65	4.68	2.34
2	11.80			20.65	7.08	3.54
2	15.70			27.48	9.42	4.71
2	19.60			34.30	11.76	5.88
2	23.60	160	40	41.30	14.16	7.08
3	17.30			30.28	10.38	5.19
3	22.00			38.50	13.20	6.60
3	29.40			51.45	17.64	8.82
3	37.40			65.45	22.44	11.22
3	45.40			79.45	27.24	13.62
3	60.00	140	40	105.00	36.00	18.00
3	72.00			126.00	43.20	21.60
4	44.40	180	40	77.70	26.64	13.32
4	57.90			101.33	34.74	17.37
4	74.50			130.38	44.70	22.35
4	89.30			156.28	53.58	26.79
4	110.00			192.50	66.00	33.00
4	131.00			229.25	78.60	39.30
4	149.00			260.75	89.40	44.70
4	166.80			291.90	100.08	50.04
4	184.60	120	40	323.05	110.76	55.38
4	223.00			390.25	133.80	66.90
4	236.00			413.00	141.60	70.80
4	280.00			490.00	168.00	84.00
4	316.00			553.00	189.60	94.80
4	354.00			619.50	212.40	106.20
4	400.00	50	40	700.00	240.00	120.00
4	434.00			759.50	260.40	130.20
4	472.00			826.00	283.20	141.60
4	517.00			904.75	310.20	155.10

Sizes up to 2,600 cc/rev available on request.

# ZPDA

## EXTERNAL GEAR DOSING PUMP



The high-precision ZPDA dosing pumps are specifically designed for start stop dosing. The low pulsation gear design provides a constant flow with very rapid pressure build-up. Internal clearances based on fluid viscosities are held within a few microns to insure the highest efficiency possible, even at high differential pressures up to 200 bar. Depending on the application, DLC coatings are available for the wetted parts to provide additional corrosive resistance and abrasive particle resistance as well. Direct mounting of a VSE flow meter on the rear plate is also available for closed loop control.

## OPERATING CONDITIONS

### SPEED

1 – 200 rpm  
(Depending on the respective operating conditions)

### PUMP PRINCIPLE

Low pulsation external spur gears

### ROTATION

Clockwise (cw), right

### VISCOSITY

1 – 1,000,000 mPa·s  
(Depending on the respective operating conditions)

### DISPLACEMENTS CC/REV

ZPDA 1: 0.1 / 0.3 / 0.6 / 1.2 / 1.8 / 2.4 / 3.0 / 4.8 / 6.0  
ZPDA 2: 6.0 / 10.0 / 12.0 / 16.0 / 20.0 / 22.0 / 26.0

### TEMPERATURE

-20°C up to +150°C (standard version)  
Special designs are available for deviating temperatures.

### PRESSURE

Operating pressure max. 200 bar

### MATERIALS

440B stainless steel

### COMMON APPLICATIONS

Dosing of polyurethanes, isocyanate, polyol, catalyst, additives, silicones, fuels, adhesives, oils, hotmelts, paints and ink

### HIGHLIGHTS

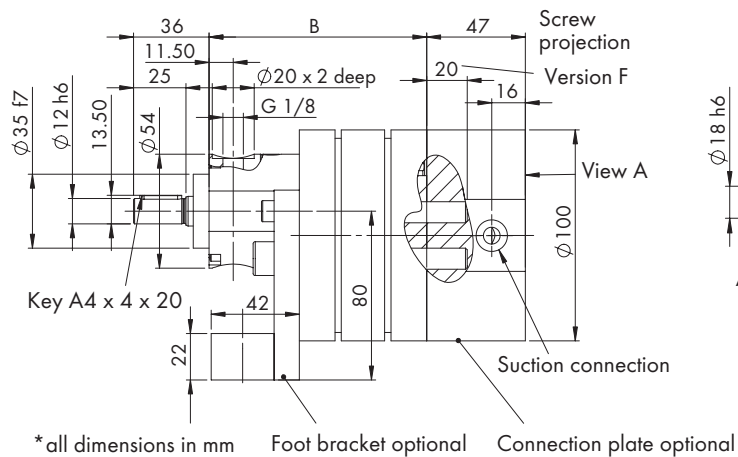
- Low-pulsation and precise dosing of the medium being transferred
- High-precision "start-stop dosing"
- Rapid pressure build-up
- Option for direct mounting of VSE flow meter
- Corrosion/wear resistant coatings

# DISPLACEMENT SIZES & SPECIFICATION

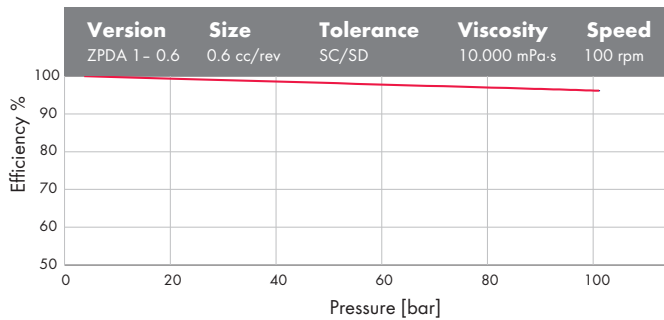
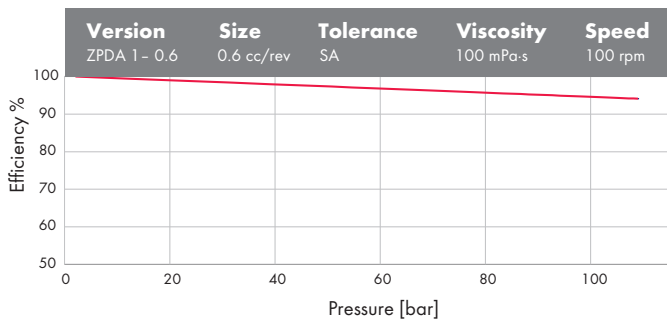
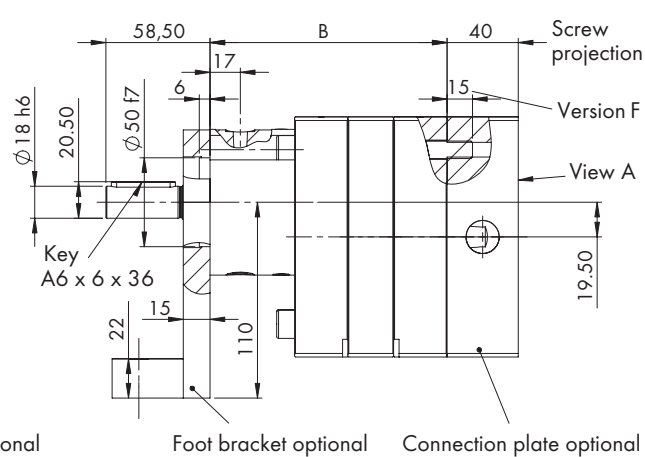
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Size	Displacements cc/rev	Flowrate [l/min] at		Operating pressure max. bar	Dimension "B" mm
		1 rpm	200 rpm		
1	0.1	0.0001	0.02	200	85.10
1	0.3	0.0003	0.06	200	89.30
1	0.6	0.0006	0.12	200	95.60
1	1.2	0.0012	0.24	200	91.20
1	1.8	0.0018	0.36	200	95.40
1	2.4	0.0024	0.48	200	99.60
1	3.0	0.003	0.60	200	103.70
1	4.8	0.0048	0.96	200	103.70
1	6.0	0.006	1.20	200	109.00
2	6.0	0.006	1.20	200	117.20
2	10.0	0.01	2.00	200	123.60
2	12.0	0.012	2.40	200	126.80
2	16.0	0.016	3.20	200	133.20
2	20.0	0.02	4.00	200	139.60
2	22.0	0.022	4.40	200	142.80
2	26.0	0.026	5.20	200	149.20

## SIZE 1



## SIZE 2



# ECO.pump

## EXTERNAL GEAR DOSING PUMP



New to the Beinlich lineup, the ECO.pump boasts as a highly capable external gear pump at an economical price point. Competent at metering viscous media up to 200,000 mPa·s, the ECO.pump lends itself to many common applications. The stainless steel body and compact design allow the pump to be used as an in-line device and maintain a rust free integrity. Available with a variety of displacement sizes, the ECO.pump is the cost effective solution for your metering pump needs.

## OPERATING CONDITIONS

### SPEED

10 – 400 rpm  
(Depending on the respective operating conditions)

### PUMP PRINCIPLE

Low pulsation external spur gears

### ROTATION

Clockwise (cw), right

### VISCOSITY

10 – 200,000 mPa·s  
(Depending on the respective operating conditions)

### DISPLACEMENTS CC/REV

ECO.pump  
0.15 / 0.3 / 0.6 / 1.2 / 1.8 / 2.4 / 3.0 / 4.8 / 6.0

### TEMPERATURE

-20°C up to +100°C (standard version)  
Special designs are available for deviating temperatures.

### PRESSURE

Operating pressure up to 40 bar  
Pressure max. 50 bar

### MATERIALS

440B stainless steel or aluminium housing

### COMMON APPLICATIONS

Dosing of media without fillers:  
isocyanates, adhesives, silicones, polyols, hotmelts,  
paints and oils

### HIGHLIGHTS

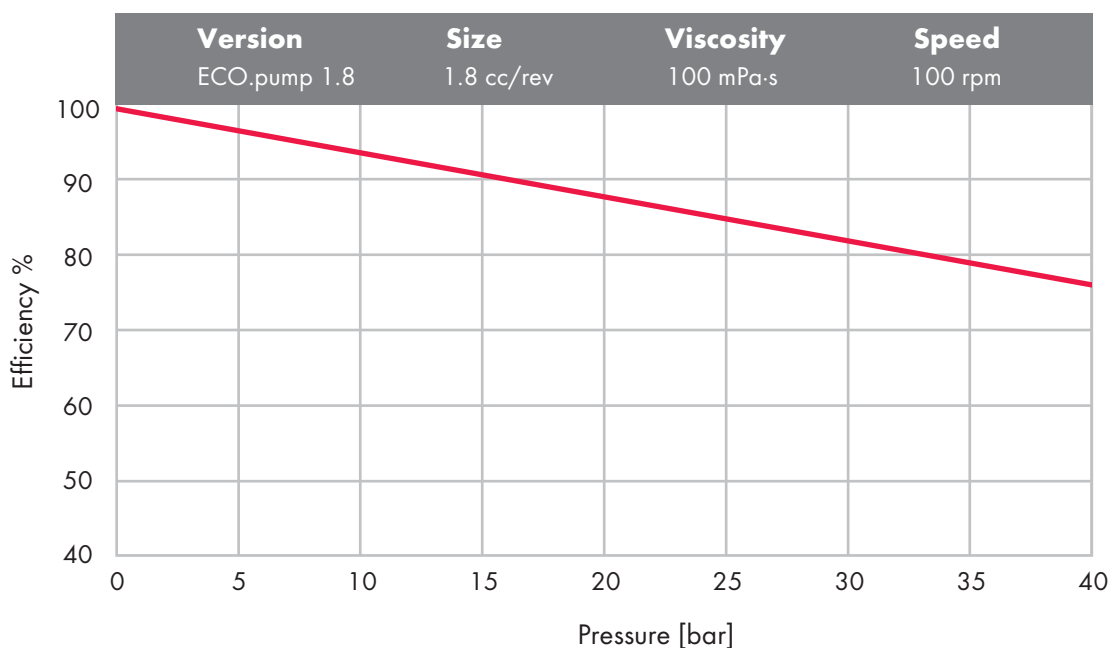
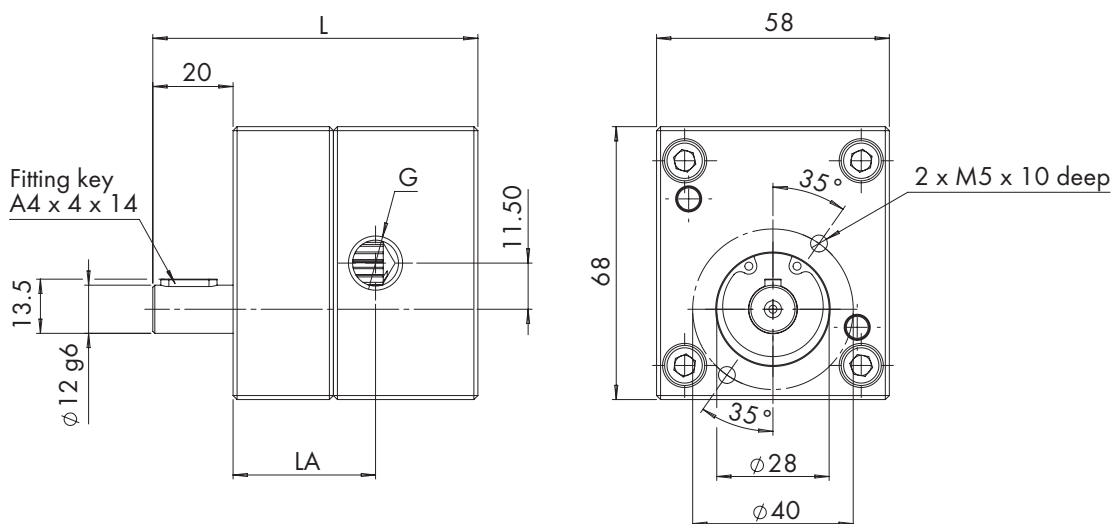
- Low-pulsation dosing of the medium
- Easy and fast assembly and disassembly
- Economical
- Light weight



# DISPLACEMENT SIZES & SPECIFICATION

Size	Displacements cc/rev	Flowrate [l/min] at		Operating pressure bar	Dimensions mm		
		10 rpm	400 rpm		L	LA	"G"
1	0.15	0.0015	0.06	40	81	35.5	1/4"
1	0.30	0.003	0.12	40	81	35.5	1/4"
1	0.60	0.006	0.24	40	81	35.5	1/4"
1	1.20	0.012	0.48	40	81	35.5	1/4"
1	1.80	0.018	0.72	40	81	35.5	1/4"
1	2.40	0.024	0.96	40	81	35.5	1/4"
1	3.00	0.03	1.20	40	81	36.5	3/8"
1	4.80	0.048	1.92	40	102	41.0	1/2"
1	6.00	0.06	2.40	40	102	41.0	1/2"

## SIZE 1





# DARTec®

## EXTERNAL GEAR DOSING PUMP



The DARTec® gear dosing pump was specifically designed for high precision dosing of thermally reactive fluids. Its protected sealed needle bearing system eliminates material contact with bearings preventing shear and frictional heat in these areas normally associated with external gear pumps. Because of this innovation there is a notable reduction in the amount of solvent required to flush the pump and downtime between jobs. This also leads to overall improved efficiency, typically > 95%. The DARTec® is also available in a low weight construction (700 grams) and is optimal for use on 3 and 4 axis robot dispensing equipment.

## OPERATING CONDITIONS

### SPEED

1 - 400 rpm  
(Depending on the respective operating conditions)

### PUMP PRINCIPLE

Low pulsation external spur gears

### ROTATION

Clockwise (cw), right

### VISCOSITY

1 - 1,000,000 mPa·s  
(Depending on the respective operating conditions)

### DISPLACEMENTS CC/REV

DARTec®  
0.1 / 0.3 / 0.6 / 1.2 / 1.8 / 2.4 / 3.0 / 4.8 / 6.0

### TEMPERATURE

- 20°C up to +150°C  
Special designs are available for deviating temperatures.

### PRESSURE

Operating pressure max. 150 bar

### MATERIALS

Stainless steel or low weight design

### COMMON APPLICATIONS

UV-curable fluids, acrylics, organic peroxides, additives, thermally reactive fluids

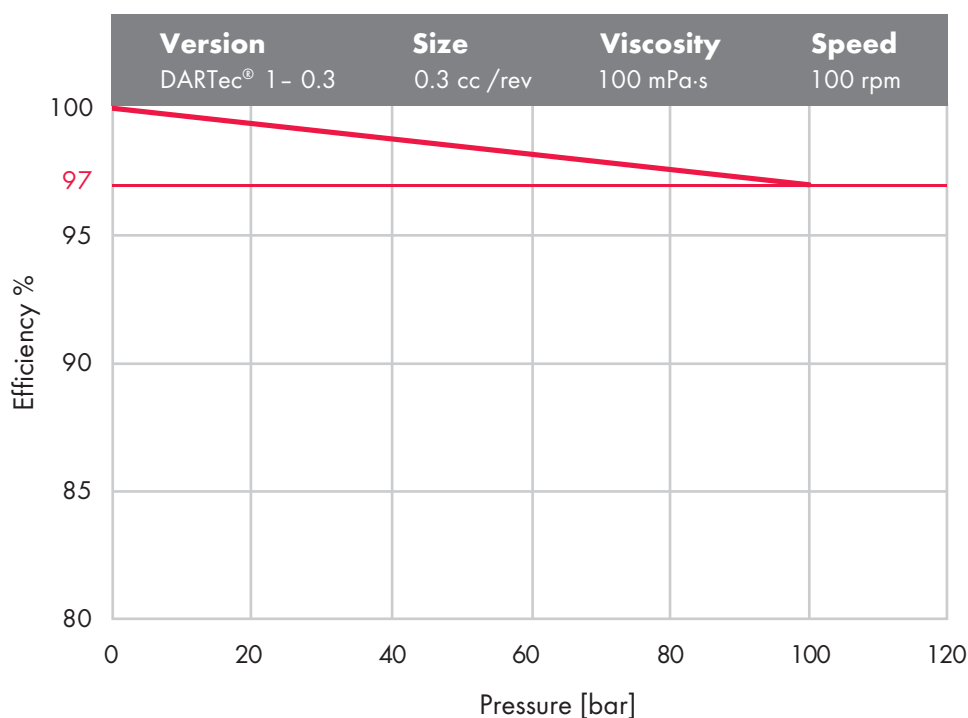
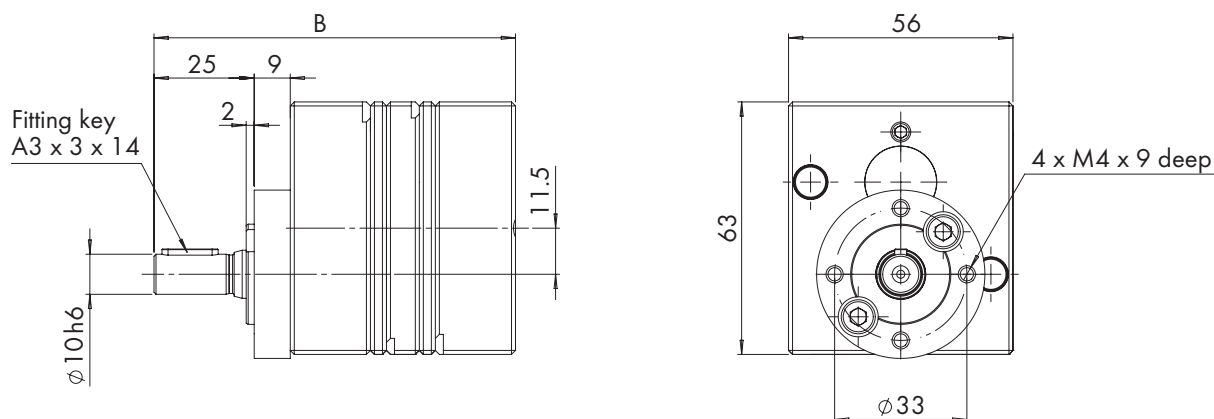
### HIGHLIGHTS

- Low-pulsation and exact dosing of the medium being transferred
- High-precision „start-stop-dosing“
- Low mass options
- High inlet pressure
- Highest efficiency of all Beinlich gear pumps

# DISPLACEMENT SIZES & SPECIFICATION

Size	Displacements cc/rev	Flowrate [l/min] at		Operating pressure max. bar	Dimension "B" mm
		1 rpm	400 rpm		
1	0.1	0.0001	0.04	150	84
1	0.3	0.0003	0.12	150	89
1	0.6	0.0006	0.24	150	95
1	1.2	0.0012	0.48	150	90
1	1.8	0.0018	0.72	150	94
1	2.4	0.0024	0.96	150	99
1	3.0	0.003	1.20	150	103
1	4.8	0.0048	1.92	150	103
1	6.0	0.006	2.40	150	108

## SIZE 1





# ViSCO.pump®

## PROGRESSIVE CAVITY PUMP

The ViSCO.pump® is based on the volumetric principle of an endless (infinite) piston whereas the core components rotor and stator form a perfectly sealed metering chamber. The eccentric movement of the rotor allows for a low-shear motion of the medium from one chamber to the next chamber without squeezing the media. Dispensing proportional to speed, accuracy and repeatability is  $\pm 1\%$ . Its light weight space saving design is highly applicable for small 3 and 4 axis dosing robots. Well suited for filled media the ViSCO.pump® lends itself to countless applications where reliability and repeatability is a must.

## OPERATING CONDITIONS

### SPEED

Size 1	1 - 150 rpm
Size 2 + 3	1 - 400 rpm

### PUMP PRINCIPLE

Progressive cavity stator + rotor

### ROTATION

Clockwise (cw), right  
Counterclockwise (ccw), left

### VISCOSITY

1 - 1,000,000 mPa·s

### DISPLACEMENTS CC/REV

Size 1	0.01 / 0.05 / 0.15
Size 2	0.30 / 1.00 / 2.00
Size 3	4.00

### PRESSURE

Size 1	Inlet max. 6 bar	Discharge max. 10 bar
Size 2	Inlet max. 8 bar	Discharge max. 20 bar
Size 3	Inlet max. 8 bar	Discharge max. 20 bar

### MATERIALS

Stainless steel body & rotor, FKM stator  
(EPDM, FFKM also available)

### COMMON APPLICATIONS

Dosing of filling compounds, coating of electronic components, protective coating of printed circuit boards, application of epoxy resin adhesives, bead dispensing, sealing, underfillings, dosing and metering, filling

### HIGHLIGHTS

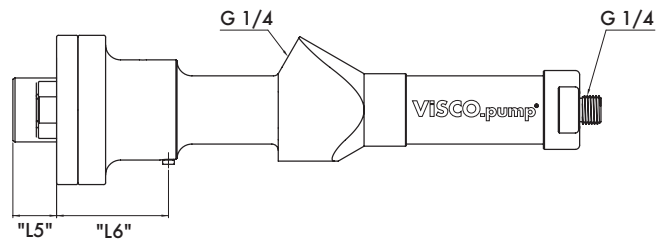
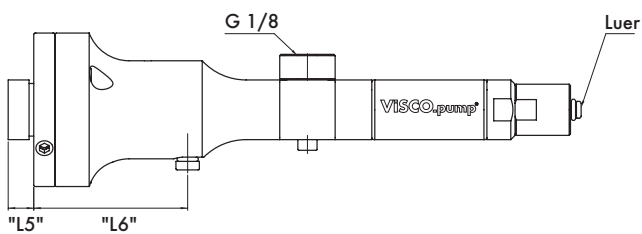
- High dosing accuracy,  $\pm 1\%$  volumetric
- Continuous dosing
- Speed proportional transfer
- Valveless closed system
- Handles abrasive media
- Low pulsation and shear



# DISPLACEMENT SIZES & SPECIFICATION

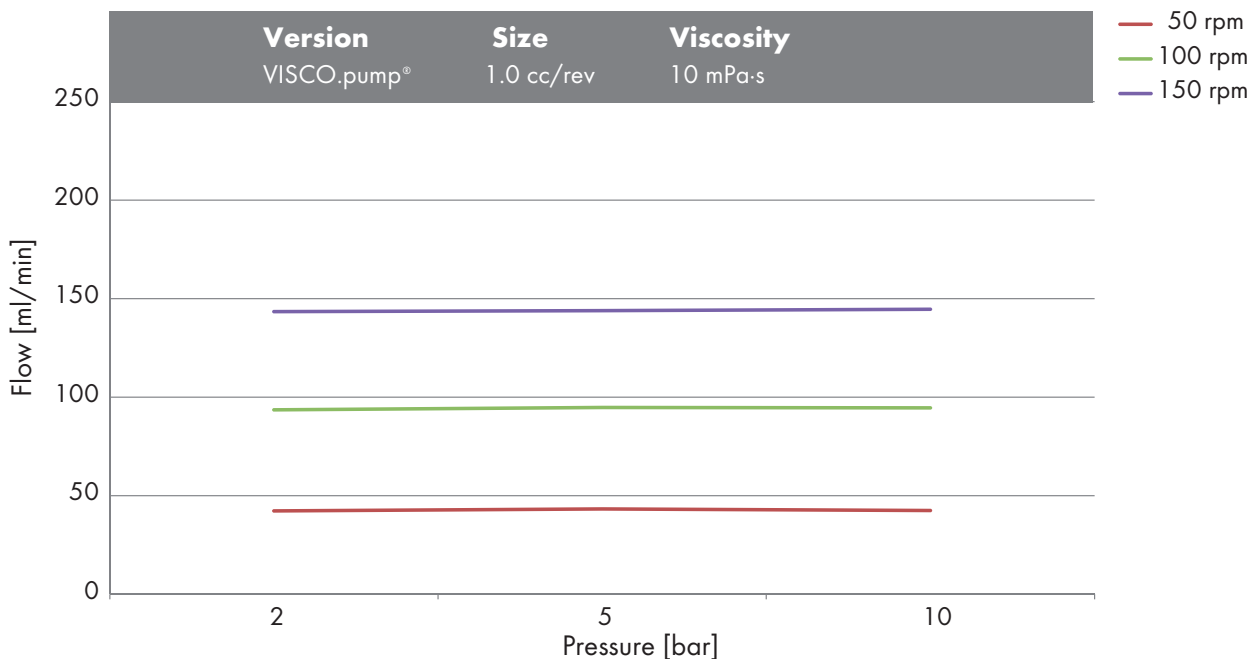
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Size	Displacements cc/rev	Speed min. rpm	Speed max. rpm	Dimensions mm					
				L1	L2	L3	L4	L5	L6
1	0.01	1	150	49.1	79.3	26.8	64.2	6	36.1
1	0.05	1	150	49.1	79.3	26.8	64.2	6	36.1
1	0.15	1	150	77.4	88.8	26.8	73.7	1	36.1
2	0.30	1	400	91.4	164	40.5	109.2	20.5	52.5
2	1.00	1	400	111.4	164	40.5	109.2	20.5	52.5
2	2.00	1	400	134.4	164	40.5	109.2	20.5	52.5
3	4.00	1	400	179	154	40.5	105.9	20.5	52.5



**ViSCO.mini®**

**ViSCO.pump®**





# SPECIAL OPTIONS

## CUSTOM OEM SOLUTIONS

In direct cooperation with the customer and in a very short time, Beinlich develops and produces solutions which meet the demands and specific requirements of the application. Standard materials like steel or stainless steel can be used as well as special materials (e.g. titanium, PEEK).

Additionally, the customer can also choose from different shaft seals, e.g. mechanical contact seal with block chamber or a leakage free magnetic coupling, to achieve an optimum of efficiency.



## DOSING UNIT WITH INTEGRATED FLOW METER

All Beinlich pumps can be delivered complete with motor, bell housing and coupling. Mounting of VSE flow meter on many sizes is also a standard option.



# ABRASIVE MATERIAL PUMPS

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## KIG-SERIES METERING GEAR PUMP FOR ABRASIVE FILLED MATERIALS

- 0.25 – 517 cc/rev
- Pressure up to 150 bar
- Viscosities from 1 to 1,000,000 mPa·s
- Completely hardened parts
- Abrasive resistant coatings
- Ceramic wear parts
- Mechanical seal with barrier chamber and bearing support

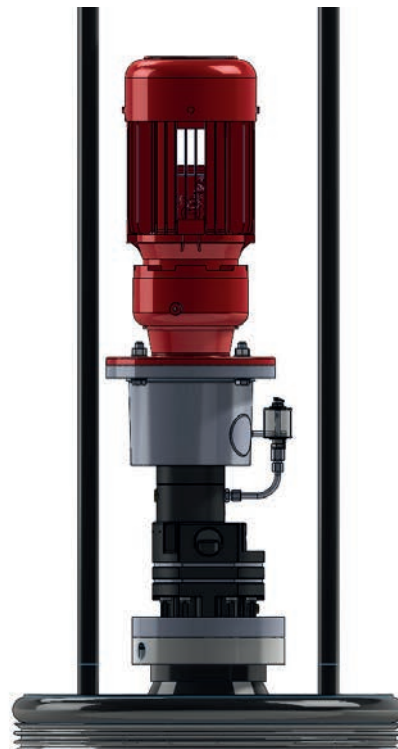
For heavily filled applications with:

- Titanium dioxide
- Carbon black
- Granite sand
- Manganese dioxide
- Silicone
- Calcium carbonate
- Aluminium trihydrate



## DRUM PUMPS

- 0.25 – 517 cc/rev
- Pressure up to 200 bar
- Viscosities from 1 to 200,000 mPa·s
- Speeds up to 100 rpm
- Block chamber solutions
- KIG version available
- Custom mounting solutions
- Speed control standard





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