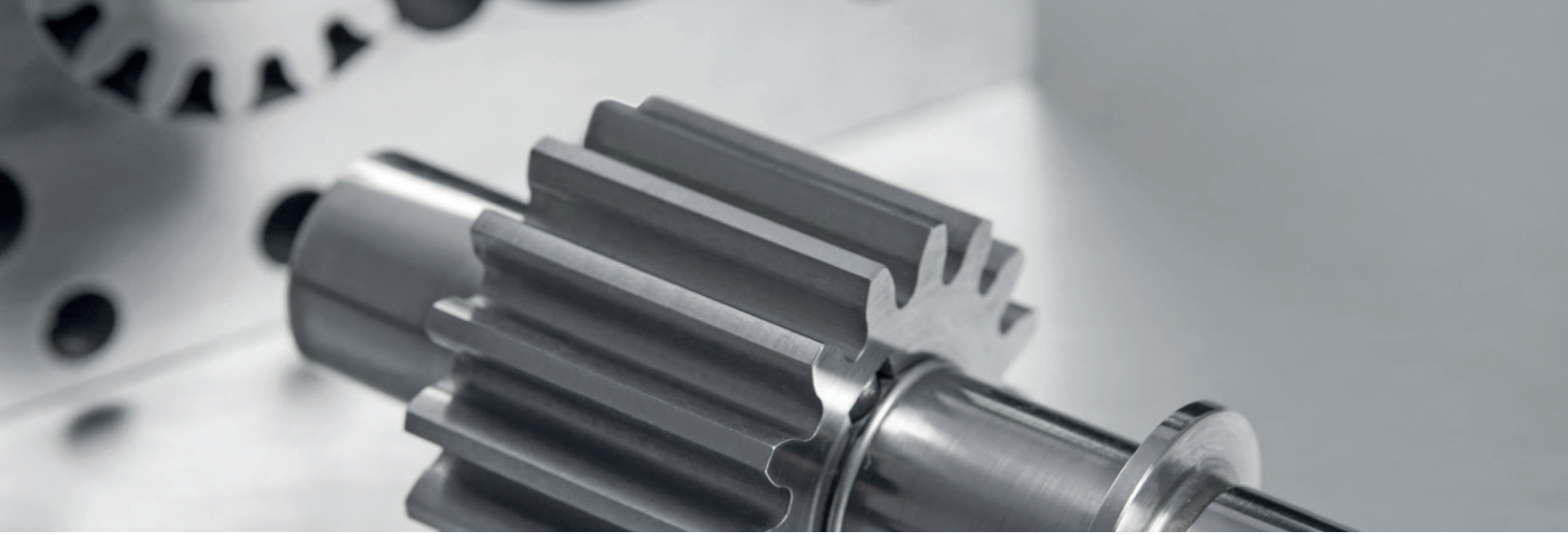


Solutions for Fluid Technology



PUMP SYSTEMS
DOSING + TRANSFER



PRODUCT OVERVIEW

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Progressive cavity pump

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SPECIAL OPTIONS

Custom solutions



IC FLOW CONTROLS, INC.

IC Flow Controls, Inc. is a division of the German e.holding group and your partner in North America both for standard devices and for customer-specific solutions according to client requirements. IC Flow Controls offers Beinlich high-performance pumps for the most diverse of industry sectors.

We provide personal and competent consultations, perfect on-site service, quality support and application expertise. Our clients benefit from our technical know-how and short development and delivery intervals. Working closely with our clients from the initial project development helps us streamline the design, assembly and commissioning processes to follow. By offering complete systems and integrated pump solutions with flow meter at a single source, we are able to achieve optimal performance for our clients. We provide innovative solutions for all demanding applications.

BEINLICH PUMP SYSTEMS

Beinlich 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.

CUSTOMER-SPECIFIC DESIGN

In addition to standard pump series, Beinlich designs innovative and efficient individual system solutions for various applications. In-house construction, development and production enable short development times and ensure a high level of quality.

APPLICATIONS FOR VARIOUS INDUSTRIES

With its high-precision gear pumps, Beinlich is one of the leading suppliers 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.

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 cPs
(Depending on the respective operating conditions)

DISPLACEMENTS CC/REV

See chart on page 5.

TEMPERATURE

-4°F up to 300°F (standard version)
Special designs are available up to 660°F

OPERATING PRESSURE*

Operating pressure max. 2,900 psi
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

* depending on rotation speed and viscosity

DISPLACEMENT SIZES & SPECIFICATION

Size	Displacements cc/rev	Operating pressure psi		Flowrate [l/min] at		
				1,750 rpm	600 rpm	300 rpm
		KIS	KIN	< 200 cPs	< 2,000 cPs	< 10,000 cPs
1	0.30	2,600	580	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			12.78	4.38	2.19
2	3.90	2,600	580	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			41.30	14.16	7.08
3	17.30	2,300	580	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			105.00	36.00	18.00
3	72.00	2,000	580	126.00	43.20	21.60
4	44.40	2,600		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			323.05	110.76	55.38
4	223.00	1,750		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	725		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 2,900 psi. 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 cPs
(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

-4°F up to 300°F (standard version)
Special designs are available for deviating temperatures.

OPERATING PRESSURE*

Operating pressure max. 2,900 psi

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

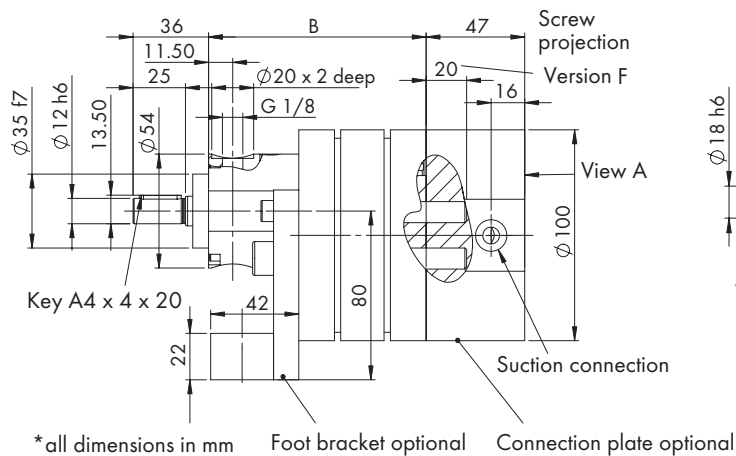
* depending on rotation speed and viscosity

DISPLACEMENT SIZES & SPECIFICATION

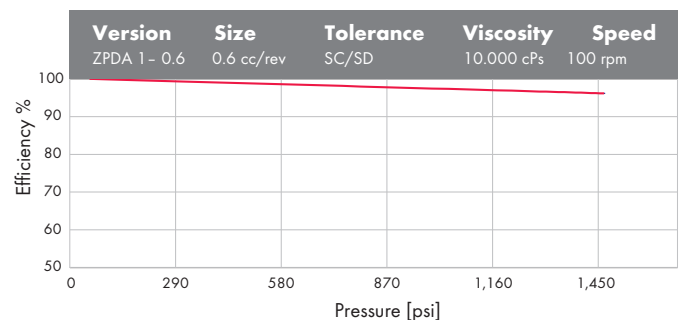
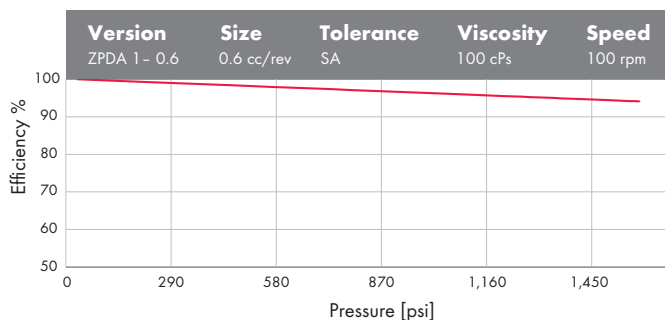
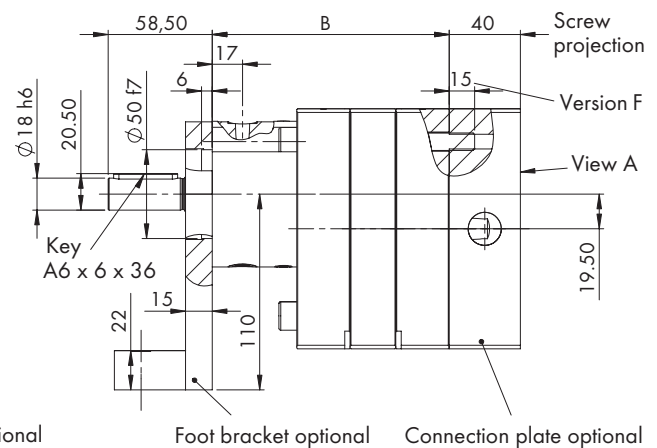
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Size	Displacements cc/rev	Flowrate [l/min] at		Operating pressure max. psi	Dimension "B" mm
		1 rpm	200 rpm		
1	0.1	0.0001	0.02	2,900	85.10
1	0.3	0.0003	0.06	2,900	89.30
1	0.6	0.0006	0.12	2,900	95.60
1	1.2	0.0012	0.24	2,900	91.20
1	1.8	0.0018	0.36	2,900	95.40
1	2.4	0.0024	0.48	2,900	99.60
1	3.0	0.003	0.60	2,900	103.70
1	4.8	0.0048	0.96	2,900	103.70
1	6.0	0.006	1.20	2,900	109.00
2	6.0	0.006	1.20	2,900	117.20
2	10.0	0.01	2.00	2,900	123.60
2	12.0	0.012	2.40	2,900	126.80
2	16.0	0.016	3.20	2,900	133.20
2	20.0	0.02	4.00	2,900	139.60
2	22.0	0.022	4.40	2,900	142.80
2	26.0	0.026	5.20	2,900	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 cPs, 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 cPs
(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

-4°F up to 212°F (standard version)
Special designs are available for deviating temperatures.

OPERATING PRESSURE*

Operating pressure up to 580 psi
Pressure max. 725 psi

MATERIALS

440B stainless steel or aluminium housing

COMMON APPLICATIONS

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

HIGHLIGHTS

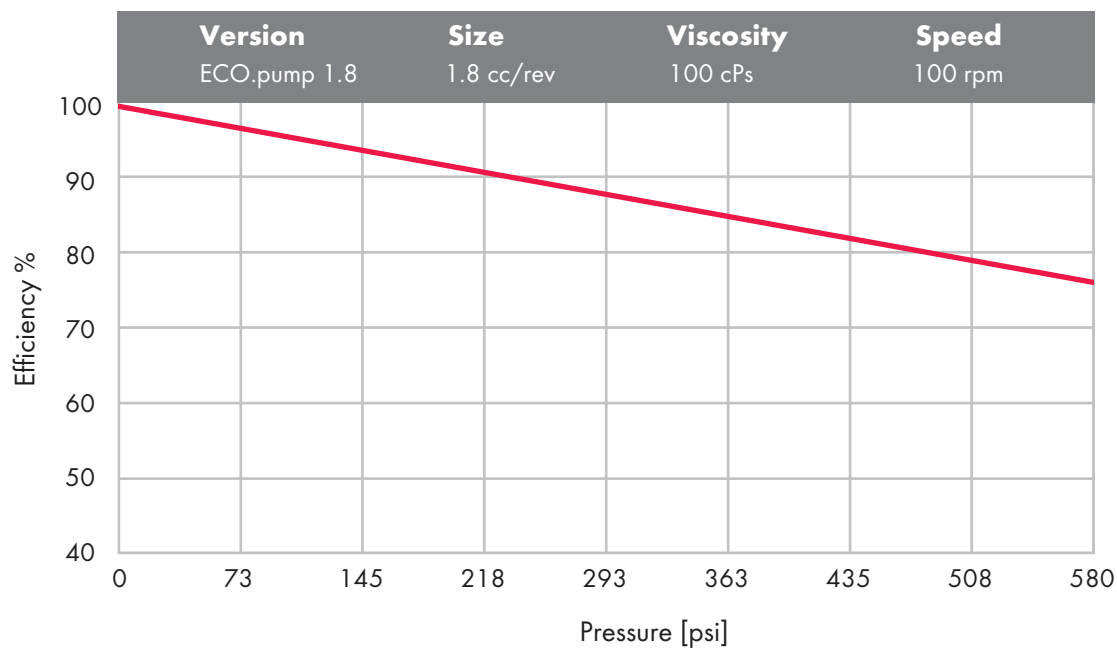
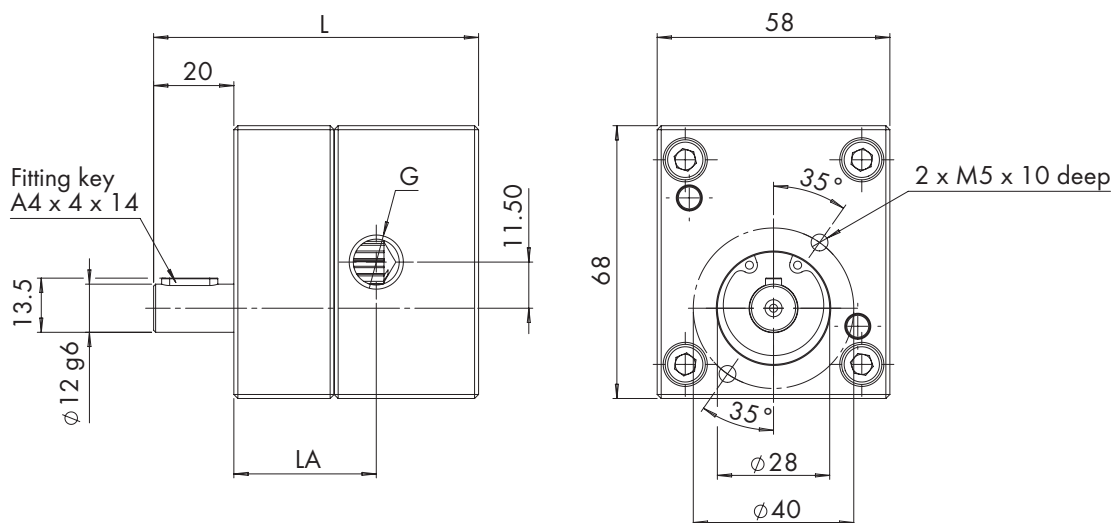
- Low-pulsation dosing of the medium
- Easy and fast assembly and disassembly
- Economical
- Light weight

* depending on rotation speed and viscosity

DISPLACEMENT SIZES & SPECIFICATION

Size	Displacements cc/rev	Flowrate [l/min] at		Operating pressure psi	Dimensions mm		
		10 rpm	400 rpm		L	LA	"G"
1	0.15	0.0015	0.06	580	81	35.5	1/4"
1	0.30	0.003	0.12	580	81	35.5	1/4"
1	0.60	0.006	0.24	580	81	35.5	1/4"
1	1.20	0.012	0.48	580	81	35.5	1/4"
1	1.80	0.018	0.72	580	81	35.5	1/4"
1	2.40	0.024	0.96	580	81	35.5	1/4"
1	3.00	0.03	1.20	580	81	36.5	3/8"
1	4.80	0.048	1.92	580	102	41.0	1/2"
1	6.00	0.06	2.40	580	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 cPs
(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

-4°F up to +300°F
Special designs are available for deviating temperatures.

OPERATING PRESSURE*

Operating pressure max. 2,175 psi

MATERIALS

Stainless steel or low weight design

COMMON APPLICATIONS

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

HIGHLIGHTS

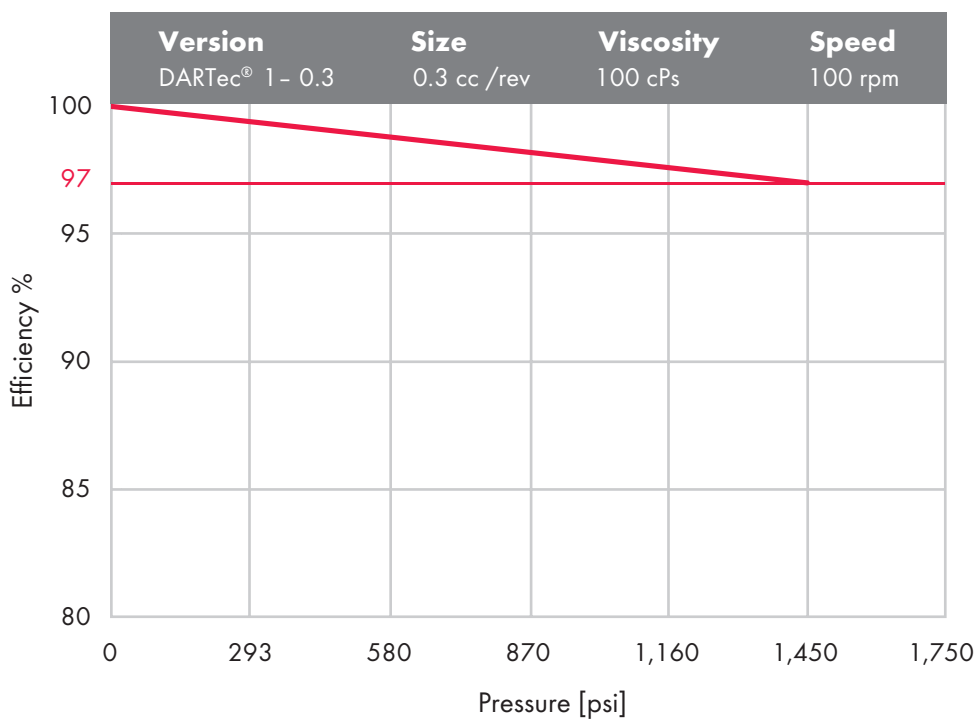
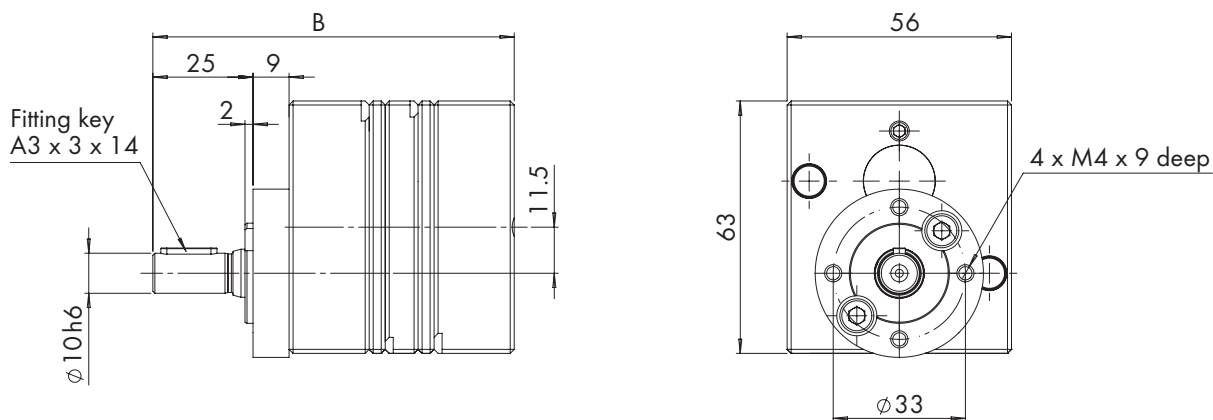
- Low-pulsation and exact dosing of the medium being transferred
- High-precision „start-stop-dosing“
- Low mass options
- High inlet pressure
- Highest efficiency of all Beinlich gear pumps

* depending on rotation speed and viscosity

DISPLACEMENT SIZES & SPECIFICATION

Size	Displacements cc/rev	Flowrate [l/min] at		Operating pres- sure max. psi	Dimension "B" mm
		1 rpm	400 rpm		
1	0.1	0.0001	0.04	2,175	84
1	0.3	0.0003	0.12	2,175	89
1	0.6	0.0006	0.24	2,175	95
1	1.2	0.0012	0.48	2,175	90
1	1.8	0.0018	0.72	2,175	94
1	2.4	0.0024	0.96	2,175	99
1	3.0	0.003	1.20	2,175	103
1	4.8	0.0048	1.92	2,175	103
1	6.0	0.006	2.40	2,175	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
Size 4	1 – 400 rpm

PUMP PRINCIPLE

Progressive cavity stator + rotor

ROTATION

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

VISCOSITY

1 – 1,000,000 cPs

DISPLACEMENTS CC/REV

Size 1	0.01 / 0.05 / 0.15
Size 2	0.30 / 1.00 / 2.00
Size 3	4.00
Size 4	7.00 / 9.00 / 11.00

OPERATING PRESSURE*

Size 1	Inlet max. 87 psi	Discharge max. 145 psi
Size 2	Inlet max. 116 psi	Discharge max. 290 psi
Size 3	Inlet max. 116 psi	Discharge max. 290 psi
Size 4	Inlet max. 116 psi	Discharge max. 360 psi

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

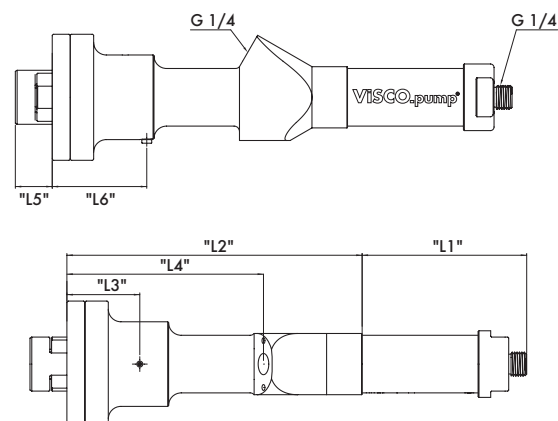
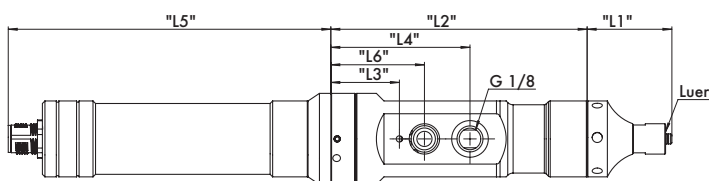
- High dosing accuracy, $\pm 1\%$ volumetric
- Continuous dosing, low pulsation and shear
- Speed proportional transfer
- Valveless closed system
- Handles abrasive media
- Low pulsation and shear

* depending on viscosity

DISPLACEMENT SIZES & SPECIFICATION

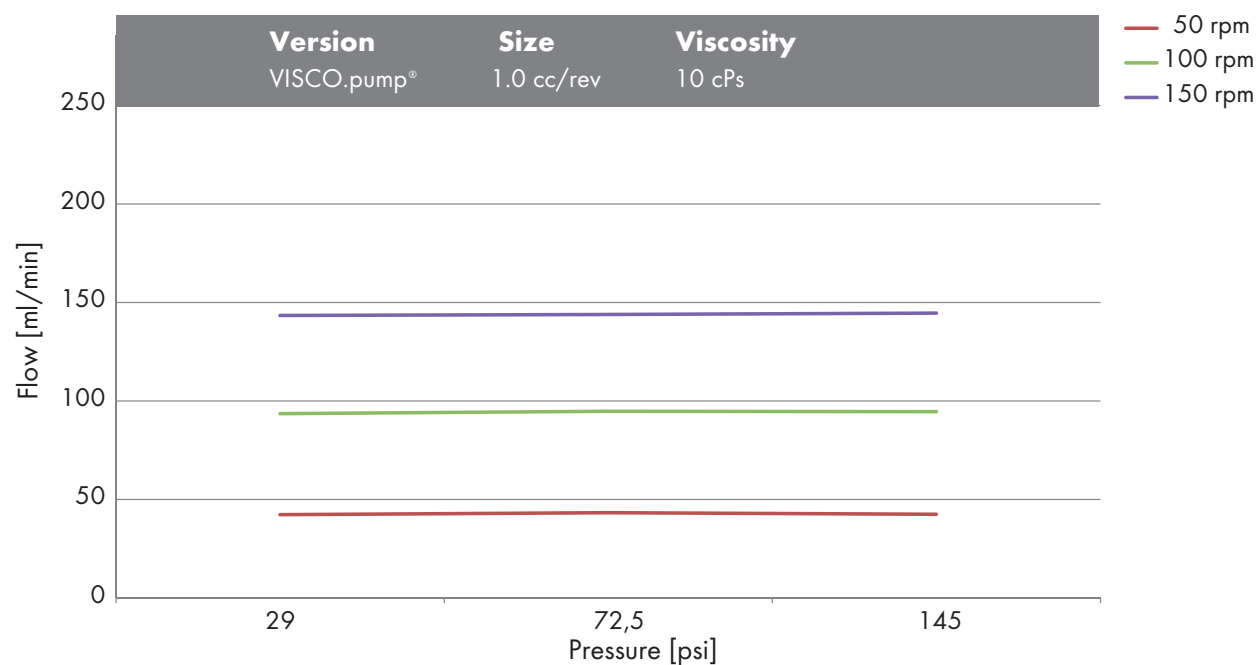
Size	Displacements cc/rev	Speed min. rpm	Speed max. rpm	Dimensions mm					
				L1	L2	L3	L4	L5	L6
1	0.01	1	150	49.1	79.3	26.8	64.2	6	36.1
1	0.05	1	150	49.1	79.3	26.8	64.2	6	36.1
1	0.15	1	150	77.4	88.8	26.8	73.7	1	36.1
2	0.30	1	400	91.4	164	40.5	109.2	20.5	52.5
2	1.00	1	400	111.4	164	40.5	109.2	20.5	52.5
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
4	7.00	*	*	*	*	*	*	*	*
4	9.00	*	*	*	*	*	*	*	*
4	11.00	*	*	*	*	*	*	*	*

* in process



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.



KIG-SERIES METERING GEAR PUMP FOR ABRASIVE FILLED MATERIALS

- 0.25 – 517 cc/rev
- Pressure up to 2,175 psi
- Viscosities from 1 to 1,000,000 cPs
- Completely hardened parts
- Abrasive resistant coatings
- Ceramic wear parts
- Mechanical seal with barrier chamber and bearing support

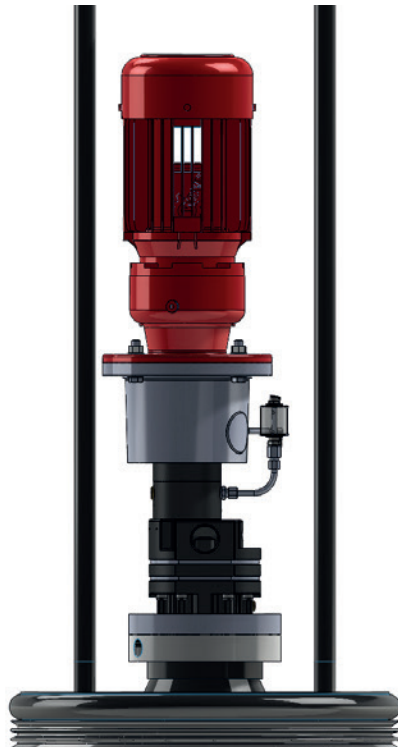
For heavily filled applications with:

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



DRUM PUMPS

- 0.25 – 517 cc/rev
- Pressure up to 2,900 psi
- Viscosities from 1 to 200,000 cPs
- Speeds up to 100 rpm
- Block chamber solutions
- KIG version available
- Custom mounting solutions
- Speed control standard





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