



# Ceramic Filling Pump

## ■ Ceramic Filling Pump



Innovacera provided advanced ceramic solutions for fluid dispensing and filling in the pharmaceutical, cosmetic and food industries. Our ceramic filling pumps and valves are made in advanced ceramic materials.

We adapt our ceramic design to your specific application. Our ceramic filling pumps are tailor made in order to provide the best solution to your production process.

## ■ Ceramic Pump Production Process

- Making Molds–Isostatic Pressing–Sintering–Grinding And Polishing–Quality Testing.
- The Geometric Control is made by imported Germany measurement instrument to ensure the highest accuracy.





## ■ Machines for Ceramic Pump Producing



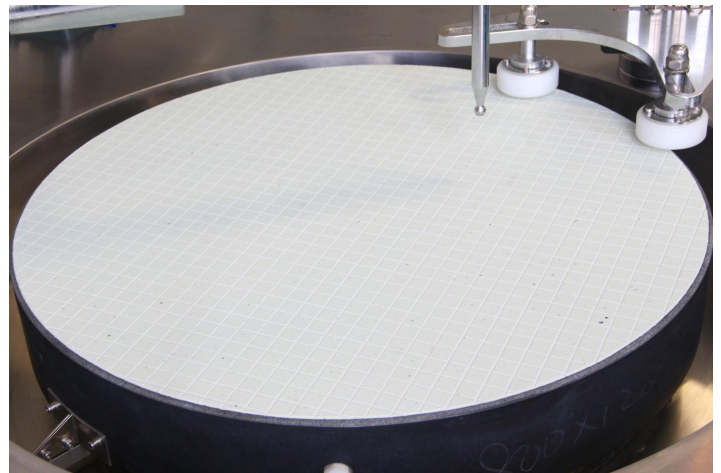
High Precision Machining Equipment



Precision Ceramic Materials Degumming Equipment



CNC Machining Center



High Precision Plane Machining



High Machinable Strength and High Hardness HPV Technology Sintering Equipment



Ceramic Materials Precision Injection Molding Machine

## ■ Features & Advantages

- Inert Chemical stability, Acid orrosion resistance.
- Resistant to high temperature, Piston clearance fit more.
- Filling accuracy can be achieved online cleaning and sterilization.
- Liquid non-polluting, High precision.
- Long service life, Very high surface finish.
- High hardness, Wear resistant.
- Particle release is extermely small.
- Water absorption as low as zero.
- Minimal friction, Minimal residual.
- Low thermal expansion coefficient.



## ■ Ceramic Pump Materials Properties

Properties	Units	ZrO <sub>2</sub>	ZTA	99% Al <sub>2</sub> O <sub>3</sub>
Densigy	O (20 °C) g/cm <sup>3</sup>	5.9~6.1	4.18	3.87
Flexural Strength	(20 °C) Mpa	1150	550	450
Compressive Strength	(20 °C) Mpa	4500	4200	3800
Fracture Toughness	K <sub>IC</sub> (Mpa.m <sup>1/2</sup> )	9	6	6
Coefficient of Thermal Expansion	(200~500) °C 1/°C	10.0×10 <sup>-6</sup>	6.9×10 <sup>-6</sup>	6.9×10 <sup>-6</sup>
Thermal Shock Resistance	(20~800) °C Water Cooler	≥7 Circles	≥6 Circles	≥5 Circles
Chemical Stability	10% HCL mg/cm <sup>2</sup>	5.5	5.3	5.3
	1:9 NaOH mg/cm <sup>2</sup>	0.16	0.14	0.12

Properties	Units	Chromium Pumps	Glass Pumps	Ceramic Pumps
Hardness (Vickers)	–	5–7	8–10	≥13
Porosity	–	1.5	5	0
Supereme Suitable Temperature	°C	300	250	1000
Acid Resistance	–	Acid Nonresistance	Acidproof	Acidproof
Alkali Resistance	–	Alkaliproof	Alkal Nonresistance	Alkaliproof
Roughness of Surface	μm	≥1.0	≥2.5	≤0.2
Lifespan (Ten thousand times)	–	≈300	≈50	≥1000
Particle Release	–	More	Most	Few

# Valveless Ceramic Plunger Pump

## ■ Application

- Important parts of experimental equipment, analyzing equipment and pharmaceutical equipment for the rationing of materials or successive transportation.
- Widely applied to precision quantitative filling of industries such as medicine, pharmacy, food, chemistry, cosmetics, etc.
- Used for precision quantitative filling of liquids such as blood, biological reagent, oral liquid, injection liquid, senior cosmetics, fragrance, fungicide, etc.
- Used for precision quantitative filling of all kinds of acid and alkali corrosive liquid.



## ■ Technical Data

Properties	Unit	INV-05	INV-07	INV-10	INV-13	INV-15	INV-22	INV-25	INV-36
Dimeter of Plunger	mm	5	7	10	13	15	21.5	25	36
Materials	–	Plunger, pump cavity set (alumina/zirconia)							
Through Put/Rev	ml/rev	0.12	0.25	0.7	1.5	2.5	6	10	23
Filling Accuracy Spinning Speed	RPM	±0.5~1% 0~600		±0.5% 0~500		±0.5% 0~300	±0.5% 0~200	±0.5% 0~150	±0.5% 0~120
Placement Angle Throughput Pressure	MPa	15°/ 0.6		20°/ 0.6		20°/ 0.5		20°/ 0.4	
Maximum Suction Height	–	4m (the product data is measured with water as the medium)							
Weight	kg	0.8		1.3		3.5	3.8	7.4	7.9

# Two Piece Small Metering Valve Piston Ceramic Suspension Pump

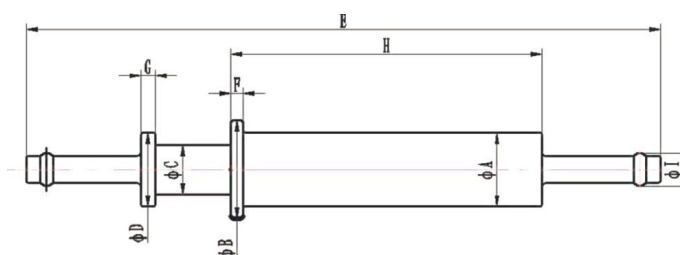
## ■ Application

- Applicable in quantitative subpackage with high level of hygiene requirement like injection oral liquid etc.
- Widely applied to pharmaceutical equipments of famous enterprises BOSCH, B+S, IMA, GROENINGER, INOVA company and Trucking Technology, Maxis, Qianshan, etc.



## ■ Standard Sizes

Size	5ml	10ml	20ml	30ml	40ml
∅ A	18	22	25	29	35
∅ B	24	29	34	38	46
∅ C	12	15	18	22	28
∅ D	18	20	24	28	34
E	155~201	177~233	191~255	212~285	230~315
F	3.2	4	4	4	4
G	3.5	4	4	5	5
H	76.5	95.5	107.5	125.5	140.5
∅ I	8	8.5	8.5	9.5	10.5



## ■ Technical Data

Properties	Unit	Two Piece		
Regular Type	–	IN2L-02	IN2L-05	IN2L-10
Material	–	Aluminium Oxide 99.7% (Various Ceramic Materials can be chosen in accordance with the characteristics of products), the appearance is stainless steel 316L/304.		
Filling Capacity	ml	0.5~2	1.5~5	3~10
Custom Range	ml	0~100		
Filling Accuracy	%	≥ 0.25		



# Three-pieces Small Doses Ceramic Rotary Valve Piston Metering Pump

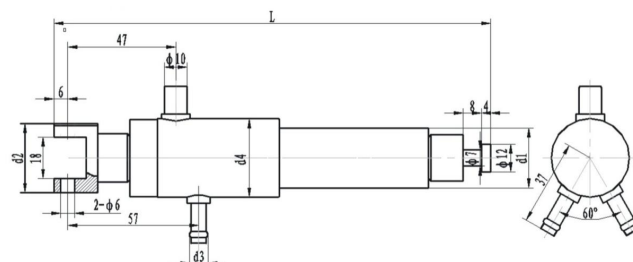
## ■ Application

- Applicable in quantitative subpackage with high level of hygiene requirement like injection oral liquid etc.
- Widely applied to pharmaceutical equipments of famous enterprises BOSCH, B+S, IMA, GROENINGER, INOVA company and Trucking Technology, Miaxis, Qianshan, etc.



## ■ Standard Sizes

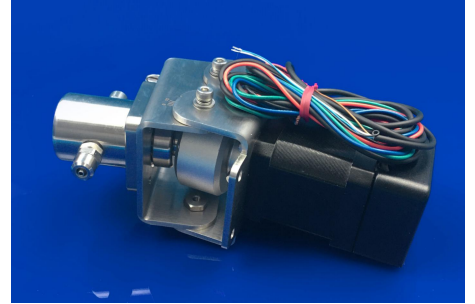
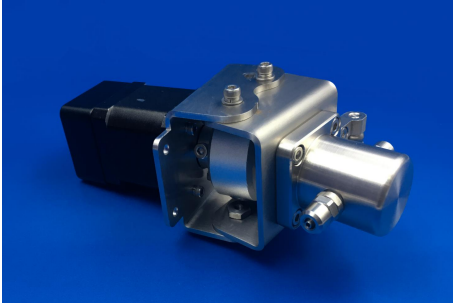
Size	2ml	5ml	10ml	18ml	20ml	25ml
d1	20	20	28	31	34	37
d2	30	30	30	33	36	39
d3	8.9	8.9	9	10	10	10
d4	30.5	30.5	34.5	37.5	40.5	43.5
L	175~225	190~250	190~248	190~248	190~248	190~248



## ■ Technical Data

Properties	Unit	Three-pieces		
Regular Type	–	IN3L-02	IN3L-05	IN3L-10
Material	–	Aluminium Oxide 99.7% (Various Ceramic Materials can be chosen in accordance with the characteristics of products), the appearance is stainless steel 316L/304.		
Filling Capacity	ml	0.5~2	1.5~5	3~10
Custom Range	ml	0~100		
Filling Accuracy	%	≥ 0.25		

## ■ Show Case







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