

- Single phase motor with winding protection, standard
- PP plastic material for pump head and valves, standard
- Plastic external housing, metal internal housing
- High delivery capacity at low number of strokes
- Electronics with display and mode switch for simple pre-selection of menu
- Safety diaphragm as a standard feature, signalling of fractures in diaphragm as a standard feature of electronic version
- Evaluation unit for signalling of fractures in diaphragm, standard feature of electronic version
- Selectable error signal relay, standard feature of electronic version
- Mechanical stroke adjustment
- Empty signal report and level pre-warning
- Empty signal and stroke signal output
- Pulse control
- Pulse multiplication and division
- Pulse storage
- Stroke frequency regulation
- Standard signal drive
- External metering stop
- Single stroke control
- Metering regulator (readjustment of metering output) in combination with an oval gear meter



The ELADOS® EMP IV series of metering pumps is based on the building block principle. Devices of this series comprise the drive unit, the gear, the metering pump head and the electronics. Different electronic control variants guarantee that the pump

may be adapted to any processing sequence for proportional or quantity metering. The scope of delivery is rounded off by practical accessories, so forming a complete range of equipment for all metering applications.



**Technical Data:**

**Mechanical Data:**

Pump capacity [l/h]:	140	210
Metering back-pressure* [bar]:	10	8
Delivering capacity per stroke [cm <sup>3</sup> ]:	19.4	29.2
Reproductivity:	<± 3 %	
Suction height:	2 mWs, suction height with clean, slightly wet valves	
Metering frequency max:	122 1/min	
Pressure valve:	without spring	
Suction valve:	without spring	
Ambient temp. max.:	40° C	

**Materials:**

Housing:	thermoplastic polyester
Pump head:	polypropylene ( <b>PP</b> ) <b>optional:</b> PVDF or stainless steel 1.4571
Diaphragm:	PTFE - EPDM compound diaphragm
Seals:	FPM 602 (Viton B) <b>optional:</b> EPDM or Kalrez
Valve balls:	ceramics <b>optional:</b> PTFE or stainless steel 1.4401
Weight:	approx. 25 kg
Colour:	blue RAL 5007

**Electrical Data:**

Connection:	230 V / 50 Hz 400 V / 50/60 Hz (only with E 00)
Note:	At a mains frequency of 60 Hz delivery capacity increases by 20 % and back-pressure decreases by 20 %.
Current consumption:	2.3 A (50 Hz)
Power output:	0.37 kW (50 Hz)
Safety type:	IP 55
Insulation class:	F

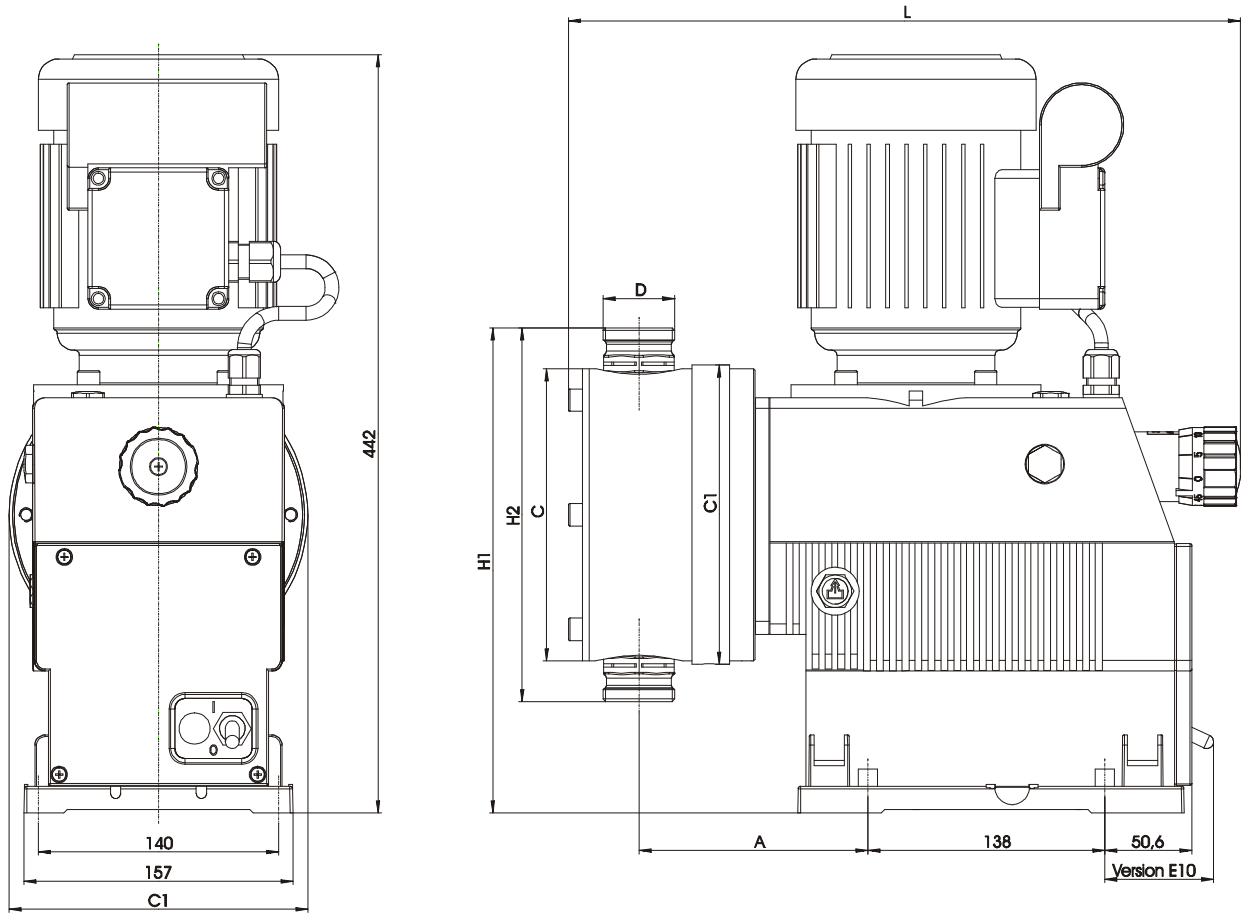
All values at 50 Hz. All data refer to water temperature of 20° C according to the instructions of the technical manual, subject to!

**Notice:** To guarantee the newest state of our products, we reserve the rights for single technical changes.

\*For **EMP VI HP (High Pressure)** version see page 22.  
Other special versions on request.

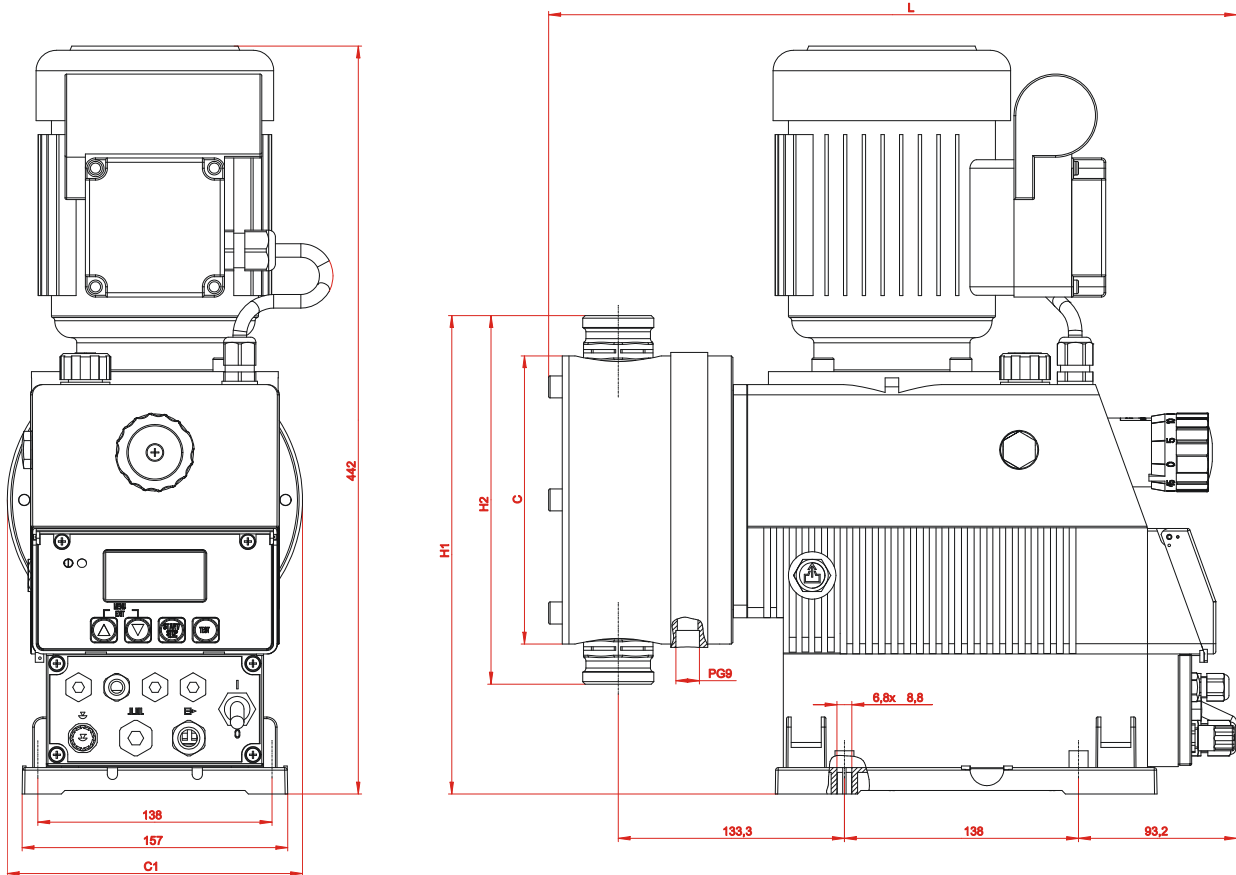
**Dimensions:**

Version E 00



Capacity l / h	Dimensions in mm						
	A	C	C1	L	H1	H2	D
140	133.5	170	174	392	280	216	1¼"
210	133.5	170	174	392	280	216	1¼"

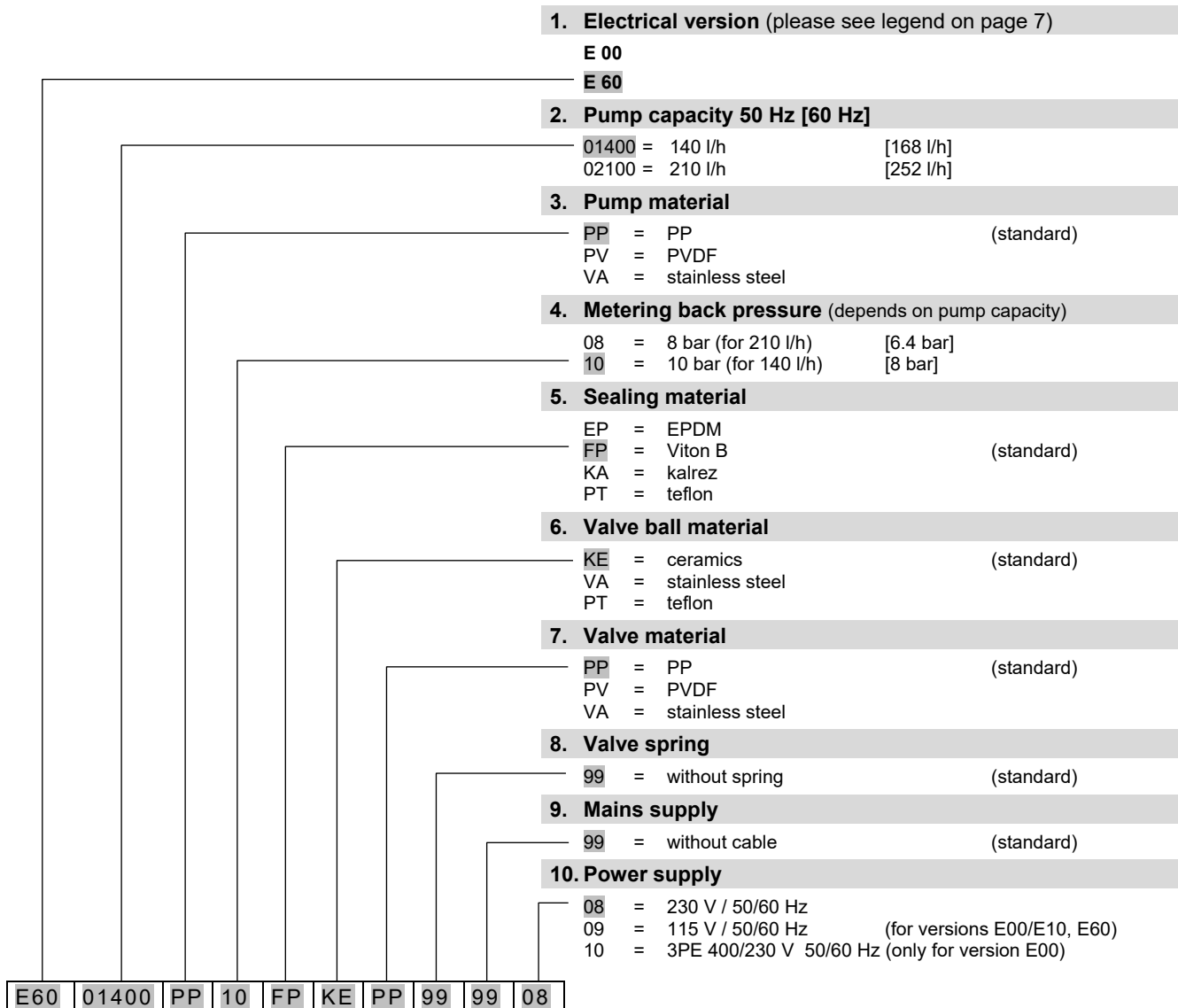
Version E 60



Capacity	Dimensions in mm					
	I / h	C	C1	L	H1	H2
140		170	174	392	280	216
210		170	174	392	280	216



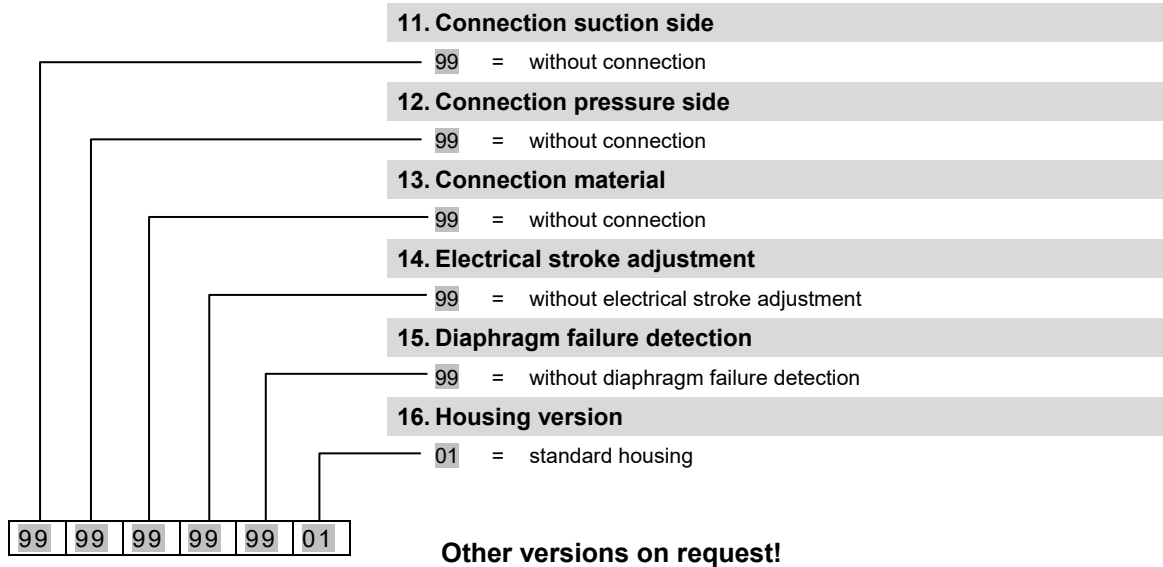
### Pump code – part 1



**Other versions on request!**



**Pump code – part 2**



Example of a complete pump code of a standard pump:

E60	01400	PP	10	FP	KE	PP	99	99	08	-	99	99	99	99	99	01
-----	-------	----	----	----	----	----	----	----	----	---	----	----	----	----	----	----

(Pump code 1)

(Pump code 2)



## Electrical versions

**E 00** Mechanical stroke adjustment

- E 60**
- On / off switch
  - Mechanical stroke adjustment
  - Back-lit graphic display, 4 operating keys
  - Single stroke control (each stroke is completely executed)
  - Metering monitoring via stroke-signal output or via external metering-monitoring system (e.g. liquid level switch) possible
  - Registration of operating and consumption data (calculative)
  - Calibration function
  - Diaphragm failure detection

Selectable operating modes:

**Internal mode**

Selection of metering rate/metering frequency via:

- Strokes/min
- Percent
- Liter/h (or gallon/h)

**External mode**

- Pulse mode (actuation via pulses)
  - Pulse multiplication (one incoming pulse = n metering strokes)
  - Pulse division (n incoming pulses = 1 metering stroke)
- Standard signal mode (actuation via external standard signal 0/4-20 mA or 20-0/4 mA)
- Charge mode (a previously selected quantity is metered, with initiation via an external initiation pulse)

**Inputs:**

- Level monitoring, package vessel (reserve and empty signal)
- Pulse
- Standard signal
- Enable (metering interlock)
- Metering control

**Outputs:**

- Level monitoring package vessel / malfunction
- Stroke signal



**Ordering data – standard pumps:**

Article	Pump code	Material-No.
ELADOS® EMP IV	E00 01400 PP 10 FP KE PP 99 99 08 - 99 99 99 99 99 01	150001
	E00 01400 PP 10 FP KE PP 99 99 10 - 99 99 99 99 99 01	150041
	E00 02100 PP 08 FP KE PP 99 99 08 - 99 99 99 99 99 01	150101
	E00 02100 PP 08 FP KE PP 99 99 10 - 99 99 99 99 99 01	150141

**Extent of supply:** Terminal box on motor,  
operating instructions  
**without** hose connection material  
**without** connector cable

ELADOS® EMP IV	E60 01400 PP 10 FP KE PP 99 99 08 - 99 99 99 99 99 01	150060
	E60 02100 PP 08 FP KE PP 99 99 08 - 99 99 99 99 99 01	150160

**Extent of supply:** Terminal box on motor,  
operating instructions  
**without** hose connection material  
**without** connector cable

**Connection material see page 16**





**ELADOS® EMP IV E 60<sup>PLUS</sup>**

with the add-on unit for the capture of operating data (dongle plate) the version E 60 turns to version E 60<sup>PLUS</sup>. For installation of the dongle plate the front panel has to be removed. Then the dongle plate can be plugged on the allocated terminal.



**Article**

**Material-No.**

**Dongle plate**

249629

with the following additional functions:

- Automatic readjustment of pump output in combination with an oval gear meter (for operating modes "internal" and "current" only)
- Automatic calibration function via oval gear meter
- Consumption data control by means of oval gear meter

**Accessories:**



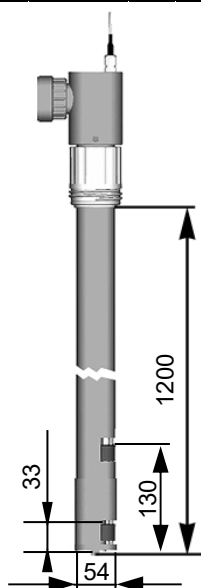
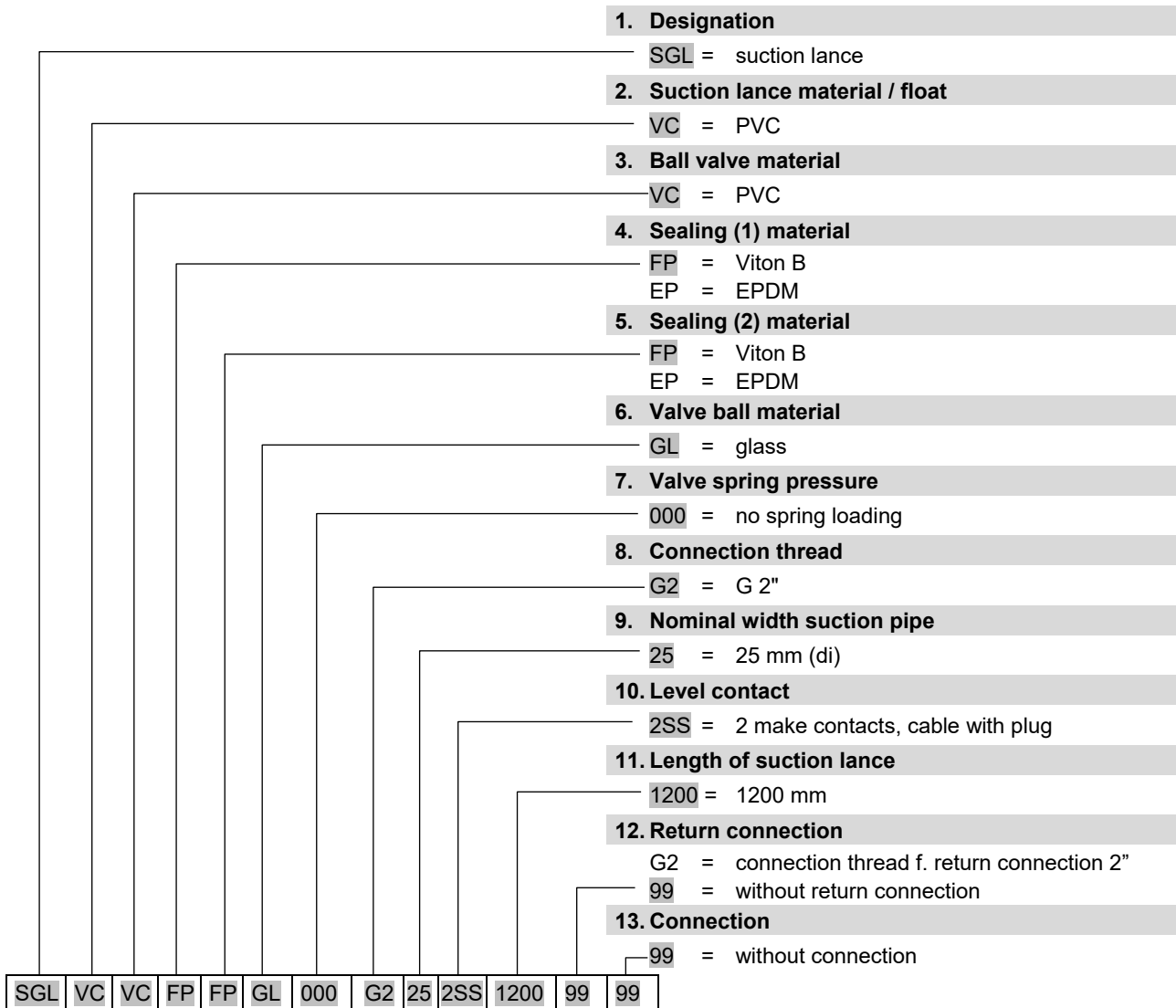
**Oval gear meter**

for volumetric measurement of the rate of flow

**Ordering data are to be found in chapter “Measuring and Controlling”.**



**Suction lances**



**Article**



**Material-No.**

SGL VC VC FP FP GL 000 G2 25 2SS 1200 99 99	250052
SGL VC VC EP EP GL 000 G2 25 2SS 1200 99 99	250054
SGL VC VC FP FP GL 000 G2 25 2SS 1200 G2 99	250055
SGL VC VC EP EP GL 000 G2 25 2SS 1200 G2 99	250056

**Extent of supply:** Connecting seal EPDM (black) or Viton (brown), connection cable 5 m, container screw connection, **without** hose connection

**Connection material see page 16 (chapter EMP IV 450-750 I/h)**

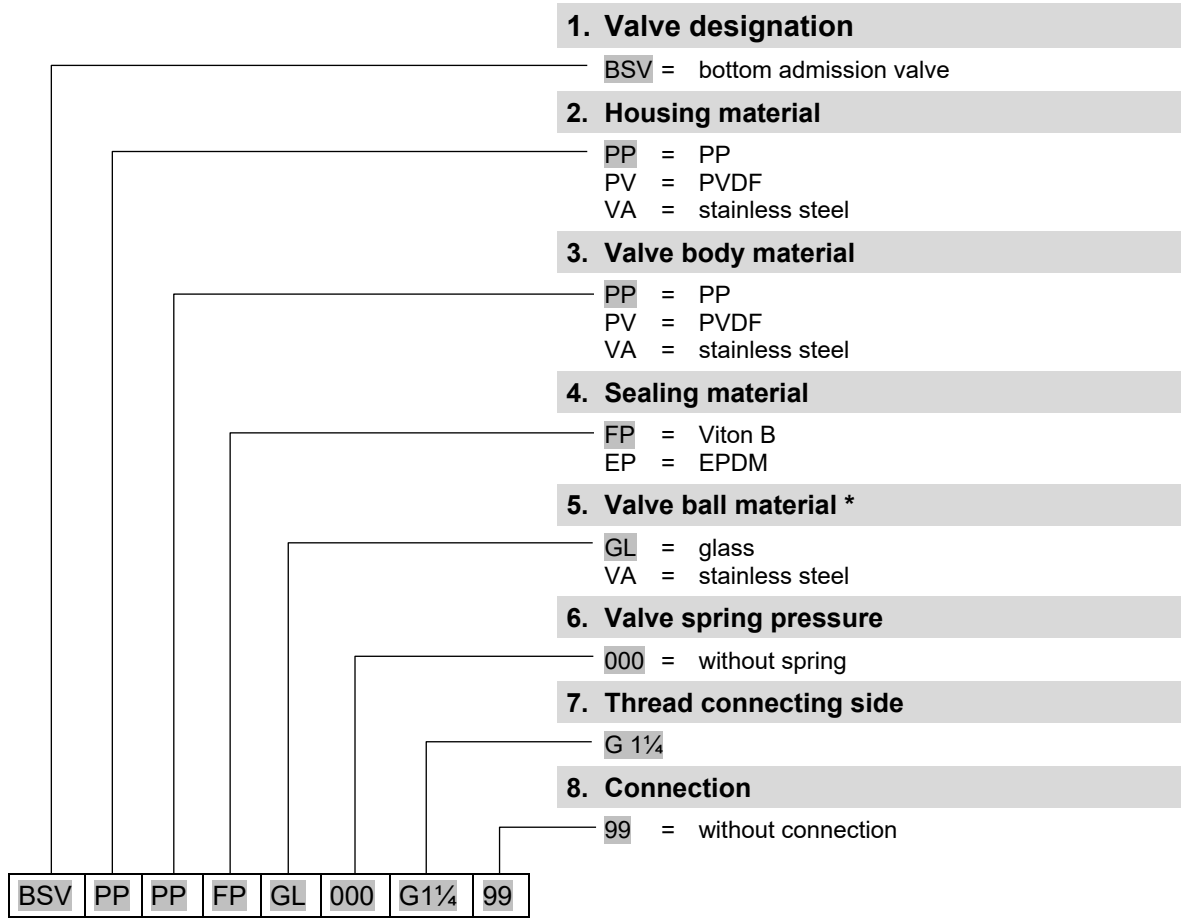


	<b>Article</b>	<b>Material-No.</b>
	<b>Sealing for suction lance (spare part)</b>	
	Viton B 40.64 x 5.33 (for 250052, 250055)	417003359
	EPDM 40.6 x 5.3 (for 250054, 250056)	415100413
	<b>Suction lance adapter</b>	417401588
	Screw cap DN 150 for container with bung plug	
	<b>Suction and pressure lines</b>	
	available by the metre	
	max. operating pressure: 15 bar (at 20° C)	
	PVC- fabric, 12/21 mm (int.Ø/ext.Ø)	417400127
	PVC- fabric, 19/27 mm (int.Ø/ext.Ø)	417400131
	PVC- fabric, 25/34 mm (int.Ø/ext.Ø)	417400139

**Note:** We explicitly point out that PVC fabric tubes have a limited lifetime if alkaline chemicals will be used. To avoid damage for your staff and your company the tubes have to be exchanged at least every 6 months. In case of non-compliance we exclude all kinds of liability and responsibility.



**Bottom admission valve**



	<b>Article</b>	<b>Material-No.</b>
	BSV PP PP FP GL 000 G 1¼ – 99	250011
	BSV PP PP EP GL 000 G 1¼ – 99	250012
	BSV PV PV FP GL 000 G 1¼ – 99	249082
	BSV PV PV FP GL 000 G 1¼ – 99	249083
	BSV VA VA FP VA 000 G 1¼ – 99	249036
	BSV VA VA EP VA 000 G 1¼ – 99	on request

**Connection material see page 16**

\* standard valve ball material will soon be changed to ceramics



**Article**

**Material No.**



**Pulsation damper**

To reduce pressure peaks and pulsation at oscillating rotary pumps at the pressure side and to prevent cavitating at the suction side.

Stroke volume: 40 cm<sup>3</sup>/stroke  
 Admissible nominal pressure: 10 bar  
 Thread connection: G 1 ¼

**PDS 250 D25 PP/Hypalon**

415503005

Housing material: PP  
 Sealing/diaphragms: Hypalon

**PDS 250 D25 PP/Viton**

415503006

Housing material: PP  
 Sealing/diaphragms: Viton



**Manometer**

415502560

0-10 bar, connection G ¼

**Attention:**

When adjusting the initial pressure, the pulsation damper has to be relieved on the metering media side.



**Reduction G ½ a – G ¼ i**

415202771

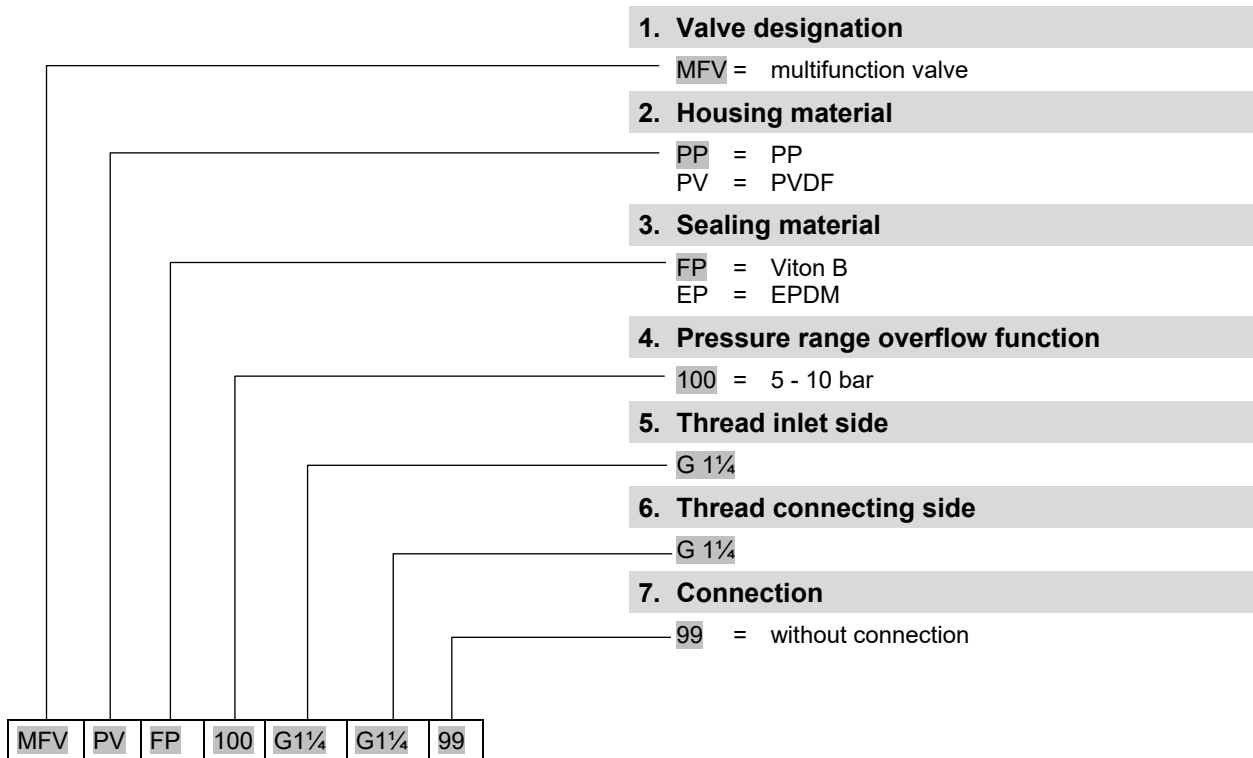


**Pump bracket VA**

250047

incl. mounting accessories  
 bracket with holder out 4 edge hollow profile  
 with movable fixing plate

**Multifunction valve**



This safety-relevant component serves the purpose of protecting the piping system and the metering pump and permits safe and reliable commissioning and maintenance of the system.

The multiple function valve combines all of the following functions: **overflow, pressure maintenance, venting and drainage**

Dimensions (L \* D \* H): 341 x 160 x 200 mm



Article	Material-No.
MFV PP FP 100 G 1¼ – G 1¼ – 99	250060
MFV PP EP 100 G 1¼ – G 1¼ – 99	250061
MFV PV FP 100 G 1¼ – G 1¼ – 99	250064
MFV PV EP 100 G 1¼ – G 1¼ – 99	250065

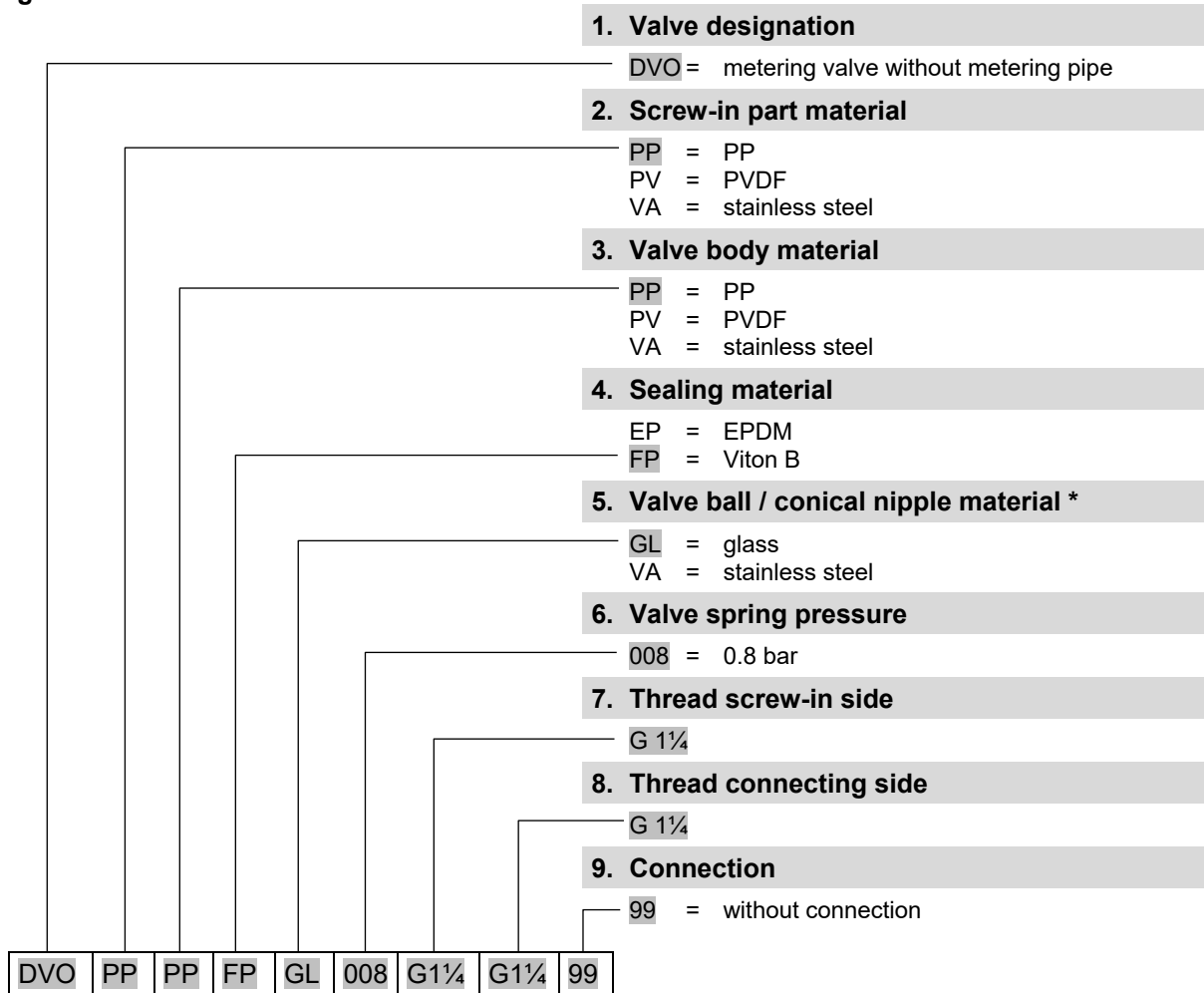
**Extent of supply:** 2 fixing clips with securing bracket (415018707), 3 O-ring seals (417003593) Viton B, user's manual

The multiple function valve should be installed close to the pump on a suitable wall.

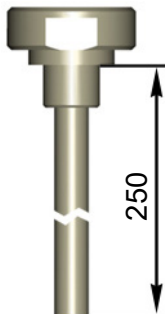
**Connection material see page 16**



**Metering valves**



\* standard valve ball material will soon be changed to ceramics



Article	Material-No.
DVO PP PP FP GL 008 G 1¼ – G 1¼ – 99	250017
DVO PP PP EP GL 008 G 1¼ – G 1¼ – 99	250018
DVO PV PV FP GL 008 G 1¼ – G 1¼ – 99	249086
DVO PV PV EP GL 008 G 1¼ – G 1¼ – 99	on request
DVO VA VA FP VA 008 G 1¼ – G 1¼ – 99	249468
DVO VA VA EP VA 008 G 1¼ – G 1¼ – 99	249059

**Connection material see page 16**

Metering pipe PP G ¾ for DVO G 1¼	249235
Metering pipe PV G ¾ for DVO G 1¼	249236



Connection material for suction and pressure valves,  
bottom admission valves and metering valves  
(to be ordered separately)

**Article**

**Material-No.**

**Connection set PP, G 1¼ - NW 20/22**

249239

consisting of:

1 union nut PP G 1¼ (415099835), 1 pressure hose nozzle PP  
NW 20/22 (34950256) and 2 hose clips for hose AD 25-40  
(415013306)



**Hose clips (stainless steel)**

for hose AD 20-32  
for hose AD 25-40

415013305

415013306



**Union nut G 1 1/4**

PP  
PVDF  
stainless steel

415099835

415099072

38610405



**Pressure hose nozzle**

PP for hose NW 20/22 (ill.)  
PP for hose NW 25/27  
PVDF for hose NW 20/22 (ill.)  
PVDF for hose NW 25/27  
stainless steel

34950256

34950257

34950199

34950201

on request





**Article**

**Material-No.**

**Connection to tubes**



**Union nut G 1 1/4**

PP  
PVDF  
stainless steel (1.4571)

415099835  
415099072  
38610405



**Insertion part (welded bush) 1 1/4" for tube connection DN 20 (d25)**

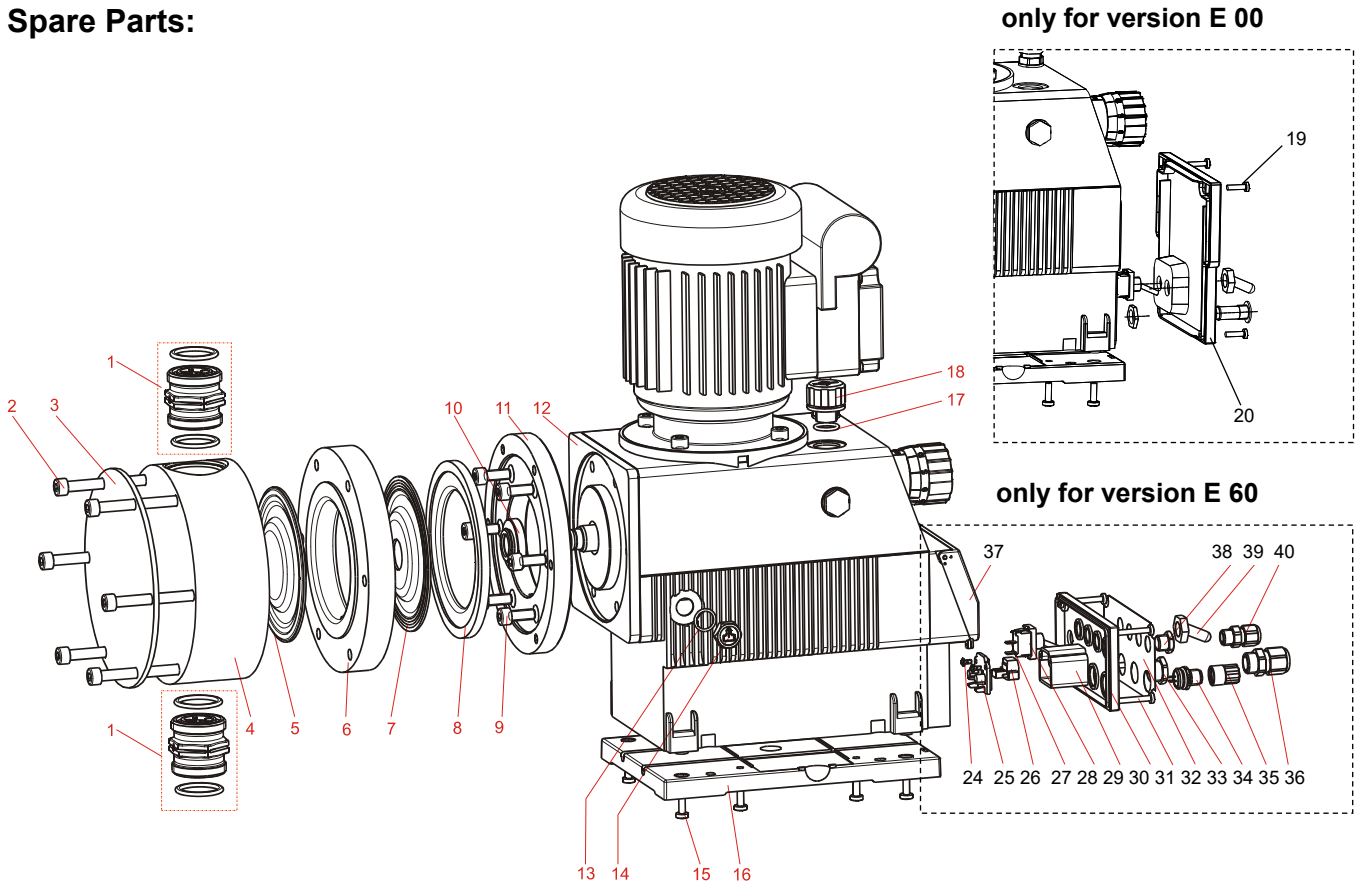
PP  
PVDF  
stainless steel (screw-in thread G 3/4)

415099709  
415099033  
38610407

**Further connection material on request!**



**Spare Parts:**



Item	Article	Material-No.
1	Suction/pressure valve SDV <b>PP FP</b> KE 000 G1¼ -G1¼ - 99* Suction/pressure valve SDV <b>PP EP</b> KE 000 G1¼ - G1¼ - 99* Suction/pressure valve SDV <b>PV FP</b> KE 000 G1¼ - G1¼ - 99* Suction/pressure valve SDV <b>PV EP</b> KE 000 G1¼ - G1¼ - 99*	249075 249055 249074 249041
2	Hexagon socket screw M8 x 100 VA	413031066
3	Proofing plate	34950144
4	Pump head <b>PP</b> Pump head <b>PVDF</b>	34950135 34950137
5	Conveying diaphragm	34950101
6	Intermediate ring <b>PP</b> Intermediate ring <b>PVDF</b>	34950150 34950194
7	Protective diaphragm	34950163
8	Supporting disc	34950177
9	Hexagon socket screw M8 x 20 VA	413031055
10	Receiver disc for protective diaphragm	34950152
11	Intermediate plate	34950147
12	Flange plate	34950124

\* Please see page 20 for code declaration



Item	Article	Material-No.
13	O-ring 9 x 2 NBR	417002063
14	Locking nut	415204603
15	Oval head screw M5 x 16 VA	413119274
16	Mounting plate	34950123
17	O-ring 15 x 2.5 NBR	417002137
18	Vent screw	415204601

**only for versions E 00**

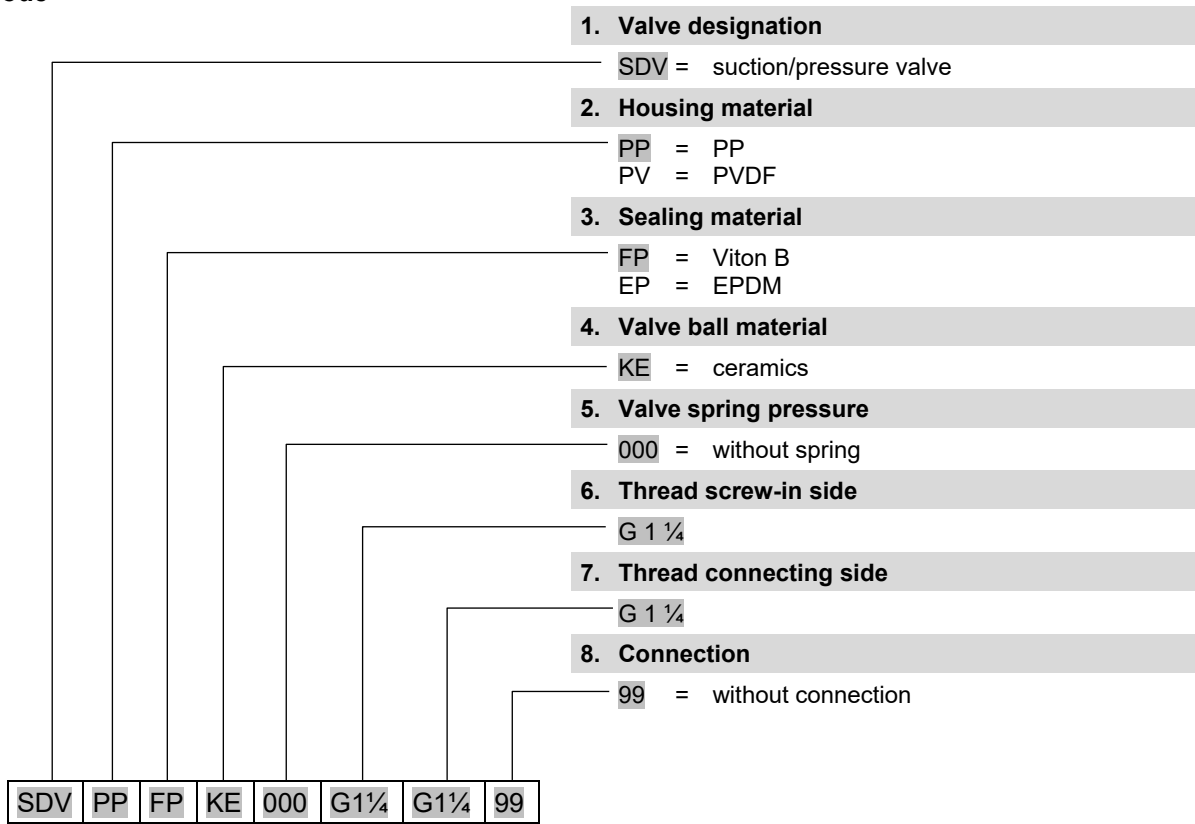
19	Oval head screw M4 x 16 VA	413119230
20	Front panel for version E00	34950161

**only for version E 60**

24	EJOT-PT - Screw KB 30 x 8	413071033
25	Connector mounting	34950125
26	Connector, two-pole, RM 5.08	418461544
27	Switch connecting cable	249690
28	Toggle switch	418244171
	Slip-on lever sleeve for toggle switch	418244180
29	Connecting cover	34950119
30	Sealing cord Ø 2 mm in connecting cover (0.37 m) (available by the meter)	417401005
31	Oval head bolt M4 x 30	413119236
32	Connection label E60	34950131
33	Dummy plug M16 x 1.5	418441042
34	Flange connector, 3-pole M12	34950209
35	Dummy connector, "Empty" signal input	248186
36	Threaded cable union M16 x 1.5	418441010
37	See-through cover	34950120
38	Dummy plug M12 x 1.5	418441041
39	Protective cap for toggle switch	418244179
40	Threaded cable union M12 x 1.5	418441009



**Valve code**



Connection material see page **16**

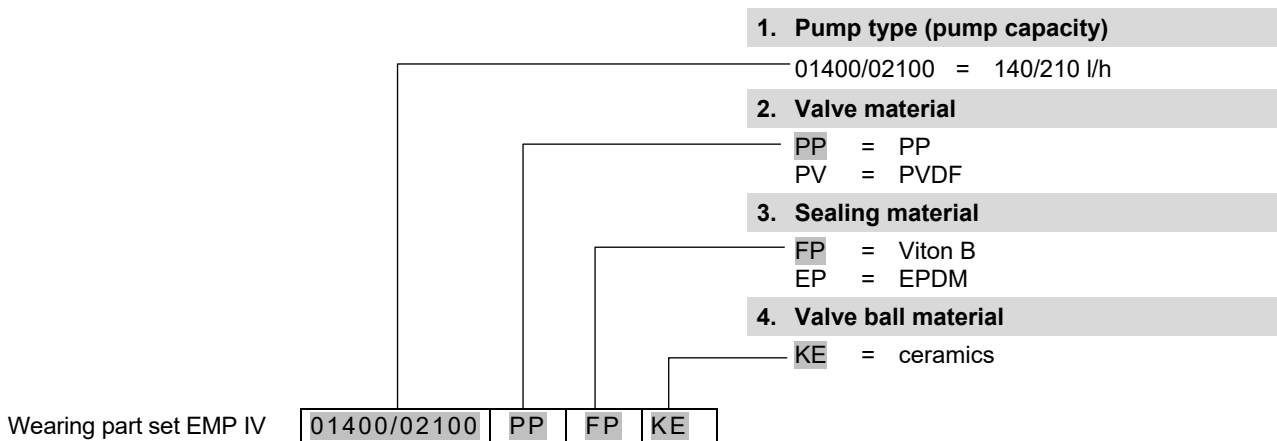


**Set of wearing parts (complete)**

consisting of 1 piece each:

- Suction valve with hose connection material
- Pressure valve with hose connection material
- Diaphragms
- Supporting ring

Article	Code	Material-No.
Wearing part set	EMP IV 01400/02100 PP FP KE	250160
	EMP IV 01400/02100 PP EP KE	250161
	EMP IV 01400/02100 PV FP KE	250162
	EMP IV 01400/02100 PV EP KE	250163





## EMP IV HP (High Pressure)

**Note:** The pump versions EMP IV HP (High Pressure) 01400 and 02100 can be operated with a higher metering back pressure. The below pictured pump key enables the configuration of the desired EMP IV HP pumps.

### Pump code – part 1

#### 1. Electrical version (please see page 7)

E 00

E 60

#### 2. Pump capacity 50 Hz [60 Hz]

01400 = 135 l/h [162 l/h]  
02100 = 202 l/h [242 l/h]

#### 3. Pump material

PP = PP (standard)  
PV = PVDF  
VA = stainless steel

#### 4. Metering back pressure (depends on pump capacity)

10 = 10 bar (for 202 l/h) [8 bar]  
12 = 12 bar (for 135 l/h) [9.6 bar]

#### 5. Sealing material

EP = EPDM  
FP = Viton B (standard)  
KA = kalrez  
PT = teflon

#### 6. Valve ball material

KE = ceramics (standard)  
VA = stainless steel  
PT = teflon

#### 7. Valve material

PP = PP (standard)  
PV = PVDF  
VA = stainless steel

#### 8. Valve spring

99 = without spring (standard)

#### 9. Mains supply

99 = without cable (standard)

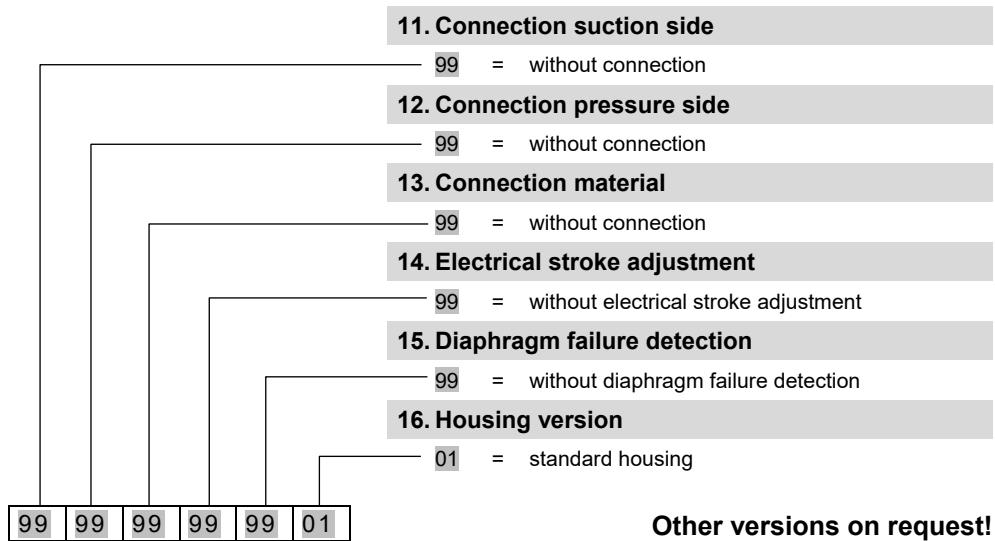
#### 10. Power supply

08 = 230 V / 50/60 Hz  
09 = 115 V / 50/60 Hz (only for version E60)  
10 = 3PE 400/230 V 50/60 Hz (only for version E00)

E60 01400 PP 12 FP KE PP 99 99 08

**Other versions on request!**

**Pump code – part 2**



Example of a complete pump code of a **EMP IV HP** pump:

E60	01400	PP	12	FP	KE	PP	99	99	08	-	99	99	99	99	99	01
-----	-------	----	----	----	----	----	----	----	----	---	----	----	----	----	----	----

(Pump code 1)

(Pump code 2)

**Note:** For pump versions **EMP IV HP** the hose connection material has to be ordered separately.

**Connection material (pressure side)**



**Straight connection PVDF** 415102354  
Connection G1/2a for hose 13/20



**Insertion part PVDF 1 1/4 G1/2i** 34900292



**Union nut PVDF G1 1/4 d25** 415099072

**Pressure lines** (available by the metre)

max. operating pressure [bar] bei 20° C



**PVC-fabric 13/20 mm** 15 417400128