

## Supplementary Instructions

Sigma/ 3 metering pumps with  
multilayer safety diaphragm



### Function Description

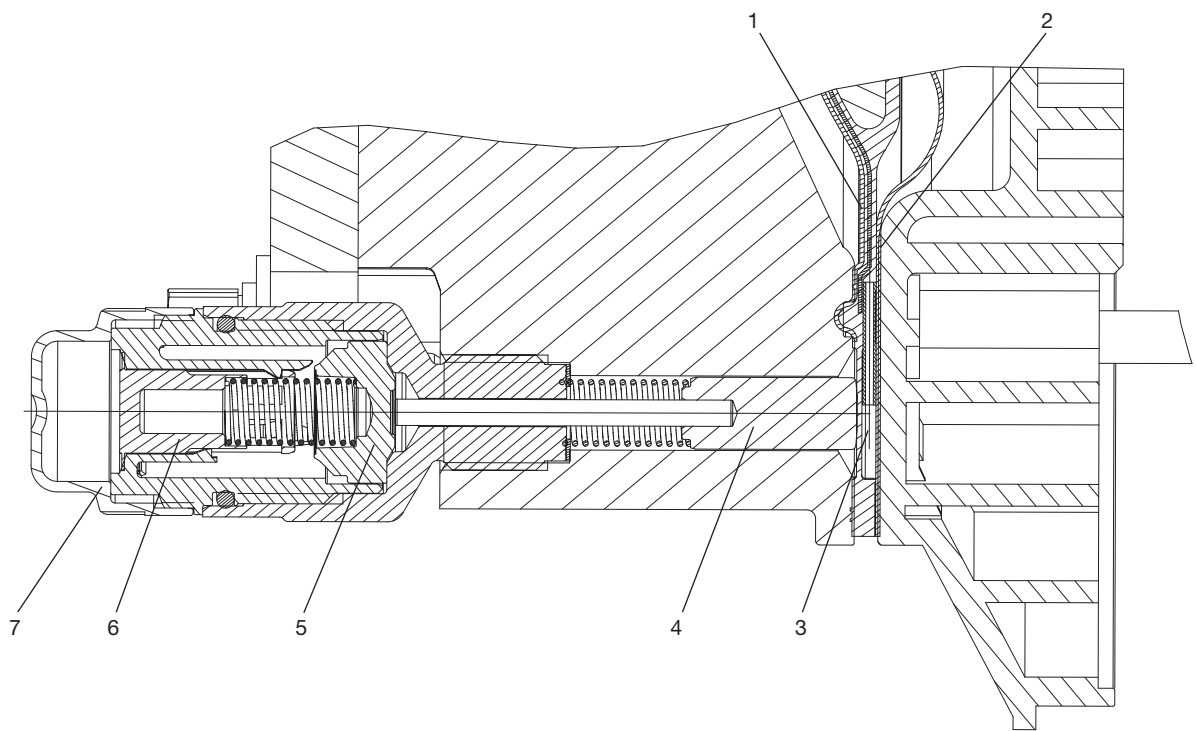


Fig. 1: Section through the diaphragm rupture signalling Sigma (without electrical component parts)

- 1 Working layer ( $\triangleq$  working diaphragm)
- 2 Safety layer ( $\triangleq$  safety diaphragm)
- 3 Lug
- 4 Plunger
- 5 Diaphragm rupture sensor
- 6 Cylinder, red
- 7 Cover, transparent

The multilayer safety diaphragm has the same function as the conventional double diaphragm systems with working and safety diaphragm; however, it has the advantage that both diaphragms are grouped to form a unit.

If the working layer (1) ruptures, the metering medium penetrates between the working layer and the safety layer (2) and spreads. The safety layer ensures that no metering medium leaks to the outside.

As soon as the metering medium reaches the lug (3) at the edge of the multilayer safety diaphragm, the lug expands. The lug presses on a plunger (4) in the diaphragm rupture sensor (5) and the sensor triggers.

In **mechanical** diaphragm rupture sensors, the sunk red cylinder (6) under the transparent cover (7) jumps to the front such that it is clearly visible.

In **electrical** diaphragm rupture sensors, a switch switches. A connected signalling unit signals the diaphragm rupture. In the control version, the diaphragm rupture sensor is connected to the "socket for diaphragm rupture monitor". In case of a diaphragm rupture, the red LED indicator "Fault" is illuminated at the pump, the identifier "Error" and DIAPH flash on the LCD screen. Depending on the selected Identcode version in "Displacement body", the pump continues to meter ("Pump emits alarm") or stops ("Pump stops").

## Identcode Ordering System Basic Type (S3Ba)

## Sigma Basic Type (S3Ba)

| S3Ba | Drive type |                                                                            |
|------|------------|----------------------------------------------------------------------------|
|      | H          | Main drive, diaphragm                                                      |
|      |            | <b>Pump type*</b>                                                          |
|      |            | <b>bar l/h at 50 Hz</b>                                                    |
|      |            | 120145 12 145                                                              |
|      |            | 120190 12 190                                                              |
|      |            | 120270 12 270                                                              |
|      |            | 120330 12 330                                                              |
|      |            | 070410 7 410                                                               |
|      |            | 070580 7 580                                                               |
|      |            | 040830 4 830                                                               |
|      |            | 041030 4 1,030                                                             |
|      |            | <b>Material Liquid end</b>                                                 |
|      |            | PV PVDF (max. 10 bar)                                                      |
|      |            | SS Stainless steel                                                         |
|      |            | <b>Seals material</b>                                                      |
|      |            | T PTFE seal                                                                |
|      |            | <b>Diaphragm</b>                                                           |
|      |            | S Multilayer safety diaphragm with visual rupture indicator                |
|      |            | A Multilayer safety diaphragm with rupture signalling (contact)            |
|      |            | <b>Liquid end version</b>                                                  |
|      |            | 0 No valve springs                                                         |
|      |            | 1 With 2 valve springs, Hastelloy C 4; 0.1 bar (standard for DN 32)        |
|      |            | 4 With bypass valve, FPM seal, no valve springs                            |
|      |            | 5 With overflow valve, FPM gasket with valve springs (standard at DN 32))  |
|      |            | 6 With overflow valve, EPDM gasket, without valve spring                   |
|      |            | 7 With overflow valve, EPDM gasket, with valve springs (standard at DN 32) |
|      |            | <b>Hydraulic connection</b>                                                |
|      |            | 0 Standard threaded connector (as technical data)                          |
|      |            | 1 Union nut and PVC insert                                                 |
|      |            | 2 Union nut and PP insert                                                  |
|      |            | 3 Union nut and PVDF insert                                                |
|      |            | 4 Union nut and stainless steel insert                                     |
|      |            | 7 Union nut and PVDF hose nozzle                                           |
|      |            | 8 Union nut and stainless steel hose nozzle                                |
|      |            | <b>Version</b>                                                             |
|      |            | 0 With ProMinent® logo                                                     |
|      |            | 1 Without ProMinent® logo                                                  |
|      |            | M Modified                                                                 |
|      |            | <b>Electrical power supply</b>                                             |
|      |            | S 3 ph, 230 V/400 V                                                        |
|      |            | M 1 ph, 230 V                                                              |
|      |            | N 1 ph, 115 V                                                              |
|      |            | L 3 ph, 230 V/400 V, 50 Hz, (Exe, Exd)                                     |
|      |            | P 3 ph, 265 V/440 V, 60 Hz, (Exe, Exd)                                     |
|      |            | R Variable speed stroke control motor, 3 ph, 230 V/400 V                   |
|      |            | V (0) Variable speed motor with integrated frequency converter             |
|      |            | V (2) Variable speed motor with integr. FC Exd (delivery with frame)       |
|      |            | Z Speed control compl 1 ph 230 V/400 V (variable speed motor + FC)         |
|      |            | 1 No motor, with B 5 flange, size 80 (DIN)                                 |
|      |            | 2 No motor, with C 56 flange, (NEMA)                                       |
|      |            | 3 No motor, B 5 flange, size 71 (DIN)                                      |
|      |            | <b>Enclosure rating</b>                                                    |
|      |            | 0 IP 55                                                                    |
|      |            | 1 Exe motor version ATEX-T3                                                |
|      |            | 2 Exd motor version ATEX-T4                                                |
|      |            | A ATEX power end                                                           |
|      |            | <b>Stroke sensor</b>                                                       |
|      |            | 0 No stroke sensor (standard)                                              |
|      |            | 2 Pacing relay (Reed relay)                                                |
|      |            | 3 Stroke sensor (Namur) for explosion-proof appli.                         |
|      |            | <b>Stroke length adjustment</b>                                            |
|      |            | 0 Manual (standard)                                                        |
|      |            | 1 With stroke positioning motor, 230 V/50/60 Hz                            |
|      |            | 2 With stroke positioning motor, 115 V/50/60 Hz                            |
|      |            | 3 With stroke control motor 0...20 mA 230 V/50/60 Hz                       |
|      |            | 4 With stroke control motor 4...20 mA 230 V/50/60 Hz                       |
|      |            | 5 With stroke control motor 0...20 mA 115 V/50/60 Hz                       |
|      |            | 6 With stroke control motor 4...20 mA 115 V/50/60 Hz                       |

\* digits 1 and 2=back pressure [bar]; digits 3, 4, 5=capacity [l/h]

## Identcode Ordering System Control Type (S3Ca)

### Sigma/ Control Type (S3Ca)

The 60 Hz performance data apply to S3Ca pump types.

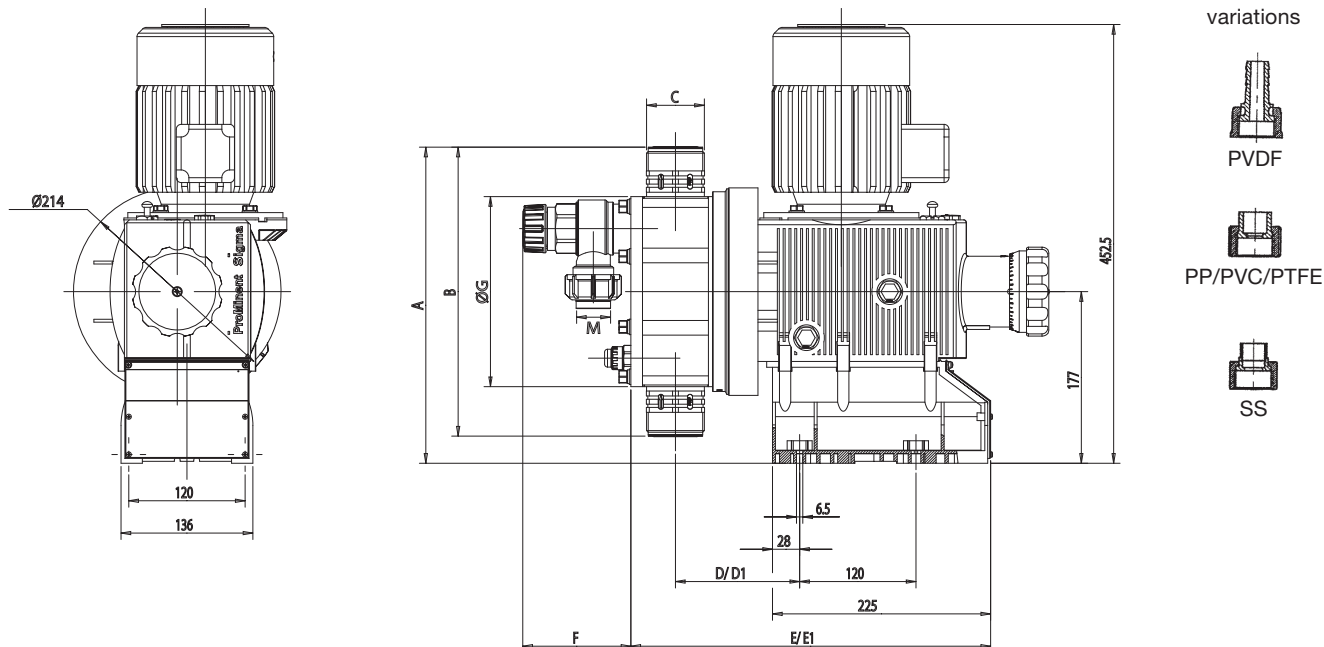
| S3Ca | Drive type |                          |                                                                                        |       |  |  |  |  |  |  |
|------|------------|--------------------------|----------------------------------------------------------------------------------------|-------|--|--|--|--|--|--|
|      | H          | Main drive, diaphragm    |                                                                                        |       |  |  |  |  |  |  |
|      |            | Pump type*               |                                                                                        |       |  |  |  |  |  |  |
|      |            |                          | bar                                                                                    | I/h   |  |  |  |  |  |  |
|      |            | 120145                   | 12                                                                                     | 174   |  |  |  |  |  |  |
|      |            | 120190                   | 12                                                                                     | 228   |  |  |  |  |  |  |
|      |            | 120270                   | 12                                                                                     | 324   |  |  |  |  |  |  |
|      |            | 070410                   | 7                                                                                      | 492   |  |  |  |  |  |  |
|      |            | 070580                   | 7                                                                                      | 696   |  |  |  |  |  |  |
|      |            | 040830                   | 4                                                                                      | 1,000 |  |  |  |  |  |  |
|      |            | Material Liquid end      |                                                                                        |       |  |  |  |  |  |  |
|      |            | PVT                      | PVDF (max. 10 bar)                                                                     |       |  |  |  |  |  |  |
|      |            | SST                      | Stainless steel                                                                        |       |  |  |  |  |  |  |
|      |            | Displacement body        |                                                                                        |       |  |  |  |  |  |  |
|      |            | S                        | Multilayer safety diaphragm with visual rupture indicator                              |       |  |  |  |  |  |  |
|      |            | A                        | Multilayer safety diaphragm with rupture signalling; pump stops                        |       |  |  |  |  |  |  |
|      |            | B                        | Multilayer safety diaphragm with rupture signalling; pump emits alarm                  |       |  |  |  |  |  |  |
|      |            | Liquid end version       |                                                                                        |       |  |  |  |  |  |  |
|      |            | 0                        | No valve springs                                                                       |       |  |  |  |  |  |  |
|      |            | 1                        | With 2 valve springs, Hastelloy C 4; 0.1 bar (standard for DN 32)                      |       |  |  |  |  |  |  |
|      |            | 4                        | With bypass valve, FPM seal, no valve springs                                          |       |  |  |  |  |  |  |
|      |            | 5                        | With overflow valve, FPM gasket with valve springs (standard at DN 32)                 |       |  |  |  |  |  |  |
|      |            | 6                        | With overflow valve, EPDM gasket, without valve springs                                |       |  |  |  |  |  |  |
|      |            | 7                        | With overflow valve, EPDM gasket, with valve springs (standard at DN 32)               |       |  |  |  |  |  |  |
|      |            | Hydraulischer Anschluss  |                                                                                        |       |  |  |  |  |  |  |
|      |            | 0                        | Standard threaded connector                                                            |       |  |  |  |  |  |  |
|      |            | 1                        | Union nut and PVC insert                                                               |       |  |  |  |  |  |  |
|      |            | 2                        | Union nut and PP insert                                                                |       |  |  |  |  |  |  |
|      |            | 3                        | Union nut and PVDF insert                                                              |       |  |  |  |  |  |  |
|      |            | 4                        | Union nut and stainless steel insert                                                   |       |  |  |  |  |  |  |
|      |            | 7                        | Union nut and PVDF hose nozzle                                                         |       |  |  |  |  |  |  |
|      |            | 8                        | Union nut and stainless steel hose nozzle                                              |       |  |  |  |  |  |  |
|      |            | Version                  |                                                                                        |       |  |  |  |  |  |  |
|      |            | 0                        | With ProMinent® logo                                                                   |       |  |  |  |  |  |  |
|      |            | 1                        | Without ProMinent® logo                                                                |       |  |  |  |  |  |  |
|      |            | Electrical power supply  |                                                                                        |       |  |  |  |  |  |  |
|      |            | W                        | 1 ph 115-230 V ±10 %, 50/60 Hz                                                         |       |  |  |  |  |  |  |
|      |            | Cable and plug           |                                                                                        |       |  |  |  |  |  |  |
|      |            | A                        | 2 m Europe                                                                             |       |  |  |  |  |  |  |
|      |            | B                        | 2 m Switzerland                                                                        |       |  |  |  |  |  |  |
|      |            | C                        | 2 m Australia                                                                          |       |  |  |  |  |  |  |
|      |            | D                        | 2 m USA                                                                                |       |  |  |  |  |  |  |
|      |            | Relay                    |                                                                                        |       |  |  |  |  |  |  |
|      |            | 0                        | No relay                                                                               |       |  |  |  |  |  |  |
|      |            | 1                        | Fault-indicating relay normally energised 1x changeover 230V – 2A                      |       |  |  |  |  |  |  |
|      |            | 3                        | Fault-indicating relay normally de-energised 1x changeover 230V – 2A                   |       |  |  |  |  |  |  |
|      |            | 4                        | As 1 + pacing relay 2x normally open 24 V – 100 mA                                     |       |  |  |  |  |  |  |
|      |            | 5                        | As 3 + pacing relay 2x normally open 24 V – 100 mA                                     |       |  |  |  |  |  |  |
|      |            | A                        | Shut-off and warning relays normally closed 2x normally open 24 V – 100 mA             |       |  |  |  |  |  |  |
|      |            | C                        | 4-20 mA output = stroke length x frequency 1 x alarm relay make contact 24 V -, 100 mA |       |  |  |  |  |  |  |
|      |            | F                        | Power relay normally closed 1 x changeover 230 V – 8 A                                 |       |  |  |  |  |  |  |
|      |            | Control variant          |                                                                                        |       |  |  |  |  |  |  |
|      |            | 0                        | Manual + external with pulse control                                                   |       |  |  |  |  |  |  |
|      |            | 1                        | Man. + external + pulse control + analogue                                             |       |  |  |  |  |  |  |
|      |            | 4                        | As 0 + process-timer                                                                   |       |  |  |  |  |  |  |
|      |            | 5                        | As 1 + process-timer                                                                   |       |  |  |  |  |  |  |
|      |            | P**                      | As 1 + PROFIBUS® DP-interface, D sub 9                                                 |       |  |  |  |  |  |  |
|      |            | R**                      | As 1 + PROFIBUS®DP interface, M12                                                      |       |  |  |  |  |  |  |
|      |            | Access code              |                                                                                        |       |  |  |  |  |  |  |
|      |            | 0                        | No access code                                                                         |       |  |  |  |  |  |  |
|      |            | 1                        | With access code                                                                       |       |  |  |  |  |  |  |
|      |            | Metering monitor         |                                                                                        |       |  |  |  |  |  |  |
|      |            | 0                        | Input with pulse evaluation                                                            |       |  |  |  |  |  |  |
|      |            | Stroke length adjustment |                                                                                        |       |  |  |  |  |  |  |
|      |            | 0                        | Manual                                                                                 |       |  |  |  |  |  |  |
|      |            | C                        | Manual + calibration                                                                   |       |  |  |  |  |  |  |

\* Item 1 and 2=backpressure [bar]; item 3, 4, 5=output [l/h] · \*\* For the option PROFIBUS® no relay can be selected

# Dimensions S3Ba (in mm)

|             | [Ø] M               | type of the pump |
|-------------|---------------------|------------------|
| DN 10 - PVA | 21.4/16*            | 120145, 120190   |
| DN 10 - SSA | DIN ISO 228 - G 3/4 | 120270, 120330   |
| DN 20 - PVA | 35.5/25*            | 070410, 070580   |
| DN 20 - SSA | DIN ISO 228 - G 1   | 040830, 041030   |

\* Connection with hose nozzle



61\_01-101\_00\_12-73

## Dimensions Sigma/ 3 (in mm)

| Feed unit   | Connection | A   | B   | C         | D   | D1* | E   | E1* | F   | Ø G | I   | K  |
|-------------|------------|-----|-----|-----------|-----|-----|-----|-----|-----|-----|-----|----|
| FM 330 PVT  | DN 25      | 292 | 230 | G1 1/2" A | 120 | 140 | 353 | 373 | 82  | 156 | 174 | 71 |
| FM 330 SST  | DN 25      | 292 | 230 | G1 1/2" A | 121 | 141 | 343 | 363 | 89  | 156 | 148 | 61 |
| FM 1000 PVT | DN 32      | 325 | 297 | G2" A     | 127 | 147 | 373 | 393 | 121 | 206 | 108 | 85 |
| FM 1000 SST | DN 32      | 322 | 291 | G2" A     | 127 | 147 | 357 | 377 | 121 | 206 | 146 | 70 |

FM 330 for Sigma/ 3, 120145, 120190, 120270, 120330

FM 1000 for Sigma/ 3, 070410, 070580, 040830, 041030

\* Measurements with diaphragm rupture sensor.

Dimensions S3Ca (in mm)

|             | [Ø] M               | type of the pump |
|-------------|---------------------|------------------|
| DN 10 - PVA | 21.4/16*            | 120145, 120190   |
| DN 10 – SSA | DIN ISO 228 – G 3/4 |                  |
| DN 20 - PVA | 35.5/25*            | 070410, 070584   |
| DN 20 – SSA | DIN ISO 228 – G 1   |                  |

\* Connection with hose nozzle

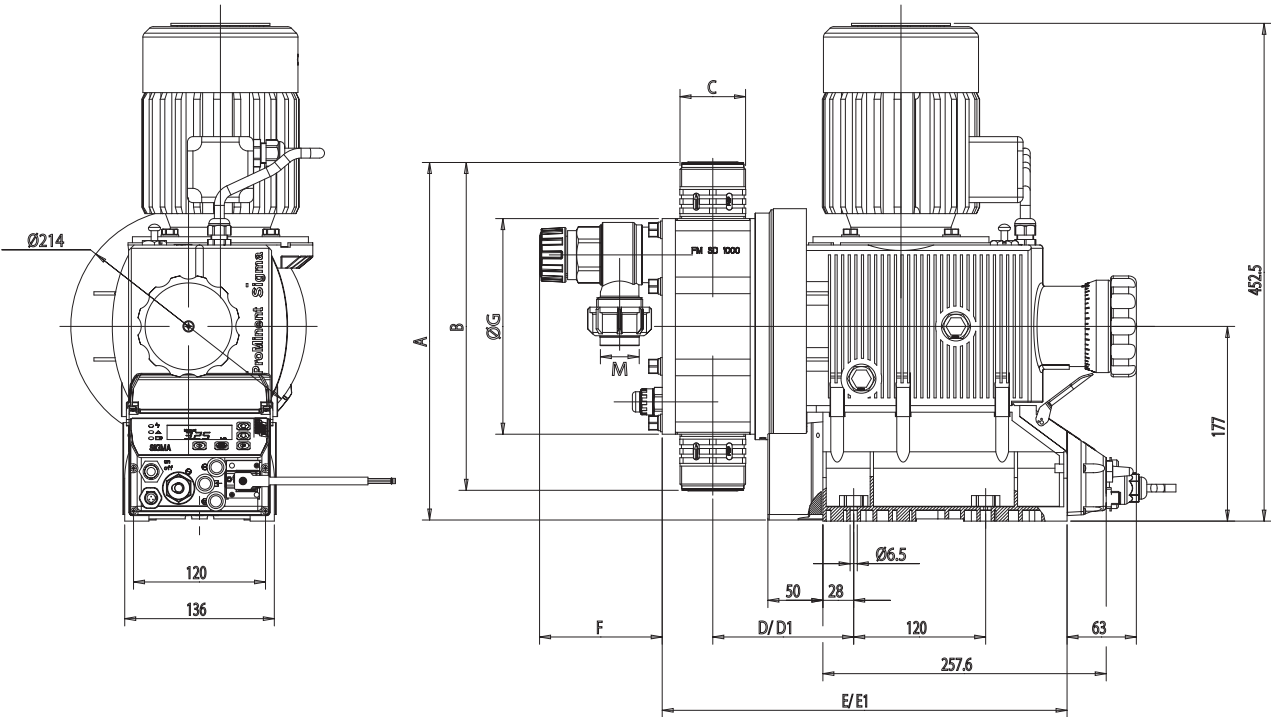
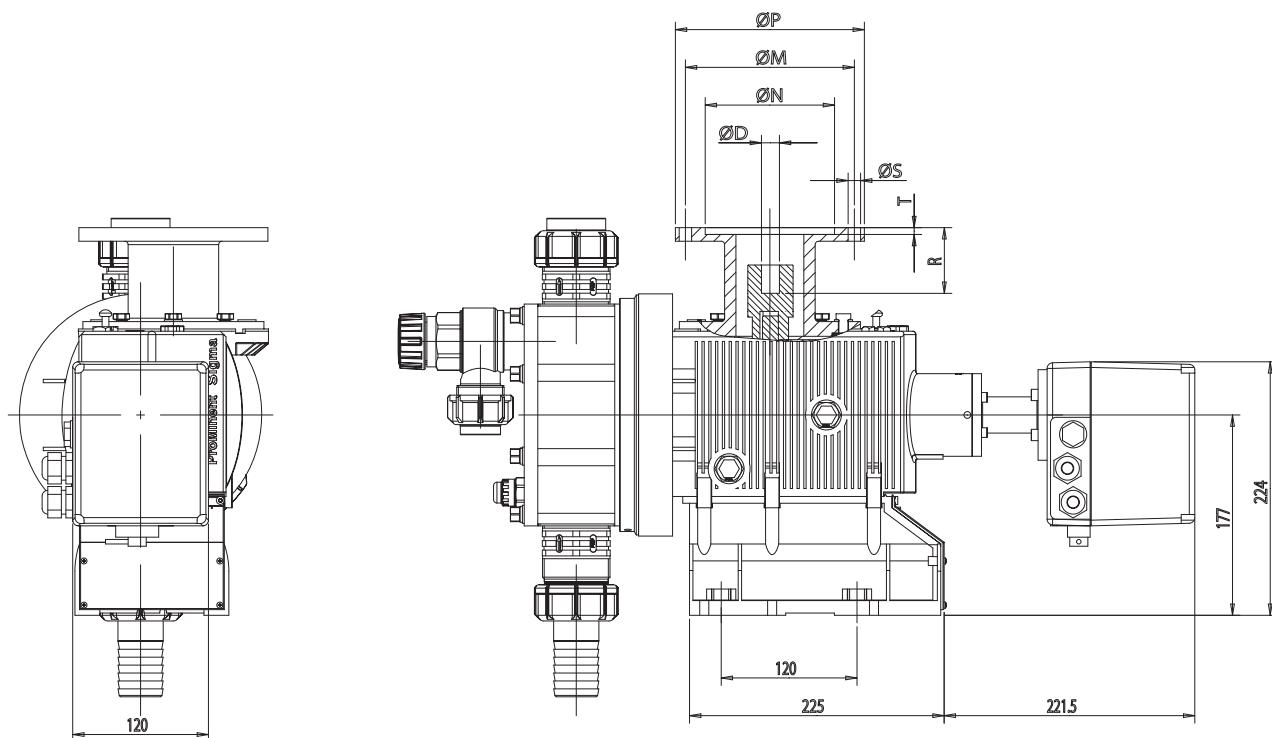


Table of alternative dimensions, see above

61\_01-101\_00\_15-73

Dimensions S3Ba with stroke positioning motor (in mm)



61\_01-101\_00\_12-73

Dimensions Sigma/ 3 with stroke positioning motor (in mm)

| Motor flange | Ø P   | Ø M   | Ø N  | Ø S   | Ø D   | T     | E     | K    | L     | V     |
|--------------|-------|-------|------|-------|-------|-------|-------|------|-------|-------|
| B5/200       | 200   | 165   | 130  | 11    | 19    | 6     | 41.5  | 6    | 21.8  | 328   |
| 56 C         | 6.57" | 5.88" | 4.5" | 0.04" | 6.25" | 0.24" | 2.22" | 0.2" | 0.72" | 13.5" |
| B5/160       | 160   | 130   | 110  | 11.8  | 14    | 4     | 35    | 5    | 16.3  | 253   |

# Die ProMinent Firmengruppe / The ProMinent Group

## Stammhaus / Head office

ProMinent Dosiertechnik GmbH · Im Schuhmachergewann 5-11 · 69123 Heidelberg · Germany  
info@prominent.com · www.prominent.com · Tel.: +49 6221 842-0 · Fax: +49 6221 842-617

## Tochtergesellschaften / Subsidiaries

### ProMinent Algeria (Algeria)

Tel.: +213 21 54 84 74  
prominent\_algerie@yahoo.fr

### ProMinent Argentina S.A. (Argentina)

Tel.: +54 11 4742 4009  
info-ar@prominent.com

### ProMinent Fluid Controls Pty. Ltd. (Australia)

Tel.: +61 2 9450 0995  
sales@prominentfluid.com.au  
www.prominentfluid.com.au

### ProMinent Dosiertechnik Ges. mbH (Austria)

Tel.: +43 7448 30400  
office@prominent.at  
www.prominent.at

### ProMinent Belgium S.A., N.V. (Belgium)

Tel.: +32 2 3914280  
info@prominent.be  
www.prominent.be

### ProMinent Brasil Ltda. (Brazil)

Tel.: +55 11 43610722  
prominent@prominent.com.br  
www.prominent.com.br

### ProMinent Fluid Controls BG (Bulgaria)

Tel.: +359 2 9455303  
office@prominent.bg  
www.prominent.bg

### ProMinent Fluid Controls Ltd. (Canada)

Tel.: +1 519 8365692  
info@prominent.ca  
www.prominent.ca

### ProMinent Bermat S.A. (Chile)

Tel.: +56 2 3354799  
prominent@prominent.cl  
www.prominent.cl

### ProMinent Fluid Controls China Co. Ltd. (P.R. of China)

Tel.: +86 411 87315738  
dr.r.hou@prominent.com.cn  
www.@prominent.com.cn

### ProMinent Dosiertechnik CS s.r.o. (Czech Republ.)

Tel.: +420 585 757011  
info@prominent.cz  
www.prominent.cz

### ProMinent Systems spol. s.r.o. (Czech. Republ.)

Tel.: +420 378 227 100  
info@prominentsystems.cz

### ProMinent Dosiertechnik CS (Czech. Republ.)

Tel.: +420 251 55 1228  
praha@prominent.cz

### ProMinent Finland OY (Finland)

Tel.: +35 89 4777890  
prominent@prominent.fi  
www.prominent.fi

### Flow Center Oy (Finland)

Tel.: +358 9 2513 7700  
sales@flowcenter.fi  
www.flowcenter.fi

### ProMinent France S.A. (France)

Tel.: +33 3 88101510  
contact@prominent.fr  
www.prominent.fr

### Syclope Electronique (France)

Tel.: +33 05 59 33 70 36  
syclope@syclope.fr  
www.syclope.fr

### ProMaqua GmbH (Germany)

Tel.: +49 6221 6489-0  
info@promaqua.com  
www.promaqua.com

### ProMinent Fluid Controls (UK) Ltd. (Great Britain)

Tel.: +44 1530 560555  
sales@prominent.co.uk  
www.prominent.co.uk

### ProMinent Hellas Ltd. (Greece)

Tel.: +30 210 5134621  
info@prominent.gr

### ProMinent Magyarország Kft. (Hungary)

Tel.: +36 96 511400  
prominent@prominent.hu  
www.prominent.hu

### Heidelberg ProMinent Fluid Controls (India)

Tel.: +91 80 23578872  
prominent@hpfcindia.com  
www.prominentindia.com

### ProMinent Fluid Controls Ltd. (Ireland)

Tel.: +353 71 9151222  
info@prominent.ie  
www.prominent.ie

### ProMinent Italiana S.R.L. (Italy)

Tel.: +39 0471 920000  
info@prominent.it  
www.prominent.it

### ProAcqua (Italy)

Tel.: +39 0464 425222  
info@proacqua.it

### Idrosid s.r.l. (Italy)

Tel.: +39 0461 534623  
info@idrosid.it  
www.idrosid.it

### ITECO s.r.l. (Italy)

Tel.: +39 0461 242220  
iteco@itecoitalia.com  
www.itecoitalia.com

### ProMinent Co. Ltd. Japan (Japan)

Tel.: +81 3 5812-7831  
hosotani@prominent.co.jp  
www.prominent.co.jp

### ProMinent Office Kazakhstan (Kazakhstan)

Tel.: +7 3272 504130  
prominent@ducatmail.kz

### ProMinent Korea Co. Ltd. (Republic of Korea)

Tel.: +82 31 7018353  
info@prominent.co.kr  
www.prominent.co.kr

### ProMinent Office Kaunas (Lithuania)

Tel.: +370 37 325115  
prominent1@takas.lt

### ProMinent Fluid Controls (M) Sdn. Bhd. (Malaysia)

Tel.: +603 806 82578  
info@pfc-prominent.com.my  
www.pfc-prominent.com.my

### ProMinent Fluid Controls Ltd. (Malta)

Tel.: +356 21693677  
info@pfc.com.mt  
www.prominent.com.mt

### ProMinent Fluid Controls de Mexico, S.A. de C.V. (Mexico)

Tel.: +52 442 2189920  
venfas@prominent.com.mx  
www.prominent.com.mx

### ProMinent Verder B.V. (Netherlands)

Tel.: +31 30 6779280  
info@prominent.nl  
www.prominent.nl

### ProMinent Dozotechnika Sp. z o.o. (Poland)

Tel.: +48 71 3980600  
prominent@prominent.pl  
www.prominent.pl

### ProMinent Portugal Controlo

de Fluidos, Lda. (Portugal)  
Tel.: +35 121 9267040  
geral@prominent.pt  
www.prominent.pt

### ProMinent Verder srl (Romania)

Tel.: +40 269 234408  
office@prominent.ro  
www.prominent.ro

### ProMinent Dositechnika OOO (Russia)

Tel.: +7 495 7874501  
info@prominent.ru  
www.prominent.ru

### Proshield Ltd. (Scotland)

Tel.: +44 1530 560555  
sales@prominent.co.uk  
www@proshield.co.uk

### ProMinent Fluid Controls (Far East) Pte. Ltd. (Singapore)

Tel.: +65 67474935  
pfc@prominent.com.sg  
www.prominent.com.sg

### ProMinent Slovensko s.r.o. (Slovak. Republ.)

Tel.: +421 2 48200111  
prominent@prominent.sk  
www.prominent.sk

### ProMinent Fluid Controls Pty. Ltd. (South Africa)

Tel.: +27 11 82541-42  
jock.bartolo@prominentfluid.co.za

### ProMinent Gugal S.A. (Spain)

Tel.: +34 972 287011/12  
prominent@prominentSpain.com  
www.prominent.es

### ProMinent Dosertechnik AB (Sweden)

Tel.: +46 31 656600  
info@prominent.se  
www.prominent.se

### Tomal AB (Sweden)

Tel.: +46 0 346-713100  
info@tomal.se  
www.tomal.se

### ProMinent Dosiertechnik AG (Switzerland)

Tel.: +41 44 8706111  
info@prominent.ch  
www.prominent.ch

### Voney AG (Switzerland)

Tel.: +41 031 992 21 67  
www.voney-ag.ch

### ProMinent Fluid Controls (Taiwan) Ltd. (Taiwan)

Tel.: +886 7 8135122  
richard@prominent.com.tw  
www.prominent.com.tw

### ProMinent Fluid Controls (Thailand) Co. Ltd. (Thailand)

Tel.: +66 2 3760008  
pfc@prominent.co.th  
www.prominent.co.th

### ProMinent Tunesia (Tunisia)

Tel.: +216 79 391 999  
prominent\_tunisie@yahoo.fr

### ProMinent Office Kiev (Ukraine)

Tel.: +380 44 5296933  
prominent@i.com.ua

### ProMinent Juffali FZC (United Arabian Emirates)

Tel.: +97 1655 72626  
info@prominentfzc.ae  
www.prominentjuffali.ae

### ProMinent Fluid Controls, Inc. (USA)

Tel.: +1 412 7872484  
sales@prominent.us  
www.prominent.us

### Aquatrac Instruments, Inc. (USA)

Tel.: +1 800 909 9283

## Vertretungen weltweit / Distributors Worldwide

Angola · Bahrain · Bolivia · Botswana · Cameroon · Colombia · Costa Rica · Croatia · Cuba · Cyprus · Denmark · Ecuador · Egypt · El Salvador · Ethiopia · Ghana · Guatemala · Hong Kong · Indonesia · Iran · Ireland · Iceland · Israel · Jordan · Kenya · Kuwait · Macedonia · Malta · Mauritius · Montenegro · Mozambique · Namibia · New Zealand · Nigeria · Norway · Oman · Pakistan · Panama · Paraguay · Peru · Philippines · Qatar · Saudi Arabia · Serbia · Slovenia · Sudan · Syria · Tanzania · Tunesia · Turkey · Turkmenistan · UAE · Uganda · Uruguay · Venezuela · Vietnam · White Russia · Zambia · Zimbabwe

Anschriftennachweise erhalten Sie durch: / Addresses of distributors are available from: ProMinent Dosiertechnik GmbH, Germany