# DATA SHEET DB 31a-01200

**BR 31a · Quarter-turn actuator**

Version DAP / SRP 1200 · Technical data and spare parts

CE

## Applications

Single-acting or double-acting piston actuators for butterfly valves, ball valves and other final control elements with rotary closure members. Particularly suitable for high process requirements in chemical plants:

- **Opening angle 90°**
- **Temperatures -40°C to +80°C**


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## Dimensions of quarter-turn actuator

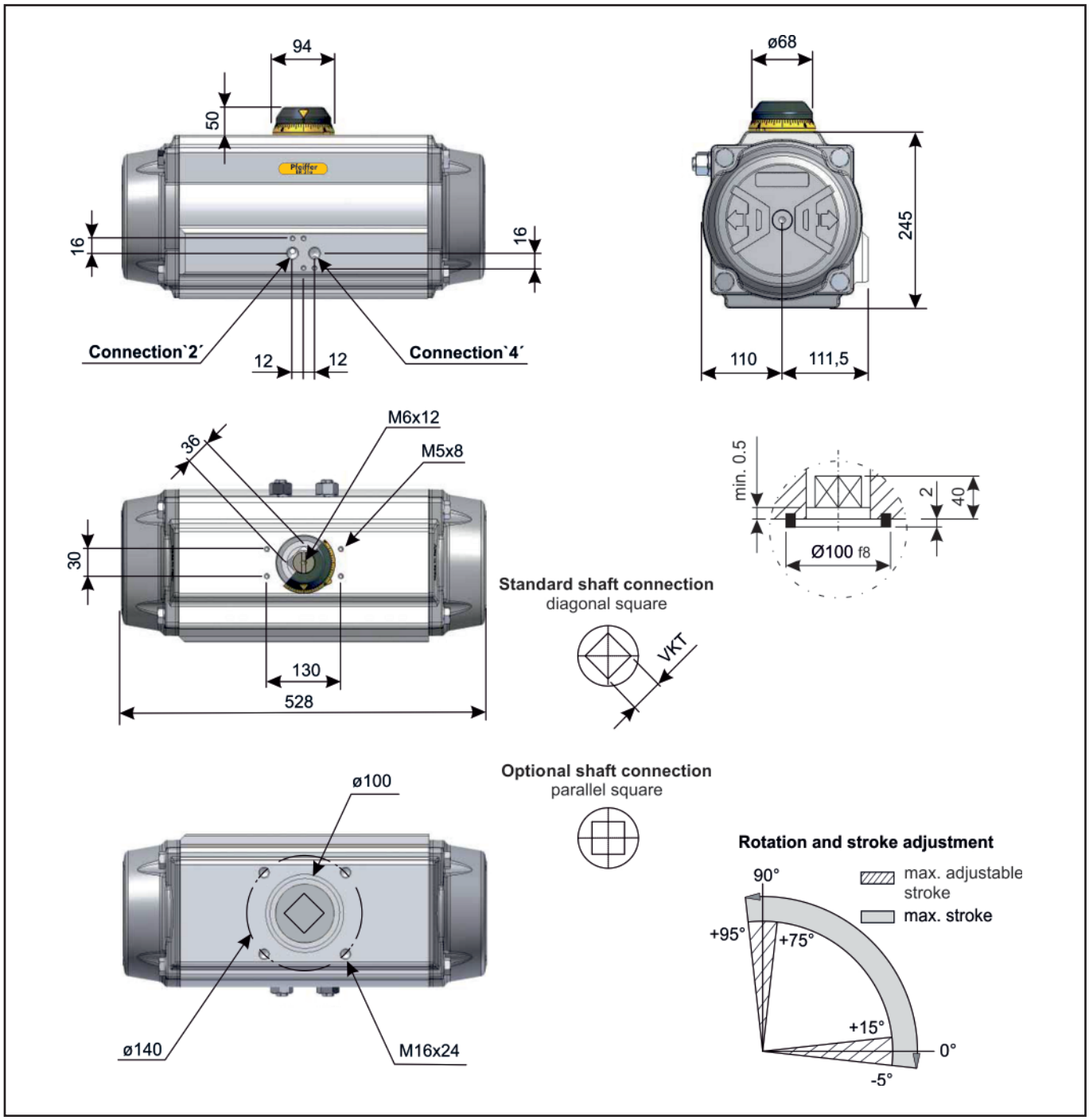


**Fig. 2:** *Dimensional drawing*

**Table 1:** *Connection dimensions / Connections*

| | | |
|---|---|---|
| ISO 5211 | Flange | F14 |
| | Square (diagonal) | 36mm |
| VDI/VDE 3845 | Air connection | 24x32mm + 2x G¼" |
| | Fixing level 1 | AA4 (130x30x50mm) |

## Technical Data

**Table 2:** *Torques for double and single acting quarter-turn actuators*

| Type | Torque double and single acting in Nm | | | | | | | | | | | | | | | | | | | | | | Spring stroke | | Weight in kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure in bar | 2.5 | | 3 | | 3.5 | | 4 | | 4.2 | | 4.5 | | 5 | | 5.5 | | 6 | | 7 | | 8 | | | | |
| | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 0° | 90° | 90° | 0° | |
| DAP | **532** | | **638** | | **745** | | **851** | | **893** | | **957** | | **1064** | | **1170** | | **1276** | | **1489** | | **1702** | | - | | 34.3 |
| | | | | | | | | | | | | | | | | | | | | | | | Start | End | |
| SRP 2,5 | **319** | **217** | 426 | 323 | 532 | 430 | 638 | 536 | 681 | 578 | 745 | 642 | 851 | 749 | 957 | 855 | 1063 | 961 | 1276 | 1174 | 1488 | 1386 | 315 | 213 | 38.2 |
| SRP 3 | 277 | 154 | **383** | **260** | 489 | 367 | 596 | 473 | 638 | 515 | 702 | 579 | 808 | 686 | 915 | 792 | 1021 | 898 | 1234 | 1111 | 1446 | 1323 | 378 | 255 | 39.0 |
| SRP 3,5 | 234 | 90.7 | 341 | 197 | **447** | **304** | 553 | 410 | 596 | 453 | 660 | 516 | 766 | 623 | 872 | 729 | 979 | 835 | 1191 | 1048 | 1403 | 1260 | 441 | 298 | 39.7 |
| SRP 4 | 192 | 27.7 | 298 | 134 | 404 | 241 | **511** | **347** | **553** | **390** | 617 | 453 | 723 | 560 | 830 | 666 | 936 | 772 | 1149 | 985 | 1361 | 1197 | 504 | 340 | 40.5 |
| SRP 4,5 | 149 | | 255 | 71.0 | 361 | 177 | 468 | 284 | 511 | 327 | **575** | **390** | 681 | 497 | 787 | 603 | 894 | 709 | 1106 | 922 | 1319 | 1135 | 567 | 383 | 41.3 |
| SRP 5 | 107 | | 213 | 8.0 | 319 | 114 | 426 | 221 | 468 | 263 | 532 | 327 | **638** | **434** | 745 | 540 | 851 | 646 | 1064 | 859 | 1277 | 1072 | 630 | 425 | 42.0 |
| SRP 5,5 | 67.7 | | 170 | | 276 | 51.3 | 383 | 158 | 425 | 200 | 489 | 264 | 596 | 371 | **702** | **477** | 809 | 583 | 1021 | 796 | 1234 | 1009 | 693 | 468 | 42.8 |
| SRP 6 | 21.7 | | 128 | | 234 | | 341 | 94.7 | 383 | 137 | 447 | 201 | 553 | 307 | 660 | 414 | **766** | **520** | 979 | 733 | 1192 | 946 | 756 | 510 | 43.6 |

**Table 3:** *Specially technical data*

| Type | Pressure max. in bar | Rotation | Screw stroke adjustment | Chamber Ø in mm | Air volume in Litre | | Moving time in Sec. [1] | | Operating temperature in °C [2] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Open | Close | Open | Close | **STD** (Standard) | **HT** (High temp.) | **SLT** (Low temp.) |
| DAP | 8 | 90° -5°/+15° | for 1° 1/4 rotation | 200 | 5.94 | 9.46 | 2.70 | 3.20 | -40 bis +80 | -15 bis +150 | -55 bis +80 |
| SRP | | | | | | | 3.50 | 4.00 | | | |

[1] The above indicated moving time of the actuator is obtained under the following test conditions:
***(1)*** room temperature, ***(2)*** actuator stroke 90°, ***(3)*** solenoid valve with Ø11mm and flow capacity Qn 6000 L/min., ***(4)*** inside pipe Ø11mm, ***(5)*** medium clean air, ***(6)*** air supply pressure 5,5 bar (79,75 Psi), ***(7)*** actuator without external resistance load.

***It has to be expected, e.g. for field applications, when one or more of the above parameters are different, the moving time will be different.***

[2] For **HT** (high temperature) and **SLT** (low temperature) applications a special grease is needed. Please contact PFEIFFER.

**Table 4:** *Air consumption*

| Type | Air consumption in Litre / Switching cycle [3] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | 2.5 | 3 | 3.5 | 4 | 4.5 | 5 | 5.5 | 6 | 7 | 8 |
| DAP | 53.90 | 61.60 | 69.30 | 77.00 | 84.70 | 92.40 | 100.10 | 107.80 | 123.20 | 138.60 |
| SRP | 20.79 | 23.76 | 26.73 | 29.70 | 32.67 | 35.64 | 38.61 | 41.58 | 47.52 | 53.46 |

[3] A switching cycle is the movement from 0 ° to 90 ° + 90 ° to 0 °

## Operating Medium:

The operating medium must be free of dust and oil. The maximum particle size must not exceed 30µ. (ISO 8573 Part1, Class5).
In order to prevent water condensation and/or solidification (ice when actuator works below 0°C), the operating medium must have a dew point equal to -20°C or at least 10°C below the ambient temperature (ISO 8573 Part1, Class3).

## Parts list for actuator DAP/SRP 1200

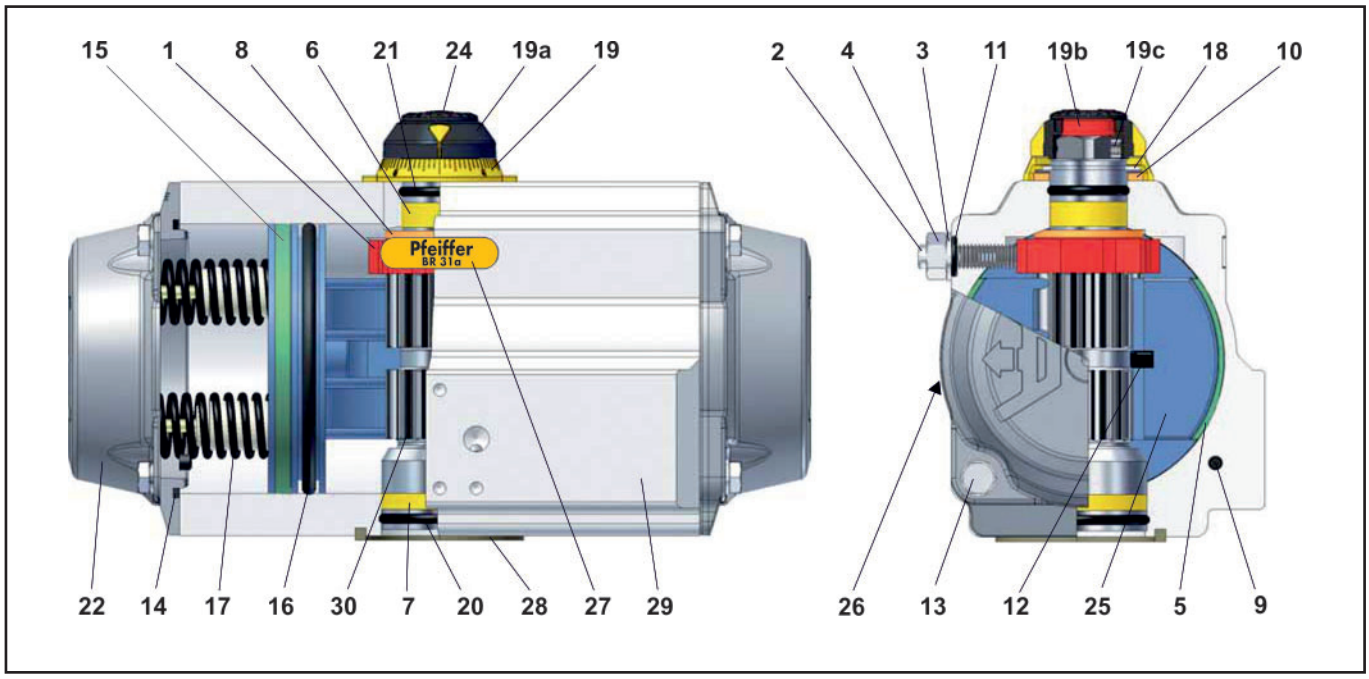


**Fig. 3:** *Quarter-turn actuator BR 31a, Type SRP 1200*

**Table 5:** *Parts and spare parts list*

| Item | Qty. | Description | Material | Abrasion package for SRP/DAP 1200 |
|---|---|---|---|---|
| 1 | 1 | Octi-cam | Carbon steel, zinc coated | |
| 2 | 2 | Stop cap screw | Stainless steel | |
| 3 | 2 | Washer | Stainless steel | |
| 4 | 2 | Stop screw | Stainless steel | |
| 5 [1] | 2 | Piston guide bearing | PA46 | |
| 6 [1] | 1 | Pinion top bearing | High-grade polymers | |
| 7 [1] | 1 | Pinion bottom bearing | High-grade polymers | |
| 8 [1] | 2 | Pinion thrust bearing | PA46 | |
| 9 [1] [2] [3] | 2 | Plug | Silicone | |
| 10 | 1 | Thrust washer | Stainless steel | |
| 11 [1] [2] [3] | 2 | O-ring | M-NBR | |
| 12 | 2 | Piston guide | PA66+GF | |
| 13 | 16 | Cap Screw | Stainless steel | |
| 14 [1] [2] [3] | 2 | O-ring | M-NBR | |
| 15 [1] [2] | 2 | Piston head bearing | POM | STD = 43727v |
| 16 [1] [2] [3] | 2 | O-ring | M-NBR | HT = 44166v |
| 17 | 5 to 12 | Spring pressure cartridge | SiCr Spring alloy Steel epoxy coated | SLT = 48031v |
| 18 | 1 | Spring clip | Spring steel, ENP | |
| 19 | 1 | Graduated ring | PA66+GF(+CB) | |
| 19a | 1 | Position indicator | PA66+GF+CB | |
| 19b | 1 | Top adaptor | Extruded aluminium alloy, anodized | |
| 19c | | Hex. socket screw | Stainless steel | |
| 20 [1] [2] [3] | 1 | O-ring | M-NBR | |
| 21 [1] [2] [3] | 1 | O-ring | M-NBR | |
| 22 | 1 | End cap | Pressure die cast aluminium alloy, anodized and coated | |
| 24 | 1 | Cap screw | PA66+GF+CB | |
| 25 | 2 | Piston | Pressure die cast aluminium alloy, anodized | |
| 26 | 1 | Identification label | Polyester-Silver | |
| 27 | 1 | Plate | Polyester | |
| 28 | 1 | Spigot | Extruded aluminium alloy, anodized | |
| 29 | 1 | Body | Extruded aluminium alloy, coated | |
| 30 | 1 | Drive shaft | Steel, ENP | |

[1] Included in the abrasion package (**STD**), [2] Included in the high temperature kit (**HT**), [3] Included in the low temperature set (**SLT**)