

# Angle Seat Motor Valve

## 1/4" up to 2"

# 7210



**Motor valve for on/off- and modulating operation for neutral and aggressive media.**

- Compact design
- Self calibration
- Unaffected by lightly contaminated media
- For operating temperatures from -22°F up to +392°F
- Working pressure up to 580 psi
- Versatile actuator options
- Also available with spring return



### Technical Information Valve

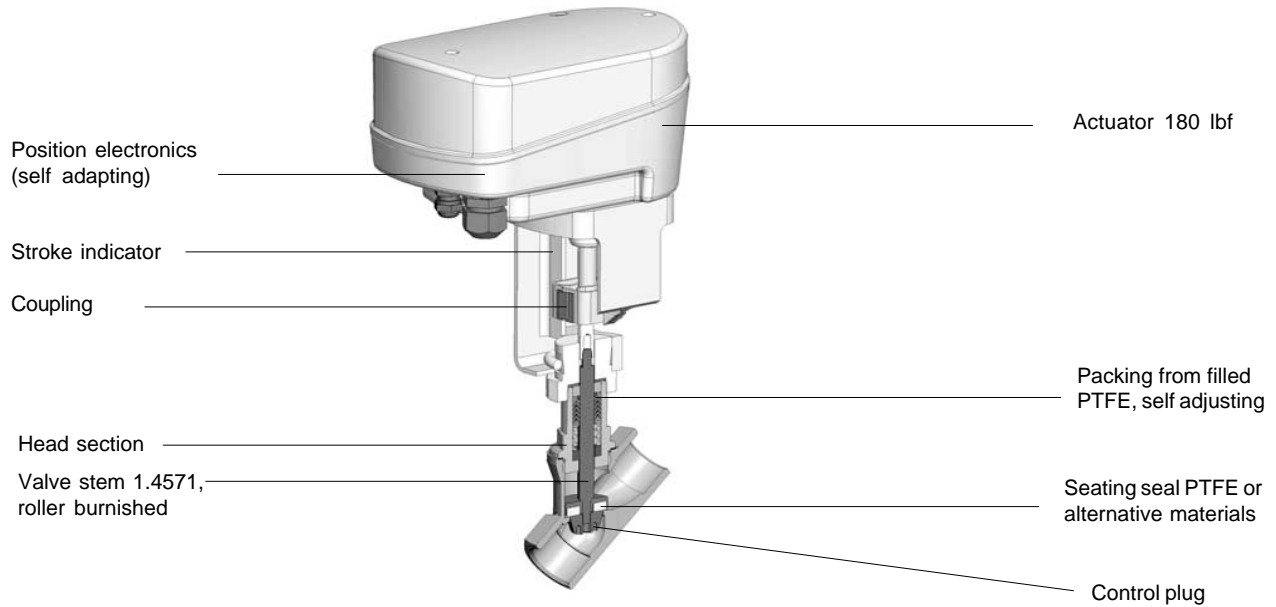
|                                       |                                       |                      |
|---------------------------------------|---------------------------------------|----------------------|
| Body material                         | Bronze                                | Stainless steel 316L |
| Nominal size                          | 1/2" up to 2"                         | 1/4" up to 2"        |
| Connections:                          |                                       |                      |
| Pipe threads acc. DIN 2999            | 1/2" - 2"                             | 1/4" - 2"            |
| NPT thread                            | 1/2" - 2"                             | 1/4" - 2"            |
| Welding ends                          | -                                     | 1/2" - 2"            |
| Clamp connections                     |                                       | 1/2" - 2"            |
| Nominal pressure                      | 230 psi                               | 580 psi              |
| Max. fluid temperature                | -22°F up to 392°F                     |                      |
| Viscosity                             | max. 600 mm <sup>2</sup> /s (600 cSt) |                      |
| Vacuum                                | max. 0.0295 mercury (Hg)              |                      |
| Operating pressure packing underneath | max. 175 psi                          |                      |

### Technical Information Motor Actuator

| Type of motor            | BM24C                | BM24C/I              | BM24C/IOS2             | BM250C/IO2                | BM24       | BM115      | BM230      |
|--------------------------|----------------------|----------------------|------------------------|---------------------------|------------|------------|------------|
| Function                 | Control              | Control              | Control                | Control                   | On/Off     | On/Off     | On/Off     |
| Nominal voltage          | 24 V AC/DC           | 24 V AC/DC           | 20-30V AC<br>20-45V DC | 85-250V AC<br>120-250V DC | 24 V AC/DC | 115 V AC   | 230 V AC   |
| Set point                | 2 - 10 V             | 4 - 20 mA            | 4 - 20 mA              | 4 - 20 mA                 | 3-step     | 3-step     | 3-step     |
| Load                     | 100 kOhm             | 500 Ohm              | 500 Ohm                | 500 Ohm                   | -          | -          | -          |
| Position feedback        | 2 - 10 V             | 2 - 10 V             | 4 - 20 mA              | 4 - 20 mA                 | -          | -          | -          |
| external load            | -                    | -                    | < 700 Ohm              | < 700 Ohm                 | -          | -          | -          |
| limit switches           | -                    | -                    | 2 x                    | 2 x                       | -          | -          | -          |
| max. switching load      | -                    | -                    | 24V AC/DC<br>70mA      | 24V AC/DC<br>70mA         | -          | -          | -          |
| Power consumption        | 3 W                  | 3 W                  | 3 W                    | 4 W                       | 3 W        | 6 W        | 6 W        |
| Stroking time (standard) | 3.5s per<br>0.04inch | 3.5s per<br>0.04inch | 3.5s per<br>0.04inch   | 3.5s per<br>0.04inch      | 190 s/inch | 190 s/inch | 190 s/inch |
| Thrust                   | 800 N                |                      |                        |                           |            |            |            |
| Class of protection      | IP 65                |                      |                        |                           |            |            |            |
| Ambient temperature      | 14°F up to +140°F    |                      |                        |                           |            |            |            |



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## Pressure Capability

| Nominal size         | Inlet pressure psi |         |        |         |        |         |        |         |        |         |        |         |        |         |
|----------------------|--------------------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
|                      | 1/4"               |         | 1/2"   |         | 3/4"   |         | 1"     |         | 1 1/4" |         | 1 1/2" |         | 2"     |         |
|                      | On/off             | Control | On/off | Control | On/off | Control | On/off | Control | On/off | Control | On/off | Control | On/off | Control |
| Stainless steel body | 580                | 230     | 580    | 230     | 290    | 230     | 175    | 175     | 100    | 100     | 70     | 70      | 40     | 40      |
| Bronze body          | -                  | -       | 230    | -       | 230    | -       | 175    | -       | 100    | -       | 70     | -       | 40     | -       |

## C<sub>v</sub>-Values

| Characteristic | linear |      |      |      |        |        |      | equal percentage |      |      |      |        |        |    |
|----------------|--------|------|------|------|--------|--------|------|------------------|------|------|------|--------|--------|----|
|                | 1/4"   | 1/2" | 3/4" | 1"   | 1 1/4" | 1 1/2" | 2"   | 1/4"             | 1/2" | 3/4" | 1"   | 1 1/4" | 1 1/2" | 2" |
| 100 %          | 0.7    | 4.4  | 10.2 | 16.2 | 23.2   | 31.3   | 42.9 | 0.7              | 3.5  | 7    | 11.6 | 18.6   | 29     | -  |
| 40 %           | 0.3    | 1.7  | 4.1  | 6.7  | 9.3    | 12.8   | -    | -                | 1.4  | 2.8  | 4.6  | 7      | 11.6   | -  |
| 25 %           | 0.2    | 1.1  | 2.6  | 4.2  | -      | -      | -    | -                | 0.9  | 1.7  | 3    | -      | -      | -  |
| 15%            | -      | -    | -    | -    | -      | -      | -    | -                | 0.5  | -    | -    | -      | -      | -  |
| 10%            | -      | 0.5  | -    | -    | -      | -      | -    | -                | -    | -    | -    | -      | -      | -  |
| 7,5%           | -      | -    | -    | -    | -      | -      | -    | -                | 0.3  | -    | -    | -      | -      | -  |
| On-Off         | 1.1    | 4.4  | 10.4 | 19.7 | 32.5   | 40.6   | 52.2 |                  |      |      |      |        |        |    |

# Angle Seat Motor Valve 7210



## Ordering Number System

|                                                                                                              |     | Article number |  |   |  |  |  |  |  |  |   |
|--------------------------------------------------------------------------------------------------------------|-----|----------------|--|---|--|--|--|--|--|--|---|
| 7210/                                                                                                        |     |                |  | K |  |  |  |  |  |  | S |
| <b>Nominal size:</b>                                                                                         |     |                |  |   |  |  |  |  |  |  |   |
| 1/4" (DN 8) only with seating seal PEEK                                                                      | 008 |                |  |   |  |  |  |  |  |  |   |
| 1/2" (DN 15)                                                                                                 | 015 |                |  |   |  |  |  |  |  |  |   |
| 3/4" (DN 20)                                                                                                 | 020 |                |  |   |  |  |  |  |  |  |   |
| 1" (DN 25)                                                                                                   | 025 |                |  |   |  |  |  |  |  |  |   |
| 1 1/4" (DN 32)                                                                                               | 032 |                |  |   |  |  |  |  |  |  |   |
| 1 1/2" (DN 40)                                                                                               | 040 |                |  |   |  |  |  |  |  |  |   |
| 2" (DN 50)                                                                                                   | 050 |                |  |   |  |  |  |  |  |  |   |
| <b>Item:</b>                                                                                                 |     |                |  |   |  |  |  |  |  |  |   |
| Valve                                                                                                        | V   |                |  |   |  |  |  |  |  |  |   |
| Valve without actuator                                                                                       | U   |                |  |   |  |  |  |  |  |  |   |
| Actuator                                                                                                     | A   |                |  |   |  |  |  |  |  |  |   |
| <b>Body design:</b>                                                                                          |     |                |  |   |  |  |  |  |  |  |   |
| Angle bodied                                                                                                 | 1   |                |  |   |  |  |  |  |  |  |   |
| <b>Connection:</b>                                                                                           |     |                |  |   |  |  |  |  |  |  |   |
| Whitw orth-thread                                                                                            | 0   |                |  |   |  |  |  |  |  |  |   |
| NPT thread                                                                                                   | 5   |                |  |   |  |  |  |  |  |  |   |
| without thread                                                                                               | 6   |                |  |   |  |  |  |  |  |  |   |
| Welding ends acc. ISO                                                                                        | H   |                |  |   |  |  |  |  |  |  |   |
| Tri-clamp                                                                                                    | Z   |                |  |   |  |  |  |  |  |  |   |
| <b>Body material:</b>                                                                                        |     |                |  |   |  |  |  |  |  |  |   |
| Bronze                                                                                                       | 1   |                |  |   |  |  |  |  |  |  |   |
| Stainless steel                                                                                              | 2   |                |  |   |  |  |  |  |  |  |   |
| <b>Seating seal:</b>                                                                                         |     |                |  |   |  |  |  |  |  |  |   |
| PTFE                                                                                                         | 0   |                |  |   |  |  |  |  |  |  |   |
| Viton                                                                                                        | 1   |                |  |   |  |  |  |  |  |  |   |
| EPDM                                                                                                         | 2   |                |  |   |  |  |  |  |  |  |   |
| BUNA-N                                                                                                       | 3   |                |  |   |  |  |  |  |  |  |   |
| PEEK                                                                                                         | 7   |                |  |   |  |  |  |  |  |  |   |
| <b>Actuator:</b>                                                                                             |     |                |  |   |  |  |  |  |  |  |   |
| Control actuator BM250C/IOS2 85-250V AC/120-250V DC control electr. 4-20mA - feedb. 4-20mA - 2 limit switch. | 0   |                |  |   |  |  |  |  |  |  |   |
| Control actuator BM24C - 24V AC/DC - control electronics 2-10V - feedback 2-10V                              | 1   |                |  |   |  |  |  |  |  |  |   |
| Control actuator BM24C/I - 24V AC/DC - control electronics 4-20mA - feedback 2-10V                           | 2   |                |  |   |  |  |  |  |  |  |   |
| On-Off actuator BM24 - 24V AC/DC                                                                             | 6   |                |  |   |  |  |  |  |  |  |   |
| On-Off actuator BM230 - 230V AC                                                                              | 7   |                |  |   |  |  |  |  |  |  |   |
| On-Off actuator BM115 - 115V AC                                                                              | 8   |                |  |   |  |  |  |  |  |  |   |
| Control actuator BM24C/IOS2 20-30V AC/20-45V DC - control electr. 4-20mA - feedback 4-20mA - 2 limit switch. | 9   |                |  |   |  |  |  |  |  |  |   |
| <b>Control plug:</b>                                                                                         |     |                |  |   |  |  |  |  |  |  |   |
| none                                                                                                         | -   |                |  |   |  |  |  |  |  |  |   |
| linear 100%                                                                                                  | 1   |                |  |   |  |  |  |  |  |  |   |
| equal percentage 100%                                                                                        | 2   |                |  |   |  |  |  |  |  |  |   |
| linear 40%                                                                                                   | 3   |                |  |   |  |  |  |  |  |  |   |
| equal percentage 40%                                                                                         | 4   |                |  |   |  |  |  |  |  |  |   |
| linear 25%                                                                                                   | 5   |                |  |   |  |  |  |  |  |  |   |
| equal percentage 25%                                                                                         | 6   |                |  |   |  |  |  |  |  |  |   |
| <b>Safety position:</b>                                                                                      |     |                |  |   |  |  |  |  |  |  |   |
| without safety position                                                                                      | -   |                |  |   |  |  |  |  |  |  |   |
| spring to close                                                                                              | 0   |                |  |   |  |  |  |  |  |  |   |
| spring to open                                                                                               | 1   |                |  |   |  |  |  |  |  |  |   |
| <b>Stroking times</b>                                                                                        |     |                |  |   |  |  |  |  |  |  |   |
| Standard (3.5s/ 0.04 inch for control actuators - 7.5s / 0.04 inch for on-off-actuators)                     | -   |                |  |   |  |  |  |  |  |  |   |
| 3.75 s/ 0.04inch (on-off actuators only)                                                                     | L   |                |  |   |  |  |  |  |  |  |   |
| 1.75s / 0.04 inch (control actuators only), with safety spring return 3.0s / 0.04 inch                       | 1   |                |  |   |  |  |  |  |  |  |   |
| 7.0s / 0.04 inch (control actuators only)                                                                    | 2   |                |  |   |  |  |  |  |  |  |   |
| 14.0s / 0.04 inch (control actuators only)                                                                   | 3   |                |  |   |  |  |  |  |  |  |   |

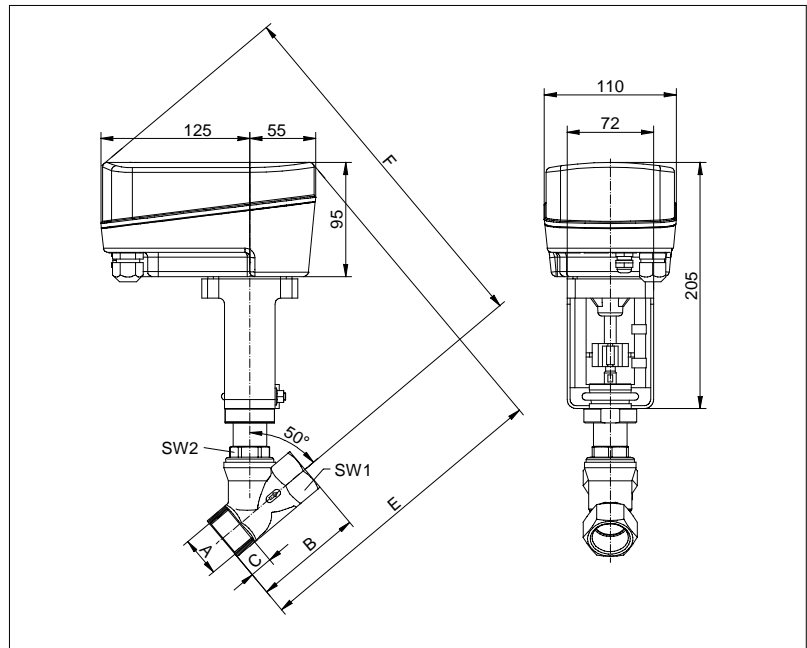
**Ordering example:** 7210/025VK152021: Angle seat motor valve type 7210, 1", pipe thread NPT, stainless steel body, seating seal PTFE, control actuator BM24C/I, 24V AC/DC, 180 lbf, control electronics 4-20 mA, position feedback 2-10V, linear characteristic, Cv-value 16.2 (100 %).

# Angle Seat Motor Valve 7210

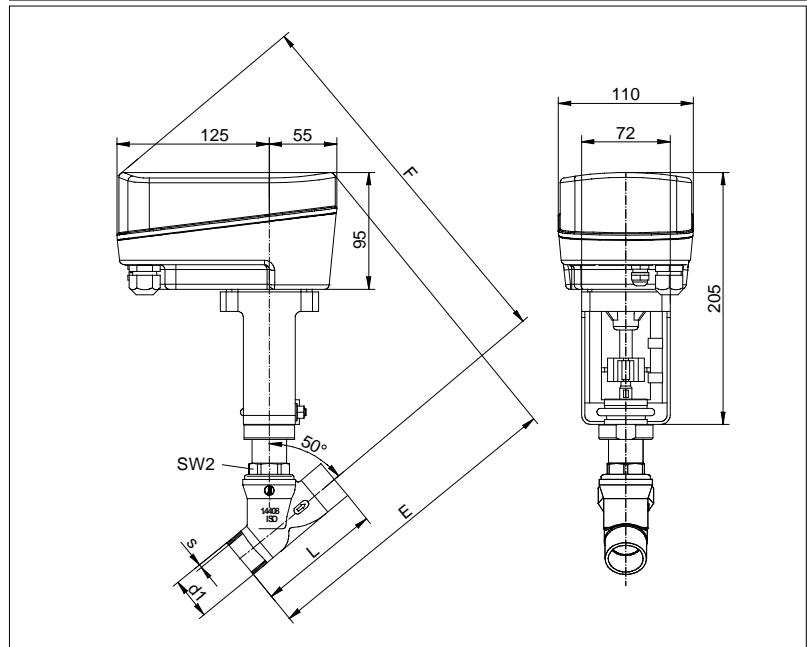


## Dimensions and Weights

Body with threaded ends  
Rp/NPT



Body with welding ends  
DIN/ISO



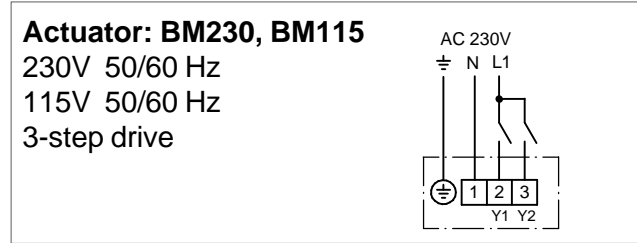
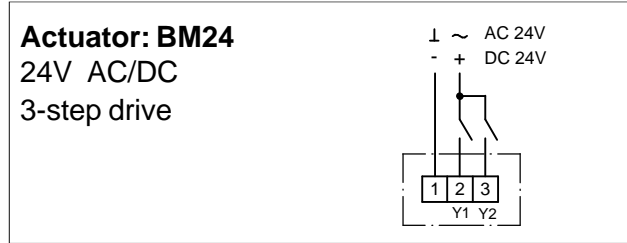
| DN     | A        |      | C    |      | ISO  |      | DIN  |        | B    | L     | E     | F    | SW1  | SW2  | Stroke | Weight<br>lbs |
|--------|----------|------|------|------|------|------|------|--------|------|-------|-------|------|------|------|--------|---------------|
|        | Rp / NPT | Rp   | NPT  | d1   | s    | d1   | s    | Rp/NPT |      |       |       |      |      |      |        |               |
| 1/4"   | 1/4"     | 0.47 | 0.42 | -    | -    | -    | -    | 2.36   | -    | 9.88  | 11.65 | 0.79 | 1.18 | 0.33 | 4      |               |
| 1/2"   | 1/2"     | 0.59 | 0.57 | 0.84 | 0.08 | 0.71 | 0.06 | 2.56   | 3.15 | 11.81 | 10.04 | 0.98 | 1.18 | 0,35 | 4.5    |               |
| 3/4"   | 3/4"     | 0.64 | 0.59 | 1.06 | 0.09 | 0.87 | 0.06 | 2.95   | 3.54 | 12.2  | 10.04 | 1.22 | 1.18 | 0,55 | 5      |               |
| 1"     | 1"       | 0.75 | 0.71 | 1.33 | 0.1  | 1.1  | 0.06 | 3.54   | 3.94 | 12.4  | 10.24 | 1.54 | 1.18 | 0,71 | 5.5    |               |
| 1 1/4" | 1 1/4"   | 0.84 | 0.73 | 1.67 | 0.1  | 1.34 | 0.06 | 4.33   | 4.33 | 12.99 | 10.83 | 1.89 | 1.18 | 0,83 | 6      |               |
| 1 1/2" | 1 1/2"   | 0.84 | 0.73 | 1.9  | 0.1  | 1.57 | 0.06 | 4.72   | 4.72 | 13.39 | 11.02 | 2.17 | 1.18 | 0,87 | 7      |               |
| 2"     | 2"       | 1.01 | 0.75 | 2.37 | 0.11 | 2.05 | 0.06 | 5.91   | 5.91 | 13.78 | 11.42 | 2.68 | 1.26 | 0,87 | 8      |               |

Other body designs on request

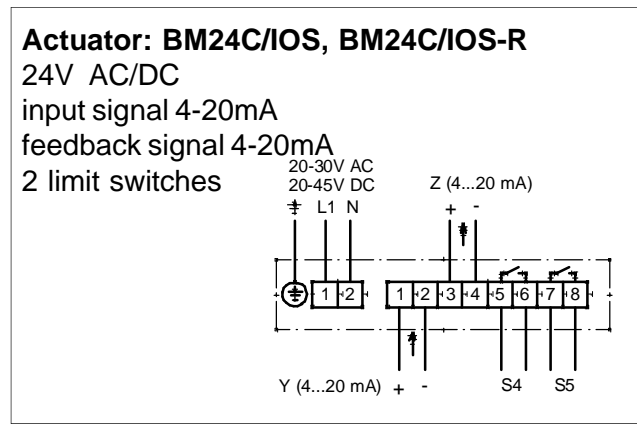
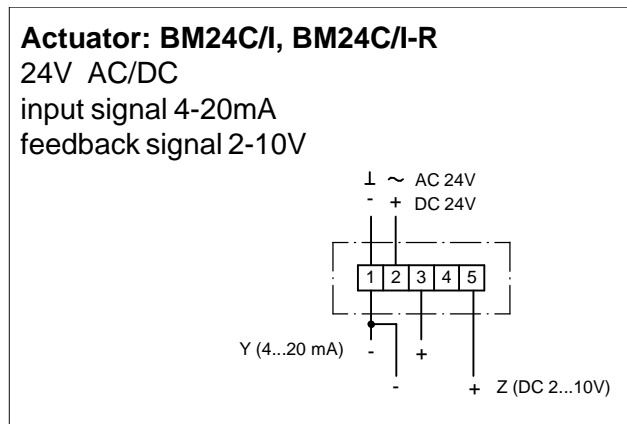
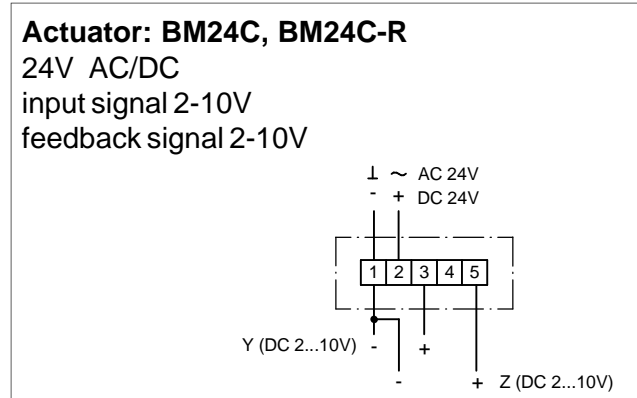
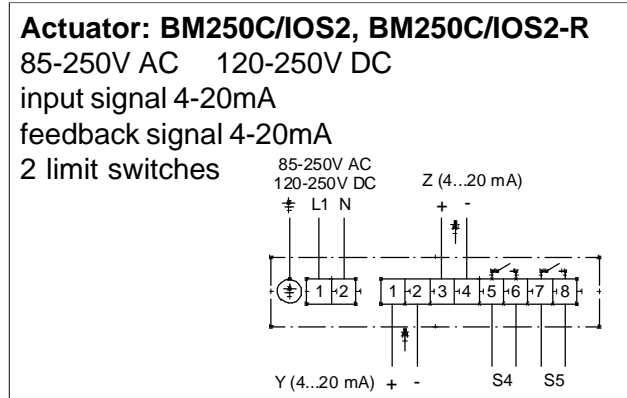
Dimensions in inch

# Angle Seat Motor Valve 7210 Schematic Wiring Diagrams

## On/Off-Actuators



## Control Actuators



Text and pictures are not binding. We reserve the right, to alter the equipment.

BM.....-R: version with safety position  
Y: signal, Z: feedback signal