

Series 104

General

The micro valves 104 series are a cost effective solution with reduced overall dimensions, easy to install and manage. Their main characteristic is the possibility to choose between the version with lateral or rear pneumatic connections realized with quick fitting for Ø4mm tube included.

The valves are available with 2 or 3 ways versions, normally closed or open, 5 ways and 5 ways 3 positions open centres and pressured centres.

The 5 ways version is made with two 3 ways valves placed side by side with common inlet.

The operators available for this valve are push button (different versions), selector (key, short and long lever), lever (lever roller or level unidirectional) and pneumatic.

It is also possible to combine the 2 and 3 ways valves with electrical switches, normally closed or open.

Construction characteristics

| | |
|----------------|---|
| Body and cover | Technopolymer |
| Operators | Plastic material for buttons and switches |
| Seals | NBR |
| Spacer | Technopolymer |
| Spools | Steel |
| Springs | Spring steel |
| Pistons | Aluminium (for pneumatic command version) |

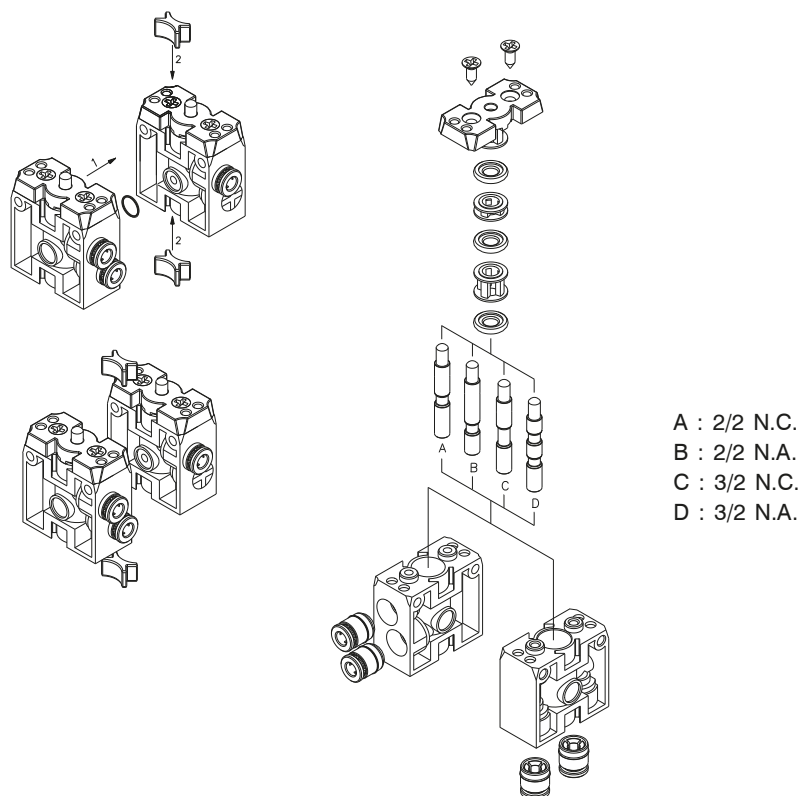
Use and maintenance

This valves have an average life of 15 million cycles depending on the application and air quality.

Filtered and lubricated air using specified lubricants will reduce the wear of the seals and ensures long and trouble free operation.

Please ensure that the valve is being used according with the manufacturers specification, such as air pressure and temperature.

ATTENTION: use hydraulic oil class H for lubrication such as MAGNA GC 32 (Castrol).





1
AIR DISTRIBUTION

Tappet - Spring

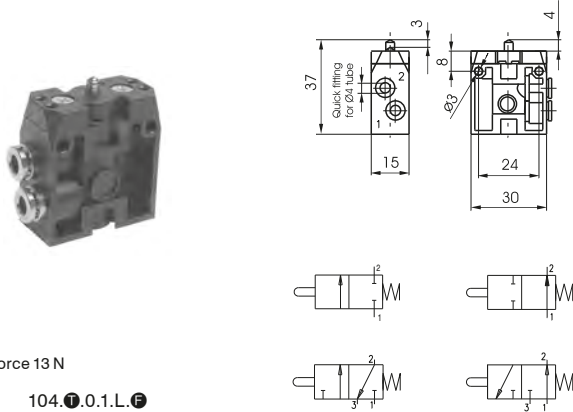
Coding: 104.●.0.1.●.●.●

Operational characteristics

| | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with Δp=1 (NI/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | | | |
|---|----------------------------|---|--|
| ● | TYPE | ● | FUNCTION |
| | 22 = 2 ways 32 = 3 ways | | A = Normally Open C = Normally Closed |
| ● | CONNECTION TYPE | ● | |
| | L = Lateral | | |
| | P = Rear | | |

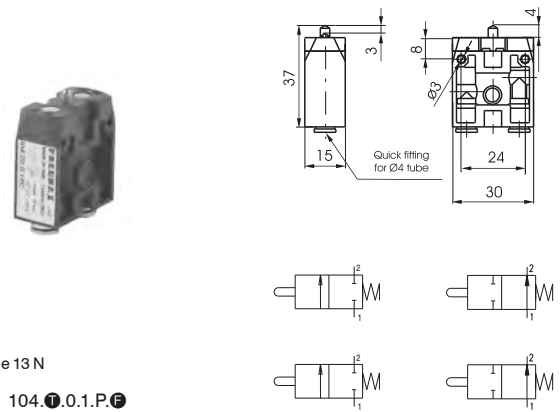
2/2 - 3/2 - Lateral connections



Weight 20 g
Operating force 13 N

104.●.0.1.L.●

2/2 - 3/2 - Rear connections



Weight 20 g
Operating force 13 N

104.●.0.1.P.●

Push button - Spring

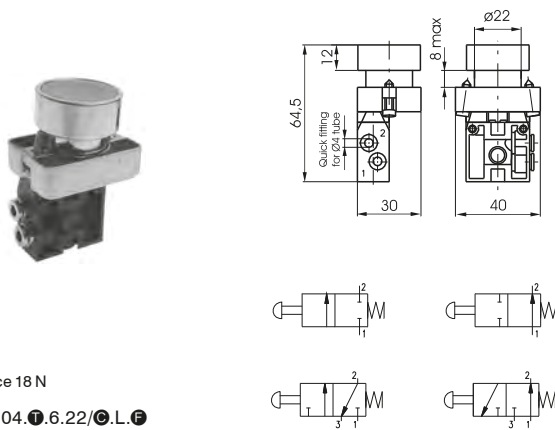
Coding: 104.●.6.22/●.●.●.●

Operational characteristics

| | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with Δp=1 (NI/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | | | |
|---|---|---|--|
| ● | TYPE | ● | CONNECTION TYPE |
| | 22 = 2 ways 32 = 3 ways 52 = 5 ways | | L = Lateral P = Rear |
| ● | BUTTON COLOR | ● | FUNCTION (only for 2 or 3 ways) |
| | 1 = Red 2 = Black 3 = Green 4 = Yellow | | A = Normally Open C = Normally Closed |

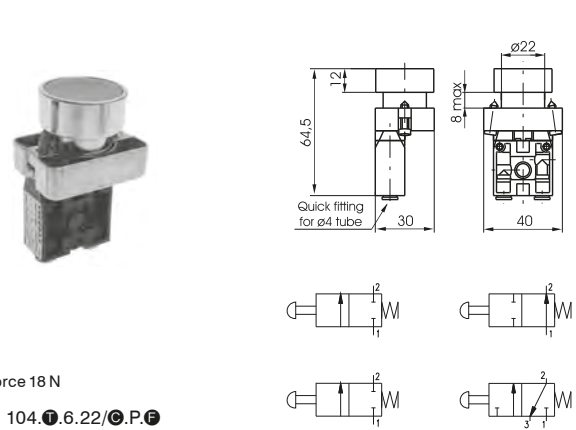
2/2 - 3/2 - Lateral connections



Weight 50 g
Operating force 18 N

104.●.6.22/●.L.●

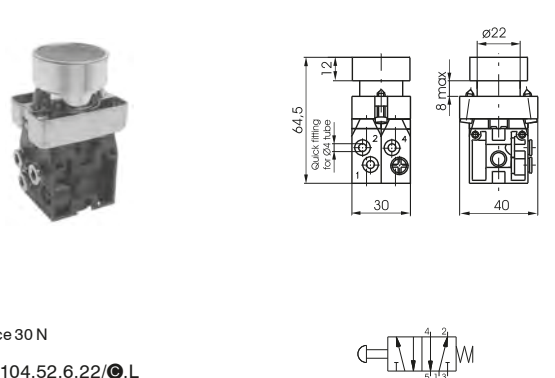
2/2 - 3/2 - Rear connections



Weight 50 g
Operating force 18 N

104.●.6.22/●.P.●

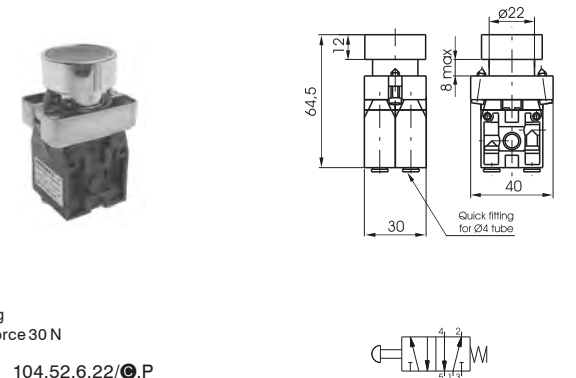
5/2 - Lateral connections



Weight 105 g
Operating force 30 N

104.52.6.22/●.L

5/2 - Rear connections



Weight 105 g
Operating force 30 N

104.52.6.22/●.P

Push button 2 positions (step - step)

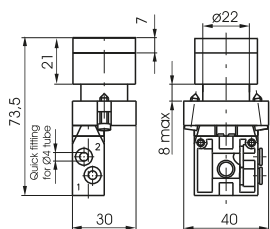
Coding: 104. **T**.6.31. **W**. **F**

| Operational characteristics | |
|---|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with $\Delta p=1$ (Nl/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | |
|----------|-----------------|
| T | TYPE |
| | 22 = 2 ways |
| | 32 = 3 ways |
| W | CONNECTION TYPE |
| | L = Lateral |
| | P = Rear |

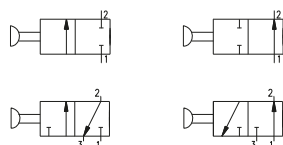
| | |
|----------|--------------------------------------|
| F | FUNCTION (only for 2/2 and 3/2 ways) |
| | A = Normally Open |
| | C = Normally Closed |

2/2 - 3/2 - Lateral connections

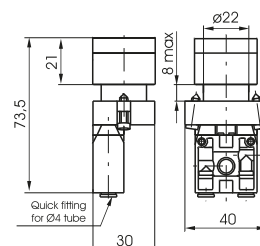


Weight 60 g
Operating force 18 N

104. **T**.6.31. **L**. **F**

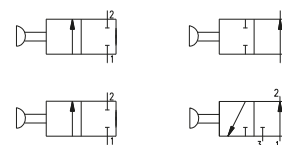


2/2 - 3/2 - Rear connections

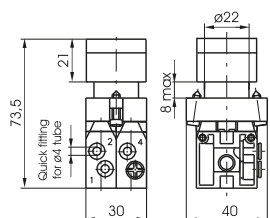


Weight 60 g
Operating force 18 N

104. **T**.6.31. **P**. **F**

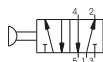


5/2 - Lateral connections

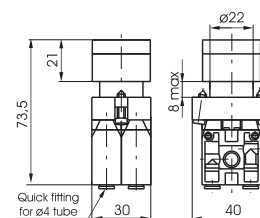


Weight 110 g
Operating force 30 N

104.52.6.31.L

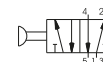


5/2 - Rear connections



Weight 110 g
Operating force 30 N

104.52.6.31.P





1 Raised Push button - Spring

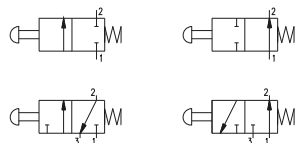
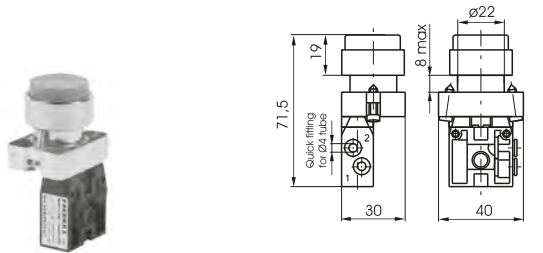
Coding: 104. **T**.6.23/**C.W.F**

Operational characteristics

| | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with Δp=1 (NI/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | | | | |
|----------|--------------|----------|---------------------------------|--|
| T | TYPE | W | CONNECTION TYPE | |
| | 22 = 2 ways | | L = Lateral | |
| | 32 = 3 ways | | P = Rear | |
| C | 52 = 5 ways | F | FUNCTION (only for 2 or 3 ways) | |
| | BUTTON COLOR | | A = Normally Open | |
| | 1 = Red | | C = Normally Closed | |
| | 2 = Black | | | |
| | 3 = Green | | | |
| | 4 = Yellow | | | |

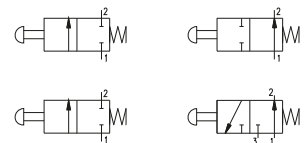
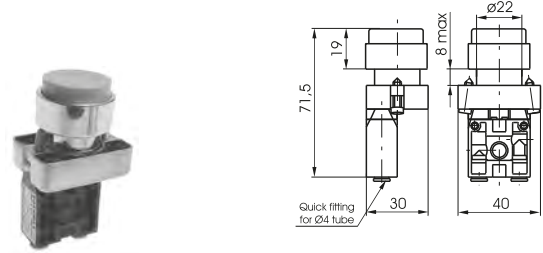
2/2 - 3/2 - Lateral connections



Weight 50 g
Operating force 18 N

104. **T**.6.23/**C.L.F**

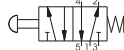
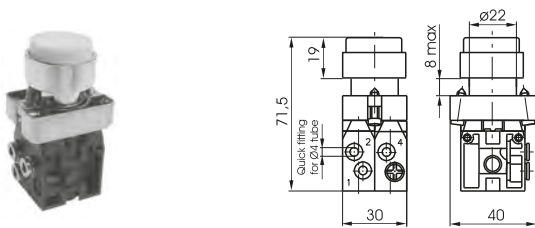
2/2 - 3/2 - Rear connections



Weight 50 g
Operating force 18 N

104. **T**.6.23/**C.P.F**

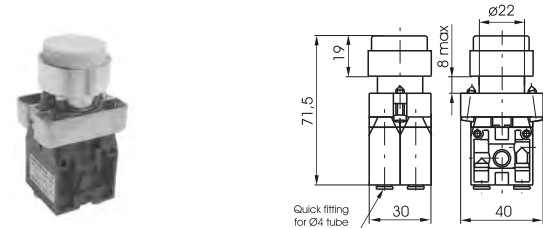
5/2 - Lateral connections



Weight 105 g
Operating force 30 N

104.52.6.23/**C.L**

5/2 - Rear connections



Weight 105 g
Operating force 30 N

104.52.6.23/**C.P**

Palm button 2 position

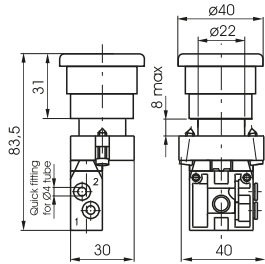
Coding: 104. **T**.6.25. **W**. **F**

| Operational characteristics | |
|---|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with $\Delta p=1$ (Nl/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | $\varnothing 4$ tube |

| | |
|----------|-----------------|
| T | TYPE |
| | 22 = 2 ways |
| | 32 = 3 ways |
| W | CONNECTION TYPE |
| | L = Lateral |
| | P = Rear |

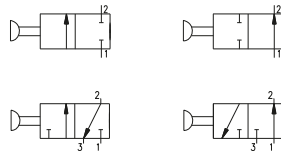
| | |
|----------|--------------------------------------|
| F | FUNCTION (only for 2/2 and 3/2 ways) |
| | A = Normally Open |
| | C = Normally Closed |

2/2 - 3/2 - Lateral connections

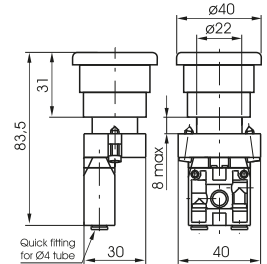


Weight 65 g
Operating force 19 N
Emergency - Rotate to unlock

104. **T**.6.25. **L**. **F**

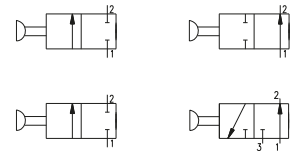


2/2 - 3/2 - Rear connections

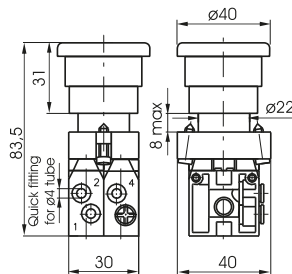


Weight 65 g
Operating force 19 N
Emergency - Rotate to unlock

104. **T**.6.25. **P**. **F**

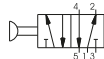


5/2 - Lateral connections

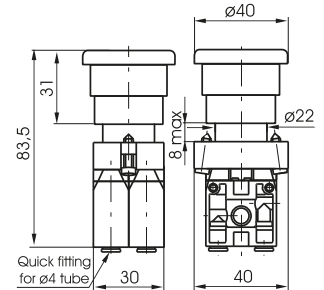


Weight 120 g
Operating force 32 N
Emergency - Rotate to unlock

104.52.6.25. **L**

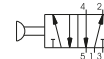


5/2 - Rear connections



Weight 120 g
Operating force 32 N
Emergency - Rotate to unlock

104.52.6.25. **P**



1
AIR DISTRIBUTION

Switch - short lever

Coding: 104. **T**. **F**1.6.30. **S**. **W**. **F**2

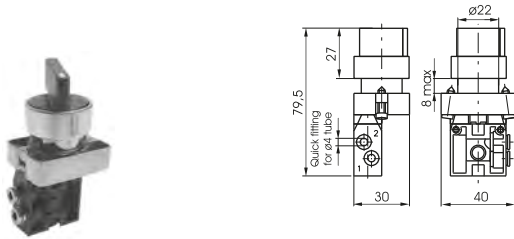
Operational characteristics

| | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with Δp=1 (NI/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | | | |
|-----------|------------------------------|-----------|---|
| T | TYPE | S | SWITCH POSITION (only for 2/2 and 3/2 ways) |
| | 22 = 2 ways | | 0 = 3 pos. instable |
| | 32 = 3 ways | | 1 = 3 pos. stable |
| | 52 = 5 ways | | |
| F1 | FUNCTION (only for 5/3 ways) | W | CONNECTION TYPE |
| | 32 = Open centres | | L = Lateral |
| | 33 = Pressured centres | | P = Rear |
| | | F2 | FUNCTION (only for 2/2 or 3/2 ways) |
| | | | A = Normally Open |
| | | | C = Normally Closed |

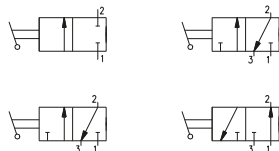
AIR DISTRIBUTION

2/2 - 3/2 - Lateral connections

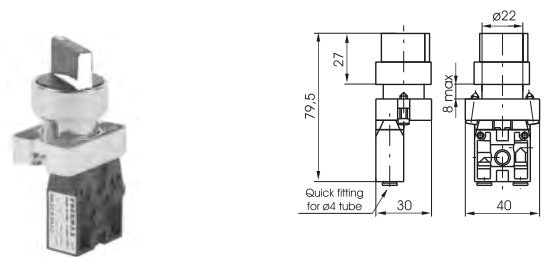


Weight 65 g
Switch 2 positions stable

104. **T**. **F**.6.30. **L**. **F**

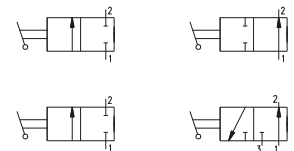


2/2 - 3/2 - Rear connections

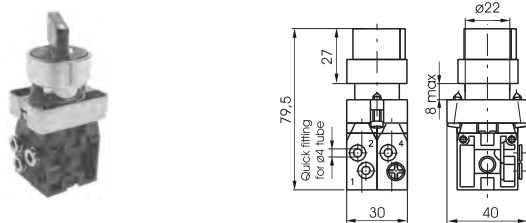


Weight 65 g
Switch 2 positions stable

104. **T**.6.30. **P**. **F**

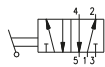


5/2 - Lateral connections

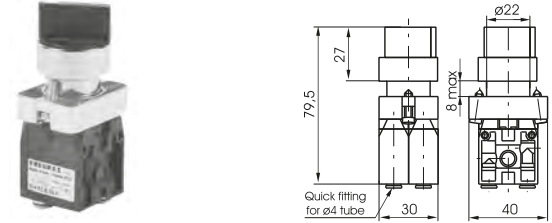


Weight 120 g
Switch 2 positions stable

104.52.6.30. **L**

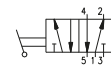


5/2 - Rear connections

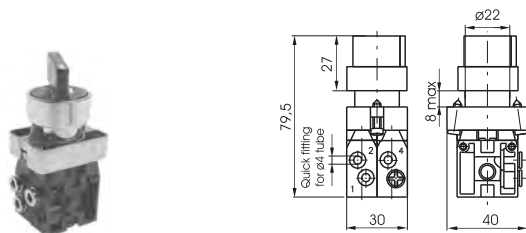


Weight 120 g
Switch 2 positions stable

104.52.6.30. **P**

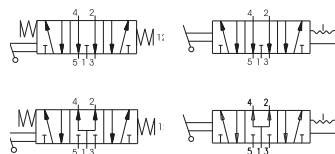


5/3 - Lateral connections

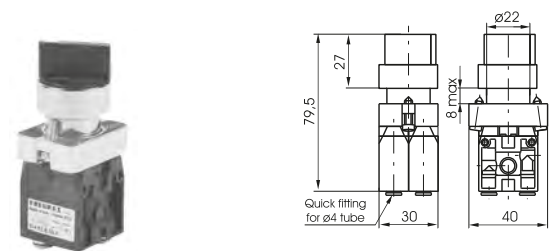


Weight 120 g

104.53. **F**.6.30. **S**. **L**

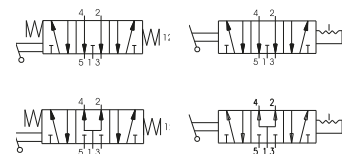


5/3 - Rear connections



Weight 120 g

104.53. **F**.6.30. **S**. **P**



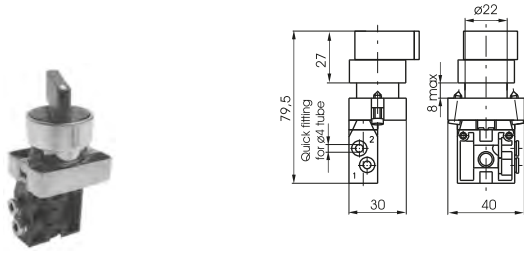
Switch - long lever

Coding: 104. **T**. **F**1.6.27. **S**. **W**. **F**2

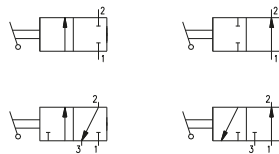
| Operational characteristics | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with Δp=1 (Nl/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | | | |
|-------------|------------------------------|------------|---|
| T | TYPE | S | SWITCH POSITION (only for 2/2 and 3/2 ways) |
| | 22 = 2 ways | | 0 = 3 pos. instable |
| | 32 = 3 ways | | 1 = 3 pos. stable |
| | 52 = 5 ways | | CONNECTION TYPE |
| 53 = 5 ways | W | | L = Lateral |
| F 1 | FUNCTION (only for 5/3 ways) | P = Rear | FUNCTION (only for 2/2 or 3/2 ways) |
| | 32 = Open centres | F 2 | A = Normally Open |
| | 33 = Pressured centres | | C = Normally Closed |

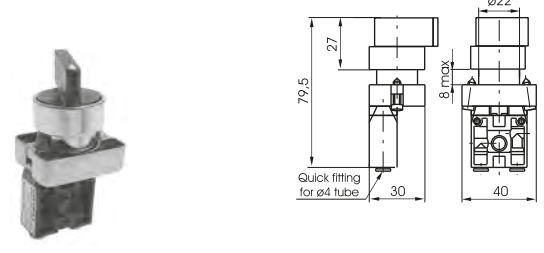
2/2 - 3/2 - Lateral connections



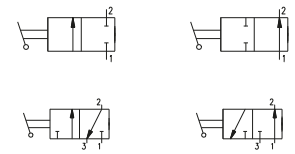
Weight 65 g
Switch 2 positions stable
104. **T**.6.27.L. **F**



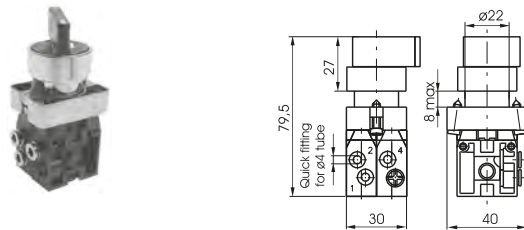
2/2 - 3/2 - Rear connections



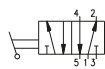
Weight 65 g
Switch 2 positions stable
104. **T**.6.27.P. **F**



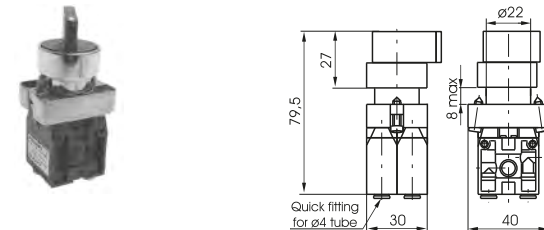
5/2 - Lateral connections



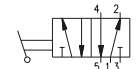
Weight 120 g
Switch 2 positions stable
104.52.6.27.L



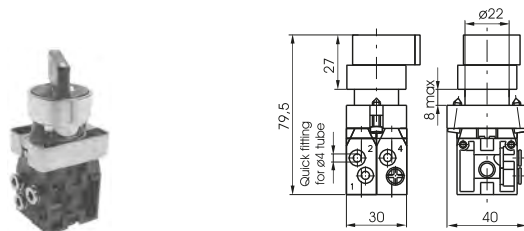
5/2 - Rear connections



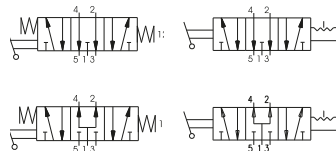
Weight 120 g
Switch 2 positions stable
104.52.6.27.P



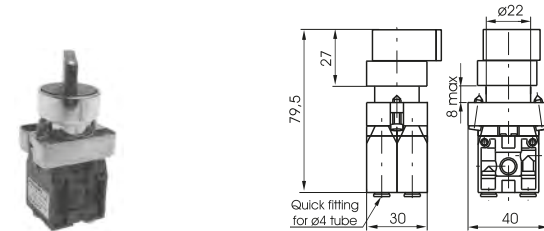
5/3 - Lateral connections



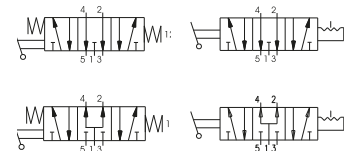
Weight 120 g
104.53. **F**1.6.27. **S**.L



5/3 - Rear connections



Weight 120 g
104.53. **F**2.6.27. **S**.P



Key switch

Coding: 104. **T**. **F**1.6.28. **S**. **W**. **F**2

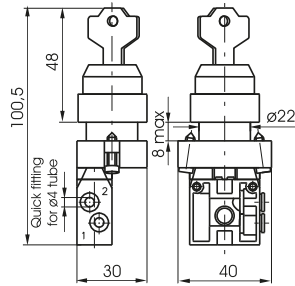
Operational characteristics

| | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with Δp=1 (NI/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | | |
|-----------|---------------------------------------|--|
| T | TYPE | SWITCH POSITION (only for 2/2 and 3/2 ways) |
| | 22 = 2 ways | S 0 = 3 pos. instable |
| | 32 = 3 ways | 1 = 3 pos. stable |
| | 52 = 5 ways | |
| F1 | FUNCTION 1 (only for 5/3 ways) | CONNECTION TYPE |
| | 32 = Open centres | W L = Lateral |
| | 33 = Pressured centres | P = Rear |
| F2 | FUNCTION 2 (only for 2/2 or 3/2 ways) | |
| | | F2 A = Normally Open C = Normally Closed |

AIR DISTRIBUTION

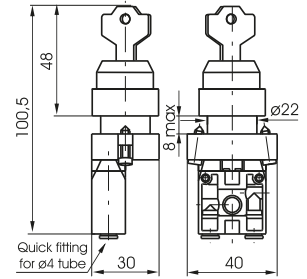
2/2 - 3/2 - Lateral connections



Weight 100 g
Switch 2 positions stable

104. **T**. **F**1.6.28. **L**. **F**

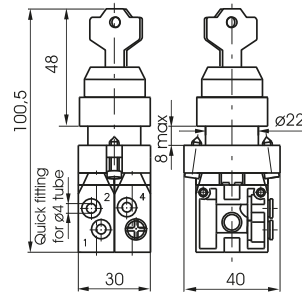
2/2 - 3/2 - Rear connections



Weight 100 g
Switch 2 positions stable

104. **T**. **F**1.6.28. **P**. **F**

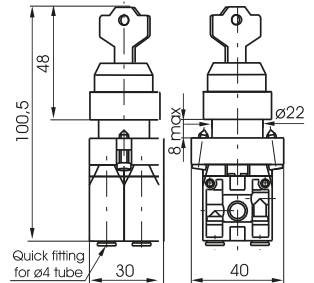
5/2 - Lateral connections



Weight 155 g
Switch 2 positions stable

104.52.6.28.L

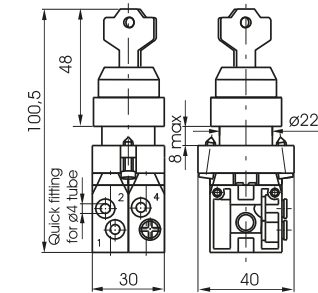
5/2 - Rear connections



Weight 155 g
Switch 2 positions stable

104.52.6.28.P

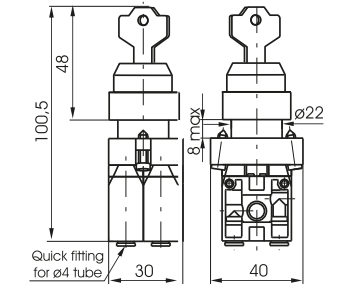
5/3 - Lateral connections



Weight 155 g

104.53. **F**1.6.28. **S**. **L**

5/3 - Rear connections



Weight 155 g

104.53. **F**1.6.28. **S**. **P**

Lever roller - Spring

Coding: 104. **T**.2.1. **W**. **F**

| Operational characteristics | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with Δp=1 (NI/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | |
|----------|----------------------------|
| T | TYPE |
| | 22 = 2 ways 32 = 3 ways |
| W | CONNECTION TYPE |
| | L = Lateral |
| | P = Rear |

| | |
|----------|---------------------|
| F | FUNCTION |
| | A = Normally Open |
| | C = Normally Closed |

2/2 - 3/2 - Lateral connections

Weight 31 g
Operating force 9 N

104. **T**.2.1.L. **F**

2/2 - 3/2 - Rear connections

Weight 31 g
Operating force 9 N

104. **T**.2.1.P. **F**

Lever roller ball bearing - Spring

Coding: 104. **T**.2.1/1. **W**. **F**

| Operational characteristics | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with Δp=1 (NI/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | |
|----------|----------------------------|
| T | TYPE |
| | 22 = 2 ways 32 = 3 ways |
| W | CONNECTION TYPE |
| | L = Lateral |
| | P = Rear |

| | |
|----------|---------------------|
| F | FUNCTION |
| | A = Normally Open |
| | C = Normally Closed |

2/2 - 3/2 - Lateral connections

Weight 46 g
Operating force 9 N

104. **T**.2.1/1.L. **F**

2/2 - 3/2 - Rear connections

Weight 46 g
Operating force 9 N

104. **T**.2.1/1.P. **F**

Lever unidirectional - Spring

Coding: 104. **T**.3.1. **W**. **F**

| Operational characteristics | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +70 |
| Flow rate at 6 bar with Δp=1 (NI/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |

| | |
|----------|----------------------------|
| T | TYPE |
| | 22 = 2 ways 32 = 3 ways |
| W | CONNECTION TYPE |
| | L = Lateral |
| | P = Rear |

| | |
|----------|---------------------|
| F | FUNCTION |
| | A = Normally Open |
| | C = Normally Closed |

2/2 - 3/2 - Lateral connections

Weight 31 g
Operating force 9 N

104. **T**.3.1.L. **F**

2/2 - 3/2 - Rear connections

Weight 31 g
Operating force 9 N

104. **T**.3.1.P. **F**

1
AIR DISTRIBUTION

▶ **Complete lever roller operator**

Coding: 104.2.1



▶ **Complete lever unidirectional**

Coding: 104.3.1



▶ **Push button**

Coding: 104.6.22/Ⓢ



| BUTTON COLOR | |
|--------------|----------|
| 1 | = Red |
| 2 | = Black |
| 3 | = Green |
| 4 | = Yellow |

▶ **Push button 2 positions**

Coding: 104.6.31

(step - step)



▶ **Switch - short lever**

Coding: 104.6.30.Ⓢ



| SWITCH POSITION (only for 3 position) | |
|---------------------------------------|-------------------|
| 0 | = 3 pos. instable |
| 1 | = 3 pos. stable |

Switch 2 positions stable 104.6.30

Switch 3 positions 104.6.30.Ⓢ

▶ **Key switch**

Coding: 104.6.28.Ⓢ



| SWITCH POSITION (only for 3 position) | |
|---------------------------------------|-------------------|
| 0 | = 3 pos. instable |
| 1 | = 3 pos. stable |

Switch 2 positions stable 104.6.28

Switch 3 positions 104.6.28.Ⓢ

▶ **Contact electric element**

Coding: 104.Ⓕ



| FUNCTION | |
|----------|-------------------|
| NO | = Normally Open |
| NC | = Normally Closed |

▶ **Push button protection cover**

Coding: 104.02



▶ **Complete lever roller ball bearing operator**

Coding: 104.2.1/1



▶ **Fixing plate**

Coding: 104.00



▶ **Raised Push button**

Coding: 104.6.23/Ⓢ



| BUTTON COLOR | |
|--------------|----------|
| 1 | = Red |
| 2 | = Black |
| 3 | = Green |
| 4 | = Yellow |

▶ **Palm button 2 position**

Coding: 104.6.25

Emergency - Rotate to unlock



▶ **Switch - long lever**

Coding: 104.6.27.Ⓢ



| SWITCH POSITION (only for 3 position) | |
|---------------------------------------|-------------------|
| 0 | = 3 pos. instable |
| 1 | = 3 pos. stable |

Switch 2 positions stable 104.6.27

Switch 3 positions 104.6.27.Ⓢ

▶ **Joystick selector switch**

Coding: 104.6.39.Ⓢ



▶ **Complete Pneumatic Operator**

Coding: 104.11



Pneumatic - Spring

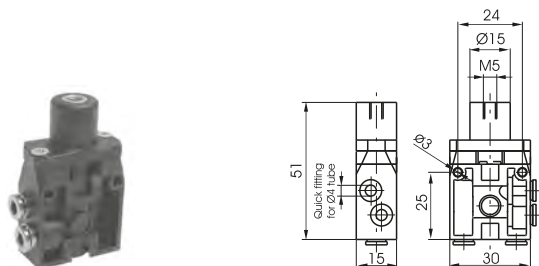
Coding: 104. **T**.11.1. **W**. **F**

| Operational characteristics | |
|---------------------------------------|--|
| Fluid | Filtered air. No lubrication needed, if applied it shall be continuous |
| Max working pressure (bar) | 10 |
| Temperature °C | -5 ÷ +50 |
| Flow rate at 6 bar with Δp=1 (NI/min) | 90 |
| Orifice size (mm) | 2.5 |
| Working ports size | ø4 tube |
| Pilot ports size | M5 |

| | |
|----------|----------------------------|
| T | TYPE |
| | 22 = 2 ways 32 = 3 ways |
| W | CONNECTION TYPE |
| | L = Lateral |
| | P = Rear |

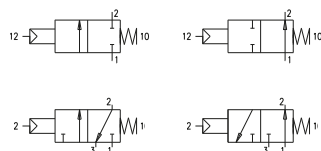
| | |
|----------|---------------------|
| F | FUNCTION |
| | A = Normally Open |
| | C = Normally Closed |

2/2 - 3/2 - Lateral connections

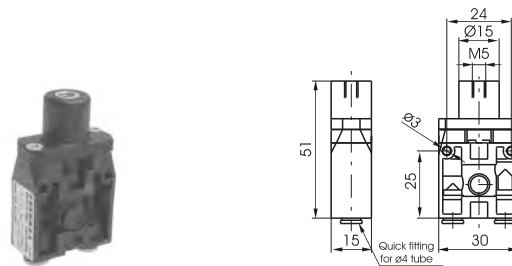


Weight 25 g
Minimum piloting pressure 2,5 bar

104.22.11.1.L. **F**

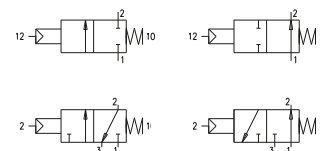


2/2 - 3/2 - Rear connections



Weight 25 g
Minimum piloting pressure 2,5 bar

104.32.11.1.P. **F**



1
AIR DISTRIBUTION