### Mechanically and manually operated valves





### Series E

Stem-operated valves, 3/2- and 5/2-way, M5 (10/32 UNF) and G 1/8 2.020

### Series ER

Roller-operated valves, 3/2- and 5/2-way, M5 (10/32 UNF) and G 1/8 2.040





### Series EL

Roller-operated valves with free return, 3/2- and 5/2-way, M 5 (10/32 UNF) and G 1/8 2.060



Hand lever valves with spring return, 3/2-, 5/2- and 5/3-way, G 1/8, G 1/4 and G 1/2





### Series HR

Hand lever valves with detent, 3/2-, 5/2- and 5/3-way, G 1/8, G 1/4 and G 1/2 2.101



Panel-mounted valves, 3/2- and 5/2-way, ∅ 22.5 and 30 mm, M 5 (10/32 UNF) Series TK 2.110 Series T 2.120





### Series ST

Push button valve with low actuating force, 2.140 3/2-way, G 1/8

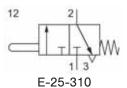
### Series F

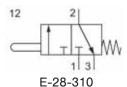
Foot-operated valves, 3/2- and 5/2-way, G 1/4 2.160

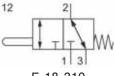




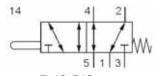
### Ε







E-18-310 E-18-310-Q



E-18-510 E-18-510-Q



### **Design and function**

To ensure the maximum life of the valve, the actuating mechanism must contact the stem at an angle  $\leq 30^{\circ}$ . If this is not possible, a roller lever valve is recommended.

Types E-25-310 and E-28-310: Port 1 must be used as the pressure inlet.

Types E-18-310 and E-18-510: All ports are interchangeable.

Valves E-18-310 and E-18-510 are available for use with vacuum ( $-0.95 \dots 12 \text{ bar}/-14 \dots 175 \text{ psi}$ ). Order number changes to E-18-310-Q and E-18-510-Q.

Order number	E-25-310	E-28-310	E-18-310	E-18-510	
Function	3/2-way spring return			5/2-way spring return	
Connection	M 5 (10/32 UNF)	G 1/8			
Nominal size	2 mm	4 mm			
Flow rate	80 NI/min (0.081 Cv)	210 NI/min (0.213 Cv) 320 NI/min (0.325 Cv)			
Pressure range	0 12 bar (0 175)	0 12 bar (0 175 psi)			
Actuating force at 6 bar	15 N	16 N	27 N	28 N	
Temperature range	- 10 °C + 70 °C (+ 14 °F + 158 °F)				
Materials	Body: Al (anodized), Inner parts: Al, brass, stainless steel, Stem: stainless steel				
	Seals: NBR	ls: NBR Seals: NBR and POM			
Weight	0.034 kg (0.075 lb.)	0.051 kg (0.112 lb.)	0.092 kg (0.203 lb.)	0.115 kg (0.253 lb.)	

2.020 Subject to change

### **Stem-operated valves**

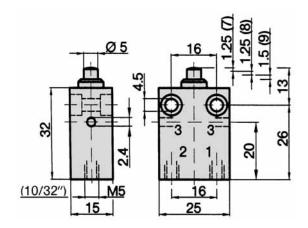
3/2- and 5/2-way, M 5 (10/32 UNF) - G 1/8,

80 - 320 NI/min (0.081 - 0.325 Cv)

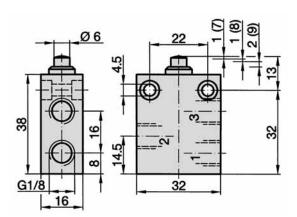


### **Dimensions for series**

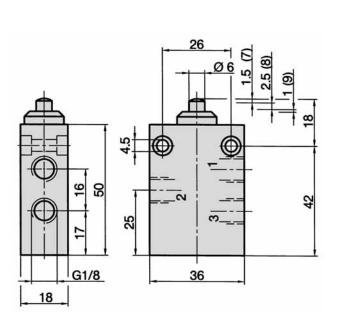
### E-25-310



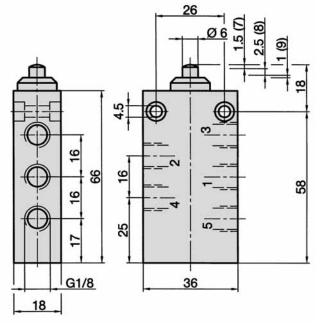
#### E-28-310



### E-18-310, E-18-310-Q



### E-18-510, E-18-510-Q

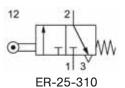


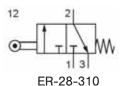
- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust
- 4 = outlet
- 5 = exhaust

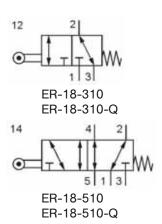
- (7) = pre-stroke, valve is not actuated
- (8) = working stroke
- (9) = end of stroke, bottomed



### **ER**









#### **Design and function**

Types ER-25-310 and ER-28-310: Port 1 must be used as the pressure inlet.

Types ER-18-310 and ER-18-510: All ports are interchangeable.

Valves ER-18-310 and ER-18-510 are available for use with vacuum ( $-0.95 \dots 12 \text{ bar}/-14 \dots 175 \text{ psi}$ ). Order number changes to ER-18-310-Q and ER-18-510-Q.

Order number	ER-25-310	ER-28-310	ER-18-310	ER-18-510
Function	3/2-way spring return			5/2-way spring return
Connection	M 5 (10/32 UNF)	G 1/8		
Nominal size	2 mm	4 mm		
Flow rate	80 NI/min (0.081 Cv)	210 NI/min (0.213 Cv)	320 NI/min (0.325 Cv)	
Pressure range	0 12 bar (0 175 p	5 psi)		
Actuating force at 6 bar	8 N	9 N	17 N	18 N
Temperature range	– 10 °C + 70 °C (+ 14 °F + 158 °F)			
Materials	Body: Al (anodized), In	ner parts: Al, brass, stai	nless steel	
	Seals: NBR and POM			
	Roller: stainless steel Lever: brass	Roller: POM Lever: stainless steel	Roller: POM Lever: AI (anodized)	
Weight	0.044 kg (0.097 lb.)	0.061 kg (0.134 lb.)	0.098 kg (0.216 lb.)	0.121 kg (0.267 lb.)

2.040 Subject to change

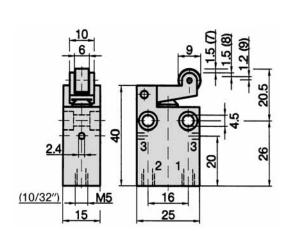
### **Roller-operated valves** 3/2- and 5/2-way, M 5 (10/32 UNF) - G 1/8,

80 - 320 NI/min (0.081 - 0.325 Cv)

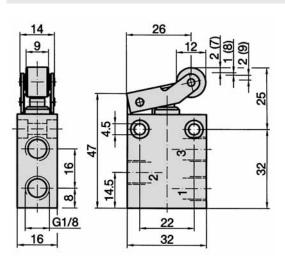


### **Dimensions for series**

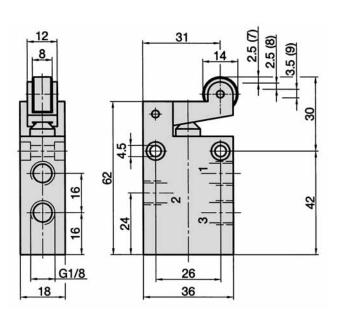
#### ER-25-310



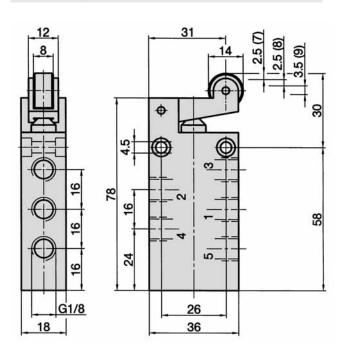
### ER-28-310



### ER-18-310, ER-18-310-Q



### ER-18-510, ER-18-510-Q

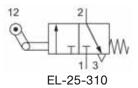


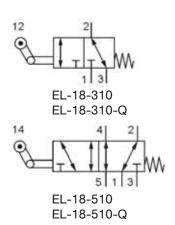
- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust
- 4 = outlet
- 5 = exhaust

- (7) = pre-stroke, valve is not actuated
- (8) = working stroke
- (9) = end of stroke, bottomed

2.041 Subject to change









### **Design and function**

Type EL-25-310: Port 1 must be used as the pressure inlet. Types EL-18-310 and EL-18-510: All ports are interchangeable.

Valves EL-18-310 and EL-18-510 are available for use with vacuum (-0.95 ... 12 bar/-14 ... 175 psi). Order number changes to EL-18-310-Q and EL-18-510-Q.

Order number	EL-25-310	EL-18-310	EL-18-510	
Function	3/2-way spring return		5/2-way spring return	
Connection	M 5 (10/32 UNF)	G 1/8		
Nominal size	2 mm	4 mm		
Flow rate	80 NI/min (0.081 Cv)	320 NI/min (0.325 Cv)		
Pressure range	0 12 bar (0 175 psi)			
Actuating force at 6 bar	8 N	17 N	18 N	
Temperature range	- 10 °C + 70 °C (+ 14 °F + 158 °F)			
Materials	Body: Al (anodized), Inner parts: Al, brass, stainless steel, Roller: POM			
	Seals: NBR	Seals: NBR and POM		
	Lever: brass	Lever: AI (anodized) and brass		
Weight	0.044 kg (0.097 lb.)	0.095 kg (0.209 lb.)	0.118 kg (0.260 lb.)	

2.060 Subject to change

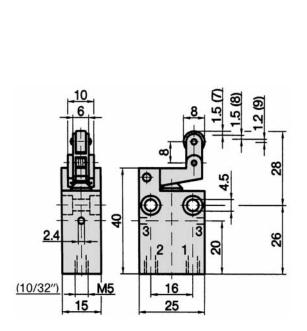
# Roller-operated valves with free return 3/2- and 5/2-way valves, M 5 (10/32 UNF) - G 1/8, 80 - 320 NI/min (0.081 - 0.325 CV)



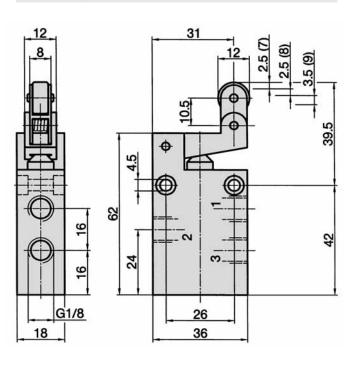
### **Dimensions for series**

### EL

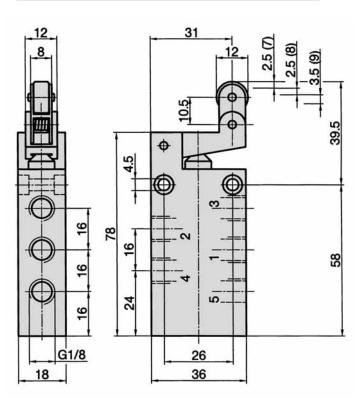
#### EL-25-310



### EL-18-310, EL-18-310-Q



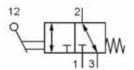
### EL-18-510, EL-18-510-Q



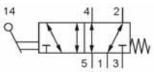
- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust
- 4 = outlet
- 5 = exhaust
- (7) = pre-stroke, valve is not actuated
- (8) = working stroke
- (9) = end of stroke, bottomed



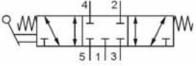
### HF



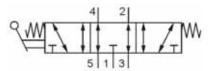
HF-18-310, HF-18-310-Q HF-14-310, HF-14-310-Q



HF-18-510, HF-18-510-Q HF-14-510, HF-14-510-Q



HF-18-530, HF-18-530-Q HF-14-530, HF-14-530-Q



HF-18-533, HF-18-533-Q HF-14-533, HF-14-533-Q



#### **Design and function**

Spool valve with spring return.

All ports are interchangeable.

This valve is also available in G 1/2.

Valves of this series are available for use with vacuum (-0.95 ... 12 bar/-14 ... 175 psi).

Order number changes in HF-18-310-Q, HF-14-310-Q, HF-18-510-Q, HF-14-510-Q, HF-18-530-Q, HF-18-533-Q and HF-14-533-Q.

Order number	HF-18-310	HF-14-310	HF-18-510	HF-14-510	HF-18-530	HF-14-530	HF-18-533	HF-14-533
Function	3/2-way spring return	'n	5/2-way spring retu	'n	5/3-way center posi	tion closed	5/3-way center position	on exhausted
Connection	G 1/8	G 1/4	G 1/8	G 1/4	G 1/8	G 1/4	G 1/8	G 1/4
Nominal size	6 mm	9 mm	6 mm	9 mm	5 mm	9 mm	5 mm	9 mm
Flow rate	750 NI/min (0.762 Cv)	1580 NI/min (1.606 Cv)	750 NI/min (0.762 Cv)	1580 NI/min (1.606 Cv)	650 NI/min (0.661 Cv)	1300 NI/min (1.321 Cv)	650 NI/min (0.661 Cv)	1300 NI/min (1.321 Cv)
Pressure range	0 12 bar	0 12 bar (0 175 psi)						
Actuating force at 6 bar	13 N	20 N	13 N	20 N	16 N	24 N	16 N	24 N
Temperature range	– 10 °C	– 10 °C + 70 °C (+ 14 °F + 158 °F)						
Materials	Body: AI (anodized), Inner parts: AI, stainless steel, Lever: stainless steel, Seals: NBR and POM							
Weight	0.266 kg (0.586 lb.)	0.480 kg (1.058 lbs.)	0.310 kg (0.683 lb.)	0.560 kg (1.234 lbs.)	0.312 kg (0.688 lb.)	0.564 kg (1.243 lbs.)	0.312 kg (0.688 lb.)	0.564 kg (1.243 lbs.)

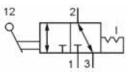
2.100 Subject to change

# Hand lever valves with detent 3/2-, 5/2- and 5/3-way, G 1/8 - G 1/2, 750 - 3300 NI/min (0.762 - 3.354 CV)



### **Technical data for series**

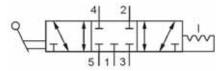
### HR



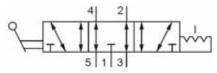
HR-18-320, HR-18-320-Q HR-14-320, HR-14-320-Q



HR-18-520, HR-18-520-Q HR-14-520, HR-14-520-Q



HR-18-530, HR-18-530-Q HR-14-530, HR-14-530-Q



HR-18-533, HR-18-533-Q HR-14-533, HR-14-533-Q



#### **Design and function**

Spool valve with two or three fixed positions.

All ports are interchangeable.

This valve is also available in G 1/2.

Valves of this series are available for use with vacuum ( $-0.95 \dots 12 \text{ bar/} -14 \dots 175 \text{ psi}$ ).

Order number changes in HR-18-320-Q, HR-14-320-Q, HR-18-520-Q, HR-14-520-Q, HR-18-530-Q, HR-14-530-Q, HR-18-533-Q and HR-14-533-Q.

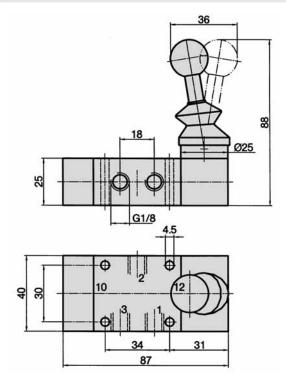
Order number	HR-18-320	HR-14-320	HR-18-520	HR-14-520	HR-18-530	HR-14-530	HR-18-533	HR-14-533
Function	3/2-way 2 fixed pos	itions	5/2-way 2 fixed pos	itions	5/3-way center posi	tion closed	5/3-way center positi	on exhausted
Connection	G 1/8	G 1/4	G 1/8	G 1/4	G 1/8	G 1/4	G 1/8	G 1/4
Nominal size	6 mm	9 mm	6 mm	9 mm	5 mm	9 mm	5 mm	9 mm
Flow rate	750 NI/min (0.762 Cv)	1580 NI/min (1.606 Cv)	750 NI/min (0.762 Cv)	1580 NI/min (1.606 Cv)	650 NI/min (0.661 Cv)	1300 NI/min (1.321 Cv)	650 NI/min (0.661 Cv)	1300 NI/min (1.321 Cv)
Pressure range	0 12 bar	0 12 bar (0 175 psi)						
Actuating force at 6 bar	16 N	24 N	16 N	24 N	18 N	28 N	18 N	28 N
Temperature range	– 10 °C ·	– 10 °C + 70 °C (+ 14 °F + 158 °F)						
Materials	Body: Al (anodized), Inner parts: Al, stainless steel, Lever: stainless steel, Seals: NBR and POM							
Weight	0.268 kg (0.591 lb.)	0.485 kg (1.069 lbs.)	0.312 kg (0.688 lb.)	0.564 kg (1.243 lbs.)	0.312 kg (0.688 lb.)	0.564 kg (1.243 lbs.)	0.312 kg (0.688 lb.)	0.564 kg (1.243 lbs.)



### **Dimensions for series**

## HF, HR

HF-18-310, HF-18-310-Q, HR-18-320, HR-18-320-Q



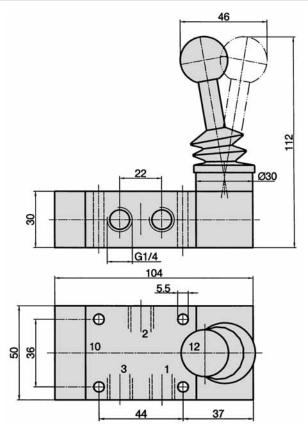
1 = pressure inlet

2 = outlet

3 = exhaust

All ports are interchangeable.

### HF-14-310, HF-14-310-Q, HR-14-320, HR-14-320-Q



1 = pressure inlet

2 = outlet

3 = exhaust

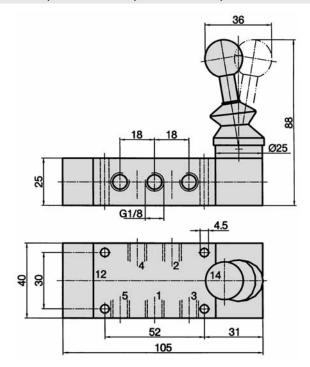
All ports are interchangeable.



### **Dimensions for series**

# HF, HR

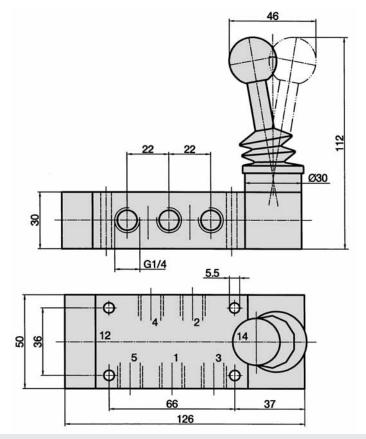
HF-18-510, HF-18-530, HF-18-533, HR-18-520, HR-18-530, HR-18-533 HF-18-510-Q, HF-18-530-Q, HF-18-533-Q, HR-18-520-Q, HR-18-530-Q, HR-18-533-Q



- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts

All ports are interchangeable.

HF-14-510, HF-14-530, HF-14-533, HR-14-520, HR-14-530, HR-14-533 HF-14-510-Q, HF-14-530-Q, HF-14-533-Q, HR-14-520-Q, HR-14-530-Q, HR-14-533-Q



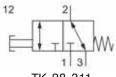
- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts

All ports are interchangeable.

2.103



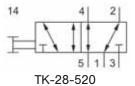
### **TK-28**



TK-28-311



TK-28-320









### **Design and function**

All ports are interchangeable.

TK-28-311 and TK-28-320: Pressure inlet on 1: N/C

Pressure inlet on 3: N/O

Throttle can be mounted in the exhaust port. The mounting nut RM-16, M 16 x 1.5, is included.

Order number	TK-28-311	TK-28-320	TK-28-520		
Design and function	3/2-way, spool valve, spring return	3/2-way, spool valve, manually operated	5/2-way, spool valve, manually operated		
Connection	G 1/8				
Nominal size	4 mm				
Flow rate	500 NI/min (0.508 Cv)	480 NI/min (0.488 Cv)			
Pressure range	2 10 bar (29 145 psi)				
Actuating force at 6 bar	11 N	3 N	4 N		
Temperature range	- 10 °C + 70 °C (+ 14 °F + 158 °F)				
Materials	Body: Al (anodized), Inner parts: Al, stainless steel, brass				
	Seals: NBR Seals: NBR				
Weight	0,048 kg (0.106 lb.)		0,066 kg (0.145 lb.)		

2.110 Subject to change

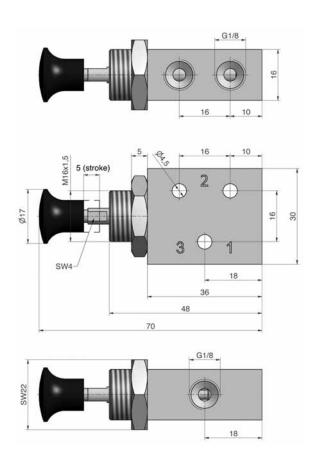
# Manually operated valves 3/2- and 5/2-way, G 1/8

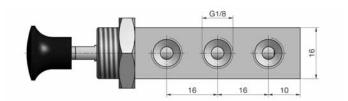


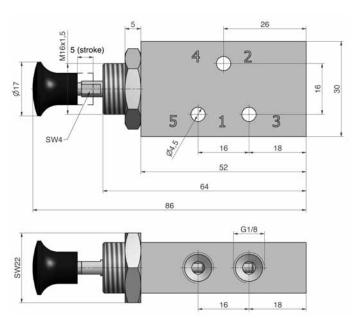
### **Dimensions for series**

### **TK-28**

3/2-way valve G 1/8, Order number TK-28-311 and TK-28-320 5/2-way valve G 1/8, Order number TK-28-520







- 1, 3 = pressure inlet or exhaust
- 2 = outlet

- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust
- 4 = outlet
- 5 = exhaust

### **Panel-mounted valves** Series T, Ø 22.5 mm





**Basic valve** 3/2-way, M 5 (10/32 UNF) M 5 and G 1/8

2.122

**Basic valve** 3/2-way, M5 (10/32 UNF) M5 and G 1/8

2.122





**Push button** Ø 22.5 mm

18-T-23-011 2.126



Mushroom Ø 22.5 mm

18-T-23-012 2.126



2-position switch Ø 22.5 mm

2.127 18-T-23-013



Key return Ø 22.5 mm

18-T-23-014 2.127





Stop/Key return lockable Ø 22.5 mm

18-T-23-015 2.128



**Toggle** Ø 22.5 mm

18-T-23-016 2.128

### Panel-mounted valves Series T, Ø 22.5 mm





### Push button Ø 30 mm

18-T-30-011 2.129



2.129





## 2-position switch Ø 30 mm

18-T-30-013 2.130



18-T-30-014 2.130





### Toggle Ø 30 mm

18-T-30-016 2.131

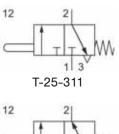
Emergency Ø 30 mm

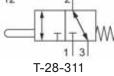
18-T-30-018 2.131

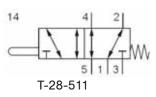




# T-25, T-28











### **Function**

T-25-311: pressure inlet at 1. The exhaust air is vented through a small orifice on the side.

T-28-311 and T-28-511: All ports are interchangeable.

The actuators are attached to the body by sliding the locking lever.



Actuators for the model T-25-311, T-28-311 and T-28-511, see page 2.120 and 2.121.

Order number	T-25-311	T-28-311	T-28-511		
Design and function	3/2-way seat valve, spring return	3/2-way spool valve, spring return	5/2-way spool valve, spring return		
Connection	M 5 (10/32 UNF)	G 1/8			
Nominal size	2,5 mm	4 mm			
Flow rate	95 NI/min (0.097 Cv)	450 NI/min (0.457 Cv)	465 NI/min (0.473 Cv)		
Pressure range	0 12 bar (0 175 psi)		2 10 bar (0 145 psi)		
Actuating force at 6 bar	22 N	25 N	15 N		
Temperature range	- 10 °C + 70 °C (+ 14 °F + 158 °F)				
Materials	Body: Al (anodized), Inner parts: Al, stainless steel, brass				
	Seals: NBR				
Weight	0,034 kg (0.075 lb.)	0,054 kg (0.119 lb.)	0,066 kg (0.145 lb.)		

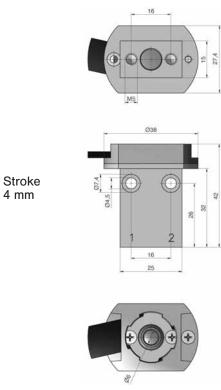
2.122 Subject to change



### **Dimensions for series**

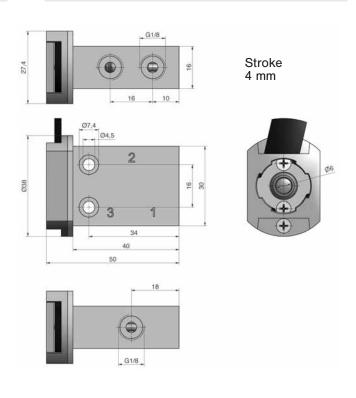
# T-25, T-28

### 3/2-way seat valve M5, order number T-25-311



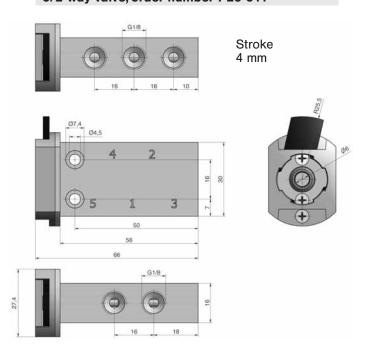
1 = pressure inlet 2 = outlet

### 3/2-way spool valve G 1/8, order number T-28-311



1, 2, 3 = for interchangeable use 2 = outlet

### 5/2-way valve, order number T-28-511



1, 2, 3, 4, 5 = for interchangeable use

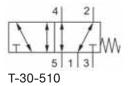
### Ventile für manuelle Betätigung Basic valve 3/2- and 5/2-way, M 5 (10/32 UNF)



### **Technical data for series**

### **T-30**







### **Design and function**

T-30-310 – direct operated seat valve, pressure inlet always at port 1. T-30-510 – direct operated spool valve, all ports are interchangeable. The actuators are attached to the body by sliding the locking lever.

Order number	T-30-310	T-30-510		
Function	3/2-way spring return	5/2-way spring return		
Connection	M5 (10/32 UNF)			
Nominal size	2 mm	2.4 mm		
Flow rate	80 NI/min (0.081 Cv)	100 NI/min (0.102 Cv)		
Pressure range	0 12 bar (0 175 psi)			
Actuating force at 6 bar	10 N	21 N		
Temperature range	- 10 °C + 70 °C (+ 14 °F + 158 °F)	°C + 70 °C (+ 14 °F + 158 °F)		
Materials	Body: Al (anodized), Inner parts: Al, brass, stainless steel			
	Seals: NBR	Seals: NBR and POM		
Weight	0.052 kg (0.115 lb.)	0.076 kg (0.167 lb.)		

2.124 Subject to change

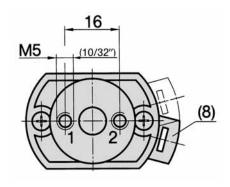
# airec

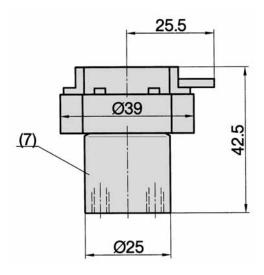
### **Dimensions for series**

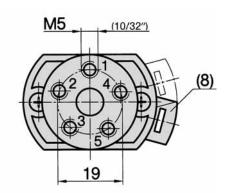
### **T-30**

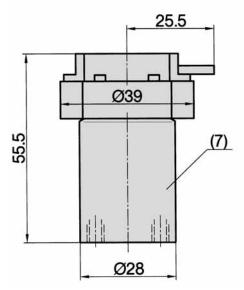
Basic body, order number T-30-310

### Basic body, order number T-30-510









- 1 = pressure inlet
- 2 = outlet
- (7) = the AI body is free to rotate
- (8) = locking lever

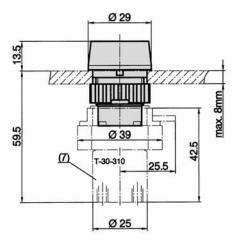
- 1, 2, 3, 4, 5 = for interchangeable use
- (7) = the AI body is free to rotate
- (8) = locking lever



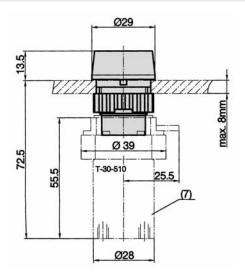
### **Dimensions for actuator**

### Ø 22.5 mm

### Push button, order number 18-T-23-011

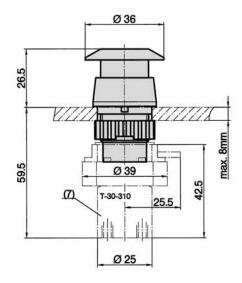


Mounted with	T-30-310	T-30-510	
Symbol	12 2 NW	14 4 2 5 1 3	
Actuating force at 6 bar	13 N	23 N	
Weight	0.067 kg (0.148 lb.)	0.090 kg (0.198 lb.)	
Available colors	green with white line (ON) red with white circle (OFF) black, yellow, green or blue		

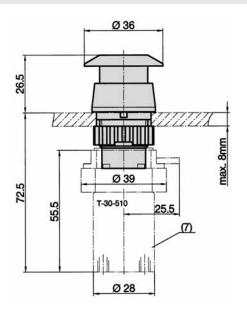


(7) = The Al body is free to rotate. Please specify actuator color when ordering.

### Mushroom, order number 18-T-23-012



Mounted with	T-30-310	T-30-510
Symbol	12 2	14 2 1 2 M
Actuating force at 6 bar	13 N	23 N
Weight	0.072 kg (0.159 lb.)	0.095 kg (0.209 lb.)
Available color	green, red	

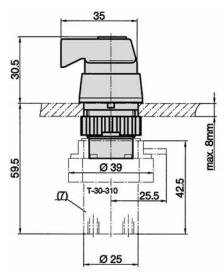


(7) = The AI body is free to rotate. Please specify actuator color when ordering.

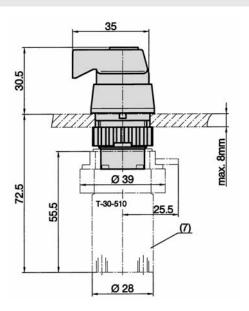
### **Dimensions for actuator**

### Ø 22.5 mm

### 2-position switch, order number 18-T-23-013

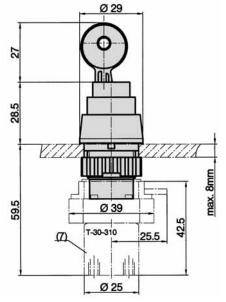


Mounted with	T-30-310	T-30-510
Symbol	12 2	14 2 W
Actuating force at 6 bar	26 N	25 N
Weight	0.073 kg (0.161 lb.)	0.096 kg (0.212 lb.)

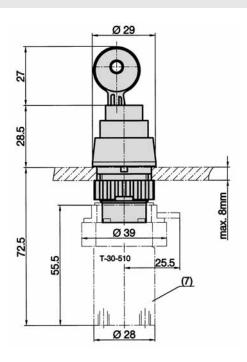


(7) = The AI body is free to rotate.

### Key return, order number 18-T-23-014



Mounted with	T-30-310	T-30-510
Symbol	12 2 V V V V V V V V V V V V V V V V V V	14 4 2) 2 1 1 1 W
Actuating force at 6 bar	24 N	34 N
Weight	0.126 kg (0.278 lb.)	0.149 kg (0.328 lb.)



(7) = The AI body is free to rotate.

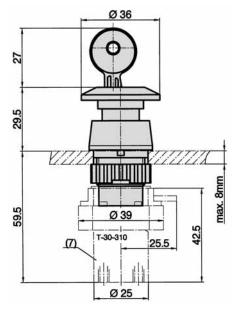
2.127



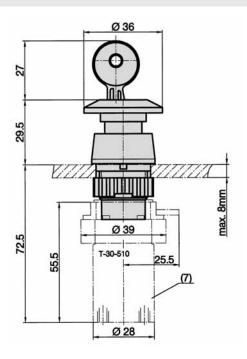
### **Dimensions for actuator**

### Ø 22.5 mm

### Stop/Key return, order number 18-T-23-015

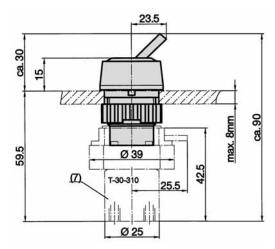


Mounted with	T-30-310 T-30-510	
Symbol	⊕ (F= 113) M ⊕ (F= 113)	
Actuating force at 6 bar	17 N 27 N	
Weight	0.128 kg (0.282 lb.) 0.151 kg (0.333 lb.	
Available color	red	

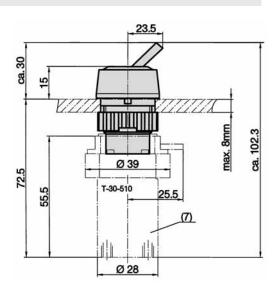


(7) = The AI body is free to rotate.

### Toggle, order number 18-T-23-016



Mounted with	T-30-310	T-30-510	
Symbol	12 2	14 2 1 W	
Actuating force at 6 bar	6 N	12 N	
Weight	0.071 kg (0.156 lb.)	0.094 kg (0.207 lb.)	



(7) = The AI body is free to rotate.

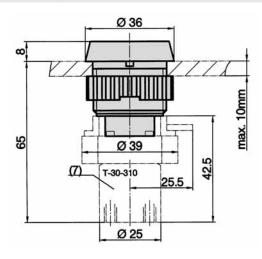
2.128



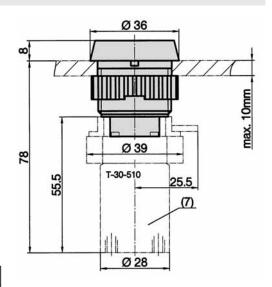
### **Dimensions for actuator**

### Ø 30 mm

### Push button, order number 18-T-30-011

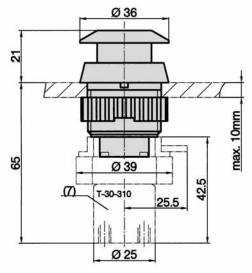


Mounted with	T-30-310	T-30-510	
Symbol	12 2	W 14 2 1 1 2 1 W	
Actuating force at 6 bar	r 15 N 24 N		
Weight	0.076 kg (0.167 lb.) 0.099 kg (0.218 lb		
Available colors	black, green, yellow or red		

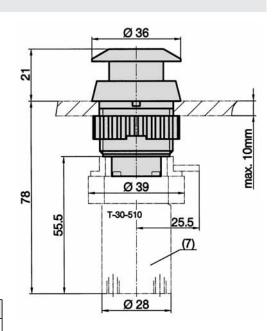


(7) = The Al body is free to rotate. Please specify actuator color when ordering.

### Mushroom, order number 18-T-30-012



Mounted with	T-30-310	T-30-510		
Symbol	12 2	14 4 2 5 1 3 W		
Actuating force at 6 bar	15 N 24 N			
Weight	0.081 kg (0.178 lb.) 0.104 kg (0.229 lb.)			
Available colors	black or red			



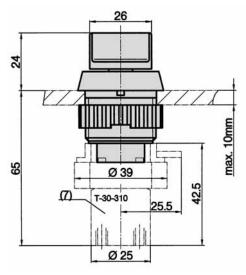
(7) = The AI body is free to rotate. Please specify actuator color when ordering.



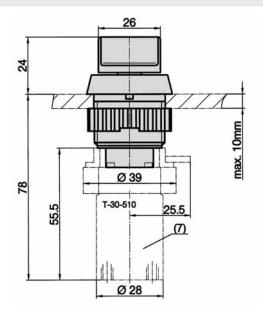
### **Dimensions for actuator**

## Ø 30 mm

### 2-position switch, order number 18-T-30-013

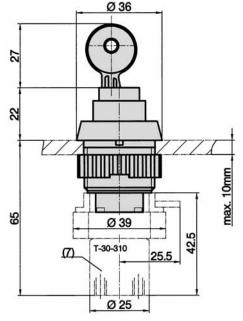


Mounted with	T-30-310	T-30-510	
Symbol	12 2	14 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Actuating force at 6 bar	15 N	25 N	
Weight	0.080 kg (0.176 lb.)	0.103 kg (0.227 lb.)	

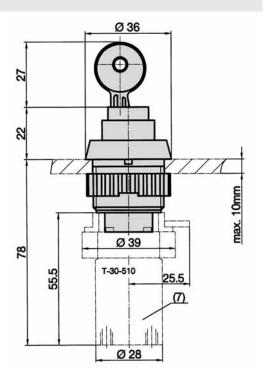


(7) = The AI body is free to rotate.

### Key return, order number 18-T-30-014



Mounted with	T-30-310	T-30-510	
Symbol	12 2 VV	9 7 1 N	
Actuating force at 6 bar	26 N	28 N	
Weight	0.133 kg (0.293 lb.)	0.156 kg (0.344 lb.)	



(7) = The AI body is free to rotate.

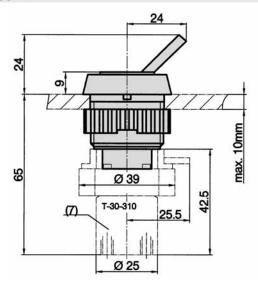
2.130



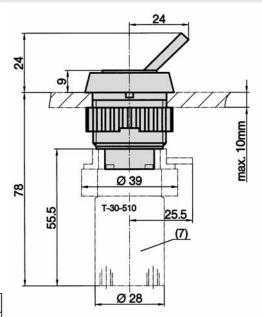
### **Dimensions for actuator**

### Ø 30 mm

### Toggle, order number 18-T-30-016

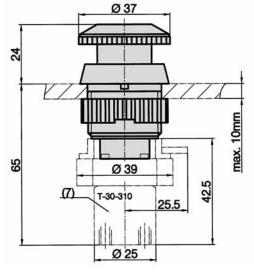


Mounted with	T-30-310	T-30-510	
Symbol	12 2	% 1 1 2 W	
Actuating force at 6 bar	9 N	11 N	
Weight	0.079 kg (0.174 lb.)	0.102 kg (0.225 lb.)	

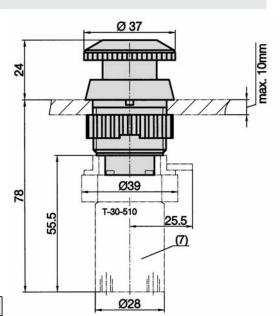


(7) = The AI body is free to rotate.

### Emergency, order number 18-T-30-018



Mounted with	T-30-310	T-30-510	
Symbol	(12 2) (15 1 1 3) (16 1 1 3)		
Actuating force at 6 bar	r 31 N 25 N		
Weight	0.086 kg (0.189 lb.) 0.109 kg (0.240 lb		
Available color	red		



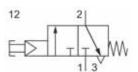
(7) = The AI body is free to rotate.

# Push button valve with low actuating force 3/2-way, G 1/8, 220 NI/min (0.224 CV)



### Technical data for push button

ST-18-310





#### **Design and function**

Servo-operated spool valve with a low actuating force. In the resting position the valve vents an insignificant amount of air (2.5 NI/min). The attached guard prevents accidental actuation.

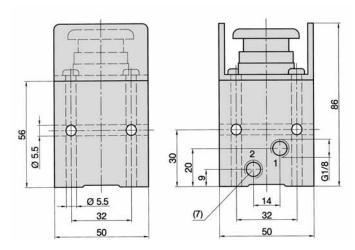
Pressure supply always at port 1, outlet at port 2. The exhaust air is vented through a small orifice at the bottom of the valve.

#### **Application**

As a start button for all types of machines and jigs, particularly in pairs as a part of a two-hand control system.

Order number	ST-18-310
Function	3/2-way spring return
Connection	G 1/8
Nominal size	3 mm
Flow rate	220 NI/min (0.224 Cv)
Pressure range	3 10 bar (43 145 psi)
Actuating force at 6 bar	3.5 N
Temperature range	- 10 °C + 70 °C (+ 14 °F + 158 °F)
Materials	Body: Al (anodized), Inner parts: Al, brass, stainless steel, Seals: NBR and POM
Weight	0.390 kg (0.860 lb.)

### **Dimensions for push button**



1 = pressure inlet

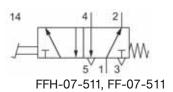
2 = outlet

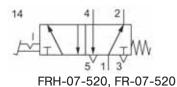
(7) = outlet 2 is at the front and the rear of the valve. The rear outlet is plugged at the factory.

2.140 Subject to change



### F









### **Design and function**

The valve can be used as a 3/2 or 2/2-way function by closing plugging the appropriate ports. Types FFH-07-511 and FRH-07-520: The pedals are protected by a cover.

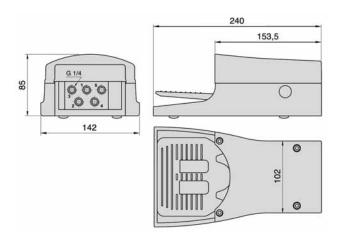
Order number	FF-07-511	FFH-07-511	FR-07-520	FRH-07-520	
Function	5/2-way valve with spr	ing return	5/2-way valve with mechanical detent		
Connection	G 1/4	G 1/4			
Nominal size	7.5 mm				
Flow rate	680 I/min (0.69 Cv)				
Pressure range	2 10 bar (29 145 psi)				
Temperature range	- 10 °C + 60 °C (14 °F 140 °F)				
Materials	Body: Al (anodized) and POM, Seals: NBR				
Weight	1 kg (2.205 lbs.)				



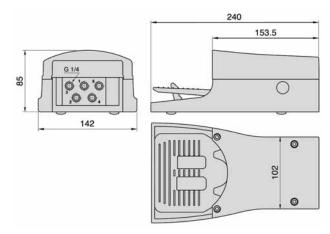
### **Dimensions for series**

F

### FF-07

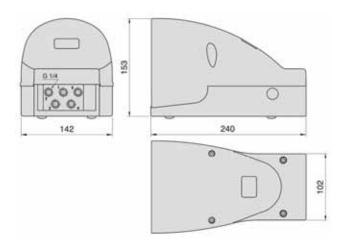


FR-07

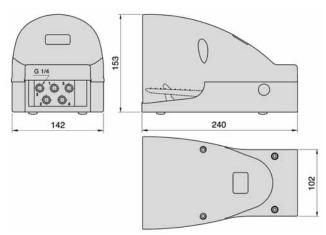


- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust
- 4 = outlet
- 5 = exhaust

### FFH-07



**FRH-07** 



- 1 = pressure inlet
- 2 = outlet
- 3 = exhaust
- 4 = outlet
- 5 = exhaust