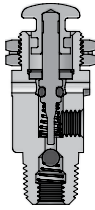


TAC VALVES

INTRODUCTION

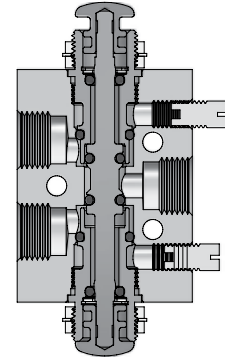
Based on their long life, small size, rugged construction and attractive appearance, the Humphrey TAC, TAC2 and TAC3 family of manual/mechanical air valves are popular choices by design automation engineers. The small stainless steel push button or plated-steel toggle are popular for panel mounting solutions to start, sequence or control equipment with the same outward appearance as traditional electric-style machine controls. The wide variety of valves is available as 2-, 3- and 4-way, in three sizes, and either spring return or detent function. Unique and miniature, three-position, 4-way, exhaust-center valves, in toggle or rocker operator, are also available.



3P

TAC VALVE FEATURES:

- Work-hardened, SST button attached, as standard.
- Button bottoms out, limits overstroke/internal damage.
- TAC bodies include hex for wrench engagement.
- Electric style, 15/32-32 threaded collar for panel mount.
- "Building block" approach to pneumatic automation.
- Unique "Air Operators" simplify pneumatic circuitry.



41PP

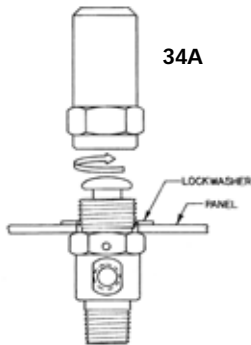
HUMPHREY TAC "TOTAL AIR CONTROL" SYSTEM

Humphrey asserts pneumatic logic and sequencing provides a simple, reliable, cost effective alternative to PC or PLC control. Many of today's simpler machine control, secondary operations, and assembly fixtures do not require, or sometimes even permit expensive PC or PLC control, particularly in hazardous environments.

The heart of Humphrey TAC "Total Air Control" system is the push button valve. All TAC/TAC2 push button valves are produced with a single-button operator design, such that a variety of manual, mechanical, or air-pilot operators

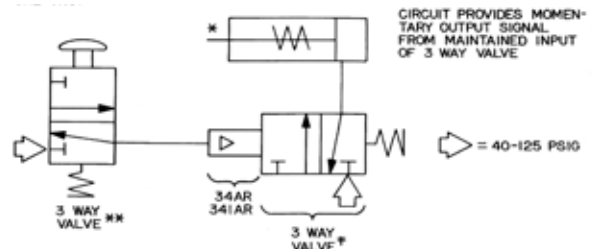
can be added with ease (i.e., thread-on air operator, 34A, to 3P valve, and 3P push button valve becomes air-pilot valve). Consult factory representative for TAC3 push button valves.

Complementing the TAC and TAC2 valve line-up, Humphrey offers a variety of valve operators, auxiliary items, and miniature fittings, effectively "arming" the engineer technician with a complete toolbox of logic items to resolve factory automation problems pneumatically.



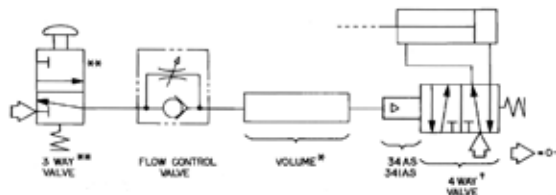
34A

3P Push Button



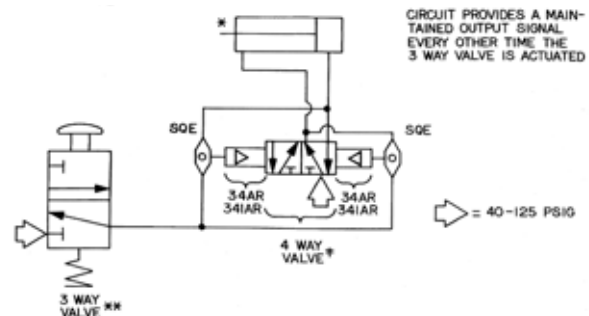
- * Single acting cylinder shown.
- **Valve used can be any 3-way or from one side of any 4-way.
- † Valve used with 34AR or 341AR operator must be TAC Series, but can be 2-, 3-, or 4-way depending on work function.

One Shot



- * One cubic inch of volume equals approximately two seconds delay.
- † Valve used with 34AS or 341AS actuator must be TAC Series but can be either 2-, 3- or 4-way depending on work function (Double Acting Cylinder shown).
- **Valve used can be any 3-way or from one side of any 4-way.

Time Delay Circuit



- * Double acting cylinder shown. Single acting cylinder can be used.
- † Valve used with 34AR or 341AR operator must be TAC Series 4-way model: 4PP, 41PP, or 42PP.
- **Valve used can be any 3-way or from one side of any 4-way.

Ball Point Pen Circuit

| 2-, 3-WAY VALVES | Ports | CFM* | Valves | Page |
|-------------------------|--------------|-------------|----------------------------|-------------|
| TAC | 10-32 | 6 | 2P, 3P, 2V, 3V | 66-67 |
| TAC2 | 1/8 | 18 | 31P, 31PPX, 31V | 68-69 |
| 4-WAY VALVES | Ports | CFM* | Valves | Page |
| TAC | 10-32 | 9 | 4P, 4PP, 4PPX, 4V | 66-67 |
| TAC2 | 1/8 | 18 | 41P, 41PP, 41PPX, 41V | 68-69 |
| TAC3 | 1/4 | 31 | 42P, 42PP, 42PA, 42A, 42A2 | 70 |
| TAC three-position | 1/8 | 6 | 41R-D(S)3, 41T-D(S)3 | 68-69 |

*Nominal flow @100 psi

| Thread-On Operators for Push Button Valves | | Part No. | Page |
|---|------------------------------------|-----------------|-------------|
| A | Air-Pilot | 34, 341 | 71 |
| AR | Air-Pilot with Reset | 34, 341 | 71 |
| AS | Air-Pilot with Time Delay | 34, 341 | 71 |
| ASR | Air-Pilot with Rest and Time Delay | 34, 341 | 71 |
| T | Finger Tip Manual | 34 | 72 |
| F | Foot (Knee) Manual | 34 | 72 |
| C | Cam Mechanical | 34 | 72 |
| CW | One Way Trip Cam Mechanical | 34 | 72 |
| CH | Heavy Duty Cam Mechanical | 34 | 72 |
| B | Ball Mechanical | 34 | 72 |

| Auxiliary Equipment | | Page |
|----------------------------|-----------------------------|-------------|
| RSR | Air Pressure Regulator | 73 |
| SC1 | Speed Control | 73 |
| C1 | Check Valve | 73 |
| C125 | Check Valve | 73 |
| SQE | Shuttle/Quick Exhaust Valve | 73 |
| S125 | Shuttle Valve | 73 |

| Fittings: 10-32 UNF and 1/8 PIPE | | Page |
|---|--|-------------|
| BF | | 72 |
| PBF1 | | 72 |
| BF1 | | 72 |
| 150-30A | | 72 |
| 150-31A | | 72 |
| SF | | 72 |
| UEF | | 72 |
| URTF | | 72 |
| UTF | | 72 |

HUMPHREY "TOTAL AIR CONTROL" LINE UP:

- **Air Valves:** Manual/Mechanical 2-, 3-, 4-way, spring return or detent. 3 sizes.
- **Air Operators:** Standard, Air Reset, Air Snap, Air Reset/Snap.
- **Manual Operators:** Finger Tip, Foot/Knee/Hand.
- **Mechanical Operators:** Ball, Cam, Cam-One Way Trip, Cam-Heavy Duty.
- **Auxiliary Items:** Air Regulator; Flow Control, Check, Shuttle and Quick Exhaust Valves.
- **Barbed Fittings:** Straight, Elbow, Tee, Reducer, Bulkhead, Plug, Extension, Swivel.



TAC VALVES

TAC Series

2P, 3P, 2V, 3V, 4P, 4PP, 4PPX, 4V

Humphrey TAC, 10-32 UNF ported, 2-, 3- or 4-way, manual/mechanical air valves are attractive, compact and rugged. Available as spring return or detent functionality, TAC valves provide excellent flow for their relative size, and are ideal for panel-mount signaling or small-cylinder control, leaving pneumatic plumbing and tubing "behind the scenes."

2P, 3P, 4P: Spring return, push button.

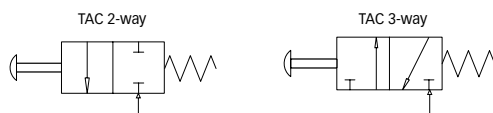
4PP: Detent, push/push.

2V, 3V, 4V: Detent, toggle.

4PPX: Detent, push/pull.

Features and Benefits

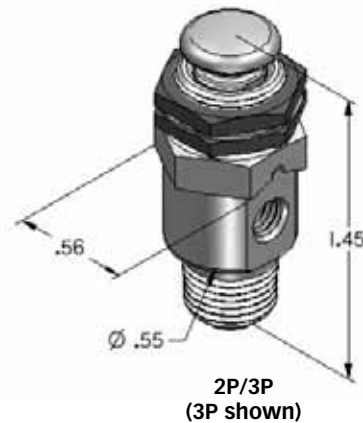
- Hardened, stainless steel button bottoms out on valve collar, preventing overstroke and internal valve damage.
- Emulating similar styled electric buttons and toggles, the operators and 15/32-32 threaded collar, enhances machine appearance.
- Hex feature on valve body assists with mounting.
- Standard panel-mount button design permits addition of various manual, mechanical or air operators.



2P/3P



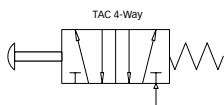
2V/3V



2P/3P
(3P shown)

SPECIFICATIONS

| | | | |
|-------------------|---|--------------------|---|
| Design Principle: | Pressure Unbalanced, Air Return, Spring Assist (2-,3-Way); Pressure Balanced, Spring Return (4-Way) | Media: | Air, Inert Gases |
| Porting Type: | 2-, 3- or 4-Way | Pressure Range: | 0-125 PSIG |
| Port Size: | 10-32 UNF | Temperature Range: | -20°F to 180°F |
| | | Flow @100 PSIG: | 2-,3-Way: 6 CFM, 169 LPM (Cv=0.1) 4-Way: 9 CFM, 254 LPM (Cv=0.2) |



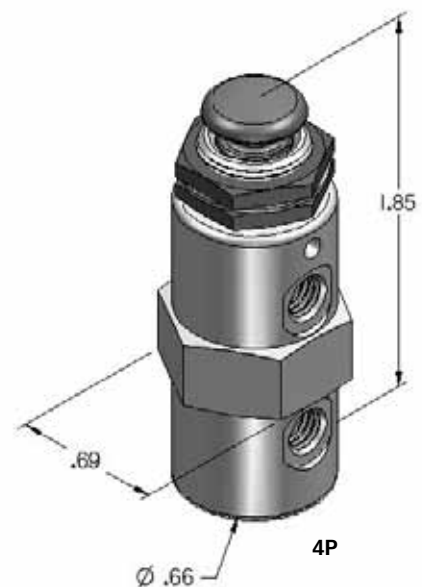
4P



4V



4PPX



4PP

TAC VALVES

HOW TO OBTAIN SPECIFICATIONS FOR A PARTICULAR VALVE(S)

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HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

TAC2 Valves

31P, 31PPX, 31V, 41P, 41PP, 41PPX, 41V, 41R-D(S)3, 41T-D(S)3

Humphrey TAC2, 1/8 PIPE port, 3- or 4-way, manual/mechanical air valves are attractive, compact and rugged. Available as spring return or detent functionality, TAC2 valves provide excellent flow, and are ideal for panel-mount signaling or cylinder control, leaving pneumatic plumbing and tubing "behind the scenes." Plug 3-way for 2-way service. 4-ways include exhaust speed controllers, standard.

31P, 41P: Spring return, push button.

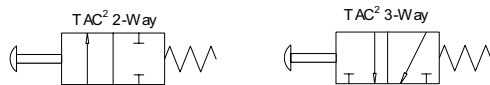
41PP: Detent, push/push.

31V, 41V: Detent, toggle.

31PPX, 41PPX: Detent, push/pull.

Features and Benefits

- Hardened, stainless steel button bottoms out on valve collar, preventing overstroke and internal valve damage.
- Emulating similar styled electric buttons and toggles, the operators and 15/32-32 threaded collar, enhances machine appearance.
- 31P is multi-purpose. Use as 2- or 3-way, normally closed or open, diverter, selector.
- Standard panel-mount button design permits addition of various manual, mechanical or air operators.
- Exhaust port speed controller also sold separately in bags of 10. (PN: 97-21-Bagof10)
- See TAC Auxilliary Devices and Fittings, p. 72.



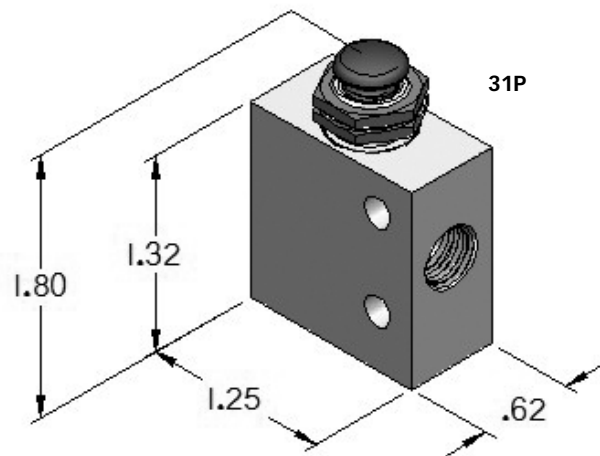
31P



31PPX



31V



SPECIFICATIONS

Design Principle: Pressure Balanced, Air Return, Spring Assist

Porting Type: 2-, 3- or 4-Way

Port Size: 1/8 PIPE

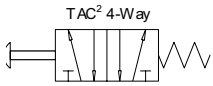
Media: Air, Inert Gases

Pressure Range: 0-125 PSIG

Temperature Range: -20°F to 180°F

Flow @100 PSIG: 18 CFM, 509 LPM (Cv=0.3)

41R/T: 6 CFM, 169 LPM (Cv=0.1)



41P



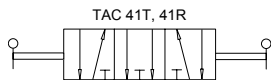
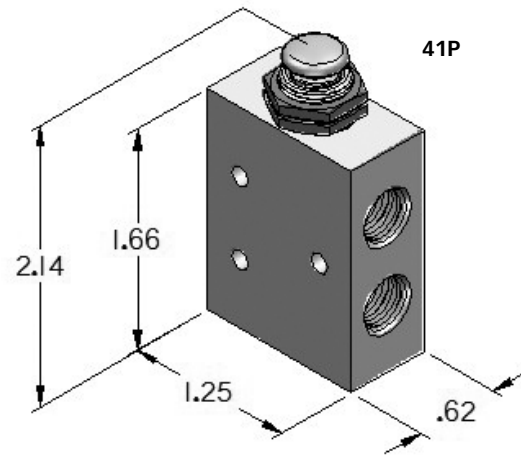
41PPX



41V



41PP



41T



41R

| Model | Description | Dimensions (inch) | | | Action at Position | | |
|------------------|---|----------------------|------|------|--------------------|--------|---------------|
| | | H | W | D | Left | Center | Right |
| 41T-D3, 41R-D3 | 3-position, exhaust center, 4-way, manual valve | 2.38 (T) 1.91 (R) | 0.88 | 0.63 | Detent | Detent | Detent |
| 41T-S3, 41R-S3 | | | | | Spring Return | | Spring Return |
| 41T-DS3, 41R-DS3 | | | | | Detent | | Spring Return |

HOW TO OBTAIN SPECIFICATIONS FOR A PARTICULAR VALVE(S)

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HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

TAC3 Valves

42P 42PP, 42PA, 42A, 42A2

Humphrey TAC3, 1/4 PIPE port, 4-way, manual/mechanical and air-operated valves are attractive, compact and rugged. Available as air spring return or detent functionality, TAC3 valves provide excellent flow, and are ideal for cylinder control.

42P: Spring return, push button.

42A: Spring return, air-pilot.

42PP: Detent, push/push.

42A2: Detent, double air-pilot.

42PA: Detent, push/air-pilot.

Features and Benefits

- Hardened, stainless steel button bottoms out on valve collar, preventing overstroke and internal valve damage.
- Emulating similar styled electric buttons and toggles, the operators and 15/32-32 threaded collar, enhances machine appearance.
- Standard panel mount button design (P models) permits addition of various manual, mechanical or air operators. Consult factory representative.



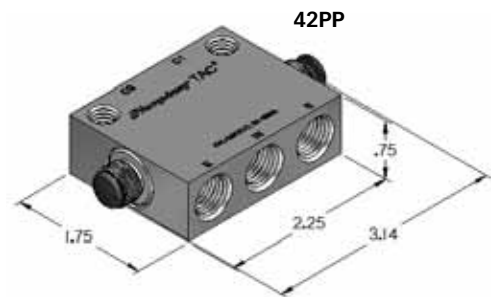
42P



42PP



42PA



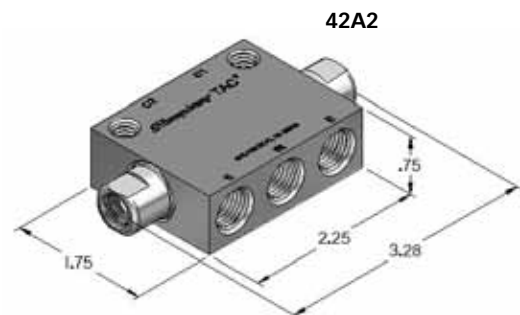
42PP



42A



42A2



42A2

SPECIFICATIONS

| | |
|--------------------|--|
| Design Principle: | Pressure Balanced, Air Return, Spring Assist |
| Porting Type: | 4-Way |
| Port Size: | 1/4 PIPE |
| Media: | Air, Inert Gas |
| Pressure Range: | 0-125 PSIG |
| Temperature Range: | -20°F to 150°F |
| Flow @100 PSIG: | 31 CFM, 877 LPM (Cv=0.5) |

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HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

A variety of TAC Operators complement TAC, TAC2 and TAC3 Push Button air valves, easily mounting and thereby converting them to manual, cam, air-pilot and specialty air-pilot valves.

Operators are designed to easily mate to the valve collar feature in a "building block" approach to miniature pneumatic automation. Two valve locknuts and one lock washer are supplied with valve to secure operators.

Variety of valve mounting brackets are also available.

Features and Benefits

- While stainless steel push buttons can be directly activated manually or mechanically, TAC operators can enhance performance.
- Actuators are highlighted by unique, specialty air operators AS (Air-Pilot Operators with Snap Action), AR (Air-Pilot Operators with Reset) and ASR (Air-Pilot Operators with Snap Action and Reset), renowned as problem solvers for simplifying pneumatic logic circuit design.
- Low cost, light weight.
- Available in 10-32 UNF and 1/8 PIPE porting



341AR
34AS
34ASR



34A
341A



341AR
341AS
341ASR

| Operator Type | Model | Pilot Port | Hex | H | Dia | Function |
|--------------------------------------|--------|------------|--------|-------|-------|--|
| Air Pilot | 34A | 10-32 UNF | 9/16" | 1.25" | 0.56" | Thread onto any push button valve and convert manual valve to air pilot valve. |
| | 341A | 1/8 PIPE | | 1.38" | 0.63" | |
| Air Pilot with Snap Action | 34AS | 10-32 UNF | 13/16" | 2.34" | 0.86" | Actuation of valve is delayed until pilot pressure reaches 35 +/-5 PSIG, then snaps forward to activate valve. |
| | 341AS | 1/8 PIPE | | 2.44" | | |
| Air Pilot with Reset | 34AR | 10-32 UNF | 13/16" | 2.34" | 0.86" | Sharply applied pilot signal of 40 PSIG (min) shifts valve, then operator resets though the pilot pressure remains "ON." |
| | 341AR | 1/8 PIPE | | 2.44" | | |
| Air Pilot with Snap Action and Reset | 34ASR | 10-32 UNF | 13/16" | 2.34" | 0.86" | Combines the functions of the "Air Pilot with Snap Action" and the "Air Pilot with Reset" in one operator. |
| | 341ASR | 1/8 PIPE | | 2.44" | | |

TAC VALVES

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HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

TAC Operators and Fittings

34CH, 34CW, 34C, 34T, 34B, 34F; BF, BF1, PBF1, 150-30A, 150-31A, SF, UEF, UTF, URTF

A variety of Manual and Mechanical Operators complement TAC, TAC2 and TAC3 Push Button air valves, easily mounting and thereby converting them to manual or cam-operated valves

Operators are designed to easily mate to the valve collar feature in a "building block" approach to miniature pneumatic automation. Two valve locknuts and one lock washer are supplied with valve to secure operators.

Variety of valve mounting brackets are also available.

Miniature barbed fitting selection has variety to meet all needs.

Features and Benefits

- While stainless steel push buttons can be directly activated manually or mechanically, TAC operators can enhance performance.
- Low cost, light weight.



**34B
Ball
Operator**



**34T
Finger Tip
Operator**



**34C
Cam
Operator**



**34CW
Cam Operator with
One-Way Actuation**



**34F
Foot, Knee or
Hand Operator**



**34CH
Heavy Duty
Cam Operator**

TAC MINIATURE FITTINGS



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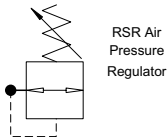
HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

TAC Auxiliary Devices complement TAC valves and TAC Operators in pneumatic logic design and solutions. Miniature and rugged, the line up is also used commonly by instrument and device makers as stand-alone items.

Available in 10-32 UNF ported or 1/8 PIPE port sizes.

Features and Benefits

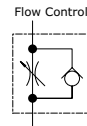
- Miniaturization. Small and compact.
- RSR self relieving regulator is designed for panel mounting, and achieves 22 CFM at 100 PSIG output pressure.
- SC1 flow control allows full flow on one direction and controlled return flow. Is unaffected by vibration, maintaining an accurate setting.
- Two sizes of check and shuttle valves (10-32 UNF & 1/8 PIPE).
- Model SQE can be used as shuttle or quick exhaust.



RSR Air Pressure Regulator



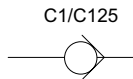
RSR Air Pressure Regulator



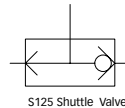
Flow Control



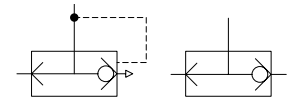
SC1 Speed Control



C1/C125



S125 Shuttle Valve



C125 Check Valve



C1 Check Valve



S125 Shuttle Valve



SQE Shuttle and Quick Exhaust Valve

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