

# Type-51

## General Purpose Regulators



Precision  
Control  
Devices

ISO 9002  
certified

PRECISION CONTROL DEVICE



**FEATURES**

- Excellent regulation, stability and repeatability
- Corrosion-resistant construction (no brass components, T-51FR & T-51AFR)
- NACE Constructed (T-51FRCT Corrosive Tec)
- Low droop
- Low cost
- Small package size
- Panel, bracket or pipe mounting
- Fluorocarbon pintle seat (T-51FR, T-51AFR & T-51FRCT)
- Auto drain option (T-51AFR)

**DESCRIPTION**

The Bellofram Type 51 Precision Air Regulator series offers a high-performance regulator in a compact, low cost package. It operates in output pressure ranges up to 100 psig / 6.9 BAR (120 psig / 8.3 BAR in T-51FR Corrosive Tec), with a maximum supply pressure of 250 psi (17.3 BAR).

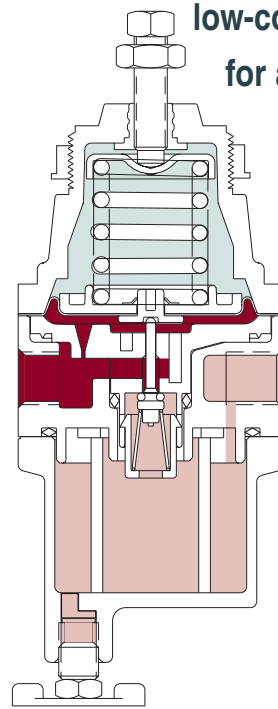
Materials of construction for standard T-51 Series Regulators (Non-Corrosive Tec): Die-cast aluminum for the body and dripwell; glass-reinforced thermoplastic polyester for the bonnet; acetal resin for the internals; BUNA-N for the diaphragm, gaskets and O-ring, fluorocarbon for the pintle seat, and aluminum for the drain valve (plated steel handle).

Materials of construction for Corrosive Tec T-51FRCT: Aluminum alloy bonnet, body, and filter bowl, 316 stainless steel internals, Inconel alloy range spring, nitrile diaphragm (fluorocarbon optional), and painted with an epoxy finish. 316 Stainless Steel Valve assembly. All metallic parts for this unit conform to NACE material requirements #MR-01-75 Class III.

These regulators are available standard (T-51R) or as filter-regulators (T-51FR & T-51FRCT) and are even available with an automatic drain, for automated flushing out of contaminant's, (T-51 AFR). These versatile regulators provide excellent regulation for a wide range of applications, including pneumatic instruments, controllers, chucks, and actuators. They can be through-panel mounted with the supplied mounting nut, bracket-mounted with the optional bracket or, due to their light weight, mounted by their ports.

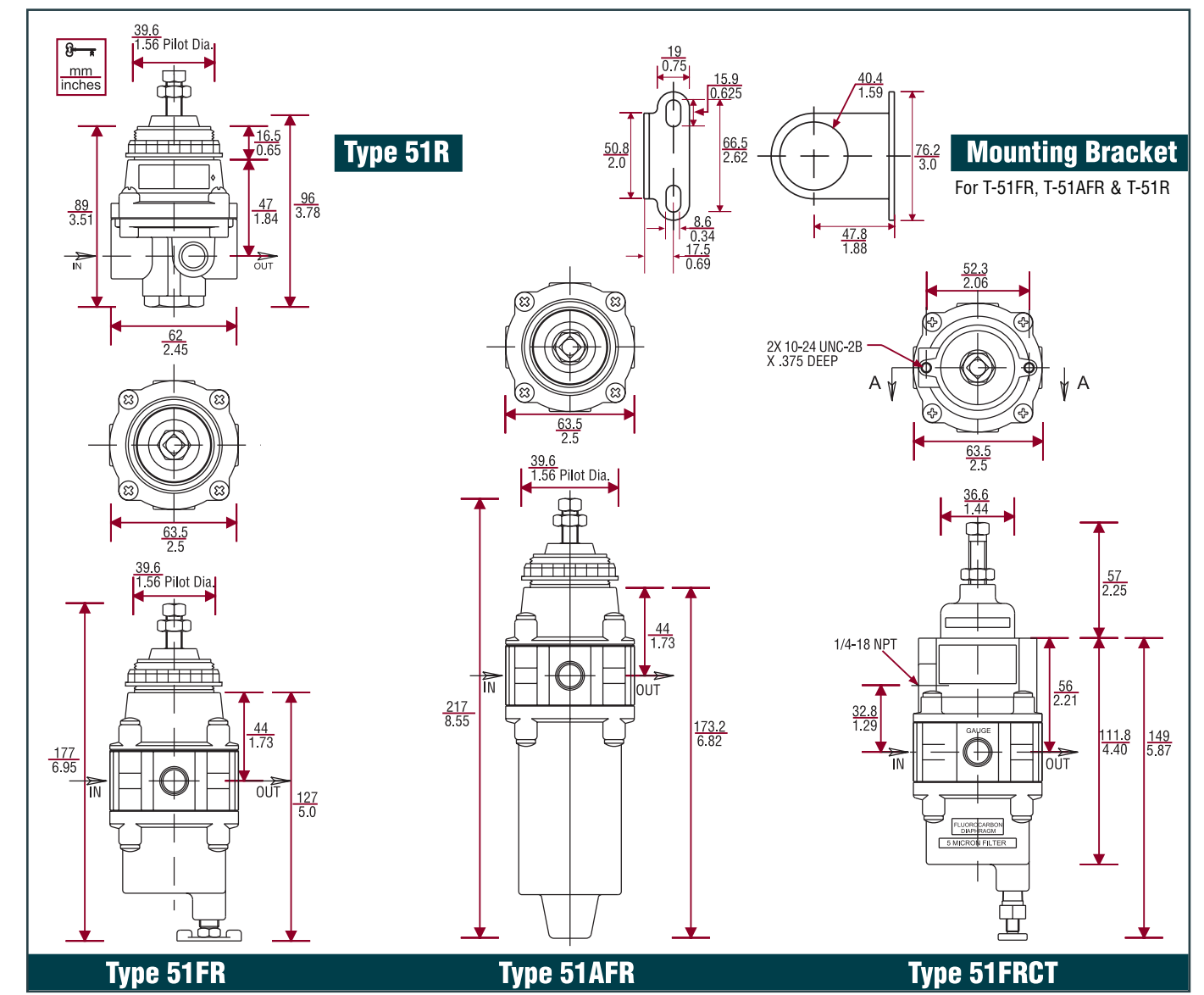
From industry to industry, Marsh Bellofram's

Type 51 Series of Regulators offer a low-cost, high performance option for a wide range of applications.



OPTIONS	• = option is available      s = option is standard			
	TYPE 51R	TYPE 51FR	TYPE 51AFR	TYPE 51FRCT
1 Fluorocarbon Pintle	•	s	s	s
2 Non-Relieving	•	•	•	•
3 Knob Sq. head Adj. Screw	•	•	•	s
4 5 Micron Filter	•	•	•	•
5 Epoxy Coating	•	•	•	s
6 Tapped Vent Coalescing filter				s
7 Mounting Bracket	•	•	•	•
8 Pressure Gauge	•	•	•	•
9 Tamper - Resistant Cover Panel Nut Mount	s	s	s	
10 Soft Relief Seat Low Bleed				•
11 Fluorocarbon Diaphragm	•	•	•	•

	TYPE 51R Regulator	TYPE 51FR Filter Regulator	TYPE 51AFR Auto Filter Regulator	TYPE 51FRCT Corrosive Tec
Maximum Supply Pressure	250 psig (17.3 BAR)	250 psig (17.3 BAR)	250 psig (17.3 BAR)	250 psig (17.3 BAR)
Output Pressure Range	0-30 psig (0-2.1 BAR) 0-60 psig (0-4.1 BAR) 0-100 psig (0-6.9 BAR)	0-30 psig (0-2.1 BAR) 0-60 psig (0-4.1 BAR) 0-100 psig (0-6.9 BAR)	0-30 psig (0-2.1 BAR) 0-60 psig (0-4.1 BAR) 0-100 psig (0-6.9 BAR)	0-30 psig (0-2.1 BAR) 0-60 psig (0-4.1 BAR) 0-120 psig (0-8.3 BAR)
Supply Pressure Sensitivity @ 25 psig / 170 kPa change in supply	0.20 psig (0.01 BAR ) output change	0.45 psig (0.03 BAR) output change	0.45 psig (0.03 BAR) output change	0.45 psig (0.03 BAR) output change
Sensitivity	1" (2.5 cm) of water	1" (2.5 cm) of water	1" (2.5 cm) of water	1" (2.5 cm) of water
Repeatability	0.1 psig (0.01 BAR)	0.1 psig (0.01 BAR)	0.1 psig (0.01 BAR)	0.1 psig (0.01 BAR)
Flow @ 100 psig (700 kPa) Supply 20 psig (140 kPa) outlet	15 SCFM (25 m³/hr)	20 SCFM (34 m³/hr)	20 SCFM (34 m³/hr)	20 SCFM (34 m³/hr)
Exhaust Capacity @ 5 psig (35kPa) above setpoint	0.1 SCFM (0.17 m³/hr)	0.1 SCFM (0.17 m³/hr)	0.1 SCFM (0.17 m³/hr)	0.1 SCFM (0.17 m³/hr)
Temperature Limits	0 to 125°F (-18 to 52°C)	0 to 125°F (-18 to 52°C)	0 to 125°F (-18 to 52°C)	0 to 180°F (-18 to 82°C)
Air Consumption	6 SCFH (2.84 l/m) Maximum	6 SCFH (2.84 l/m) Maximum	6 SCFH (2.84 l/m) Maximum	6 SCFH Maximum
Port Size	1/4 NPT	1/4 NPT	1/4 NPT	1/4 NPT
Materials of Construction	Aluminum, plated steel, brass, acetal resin, Buna-N /polyester, music wire	Aluminum, plated steel, acetal resin, Buna-N / polyester, music wire, Fluorocarbon	Aluminum, plated steel, acetal resin, Buna-N / polyester, music wire, Fluorocarbon	Aluminum, Stainless Steel, Inconel, Buna-N / polyester, Fluorocarbon, acetal, polyphenylene sulfide



T-51 SPECIFICATIONS & DIMENSIONS

**ORDERING INFORMATION**

**PART NUMBER:**

TYPE	Part Number	Control psig	Range BAR
51R	960-222-000	0-30	0-2.1
	960-223-000	0-60	0-4.1
	960-224-000	0-100	0-6.9
51FR	960-176-000	0-30	0-2.1
	960-176-000	0-60	0-4.1
	960-177-000	0-100	0-6.9
51AFR	960-284-000	0-30	0-2.1
	960-285-000	0-60	0-4.1
	960-286-000	0-100	0-6.9
51 FRCT	960-303-000	0-30	0-2.1
	960-304-000	0-60	0-4.1
	960-305-000	0-120	0-8.3

**REGULATOR OPTIONS & ACCESSORIES**  
**NON RELIEVING**

Used in applications where it is desirable to relieve pressure downstream and not at the regulator. Non-relieving regulators should not be used for low or no flow applications.

**KNOB**

Replaces the standard square head adjusting screw. (except T-51FRCT)

**5 MICRON FILTER**

Replaces the 40 micron filter for more complete air filtration. (Except T-51R)

**EPOXY FINISH**

An epoxy paint applied to the body and dripwell of the regulator exterior surfaces to provide increased corrosion resistance. (Standard for T-51FRCT)

**MOUNTING BRACKET**

Plated steel bracket for side mounting. (316 SS for T-51FRCT)

**COALESCING FILTER**

Replaces the 40 micron filter for both moisture and particulate filtration. (T-51AFR only)

**OPTION ORDERING MATRIX:**

Add three digits from table below to end of part number.

OPTION	1	2	3	4	5	6	7	8	9	10	11
1 Fluorocarbon Pintle	001	021	031	041	051	061	071	081	091	101	111
2 Non-Relieving		002	032	042	052	062	072	082	092		112
3 Knob Sq. head Adj. Screw			003	043	053	063	073	083		103	113
4 5 Micron Filter				004	054	064	074	084	094	104	114
5 Epoxy Coating					005	065	075	085	095	105	115
6 Tapped Vented Coalescing Filter						006	076	086	096	106	116
7 Mounting Bracket							007	087	097	107	117
8 Pressure Gauge								008	098	108	118
9 Tamper-Resistant Cover Panel mounting Nut									009	109	119
10 Soft Relief Seat Low Bleed										010	110
11 Fluorocarbon Diaphragm											011

**PRESSURE GAUGE**

Dual scale (english & metric) 2" (50mm) gauges. Ranges include 0-60 psi (0-4.1 BAR), 0-100 psi (0-6.9 BAR) and 0-1200 psi (0-8.3 BAR). When specified with regulator, the correct range will be supplied.

**FLUOROCARBON ELASTOMERS**

Diaphragm, as well as gaskets and O-rings, are made with a special elastomer to prevent deterioration from elements in the air supply, such as flame retardant synthetic lubricants normally destructive to the standard BUNA-N material.



**TAMPER PROOF COVER**

A 316 stainless steel hexagonal cover placed over the adjusting screw and threaded onto the bonnet of the regulator with a wrench, prevents ordinary hand adjustments. Supplied with an O-ring that is designed to seal the adjusting screws threads in captured bleed applications. (T-51FRCT Only)

**LOW BLEED DIAPHRAGM**

(Soft Relief Seat): Used in applications where it is desirable to minimize the standard bleed rate of the regulator while maintaining the ability to relieve excess pressure at the regulator. (Bleed rate is reduced from less than 6 SCFH (0.17 m<sup>3</sup>/hr) to less than 0.1 SCFH (0.003 m<sup>3</sup>/hr). (T-51FRCT only)

**IMPORTANT NOTICE**

Our recommendations, if any, for the use of this product are based on tests believed to be reliable. The greatest care is exercised in the selection of our raw materials and in our manufacturer, no guarantee or warranty, express or implied is made as to such use or effects incidental to such use, handling or possession or the results to be obtained, whether in accordance with the directions or claimed so to be. The manufacturer expressly disclaims responsibility therefor. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing laws and/or patents covering any material use.



TYPE-51 GENERAL PURPOSE REGULATORS