Installation, Operation and Maintenance Instructions

Type 1230

High Flow Gas Pressure Regulator

The 1230 Gas Pressure Regulator is used with natural gas, compressed air, and other gases. Depending on the configured model, the maximum possible inlet pressure is 1500 psi (103 bar) and the temperature limits are -40°F to 180°F (-40°C to 82°C). Please refer to the Type 1230 Product Specifications section to determine your model's exact specifications. The application of your regulator should not exceed any of the specified ratings.

WARNING ***The ControlAir Type 1230 Pressure Regulator does not provide internal relief. A pressure relieving or pressure limiting device should be used to ensure that the outlet pressure does not exceed the regulator's specifications while in service. Leakage, equipment damage, or personal injury can result from over-pressuring the regulator.***

NOTE: If you suspect that a product is defective, contact the factory or the ControlAir Representative in your area for a return material authorization number (RMA). This product should only be installed by trained and competent personnel.

WARNING ***All ControlAir instructions, as well as applicable local, state, and federal codes and regulations should be adhered to when performing installation, operation, or maintenance of a regulator. Personal injury, equipment damage, or leakage can occur if the regulator is over-pressured or physically damaged. To avoid physical damage the regulator should be installed in a safe location. The regulator should not be installed in systems that could exceed its specified pressure limits (as listed in Table 1). If leakage develops, then immediate service is required. Failure to remove the regulator from service immediately may create a hazardous situation.***

Table of Contents

ControlAir

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1. SPECIFICATIONS

Body Sizes	1" or 2" NPT
Vent Size	1/4" NPT
Output Ranges	27-50 psi (1.9-3.5 bar), 46-95 psi (32.-6.6 bar), 90-150 psi (6.2-10.3 bar), 150-200 psi (10.3-13.8 bar), 200-275 psi (13.8-19 bar), 275-500 psi (19-34.5 bar)
Max. Inlet Pressure	See Table 1
Body Inlet Pressure Rating	1,500 psi (103 bar)
Orifice Sizes	1/8", 3/16", 1/4", 3/8", 1/2"
Max. Outlet Pressure	500 psi (39.7 bar)
Max. Outlet Pressure Above Set Point	200 psi (13.8 bar)
Max. Pressure Drop	See Table 2
Flow Coefficients	See Table 3
Flow Capacities	See Table 4
Temperature Limits **Elastomer Material**	Neoprene (CR), Nitrile (NBR) & Nylon (PA): -40° to 180° F (-40° C to 82° C) Fluorocarbon (FKM): 0° to 180° F (-18° to 82° C)
Weight	1" NPT Body: 25 lb. (11.3 kg) 2" NPT Body: 30 lbs. (13.6 kg)
Operating Media	compressed air, natural gas, other inert gasses

MATERIALS OF CONSTRUCTION

	Standard (S)	**NACE (N)**
Body, Bonnet, Diaphragm Case	LCC Steel	LCC Steel
Diaphragm	Neoprene	Fluorocarbon
Valve Disk	Nitrile	Fluorocarbon
Trim	Brass and Aluminum (Stainless - option)	Stainless Steel

Table 1 Maximum Inlet Pressure by Orifice Size

Orifice Size		Maximum Inlet Pressure	
in.	mm	psi	bar
1/8	3.2	1500	103
3/16	4.8	1500	103
1/4	6.4	1500	103
3/8	9.5	1000	69
1/2	13	750	51.7

Table 2 Maximum Pressure Drop by Orifice Size and Disk material

Orifice Size		Maximum Pressure Drop*							
		Nitrile (NBR) Disk		Fluorocarbon (FKM) Disk		CTFE Disk		Nylon (PA) Disk	
in.	mm	psi	bar	psi	bar	psi	bar	psi	bar
1/8	3.2	600	41.4	200	13.8	1500	103	1500	103
3/16	4.8	600	41.4	200	13.8	1500	103	1500	103
1/4	6.4	600	41.1	200	13.8	1000	69	1000	69
3/8	9.5	500	34.5	200	13.8	500	34.5	500	34.5
1/2	13	250	17.2	200	13.8	250	17.2	250	17.2

* The inlet pressure cannot exceed the sum of the output pressure setting and the maximum pressure drop.

Example: For a regulator with ½" orifice size, NBR disk material, and set point of 100 psi, the maximum inlet pressure would be 350 psi = 250 psi (maximum pressure drop for ½" & NBR) + 100 psi (set point)

Table 3 Flow Coefficient for Relief Valve Sizing

Orifice Size in.	Orifice Size mm	C_g	C_v	C_1
1/8	3.2	13.9	0.49	26.4
3/16	4.8	31.3	1.11	28.2
1/4	6.4	55.1	2.03	27.2
3/8	9.5	122.5	4.61	26.6
1/2	13	216.0	8.18	26.4

Table 4 Flow Capacities in SCFH at 20% droop of Natural Gas (0.6 Specific Gravity)

Output Range	Set Point (psi)	Inlet Pressure (psi)	Orifice Size (in.) 1" NPT Body Size 1/8	3/16	1/4	3/8	1/2	2" NPT Body Size 1/8	3/16	1/4	3/8	1/2
27-50 psi (1.9-3.5 bar)	50	60	900	2000	3100	5200	8100	1000	2100	3200	5300	12000
		100	1700	3500	5700	10500	13000	1800	3600	5800	10000	21000
		200	3500	7800	11000	16000	19000	3600	7900	12000	21000	55000
		300	5300	10500	14000	20000	23000	5500	11000	19000	48000	83000
		400	6900	13000	17000	23000		7000	15000	27000	63000	
		500	8700	15000	19000	25000		8800	19000	34300	79700	
		600	9800	17000	21000			10000	23000	42000		
		1000	16200	22300	26300			18000	39900	70400		
		1500	19000	25000				27000	60000			
46-95 psi (3.2-6.6 bar)	50	60	800	1500	2400	4300	6400	900	1600	2500	4400	7300
		100	1500	3100	4200	7500	10000	1600	3400	4300	7600	12000
		200	3400	6800	9400	14000	17000	3500	6700	9600	16000	27000
		300	5200	8900	11000	16000	20000	5300	10000	14000	27000	51000
		400	6800	11000	15000	20000		6900	13000	21000	46000	
		500	8600	12300	16300	22000		8700	16300	26300	73300	
		600	9800	14000	19000			10000	20000	35000		
		1000	13500	18400	21700			17100	38700	68800		
		1500	18000	24000				26000	59000			
	75	100	1700	3200	5000	8000	13000	1800	3300	5200	9000	14000
		200	3500	7300	10000	16000	22000	3600	7400	11000	19000	30000
		400	7100	14000	19000	27000		7200	15000	24000		
		500	8600	16300	21300	28700		8700	19000	31400		
		600	9900	19000	25000			10000	23000	39000		
		1000	16700	25800	31000			17600	39000	69300		
		1500	23000	32000				24000	60000			
90-150 psi (6.2-10.3 bar)	100	125	2000	3600	5500	9200	13000	2100	3700	5600	9800	15000
		200	3600	6600	9400	13000	22000	3700	6900	10000	17000	27000
		400	7000	13000	18000	27000		7200	14000	21000	39000	
		500	8300	15500	20500	31000		8600	17500	27500	54000	
		1000	17500	26000	32600			17200	38600	66000		
		1500	25000	35000				27000	59000			
	125	150	2400	4600	6700	11000	17000	2500	5000	8100	12000	20000
		300	5200	10000	15000	25000	34000	5300	11000	17000	31000	48000
		500	7900	15000	25000	36000		8800	19000	30000	59000	
		1500	26000	43000				27000	60000			
	150	200	3400	6800	10000	16000	26000	3500	7300	11000	18000	30000
		400	7100	14000	22000	34000	42000	7200	15000	26000	46000	77000
		800	13000	29000	38000			14000	30000	54000		
		1500	26000	47000				27000	60000			
150-200 psi (10.3-13.8 bar)	150	200	3400	6200	9300	16000	26000	3500	6900	10000	17000	28000
		400	7100	14000	21000	32000	38000	7200	15000	24000	40000	66000
		800	13000	27000	37000			14000	30000	51000		
		1500	26000	44000				27000	60000			
	200	250	4200	8300	12000	20000	30000	4300	9100	13000	23000	42000
		600	9500	22000	34000	55000		10000	23000	40000	75000	
		800	13000	30000	43000			14000	31000	54000		
		1200	20000	41000	59000			21000	48000	83000		
		1500	26000	53000				27000	60000			
200-275 psi (13.8-19 bar)	200	250	4200	8200	11000	20000	29000	4300	8900	12000	23000	35000
		600	9500	22000	31000	51000		10000	23000	38000	70000	
		800	13000	29000	42000			14000	31000	52000		
		1200	19000	41000	55000			20000	46000	83000		
		1500	26000	51000				27000	60000			
	250	300	4900	9000	15000	28000	42000	5000	10000	17000	30000	52000
		500	8500	18000	29000	51000	65000	8600	19000	34000	62000	103000
		1000	16000	39000	58000			17000	40000	68000		
		1500	26000	59000				27000	60000			
	275	300	4700	9000	15000	28000	39000	4800	10000	17000	29000	43000
		600	9300	21000	39800	76100		10000	23000	40800	81900	
		1000	16000	39000	67000			17000	40000	68000		
		1500	26000	60000				26000	61000			

Table 4 Flow Capacities in SCFH at 20% droop of Natural Gas (0.6 Specific Gravity) – continued

275-500 psi (19-34.5 bar)	275	300	4500	7500	10000	20000	31000	4600	8400	13000	23000	37000
		600	9300	18400	24300	43800		10000	23000	40800	81900	
		1500	26000	46000				27000	57000			
	300	400	6600	11000	16000	31000	42000	7000	13000	21000	35000	54000
		700	11000	23000	30000	54000		12000	26000	40000	72000	
		1000	16800	32500	43800			15800	33200	53600		
		1500	26000	49000				27000	58000			
	400	500	8300	16000	24000	44000	62000	8800	17000	28000	49000	77000
		800	13000	30000	41000	76000		14000	31000	51000	95000	
		1000	17000	38000	54000			18000	40000	66000		
		1400	24000	55000	76000			25000	57000	96000		
		1500	26000	60000				27000	61000			
	500	550	8700	16000	26000	50000	77000	9000	18000	30000	53000	89000
		900	15000	34000	52000	92000		16000	35000	60000	113000	
		1500	26000	59000	72000			27000	60000	82000		

Note: To convert SCFH to Nm^3/h, multiply the SCFH flow capacity by 0.02832

2. INSTALLATION

See page 7 for Parts List references.

NOTE: If continued operation is necessary during installation or maintenance then a three-valve bypass should be installed around the position the regulator.

1. Remove all packaging plugs from the regulator body inlet and outlet connections.
2. Carefully inspect the regulator for damage or debris. The regulator's inlet and outlet connections should be cleaned and free of debris before installation.
3. Ensure that all piping that is to be connected to the regulator is clean of foreign matter as well.
4. Apply pipe joint material to the piping threads that will be connected to the regulator.
5. Shut down the process before connecting the regulator.
6. Connect the regulator so that the process flows in the direction of the arrow on the spring bonnet (20).

WARNING ***Under certain conditions, this regulator may vent gas to the atmosphere. If operating in a hazardous process, this gas must not be allowed to accumulate and/or ignite. The user must be sure to vent the exhaust to a safe location away from any air intakes or possible ignition sources. The vent line must also be protected against clogging and condensation. Failure to safely vent hazardous gas from the regulator exhaust could result in personal injury, death, or property damage if a fire or explosion were to occur.***

7. The regulator must be oriented such that the vent assembly (25) is protected against clogging. If the regulator is being installed outside, position the vent facing downward to prohibit moisture and debris from falling directly into the vent.

WARNING ***Use pressure gauges to monitor the outlet pressure of the regulator during startup and vent the downstream pressure if necessary. The presence of downstream pressure during the startup of the regulator may cause the diaphragm of the regulator to be over-pressured. This condition could cause personal injury or property damage if the regulator is over-pressured to the point of explosion.***

8. Slowly begin flowing gas through the regulator.
9. Verify that the regulator is not leaking from any connection points.
10. Proceed to the Calibration section.

3. PRESSURE ADJUSTMENT

IMPORTANT ***While adjusting the unit always use a pressure gauge to monitor the pressure.***

CAUTION ***Under normal circumstances, the outlet pressure should not exceed the output range of the spring.***

1. Loosen the hex nut jam (1).
2. To increase the set point, rotate the adjusting screw (8) clockwise.
3. To decrease the set point, rotate the adjusting screw (8) counter-clockwise.
4. Once desired set point has been achieved, re-tighten the hex nut jam (1) while keeping the adjusting screw's (8) position fixed.

4. MAINTENANCE

Regulators accumulate general wear over time and must be inspected/evaluated for the possible need to repair or replace the instrument in accordance with local, state, and federal rules and regulations. ControlAir offers spare parts and repair kits for customers to order and keep on hand for routine maintenance.

WARNING ***To avoid personal injury or equipment damage resulting from sudden release of pressure or ignition of accumulated gas, isolate the regulator from the system and bleed all of its internal pressure before attempting maintenance procedures.***

REPLACING THE ORIFICE

NOTE: Some piping arrangements may allow maintenance of the orifice (18) and valve disk assembly (24) without requiring the inlet adapter (16) to be disconnected from the piping. If the inlet adapter (16) and body (9) can be separated enough to allow access to the orifice (18) and valve disk assembly (24), step 1 in the below procedure can be skipped.

CAUTION ***Before proceeding, loosen the hex nut jam (1) and release all spring tension by rotating the adjusting screw (8) counter-clockwise until the range spring (21) is completely relaxed.***

1. Disconnect the process piping and the inlet adapter (16).
2. Remove the four inlet adapter bolts (7) that hold the body (9) and inlet adapter (16) together.
3. The orifice (18) is seated in recess of the inlet adapter (16) and has a body orifice gasket (15) on top and below it.
4. Remove the worn orifice (18) and body orifice gasket (15) and install the replacement body orifice gasket (15) and orifice (18) in the recess of the inlet adapter (16).
5. Re-connect the body (9) and inlet adapter (16), insert the four inlet adapter bolts (7) through the inlet adapter (16) and tighten. Torque to 15 ft-lbs for 1" NPT body; 90 ft-lbs for 2" NPT body.
6. Adjust the regulator to the desired set point per Pressure Adjustment procedure.

REPLACING THE VALVE DISK ASSEMBLY AND HOUSING GASKET

NOTE: Some piping arrangements may allow maintenance of the orifice (18) and valve disk assembly (24) without requiring the inlet adapter (16) to be disconnected from the piping. If the inlet adapter (16) and body (9) can be separated enough to allow access to the orifice (18) and valve disk assembly (24), step 1 in the below procedure can be skipped.

CAUTION ***Before proceeding, loosen the hex nut jam (1) and add spring tension by rotating the adjusting screw (8) clockwise for 2 complete turns past the point it first contacts the upper spring guide (22). This separates the valve disk assembly (24) from the orifice (18) so neither becomes damaged during maintenance.***

1. Disconnect the process piping and the inlet adapter (16)
2. Remove the four inlet adapter bolts (7) that hold the body (9) and inlet adapter (16) together and separate.
3. Remove the two body screws (2) that hold the diaphragm housing (13) and body (9) together and separate.
4. Remove the worn housing gasket (14) from the diaphragm housing (13) and install the replacement housing gasket (14).
5. The valve disk assembly (24) is connected to the valve connector (23) which is located inside the body (9). Slide the valve disk carrier assembly (23 + 24) out from the body (9).
6. Unscrew the valve disk assembly (24) from the valve connector (23) using a 3/4" / 19.1 mm socket wrench. Install the replacement valve disk assembly (24) into the valve connector (23).

7. Insert the valve disk carrier assembly (23 + 24) back into the body (9) with the valve disk assembly (24) facing towards the regulator inlet connection.

   NOTE: Ensure the valve connector (23) notch is centered within the body (9) and facing outwards allowing the pinned-end lever assembly (17) to seat itself into the notch when the body (9) and diaphragm housing (13) are re-assembled.

8. Insert the pinned-end of the lever assembly (17) through the body (9) opening and seat it in the valve connector (23) notch.
9. With the lever assembly (17) and valve connector (23) notched together, slide the body (9) and diaphragm housing (13) back together. Reinstall the two body screws (2) and tighten. Torque to 30 ft-lbs.

IMPORTANT ***Before proceeding ensure the lever assembly (17) is properly connected with the valve connector (23) and will engage the valve connector (23) during operation.***

10. Check and ensure the orifice gaskets (15) and orifice (18) are still nested in the recess of the inlet adapter (16).
11. Re-connect the body (9) and inlet adapter (16), insert the four inlet adapter bolts (7) through the inlet adapter (16) and tighten.
12. Adjust the regulator to the desired set point per Pressure Adjustment procedure.

REPLACING THE DIAPHRAGM

CAUTION ***Before proceeding, loosen the hex nut jam (1) and release all spring tension by rotating the adjusting screw (8) counter-clockwise until the range spring (21) is completely relaxed.***

1. Remove the two blind build bolts (4) and four build bolts (5) with diaphragm housing hex nut (3) that hold the spring bonnet (20) and diaphragm housing (13) together.
2. To access the diaphragm assembly, remove the spring bonnet (20), range spring (21), and spring guide (22) and set aside for reassembly.

   NOTE: The diaphragm assembly consists of the connector assembly (10), neoprene diaphragm (12), and lower spring guide (11), and is held together by the connector screw (6).

3. Remove the diaphragm assembly from the diaphragm housing (13) by unhooking the bottom of the connector assembly (10) from the lever assembly (17).

   NOTE: If the diaphragm assembly is having difficulties being unhooked from the lever assembly (17), start by sliding the diaphragm assembly away from the inlet adapter (16) and body (9) and then pull the diaphragm assembly straight up and out from the diaphragm housing (13).

4. Unscrew the connector screw (6) from the connector assembly (10) and remove the lower spring guide (11) followed by the worn neoprene diaphragm (12).
5. Place the lower spring guide (11) back on the connector screw (6) in the same orientation it was removed. Install the replacement neoprene diaphragm (12) onto the connector screw (6) and thread the connector screw (6) back into the connector assembly (10).

IMPORTANT ***After rebuilding the diaphragm assembly, make sure the diaphragm (10) is centered on the connector assembly (10). If it is not centered the regulator may potentially leak during operation.***

6. Insert the diaphragm assembly back into the diaphragm housing (13) making certain the bottom of the connector assembly (10) is securely hooked onto the lever assembly (17).

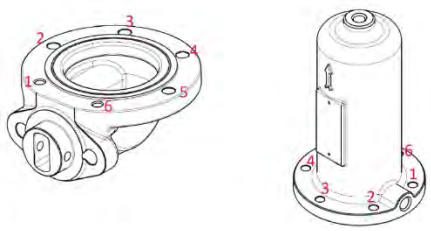
NOTE: If the diaphragm assembly is having difficulties hooking back onto the lever assembly (17), start by inserting the diaphragm assembly into the diaphragm housing (13) on the side opposite the inlet adapter (16) and body (9). With the diaphragm assembly inserted fully, slide it towards the inlet adapter (16) and body (9) until it hooks into the lever assembly (17).

CAUTION ***When reconnecting the diaphragm assembly and lever assembly (17) do not twist the diaphragm assembly to seat it into place. Doing so may hinder the regulator from operating properly.***

7. Place the range spring (21) on top of the lower spring guide (11) and on top of the range spring (21), place the spring guide (22).
8. Re-install the spring bonnet (20) back onto the diaphragm housing (13).

IMPORTANT

When re-assembling the spring bonnet (20) and diaphragm housing (13), the orientation must be as shown in the following diagrams, with the nameplate opposite the diaphragm housing (13) and inlet adapter (16) – if the mounting holes are not in the proper alignment the regulator will not operate as intended.

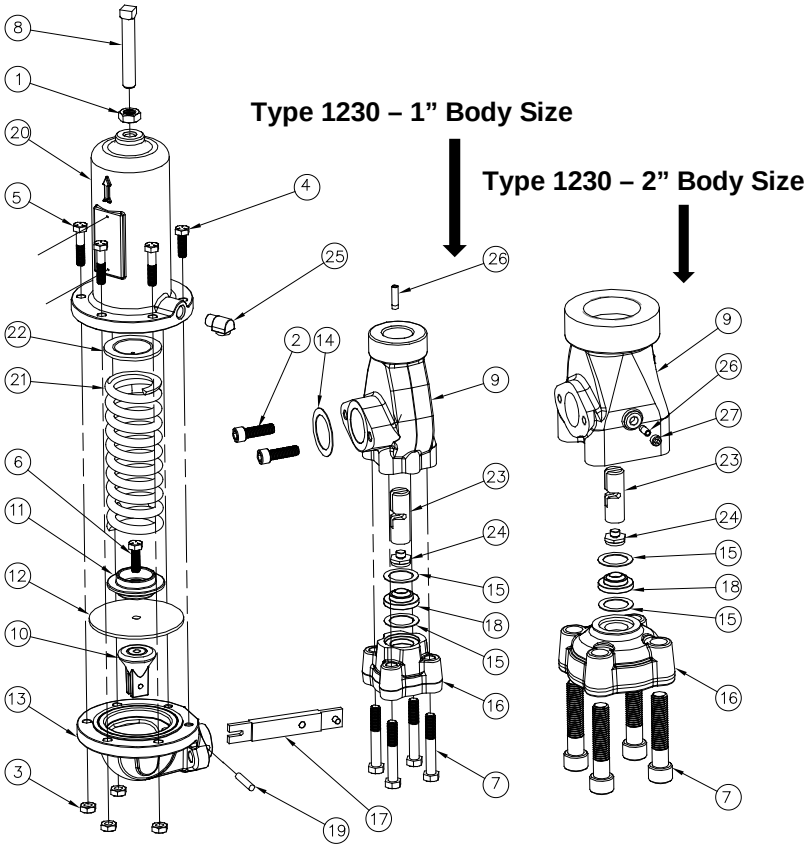


9. Reinstall and hand-tighten the blind casing screws (4), build bolts (5) and casing diaphragm housing hex nut (3) back through the spring bonnet (20) and diaphragm housing (13).

IMPORTANT ***The blind build bolts (4) must be used with casing hole numbers 1 and 6.***

10. Rotate the adjusting screw (8) clockwise until the range spring (21) is compressed slightly adding slack to the neoprene diaphragm (12).
11. Complete tightening the blind casing screws (4), build bolts (5), and casing diaphragm housing hex nut (3) until securely fastened. Torques to 10 ft-lbs.
12. Adjust the regulator to the desired set point per Pressure Adjustment procedure.

5. PARTS LIST



Item	Description	Qty.
1	HEX NUT JAM	1
2	BODY SCREW	2
3	DIAPHRAGM HOUSING HEX NUT	4
4	BLIND BUILD BOLTS	2
5	BUILD BOLTS	4
6	CONNECTOR SCREW	1
7	INLET ADAPTER BOLTS	4
8	ADJUSTING SCREW	1
9	BODY	1
10	CONNECTOR ASSEMBLY	1
11	LOWER SPRING GUIDE	1
12*	NEOPRENE DIAPHRAGM	1
13	DIAPHRAGM HOUSING	1
14*	HOUSING GASKET	1
15*	ORIFICE GASKET	2
16	INLET ADAPTER	1
17	LEVER ASSEMBLY	1
18	ORIFICE	1
19	LEVER PIN	1
20	SPRING BONNET	1
21	RANGE SPRING	1
22	SPRING GUIDE	1
23	VALVE CONNECTOR	1
24*	DISK ASSEMBLY	1
25	VENT ASSEMBLY	1
26	TUBE	1
27	1/8" NPT PIPE PLUG	1

*Included with ControlAir Regulator Repair Kit

6. REPAIR KITS

ORIFICE REPLACEMENT KITS

Material	Size		Part No.
Brass	1/8”	3.2 mm	449-871-210
	3/16”	4.8 mm	449-871-211
	1/4"	6.4 mm	449-871-212
	3/8”	9.5 mm	449-871-213
	1/2"	13 mm	449-871-214
Stainless Steel	1/8”	3.2 mm	449-871-215
	3/16”	4.8 mm	449-871-216
	1/4"	6.4 mm	449-871-217
	3/8”	9.5 mm	449-871-218
	1/2"	13 mm	449-871-219

REPLACEMENT SPRINGS

Color (Range)	Part No.
Red Striped Spring - 27-50 psi (1.9-3.4 bar)	446-755-206K
Olive Striped Spring – 46-95 psig (3.2-6.6 bar)	446-755-207K
Silver Striped Spring – 90-150 psi (6.2-10.3 bar)	446-755-208K
Green Striped Spring – 150-200 psi (10.3-13.8 bar)	446-755-209K
Blue Striped Spring – 200-275 psi (13.8-19 bar)	446-755-210K
Yellow Striped Spring - 275-500 psi (19-34.5 bar)	446-755-211K

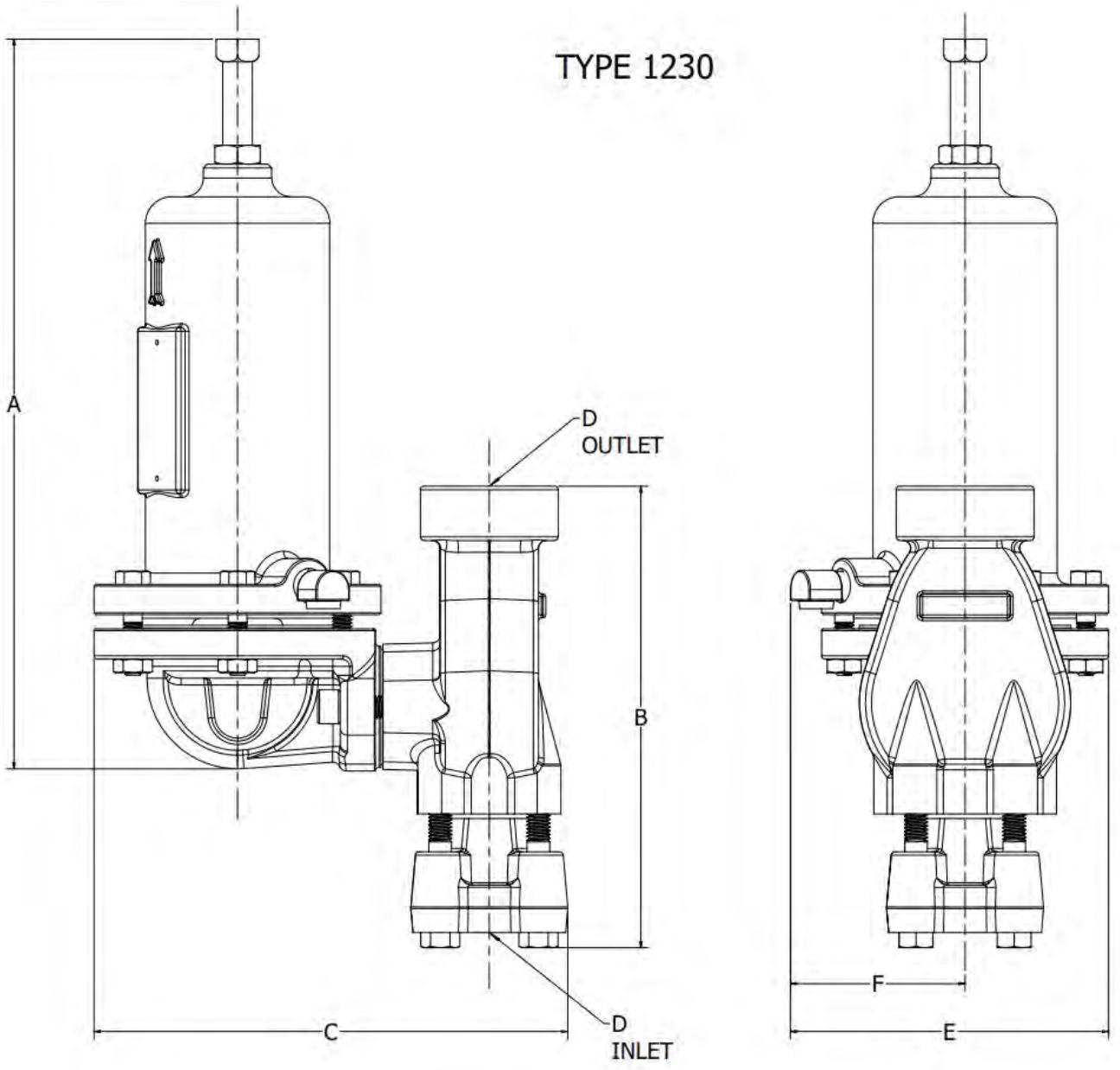
REGULATOR REPAIR KITS

Materials of Construction	Part No.
Neoprene Diaphragm & Brass / Nitrile Valve Disk Assembly	449-871-203
Neoprene Diaphragm & Brass / CFTE Valve Disk Assembly	449-871-204
Neoprene Diaphragm & Stainless Steel / Nitrile Valve Disk Assembly	449-871-205
Fluorocarbon Diaphragm & Stainless Steel / CFTE Valve Disk Assembly	449-871-206

Regulator Repair Kits include: Diaphragm, Housing Gasket, Orifice Gaskets, and Valve Disk Assembly.

NOTE: Repair Kits with alternative Valve Disk/Trim/Diaphragm material combinations can be provided upon request. Consult factory for details.

7. DIMENSIONS



PORT SIZE (NPT)	A	B	C	D	E	F
1"	12.07 [306.5]	7.63 [193.9]	7.84 [199.2]	1" NPT	5.26 [133.7]	2.89 [73.4]
2"	12.07 [306.5]	8.58 [218.0]	8.48 [215.4]	2" NPT	5.26 [133.7]	2.89 [73.4]

in [mm]

8. TROUBLESHOOTING

WARNING ***To avoid personal injury or equipment damage resulting from sudden release of pressure, or ignition of accumulated gas, isolate the regulator from the system and bleed all of its internal pressure before attempting troubleshooting procedures.***

Symptom	Probable Cause(s)	Corrective Action(s)
Leak occurring at body, detected through performance and/ or the sound of gas leaking	Unit is improperly installed	Refer to Installation procedure on page 4
Unit does not hold pressure	Set point is not adjusted properly and is set too low	Refer to Adjustment procedure on page 4
No outlet pressure from unit	Set point is not adjusted properly and is set too high	Refer to Adjustment procedure on page 4
	Inlet and outlet connections installed with opposite orientation relative to pipeline flow	Refer to Installation procedure on page 4. Additionally, there is an arrow marked on the Type 1230 spring bonnet indicating the direction of gas flow through the regulator inlet and outlet connections.

9. WARRANTY & DISCLAIMER

ControlAir LLC products are warranted to be free from defects in materials and workmanship for a period of eighteen months from the date of sale, provided said products are used according to ControlAir LLC. recommended usages. ControlAir LLC liability is limited to the repair, purchase price refund, or replacement in kind, at ControlAir's sole option, of any products proved defective. ControlAir LLC reserves the right to discontinue manufacture of any products or change products materials, designs or specifications without notice. Note: ControlAir does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for the proper selection, use, and maintenance of any ControlAir product remains solely with the purchaser and end user.

WARNING ***These products are intended for use in industrial compressed-air systems only. Do not use these products where pressures and temperatures can exceed those listed under Specification.***