



an L&J TECHNOLOGIES Company

## PRODUCT DATA SHEET

# Standard Body Hydraulic Controllers

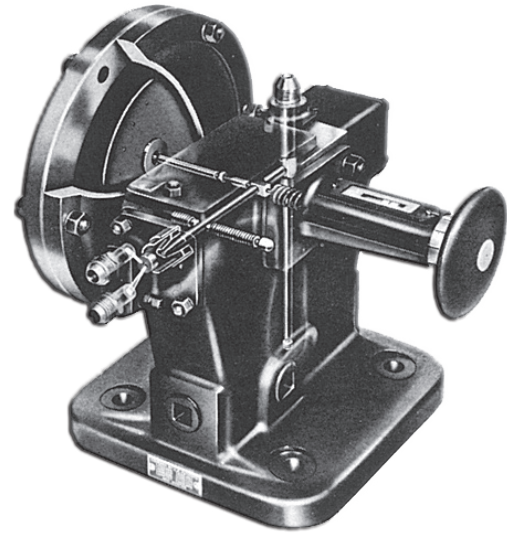
GPE 13110 & 13210

### General Description

The Series 13100 Hydraulic Controllers are designed to provide hydraulic control wherever required. These controllers operate on the basic jet pipe principle, whereby a small signal impulse is amplified into a powerful control force.

The signal impulse may be from a pneumatic, mechanical or electrical measuring system which can exert a force on the jet pipe. For control applications of pressure, flow, ratio or other variables the following input signal systems are generally used: diaphragm, bellows, Bourdon tube or moving coil. These signal systems provide the force that moves the jet pipe, causing it to unbalance the flow of oil in the two receiving orifices. The signal force is balanced either by a calibrated spring with set point adjustment or by feedback from a secondary system.

These controllers have a practical output range or approximately 235 to 45,000 pounds of force at the actuator.



### Standard Body Hydraulic Controllers

The Series 13100 Standard Body Hydraulic Controllers are supplied from a separate hydraulic power supply and generally are grouped with a number of controllers using a common power supply. Designed for easy mounting on tables, panels or cubicles.

To provide maximum speed and high output power, these controllers are available with a 1.2 mm, 2.0 mm or 2.5 mm jet pipe. In addition, a 3/8" or 3/4" booster can be added to increase the power capacity and provide stable control.

The Series 13100 Hydraulic Controllers are available in many models to provide applications for Furnace Pressure Control, Combustion Control, Suction/Discharge Pressure Control, Gas Mixing, Blowers and Pump Control.

The Controller capacity is determined from the pressure and flow rate requirements of the total hydraulic system. Also, piping, elevation, type of actuator and valves must be considered.

#### Capacity Option

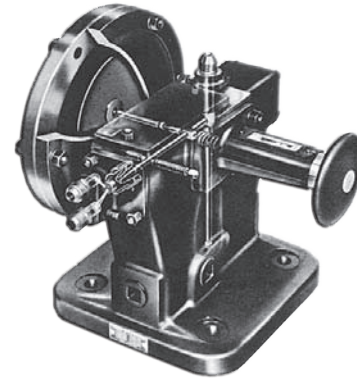
1.2 mm Jet pipe
2.0 mm Jet Pipe
2.5 mm Jet Pipe
3/8 inch Booster
3/4 inch Booster

#### Switching Operation

Transfer Valve
Shutoff Valve
Manual/ Automatic Valve
General Purpose Solenoids
Explosion Proof Solenoids

### MODEL 13110

The Model 13110 Proportional-Speed Floating Hydraulic Controller is designed for applications where a group of controllers are supplied from a separate, but common power supply. The controller has a practical output range of approximately 235 to 45,000 pounds of force at the actuator. Model 13110 accepts pressure, differential pressure or electric signals.



### Span for Actuation

Differential Pressure			
Spans		Max. Static Pressure	Type Element
Minimum	Maximum		
.2 in. w.c	1.5 in. w.c.	1 psig	Diaphragm, 16" Direct
.3 in. w.c	6.0 in. w.c	5 psig	Diaphragm, 8" Direct
	30.0 in. w.c		
.75 in. w.c	30.0 in. w.c	50 psig	Diaphragm, 6" Direct
5.4 in. w.c	153 in. w.c	500 psig (10 min)	Diaphragm, Bellows Sealed
.6 in. w.c.	50 psig	2,000 psi (100 min)	Diaphragm, Bellows Sealed

Pressure			
Spans		Type Element	
Minimum	Maximum		
.2 in. w.c	1.5 in. w.c.	Diaphragm, 16" Direct	
.3 in. w.c	6.0 in. w.c	Diaphragm, 8" Direct	
	30.0 in. w.c		
.75 in. w.c	30.0 in. w.c	Diaphragm, 6" Direct	
1 psig	15 psig	Diaphragm, Molded, Direct*	
1 psig	15 psig	Bellows, Direct**	
9 psig	2,000 psig	Bellows with Knife Edge Transmission B"	
25 psig	3,000 psig	Bourden Direct	

\*For gas pressures    \*\*For Liquid Pressures

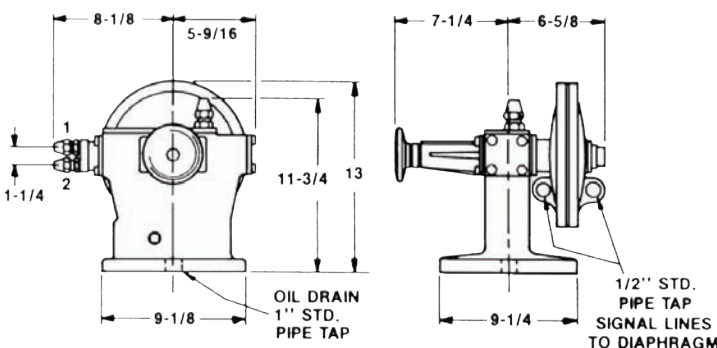
### Control Set-Point Adjusters

<b>Spindle Type</b>	With Handwheel
	With Lockable Knob
<b>Slider Type</b>	With Horizontal Roller
<b>Bell Crank Type</b>	With Vertical Lever
<b>Electric Type</b>	For Contact Closure Operation with Feedback Pot, GP Housing

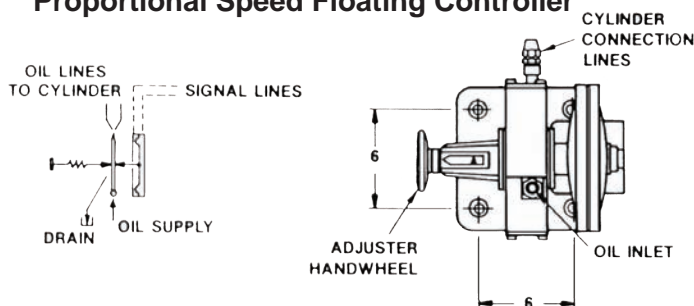
Electric	
Spans	Type Element
Specify Resistance	Moving Coil, GP Housing
	Moving Coil, XP Housing

### Accessories

<b>Strainer</b>	- 600 psi, 3/8"
<b>Filter</b>	- 1,000 psi, 3/8"
<b>Filter</b>	- 1,000 psi, 3/4"



### Proportional Speed Floating Controller





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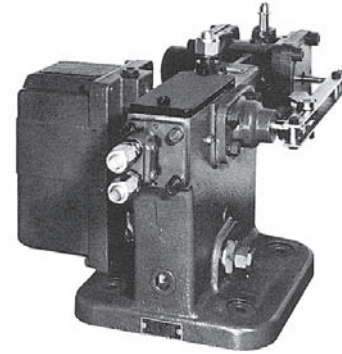
**Standard Body  
Hydraulic Controllers**  
GPE 13110 & 13210

**PRODUCT DATA SHEET**

**MODEL 13210**

The Model 13210 Proportional-Plus-Reset Hydraulic Controller is designed for slow-reacting control applications that require stability.

A group of controllers are supplied from a separate, but common power supply. The controller has a practical output range of approximately 235 to 45,000 pounds of force at the actuator. Model 13210 accepts pressure or differential pressure.

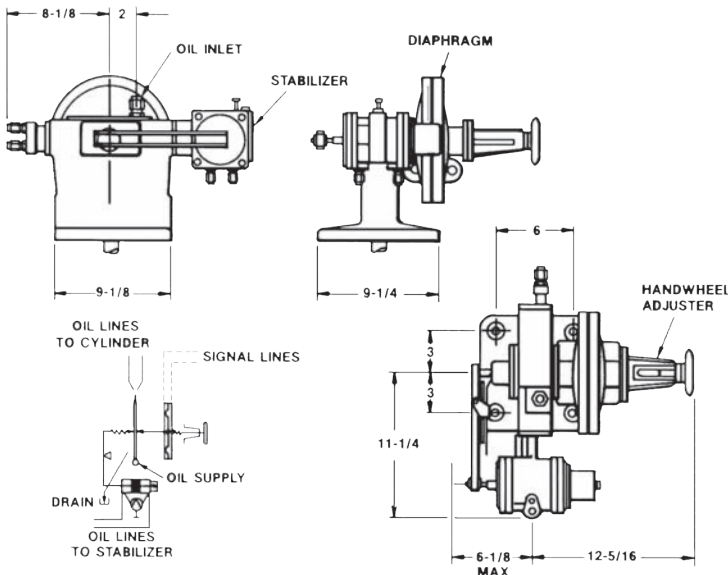


**Span for Actuation**

Differential Pressure			
Spans		Max. Static Pressure	Type Element
Minimum	Maximum		
.2 in. w.c	1.5 in. w.c.	1 psig	Diaphragm, 16" Direct
.3 in. w.c	6.0 in. w.c	5 psig	Diaphragm, 8" Direct
	30.0 in. w.c		
.75 in. w.c	30.0 in. w.c	50 psig	Diaphragm, 6" Direct
3.7 in. w.c	150 in. w.c	50 psig	Diaphragm, 6" / Flexure Pivot Transmission "F"

Pressure		
Spans		Type Element
Minimum	Maximum	
.2 in. w.c	1.5 in. w.c.	Diaphragm, 16" Direct
.3 in. w.c	6.0 in. w.c	Diaphragm, 8" Direct
	30.0 in. w.c	
.75 in. w.c	30.0 in. w.c	Diaphragm, 6" Direct
3.7 in. w.c	150 in. w.c	Diaphragm, 6" / Flexure Pivot Transmission "F"
10 psig	100 psig	Diaphragm, Molded Transmission "F" *
10 psig	100 psig	Bellows with Flexure Pivot Transmission "F" **
25 psig	3,000 psi	Bourden Tube System "B"
*For gas pressures    **For Liquid Pressures		

**Proportional Plus Reset Controller**



**Control Set-Point Adjusters**

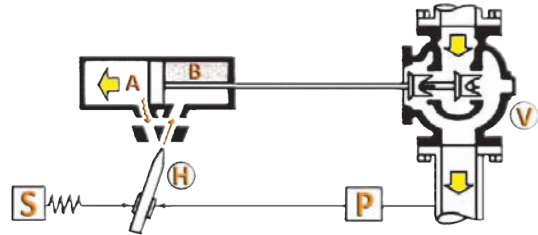
Spindle Type	With Handwheel
Slider Type	With Roller
Bell Crank Type	With Vertical Lever
Slider Type	With Covered Knob

**Accessories**

Strainer	- 600 psi, 3/8"
Filter	- 1,000 psi, 3/8"
Filter	- 1,000 psi, 3/4"

# GPE Exclusive Floating Jet Pipe Controllers

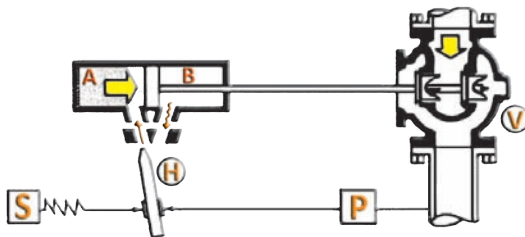
### Controlled Variable Below Desired Limit



#### Sensor Detects Inadequate Pressure

1. Sensor (P) sends reduced hydraulic signal to jet pipe (H).
2. Set spring (S) pressure overcomes sensor pressure and deflects nozzle to right.
3. Hydraulic fluid (H) flows through nozzle and enters piston chamber at right.
4. Pressure in chamber (B) exceeds that of Chamber (A) and piston rod is forced to the left, opening normally-open valve (V).

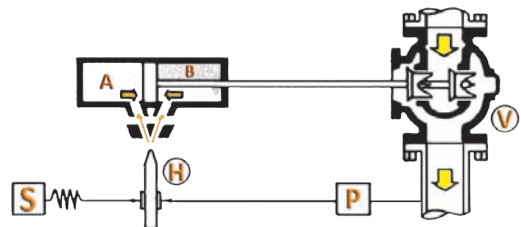
### Controlled Variable Above Desired Limit



#### Sensor Detects Excessive Pressure

1. Sensor (P) sends hydraulic signal to jet pipe (H) to overcome set spring (S) and deflects nozzle to left.
2. Hydraulic fluid (H) flows through nozzle and enters piston chamber at left.
3. Pressure in chamber (A) exceeds that of chamber (B) and piston rod is forced to the right, closing normally-open valve (V).

### Controlled Variable Within Desired Limit



#### Sensor Detects Controlled Pressures

1. Sensor (P) sends reduced hydraulic signal to jet pipe (H).
2. Set spring (S) maintains pressure on jet pipe.
3. Hydraulic fluid (H) flows through nozzle and enters both piston chambers (A) and (B).
4. Control system is "satisfied". Piston rod maintains valve seats in control position, allowing desired pressure to flow across valve (V).