Comatrol
RESPONSIVENESS IN MOTION
Member of the Danfoss Group

Logic Elements

Also known as Differential Sensing Valves or Pressure Compensators

Logic elements are multi-purpose devices, when used with other cartridge valves, can create a wide variety of circuits for control of pressure, flow, and direction. Effective use of logic elements is a key to designing cost-effective circuits -limited only by the imagination of the designer.

Comatrol provides a large selection of logic elements, now including the new high pressure HLE10 and HLEA10 valves, with market-leading flow for 10 size.

Logic elements, often called differential sensing valves or priority valves, are pressure control devices, are pressure control devices. Like directional control valves, a spring bias holds the spool in one position (open or closed), and it is shifted by hydraulic pressure. Unlike directional control valves, logic elements are modulating devices (not on/off), that maintain a pressure differential for continuous control.

Comatrol, a member of the Danfoss Group, is the most responsive and innovative choice for Cartridge Valves and Hydraulic Integrated Circuit (HIC) needs. Comatrol works with customers and suppliers around the world to manufacture high performance machine control solutions for mobile, on-highway, energy and industrial equipment markets.

For more information on Logic Elements refer to the Comatrol website and/or Logic Elements Catalog.

Logic Elements

Local Address:

HLE10

HLEA10

Features

- Broad Portfolio
  - Large family of valves provide flows ranging from 40 LPM (11GPM) to 320 LPM (85GPM) - at 7 bar (100 psi) pressure drop
  - New high pressure (350) HLE10 (non-adjustable) and HLEA10 (adjustable) with market-leading flow for 10size

- Logic Elements, Normally Closed, Vent to Open, Spring -Biased
  - Available in both Spool Type for modulating control and Poppet Type for on/off, leakage-free seating.Also available in double-blocking
  - Common applications include: pump unloading, pilot-operated relief valve (mechanical or proportional), sequence valve and selector circuit.

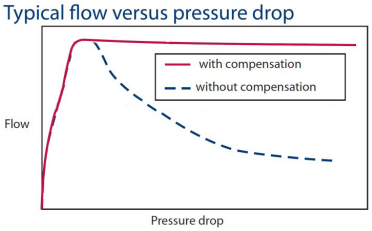
- Logic Elements , Normally Closed, Pilot to Close, Spring-Biased
  - Available in both Spool Type for modulating control and Poppet Type for on/off, leakage-free, suitable for use as directional control or check valve.
  - Common applications include: Load-sensing for a fixed displacement pump with single or multiple actuators, bypass-type pressure -compensated flow control.

- Logic Elements, Normally Open, Pilot to Open, Spring-Biased, Spool Type
  - Available in Spool Type for modulating control.
  - Common applications include: Pre-compensator for proportional directional control (like PSVxx-34) or proportional flow control (like PSVxx-NC), ensuring that flow rate , and subsequent actuator speed, are mantained regardless of the load pressure.

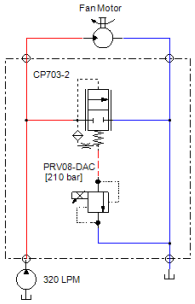
- Logic Elements, Normally Open, Vent to Close, Spring-Biased, Spool Type
  - Available in Spool Type for modulating control.
  - Common applications include: High-flow pressure reducing valve when using a small relief valve (like CP208-1), or a proportional relief valve (like CP558-20), as a pilot element.

- Pressure Compensators / Flow Regulators
  - Offers the circuit designer capability to add pressure compensation to any fixed or variable orifice. This ensure that flow , and resulting actuator speed, are maintained regardless of system and working pressures.
  - Available in Restrictive Type, Priority Type and Load Sensing Priority, Static.

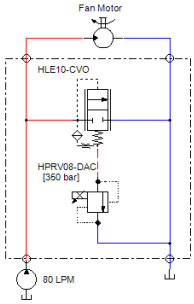
Typical flow versus pressure drop



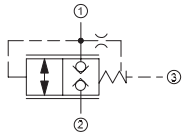
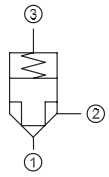
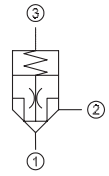
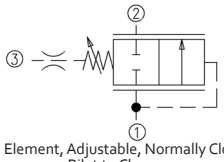
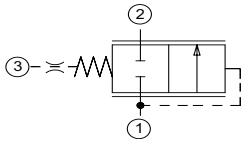
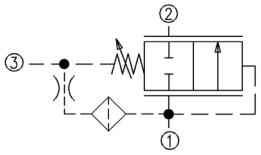
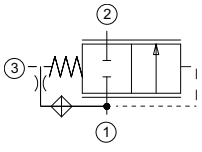
Using a logic element as a pressure compensator provides load-independent control of the motor or cylinder.

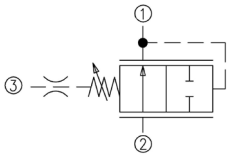
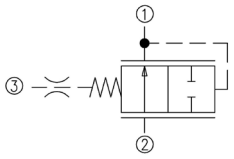
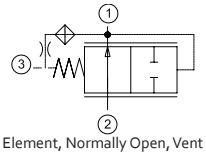
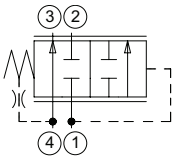
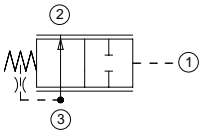
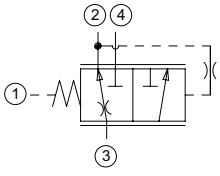


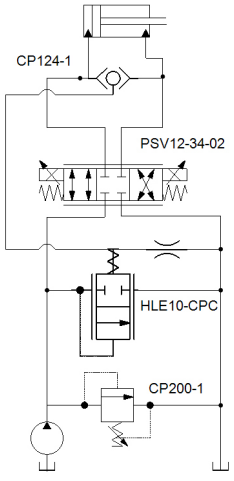
High flow proportional relief



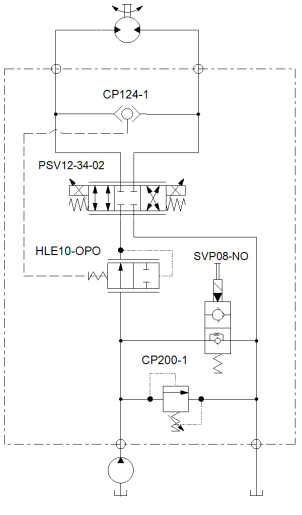
High pressure proportional relief

SCHEMATIC/DESCRIPTION	MODEL	BAR PSI	LPM GPM	CAVITY
 Logic Element, Poppet Typer, Double Blocking, Normally Closed, Vent to Open	VLP 12/P2	315 4500	160 42	NCS12/3
 Logic Element, Poppet Type, Normally Closed, Pilot to Close	VLP 12/A5	315 4500	160 42	NCS12/3
 Logic Element, Poppet Type , Normally Closed, Vent to Open	VLP 12/C2	315 4500	160 42	NCS12/3
 Logic Element, Adjustable, Normally Closed, Pilot to Close	HLEA10-CPC	350 5075	80 21	SDC10-3S
 Logic Element, Normally Closed, Pilot to Close	CP700-1	210 3000	50 13	SDC10-3
	HLE10-CPC	350 5075	80 21	SDC10-3
	CP701-1	210 3000	150 40	CP12-3S
	CP702-1	210 3000	190 50	SDC16-3S
	LE20-CPC	210 3000	320 85	CP20-3S
 LE, Adjustable, Normally Closed, Vent to Open	HLEA10-CVO	350 5075	80 21	SDC10-3S
 Logic Element, Normally Closed, Vent to Open	CP700-2	210 3000	50 13	SDC10-3
	HLE10-CVO	350 5075	80 21	SDC10-3S
	CP701-2	210 3000	150 40	CP12-3S
	CP702-2	210 3000	190 50	SDC16-3S
	CP703-2	210 3000	320 85	CP20-3S

SCHEMATIC/DESCRIPTION	MODEL	BAR PSI	LPM GPM	CAVITY
 LE, Adjustable, Normally Open, Pilot to Open	HLEA10-OPO	350 5075	60 16	SDC10-3S
 Logic Element, Normally Open, Pilot to Open	CP700-4	210 3000	40 11	SDC10-3
	HLE10-OPO	350 5075	60 16	SDC10-3S
	CP701-4	210 3000	75 20	CP12-3S
	CP702-4	210 3000	114 30	SDC16-3S
	CP703-4	210 3000	200 53	CP20-3S
 Logic Element, Normally Open, Vent to Close	CP700-3	210 3000	40 11	SDC10-3
	CP701-3	210 3000	80 21	CP12-3S
	CP702-3	210 3000	115 30	SDC16-3S
 Pressure Compensator, Flow Control, Priority	CP310-4	210 3000	40 11	SDC10-4
	CP311-4	210 3000	60 16	CP12-4
	CP312-4	210 3000	130 34	CP16-4
	CP313-4	210 3000	340 90	SDC20-4
 Pressure Compensator, Flow Control, Restrictive	CP300-4	210 3000	40 11	SDC10-3
	CP301-4	210 3000	90 24	CP12-3
	CP302-4	210 3000	130 34	SDC16-3
	CP303-4	210 3045	284 754	SDC20-3
 Pressure Compensator, Load Sense, Priority, Static	CP310-6	210 3000	40 11	SDC10-4
	PC12-LPS	210 3000	75 20	CP12-4
	CP312-6	210 3000	125 33	CP16-4
	CP313-6	210 3000	200 53	SDC20-4



Pre-compensated bi-directional flow control



Double acting cylinder with proportional speed control, unloading valve and circuit relief

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