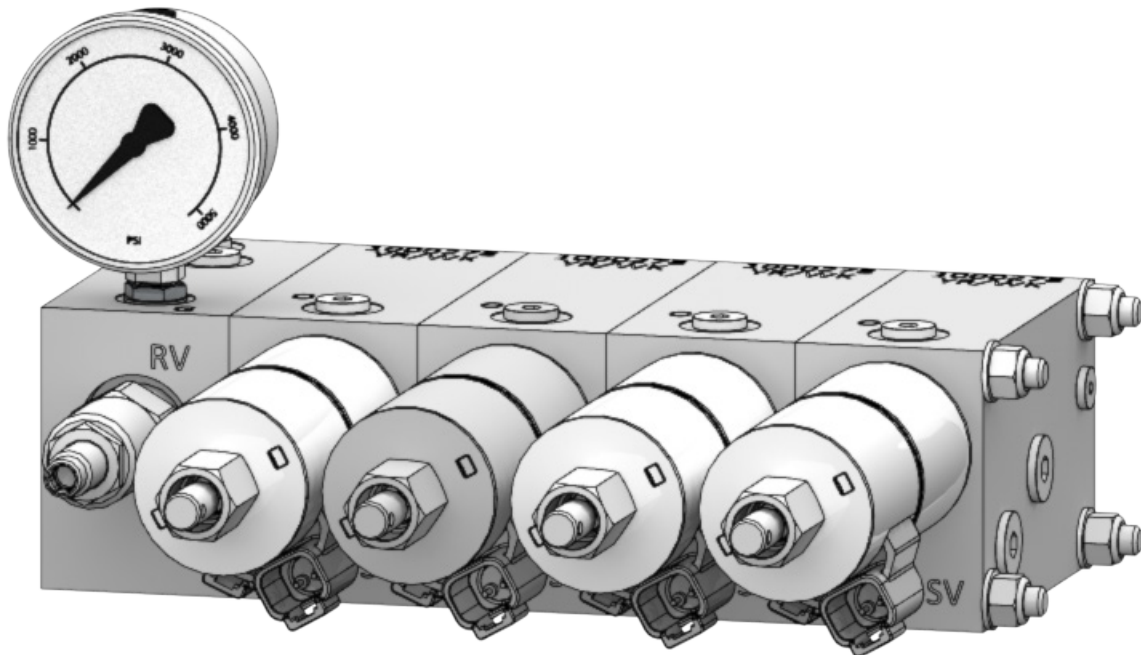


FastLine Control Valve Model DC105

The DC105 control valve is a multi-function valve designed for low flow directional control valve applications. Ideal for the electric proportional control of cylinders and motors in medium to light duty applications. Valve sections can be used independently or with the use of an inlet section. This valve design uses load sensing to proportionally control the flow out of the work ports.

The DC105 valve assembly was designed to be economical, with only the basic control features. Individual pressure compensation and pressure limiting are not included. The valve bodies are machined aluminum and house common cavity cartridge valves. Sections can be bolted together to create an assembly capable of controlling up to 9 functions. The configuration of the cartridge valve allows directional control flexibility.



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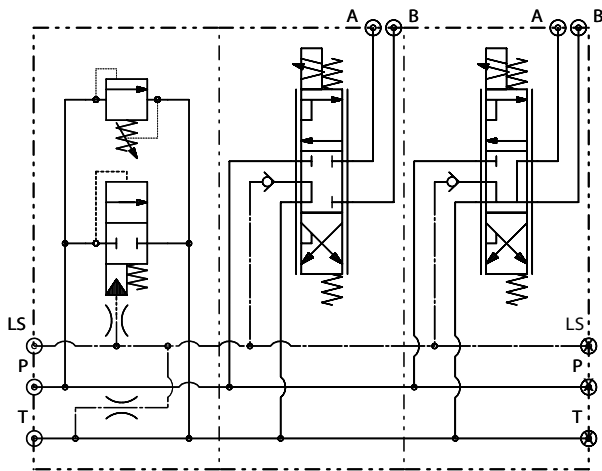
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FastLine Control Valve Model DC105

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Inlet section model code	3
Inlet section with Unloader	4
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3 Position 4 way, Proportional with cylinder spool	7
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Installation dimensions	12
Assembly build form	13

Example circuit

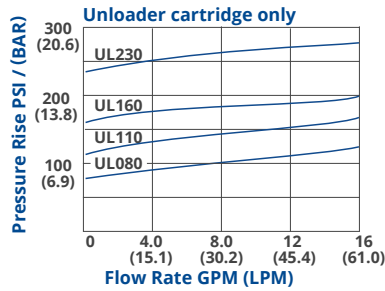
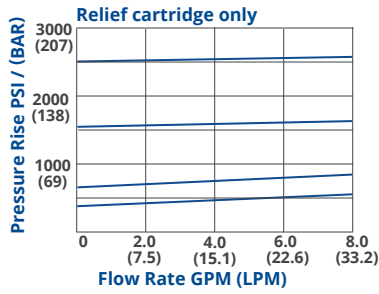


DC1051-I	DC1051	DC1051
Inlet	Closed work	Open work
Section	Section	Section

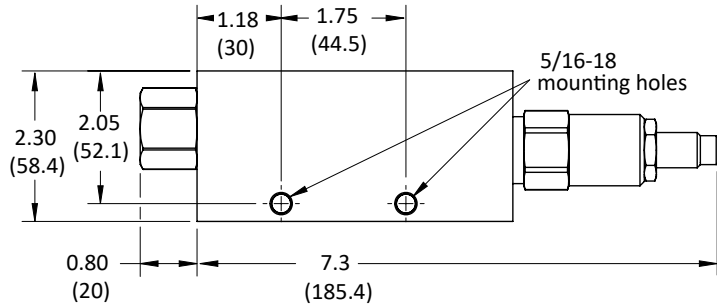
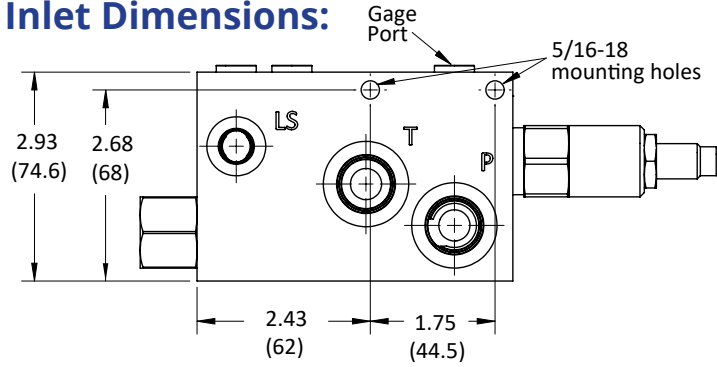
Specifications:	
Maximum Pressure	3,000 PSI (207 BAR)
Maximum Section Flow	6 GPM (23 LPM)
Maximum Inlet Flow	14 GPM (53 LPM)
Port Size	SAE-08 P-T, SAE-06 A-B
Body Material	Aluminum, Anodized
Min. Filtration	ISO 4406
Recommended Filtration	15 / 13 / 11
Fluids	Mineral based or Synthetics 50-2000 SUS
Max Assembly Size	9 Sections
Approx. Section Weight	4.6 lbs.

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Flow Characteristics (32 CST / 150 SUS oil at 40C)



Inlet Dimensions:



Note: length changes with unloader spring rate

() Parentheses = Millimeters

Inlet Section Model Code:

F Example model code is the in-stock FastLine solution

DC1051- I - UL110 - RV - BD _ 35 / 25

Base Part No.
Section Type
I = Inlet

Unloader Valve
UL000 = No Unloader
UL080 = 80 PSI Unloader
UL110 = 110 PSI Unloader*
UL160 = 160 PSI Unloader
UL230 = 230 PSI Unloader

Note:
Expected flow from work section from unloader PSI
UL080 = 4.5 GPM (17 LPM)
UL110 = 5.0 GPM (19 LPM)
UL160 = 6.0 GPM (22 LPM)
UL230 = 6.2 GPM (23 LPM)

* Indicates the standard offering.
** Fluorocarbon seals are recommended when temperatures exceed 212° F (100° C).

Relief Option
NR = No relief
RV = Relief *

Note:
Relief rated to 8 GPM max.

Load Sense Bleed Down
NB= No Bleed Down
BD = with Bleed Down *

Seal Type
Omit = Buna N
V= Fluorocarbon **

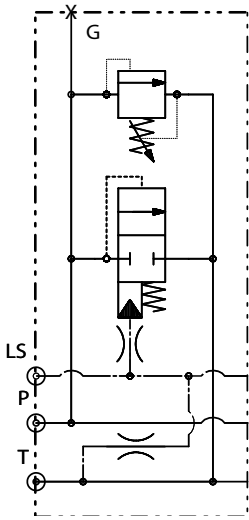
Relief Setting = PSI ÷ 100
Std adjustment range
250-3600 PSI

Adjustment Range
13 = 150-1300 PSI
35 = 250-3500 PSI *

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Inlet Section with Unloader

DC1051- I - UL110 - RV - BD _ 35 / 25



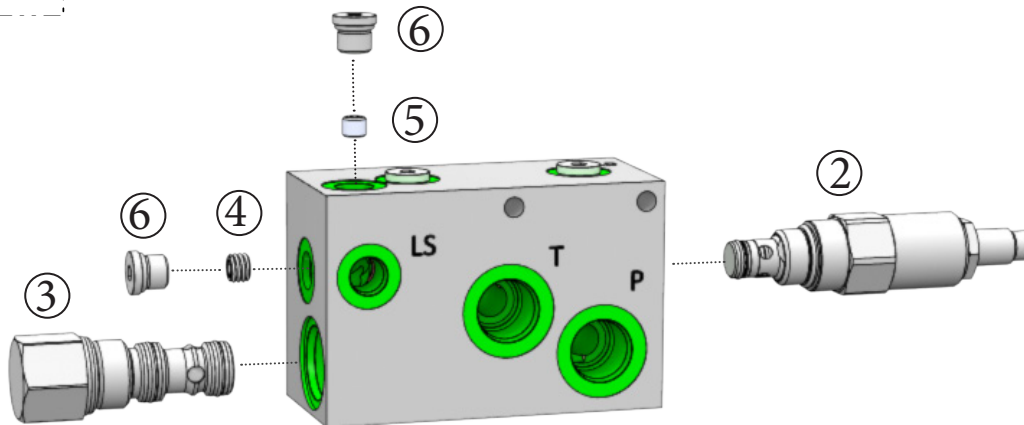
Base Part No. | Section Type | I = Inlet | Unloader Valve | UL110 = 110 PSI Unloader

RV = Relief
Note: Relief rated to 8 GPM max.

Relief Setting = PSI ÷ 100
Adjustment Range
13 = 150-1300 PSI
35 = 250-3500 PSI

Load Sense Bleed Down
NB= No Bleed Down
BD = with Bleed Down

Seal Type
Omit = Buna N

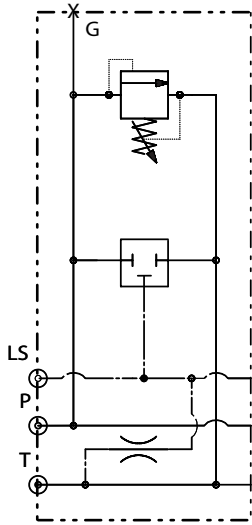


Item	Part Number	Description
1	1000300	Manifold, DC1051
2	RV082A35/25	Relief, adjustable set @ 2500 PSI
*	SK082NT	Seal kit, relief
3	EP1035N110	Unloader, 110 PSI
*	SK1053NMM	Seal Kit, Unloader
4	OR10046-20	Orifice, 0.020 Bleed down (optional)
4A	6112000	No Orifice, plug bleed down
5	OR10011-031	Orifice, 0.030 Dampening
6	515-04	Plug, SAE-04
*	904	O-ring, port plug

* Referenced for service parts

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Inlet Section without Unloader
DC1051- I - UL000 - RV - BD _ 35 / 25



Base Part No.
Section Type
I = Inlet

Unloader Valve
UL000 = No Unloader

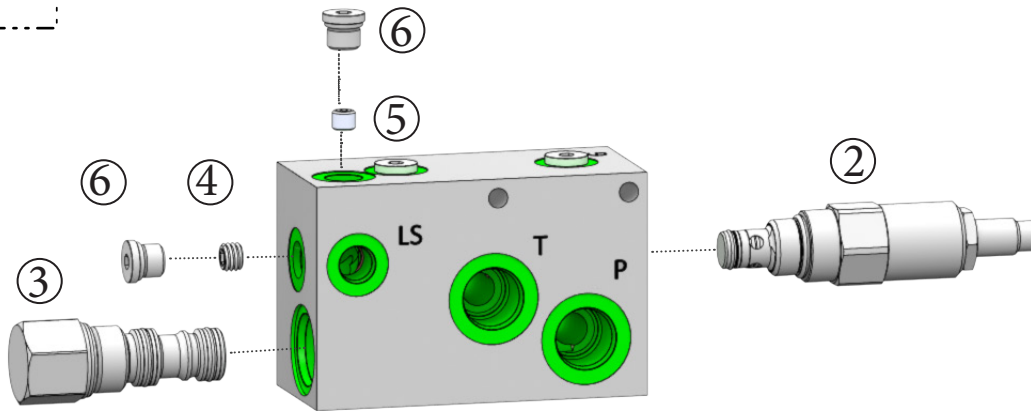
RV = Relief
Note:
Relief rated to
8 GPM max.

Load Sense Bleed Down
NB= No Bleed Down
BD = with Bleed Down

Relief Setting = PSI ÷ 100

Adjustment Range
13 = 150-1300 PSI
35 = 250-3500 PSI

Seal Type
Omit = Buna N



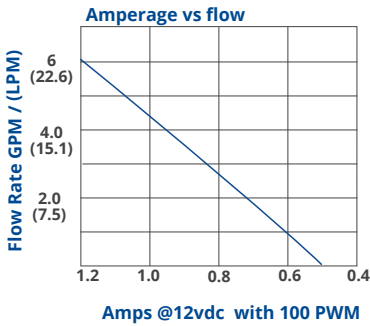
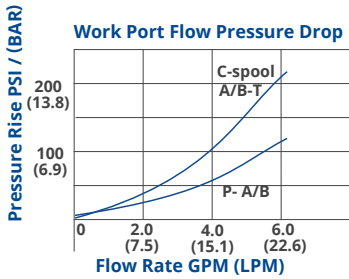
Item	Part Number	Description
1	1000300	Manifold, DC1051
2	RV082A35/25	Relief, adjustable set @ 2500 psi
*	SK082NT	Seal kit, relief
3	CP10S30N	Cavity plug, no unloader
*	SK10S3NMM	Seal kit, cavity plug
4	OR10046-20	Orifice, 0.020 Bleed Down (optional)
4A	6112000	No Orifice, plug Bleed down
5	OR10011-031	Orifice, 0.030 Dampening
6	515-04	Plug, SAE-04
*	904	O-ring, port plug

* Referenced for service parts

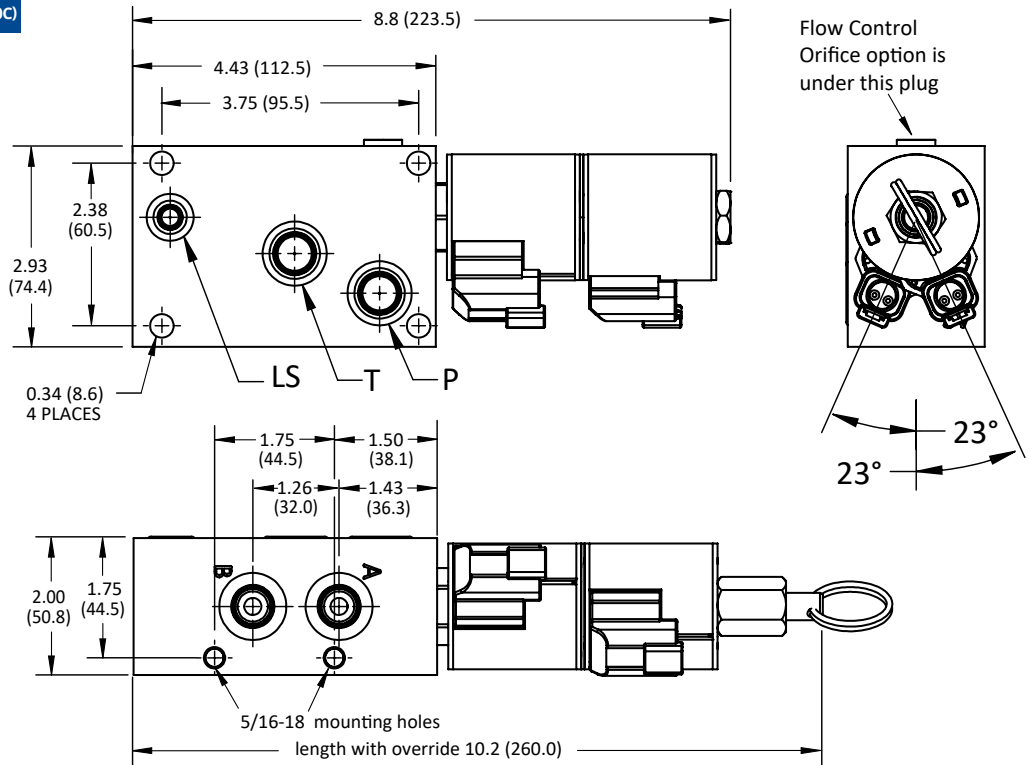
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Work Section

Flow Characteristics (32 CST / 150 SUS oil at 40C)



Section Dimensions:



() Parentheses = Millimeters

Work Section Model Code

Example model code is the in-stock FastLine solution

DC1051 - P58 C N 00 _ - 12 DT

Base Part No.

Control Type

P58 = Proportional

Spool Type

C = Closed Work Ports *

D = Open work Ports *

Override

N = No Override

M = Momentary *

Load Sense Orifice

00 = No orifice *

10 = .10"

Size from .02 - .19"

Terminal Type

DL = Lead Wires

DT = Deutsch DT04-2P *

Coil Voltage & Current

12 = 12 volt DC *

24 = 24 volt DC

Seal Type

Omit = Buna N *

V = Fluorocarbon **

* Indicates the standard offering.

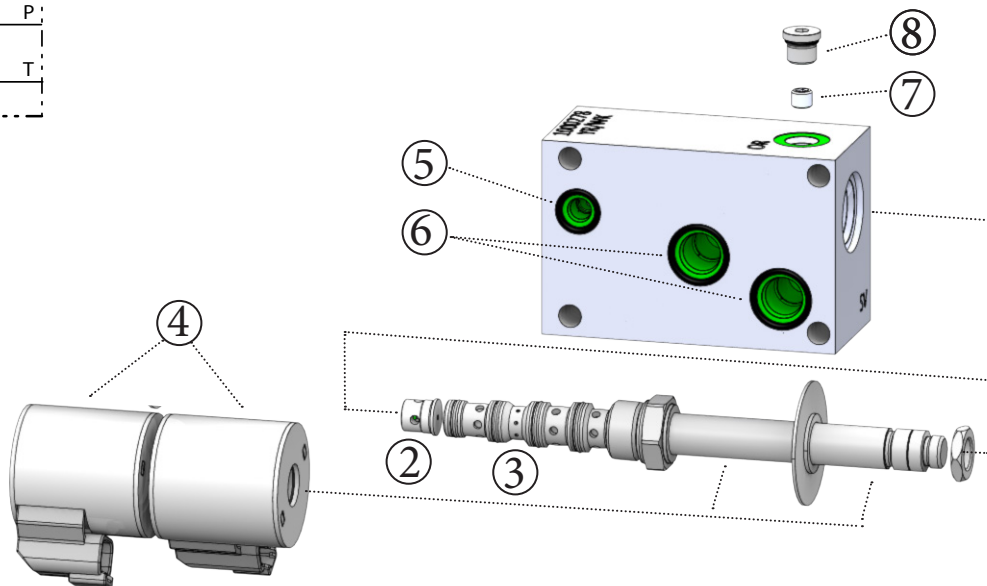
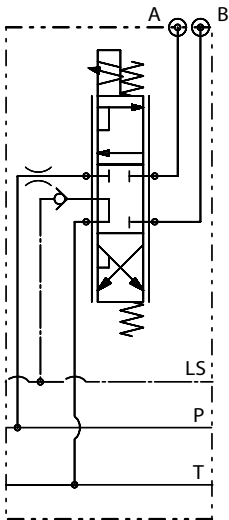
** Fluorocarbon seals are recommended when temperatures exceed 212° F (100 ° C). Non standard selections may delay the shipping of the assembly.

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Work Section with Closed Ports

DC1051 - P58 C M 00 _ - 12 DT

<p>Base Part No. P58 =Proportional</p> <p>Spool Type C = Closed Work Ports</p> <p>Override N = No Override M = Momentary</p>	<p>Seal type Omit = Buna N</p> <p>Inlet orifice 00 = No Orifice</p>	<p>Terminal Type DT = Deutsch DT04-2P</p> <p>Coil Voltage & Current 12 = 12 volt DC</p>
---	---	---



Item	Part Number	Description
1	1000278	Manifold, DC1051
2	CVD10	Check, load sense
3	SP1058C0N00	Spool-type, 5W/3P,LS cylinder
3A	SP1058CM0N00	Option W/Override, cylinder
*	HW10580	Key ring, override
*	SK10S3NMM	Seal Kit, Unloader
4	4303712	coils (2) 12 VDC Deutsch connector
5	SE10049	O-RING,-112, Buna
6	SE10119	O-RING,-026, Buna
7	Omit	No Orifice, No flow control
7A	6112XXX	Orifice, load sense (optional)
8	515-04	Plug, SAE-04

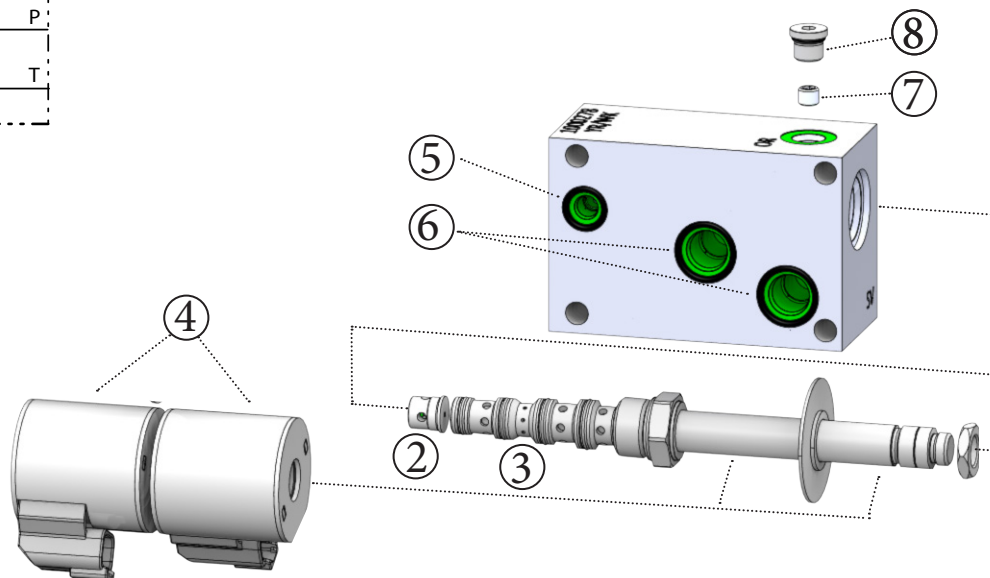
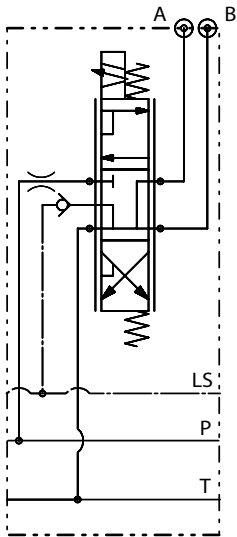
* Referenced for service parts

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Work Section with Open Ports

DC1051 - P58 D M 00 - 12 DT

Base Part No.		Terminal Type
Control Type		DT = Deutsch DT04-2P
P58 =Proportional		Coil Voltage & Current
Spool Type		12 = 12 volt DC
D = Open Work Ports		Seal type
Override		Omit = Buna N
N = No Override		Inlet orifice
M = Momentary		00 = No orifice



Item	Part Number	Description
1	1000278	Manifold, DC1051
2	CVD10	Check, load sense
3	SP1058D0N00	Spool-type, 5W/3P,LS Motor
3A	SP1058DM0N00	Option W/Override, Motor
*	HW10580	Key ring, Override
*	SK10S3NMM	Seal Kit, Unloader
4	4303712	coils (2) 12 VDC Deutsch connector
5	SE10049	O-RING,-112, Buna
6	SE10119	O-RING,-026, Buna
7	Omit	No Orifice, No flow control
7A	6112XXX	Orifice, load sense (optional)
8	515-04	Plug, SAE-04

* Referenced for service parts

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Assembly Hardware

DC105-HW - 1 S P G3

Assembly Hardware

Number of sections

- 1 = 1 section
- 9 = 9 section

Tie bolt type

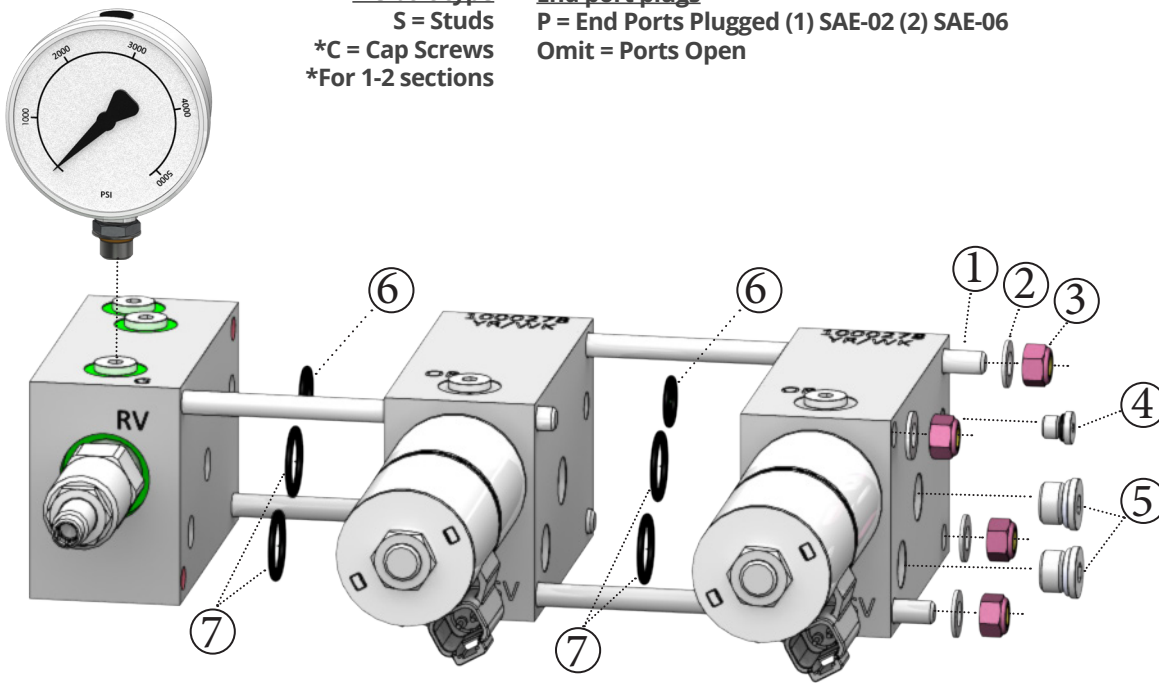
- S = Studs
- *C = Cap Screws
- *For 1-2 sections

Inlet Gauge

- G3 = 3000 PSI gauge
- G3 = 5000 PSI Gauge
- Omit = No gauge

End port plugs

- P = End Ports Plugged (1) SAE-02 (2) SAE-06
- Omit = Ports Open



Item	Part Number	Description
1-S	FA10190-XXX	Stud, DC105- 4 each
1-C	FA10024-XXX	Cap screw, DC105- 4 each
2	washer	FA10219 - 4 each
3	Lock nut	FA10163 - 4 each - torque 15ft lbs
	Option P	
4	Plug, L.S. port	515-02, SAE plug - torque 9ft lbs
5	Plug, P & T ports	515-06, SAE plug - torque 25ft lbs
	Inlet Gauge	
G3	SAE-AFC-3M-25 3000	3000 PSI stem mt gauge
G5	SAE-AFC-5m-25 5000	5000 PSI stem mt. gauge
*	Section seals	Not included in hardware kit
6	O-ring	SE10049, -112 Buna -1 each
7	O-ring	SE10119, -026 Buna -2 each

* Referenced for service parts

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Troubleshooting:

Tips:

- Become familiar with the components in the part of the circuit you are troubleshooting.
- Keeping a record of what steps were taken and the results from each action. This can help speed up the troubleshooting process and help prevent actions from being duplicated.
- Isolate the issue to an oil supply, electrical or valve issue.

Oil supply issue?

If no functions are working, be sure you have oil flowing to the valve. One way to quickly check is to look at an inlet pressure gauge. Oil circulating through the system usually has enough resistance to be seen on a gauge, although it may only move the needle slightly.

If no pressure is observed, here are some things to check:

- Is there oil in the reservoir?
- Is there an inlet restriction, pinched suction hose or closed ball valve?

If there is flow, but you suspect the pump is weak or low on flow, a flow test device could be used to verify the pumps performance.

Electrical issue?

Function is not moving, and you have determined that there is oil flowing in the system.

If the valve section can be operated both electrically and mechanically, check the override first. If it worked mechanically, you know the problem is electrical in nature.

Caution: a coil that has been energized for a period of time can become very hot!

- Is there power to the coil? This is best checked with a voltmeter. If using Proportional control, test with a maximum output.
- Is the coil the correct resistance? A shorted-out coil or the wrong voltage could prevent the valve from shifting. The resistance can be checked with an ohms meter.
- Simple magnetic test, If the coil nut is removed from the valve so the coil can be freely removed, you can feel the magnetic pull from the coil onto the stem when it is energized.

Valve issue? Nothing is working

If no functions are working, look to components that are associated to all functions, like the inlet components of the valve assembly. Though these components are not contamination sensitive, they can still hang up from large debris floating in the oil - Especially from the start up of a new system.

Here are some things to check.

- Dampening orifice (if installed) can get plugged and prevent the unloader cartridge from responding. Inspect and clean or replace as needed.
- Bleed down orifice (or plug) can come loose and prevent the load sense signal from building up, Inspect and clean or replace as needed.
- Unloader cartridge (if equipped) can be held open by debris. Inspect and clean or replace as needed.
- Relief valve could be adjusted to low or be held open by debris. Inspect and clean or replace as needed.

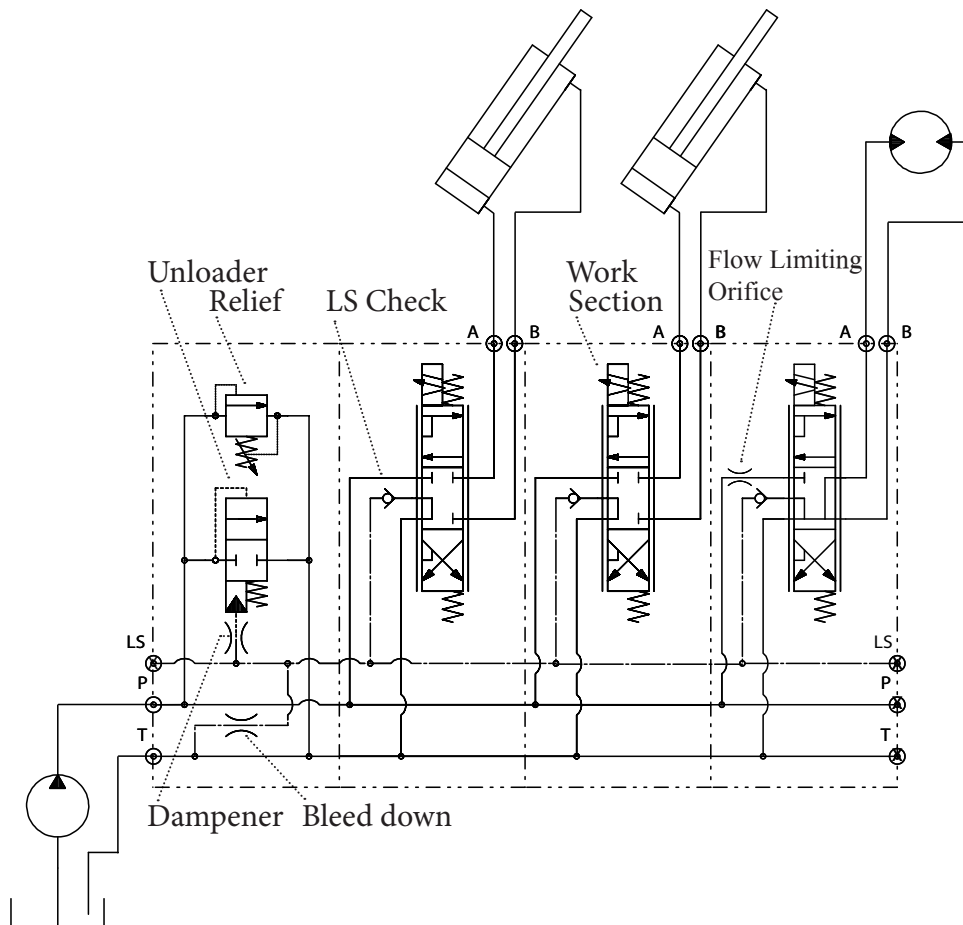
Continued on page 11

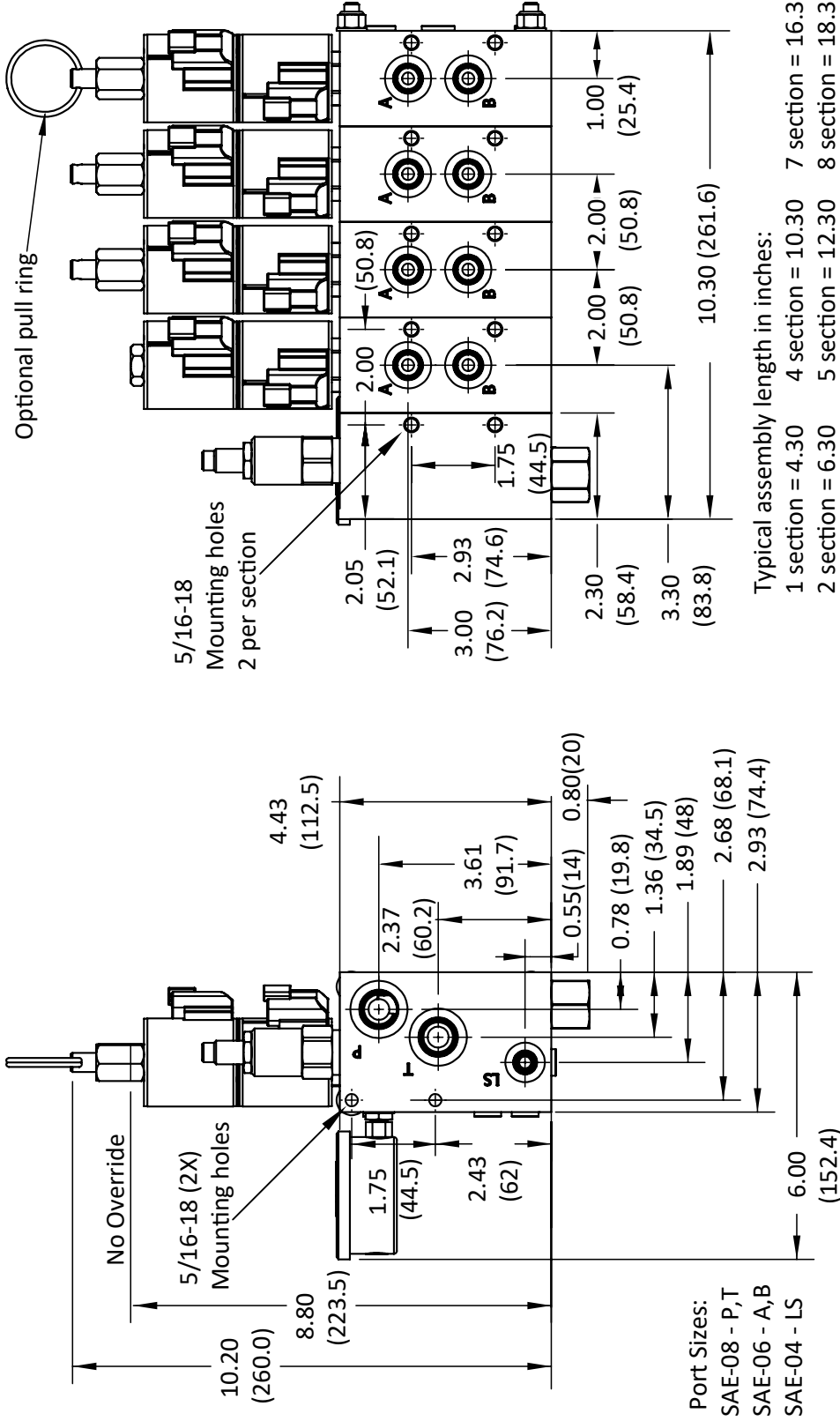
Troubleshooting:

Valve issue? Some things are working

If one function does not work, but others do, this could be caused by either the valve not shifting or the valve not communicating its load sense signal to the unloader or pump.
 If one of the functioning valves allows you to move a cylinder to the end of its stroke (bottom out) this will cause the pressure to go to the relief setting. While maintaining the pressure created by the working valve, try to operate the function that is not properly working. If it now moves, most likely its because this function no longer needs the load sense signal to build pressure. This tells us the valve is shifting and our problem is most likely the load sense check. The check is either not opening or not seating. If it is not opening, it would be the check associated with the non functioning section. If a check is not seating, it may be the function that seems to be working fine. This valve design has the load sense checks located directly under and retained by the directional control cartridge.
 Take caution when removing the cartridge that the check does not fall out or get stuck in the cavity. The check valves can be inspected, cleaned or replaced as needed.

A big advantage of the cartridge valve design is that components can be easily removed and replaced. For troubleshooting purposes, it can be helpful to “swap” components. This process can be used to confirm the functionality of a specific component. If a cartridge is exchanged with another and the problem follows the cartridge, you know it is bad. If the problem does not move with the cartridge you know that was not the problem.





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FastLine DC105 Valve Assembly Form

Inlet Assembly

<input type="checkbox"/>	DC1051-I-UL110-RV-BD*
Inlet with 110 PSI unloader, relief valve and bleed down	
<input type="checkbox"/>	DC1051-I-UL000-RV-BD*
Inlet with no unloader, relief valve and bleed down	
<input type="checkbox"/>	DC1051-I-UL000-RV-NB*
Inlet with no unloader, relief valve and no bleed down	
<input type="checkbox"/>	Other configuration, Specify below

Order Information

Customer	
Part number	
JEM Number	
JEM Order #	
Application	
Originated by	
Comments:	

Inlet Options

<input type="checkbox"/>	Relief setting, standard setting 2500 PSI*	
Inlet pressure gauge:		
<input type="checkbox"/>	G3*	3000 PSI, stem mount gauge
<input type="checkbox"/>	G5	5000 PSI, stem mount gauge
<input type="checkbox"/>	Other, Specify below	

Coil Options

<input type="checkbox"/>	12VDC*	1.7 amps @ 12 volt DC
<input type="checkbox"/>	24VDC	0.8 amps @ 24 volt DC
<input type="checkbox"/>	DT*	Deutsch, DT04-2P
<input type="checkbox"/>	DL	18" Lead wires
<input type="checkbox"/>	Other, Specify below	

DC105Work Section

Position	1	2	3	4	5	6	7	8	9
DC1051-P58CN-12DT									
3 position 4 way, cylinder spool, 12VDC, Deutsch connector									
DC1051-P58CM-12DT*									
3 position 4 way, cylinder spool, 12VDC, Deutsch connector with manual override									
DC1051-P58DN-12DT									
3 position 4 way, motor spool, 12VDC, Deutsch connector									
DC1051-P58DM-12DT*									
3 position 4 way, motor spool, 12VDC, Deutsch connector with manual override									
Orifice (section flow control option)									
Size between 0.02- 0.18									
Other, Specify below									

* indicates the stocked componets. Assemblies with these selections are included on the Fastline Quick Ship Program. Non standard selections may delay the shipping of the assembly

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